

Acín Dal Maschio, Antonio Institut de Ciències Fotòniques (ICFO) Engineering Sciences

Antonio Acín is an ICREA Research Professor at ICFO-The Institute of Photonic Sciences. He has a degree in Physics from the Universitat de Barcelona (UB) and in Telecommunication Engineering from the Universitat Politècnica de Catalunya. He got his PhD in Theoretical Physics in 2001 from the UB. After a post-doctoral stay in Geneva, in the group of Prof. Gisin (GAP-Optique), he joined ICFO in 2003. At ICFO, Acín leads the Quantum Information Theory group. He was awarded a Starting Grant and a Proof of Concept grant from the European Research Council (ERC), starting in 2008 and 2012, respectively. He has later been awarded an ERC Consolidator Grant, starting in 2014.

Research interests

Most of the research work by Antonio Acín is in quantum information theory. This is a scientific area that studies how information is processed and transmitted when encoded on quantum particles. Using the quantum effects, new information tasks become possible: more powerful computers, unbreakable cryptography protocols and quantum teleportation. It is a very inter-disciplinary area combining tools and concepts from mathematics, computer science, physics and engineering. More recently, Acín's research activity also covers aspects of foundations of quantum physics, quantum thermodynamics, many-body physics and quantum optics.

Selected publications

- Acín A, Cavalcanti D, Passaro E, Pironio S & Skrzypczyk P 2016, 'Necessary detection efficiencies for secure quantum key distribution and bound randomness', *Physical Review A*, 93, 1, 012319.

- Supic I, Augusiak R, Salavrakos A & Acín A 2016, 'Self-testing protocols based on the chained Bell inequalities', New Journal Of Physics, 18, 035013.

- Acín A, Pironio S, Vertesi T & Wittek P 2016, 'Optimal randomness certification from one entangled bit', *Physical Review A*, 93, 4, 040102.

- Mattar A & Acín A 2016, 'Implementations for device-independent quantum key distribution', Physica Scripta, 91, 4, 043003.

- Bendersky A, de la Torre G, Senno G, Figueira S & **Acín A** 2016, 'Algorithmic Pseudorandomness in Quantum Setups', *Physical Review Letters*, 116, 23, 230402.

- Augusiak R, Kolodynski J, Streltsov A, Bera MN, **Acín A** & **Lewenstein M** 2016, 'Asymptotic role of entanglement in quantum metrology', *Physical Review A*, 94, 1, 012339.

- Oszmaniec M, Augusiak R, Gogolin C, Kolodynski J, **Acín A** & **Lewenstein M** 2016, 'Random bosonic states for robust quantum metrology', *Phys. Rev. X, vol.* 6, pp 041044.

- Acín A & Masanes L 2016, 'Certified randomness in quantum physics', Nature, vol. 540, pp 213-219.



Agustí Ballester, Jordi Institut Català de Paleoecologia Humana i Evolució Social (IPHES) Humanities

PhD in Biological Sciences by the Univ. of Barcelona in 1981, under the supervision of Prof. Miquel Crusafont. Director of the Inst. of Paleontology M. Crusafont from 1985 to 2005. ICREA Research Professor at IPHES since 2005. Member of the Royal Academy of Sciences and Arts of Barcelona. Narcís Monturiol Medal of the Catalan Government for his scientific merits. Scientific Literature Prize of the Catalan Government for his book "El secret de Darwin" (2001). President of the Regional Committee on Neogene Mediterranean Stratiraphy from 1999 to 2009 and voting member of the Subcomission on Neogene Stratigraphy (IUGS, UNESCO). Chairman of several national and international projects, among them the ESF-Network on "Hominoid Evolution and Climatic change in the Neogene of Europe" (1996-1999). He has also conducted field-campaigns in northern Africa and Caucasus (Georgia). He has written 11 books and edited 13. He is the author or co-author of more than 200 papers.

Research interests

My main field of interest is the environmental and biogeographic changes in the Mediterranean terrestrial ecosystems in the last 10 milion years. I accomplish this goal throughout the study of the fossils of small mammals. This key time includes a number of critical climatic phases, such as the onset of the Northern Hemisphere Glaciation at 2.6 Ma, the early Pleistocene crisis at 1.8 Ma and the early-middle Pleistocene transition at 0.8 Ma. These crises have modelled the evolution of our own lineage, the hominids, which experienced significant changes following these climatic events. My research has therefore been developed in those areas having extraordinary conditions to follow these changes, either in the Iberian Peninsula (Vallès-Penedès and Guadix-Baza basins) or outside (northern Africa and, most specially, Georgia). Most of these areas are also key ones in order to elucidate the evolution of our lineage during the last 10 Ma, in relation with climatic and environmental changes.

Selected publications

- Blain HA, Bailon S & **Agustí J** 2016, 'Geographical and chronological pattern of the herpetofaunal Pleistocene extinctions in the Iberian Peninsula', *Comptes Rendus Palevol*, 15, 6, 731 – 744.

- Blain HA, Lozano-Fernández I, **Agustí J**, Bailon S, Menéndez L, Espígares MP, Ros-Montoya S, Jiménez JM, Toro-Moyano I, Martínez-Navarro B & Sala R 2016, 'Refining upon the climatic background of the Early Pleistocene hominid settlement in western Europe: Barranco Le on and Fuente Nueva-3 (Guadix-Baza Basin, SE Spain)', *Quaternary Science Reviews*, 144, 132-144.

- Piñero P, **Agusti J**, Blain HA & Laplana C 2016, 'Paleoenvironmental reconstruction of the Early Pleistocene site of Quibas (SE Spain) using a rodent assemblage', *Comptes Rendus Palevol*, 15, 6, 659 - 668.

- Prikryl T, Gómez de Soler B, Campeny G, Oms O, Roubach S, Blain HA & **Agustí J** 2016, 'Fish fauna of the Camp dels Ninots locality (Pliocene): first results with notes on palaeoecology and taphonomy', *Historical Biology*, 28 (3), 347-357.

- Rey Rodríguez I, López-García JM, Bennàsar M, Bañuls-Cardona S, Blain HA, Blanco-Lapaz A, Rodríguez-Álvarez XP, de Lombera-Hermida A, Díaz-Rodríguez M, Ameijeida-Iglesias A, **Agustí J** & Fábregas-Valcarcel R 2016, 'Last Neanderthals and first Anatomically Modern Humans in the NW Iberian Peninsula: climatic and environmental conditions inferred from the Cova Eirós small-vertebrate assemblage during MIS 3', *Quaternary Science Reviews*, 151, 185 – 197.

- Bourguignon L, Crochet JY, Capdevila R, Ivorra J, Pierre-Olivier A, **Agustí J**, Barsky D, Blain HA, Boulbes N, Bruxelles L, Claude J, Cochard D, Filoux A, Firmat C, Lozano-Fernández I, Magniez P, Pelletier M, Rios-Garaizar J, Testu A, Valensi P & De Weyer L 2016, 'Boisde-Riquet (Lezignan-la-Cebe, Herault): A late Early Pleistocene archeological occurrence in southern France', *Quaternary International*, 393, 24 – 40.

- Agustí J & Marotó J 2016, 'Pere Alsius, la paleontologia i l'evolució', Quaderns CECB, 36, 105-121.



Alarcón, Tomás Centre de Recerca Matemàtica (CRM) Experimental Sciences & Mathematics

I obtained my PhD in Theoretical Physics from the University of Barcelona in 2000. After that I spent many wonderful years working as a postdoc at the University of Oxford, UK (2001-2003), University College London, UK (2003-2006), and Imperial College London, UK (2006-2009). I briefly held a senior researcher and group leader position at BCAM, Bilbao, Spain (2009-2010), after which I moved the Centre Recerca Matematica where I lead the Computational & Mathematical Biology Group. I have also held visiting fellowships at the Universidad Complutense de Madrid, IIMAS (UNAM, Mexico DF), and OCCAM (University of Oxford, UK). In October 2015, I was appointed to an ICREA Research Professorship at the Centre de Recerca Matematica.

Research interests

My research focuses on Mathematical Biology, particularly in multi-scale and stochastic modelling of tumour growth and tumourinduced angiogenesis. The main aim of my research is to understand the mechanisms involved in drug resitance and formulate therapeutic strategies which are robust to such mechanisms. Although tumour growth is my main field of specialisation, I am interested in other areas of Mathematical Biology, particularly regarding the effects of random fluctuations in cell regulatory systens and population dynamics, robustness and evolvability, and the stochastic dynamics of HIV-1-infection in patients treated with potent antiretroviral therapy.

Selected publications

- Menendez JA, Corominas-Faja B, Cuyas E, Garcia MG, Fernandez-Arroyo S, Fernandez AF, Joven J, Fraga MF & **Alarcon T** 2016, 'Oncometabolic Nuclear Reprogramming of Cancer Stemness', *Stem Cell Reports*, 6, 3, 273 – 283.

- Gonzalez-Guerrico AM, Espinoza I, Schroeder B, Park CH, Mohan C, Khurana A, Corominas-Faja B, Cuyas E, **Alarcon T**, Kleer C, Menendez JA, Lupu R 2016, 'Suppression of endogenous lipogenesis induces reversion of the malignant phenotype and normalized differentiation in breast cancer', *Oncotarget*, 7, 71151-71168.

- Menendez JA, Cuyas E, Folguera-Blasco N, Fernandez-Arroyo S, Joven J & **Alarcon T** 2016, 'Accelerated geroncogenesis in hereditary breast-ovarian cancer syndrome', *Oncotarget*, 7, 11959-11971.

- Trejo-Soto C, Costa-Miracle E, Rodriguez-Villarreal I, Cid J, **Alarcon T &** Hernandez-Machado A 2016, 'Capillary filling at the microscale: Control of fluid front using geometry', *PLoS ONE 11*, e0153559 (2016).

- Ibanez-Marcelo E & **Alarcon T** 2016, 'Evolutionary escape on complex genotype-phenotype networks'. *J. Theor. Biol.*, 394, 18-31 - de la Cruz R, Guerrero P, Spill F & **Alarcon T** 2016, 'Stochastic multi-scale models of competition within heterogeneous cellular populations: simulation methods and mean-field analysis', *J. Theor. Biol.*, 407, 161-183 (2016).

- Cuyas E, Fernandez-Arroyo S, **Alarcon T**, Lupu R, Joven J & Menendez JA 2016, 'Germline BRCA1 mutation reprograms breast epithelial cell metabolism towards mitochondrial-dependent biosynthesis: Evidence for metformin-based "starvation" strategies in BRCA1 carriers', *Oncotarget*, 7, 52974-52992.

- Sanchez-Taltavull D, Vieiro A & **Alarcon T** 2016, 'Stochastic modelling of the eradication of the HIV-1 infection by stimulation of latently infected cells in patients under highly active anti-retroviral therapy', *J. Math. Biol.*, 73, 919-946.



Albà Soler, M. Mar Institut Hospital del Mar d'Investigacions Mèdiques (IMIM) Life & Medical Sciences

Mar Albà graduated in Biological Sciences at the University of Barcelona (UB), and obtained the PhD at the same University in 1997. During 1997-1999 she studied for the MSc in Bioinformatics and Molecular Modeling at Birkbeck College while working as a postdoctoral researcher in the group of John Hancock at the MRC Clinical Research Centre, in London. Later she joined the group led by Paul Kellam at University College London to develop new computational tools to study herpesvirus evolution and function. She was awarded a Ramón y Cajal tenure track position in 2002 to work at Universitat Pompeu Fabra (UPF). In 2005 she was appointed ICREA Research Professor. She has directed 8 doctoral thesis and is author of more than 70 publications.

Research interests

We are interested in understanding the mechanisms of molecular evolutionary innovation operating in genomes. We are intrigued by how novel genes originate and we are using deep RNA sequencing strategies to identify expressed genes in related species and elucidate the processes behind the emergence of new genes. We also investigate the role of repetitive sequences in the expansion of coding sequences and the formation of novel protein domains.

Selected publications

- Faherty SL, Villanueva-Cañas JL, Klopfer PH, **Albà MM** & Yoder AD 2016, 'Gene expression profiling in the hibernating primate, Cheirogaleus medius', *Genome Biology and Evolution*, 8, 8, 2413 – 2426.

- Abascal F et al. (including **Albà MM**) 2016, 'Extreme genomic erosion after recurrent demographic bottlenecks in the highly endangered Iberian lynx', *Genome Biology*, 17: 251.

Selected research activities

- Invited to give research seminars at the University of Vienna (April 5 2016) and the University of Copenhagen (August 25 2016).

- Supervison of the Master thesis "Searching new antimicrobial peptides using bioinformatics approaches" by M.Isabel Agea (Universitat Autònoma de Barcelona, 14 July 2016).



Alberni Jordà, Anna Universitat de Barcelona (UB) Humanities

Anna Alberni studied English Philology at the University of Barcelona. She obtained her PhD in Catalan Philology in 2003 at the same University. She also holds a Diploma in Music (Piano). She has been a researcher and assistant lecturer at the University of Barcelona (1996-2000), and at the University of Girona (2005-2009). In 2002 she enjoyed an extraordinary fellowship granted by the UB in order to finish her PhD. From 2003 to 2005 she was a postdoc researcher at the University of Rome-La Sapienza and at the University of L'Aquila (Italy). In 2005 she accepted an ICREA Junior position at the University of Girona. In 2009 she was granted an ERC-StG and moved to the University of Barcelona, where she is ICREA Research Professor at the Department of Linguistics and Catalan Philology-IRCVM (Centre de Recerca en Cultures Medievals).

Research interests

During the last years Alberni has extensively dedicated her efforts to the consolidation of the research group created in 2009 in order to develop the ERC-StG project *The Last Song of the Troubadours*, carried out with the major collaboration of various European institutions. The main lines of research of this project were the edition and study of a selected corpus of Occitano-Catalan poetry drawn from witnesses that had not been studied extensively before, and the influence exerted by French 14th century poetry on late medieval Catalan literature. Some of the results of the project can be consulted in http://icalia.es/troubadours/en/.

Alberni's research focuses on the study of medieval Catalan poetry as an essential part of Europe's cultural past, with a particular interest on late Romance lyric collections and on how the reception of the poetic code of the troubadours shaped the mentality of courtly society by establishing an intellectual background in which the literary culture of modern Europe is deeply rooted. More specifically, she works on issues of poetic genre, codicology, intertextuality and textual criticism.

Selected publications

- Alberni A & Ventura S 2016, 'Cobles e lays, danses e bon saber. L'última cançó dels trobadors a Catalunya: llengua, forma, edició', Barcelona-Roma.

- Alberni A 2016, 'Presentació. Sobre l'edició d'un corpus textual occitanocatalà', in Alberni A & Ventura S (ed), Cobles e lays, danses e bon saber. L'última cançó dels trobadors a Catalunya: llengua, forma, edició, Barcelona-Roma, pp. 9-30.

- **Alberni A** 2016, 'La primera transmissió manuscrita de Jordi de Sant Jordi: el copista del Cançoner Vega-Aguiló entre anticz e noels trobadors', in **Alberni A** & Ventura S (ed) *Cobles e lays, danses e bon saber. L'última cançó dels trobadors a Catalunya: llengua, forma, edició,* Barcelona-Roma, pp. 93-127.

- Alberni A & Zinelli F 2016, 'The Last Song of the Troubadours: une recherche sur la poésie occitane et française dans l'espace catalan (édition électronique et construction d'un site web)', in Buchi E, Chauveau JP & Pierrel JM (ed.) *Actes du XXVIIe Congrès international de linguistique et de philologie romanes (Nancy, 15-20 juillet 2013), section 13: Philologie textuelle et éditoriale*, Nancy, ATILF, II, p. 1345-1360.

Selected research activities

Papers in conferences:

"Mélusine à la cour d'Aragon", En français hors de France. Textes, livres, collections du Moyen Age, Paris Sorbonne & École Pratique des Hautes Études & Saprat, Paris, 9-10 Dec.

"La dansa anònima Plazens plasers (BdT 461,193a)", XXVIII Congresso Internazionale di Linguistica e Filologia Romanza, Roma-La Sapienza, Rome, 18-23 Jul.

"Al·lusió i citació en la poesia catalana dels segles XIV-XV: influència francesa abans de Machaut?", *Traduction et réception: la littérature française des XIVe et XVe siècles*, Universitat Pompeu Fabra, Barcelona, 17Jul.

"El mar d'Andreu Febrer: Pus qu'estorts suy del lach de la mar fonda", El mar, la navegació i la vida marítima a la medietrrània medieval: testimonis cronístics, narratius i poètics, Seminari internacional, Museu marítim de Barcelona, 17 June.



Albert Cristóbal, Rosa María Universitat de Barcelona (UB) Humanities

Archaeologist, I defended my PhD at the U. of Barcelona in 1999 after 3 years at the Weizmann Inst of Science. I pioneered in applying quantitative and morphological phytolith analyses to Prehistoric hearths to identify fuel uses and collecting strategies. As a result I received in 2005 the Blecua Award (UB). During all these years I have focused on reconstructing the vegetation at different hominid sites such as Olduvai Gorge (Tanzania), being one of the first to use a combined study of modern soils and plants to identify past vegetation. In 2011 I created PhytCore, presently the most extensive phytolith database, covering different geographical and chronological frameworks. I have directed more than 20 research projects and written more than 90 papers and 75 technical reports. In 2005 I founded the Research Group for Paleoecological and Geoarchaeological Studies (GEPEG) recognized as Quality Research Group by Catalan Government which I directed until December 2013.

Research interests

Until December 2013 I conducted my research through GEPEG Research Group. Since January 2014 GEPEG was integrated into the Research Group for Archaeometry and Archaeology of the University of Barcelona (ERAAUB). From ERAAUB I will continue my research on: i) The study of Fire in Prehistory. ii) Paleoenvironmental reconstruction during African Hominin Evolution. iii) Agriculture and domestication practices in the Levant. iv) Plant uses and landscape at the Balearic Islands, collaborating with Prof. Miguel Ángel Cau on the roman site of Pollentia. iv) Anthropogenic impact on the environment. This is a new and most exciting line of research addressed to understand the effect of human activities on the surrounding landscape. v) Development of digital platforms to exchange databases to improve archaeological research. For this I developed PhytCore: www.phytcore.org.

Selected publications

- Haberman J, Stanistreet IG, Stollhofen H, **Albert RM**, Bamford MK, Pante M, Njau JK & Masao FT 2016, 'In situ -2.0 Ma trees discovered as fossil rooted stumps, lowermost Lower Bed I, Olduvai Gorge', *Journal of Human Evolution*, 90, 74-87.

- Albert RM & Esteban I 2016, 'What early human populations were eating? The use of phytoliths for identifying plant remains in the archaeological record', In Hardy K & Martens KL (Eds.) 'Wild harvest: Plants in the Hominin and Pre-Agrarian Human worlds', chapter 9, part 2: Plant foods, tools and people. Series: Studying Scientific Archaeology 2, *Owbox*, Oxford.

- Polo-Díaz A, Alonso-Eguiluz M, Perez-Diaz S, Ruiz-Alonso M, Mujika JA, **Albert RM** & Fernandez-Eraso J 2016, 'Management of residues and natural resources at San Cristóbal rock-shelter: contribution to the characterisation of chalcolithic agropastoral groups in the Iberian Peninsula', *Quaternary Internationa Journal*, 414, 202 – 225.

- Boixadera J, Riera S, Vila S, Esteban I, **Albert RM**, Llop JM & Poch R 2016, 'Buried A horizons in old bench terraces in Les Garrigues (Catalonia)', *Catena*, 137, 635-650.

- Albert RM, Ruíz JA & Sans A 2016, 'PhytCore ODB: a new tool to improve efficiency in the management and exchange of information on Phytoliths', *Journal of Archaeological Science*, 68, 98-105.

- Daura J, Sanz, M, Ramos J, Riera S, Miras Y, Allue E, Picornell L, López-Reyes D, **Albert RM**, Macia L, Domenech R, Martinell J, Fornós JJ & Julià R 2016, 'Palaeoenvironmental record of the Cal Maurici wetland sediment archive in Barcelona (NE Iberian Peninsula) between VI and IV millenia cal. yr BP', *Holocene Journal*, 26, 7, 1020 – 1039.



Alexandrov, Vassil Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC - CNS) Experimental Sciences & Mathematics

Vassil Alexandrov is an ICREA Research Professor in Computational Science at BSC since September 2010. He holds a MSc in Applied Mathematics from Moscow State University, Russia (1984) and a PhD in Parallel Computing from Bulgarian Academy of Sciences (1995). He has held previous positions at the University of Liverpool, UK (Depts. of Statistics and Computational Mathematics and Computer Science, 1994-1999), the University of Reading, UK (School of Systems Engineering, 1999-2010, as Professor of Computational Science leading the Computational Science research group until September 2010, and as the Director of the Centre for Advanced Computing and Emerging Technologies until July 2010). He is an Editorial Board member and a Guest Editor of the Journal of Computational Science and Journal of Mathematics and Computers in Simulation. He has published over 120 papers in renowned refereed journals and international conferences in the area of his research expertise.

Research interests

My expertise and research interests are in the area of Computational Science and High Performance Computing focusing on Data and Compute Intensive problems and encompassing stochastic modelling, Monte Carlo methods and algorithms, parallel algorithms, Parallel Computing, Scalable Algorithms for Large Scale Systems and Applications. In particular, the emphasis is on novel scalable stochastic and hybrid mathematical methods and algorithms such as scalable hybrid Monte Carlo algorithms for variety of supercomputing architectures for Linear Algebra, Optimization, Computational Finance, Environmental Models, Computational Biology, etc. In addition the research focuses on scalable, fault-tolerant and resilient algorithms for petascale and exascale computing paradigms. These are applied through various collaborations to applications in diverse areas.

Selected publications

- Alexandrov V 2016, 'Route to exascale: Novel mathematical methods, scalable algorithms and Computational Science skills', Journal of Computational Science, vol. 14, pp 1-4

- Gurov T, Karaivanova A & **Alexandrov V** 2016, 'Energy Study of Monte Carlo and Quasi-Monte Carlo Algorithms for Solving Integral Equations', *Procedia Computer Science*, vol. 80, pp. 1897–1905.

- Blokh I & **Alexandrov V** 2016, 'Psychological Warfare Analysis Using Network Science Approach', *Procedia Computer Science*, vol. 80, pp 1856–1864.

- Kalashnikov V, Kalashnykova N & **Alexandrov V** 2016, 'A Stochastic Approach to Solving Bilevel Natural Gas Cash-out Problems', *Procedia Computer Science*, vol. 80, pp 1875–1886.

- Ostromsky T, **Alexandrov V**, Dimov I & Zlatev Z 2016, 'On the Performance, Scalability and Sensitivity Analysis of a Large Air Pollution Model', *Procedia Computer Science*, vol 80, pp 2053–2061.

- Davila D, **Alexandrov V** & Esquivel O 2016, 'On Monte Carlo Hybrid Methods for Linear Algebra', *Proc. of 7th ScalA Workshop, Supercomputing*, IEEE/ACM Digital Library, pp. 83-88.

Selected research activities

- Distinguished Visiting Professor in Computational Science at Tecnologico de Monterrey (ITESM), Mexico (January 2015 present), providing rsearch leadership and focusing on developing efficient methods and algorithms for data and compute intensive problems and applications.
- Participated and contributed to Mathematics for Europe consultation.

Conferences/Workshops Organization:

- 7th Scalable Algorithms for Large-Scale Systems Workshop at Supercomputing 2016, Salt Lake City, Nov. 2016, USA.
- 4th Solving Problems with Uncertainties Workshop on ICCS 2016, San Diego, USA, June 2016.
- 3rd Mathematical Methods and Algorithms for Extreme Scale Workshop on ICCS 2016, San Diego, USA, June 2016.

Editorships/Memberships:

• Editorial Board member and Guest Editor of a special issue - Route to Exascale of Journal of Computational Science, Elsevier.



Aliaga Alcalde, Núria Institut de Ciència de Materials de Barcelona (CSIC - ICMAB) Experimental Sciences & Mathematics

I completed my doctorate in 2003 at the University of Indiana (USA). Afterward, I carried out two post-doctorates: at the Max Planck Institut für Bioanorganische Chemie (MPI, Germany, 2003-2005) and at the Leiden University (The Netherlands, 2005-2007). In 2007 I started as ICREA Researcher in the Department of Inorganic Chemistry at the University of Barcelona (UB) and in September 2012 became ICREA Researcher Professor and moved to the Institut de Ciències dels Materials de Barcelona (ICMAB) where I am the group leader of "Functional Nanomaterials & Surfaces" since 2014 (FunNanoSurf, http://departments.icmab.es/funnanosurf/). My research focuses on multifunctional molecules and polymers, their nanostructuration and application of their magnetic, electronic and/or fluorescent properties in the bulk, on surfaces and as a components in nanodevices.

Research interests

My work focuses on the relevance and necessity of molecular design in Nanoscience, where functional molecules play a key role since they provide homogeneous tunable nanometer-size units and properties ready to be exploited (as reliable sensors, switches, quantum computing materials or molecular electronics). Our key factors are the design of specific molecules and their control and organization on surfaces/nanodevices where their properties can be tuned. In my group, we synthesize different molecular systems (of porphyrinic, curcuminoid or polymeric natures with or without coordination to metal ions), characterize and study them on surfaces (eg.: graphene, gold, SWCNTs) and together with collaborators on nanodevices (transistors) we analyze their electronic behavior. So far, our work in progress has shown the advantages of our systems as (i) biomarkers (luminescent properties), (ii) transistors (gateable molecular junctions) and (iii) as Single-Molecule Magnets (SMMs).

Selected publications

- Albalad J, Arinez-Soriano J, Vidal-Gancedo J, Lloveras V, Juanhuix J, Imaz I, **Aliaga-Alcalde N** & **Maspoch D** 2016, 'Hetero-bimetallic paddlewheel clusters in coordination polymers formed by a water-induced single-crystal-to-single-crystal transformation', *Chemical Communications*, 52, 91, 13397 – 13400.

- Fontanet M, Rodriguez M, Fontrodona X, Romero I, Teixidor F, Vinas C & **Aliaga-Alcalde N** 2016, 'Carving a 1D Co-I--carboranylcarboxylate system by using organic solvents to create stable trinuclear molecular analogues: complete structural and magnetic studies', *Dalton Transactions*, 45, 27, 10916 – 10927.

- Etcheverry-Berrios A, Olavarria I, Perrin ML, Diaz-Torres R, Jullian D, Ponce I, Zagal JH, Pavez J, Vasquez SO, van der Zant HSJ, Dulic D, Aliaga-Alcalde N & Soler M 2016, 'Multiscale Approach to the Study of the Electronic Properties of Two Thiophene Curcuminoid Molecules', *Chemistry-a European Journal*, 22, 36, 12808 – 12818.

Burzurí E, Island JO, Díaz-Torres R, Fursina A, González-Campo A, Roubeau O, Teat SJ, Aliaga-Alcalde N, Ruiz E & van der Zant HSJ 2016, 'Excitations in an Organic Molecule Coupled to Few-Layer Graphene Electrodes', ACS Nano, vol. 10(2), pp 2521-2527.
Díaz-Torres R, Menelaou M, Roubeau O, Sorrenti A, Brandariz-de Pedro G, Sañudo EC, Teat SJ, Fraxedas J, Ruiz E & Aliaga-Alcalde N 2016, 'Multiscale Study of Mononuclear Coll SMMs based on Curcuminoid Ligands', Chemical Science, vol. 7, pp 2793 – 2803.

Selected research activities

- Special Issue Guest Editor in de journal "Magnetochemistry"
- Evaluator: Ph.D. committee, ANEP and FONDECYT-Chile projects
- Invitated talks at ICCC2016 (Brest, France), EMN (San Sebastian, Spain) and DAFNEOX (Bellaterra, Spain)



Aloy Calaf, Patrick Institut de Recerca Biomèdica de Barcelona (IRB Barcelona) Life & Medical Sciences

Dr Patrick Aloy is an ICREA Research Professor and Principal Investigator of the Structural Systems Biology lab at the IRB. He has a BSc in Biochemistry and a MSc in Biotechnology from the Univ. Autònoma de Barcelona, Spain, and spent six years as postdoctoral researcher and staff scientist at the European Molecular Biology Laboratory, Heidelberg, Germany. For fifteen years, Dr Aloy has been developing and implementing new technologies and algorithms, applying state-of-the-art methods to specific problems and bridging the gap between theoretical models and experiments in different disciplines. In the last years, he has pioneered system-scale analyses of macromolecular assemblies and networks using high-resolution three-dimensional structures, which has become a new discipline in structure prediction. Dr Aloy has over 100 publications in first-rate journals, with over 8500 citations and remarkable press coverage, illustrating the scientific and social impact of the work.

Research interests

The main goal of my laboratory is to combine computational and structural biology with interaction discovery experiments to unveil the basic wiring architecture of physio-pathological pathways. It is our believe that a deeper knowledge of the global topology of interactome networks related to human disease will have important bearings in the discovery of new drug targets and biomarkers, optimisation of preclinical models and understanding how biological networks change from the healthy state to disease.

Selected publications

- Sfriso P, Duran-Frigola M et al. 2016, 'Residues Coevolution Guides the Systematic Identification of Alternative Functional Conformations in Proteins', *Structure*, 24:1-116-126.

- Kumar A et al. 2016, 'Conditional Epistatic Interaction Maps Reveal Global Functional Rewiring of Genome Integrity Pathways in *Escherichia coli', Cell Reports*, 14, 3, 648 – 661.

- Yang X et al. 2016, 'Widespread expansion of protein interaction capabilities by alternative splicing', Cell., 164, 4, 805 - 817.

- Herrando-Grabulosa M et al. 2016, 'Novel Neuroprotective Multicomponent Therapy for Amyotrophic Lateral Sclerosis Designed by Networked Systems', *Plos One*, 11, 1, e0147626.

- Gomez-Verjan JC et al. 2016, 'Risk assessment of Soulatrolide and Mammea (A/BA plus A/BB) coumarins from Calophyllum brasiliense by a toxicogenomic and toxicological approach', *Food And Chemical Toxicology*, 91, 117 – 129.

Serra-Musach J et al. 2016, 'Cancer network activity associated with therapeutic response and synergism', *Genome Medicine*, 8, 88.
 Zhong Q et al. 2016, 'An inter-species protein-protein interaction network across vast evolutionary distance', *Molecular Systems Biology*, 12, 4, 865.

- Yachie N et al. 2016, 'Pooled-matrix protein interaction screens using Barcode Fusion Genetics', *Molecular Systems Biology*, 12, 4, 863.

- van Leeuwen J, Pons C et al. 2016, 'Exploring genetic suppression interactions on a global scale', Science, 354, 6312, 599 - +.



Altankov, George P. Institut de Bioenginyeria de Catalunya (IBEC) Experimental Sciences & Mathematics

I graduated from the Higher Medical Institute, Varna, Bulgaria, in 1974 where I also started my research carrier as Assistant Perofessor in the Dept. of Physiology. After obtaining my PhD in 1984 I joined the Bulgarian Academy of Sciences (Institute of Biophysics Sofia) where I got my first habilitation as Associate Professor (1994) and grew up to Full Professor (2002), head of Department "Cell Adhesion" and Research Director. I would describe myself as an interdisciplinary-oriented scientist working in the field of cell-biomaterial interaction and tissue engineering. In 1991-1993 I was postdoc in Southwestern Medical Center Dallas and during the following decade I spent more than 7 years as guest-scientist in Germany and France, and later almost 2 years in Spain. Since April 2007 I am ICREA Research Professor at the Institute for Bioengineering of Catalonia (IBEC) heading the new research group Molecular Dynamics at Cell-Biomaterials Interface.

Research interests

I am working in the field of cell-biomaterials interaction and tissue engineering. On that topic I have published more than 90 original papers and filed 5 patents. As ICREA Research Professor at Institute for Bioengineering of Catalonia (IBEC) I have created a new research group Molecular dynamics at cell-biomaterials interface, where we seek to understand the cellular mechanisms that determine biocompatibility of materials. My research interests might be summarized as follows: -Cell-biomaterials interaction -Development of provisional extracellular matrix at biomaterials interface -Nanofibers design and production via electrospinning -Tissue engineering -Controlled differentiation of mesenchimal stem cells -In situ endothelization and neovascularization of implants.

Selected publications

- Zhao M, **Altankov G**, Grabiec U, Bennett M, Salmeron-Sanchez M, Dehghani F & Groth T 2016, 'Molecular composition of GAGcollagen I multilayers affects remodeling of terminal layers and osteogenic differentiation of adipose-derived stemcells', *Acta Biomaterialia*, 41, 86 – 99.

- Coelho N M, Llopis-Hernández V, Salmerón-Sánchez & **Altankov G** 2016, 'Dynamic Reorganization and Enzymatic Remodeling of Type IV Collagen at Cell-Biomaterial Interface', In *Christo Z. Christov, editor: Insights into Enzyme Mechanisms and Functions from Experimental and Computational Methods*, Vol 105, APCSB, UK: Academic Press, pp. 81-104.

- Forget J, Awaja F, Gugutkov D, Gustavsson J, Gallego Ferrer G, Coelho-Sampaio T, Hochman-Mendez C, Salmeron-Sánchez M & **Altankov G** 2016, 'Differentiation of Human Mesenchymal Stem Cells Toward Quality Cartilage Using Fibrinogen-Based Nanofibers', *Macromol. Biosci.* 16, 9, 1348 – 1359.

Selected research activities

Keynote -Nanomedicine 2016- Nanomedicine and Nanotechnology in Health Care, July 25-27 Bangkok, Thailand, Title: "Mesenchymal "Stem Cells Behaviour in Nanofibrous Environment"

Coordinator European Project: FP7-PEOPLE-2012-IAPP (2013-2016) –FIBROGELNET– "Network for Development of Soft Nanofibrous Construct for Cellular Therapy of Degenerative Skeletal Disorders"

PI National Project: MAT 2015 – 69315 –C3 (2015-2017) – MYOHEAL – *Muscle regeneration after injury. Engineered biodegradable ion-loaded scaffolds to promote muscle regeneration.* Collaborative Project funded by Spanish Ministry of Science and Innovation **Associate Editor** *Journal of Biomaterials and Tissue Engineering*



Álvarez Puebla, Ramón Universitat Rovira i Virgili (URV) Experimental Sciences & Mathematics

Ramón Álvarez Puebla is an ICREA Research Professor at the Universitat Rovira i Virgili and the Center for Chemical Technology of Catalonia, both in Tarragona. He studied Chemistry at the Universidad de Navarra and got his PhD from the Universidad Pública de Navarra in Surface Science. In 2004 he joined the group of Ricardo Aroca at the University of Windsor (Canada) where he remained in a cross appointment with the General Motors Research and Development center until the end of 2005. In 2006, Dr Álvarez was promoted to Research Officer at the National Center for Nanotechnology (NINT) belonging to the National Research Council of Canada. In 2008 he moved to Spain at the Universidad de Vigo, Spain. He joined ICREA in October of 2012.

Research interests

Dr. Álvarez-Puebla is an expert in surface science and spectroscopy with emphasis on the fabrication and characterization of plasmonic particles and their integration into advanced "all optical" sensing devices for biomedicine, chemical biology and environmental monitoring. Currently he is interested in: – Design and development of plasmonic functional materials and their integration into real live "all optical" sensors. – Development of new technologies for pathogen/disease marker detection by using localized surface plasmon resonances, Raman and SERS. – In vivo intracellular monitoring and imaging of relevant cytoplasm metabolites under different conditions (health/disease). – Optical technologies for the ultrafast and ultrasensitive recognition of active compounds in combinatorial libraries.

Selected publications

- Morla-Folch J, **Alvarez-Puebla RA*** & Guerrini L* 2016, "Direct Quantification of DNA Base Composition by Surface-enhanced Raman Scattering Spectroscopy", *The Journal of Physical Chemistry Letters*, 7, pp 3037–3041

- Torres-Nuñez A, Frauds K, Graham D, **Alvarez-Puebla RA*** & Guerrini L* 2016, "Silver Colloids as Plasmonic Substrates for Direct Label-free Surface-enhanced Raman Scattering Analysis of DNA", *Analyst*, 141, 5170-5180

- Guerrini L, Morla-Folch J, Gisbert-Quilis P, Xie H & **Alvarez-Puebla RA** 2016, 'Label-free direct surface-enhanced Raman scattering (SERS) of nucleic acids (Conference Presentation)', *Colloidal Nanoparticles For Biomedical Applications Xi*, 9722, 972200.

- Pazos E, Garcia-Algar M, Penas C, Nazarenus M, Torruella A, Pazos-Perez N, Guerrini L, Vazquez ME, Garcia-Rico E, Mascarenas JL & **Alvarez-Puebla RA** 2016, 'Surface-Enhanced Raman Scattering Surface Selection Rules for the Proteomic Liquid Biopsy in Real Samples: Efficient Detection of the Oncoprotein c-MYC', *Journal Of The American Chemical Society*, 138, 43, 14206 – 14209.

- Romo-Herrera JM, Gonzalez AL, Guerrini L, Castiello FR, Alonso-Nunez G, Contreras OE & **Alvarez-Puebla RA*** 2016, 'Study of Depth and Size of Concave Cube Au Nanoparticles as Highly Sensitive SERS Probes', *Nanoscale*, 8, 7326-7333.

- Morla-Folch J, Xie H, **Alvarez-Puebla RA** & Guerrini L 2016, 'Fast Optical Chemical and Structural Classification of RNA', Acs Nano, 10, 2, 2834 - 2842.

- Tebbe M, Lentz S, Guerrini L, Fery A, **Alvarez-Puebla RA*** & Pazos-Perez N* 2016, 'Fabrication and optical enhancing properties of discrete supercrystals', *Nanoscale*, 8, 25, 12702-12709

- Pazos-Perez N, Pazos E, Catala C, Mir-Simon B, Gomez-de Pedro S, Sagalés J, Villanueva C, Vila J, Soriano A, García de Abajo FJ* & Alvarez-Puebla RA* 2016, 'Ultrasensitive multiplex Optical quantification of bacteria in large samples of biofluids', *Scientific Reports*, 6, 29014



Apesteguia, Jose Universitat Pompeu Fabra (UPF) Social & Behavioural Sciences

Jose Apesteguia received his PhD in Economics from the Public University of Navarra in 2001. Since then he has been at the University of Bonn as a post-doc and at the Universitat Pompeu Fabra, first as a "Ramón y Cajal" fellow and then as an ICREA Research Professor.

Research interests

In my research I study individual decision-making with an emphasis on its psychological foundations. I use theoretical tools as well as adopt an empirical approach to try to better understand individual decision-making, and to improve the predictive power of the decision-making models in economic environments.

Selected research activities

- Invited Seminars: University of Zurich, Public University of Navarre, Carlos III University of Madrid, University of Exeter, University of the Basque Country, University of Alicante.

- Short research visits: New York University and University of Oxford.

- Organizer of the Barcelona GSE Summer Forum Workshop on "Stochastic Choice", June 2016.
- Teaching:
- Bounded Rationality in Choice, PhD in Economics, Universitat Pompeu Fabra.
- Topics in Microeconomics, BSc in Economics, Universitat Pompeu Fabra.



Arbiol, Jordi Institut Català de Nanociència i Nanotecnologia (ICN2) Engineering Sciences

Born in Molins de Rei (Catalonia), 1975. Graduated in Physics at Universitat de Barcelona (UB) in 1997, where he also obtained his PhD (European Doctorate and PhD Extraordinary Award) in 2001. He also worked as Assistant Professor at UB. From 2009 to 2015 he was ICREA Prof. at Institut de Ciència de Materials de Barcelona, ICMAB-CSIC. Since 2013 he is Vice-President of the Spanish Microscopy Society (SME), and since 2009 he is Member of its Executive Board. Since 2015 he is ICREA Prof. at Institut Català de Nanociència i Nanotecnologia (ICN2). He has been project Expert Advisor for several International Agencies: United States Department of Energy (DOE) (USA), European Research Council (ERC) (EU), The Royal Society (UK), Austrian Science Fund (FWF), Flanders Research Foundation (FWO), etc. He has been awarded with the 2014 EMS Outstanding Paper Award, EU40 Materials Prize 2014 (E-MRS) and listed in the Top 40 under 40 Power List (2014) by The Analytical Scientist.

Research interests

The increasing interest in Materials Science, Nanoscience and Nanotechnology has created a serious global need for the development of nanoscopy tools in order to be able to observe and chemically analyze the synthesized nanostructures at atomic scale. Exploring the limits of physical resolution in advanced electron microscopy and understanding the ultimate behavior of materials at the nanoscale and their related properties are the central aims of my research. The newest research lines we are working in are based on single atom recognition and localization in embedded quantum structures. In parallel I am interested in finding methodologies to perform a direct correlation between the structural and chemical properties at the atomic scale and the physical properties at sub-nanometer scale (photonics, plasmonics and phononics).

Selected publications

- de la Mata M, Leturcq R,* Plissard SR, Rolland C, Magen C, Arbiol J* & Caroff P* 2016, 'Twin-induced InSb nanosails: a convenient high mobility quantum system', *Nano Letters*, 16, pp 825-833.

- Tang* P-Y, ..., Galán-Mascarós JR, Morante JR & Arbiol* J 2016, 'Synergistic Effects in 3D Honeycomb-like Hematite Nanoflakes/Branched Polypyrrole Nanoleaves Heterostructures as High-Performance Negative Electrodes for Asymmetric Supercapacitors', Nano Energy, 22, pp 189-201.

- Genc A, ..., Puntes* VF & Arbiol* J 2016, 'Tuning the plasmonic response up: Hollow cuboid metal nanostructures', ACS Photonics, 3, pp 770-779.

- Sivaram SV, Hui HY, de la Mata M, Arbiol J & Filler MA 2016, 'Surface Hydrogen Enables Sub-Eutectic Vapor-Liquid-Solid Semiconductor Nanowire Growth', *Nano Letters*, 16, pp 6717-6723.

- **Ibáñez M, …, Arbiol J, Kovalenko MV & Cabot A 2016, '**<u>High-performance thermoelectric nanocomposites from nanocrystal</u> building blocks', **Nature Communications**, **7**, 10766.

- Lähnemann J, ..., Arbiol J, Eickhoff M & Monroy E 2016, 'UV Photosensing Characteristics of Nanowire Based GaN/AIN Superlattices', Nano Letters, 16, pp 3260-3267.

- Yu Y, Lu X, Guillaussier A, Voggu VR, Pineros W, de la Mata M, Arbiol J, Smilgies DM, Truskett TM & Korgel BA 2016, 'Orientationally Ordered Silicon Nanocrystal Cuboctahedra in Superlattices', *Nano Letters*, **16**, pp 7814-7821.

- Han L-J, Tang P-Y, ..., Arbiol J & Galan-Mascaros JR 2016, 'Enhanced activity and acid pH stability of Prussian blue-type oxygen evolution electrocatalysts processed by chemical etching', *Journal of the American Chemical Society*, **138**, pp 16037-16045.

Selected research activities

- 2 Plenary Lectures (ANNIC2016 & YUCOMAT2016)
- 5 Invited talks (SPIE Photonics, ISM Golden Jubilee, ELECMI, EMN 2D-Materials, Nanowires 2016).
- 6 Invited Seminars (Ben Gurion Univ, Niels Bohr Inst., Ecole Polytechnique, ICMM,...).
- Vice-President of the Spanish Microscopy Soc.
- Expert Panel Member for the Flanders Research Foundation (FWO).



Arribas López, Joaquín Vicente Vall d'Hebron Institut d'Oncologia (VHIO) Life & Medical Sciences

Joaquín Arribas completed his undergraduate studies in biochemistry at the Universidad Autónoma de Madrid in 1987. At the same university he subsequently worked on the regulation of the catalytic activities of the proteasome and received his PhD in Biology in 1991. Sponsored by a fellowship from the Spanish Ministry of Education and Science, he joined the Memorial Sloan-Kettering Cancer Center, New York (USA), as a Postdoctoral Fellow to work with J. Massagué (1992-1996) on the proteolytic processing of transmembrane growth factors. In 1997 he joined the oncology department at Hospital Vall d'Hebron in Barcelona as a Staff Scientist, since then he has lead the research group on Growth Factors. Since 2010 he has served as Director of VHIO's Preclinical Research Program. His research has been recognized through an EMBO Young Investigator Programme (YIP) Award and the Beckman Coulter Award for the Best Young Spanish Investigator in Biochemistry and Molecular Biology.

Research interests

- * Determine the therapeutic value of the anti-p95HER2 antibodies to treat breast cancers.
- * Analyze cellular heterogeneity of HER2-positive breast tumors.
- * Explore the link between HER2-driven senescence and breast cancer invasion.

Selected publications

- Serra-Musach J, Mateo F, Capdevila-Busquets E, Ruiz de

Garibay G, Zhang X, Guha R, Thomas CJ, Grueso J, Villanueva A, Jaeger S, Heyn H, Vizoso M, Perez H, Cordero A, Gonzalez-Suarez E, **Esteller M**, Moreno-Bueno G, Tjaernberg A, Lazaro C, Serra V, **Arribas J**, Benson M, Gustafsson M, Ferrer M, **Aloy P** & Pujana MA 2016, 'Cancer network activity associated with therapeutic response and synergism', *Genome Medicine*, 8, 88.

- Morancho B, Zacarias-Fluck M, Esgueva A, Bernado-Morales C, Di Cosimo S, Prat A, Cortes J, **Arribas J** & Rubio IT 2016, 'Modeling anti-IL-6 therapy using breast cancer patient-derived xenografts', *Oncotarget*, 7, 42, 67956 – 67965.

- Nuciforo P, Thyparambil S, Aura C, Garrido-Castro A, Marta Vilaro M, Peg V, Jimenez J, Hoos W, Burrows J, Todd Hembrough T, Ferreres JC, Perez-Garcia J, **Arribas J**, Cortes J & Scaltriti M 2016, 'High HER2 protein levels measured by multiplex mass spectrometry correlate with increased overall survival in patients treated with anti-HER2 therapy', *Mol. Oncol.* 10, 138-147.



Aznar Benitah, Salvador Institut de Recerca Biomèdica de Barcelona (IRB Barcelona) Life & Medical Sciences

Salvador Aznar Benitah is a group leader at the Institute for Research in Biomedicine (IRB Barcelona). He holds a BSc/MSc in Biochemistry from the University of McGill (Montreal, Canada), from where he moved to the Biomedical Research Institute (Madrid, Spain) to obtain a PhD in Molecular Biology. His professional career continued at the London Research Institute (Cancer Research UK) in the laboratory of Prof. Fiona Watt where he acquired extensive knowledge on adult stem cells. He started as a Junior ICREA researcher at the CRG in 2007 where he studied the role of adult stem cells in tissue homeostasis and cancer. Since September 2012 he is an ICREA Research Professor. In September 2013 he became a Senior Researcher in the Oncology Department at the Institute for Research in Biomedicine (IRB Barcelona).

Research interests

Our global aim is to characterize the molecular pathways that regulate the behaviour of normal stem cells during homeostasis, and how they become deregulated during carcinogenesis and ageing. Research Lines: – What intrinsic mechanisms regulate adult stem cell function, and how are they deregulated during ageing and cancer? – How do adult stem cells communicate with their local environment and how is the system coordinated to dictate stem cell function? – What systemic cues communicate with adult stem cells and how do distant adult stem cells coordinate their function at the level of the whole organism? – How does deregulation of pathways that control stem cell behaviour contribute to the maintenance and progression of carcinomas (SCC)?

Selected publications

- Mardaryev AN, Liu B, Rapisarda V, Poterlowicz K, Malashchuk I, Rudolf J, Sharov AA, Jahoda CA, Fessing MY, **Benitah SA**, Xu GL & Botchkarev VA 2016, 'Cbx4 maintains the epithelial lineage identity and cell proliferation in the developing stratified epithelium', *J. Cell Biol.*, vol. 212(1), pp 77-89.

- Avgustinova A & **Benitah SA** 2016, 'The epigenetics of tumour initiation: cancer stem cells and their chromatin', *Curr. Opin. Genet. Dev.*, vol. 36, pp 8-15.

- Avgustinova A & **Benitah SA** 2016, 'Epigenetic control of adult stem cell function', *Nature Reviews Molecular Cell Biology*, 17, 10, 643 - 658.

- Rinaldi L, Datta D, Serrat J, Morey L, Solanas G, Avgustinova A, Blanco E, Pons JI, Matallanas D, Von Kriegsheim A, **Di Croce L** & **Benitah SA** 2016, 'Dnmt3a and Dnmt3b Associate with Enhancers to Regulate Human Epidermal Stem Cell Homeostasis', *Cell Stem Cell*, vol.19 no. 4, pp 491-501.



Bach Ariza, Àlex Institut de Recerca i Tecnologia Agroalimentàries (IRTA) Life & Medical Sciences

Àlex holds a Master and a PhD in Dairy Science from the University of Minnesota. After a few years working as a research manager of a multinational company, Dr. Bach returned to academia as ICREA Research Professor and Head of the Department of Ruminant Production of IRTA. He has received several awards in recognition to his research activities (the last one this year from the 'Royal Academy of Veterinary Sciences of Spain), has spoken at more than 100 international congresses, is author or co-author of more than 100 peer-reviewed publications, more than 90 extension articles, and more than 15 books (or book chapters). He has served as a scientific expert in several committees of the European Food Safety Authority. He is section editor and sits in the editorial boards of several scientific journals, and is member of various scientific committees.

Research interests

Àlex Bach conducts research in ruminant production systems. His research focuses on optimizing the growth curve of dairy replacement heifers, as well as their management and housing systems (group size, behavior, stocking densities...). He also uses mathematical models to simulate work flows of ruminant production systems with the aim of helping the decision-making process in dairy enterprises. In addition, Àlex conducts basic research to understand the physiology and metabolism of ruminants with especial emphasis on the impact of nutrition and management during early development on future metabolic function.

Selected publications

- Blanch M, Carro MD, Ranilla MJ, Viso A, Vazquez-Anon M & **Bach A** 2016, 'Influence of a mixture of cinnamaldehyde and garlic oil on rumen fermentation, feeding behavior and performance of lactating dairy cows', *Animal Feed Science And Technology*, 219, 313 – 323. - Rodríguez EM, **Bach A**, Devant M & Aris A 2016, 'Is calcitonin an active hormone in the onset and prevention of hypocalcemia in dairy cattle?', *J. Dairy Sci.*, 99:3023-3030.

Bach A, von Keyserlingk MAG, Widowski TM & Haley D 2016, 'Assessing farm animal welfare from a nutritional perspective. In: Nutrition and the welfare of farm animals', Edited by Phillips CJC, *Springer*, Switzerland, ISBN 978-3-319-27354-9. Pages 115-134.
 Khan MA, Bach A, Weary DM & von Keyserlingk MAG 2016, 'Invited review: Transitioning from milk to solid feed in dairy heifers', *Journal Of Dairy Science*, 99, 2, 885 – 902.



Bagaria i Pigrau, Joan Universitat de Barcelona (UB) Experimental Sciences & Mathematics

Born on 17 August 1958 in Manlleu (Catalonia). Fulbright Fellow at Univ. of California, Berkeley, 1985-87. PhD in Logic and the Methodology of Science, UC Berkeley, 1991. Postdoctoral researcher, UC Berkeley, 1991-92. Associate Professor at several Catalonian universities, 1992-2001. ICREA Research Professor at Univ. of Barcelona, since 2001. Invited researcher at UC Berkeley, Kobe Univ., National Univ. of Singapore, Kurt Gödel Research Center (Vienna), Univ. Paris VII, CalTech, Mittag-Leffler Institut, Hebrew Univ., Harvard Univ., etc. First President of the European Set Theory Society, 2007-11; ICREA Director's Scientific Advisor, since 2005; Chairman of the INFTY ESF-Research Networking Programme, 2009-14; Simons Foundation Fellow at Isaac Newton Institute, Cambridge, UK, Aug. to Dec. 2015. Director of the Barcelona research group on set theory (BCNSETS) and PI of the UB-based Group in Logic.

Research interests

I am a mathematical logician working mainly in set theory, an extremely general mathematical theory whose objects of study are the abstract infinite sets. Set theory is the strongest and most encompassing theory ever developed. It is both the mathematical theory of infinity and the standard foundation for mathematics, in the sense that virtually all of mathematics can be formally reduced to it. I help to develop and apply sophisticated theories and techniques, such as forcing and large cardinals, towards the solution of hard problems in set theory itself and in other areas of logic and mathematics. More interestingly, it is sometimes possible to prove that a given problem cannot be solved using standard mathematical tools, which are embodied in the ZFC axioms of set theory, and therefore new axioms are required for its solution. Finding and classifying new axioms, and thereby expanding the frontiers of mathematical reasoning, is also an essential part of set theory, and of my work.

Selected publications

- **Bagaria J** & Shelah S 2016, 'On partial orderings having precalibre-X1 and fragments of Martin's axiom', *Fundamenta Mathematicae*, 232, 2, 181 – 197.

- **Bagaria J**, Hamkins J, Tsaprounis K & Usuba T 2016, 'Superstrong and other large cardinals are never Laver indestructible', Archive for Mathematical Logic, Volume 55, Issue 1, 19-35.

- **Bagaria J** & Väänänen J 2016, 'On the symbiosis between model-theoretic and set-theoretic properties of large cardinals', *The Journal of Symbolic Logic*, 81, 2, 584 – 604.

Selected research activities

Invited talks

On the consistency strength of n-stationarity. Menachem Magidor 70th Birthday Conference. 17-19 February, 2016. Einstein Institute of Mathematics, Hebrew University, Jerusalem (Israel).

On simplicity and truth, a case study in the theory of large cardinals. Crossing Worlds: Mathematical logic, philosophy, art. 3-4 June 2016, Helsinki (Finland).

Reflection phenomena in the set-theoretic universe. Keynote speaker at the Set Theoretic Pluralism Symposium. 12-17 July 2016. Aberdeen (Scotland)

Doctoral thesis director

Salvador Mancilla, PhD. A Generalization of Stationary Reflection and Large Cardinals. Univ. of Barcelona. Graduated 22 April. Managerial activities

Member of the Program Committee. Novi Sad Conference in Set theory and General Topology" (SETTOP 2016). June 20-24, 2016, Novi-Sad (Serbia).

Chairman of the organizing and scientific committees of the CRM Intensive Research Programme on Large Cardinals and Strong Logics. September 6 to December 16, Bellaterra (Barcelona). (Resigned in June 2016.)



Baizán Muñoz, Pau Universitat Pompeu Fabra (UPF) Social & Behavioural Sciences

Pau Baizán is ICREA Research Professor at Pompeu Fabra University, where he teaches demography. Previously, he was research scientist at the Max Planck Institute for Demographic Research (2000-2002), doctoral student and teaching assistant at the University of Louvain (1996-1999), where he obtained his PhD in Demography, and research associate at the University of Cambridge (1994-1995).

Research interests

My research focuses in two main areas: a) the study of the trends and patterns of family formation dynamics and, b) the changing patterns and determinants of migration between Africa and Europe. I explore several theoretical perspectives to explain the observed behaviour and apply quantitative techniques to disentangle the relationships between processes. For instance, I investigate questions such as "To what extent do employment insecurity and de-standarisation of work patterns affect the likelihood to enter a partnership and to have a child?", "How does this impact vary across countries, regions and different welfare state regimes?", "What is the impact of changing gender roles on fertility behaviour?", "What are the causes of African migration?", "How migration influences family behaviour?".

Selected publications

- **Baizan P**, Arpino B & Delclós CE 2016, 'The effect of gender policies on fertility: the moderating role of education and normative context', *European Journal of Population*, 32(1): 1-30.

- **Baizan P** & González-Ferrer A 2016, 'What drives Senegalese migration to Europe? The role of economic restructuring, labor demand and the multiplier effect of networks', *Demographic Research*, 35(13):339-380.

- **Baizan P** 2016, 'The policy context of fertility in Spain: toward a gender-egalitarian model?', In: Rindfuss R & Choe M (eds), Low fertility, institutions, and their policies: Variations across industrialized countries, New York/Heidelberg: *Springer*, 195-220. ISBN: 978---319-32995-6.

Selected research activities

PI of the MINECO project *Migration systems in comparative perspective: Mexico-USA and Subsaharan Africa-Europe* (CSO2012-37920). Co-PI of the MINECO project *Socio-Demographic Consequences of the Great Recession: Altered Class and Gender Relations?* (CSO2016-80484-R).

Co-PI of the project *Low Fertility, Labor Market, and Family: Factors, Outcomes, and Policy Implications.* East-West Center (Honolulu, USA) and Korea Institute for Health and Social Affairs.

Courses:

"Demographic Changes and Social Dynamics" and "Migration and Society". Master in Sociology and Demography, UPF. PhD thesis supervised and defended in 2016:

Antonina Levatino, "Brain Training - Brain Draining. Skilled Migration, Student Mobility and Transnational Higher Education", UPF. Talks:

"How international migration impacts fertility? The role of migrant networks, spouse's migration, and own migration", *European Population Conference.*

"Socio-economic status of couples, job characteristics, and fertility in Spain", invited talk given at the conference "Low Fertility, Labor Market, and Family: Factors, Outcomes, and Policy Implications", East-West Center and the Korea Institute for Health and Social Affairs. "The Impact of Migration to Europe on Senegalese Children's Educational Investments", IMISCOE conference.



Ballester Balaguer, Pablo Institut Català d'Investigació Química (ICIQ) Experimental Sciences & Mathematics

Pablo Ballester studied Chemistry at the University of the Balearic Islands (UIB) where he also completed the PhD degree in 1986. In 1987 he was post-doctoral Associate with Prof. J. Rebek Jr. at the University of Pittsburgh. In 1988 after a post-doctoral stay at UIB he decided to return to Pittsburgh and moved to MIT in 1989. From 1991 to 2002 he held the positions of Assistant and Associate Professor at UIB and served as Secretary of the Chemistry Department, Vice-dean of the Faculty of Sciences and Head of Studies of Chemistry at UIB. In 2003 and while enjoying a sabbatical leave at the Scripps Research Institute (USA) with the rank of Associate Professor of Research he got an ICREA Research Professorship and joined ICIQ as Group Leader in 2004. He is the recipient of the 2012 Janssen Cilag Organic Chemistry Prize awarded by the Spanish Royal Society of Chemistry. Since February 2016 he serves as ICIQ Vice-Director for BIST affairs.

Research interests

My scientific background lies in the areas of organic chemistry (making molecules) and supramolecular chemistry (study how molecules fit together). My research is mainly focused in the design, synthesis, study and characterization of functional molecular aggregates. I consider myself a mixture between a molecular architect and a molecular engineer. We study matter but we also produce matter and new materials. We work in trying to understand molecular self-assembly processes as a methodology to construct large and functional supramolecular assemblies, i.e., molecular machines. A second area of interest resides in the design and application of molecular containers. These are molecular or supramolecular structures with an internal cavity sufficiently large to include or encapsulate other molecules. Unfortunately, although we construct monumental and even artistic structures they are not visible to the naked eye due to their reduced nanometer size.

Selected publications

- Galan A & **Ballester P** 2016, 'Stabilization of reactive species by supramolecular encapsulation', *Chemical Society Reviews*, 45, 6, 1720 – 1737.

- Pinalli R, Brancatelli G, Pedrini A, Menozzi D, Hernandez D, **Ballester P**, Geremia S & Dalcanale E 2016, 'The Origin of Selectivity in the Complexation of N-Methyl Amino Acids by Tetraphosphonate Cavitands', *Journal Of The American Chemical Society*, 138, 27, 8569 - 8580.

- Galan A, Aragay G & Ballester P 2016, 'A chiral "Siamese-Twin" calix[4]pyrrole tetramer', *Chemical Science*, 7, 9, 5976 - 5982.
 - Escobar L, Aragay G & Ballester P 2016, 'Super Aryl-Extended Calix[4]pyrroles: Synthesis, Binding Studies, and Attempts To Gain Water Solubility', *Chemistry-a European Journal*, 22, 38, 13682 - 13689.

- Aragay G & **Ballester P** 2016, 'H-Bonding Assembly of Macrocycles' In *Reference Module in Chemistry, Molecular Sciences and Chemical Engineering.* Elsevier.

- Aragay G & **Ballester P** 2016, 'Self-Assembled Dimeric Containers Based on Calix[4]arene, Resorcin[4]arene and Calix[4]pyrrole Scaffolds' *In Calixarenes and Beyond*, Neri P. Sessler JL & Wang M-X, (Eds.); Springer International Publishing. pp 843-878.

- Guinovart T, Hernandez-Alonso D, Adriaenssens L, Blondeau P, Martinez-Belmonte M, Rius FX, Andrade FJ, **Ballester P** 2016, 'Recognition and Sensing of Creatinine', *Angewandte Chemie*, International Edition. 55, 2435-2440.

- Korom S, Martin E, Serapian SA, Bo C & Ballester P 2016, 'Molecular Motion and Conformational Interconversion of Ir-I center dot COD Included in Rebek's Self-Folding Octaamide Cavitand', *Journal Of The American Chemical Society*, 138, 7, 2273 – 2279.
- Diaz-Moscoso A, Arroyave FA & Ballester P 2016, 'Moving systems of polar dimeric capsules out of thermal equilibrium by light irradiation', *Chemical Communications*, 52, 14, 3046 – 3049.

Selected research activities

Students promotions: Nelson Giménez (PhD-URV), Albano Galán (PhD-URV). He delivered the Inagural Rebek-Sessler Lectureship in March 2016 at TSRI, La Jolla, California.



Barril Alonso, Xavier Universitat de Barcelona (UB) Experimental Sciences & Mathematics

Xavier Barril's research focuses on the discovery of bioactive molecules exploiting unusual mechanisms of action through a combined use of computational and experimental techniques. His group also develops new computational tools (druggability predictions, docking, dynamic undocking) and strives to improve the molecular understanding of pharmacologically important biological events (e.g. binding kinetics, allosterism). Prof. Barril received his Ph.D. from the Barcelona University (UB) in 2001 for theoretical studies on the molecular recognition processes. He then joined Vernalis (Cambridge, UK), where he was involved in a range of drug discovery projects. In 2005 he was appointed ICREA Research Professor and went back to the UB. Prof. Barril has co-authored more than 70 scientific publications as well as 8 patents. He is also co-founder of Minoryx Therapeutics, a company focusing in the development of new treatments for rare diseases.

Research interests

We are interested in discovering bioactive molecules (chemical probes) as a means to validate new points of pharmacological intervention. We aim to expand the so-called druggable genome by targeting so-far unexploited sites that elicit a biological response through non-standard mechanisms of action, such as conformational trapping, stabilisation of protein-protein complexes or allosterism. To achieve this objective we employ a multi-disciplinary and question-driven approach that combines computational, biophysical and biological techniques. We are particularly strong in computer-aided drug design and develop computational approaches that enable us to tackle such novel and difficult targets with confidence.

Selected publications

- Ruiz-Carmona S & **Barril X** 2016, 'Docking-undocking combination applied to the D3R Grand Challenge 2015', Journal Of Computer-Aided Molecular Design, 30, 9, 805 - 815.

- Hahn-Herrera O, Salcedo G, **Barril X** & Garcia-Hernandez E 2016, 'Inherent conformational flexibility of F-1-ATPase alpha-subunit', *Biochimica Et Biophysica Acta-bioenergetics*, 1857, 9, 1392 – 1402.

Selected research activities Inivited talks

- SMi Advances and Progress in Drug Design. London (UK), 15-16 Feb 2016
- BSC-RES Symposium. Barcelona (Spain), 22 Feb 2016
- 251st ACS National Meeting. San Diego, California (USA), 13-17 Mar 2016
- 3rd NovAliX Conference Biophysics in Drug Discovery 2016. Strasbourg (France), 7-10 Jun 2016
- 1er workshop latinoamericano de modelado molecular y simulación computacional. Buenos Aires (Argentina), 15 Jun 2016
- CECAM Workshop "Water at interfaces: from proteins to devices". Vienna (Austria), 29 Nov 2 Dec 2016

Courses and seminars

- A fresh view on molecular recognition: the dynamic perspective. Advances and Progress in Drug Design SMi. London (UK), 17th Feb 2016
- Escuela de simulación computacional avanzada en Química. Centro Latinoamericano de Formación Interdisciplinaria (CELFI). Buenos Aires (Argentina), 9-16 Jul 2016
- Diseño de fármacos mediante métodos computacionales. Instituto de Química UNAM. Mexico City (Mexico), 17-21 Oct 2016

MSc thesis supervisor of S. G. Piticchio, "A Computational Platform for Fragment Evolution". MSc Bioinformatics (UPF / UB). 1 Jul 2016



Bartumeus, Frederic Centre de Recerca Ecològica i Aplicacions Forestals (CREAF) & Centre for Advanced Studies of Blanes (CSIC - CEAB) Life & Medical Sciences

Frederic Bartumeus is an ICREA Research Professor in Computational and Theoretical Ecology at the Centre for Advanced Studies of Blanes (CEAB-CSIC) since November 2013. He also holds the same status at CREAF since 2016. He holds a MSc in Plankton Ecology (1997), and a PhD in Biological Sciences (2005) from the University of Barcelona, Spain, where he applied random walk and generalized diffusion theory to develop animal search theory. He joined the Department of Ecology and Evolutionary Biology at Princeton University, USA (2006-2009), where he went in depth on the stochastic modeling of animal movement and dispersal. Back to Spain, he completed his postdoctoral research on vector-borne diseases at the Institut Català del Clima (IC3). With a Ramón y Cajal position (2010) he founded his own lab, the Movement Ecology Laboratory, focused on animal movement (including humans) and search strategies, disease vectors, and computational ecology.

Research interests

My research is focused in the emerging field of movement ecology, which aims to reveal the complex forces that drive movement and dispersal patterns of animals (including humans). Improved tracking technology (GPS, bio-loggers, smart-phones) demands an integrative view, with new computational tools and modeling frameworks to understand unprecedented levels of detail from a constantly growing number of species. I am contributing to this scientific revolution based on a broad, highly collaborative and interdisciplinary research program, founded solidly on statistical physics and quantitative ecology. A central question in my research is how animals use information and their motor properties to optimize search strategies. The mechanistic linkage between behavioral processes and movement patterns is also key to understanding globalised problems such as the perpetuation of social inequality among humans or the spread of vector-borne infectious diseases.

Selected publications

- Krummel MF, **Bartumeus F** & Gérard A 2016, 'T-cell Migration, Search Strategies and Mechanisms', *Nature Reviews Immunology*, 16, 3, 193 – 201.

- Bartumeus F et al. 2016, 'Foraging success under uncertainty: space use and search tradeoffs', *Ecology Letters*, 19, pp. 1299-1313.

- Reynolds AM, **Bartumeus F**, Andrea K & van de Koppel J 2016, 'Signatures of chaos in animal search patterns', *Scientific Reports*, 6, 23492.

- Garriga J, Palmer JRB, Oltra A & **Bartumeus F** 2016, 'Expectation-Maximization Binary Clustering for Behavioural Annotation', *Plos One*, 11(3):e0151984.

- Aspillaga E, **Bartumeus F** et al. 2016, 'Ordinary and Extraordinary Movement Behaviour of Small Resident Fish within a Mediterranean Marine Protected Area', *Plos One*, 11(7): e0159813.

- Campos D, **Bartumeus F** et al. 2016, 'Variability in individual activity bursts improves ant foraging success', *Journal of the Royal Society Interface*, 13:20160856.

- Gutierrez-Roig M et al. 2016, 'Active and reactive behaviour in human mobility: the influence of attraction points on pedestrians', Royal Society Open Science, 3:160177.

Oltra A, Palmer JRB & Bartumeus F 2016, 'AtrapaelTigre.com: enlisting citizens-scientists in the war on tiger mosquitoes', in European Handbook of Crowdsourced Geographic Information, *Ubiquity Press*, chapter 22, pp. 295–308, Eds. Capineri C et al.
 Rodriguez A, Bartumeus F & Gavaldà R 2016, 'Machine Learning Assists the Classification of Reports by Citizens on Disease-Carrying Mosquitoes', *Proceedings of the Workshop on Data Science for Social Good*, European Conference on Machine Learning and Principles and Practice of Knowledge Discovery (*ECML PKDD*).

Selected research activities

I became staff member of CREAF.

Organizer of the Workshop "Data Challenge on Behavioural Annotation" (IAPC 2016).

Evaluator for the National Geographic (USA) – I+D projects and for the Smithsonian Institution (Washington DC, USA) – personnel careers.

I was nominator of the prestigious Kyoto Prize 2017 (Inamori Foundation, Japan).



Batlle Gómez, Eduard Institut de Recerca Biomèdica de Barcelona (IRB Barcelona) Life & Medical Sciences

Eduard Batlle joined the Institute for Research in Biomedicine (IRB Barcelona) as ICREA Research Professor and Head of the Oncology Program in 2004. His research activity has focused on the mechanisms that drive colorectal cancer (CRC) initiation and progression. Amongst other findings, his research originally identified the transcription factor Snail as a repressor of E-Cadherin gene expression during the EMT (2000); the connection between intestinal stem cells and CRC (2002-2011); and more recently a key role for TGF-beta signaling in stromal cells during metastatic colonization (2012-2015). His track record has been recognised through several awards/honours such as the Sabadell Banc Award for Biomedical Research (2010), Josef Steiner Award (2013), ERC Starting and Advanced Grants (2007, 2013), the Pezcoller foundation-EACR award (2014), the Lilly Foundation Award for Pre-clinical research (2016).

Research interests

The inner layer of the intestinal tube, the intestinal epithelium, is in a constant process of renewal. Hundreds of millions of terminally differentiated intestinal cells are replaced by new cells every day during the life of an adult organism. This tremendous regenerative power is ultimately sustained by a small population of intestinal stem cells. It is believed that alterations in the functioning of intestinal stem cells account for the pathophysiology of various bowel disorders. Our laboratory studies the connection between the biology of Intestinal Stem Cells and Colon Cancer. We have recently achieved for the first time the isolation of stem cells of the human colonic epithelium as well as of tumor stem cells from colon cancers. We are currently analyzing the features of these two cell types with the aim of designing new therapeutic and diagnostic tools for the management of colon cancer.

Selected publications

Mora-Buch R, Dotti I, Planell N, Calderón-Gómez E, Jung P, Masamunt MC, Llach J, Ricart E, Batlle E, Panés J & Salas A 2016, 'Epithelial IL-1R2 acts as a homeostatic regulator during remission of ulcerative colitis', *Mucosal Immunol.*, 9, 4, 950 – 959.
Tauriello DVF & Batlle E 2016, 'Targeting the Microenvironment in Advanced Colorectal Cancer', *Trends in Cancer*, vol. 2 n.9, pp 495-504.

Selected research activities

Awards and Honors

- 2016 Carme and Severo Ochoa Foundation Prize
- 2016 Lilly Foundation Award for Preclinical Research in Biomedicine

Organization of conferences

• Co-organizer (with Salvador Aznar-Benitah and Raúl Méndez, IRB Barcelona) of the B. Debate Conference "Beyond Cancer Genomes"

Invited Talks (selection)

- 28th Pezcoller Symposium. Trento. Italy.
- American Assoc. for Cancer Research (AACR) Annual Meeting. Major Symposium on "Microenvironment and Cancer Stemness". New Orleans. USA.
- EMBO symposium: Tumor microenvironment. Heidelberg. Germany



Belarte Franco, Maria Carme Institut Català d'Arqueologia Clàssica (ICAC) Humanities

PhD in Geography and History (1995), University of Barcelona, for my research work on proto-historic societies in Catalonia through the analysis of their domestic architecture. From 1996 to 1998 I was a post-doctoral researcher at the CNRS (Unité Mixte de Recherche 5140 - Lattes, France). From 1999 to 2003, I worked at the University of Barcelona as a post-doctoral researcher. In 2004, I took a position at the ICAC to start a research programme about the protohistoric societies and to create a research group specialized in this period. I joined ICREA in 2006; since then, I develop my research at the ICAC in collaboration with researchers of Catalan, French and Tunisian Institutions. In 2013, I received Positive Assessment from the AQU Catalunya (Catalan Evaluation Agency) in order to apply for a university full professor position.

Research interests

The general goal of my research is to study the complex societies of the first millennium BC in western Mediterranean. I am interested in the processes leading to the formation of these societies during the Late Bronze Age as well as their social organisation during the Iron Age (first millennium BC). From a geographical point of view, my research is conducted in North-eastern Iberian Peninsula, South of France and North of Africa. More particularly, my current research focuses on two main issues. On the one hand, the study of settlement patterns, domestic architecture and social use of space. On the second hand, the analysis of rituals, mortuary practices and use of funerary space. The combined analysis of settlement and burial sites enables the understanding of social organisation, and yields information about the appearance of social differences and hierarchy in the Iron Age communities.

Selected publications

- **Belarte MC**, Camañes MP, Monrós M & Principal J 2016, 'Cooking in the Iberian Culture (sixth-second centuries BC): Private or Public?', *Journal of Mediterranean Archaeology*, 29.2, 173-196.

- Kallala N, Sanmartí J (dirs) & **Belarte MC** (ed) 2016, Althiburos II. La fouille dans l'aire du capitole et dans la nécropole méridionale: études. Documenta 28, Institut Català d'Arqueologia Clàssica, Tarragona.

- **Belarte MC** & Ramon J 2016, 'L'architecture et l'urbanisme durant la période numide', Kallala N, Sanmartí J (dirs) & Belarte MC (ed) 2016, Althiburos II. *La fouille dans l'aire du capitole et dans la nécropole méridionale: études*. Documenta 28, Institut Català d'Arqueologia Clàssica, Tarragona, 13-47.

Belarte MC & Camañes P 2016, 'Activités domestiques et vie quotidienne en Ibérie septentrionale', De Chazelles C-A, Schwaller
 M, Gruat P, Mazière F (eds), Vie quotidienne, tombes et symboles des sociétés protohistoriques de Méditerranée nord-occidentale.
 Mélanges offerts à Bernard Dedet, ADAL, Lattes (Monographies d'archéologie méditerranéenne), 45-61.

- **Belarte MC**, Plana-Mallart R, Prado G de 2016, 'Chronique d'archéologie ibérique : l'âge du Fer sur le littoral catalan, bilan de la recherche récente', Documents d'Archéologie Méridionale, 37 (2014), 225-250.

Selected research activities

- PI: Caracterización de los asentamientos urbanos en la costa de la Iberia septentrional (s. VI-III aC): teledetección, documentación y restitución de estructuras constructivas (HAR2015-67946-C2-2-P).

- PI: Formes d'ocupació del territori i evolució del poblament a la Cessetània occidental durant la protohistòria (Ier mil·lenni aC).

- Teaching at the URV-UAB-ICAC Classical Archaeology Master.

Organization of conferences and seminars

- La metal·lúrgia del ferro i la formació de les societats complexes a la Mediterrània occidental – 8th International Archaeological Meeting of Calafell. October 2016.

- Il International Seminar La conservació i restauració en l'arqueologia: una eina per a la recerca i la divulgació. Tarragona, December 2016.



Benet Martínez, Verònica Universitat Pompeu Fabra (UPF) Social & Behavioural Sciences

Before joining ICREA and Universitat Pompeu Fabra in 2010, I held faculty positions at the University of California (Riverside) and the University of Michigan (Ann Arbor). I obtained a PhD in Psychology from the University of California (Davis) and was a funded Postdoctoral Research Fellow at the University of California (Berkeley). I am an appointed Fellow of the Society for Personality and Social Psychology, was an Associate Editor for the "Journal of Personality and Social Psychology" (2009-2015), and I am an Editorial Board Member for several top-tier psychology journals. My research has been funded by government and private grants from the U.S., Catalonia, and the EU, and by intramural funds from the University of Michigan, the University of California, and Universitat Pompeu Fabra.

Research interests

Using correlational and experimental research designs and different types of data (survey, behavioral, social network) I examine the following issues: ACCULTURATION/MULTICULTURALISM: Dynamics and socio-cognitive correlates of managing two or more cultural affiliations and identities; Individual differences in bicultural identity structure; Biculturalism and social-networks; Consequences of biculturalism (social, cognitive, and adjustment-related). CULTURE AND SELF-CONCEPT: Identification and measurement of culture-specific and -general personality constructs; Interplay of cultural values and personality in predicting well-being; Bilingualism and self-schemas. CROSS-CULTURAL RESEARCH METHODS: Cultural/linguistic issues in the development and adaptation of psychological scales and tests; Combined emic-etic methodology; Psychometrics of multi-group cultural comparisons.

Selected publications

- Hong, YY., Zhan, S., Morris, M.W., **Benet-Martinez**, V. (2016). Multicultural identity processes. *Current Opinion In Psychology*, 8, 49 – 53.

- van der Zee, K., **Benet-Martinez**, V., & van Oudenhoven, J.P. (2016). Personality and acculturation. In D. Sam and J. W. Berry (Eds), *The Cambridge handbook of acculturation psychology.* New York, NY, US: Cambridge University Press.

Selected research activities

Distinguished Visiting Fellow at the CUNY Graduate Center, New York: Advanced Research Collaborative (jan-june 2016) 1 plenary address (Italian Association of Social Psychology, Naples), 5 *invited talks* (Association of Psychological Science, Chicago; Hebrew University of Jerusalem, Israel; The New School of Social Research, NY; Graduate School of Business, Columbia University, NY; The Graduate Center, CUNY, NY).

4 conference presentations (Society of Experimental Social Psychology, Santa Monica, CA; Society for Personality and Social Psychology, San Diego, CA).



Biegert, Jens Institut de Ciències Fotòniques (ICFO) Experimental Sciences & Mathematics

Jens Biegert received his PhD from the TU Munich in 2001, and headed research on ultrafast pulse generation and strong field physics at ETH Zurich from 2001 until 2006. In 2007 he was appointed ICREA Research Professor and established the Attoscience and Ultrafast Optics group at ICFO. He has over 130 journal publications, authored 7 book chapters (2 chapters are published in encyclopedias), given over 100 invited talks and edited one book. He has served on several conference and editorial panels and became Associate Editor or AIP Photonics in 2015. He is fellow of the German National Academic Foundation, was recipient of a Marie Curie Fellowship in 2001, the OSA Allen Price in 2004, was named Research Assistant Professor in the USA in 2001 and Research Professor in 2012 and was elected Fellow of the Optical Society of America OSA in 2015.

Research interests

The power of attoscience and ultrafast optics lies in the incredible time resolution that gives access to observing the triggering events that are caused by electronic rearrangement and ultimately lead, to molecular dissociation, chemical reactions, excitonic energy transfer or even biological function. Our research includes pioneering light sources and coherent soft-X-ray generation across the water window (300-500 eV) and attosecond emission below the atomic unit of time (24 as). In 2016, we succeeded in taking the first snapshots of how a bond breaks in a single molecule and how one of its protons gets ejected. The measurement demonstrated tracking all atoms of an individual molecule thereby achieving a combined sub-atomic spatial and attosecond temporal resolution. Moreover, we demonstrated first isolated attosecond soft X-ray pulses for real-time measurements of electronic dynamics and a first investigation shows correlated electron dynamics of a 2D material in real time.

Selected publications

- Wolter B, Pullen MG, Le A-T, Baudisch M, Doblhoff-Dier K, Senftleben A, Hemmer M, Schröter D, Ullrich J, Pfeifer T, Moshammer R, Gräfe S, Vendrell O, Lin CD & **Biegert J** 2016, "Ultrafast electron diffraction imaging of bond breaking in di-ionized acetylene", *Science*, 354, 308.

- Baudisch M, Wolter B, Pullen M, Hemmer M & **Biegert J** 2016, 'High power multi-color OPCPA source with simultaneous femtosecond deep-UV to mid-IR outputs', *Optics Letters*, 41, 15, 3583 - 3586.

- Suárez N, Chacón A, Ciappina MF, Wolter B, **Biegert J** & **Lewenstein M** 2016, "Above-threshold ionization and laser-induced electron diffraction in diatomic molecules", *Phys. Rev. A* 94, 043423.

- Teichmann SM, Silva F, Cousin SL, Hemmer M & **Biegert J** 2016, '0.5-keV Soft X-ray attosecond continua', *Nature Communications*, 7, 11493.

- Sanchez D, Hemmer M, Baudisch M, Cousin SL, Zawilski K, Schunemann P, Chalus O, Simon-Boisson C & **Biegert J** 2016, '7 mu m, ultrafast, sub-millijoule-level mid-infrared optical parametric chirped pulse amplifier pumped at 2 um', *Optica*, 3, 2, 147 – 150.

- Pullen MG, Wolter B, Le A-T, Baudisch M, Sclafani M, Pires H, Schroeter CD, Ullrich J, Moshammer R, Pfeifer T, Lin CD & **Biegert J** 2016, 'Influence of orbital symmetry on diffraction imaging with rescattering electron wave packets', *Nature Communications*, 7, 11922.



Bijnens, Bart Universitat Pompeu Fabra (UPF) Engineering Sciences

MSc in Electronic Engineering and PhD in Medical Sciences (1997, KU Leuven, Belgium). Associate Professor of Cardiovascular Imaging and Cardiac Dynamics at the Faculty of Medicine in Leuven (1998-2004). He supervised clinical research at St. George's Hospital in London (2005-2006). In 2007, he was resident Visiting Professor at the University of Zagreb, Croatia. Since Sept. 2008, he is an ICREA Research Professor at the Department of Information and Communication Technologies of the Universitat Pompeu Fabra.

Research interests

Translational Cardiovascular Pathophysiology, focussing on assessing cardiac function and understanding and recognising the changes induced by disease and how treatment strategies can be used to modulate this remodelling. This is approached by integrating information handling and processing techniques, combined with basic knowledge on cardiovascular pathophysiology in order to advance clinical sciences. This implies defining the research approach from the basic understanding of the disease towards the clinical study; selecting/designing the appropriate investigational tools to assess the relevant clinical parameters; quantifying the diagnostic information (from clinical information to imaging data) to extract the most pertinent information and interpreting the results and relate them to the pathophysiological knowledge.

Selected publications

Driessen MM, Hui W, **Bijnens BH**, Dragulescu A, Mertens L, Meijboom FJ & Friedberg MK 2016, 'Adverse ventricular-ventricular interactions in right ventricular pressure load: Insights from pediatric pulmonary hypertension versus stenosis', *Physiol Rep.*4.
Sanz-de la Garza M, Grazioli G, **Bijnens B**, Sarvari SI, Guasch E, Pajuelo C, Brotons D, Subirats E, Brugada R, Roca E & Sitges M 2016, 'Acute Exercise Dose-Dependent Impairment in Atrial Performance During an Endurance Race', *JACC Cardiovasc Imaging*, 9:1380-1388.
Weidemann F, Maier SK, Störk S, Brunner T, Liu D, Hu K, Seydelmann N, Schneider A, Becher J, Canan-Kühl S, Blaschke D, **Bijnens B**, Ertl G, Wanner C & Nordbeck P 2016, 'Usefulness of an Implantable Loop Recorder to Detect Arrhythmias in Patients With Advanced Fabry Cardiomyopathy', *Am J Cardiol*. 118:264-274.

- Gaudron PD, Liu D, Scholz F, Hu K, Florescu C, Herrmann S, **Bijnens B**, Ertl G, Störk S & Weidemann F 2016, 'The septal bulge-an early echocardiographic sign in hypertensive heart disease', *J Am Soc Hypertens.* 10:70-80.

- Sanz de la Garza M, Grazioli G, **Bijnens BH**, Pajuelo C, Brotons D, Subirats E, Brugada R, Roca E & Sitges M 2016, 'Inter-individual variability in right ventricle adaptation after an endurance race', *Eur J Prev Cardiol.* 23:1114-1124.

- Seydelmann N, Liu D, Krämer J, Drechsler C, Hu K, Nordbeck P, Schneider A, Störk S, **Bijnens B**, Ertl G, Wanner C & Weidemann F 2016, 'High-Sensitivity Troponin: A Clinical Blood Biomarker for Staging Cardiomyopathy in Fabry Disease', *J Am Heart Assoc*. 5:e002839.

- Cruz-Lemini M, Crispi F, Valenzuela-Alcaraz B, Figueras F, Sitges M, **Bijnens B** & Gratacós E 2016, 'Fetal cardiovascular remodeling persists at 6 months in infants with intrauterine growth restriction', *Ultrasound Obstet Gynecol.* 48:349-356.

- Gabrielli L, **Bijnens B**, Brambila C, Duchateau N, Marin J, Sitges-Serra I, Mont L, Brugada J & Sitges M 2016, 'Differential atrial performance at rest and exercise in athletes', *Scand J Med Sci Sports*. 26:1444-1454.



Block Allen, David M. Universitat de Lleida (UdL) Humanities

I am ICREA Research Professor in Sociolinguistics in the Departament d'Anglès i Lingüística, Universitat de Lleida. There I am a member of the Cercle de Lingüística Aplicada. I am Fellow of the Academy of the Social Sciences (UK); Visiting Professor at University College London, Institute of Education; and editor of the Routledge book series Political Economy and Applied Linguistics. I joined ICREA in September 2012 after 16 years at the University College London Institute of Education, where I was Professor of Languages in Education. Prior to that, I worked in Barcelona for 18 years as an English teacher in centres such as ESADE, and as a Lecturer in Applied Linguistics at the Universitat de Barcelona and the Universitat Autònoma de Barcelona. I completed my PhD in Applied Linguistics at the University Lancaster (UK) in 1995.

Research interests

I have published articles, chapters and books on a variety of topics in applied linguistics, including second language identities, bi/multilingualism and language in society. At present, I am incorporating into my work past and present thinking in political economy (from Smith and Marx to Piketty and Harvey), as I develop conceptual frameworks for understanding globalization, internationalisation, multiculturalism, bi/multilingualism, identity and social movements. In my most recent work I have focussed on neoliberalism as the dominant ideology/rationality in contemporary societies, socioeconomic stratification in 21st century societies and class as a key dimension of being in the world. This orientation is reflected in two books, Neoliberalism and Applied Linguistics (Routledge, 2012; coauthored, with John Gray and Marnie Holborow) and Social Class in Applied Linguistics (Routledge, 2014); numerous articles and chapters appearing in 2016, 2017 and 2018; and two additional books under contract and in preparation: Political Economy and Sociolinguistics: Neoliberalism, Inequality and Social Class. (Bloomsbury) and (with Lídia Gallego-Balsà) Minority Ethnic Students in Higher Education: Talking Multilingualism and Identity (Multilingual Matters).

Selected publications

- **Block D** & Gray J 2016, "Just go away and do it and you get marks': The degradation of language teaching in neoliberal times', *Multilingual and Multicultural Development*, vol 37, no. 2, pp 481-494.

- **Block D** 2016, 'The impact of globalisation, internationalisation and migration on the use and vitality of Catalan in secondary school and higher education settings', *Lang Cult Curric*, vol 29, no. 1, pp 107-116.

- **Block D** 2016, 'Social class in language and identity research', in S Preece (ed.) *The Routledge handbook of language and identity*, Routledge, London, pp. 241-254.

- **Block D** & Corona V 2016, 'Intersectionality in language and identity research', In S Preece (ed.) *The Routledge handbook of language and identity*, Routledge, London, pp. 507-522.

- Block D 2016, "What is class?', In A Lin (ed.) Investigating English in Europe, Mouton de Gruyter, Berlin, pp. 125-132.

- **Block D** 2016, 'Internationalisation policies and practices in European universities: the development of language proficiency, intercultural competence and European citizenship awareness'. Introduction to the special issue of *Language Learning Journal* (ed. D Block), vol. 44,no. 3, pp 1-4.

Selected research activities

*CO Principal Investigator, Towards an empirical assessment of the impact of English-medium instruction at university: language learning, disciplinary knowledge and academic identities/Analisis empirico del impacto de la docencia en ingles en la universidad: aprendizaje de lengua (ASSEMID), MINECO, Reference: FFI2016-76383-P, 30 December 2016 – 29 December 2019, Amount: €60,500. *15 papers given at conferences and universities in Canada (1), Mexico (1), Spain (6), Switzerland (2), the UK (3) and the US (2) *Ongoing PhD supervision (3 students)

*Visiting professor, Universidad Nacional Autónoma de Mexico, Ciudad de México, October 2016

*Editor, Routledge book series Language, Society and Political Economy

*Associate Editor, Applied Linguistics Review

*Reviewing academic journal articles, grant proposals and book proposals



Boeckx, Cedric Universitat de Barcelona (UB) Humanities

Cedric Boeckx is Research Professor at the Catalan Institute for Advanced Studies (ICREA), a member of the Universitat de Barcelona Institute for Complex Systems, and a member of the section of General Linguistics at the Universitat de Barcelona. Before joining ICREA, he was Associate Professor of Linguistics at Harvard University. He is the author of numerous books, including Islands and Chains (2003), Linguistic Minimalism (2006), Bare Syntax (2008), Language in Cognition (2009), Syntactic Islands (2012), Elementary Syntactic Structures (2014), and the editor of numerous volumes. He is also the founding co-editor of the Open Access journal Biolinguistics, and the founding editor of the Oxford University Press monograph series 'Oxford Studies in Biolinguistics'.

Research interests

My current research focuses on developing new ways of advancing the biolinguistic program, a growing interdisciplinary enterprise seeking to uncover the biological foundations of the human language faculty, a critical part of 'human cognitive biology'. My graduate training and early career were in theoretical linguistics, but my more recent work has a more explicit biological orientation. My current projects are all intended to facilitate integration among disciplines (linguistics, neuroscience, evolutionary biology, and genetics), and lead to better experimental testing of theoretical hypotheses, as well as to more solid interpretations of experimental findings. I also seek to exploit the full pluralism characteristic of the life sciences to force a rethinking of long-held assumptions in theoretical linguistics and other domains of cognitive science.

Selected publications

- Fujita K & Boeckx C (eds.) 2016, Advances in Biolinguistics: The human language faculty and its biological basis, London: Routledge.

- Boeckx C & Benitez-Burraco A 2016, 'Components of the language-ready brain', Frontiers in Psychology, 7, 762.

- Theofanopoulou C & **Boeckx C** 2016, 'The central role of the thalamus in language and cognition', In Advances in Biolinguistics: The human language faculty and its biological basis, ed. **Boeckx C** & Fujita K, London: Routledge.

- Boeckx C 2016, 'Remarks on logodiversity', In Rethinking parameters, (Ed.) Eguren L et al., 64-104, Oxford: Oxford University Press.

- Martins PT & **Boeckx C** 2016, 'What we talk about when we talk about biolinguistics', *Linguistics Vanguard*, vol. 2, 1.

- Boeckx C 2016, 'Evolutionary syntax', Journal Of Linguistics, 52, 2, 476 - 480.

- Boeckx C & Martins PT 2016, 'Biolinguistics', In Oxford research encyclopedia of linguistics, Oxford/New York: Oxford University Press.

- **Boeckx C** & Martins PT 2016, 'Language evolution: Insisting on making it a mystery or turning it into a problem?', In *Papers dedicated to Anne Reboul*, ed. Dupuy L, Grabizna A, Foudon N & Saint-Germier P, Lyon.

- Martins PT, Leivada E, Benitez-Burraco A & **Boeckx C** 2016, 'Biological pluralism in service of biolinguistics', In Advances in Biolinguistics: The human language faculty and its biological basis, ed. **Boeckx C** & Fujita K, London: Routledge.



Bonatti, Luca Universitat Pompeu Fabra (UPF) Social & Behavioural Sciences

I am ICREA Research Professor in Cognitive Development, associated to the Universitat Pompeu Fabra, Spain. I have been full professor at the University of Nantes, France, and associate professor at the University of Paris 8, France, at SISSA/ISAS, Trieste, Italy. I have also been visiting professor at the University of Budapest, Hungary, at the University of the Balearic Islands, Spain, and at New York University. I received my PhD in Philosophy of Mind at Rutgers, under the supervision of Jerry Fodor. I am interested in reasoning, language learning, imagination of physical events and infant cognition.

Research interests

I work on artificial and natural language learning, natural categorization, and theories of deductive and probabilistic reasoning. I study cognition both in adults and young infants. In adults, the focus of my latest research is on how language learners can find words and rules in an unknown speech stream. I have promoted a dual model of language acquisition, giving evidence that lexical learning and grammatical learning recruit different acquisition mechanisms. In infant cognition, my work focuses on early abilities of reasoning about the future, and on how basic categories affect infants' organization of experience. Recently, with my collaborators, I have proposed a novel theory of how infants reason about uncertain events and on how their reasoning is affected by what they experience. I have tried to show that infants have intuitions about the future that are not based on their experience of the past, but on their logical abilities of analyzing current events.

Selected publications

- Endress AD & **Bonatti LL** 2016, 'Words, rules, and mechanisms of language acquisition (vol 7, pg 19, 2016)', Wiley Interdisciplinary Reviews-cognitive Science, 7, 4, 289 - 289.

- Teglas E & Bonatti LL 2016, 'Infants anticipate probabilistic but not deterministic outcomes', Cognition, 157, 227 - 236.



Brander, Christian Institut de Recerca de la Sida - IrsiCaixa (IrsiCaixa) Life & Medical Sciences

Christian Brander graduated from the University of Bern in 1994 with a PhD in Immunology studying exogenous antigen re-presentation on HLA class and T-cell hyper-reactivity to Penicillin. He then spent 13 years at Harvard University focusing on cellular immunity to viral infections and the impact that host genetics have on this immune response. He joined ICREA in 2008 with an appointment at IrsiCaixa Research Institute to continue his work on host genetics and the cellular immunity to viral infections, including HIV, HCV and herpesviruses such as KSHV and EBV. He also serves as a curator of the Los Alamos HIV Immunology database and as the scientific director of the HIVACAT program, the Catalan project for the development of effective preventive and therapeutic HIV vaccines, which unites 60 investigators at two HIV research centers in Barcelona, Irsicaixa and Hospital Clinic. He holds an Associate Professor positions at the University of Vic and Central Catalonia

Research interests

Our work focuses on the cellular immunity to viral infections in the immune compromised host. The main quest is the search for immune correlates of relative control of HIV and how to translate these findings into rational HIV vaccine design. In our work, we have used a series of ex-vivo immune analyses in samples from HIV infected individuals to identify regions of the virus where it is most vulnerable and try to better define the critical characteristics (avidity, cross-reactivity) of an effective T cell response to HIV. These studies are complemented by analyses in highly-exposed yet HIV-uninfected individuals and subjects that are closely followed from time points before HIV infection to chronic stages of newly acquired infection. In all these patient groups, we also apply integrated systems biology analyses that combine "communicom" studies with methylom determination to assess to what level HIV infection induces epigenetic changes in crucial anti-viral host factors

Selected publications

- Noguera-Julian M, Rocafort M, Guillen Y, Rivera J, Casadella M, Nowak P, Hildebrand F, Zeller G, Parera M, Bellido R, Rodriguez C, Carrillo J, Mothe B, Coll J, Bravo I, Estany C, Herrero C, Saz J, Sirera G, Torrela A, Navarro J, Crespo M, **Brander C**, Negredo E, Blanco J, Guarner F, Luz Calle M, Bork P, Sonnerborg A, Clotet B & Paredes R 2016, 'Gut Microbiota linked to Sexual Preference and HIV Infection', *Ebiomedicine*, 5, 135 - 146.

- Blanco-Heredia J, Lecanda A, Valenzuela-Ponce H, **Brander C**, Avila-Rios S & Reyes-Teran G 2016, 'Identification of Immunogenic Cytotoxic T Lymphocyte Epitopes Containing Drug Resistance Mutations in Antiretroviral Treatment-Naive HIV-Infected Individuals', *Plos One*, 11, 1, e0147571.

- Rosas M, Bellido R, Rocafort M, Puig J, Crespo M, Dorrell L, Paredes R, Brander C & Mothe B 2016, 'Mechanisms of Abrupt HIV Disease Progression in a Cohort of Previous Elite and Viremic HIV Controllers', *Aids Research And Human Retroviruses*, 32, 170 - 170.
- Ternette N, Yang H, Partridge T, Llano A, Cedeño S, Fischer R, Charles PD, Dudek NL, Mothe B, Crespo M, Fischer WM, Korber BT, Nielsen M, Borrow P, Purcell AW, Brander C, Dorrell L, Kessler BM & Hanke T 2016, 'Defining the HLA class I-associated viral antigen repertoire from HIV-1-infected human cells', *Eur J Immunol.*, 46, 1, 60 - 69.

- Rallon NI, Mothe B, Lopez Bernaldo DE, Quiros JC, Plana M, Ligos JM, Montoya M, Muñoz MA, Esteban M, Garcia F, **Brander C**, Benito JM; RISVAC03 Study Group 2016, 'Balance between activation and regulation of HIV-specific CD8 T cells response after MVA-B therapeutic vaccination', *AIDS*, 30, 4, 553 – 562.



Bromley, Stefan T. Universitat de Barcelona (UB) Engineering Sciences

Stefan Bromley (1971) is an ICREA Research Professor at the Institute of Theoretical and Computational Chemistry at the University of Barcelona (IQTUB) where he heads the Nanoclusters and Nanostructured Materials group. He obtained his PhD in Computational Physics (University of Southampton, UK) in 1997 and has held research posts in the UK (Postdoctoral fellow, Royal Institution), the Netherlands (Associate Professor, Delft University of Technology) and Spain (Ramón y Cajal fellow, UB). He has published over 130 WoS-listed articles and 6 book chapters, which have received over 3500 citations (h=30), and given many invited talks about his work at international conferences and academic institutions. He has also edited a book on "Computational Modelling of Inorganic Nanomaterials" published in 2016.

Research interests

With the constant technological drive for device miniaturisation, materials are increasingly being used at scales of only a few 100s or 1000s of atoms (i.e. at the nanoscale). Such nanomaterials often display novel size-dependent properties compared to materials at everyday length scales. Using powerful supercomputers and a range of atomistic/quantum modelling methods, our aim is to obtain a detailed predictive understanding of the structural, electronic and chemical properties of nanomaterials. Of particular interest is how nanomaterials evolve with increasing size, and the design of new materials using nanoscale building blocks. Our research follows three main themes: (i) nanoclusters and nanostructured phases of materials having importance in energy applications (e.g TiO2, ZnO). (ii) growth and properties of nanoclusters of astronomical importance (e.g. TiC, silicates). (iii) design of nanostructured materials using organic molecular building blocks for electronics/spintronics.

Selected publications

- Gaudenzi R, Burzurí E, Reta D, Moreira I de PR, **Bromley ST**, Rovira C, Veciana J & van der Zant HSJ 2016,' Exchange Coupling Inversion in a High-Spin Organic Triradical Molecule', *Nano Lett.*, 16, 3, 2066-2071.

- Demiroglu I & **Bromley ST** 2016, 'Evidence for multi-polymorphic islands during epitaxial growth of ZnO on Ag(111)', *J. Phys.:* Condens. Matter 28, 224007.

- Taylor & Francis 2016, Computational Modelling of Inorganic Nanomaterials, (eds) Bromley ST & Zwijnenburg MA.

- Gobrecht D, Cherchneff I, Sarangi A, Plane JMC & **Bromley ST** 2016, 'Dust formation in the oxygen-rich AGB star IK Tauri', Astron. Astrophys., 585, A6.

- Cho D, Ko KC, Lamiel-Garcia O, **Bromley ST**, Lee JY & Illas F 2016, 'Effect of Size and Structure on the Ground-State and Excited-State Electronic Structure of TiO₂ Nanoparticles', *J. Chem. Theory Comput.*, 12, 8, 3751-3763.

- Campos A, Oxtoby N, Galindo S, Pfattner R, Veciana J, **Bromley ST**, Rovira C & Mas-Torrent M 2016, 'Structural and electronic characterisation of pi-extended tetrathiafulvalene derivatives as active components in field-effect transistors', *CrystEngComm*, 18, 33, 6149-6152.

- Bromley ST, Martin JC, Gomez & Plane JMC 2016, 'Under what conditions does (SiO)_N nucleation occur? A bottom-up kinetic modelling evaluation', *Phys. Chem. Chem. Phys.*, 18, 38, 26913-26922.

- Pfattner R, **Bromley ST**, Rovira C, Mas-Torrent M 2016, 'Tuning Crystal Ordering, Electronic Structure, and Morphology in Organic Semiconductors: Tetrathiafulvalenes as a Model Case', *Adv. Funct. Mater.*, 26, 14, 2256-2275.

Selected research activities

Conference presentations

- 'From Building Blocks to Bulk: Design and Understanding of Nanostructured Materials from the Bottom-up' (Keynote), HPC Materials Chemistry Consortium, Cardiff, UK.

- 'Design of open-shell 2D covalent materials with controllable properties', EMRS 2016 Spring Meeting, Lille, France.
- 'Silicate dust: a bottom-up computational approach', European Conference on Laboratory Astrophysics, Madrid, Spain.



Brucet, Sandra Universitat de Vic - Universitat Central de Catalunya (UVic) Experimental Sciences & Mathematics

I was born in Girona in 1976. I graduated in 1998 and obtained my PhD in Biology in November 2003 at University of Girona. After that I was a postdoc at the University of Oslo (2006) and the National Environmental Research Institute of Denmark (2006-2008). From 2009 to 2012, I worked as a research scientist at the European Commission-Joint Research Centre (Italy). In 2012, I was hired at University of Vic in order to create a new research group on Aquatic ecology. In 2013, I obtained a Marie Curie Intra European Fellowship to work at the University of Aarhus (Denmark). I have also been a Visiting Scientist at the Middle East Technical University, Turkey. In September 2015 I was appointed ICREA Research professor.

Research interests

A key focus of my research is the response of aquatic ecosystems and their biodiversity to global changes, particularly the combination of climate change with other anthropogenic stressors. My research is holistic including the whole trophic structure. I focus on different aquatic ecosystems and I use complementary approaches (experiments, latitudinal comparisons, theoretical ecology). I conducted research evidencing the negative effects of the combined increased temperature, salinity and drought on the food web and biodiversity of aquatic ecosystems. We showed that warming and the associate changes in the top-down control will benefit small organisms across the food web with negative consequences for ecosystem health. We also found that temperature strongly influences most components of fish taxonomic and functional diversity at macroecological scale, emphasizing its importance in determining aquatic biodiversity.

Selected publications

- Boll T, Levi E, Bezirci G, Ozulug M, Tavsanoglu UN, Cakiroglu AI, Ozcan S, **Brucet S**, Jeppesen E & Beklioglu M 2016, 'Fish assemblage and diversity in lakes of western and central Turkey: role of geo-climatic and other environmental variables', *Hydrobiologia*, 771, 1, 31 -44.

- Cañedo-Argüelles M, Hawkins CP, Kefford BJ, Schäfer RB, Dyack BJ, Brucet S, Buchwalter D, Dunlop J, Frör O, Lazorchak J, Coring E, Fernandez HR, Goodfellow W, González Achem AL, Hatfield-Dodds S, Karimov BK, Mensah P, Olson JR, Piscart C, Prat N, Ponsá S, Schulz C-J & Timpano AJ 2016. "Saving freshwater from salts". *Science*, 351, pp 914-916.

- Quintana XD, Egozcue JJ, Martínez-Abella O, López-Flores R, Gascón S, **Brucet S**, Boix D 2016, 'Update: A non-parametric method for the measurement of size diversity, with emphasis on data standardization. The measurement of the size evenness', *Limnology and Oceanography: Methods*.14, 6, 408 – 413.

- Sala M, Faria M, Sarasua I, Barata C, Bonada N, **Brucet S**, Llenas L, Ponsa S, Prat N, Soares A & Canedo-Arguelles M 2016, 'Chloride and sulphate toxicity to Hydropsyche exocellata (Trichoptera, Hydropsychidae): Exploring intraspecific variation and sub-lethal endpoints', *Science Of The Total Environment*, 566, 1032 – 1041.

- Florencia Gutierrez M, Devercelli M, **Brucet S**, Lauridsen TL, Sondergaard M & Jeppesen E 2016, 'Is Recovery of Large-Bodied Zooplankton after Nutrient Loading Reduction Hampered by Climate Warming? A Long-Term Study of Shallow Hypertrophic Lake Sobygaard, Denmark', *Water*, 8, 8, 341.

Selected research activities

Project SOS-Fartet: Improvement of conservation status of fartet, an endangered fish species. Funded by Fundación Biodiversidad. Project DFG: Analysing size-density relationships of aquatic communities in response to strength of predator-prey interactions and resource subsidy.

Member of the Intergovernmental Panel of Biodiversity and Ecosystem Services (IPBES)



Burjachs Casas, Francesc Institut Català de Paleoecologia Humana i Evolució Social (IPHES) Humanities

Born on 3rd August 1955 in Blanes, Catalonia. Dissertation on Paleopalynology, Autonomous University of Barcelona (UAB, 1985). DEA on Quaternary, MNHN-IPH, Paris (1986). PhD in Biological Sciences (UAB, 1990). Contributor of the Botany Department (UAB, 1979-1990). Director and co-director of several archaeological excavations. Hired researcher at Institute of Earth Sciences Jaume Almera, CSIC, Barcelona (1990-1998). Research Assistant at Catholic University of Louvain-La-Neuve (1994). Associate Professor at University Rovira i Virgili (URV), Tarragona since 1998. ICREA Research Professor at URV (2001-2007) and at the Catalan Institute of Human Palaeoecology and Social Evolution (IPHES) since 2008. Training stages of palynological research abroad: CRA, Sophia Antipolis, France (1978) with Prof. M. Girard; IPH, Paris (1985-1987) with Prof. J. Renault-Miskovsky, and University La Sapienza, Roma (1991) with Prof. M. Follieri. He has published more than 330 papers and reports.

Research interests

My investigation seeks to understand the climatic changes that happened along human evolution. This information is important to appreciate some of the factors which have influenced our evolution towards the current species. More precisely, my work is developed in the science of Palynology, which basically consists in the study of the fossil pollen trapped in the soil that our ancestors stepped on. In this way, we can describe the landscape in which they lived, the climate they endured, the vegetables they ate, etc.

Selected publications

- **Burjachs F**, Jones SE, Giralt S & Fernández-López de Pablo J 2016, 'Lateglacial to Early Holocene recursive aridity events in the SE Mediterranean Iberian Peninsula: The Salines playa lake case study', *Quaternary International*, vol. 403, pp. 187-200.

- **Burjachs F**, Pérez-Obiol R, Picornell-Gelabert Ll, Revelles J, Servera-Vives G, Expósito I & Yll El 2016, 'Changements environnementaux et histoire de la colonisation humaine des Îles Baléares (Méditerranée occidentale): conséquences sur l'évolution de la végétation', In Ghilardi M (ed.) Géoarchéologie des îles de Méditerranée, 259-272, Paris, *CNRS*.

- Revelles J, **Burjachs F** & van Geel B 2016, 'Pollen and non-pollen palynomorphs from the Early Neolithic settlement of La Draga (Girona, Spain)', *Review of Palaeobotany and Palynology*, vol. 225, pp. 1-20.

- Expósito I & **Burjachs F** 2016, 'Taphonomic approach to the palynological record of burnt and unburnt samples from El Mirador Cave (Sierra de Atapuerca, Burgos, Spain)', *Quaternary International*, vol. 414, pp. 258-271.

- Euba I, Allué E & **Burjachs F** 2016, 'Wood uses at El Mirador Cave (Atapuerca, Burgos) based on anthracology and dendrology', *Quaternary International*, vol. 414, pp. 285-293.

- Sharp WD, Mertz-Kraus R, Vallverdú J, Vaquero M, **Burjachs F,** Carbonell E & Bischoff JL 2016, 'Archaeological deposits at Abric Romaní extend to 110 ka: U-series dating of a newly cored, 30 meter-thick section', *Journal of Archaeological Science – Reports*, vol. 5, pp. 400-406.

- Vergès-Bosch JM, Burguet-Coca A, Allué E, Expósito I, Guardiola M, Martín P, Morales JI, **Burjachs F,** Cabanes D, Carrancho Á & Vallverdú J 2016, 'The Mas del Pepet experimental programme for the study of prehistoric livestock practices: Preliminary data from dung burning', *Quaternary International*, vol. 414, pp. 304-315.

Selected research activities

Co-organizer of **MEDINES 2016 Conference** 'Late Glacial to Early Holocene Socio-ecological responses to climatic instability within the Mediterranean Basin', CaixaForum, Tarragona.



Cabot, Andreu Institut de Recerca en Energia de Catalunya (IREC) Engineering Sciences

I graduated in Physics in 1998, and in 2003 I received my PhD from the University of Barcelona. I then worked from 2004 to 2007 as a postdoctoral researcher in the University of California at Berkeley and in the Lawrence Berkeley National Laboratory, under Prof. A. Paul Alivisatos' guidance. I returned to the Electronics Department of the University of Barcelona in 2007, and in 2009 I joined the Catalonia Institute for Energy Research - IREC to create the Functional Nanomaterials Group. Now, as ICREA Research Professor, I lead a team of approximately 15 people devoted to the preparation and characterization of metal and semiconductor nanostructures, the assessment of their functional properties and their bottom-up assembly to fabricate high efficiency and cost-effective energy conversion and storage devices.

Research interests

My research focuses on the design, production and manipulation of nanocrystals and nanomaterials, their functional characterization and their technological application in the energy field. I use solution-based processes to produce these nanocrystals and to assemble them to the macroscale. Solution-based methods allow both a unique control over composition and crystal phase at the nanometer scale and a high versatility in the development of socially and economically-relevant technologies. From an application point of view, I have centered my work in the development of materials for energy conversion and storage. In particular, my group develops solutionprocessed solar cells using spray deposition technologies, thermoelectric nanocomposites from the bottom-up assembly of colloidal nanocrystals and multi-metallic and metal-metal oxide nano-heterostructures for catalysis, including photo and electrocatalysis.

Selected publications

- Nafria R, Genc A, Ibanez M, **Arbiol J**, Ramirez de la Piscina P, Homs N & **Cabot A** 2016, 'Co-Cu Nanoparticles: Synthesis by Galvanic Replacement and Phase Rearrangement during Catalytic Activation', *Langmuir*, 32, 9, 2267 - 2276.

Liu Y, Cadavid D, Ibanez M, De Roo J, Ortega S, Dobrozhan O, Kovalenko MV & Cabot A 2016, 'Colloidal AgSbSe2 nanocrystals: surface analysis, electronic doping and processing into thermoelectric nanomaterials', *Journal Of Materials Chemistry C*, 4, 21, 4756 – 4762.
Yu X, Wang D, Liu J, Luo Z, Du R, Liu L, Zhang G, Zhang Y & Cabot A 2016, 'Cu2ZnSnS4 Nanocrystals as Highly Active and Stable

Electrocatalysts for the Oxygen Reduction Reaction', Journal Of Physical Chemistry C, 120, 42, 24265 - 24270.

- Pistor P, Ruiz A, **Cabot A &** Izquierdo-Roca V 2016, 'Advanced Raman Spectroscopy of Methylammonium Lead Iodide: Development of a Non-destructive Characterisation Methodology', *Scientific Reports*, 6, 35973.

- Luo Z, Lu J, Flox C, Nafria R, Genc A, **Arbiol J**, Llorca J, Ibanez M, Ramon Morante J & **Cabot A** 2016, 'Pd2Sn [010] nanorods as a highly active and stable ethanol oxidation catalyst', *Journal Of Materials Chemistry A*, 4, 42, 16706 – 16713.

- Ibañez M, Luo Z, Genç A, Piveteau L, Ortega S, Cadavid D, Dobrozhan O, Liu Y, Nachtegaal M, Zebarjadi M, Arbiol

J, Kovalenko MV & Cabot A 2016, 'High-Performance Thermoelectric Nanocomposites from Nanocrystal Building Blocks', Nature Comm., 7, 10766.

Selected research activities

Symposium Organizer: Photocatalysis and water splitting; Nanoenergy and Nanosystems – NENS 2016; Baijing, China. New Project: Solar Energy Harvesting with Two-photon Processes – SEHTOP. ENE2016-77798-C4-3-R. Graduated PhD Student: Zhishan Luo, Compositional engineering of coloidal nanoparticles for energy conversion.



Cabot Sagrera, Jordi Universitat Oberta de Catalunya (UOC) Engineering Sciences

Jordi Cabot received his PhD degree in Computer Science from Universitat Politècnica de Catalunya (UPC) in 2006 and his Habilitation (French HdR) from the École Doctorale in Nantes in 2012. He has been a visiting researcher in Milan (Politecnico di Milano) and Toronto (University of Toronto) and an Associate Professor and Inria International Chair at École des Mines de Nantes where he led an Inria Research team in Software Engineering. Since May 2015, he is an ICREA Research Professor at Internet Interdisciplinary Institute (IN3), a research center of the Universitat Oberta de Catalunya (UOC) where he leads the SOM (Systems, Software and Models) research lab. Beyond his core research activities, he tries to book some time for blogging and other dissemination and technology transfer actions.

Research interests

My research falls into the broad area of systems and software engineering, especially promoting the rigorous use of software models and engineering principles in all software engineering tasks while keeping an eye on the most unpredictable element in any project: the people involved in it. Current research topics include the development of pragmatic formal verification techniques to assess the quality and security of software systems, the analysis and data mining of open source projects (and the communities around them) to optimize their collaboration and organizational structures and the study of scalability challenges in the design and deployment of large systems.

Selected publications

- Daniel G, Sunyé G & Cabot J 2016, 'PrefetchML: A Framework for Prefetching and Caching Models', Models'16, 318-328.

- Cánovas Izquierdo JL & Cabot J 2016, 'Collaboro: a collaborative (meta) modeling tool', PeerJ Computer Science 2, e84.

- Cánovas Izquierdo JL, Cosentino V & Cabot J 2016, 'Analysis of co-authorship graphs of

CORE ranked software conferences', Scientometrics, 109 (3): 1665-1693.

- Daniel G, Sunyé G & **Cabot J** 2016, 'UMLtoGraphDB: Mapping Conceptual Schemas to Graph Databases', Conceptual Modeling, Er 2016: 430-444.

- Clarisó R, **Cabot J**, Guerra E & de Lara J 2016, 'Backwards reasoning for model transformation: Method and applications', *Journal of Systems and Software*, 116: 113-132.

- Cánovas Izquierdo JL & **Cabot J** 2016, 'JSONDiscoverer: Visualizing the schema lurking behind JSON documents', *Knowl.-Based Syst.* 103: 52-55.

Selected research activities

Best paper award at Models 2016 (ACM/IEEE 19th International Conference on Model Driven Engineering Languages and Systems)



Cabré Vilagut, Xavier Universitat Politècnica de Catalunya (UPC) Experimental Sciences & Mathematics

Born in 1966 in Barcelona. PhD in Mathematics (area: Partial Differential Equations), Courant Institute, New York University, 1994. Kurt Friedrichs Prize, New York University, 1995. Member of the Institute for Advanced Study, Princeton, 1994-95. Habilitation à diriger des recherches, Université Pierre et Marie Curie-Paris VI, 1998. Harrington Faculty Fellow, The University of Texas at Austin, 2001-02. Tenure Associate Professor, The University of Texas at Austin, 2002-03. ICREA Research Professor at the Universitat Politècnica de Catalunya since 2003. Fellow of the American Mathematical Society, inaugural class, 2013. Editor of the 'Journal of the European Mathematical Society'.

Research interests

My research field is the mathematical analysis of Partial Differential Equations. These equations arise in mathematical physics, differential geometry, finance, and biology. My focus is on elliptic and parabolic equations, and on the analytical understanding of the regularity, symmetry, and other qualitative properties of their solutions. This often involves the use of geometric tools such as isoperimetric inequalities, whose study is an important part of my research. My main current project concerns a recently flourishing area: reaction problems for fractional diffusions associated to jump or Lévy processes. These are the so called 'anomalous diffusions', well noticed in the last decades in some reaction and biological fronts, as well as in mathematical finance.

Selected publications

- **Cabre X**, Sanchon M & Spruck J 2016, 'A priori estimates for semistable solutions of semilinear elliptic equations', *Discrete And Continuous Dynamical Systems*, 36, 2, 601 – 609.

- **Cabre X** & Serra J 2016, 'An extension problem for sums of fractional Laplacians and 1-D symmetry of phase transitions', *Nonlinear Analysis-theory Methods & Applications*, 137, 246 – 265.

- Cabre X, Ros-Oton X & Serra J 2016, 'Sharp isoperimetric inequalities via the ABP method', Journal of the European Mathematical Society, 18, no. 12, 2971 - 2998.

- Sormani C & **Cabre X** 2016, 'Recent applications of Nirenberg's classical ideas', *Notices of the American Mathematical Society*, 63, no. 2, 126 – 128.

Selected research activities

Plenary Talks:

- 'A Mathematical Tribute to Ennio De Giorgi'. Centro De Giorgi, Pisa, Italy. September 19-23, 2016

- 'Calculus of Variations and Nonlinear Partial Differential Equations'. Columbia University, USA. May 23-27, 2016 Editorial Boards:

- Editor of the 'Journal of the European Mathematical Society' and of 'Publicacions Matemàtiques'


Cáceres Aguilar, Mario Universitat Autònoma de Barcelona (UAB) Life & Medical Sciences

Mario Cáceres obtained his PhD at the Universitat Autònoma de Barcelona (UAB) working on Drosophila chromosomal rearrangements (1995-2000). He then moved to the USA as a postdoc at the Salk Institute for Biological Studies (2001-2003) and Emory University (2003-2006), where his research shifted to the use of novel genomic techniques to compare gene-expression levels in humans and non-human primates, as a way to study human unique characteristics. In 2006 he got a Ramón y Cajal position at the Centre for Genomic Regulation in Barcelona, and focused on the identification of genomic changes with potential functional consequences in the human lineage, such as those associated with expression differences and structural variants, especially inversions. In 2010 he joined ICREA and since then leads the Comparative and Functional Genomics group at the Institut de Biotecnologia i de Biomedicina (IBB) of the UAB.

Research interests

The genomic revolution has unveiled extraordinary possibilities unthought-of before. In particular, two of the main questions in biology today are understanding genomic structural variation and gene-expression changes, and how they relate to individual and species differences. To address these questions, we use humans as a model and take a multidisciplinary approach that combines new genomic methods and bioinformatic analysis of the great wealth of data available, generating results of interest to many diverse fields. One of our main lines of research is the evolutionary and functional analysis of polymorphic inversions in the human genome, which aims to investigate the biological significance of this type of changes at a global scale. In addition, we are also carrying out an analysis of the genomic determinants of gene-expression changes in the human brain to find out their molecular causes and the role of natural selection in their fixation.

Selected research activities

- Award of the ERC Proof of Concept Grant 'Application of genomic inversions as diagnostic markers in precision medicine (IN2DIAG)'.

- Award of the Spanish Ministry of Economy and Competitiveness Grant 'Integrative analysis of the functional impact of inversions in genomes and phenotypic traits (INVFUN)'.

- Co-organizer of the XXI Seminario de Genética de Poblaciones y Evolución. October 3-5, 2016. Sitges, Spain.

- Co-organizer of the IV Bioinformatics and Genomics Symposium of the Societat Catalana de Biologia. December 20, 2016. Barcelona, Spain.

- Organizer of the Seminar Series on Research in Genomics and Evolution at the Universitat Autònoma de Barcelona.
- Member of the evaluating committee of the 2016 Award to the Best Scientific Article from the Societat Catalana de Biologia.
- Coordinator of the Genomics and Proteomics Section of the Societat Catalana de Biologia.
- BMC Genomics Associate Editor.



Casal Ribas, Paula Universitat Pompeu Fabra (UPF) Humanities

Paula Casal is an ICREA Professor at the Law Department of Universitat Pompeu Fabra. She was previously a Lecturer and a Reader in Moral and Political Philosophy at Reading University (2004-8), and a Lecturer at Keele University (1996-2004). She was also Fellow in Ethics at Harvard University (1999-2000), Keele Junior Research Fellow, also at Harvard (2000-1), Hoover Fellow at Université Catholique de Louvain (2001-02), and Leverhulme Research Fellow at Oxford University (2002-4). Her work has appeared in such journals as *Ethics, Economics and Philosophy, Journal of Medical Ethics, Journal of Political Philosophy, Hypatia, Political Studies* and *Utilitas*. She is an Associate Editor of *Politics, Philosophy and Economics*, co-editor of LEAP, President of the *Great Ape Project*-Spain, Board Member of *Academics Stand Against Poverty*, and co-director of the UPF *Center for Animal Ethics*.

Research interests

I work on how social institutions should distribute resources. This requires assessing the general principles (such as equality, priority, and sufficiency) governing distributive decisions as well as more specific policies designed to promote social or global justice. I am particularly concerned with policy responses to global poverty, climate change and gender inequality, including various forms of taxation. I am also interested in the intersection between ethics and primatology, including the origins of empathy and resource-sharing as well as violence and gender inequality, the moral status of non-human animals, and the distinction between natural and social inequality. I have also written about how the costs of raising children should be distributed, sea-access for landlocked states, the moral limits to religious accommodation, and the difference medical ethics draws between therapy and enhancement.

Selected publications

- Casal P, Pogge T & Steiner H 2016, 'Un reparto más justo del planeta', Trotta, Madrid.

- **Casal P** 2016, 'Por qué la suficiencia no basta', Igualitarismo, ed. Gallego J & Bullemore T, Santiago de Chile: *Centro de Estudios Públicos*: 269-303.

- Casal P 2016, 'L'amour, pas la guerre: sur la chimie du bien et du mal', Projections. Revue culturelle pluridisciplinaire, 9.

- Casal P 2016, 'The Death of the Zoo. Reflections on the Death of Harambe the Gorilla', Metode.

Selected research activities

Grants: MINECO Retos DER 2016-80471-C2-2-R, Justice, Legitimacy and Global Institutions, PI.

Edited: 2016 LEAP Symposium on "Puzzles on Gender Inequality", with papers by J Mora, JP Vandamme, V Ottonelli, G Schouten, A de Miguel and P van Parijs.

Organized: Global Animals, Inaugural Conference of UPF Center for Animal Ethics 15/3. Co-organized: Fourth Annual Conference of Oxford Studies in Political Philosophy 1-3/6.

Co-Directed (with N Almirón): UPF Center for Animal Ethics, organising numerous activities.

Delivered: Contribution International Panel on Social Progress Report, Princeton Univ. 20/2. Masterclass with Noam Chomsky, United Nations Univ. Center for Globalization, Culture and Mobility, 7/11. Two keynote addresses at Inaugural Conference of Academics Stand Against Poverty- Chile, U. Valparaiso 5/12, Keynote with respondents, Law School, Univ. de Chile, 7/12.

Supervised to completion: Catia Faria's PhD Animal Ethics Goes Wild, Darian Heim's PhD Migrant Tongues, Africa Bouzàs MA Gone with the Waves. Responding to Small Island States Existential Threat, Laura de la Sierra's MA Children of Men. What we Owe to Domesticated Animals, Ian Harper's MA If You Are and Egalitarian How Come You Eat Meat, Celeste Bell's MA Brainwashed. Evaluated: ERC Advanced Grants.



Catalán Bernabé, Gustau Institut Català de Nanociència i Nanotecnologia (ICN2) Experimental Sciences & Mathematics

Gustau Catalán graduated in Physics at the Universitat de Barcelona (1997) and gained his PhD, also in Physics, at the Queen's University of Belfast (2001). This was followed by a one-year round-the-world climbing expedition, the highlights of which were the setting up of a new route in the Dogon country of Mali ("The man with no name", 6c-250 metres, north face of Ouro N'guérou) and the first ascent of a peak in the Himalayas (Draoich Parvat, 6200m, Garwhal, India). Upon returning to research, he worked at the Mediterranean Institute for Advanced Studies (2002-2004), at the University of Groningen (2004-2005) and at the University of Cambridge (2005-2009). He joined ICREA in 2009 as a Research Professor and leader of the Oxide Nanoelectronics group at the Institut Català de Nanociencia i Nanotecnologia (ICN2).

Research interests

The main focus of my research is exploring what happens to the physical properties of complex oxides (mostly perovskites) when you make them nanoscopically small. The interest in these materials stems from their combination of structural simplicity with a vast array of interesting electronic properties, including ferroelectricity and piezoelectricity, magnetoelectricity and metal-insulator transitions. Currently the two themes that currently occupy me are the effects of strain gradients on electrical polarization (flexoelectricity, project funded by the ERC) and the physics of domain walls (domain wall nanoelectronics). I am also dipping my toes on photovoltaic properties of ferroelectrics and antiferroelectrics, with notable results regarding the enormous photovoltages that can be achieved in these materials. The research on these subjects is carried out in the laboratory of Oxide Nanoelectronics (ON) at the Institut Català de Nanociencia i Nanotecnologia (ICN2), located in the campus of the Universitat Autònoma de Barcelona.

Selected publications

- Everhardt AS, Matzen S, Domingo N, **Catalan C** & Noheda B 2016, 'Ferroelectric Domain Structures in Low-Strain BaTiO₃', Advanced Electronic Materials, 2, 1, 1500214.

- Bhaskar UK, Banerjee N, Abdollahi A, Solanas E, Rijnders G & **Catalan G** 2016, 'Flexoelectric MEMS: towards an electromechanical strain diode', *Nanoscale*, 8, 3, 1293 - 1298.

- Narvaez J, Vasquez-Sancho F & **Catalan G** 2016, 'Enhanced flexoelectric-like response in oxide semiconductors', *Nature*, 538, 7624, 219.

- Bhaskar UK, Banerjee N, Abdollahi A, Wang Z, Schlom DG, Rijnders G & **Catalan G** 2016, 'A flexoelectric microelectromechanical system on silicon', *Nature Nanotechnology*, 11, 3, 263.

- Perez-Tomas A, Lira-Cantu M & **Catalan G** 2016, 'Above-bandgap photovoltages in antiferroelectrics', *Advanced Materials*, 28, 9644-9647.

Selected research activities

TALKS

- 'A Christmas list from an oxides guy', TALEM workshop, Toulousse (France).

- 'To flexoelectricity, and beyond', Cambridge Workshop on Ferroics at the Nanoscale (UK).

- 'Switchable mechanical properties of ferroelectric domains', International Symposium on Ferroic Domains (ISFD-13), Vancouver (Canada).

- 'Giant flexoelectricity in oxide semiconductors', European Materials Research Society (E-MRS) Fall Meeting, Warsaw (Poland).

- 'Multiferroic domain walls and antiferroelectric photovoltaics', Royal Society International Meeting on 'Domain walls as new 2D functional materials' (UK).

OUTREACH SEMINARS

- 'L'ELECTRÓ I EL CAMIÓ'. Talk about nanoscience and smart cities in the context of the "Mes Humans" exhibition at the Centre de Cultura Contemporania de Barcelona (CCCB).

- 'NANOCIÈNCIA: LA PARÀBOLA DE LA FORMIGA I L'ELEFANT'. Talk about big effects at small scales, addressed to undergraduate students in cellebration of Sant Albert (patron saint of science, apparently) at the Universitat Politècnica de Catalunya (UPC).



Cau Ontiveros, Miguel Ángel Universitat de Barcelona (UB) Humanities

I am an archaeologist focused on the Late Antique Mediterranean and in the archaeometry of archaeological ceramics. After obtaining my PhD (1998) at the University of Barcelona, I was a postdoctoral GEOPRO TMR-EU Research Fellow (1998-2001) at the Department of Archaeology, University of Sheffield (UK). I returned to Catalonia with a Return Grant of the Generalitat de Catalunya (2001-2002). I was researcher for the EU project CERAMED (2003) and ICREA Research Professor since 2003. I am co-founder and current director of the Equip de Recerca Arqueològica i Arqueomètrica, University of Barcelona (ERAAUB). I have participated in national and international projects such as GEOPRO, CERAMED and Progetto Classe working in the World Heritage site of Ravenna. I am co-founder of the international conference LRCW, and of the series Roman and Late Antique Mediterranean Pottery (RLAMP) and Limina/Limites: Archaeologies, histories, islands and borders in the Mediterranean (365-1556).

Research interests

I have specialised in the study of archaeological ceramics to investigate their provenance, technology of production and distribution using physico-chemical, mineralogical and petrographic techniques. I have a broad interest in the analytical study of ceramic materials including the theoretical foundations of the discipline and in ceramic etnhoarchaeology and ethnoarchaeometry. I have a main interest in Late Antique Archaeology and in pottery in the Mediterranean, especially in the study of coarse and cooking wares. One of my aims is also to investigate the transformation of the Roman world with a particular interest in Mediterranean island systems. I am scientific director of archaeological and ceramic ethnoarchaeology expeditions in the Balearics and Sardinia, including the excavations at the Roman and Late Antique city of Pollentia and the Early Christian complexes of Son Peretó (Mallorca) and Illa del Rei (Menorca).

Selected publications

- Fantuzzi L, **Cau Ontiveros MÁ** & Aquilué X 2016, 'Archaeometric characterisation of amphorae from the Late Antique city of Emporiae (Catalonia, Spain)', *Archaeometry*, 58, supplement S1, 1–22. doi: 10.1111/arcm.12176.

- Pecci A, Degl'Innocenti E, Giorgi G, **Cau Ontiveros MÁ**, Cantini F, Solanes Poltrony E, Alós C & Miriello D 2016, 'Organic residue analysis of experimental and Mediaeval and Post Mediaeval archaeological glazed ceramics', *Archaeological and Anthropological Sciences*, 8 (4): 879-890.

Pecci A, Gabrieli S, Inserra F, Cau MÁ & Waksman SY 2016, 'Preliminary results of the organic residue analysis of 13th century cooking wares from a household in Frankish Paphos (Cyprus)', STAR Science and Technology of Archaeological Research, 1 (2): 1-7.
Ranieri G, Godio A, Loddo F, Stocco S, Casas A, Capizzi P, Messina P, Orfila M, Cau MÁ & Chavez E 2016, 'Geophysical prospection of the Roman city of Pollentia, Alcudia (Mallorca, Balearic Islands, Spain)', Journal of Applied Geophysics, 134: 125 – 135.

Valenzuela A, Baker K, Carden RF, Evans J, Higham T, Rus Hoelzel A, Lamb A, Madgwick R, Miller H, Alcover JA, Cau MÁ & Sykes N 2016, 'Both introduced and extinct: The fallow deer of Roman Mallorca', *Journal of Archaeological Science Reports*, 9: 168-167.
Valenzuela A, Cau MÁ & Alcover JA 2016, 'Archaeological evidence for the introduction of Emys orbicularis (Testudines: Emydidae) in the Balearic Islands, Western Mediterranean', *Amphibia-reptilia*, 37 (2): 229 – 236.

- Vallori Márquez B, **Cau Ontiveros MÁ**, Orfila Pons M 2016, 'The small temples in the forum of Pollentia (Mallorca, Balearic Islands)', Mélanges de l'Ecole Française de Rome. Antiquité, 128-1: 2-25.

Selected research activities

PI of the projects Late Roman Pottery in the Western Mediterranean; exploring regional and long-distance trade through experimental sciences and the project Remote Sensing, Geophysical Survey and Paleoenvironmental reconstruction of the Mallorcan countryside from Antiquity to the Early Middle Ages.



Cerutti, Andrea Institut Hospital del Mar d'Investigacions Mèdiques (IMIM) Life & Medical Sciences

Andrea Cerutti, MD, is an ICREA Research Professor since 2010 and leads the B Cell Biology Group at PRBB-IMIM. He serves as reviewer for the European Research Council, the National Institutes of Health and several biomedical and immunology journals, including Science, Nature, Immunity, Nature Immunology, Nature Medicine, Nature Communications, The Journal of Experimental Medicine and The Journal of Immunology. He is a member of The American Society for Clinical Investigation and The Henry Kunkel Society, as well as Associate Editor of Mucosal Immunology. He organized two Keystone Symposium meetings on B cells and published over 100 research articles in top-ranked immunology journals and lectures in international meetings as well as American and European universities.

Research interests

My group studies the cellular and signaling networks underlying immunoglobulin (Ig) heavy chain class switching and V(D)J gene somatic hypermutation, two B cell-mediated processes essential for the generation of immune diversity and protection. We are particularly interested in the mechanisms by which the innate immune system interacts with B cells and in the strategies utilized by pathogens to evade Ig production systemically and at mucosal sites of entry. Our research is relevant to infections, inflammation, autoimmunity, immunodeficiencies and vaccine development.

Selected publications

Magri G & Cerutti A 2016, 'A Touch of Youth in Gut Microbiota Development', *Immunity*, 45, 1, 12 – 14.
 Chorny A, Casas-Recasens S, Sintes J, Shan M, Polentarutti N, García-Escudero R, Walland AC, Yeiser JR, Cassis L, Carrillo J, Puga I, Cunha C, Bastos H, Rodrigues F, Lacerda JF, Morais A, Dieguez-Gonzalez R, Heeger PS, Salvatori G, Carvalho A, Garcia-Sastre A, Blander JM, Mantovani A, Garlanda C & Cerutti A 2016, 'The soluble pattern recognition receptor PTX3 links humoral innate and adaptive immune responses by helping marginal zone B cells', *Journal of Experimental Medicine*, vol 213, no. 10, pp 2167-2185.

Selected research activities

<u>Co-Organizer</u>, *B cells at the intersection between innate and adaptive immunity (E3)*, Keystone Symposia, May 29–June 2, 2016http://www.keystonesymposia.org/16E3



Chillón Rodríguez, Miguel Universitat Autònoma de Barcelona (UAB) & Vall d'Hebron Institut de Recerca (VHIR) Life & Medical Sciences

Born in Barcelona in 1966. PhD in Genetics at Hospital Duran i Reynals and Universitat de Barcelona, 1994. National Award in Human Genetics by the Spanish Association of Human Genetics in 1995. HHMI postdoctoral fellow on Gene Therapy for Cystic Fibrosis, at the Internal Medicine Dept, University of Iowa, USA (1994-1997). EMBO fellow in Genethon III (Evry, France) (1997-1999) on Development of viral vectors for Gene Therapy. Postdoctoral fellow on Gene Therapy (2000-2001) at the Universitat Autònoma de Barcelona (UAB). ICREA Research Professor at the UAB since 2001. Director of the Vector Production Unit, a technological platform to produce viral vectors, since 2004. Assistant Professor of the Biochemistry and Molecular Biology Dept. at the UAB since 2005. Member of the Biosafety Committee of the UAB since 2006. Co-founder of NanoTherapix, a spin-off company in biotechnology, in 2009. He has published more than 70 papers and generated 7 patents in viral vectors.

Research interests

Medicine still has many challenges to solve specially on complex diseases where a large number of both, genetic and environmental factors, are involved. Among them, autoimmune disorders have attracted attention because there are no effective curative treatments for them. Some of these autoimmune diseases affect the central nervous system, which in addition, is difficult to access and to manipulate with classical pharmacological treatments. To address these problems we have focused our research interests in three main objectives: (1) gene therapy strategies for autoimmune diseases; (2) gene therapy strategies for diseases affecting the nervous system, such as neuromuscular and neurodegenerative disorders, and (3) development of more efficient and less immunogenic viral vectors.

Selected research activities

- ViceChair of the Advanced Therapies Platform at EATRIS-ERIC (European Infrastructure for Translational Medicine).



Christou, Paul Universitat de Lleida (UdL) Life & Medical Sciences

Received BS degree in Chemistry and PhD in plant biochemistry from University College London. Worked as senior scientist at Agracetus Inc., Madison, WI, USA. Subsequently head of Molecular Biotechnology Unit, John Innes Centre, Norwich, UK, and then head of Crop Genetics and Biotechnology Department at the Fraunhofer Institute for Molecular Biotechnology and Applied Ecology, Aachen/Schmallenberg, Germany. Currently at Universitat de Lleida as an ICREA Research Professor and head of the Applied Plant Biotechnology Laboratory. Director Agrotecnio CERCA Center, Lleida 2013-2015.

Research interests

For the past several years we have been investigating the organization of foreign genes in important crops such as maize, rice and wheat and its impact on transgene expression levels and stability. Applied aspects of our research include production of high value recombinant pharmaceuticals (vaccines and antibodies) in plants for use in human health and veterinary medicine; engineering crop plants for enhanced nutrition and novel strategies of sustainable and environmentally friendly agriculture using transgenic approaches, all with emphasis on developing countries, poverty alleviation and food security. A recent major focus in the laboratory is plant synthetic biology and genome editing. Our group is heavily involved in training and capacity building in the area of plant biotechnology focusing on developing countries. More recently we have been focusing on multigene, multipathway engineering in plants and the development of tools and methodology for the application of synthetic biology to major crop plants.

Selected publications

- Nogareda C, Moreno JA, Angulo E, Sandmann G, Portero M, Capell T, Zhu C & **Christou P** 2016, 'Carotenoid-enriched transgenic corn delivers bioavailable carotenoids to poultry and protects them against coccidiosis', *Plant Biotechnol J.*, 14: 160-168.

- Vamvaka E, Twyman RM, Murad AM, Melnik S, Teh AYH, Arcalis E, Altmann F, Stoger E, Rech E, Ma JKC, **Christou P** & Capell T 2016, 'A recombinant HIV-neutralizing antibody produced in rice endosperm accumulates predominantly as an aglycosylated derivative with enhanced neutralizing activity', *Plant Biotechnol J.*, 14: 97-108.

- Zanga D, Capell T, Zhu C, **Christou P** & Thangaraj H 2016, 'Freedom-to-operate analysis of a transgenic multivitamin corn variety', *Plant Biotechnol J.*, 14:1225-1240.

- Eritja N, Arjo G, Santacana M, Gatius S, Ramírez-Núnez O, Arcal L, Serrano CE, Pamplona R, Dolcet X, Piñol C, **Christou P**, Matias-Guiu X & Portero-Otín M 2016, 'Oral intake of genetically engineered high-carotenoid corn ameliorates hepatomegaly and hepatic steatosis in PTEN haploinsufficient mice', *BBA* - *Molecular Basis of Disease*,1862: 526-535.

- Vamvaka E, Ramessar K, Evans A, O'Keefe BR, Shattock RJ, **Christou P** & Capell T 2016, 'Rice endosperm is cost-effective for the production of recombinant griffithsin with potent activity against HIV', *Plant Biotechnol. J.*, 14:1427-1437.

- Moreno JA, Díaz-Gómez J, Nogareda C, Angulo E, Sandmann G, Portero-Otin M, Serrano JCE, Twyman RM, Capell T, Zhu C & **Christou P** 2016, 'The distribution of carotenoids in hens fed on biofortified maize is influenced by feed composition, absorption, resource allocation and storage', *Sci. Rep.*, 6:35346.

- Bortesi L, Zhu C, Zischewski J, Perez L, Bassié L, Nadi R, Forni G, Boyd Lade S, Soto E, Jin X, Medina V, Villorbina G, Muñoz P, Farré G, Fischer R, Twyman RM, Capell T, **Christou P** & Schillberg S 2016, 'Patterns of CRISPR/Cas9 activity in plants, animals and microbes', *Plant Biotechnol J.*, 14: 2203–2216.



Ciccone, Antonio Universitat Pompeu Fabra (UPF) Social & Behavioural Sciences

I was born in Italy but grew up in Germany where I also started studying economics at university. I got my first degree from the London School of Economics in 1990 and my PhD in economics from Stanford University in 1994. I started teaching and doing research at UPF just afterwards. Since then I have spent most of my time at UPF, but also spent several years at the University of California at Berkeley, USA and the University of Mannheim, Germany.

Research interests

My main interests are in applied macroeconomics. Examples of my work are a study of how much of the spatial differences in productivity in the US can be explained by agglomeration economies; a study on the extent to which international trade raises the income levels of countries; and a study on the strength of positive externalities to higher levels of schooling. In my latest research I have examined the links between economic performance and politics. Three examples are a study on the link between rainfall-driven economic shocks and civil conflict; a study on the effect of rainfall-driven economic shocks on democratization. Currently, I am working on the effect of economic risk on the spread of religious comunities and venturing into applied microeconomics with a study of gender peer effects in school.

Selected research activities

- Plenary Lecture, Turkish Economic Association, October 2016.
- Zurich Workshop in Economics, Keynote Speaker, September 2016.
- Milan Workshop on Global Challenges, Keynote Speaker, June 2016.
- University of Leceister, Invited Seminar Speaker, February 2016.
- Co-Organizer Barcelona Political Economy Workshop, May 2016.



Coroleu Lletget, Alejandro Universitat Autònoma de Barcelona (UAB) Humanities

After studying Classics and Renaissance Studies at the Universitat de Barcelona, I undertook postdoctoral research at The Warburg Institute (University of London). I taught and researched at the University of Nottingham between 1995 and 2008. I have also been Visiting Lecturer at the University of Cambridge and at the University of Salzburg. In 2009 I accepted a Research Professorship at ICREA in the Department of Catalan at the Universitat Autònoma de Barcelona where I am conducting research on Renaissance literary culture. Since 1 March 2012 I am also an Honorary Senior Research Fellow, attached to the Department of Spanish, Portuguese and Latin American Studies (University of Nottingham).

Research interests

Classical and Comparative Literature: Latin literary culture in Europe (1500-1780). Intellectual History and Renaissance Studies: Hispanic, Italian and European Humanism. The reception of Greek and Roman literatures in Catalunya (1480-1750).

Selected publications

- **Coroleu A** 2016, 'Pere Miquel Carbonell i les novetats que venien d'Itàlia', in *Pere Miquel Carbonell i el seu temps (1434 – 1517)*, ed. Guzmán Almagro A, Espluga X & Ahn M, Barcelona: *Reial Acadèmia de Bones Lletres*, pp. 137-45.

- **Coroleu A** 2016, 'On the reception of Erasmu's Latin translation of the New Testament in sixteenth-century Spain', *The Bible Translator*, 67, 1, pp. 56-68.

- **Coroleu A** 2016, Review of Fritsen A 'Antiquarian Voices: The Roman Academy and the Commentary Tradition on Ovid's Fasti', Columbus: The Ohio State University Press, 2015, in H-Italy, *H-Net Humanities & Social Sciences OnLine*, pp. 1-2.

- **Coroleu A** 2016, Review of Severi A 'Filippo Beroaldo il Vecchio un maestro per l'Europa. Da commentatore di classici a classico moderno (1481-1550)', Bologna, Società editrice il Mulino, *International Journal of the Classical Tradition*.

Selected research activities

- I have co-organised the following conferences:

Latin and Vernacular in Renaissance Iberia, VI: Einfache Formen, London, 4 March 2016.

Traduction et réception: la littérature française des xive et xve siècles, Barcelona, 15 July 2016.

Llibres i lectors a la Corona d'Aragó (1380-1550), Barcelona, 30 September 2016.

- I have given a paper at an international conference held in Barcelona.

- I served as assessor for the executive government agency of the Polish National Science Centre (Narodowe Centrum Nauki - NCN).

- I have refereed the Spanish contributions to the Acta of the 2015 IANLS conference to be published in June 2018.

- I have sat on the editorial board of *FuturoClassico* (Università di Bari); *ITACA: Quaderns de Cultura Clàssica* (Barcelona); and Studia Aurea (Universitat de Girona).

- Guest lecturer: Three seminars on Ancient history and culture at the University of Portland (Salzburg Program) in January 2016; one seminar on Renaissance humanism within the Màster en Recerca en Humanitats (Unversitat de Girona, March 2016).



Cortés Closas, Alfred Institut de Salut Global Barcelona (ISGlobal) Life & Medical Sciences

After obtaining a PhD for work on Drosophila DNA binding proteins (CID-CSIC, Barcelona), he gave a strong turn to his career to apply his molecular biology skills to study a disease affecting less developed countries: malaria. He worked for four years as Head of the Molecular Parasitology lab at the Papua New Guinea IMR, where his research mainly focused on basic aspects of malaria parasite biology, but also on epidemiological aspects of the disease. Back to Europe, he worked for over two years at the MRC-NIMR (London) on epigenetic regulation of gene expression and invasion of erythrocytes by malaria parasites. In 2006 he moved to IRB Barcelona with an ICREA jr contract. In 2011 he joined CRESIB/ISGlobal, and in 2012 he was appointed ICREA Research Professor. His research of the last few years has focused on epigenetic variation in malaria parasites, which plays a key role in the adaptation of these parasites to changes in their environment and in sexual conversion.

Research interests

We recently found that the malaria parasite Plasmodium falciparum regulates at the epigenetic level the expression of a multitude of genes that participate in host-parasite interactions. These genes can be found in either an active or a silenced state, which is clonally transmitted from one generation to the next. Spontaneous transitions between the two states occur, albeit at low frequency. At the malaria epigenetics lab we study the chromatin-based mechanisms involved in the epigenetic regulation of clonally variant and mutually exclusive gene expression in malaria parasites. Another major interest of the lab is characterizing how these parasites adapt to diverse changes in their environment using stochastic epigenetic variation. More specifically, our current main focus is on the clonally variant genes that control solute transport, resistance to heat-shock episodes mimicking malaria fever episodes, and sexual conversion, the latter essential for malaria transmission.

Selected publications

- Rovira-Graells N, Aguilera-Simón S, Tintó-Font E & **Cortés A** 2016, 'New Assays to Characterise Growth-Related Phenotypes of *Plasmodium falciparum* Reveal Variation in Density-Dependent Growth Inhibition between Parasite Lines', *PLoS One* 11(10):e0165358. doi: 10.1371/journal.pone.0165358.

Selected research activities

-Invited conference at the London School of Hygiene and Tropical Medicine (LSHTM), London, UK.

-Invited conference at the Sociedad Española de Bioquímica y Biología Molecular (SEBBM) XXXIX anual meeting, Molecular Parasitology session, Salamanca, Spain.

-Participation by invitation and oral presentation at the 'CRISPR Approaches for Apicomplexans' retreat, Hinxton, Cambridge, UK. -Outreach activity: conference at a pub as part of the 'Pint of Science' international initiative, Barcelona.

-New grants awarded: Retos (2017-19) and Explora (2017-18), MINECO, Spain.

-New fellowship awarded for a PhD student to work in the team (2017-20): Marie Curie-Erasmus mundus, TransGlobalHealth.



Cosma, Maria Pia Centre de Regulació Genòmica (CRG) Life & Medical Sciences

ICREA Research Professor and Senior Scientist at Centre for Genomic Regulation (CRG), Barcelona, Spain since Sep. 2010. From 2009-2015 Honorary Associate Investigator at CNR . From 2003-2010 Associate Investigator at TIGEM, Naples. From 2004-2010 Lecturer at the European School of Molecular Medicine. From 1997-2000 Marie Curie Post-doctoral fellow at IMP, Vienna. PhD in Cellular and Molecular Genetics, Univ. Federico II of Naples, 2000. Visiting Scientist in many Universities in USA. She has given many invited talks at major international conferences and Research Institutes. She has been awarded several prizes including: EMBO Young Investigator (YIP) in 2003, Marie Curie Excellence Award in 2005, "Vanguardia de la Ciencia" prize in 2014 and City of Barcelona prize in 2015. She is Order of Merit of the Italian Republic; grade: Knight in 2007. She is ERC Starting Grant awardee, 2009 and HFSP Grant awardee, 2010. She was elected EMBO Member in 2010.

Research interests

Main interests of Cosma's group are to dissect mechanisms and factors controlling somatic cell reprogramming and tissue regeneration in mammalians. We showed that activation of the Wnt/ß-catenin signalling pathway enhances reprogramming of somatic cells after their fusion with embryonic stem cells. We are dissecting gene networks and reprogramming factors controlled by the activation of Wnt/ß-catenin signalling pathway. Furthermore, by using super resolution microscopy we are investigating on the remodelling of the chromatin fiber during the reprogramming process. Remarkably, the activation of Wnt pathway also controls regeneration in response to damage in lower and higher vertebrates. Our goal is to determine whether activation of Wnt/ß-catenin signalling controls cell-fusio--mediated regeneration in mammals. We recently showed that in vivo reprogramming of neurons and hepatocytes after fusion with hematopoietic stem and progenitor cells (HSPCs) is a mechanism for tissue regeneration.

Selected publications

Altarche-Xifro W, di Vicino U, Munoz-Martin I, Bortolozzi M, Bove A, Vila JM & Cosma MP 2016, 'Functional Rescue of Dopaminergic Neuron Loss in Parkinson's Disease Mice After Transplantation of Hematopoietic Stem and Progenitor Cells', *Ebiomedicine*, 8, 83 – 95.
 Sanges D, Simonte G, Di Vicino U, Romo N, Pinilla I, Nicolas M & Cosma MP 2016, 'Reprogramming Muller glia via in vivo cell fusion regenerates murine photoreceptors', *Journal Of Clinical Investigation*, 126, 8, 3104 – 3116.

- Sottile F, Aulicino F, Theka I & **Cosma MP** 2016, 'Mesenchymal stem cells generate distinct functional hybrids in vitro via cell fusion or entosis', *Scientific Reports*, 6, 36863.

Selected research activities

- * Invited talks:
- Summit of Stem Cell Therapy for Eye diseases in Chonqquing, China
- Blueprint meeting in Brussels, Belgium
- EMBL conference Perspectives in Translational Medicine, Heidelberg, Germany
- Guangzhou Institutes of Biomedicine and Health and Hong Kong University, China
- B-debate, Barcelona
- * Invited at discussion panel NEI AGI Workshop, NIH, USA
- * Organizer BioNanoVision ICREA Symposium



Costa Martínez, Albert Universitat Pompeu Fabra (UPF) Social & Behavioural Sciences

Born in 1970, I received my PhD in psychology in 1997 (Universitat de Barcelona). In 1998, I started my post-doctoral career at the Brain and Cognitive Sciences department at MIT, thanks to the funding from the Catalan Government. From 1999 to 2000, I was a postdoctoral fellow at the Cognitive Neuropsychology laboratory at Harvard University with a Fulbright scholarship. In 2001, I moved to the Cognitive Neuroscience department at the International School for Advanced Studies in Trieste. From 2002 to 2005 I was a Ramón y Cajal research fellow at the UB, and in 2006 I became an Associate Professor in the Department of Psychology of the same university. Since 2008 I am ICREA Research Professor, and currently a member of the Center for Brain and Cognition at Universitat Pompeu Fabra.

Research interests

I study the cognitive and neural underpinnings of language processing, and in particular how two languages are represented and processed in the brain. I seek answers to various questions related to bilingual language processing such as: What are the neural structures involved in the ability of bilinguals to keep two languages apart during speech production?, What are the effects of neurodegenerative diseases for the two languages of a bilingual?, Is there any linguistic cost and attentional advantage linked to bilingualism?, How learning a second language affects the first language processing? More recently, I have started working on how language context (foreign vs. native) can affect people's preferences, judgments and decisions. I address these issues by conducting experiments using both experimental psychology techniques and brain imaging and electrophysiological techniques, exploring the performance of both brain-damaged individuals (Alzheimer and Parkinson) and healthy ones.

Selected publications

- Romero-Rivas C, Corey JD, Garcia X, Thierry G, Martin CD & **Costa A** 2016, 'World knowledge and novel information integration during L2 speech comprehension', *Bilingualism: Language and Cognition*, 31, 2, 206 – 216.

- Strijkers K & **Costa A** 2016, 'The cortical dynamics of speaking: present shortcomings and future avenues', *Language, Cognition and Neuroscience*, 31, 4, 484 - 503.

- Romero-Rivas C, Martin CD & **Costa A** 2016, 'Foreign-accented speech modulates linguistic anticipatory

processes', *Neuropsychologia*, *85*, 245-255. – Branzi FM, Calabria M, Boscarino ML & **Costa A** 2016, 'On the overlap between bilingual language control and domain-general executive control', *Acta Psychologica*, 166, 21 – 30.

- Ivaz L, **Costa A** & Dunabeitia AJ 2016, 'The Emotional Impact of Being Myself: Emotions and Foreign-Language Processing', *Journal Of Experimental Psychology-learning Memory And Cognition*, 42, 3, 489 – 496.

- Foucart A, Romero-Rivas C, Gort LB & **Costa A** 2016, 'Discourse comprehension in L2: Making sense of what is not explicitly said', *Brain and Language*, 163, pp 32-41.

- Hayakawa S, **Costa A**, Foucart A & Keysar B 2016, 'Using a foreign language changes our choices', *Trends in Cognitive Sciences*, 20, 11, 791 – 793.

- Canini M, Della Rosa P, Catricalà E, Strijkers K, Branzi FM, **Costa A** & Jubin A, 'Semantic interference and its control: a functional neuroimaging and connectivity study', *Human Brain Mapping*, 37, 11, 4179 - 4196.

- Foucart A, Ruiz-Tada E & **Costa A** 2016, 'Anticipation processes in L2 speech comprehension: Evidence from ERPs and lexical recognition task.' *Bilingualism: Language and Cognition*, 19, 213-219.

Selected research activities

Associate editor: 'Journal of Neurolinguistics', 'Language, Cognition and Neuroscience'

Editorial Board: 'Psychological Science', 'Cognition', 'Journal of Experimental Psychology', 'Bilingualism', 'Acta Psychologica'



Dalmau, Josep Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS) Life & Medical Sciences

Dr. Josep Dalmau received his MD and PhD from the Autonomous University of Barcelona in Spain where he also completed an internship in Internal Medicine and a residency in Neurology. He completed fellowship training in Neuro-oncology at the Memorial Sloan-Kettering Cancer Center in New York where he was appointed to the faculty at the completion of his fellowship. He was Associate Professor of Neurology at the University of Arkansas for Medical Sciences and then Professor of Neurology and Director of the Neuro-oncology Laboratory at the University of Pennsylvania, School of Medicine. He is currently ICREA Research Professor at the Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS) at Clinic Hospital in Barcelona and has appointments as Adjunct Professor of Neurology at the University of Pennsylvania and Guest Researcher at the National Institute of Neurological Disorders and Stroke, USA.

Research interests

My research is at the intersection of cancer, autoimmunity, and the nervous system with the principal theme of the comprehensive characterization of autoimmune disorders targeting brain proteins. This includes the description of novel syndromes and associated immune-mechanisms, isolation of the target antigens, and development of diagnostic tests and treatment strategies. Once the antigens are identified our studies focus on elucidating the cellular and molecular mechanisms underlying the immune-mediated dysfunction of the synaptic proteins, and in modeling the disorders in vivo and in vitro. A variety of techniques are used, including tissue processing, small animal surgery, confocal microscopy, molecular biology, and electrophysiology. Our findings impact multiple clinical and basic research disciplines, linking immunologic processes and neuronal events involved in memory, behavior, cognition, and neuronal degeneration.

Selected publications

- Graus F, Titulaer MJ, Balu R, Benseler S, Bien CG, Cellucci T, Cortese I, Dale RC, Gelfand J, Geschwind M, Glaser CA, Honnorat J, Höftberger R, lizuka T, Irani SR, Lancaster E, Leypoldt F, Prüss H, Rae-Grant A, Reindl M, Rosenfeld MR, Rostasy K, Saiz A, Venkatesan A, Vincent A, Wandinger K-P, Waters P & **Dalmau J** 2016, ' A clinical approach to diagnosis of autoimmune encephalitis', *Lancet Neurol.* 15, 4, 391 – 404.

- Gresa-Arribas N, Planaguma J, Petit-Pedrol M, Kawachi I, Katada S, Glaser CA, Simabukuro MM, Armangue T, Martinez-Hernandez E, Graus F & **Dalmau J** 2016, 'Human neurexin-3 antibodies associate with encephalitis and alter synapse development', *Neurology*, 86, 24, 2235 – 2242.

- **Dalmau J.** 2016, 'NMDA receptor encephalitis and other antibody-mediated disorders of the synapse: The 2016 Cotzias Lecture', *Neurology*, 87, 23, 2471-2482.

- Planaguma J, Haselmann H, Mannara F, Petit-Pedrol M, Gruenewald B, Aguilar E, Roepke L, Martin-Garcia E, Titulaer MJ, Jercog P, Graus F, Maldonado R, Geis C & **Dalmau J** 2016, 'Ephrin-B2 prevents N-methyl-D-aspartate receptor antibody effects on memory and neuroplasticity', *Annals Of Neurology*, 80, 3, 388 – 400.

- Masdeu JC, **Dalmau J** & Berman KF 2016, 'NMDA Receptor Internalization by Autoantibodies: A Reversible Mechanism Uncerlying Psychosis?', *Trends In Neurosciences*, 39, 5, 300 - 310.

- Martinez-Hernandez E, Arino H, McKeon A, Lizuka T, Titulaer MJ, Simabukuro MM, Lancaster E, Petit-Pedrol M, Planaguma J, Blanco Y, Harvey RJ, Saiz A, Graus R & **Dalmau J** 2016, 'Clinical and Immunologic Investigations in Patients With Stiff-Person Spectrum Disorder', *Jama Neurology*, 73, 6, 714 – 720.



Daura Ribera, Xavier Universitat Autònoma de Barcelona (UAB) Life & Medical Sciences

I studied Biological Sciences at UAB, Barcelona, where I graduated in 1991 and obtained the PhD in 1996. I then moved to the lab of Wilfred van Gunsteren at ETH, Zurich, a main reference in the field of computational modelling and simulation of biomolecular systems. These were extraordinary years in which we performed seminal work on the simulation of polypeptide folding by molecular-dynamics methods. In 2002 I was appointed as ICREA Research Professor and returned with this position to the Institute of Biotechnology and Biomedicine (IBB) of UAB, starting a new group in Computational Biology. Today, we focus our efforts on the identification and development of new strategies to combat infections by multidrug-resistant bacteria, using a range of computational and experimental approaches. In 2005 I was appointed Adjunct Professor at UAB to combine my research activities as an ICREA Professor with teaching at the post-graduate level. Since January 2011 I serve as Director of IBB.

Research interests

The main objective of our research group is the development of new strategies to combat infections by multidrug-resistant (MDR) bacteria, in particular of the Gram-negative (GN) group. The increasing emergence and spread of MDR pathogens constitutes at present one of the major threats to public health. The shortage of effective antimicrobials for treatment of MDR GN infections is particularly critical as cases of pan-resistance accumulate. The discovery of new drug targets and modes of action (MoA), less propitious to the evolution of resistance, has therefore become a pressing need. In parallel, the development of effective vaccines may offer a solution for high-risk population groups. Our team combines a range of computational and experimental techniques for the identification of antimicrobial-target candidates with new MoA and vaccine candidates eliciting prescribed resposes. We do much of this in collaboration with the group of Bacterial Molecular Genetics of IBB, led by I. Gibert.

Selected publications

- Pesarrodona M, Fernández Y, Foradada L, Sánchez-Chardi A, Conchillo-Solé O, Unzueta U, Xu Z, Roldán M, Villegas S, Ferrer-Miralles N, Schwartz S, Rinas U, **Daura X**, Abasolo I, Vázquez E & Villaverde A 2016, 'Conformational and functional variants of CD44-targeted protein nanoparticles bio-produced in bacteria', *Biofabrication*, 8(2): 025001.

- Petrov D, **Daura X** & Zagrovic B 2016, 'Effect of Oxidative Damage on the Stability and Dimerization of Superoxide Dismutase 1', *Biophysical Journal*, 110(7): 1499-1509.

- Ferrer-Navarro M, Torrent G, Mongiardini E, Conchillo-Sole O, Gibert I & Daura X 2016, 'Proteomic analysis of outer membrane proteins and vesicles of a clinical isolate and a collection strain of *Stenotrophomonas maltophilia*', *Journal Of Proteomics*, 142: 122-129.
- Scholz E, Mestre-Ferrer A, Daura X, García-Medel N, Carrascal M, James EA, Kwok WW, Canals F & Alvarez I 2016, 'A comparative analysis of the peptide repertoires of HLA-DR molecules differentially associated to rheumatoid arthritis' Arthritis & Rheumatology 68(10): 2412-2421.

- van Gunsteren WF, Allison JR, **Daura X**, Dolenc J, Hansen N, Mark AE, Oostenbrink C, Rusu VH & Smith LJ 2016, 'Deriving Structural Information from Experimentally Measured Data on Biomolecules', *Angewandte Chemie International Edition* 55: 15990-16010.



Deco, Gustavo Universitat Pompeu Fabra (UPF) Engineering Sciences

Gustavo Deco is Research Professor at the Institució Catalana de Recerca i Estudis Avançats (ICREA) and Professor (Catedrático) at the Pompeu Fabra University (UPF) where he leads the Computational Neuroscience group. He is also Director of the Center of Brain and Cognition (UPF). In 1987 he received his PhD in Physics for his thesis on Relativistic Atomic Collisions. In 1987, he was a postdoc at the University of Bordeaux in France. From 1988 to 1990, he obtained a postdoc of the Alexander von Humboldt Foundation at the University of Giessen in Germany. From 1990 to 2003, he lead the Computational Neuroscience Group at Siemens Corporate Research Center in Munich, Germany. He obtained in 1997 his Habilitation (maximal academical degree in Germany) in Computer Science (Dr. rer. nat. habil.) at the Technical University of Munich for his thesis on Neural Learning. In 2001, he received his PhD in Psychology at the Ludwig-Maximilians-University of Munich.

Research interests

Perceptions, memories, emotions, and everything that makes us human, demand the flexible integration of information represented and computed in a distributed manner. Normal brain functions require the integration of functionally specialized but widely distributed brain areas. The main aim of my research is to elucidate precisely the computational principles underlying higher brain functions and their breakdown in brain diseases. My research allows us to comprehend the mechanisms underlying brain functions by complementing structural and activation based analyses with dynamics. We integrate different levels of experimental investigation in cognitive neuroscience (from the operation of single neurons and neuroanatomy, neurophysiology, neuroimaging and neuropsychology to behaviour) via a unifying theoretical framework that captures the neural dynamics inherent in the computation of cognitive processes.

Selected publications

- **Deco G** & Kringelbach M 2016, 'Metastability and Coherence: Extending the Communication through Coherence Hypothesis Using A Whole-Brain Computational Perspective', *Trends in Neurosciences*, 39:125-135.

- Kaplan R, Adhikari M, Hindriks R, Martini D, Murayama Y, Logothetis N & **Deco G** 2016, 'Hippocampal Sharp-Wave Ripples Influence Selective Activation of the Default Mode Network', *Current Biology*, 26:686–691.

- Gilson M, Moreno R, Ponce A, Ritter P & **Deco G** 2016, 'Estimation of Directed Effective Connectivity from fMRI Functional Connectivity Hints at Asymmetries of Cortical Connectome', *PLoS Comp. Biology*, 11, 3, e1004762.

– Demirtaş M, Tornador C, Falcón C,López M, Hernández R, Pujol J, Menchón J, Ritter P, Cardoner N, Soriano C & **Deco G** 2016, 'Dynamic functional connectivity reveals altered variability in functional connectivity among patients with major depressive disorder', *Human Brain Mapping*, 1097-0193.

- Hindriks R, Adhikari M H, Murayama Y, Ganzetti M, Mantini D, Logothetis N K & **Deco G** 2016, 'Can sliding-window correlations reveal dynamic functional connectivity in resting-state fMRI?', *Neuroimage*, 127, 242 – 256.

- Insabato A, Panunzi M & **Deco G** 2016, 'Neural correlates of metacognition: A critical perspective on current tasks', *Neuroscience & Biobehavioral Reviews*, 71, 167-175.

- Rolls E & Deco G 2016, 'Non-reward neural mechanisms in the orbitofrontal cortex', Cortex, 83:27-38. doi: 10.1016.

- Vattikonda A, Surampudi B, Banerjee A, **Deco G** & Roy D 2016, 'Does the regulation of local excitation-inhibition balance aid in recovery of functional connectivity? A computational account', *Neuroimage*, 136:57-67.

- Batalle D, Muñoz-Moreno E, Tornador C, Bargallo N, **Deco G**, Eixarc E & Gratacos E 2016, 'Altered resting-state whole-brain functional networks of neonates with intrauterine growth restriction', *Cortex*, 77:119–131.



de Diego Balaguer, Ruth Universitat de Barcelona (UB) Social & Behavioural Sciences

After my Degree in Psychology I specialised at the University of Barcelona (UB) in Psycholinguistics and Cognitive Neuroscience during my PhD. After that, I spent three years as a post-doc at the INSERM U955 (Université Paris Est, Créteil, UPEC) where I studied the involvement of the striatum in the learning new rules in language. I also was maître de conferences (tenured) at the Ecole Normale Supérieure in Paris. After an ICREA Researcher period, I am currently an ICREA Research Professor at the UB. My research is mainly focused on the cognitive functions and neural circuits engaged in the extraction of grammatical rules while learning a new language.

Research interests

My research combines information from brain-damaged patients, developmental populations and brain-imaging in healthy individuals to understand whether words and rules of language require different neural and cognitive mechanisms to be acquired since the earliest stages of contact with a new language. I am particularly interested in i) the role of the attentional systems in the acquisition of different aspects of language; ii) the role of the striatum as a brain structure that could make the interface between language and other cognitive functions necessary in the learning process; and iii) how is the acquired information consolidated and modified when we learn new additional information.

Selected publications

- Gonzalez C, Mas E, **de Diego-Balaguer R** & Ruz M 2016, 'Task-specific preparatory neural activations in low-interference contexts', *Brain Structure and Function*, 221, 8, 3997 - 4006.

- **De Diego-Balaguer R**, Martinez-Alvarez A & Pons F 2016, 'Temporal Attention as a Scaffold for Language Development', *Frontiers In Psychology*, 7, 44.

- Lopez-Barroso D, Cucurell D, Rodriguez-Fornells A & **de Diego-Balaguer R** 2016, 'Attentional effects on rule extraction and consolidation from speech', *Cognition*, 152, 61 – 69.

- Oyarzun JP, Packard PA, **de Diego-Balaguer R** & Fuentemilla L 2016, 'Motivated encoding selectively promotes memory for future inconsequential semantically-related events', *Neurobiology Of Learning And Memory*, 133, 1 - 6.

- de Diego-Balaguer R, Schramm C, Rebeix I, Dupoux E, Durr A, Brice A, Charles P, de

langavant LC, Youssov K, Verny C, Damotte V, Azulay

JP, Goizet C, Simonin C, Tranchant C, Maison P, Rialland A, Schmitz D, Jacquemot C, Fontaine B & Bachoud-Levi AC 2016, 'COMT Val(158)Met Polymorphism Modulates Huntington's Disease Progression', *Plos One*, 11, 9, e0161106.

Selected research activities

Invited Talks

- 3 invited talks (BCBL, San Sebastian; Biolinguistics Initiative, UB; Institut de Neurociència UB; Université Aix-Marseille, France) Organisation of Conferences

- September 29-30. International Workshop "Beyond Language Learning".

- Activities as a Referee
- 3 PhD committees: 2 at UPF; 1 at Universidad de País Vasco.
- Member of the AGAUR coaching committee for ERC Grant applications.
- Referee for the evaluation of Fundació "La Caixa" Post-graduate Fellowships



De Fabritiis, Gianni Universitat Pompeu Fabra (UPF) Experimental Sciences & Mathematics

I hold a degree in applied mathematics from University of Bologna and a PhD in computational chemistry from University of London. Currently, I am heading the computational biophysics laboratory at Universitat Pompeu Fabra, associate Professor at the master of bioinformatics and I am co-founder and scientific advisor of Acellera Ltd.

Research interests

My group research interests are broadly in computing and biomedicine. Specifically, we develop new computational methods and algorithms, we apply them to simulate and understand biological data and we design molecules with therapeutic applications in mind.

Selected publications

- Doerr S, Harvey MJ, Noe F & **De Fabritiis G** 2016, 'HTMD: High-Throughput Molecular Dynamics for Molecular Discovery', *Journal Of Chemical Theory And Computation*, 12, 4, 1845 – 1852.

- Stanley N, Pardo L & **De Fabritiis** G 2016, 'The pathway of ligand entry from the membrane bilayer to a lipid G protein-coupled receptor', *Scientific Reports*, 6, 22639.

- Ferruz N & **De Fabritiis G** 2016, 'Binding Kinetics in Drug Discovery', *Molecular Informatics*, 35, 6-7, 216 - 226.

- Ferruz N, Tresadern G, Pineda-Lucena A & **De Fabritiis G** 2016, 'Multibody cofactor and substrate molecular recognition in the myoinositol monophosphatase enzyme', *Scientific Reports*, 6, 30275.



de Graaf, Coen Universitat Rovira i Virgili (URV) Experimental Sciences & Mathematics

Graduated in Chemistry in 1993 at the University of Amsterdam. PhD student at the University of Groningen, the Netherlands, from 1994 to 1998 (supervisors: Prof. Wim Nieuwpoort and Prof. Ria Broer). Post-Doc in the group of Prof. Francesc Illas of the University of Barcelona with a Marie Curie fellowship from 1998-2000 (subject: magnetism in low-dimensional Heisenberg systems). Post-Doc in the Quantum Chemistry group of the University Rovira i Virgili (2000-2005) with a Ramón y Cajal fellowship. Presently ICREA Research Professor in the same group.

Research interests

Changing properties of materials by shining light on it is an interesting phenomenon. It becomes even more exciting when the initial state can be repopulated by irradiation with light of different wave length. The material becomes then switchable and technological applications appear at the horizon. Insight in the mechanisms of light-induced properties may eventually lead to new materials. We apply techniques from computational chemistry to obtain information about the light-induced electronic state and the deactivation to the final state. The interplay between the electronic structure and the movement of the nuclei plays an important role in the deactivation. We aim to go beyond the traditional static description by introducing the dynamics of the nuclear movement and obtain a more complete picture of the switching mechanism.

Selected publications

- Arcisauskaite V, Fijan D, Spivak M, **de Graaf C** & McGrady JE 2016, 'Biradical character in the ground state of [Mn@Si-12](+): a DFT and CASPT2 study', *Physical Chemistry Chemical Physics*, 18, 34, 24006 – 24014.

- Chenggang C, Carbo JJ, Neumann R, **de Graaf C** & Poblet JM 2016, 'Photoreduction Mechanism of CO2 to CO Catalyzed by a Rhenium(I)- Polyoxometalate Hybrid Compound', *Acs Catalysis*, 6, 10, 6422 – 6428.

- Maxim C, Saureu S, **de Graaf C**, Ferlay S, Hosseini MW, Robert, Vincent; Train, Cyrille 2016, 'Amidinium-Containing 2D [MnCr] Dimetallic Oxalate-Based Networks - The Influence on Structure and Magnetism Explored by Combining Experience and Theory', *European Journal Of Inorganic Chemistry*, 26, 4185 – 4193.

- **de Graaf C** & Sousa C 2016, 'Ab Initio Wavefunction Approaches to Spin States', in: Spin States in Biochemistry and Inorganic Chemistry, Edited by Swart M & Costas M, Wiley, Chichester UK.

- Saureu S & **de Graaf C** 2016, 'TD-DFT study of the light-induced spin crossover of Fe(III) complexes', *Physical Chemistry Chemical Physics*, 18, 2, 1233 - 1244.

- Alcover-Fortuny G, Caballol R, Pierloot K & **de Graaf C** 2016, 'Role of the Imide Axial Ligand in the Spin and Oxidation State of Manganese Corrole and Corrolazine Complexes', *Inorganic Chemistry*, 55, 11, 5274 – 5280.

Selected research activities

- Supervision of the PhD thesis of Sergi Saureu, "From mononuclear to binuclear: magnetic properties of transition metal complexes", defended May 2016 and of the PhD thesis of Gerard Alcover, "Spin-Crossover Beyond the Traditional Fe(II) Complexes: Ab Initio Study of Spin State Stability in Complexes with Mn, Ni and Ru", defended September 2016

- Expert on a referee panel of the Research Council of Norway



de la Cruz Montserrat, Francisco Javier Vall d'Hebron Institut de Recerca (VHIR) Life & Medical Sciences

My career revolves around the application of bioinformatics tools to biological problems. My Ph.D. was about the study of the protein structure principles underlying function, a work that I extended during my stay at the NIH (1993-1997) and the UCL (1997-2000). This topic is at the core of my subsequent activities as ICREA researcher (PCB, 2001-2009; IBMB-CSIC, 2009-2012), although it has gradually evolved towards the study of pathological mutations. In 2012, I joined the Institute of Research at the Vall d'Hebron Hospital (VHIR), to increase the applicability of our work, and bring it closer to healthcare professionals and patients. As part of this effort, we are trying to involve all stakeholders in the health system, including companies.

Research interests

Since we joined the Institute of Research of the Vall d'Hebron Hospital, our first goal has been the understanding of the molecular-level processes underlying disease, focusing on the impact that sequence variants have on protein structure and function. Our approach is computational and aims at the obtention of predictive models that summarize large amounts of biological information. We are making a real effort to translate our results into actual improvements in patient care, working together with hospital teams involved in molecular medicine. This last year we have started an original approach to assessing the applicability of bioinformatics tools in the hospital scenario, by developing cost models that will allow a better assessment of their value.

Selected publications

- Colobran R, Alvarez de la Campa E, Soler-Palacin P, Martin-Nalda A, Pujol-Borrell R, **de la Cruz X**, Martínez-Gallo M 2016, 'Clinical and structural impact of mutations affecting the residue Phe367 of FOXP3 in patients with IPEX syndrome', *Clinical Immunology*, 163, 60 – 65.

- Akizu N, Garcia MA, Estaras C, Fueyo R, Badosa C, **de la Cruz X &** Martinez-Balbas MA 2016, 'EZH2 regulates neuroepithelium structure and neuroblast proliferation by repressing p21', *Open Biology*, 6, 4, 150227.

- Riera C, Padilla N & **de la Cruz X** 2016, 'The Complementarity Between Protein-Specific and General Pathogenicity Predictors for Amino Acid Substitutions', *Human Mutation*, 37, 10, 1013 – 1024.

Selected research activities

Organizer of the specialized course "Identificación y análisis de mutaciones en proyectos de secuenciación masiva (exomas y paneles) en biomedicina: una visión práctica" at the Universidad Autónoma de Madrid.

Member of the Red de Excelencia del Ministerio de Economía y Competitividad "Comprensión, predicción y validación del fenotipo de las mutaciones patológicas: transformando los resultados básicos en herramientas de diagnóstico"



de la Luna Gargantilla, Susana Centre de Regulació Genòmica (CRG) Life & Medical Sciences

She obtained the BS in Biology in 1985 at Universidad Autónoma de Madrid. For her PhD studies she joined Juan Ortín's lab at the CBMSO and worked on the biology of influenza virus, characterizing molecularly and functionally the viral polymerase. After getting the PhD in 1989 at UAM she stayed in Ortín's lab at CNB until 1994 when she moved to London to the lab of Nick La Thangue at the National Institute for Medical Research. There, she worked on the G1/S transition in the mammalian cell cycle focusing in the transcription factor E2F, with fellowships from the HFSO (at NIMR) and EU-Marie Curie (at Glasgow University) Programs. In 1998 she returned to Spain with a reintegration contract to join the HSA21/Down syndrome Research group lead by Xavier Estivill (IRO, Barcelona). In 2002, she joined ICREA and established her own line of research on the functional characterization of the family of kinases DYRK and their relationship with disease at the CRG in Barcelona.

Research interests

The view on how protein kinases translate cell signaling into the regulation of gene expression programs has been expanded in the possible substrates beyond the paradigmatic transcription factors to encompass histones, chromatin remodelers or other components of the basal transcription machinery that are directly modified at specific genomic loci thus regulating the expression of coding and non-coding RNAs. Our group is interested in these regulatory activities of the DYRK family of kinases. Dysregulation of DYRKs leads to disease in humans. In particular, DYRK1A overexpression in Down syndrome (DS) individuals correlates with a wide range of the DS pathological phenotypes. In addition, truncating mutations in one DYRK1A allele have been described in patients with general growth retardation and severe primary microcephaly, highlighting the extreme dosage sensitivity of this gene. We aim to dissect how DYRK activities are linked to human pathology.

Selected research activities

- **Other Research Activities**
- PhD Thesis Director: Julia M. Roewenstrunk (RNF169 as a novel substrate of DYRK1A: connecting DYRK1A to DNA-damage repair). December 19, 2016. Cum laude. Universitat Pompeu Fabra.
- Master Thesis Director: Ana Dorrego (Identifying novel partners of DYRK1A). June 16, 2016. Universitat de Barcelona.
- Supervision of three PhD students.

Managerial activities

• Member of the "Agencia Nacional de Evaluación y Prospectiva" (ANEP), Biomedicine Section (MINECO, Spanish Government).

Grants

- New grant awarded as Principal Investigator "Identification of regulatory mechanisms in DYRK kinases" (BFU-Excellence, MINECO).
- New grant awarded by the "Alicia Koplowitz" Foundation ("Pathological mechanisms underlying the syndrome caused by mutations in DYRK1A").



del Portillo Obando, Hernando A. Institut d'Investigació en Ciències de la Salut Germans Trias i Pujol (IGTP) & Institut de Salut Global Barcelona (ISGlobal) Life & Medical Sciences

I studied at the University of Georgia where I received my PhD in 1985 followed by two WHO-postdoctoral trainings at the New York University Medical Centre and the Institut Pasteur where I specialized in molecular biology of malaria. Next, I consolidated an interdisciplinary and multi-Centric malaria research group at the University of Sao Paulo, Brazil. In 1990, I did a sabattical year at the Center for Molecular Biology (ZMBH), University of Heidelberg. In 2007, I joined the Barcelona Institute for Global Health, and this year co-joined the Institut d'Investigació Germans Trias i Pujol. Cornerstones of this research activity are the discovery of the largest multigene virulent family of human malaria parasites involved in spleen immune evasion and the discovery that reticulocyte-derived exosomes from infections act as intercellular communicators and can be used as a novel vaccine and platform against malaria.

Research interests

My main research area is the biology of Plasmodium vivax, a neglected human malaria parasite responsible for millions of yearly clinical cases. We are presently looking for mechanistic insights of the role of reticulocyte-derived exosomes, nanovesicles of endocytic origin, in signalling the spleen and the bone marrow to unveil molecular basis of anaemia and splenomegaly and to use this information in rationale vaccine development. To pursue spleen studies, we are implementing the usage of humanized mouse models and microfluidic approaches. In addition, we are exploring the use of exosomes as novel vaccines and biomarkers in vivax malaria aimed for elimination. Last, we are immortalizing human hematopoietic stem cells to develop a continuous in vitro culture system for blood stages of this malaria species, a major technological key-gap to advance studies of this neglected human malaria.

Selected publications

Martín-Jaular L, de Menezes-Neto A, Monguió-Tortajada M, Elizalde-Torrent A, Díaz-Varela M, Fernández-Becerra C, Borras FE, Montoya M & **Del Portillo HA** 2016, 'Spleen-Dependent Immune Protection Elicited by CpG Adjuvanted Reticulocyte-Derived Exosomes from Malaria Infection Is Associated with Changes in T cell Subsets' Distribution', *Front Cell Dev Biol.*, 16;4:131. eCollection 2016.
Montaner-Tarbes S, Borras FE, Montoya M, Fraile L & **del Portillo HA**, 2016, 'Serum-derived exosomes from non-viremic animals previously exposed to the porcine respiratory and reproductive virus contain antigenic viral proteins', *Veterinary Research*, 47, 59.
Requena P, Rui E, Padilla N, Martinez-Espinosa FE, Castellanos ME, Botto-Menezes C, Malheiro A, Arevalo-Herrera M, Kochar S, Kochar SK, Kochar DK, Umbers AJ, Ome-Kaius M, Wangnapi R, Hans D, MenegonM, Mateo F, Sanz S, Desai M, Mayor A, Chitnis CC, Bardaji DA, Mueller I, Rogerson S, Severini C, Fernandez-Becerra C, Menendez C, **del Portillo H** & Dobano C 2016, 'Plasmodium vivax VIR Proteins Are Targets of Naturally-Acquired Antibody and T Cell Immune Responses to Malaria in Pregnant Women', *Plos Neglected Tropical Diseases*, 10, 10, e0005009.

Selected research activities

- Chairperson First symposium on Exosomes XXXIX Congreso de la SEBBM. Sept. 5th to 8th 2016; Salamanca.

- European PCT application: EXOSOMES AND THEIR USE AS VACCINE.
- Invited speaker in ISEV workshop: Cross-Organism Communication by Extracellular Vesicles; Nov. 24th to 25th 2016; Sao Paulo.



de Riedmatten, Hugues Institut de Ciències Fotòniques (ICFO) Engineering Sciences

Since Sep. 2010, Hugues de Riedmatten is an ICREA Research Professor and group leader in quantum optics at the Institute of Photonic Sciences (ICFO) in Barcelona. He obtained a Masters in Physics from the Swiss Federal Institute of Technology (EPFL) in 1999, and a PhD in experimental quantum optics from the University of Geneva in 2003, for his work on long distance quantum communication in optical fiber (supervisor Prof. Nicolas Gisin). He was then postdoctoral scholar at Caltech (Prof. Jeff Kimble), where he worked on light-matter interaction at the quantum level by interfacing cold atomic ensembles and single photons. In 2006, he was appointed senior researcher at the Univ. of Geneva, where he led the solid state quantum memory activities. He has published around 75 articles in peer-reviewed journals and has given over 45 talks, both in international conferences and in invited seminars. He is the recipient of a Starting Grant from the European Research Council (ERC).

Research interests

Hugues de Riedmatten leads the Quantum Photonics group at ICFO. His research interests are in quantum information science (QIS) and quantum optics. QIS is a research field that aims at controlling quantum coherence in light and matter in order to enable new information processing capabilities impossible with classical resources. He is now particularly interested in the quantum control of light matter interaction between single photons and atomic ensembles implemented with rare-earth doped solids and cold atomic gases. The goal is to develop the quantum technology to implement quantum information networks and quantum repeaters. A more fundamental goal is to enable the observation of fascinating quantum effects, such as entanglement, with distant material systems and to explore and extend the limits of quantum coherence in complex material systems.

Selected publications

- Kutluer K, Pascual Winter MF, Dajczgewand J, Ledingham PM, Mazzera M, Chanelière T & **de Riedmatten H** 2016, 'Spectral-hole memory for light at the single-photon level', Phys. Rev. A, 93, 040302(R).

- Corrielli G, Seri A, Mazzera M, Osellame R & **de Riedmatten H** 2016, 'Integrated Optical Memory Based on Laser-Written Waveguides', *Physical Review Applied*, 5, 5, 054013.

- Distante E, Padron-Brito A, Cristiani M, Paredes-Barato D & **de Riedmatten H** 2016, 'Storage Enhanced Nonlinearities in a Cold Atomic Rydberg Ensemble', *Physical Review Letters*, 117, 11, 113001.

- Farrera P, Maring N, Albrecht B, Heinze G & **de Riedmatten H** 2016, 'Nonclassical correlations between a C-band telecom photon and a stored spin-wave', *Optica*, 3, 9, 1019 – 1024.

- Farrera P, Heinze G, Albrecht B, Ho M, Chavez M, Teo C, Sangouard N & **de Riedmatten H** 2016, 'Generation of single photons with highly tunable wave shape from a cold atomic ensemble', *Nature Communications*, 7, 13556.

- Rieländer D, Lehhard A, Mazzera M & **de Riedmatten H** 2016, 'Cavity enhanced telecom heralded single photons for spin-wave solid state quantum memories', *New J. Phys.*, 18, 123013.

Selected research activities

Selected Invited Talks,

* 'Quantum Correlation between a single photon and a spin-wave in a solid-state environment.', International Conference on Quantum Communication, Measurement and Computing, Singapore, July 7th 2016.

* 'Quantum Frequency Conversion for Quantum Memories', International conference on Spectral & Spatial Engineering of Quantum Light, Warsaw, Poland, April 1st 2016.

* 'Photonic Quantum Memories for Quantum Information Networks', 20th Annual Symposium of the IEEE Photonics Benelux Chapter, Brussels, February 9th 2016.

Outreach/Media

Featured on Swiss TV station RTS in prime-time news report on Swiss scientists abroad.



Díaz-Andreu García, A. Margarita Universitat de Barcelona (UB) Humanities

I am an ICREA Research Professor in Archaeology at the University of Barcelona. Previously, I held posts at the CSIC (1993-94), Complutense University of Madrid (1993-95) and Durham University (1996-2011), where I was a Reader. In the past I have served in many committees of national and international character; currently I am the vice-president of the History of Archaeology Commission of the IUPPS and a member of the Nomination Committee of the European Association of Archaeologists (EAA), the association for all professional archaeologists of Europe and beyond. I am often required to serve as an evaluator/referee of fellowships and publications. I am the PI of the "Inter-Arq" (HAR2016-80271-P), the SONART projects (GENCAT 2014/100782; PIEF-GA-2013-627351) and of 3 personel grants (BES-2013-063862). I am leading research interest groups on heritage (www.gapp.cat) and archaeoacoustics (www.archeoacustica.net). I am keen on promoting social impact through my research.

Research interests

In the past few years I have been active in the fields of heritage, the history of archaeology, rock art and acoustics and identity, publishing and organising research events on a national and international level on these fields. My work has been published by Oxford University Press, Routledge, Cambridge University Press, Springer and Marcial Pons, among other prestigious publishers. Some of my articles have been included in readers and others have been translated into five different languages. I am currently supervising five PhD students and in the past I have seen nine PhD students through to completion. I have also supervised six post-doctoral students, all of them with prestigious fellowships. As a field archaeologist my work focuses on archaeoacustics and as a historian on archaeology and heritage I am mainly researching on the history of 20th-century archaeology, archaeological tourism, World Heritage, and the social value of heritage.

Selected publications

- Díaz-Andreu M 2016, 'SPECIAL SECTION World Heritage and the Public', *European Journal of Post-Classical Archaeologies* [special section: Díaz-Andreu M (ed.) World Heritage & the Public], 6:189-332. ERIHPLUS.

- Díaz-Andreu M 2016, 'Social values and local communities in World Heritage: a dream too far?', European Journal of Post-Classical Archaeologies, 6:193-212, ISSN 2039-7895; IMPACT: ERIHPLUS.

- Díaz-Andreu M 2016, 'Arqueología, comunidad y valor social: un reto para el patrimonio arqueológico del siglo XXI' In Díaz-Andreu
 M, Pastor A & Ruiz A (eds.), Arqueología y comunidad: el valor social del patrimonio arqueológico en el siglo XXI: 69-90, Madrid: JAS Arqueología.

- Díaz-Andreu M 2016, 'Romanità in Spain? The contacts between Spanish and Italian classical archaeologists during the dictatorship of Primo de Rivera (1923-1930)', In Delley G, Díaz-Andreu M, Djindjian F, Fernández V, Guidi A & Kaeser MA (eds.), History of Archaeology – international perspectives: 35-50, Oxford: Archaeopress.

- **Díaz-Andreu M** & Mattioli T 2016, 'Archaeoacoustics of rock art: quantitative approaches to the acoustics and soundscape of rock art' In Campana S, Scopigno R, Carpetiero G & Cirillo T (eds.), CAA 2015, Keep the revolution going: 1049-1058, Oxford: *Archaeopress*.

Selected research activities

I was invited to form part of the "Current research on rock art" roundtable at the Martin Gropius-Bau (Berlin) on 5 March, on the occasion of the exhibition «Kunst der Vorzeit» (Art from prehistoric times). Together with members of the University of Helsinki, I organised the "Art and acoustics: multiple perspectives" workshop at the UB on 14 September. I was invited to give papers at these conferences: "Landscape Archaeology Conference", Uppsala and "World Archaeological Congress", Kyoto, both in August; EAA (Vilnius) in September; and "Signs of Place: A Visual Interpretation of Landscape", Topoi (Berlin), in October 2016.



Di Croce, Luciano Centre de Regulació Genòmica (CRG) Life & Medical Sciences

1996 PhD Dept. Cellular and Developmental Biology, University of Rome, Italy. 1996-2000 Postdoctoral work at the University of Marburg, Germany. 2000-2002 Senior Investigator at the European Institute of Oncology, Milan, Italy. 2003 Group Leader at the Centre de Regulació Genòmica (CRG), Barcelona, Spain. Research Professor, Institució Catalana de Recerca i Estudis Avançats (ICREA). 2013 Elected EMBO Member.

Research interests

Epigenetic changes, such as histone modifications and DNA methylation, are common alterations in cancer cells. Our laboratory is addressing the molecular basis of epigenetic alterations during the early phase of the tumorigenesis process. The expression of oncoproteins in hematopoietic precursor cells provides a unique model system to follow the molecular step from a normal to a transformed cell on the level of gene transcription, nuclear structure and chromatin. More recently, Di Croce's lab is interested in understanding how variations in the assembly of the Polycomb complexes occur and influence mES cell differentiation and animal development.

Selected publications

- Sebé-Pedrós A, Ballaré C, Parra-Acero H, Chiva C, Tena JJ, Sabidó E, Gómez-Skarmeta JL, **Di Croce L** & **Ruiz-Trillo I** 2016, 'The Dynamic Regulatory Genome of Capsaspora and the Origin of Animal Multicellularity', *Cell*, 165, 5, 1224-37.

- Kloet SL, Makowski MM, Baymaz HI, van Voorthuijsen L, Karemaker ID, Santanach A, Jansen PW, **Di Croce L** & Vermeulen M 2016, 'The dynamic interactome and genomic targets of Polycomb complexes during stem-cell differentiation', *Nature Structural & Molecular Biology*, 23, 7, 682-90.

- Pasini D & Di Croce L 2016, 'Emerging roles for Polycomb proteins in cancer', Curr. Opin. Genetics Dev., 36, 50-58.

- Rinaldi L, Datta D, Morey L, Solanas G, Serrat J, Vincent G, Rodolose R, Gomez D, Von Kriegsheim A, Pilkington R, Gut I, **Di Croce L*** & **Aznar Benitah S*** 2016, 'Novel roles of Dnmt3a and Dnmt3b at enhancers, gene bodies, and promoters regulate human epidermal

stem cell function', *Cell Stem Cell*, 19, 491-501. * = co-corresponding author

- Mas G & Di Croce L 2016, 'The role of Polycomb in stem cell genome architecture', Curr. Opin. Cell Biology, 43, 87-95.

- Vizán P, Beringer M & **Di Croce L** 2016, 'Polycomb-dependent control of cell fate in adult tissue', *EMBO J.*, 35, 2268-69.

- Beringer M, Pisano P, Di Carlo V, Blanco E, Chammas P, Vizán P, Gutiérrez A, Aranda S, Payer B, Wierer M & **Di Croce L** 2016, 'EPOP Functionally Links Elongin and Polycomb in Pluripotent Stem Cells', *Molecular Cell*, 64, 645-58.

Selected research activities

Organizer of several international conferences, including for 2016: Keystone Symposium on *Chromatin & Epigenetics* (*Colorado*), *Chromatin and the Environment* (Spetses), *Coding and non-coding functions of the genome* (Barcelona) Since 2015: co-organizer of the "The Barcelona Institute of Science and Technology" (BIST) Master school Since 2014, co-organizer of the Cold Spring Harbour Laboratories Summer course on "*Chromatin, Epigenetics and Transcription*" Since 2012 Chair of the Graduate Programme at CRG ERC Panel Member for 2016-2019 EMBO Member (since 2013)



Doblas Reyes, Francisco Javier Institut Català de Ciències del Clima (IC3) & Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC - CNS) Experimental Sciences & Mathematics

I started working on climate variability at the Universidad Complutense de Madrid (Spain) in 1992, where I did my PhD. I then worked as a postdoc in Météofrance (Toulouse, France), at the Instituto Nacional de Técnica Aerospacial (Torrejón, Spain) and for ten years at the European Centre for Medium-Range Weather Forecasts (Reading, UK). I am the head of the Department of Earth Sciences of the Barcelona Supercomputing Center (BSC-CNS), where I coordinate the largest FP7 project on climate prediction. The Department hosts more than 50 engineers, physicists, mathematicians and other air quality and climate researchers who try to bring the latest developments in supercomputing and Big Data to provide the best information and services. I am author of more than 100 peerreviewed papers, member of several international scientific committees and supervisor of several postdocs and one PhD student.

Research interests

Global climate is highly variable, which implies that there is much more to understand than just climate change. Climate prediction aims at predicting the variations of climate at different time scales, ranging from one month to several years beyond the start of the forecast. I use an Earth system model based on differential equations to explore the limits of the forecast quality over different parts of the globe, in particular over Africa, South America and Southern Europe, and statistical techniques to adapt the resulting climate information to specific user needs. Improving the application of this climate information to different socio-economic sectors, with a special focus on energy and disaster risk management, is the final target.

Selected publications

- Osman M, Vera CS & **Doblas-Reyes FJ** 2016, 'Predictability of the tropospheric circulation in the Southern Hemisphere from CHFP models', *Climate Dynamics*, 46, 2423-2434, doi:10.1007/s00382-015-2710-2.

- Prodhomme C, **Doblas-Reyes FJ**, Bellprat O & Dutra E 2016, 'Impact of land-surface initialization on sub-seasonal to seasonal forecasts over Europe', *Climate Dynamics*, 47, 919-935, doi:10.1007/s00382-015-2879-4.

- Bellprat O & **Doblas-Reyes FJ** 2016, 'Attribution of extreme weather and climate events overestimated by unreliable climate simulations', *Geophysical Research Letters*, 43, 2158-2164, doi:10.1002/2015GL067189.

- Prodhomme C, Batté L, Massonnet F, Davini P, Bellprat O, Guemas V & **Doblas-Reyes FJ** 2016, 'Benefits of increasing the model resolution for the seasonal forecast quality in EC-Earth', *Journal of Climate*, 29, 9141-9162, doi:10.1175/JCLI-D-16-0117.1.

- Guemas V, Chevallier M, Déqué M, Bellprat O & **Doblas-Reyes FJ** 2016, 'Impact of sea ice initialization on sea ice and atmosphere prediction skill on seasonal timescales', *Geophysical Research Letters*, 43, 3889-3896, doi:10.1002/2015GL066626.

- Boer GJ, Smith DM, Cassou C, **Doblas-Reyes FJ**, Danabasoglu G, Kirtman B, Kushnir Y, Kimoto M, Meehl AM, Msadek R, Mueller WA, Taylor K & Zwiers F 2016, 'The Decadal Climate Prediction Project', *Geoscientific Model Development*, 9, 3751-3777, doi:10.5194/gmd-2016-78.

- Massonnet F, Bellprat O, Guemas V & **Doblas-Reyes FJ** 2016, 'Using climate models to estimate the quality of global observational data sets', *Science*, 6311, 452-455, doi:10.1126/science.aaf6369.

Selected research activities

- Co-author of 21 peer-reviewed papers.

- Organiser of the SPECS/PREFACE/WCRP Workshop on Initial Shock, Drift, and Bias Adjustment in Climate Prediction (Barcelona, May 2016).

- Tutor of two Juan de la Cierva researchers.

- Member of the Research Advisory Committee of the Indian Institute of Tropical Meteorology (Pune, India).



Domingo Sanz, Inés Universitat de Barcelona (UB) Humanities

Inés is ICREA Research professor in the Section of Prehistory and Archaeology (Universitat de Barcelona) since 2010, and incoming Vicepresident of the World Archaeological Congress. Through her current and previous positions at the Universities of Valencia (Spain) and Flinders (Australia) she explores the 'Archaeologies' of rock art from a multidisciplinary perspective. Her performance in archaeology has earned her a number of academic awards and distinctions: Honorary Associate Researcher at the Dep. of Archaeology, Flinders University (Australia) since 2009; Blaze O'Connor memorial award (WAC, Jordan, 2013); Honorary appointment as guest professor at HeTao University (Inner Mongolia, China) (2010); Honorary Research Fellow of Inner Mongolia Rock Art Protection and Research Association, and Inner Mongolia Rock Art Research Academy (2010) and a PhD University Award (Premio extraordinario de doctorado) (2006).

Research interests

My primary research interest is rock art. In Spain, I aim to advance our understanding of Postpalaeolithic rock art of Mediterranean Iberia (World Heritage since 1998), combining state of the art technologies, theories and methods and seeking interdisciplinary collaborations for physic and chemical analysis of pigments, and digital rock art recording. Through the systematic analysis and decomposition of rock art panels and their contexts I intend to discover hidden clues providing insights into the past to answer questions of what, why, where, how, when and who produced this millenary legacy. In Australia I explore the social and territorial aspects of rock art from an ethno-archaeological perspective, working with Aboriginal people and Australian researchers in Arnhem Land. Combining both perspectives (archaeology and ethnography) I aim to develop a more critical theoretical framework to explore past and present rock art.

Selected publications

- **Domingo I** & Bea M 2016, 'From Science to Heritage: new challenges for World Heritage rock art sites in Mediterranean Spain in the 21st century' in Brady L & Taçon P (eds.), Relating to rock art in the contemporary world: navigating symbolism, meaning and significance, *University Press of Colorado*, 213-244.

Domingo I, May SK & Smith C 2016, 'Communicating through rock art: an ethnoarchaeological perspective', in Buchsenschutz
 O, Jeunesse C, Mordant C & Vialou D (dir.) Signes et communication dans les civilisations de la parole, Edition electronique du *CTHS* (Actes des congres des sociétés historiques et scientifiques), Paris, pp 9-26.

- Smith C, **Domingo I** & Jackson G 2016, 'Beswick Creek Cave six decades later: change and continuity in the rock art of Doria Gudaluk', *Antiquity*, 90 (354): 1613-1628.

- Roman I, Nadal J, **Domingo I**, García-Argüelles P, Lloveras Ll & Fullola JM 2016, 'La fin du Paléolithique dans la Catalogne Méridionale Ibérique revisitée: nouvelles reponses pour anciennes questions', *L'Anthropologie*, 120: 610-628.

Selected research activities

- Session Organizer at WAC8 (Kyoto-Japan):

- with Dr. Fiore (CONICET, Argentina): Mind the gap! Building bridges between scientific approaches and public interests in the archaeology of art.
- with Drs. Taçon (Griffith University, Australia) and May (ANU, Australia): Change and continuity in rock art.
- Congress papers:
- with Román: From research to the public. Participatory initiatives to promote Levantine rock art. WAC8 (Kyoto-Japan).
- with May, Johnston, Taçon: Dynamic Places: early human figurative rock art in northern Australia. WAC8 (Kyoto-Japan).
- with García, Martins, Ochoa, Vigiola: Datando el arte prehistórico: método, muestreo, datos, límites e interpretaciones. Congreso: cronometrías para la historia de la Península Ibérica. Universidad Autònoma de Barcelona.



Durduran, Turgut Institut de Ciències Fotòniques (ICFO) Engineering Sciences

November 2015 – ICREA Research Professor February 2009 - Group Leader – Medical Optics Dr. Turgut Durduran is a group leader at ICFO. He has founded the ICFO-Medical Optics group in 2009 when he joined ICFO and in 2014 he received his tenure and became a professor/group leader. In 2015, he became an ICREA, Catalan Institution for Research and Advanced Studies, professor at ICFO. Over the years, the group has grown exponentially, currently, with eighteen PhD students, post-docs and engineers collaborating with about a dozen hospitals and biomedical institutes world-wide. He has participated in many advisory boards, grant review boards ranging from the National Institutes of Health to the review of the FP7 projects at the European Commission. He has authored 82 peer-reviewed papers and delivered over sixty invited talks in international conferences and colloquia.

Research interests

Turgut is a physicist who is an expert in biomedical optics. He studies the physics of photon propagation in biological tissues and builds machines that can see through our bodies like never before. His group is highly multi-disciplinary: physicists, engineers and medical doctors, and collaborates closely with hospitals and biomedical centers all around the world. Turgut's current focus is the measurement of hemodynamics and oxygen metabolism. His dream is to see these devices becoming standard clinical equipment for the doctors of the future.

Selected publications

- Sekar SKV, Mora AD, Bargigia I, Martinenghi E, Lindner C, Farzam P, Pagliazzi M, **Durduran T**, Taroni P, Pifferi A & Farina A 2016, 'Broadband (600-1350 nm) Time-Resolved Diffuse Optical Spectrometer for Clinical Use', *leee Journal Of Selected Topics In Quantum Electronics*, 22, 3, 7100609.

- Ramirez G, Proctor AR, Jung KW, Wu TT, Han S, Adams RR, Ren J, Byun DK, Madden KS, Brown EB, Foster TH, Farzam P, **Durduran T** & Choe R 2016, 'Chemotherapeutic drug-specific alteration of microvascular blood flow in murine breast cancer as measured by diffuse correlation spectroscopy', *Journal Biomedical Optics Express*, vol. 7, issue 9, pp. 3610-3630.

– Johansson J, Mireles M, Morales-Dalmau J, Farzam P, Martínez-Lozano M, Casanovas O & **Durduran T** 2016, 'Scanning, non-contact, hybrid broadband diffuse optical spectroscopy and diffuse correlation spectroscopy system', *Biomedical Optics Express*, **v**ol. 7, issue 2, pp. 481-498.

- Lindner C, Mora M, Farzam P, Squarcia M, Johansson J, Weigel U.M, Halperin I, Hanzu FA & **Durduran T** 2016, 'Diffuse Optical Characterization of the Healthy Human Thyroid Tissue and Two Pathological Case Studies', PloS One 11(1): e0147851.

Selected research activities

The Horizon 2020 project Laser and Ultrasound Co-analyzer for Thyroid Nodules (LUCA) was started in February 2016 and Dr. Durduran is the coordinator. It aims at developing an innovative technology for thyroid cancer screening that will provide doctors with enhanced information required to provide better and more specific results in thyroid nodule screening and enable better diagnosis.

We play an important role in another European project, Babylux: An Optical Neuro-Monitor of Cerebral Oxygen Metabolism and Blood Flow for Neonatology. This is a project that aims to provide an innovative and reliable tool to monitor and assess brain blood flow and oxygenation in extremely preterm neonates.



Dyakonov, Konstantin Universitat de Barcelona (UB) Experimental Sciences & Mathematics

Born on 30 May 1964 in Leningrad, USSR (=St. Petersburg, Russia). Graduated from Leningrad State University in 1986. PhD in Mathematics from St. Petersburg State University, 1991. Previous long-term positions: - Institute of Analysing Devices, Leningrad, USSR (1986-1989), researcher; - St. Petersburg University of Electrical Engineering, St. Petersburg, Russia, assistant professor (1989-1992) and then associate professor (1992-1998) in the Department of Mathematics; - Universidad de La Laguna, Tenerife, Spain (1996-1997), visiting professor; - Universitat de Barcelona, Spain (1999-2001), visiting research fellow; - Steklov Institute of Mathematics, St. Petersburg Branch (POMI), St. Petersburg, Russia (1998-2007), senior researcher; - Universitat de Barcelona, Spain (2003-2006), Ramón y Cajal researcher. Prizes: Young Scientist Award in the area of Mathematics from Academia Europaea (for fSU researchers), 1998.

Research interests

Most of my research is devoted to spaces of analytic functions of a complex variable. Typically, the functions live on the unit disk and are well-behaved, in a sense, near/on its boundary, the unit circle. Various specific interpretations of "well-behaved", such as a natural growth restriction or some kind of boundary smoothness, give rise to important function spaces with nice properties, and I have studied some of these. I am also concerned with certain types of linear operators (e.g., the so-called Toeplitz and Hankel operators) acting on such spaces.

Selected publications

- **Dyakonov KM** 2016, 'Functions in Bloch-type spaces and their moduli', *Annales Academiae Scientiarum Fennicae, Mathematica*, Vol. 41, No. 2, pp. 705-712.

Selected research activities

* Advanced graduate course "Complex analysis in one and several variables" (Màster de Matemàtica Avançada), taught at the UB in February – May 2016.

- * Problem solving classes in Mathematical Analysis, taught at the UB in September December 2016.
- * Editorial boards: Journal of Complex Analysis (Hindawi Publ. Corp.), Applied Mathematics (Sci. Res. Publ.)
- * A number of invited talks at various conferences in Russia, Poland and France.

* Coordinator (on behalf of the UB Complex Analysis group) for the Spanish research network "Variable compleja, espacios de funciones y operadores entre ellos".

* Member of Scientific Committee for the research program "Constructive Approximation and Harmonic Analysis" (March – July 2016), held at the Centre de Recerca Matemàtica (CRM).

* Member of Scientific Committee for the summer school "Workshop on Complex Analysis and Operator Theory" (June 19-24, 2016), held at the University of Málaga, Spain.

* Served as referee for a number of mathematics journals.



Ebrahim-Zadeh, Majid Institut de Ciències Fotòniques (ICFO) Engineering Sciences

Majid Ebrahim-Zadeh received his PhD from St Andrews University, UK, in 1989. He was a Royal Society Research Fellow from 1993 to 2001, and appointed ICREA Professor in 2003. He has over 500 publications, including 170 journal papers, 80 invited talks, 18 invited journal papers, major book chapters and reviews, and has edited 2 books. He has served as advisory and topical editor of Optics Letters, guest editor of J. Opt. Soc. Am. B, associate editor of IEEE Photonics Journal, associate editor of Optica, on the Joint Council on Quantum Electronics (USA), International Council on Quantum Electronics, Steering Committee of CLEO (USA), and on advisory board of several funding agenceis and scientific councils. He is the founder, president and chief scientist of Radiantis, a Fellow of OSA and SPIE, recipient of the Royal Society Merit Award (1995, 1999), Innova Prize for commercial enterprise (2004) and Berthold Leibinger Innovation Prize, Germany (2010).

Research interests

His research is focused on the development of new technologies for the generation and manipulation of coherent light in new spectral and temporal domains, which are inaccessible to conventional lasers. The main goal is the exploitation of nonlinear optics, in particular optical parametric processes, to produce laser radiation with unique spectral and temporal flexibility, and applications of this technology to biomedicine, frequency synthesis, spectroscopy, optical microscopy and imaging. Another important focus of his research is commercial enterprise and technology transfer to the industrial sector, where he has successfully transformed research results from his laboratory at ICFO into cutting-edge photonic products through the creation of a spin-off company, Radiantis, in Barcelona, in 2005. The company is now a leading manufacturer of state-of-the-art frequency conversion systems and instrumentation, and a certified supplier to major suppliers of laser technology in the world.

Selected publications

- Chaitanya Kumar S, Parsa S & **Ebrahim-Zadeh M** 2016, 'Fiber-laser-based, green-pumped, picosecond optical parametric oscillator using fanout grating PPKTP', *Opt. Lett.* 41, 52-55.

- Badarla VR, Chaitanya Kumar S, Esteban-Martin A, Devi K, Zawilski KT, Schunemann PG & **Ebrahim-Zadeh M** 2016, 'Ti:sapphirepumped deep-infrared femtosecond optical parametric oscillator based on CdSiP₂', *Opt. Lett.* 41, 1708-1711.

- Devi K, Parsa S & **Ebrahim-Zadeh M** 2016, 'Continuous-wave, single-pass, single-frequency second-harmonic-generation at 266 nm based on birefringent-multicrystal scheme', *Opt. Express*, 24, 8763-8775.

- Chaitanya NA, Chaitanya Kumar S, Devi K, Samanta GK & **Ebrahim-Zadeh M** 2016, 'Ultrafast optical vortex beam generation in the ultraviolet', *Opt. Lett.* 41, 2715-2718.

- Chaitanya Kumar S, Esteban-Martin A, Santana A, Zawilski KT, Schunemann PG & **Ebrahim-Zadeh M** 2016, 'Pump-tuned deepinfrared femtosecond optical parametric oscillator across 6-7 μm based on CdSiP₂', *Opt. Lett.* 41, 3355-3358.

- Chaitanya NA, Chaitanya Kumar S, Aadhi A, Samanta GK & **Ebrahim-Zadeh M** 2016, 'Ultrafast Airy beam optical parametric oscillator', *Scientific Reports* 6, 30701, 1-6.

- Devi K, Chaitanya Kumar S & **Ebrahim-Zadeh M** 2016, 'Fiber-laser-based, high-repetition-rate, picosecond ultraviolet source tunable across 329-348 nm', *Opt. Lett.* 41, 4799-4802.

- Chaitanya Kumar S, Schunemann PG, Zawilski KT & **Ebrahim-Zadeh M** 2016, 'Advances in ultrafast optical parametric sources for the mid-infrared based on CdSiP₂', *J. Opt. Soc. Am. B* 33, D44-D56.

- Chaitanya NA, Aadhi A, Chaitanya Kumar S, Jabir MV, Samanta GK & **Ebrahim-Zadeh M** 2016, 'Frequency-doubling of femtosecond pulses in thick nonlinear crystals with different temporal and spatial walk-off parameters', *IEEE Photon. J.* 8, 1-13.

- Chaitanya Kumar S & **Ebrahim-Zadeh M** 2016, "Yb-fiber-based, high-average-power, high-repetition-rate, picosecond source at 2.1 μm', *Laser & Photon. Rev.* 10, 970-977.

Selected research activities

Associate Editor: Optica, Optical Society of America & IEEE Photonics Journal (USA).

Guest Editor: J. Optical Society of America B (USA).

Conference Chair: Mid-Infrared Coherent Sources (USA).

Committee Chair: Solid-State Lasers, 7th Europhoton Conference (Austria).

Member, Technical Programme Committee of two international conferences: SPIE Photonics West (USA), SPIE Europe (Belgium).

Traveling Lecturer, Optical Society of America (USA).

Plenary Talk, SCOP-2016 Conference (India).

Public Lecture, SCOP-2016 Conference (India).

Invited Talk, *Mid-Tech* Summer School (Germany).



Eeckhout, Jan Universitat Pompeu Fabra (UPF) Social & Behavioural Sciences

Jan Eeckhout is ICREA research professor at UPF, Barcelona. He has teaching and research interests in applied economics, with a special emphasis on the labor market. He studies unemployment, labor market risk, skill diversity, and inequality in cities. His work has been published in the American Economic Review, Econometrica, the Review of Economic Studies, the Journal of Political Economy, and has been supported by several government grants, including funding from NSF (US) and ERC. Jan Eeckhout has been a tenured professor at the University of Pennsylvania, where he was for 9 years. He has also taught for one year at NYU Stern and visited MIT. He has been an editor of the International Economic Review and is on the editorial board of the Review of Economic Dynamics and the Journal of Economic Theory. He is a fellow of the European Economic Association and of Academia Europaea, and received his PhD in Economics from the London School of Economics.

Research interests

Jan Eeckhout has research interests in labor markets and applied economic theory, with a special emphasis on the theory of matching and search. His models develop tools and testable hypotheses for several market applications both in micro and macroeconomics. He studies unemployment, knowledge spillovers, inequality and local labor markets.



Emparan García de Salazar, Roberto Universitat de Barcelona (UB) Experimental Sciences & Mathematics

I'm originally from Bilbao. I got both my BSc (in June 1990) and my PhD (in November 1995) in Physics from the University of the Basque Country. In January 1996 I went to the University of California, Santa Barbara, for my first postdoc. Two years later, I moved to Durham University, in northern England, for a second postdoc. Near the end of 1999 I took up a lecturer position back in Bilbao, under a new (but flawed) program for recovering young researchers. I took leave from there in January 2001 to move to a Fellow position at CERN (the European Lab for Particle Physics, outside Geneva). Since January 2003 I have been ICREA Research Professor at the Department of Fundamental Physics at Universitat de Barcelona. In 2016 I was awarded an Advanced Grant from the European Research Council.

Research interests

I try to understand the nature of spacetime at its most fundamental level. We know since Einstein that, due to the existence of gravity, spacetime is a dynamical entity. So I study the classical and quantum aspects of gravity and its most basic objects: the black holes. The natural starting point is the theory of General Relativity and the theories that naturally incorporate the ideas of holographic spacetime, namely, String and M-Theory and the AdS/CFT correspondence.

Selected publications

- Emparan R & Martinez M 2016, 'Exact event horizon of a black hole merger', Classical And Quantum Gravity, 33, 15, 155003.

- **Emparan R**, Izumi K, Luna R, Suzuki R & Tanabe K 2016, 'Hydro-elastic complementarity in black branes at large D', *Journal Of High Energy Physics*, 6, 117.

- Emparan R & Martínez M 2016, 'Black hole fusion made easy', International Journal of Modern Phyics D 25, 1644015

Selected research activities

Plenary talks at

ERE 2016, Lisboa; Iberian Strings 2016, Madrid

Invited talks and colloquia at

Higgs Centre, Edinburgh (colloquium); DFT, UPV-EHU Bilbao; Inst H Poincaré, Paris; DFT, U. Granada; YITP Kyoto; GR 21, New York; U. Santiago Compostela (colloquium); Facultad Física USC; Brussels+KU Leuven; Lorentz Institute, Leiden U.; IFT-UAM Madrid; Maths Dept, Nagoya;Black Holes workshop, Nagoya; Kobayashi-Maskawa Colloquium, Nagoya

Invited graduate lectures at FisyMat, U. Granada

Dissemination

Conference at FCR Programme Dia de la Ciència a les Escoles 2016. Talk at primary school for Setmana de la Ciència 2016. Article for "Investigación y Ciencia". Article for La Vanguardia. Two journal interviews (Agencia SINC). Three radio interviews. One TV interview (TV3). Four public talks (cultural centers etc). Summer Course Els Juliols UB.

Invited visiting professor at Kobayashi-Maskawa Institute, Nagoya

Member of the Committee of the International Society on General Relativity and Gravitation

Management Committee Member (Spain representative) and Working Group Leader of COST Action MP1210 "The String Theory Universe"

Warrantor of ICCUB for María de Maeztu award

Member of the Editorial Board of Journal of High Energy Physics and International Journal of Modern Physics D **PhD thesis supervisor** of A. Maccarrone, U. Barcelona, 8 Feb 2016, and M. Martínez, U. Barcelona, 14 Oct 2016 **MSc thesis supervisor** of R. Luna, U. Barcelona, 30 Jun 2016

Awarded ERC Advanced Grant "A New Strategy for Gravity and Black Holes" - GravBHs



Enikolopov, Ruben Institute for Political Economy and Governance (IPEG) Social & Behavioural Sciences

Ruben Enikolopov received his PhD from Harvard University in 2008. He has worked in the New Economic School in Moscow since then and he spent 2012-2013 as Member at the Institute of Advanced Study, Princeton. His research interests include political economy, mass media, and economic development. He has published his research in leading academic journals such as American Economic Review, Proceedings of National Academy of Science, American Political Science Review, American Economic Journal: Applied Economics, Journal of Public Economics. His research was supported from the International Growth Center, Canadian International Development Agency, USAID, the UN's World Food program and the World Bank among others.

Research interests

My research interests are in political economy, development economics, and economics of mass media. In my work I use state of the art empirical approach to understand the effect of political institutions and information provision in mass media on various aspects of economic and political development. One of the main questions that I address in my work is how information affects political, economic, and financial outcomes. In a series of papers I investigate the causal effect of mass media on voting behavior in Russia, expressions of nationalism in Croatia, dictatorial support in Nazi Germany, as well as the impact of social media on political participation and corruption. In a series of field experiments conducted in Afghanistan I examine the effect of large-scale development program on the status of women, success of counterinsurgency efforts, etc. Using field experiment methodology I also show the extent of electoral fraud in Russian parliamentary elections.

Selected publications

- Beath A, Christia F, Egorov G & **Enikolopov R** 2016, 'Electoral Rules and Political Selection: Theory and Evidence from a Field Experiment in Afghanistan', *Review Of Economic Studies*, 83, 3, 932 – 968.



Espinosa Sedano, José Ramón Institut de Física d'Altes Energies (IFAE) Experimental Sciences & Mathematics

I obtained my PhD (UAM 1994) working on Particle Physics beyond the Standard Model at IEM (CSIC, Madrid) under the supervision of Mariano Quirós. After postdoctoral stays at DESY (Hamburg, Germany), University of Pennsylvania (Philadelphia, USA) and CERN (Geneva, Switzerland), in 1999 I joined IMAFF (CSIC, Madrid) and then IFT-UAM/CSIC (Madrid) with a permanent position as 'Científico Titular' being promoted to 'Investigador Científico' in 2005 and to 'Profesor de Investigación' in 2008. In November of that year I joined ICREA as Research Professor to work at IFAE.

Research interests

The ultimate goal of my field of research, Particle Physics, is to understand nature at the most fundamental level determining its building blocks and the laws that govern them. In the path (of ever increasing energies) towards that goal, the Standard Model -the theory that describes how all phenomena observed so far can be explained in terms of a small number of particle species interacting according to a well defined mathematical framework- stands as an impressive achievement. In spite of this, it leaves open too many questions to be considered the ultimate theory, and strong reasons lead us to believe in physics beyond this Standard Model. As a theorist, I work at this high energy frontier exploring what theories might supersede the Standard Model and what experimental implications they would have. The Large Hadron Collider now in operation at CERN and a number of other experiments will provide us in coming years with crucial data to guide research in this fundamental field.

Selected publications

- Cacciari M, Del Debbio L, **Espinosa JR**, Polosa AD & Testa M 2016, 'A note on the fate of the Landau-Yang theorem in non-Abelian gauge theories', *Physics Letters B* 753, pp 476-481.

- **Espinosa JR**, Fortin J-F & Trepanier M 2016, 'Consistency of scalar potentials from quantum de Sitter space', *Physical Review D*, 93, 12, 124067.

- **Espinosa JR**, Garny M & Konstandin T 2016, 'Interplay of infrared divergences and gauge dependence of the effective potential', *Physical Review D*, 94, 5, 055026.

- Casas JA, **Espinosa JR** & Moreno JM 2016, 'The 750 GeV Diphoton Excess as a First Light on Supersymmetry Breaking', *Phys.Lett. B759.159.*

Selected research activities

Invited Plenary Talks at International Conferences/Workshops

- Cosmological Implications of Higgs Near-Criticality ". Dec. 2016. "Helsinki Higgs Forum", Helsinki (Finland).
- Higgs Inflation as a Mirage, Dec. 2016, Bethe Forum "Beyond the standard Higgs-system", BCTP Bonn (Germany).
- Cosmological relaxation of the electroweak scale, March 2016, 51st Rencontres de Moriond (EW), La Thuile (Italy).

Invited Seminars

- LPTHE, Paris, France
- Utrecht (Theoretical Cosmology Meetings), The Netherlands
- IPPP Durham, UK
- Technical Univ. Munich, Germany.

Stays of Research

• CERN, Geneva (Switzerland).

Reviewer for

- Science and Technology Facilities Council (STFC), U.K.
- European Research Council ERC-Starting Grants.
- National Science Center, Poland.



Esteller Badosa, Manel Institut d'Investigació Biomèdica de Bellvitge (IDIBELL) Life & Medical Sciences

Manel Esteller (Sant Boi de Llobregat, Barcelona, Catalonia, Spain, 1968) graduated in Medicine with Honours from the Universitat de Barcelona in 1992, where he also obtained his PhD degree in molecular genetics in 1996. He was an Invited Researcher at the School of Biological and Medical Sciences at the University of St. Andrews (Scotland, UK) . From 1997 to 2001, Dr. Esteller was a researcher at the Johns Hopkins University and School of Medicine (Baltimore, USA) where he was decisive in establishing promoter hypermethylation of tumour suppressor genes as a common hallmark of all human tumours. From October 2001 to September 2008 Manel Esteller was the leader of the CNIO Cancer Epigenetics Laboratory. Currently, Dr Manel Esteller is Director of the Cancer Epigenetics and Biology Program (PEBC) of the Bellvitge Institute for Biomedical Research (IDIBELL).

Research interests

- Definition of the Epigenome of Cancer Cells: Profile of DNA methylation and histone modifications in tumor suppressor genes and repetitive sequences in cancer. Global and gene-specific definition of aberrant epigenetic changes and functional consequences in transcription regulation, DNA repair and chromosome instability.

- Study of the Epigenetics Machinery and Mechanisms: Role and function of DNA methyltransferases (enzymes that maintain DNA methylation), specificity of methyl-CpG binding domain proteins (the nuclear factors that recognize DNA methylation), analysis of biological properties of histone deacetylases and methyltransferases (enzymes that modify histones).

- Study of Mutations in the Epigenetic Machinery: The mechanisms underlying the disruption of the epigenetic landscape in transformed cells are unknown.

- Study of the Epigenetic and Genetic Disruption of Non-Coding RNAs in Human Cancer.

Selected publications

Moran S, Martínez-Cardús A, Sayols S, Musulén E, Balana C, Estival-Gonzalez A, Moutinho C, Heyn H, Diaz-Lagares A, Castro de Moura M, Stella GM, Comoglio PM, Ruiz-Miró M, Matias-Guiu X, Pazo-Cid R, Antón A, Lopez-Lopez R, Soler G, Longo F, Guerra I, Fernandez S, Assenov Y, Plass C, Morales R, Carles J, Bowtell D, Mileshkin L, Sia D, Tothill R, Tabernero J, Llovet JM & Esteller M 2016, 'Epigenetic profiling to classify cancer of unknown primary: a multicentre, retrospective analysis', *The Lancet Oncology*, 17, 1386-1395.
Ferreira HJ, Heyn H, Vizoso M, Moutinho C, Vidal E, Gomez A, Martinez-Cardus A, Simo-Riudalbas L, Moran S, Jost E & Esteller M 2016, 'DNMT3A mutations mediate the epigenetic reactivation of the leukemogenic factor MEIS1 in acute myeloid leukemia', *Oncogene*, 35, 3079-3082.

- Anadón C, Guil S, Simó-Riudalbas L, Moutinho C, Setien F, Martínez-Cardús A, Moran S, Villanueva A, Calaf M, Vidal A, Lazo PA, Zondervan I, Savola S, Kohno T, Yokota J, **Ribas de Pouplana L** & **Esteller M** 2016, 'Gene Amplification-Associated Overexpression of the RNA Editing Enzyme ADAR1 Enhances Human Lung Tumorigenesis', *Oncogene*, 35, 4407-4413.

- Diaz-Lagares A, Crujeiras AB, Lopez-Serra P, Soler M, Setien F, Goyal A, Sandoval J, Hashimoto Y, Martinez-Cardús A, Gomez A, Heyn H, Moutinho C, Espada J, Vidal A, Paúles M, Galán M, Sala N, Akiyama Y, Martínez-Iniesta M, Farré L, Villanueva A, Gross M, Diederichs S, Guil S & **Esteller M** 2016, 'Epigenetic inactivation of the p53-induced long noncoding RNA TP53 target 1 in human cancer', *PNAS*, 113, 7535-7544.

- Heyn H, Vidal E, Ferreira HJ, Vizoso M, Sayols S, Gomez A, Moran S, Boque-Sastre R, Guil S, Martinez-Cardus A, Lin CY, Royo R, Sanchez-Mut JV, Martinez R, Gut M, **Torrents D**, Orozco M, Gut I, Young RA & **Esteller M** 2016, 'Epigenomic analysis detects aberrant super-enhancer DNA methylation in human cancer', *Genome Biology*, 17, 11.

Selected research activities

European Research Council PoC Grant Gold Medal, Catalan Parliament Premi Internacional Catalunya, Generalitat de Catalunya



Eyras Jiménez, Eduardo Universitat Pompeu Fabra (UPF) Life & Medical Sciences

Eduardo Eyras is ICREA Research Professor since January 2005. After graduating in Physics (U. of Granada, 1995) he did a PhD (U. of Groningen, The Netherlands, 1999) and postdoc (U. of Cambridge, UK) in Theoretical Physics (1999-2001). During this period, he published 15 articles, which accumulate more than 900 citations. In 2001, Eyras joined the Wellcome Trust Sanger Institute, Cambridge, UK (2001-2004), where he developed one of the first methods to predict splicing variants from RNA expression data and participated in the analyses of the human, mouse and rat genomes. During 2004 he contributed to the analyses of alternative splicing in the chicken and cow genome genomes. Since 2007, Eyras has been organizer of the RNA workshop of the ISMB conference. In 2008, he was awarded a Young Investigator Grant of the EURASNET network and in 2013 he was a visiting professor at the U. of Toronto.

Research interests

Our group works on the development of computational tools to study mechanisms of RNA processing and its role in disease. In particular, we have a strong focus on the study of RNA splicing regulation and the role of RNA splicing in rare diseases and cancer.

Selected publications

Sebestyen E, Singh B, Minana B, Pages A, Mateo F, Pujana MA, Valcarcel J & Eyras E 2016, 'Large-scale analysis of genome and transcriptome alterations in multiple tumors unveils novel cancer-relevant splicing networks', *Genome Research*, 26, 6, 732 - 744.
Trincado JL, Sebestyén E, Pagés A & Eyras E 2016, 'The prognostic potential of alternative transcript isoforms across human tumors', *Genome Med.*, 8(1):85.

- Falaleeva M, Pages A, Matuszek Z, Hidmi S, Agranat-Tamir L, Korotkov K, Nevo Y, **Eyras E**, Sperling R, Stamm S 2016, 'Dual function of C/D box small nucleolar RNAs in rRNA modification and alternative pre-mRNA splicing', *Proceedings Of The National Academy Of Sciences Of The United States Of America*, 113, 12, E1625 – E1634.

- Llorian M, Gooding C, Bellora N, Hallegger M, Buckroyd A, Wang X, Rajgor D, Kayikci M, Feltham J, Ule J, **Eyras E** & Smith CWJ.2016, 'The alternative splicing program of differentiated smooth muscle cells involves concerted non-productive splicing of posttranscriptional regulators', *Nucleic Acids Research*, 44, 18, 8933 – 8950.

- Rodor J, Pan Q, Blencowe BJ, **Eyras E** & Caceres JF 2016, 'The RNA-binding profile of Acinus, a peripheral component of the exon junction complex, reveals its role in splicing regulation', *Rna*, 22, 9, 1411 – 1426.

- Martin S, Bellora N, Gonzalez-Vallinas J, Irimia M, Chebli K, de Toledo M, Raabe M, **Eyras E**, Urlaub H, Blencowe BJ & Tazi J 2016, 'Preferential binding of a stable G3BP ribonucleoprotein complex to intron-retaining transcripts in mouse brain and modulation of their expression in the cerebellum', *Journal Of Neurochemistry*, 139, 3, 349 – 368.



Fidora Riera, Alexander Universitat Autònoma de Barcelona (UAB) Humanities

Alexander Fidora, born 1975 in Offenbach (Germany), studied philosophy at the University of Frankfurt and the Universitat Autònoma de Barcelona. He obtained his PhD in 2003 at Frankfurt University, where he has been co-director of a DFG-research project. In 2006 he accepted a position at ICREA in the Department of Ancient and Medieval Studies of the Universitat Autònoma de Barcelona, where he is also Executive Director of the Institute of Medieval Studies. He has been a Visiting Professor at Saint Louis University, the Universidad Panamericana in Mexico, the University of Erlangen-Nuremberg, and the University of Pennsylvania. His work has been distinguished with the "Premi Internacional Catalònia" (2011) and the "Samuel Toledano Prize" (2012). He is a member of the board of the SIEPM. Member of the board of the YAE and Chair of its SH domain. Co-editor of the "Journal of Transcultural Medieval Studies".

Research interests

Alexander Fidora is working on the interreligious dimensions of medieval Hispanic philosophy. In particular, he studies cultural contacts between Judaism, Christianity and Islam, such as: reception, interpretation and transformation of philosophical and theological translations from Arabic by Jewish and Christian authors; Latin philosophy into Hebrew; Polemics, controversial theology and interreligious dialogue in the Middle Ages; and Consequences of the confrontation between the three religions of the Book for the formation of European culture (ERC-Research Projects "The Latin Talmud" and "Latin Philosophy into Hebrew").

Selected publications

- Ramon Llull 2016, 'Der Baum der Liebesphilosophie', eingel. von **Fidora A**, aus dem Katalan, von G. Schib, Barcelona/Münster.

- Fidora A 2016, 'Ramon Llull. Seventh Centenary', editor of the special issue of Mirabilia Journal, 23/2.

- Fidora A & Tischler M 2016, 'Zwischen Avignon, München und Tortosa. Die Defensor pacis-Handschrift des Marsilius von Padua in der Bibliothek Benedikts XIII', Scriptorium, 69, pp. 179-189.

- Fidora A & Cecini U 2016, 'Nicholas Donin's Thirty-Five Articles Against the Talmud...', in Burnett Ch & Mantas P (eds.), 'Ex Oriente Lux', *Translating Words...*, Córdoba/London, pp. 187-199.

- **Fidora A** 2016, 'Die Handschrift 19b des Arxiu Capitular de Girona: Ein Beitrag zur Überlieferungsgeschichte des lateinischen Talmud', in Lehner H-Ch et al. (eds), *Zwischen Rom und Santiago. Festschrift für Klaus Herbers…*, Bochum, pp. 49-56.

- Fidora A 2016, 'Omnes decepti sunt. Die Metaphysikkritik des Dominicus Gundissalinus (ca. 1150)', in Krieger G (eds), Die Metaphysik des Aristoteles im Mittelalter, Berlin, pp. 131-152.

- Fidora A 2016, 'Juan el Damasceno y el debate sobre la naturaleza del universal en el siglo XIV: Guido Terrena y Pedro Tomás', in Fuertes JL & Poncela À (eds), *De natura...*, 2 vols., Ribeirão, vol. I, pp. 395-404.

- Fidora A 2016, 'Combinatòria i reciprocitat. Una nota sobre la vigència de l'Art lul·liana', in *Ramon Llull i els Diàlegs Mediterranis*, Barcelona, pp. 142-145.

- Fidora A 2016, 'Ramon Llull: L'Art com a mètode', Tribuna plural: La revista científica de la RAED, 11/3, pp. 57-61.

Selected research activities

In 2016 Fidora gave seven papers in Germany, Italy, Tunisia, etc. and (co)-organized four congresses and workshops, among which the two commemorative congresses of Ramon Llull's 7th Centenary (Palma and Barcelona), and the International Congress of SOFIME (Barcelona), of which he was the Chair until the end of this year.


Gabaldón Estevan, Toni Centre de Regulació Genòmica (CRG) Life & Medical Sciences

I'm a biochemist and molecular biologist by training (Universities of Valencia and Mainz). After several years working on a molecular biology lab, and attracted by the emerging fields of genomics and bioinformatics, in 2001 I moved to the comparative genomics group of Martijn Huynen in the NCMLS, The Netherlands. In 2005, I obtained a PhD in Medical Sciences (Radbout University Nijmegen), and then moved, thanks to an EMBO fellowship, to the bioinformatics department at CIPF (Valencia). In September 2008 I started my own group in the Bioinformatics and Genomics department at CRG. In 2013 I was awarded an ERC starting grant and an ICREA research professorship. I have always used an evolutionary perspective to address different biological questions. I am not only interested in understanding how complex biological systems work, but also how they have come to be as they are.

Research interests

My main research interest is to understand the complex relationships between genome sequences and phenotypes and how these two features evolve within and across species. I generally use large-scale phylogenetics and molecular evolution approaches that allow looking at the evolution of genomes from the perspective of all of their genes, and apply these analyses to a variety of biological questions related to the evolution and function of biological communities, organisms, organelles, pathways, and families of protein-coding and non-coding genes. I have a special interest in understanding processes related to human pathogenesis. Through collaborations with experimental groups, I apply comparative genomics to discover new mechanisms and genes involved in interesting processes, especially those of clinical relevance. Given our exposure to new types and scales of data, my group has had the need to develop novel bioinformatics tools to fill in existing gaps.

Selected publications

- Pryszcz Leszek P & **Gabaldon T** 2016, 'Redundans: an assembly pipeline for highly heterozygous genomes', *Nucleic Acids Research*, 44, 12, e113.

- Gabaldon T, Naranjo-Ortiz MA & Marcet-Houben M 2016, 'Evolutionary genomics of yeast pathogens in the Saccharomycotina', Fems Yeast Research, 16, 6, fow064.

- Vlasova A (....), **Gabaldon T**, Herrera-Estrella A & Guigo R 2016, 'Genome and transcriptome analysis of the Mesoamerican common bean and the role of gene duplications in establishing tissue and temporal specialization of genes', *Genome Biology*, 17, 32.

- Mariotti M, Lobanov AV, Manta B, Santesmasses D, Bofill A, Guigó R, **Gabaldón T** & Gladyshev VN 2016, 'Lokiarchaeota Marks the Transition between the Archaeal and Eukaryotic Selenocysteine Encoding Systems', *Mol. Biol. Evol.*, 33 (9): 2441-53.

- Pittis AA & **Gabaldon T** 2016, 'Late acquisition of mitochondria by a host with chimaeric prokaryotic ancestry', *Nature*, 531, 7592, 101 - +.

Campbell MA, Ganley AR, Gabaldón T & Cox MP 2016, 'The Case of the Missing Ancient Fungal Polyploids', Am. Nat. 188 (6): 602-614.
 Abascal F, Corvelo A, Cruz F, (45 other authors), Gabaldón T, Alioto T & Godoy JA 2016, 'Extreme genomic erosion after recurrent demographic bottlenecks in the highly endangered Iberian lynx', Genome Biology, 17 (1): 251.

- Corrochano L (....), **Gabaldon T** & Grigoriev IV 2016, 'Expansion of Signal Transduction Pathways in Fungi by Extensive Genome Duplication', *Current Biology*, 26, 12, 1577 - 1584.

- Cruz F, Julca I, Gomez-Garrido J, Loska D, Marcet-Houben M, Cano E, Galan B, Frias L, Ribeca P, Derdak S, Gut M, Sanchz-Fernandez M, Luis Garcia J, Gut IG, Vargas P, Alioto T & **Gabaldon T** 2016, 'Genome sequence of the olive tree, Olea europaea', *Gigascience*, 5, 29.

- Pegueroles C & Gabaldon T 2016, 'Secondary structure impacts patterns of selection in human IncRNAs', BMC Biology, 14, 60.



Galán-Mascarós, José Ramón Institut Català d'Investigació Química (ICIQ) Experimental Sciences & Mathematics

J.R. Galán-Mascarós holds a Degree in Chemistry from the University of Valencia and the Imperial College (London) and a PhD from the University of Valencia under the supervision of Prof. E. Coronado (1999). Between 1999 and 2002 he was post-doctoral researcher at Texas A&M University (College Station) working with Prof. Kim R. Dunbar. In 2002 he joined ICMOL (U. de Valencia) as Ramón y Cajal Fellow. In 2009 he took a position at ICIQ, where he currently leads a research group focused on future applications of coordination chemistry for Renewable Energies and Materials Sciences. In september 2010 he became ICREA Research Professor. Galán-Mascarós has received several awards, including the Olivier Kahn International Award (2008) and an ERC Starting Grant (2012-2016). He is the coordinator of the collaborative project H2020-FETPROACT A-LEAF (2017-2020): a major European public investment for the realization of a viable artificial photosynthesis platform.

Research interests

Our research team in Coordination Chemistry is devoted to the development of molecule-based materials with the desired chemical and physical properties for novel applications in the fields of Materials Sciences and Renewable energies. In Renewable Energies, we are working in the development of stable, efficient and low-cost new catalysts for the production of solar fuels, with particular interest in water oxidation catalysis. In Materials Sciences, we are designing multifunctional smart materials able to exhibit novel phenomena from unusual combination of physical properties (redox, magnetic, electrical and/or optical, etc...).

Selected publications

- Cirera B, Giménez-Agulló N, Bjork J, Martinez-Peña F, Martin-Jimenez A, Rodriguez-Fernandez J, Pizarro AM, Otero R, Gallego JM, **Ballester P**, **Galan-Mascaros JR** & Écija D 2016, "Thermal selectivity of intermolecuar versus intramolecular reactions on surfaces" *Nature Communications*, vol. 7, pp 11002.

- Han L, Tang P, Reyes-Carmona A, Rodríguz-García B, Torréns M, Morante JR, **Arbiol J** & **Galan-Mascaros JR** 2016 "Enhanced Activity and Acid pH Stability of Prussian Blue-type Oxygen Evolution Electrocatalysts Processed by Chemical Etching" *Journal of the American Chemical Society*, vol. 138, pp 16037–16045.

Hegner FS, Galan-Mascaros JR & López N 2016 "A Database of the Structural and Electronic Properties of Prussian Blue, Prussian White, and Berlin Green Compounds through Density Functional Theory", *Inorganic Chemistry*, vol. 55, pp 12851–12862.
Orlando T, Filibian M, Sanna S, Gimenez-Agullo N, Saenz de Pipaon C, Ballester P, Galan-Mascaros JR & Carretta P 2016, 'Persistence of slow dynamics in Tb(OETAP)(2) single molecule magnets embedded in conducting polymers', *Journal of Physics – Condensed Matter, vol.* 28, pp 386002.

- Saenz de Pipaon C, Maldonado-Illescas P, Gomez V & **Galan-Mascaros JR** 2016, "Spin Transition Kinetics in the Salt [H2N(CH3)2]6[Fe3(L)6(H2O)6] (L = 4-(1,2,4-triazol-4-yl)ethanedisulfonate)", *Magnetochemistry*, vol. 2, pp 20.



Galbraith, Eric Universitat Autònoma de Barcelona (UAB) Experimental Sciences & Mathematics

A native of Halifax, Canada, Galbraith completed an undergraduate degree in Earth and Planetary Science at McGill University in 1997, then worked as an exploration geologist in Peru and a tour guide on polar expedition cruises before undertaking a PhD at the University of British Columbia, completed in 2006. This was followed by three years of postdoctoral research at Princeton University, developing and using Earth System models, with a focus on ocean biogeochemistry and long-term climate variability. Galbraith returned to McGill University as a professor, where he worked until joining ICREA in 2015.

Research interests

Over the past century, humans have emerged as a dominant component of the Earth system. But we do not yet have a thorough understanding of how the changes underway will ultimately affect our own well-being. I am interested in using statistical analyses, simple theory and numerical models to improve our predictive understanding of the coupled human-Earth system. Most of my past work has addressed uncertainty in the natural science side of the system, including the study of past, natural climate changes, and the controls on the chemical composition and large-scale ecology of the global ocean. More recently my focus has shifted to developing integrated, quantitative descriptions of the global fishery, including both natural and social elements. I am particularly interested in bridging Earth system modeling methods with social science, in order to better understand the linkages between human dynamics and environmental change.

Selected publications

- Tagliabue A, Aumont O, DeAth R, Dunne JP, Dutkiewicz S, **Galbraith E**, Misumi K, Moore JK, Ridgwell A, Sherman E, Stock C, Vichi M, Voelker C & Yool A 2016, 'How well do global ocean biogeochemistry models simulate dissolved iron distributions?', *Global Biogeochemical Cycles*, 30, 2, 149 – 174.

Carozza DA, Bianchi D & Galbraith ED 2016, 'The ecological module of BOATS-1.0: a bioenergetically constrained model of marine upper trophic levels suitable for studies of fisheries and ocean biogeochemistry', *Geoscientific Model Development*, 9, 4, 1545 – 1565.
 Galbraith ED, Merlis TM & Palter JB. 2016, 'Destabilization of glacial climate by the radiative impact of Atlantic Meridional Overturning Circulation disruptions', *Geophysical Research Letters*, 43, 15, 8214 – 8221.

- Brown N & **Galbraith ED** 2016, 'Hosed vs. unhosed: interruptions of the Atlantic Meridional Overturning Circulation in a global coupled model, with and without freshwater forcing', *Climate Of The Past*, 12, 8, 1663 – 1679.

- Jaccard SL, **Galbraith ED**, Martinez-Garcia A & Anderson RF 2016, 'Covariation of deep Southern Ocean oxygenation and atmospheric CO2 through the last ice age', *Nature*, 530, 7589, 207.

- Cartapanis O, Bianchi D, Jaccard SL & **Galbraith ED** 2016, 'Global pulses of organic carbon burial in deep-sea sediments during glacial maxima', *Nature Communications*, 7, 10796.



Galea, Elena Universitat Autònoma de Barcelona (UAB) Life & Medical Sciences

1985: BS Biology, Universidad Autónoma de Madrid. 1990: PhD Biology, Department of Physiology, School of Medicine, Universidad Autónoma de Madrid. 1991-1994: Postdoc/Research Associate, Department of Neuroscience, Cornell University Medical College, New York. 1995-1997: Instructor, Department of Neuroscience, Cornell University Medical College, New York. 1998-2003: Assistant Professor, Department of Anesthesiology, University of Illinois, Chicago. 2004-present: ICREA Research Professor, Institute of Neurosciences, Universitat Autònoma de Barcelona. 2008-2010: Vice Director, Institute of Neurosciences, Universitat Autònoma de Barcelona. 2012-2013: Visiting scholar, Massachusetts General Institute for Neurodegenerative disease, Harvard Medical School, Boston.

Research interests

I am interested in astrocytes and how they contribute to synaptic plasticity, redox and energy homeostasis and innate immunity. My overarching goal is to link these events into a theoretical framework depicting the role of astrocytes in memory, learning and cognition in health and disease, particularly in neurodegenerative diseases like Alzheimer or X-adrenoleukodystrophy. I oppose the "neuron-centric" stance in the field of neurodegeneration by defending that astrocyte dysfunction is key to disease pathogenesis and, therefore, that treatments that do not protect astrocytes or promote astrocyte recovery will fail. That is, astrocytes may be essential if not superior therapeutic targets. This idea requires three actions: i) develop astrocyte-targeted tools to profile, manipulate, visualize and analyze astrocytes. ii) understand better astrocyte function, and dysfunction in a disease-specific manner. iii) develop astrocyte-targeted therapies.

Selected publications

- Pardo L, Schlueter A, Valor LM, Barco A, Giralt M, Golbano A, Hidalgo J, Jia P, Zhao Z, Jove M, Portero-Otin M, Ruiz M, Gimenez-Llort L, Masgrau R, **Pujol A** & **Galea E** 2016, 'Targeted activation of CREB in reactive astrocytes is neuroprotective in focal acute cortical injury', *Glia*, 64, 5, 853 – 874.

Selected research activities

Centre de Culture Comtemporània de Barcelona Patologies de l'envelliment: Alzheimer Conferència 29 novembre 2016



Gámez Enamorado, Patrick Universitat de Barcelona (UB) Experimental Sciences & Mathematics

Patrick Gamez received his PhD at the University of Lyon and was awarded the French Chemical Society Prize for his PhD research. After postdoctoral stays at the Max Planck Institut für Kohlenforschung and at the University of Strasbourg, he joined the group of Prof. J. Reedijk at Leiden University (The Netherlands). Since October 2010, he is ICREA Research Professor in bioinorganic chemistry at the Universitat de Barcelona. His research group has been recognized by the Catalan Government (AGAUR - 2014 SGR 85). He is the (co-)author of over 226 publications (h-index: 50). He is a member of the Spanish Bioinorganic Chemical Society, the Royal Society of Chemistry and the Advisory Board of Inorganic Chemistry Frontiers. He is Associate Editor of RSC Advances, Workgroup Leader within the network GDRI-HC3A (between Catalonia and Midi-Pyrénées) financed by the CNRS, and Coordinator of the Spanish network of excellence "MetDrugs". He has been elected Fellow of the RSC in June 2016.

Research interests

Cancer and Alzheimer's disease (AD) represent two major chronic diseases that are in the top ten leading causes of mortality worldwide and their incidence will increase exponentially in the coming decades, as the result of population ageing. My current research interests are aimed at developing new strategies for the development of efficient diagnostic and therapeutic tools (theranostics) against these two important public health issues (www.metdrugs-network.com/).

Selected publications

- Aromí G, **Gamez P** & Roubeau O 2016, 'Molecular Magnetism' in *Spin States in Biochemistry and Inorganic Chemistry*, Swart M & Costas M (eds).: John Wiley & Sons, Ltd, 2016, Chapter 12, pp 263-296.

- Gamba I, Salvadó I, Brissos RF, **Gamez P**, Brea JM, Loza MI, Vázquez ME & Vázquez-López M 2016, 'High-affinity sequence-selective DNA binding by iridium(III) polypyridyl organometallopeptides', *Chemical Communications*, vol. 52, pp 1234-1237.

- Nayak S, Pevec A, Seaton CC, Gamez P & Reedijk J 2016, Polyhedron, vol. 105, 172-175.

- Liu X, González-Castro A, Mutikainen I, Pevec A, Teat SJ, **Gamez P**, Sanchez Costa J, Bouwman E & Reedijk J 2016, *Polyhedron*, vol. 110, pp 100-105.

- Caballero AB, Terol-Ordaz L, Espargaró A, Vázquez G, Nicolás E, Sabaté R & Gamez P 2016, Chemistry: A European Journal, vol. 22, pp 7268-7280.

- Presa A, Leoní Barrios L, Cirera J, Korrodi-Gregório L, Pérez-Tomás R, Teat SJ & **Gamez P** 2016, 'Non-Switching 1,2-Dithienylethen--based Diplatinum(II) Complex Showing High Cytotoxicity', *Inorganic Chemistry*, vol. 55, pp 5356-5364.

- Meenongwa A, Brissos RF, Soikum C, Chaveerach P, **Gamez P**, Trongpanich Y & Chaveerach U 2016, 'Effects of N,N-heterocyclic ligands on the *in vitro* cytotoxicity and DNA interactions of copper(II) chloride complexes from amidino-*O*-methylurea ligands', *New Journal of Chemistry*, vol. 40, pp 5861-5876.

- **Gamez P** 2016, 'Polyphenylene Oxides by Oxidative Polymerization of Phenols' in *Liquid Phase Aerobic Oxidation Catalysis: Industrial Applications and Academic Perspectives*, Stahl SS & Alsters PL (eds). John Wiley & Sons, Ltd, 2016, Chapter 7.1, pp 97-105.

Selected research activities

- Jury member for 7 PhD defenses in 2016.

- Sentinel of Science Award 2016.

- Guest Editor of a special issue of Molecules entitled "Metal Based Drugs: Opportunities and Challenges".

- Evaluator for the ERC, MINECO, the Foundation for Polish Science, the National Science Center Poland, the Comisión Nacional de Investigación Científica y Tecnología de Chile and the Italian National Agency for the Evaluation of Universities and Research Institutes.



Garcia de Abajo, Francisco Javier Institut de Ciències Fotòniques (ICFO) Engineering Sciences

Javier García de Abajo obtained his PhD in condensed matter theory from the University of the Basque Country (Spain) in 1993. After spending three years in Berkeley National Lab., he became staff scientist at CSIC (Spain) and he was promoted to Research Professor in 2008. He is currently leading the Nanophotonics Theory group at ICFO. He has worked in atomic collisions, surface science, electron microscope spectroscopies, plasmonics, and theoretical nanophotonics. He has coauthored over 300 papers that have accumulated 18,800+ citations (WoK, Jan. 2017). He is a Fellow of both the American Physical Society and the Optical Society of America.

Research interests

Javier García de Abajo's research program on the theory nanoscale photonics ranges from optical characterization with electronmicroscope spectroscopies to studies of ultrasensitive single-molecule detection, quantum aspects of light-matter interaction, excitation and characterization of plasmons by electron beams, plasmonic metamaterials, quantum friction, radiative transfer and coherent control, and graphene plasmonics. These topics cover a broad spectrum of research in nanophotonics. This theoretical effort encompasses classical and quantum methods, both analytical and numerical, which are the basis to understand and propose new phenomena with application to biosensing and quantum plasmonics.

Selected publications

- Basov DN, Fogler MM & García de Abajo FJ 2016, 'Polaritons in van der Waals materials', Science, vol. 354, p. aag1992.

- Cox JD, Silveiro I & García de Abajo FJ 2016, 'Quantum effects in the nonlinear response of graphene plasmons', ACS Nano, vol. 10, pp. 1995-2003.

- Marini A & García de Abajo FJ 2016, 'Self-organization of frozen light in near-zero-index media with cubic nonlinearity', *Scientific Reports*, vol. 6, p. 20088.

- Marini A & García de Abajo FJ 2016, 'Graphene-based active random metamaterials for cavity-free lasing', *Physical Review Letters*, vol. 116, p. 217401. (Journal cover).

- Yu R, **Pruneri V** & **García de Abajo FJ** 2016, 'Active modulation of visible light with graphene-loaded ultrathin metal plasmonic antennas', *Scientific Reports*, vol. 6, p. 32144.

- Yu R & García de Abajo FJ 2016, 'Electrical detection of single graphene plasmons', ACS Nano, vol. 10, pp. 8045-8053.

- Yu R, Cox JD & García de Abajo FJ 2016, 'Nonlinear plasmonic sensing with nanographene', *Physical Review Letters*, vol. 117, p. 123904.

- Saavedra JRM, Asenjo-Garcia A & García de Abajo FJ 2016, 'Hot-electron dynamics and thermalization in small metallic nanoparticles', ACS Photonics, vol. 3, pp. 1637-1646.

- Lummen TTA, Lamb RJ, Berruto G, LaGrange T, Dal Negro L, **García de Abajo FJ**, McGrouther D, Barwick B & Carbone F 2016, 'Imaging and controlling plasmonic interference fields at buried interfaces', *Nature Communications*, vol. 7, p. 13156.

- Cui Y, Lauchner A, Manjavacas A, García de Abajo FJ, Halas NJ & Nordlander P 2016, 'Molecular plasmon-phonon coupling', Nano Letters, vol. 16, pp. 6390-6395.

- Yu R, Mazumder P, Bonelli NF, Carrilero A, Ghosh DS, Maniyara RA, Baker D, **García de Abajo FJ** & Pruneri V 2016, 'Structural coloring of glass using dewetted nanoparticles and ultrathin films of metals', *ACS Photonics*, vol. 3, pp. 1194-1201. (Journal cover).



García Parajo, Maria F. Institut de Ciències Fotòniques (ICFO) Engineering Sciences

María F. García-Parajo obtained her PhD in Physical Electronics in 1993 at Imperial College, London, UK, working on the fabrication and photoluminescence spectroscopy of quantum structures based on GaAs/AlGaAs. After acquiring extensive expertise in scanning probe microscopy (STM, NSOM, AFM) at the L2M-CNRS, Bagneux, France (1993-1995) and University of Barcelona, Spain (1995-1996) she moved in 1996 to the Applied Optics group of the University of Twente, the Netherlands. Her main research topics have been single molecule detection and spectroscopy using near- and far-field optical techniques with focus in photophysics of organic and autofluorescent proteins, molecular photonics and biophysics. Since 2005 she is ICREA Research Professor, first hosted at the IBEC -Institute for Bioengineering of Catalonia and since July 2011 at ICFO - The Institute of Photonic Sciences, leading the Single Molecule Biophotonics group.

Research interests

Our research focuses on the development of advanced optical techniques to the study of biological processes at the single molecular level on living cells. We use near-field optical approaches and photonic antennas to provide simultaneous nanoimaging and nanospectroscopy on living cells, in combination with other far-field nanoscopy methods. Fluorescence correlation spectroscopy in ultraconfined volumes, and multi-color single particle tracking are exploited to gain access to dynamic processes down to the µs time resolution. In parallel, our aim is to bring biophysical inside into fundamental biological questions that have important implications for health and disease, including cell biology and immunology, in close collaboration with biologists.

Selected publications

- Torreno-Pina JA, Manzo C, Salio M, Aichinger MC, Oddone A, Lakadamyali M... Cerundolo V & **Garcia-Parajo MF** 2016, 'The actin cytoskeleton modulates the activation of iNKT cells by segregating CD1d nanoclusters on antigen-presenting cells', *PNAS*, 113, 6, E772 – E781.

Sosa-Costa A, Isern de Val S, Sevilla-Movilla S, Borgman KJE, Manzo C, Teixido J & Garcia-Parajo MF 2016, 'Lateral Mobility and Nanoscale Spatial Arrangement of Chemokine-activated alpha 4 beta 1 Integrins on T Cells', *J. Biol. Chem.*, 291, 40, 21053.
de Torres J, Mivelle M, Moparthi SB, Rigneault H, van Hulst NF, García-Parajo MF, Margeat E & Wenger J 2016, 'Plasmonic nanoantennas enable forbidden Förster Dipole-Dipole energy transfer and enhance the FRET Efficiency", *Nano Lett.* 16, 6222-6230.
Regmi R, Berthelot J, Winkler PM, Mivelle M, ... García-Parajo MF, Bidault S, Wenger J & Bonod N 2016, 'All-Dielectric silicon nanogap

antennas to enhance the fluorescence of single molecules', Nano Lett. 16, 5143-5151.

- Torreno-Pina JA, Manzo C & Garcia-Parajo MF 2016, 'Uncovering homo-and hetero-interactions on the cell membrane using single particle tracking approaches', J. Phys. D-Appl. Phys., 49, 10.

- Eich C, Manzo C, de Keijzer S, ... Garcia-Parajo MF & Cambi A 2016, 'Changes in membrane sphingolipid composition modulate dynamics and adhesion of integrin nanoclusters', *Scientific Reports*, 6, 20693.

– Di Fabrizio E, Schluecker S, Wenger J, ... van Hulst NF, Garcia-Parajo MF, Pucci A, Cojoc D, Hauser CAE & Ni M 2016, 'Roadmap on biosensing and photonics with advanced nano-optical methods', J. Opt, 18, 6, 063003.

Selected research activities

- Organizer of the ICREA International Symposium in BioNanoVision of cellular architecture, 25-27 May, Barcelona.
- Scientific coordinator of the EC Project FP7-ICT: NANO-VISTA.
- Scientific coordinator of the HFSP Advanced grant: NANO-MECHANO-BIOLOGY.
- 12 invitations to international conferences & workshops.



Garrido Ariza, Jose A. Institut Català de Nanociència i Nanotecnologia (ICN2) Engineering Sciences

Jose A. Garrido is an ICREA Research Professor at the Catalan Institute of Nanosciences and Nanotechnology-ICN2 in Barcelona, and head of the Advanced Electronic Materials and Devices group. He received a Master and PhD degree in Telecommunication Engineering from the Technical University of Madrid, in 1996 and 2000, respectively. From 2001 to 2004, he worked as a postdoc at the Walter Schottky Institute, Technische Universität München, where he obtained his habilitation in experimental physics in 2010. From 2011 to 2015, Jose A. Garrido held a lecturer (privatdozent) position at the department of physics of the Technische Universität München. In September 2015, Jose A. Garrido joined ICN2 as ICREA Professor.

Research interests

At ICN2 -Catalan Institute of Nanosciences and Nanotechnology, Jose A. Garrido leads the Advanced Electronic Materials and Devices group. The activities of the team focus on technology and material science of novel electronic materials, with a strong emphasis on graphene and other 2D materials. In addition, the team works towards the development of technological applications of these materials in electronics, bioelectronics, and biosensing. The activities cut across different scientific aspects, from fundamentals (physics of devices and semiconductors) to materials (growth of graphene and 2D materials, surface functionalization, advanced characterization), through devices (fabrication technology, nanofabrication), and to applications (biosensors, neural implants and biomedical technologoes, energy storage and conversion).

Selected publications

- Schamoni H, Noever S, Nickel B, Stutzmann M & **Garrido JA** 2016, 'Alpha,omega-dihexyl-sexithiophene thin films for solution-gated organic field-effect transistors', *Applied Physics Letters*, 108, 7, 073301.

- Sachsenhauser M, Walczak K, Hampel PA, Stutzmann M, Sharp ID & **Garrido JA** 2016, 'Suppression of Photoanodic Surface Oxidation of n-Type 6H-SiC Electrodes in Aqueous Electrolytes', *Langmuir*, 32, 6, 1637 – 1644.

- Sachsenhauser M, Sharp ID, Stutzmann M & **Garrido JA** 2016, 'Surface State Mediated Electron Transfer Across the N-Type SiC/Electrolyte Interface', *Journal Of Physical Chemistry C*, 120, 12, 6524 – 6533.

- Blaschke BM, Lottner M, Drieschner S, Calia AB; Stoiber K, Rousseau L, Lissourges G & **Garrido JA** 2016, 'Flexible graphene transistors for recording cell action potentials', 2d Materials, 3, 2, 025007.

- Drieschner S, Weber M, Wohlketzetter J, Vieten J, Makrygiannis E, Blaschke B, Morandi V, Colombo L, Bonaccorso F & **Garrido JA** 2016, 'High surface area graphene foams by chemical vapor deposition', *2d Materials*, 3, 4, 045013.

- Drieschner S, Weber M, Wohlketzetter J, Vieten J, Makrygiannis E, Blaschke BM, Morandi V, Colombo L, Bonaccorso F & Garrido JA 2016, 'High surface area graphene foams by chemical vapor deposition', 2D Mater. 3, pp 045013.

Selected research activities

 \cdot Coordinator of the EU FET Proactive project BRAINCOM (2016-2021).

 \cdot Deputy of the Biomedical Technologies WP of the EU raphene Flagship Initiative.



Geffner, Hector Universitat Pompeu Fabra (UPF) Engineering Sciences

Hector was born in Buenos Aires in 1959, did his BS in Caracas, Venezuela, and got his PhD in Computer Science at UCLA with a dissertation that was co-winner of the 1990 ACM Dissertation Award. He is currently a fellow of the American and European Associations for Artificial Intelligence (AAAI, ECCAI), and Associate Editor of the Journal of Artificial Intelligence Research (JAIR) and the Artificial Intelligence Journal (AIJ). He taught at the Universidad Simón Bolívar in Caracas, Aachen University of Technology, Linkoping University, Université Paul Sabatier, and King's College, among other places. He joined ICREA and the UPF in 2001, where he is a Professor in the Department of Information and Communication Technologies (DTIC).

Research interests

Hector works on planning and plan recognition in intelligent systems, developing methods for generating and recognizing autonomous behavior automatically using model-based methods. In these methods, agents are not programmed by hand but derive their behavior automatically by solving a model of the interaction between the agent and the environment. The challenge is mainly computational as the formulation of methods for deriving the right behavior effectively when the models are large is computationally intractable in the worst case. The work involves theory based on logic, probabilities, heuristics, and algorithms, and computational experiments. The research is relevant to both artificial intelligence and cognitive science, as it aims to uncover general principles of rational behavior that take into account the computational constraints that are present in both natural and artificial systems.

Selected publications

- Frances G & **Geffner H** 2016, 'E-STRIPS: Existential Quantification in Planning and Constraint Satisfaction', *Proc. 25th Int. Joint Conf.* on Artificial Intelligence (IJCAI).

- Bonet B & Geffner H 2016, 'Factored Probabilistic Belief Tracking', Proc. Int. Joint Conf. on Artificial Intelligence (IJCAI).

- Lipovetzky N, Muise C & **Geffner H** 2016, 'Traps, Invariants, and Dead-ends', *Proc. Int. Conf. on Automated Planning and Scheduling* (ICAPS).

- Frances G & **Geffner H** 2016, 'Effective Planning with More Expressive Languages', *Proc. Int. Joint Conf. on Artificial Intelligence* (IJCAI).

Selected research activities

- Short research stays at U. Brescia and La Sapienza U. di Roma.

- Invited talks at Imperial College, London; IRIT, Toulouse, and at European Workshop on Reinforcement Learning.



Gernjak, Wolfgang Institut Català de Recerca de l'Aigua (ICRA) Engineering Sciences

2002 MSc in Analytical and Physical Chemistry from Vienna University of Technology, Austria 2006 PhD in Land and Water Management from BOKU Vienna, Austria 2000-2008 External Research Staff & post-doc, Plataforma Solar de Almería, Spain - Solar advanced oxidation & desalination 2008-2014 Senior research fellow, The University of Queensland, Australia - Group leader: Drinking and recycled water 2014-2015 Ramon & Cajal research fellow, Catalan Institute for Water Research (ICRA) - Group leader: Water Supply and Advanced Treatment 2015- ICREA research professor at Catalan Institute for Water Research (ICRA) - Group leader: Water Supply and Advanced Treatment

Research interests

I aim to innovate the ways we treat water applied to water reuse, desalination, and drinking water to realize a vision for smart and water sensitive cities and societies. Specifically, I am an expert on numerous novel advanced oxidation processes, membrane filtration such as reverse osmosis or membrane distillation, and solar technologies addressing the water-energy nexus. The focus of my research is on technology innovation. For example, I research novel membrane processes and applications such as forward osmosis. I am also deeply interested in exploring the possibilities offered by employing novel UV light sources based on the LED technology. My research on water treatment technology is typically strongly connected with an emphasis on controlling water quality hazards to end-users, including trace organic contaminants, disinfection byproducts, and also pathogens.

Selected publications

- Liu P, Keller J & **Gernjak W** 2016, 'Enhancing zero valent iron based natural organic matter removal by mixing with dispersed carbon cathodes', *Science Of The Total Environment*, 550, 95 – 102.

- Gabarron S, **Gernjak W**, Valero F, Barcelo A, **Petrovic M** & Rodriguez-Roda I 2016, 'Evaluation of emerging contaminants in a drinking water treatment plant using electrodialysis reversal technology', *Journal Of Hazardous Materials*, 309, 192 – 201.

- Pype M-L, Lawrence MG, Keller J & **Gernjak W** 2016, 'Reverse osmosis integrity monitoring in water reuse: The challenge to verify virus removal - A review', *Water Research*, 98, 384 - 395.

- Liu P, Farre MJ, Keller J & **Gernjak W** 2016, 'Reducing natural organic matter and disinfection by-product precursors by alternating oxic and anoxic conditions during engineered short residence time riverbank filtration: A laboratory-scale column study', *Science Of The Total Environment*, 565, 616 – 625.

- de Vera GAD, Keller J, **Gernjak W**, Weinberg HS, Farre MJ 2016, 'Biodegradability of DBP precursors after drinking water ozonation', Water Research, 106, 550-561.

- Pype M-L, Donose BC, Martí L, Patureau D, Wery N & **Gernjak W** 2016, 'Virus removal and integrity in aged RO membranes', *Water Research* 90; 167-175.

Selected research activities

- Research contract with ATLL Concessionaria de la Generalitat de Catalunya S.A. to study drinking water processes.



Giampietro, Mario Universitat Autònoma de Barcelona (UAB) Engineering Sciences

Mario Giampietro was born in Italy in 1953. He graduated in Chemical Engineering (1978) and Biological Sciences (1981) at Universitá La Sapienza, Rome. He has a MS degree in Food System Economics (CEFAS/Universitá La Tuscia) and a PhD in Social Sciences (Wageningen University, NL). Mario was a researcher at Istituto Nazionale di Ricerca per gli Alimenti e la Nutrizione (INRAN) from 1985 to 2007, but pursued most of his research as visiting scientist at leading universities, such as Cornell University (1987-1989 and 1992-1995), Wageningen University (1997), Universitat Autònoma de Barcelona (1998-2000), University of Wisconsin, Madison (2002), Penn State University (2005-2006), and Arizona State University (2006-2007). He joined ICREA and UAB in 2007. He has more than 150 scientific publications and is author of several books.

Research interests

Mario works on integrated assessment of sustainability issues. Using concepts from complex systems theory, he has developed an innovative scientific approach: Multi-Scale Integrated Analysis of Societal and Ecosystem Metabolism (MuSIASEM). MuSIASEM integrates biophysical and socioeconomic variables across multiple hierarchical scales, thus establishing a link between the metabolism of socio-economic systems and potential constraints of the natural environment. MuSIASEM allows the use of integrated sets of indicators that can be chosen "à la carte" by social actors in relation to multiple criteria of performance. Recent research has focused on the analysis of energy systems and energy scenarios and directives (projects EUFORIE, NETEP, PARTICIPIA), food systems (GLAMUR), and the nexus between energy, food, and water in relation to sustainable development goals (MAGIC).

Selected publications

- Aragao A & **Giampietro M** 2016, 'An integrated multi-scale approach to assess the performance of energy systems illustrated with data from the Brazilian oil and natural gas sector', *Energy*, vol. 115, pp 1412-1423.

- Galli A, **Giampietro M**, Goldfinger S, Lazarus E, Lin D, Saltelli A, Wackernagel M & Müller F 2016, 'Questioning the Ecological Footprint', *Ecological Indicators*, vol. 69, pp. 224–232.

- Kovacic Z, Smit S, Musango JK, Brent AC & **Giampietro M** 2016, Probing uncertainty levels of electrification in informal urban settlements: A case from South Africa, *Habitat International*, vol. 56, pp. 212-221.

- Saltelli A & **Giampietro M** 2016, 'The Fallacy of Evidence-Based Policy', in: *Science on the Verge*, Consortium for Science, Policy & Outcomes, Arizona State University, Tempe, AZ, pp 31-69.

- Gamboa G, Kovacic Z, Di Masso M, Mingorría S, Gomiero T, Rivera-Ferré M & Giampietro M 2016, 'The Complexity of Food Systems: Defining Relevant Attributes and Indicators for the Evaluation of Food Supply Chains in Spain', *Sustainability*, vol. 8, issue 6, no. 515.
- Brunori G, Galli F, Barjolle D, van Broekhuizen R, Colombo L, Giampietro M, Kirwan J, Lang T, Mathijs E, Maye D, de Roest K, Rougoor C, Schwarz J, Schmitt E, Smith J, Stojanovic Z, Tisenkopfs T & Touzard J-M 2016, 'Are Local Food Chains More Sustainable than Global Food Chains? Considerations for Assessment', *Sustainability*, vol. 8, issue 5, no. 449.

- Miranda RFC, Grottera C & **Giampietro M** 2016, 'Understanding slums: analysis of the metabolic pattern of the Vidigal favela in Rio de Janeiro, Brazil', *Environment, Development and Sustainability*, vol. 18, no. 5, pp 1297–1322.

Selected research activities

Grants awarded:

Moving Towards Adaptive Governance in Complexity: Informing Nexus Security (MAGIC), Grant Agreement No. 689669 (RIA), funded under H2020-EU.3.5.4.- Enabling the transition towards a green economy and society through eco-innovation (01 June 2016 – 31 May 2020). (Coordinator, total grant 7.45 M€).



Gomis, Roger Institut de Recerca Biomèdica de Barcelona (IRB Barcelona) Life & Medical Sciences

Dr. Roger Gomis is an ICREA Research Professor and a member of the Oncology Program at the Institute for Research in Biomedicine, Barcelona. He received his PhD in biochemistry from the University of Barcelona in 2002, and was a postdoctoral fellow at Memorial Sloan-Kettering Cancer Center in Prof. Joan Massagué's laboratory. In 2007, he assumed his current position. Dr. Roger Gomis is interested in how growth factors, signaling pathways, and gene expression programs control normal cell behavior and cancer cell metastasis. Driven by his interest in the problem of metastasis, which is the cause of 90% of cancer deaths, Dr. Gomis embraced the opportunity to create a multidisciplinary laboratory devoted to metastasis research at the IRB Barcelona. His team is pursuing the molecular and genetic mechanisms of metastasis. In particular, the team focuses on identifying and functionally validating genes that enable breast and colon cancer to metastasize clinically relevant sites.

Research interests

Intricate signalling networks control cell division, differentiation, movement, organization and death. Cancer cells disobey these signals during tumour progression and metastasis, which is the final step in 90% of all fatal solid tumours. Metastasis is therefore a grave public health problem and consequently a field of considerable pharmaceutical interest. A major research focus of our group is to identify and understand the genes and functions that allow tumor cells to achieve metastatic colonization of vital organs. As we understand more about the biology of BC cells, we can begin to address how best to treat this form of disease. Key to determining whether dormant solitary cells or micrometastases represent valid targets is knowledge of the underlying biology of dormancy and the probability of cells progressing to active metastatic growth. This progression is poorly understood in preclinical models and even less so clinically and has become of our interest.

Selected publications

- Oller-Salvia B, Sánchez-Navarro M, Ciudad S, Guiu M, Arranz Gibert P, Garcia C, **Gomis RR**, Cecchelli R, García J, Giralt E & Teixidó M 2016, 'MiniAp-4: A Venom-Inspired Peptidomimetic for Brain Delivery', *Angew. Chem. Int. Ed. Engl.*, 55, 2, 572 – 575.

- Salvador F, Bellmunt A & **Gomis RR** 2016, 'Can we predict and prevent specific sites of metastases in breast cancer patients?', *Breast Cancer Management*, 5, 2, 43 - 46.

- Martín-Martín N, Piva M, Urosevic J, ..., Vivanco MdM, Matheu A, **Gomis RR** & Carracedo A 2016, '*Stratification* and therapeutic potential of PML in metastatic breast cancer', *Nature Communications*, 7, 12595.

- Ören B, Urosevic J, Mertens C, Mora J, Guiu M, **Gomis RR**, Weigert A, Schmid T, Grein S, Brüne B & Jung M 2016, 'Tumour stromaderived Lipocalin-2 promotes breast cancer metastasis', *Journal of Pathology*, 239, 3, 274–285.

- Slebe F, Rojo F, Vinaixa M, García-Rocha M, Testoni G, Guiu M, Planet E, Samino S, Arenas EJ, Beltran A, Rovira A, Lluch A, Salvatella A, Yanes O, Albanell J, Guinovart J & **Gomis RR** 2016, 'FoxA and LIPG endothelial lipase control the uptake of extracellular lipids for breast cancer growth', *Nature Communications*, 7-11199.

- Torrano V, Valcarcel-Jimenez L, Cortazar AR, ..., Locasale JW, **Gomis RR** & Carracedo A 2016, The metabolic co-regulator PGC1α suppresses prostate cancer metastasis', *Nature Cell Biology*, 18, 645-656.

Selected research activities

- Member of the "Advanced Metastatic Breast cancer" Scientific Committee of the 40th ESMO congress

- PhD Thesis Directed: Gawrzak, S (2010-2016). Cum Laude
- Founder and Member of the Scientific Advisory Board of Inbiomotion SL.
- Inbiomotion SL closed a series B financing round of 2.2M€



Goñi, Alejandro R. Institut de Ciència de Materials de Barcelona (CSIC - ICMAB) Engineering Sciences

I was born in Córdoba, Argentina, and graduated in physics in 1985 from Balseiro Institute in Bariloche, Argentina. In 1986 I moved to Germany for my PhD at the Max-Planck Institute FKF in Stuttgart with Prof. M. Cardona, which I finished in 1989. It followed a two-years postdoc at AT&T Bell Labs in Murray Hill, USA, and back to the MPI Stuttgart for three years. In 1996 I switched to the Technical University of Berlin for an appointment as Research & Teaching Associate. In 1999 I was awarded the Karl-Scheel Prize of the Physical Society of Berlin for my contributions to the field of high-pressure semiconductor physics. In November 2003 I became ICREA Research Professor and joined the Optoelectronic Properties of Nanostructured Materials group at ICMAB-CSIC. I created a facility for optical spectroscopy with micro and nanometer-scale resolution and I further set up a laboratory for high-pressure physics. I am also leading the group activities on thermoelectricity.

Research interests

I am an experimental physicist with broad interests and expertise in solid-state physics, optical spectroscopy (Raman scattering, photoluminescence, etc.), nano-science and technology, thermoelectricity, the physics of low-dimensional materials (superlattices, quantum wires and dots), highly correlated electron systems, and high-pressure techniques. Essentially, I use light as a probe of the physical properties of all kinds of organic and/or inorganic molecular and nano-materials, searching for new behaviors or phenomena that emerge as a direct consequence of the reduced dimensionality and/or size of the material system under study. Although I am principally pursuing basic research, almost all my lines of investigation have a clear application in mind, such as to improve the performance of optoelectronic devices based on nano-materials, enhance thermoelectric and/or photovoltaic properties, boost piezo-resistive coefficients, develop ultra-sensitive spectroscopic techniques, etc.

Selected publications

- Vezie MS, Few S, Meager I, Pieridou G, Dörling B, Ashraf RS, **Goñi AR**, Bronstein H, McCulloch I, Hayes SC, Campoy-Quiles M & Nelson J 2016, 'Exploring the Origin of High Optical Absorption in Conjugated Polymers', *Nat. Mater.*, 15, 746-754.

- Dörling B, Ryan JD, Weisenberger MC, Sorrentino A, El Basati A, Gomez A, Garriga M, Pereiro E, Anthony JE, **Goñi AR**, Müller C & Campoy-Quiles M 2016, 'Photoinduced p- to n-type switching in thermoelectric polymer-carbon nanotube composites', *Adv. Mater.*, 28, 2782–2789.

- Leguy AMA, **Goñi AR**, Frost JM, Skelton J, Brivio F, Rodríguez-Martínez X, Weber OJ, Pallipurath A, Sibik J, Zeitler A, Alonso MI, Campoy-Quiles M, Weller MT, Nelson J, Walsh A & Barnes PRF 2016, 'Dynamic Disorder, Phonon Lifetimes, and the Assignment of Modes to the Vibrational Spectra of Methylammonium Lead Halide Perovskites', *Phys. Chem. Chem. Phys.*, 18, 27051-27066.

Robert C, Pereira Da Silva K, Nestoklon MO, Alonso MI, Turban P, Jancu JM, Even J, Carrère H, Balocchi A, Koenraad PM, Marie X, Durand O, Goñi AR & Cornet C 2016, 'Electronic Wavefunctions and Optical Transitions in (In,Ga)As/GaP Quantum Dots', *Phys. Rev. B*, 94, 075445/1-11.

- Yaccuzzi E, Khachadorian S, Suárez S, Reinoso M, **Goñi AR**, Strittmatter A, Hoffmann A, & Giudici P 2016, 'Investigation of Proton Damage in III-V Semiconductors by Optical Spectroscopy', *J. Appl. Phys.*, 119, 235702/1-5.

- González Cuxart M, Reyes-Herrera J, Sics I, **Goñi AR**, Moreno Fernández H, Carlino V & Pellegrin E 2016, 'Remote Plasma Cleaning of Optical Surfaces: A Study of Cleaning Rates of Different Carbon Allotropes as a Function of RF Powers and Distances', *Appl. Surf. Sci.*, 362, 448-458.

Selected research activities

- Project MAT2015-70850-P (HIBRI2), MINECO, Spain, 01/2016-12/2018, 149,314 € + 1 FPI grant.

- International application according to Patent Cooperation Treaty, ref. PCT/EP2016/078459, presented on 2016-11-22 at European Patent Office: *A process of obtainment of an n-type or a p-type organic semiconductor by UV-VIS irradiation*, on behalf of CSIC.



González Ballester, Miguel A. Universitat Pompeu Fabra (UPF) Engineering Sciences

Degree in Computer Science from Universitat Jaume I (1996), and doctorate from the University of Oxford (2000). I was a senior researcher at Toshiba Medical Systems (Japan), INRIA (France), and the University of Bern (Switzerland), where I was leading the Surgical Technology Division at the Faculty of Medicine. From 2008 until September 2013 I was in charge of the Research Department of the company Alma IT Systems in Barcelona. In October 2013 I was appointed ICREA Research Professor, and joined the Department of Information and Communication Technologies at Universitat Pompeu Fabra in Barcelona, where I lead the Barcelona Centre for New Medical Technologies (BCN Medtech). I have approx. 250 publications in peer-reviewed scientific journals and conferences, and have supervised 18 PhD theses. I was awarded Fellowships from Toshiba and the Japan Society for the Promotion of Science.

Research interests

My research focus is on computerised medical image analysis and computer-assisted surgery, including: image processing and computer vision, image-based diagnosis, medical imaging physics, computational modelling and simulation of virtual organs and surgical interventions, navigation in computer-assisted surgery, surgical devices and implants, and applied clinical research. In addition to basic research with solid mathematical foundations (notably my work on statistical biomechanical models), all my projects have a marked translational character, focusing on concrete clinical and industrial applications.

Selected publications

- Mangado N, Ceresa M, Duchateau N, Kjer HM, Vera S, Dejea Velardo H, Mistrik P, Paulsen RR, Fagertun J, Noailly J, Piella G & **González Ballester MA** 2016, 'Automatic model generation framework for computational simulation of cochlear implantation', *Annals Of Biomedical Engineering*, vol. 44, no. 8, pp 2453-2463.

- Olivares AL, **González Ballester MA** & Noailly J 2016, 'Virtual exploration of early stage atherosclerosis', *Bioinformatics*, vol. 32, no. 24, pp. 3798-3806.

- Sanroma G, Penate-Sanchez A, Alquézar R, Serratosa F, Moreno-Noguer F, Andrade-Cetto J & González Ballester MA 2016,

'MSClique: multiple structure discovery through the maximum weighted clique problem', *Plos One*, vol. 11, no. 1, e0145846, pp. 1-19. - Karim R, Bhagirath P, Claus P, Housden RJ, Chen Z, Karimaghaloo Z, Sohn H-M, Lara

Rodríguez L, Vera S, Alba X, Hennemuth A, Peitgen H-O, Arbel T, **González Ballester MA**, Frangi AF, Gotte M, Razavi R, Schaeffter T & Rhode K 2016, 'Evaluation of state-of-the-art segmentation algorithms for left ventricle infarct from late Gadolinium enhancement MR images', *Medical Image Analysis*, vol. 30, pp 95-107.

- Ruiz Pujadas E, Kjer HM, Piella G & **González Ballester MA** 2016, 'Iterated random walks with shape prior', *Image and Vision Computing*, vol. 54, pp 12-21.

- Carrera I, Gelber PE, Chary G, **González Ballester MA**, Monllau JC & Noailly J 2016, 'Fixation of a split fracture of the lateral tibial plateau with a locking screw plate instead of cannulated screws would allow early weight bearing: a computational exploration', *International Orthopaedics*, vol. 40, no. 10, pp 2163-2169.

- Mangado N, Piella G, Noailly J, Pons-Prats J & **González Ballester MA** 2016, 'Analysis of uncertainty and variability in finite element computational models for biomedical engineering: characterization and propagation', *Frontiers in Bioengineering and Biotechnology*, vol. 4, no. 85 (doi:10.3389/fbioe.2016.00085).

Selected research activities

1 patent application, 20 research projects & 34 publications in 2016.



González García, Maria Concepción Universitat de Barcelona (UB) Experimental Sciences & Mathematics

Prof M.C. Gonzalez-Garcia got her PhD in Theoretical Particle Physics at the University of Valencia in 1991. She held postdoctoral positions at University of Wisconsin-Madison and as a fellow of the CERN Theory Division. As early as 1993 she obtained a tenured scientist position at the CSIC of which she took residency in 1996 at IFIC (a joint CSIC-University of Valencia institute) where eventually she was promoted to full Research Professor. In 2003 she joined the Yang Institute for Theoretical Physics at Stony Brook University as Associate Professor. She joined ICREA in the fall of 2006. She has written over 100 research papers on particle physics phenomenology, as well as some review articles. She is regularly invited to international meetings and conferences and she has given plenary talks at the most important conferences in her area.

Research interests

I am a theoretical particle physicist. I study the fundamental laws that govern the behaviour of the smallest components of Nature: the elementary particles. I do it by comparing the predictions from different theories with measurements performed at accelerators, where high energy beams of matter are made to collide, as well as in experiments which detect the elementary particles arriving to us from outer space, and which were produced in the burning of the stars or during the reactions occurring in the early Universe. The ultimate goal is two-fold: understand the physical laws of the microcosms as well as how they determine the Universe we live in.

Selected publications

Song N, Boyero Garcia R, Gomez-Cadenas JJ, Gonzalez-Garcia MC, Peralta Conde Am & Taron J 2016, 'Conditions for statistical determination of the neutrino mass spectrum in radiative emission of neutrino pairs in atoms', *Physical Review D*, 93, 1, 013020.
 Bergstroem J, Gonzalez-Garcia MC, Maltoni M, Pena-Garay C, Serenelli AM & Song N 2016, 'Updated determination of the solar neutrino fluxes from solar neutrino data', *Journal Of High Energy Physics*, , 3, 132.

- Corbett T, Eboli OJP & **Gonzalez-Garcia MC** 2016, 'Inverse amplitude method for the perturbative electroweak symmetry breaking sector: The singlet Higgs portal as a study case', *Physical Review D*, 93, 1, 015005.

- Eboli OJP & Gonzalez-Garcia MC 2016, 'Classifying the bosonic quartic couplings', Physical Review D, 93, 9, 093013.

- **Gonzalez-Garcia MC**, Maltonic M & Schwetz T 2016, 'Global analyses of neutrino oscillation experiments', *Nuclear Physics B*, 908, 199 – 217.

- Brivio I, Gonzalez-Fraile J, **Gonzalez-Garcia MC** & Merlo L 2016, 'The complete HEFT Lagrangian after the LHC Run I', *European Physical Journal C*, 76, 7, 416.

- **Gonzalez-Garcia MC**, Maltoni M, Martinez-Soler I & Song N 2016, 'Non-standard neutrino interactions in the earth and the flavor of astrophysical neutrinos', *Astroparticle Physics*, 84, 15 – 22.

Selected research activities

Selected Conference Talks:

- * "Neutrino Masses and Mixing Circa 2016". Meeting of Neutrino Research Group of CNRS, Grenoble, France. Keynote Speaker.
- * "Present Status of Neutrino Masses and Mixing". Invisibles 2016 Workshop, Padova, Italy. Plenary address.
- Selected Service Activities:
- * Member of Editorial Board of Journal of High Energy Physics
- * Panel Member in the ERC-2016-CoG Call for Proposals



González Hernández, Cayetano Institut de Recerca Biomèdica de Barcelona (IRB Barcelona) Life & Medical Sciences

After completing a PhD on fly genetics in the laboratory of Pedro Ripoll at the Centre for Molecular Biology (CBM, Madrid, Spain), Cayetano González moved to David Glover's lab in the UK, first at Imperial College and later as a CRC Joint Principal Investigator at Dundee. In 1994, he took his first independent position, as a Group Leader at EMBL (Heidelberg, Germany). After the customary nineyear period at EMBL, he moved to the Centro Nacional de Investigaciones Oncológicas (CNIO, Madrid, Spain). In 2004 he moved to his present post at the Institute for Research in Biomedicine (IRB Barcelona) where he leads the Cell Division Group.

Research interests

We model cancer in flies to understand the cellular changes that drive malignant growth and to identify conserved mechanisms that might be relevant for human cancer therapy. We focus on the mechanisms of malignant transformation in larval brains where we have found that neuroblasts can originate tumors if the process of self-renewing asymmetric division is disrupted, and that some tumor types are driven by the ectopic expression of germline proteins. We work on the mechanisms that bring about genome instability in Drosophila tumors and try establishing the actual extent to which such lesions contribute to tumor progression. We develop and make extensive use of microscopy techniques. We demonstrated that the microtubule cytoskeleton of Drosophila neuroblasts is governed by the distinct behaviour displayed by centrosomes in these cells. We maintain an active line of research to identify new centrosomal proteins and found some with human orthologs that are linked to human pathologies.

Selected publications

- Zhang Y, Rai M, Wang C, **Gonzalez C** & Wang H 2016, 'Prefoldin and Pins synergistically regulate asymmetric division and suppress dedifferentiation', *Scientific Reports*, 6, 23735.

- Chen K, Koe CT, Xing ZB, Tian X, Rossi F, Wang C, Tang Q, Zong W, Hong WJ, Taneja R, Yu F, **Gonzalez C**, Wu C, Endow S & Wang H 2016, 'Arl2-and Msps-dependent microtubule growth governs asymmetric division', *Journal Of Cell Biology*, 212, 6, 661 – 676.
- Fernandez-Hernandez I, Scheenaard E, Pollarolo G & **Gonzalez C** 2016, 'The translational relevance of Drosophila in drug discovery', *Embo Reports*, 17, 4, 471 – 472.

Selected research activities

Organized Conferences

Sep 2016: 3rd Spanish Conference: The molecular, cellular and developmental biology of Drosophila. Aiguablava. Spain. **Selected Invited Conferences and Meetings**

May 2016: 8th Course on Optical Microscopy Imaging for Biosciences. Porto. Portugal.

Jun 2016: EMBO Conference: The molecular and developmental biology of Drosophila. Chania. Greece.

Oct 2016: B.Debate 'Beyond Cancer Genomes. Barcelona Conference on Epigenetics and Cancer'. Barcelona. Spain.

Nov 2016: 2016 NCRI Cancer Conference. Liverpool. UK.

Nov 2016: Symposium on Developmental Biology and Cell Cycle. Montpellier. France

Selected Invited Seminars

Feb 2016: Université de Geneve. Geneve. Switzerland.

Mar 2016: Novo Nordisk Foundation Center for Protein Research. Copenhagen. Denmark.

Oct 2016: EMBL. Heidelberg. Germany.



Gorostiza Langa, Pau Institut de Bioenginyeria de Catalunya (IBEC) Life & Medical Sciences

Pau Gorostiza graduated in physics at the Universitat de Barcelona (UB), where he also obtained his PhD (European Doctorate) in the field of semiconductor electrochemistry. He also worked at the microscopy facility of the UB, where he gained experience in AFM and STM of biological samples, as well as in nanotechnology applied to materials science. He has visited the CNRS and the Université Pierre et Marie Curie in Paris (France), and the University of California at Berkeley (USA). His recent works include the development of optical switches for remotely controlling neuronal activity. He obtained a Young Biomedical Investigator Award of the Francisco Cobos Foundation, a Career Development Award of the Human Frontier Science Program (HFSP) and two grants from the European Research Council (ERC). He is currently ICREA Research Professor at the Institute for Bioengineering of Catalonia (IBEC).

Research interests

Research in the group is focused on developing nanoscale tools to study biological systems. These tools include instrumentation based on proximity probes, like Electrochemical Tunneling Microscopy and Spectroscopy, that we are applying to study metal oxides and redox proteins. Another set of nanotools that we are developing is based on molecular actuators that can be switched with light, like azobenzene, which can be chemically attached to biomolecules in order to optically control their activity.

Selected publications

- Izquierdo-Serra M, Bautista-Barrufet A, Trapero A, Garrido-Charles A, Diaz-Tahoces A, Camarero N, Pittolo S, Valbuena S, Perez-Jimenez A, Gay M, Garcia-Moll A, Rodriguez-Escrich C, Lerma J, de la Villa P, Fernandez E, Pericas MA, Llebaria A & Gorostiza P 2016, 'Optical control of endogenous receptors and cellular excitability using targeted covalent photoswitches', *Nature Communications*, 7, 12221.
- Rovira X, Trapero A, Pittolo S, Zussy C, Faucherre A, Jopling C, Giraldo J, Pin JP, Gorostiza P, Goudet C & Llebaria A 2016, 'OptoGluNAM4.1, a Photoswitchable Allosteric Antagonist for Real-Time Control of mGlu(4) Receptor Activity', *Cell Chemical Biology*, 23, 8, 929 – 934.

Selected research activities

New research funding:

"WAVE SCALing Experiments and Simulations", Future & Emerging Technologies FET Flagship grant: Human Brain Project (HBP). Selected invited talks:

'Electrochemical tunneling microscopy and spectroscopy: from metal oxide films to individual redox proteins', Asilomar Bioelectronics Symposium, Pacific Grove, California, USA (Sept. 2016).

'Optical control of endogenous receptors and neuronal excitability using targeted covalent photoswitches', Meeting of the Federation of European Neuroscience Societies (FENS), Copenhagen, Denmark (July 2016).

'Control of biological activity with light', Lorentz Workshop in Optogenetics, Leiden, The Netherlands (March 2016).



Grinstein, Sebastian Institut de Física d'Altes Energies (IFAE) Experimental Sciences & Mathematics

I completed my Masters of Science at the University of Buenos Aires in 1998 working on the measurement of the production cross section of direct photons at the D0 experiment (Fermilab, USA). Afterwards, I worked in Sweden as a member of the Astroparticle Group of the Royal Institute of Technology studying cosmic rays. Back with the University of Buenos Aires, I did my PhD (2003) measuring the properties of quarks in high energy collisions at D0. In 2003 I became a postdoctoral Fellow at Harvard University where I worked mainly at the CDF experiment (Fermilab) on top-quark physics. In 2008 I joined the IFAE (Institut de Física d'Altes Energies) LHC-ATLAS experiment group as an ICREA Researcher. I am currently leading the ATLAS Pixel Detector upgrade effort at IFAE. In 2012 I became an ICREA Research Professor.

Research interests

My research has been focused on high-energy experimental particle physics: understanding which are the fundamental constitutes of nature and how they interact. At the Fermilab Tevatron accelerator I have performed studies of QCD and the properties of the heaviest quark, the top quark. At the LHC (CERN) I am conducting searches for new physics in the top sector, which may play a special role in the mass generation mechanisms of elementary particles. I am also interested in detector R&D and challenges related with the next generation of high energy accelerators and detectors. Currently I lead a coordinated project between IMB-CNM and IFAE on the ATLAS pixel detector upgrade. As a result of this project, 3D pixel silicon sensors designed and produced at Barcelona have been included in the new innermost detector layer of the ATLAS experiment at the LHC. On going work aims to develop radiation hard technologies for the high luminosity LHC era.

Selected publications

- Lange J & **Grinstein S** et al. 2016, 'Beam tests of an integrated prototype of the ATLAS Forward Proton detector', *Journal Of Instrumentation*, 11, P09005.

- **Grinstein S** 2016, 'The ATLAS Forward Proton Detector (AFP)', Nuclear and Particle Physics Proceedings, Volumes 273–275, Pages 1180–1184.

- Lange J & **Grinstein S** et al. 2016 '3D silicon pixel detectors for the High-Luminosity LHC', Journal of Instrumentation, 11.C11024.

Selected research activities

- * Principal investigator of the ATLAS-Upgrade group at IFAE (FPA, MINECO).
- * Principal investigator of the Instrumentation group at IFAE (SGR, AGAUR).
- * Co-principal investigator of the 3D Biopsy on Tomosynthesis project (RIS3CAT, ACCIO).
- * Coordinator of AIDA-2020 activities at IFAE (H2020, EU)
- * Co-directed one PhD thesis. Suppervising other five PhD theses.
- * Directed one MSc thesis and one undergraduate thesis (Treball de Grau).

Talks at Conferences:

* '3D Sensors fro the HL-LHC', 11th Trento Meeting on Advanced Silicon Radiation Detectors, Feb 2016, Paris, France.

* 'The AFP 3D Silicon Pixel Tracker', 8th International Workshop on Semiconductor Pixel Detectors for Particles and Imaging (PIXEL), Sep 2016, Sestri-Levante, Italy.

* 'Spanish activities in the ATLAS upgrade', VIII CPAN Days, Nov 2016, Zaragoza, Spain.



Guallar Tasies, Víctor Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC - CNS) Life & Medical Sciences

Studied as an undergraduate at the Autonomous University of Barcelona (Spain), major in Chemistry, followed by a joined PhD in physical chemistry at UC Berkeley and Autonomous University of Barcelona, with Professors Josep M. Lluch, Miquel Moreno and William H Miller (November 1999 thesis defense). Then Prof Guallar moved to NYC for a postdoc (2000-2003) at Columbia University with Prof. Richard Friesner. After NYC, he got a teanured position as an assistant Professor at Washington University in St. Louis, School of Medicine, Biochemistry & Molecular Biophysics (2003-2006). In 2006 he was appointed ICREA Research Professor in the Life Science Department at the Barcelona Supercomputing Center (BSC).

Research interests

In the Electronic and Atomic Protein Modeling (EAPM) laboratory at BSC we are devoted to the development and application of computational algorithms in molecular modeling. Using different techniques including Monte Carlo simulations on classical force fields and mixed quantum mechanics/molecular mechanics (QM/MM) methods, we face different biophysical and biochemical studies: * Biochemical characterization and engineering of enzymes. We are developing novel computational approaches to improve enzymatic performance in industrial and biomedical applications.

* Biophysical software development for studying protein-ligand interactions. This projects involve mainly the development of our code PELE (awarded with an ERC Advanced grant) and of different applied studies on drug design projects.

* Efficient human-computer interplay. Using additional techniques such as visualization and user experience, we are working

on designeng and developing optimal graphical user interfaces for an interactive and rich human-modeling)software) experience.

Selected publications

- Acebes A, Fernandez-Fueyo E, Monza E, Lucas MF, Almendral D, Ruiz-Duenas FJ, Lund H, Martinez AT & **Guallar V** 2016, 'Rational Enzyme Engineering Through Biophysical and Biochemical Modeling', *Acs Catalysis*, 6, 3, 1624 – 1629.

- Hosseini A, Alibes A, Noguera-Julian M, Gil V, Paredes R, Soliva R, Orozco M & **Guallar V** 2016, 'Computational Prediction of HIV-1 Resistance to Protease Inhibitors', *Journal Of Chemical Information And Modeling*, 56, 5, 915 – 923.

Pardo I, Santiago G, Gentili P, Lucas F, Monza E, Medrano FJ, Galli C, Martínez AT, Guallar V & Camarero S 2016, 'Re-designing the substrate binding pocket of laccase for enhanced oxidation of sinapic acid', *Catalysis Science & Technology*, 6, 11, 3900 – 3910.
Santiago G, de Salas F, Lucas MF, Monza E, Acebes S, Martinez AT, Camarero S & Guallar V 2016, 'Computer-Aided Laccase Engineering: Toward Biological Oxidation of Arylamines', *Acs Catalysis*, 6, 8, 5415 – 5423.

- Gil VA, Lecina D, Grebner C & **Guallar V** 2016, 'Enhancing backbone sampling in Monte Carlo simulations using internal coordinates normal mode analysis', *Bioorganic & Medicinal Chemistry*, 24, 20, 4855 – 4866.

Selected research activities

- Three PhD students, Israel Cabeza de Vaca, Sandra Acebes and Emanuele Monza have been awarded with their PhD degree along 2016.
- Several invited Conferences and WorkShops in 2015
- Co-funded Nostrum Biodiscovery, the first spin-off from the Barcelona Supercomputer Center



Guillén i Fàbregas, Albert Universitat Pompeu Fabra (UPF) Engineering Sciences

Albert Guillén i Fàbregas is an ICREA Research Professor at Universitat Pompeu Fabra. He is also an Adjunct Researcher at the University of Cambridge. In 1999 he received both the Telecommunication Engineering Degree and the Electronics Engineering Degree from Universitat Politècnica de Catalunya and the Politecnico di Torino respectively, and the PhD in Communication Systems from École Polytechnique Fédérale de Lausanne in 2004. He has held appointments at the New Jersey Institute of Technology, Telecom Italia, European Space Agency, Institut Eurécom, University of South Australia and the University of Cambridge. He is a recepient of the Consolidator and Starting Grants of the European Research Council. He is a member of the Young Academy of Europe and a Senior Member of the IEEE. He is an Editor of the IEEE Transactions on Information Theory and the Foundations and Trends on Communications and Information Theory.

Research interests

The broad theme of his research is the mathematical foundations of communications, spanning the fields of Information Theory, Coding Theory, Communications Theory and Signal Processing. Its aim is to study the fundamental limits of reliable communication, along with schemes and processing algorithms that allow one to achieve them.

Selected publications

- Font-Segura J, Martinez A & **Guillén i Fàbregas A** 2016, "Asymptotics of the Random-Coding Union Bound in Quasi-Static Fading Channels", 2016 IEEE Information Theory Workshop, Cambridge, UK.

- Scarlett J, Martinez A & **Guillén i Fàbregas A** 2016, 'Multiuser Random Coding Techniques for Mismatched Decoding', *IEEE Transactions on Information Theory*, vol. 62, no. 7, pp. 3950-3970.

- Bocharova IE, **Guillén i Fàbregas A**, Kudryashov BD, Martinez A, Tauste Campo A & Vazquez-Vilar G 2016, "Multi-Class Source-Channel Coding", *IEEE Transactions on Information Theory*, vol. 62, no. 9, pp. 5093-5104.

- Font-Segura J, Martinez A & **Guillén i Fàbregas A** 2016, "Refined Error Probability Approximations in Quasistatic Erasure Channels", 2016 International Zurich Seminar on Communications, Zurich, Switzerland.

- Vazquez-Vilar G, *Guillén i Fàbregas A* & Verdú A, "Hypothesis Testing and Quasi-Perfect Codes", 2016 International Zurich Seminar on Communications, Zurich, Switzerland.

- Vazquez-Vilar G, Tauste Campo A, **Guillén i Fàbregas A** & Martinez A 2016, 'Bayesian M-ary Hypothesis Testing: The Meta-Converse and Verdú-Han Bounds are Tight', *IEEE Transactions on Information Theory*, vol. 62, no. 5, pp. 2324-2333.

Selected research activities

- ERC Consolidator Grant
- Invited session organizer: 2016 International Zürich Seminar on Communications
- Invitations: ICSEE 2016 Symposium on Information Theory, Eilat, Israel, Information Theory and Applications Workshop UCSD
- General co-chair 2016 IEEE International Symposium on Information Theory
- Associate Editor IEEE Transactions on Information Theory
- Member Young Academy of Europe



Guimerà Manrique, Roger Universitat Rovira i Virgili (URV) Experimental Sciences & Mathematics

Roger Guimerà (Barcelona, 1976) graduated in Physics at Universitat de Barcelona in 1998, and obtained a PhD in Chemical Engineering from Universitat Rovira i Virgili in 2003. He then moved to Northwestern University where he worked as a postdoctoral fellow and, later, as a Fulbright Scholar. In 2008 he became a Research Assistant Professor at Northwestern's Department of Chemical and Biological Engineering, before accepting his current position at ICREA in 2010. He has been awarded the Premi Nacional de Recerca al Talent Jove (2010), the Erdös-Rényi Prize in Network Science (2012), and the Young Scientist Award for Socio- and Econophysics (2014).

Research interests

Cells, ecosystems and economies are examples of complex systems. In complex systems, individual components interact with each other, usually in nonlinear ways, giving rise to complex networks of interactions that are neither totally regular nor totally random. Partly because of the interactions themselves and partly because of the interaction's topology, complex systems cannot be properly understood by just analyzing their constituent parts. This feature of complex systems poses important challenges from both a fundamental perspective and an engineering perspective. Roger's research is devoted to the study of complex systems and, particularly, of the structure of complex networks and the interplay between network structure and dynamics. During his career, he has: (i) made methodological contributions to the study of complex networks, and (ii) used complex network analysis to gain understanding on a number of systems.

Selected publications

- Godoy-Lorite A, **Guimera R**, Moore C & Sales-Pardo M 2016, 'Accurate and scalable social recommendation using mixed-membership stochastic block models', *Proc. Natl. Acad. Sci. USA* 113 (50), 14207 -14212.

- Massucci FA, Wheeler J, Beltran-Debon R, Joven J, Sales-Pardo M & **Guimera R** 2016, 'Inferring propagation paths for sparsely observed perturbations on complex networks', *Sci. Adv.* 2, e1501638.

- Valles-Catala T, Massucci FA, **Guimera R** & Sales-Pardo M 2016, 'Multilayer stochastic block models reveal the multilayer structure of complex networks', *Physical Review X*, 6, 011036.

- Godoy-Lorite A, **Guimera R** & Sales-Pardo M 2016, 'Long-term evolution of email networks: Statistical regularities, predictability and stability of social behaviors, *PLoS ONE* 11, 1, e0146113.

Selected research activities

Principal investigator:

-"Discovery, decomposition and dynamics of complex networks", James S. McDonnell Foundation (USA), Jan. 1, 2011 to Dec. 31, 2016. -"Inferencia estadística para el análisis de perturbaciones sistémicas en redes complejas", MINECO-Europa Excelencia (Spain), Nov. 1, 2015 to Oct. 31, 2016.



Guner, Nezih Fundació Markets, Organizations and Votes in Economics (MOVE) Social & Behavioural Sciences

Nezih Guner is ICREA Research Professor at MOVE (Markets, Organizations and Votes in Economics), an adjunct faculty at Universitat Autònoma de Barcelona, and a Research Professor of Barcelona Graduate School of Economics. He received his BA in Economics and Sociology from Bogazici University (Turkey) in 1992 and his PhD from University of Rochester in 2000. He is a Research Fellow with Institute for Study of Labor (IZA) and a Research Affiliate with Center for Economic Policy Research (CEPR). He is also a member of the Council of the European Economic Association. He is the Editor of the Journal of Spanish Economic Association (SERIEs), and an Associate Editor of Economics Letters and Journal of Demographic Economics. In 2010 he was awarded a Starting Grant by the European Research Council. Nezih Guner is currently on leave from ICREA at CEMFI (Madrid).

Research interests

Family structure in the U.S. and Europe has changed dramatically during the 20th century. Decline of marriage, rising female labor force participation and increasing number of single mothers are the three most important aspects of this change. There have also been big changes in sexual norms as premarital sex became much less of a taboo. An important part of my recent research has focused on causes of these changes, their consequences for children, income inequality, and social mobility, and how public policies (e.g. social insurance programs) might affect the family. I have also been studying how changes in the family structure alter the way traditional public policies (e.g. taxation, social insurance programs) affect the economy. On a different line of research, I study how misallocation of resources at the micro level can affect aggregate productivity, and the role of government policies on the misallocation of resources. I also focus on the effects of trade and globalization on labor markets and inequality.

Selected publications

- Cosar AK, **Guner N** & Tybout J 2016, 'Firm Dynamics, Job Turnover, and Wage Distributions in an Open Economy', American Economic Review, 106, 3, 625 - 663.

- Greenwood J, Guner N, Kocharkov G & Santos C 2016, 'Technology and the Changing Family: A Unified Model of Marriage, Divorce, Educational Attainment, and Married Female Labor-Force Participation', *American Economic Journal-Macroeconomics*, 8, 1, 1 – 41.
 - Guner N, Lopez-Daneri M & Ventura G 2016, 'Heterogeneity and Government Revenues: Higher taxes at the Top?', *Journal of Monetary Economics*, 80, 69 – 85.



Hardy, Karen Universitat Autònoma de Barcelona (UAB) Humanities

I joined ICREA in 2008. Following a PhD in the Institute of Archaeology, University College London, I worked on projects based in Hungary, Scotland and Papua New Guinea. From 1997-2005 I co-directed the Scotland's First Settlers project which explored the early post glacial environment and human population around the Isle of Skye, Scotland. In 2005 I was awarded a Marie Curie OIF to visit the University of Sydney where I set up an international project to recover information of the role of plants in human evolutionary and preagrarian diets. My return phase took place at the University of York where I remain a research associate.

Research interests

My interest lies in early prehistoric periods before the adoption of farming; specifically, pioneer populations, human adaptations, use of land and sea-scapes and exploitaton of wild plant as food medicine and raw materials. The analysis of chemical compounds and microfossils extracted from samples of ancient dental calculus provides direct access to biographical details and paleoenvironmental information; this is particularly useful for earlier Palaeolithic periods where the evidence is very limited. Much of my research is also focused on the human use of the Atlantic coastline, specifically in West Africa and North west Europe. In the early postglacial periods, until the mid-Holocene, around 6200, Britain was still physically attached to Europe and the coastline of North West Scotland was part of Europe's continental limit.

Selected publications

- Hardy K & Kubiak Martens L (eds) 2016, 'Wild Harvest: Plants and people in the pre-agricultural and non-agricultural world', *Studying Scientific Archaeology Series*, 2, *Oxbow Books*, Oxford.

- Hardy K et al. 2016, 'Dental calculus reveals respiratory irritants and ingestion of essential plant-based nutrients at Lower Palaeolithic Qesem Cave Israel', *Quaternary International*, 398, 129 – 135.

- Hardy K, Camara A, Pique R, Dioh E, Gueye M, Diadhiou HD, Faye M & Carré M 2016, 'Shellfishing and shell midden construction in the Saloum Delta, Senegal', *Journal of Anthropological Archaeology*, 41, 19–32.

- Hardy K, Buckley S & Huffman M 2016, 'Doctors, chefs or hominin animals? Non-edible plants and Neanderthals', Antiquity, 90, 1373-1379.

- Pique R, Gueye M, **Hardy K**, Camara A & Dioh E 2016, 'Not just shellfish: Wild terrestrial resource use among the people of the Saloum Delta, Senegal' in. Biagetti S & Lugli F (eds), *The Intangible Elements of Culture in Ethnoarchaeological Research*, 217-230. Dordrecht: *Springer*.

- **Hardy K** et al. 2016, 'Scotland's Intertidal Prehistory: Lub Dubh Aird, a raw material and knapping site in Upper Loch Torridon', *Proceedings of the Society of Antiquaries of Scotland*, 145, 17-39.

- Radini A, Buckley S, Rosas A, . Estalrrich A, de la Rasilla M & **Hardy K*** 2016, 'Neanderthals, trees and dental calculus: new evidence from El Sidron', *Antiquity*, 90, 350, 290 - 301.

Selected research activities

Most read article in the *Quarterly Review of Biology* 2016. Hardy et al 2015 The importance of dietary carbohydrate in human evolution 90(3)251-268.

Field project Origins and dates of the earliest peopling of North West Scotland.

Invited speaker, German Archaeological Institute (DAI) workshop. Dakar, Senegal.

Member of AHRC (Arts and Humanities Research Council, UK) network Coping with Climate: the legacy of H. heidelbergensis,

Universities of Brighton and Southampton.

Vice-president UISPP Committee. Coastal Prehistory and Submerged Landscapes.



Hardy, Stuart Universitat de Barcelona (UB) Experimental Sciences & Mathematics

I completed a BSc in Geology (Hons 1st Class) at Glasgow University in 1984 and a Masters in Computer Science at Bradford University in 1987. Thereafter I worked on satellite rainfall prediction and hydrological modelling at Reading University for 2 years, before undertaking a PhD at the University of London (1989-1994) in Mathematical Modelling of Tectonics and Sedimentation. Two Postdoc fellowships then followed: A 2-year Royal Society European Science Exchange Fellowship at CSIC (Jaume Almera) in Barcelona and 1year post-doc working with John Suppe at Princeton University. I was subsequently a lecturer in the Earth Science Department of the University of Manchester for 5 years. I am an ICREA Research Professor in the Faculty of Geology at the Universitat de Barcelona since 2003.

Research interests

I work in mathematical numerical modelling of geological processes (tectonics, sedimentation, volcanology, etc.) and use a variety of different approaches to try to better understand (through both modelling and validation) the various relationships preserved in the geological record. I am interested in both continuum (e.g. finite difference, finite element) and discontinuum techniques (e.g. discrete element, SPH) both from a theoretical standpoint and in using them in practical applications. I am also very much interested in using high performance computing to run high resolution numerical models and visualize the results of such models. Recent research has focused on computational determinism in parallelized HPC codes and Martian tectonics.

Selected publications

- **Hardy S** 2016, 'Does shallow dike intrusion and widening remain a possible mechanism for graben formation on Mars?', *Geology*, v. 44, p. 107-110.

- Botter C, Cardozo N, **Hardy S**, Lecomte I, Paton G & Escalona A 2016, 'Seismic characterisation of fault damage in 3D using mechanical and seismic modelling', *Marine and Petroleum Geology*, Vol. 77, 973-990.

- Carmona A, Gratacós O, Clavera-Gispert R, Muñoz JA & **Hardy S** 2016, 'Numerical modelling of syntectonic subaqueous sedimentation: The effect of normal faulting and a relay ramp on sediment dispersal', Tectonophysics, 684, 100 – 118.



Hinzen, Wolfram Universitat Pompeu Fabra (UPF) & FIDMAG Hermanas Hospitalarias (FIDMAG) Humanities

I obtained a Magister (Freiburg, 1993), an MA (King's College London, 1994), and a PhD (philosophy, Bern, 1996), prior to becoming a Swiss government funded postdoctoral researcher in Stuttgart (1996-7) and New York (1997-9). I was first employed in an academic position as Assistant Professor in Regensburg (1999), then at the Universitat van Amsterdam (2003-2006), before becoming a full professor in Durham (2006-) and an ICREA Research Professor in Barcelona in April 2013. I also was a guest professor at Hong Kong University (2010) and at Universitat Autònoma de Barcelona (2011).

Research interests

Language is specific to our species, as is our mind. How do the two relate? I pursue this question philosophically, linguistically, and experimentally, by studying disorders of language in the context of mental disorders. I have inaugurated the 'Un-Cartesian hypothesis', which is that the evolution of language is also the evolution of a particular cognitive type. This research program is documented in 'Mind Design' (2006), 'Essay on Names and Truth' (2007), and 'The Philosophy of Universal Grammar' (2013, with M. Sheehan), all from Oxford UP. I have directed three international projects (NWO, 2006-2011; AHRC/DFG, 2009-2012) and currently 'Language and Mental Health' (AHRC, 2014-2017), dedicated to the comparative study of language disorder in schizophrenia and aphasia. Locally in Barcelona, I have founded the Grammar & Cognition group (www.grammar.cat), which pursues the project of a typology of linguistic diversity across clinical populations.

Selected publications

- Hinzen W 2016, 'Linguistic evidence against Predicativism', Philosophy Compass, 1-18.
- Hinzen W 2016, 'On the grammar of referential dependence', Studies in Logic, Grammar and Rhetoric, 46 (59), 11-33.
- Hinzen W & Reichard U 2016, 'Are verbs names of events?', in Stalmaszczyk P (ed.), Philosophical and linguistic analyses of
- reference, (Studies in Philosophy of Language and Linguistics, vol.2), Frankfurt: Peter Lang, pp.43-65.
- Hinzen W, Rossello J & McKenna P 2016, 'Can delusions be understood linguistically?', Cognitive Neuropsychiatry, 21, 4, 281 299.
- Hinzen W 2016, 'Is our mental grammar just a set of constructions? Commentary on Evans 2014', Language, 92, 1, 203 207.

Selected research activities

Selected invited talks:

-University of Massachusetts, Linguistics Department, Amherst, USA.

-Smith College, Psychology Department, Northampton, USA.

-Greater Philadelphia Philosophy Consortium, USA.

-Temple University, Philosophy Department, USA.

-Central European University Budapest, BabyLab, Hungary.

-University of Leeds, Conference on The Nature of Representation, Leeds, UK.

PhD student supervision (first supervisor):

-Gabriel Sevilla (UPF), First vs. third person narrative in ASD.

-Antonia Tovar (UPF): Grammar and theory of mind in Huntington's disease.

-Will Jones (Durham University): Processing of grammar and personal pronouns schizophrenia.

-Kristen Schroeder (UB): Reference and deixis in autism.



Hoefer, Carl Universitat de Barcelona (UB) Humanities

I did my PhD in Philosophy at Stanford University, under the direction of Peter Galison and Nancy Cartwright. My first academic position was at the University of California, Riverside. In 1998 I moved to the London School of Economics to join the department of Philosophy, Logic and Scientific Method. In 2001-2002, just before joining ICREA, I became Director of the Centre for Philosophy of Natural and Social Sciences at LSE (CPNSS). From Fall of 2002 to Summer of 2013 I was an ICREA based at the UAB philosophy department. From 2005-2013 I was coordinator of the research group GRECC based at the UAB. Since June 2009, I have been Editor in Chief of a new international journal, the European Journal for Philosophy of Science, published by Springer. In July 2013 I began a leave of absence from ICREA to take up the Directorship of the Rotman Institute of Philosophy at Western University in Canada (www.rotman.uwo.ca), and I returned to ICREA in July 2015.

Research interests

My research has mostly addressed age-old metaphysical questions by examining the metaphysics of nature that flows from our best scientific theories. In particular, I work on the nature of space, time and motion as revealed by physics (especially, Einstein's theories of relativity); and on the nature of objective probability as revealed by its uses in many branches of science and other human activities. At present my research is turning to two traditional big issues in the philosophy of science: scientific realism (i.e., should we take our best scientific theories to be giving us *the truth* about the world?) and the nature of laws of nature.

Selected publications

- **Hoefer C** & Smeenk C 2016, 'Philosophy of the Physical Sciences' in Humphreys P (ed.) *The Oxford Handbook of Philosophy of Science*, Oxford University Press, New York.

- Hoefer C 2016, 'Objective chance: not propensity, maybe determinism', Lato Sensu, vol. 3, no. 1, pp. 31-42.

Selected research activities

- Keynote speaker: "Scientific Realism Reformulated", 4th Pan-Hellenic Conference of Philosophy of Science, Athens, Greece, December 2, 2016.

- Co-Editor-in-Chief of the European Journal for Philosophy of Science.

- As joint IP, awarded Spanish Ministry (MEC) project FFI2016-76799-P, "Laws, explanation and realism in physical and biomedical sciences", with FPI doctoral student grant.



Idelsohn Barg, Sergio Rodolfo Centre Internacional de Mètodes Numèrics en l'Enginyeria (CIMNE) Engineering Sciences

Date and place of birth: November 15, 1947, Paraná (Argentina). Marital status: Married. Three children. Education: Degree: Mechanical Engineer, Universidad Nacional de Rosario (Argentina) 1970. Postgraduate Studies: PhD in Applied Sciences, University of Liege (Belgium) 1974. Adviser: Prof. Fraeijs de Veubeke. Languages: Spanish, French and English. Research Interests: Computational Mechanics, Finite Element Methods in Structural Dynamics, Fluid Mechanics and Heat Transfer. Present Positions: ICREA Research Professor and Senior Researcher at the International Center for Numerical Methods in Engineering, Universitat Politècnica de Catalunya, Barcelona, Spain. Full-time Professor, National University of Litoral, Santa Fe, Argentina (in leave of absence).

Research interests

He is a specialist in the numerical simulations of mechanical engineering problems, in particular, Computational Fluid Dynamics (CFD). In the last ten years he developed a new method called the Particle Finite Element Method (PFEM) to solve fluid mechanics problems including free-surface flow, breaking waves and fragmentation. This method becomes very popular to solve problems like ship and harbour designs, melting of metals, erosion, and polymer combustion or magma analysis. Currently he works on solving CFD problems in Real Time using approximation techniques based on particles.

Selected publications

- Costarelli SD, Garelli L, Cruchaga GA, Storti MA, Ausensi R & **Idelsohn SR** 2016, 'An Embedded Strategy for the Analysis of Fluid Structure Interaction Problems: Numerical Implementation on GPU Hardware and Experimental Validation', *Comput. Methods Appl. Mech. Engrg.*, Vol. 300, pp:106–128.

- Becker PA & Idelsohn SR 2016, 'A multiresolution strategy for solving landslides using the Particle Finite Element Method', Acta Geotechnica, 11, 3, 643 - 657.

- Limache A & **Idelsohn S** 2016, 'On the issue that finite element discretizations violate, nodally, Clausius postulate of the second law of thermodynamics', *Advanced Modeling and Simulation in Engineering Sciences*, 3:13.

- Cosimo A, Cardona A & **Idelsohn S** 2016, 'General Treatment of Essential Boundary Conditions in Reduced Order Models for Non-Linear Problems', [] Advanced Modeling and Simulation in Engineering Sciences, 3:7.

- Gimenez JM, Nigro NM, **Idelsohn SR** & Oñate E 2016, 'Surface tension problems solved with the Particle Finite Element Method using large time-steps', *Computers & Fluids*, Volume 141, pp 90–104.

- Gimenez JM, Morin P, Nigro N & **Idelsohn S** 2016, 'Numerical Comparison of the Particle Finite Element Method Against an Eulerian Formulation', In *Advances in Computational Fluid-Structure Interaction and Flow Simulation*; pp 7-24. Part of the series *Modeling and Simulation in Science, Engineering and Technology*; Springer.

Selected research activities

- Plenary Lecturer at the World Congress on Computational Mechanics -WCCM-/ Seoul, Korea, July 2016

- Keynote Lecturer at the VII European Congress on Computational Methods in Applied Sciences and Engineering ECCOMAS, Greece, June 2016

- Plenary Lecturer at the Congress New Challenges in Computational Mechanics / Cachan, Paris, May 2016

- Awardee by the International Association of Computational Mechanics with the "IACM Computational Mechanics Award", Seoul, Korea, 2016.

- Elected Vice President of the International Association of Computational Mechanics-IACM- for the period 2014-2018.



Iwasawa, Kazushi Universitat de Barcelona (UB) Experimental Sciences & Mathematics

Born and educated in Japan. After obtaining his PhD in astrophysics at Nagoya University, Nagoya, Japan, in 1995, he moved to Europe, working at the Institute of Astronomy, Cambridge in UK (1995-2005), at the Max Planck Institut für Extraterrestrische Physik in Germany (2005-2008), and at INAF-Osservatorio Astronomico di Bologna in Italy (2008-2009). In 2010 he joined ICREA, to work as an ICREA Research Professor at the Institut de Ciències del Cosmos (ICCUB). His main research area is X-ray astronomy on active galaxies and cosmic black holes.

Research interests

Kazushi Iwasawa works in the field of observational astronomy, mainly using X-ray observatories in space. His primary interest is in the formation and evolution of supermassive black holes powering active galaxies. These active galaxies are generally strong X-ray emitters, which makes X-ray observations a powerful probe of black hole activity even at great cosmological distances. He is involved in several multi-wavelength survey projects which attempt to establish cosmic evolution of the black hole activity and its relation to the galaxy formation. He is also interested in observational study of relativistic effects operating at region close to the black hole in active galaxies through X-ray spectroscopy.

Selected publications

- Iwasawa K, Fabian AC, Kara E, Reynolds CS, Miniutti G & Tombesi F 2016, 'Highly ionized disc and transient outflows in the Seyfert galaxy IRAS 18325-5926', Astronomy and Astrophysics, 592, A98.

– Marchesi S, Lanzuisi G, Civano F, **Iwasawa K**, Suh H, Comastri A, Zamorani G, Allevato V, Griffiths R, Miyaji T, Ranalli P, Salvato M, Schawinski K, Silverman J, Treister E, Urry CM & Vignali C 2016, 'The Chandra COSMOS-Legacy survey: Source X-ray spectral properties', *The Astrophysical Journal*, 830, 100.

- Ricci C, Bauer FE, Treister E, Romero-Canizales C, Arevalo P, **Iwasawa K**, Privon GC, Sanders DB, Schawinski K, Stern D & Imanishi M 'NuSTAR inveils a heavily obscured low-luminosity Active Galactic Nucleus in the Luminous Infrared Galaxy NGC 6286', *Astrophysical Journal*, 819, 1, 4.

– Matsuoka Y, Onoue M, Kashikawa N, **Iwasawa K**, Strauss M, Nagao T, Imanishi M et al. 2016, 'Subaru high-z exploration of lowluminosity quasars (SHELLQs). I. Discovery of 15 quasars and bright galaxies at 5.7 < z < 6.9', *The Astrophysical Journal*, 828, 26.

Selected research activities

Observing times for Chandra X-ray Observatory, NuSTAR, Subaru 8-m telescope Intensive Program, GTC 10-m telescope were obtained for their open calls for proposals.



Jamin, Matthias Institut de Física d'Altes Energies (IFAE) Experimental Sciences & Mathematics

After defending my PhD thesis in July 1988 at the University of Heidelberg under the supervision of Prof. H.G. Dosch, I had several positions including scientific associate at TU Munich, a fellowship at CERN (Geneva) and research assistant again at Heidelberg Univ. In February 1996, I completed my Habilitation at the University of Heidelberg. In April 1998, I was awarded a Heisenberg fellowship by the DFG, which I occupied until October 2004. During this period I replaced two professors one at Heidelberg Univ. and the other one at LMU Munich, I spent some time as a visiting researcher at Fermilab (USA), and in July 2003 I was awarded an Apl. professorship by Heidelberg Univ. I am employed with ICREA since April 2005. My scientific work until today includes more than ninety publications which so far received more than 6,700 citations.

Research interests

The "Standard Model" of particle physics until now describes all observed phenomena in its realm to an astonishing precision. Still, theoretical prejudice exists demanding physics which goes beyond it. "Beyond Standard Model" physics might be – so far unsuccessfully – uncovered directly by its observation, or through unveiling mismatches within the present theory. For the latter approach high precision predictions are required which necessitate a sound knowledge of the Standard Model input parameters. My main work concerns precision determinations of those parameters in the strong-interaction sector of the "Standard Model", most notably the strong coupling and the masses of "quarks", entities which are the sub-constituents of the protons and neutrons in ordinary atomic nuclei.

Selected publications

- Boito D, **Jamin M** & Miravitllas R 2016, 'Scheme Variations of the QCD Coupling and Hadronic tau Decays', *Physical Review Letters*, 117, 15, 152001.

- Jamin M & Miravitilas R 2016, 'Scalar correlator, Higgs decay into quarks, and scheme variations of the QCD coupling', Journal Of High Energy Physics, 10, 059.

Selected research activities

Presentations at International Conferences and Workshops

- 'Renormalon structure of correlation functions in QCD', International Workshop on 'Determination of Fundamental Parameters in QCD', Mainz, Germany, 7-12 March 2016.

- 'Scheme variations of the QCD coupling', XIIth International Conference on 'Quark Confinement and the Hadron Spectrum', Thessaloniki, Greece, 28 August – 4 September 2016.

- 'QCD studies in hadronic tau decays', MIAPP Workshop on 'Flavour Physics with High-Luminosity Experiments', 24 October – 18 November 2016.

Master Courses

- Advanced Quantum Field Theory, IFAE Master on High Energy Physics, February/March 2016.



Jiménez Cañero, Gerardo Institut de Biologia Molecular de Barcelona (CSIC - IBMB) Life & Medical Sciences

Gerardo Jiménez graduated in biology from the Universitat de Barcelona in 1988. He performed his doctoral studies at the Leukaemia Research Fund in London and at the Department of Biochemistry of the Universitat de Barcelona, working on the structure and regulation of mammalian globin gene loci. After receiving his PhD degree in 1993, he worked as a postdoctoral fellow at Cancer Research UK, both in Oxford and in London. Since then, his research interests have focused on the transcriptional and cell signaling mechanisms controlling gene expression, mainly using *Drosophila* as a model system. After his postdoctoral training, he moved to the Institut de Biologia Molecular de Barcelona-CSIC, where he is principal investigator since 2002. He joined ICREA in 2003.

Research interests

We are interested in the molecular mechanisms that control embryonic development. Our model system is the fruit fly *Drosophila melanogaster*, whose powerful genetic tools facilitate the identification and analysis of regulatory processes at molecular level. Most of our research focuses on mechanisms of transcriptional regulation and cell-to-cell signaling. Essentially all the molecules and pathways that we study have been widely conserved during evolution, making our results applicable to other animal species, including humans. (See also http://www.ibmb.csic.es/groups/gene-expression-and-signaling).

Selected publications

- Yang L, Paul S, Trieu KG, Dent LG, Froldi F, Forés M, Webster K, Siegfried KR, Kondo S, Harvey K, Cheng L, **Jiménez G**, Shvartsman SY & Veraksa A 2016, 'Minibrain and Wings apart control organ growth and tissue patterning through down-regulation of Capicua', *Proceedings of the National Academy of Sciences USA*, 113, 10583-10588.

Selected research activities

Principal Investigator of research project "Transcriptional regulation by RTK signaling" funded by MINECO (2015-2017). Coordinator of research project "Molecular analysis of Capicua, a novel tumor suppressor involved in RTK signaling and transcriptional repression" funded by Fundació La Marató de TV3 (2014-2017).

Editor of volume "ERK Signaling: Methods and Protocols" in the *Methods in Molecular Biology* series. Publication year: 2017. Invited speaker at the 3rd Spanish Conference on the Molecular, Cellular and Developmental Biology of *Drosophila*, Begur, September 2016.

Vice-director of Institut de Biologia Molecular de Barcelona (CSIC).



Jiménez Tellado, Raúl Universitat de Barcelona (UB) Experimental Sciences & Mathematics

Prof. Raúl Jiménez (Madrid, 1967) obtained his PhD at the Niels Bohr Institute in 1995; he then moved to the Royal Observatory in Edinburgh were he held a PPARC Advanced Fellowship. After this, he moved to the US where he joined the faculty, as a professor, of the Physics & Astronomy departments of Rutgers University and the University of Pennsylvania. He joined ICREA in September 2007 as Research Professor at the Institute of Cosmos Sciences. He has made several contributions to our understanding of the Universe: the first evidence of dark energy from the ages of high redshift galaxies and globular clusters, the origin of dark galaxies, the first evidence of how galaxies are assembled as a function of cosmic time, the first determination of the expansion history of the Universe, the role of cosmic explosions in the survival of exolife, the role of symmetries in the early universe and a lower bound to the value of the cosmological constant.

Research interests

Prof. Raúl Jiménez is a theoretical physicist interested in a number of problems in astrophysics and cosmology. His fields of research include: the formation and evolution of galaxies, stellar evolution, the cosmic microwave background, dark energy and the origin of the universe.

Selected publications

- Simpson F, Harnois-Deraps J, Heymans C, **Jimenez R** & **Verde L** 2016, "Enhancing the Cosmic Shear Power Spectrum", Monthly Notices of the Royal Astronomical Society. 456, 278.

- Bellini E, Cuesta AJ, **Jimenez R** & **Verde L** 2016, 'Constraints on deviations from Lambda CDM within Horndeski gravity', *Journal Of Cosmology And Astroparticle Physics*, 2, 053.

- Piran T, Jimenez R, Cuesta AJ, Simpson F & Verde L 2016, 'Cosmic Explosions, Life in the Universe, and the Cosmological Constant', *Physical Review Letters*, 116, 8, 081301.

- Kitching TD, **Verde L**, Heavens AF & **Jimenez R** 2016, 'Discrepancies between CFHTLenS cosmic shear and Planck: new physics or systematic effects?', *Monthly Notices Of The Royal Astronomical Society*, 459, 1, 971 – 981.

- Moresco M, Pozzetti L, Cimatti A, **Jimenez R**, Maraston C, **Verde L**, Thomas D, Citro A, Tojeiro R & Wilkinson D 2016, 'A 6% measurement of the Hubble parameter at z similar to 0.45: direct evidence of the epoch of cosmic re-acceleration', *Journal Of Cosmology And Astroparticle Physics*, 4, 014.



Juste, Aurelio Institut de Física d'Altes Energies (IFAE) Experimental Sciences & Mathematics

Born in 1970 in Terrassa (Barcelona). Graduated in physics in 1993 at the Univ. Autònoma de Barcelona (UAB). Obtained PhD in experimental particle physics in 1998 at the Institut de Física d'Altes Energies (IFAE) at the UAB, studying electron-positron collisions in the ALEPH experiment at the LEP Collider at CERN. Moved to Chicago (USA) in 1998, to study proton-antiproton collisions at the energy frontier in the D0 experiment at the Fermilab Tevatron Collider, first as a Research Associate (1998-2002), then as a Wilson Fellow (tenure-track position, 2002-2006) and eventually as staff scientist (2006-2009). At D0 held a number of leadership positions in physics (convener of Top and Higgs groups), algorithms (convener of Jet Energy Scale and Jet Energy Resolution groups) and upper management (physics coordinator). Since November 2009, ICREA Research Professor at IFAE, studying proton-proton collisions with the ATLAS experiment at CERN's Large Hadron Collider (LHC).

Research interests

My research is focused on accelerator-based experimental particle physics, aiming at achieving an understanding on how Nature operates at the most fundamental level. In particular, unraveling the mechanism of electroweak symmetry breaking and mass generation, as well as searching for new physics phenomena, are the main goals of my research. At the LHC I am carrying out studies on the heaviest known elementary particle, the top quark, as well as on the recently-discovered Higgs boson, seeking connections in the dynamics that govern both particles. I am also searching for beyond the Standard Model (SM) physics, such as supersymmetric partners of SM particles, exotic heavy quarks appearing in composite Higgs models or models with extra spatial dimensions, and additional Higgs bosons revealing an extended Higgs sector.

Selected publications

- ATLAS Collab., 'Measurements of the Higgs boson production and decay rates and coupling strengths using pp collision data at 7 and 8 TeV in the ATLAS experiment', EPJC 76 (2016) 6.

- ATLAS Collab., 'Measurement of the charge asymmetry in top-quark pair production in the lepton-plus-jets final state in pp collision data at 8 TeV with the ATLAS detector', EPJC 76 (2016) 87.

- ATLAS Collab., 'Search for pair production of gluinos decaying via stop and sbottom in events with b-jets and large ETmiss in pp collisions at 13 TeV with the ATLAS detector', Phys. Rev. D 94 (2016) 032003.

- ATLAS Collab, 'Search for the SM Higgs boson decaying into bb produced in association with top quarks decaying hadronically in pp collisions at 8 TeV with the ATLAS detector', JHEP 05 (2016) 160.

- ATLAS Collab., 'Search for the Higgs boson produced in association with a W boson and decaying to four b-quarks via two spin-zero particles in pp collisions at 13 TeV with the ATLAS detector", EPJC 76 (2016) 605.

- ATLAS and CMS Collabs., 'Measurements of the Higgs boson production and decay rates and constraints on its couplings from a combined ATLAS and CMS analysis of the LHC pp collision data at 7 and 8 TeV', JHEP 08 (2016) 045.

Selected research activities

* Principal investigator of the ATLAS group at IFAE (SGR-AGAUR and FPA2015-MINECO).

- * Convener of the Metadata subgroup (ATLAS Collaboration).
- * Member of the Scientific Committee of the OCEVU LabEx, France.
- * Editor of Advances in High Energy Physics and Journal of Particle Physics.
- * Director of one PhD thesis (Excellent Cum Laude).
- * Master lectures on SM phenomenology at the UAB.
- * About 15 outreach talks at high schools and various educational programs.

Plenary addresses at:

- * The Future of HEP, HKUST Jockey Club IAS, Hong Kong, Jan 18-21, 2016.
- * XLIV International Meeting on Fundamental Physics, IFT, Madrid, Apr 4-8. 2016.
- * 3rd NPKI Workshop, Korea Univ., Seoul, Jun 12-17, 2016.
- * PASCOS 2016, ICISE, Quy Nhon, Jul 10-16, 2016.
- * Higgs Days at Santander, IFCA, Santander, Sep 19-23, 2016.



Kallis, Giorgos Universitat Autònoma de Barcelona (UAB) Social & Behavioural Sciences

Giorgos Kallis is an environmental scientist working on ecological economics and political ecology. He was a Marie Curie International Fellow at the Energy and Resources Group of the University of California at Berkeley before coming to Barcelona. Giorgos holds a PhD in Environmental Policy and Planning from the University of the Aegean in Greece, a Masters in Economics from Universitat Pompeu Fabra, and a Masters in Environmental Engineering and a Bachelors in Chemistry from Imperial College, London.

Research interests

My research forms part of the inter-disciplinary field of environmental studies, that is, the study of the social and bio-physical causes of environmental degradation. I am motivated by a quest to cross conceptual divides between the social and the natural domains as, for example, in my collaboration with R. Norgaard at Berkeley, where we advanced the concept of socio-ecological coevolution. I am interested on the political-economic roots of environmental degradation and its uneven distribution along lines of power, income and class. My current research is motivated by the double global economic and ecological crisis. I explore the hypothesis of sustainable degrowth: a smooth economic downscaling to a sustainable future where we can live better with less.

Selected publications

- Depietri Y, Kallis G, Baro F & Cattaneo C 2016, 'The urban political ecology of ecosystem services: The case of Barcelona', *Ecological Economics*, 125, 83 - 100.

- D'Alisa G, & Kallis G 2016, 'A political ecology of maladaptation: Insights from a Gramscian theory of the State', *Global Environmental* Change-human And Policy Dimensions, 38, 230 – 242.



Kleij, Arjan W. Institut Català d'Investigació Química (ICIQ) Experimental Sciences & Mathematics

Arjan W. Kleij (1971) received his MSc (with honors) and PhD (Cum Laude) from the University of Utrecht (The Netherlands) working with Gerard van Koten. In 2002 he moved to Spain for a postdoctoral stay as a NWO TALENT fellow with Javier de Mendoza, and then he held another postdoc appointment at the University of Amsterdam (The Netherlands) working with Joost Reek. He also held various scientific positions in the industry working as a project leader (Avantium Technologies) and senior research scientist (Hexion Specialty Chemicals). In 2006, he returned to Spain as ICREA Researcher and ICIQ Group Leader, and was promoted to ICREA Research Professor in 2011. He is member of the advisory board of Current Organic Chemistry (2014-) and ChemSusChem (2016-). Guest editor for Catal. Sci. & Technol. (2014) and ChemSusChem (2016), chairman of the Carbon Dioxide Conversion Catalysis conference in Albufeira (Portugal) in 2016. Total citations >5500 and current h-index of around 43.

Research interests

The research of my group focuses on the valorization of small molecules such as CO2 and SO2. We design new and more sustainable catalytic methods for their conversion and use in organic synthesis; a major focus is on the use of renewable materials to produce organic matter of interest in academic and industrial settings. Typical examples of organic compounds that can be derived from CO2 include biodegradable polymers, synthons for the pharmaceutical industry and organic intermediates of importance in stereo-selective synthesis. As a key enabling technology, we use homogeneous catalysis approaches based on metal complexes and/or organocatalysts, and investigate important process features such as catalyst recycling, energy/material efficiencies and overall selectivity/reactivity profiles.

Selected publications

- Guo W, Martinez-Rodriguez L, Martin E, Escudero-Adan EC & **Kleij AW** 2016, 'Highly Efficient Catalytic Formation of (Z)-1,4-But-2-ene Diols Using Water as a Nucleophile', *Angewandte Chemie International Edition*, 55, 37, 11037 – 11040.

- Guo W, Martinez-Rodriguez L, Kuniyil R, Martin E, Escudero-Adan EC, Maseras F & **Kleij AW** 2016, 'Stereoselective and Versatile Preparation of Tri- and Tetrasubstituted Allylic Amine Scaffolds under Mild Conditions', *Journal of the American Chemical Society*, 138, 36, 11970 – 11978.

- Cai A, Guo W, Martinez-Rodriguez L & **Kleij AW** 2016, 'Palladium-Catalyzed Regio- and Enantioselective Synthesis of Allylic Amines Featuring Tetrasubstituted Tertiary Carbons', *Journal of the American Chemical Society*, 138, 43, 14194 – 14197.

- Gómez JE, Guo W & **Kleij AW** 2016, 'Palladium-Catalyzed Stereoselective Formation of Substituted Allylic Thioethers and Sulfones', *Organic Letters*, 18, 6042-6045

- Rintjema J, Epping R, Fiorani G, Martin E, Escudero-Adan EC & **Kleij AW** 2016, 'Substrate-Controlled Product Divergence: Conversion of CO2 into Heterocyclic Products', Angewandte Chemie International Edition, 55, 12, 3972 – 3976.

- Guo W, Laserna V, Rintjema J, **Kleij AW** 2016, 'Catalytic One-Pot Oxetane to Carbamate Conversions: Formal Synthesis of Drug Relevant Molecules', *Advanced Synthesis & Catalysis*, 358, 10, 1602 – 1607.

Selected research activities

Editorial/Advisory board member for the Journal CO₂ Utilization.

Chair of the conference on Carbon Dioxide Conversion Catalysis (CDCC-1), Albufeira (Portugal).

Guest editor for ChemSusChem - special on CO₂ catalysis.

Invited/Keynote speaker at the 2nd Small Molecule Activation conference (Cancun), Canadian Chemistry Conference (Halifax), ICCDU-16 (Sheffield), Carisma CM1205 conference Ljubljana (Slovenia), University of Liege (Belgium), Hallam University of Sheffield (UK), University of Padova (Italy).



Knighton, Tess Institució Milà i Fontanals (CSIC - IMF) Humanities

Tess Knighton holds MA and PhD degrees from the University of Cambridge and was a Fellow of Clare College, Cambridge, for fifteen years before being appointed an Emeritus Fellow. From May 2011 she has been an ICREA Research Professor at the Institució Milà i Fontanals (CSIC) in Barcelona. In July 2012 she was awarded a Marie Curie Foundation Integration Grant for a research project on the urban musics of early modern Barcelona. Her research interests embrace music and culture in the Iberian world from the 15th to the early 17th centuries, and she has published widely in this field. She was Editor of the OUP journal *Early Music* from 1993 to 2009 and is Series Editor of the Studies in Medieval and Renaissance Music series for The Boydell Press, as well as Secretary to the Editorial Committee of Monumentos de la Música Esañola.

Research interests

My research focuses on four interrelated aspects of music in the Iberian world in the long 16th century: music and ceremony; music in the urban context; the impact of music printing on the diffusion of musical repertory; and music historiography. Analysis of music and ceremony focuses on public display through royal entries and exequies as well as private devotions. Placing music in the context of court ceremonial reveals patterns of self-identity and image-making. Study of the urban musical experience of different social groups highlights the relationship between music and the institutional complex and urban societal interaction. The impact of music printing on the diffusion and accessibility of music is studied through extant inventories to reveal how European editions were transmitted to the centres of the book trade and the extent of musical literacy. Received ideas of Renaissance Iberian music are challenged and historiographical filters analyzed.

Selected publications

- Knighton T 2016, Companion to Music in the Age of the Catholic Monarchs, Brill, Leiden.
- Knighton T (ed.) 2016, Els sons de Barcelona a l'edat moderna, Textures 6, MUHBA, Barcelona.

- Knighton T 2016, 'Musical instruments in the domestic sphere in early modern Barcelona', in Tess Knighton (ed.), Els sons de la Barcelona Moderna, Textures 6, Barcelona: MUHBA, pp 131-151.

- Knighton T 2016, 'Traditions and transitions: instrumental music at the court of Ferdinand and Isabel', in Companion to Music in the Age of the Catholic Monarchs, Tess Knighton(ed.), Leiden, Brill, pp 97-144.

Selected research activities

2016 has been an intense and exciting year, with the completion of the four-year Marie Curie research project *Urban musics and musical practices in sixteenth-century Europe* and the publication of two collections of essays.

Els sons de Barcelona a l'edat moderna (MUHBA) will hopefully have an impact beyond as well as within the academic field. The eight essays cover aspects of the urban soundworld of Barcelona from the perspective of the listener(s). It affords an interdisciplinary approach to the sounds of a single city-bells, music, lectures and reading aloud, sounds heard on festive occasions and in domestic contexts-as experienced by its citizens.

The *Companion to Music in the Age of the Catholic Monarchs* (Leiden: Brill) forms the first in a new music history series and the first major study of music in the Spanish Kingdoms in English for over fifty years, with fifteen essays by experts from Spain, Great Britain, Israel and the USA. Music and culture are studied from different perspectives including: sacred and secular music-making in royal and aristocratic circles; the cathedral music environment; liturgy and power; musical connections with Portugal, Rome and the New World; theoretical and unwritten musical practices; women as patrons and performers; and the legacy of Jewish musical tradition. Hopefully this book will finally help to establish musical culture of the Iberian Peninsula within a broader European context in future reference works.



Köhler, Meike Institut Català de Paleontologia (ICP) Life & Medical Sciences

EDUCATION: 1982 - MSc of Sciences (Diplom), University of Hamburg, Germany 1988 - PhD Vertebrate Paleontology, University of Hamburg, Germany Positions: 2006-current - ICREA Research Professor, Institut Català de Paleontologia, Universitat Autònoma de Barcelona. 2013-current - Associated Professor, Dep. Ecology, Univ. Barcelona. 2006-2014 - Associated Professor, Dep. BABVE, Autonomous Univ. Barcelona. 2000-2006 - Researcher at the Institut de Paleontologia Miquel Crusafont. Publications: In journals such as: Science, Nature, Trends in Ecology and Evolution (TREE), Proceedings of the National Academy of Sciences USA (PNAS), Current Biology, Proceedings Royal Society B, PLOS ONE, Journal of Human Evolution (JHE), American Journal of Physical Anthropology (AJPA), Brain Behavior and Evolution (BBE), etc.

Research interests

Paleobiology Evolutionary Biology I am especially interested in: - Life history evolution - Evolution of body size - Trends and rules in evolution - Insularity and evolution in resource-limited environments - Evolution of brain and nervous system - Functional morphology and biomechanics

Selected publications

- Moncunill-Solé B, Orlandi-Oliveras G, Jordana X, Rook L & **Köhler M** 2016, "First approach of the life history of Prolagus apricenicus (Ochotonidae, Lagomorpha) from Terre Rosse sites (Gargano, Italy) using body mass estimation andpaleohistological analysis", *Comptes Rendus Palevol*. Volume 15, Issues 1-2, Pages 235-245

- Orlandi-Oliveras G, Jordana X, Moncunill-Sole B & **Köhler M** 2016, 'Bone histology of the giant fossil dormouse Hypnomys onicensis (Gliridae, Rodentia) from Balearic Islands', *Comptes Rendus Palevol*, 15, 1-2, 238 - 244.

– Jordana X, Marin-Moratalla N, Moncunill-Sole B, Nacarino-Meneses C & **Köhler M** 2016, 'Ontogenetic changes in the histological features of zonal bone tissue of ruminants: A quantitative approach', *Comptes Rendus Palevol*, 15, 1-2, 255 – 266.

- Nacarino-Meneses C, Jordana X & **Köhler M** 2016, 'Histological variability in the limb bones of the Asiatic wild ass and its significance for life history inferences', *Peerj*, 4, e2580.

- Moncunill Solé B, Jordana X & **Köhler M** 2016, "How common is gigantism in insular fossil shrews? Examining the 'Island Rule' in soricids (Mammalia: Soricomorpha) from Mediterranean Islands using new body mass estimation models." *Zoological Journal of the Linnean Society*, (178) 1, 163–182.

- Nacarinao-Meneses C, Jordana X & **Köhler M** 2016, 'First approach to bone histology and skeletochronology of Equus hemionus', *Comptes Rendus Palevol*, pp 277-287.


Kölbel, Max Universitat de Barcelona (UB) Humanities

After two years of studying various subjects at Freie Universität Berlin and acquiring a taste for analytic philosophy, I enrolled at King's College London in 1991, where I subsequently completed an MA (1992), an MPhil (1994) and a PhD (1997) in Philosophy. My first academic appointment was as a postdoc at the Instituto de Investigaciones Filosóficas of the UNAM in Mexico City. Later, I held positions at Swansea (UK), Cambridge University (UK), and the University of Birmingham (UK). I have been ICREA Research Professor at the University of Barcelona since January 2008. I am a member of the research group LOGOS (http://www.ub.edu/grc_logos/) and contribute to two postgraduate programmes, one in Analytic Philosophy (http://www.ub.edu/aphil/) and one in Cognitive Science and Language (http://www.ub.edu/ccil/), the first of which I used to coordinate. My main interests are in philosophy of language, metaphysics, epistemology and metaethics.

Research interests

My research is in the philosophy of language, metaphysics, epistemology and metaethics. I am currently interested in the nature and purpose of semantic theories for natural languages, in the semantics-pragmatics distinction, in the way semantic theories should represent various forms of context dependence (including contextualism/relativism, de se content), in the ways in which language is used to transfer (and possibly generate) knowledge, and in the nature of objectivity.

Selected publications

- Kölbel M 2016, 'Aesthetic judge-dependence and expertise', Inquiry-an Interdisciplinary Journal Of Philosophy, 59, 6, 589 - 617.

- Kölbel M 2016, 'Moralischer Relativismus' In Rüther M (ed.) Grundkurs Metaethik: Grundlagen-Positionen-Kontroversen, Münster: Mentis, pp. 91–9.

Selected research activities

In 2016, I completed a collaborative four-year I + D project on *Semantic Content and Conversational Dynamics* (see https://semcon.wordpress.com/). I am now embarking on a new project on *Foundations and Methods of Natural Language Semantics* (jointly with Josep Macià).

"Subjectivity and Objectivity in Thought", PLM-network workshop on *Subjectivity in Thought and Language*, 23 September 2016, Barcelona, Spain.

"Explaining what is said with What is Meant", What is Said—What is Meant. 9-10 September 2016, Humboldt Universität Berlin, Germany.

"Is There Moral Objectivity?", 21 Sept 2016, University of Padova, Padova, Italy.

"What is Objectivity and How is it Possible?", 20 Sept 2016, University of Padova, Padova, Italy.

"Pants on Fire and Knickers in a Twist", Mind and Language Seminar, 13 Jan 2016, Institut Jean Nicod, École Normale Supérieure Paris, France.



Kondrashov, Fyodor Centre de Regulació Genòmica (CRG) Life & Medical Sciences

I started my career in the lab of Eugene Koonin at NCBI, NIH in 2000 leaving to do my MA degree in 2003 at University of California at Davis. In 2005 I started my PhD in University of California at San Diego graduating in 2008. In 2008 I became a Group Leader at the Centre for Genomic Regulation. In 2010 I was selected for the EMBO Young Investigator award and I also received the Dobzhansky Prize. In 2011 I became an ICREA Research Professor and a Howard Hughes Medical Institute International Early Career Scientist in 2012.

Research interests

We strive to understand the reasons behind the evolution of all life. One of the focuses of our laboratory is computational studies of genomic information. We analyze these data under the prism of population genetics and evolutionary theory to describe novel evolutionary and biological phenomena. We also carry out experimental work aimed at obtaining evolutionary phenomena in natural populations and measuring in the laboratory important parameters, such as the strength of selection and the rate of mutation. Overall, we use any data that we can get our hand on to understand something new about evolution and biology.

Selected publications

Sarkisyan KS, Bolotin DA, Meer MV, Usmanova DR, Mishin AS, Sharonov GV, Ivankov DN, Bozhanova NG, Baranov MS, Soylemez O, Bogatyreva NS, Vlasov PK, Egorov ES, Logacheva MD, Kondrashov AS, Chudakov DM, Putintseva EV, Mamedov IZ, Tawfik DS, Lukyanov KA & Kondrashov FA 2016, 'Local fitness landscape of the green fluorescent protein', *Nature*, 533, 7603, 397.
Rivkina E, Petrovskaya L, Vishnivetskaya T, Krivushin K, Shmakova L, Tutukina M, Meyers A & Kondrashov F 2016, 'Metagenomic analyses of the late Pleistocene permafrost – additional tools for reconstruction of environmental conditions', *Biogeosciences*, 13, 7, 2207 – 2219.

Saint-Leger A, Bello C, Dans PD, Torres AG, Novoa EM, Camacho N, Orozco M, Kondrashov FA & Ribas de Pouplana L 2016, 'Saturation of recognition elements blocks evolution of new tRNA identities', *Science Advances*, 2, 4, UNSP e1501860.
Howe K, Schiffer PH, Zielinski J, Wiehe T, Laird GK, Marioni JC, Soylemez O, Kondrashov F & Leptin M 2016, 'Structure and evolutionary history of a large family of NLR proteins in the zebrafish', *Open Biol.*, 6(4):160009.



Konstantatos, Gerasimos Institut de Ciències Fotòniques (ICFO) Engineering Sciences

Nov. 2015 - Present: ICREA/Group Leader at the Institute of Photonic Sciences (ICFO), Mediterranean Technology Park, Barcelona, Spain. April 2015 - Oct. 2015: Group Leader - Professor at the Institute of Photonic Sciences (ICFO) Sep. 2009 - March 2015: Group Leader -Assistant Professor at the Institute of Photonic Sciences (ICFO) Sep. 2008 - July 2009: Postdoctoral fellow in the department of Electrical and Computer Engineering at the University of Toronto, Canada. Ed/ Oct. 2004 - July 2008: PhD in the department of Electrical and Computer Engineering at the University of Toronto, Canada. Connaught Fellow. Sep. 2002 - Sep. 2004: MA Sc in the department of Electrical and Computer Engineering at the University of Toronto, Canada. Sep. 1996 - Sep. 2001: Diploma in Electrical and Computer Engineering from the University of Patras, Greece.

Research interests

We employ advances in nanoscience and we transform them into nanotechnology in solving real-world problems that current technology cannot address or do so at an affordable cost for the benefit of the society. We are doing so by assembling a group of physicists, chemists and engineers to tackle complex, interdisciplinary problems. We focus on novel functional nanomaterials, nanostructures and devices for optoelectronics and renewable energy applications. Our main scope is on the development of low-cost, high-efficiency solar cells employing nanostructured materials of low toxicity and high abundance to address the TW challenge and on the development of hybrid 2-dimensional / 0-dimensional optoelectronic platforms for highly sensitive, low cost photodetectors in the visible and infrared part of spectrum covering a broad range of applications including night vision, remote sensing, environmental monitoring and biomedical and health monitoring.

Selected publications

- Nikitskiy I, Goossens S, Kufer D, Lasanta T, Navickaite G, **Koppens FHL** & **Konstantatos G** 2016, 'Integrating an electrically active colloidal quantum dot photodiode with a graphene phototransistor', *Nature Communications*, 7, 11954.

- Kufer D & Konstantatos G 2016, 'Photo-FETs: phototransistors enabled by 2D and 0D nanomaterials', Acs Photonics, 3 (12), pp 2197-2210.

- Bernechea M, Miller NC, Xercavins G, So D, Stavrinadis A & Konstantatos G 2016, 'Solution-processed solar cells based on environmentally friendly AgBiS2 nanocrystals', *Nature Photonics*, 10, 8, 521.

- Kufer D, Lasanta T, Bernechea M, **Koppens FHL** & **Konstantatos G** 2016, 'Interface engineering in hybrid quantum dot – 2D phototransistors' *ACS Photon.* 3, 1324-1330

- Cao Y, Stavrinadis A, Lasanta T, So D & **Konstantatos G** 2016, 'The role of surface passivation for efficient and photostable PbS quantum dot solar cells', *Nature Energ.* 1, 16035



Koppens, Frank Institut de Ciències Fotòniques (ICFO) Experimental Sciences & Mathematics

Prof. Frank Koppens obtained his PhD in experimental physics at Delft University, at the Kavli Institute of Nanoscience, The Netherlands. After a postdoctoral fellowship at Harvard University, since August 2010, Koppens is a group leader at the Institute of Photonic Sciences (ICFO). He has received the Christiaan Hugyensprijs 2012, the Premis Nacional de Reserca, the IUPAP young scientist prize in optics, and four ERC awards (Starting grant, Consolidator grant and two proof-of-concept grants). Prof. Koppens is leader of the optoelectronics workpackage of the graphene flagship (1B€ project for 10 years). Since Dec. 2015, Koppens is ICREA professor. In total, Koppens has published more than 40 refereed papers (H-index 34), with more than 10.000 citations.

Research interests

The quantum nano-optoelectronic group, led by Prof. Koppens, studies interactions between light and matter at extreme limits. Several unique and novel techniques are exploited to confine light to nano-meter lengths scales and study physical processes at ultra-fast timescales.

Central in these studies are the rich variety of novel materials that are only one atom thick: graphene and 2d materials. These materials exhibit fascinating properties that we have just begun to discover. Also novel quantum and topological materials and their interactions with nano-scale light are being studied.

In addition to the new science and physics, the group develops new concepts for photo-detection, imaging systems, optical modulation, nano-scale light processing and switching, as well as flexible and wearable health and fitness devices. We aim to build prototypes of these disruptive technologies, in collaboration with industry. The group works closely with the Graphene Flagship program, the largest European initiative with 1 Billion Euro funding for ten years.

Selected publications

- Massicotte M, Schmidt P, Vialla F, Watanabe K, Taniguchi T, Tielrooij KJ & **Koppens FHL** 2016, 'Photo-thermionic effect in vertical graphene heterostructures', *Nature Communications*, 7, 12174.

- Woessner A, Alonso-Gonzalez P, Lundeberg MB, Gao Y, Barrios-Vargas JE, Navickaite G,

Ma Q, Janner D, Watanabe K, Cummings AW, Taniguchi T, Pruneri V, Roche S, Jarillo-Herrero P, Hone J, Hillenbrand R

& **Koppens FHL** 2016, 'Near-field photocurrent nanoscopy on bare and encapsulated graphene', *Nature Communications*, 7, 10783 – Kufer D, Lasanta T, Bernechea M, **Koppens FHL** & **Konstantatos G** 2016, 'Interface Engineering in Hybrid Quantum Dot-2D Phototransistors', *Acs Photonics*, 3, 7, 1324 – 1330.

Reserbat-Plantey A, Schaedler KG, Gaudreau L, Navickaite G, Guettinger J, Chang D, Toninelli C, Bachtold A & Koppens FHL 2016, 'Electromechanical control of nitrogen-vacancy defect emission using graphene NEMS', *Nature Communications*, 7, 10218.
Nikitin AY, Alonso-Gonzalez P, Velez S, Mastel S, Centeno A, Pesquera A, Zurutuza A, Casanova F, Hueso LE, Koppens FHL & Hillenbrand R 2016, 'Real-space mapping of tailored sheet and edge plasmons in graphene nanoresonators', *Nature Photonics*, 10, 4,

239.

-Ma Q, Andersen TI, Nair NL, Gabor NM, Massicotte M, Lui CH, Young AF, Fang W, Watanabe K, Taniguchi T, Kong J, Gedik N, **Koppens FHL** & Jarillo-Herrero P 2016, 'Tuning ultrafast electron thermalization pathways in a van der Waals heterostructure', *Nature Physics*, 12, 5, 455 - +.

- Nikitskiy I, Goossens S, Kufer D, Lasanta T, Navickaite G, **Koppens FHL** & **Konstantatos G** 2016, 'Integrating an electrically active colloidal quantum dot photodiode with a graphene phototransistor', *Nature Communications*, 7, 11954.

Selected research activities

GSMA Chair with activities related to the Mobile World Congress, participation in GSMA business activities and giving lectures etc.



Laukhin, Vladimir Institut de Ciència de Materials de Barcelona (CSIC - ICMAB) Engineering Sciences

Born in Russia in 1945, graduated at the Moscow Institute of Physics and Technology in 1969. PhD (Physics) in 1975 at the Institute of Problems of Chemical Physics of the Russian Academy of Sciences, where he was subsequently Junior Scientist, Senior Researcher and Leading Researcher (1969-2001). Since 2001 he is an ICREA Research Professor at ICMAB-CSIC (Barcelona). He has held invited Professor positions at: Laboratoire de Physique des Solides et SNCMP, Toulouse (France); Department of Physics, SANY, Buffalo (USA); Kyoto University (Japan); Clarendon Laboratory, University of Oxford (UK), et al. He has 237 publications, which have been cited in total 3383 times in 2536 documents. h-index: 31.

Research interests

The materials object of my scientific activity are strongly correlated systems, and the properties that trigger our interest are mainly the electrical and magnetic ones. This research may contribute to paving the way towards a new generation of electric-field controlled spintronic devices as well as plastic electronic devices. The last ones, based on multifunctional conducting organic materials to be used for fabrication of very sensitive flexible pressure or temperature sensors and electronic circuits, represent an interest, e.g. for biomedical applications.

Selected publications

- Laukhina E, Lebedev V, Rovira C, **Laukhin V** & Veciana J 2016, 'Attractive mechanical properties of a lightweight highly sensitive bi layer thermistor: polycarbonate/organic molecular conductor', 5th International Conference On Materials And Applications For Sensors And Transducers (ic-mast2015), 108, 012050.

- Laukhin V, Lebedev V, Laukhina E, Rovira C & Veciana J 2016, 'Highly sensitive multi-layer pressure sensor with an active nanostructured layer of an organic molecular metal', 5th International Conference On Materials And Applications For Sensors And Transducers (ic-mast2015), 108, 012038.

- Audouard A, Fortin J-Y, Vignolles D, **Laukhin VN**, Kushch ND & Yagubskii EB 2016, 'New insights on frequency combinations and 'forbidden frequencies' in the de Haas-van Alphen spectrum of kappa-(ET)(2)Cu(SCN)(2)', *Journal Of Physics-condensed Matter*, 28, 27, 275702.



Lehner, Ben Centre de Regulació Genòmica (CRG) Life & Medical Sciences

* November 2010 - EMBO Young Investigator * September 2009 - ICREA Research Professor * October 2007 - ICREA Junior Researcher * December 2006 - Group Leader, EMBL-CRG Systems Biology Unit, Centre for Genomic Regulation, Barcelona * 2004-06 Postdoctoral Fellow, Fraser Lab, The Wellcome Trust Sanger Institute * 2004 PhD University of Cambridge * 2000 BA Natural Sciences, University of Cambridge

Research interests

Most mutations, for example disease causing mutations in humans, are not harmful in all of the individuals who carry them. When do genetic changes result in phenotypic change? When do they not? Why is this? And how can this be predicted? These are the main questions that drive our research, and we use both experimental and computational approaches to address them. Most of our work is hypothesis driven, but we have also used systematic data collection and integration. Our favourite model organisms are C. elegans and budding yeast, where we can perform both large-scale and highly quantitative genetic analysis. In short, we aim to identify, understand and predict when genetic variation results in phenotypic variation, both at the level of the typical outcome in a population and also in each particular individual.

Selected publications

- Julien P, Minana B, Baeza-Centurion P, **Valcarcel J** & **Lehner B** 2016, 'The complete local genotype-phenotype landscape for the alternative splicing of a human exon', *Nature Communications*, 7, 11558.

- Jelier R, Kruger A, Swoger J, Zimmermann T & **Lehner B** 2016 'Compensatory Cell Movements Confer Robustness to Mechanical Deformation during Embryonic Development' *Cell Systems*, Volume 3, Issue 2, p160–171.

- Bolognesi B, Lorenzo Gotor N, Dhar R, Cirillo D, Baldrighi M, **Tartaglia GG** & **Lehner B** 2016, 'A Concentration-Dependent Liquid Phase Separation Can Cause Toxicity upon Increased Protein Expression', *Cell Reports*, 16, 1, 222 – 231.

- Lindeboom RGH, Supek F & Lehner B 2016, 'The rules and impact of nonsense-mediated mRNA decay in human cancers', *Nature Genetics*, 48, 10, 1112 – 1118.

- Klosin A & **Lehner B** 2016, 'Mechanisms, timescales and principles of trans-generational epigenetic inheritance in animals', *Current Opinion in Genetics & Development*, 36:41-49.



Lewenstein, Maciej Institut de Ciències Fotòniques (ICFO) Experimental Sciences & Mathematics

Maciej Lewenstein (Warsaw 1955) graduated at Warsaw University in 1978. He joined the Centre for Theoretical Physics of the Polish Academy of Sciences in Warsaw, where he remained for 15 years, becoming a professor in 1993. He finished his PhD in Essen in 1983 and habilitated in 1986 in Warsaw. He has spent several long term visits at Universitaet Essen, at Harvard University with Roy J. Glauber (Nobel 2005), at Commisariat a l'Énergie Atomique in Saclay and at Joint Institute for Laboratory Astrophysics at Boulder. He was on faculty of CEA in Saclay (1995-1998), of the Leibniz University Hannover (1998-2005). In 2005 he moved to Catalonia as ICREA Research Professor to lead the quantum optics theory at the Institut de Ciències Fotòniques in Castelldefels. His interests include quantum optics, quantum physics, quantum information, attosecond science, and statistical physics. His other passion is jazz and avant-garde music - he is an acclaimed jazz writer and critic.

Research interests

Maciej Lewenstein is a theoretical physicist per se. His research and interests are in the first place extremely diverse. He works on and contributes successfully to very different branches of physics and other sciences. On one side his work deals with purely mathematical questions related to foundations of physics, such as the nature of correlations in quantum systems. On the other extreme, Lewenstein has worked on models of human cognition and human voting behavior. Recently his interests mainly focus on quantum many body physics, quantum information theory, quantum optics, atomic physics, atto-nanophysics, quantum simulators, quantum open systems, statistical physics, Brownian motion theory and its applications to quantum physics, nano- and bio-photonics, or theoretical quantum chemistry and its applications to quantum many body physics. In his research he uses extensively methods of the contemporary theoretical physics. At ICFO Maciej Lewenstein is leading a 22 people team working on the mentioned subjects.

Selected publications

- Jakab D, Szirmai E, **Lewenstein M** & Szirmai G 2016, 'Competing valence bond and symmetry-breaking Mott states of spin-3/2 fermions on a honeycomb lattice', *Physical Review B*, 93, 6, 064434.

- Grass T, Raventós D, Julia-Díaz B, Gogolin C & **Lewenstein M** 2016, 'Quantum annealing for the number-partitioning problem using a tunable spin glass of ions', *Nature Communications*, 7, 11524.

- Chhajlany RW, Grzybowski PR, Stasinska J, **Lewenstein M** & Dutta O 2016, 'Hidden String Order in a Hole Superconductor with Extended Correlated Hopping', *Physical Review Letters*, 116, 22, 225303.

- Streltsov A, Chitambar E, Rana S, Bera MN, Winter A & **Lewenstein M** 2016, 'Entanglement and Coherence in Quantum State Merging', *Physical Review Letters*, 116, 24, 240405.

- Chitambar E, Streltsov A, Rana S, Bera MN, Adesso G & Lewenstein M 2016, 'Assisted Distillation of Quantum Coherence', *Physical Review Letters*, 116, 7, 070402.

- Celi A, Grass T, Ferris AJ, Padhi B, Raventós D, Simonet J, Sengstock K & **Lewenstein M** 2016, 'Modified spin-wave theory and spinliquid behavior of cold bosons on an inhomogeneous triangular lattice', *Physical Review B* 94, 075110.

- Oszmaniec M, Augusiak R, Gogolin C, Kolodynski J, **Acín A** & **Lewenstein M** 2016, 'Random bosonic states for robust quantum metrology' Physical Review. X 6, 041044.

- Lewenstein M 2016, 'Polish Jazz Recordings and Beyond', 660 pages, second extended edition, Wydawnictwa Drugie, Warszawa, ISBN 978-83-8022-012-6

Selected research activities

In June 2016 the second edition of Lewenstein's book, Polish Jazz Recordings and Beyond, was published by Wydawnictwa Drugie, Warszawa. This guide describes 1900 disc with Polish jazz and not only.

In March 2016 Lewenstein organized a concert of Tomasz Sta'nko Quartet in Auditori de Liceu, celebrating 20th anniversary of the Nobel Prize for the Polish poet, Wislawa Szymborska. The concert, financed by private sponsors and the Polish consulate, with patronage of ICREA and ICFO. A short documental movie "Physics, Jazz and Poetry" was realized.



Lloret Fillol, Julio Institut Català d'Investigació Química (ICIQ) Experimental Sciences & Mathematics

Dr. Julio Lloret-Fillol graduated in Chemistry from the Universidad de Valencia in 2001 where he also obtained his PhD in 2006, working under the supervision of Prof. P. Lahuerta and Prof. J. Pérez-Prieto. After his PhD he moved to the University of Heidelberg to the group of Prof. L. H. Gade as a postdoctoral MEyC fellow and postdoctoral Marie Curie fellow. Since 2010 he has been working as independent research leader at Universitat de Girona (Ramón y Cajal programme). In 2014 he obtained a position as Young Research Group Leader at the Institut de Química Computational i Catàlisi (UdG). In November 2014 he move to his actual position of group leader at the Institute of Chemical Research of Catalonia (ICIQ).

Research interests

My research is mainly focused on designing new catalysts for a more sustainable chemistry through the use of artificial photosynthetic schemes (APS) (ERC Consolidator Grant). Although artificial photosynthetic schemes are a potential solution for a future sustainable society, basic science still needs to be done in order to achieve this objective. Accordingly, my research dream is to address the production of fine chemicals using solely CO2, water and light as driving force. To this end, we are working in developing new methodologies to employ light as a driving force to produce reductive organic transformation and in the understanding of one of the most important reactions in earth, the water oxidation, identified as one of the bottlenecks for the production of solar fuels. Mechanistic investigations will aid to understand multi-proton multi-electron transformations. These areas of research can open up new avenues for newer and greener synthetic methods.

Selected publications

- Casadevall C, Codola Z, Costas M & **Lloret-Fillol J** 2016, 'Spectroscopic, Electrochemical and Computational Characterisation of Ru Species Involved in Catalytic Water Oxidation: Evidence for a [Ru-V(O)(Py(2)(Me)tacn)] Intermediate', *Chemistry-a European Journal*, 22, 29, 10111 – 10126.

- Lloret-Fillol J & Costas M 2016, 'Water Oxidation: High five iron', Nature Energy, 1, 16023.

- Lloret-Fillol J, Casadevall C, Call A, Codolà Z & Acuña-Parés F 2016, 'Catalizadores para la conversión de la energía solar en enlaces químicos' Anales de Química, V 112, no 3.

Selected research activities

Professor at the Master's in Advance Catalysis and Molecular Modelling (UdG) Associated Editor of RSC Advances Member of CARISMA and CHAOS COST actions **Conferences &Talks** GRC - Renewable Energy: Solar Fuels - Italy (Feb. 2016) CARISMA - COST - Slovenia (Mar. 2016) 2nd International Symposium on Chemical Energy Conversion Processes - Japan (May. 2016) EUCHEMS 2016 - Spain (Sep. 2016)



Llovet Bayer, Josep M Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS) Life & Medical Sciences

Josep M. Llovet, MD is ICREA Research Professor, BCLC Group, Liver Unit, IDIBAPS, Hospital Clinic, Univ. of Barcelona, Prof. of Medicine and Director of the Liver Cancer Program at the Icahn Mount Sinai School of Medicine, NY. He has published 242 manuscripts in Liver Cancer, including NEJM, Lancet, Nature, Nat. Genetics, Cancer Cell and Gastroenterology (IF: 3262;citations: 44.256;h-index: 85). Top 1% most cited researcher globally, Thomson Reuters 2014, 2015, 2016, Educational Councilor (2013-15), President of the ILCA (2011-13), Senior Editor of CCR, he has lectured in 500 international meetings and has been the PI of European grants FP7-HEPTROMIC,HE--CAR,NIH-NIDDK R01-award, I+D grants and competitive private grants. His achievements are: 1. Establish a clinical and molecular classification for HCC. 2. Establish efficacy of chemoembolization and sorafenib for HCC. 3. Identification of novel drivers and activated pathways in HCC and ICC.

Research interests

Prof Josep M. Llovet has been working in clinical and translational research in hepatocellular carcinoma (HCC) and cholangiocarcinoma (ICC) for the last 20 years .He is leading international randomized trials in HCC on novel targeted therapies and developing a molecular classification of the disease, understanding the genetic aberrations and signaling pathways involved and in the identification of new molecular targeted therapies. He has organized the HCC Genomic Consortium and the HEPTROMIC Consortium (funded by an FP-7 Grant) that includes several international HCC research centers: IDIBAPS-Hospital Clínic (Barcelona), Ichan Scool of Medicine at Mount Sinai (New York), INSERM (Paris), Univ. Tuebingen (Germany), Dana-Farber-MIT-Broad Institute (Boston) and NCI (Milan).The main future areas of interest are a) identify biomarkers predicting response to sorafenib or mechanisms of resistance b) translate oncogenic drivers discoveries as targeted therapies in HCC and ICC.

Selected publications

- Martinez-Quetglas I, Pinyol R, Dauch D et al. 2016, 'IGF2 Is Up-regulated by ...', Gastroenterology, vol.62, no. 2, pp. S405–S406.

- Moran S, Martínez-Cardús A, Sayols S et al. 2016, 'Epigenetic profiling to ...', Lancet Oncol., vol. 17, no.10, pp. 1386-1395.
- Lencioni R, Llovet JM, Han G et al. 2016, 'Sorafenib or placebo plu...', J. Hepatol., vol.64, no.5, pp. 1090-1098.

- Villanueva A & Llovet JM 2016, 'Liver cancer: Effect of HCV ...', (Editorial), Nature Reviews Gastroenterol and Hepatol, vol.13, no.10, pp. 561-562.

- Llovet JM 2016, 'Handbook of Translational Medicine', Edicions de la Universitat de Barcelona, Barcelona-B, 16.985-2016.

- Torrens L, Pinyol R, Jimenez W et al. 2016, 'Oveview of Translational Medicine', In: Handbook of Translational Medicine. Edicions de la Universitat de Barcelona, *Barcelona-B*, 16.985-2016.

- Moeini A, Sia D, Bardeesy N et al. 2016, 'Molecular Pathogenesis ...', Clin Cancer Res. vol.22, no.2, pp 291-300.
- Montal R, Torres F & Llovet JM 2016, 'The design of clinical trials in the genomic era', In: Handbook of Translational Medicine.
- Edicions de la Universitat de Barcelona, *Barcelona-B*, 16.985-2016. - Zhang DY, Goossens N, Guo J et al. 2016, 'A hepatic stellate cell gene...', *Gut.*, vol. 65, no.10, pp. 1754-1764.
- Zitang DT, Goussens N, Guo J et al. 2010, A hepatic stenate cell gene..., Gut., Vol. 05, no.10, pt. 1734-1704.

Llovet JM, Zucman-Rossi J, Pikarsky E et al. 2016, 'Hepatocellular carcinoma', *Nat. Rev. Dis. Primers*, no.2, pp. 16018.
 Nakagawa S, Wei L, Song WM et al. 2016, 'Precision Liver Cancer Prevention Consortium', 'Molecular Liver Cancer Prevention ...', *Cancer Cell, vol.* 30, no. 6, pp. 879-890.

Selected research activities

Senior Editor. Clinical Cancer Research / Director. Master in Translational Medicine. Universitat de Barcelona / Executive Committee. IDIBAPS / Director. Liver Cancer Program. Icahn School of Medicine at Mount Sinai / Fellow Award – American Association for the Study of the Liver Diseases (AALSD) / Tisch Cancer Institute Award – NCI designated Cancer Center Recognition ISMMS.



Lobo, Jorge Universitat Pompeu Fabra (UPF) Engineering Sciences

Jorge Lobo is an ICREA Research Professor in the Department of Information and Communication Technologies at UPF since October 2012. He is also Visiting Professor in the Department of Computing at Imperial College London. Before joining ICREA he was at IBM T.J. Watson Research Center. Previous to IBM, he was principal architect at Teltier Technologies, a startup company in the wireless telecommunication area, and now part of Cisco Systems. Before Teltier, he was member of the research staff at Bell Labs and associate professor of computer science at the University of Illinois at Chicago. He did pioneer work at Bell Labs in policy-based network management developing the policy language PDL used for the management of the first generation of Lucent Technologies softswitches. He received a PhD in Computer Science from the University of Maryland at College Park, and a MSc and a BE from Simón Bolívar University in Venezuela. He is an ACM Distinguished Scientist.

Research interests

My research centers in the formalization and implementation of policy-based paradigms, which allow systems to manage themselves autonomously, guided by general principles ("policies") specified by their users. Defining good policy specification methods and languages is partly a knowledge representation and acquisition problem and partly a software engineering problem. My aim is to provide principled frameworks to address distributed system related problems and test them by applying them to describe, analyze and enforce policy and regulations in concrete, realistic systems. Over the years I have collaborated with researchers working in security, networking, distributed computing and human-computer interaction, to tackle many policy issues including authoring, verification, automatic policy generation and conflict resolution, and develop implementations to help manage many kinds of real-world distributed systems, including computer, cellular and mobile ad-hoc networks.

Selected publications

- Ma J, Le F, Russo A & **Lobo J** 2016, 'Declarative Framework for Specification, Simulation and Analysis of Distributed Applications', *leee Transactions On Knowledge And Data Engineering*, 28, 6, 1489 – 1502.

Selected research activities

- Visiting Professor, Department of Computing, Imperial College London.



López-Bigas, Núria Institut de Recerca Biomèdica de Barcelona (IRB Barcelona) Life & Medical Sciences

Núria López-Bigas has a PhD in Biology from the University of Barcelona and has expertise in Medical Genetics and in Computational Biology and Bioinformatics. During her PhD work, she studied the molecular causes of hereditary deafness at the group of Xavier Estivill. Next she moved to the European Bioinformatics Institute in Hinxton (Cambridge, UK) to work on Computational Genomics at the group of Christos A. Ouzounis and then at the Center for Regulatory Genomics (Barcelona) at the group of Roderic Guigó. Núria joined the Pompeu Fabra University in April 2006 with a Ramón y Cajal Position, was appointed ICREA Research Professor in October 2011 and her lab moved to Institute for Research in Biomedicine in November 2016. She leads the Biomedical Genomics Research Group (http://bbglab.irbbarcelona.org). In 2015 she has been awarded an ERC Consolidator Grant.

Research interests

Núria López-Bigas research is focused on the study of cancer from a genomics perspective. She is particularly interested in the identification of cancer driver mutations, genes and pathways across tumor types and in the study of their targeted opportunities. Among the most important achievements obtained by Lopez-Bigas' lab are the development of pioneer methods to identify driver genes (Oncodrive methods), the creation of IntOGen (<u>http://www.intogen.org</u>), a discovery tool for cancer research, the obtention of a landscape of driver events and their therapeutic opportunities across close to 7000 tumours of 28 different cancer types (Rubio-Perez et al, 2015), and the discovery that protein-bound DNA impairs nucleotide excision repair (Radhakrishnan et al., 2016).

Selected publications

- Sabarinathan R, Mularoni L, Deu-Pons J, Gonzalez-Perez A & López-Bigas N 2016, 'Nucleotide excision repair is impaired by binding of transcription factors to DNA', *Nature*, 532, 7598, 264.

- Frigola J, Iturbide A, **Lopez-Bigas N**, Peiro S & Gonzalez-Perez A 2016, 'Altered oncomodules underlie chromatin regulatory factors driver mutations', *Oncotarget*, 7, 21, 30748 – 30759.

- Iorio F, Knijnenburg TA, Vis DJ, Bignell GR, Menden MP, Schubert M, Aben N, Goncalves E, Barthorpe S, Lightfoot H, Cokelaer T, Greninger P, van Dyk E, Chang H, de Silva H, Heyn H, Deng X, Egan RK, Liu Q, Mironenko T, Mitropoulos X, Richardson L, Wang J, Zhang T, Moran S, Sayols S, Soleimani M, Tamborero D, **Lopez-Bigas N**, Ross-Macdonald P, Esteller M, Gray NS, Haber DA, Stratton MR, Benes CH, Wessels LFA, Saez-Rodriguez J, McDermott U & Garnett MJ 2016, 'A Landscape of Pharmacogenomic Interactions in Cancer', *Cell*, 166, 3, 740 – 754.

- Mularoni L, Sabarinathan R, Deu-Pons J, Gonzalez-Perez A & **Lopez-Bigas N** 2016, 'OncodriveFML: a general framework to identify coding and non-coding regions with cancer driver mutations', *Genome Biology*, 17, 128.

- Rubio-Perez C, Deu-Pons J, Tamborero D, **Lopez-Bigas N** & Gonzalez-Perez 2016, 'Rational design of cancer gene panels with OncoPaD', *Genome Medicine*, 8, 98.

Selected research activities

- XI Banco Sabadell Foundation Award for Biomedical Research
- ERC Consolidator Grant 682398. 2016-2021
- Pl of a grant from Asociación Española Contra el Cancer (AECC), 2016-2021
- Keynote speaker at European Conference on Computational Biology 2016, 2-9 September 2016, The Hague (Netherlands)



López de Sa, Dan Universitat de Barcelona (UB) Humanities

I am ICREA Research Professor at the Departament de Filosofia of the Universitat de Barcelona. I did my PhD in Barcelona (visiting ANU for a short while). I was Arché Postdoc in St Andrews (2004-06), Fullbright-GenCat Postdoc at NYU (2006-07), ICREA Researcher (2007-12) and then RyC (2012-13). I have published papers in Analysis, Erkenntnis, Mind, Noûs, Philosophers' Imprint, Philosophical Studies, Proceedings of the Aristotelian Society, and Synthèse, among others.

Research interests

I work on matters issuing from words -vagueness, contextualism/relativism, rigidity- and issues where words don't really matter (much) -truthmaking, grounding, time, disagreement, values-. In between, I have an increasing interest in topics around gender, race, and sexuality.

Selected research activities

- [I was on sick leave during February-July 2015.]
- Principal investigator of Spanish Government Research Project "Derivative Metaphysics: The Existence and Significance of the non-Fundamental" (FFI2015-66372-P, 2016-18)
- Associate Editor of Teorema for "Metaphysics" (www.unioviedo.es/teorema)
- In 2016, I convened the weekly SM-Seminar In Metaphysics and co-convened the weekly LOGOS Seminar & Colloquium, at the Universitat de Barcelona.
- In 2016, I gave the following talks:
 - 'For the Likes of Me: Disagreement and Conversation' (What is Meant Conference, Berlin; September 2016)
 - 'Taxonomizing Social Power Facts' (Conference: Non-Ideal Social Ontology, Stockholm; May 2016)
 - 'Women, People, and Humans: A Response to Witt' (The Jowett Society, Oxford; April 2016)
- In 2016 I supervised or co-supervised five PhD students in Universitat de Barcelona, Universitat Pompeu Fabra, and Humboldt-Universitat zu Berlin, and one MA thesis.



Lugosi, Gábor Universitat Pompeu Fabra (UPF) Social & Behavioural Sciences

Gábor Lugosi received his PhD from the Hungarian Academy of Sciences in 1991 in electrical engineering. Since September 1996, he has been at the Department of Economics, Pompeu Fabra University. He became ICREA Research Professor in 2006.

Research interests

Gábor Lugosi has mostly worked on problems in probability, mathematical statistics, the mathematics of learning theory, information theory, and game theory. His research has been motivated by applications in telecommunications and computer science and also by game-theoretic learning. Recently he has mostly worked on high-dimensional problems in statistics, random graphs, "on-line" learning and sequential optimization, and inequalities in probability theory.

Selected publications

- Cholaquidis A, Fraiman R, **Lugosi G** & Pateiro-López B 2016, 'Set estimation from reflected Brownian motion', *Journal of the Royal Statistical Society: Series B*, 78:1057–1078, 2016.

- Joly E & Lugosi G 2016, 'Robust estimation of U-statistics', Stochastic Processes and their Applications, 126:3760-3773, 2016.

- Broutin N, Devroye L & **Lugosi G** 2016, 'Almost optimal sparsification of random geometric graphs', *Annals of Applied Probability*, vol. 26, no. 5, 3078-3109.

- Devroye L, Lerasle M, Lugosi G & Imbuzeiro Oliveira R 2016, 'Sub-Gasussian mean estimators', Annals of Statistics, 44:2695-2725, 2016.

Selected research activities

- Associate editor of journals, including Probability Theory and Related Fields, Annals of Applied Probability, Journal of Machine Learning Research, TES, ESAIM: Probability and Statistics.

- Co-organizer of "Theoretical Foundations for Learning from Easy Data", a workshop at the Lorentz Center, Leiden, Netherlands, November 2016.

- Co-organizer of "Conference on probability and statistics in high dimensions. A scientific tribute to Evarist Giné" at Centre de Recerca Matemàtica, Barcelona, June 2016.

- Member of the program committee of international conferences, including AofA'16, JMDA'16, COLT'16.
- Member of the Governing Board of the Barcelona Graduate School of Mathematics.
- Member of the Academic Committee of the Barcelona Graduate School of Economics.
- Invited talks at Oxford University, TU Eindhoven, University of Ottawa, Eotvos Lorand University.
- Invited plenary tutorial lecture at the 27th International Conference on Algorithmic Learning Theory, Bari, Italy.
- Keynote lecture at the Junior Conference on Data Science and Engineering. Paris, France.



Macías, María J. Institut de Recerca Biomèdica de Barcelona (IRB Barcelona) Life & Medical Sciences

Since 2002 at the IRB Barcelona working in the Structural and Computational Biology Programme as GL of the Structural Characterization of Macromolecular Assemblies group. **Past positions:** 1998- 2002, Staff Scientist at the EMBL (Structural Biology) Heidelberg, Germany 1993-1998 Post Doctoral position at the EMBL (Structural Biology) Heidelberg, Germany in the group of Prof. Dr. H. Oschkinat 1993-PhD Degree: PhD in Organic Chemistry, Salamanca University (Spain), supervised by Prof. M. Grande **Research Fields**: Structural Biology, NMR, X-ray crystallography, Computational Biology, Signaling **Current Research**:

• Structural determination of protein domains and complexes involved in splicing, transcription and signaling

- Protein folding and stability
- Analysis of tumor mutations

Research interests

Our research interest is focused on deciphering the mechanisms that correlate cell signaling with gene expression using high resolution structural biology. We also aim at discovering how these mechanisms are regulated, and their consequent implications in human diseases from the structural point of view. Recently our work has been focused on the family of transcription factors Smads, where we have discovered a mechanism that labels these key components of the TGF-beta pathway first for activation and then for degradation. Using NMR and X-ray crystallography we are currently characterizing the interactions of Smad proteins and cofactors with DNA promoters, to provide a first understanding of how these molecular machines work and to pave the basis for the design of small molecular inhibitors specifically targeted towards tumor-derived SMAD forms.

Selected publications

- Martin-Gago P, Rol A, Todorovski T, Aragon E, Martin-Malpartida P, Verdaguer X, Valles Miret M, Fernandez-Carneado , Ponsati B, **Macias MJ** & Riera A 2016, 'Peptide aromatic interactions modulated by fluorinated residues: Synthesis, structure and biological activity of Somatostatin analogs containing 3-(3 ', 5 ' difluorophenyl)-alanine', *Scientific Reports*, 6, 27285.

- Wright RHG, Lioutas A, Le Dily F, Soronellas D, Pohl A, Bonet J, Nacht AS, Samino Sara Font-Mateu J, Vicent GP, Wierer M, Trabado MA, Schelhorn C, Carolis C, **Macias MJ**, Yanes O, Oliva B & Beato M 2016, 'ADP-ribose-derived nuclear ATP synthesis by NUDIX5 is required for chromatin remodeling', *Science*, 352, 6290, 1221 – 1225.

Selected research activities

Conferences and workshops:

Co-organizer of the Barcelona BioMed Conference held in November 2016 'From genomes to structures: looking at big data with an atomic perspective'.

PhD and Master Thesis:

- Master Thesis. Angela Vea Bárdenas. 'Stability and DNA binding analysis of tumor mutations present in Smad4', (September 2016, Universidad de Barcelona)

- PhD Thesis. David Suñol Moreno. 'Structural studies of recombinant TGIF1 and FBP28 WW domains using NMR and peptide ligation stategies', (December 2016, Universidad de Barcelona)



Madella, Marco Universitat Pompeu Fabra (UPF) Humanities

After graduating at the University of Milan (Italy) in Natural Sciences (Botany), I worked as a contract scientist at the Archaeological Museum of Como and left the team in 1993 to start a PhD at the University of Cambridge. After finishing my PhD I took up a position as research fellow at the McDonald Institute for Archaeological Research, also teaching archaeology and human evolution at the Institute for Continuing Education (Madingly Hall) of the University of Cambridge. In 2004 I became affiliated lecturer in the Department of Archaeology and in 2005 director of studies in archaeology and anthropology at St. Edmund's College in the University of Cambridge. Since July 2005 I am ICREA research professor first at the IMF-CSIC and from 2014 at Universitat Pompeu Fabra. I currently coordinate the Complexity and Socio-Ecological Dynamics (CaSEs) research group.

Research interests

My background is in archaeobotany and environmental archaeology, and I investigate the socio-ecological dynamics of past human populations from Mediterranean to tropical environments. My interests span from past vegetation histories, the modelling and simulation of processes in human behavioural change, people-plants co-evolutionary dynamics, long term trajectories of biodiversity and sustainability in prehistoric societies, and the origin and resilience of agriculture. Agriculture had an immense impact on humans and non-humans, and the future of our world is linked to making agriculture sustainable by maintaining biodiversity, revaluating traditional knowledge and mitigating environmental impact. Key areas for my work are South and West Asia, and South America.

Selected publications

- Salpeteur M, Patel HR, Molina JL, Balbo AL, Rubio-Campillo X, **Reyes-García V** & **Madella M** 2016, 'Comigrants and friends: informal networks and the transmission of traditional ecological knowledge among seminomadic pastoralists of Gujarat, India', *Ecology and Society*, vol. 21(2):20.

Zerboni A, Biagetti S, Lancelotti, Madella M 2016, 'The end of the Holocene Humid Period in the central Sahara and Thar deserts: societal collapses or new opportunities?', *Past Global Changes Magazine* – Climate change and cultural evolution, vol. 24(2) pp. 60-61.
Friesem DE, Lavi N, Madella M, Ajithprasad P, French C 2016, 'Site Formation Processes and Hunter-Gatherers Use of Space in a Tropical Environment: A Geo-Ethnoarchaeological Approach from South India', *PLoS ONE*, 11(10): e0164185.

- Garcia-Granero JJ, Lancelotti C, **Madella M** & Ajithprasad P 2016, 'Millets and Herders - The Origin of Plant Cultivation in Semiarid North Gujarat (India)', *Current Anthropology*, vol. 57, no. 2, pp. 149-166.

- Zurro D, Garcia-Granero JJ, Lancelotti C & **Madella M** 2016, 'Directions in current and future phytolith research', *Journal of* Archaeological Science, vol. 68, pp. 112-117.

- Crema ER, Habu J, Kobayashi K, **Madella M** 2016, 'Summed Probability Distribution of 14C Dates Suggests Regional Divergences in the Population Dynamics of the Jomon Period in Eastern Japan', *PLoS ONE*, vol: 11(4): e0154809.

- Lancelotti C, Zurro D, Whitehouse NJ, Kramer KL, **Madella M**, García-Granero JJ & Greaves RD 2016, 'Resilience of small-scale societies' livelihoods: a framework for studying the transition from food gathering to food production', *Ecology and Society*, 21(4):8.

Selected research activities

- Global co-coordinator for the LndUse6k initiative of PAGES-Past Global Changes.

- Member of the Future Earth cluster Modeling Sustainable Futures (http://www.futureearth.org).

- Advisory member in the Human and Biosphere Commission of INQUA (http://www.inqua.org/habcom).

- Visiting researcher at the Research Institute for Humanities and Nature (RIHN-Kyoto) and the Universidade de Sao Paulo (ESALQ).



Malhotra, Vivek Centre de Regulació Genòmica (CRG) Life & Medical Sciences

Education 1978-82: BSc Biochemistry, Stirling University 1982-85: PhD Biochemistry, Oxford University 1985-90: Post-doct. Fellow, Biochemistry Department, Stanford University Research & professional experience 7/1/90-7/1/95: Assistant Prof., UC San Diego, Biology Dep. 7/1/95-7/1/99: Associate Prof. (tenured), UC San Diego, Biology Dep. 7/1/99-10/31/2008: Prof., UC San Diego, Cell & Developmental Biology Dep. 7/1/98-7/1/2003: Adjunct Member, Mario Negri Sud Research Institute, Italy 1999-2000: ICREA Visiting Scientist, Univ. of Barcelona, Spain 2007-Present: Chair, Cell & Developmental Biology, CRG, Spain Awards and Honours Secretary Oxford University Biochemical Society (1982-84); Pirie-Reid Scholar, Oxford University (1982-85); Damon-Runyon Walter-Winchell Post-doct. Fellow, Stanford University (1985-87); American Cancer Society Senior Post-doct. Fellow (1988-90); Basil O'Connor Scholars Award (1992-95); EMBO Elected Member (2009); ASBMB Merck award (2013).

Research interests

We want to understand the mechanism by which eukaryotic cells model membranes to generate transport carriers based on their needs. For example, how bulky molecules such as the collagens are secreted, how mucins are secreted in a regulated manner, and how transport carriers form at the Golgi. Protein such as TANGO's, PIMS and PKD are helping us resolve this issue. We have uncovered a new pathway by which cells secrete proteins that cannot enter the ER-Golgi pathway of secretion. We hope this will help us understand the mechanism by which cells release various cytokines, growth and angiogenic factors in a signal dependent manner. Finally we are interested in the mechanism by which Golgi complex is built during repeated cycles of cell-division.

Selected publications

- Campelo F, van Galen J & **Malhotra V** 2016, 'Golgi Membrane Compartmentalization: Biophysical Aspects and Physiological Implications', *Biophysical Journal*. 110(3): 596A – 596A.

- Santos AJM, Nogueira C, Ortega-Bellido M & **Malhotra V** 2016, 'TANGO1 and Mia2/cTAGE5 (TALI) cooperate to export bulky prechylomicrons/VLDLs from the endoplasmic reticulum', *Journal Of Cell Biology*. 213(3): 343 – 354.

- Curwin AJ, Brouwers N, Alonso Y Adell M, Teis D, Turacchio G, Parashuraman S, Ronchi P & **Malhotra V** 2016, 'ESCRT-III drives the final stages of CUPS maturation for unconventional protein secretion', *Elife* 5. pii: e16299.

- Villeneuve J, Duran J, Scarpa M, Bassaganyas L, Van Galen J & **Malhotra V** 2016, 'Golgi enzymes do not cycle through the endoplasmic reticulum during protein secretion or mitosis', *Mol Biol Cell*. 28(1):141-151.



Mantsinen, Mervi Johanna Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC - CNS) Engineering Sciences

I graduated in Technical Physics at Helsinki University of Technology (HUT), now Aalto University, Finland in 1992. I carried out my research in the Plasma Physics and Fusion Group of HUT until 1995 when I moved to the JET Joint European Torus, the largest tokamak in the world, located in the UK. At JET, I worked as Ion Cyclotron Resonance Frequency (ICRF) Physics Expert, Scientific Coordinator, Responsible Officer for several large modelling codes and Physicist in Charge as well as trained as Session Leader of JET experiments. My thesis for the degree of Doctor of Science in Technology at HUT in 1999 was based on my research at JET. In 2003 I became Deputy Leader of Task Force Heating and Current Drive at JET, with approx. 80 members at several research institutions across Europe. In 2006 I joined the ICRF group of the Asdex Upgrade tokamak, Max-Planck-Institute for Plasma Physics, Germany and in October 2013 I was appointed ICREA Research Professor at BSC.

Research interests

My research is directed towards contributing to the development of nuclear fusion as a source of energy and, in particular, to the ITER project. ITER is an international nuclear fusion R&D project, which is building the world's largest experimental tokamak nuclear fusion reactor in France. ITER aims to demonstrate that fusion energy is scientifically and technologically feasible. My research is focused in the numerical modelling of experiments in magnetically confined fusion devices in preparation for ITER operation, working towards the objectives of the European fusion research programme EUROfusion for Horizon 2020 in close collaboration with ITER, International Tokamak Physics Activity, EUROfusion and the Spanish national fusion laboratory CIEMAT. My overall objective is to enhance the modelling capabilities by code validation and optimization, with the ultimate goal of helping improve the performance of ITER and future fusion reactors.

Selected publications

- Garcia J, Challis C, Gallart D, Garzotti L, Goerler T, King D, **Mantsinen M** & JET Contributors 2017, 'Challenges in the extrapolation from DD to DT plasmas: experimental analysis and theory based predictions for JET-DT', *Plasma Phys. Control. Fusion*, vol. 59, p. 014023.

- Schneider M, Johnson T, Dumont R, Eriksson J, Eriksson L-G, Giacomelli L, Girardo J-B, Hellsten T, Khilkevitch E, Kiptily VG, Koskela T, **Mantsinen M** et al. 2016, 'Modelling third harmonic ion cyclotron acceleration of deuterium beams for JET fusion product studies experiments', *Nucl. Fusion*, vol. 56, p. 112022.

- Girardo J-B, Sharapov S, Boom J, Dumont R, Eriksson J, Fitzgerald M, Garbet X, Hawkes N, Kiptily V, Lupelli I, **Mantsinen M** et al. 2016, 'Stabilization of sawteeth with third harmonic deuterium ICRF-accelerated beam in JET plasmas', Phys. Plasmas, vol. 23, p. 012505.

Selected research activities

Fusion group leader at BSC (8 members & 1.01 M€ funding additional to BSC & ICREA since 2014).

One of the 4 Scientific Coordinators (SC) of EUROfusion flagship experiment 'Hybrid Scenario for DT' at the JET tokamak, UK. Jointly responsible for preparation, experimental set-up, execution, follow-up analysis, modelling, and publication of the results. Involved the coordination of an international team of ca. 80 scientists, 20 experimental sessions & 25 team meetings.

SC of Task 'Fast ion modelling (stability & transport)' of EUROfusion Medium Size Tokamak Work Package. Organized 4 task meetings with ca. 25 invited talks.

Supervisor of 2 Master & 2 PhD students (UAB & UPC, Spain).

Evaluator of 1 PhD thesis (Aalto University, Finland).

Member of EUROfusion HPC Allocation Committee for Marconi-Fusion, Italy.

Member of Program Committee of EPS Plasma Physics Conf. 2016, Belgium.

Member of Evaluation Panel NT-3 of Swedish Research Council.

Expert of Spanish National Agency of Evaluation.

Reviewer for Plasma Physics and Controlled Fusion, Nuclear Fusion, SpringerPlus and EUROfusion.



Marcet Torrens, Albert Institut d'Anàlisi Econòmica (CSIC - IAE) & Fundació Markets, Organizations and Votes in Economics (MOVE) Social & Behavioural Sciences

* PhD in Economics U. of Minnesota, 1987 * Assistant professor, Carnegie Mellon University, 1986-1991 * Full Professor, Universitat Pompeu Fabra, 1990-2004 * Research Professor, IAE-CSIC, 2004-2009 * Full Professor, London School of Economics, 2009-2011

Research interests

RECURSIVE CONTRACTS In social sci. it is common to find models of dynamic stochastic optimization with forward-looking constraints, e.g., in models of optimal policy or optimal contracts. These models are not amenable to a standard Bellman equation treatment. We propose a new way of formulating recursively these dynamic optimization problems. Our approach has a very wide range of applications. ASSET PRICES AND LEARNING Asset prices show huge fluctuations over time that are hard to reconcile with actual fundamentals. We explore those agents that behave rationally and have an empirically plausible model of asset prices. We explain stock and housing price fluctuations. DEBT MANAGEMENT The European debt crisis highlights the importance of choosing appropriately the bond portfolio issued by governments (debt management). Fiscal sustainability may depend on what bonds mature and when. We analyze the optimal combination of bond maturities that should be issued over the business cycle.

Selected publications

- Adam K, Marcet A & Nicolini JP 2016, 'Stock Market Volatility and Learning', Journal of Finance. 71, 1, 33 - 82.

Selected research activities Honors and Awards:

• Rei Jaume I Prize in Economics - 2016

Invited talks: 'Asset Price Volatility and Learning'

- Université Catholique de Louvain, Belgium, 6 Oct, 2016.
- Banque de France, France, 27 Sep, 2016.
- Summer Forum, BGSE, Barcelona, Spain, 16 Jun, 2016.
- Duke University, United States of America, 26 Apr, 2016.

'Learning and Asset Prices'

• Money, Macro and Finance Conference, University of Bath, United Kingdom, 7 Sep, 2016.

'Leaving the Euro'

• Fiscal Sustainability XXI Century, Bank of Spain, Spain, 7 Jun, 2016.

'Asset Prices and Learning'

• Board of Governors of the Federal Reserve System, United States of America, 28 Apr, 2016.



Marquès Bonet, Tomàs Universitat Pompeu Fabra (UPF) Life & Medical Sciences

Dr. Marquès-Bonet is the Principal Investigator of the group "Comparative Genomics" at the Institute of Evolutionary Biology (IBE; UPF/CSIC) and at the CRG-CNAG. He started his own lab in 2010 with an ERC Starting Grant and was selected as ICREA in 2011. In 2013 he was selected for the EMBO young Investigator award. He has been part of many genome consortia, leading the section of duplications and structural variation in most of them. Starting in 2016, he is the vice-director of the Institute of Evolutionary Biology. His group wants to characterize human specific genomics features, including the evolution of epigenetics in humans or the impact of CNVs in phenotypic traits. With a total of more than 80 peer-reviewed publications, he has published as a senior authorship in Science (2016), Nature (2013), Genome Research (2015) and Plos Genetics (2013, 2015) among others.

Research interests

What makes us human? This is a fundamental question in many disciplines. Our team analyzes a wide range of genome variants to determine processes, variants and molecular features that are intrinsic to our species. To do so, we study full genome, epigenomes and transcriptomic sequences of humans and great apes for a better understanding of human specific features.

Selected publications

- Kuhlwilm Martin et al. (including **Marques-Bonet T**) 2016, 'Ancient gene flow from early modern humans into Eastern Neanderthals', *Nature*, 530, 7591, 429.

- de Valles-Ibanez G, Hernandez-Rodriguez J, Prado-Martinez J, Luisi P, **Marques-Bonet, T** & Casals F 2016, 'Genetic Load of Loss-o--Function Polymorphic Variants in Great Apes', *Genome Biology and Evolution*, 8, 3, 871 – 877.

- Lobon I et al. & **Marques-Bonet T** 2016, 'Demographic History of the Genus Pan Inferred from Whole Mitochondrial Genome Reconstructions', *Genome Biology and Evolution*, 8, 6, 2020 – 2030.

- de Manuel M, et al. & **Marques-Bonet T** 2016, 'Chimpanzee genomic diversity reveals ancient admixture with bonobos', *Science*, 354(6311):477-481.

- Kuhlwilm M, de Manuel M, Nater A, Greminger MP, Krützen M & **Marques-Bonet** T 2016, 'Evolution and demography of the great apes', *Curr. Opin. Genet. Dev.*, 41, 124-129.

- Cagan, Alexander et al. (including **Marques-Bonet T**) 2016, 'Natural Selection in the Great Apes', *Molecular Biology And Evolution*, 33, 12, 3268 - 3283.

- Marsden CD et al. (including **Marques-Bonet T**) 2016, 'Bottlenecks and selective sweeps during domestication have increased deleterious genetic variation in dogs', *Proc. Natl. Acad. Sci. USA*, 113 (1).

- Fan Z et al. (including **Marques-Bonet T**) 2016, 'Worldwide patterns of genomic variation and admixture in gray wolves', *Genome Res.*, 26, 2, 163 - 173.

Selected research activities

- Vicedirector of the Institut de Biologia Evolutiva (CSIC-UPF).

- Executive Committee of the Genome 10K and Dog 10K genomic consortia.



Martí, Genoveva Universitat de Barcelona (UB) Humanities

I was born in Barcelona and I obtained my "Licenciatura" (BA) at the Universitat de Barcelona in 1981. In 1982 I joined the PhD program at Stanford University, where my PhD was awarded in January 1989. I have been Assistant Professor at the University of Washington, Seattle, Assistant and Associate Professor at the University of California, Riverside, and Reader at the London School of Economics. In 2014-15 I was Professor of Philosophy at the University of Western Ontario (Canada). I have been coordinator of the research group LOGOS (http://www.ub.es/grc_logos). I was awarded the Narcís Monturiol Medal by the Generalitat de Catalunya in 2012. I am an elected member of the Academia Europaea (since 2009) and from January 2013 till July 2014 I was the Academic Director of the Academia Europaea Knowledge Hub in Barcelona.

Research interests

I am primarily interested in the exploration of reference, the relation between words and pieces of the world that makes it possible to talk about things. A traditional explanation of the relation of reference is the view that reference is mediated by our cognitive perspective on things. On this view, which objects we talk about is determined by the concepts we associate with the expressions we use. Against this view I defend an approach according to which what we refer to is not determined by our internal mental states nor by the concepts we entertain; it rather depends on social and causal factors that are external to our mind. This area of research is connected to other research areas, especially in Linguistics and Psychology.

Selected publications

- Marti G & Ramírez-Ludeña L 2016 'Legal disagreements and theories of reference', Poggi F (ed.): Pragmatics and Law: Philosophical Pespectives, New York, Springer, pp. 121-139.

Selected research activities

Keynote addresses

'Meaning, Culture and Context'. Keynote address. 1st Context, Cognition and Communication Conference. University of Warsaw. 15-18 June 2016.

'The impact of experimental semantics' results on the theory of direct reference'. 4th Panhellenic Conference on Philosophy of Science. University of Athens. 1-3 December 2016.

Dissemination of research

Quo Vadis Ciencia? (edited by Gil L & Martí M). Edicions UPC. 2016.

'Conversation with Genoveva Martí'. Interview by Carlo Filotico. APhEx. Portale Italiano di Filosofia Analitica, 13, 2016.

http://www.aphex.it/



Martínez García, Jaime F. Centre de Recerca en Agrigenòmica (CRAG) Life & Medical Sciences

After graduating in Biology (06/1987, Universitat de València), I got my PhD (01/1993, Universitat de València) working on how plants regulate their growth in response to environmental light conditions. Next, I did three postdocs: in Cathie Martin's group (John Innes Center, Norwich, UK) working on plant transcription factors (03/1993-10/1995); in Peter Quail's team (Plant Gene Expression Center, UC-Berkeley, USA) to work on phytochrome signaling in Arabidopsis thaliana (01/1996-01/2000); and Salomé Prat laboratory (Instituto de Biología Molecular de Barcelona, CSIC, Barcelona, Spain), working on photoperiod-regulated potato tuberization (01/2000-10/2001). In November 2001, I've got a permanent position as an ICREA Research Professor and established my own research group. Currently, I develop my research in the CRAG (Barcelona), studying how plants respond to vegetation proximity.

Research interests

Plants respond to vegetation proximity by elicitng a series of responses known as the shade avoidance syndrome (SAS). In the model system *Arabidopsis thaliana*, the most obvious SAS response in seedlings is the induction of the hypocotyl elongation. To modulate these responses, plants employ a large amount of regulatory components that form complex transcriptional regulatory networks. Many of these components are transcriptional regulators, as well as specific components of the nuclear pore complex. Recently, we have expanded our research to other plant species closely related to Arabidopsis that tolerate (instead of avoid) plant shade. This is the case of *Cardamine hirsuta*, a species that is amenable for genetic, cellular and molecular analyses. This new approach is allowing us to perform comparative genetic analyses between both species.

Selected publications

- Roig-Villanova I © & **Martínez-García JF** © 2016, 'Plant responses to vegetation proximity: a whole life avoiding shade', *Front Plant Sci.*, 7, 236. doi: 10.3389/fpls.2016.00236.

Gallemi M, Galstyan A, Paulisic S, Then C, Ferrandez-Ayela A, Lorenzo-Orts L, Roig-Villanova I, Wang X, Micol JL, Ponce MR, Devlin PF, **Martinez-Garcia JF** 2016, 'DRACULA2 is a dynamic nucleoporin with a role in regulating the shade avoidance syndrome in Arabidopsis', *Development*, 143, 9, 1623 – 1631.

Selected research activities

Teacher of the Master of Molecular Biology and Biomedicine (Univ. Cantabria and Univ. País Vasco). 28 October, Santander.
 Invited spaker at the XXXIX Reunión Anual SBBMChile - Symposium 5, Photobiology: From gene expression to optogenetics. 27-30 September. Puerto Varas, Chile.

- Invited talk at the CBGP (UPM-INIA). 4 March, Madrid.



Martínez Navarro, Bienvenido Institut Català de Paleoecologia Humana i Evolució Social (IPHES) Humanities

Degree in Geology (1987) and PhD in Paleontology (1991). I work on Plio-Pleistocene large mammals and participate at different projects in Plio-Pleistocene sites around the World, been the co-leader of the Orce and Incarcal projects (Spain), and the new sites of Oued Sarrat (Tunisia) and Engel Ela-Ramud Basin (Eritrea), but I also participate in the research of Buia (Eritrea), Melka Wakena (Ethiopia), Atbara River (Sudan), 'Ubeidiya, Gesher Benot Ya'aqov, and Bizat Ruhama (Israel), Dmanisi (Georgia), Argentario and Pirro Nord (Italy), Vallonnet (France), and La Boella (Spain).

Research interests

I am a paleontologist working on Quaternary mammals from Europe, Asia and Africa. My main interest is to describe the ecological scenario where our ancestors, the earlier members of the genus Homo, evolving and dispersing from Africa, were able to colonize the middle latitudes of Eurasia and survive in seasonal climates during the Pleistocene times. I have developed an intense research travelling around the world to study the African origin mammals dispersing into Eurasia, and the Eurasian origin mammals dispersing into Africa, in order to describe their systematics, phylogeny, biochronology, paleobiogeography, autoecology, and their potential ecological relationships among them and with hominins. I work on fossil hyenas, sabertoothed tigers, hunting dogs, bears, elephants, hippos, pigs, buffalos, antelopes, deers, giraffes, monkeys and other groups.

Selected publications

- **Martínez-Navarro B** & Sala R (Eds.) 2016, 'ORCE: HOMININOS, HIENAS, MAMUTS Y OTRAS BESTIAS', Depósito Legal: SE 1014-2016, Edita Junta de Andalucía, Consejería de Cultura, 329 pág.

- Alba DM, Madurell-Malapeira J, Delson E, Vinuesa V, Susanna I, Patrocinio Espigares M, Ros-Montoya S & Martinez-Navarro B 2016, 'First record of macaques from the Early Pleistocene of Incarcal (NE Iberian Peninsula)', *Journal Of Human Evolution*, 96, 139 – 144.
- Rodriguez-Gomez G, Palmqvist P, Rodriguez J, Mateos A, Martin-Gonzalez JA, Patrocinio Espigares M, Ros-Montoya S & Martinez-Navarro B 2016, 'On the ecological context of the earliest human settlements in Europe: Resource availability and competition intensity in the carnivore guild of Barranco Leon-D and Fuente Nueva-3 (Orce, Baza Basin, SE Spain)', *Quaternary Science Reviews*, 143, 69 – 83.

Blain HA, Lozano-Fernandez I, Agustí J, Bailon S, Menendez Granda L, Espigares Ortiz MP, Ros-Montoya S, Jimenez Arenas JM, Toro-Moyano I, Martinez-Navarro B & Sala R 2016, 'Refining upon the climatic background of the Early Pleistocene hominid settlement in western Europe: Barranco Leon and Fuente Nueva-3 (Guadix-Baza Basin, SE Spain)', *Quaternary Science Reviews*, 144, 132 – 144.
Karoui-Yaakoub N, Mtimet MS, Bejaoui S, Amri L, Khalloufi N, Ben Aissa L & Martínez-Navarro B 2016, 'Middle-to-Late Pleistocene malacofauna from the archeopaleontological site of Oued Sarrat (Tajerouine area, NW Tunisia)', *Arabian Journal of Geosciences*, 9: 345.

Selected research activities

During 2016 I have done field work at the Mio-Plio-Pleistocene sites of the Engel Ela-Ramud basin (Eritrea), the Early Pleistocene Acheulian site of Melka Wakena (Ethiopia), the Guadix-Baza basin at the Pliocene site of Baza and the Early Pleistocene paleoanthropological site of Barranco León in Orce (Andalusia), and finally at the Early Pleistocene site of Incarcal in Crespià (Catalonia). In addition, I have done an intense lab work in all the fossil collections coming from these paleontological sites.



Martínez Pérez, Mario Institut de Física d'Altes Energies (IFAE) Experimental Sciences & Mathematics

Born in Madrid, 1971, he studied Theoretical Physics at the Universidad Autónoma de Madrid. He spent many years in the DESY Laboratory in Hamburg (Germany) studying deeply inelastic electron-proton scattering processes in the ZEUS experiment, where he obtained his PhD and then worked as DESY researcher. In 2001, he moved to USA to work in Fermilab. He participated in the CDF experiment at the Tevatron proton-antiproton collider, with emphasis on searches for new physics. In 2007 he moved back to Europe and started working also in the ATLAS experiment at the Large Hadron Collider at CERN, that initiated operations in 2009. Since then he is acting as project leader of the IFAE-Barcelona group in CDF and ATLAS experiments. In 2015 he was appointed Head of IFAE Experimental Division, Scientific Manager of the Spanish High Energy Physics Program, and Scientific Delegate in CERN's Council.

Research interests

I focused on QCD studies and searches for new physics beyond the Standard Model (Higgs boson, supersymmetry, dark matter, extradimensions, WIMPs, etc) at particle physics collider experiments in Europe and USA. This translates into hundreds of publications, tens of conference talks, and ten PhD theses that I supervised to date. Since 2009, I mostly focused on the LHC physics program at CERN. The Large Hadron Collider is the most powerful collider in the world. In 2012 the LHC experiments (ATLAS and CMS) discovered the Higgs boson. The LHC resumed operations in 2015 with a center-of-mass energy increased from 7-8 TeV to 13 TeV, and the promise to open a new era in fundamental physics. Since 2009, I lead a group of almost 30 scientists from IFAE-Barcelona that analyzes the data from the ATLAS experiment. Since 2015 I took new responsibilities as Head of IFAE Experimental Division, and Scientific Manager of the Spanish High Energy Physics Program.

Selected publications

- ATLAS Collaboration,"Dark matter interpretations of ATLAS searches for the electroweak production of supersymmetric particles in \sqrt{s} = 8 TeV proton-proton collisions", JHEP 09 (2016) 175

- ATLAS Collaboration,"Search for resonances in diphoton events at sv=13 TeV with the ATLAS detector", JHEP 09 (2016) 1

- ATLAS Collaboration, "Search for invisible decays of a Higgs boson using vector-boson fusion in pp collisions at $\sqrt{s}=8$ TeV with the ATLAS detector", *JHEP* 01 (2016) 172

- ATLAS Collaboration, "Search for squarks and gluinos in final states with jets and missing transverse momentum at \sqrt{s} = 13 TeV with the ATLAS detector ", *Eur. Phys. J. C* (2016) 76: 392

- ATLAS Collaboration, "Search for TeV-scale gravity signatures in high-mass final states with leptons and jets with the ATLAS detector at \sqrt{s} =13 TeV", *Physics Letters B* 760 (2016) 520-537

- ATLAS Collaboration,"Search for strong gravity in multijet final states produced in pp collisions at \sqrt{s} = 13 TeV using the ATLAS detector at the LHC ", JHEP 03 (2016) 026

- ATLAS Collaboration, "Measurements of the Higgs boson production and decay rates and coupling strengths using pp collision data at $\sqrt{s}=7$ and 8 TeV in the ATLAS experiment", *Eur. Phys. J. C* (2016) 76:6

- ATLAS Collaboration, "Search for new phenomena in events with a photon and missing transverse momentum in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector", JHEP 06 (2016) 059

- ATLAS Collaboration, "Search for new phenomena in final states with an energetic jet and large missing transverse momentum in pp collisions at \sqrt{s} =13 TeV using the ATLAS detector", *Phys. Rev. D* 94 (2016) 032005

Selected research activities

- * Member of the ATLAS Publication Committee.
- * Head of IFAE Experimental Division.
- * Scientific Manager of the Spanish High Energy Physics Programme and Scientific Delegate in CERN's Council.
- * One PhD Thesis concluded in 2016 and 2 additional PhD students under my direct supervision.
- * Master Lessons on Higgs and Supersymmetry at HASCO School (Goettingen, Germany).



Martínez Picado, Javier Institut de Recerca de la Sida - IrsiCaixa (IrsiCaixa) Life & Medical Sciences

Javier Martínez-Picado is ICREA Research Professor at the AIDS Research Institute irsiCaixa in Barcelona, an institution that works to advance clinical research and translate results into patients care. He is also associate professor at the Autonomous University of Barcelona and the University of Vic. He received his PhD from the University of Barcelona where he subsequently became associate professor lecturing on different microbiology-related subjects. In 1996, he joined the Massachusetts General Hospital as postdoctoral fellow of the Harvard Medical School, where he engaged in AIDS research. In 2000, he obtained a position as biomedical researcher of the Spanish Health Department appointed to the Hospital "Germans Trias i Pujol" in Badalona (Barcelona). Dr. Martínez-Picado serves on different government, academic and industry advisory boards and has published extensively on HIV treatment strategies and HIV pathogenesis in international journals.

Research interests

The main subject of our biomedical research is the Human Immunodeficiency Virus (HIV), a retrovirus that can lead to Acquired ImmunoDeficiency Syndrome (AIDS), a condition in humans in which the immune system begins to fail, leading to life-threatening opportunistic infections. In 2015, 1.1 million people died from AIDS-related causes and 2.1 million became newly infected worldwide. Our research programmes are focused on understanding how HIV causes disease in recently infected people, exploring the best antiretroviral therapies, fighting drug resistance, exploring potential virus eradication strategies and collaborating on global HIV/AIDS vaccine development projects.

Selected publications

Martinez-Picado J, et al 2016. 'Identification of Siglec-1 null individuals infected with HIV-1', *Nature Communications*, 7:12412.
 Martinez-Picado J, Deeks SG 2016. 'Persistent HIV-1 replication during antiretroviral therapy'. *Current Opinion on HIV/AIDS*, 11(4):417-23.

- Morón-López S, … Martinez-Picado J 2016. 'Short-term treatment with IFNα diminishes expression of HIV-1 and reduces CD4+ T-cell activation in HIV/HCV-coinfected patients on antiretroviral therapy', *Journal of Infectious Diseases*, 213(6):1008-12.

- Minuesa G, ... Martinez-Picado J 2016. 'P-glycoprotein (ABCB1) activity decreases raltegravir disposition in primary CD4+ P-gp^{high} cells and correlates with HIV-1 viral load', *Journal of Antimicrobial Chemotherapy*, 71(10):2782-92.

- Puertas MC, ... Martinez-Picado J 2016. 'Lack of concordance between residual viremia and viral variants driving de novo infection of CD4+ T cells on ART', *Retrovirology*, 13(1):51.

- Arkaitz I, Martinez-Picado J, et al 2016. 'HIV-1-RNA decay and dolutegravir concentrations in semen of patients initiating a first antiretroviral regimen', *Journal of Infectious Diseases*, 214(10):1512-9.

- Arimany-Nardi C, ... Martinez-Picado J, Pastor-Anglada M 2016. 'Role of human Organic Cation Transporter 1 (hOCT1) polymorphisms in lamivudine (3TC) uptake and drug-drug interactions', *Frontiers in Pharmacology*, 7:175.

- Noel N, ... Martinez-Picado J, et al 2016. 'Long-term spontaneous control of HIV-1 relates to low frequency of infected cells and inefficient viral reactivation', *Journal of Virology*, 90(13):6148-58.

- Various authors 2016. The HIV & Hepatitis Drug Resistance and PK Guide (15th edition). Fundació de Lluita contra la SIDA. Barcelona. ISBN: 978-84-608-8503-0.



Martínez Serra, Pedro Universitat de Barcelona (UB) Life & Medical Sciences

I graduated in Chemistry (Biochemistry and Molecular Biology) in 1982 from the Universitat Autònoma de Barcelona, where I also obtained my PhD (in 1990). My training was completed in several places, but mainly at the California Institute of Technology (Pasadena, USA) and at the Centro Nacional de Biotecnología (Madrid, Spain). Before my ICREA appointment I was Associate Professor in the Faculty of Medicine at the University of Bergen (Norway). Currently I am an ICREA Research Professor at the Universitat de Barcelona, Departament de Genètica, a position that I hold since the year 2003. The area of my research is the Evolution of Developmental Mechanisms. At the Universitat de Barcelona I am also the head of the "Genetics" Doctoral Program.

Research interests

In our group we are interested in understanding how animals have evolved over time. We assume that the morphological changes have occurred as a consequence of modifications in the use of different genes during development. In this context, the main aim of our research is to study the origin of the bilateral animals, from radial ancestors. We compare the expression of genes in bilateral and radial animals, hoping to find what changes may have occurred when that transition happened (more than 500 million years ago). Recently we have extended the analysis using genome comparisons. We have sequenced the genomes of several basal bilaterian animals (members of the phylum Xenacoelomorpha) and are in the process of analyzing, and comparing, all types of genomic features. They should give us key insights into the mechanisms that underlie the origin and diversification of animals. The origin of the centralized nervous system is, at present, the major focus of our research efforts.

Selected publications

- Gavilán B, Perea-Atienza E & **Martinez P** 2016, 'Xenacoelomorpha: a case of independent nervous system centralization?', *Philos Trans R Soc Lond B Biol Sci*, 371 (1685).

- Byrne M, **Martinez P** & Morris V 2016, 'Evolution of a pentameral body plan was not linked to translocation of anterior Hox genes: the echinoderm HOX cluster revisited', *Evol. Dev.*, 18, 137-143.

- Chang Y-C, Pai C-Y, Chen Y-C, Ting H-C, **Martinez P**, Telford M-J, YU J-K & Su Y-H 2016, 'Regulatory circuit rewiring and functional divergence of the duplicate admp genes in dorsoventral axial patterning', *Dev. Biol.*, 410, 108-118.

- Thomas-Chollier M & **Martinez P** 2016, 'The origin of metazoan patterning systems and the role of ANTP-class homeobox genes', *eLS* (*Encyclopaedia of Life Sciences; Wiley*). DOI: 10.1002/9780470015902.a0022852.pub2.



Martin Romo, Ruben Institut Català d'Investigació Química (ICIQ) Experimental Sciences & Mathematics

Ruben Martin was born in Barcelona in 1976. He received his PhD in 2003 at the Universitat de Barcelona with Prof. Antoni Riera. In January 2004 he moved to the Max-Planck-Institut für Kohlenforschung as a Humboldt postdoctoral fellow with Prof. Alois Fürstner and in May 2005 he undertook further postdoctoral studies at the Massachusetts Institute of Technology with Prof. Stephen L. Buchwald. In September 2008 he joined the ICIQ as a group leader. His current research interests concern the discovery and development of synthetically useful organometallic protocols. Ruben Martin was promoted to Associate Professor in July 2013 and to ICREA Research Professor in October 2013. During his time at ICIQ he has received the 2010 RSEQ Young Investigator Award, the 2011 Thieme Chemistry Journal Award, the Eli Lilly Young Research Investigator Award 2011 and the 2015 RSEQ Excellent Research Award. In 2011, he received the ERC Starting Grant awarded by the European Research Council.

Research interests

Our research is focused on the development of new catalytic protocols for producing synthetically relevant molecules from ubiquitous and simple precursors by activating inert, abundant and ubiquitous C-H, C-C and C-O bonds, probably the most fundamental linkages in nature. Additionally, my research has also been focused on the design of new catalytic protocols that utilize biomass-derived feedstocks such as carbon dioxide (CO2) for preparing valuable carboxylic acid derivatives under mild reaction conditions. During the last years, my research at ICIQ has provided solutions to relevant and challenging synthetic problems from both scientific and industrial standpoint, thus providing a new opportunities to build up molecular complexity from simple and abundant precursors

Selected publications

- Wang X, Nakajima M, Serrano E & **Martin R** 2016, 'Alkyl Bromides as Mild Hydride Sources in Ni-Catalyzed Hydroamidation of Alkynes with Isocyanates' *Journal Of The American Chemical Society*, 138, 15531–15534.

– Zárate C, van Gemmeren M, Somerville R J & **Martin R** 2016, 'Phenol Derivatives: Modern Electrophiles in Cross-Coupling Reactions', *Advances in Organometallic Chemistry*, Elsevier, 66,143-222 (ISBN:978-0-12-804709).

- Börjesson M, Moragas A, Gallego D & **Martin R** 2016, ' Metal-Catalyzed Carboxylation of Organic (Pseudo) halides with CO2 ', ACS Catalysis. 6, 6739–6749.

– Juliá-Hernández F, Gaydou M, Serrano E, Van Gemmeren M & **Martin R** 2016, 'Ni- and Fe-catalyzed carboxylation of unsaturated hydrocarbons with CO2 ', *Topics in Current Chemistry*, 374:45.

- Moragas A & **Martin R** 2016, 'Nickel-Catalyzed Reductive Carboxylation of Cyclopropyl Motifs with Carbon Dioxide', *Synthesis* 2016, 48, 2816.

- Serrano E & **Martin R** 2016, 'Nickel-Catalyzed reductive Amidation of Unactivated Alkyl Bromides', Angew Chem Int Ed, 55,11207-11211.

- Börjesson M, Moragas A & Martin R 2016, 'Ni-Catalyzed Carboxylation of Unactivated Alkyl Chlorides with CO2', Journal Of The American Chemical Society, 138, 7504-7507.

- Gutierrez-Bonet A, Julia-Hernandez F, de Luis B & **Martin R** 2016, 'Pd-Catalyzed C(sp(3))-H Functionalization/Carbenoid Insertion: All-Carbon Quaternary Centers via Multiple C-C Bond Formation', *Journal Of The American Chemical Society*, 138, 20, 6384 – 6387.

- Moragas Antoni, Gaydou M & Martin R 2016, 'Nickel-Catalyzed Carboxylation of Benzylic C-N Bonds with CO2', Angewandte Chemieinternational Edition, 55, 16, 5053 - 5057.

Selected research activities

Selected conferences:

- 1. Stratingh Institute for Chemistry
- 2. The Scripps Research Institute
- 3. University of California Irvine
- 4. 251st ACS National Meeting & Exposition
- 5. Janssen
- 6. EPFL
- 7. 9ème Recontres Chimie Organique Marseille

- 8. SISOC XI
- 9. Princeton University
- 10. Merck
- 11. Pfizer
- 12. University pf Pennsylvania
- 13. C-O activation symposium
- 14. Osaka University



Martí-Renom, Marc Centre de Regulació Genòmica (CRG) Life & Medical Sciences

I obtained a PhD in Biophysics from the UAB where I worked on protein folding under the supervision of Professors B. Oliva, F.X. Avilés and M. Karplus (Nobel Laureate in 2013). After that, I went to the US for a postdoctoral training on protein structure modeling at the Sali Lab (Rockefeller University) as the recipient of the Burroughs Wellcome Fund fellowship. Later on, I was appointed Assistant Adjunct Professor at UCSF. Between 2006 and 2011 I headed the Structural Genomics Group at the CIPF in Valencia (Spain). Since October 2013 I am ICREA Research Professor and lead the Genome Biology Group at the National Center for Genomic Analysis (CNAG) and the Structural Genomics Group at the Centre for Genomic Regulation (CRG), both in Barcelona. Our group is broadly interested on how RNA, proteins and genomes organize and regulate cell fate. I have published over 80 articles in international peer-reviewed journals with over 9000 citations (Google Scholar indexed).

Research interests

How biomolecules fold and function in a three-dimensional space is one of the most challenging questions in biology. For example, we have limited knowledge on how the 2-meter-long DNA molecule folds in the micro-sized nucleus or how RNA, proteins and small chemical compounds fold and interact to perform their most basic functions of the cell. Our research group employ the laws of physics and the rules of evolution to develop and apply experimental and computational methods for predicting the 3D structures of macromolecules and their complexes.

Selected publications

- Bogu GK, Vizan P, Stanton LW, Beato M, **Di Croce L** & **Marti-Renom MA** 2016, 'Chromatin and RNA maps reveal regulatory long noncoding RNAs in mouse', *Mol. Cell Biol.*, 36, 5, 809 – 819.

- Baeza-Delgado C, von Heijne G, **Marti-Renom MA** & Mingarro I 2016, 'Biological insertion of computationally designed short transmembrane segments', *Scientific Reports*, 6, 23397.

- Martínez-Jiménez F & **Marti-Renom** MA 2016, 'Should network biology be used for drug discovery?', *Expert Opinion on Drug Discovery*, 11, 12, 1135 - 1137.

Selected research activities

Since 2016, I coordinate efforts within the 4DNucleome Initiative in Europe (http://www.4dnucleome.eu), which is a response to EU call to its scientific community to propose grand challenges to be addressed with newly funded FET FLAGSHIPS by 2020. The supporters of this initiative proposed to the European Commission to launch a large-scale initiative aiming to decipher the structure-function relationships of the cell nucleus as a complex biological system at all levels, from molecules to entire genomic and epigenomic landscapes, as they respond and adapt to environmental changes, as well as changes during development, cell reprogramming and ageing.

During 2016 I continued serving as Treasurer of the Catalan Society of Biology, Associate Editor of PLOS Computational Biology and Editor of BMC Structural Biology.



Maspoch Comamala, Daniel Institut Català de Nanociència i Nanotecnologia (ICN2) Engineering Sciences

Born in L'Escala (Girona) in 1976. He graduated in chemistry at the Universitat de Girona and obtained his PhD in materials science at the Universitat Autònoma de Barcelona & Institut de Ciència de Materials de Barcelona. He then moved to Northwestern University, where he worked as a postdoctoral fellow in the group of professor Chad A. Mirkin. He moved back to the Institut Català de Nanotecnologia (ICN) thanks to a Ramón y Cajal contract, where he founded the Supramolecular NanoChemistry & Materials Group. Since September 2011 he is ICREA Research Professor and Group Leader at the Institut Català de Nanociència i Nanotecnologia (ICN2). He is a recipient of an European Research Council (ERC) Consolidator Grant.

Research interests

My research interests are focused on controlling the supramolecular assembly of molecules, metal ions and nanoscale building blocks at the nanometer scale for the design of novel functional architectures and devices. I am therefore interested in using supramolecular chemistry as the underlying approach for exploring new methodologies that enable the synthesis of complex nanoscale supramolecular assemblies (mainly, Metal-Organic Frameworks -MOFs- and vesicles) with unprecedented structures, with interesting physical and biological properties and applications in diverse areas, including energy (e.g. gas storage), environment (e.g. pollutant removal), nanoencapsulation (e.g. long lasting fragrance), and biomedicine (e.g. drug-delivery systems and contrast agents).

Selected publications

- Ayala A, Carbonell C, Imaz I & **Maspoch D** 2016, 'Introducing asymmetric functionality into MOFs via the generation of metallic Janus MOF particles', *Chem. Commun.*, vol. 52, pp 5096-5099.

- Aríñez-Soriano J, Albalad J, Vila-Parrondo C, Pérez-Carvajal J, Rodríguez-Hermida, S, Cabeza A, Juanhuix J, Imaz I & **Maspoch D** 2016, 'Single-crystal and humidity-controlled powder diffraction study of the breathing effect in a metal-organic framework upon water adsorption/desorption', *Chem. Commun.*, vol. 52, pp 7229-7232.

- Rubio-Martinez M, Imaz I, Domingo N, Abrishamkar A, Sotto-Mayor T, Rossi RM, Carbonell C, deMello AJ, Amabilino DB, **Maspoch D** & Puigmartí-Luis J 2016, 'Freezing the nonclassical crystal growth of a coordination polymer using controlled dynamic gradients', *Adv. Mater.*, vol. 28, pp 8150-8155.

- Espín J, Zarzuela R, Statuto N, Juanhuix J, **Maspoch D**, Imaz I, Chudnovsky E & Tejada J 2016, 'Narrowing the zero-field tunneling resonance by decreasing the crystal symmetry of Mn12 acetate', *J. Am. Chem. Soc.*, vol. 138, pp 9065-9068.

- Albalad J, Aríñez-Soriano J, Vidal-Gancedo J, Lloveras V, Juanhuix J, Imaz N, Aliaga-Alcalde N & **Maspoch D** 2016, 'Hetero-bimetallic paddlewheel clusters in coordination polymers formed by a water-induced single-crystal-to-single-crystal transformation', *Chem. Commun.*, vol. 52, pp 13397 – 13400.

- Rodríguez-Hermida S, Tsang, MY, Vignatti C, Stylianou KC, Guillerm V, Pérez-Carvajal J, Teixidor F, Viñas C, Choquesillo-Lazarte D, Verdugo-Escamilla C, Peral I, Juanhuix J, Verdaguer A, Imaz I, **Maspoch D** & Planas JG 2016, 'Switchable surface hydrophobicity-hydrophilicity of a Metal-Organic Framework', *Angew. Chem. Int. Ed.*, vol 55, pp 16049-16053.

- Falcaro P, Ricco R, Yazdi A, Imaz I, Furukawa S, **Maspoch D**, Ameloot R, Evans JD & Doonan CJ 2016, 'Application of Metallic and Metal Oxide Nanoparticles@MOFs', *Coord. Chem. Rev.*, vol. 307, pp 237-254.



Mateos, David Universitat de Barcelona (UB) Experimental Sciences & Mathematics

I was born in 1974 in Barcelona. I obtained my PhD in Theoretical Physics from the University of Barcelona in 2000. After that I enjoyed many years of wonderful postdoctoral life at Cambridge University, UK (2 years), Perimeter Institute, Canada (3 years) and University of California at Santa Barbara, USA (3 years). I am an ICREA Research Professor at the Dep. of Fundamental Phys. at the University of Barcelona since July 2008. In 2012 I was awarded a Starting Grant from the European Research Council (1.4 M \in).

Research interests

My main goal is to understand the physics of the Universe at the most fundamental level. Our present understanding is based on two theories. General relativity is a classical theory that provides a good description of gravitational interactions at large, macroscopic scales. The other three interactions, the electromagnetic, the strong and the weak interactions, are unified in a quantum theory, the so-called Standard Model of elementary particles. The answers to many important questions in fundamental physics require a unified, quantum theory of all interactions; these questions include the quantum properties of black holes, cosmology and the origin of the Universe, particle physics beyond the Standard Model, etc. For this reason I work on string theory, a quantum theory that has the potential to describe all forces and particles in Nature in a single, unified framework.

Selected publications

- Attems M, Casalderrey-Solana J, **Mateos D**, Papadimitriou I, Santos-Olivan D, Sopuerta CF, Triana M & Zilhao M 2016, 'Thermodynamics, transport and relaxation in non-conformal theories', *Journal Of High Energy Physics*, 10, 155.

- Faedo AF, **Mateos D**, Pantelidou C & Tarrio J 2016, 'Unquenched flavor on the Higgs branch', *Journal Of High Energy Physics*, 11, 021.

- Casalderrey-Solana J, **Mateos D**, van der Schee W & Triana M 2016, 'Holographic heavy ion collisions with baryon charge', *Journal Of* High Energy Physics, 9, 108.

- Faedo AF, Kundu A, **Mateos D**, Pantelidou C & Tarrío J 2016, 'Three-dimensional super Yang-Mills with compressible quark matter', *JHEP* 1603, 154.

Selected research activities

-Some recent results on holographic approaches to equilibration, `3rd International Conference on the Initial Stages in High-Energy Nuclear Collisions', Lisbon, Portugal (May 2016).

- *Towards the String Dual of a Color Superconductor*, `Numerical Relativity and Holography', Santiago de Compostela, Spain (June 2016).

- Holographic Heavy Ion Collisions, `The Big Bang and the little bangs - Non-equilibrium phenomena in cosmology and in heavy-ion collisions', CERN, Geneva, Switzerland (August 2016).

- Towards the String Dual of a Color Superconductor, London Triangle Seminar, UK (November 2016).



Melchiorre, Paolo Institut Català d'Investigació Química (ICIQ) Experimental Sciences & Mathematics

Paolo Melchiorre is an ICREA Research Professor at the Institute of Chemical Research of Catalonia (ICIQ) in Tarragona. Paolo, born in 1973 in Camerino, Italy, studied Chemistry at the University of Bologna where he graduated in 1999. Then he began his doctoral studies in Chemistry working in the area of enantioselective catalysis. Before obtaining his PhD in 2003, he spent a research period in Denmark working with Prof. Karl Anker Jørgensen at the "Center for Catalysis", Århus University, where his studies centered on asymmetric organocatalysis. Afterwards, he worked as a postdoctoral associate at the Industrial Chemistry Faculty of the Bologna University. There, he began his studies on the development of novel organocatalytic asymmetric transformations. In October 2007, he took a permanent position as an Assistant Professor at Bologna University. In September 2009, Paolo moved to Catalonia as ICREA Research Professor and ICIQ Group Leader.

Research interests

My main research interest is on the discovery and mechanistic elucidation of new asymmetric organocatalytic and photochemical processes that address unsolved problems in synthetic methodology. The final goal is to develop environmentally respectful and innovative catalytic methods that will find widespread use in modern organic synthesis. My approach is based on the combination of two powerful fields of molecule activation, visible light photocatalysis and metal-free organocatalysis, to efficiently realize fundamental carbon-carbon bond-forming transformations in an environmentally respectful way. The motivation is that the use of light excitation to bring a molecule from its ground state to an electronically excited state could open new dimensions to chemistry.

Selected publications

- Bahamonde A & **Melchiorre P** 2016, 'Mechanism of the Stereoselective alpha-Alkylation of Aldehydes Driven by the Photochemical Activity of Enamines', *Journal of The American Chemical Society*, 138, 25, 8019 – 8030.

- Hepburn HB, Dell'Amico L & **Melchiorre P** 2016, 'Enantioselective Vinylogous Organocascade Reactions', *Chemical Record*, 16, 4, 1787 – 1806.

- Murphy JJ, Silvi M & **Melchiorre P** 2016, 'Enamine-mediated Catalysis' Chapter 17 in *Lewis Base Catalysis in Organic Synthesis*, Editors: E. Vedejs and S. Denmark - Wiley-VCH.

- Murphy JJ, Bastida D, Paria S, Fagnoni M & **Melchiorre P** 2016, 'Asymmetric catalytic formation of quaternary carbons by iminium ion trapping of radicals' *Nature* vol. 532, 218-222.

- Hepburn H B & **Melchiorre P** 2016, 'Brønsted acid-catalysed conjugate addition of photochemically generated α -amino radicals to alkenylpyridines' *Chem. Commun.* vol. 52, 3520–3523.

– Dell'Amico L, Vega-Peñaloza A, Cuadros S & **Melchiorre P** 2016, 'Enantioselective Organocatalytic Diels-Alder Trapping of Photochemically Generated Hydroxy *o*-Quinodimethanes' *Angew. Chem. Int. Ed. vol. 55*, 3313-3317

Selected research activities

* Prize for Scientific Excellence from the Royal Spanish Chemical Society (RSEQ)

* Start of the 5-year project "CATA-LUX" (2016-2021) within the frame of ERC Consolidator Grant

* Member of the International Advisory Boards of ChemCatChem (Wiley), Advanced Synthesis and Catalysis (Wiley) and *ChemPhotoChem* (Wiley).

* PM has delivered lectures at 7 International congresses (e.g. 12th International Symposium on Organic Free Radicals, ISOFR 12 -

Shanghai, China; JCO 2016: Journées de Chimie Organique - Paris, France; Athens International Catalysis Symposium - Athens, Greece).



Mencuccini, Maurizio Centre de Recerca Ecològica i Aplicacions Forestals (CREAF) Experimental Sciences & Mathematics

BSc degree in Forest Science at University of Firenze (Italy, 1992). Research Associate at Istituto Sperimentale per la Selvicoltura (Italy, 1992). PhD in plant environmental biology at the University of Firenze (Italy, 1993-1995). Postdoc at Boyce Thompson at Cornell University (USA, 1995-1997). Lecturer, senior lecturer, reader, then Professor of Forest Science at Edinburgh University (UK, 1997-2016).

Research interests

I am working at the frontier between biological and environmental sciences, at the interface with global change. My major contributions to current debates have been in the study of the dynamics of forests, particularly carbon and water cycles. I have worked in Boreal, temperate, tropical and Mediterranean forests and in deserts. I have worked in various countries in Europe, USA, Australia, Brazil and Africa. I have authored more than 150 peer-reviewed papers. I am very involved in international debates concerning the mechanisms and the effects of longer and more intense droughts in accelerating mortality of trees in the Mediterranean and in the tropics. I also work closely with the forestry sector on a large range of themes, including the regional modelling of growth and carbon sequestration using a combination of modelling, data assimilation and remote sensing.

Selected publications

- Nair R, Perks MP, Weatherall A, Baggs EM & **Mencuccini M** 2016, 'Does canopy nitrogen uptake enhance carbon sequestration by trees?', *Global Change Biology*, 22, 1, 875-888.

- Binks O, Meir P, Rowland L, Lola da Costa AC, Silva Vasconcelos S, Ribeiro de Oliveira AA, Ferreira L, Christoffersen B, Nardini A & **Mencuccini M** 2016, 'Plasticity in leaf-level water relations of tropical rainforest trees in response to experimental drought', *New Phytologist*, 211, 477 - 488.

Selected research activities

- Continued involvement in six funded grants (NERC, NSF, ARC, Ministerio).
- Participated in proposal writing for three more grants.
- One keynote talk in international conference in 2016.
- Organisation of one international workshop.
- External examiner of three PhD thesis (Zurich, Madrid, Barcelona).
- Seventeen papers published or accepted in 2016.
- Fieldwork in Australia, Brazil and Peru.



Méndez de la Iglesia, Raúl Institut de Recerca Biomèdica de Barcelona (IRB Barcelona) Life & Medical Sciences

Raúl Méndez studied biology (biochemistry) in the Universidad Autónoma de Madrid. He obtained his PhD in 1993 for work carried out at the Centro de Biología Molecular Severo Ochoa under the supervision of César de Haro. He did postdoctoral work in the laboratory of Robert E. Rhoads at the Louisiana State University Medical Center (1994-1997) and then in the laboratory of Joel D. Richter (1997-2001) at the University of Massachusetts and in 2001 he joined the Centre de Regulació Genòmica of Barcelona as a group leader. In 2010 his group moved to the Institut de Recerca Biomèdica of Barcelona, where he is a senior scientist and ICREA Research Professor. Since the time of his PhD work, his research has focused on how mRNAs are translated into proteins and how this process is regulated during cell division and differentiation. EMBO member since 2012.

Research interests

The primary interest of our group is to understand the molecular mechanisms that dictate alternative 3' UTR formation and the temporal and spatial translational control of specific mRNAs during cell cycle progression and chromosome segregation, senescence and related pathologies. Cell cycle progression is programmed, at least in part, by stored silent mRNAs whose translation is specifically regulated by sequences located at their 3'-untranslated regions (3'-UTRs) and their binding proteins. Our work in the past years has focused on three main questions: First, to elucidate the mechanisms underlying the translational control by cytoplasmic polyadenylation cis-acting elements and trans-acting factors. Second, to define how this translational control circuit regulates cell cycle progression by establishing a molecular circuit, stabilized by positive and negative feed-back loops. Third, to explore the contribution of these mechanisms in the reprogramming of gene expression in cancer.

Selected publications

- Calderone V, Gallego J, Fernandez-Miranda G, Garcia-Pras E, Maillo C, Berzigotti A, Mejias M, Bava FA, Angu-

o-Urarte A, Graupera M, Navarro P, Bosch J, Fernandez M & **Mendez R** 2016, 'Sequential Functions of CPEB1 and CPEB4 Regulate Pathologic Expression of Vascular Endothelial Growth Factor and Angiogenesis in Chronic Liver Disease', *Gastroenterology*, 150, 4, 982 – +.

- Maldonado R, Mancilla H, Villarroel-Espindola F, Slebe F, Slebe JC, **Mendez R**, Guinovart JJ & Ilona Cl 2016, 'Glycogen Synthase in Sertoli Cells: More Than Glycogenesis?', *Journal Of Cellular Biochemistry*, 117, 11, 2597 - 2607.

- Guillen J, Buzon V, Salvatella X & **Mendez R** 2016, 'CPEB4 is regulated during cell cycle by ERK2/Cdk1-mediated phosphorylation and its assembly into liquid-like droplets', *eLife*, pii: e19298. doi: 10.7554/eLife.19298.

- Pérez-Guijarro E, Karras P, Cifdaloz M, Martínez-Herranz R, Cañón E, Graña O, Horcajada-Reales C, Alonso-Curbelo D, Calvo TG, Gómez-López G, Bellora N, Riveiro-Falkenbach E, Ortiz-Romero PL, Rodríguez-Peralto JL, Maestre L, Roncador G, de Agustín Asensio JC, Goding CR, **Eyras E**, Megías D, **Méndez R** & Soengas MS 2016, 'Lineage-specific roles of the cytoplasmic polyadenylation factor CPEB4 in the regulation of melanoma drivers', *Nat. Commun.*, 7:13418.

Selected research activities

Patent: Nucleic acid constructs and vectors for oncoselective expression of a transgene (N/Ref.: P12889EP00) Eneko Villanueva, Cristina Fillat, Raúl Méndez.



Menéndez, Pablo Institut de Recerca contra la Leucèmia Josep Carreras (IJC) Life & Medical Sciences

Born in Avilés, Asturias, in 1974. Biochemist by University of Salamanca (1997) and PhD in Medicine (Hematology) by the same University in 2002, under the supervision of Prof. Alberto Orfao and Prof. Jesús San Miguel. Postdoctoral training in stem cell biology (Mick Bhatia Laboratory, London, ON, Canada; 2002-2005) and in childhood leukemia (Mel Greaves Laboratory, London, UK; 2005-2007). In 2007, I was appointed Director of the Andalusian Stem Cell Bank, and was leading my own lab at CIBM (Granada, Spain) until July 2011 when I moved to GENyO (Granada, Spain) as Principal Investigator. In June 2013 I was appointed ICREA Research Professor and Research Director of The Josep Carreras Leukemia Research Institute-Campus Clínic, Barcelona, Spain.

Research interests

- 1.- Modeling Infant Acute Lymphoblastic Leukemia MLL-AF4+.
- 2.- Sarcomagenesis models based on mesenchymal stem cells.
- 3.- Leukemic cell-niche environment interactions.

4.- Deciphering the intrinsic determinants and signaling pathways underlying hematopoietic-mesenchymal specification from human PSCs.

5.- Adoptive T-cell-based CAR immunotherapy for B-cell ALL and AML.

Selected publications

- Bueno C, ... Menendez P. Leukemia.2016,30:674-82
- Romero-Moya D,.....**P Menendez***. **Stem Cell Res** 2016 (in press).
- Lavoie J...Menendez P,....Rosu-Myles M. Exp Hematol; 2016: 44,S86 S87.
- Bueno C et al. Leukemia 2016; 30:1603-1606.
- B Lopez-Millán....., P Menendez Exp Mol Med 2016 (in press).
- Muñoz-López A et al. **Stem Cells** 2016;34:581-587.
- Engert A et al. Haematologica 2016;101:115-208.
- Hernandez A et al. Int J Mol Sci. 2016;17:461-478.
- Gonzalo-Gil E et al. Arthritis Res Ther. 2016;18:77-85.
- Castaño J et al. **Oncotarget** 2016;21:30440-30452.
- Prieto C et al. Cancer Res 2016; 76: 2478-2489.
- Sanjuan-Pla, A,....Menendez P.Stem Cells Dev; 2016:25:259-265.
- A. Muñoz-Lopez,..... P. Menendez*. Stem Cell Rep 2016;7:602-18.
- A. Giorgetti,....P Menendez*. Exp Hematol; 2016;45:85-93.

Selected research activities

Ad Hoc Advisor for the European Food and Safety Authority (EFSA) on Properties of PPP's linked to childhood leukemia.



Merkoçi, Arben Institut Català de Nanociència i Nanotecnologia (ICN2) Engineering Sciences

ICREA Research Professor and head of Nanobioelectronics & Biosensors Group at ICN2 (Institut Català de Nanociència i Nanotecnologia). He obtained his PhD at University of Tirana working on ion selective electrodes. Since 1992 he has been doing research as postdoctoral fellow and research professor at Polytechnic Univ. of Budapest, Univ. of Ioanina, Univ. degli Studi di Padua, Univ. Politècnica de Catalunya, Univ. Autònoma de Barcelona and New Mexico State Univ. His research is focused on the integration of biological molecules and other species with micro- and nanostructures with interest for the design of novel (bio)sensors. Prof. Merkoçi has been awarded the IAAM Medal 2011 and Nano Award-2013 for outstanding research in the field of nanoscience and nanotechnology by the International Association of Advanced Materials. He has published more than 250 articles and supervised around 25 PhD thesis.

Research interests

- 1. Nanoparticles study and application in innovative sensing technologies.
- 2. Development of novel nanostructured, nanochannel flexible platforms based on nanoimprinting and ink-jet printing technologies.
- 3. Study of graphene related materials and their integration into biosensing platforms.
- 4. Development of novel paper-based platforms with improved architecture, microfluidics and enhanced detection capabilities.
- 5. Design and application of lab-on-a-chip devices for biosensing, drug screening and other applications.

Selected publications

- Baptista-Pires L, Mayorga-Martinez CC, Medina-Sanchez M, Monton H & **Merkoci A** 2016, 'Water Activated Graphene Oxide Transfer Using Wax Printed Membranes for Fast Patterning of a Touch Sensitive Device', Acs. Nano, 10, 1, 853 - 860.

- de la Escosura-Muniz A, Baptista-Pires L, Serrano L, Altet L, Francino O, Sanchez A & Merkoci A 2016, 'Magnetic Bead/Gold Nanoparticle Double-Labeled Primers for Electrochemical Detection of Isothermal Amplified Leishmania DNA', *Small*, 12, 2, 205 – 213.
- Chamorro-Garcia A, de la Escosura-Muniz A, Espinoza-Castaneda M, Rodriguez-Hernandez CJ, de Torres C & Merkoci A 2016, 'Detection of parathyroid hormone-like hormone in cancer cell cultures by gold nanoparticle-based lateral flow immunoassays', *Nanomedicine-nanotechnology Biology And Medicine*, 12, 1, 53 – 61.

- Heli B, Morales-Narvaez E, Golmohammadi H, Ajji A & **Merkoci A** 2016, 'Modulation of population density and size of silver nanoparticles embedded in bacterial cellulose via ammonia exposure: visual detection of volatile compounds in a piece of plasmonic nanopaper', *Nanoscale*, 8, 15, 7984 – 7991.

Medina-Sanchez M, Mayorga-Martinez CC, Watanabe T, Ivandini TA, Honda Y, Pino F, Nakata K, Fujishima A, Einaga Y & Merkoci A 2016, 'Microfluidic platform for environmental contaminants sensing and degradation based on boron-doped diamond electrodes', Biosensors & Bioelectronics, 75, 365 – 374.

– Zamora-Galvez A, Ait-Lahcen A, Mercante LA, Morales-Narvaez E, Amine A & **Merkoci A** 2016, 'Molecularly Imprinted Polymer-Decorated Magnetite Nanoparticles for Selective Sulfonamide Detection', *Analytical Chemistry*, 88, 7, 3578 – 3584.



Meyerhans, Andreas Universitat Pompeu Fabra (UPF) Life & Medical Sciences

University Education: - 1987 PhD in Chemistry, University of Hamburg, Germany. - 1982 Diploma in Chemistry, University of Hamburg, Germany. **Professional Positions:** - Since 2010 ICREA Research Professor at Pompeu Fabra University, Barcelona. - 1998-2009 Full Professor, Saarland University, Germany. - 1990-1998 Assistant Professor, University of Freiburg, Germany. - 1988-1990 Postdoctoral Fellow, Institute Pasteur, Paris, France. - 1987-1988 Postdoctoral Fellow, Institute Biotechnological Research, Braunschweig, Germany.

Research interests

Infections with non-cytopathic viruses usually have 2 different outcomes. They may be eliminated by host immune responses (acute infections) or they may persist lifelong (persistent infections). Medically important examples are the Hepatitis B virus (HBV), the Human Immunodeficiency virus (HIV) and the Hepatitis C virus (HCV) that in adults usually follow an acute (HBV), a persistent (HIV) or an either acute or persistent (HCV) infection course. My laboratory is interested in: (i) understanding the factors that regulate the decision between an acute versus a persistent infection course, (ii) defining the factors that control the dynamic balance of virus expansion and immune control in persistent infections and (iii) identifying small chemical compounds with broad-spectrum antiviral activities.

Selected publications

- Latorre I, Esteve-Sole A, Redondo D, Giest S, Argilaguet J, Alvarez S, Peligero C, Forstmann I, Crespo M, Pascual J & **Meyerhans A** 2016, 'Calcineurin and mTOR inhibitors have opposing effects on regulatory T cells while reducing regulatory B cell populations in kidney transplant recipients', *Transplant Immunology*, 35, 1 – 6.

- Sanchez-Merino V, Fabra-Garcia A, GonzalezN, Nicolas D, Merino-Mansilla A, Manzardo C, Ambrosioni J, Schultz A, **Meyerhans A**, Mascola JR, Gatell JM, Alcami J, Miro JM & Yuste E 2016, 'Detection of Broadly Neutralizing Activity within the First Months of HIV-1 Infection', *Journal Of Virology*, 90, 11, 5231 – 5245.

- Tsunetsugu-Yokota Y, Kobayahi-Ishihara M, Wada Y, Terahara K, Takeyama H, Kawana-Tachikawa A, Tokunaga K, Yamagishi M, Martinez JP, **Meyerhans A** 2016, 'Homeostatically Maintained Resting Naive CD4(+) T Cells Resist Latent HIV Reactivation', *Frontiers In Microbiology*, 7, 1944.

- Bocharov G, **Meyerhans A**, Bessonov N, Trofimchuk S & Volpert V 2016, 'Spatiotemporal Dynamics of Virus Infection Spreading in Tissues' *PLoS One* 11(12):e0168576.

- Brai A, Fazi R, Tintori C, Zamperini C, Bugli F, Sanguinetti M, Stigliano E, Esté J, Badia R, Franco S, Martinez MA, Martinez JP, **Meyerhans A**, Saladini F, Zazzi M, Garbelli A, Maga G, Botta M 2016, 'Human DDX3 protein is a valuable target to develop broad spectrum antiviral agents', *Proc Natl Acad Sci USA*. 113(19):5388-93.

- Carreras-Sureda A, Rubio-Moscardo F, Olvera A, Argilaguet J, Kiefer K, Mothe B, **Meyerhans A**, **Brander C &** Vicente R 2016, 'Lymphocyte activation dynamics is shaped by hereditary components at chromosome region 17q12-q21', *PlosOne* 11(11):e0166414.



Milán Kalbfleisch, Marco Institut de Recerca Biomèdica de Barcelona (IRB Barcelona) Life & Medical Sciences

Marco Milán graduated in Biology at the Universidad Complutense (Madrid, 1991) and obtained his PhD in the laboratory of Antonio García-Bellido at the Center of Molecular Biology (Madrid, 1995). A couple of years later, he joined the laboratory of Stephen M. Cohen at the EMBL in Heidelberg, where he got a position as Staff Scientist until 2003. In 2003, he got his present position as ICREA Research Professor at the Institute for Research in Biomedicine (IRB Barcelona) leading the Development and Growth Control Laboratory. Since 2007, he is the Head of the Cell and Developmental Biology Programme of the IRB. In 2007, he was elected EMBO Young Investigator. He was Visiting Professor at the National University of Singapore in 2010. He is member of the editorial boards of EMBO Journal, EMBO reports, and Disease, Models and Mechanisms.

Research interests

My lab is interested in how the size of a developing organ is controlled by the activity of morphogens, growth promoting genes and systemic hormones. We use the *Drosophila* wing because of its suitability for genetic and molecular manipulations, its well-described developmental biology and its simple epithelial architecture. We take an integrative approach as we address how size is regulated not only during normal development but also in stress conditions. In this regard, we are dissecting the molecular mechanisms underlying the homeostatic capacity of the tissue to several insults (with a special interest in genomic instability) and its potential impact in tumorigenesis. This integrative approach unravels the interplay between morphogens, growth promoting genes and systemic hormones in normal development or upon stress, and contributes to identify emerging stress signalling molecules involved in regeneration and tumorigenesis.

Selected publications

Clemente-Ruiz M, Murillo-Maldonado JM, Benhra N, Barrio L, Pérez L, Quiroga G, Rodríguez Nebreda A & Milán M 2016, 'Gene dosage imbalance contributes to chromosomal instability-induced tumorigenesis', *Developmental Cell*, 36(3):290-302.
 Tosi S & Milán M 2016, 'Developing epithelia: What the eye cannot grasp', *Developmental Cell*, 36 (1), 7–8.

Selected research activities

Organization of international congresses & workshops

3rd 'Drosophila Growth and Regeneration Meeting', Girona (Spain) 2016 'Development: From limbs to miRNAs', EMBL, Heidelberg (Germany) 2016

Editorial Board

EMBO Journal, EMBO reports and DMM (Disease, Models and Mechanisms)


Miquel Pascual, Ramon Institut de Física d'Altes Energies (IFAE) Experimental Sciences & Mathematics

Born in 1962 in Gelida (Barcelona). Graduated in physics in 1985 at Universitat de Barcelona (UB). PhD in experimental high-energy physics in 1989 at Universitat Autònoma de Barcelona. Post-doctoral stay at CERN, Geneva (Switzerland) from 1991 to 1996, mostly working on the ALEPH experiment at the LEP accelerator. "Professor Titular" at UB 1997-2000. Moved to the Lawrence Berkeley National Laboratory, Berkeley (USA) as a Career Staff Scientist in 2001, where started a transition towards observational cosmology. Since 2006, ICREA Research Professor at Institut de Física d'Altes Energies (IFAE). Associate Director of IFAE from 2008 to 2014. Director since 2015. Working mostly on the "Dark Energy Survey" (DES), "Dark Energy Spectroscopic Instrument" (DESI), and IFAE-led "Physics of the Accelerated Universe" (PAU) projects. All of them try to shed light into the nature of the "dark energy" that is causing the current acceleration of the expansion of the Universe.

Research interests

I am an experimental particle physicist trying to understand the ultimate building blocks of the Universe and their interactions, through both experiments involving particle accelerators and astronomical observations. Recently, my work has been mostly devoted to planning instruments and performing observations to try to unveil the nature of the so-called "dark-energy" component of the Universe, which accounts for about 70% of the matter-energy of the Universe, counters the attractive effect of gravity on all other forms of matter and energy, and drives the current accelerated expansion of the Universe.

Selected publications

- Jarvis M et al. (DES Collaboration) 2016. 'The DES Science Verification Weak Lensing Shear Catalogues', Mon. Not. Roy. Astron. Soc. 460, 2245

- Becker MR et al. (DES Collaboration) 2016, 'Cosmic shear measurements with Dark Energy Survey Science Verification data', *Phys. Rev. D* 94, 022002

- Bonnett C et al. (DES Collaboration) 2016, 'Redshift distributions of galaxies in the Dark Energy Survey Science Verification shear catalogue and implications for weak lensing', *Phys. Rev. D* 94, 042005

- Abbott T et al. (DES Collaboration) 2016, 'Cosmology from cosmic shear with Dark Energy Survey Science Verification data', *Phys. Rev. D* 94, 022001

- Gruen D et al. (DES Collaboration) 2016, 'Weak lensing by galaxy troughs in DES Science Verification data',

Mon. Not. Roy. Astron. Soc. 455, 3367

- Suchyta E et al. (DES Collaboration) 2016, 'No galaxy left behind: accurate measurements with the faintest objects in the Dark Energy Survey', *Mon. Not. Roy. Astron. Soc.* 457, 786

- Chang C et al. (DES Collaboration) 2016, 'Galaxy bias from the Dark Energy Survey Science Verification data: combining galaxy density maps and weak lensing maps', Mon. Not. Roy. Astron. Soc. 459, 3203

- Baxter E et al. (DES Collaboration) 2016, 'Joint measurement of lensing-galaxy correlations using SPT and DES SV data', Mon. Not. Roy. Astron. Soc. 461, 4099

- Soares-Santos M et al. (DES Collaboration) 2016, 'A Dark Energy Camera search for an optical counterpart to the first Advanced LIGO gravitational wave event GW150914', Astrophys. J. 823, L33

Selected research activities

- Member of the Scientific Advisory Committee of APPEC, the Astroparticle Physics European Consortium of funding agencies.
- Spanish representative in the Management Committee of the "Dark Energy Survey" (DES) Collaboration.
- Member of the DES Publication Board, the DES Builders' Committee, and the Advisory Board to the DES Director.
- Member of the Speakers Board of the "Dark Energy Spectroscopic Instrument" (DESI) Collaboration.



Miralda Escudé, Jordi Universitat de Barcelona (UB) Experimental Sciences & Mathematics

I learned physics at the Autonomous University of Barcelona, and astronomy on my own and through some amateur associations in Catalonia. I did my PhD in astrophysics at Princeton University, graduating in 1991 with a thesis on gravitational lensing by clusters and large-scale structure. I was a postdoc at the Institute of Astronomy in Cambridge, and a Long-Term Member at the Institute for Advanced Study. I joined the University of Pennsylvania as a professor of astrophysics in 1996, and then moved to The Ohio State University in 2000. I have been back to Catalonia with an ICREA position since 2005, and I am at present doing research on astrophysics and cosmology at the Institut de Ciències del Cosmos at the University of Barcelona.

Research interests

I enjoy searching for physical explanations for what we observe in the Universe. My interests range over the formation of galaxies and their large-scale distribution in space, the composition and evolution of the universe as a whole, observations of the intergalactic medium that help us understand the distribution of matter in space, the physics of active galactic nuclei and the formation of massive black holes, and gravitational lensing as a probe to the space distribution and the nature of dark matter. Over the last few years I have focused on the study of the large-scale distribution of intergalactic gas with the use of quasar spectra from the Baryon Oscillation Spectroscopic Survey of the SDSS-III Collaboration, where absorption in the Lyman alpha line of hydrogen gas is observed. This is revealing crucial clues on both the initial conditions of the Universe and the formation of galaxies. Among other things I have worked on Damped Lyman Alpha Systems, which are clouds of hydrogen gas that we observe in these quasar absorption spectra and are in the process of forming galaxies, and also on diffuse Lyman Alpha emission from galaxies and the intergalactic medium.

Selected publications

Croft RAC, Miralda-Escudé J, Zheng Z, Bolton A, Dawson KS, Peterson JB, York DG, Eisenstein D, et al. 2016, 'Large-Scale Clustering of Lyman-Alpha Emission Intensity from SDSS/BOSS', *Monthly Notices of the Royal Astronomical Society*, vol. 457, pp 3541.
 D'Odorico V, Cristiani S, Pomante E, Carswell RF, Viel M, Barai P, Becker GD, Calura F, Cupani G, Fontanot F, Haehnelt MG, Kim T-S, Miralda-Escudé J, Rorai A, Tescari E, Vanzella E, 'Metals in the z~3 intergalactic medium: results from an ultra-high signal-to-noise ratio UVES quasar spectrum', *Monthly Notices of the Royal Astronomical Society*, vol. 263, pp 2690-2707

Selected research activities

I am participating in the WEAVE astronomical spectroscopic survey that will be carried out at the WHT Observatory in the Canaries, to continue my research with quasar absorption spectra. I am also starting new research on the nature of dark matter through the use of gravitational lenses and stellar streams of stars produced by tidal disruption of dwarf galaxies.



Mitchell, Morgan W. Institut de Ciències Fotòniques (ICFO) Experimental Sciences & Mathematics

Born in 1968 in Palo Alto, California, USA, Morgan Mitchell earned his PhD in Physics from the University of California at Berkeley in 1999 with a thesis on the quantum optics of photon-photon interactions. In the group of Serge Haroche and Jean-Michel Raimond in Paris he worked on experimental cavity quantum electrodynamics with cold atoms. At Reed College he developed ultra-low power entangled photon sources, and in the group of Aephraim Steingberg in Toronto he demonstrated the first multi-photon NooN states and quantum process tomography. In 2004 he joined ICFO as a Junior Group Leader. His group "quantum optics with cold atoms and non-classical light" uses narrow-band quantum light sources and cold atomic ensembles to study interaction of light and matter at the most fundamental, quantum mechanical level. He was awarded an ERC Starting Grant in 2011, recognized with a Vanguardia de la Ciencia award in 2012, Ehrenfest Prize and Kavli Publication Prize in 2016.

Research interests

I work on experimental quantum optics, quantum information and especially quantum metrology. Quantum metrology uses quantum effects to improve the sensitivity of demanding measurements. To study the interaction of light and matter at the quantum level, I use cold atoms and high coherence, atom-tuned quantum light sources. For this, my group has developed ultra-bright sources of entangled photon pairs, atom-tuned polarization squeezing and a quantum-noise-limited atomic ensemble system. We have demonstrated quantum non-demolition measurements using dynamical decoupling to reduce decoherence, and interaction-based measurements beyond the so-called "Heisenberg limit." The quantum optics of optical magnetometers, currently the best sensors for low-frequency magnetic fields, is of particular interest. Recently I demonstrated the first application of quantum optics to improve magnetometer sensitivity, and a high-spatial-resolution magnetometer based on cold atoms. Spin-offs from this research include extremely fast, high-quality ranodm number generators, used in loophole-free Bell tests.

Selected publications

- Kofler J, Giustina M, Larsson J-A & **Mitchell MW** 2016, 'Requirements for a loophole-free photonic Bell test using imperfect setting generators', *Physical Review A*, 93, 3, 032115.

- Lucivero VG, Jimenez-Martinez R, Kong J & Mitchell MW 2016, 'Squeezed-light spin noise spectroscopy', *Physical Review A*, 93, 5, 053802.

- Ciurana FM, Colangelo G, Sewell RJ & **Mitchell MW** 2016, 'Real-time shot-noise-limited differential photodetection for atomic quantum control', *Optics Letters*, 41, 13, 2946 - 2949.

- Abellan C, Amaya W, Domenech D, Munoz P, Capmany J, Longhi S, **Mitchell MW** & **Pruneri V** 2016, 'Quantum entropy source on an InP photonic integrated circuit for random number generation', *Optica*, 3, 9, 989 – 994.

Selected research activities

Principal investigator for "The BIG Bell Test," an international project to perform quantum physics experiments employing humangenerated randomness. On 30 November 2016, the project collected 90 million random bits from more than 100,000 online participants, and distributed the bits to 13 cutting-edge physics experiments.



Montón Subías, Sandra Universitat Pompeu Fabra (UPF) Humanities

1988: BSc Geography and History (Universitat de Barcelona, Spain). 1993: PhD History (Universitat Autònoma de Barcelona). I began my research at Universitat Autònoma de Barcelona, studying processes of emerging complexity in Mediterranean Bronze Age societies. Since then, I have worked at the University of Athens, at the McDonald Institute for Archaeological Research, at the University of Cambridge, at the Universitat Autònoma de Barcelona, at Universitat Pompeu Fabra, at the University of California Santa Cruz, at the Northwestern University, at the National Taiwan University, at the University of Guam, at German Archaeological Institute/Roman-Germanic Commission in Frankfurt and at the University of Oslo. I was co-chair of the EAA working party AGE http://www.upf.edu/materials/fhuma/age/ for the period 2009-2015.

Research interests

I am an archaeologist with broad interests in social and theoretical archaeology. My work has been traditionally focused on three interrelated areas: the archaeology of Argaric societies (Bronze Age in the Southeast of the Iberian Peninsula), the archaeology of gender and maintenance activities and the archaeology of funerary behaviour. More recently, I have added to my research interests historical archaeology and, most specifically, the archaeology of Iberian Early Modern Colonialism in the western Pacific.

Selected publications

- **Montón Subías S** 2016, 'Rezension zu: Ralph S (Ed.) The Archaeology of Violence, Interdisciplinary Approaches', *Germania*, 93, pp. 436-439.

Selected research activities

- Principal Coordinator in *Cultura Material, Colonialismo y Género. Una perspectiva arqueológica* (Material Culture, Colonialism and Gender. An Archaeological Perspective) and Principal Investigator in *Cultura Material, Colonialismo y Género en el Pacífico. Una Aproximación desde la Arqueología Histórica* (Material Culture, Colonialism and Gender in the Pacific. An approach from Historical Archaeology), HAR2016-77564-C2-1-P, Ministerio de Economía y Competitividad.

- Principal Investigator in ABERIGUA. Arqueología del Colonialismo Ibérico en Guam, Pacífico occidental (ABERIGUA. Archaeology of Iberian Colonialism in Guam, western Pacific), Fundación Palarq.

- Co-organizer of the 'Archaeology Field School in the Mariana Islands' (May 17-June 22), together with the University of Guam and the University of Hawai'i-Manôa.

- Co-director of the 2016 Casa Real Excavation, Guam.

- Scientist in Charge of FP7-PEOPLE-2013-IEF LEAP (Learning Archaeology through Presence).



Motta, Massimo Universitat Pompeu Fabra (UPF) Social & Behavioural Sciences

Massimo Motta (BSc Univ. Bocconi, Milan, 1987; PhD Univ. Cath. Louvain, 1991) is ICREA Research Professor at Universitat Pompeu Fabra (UPF) and at the Barcelona Graduate School of Economics. He served as Chief Economist at the European Commission (DG Compettiion) in 2013-2016, where he coordinated the economic analysis of the EC on antitrust, merger and state aid cases and advised the Competition Commissioner on cases and policy. His previous positions include professorships at the Università di Bologna (2007-2010), at the European University Institute, Florence (1998-2008) and at UPF (1992-1998). He is Research Fellow of CEPR, London, of CESifo, Munich, and a Fellow of the European Economic Association. His main areas of research are industrial organization and competition policy. His work has been published in the top international journals, and his book on Competition Policy: Theory and Practice (Cambridge Univ. Press, 2004) is the standard reference on antitrust economics.

Research interests

I am currently completing a book ("Exclusionary Practices", with C.Fumagalli and C.Calcagno, for Cambridge U.P.) on practices – such as predation, fidelity rebates, exclusive contracts, tying, refusal to deal, and margin squeeze – that dominant firms may adopt to exclude rivals from the market. Building on original models, existing literature and case studies, we study the rationale behind such practices and offer policy suggestions. In related work with C. Fumagalli I investigate the dynamic incentives of a vertically integrated firm to refuse to supply its input to downstream rivals. Another current project (with E.Tarantino) deals with the effects of mergers on investment and innovation, a controversial issue in many high-profile merger cases. Finally, with S.Hansen I study the relationship between a principal (say, a manufacturer) and its agents (say, its retailers), and show that risk aversion is crucial in determining when the principal wants to deal with one agent exclusively.



Moyà Solà, Salvador Institut Català de Paleontologia (ICP) Life & Medical Sciences

PhD in Geological Sciences by the Universitat Autònoma de Barcelona in 1983. Researcher of the Institute of Paleontology M. Crusafont from 1985 to 2005. ICREA Research Professor in the Unit of Biological Anthropology of the Faculty of Biosciences of the Universitat Autònoma of Barcelona in 2006. ICREA Research Professor and Director of the Catalan Institute of Palaeontology (Bellaterra-Sabadell) since 2006. He participates in several national and international projects, among them the RHOI Project (Revealing Hominid Origin Initiative, directed by Dr. T.D. White from the University of California at Berkeley (USA). He has published more that 300 papers in journals like Science, Nature, PNAS, Trends in Ecology and Evolution, Brain Behaviour and Evolution, Biological Journal of the Linnean Society, American Journal of Anthropology, and many others.

Research interests

My main research interest is Hominoid (Primates) evolution in the context of the Neogene climatic change, considering faunistic and paleoecological context. The main objective is to reconstruct their evolutionary history, in particular the origin and first radiation of this group. This discussion currently tackles the question of the role of the Mediterranean area as the cradle of Hominidae (great ape and human clade) and of the two main clades that form this group, the Asian (Pongo) and the African one (Pan, Gorilla and Homo). The Vallès-Penedès Neogene basin yields an outstanding record between 15 and 8 Ma that permits to reconstruct the 7 million years of evolution of this group on the European continent. Currently the interest is centred on the section of Els Hostalets de Pierola (Anoia, Barcelona). The final objective is to determine if Hominoids, as currently defined, is a monophyletic group or they're originated independently from more primitive non-orthograde forms.

Selected publications

Marigo J, Roig I, Seiffert ER, Moya-Sola S & Boyer DM 2016, 'Astragalar and calcaneal morphology of the middle Eocene primate Anchomomys frontanyensis (Anchomomyini): Implications for early primate evolution', *Journal Of Human Evolution*, 91, 122 – 143.
Minwer-Barakat R, Marigo J & Moya-Sola S 2016, 'Brief Communication: On the determination of the Microchoerus (Omomyidae, Primates) remains from Sant Cugat de Gavadons (Late Eocene, Ebro Basin, NE Spain)', *American Journal Of Physical Anthropology*, 160, 1, 162 – 168.

Boscaini A, Alba DM, Beltran JF, Moya-Sola S, Madurell-Malapeira J 2016, 'Latest Early Pleistocene remains of Lynx pardinus (Carnivora, Felidae) from the Iberian Peninsula: Taxonomy and evolutionary implications', *Quaternary Science Reviews*, 143, 96 – 106.
Bonilla-Salomon I, Minwer-Barakat R, Vianey-Liaud M & Moya-Sola S 2016, 'Middle Eocen Rodents from Sant Jaume de Frontanya (Eastern Pyrenees, Northern Spain) and Biochronological Implications', *Journal Of Vertebrate Paleontology*, 36, 4, e1121149.

- Femenias-Gual J, Minwer-Barakat R, Marigo J & **Moya-Sola S** 2016, 'Agerinia smithorum sp nov., a new early Eocene primate from the Iberian Peninsula', *American Journal Of Physical Anthropology*, 161, 1, 116 – 124.

- Casanovas-Vilar I, Madern A, Alba DM, Cabrera L, Garcia-Pardes I, Ostende van den Hoek LW, DeMiguel D, Robles JM, Furio M, van Dam J, Garces M, Angelone C & **Moya-Sola S** 2016, 'The Miocene mammal record of the Valles-Penedes Basin (Catalonia)', *Comptes Rendus Palevol*, 15, 7, 791 – 812.

- Minwer-Barakat R, Marigó J & **Moyà-Solà S** 2016, 'On the determination of the Microchoerus (Omomyidae, Primates) remains from Sant Cugat de Gavadons (Late Eocene, Ebro Basin, NE Spain)', *American Journal of Physical Anthropology*, 160: 162-168.

- Urciuoli A, DeMiguel D, **Moyà-Solà S** & Rook S 2016, 'New Hoplitomeryx Leinders, 1984 remains from the Late Miocene of Gargano (Apulia, Italy)', *Hystrix, the Italian Journal of Mammalogy,* 27, 2.



Mugarza Ezpeleta, Aitor Institut Català de Nanociència i Nanotecnologia (ICN2) Engineering Sciences

Aitor Mugarza graduated and obtained his PhD in Physics both at the University of Basque Country. After his doctoral studies, he was awarded a Marie Curie fellowship to work as a postdoctoral scientist at the Lawrence Berkeley National Laboratory, USA, and at the Materials Science Institute of Barcelona (ICMAB). He later joined the Catalan Institute of Nanoscience and Nanotechnology-ICN2 (formerly ICN) starting as a Ramon y Cajal Fellow in 2007, and as Tenure Track Group Leader of the Atomic Manipulation and Spectroscopy Group at ICN2 since 2013. He is author of 50 articles, and of more than 35 invited talks at international conferences, universities and schools. His research activity is based on the investigation of quantum properties of matter on the nanoscale, and developing strategies to manipulate them with atomic precision.

Research interests

The research interests of Aitor Mugarza focus on the atomic-scale engineering of the quantum properties of novel nanomaterials. At the nanoscale, the properties of materials are dominated by quantum effects and interfacial phenomena, which impose strong limitations on the control and reproducibility of device performances, but also open up avenues for engineering new physical properties. The aim of Aitor Mugarza and his group is to understand and control quantum phenomena with atomic precision by chemical and structural manipulation, nanostructuring and interfacing materials that are identified as strategic in the roadmap for new technologies (hybrid metal-organic heterostructures, graphene-based 2D materials, topological insulators...).

Selected publications

- Caputo M, Panighel M, Lisi S, Khalil L, Di Santo G, Papalazarou E, Hruban A, Konczykowski M, Krusin-Elbaum L, Aliev ZS, Babanly MB, Otrokov MM, Politano A, Chulkov EV, Arnau A, Marinova V, Das PK, Fujii J, Vobornik I, Perfetti L, **Mugarza A**, Goldoni A & Marsi M 2016, 'Manipulating the Topological Interface by Molecular Adsorbates: Adsorption of Co-Phthalocyanine on Bi2Se3', *Nano Letters*, 16, 6, 3409
 - 3414.

Ormaza M, Fernández L, Ilyn M., Magaña A, Xu B, Verstraete MJ, Gastaldo M, Valbuena MA, Gargiani P, Mugarza A, Ayuela A, Vitali L, Blanco- Rey M, Schiller F & Ortega JE 2016, 'High temperature ferromagnetism in a GdAg2 monolayer', *Nano Letters* 16, 4230-4235
Sessi P, Rüßmann P, Bathon T, Barla A, Kokh KA, Tereshchenko OE, Fauth K, Mahatha SK, Valbuena MA, Godey S, Glott F, Mugarza A, Gargiani P, Valvidares M, Long NH, Carbone C, Mavropoulos P, Blügel S & Bode M, 2016, 'Superparamagnetism-induced mesoscopic electron focusing in topological insulators', *Phys. Rev. B* 94, 075137.

Selected research activities

Invited talks and seminars

Manipulating charge and spin at the metal-organic interface, Energy Materials Nanotechnology Spring Meeting, March 8-11, 2016, Taipei (Taiwan).

In-situ structural, chemical, and magnetic characterization of nanostructures by combining STM with X-rays, NFFA-Europe Summer School, Universitat Autónoma de Barcelona (Spain)

Electronic and magnetic properties at the metal-organic interface, Institute of Physics of the Czech Academy of Science, December 6, 2016, Prague (Czech Republic).

Metal-organic interfaces: is the metallic surface a problem or an advantage?, Center for Research in Biological Chemistry and Molecular Materials (CIQUS), May 20, 2016, Santiago de Compostela (Spain).

Organizing Committee

Chairman of Congreso de Fuerzas y Túnel 2016, Girona (Spain)



Muñiz, Kilian Institut Català d'Investigació Química (ICIQ) Experimental Sciences & Mathematics

Kilian Muñiz is an ICREA Research Professor at the Institute of Chemical Research of Catalonia (ICIQ), in Tarragona. He was born in 1970 in Hildesheim, Germany. From 1990 to 1996 he studied Chemistry at the Universities of Hannover (Germany), Oviedo (Spain) and Imperial College London (UK), and in 1996 he graduated with a Diploma in Chemistry from Hannover University. From 1996 to 1998 he worked in the group of Prof. Carsten Bolm at the RWTH Aachen (Germany) to obtain his PhD in Organic Chemistry. In 1999/2000 he carried out research as a postdoctoral associate with Prof. Ryoji Noyori at Nagoya University (Japan). He started his independent research in 2001 at Bonn University (Germany) as a Liebig fellow and defended his Habilitation Thesis in 2005. The same year he moved to the University of Strasbourg as an Associate Professor. He was promoted to Full Professor in 2006. In November 2009 he moved to Spain and joined ICIQ as Group Leader. He has been with ICREA since 2010.

Research interests

Our research deals with the discovery of novel chemical transformations to provide direct access to nitrogen containing molecules, which are key players in a variety of compounds of biological, medicinal and pharmaceutical interest. Recently, the group has started to devise entirely new oxidative amination reactions based on transformations that do not require any metal promoters. To this end, defined monomeric hypervalent iodine reagents in the unusual iodine oxidation state of +III incorporating unprecedented iodinenitrogen bonds were developed. These serve as versatile tools in a variety of novel amination reactions comprising all common hydrocarbon entities. An enantioselective version has already found application in the synthesis of relevant pharmaceuticals. This chemistry is continuously expanded to other iodine catalyses in order to generate effective conceptual tools for advanced oxidation at different stages of chemical synthesis.

Selected publications

- Haubenreisser S, Wöste TH, Martinez C, Ishihara K & **Muñiz K** 2016, 'Structurally Defined Molecular Hypervalent Iodine Catalysts for Intermolecular EnantioselectiveReactions', *Angew. Chem. Int. Ed.*, 55, 413 – 417. Highlighted on the journal cover.

- Lucchetti N, Scalone M, Fantasia S & **Muñiz K** 2016, 'Sterically Congested 2,6-Disubstituted Anilines from Direct C-N Bond Formation at an Iodine(III) Center', Angew. Chem. Int. Ed., 55, 13335 – 13339.

- Martinez C, Bosnidou AE, Allmendinger S & **Muñiz K** 2016, 'Towards Uniform Iodine Catalysis: Intramolecular C-H Amination of Arenes under Visible Light', *Chem. Eur. J.*, 22, 9929 - 9932.

- Fra L & **Muñiz K** 2016 'Indole Synthesis through Sequential Electrophilic N-H and C-H Bond Activation using Iodine(III) Reactivity', *Chem. Eur. J.*, 22, 4351, Hot Paper (selected by the Editorial Office), Highlighted on the journal backside cover.

Lucchetti N, Scalone M, Fantasia S & Muñiz K 2016, 'An Improved Catalyst for Iodine(I/III)-Catalysed Intermolecular CH Amination',
 Artic Cristica CH 2002, 2002 (Research Content of the South Co

Adv. Synth. Catal., 358, 2093 – 2099. VIP Paper (selected by the Editorial Office), highlighted on the journal cover. – Martínez C & **Muñiz K** 2016 'Defined Palladium Phthalimidato Catalysts for Improved Oxidative Amination', Chem. Eur. J., 22, 7367-70.

Selected research activities

- 2016 Yoshida Lectureship from the IOCF Kyoto, Japan.
- Organizer of the 2016 Barluenga Lectureship.
- Planary, Keynote and Invited Lectures at international conferences and research institutions.
- Advisory Board member of the Journal of Organic Chemistry and The Chemical Record.
- Teacher in the ICIQ-URV Master Programme; supervision of 3 Master Thesis.



Muñoz-Cànoves, Pura Universitat Pompeu Fabra (UPF) Life & Medical Sciences

Pura Muñoz-Cánoves studied Pharmacology in the University of Valencia. She obtained her PhD in 1990 in the Autonomous University of Madrid for work carried out at The Scripps Research Institute (La Jolla, USA). She did postdoctoral work at the University of California-San Diego and The Scripps Research Institute, and in 1994 she joined the Cancer Research Institute in Barcelona as a postdoc, becoming an independent group leader in 1997. In 2002 her group moved to the Center for Genomic Regulation (CRG) in Barcelona, and she became a senior scientist in 2007 in that Institution. Late 2008 she moved to the Pompeu Fabra University (UPF) after becoming an ICREA Research Professor. Through the UPF, she holds a collaborative agreement with the Spanish National Center on Cardiovascular Research. Her research focuses on deciphering the mechanisms regulating skeletal muscle regeneration and growth, in physiology and disease.

Research interests

Our main objective is to understand the mechanisms regulating stem cell homeostasis and regenerative functions: how stem cells maintain quiescence, are activated, transit to proliferative expansion and differentiation, and finally self-renew, and how they interact with the external inflammatory environment. Research is specially focused on stem cells of skeletal muscle. Recent studies from the laboratory have shed light on 1) age-associated muscle decline and wasting (sarcopenia) and loss of stem-cell regenerative functions with aging; and 2) the physiopathology of muscular dystrophies, with a specific interest in the contribution of inflammation and fibrosis to dystrophy progression. These findings are relevant for regenerative medicine.

Selected publications

- García-Prat L, Martínez-Vicente M, Perdiguero E, Ortet L, Garcia-Ubreva J, Rebollo E, Ruiz-Bonilla V, Gutarra S, Ballestar E, Serrano AL, Sandri M & **Muñoz-Cánoves P** 2016, 'Autophagy maintains stemness by preventing senescence', *Nature*, 529: 37-42.

- García-Prat L, Martínez-Vicente M & **Muñoz-Cánoves P** 2016, 'Autophagy: a decisive process for stemnes', *Oncotarget* (Autophagy and Cell Death section), 7:12286-8.

- Segalés J, Islam AB, Kumar R, Liu QC, Sousa-Victor P, Dilworth FJ, Ballestar E, Perdiguero E & **Muñoz-Cánoves P** 2016, 'Chromatinwide and transcriptome profiling integration uncovers p38α MAPK as a global regulator of skeletal muscle differentiation', *Skelet Muscle*, 6:9.

- Gómez-Del Arco P, Perdiguero E, ... **Muñoz-Cánoves P** & Redondo JM 2016, 'The Chromatin Remodeling Complex Chd4/NuRD Controls Striated Muscle Identity and Metabolic Homeostasis', *Cell Metab.*, 23:881-92.

- Brack AS & Muñoz-Cánoves P 2016, 'The ins and outs of muscle stem cell', Skel. Muscle, 6:1.

- Sousa-Victor P & Muñoz-Cánoves P 2016, 'Regenerative decline of stem cells in sarcopeni', Mol. Aspects Med., 50:109-17.

- Segalés J, Perdiguero E & **Muñoz-Cánoves P** 2016, 'Regulation of Muscle Stem Cell Functions: A Focus on the p38 MAPK Signaling Pathway', *Front Cell Dev Biol.*, 4:91.

Selected research activities

Conferences (Invited Speaker):

- Francis Crick Institute. London
- IFOM-IEO. Milan
- Workshop on Skeletal & Cardiac Myogenesis. Weizmann Inst. Rehovot
- International Society of Stem Cell Research (ISSCR). San Francisco
- Sanford Burnham Discovery Inst. La Jolla
- International Conference on Oxidative Stress. Pasteur Inst. Paris
- Cell Symposia on Aging and Metabolism. Sitges
- Conference on Cellular Senescence. Weizmann Inst. Rehovot
- FASEB Conference on Skeletal Muscle Satellite Cells. Keystone
- -International Conference on Tissue Repair, Regeneration and Fibrosis. Rhodes
- International Conference on Epithelial Mesenchymal Transition. Zhejiang Univ, Hangzhou
- The Hong Kong University of Science & Technology. Hong Kong
- Institute of Molecular Medicine. Lisbon



Ñaco del Hoyo, Toni Universitat de Girona (UdG) Humanities

Prof. Toni Ñaco del Hoyo (PhD 1996, Barcelona) is an Ancient Historian of the Classical World. A former Fulbrighter (UC Berkeley, 2004), before joining ICREA in 2009 he held Catalan and Spanish funded postdoctoral positions at Wolfson College Oxford (1998-2002), where he remains a member, as well as a Ramón y Cajal Fellowship at UAB. Research awards as PI: H.F. Guggenheim Foundation (2007), RICIP (2010; 2012-3), Spanish Government R+D Grants (2011-3; 2015-7), Acción Complementaria (2011), ARCS (2012), Icrea Conference Award (2012), Margo Tytus Visiting Fellowship at Cincinnati (summer 2014). Since 2012 he has been yearly Visiting Scholar at the Classics Faculty (Oxford). Recently, he has supervised 3 already finished PhD dissertations. In September 2015 he moved to Universitat de Girona in search of new research challenges: e.g. he will organize the Second Colloquium of the Forum of Roman Republican Historians from Spain (Girona, 21-2 Sep. 2017).

Research interests

As an ancient historian, he mostly deals with the Hellenistic and Roman Republican periods. With his colleague Dr J. Principal he is currently working on the history and the archaeology of the Roman intervention in the West (NE Hispania) from the financial and military logistic standpoints. Also, he has conducted research on collateral damage, garrisoning strategies, asymmetrical warfare, military intelligence, crisis management, international relations and peacebuilding studies in the Classical World, and last but not least he has recently revisited his old work on Roman Republican taxation. He is about to correct proofs of a book on Rome's military intervention in pre-Sertorian Hispania (Barcelona 2017). Finally, the peer-reviewed evaluation of another co-edited volume -War, Warlords and Interstate relations in the Ancient Mediterranean 404BC – AD14- from Brill Editions (Leiden-Boston) is expected shortly.

Selected publications

- Ñaco del Hoyo T 2016, 'Review of Hollard D & López Sánchez F Le Chrisme et le Phénix', Images monétaires et mutations idéologiques aux IVè, Siècle, Scripta Antiqua 63, Ausonius Ed., Bordeaux, 2014', *Latomus. Revue des Études Latins*, 75.3, 799-800.
 - Ñaco del Hoyo T 2016, 'The Treasures of the Earth - Natural Resources in the ancient World: Stuttgart Colloquium on the Historical Geography of Antiquity 10, 2008', *Athenaeum-studi Periodici Di Letteratura E Storia Dell Antichita*, 104, 1, 342 - 345.
 - Ñaco del Hoyo T & Arrayás-Morales I 2016, 'Rome, Pontus, Thrace and the military disintegration of the world beyond the Hellenistic East', in Slootjes D & Peachin M (eds.) Rome and the Worlds Beyond Roman Frontiers, *Ed. Brill*, Leiden-Boston, 3-19.

Selected research activities

- PhD Dissertation by Dr R. Riera, co-supervised and successfully examined at UAB (February).

- Short-term (a few weeks each) research visits at Oxford University (May and November).

- Organisation of a Research Seminar: "Archaeology and history of conflict in Classical Antiquity 2016: new advances East & West". Museu d'Arqueologia de Catalunya-Girona (March).

- Invited Talk in Girona (January), conference papers presented at Lezuza, Albacete (April) and Kwansei Gakuin & Kyoto, Japan (November), and a Graduate Seminar in Girona (December).

- Member of the Selection Panel 'Historia y Arte' of 'Juan de la Cierva Formación' & 'Juan de la Cierva Incorporación' postdoctoral fellowships, (ANEP, Madrid, May).

- Peer-reviewed evaluation for 'Gladius', a journal from CSIC, Madrid.

- Ongoing co-supervision of 3 PhD theses (UB, UAB and UdG), 2 Master theses (UdG), and 1 graduate thesis (UdG).



Nagel, Rosemarie Chariklia Universitat Pompeu Fabra (UPF) Social & Behavioural Sciences

Rosemarie Nagel received her PhD in economics in 1994 from the University of Bonn with Reinhard Selten as her advisor. In 1994-1995 she was post doc with Al Roth, University Pittsburgh. Since 1995 she has been working in the Department of Economics and Business in Universitat Pompeu Fabra; in 2006 she was promoted to full professor and in 2007 she joined ICREA as a research professor. Her main research is in experimental and behavioral economics, especially in macro economic experiments and in neuro economics. She has published in the American Economic Review, Econometrica, Review of Economic Studies, Economic Journal, Proceedings of the National Academy of Sciences (PNAS), Financial Times, Spektrum der Wissenschaft, etc.

Research interests

I work in the area of experimental economics focusing on simplified economic situations of risk, coordination and competition. I develop descriptive models departing from game theory and decision theory, introducing knowledge from psychology and neurosciences related to theory of mind. I link behavioural data created in experiments with brain activity gained through functional magnetic resonance imaging (fMRI) or eye-tracking data co-working with cognitive scientists, neuro-scientists, biologists, and psychologists. Furthermore, with other experimental economists and macro theorists I promote the interaction between the two groups with summer schools, workshops, and research using experimental tools to tackle macro questions. Finally, with colleagues from UPF we integrate economic experiments as teaching tools in undergraduate courses to better understand the mathematical models and show the relationship between students' own behavior in economic experiments and theoretical outcomes.

Selected publications

- Balkenborg D & **Nagel R** 2016, 'An Experiment on Forward vs. Backward Induction: How Fairness and Level k Reasoning Matter', *German Economic Review*, 17, 3, 378 - 408.

- Brañas-Garza P, Espín AM, Herrmann B, Kujal P & **Nagel R** 2016, 'Editorial: Prosocial and Antisocial Behavior in Economic Games', *Frontier Behavioral Neuroscience*, 10, 243.



Nemirovsky, Mario Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC - CNS) Engineering Sciences

Mario Nemirovsky is an ICREA Research Professor at the Barcelona Supercomputing Center, where he has been since 2007. He received his PhD in ECE from University of California, Santa Barbara, in 1990. Presently he is conducting pioneering work in the area of IoT (Fog as plataform for IoT), Big Data, and Optical and Wireless NoCs. He holds 64 USA patents. Mario is a pioneer in multithreaded hardwarebased processor architectures. During his tenure with the University of California, Santa Barbara, Mario co-authored some of the seminal works on simultaneous multithreading. Mario has made key contributions to other areas of computer architecture, including high performance, real-time, and network processors. He founded Miraveo Inc., Vilynx Inc., ConSentry Networks Inc., Flowstorm Inc. and XStream Logic Inc. Before that, he was a chief architect at National Semiconductor, PI Researcher at Apple Computers, and Chief Architect at Weitek Inc. and Delco Electronics, General Motors (GM).

Research interests

- Internet of the Things (IoT)
- Fog Computing
- Hierarchical Emergent Behaviors
- Cloud computing
- Interconnections: optical and wireless
- Disaggregated Computing
- Multithreaded Architectures
- High performance processors
- Real time architectures
- Performance Analysis and Evaluation
- New simulation methodologies

Selected publications

- Radojkovic P, Carpenter PM, Moreto M, Cakarevic V, Verdu J, Pajuelo A, Cazorla FJ, Nemirovsky M & Valero M 2016, 'Thread

Assignment in Multicore/Multithreaded Processors: A Statistical Approach', *Ieee Transactions On Computers*, 65, 1, 256 – 269.

- Gandhi J, Karakostas V, Ayar F, Cristal A, Hill MD, McKinley KS, **Nemirovsky M**, Swift MM & Unsal OS 2016, 'Range Translations For Fast Virtual Memory', *IEEE Micro*, 36, 3, 118 – 126.

- Roca D, Nemirovsky D, **Nemirovsky M**, Milito R & Valero M 2016, 'Emergent Behaviors in the Internet of Things: The Ultimate Ultra-Large-Scale System', *IEEE Micro*, vol. 36, no. 6, pp. 36-44.

- Abadal S, Mestres A, **Nemirovsky M**, Lee H, Gonzalez A, Alarcón E & Cabellos-Aparicio A 2016, 'Scalability of Broadcast Performance in Wireless Network-on-Chip', *IEEE Trans. Parallel Distrib. Syst.*, 27(12): 3631-3645.

- Karakostas V, Gandhi J, Hill M, McKinley K, **Nemirovsky M**, Swift M, Unsal O & Cristal A 2016, 'Energy-efficient address translation', *IEEE International Symposium on High Performance Computer Architecture* (HPCA).



Neumann, László Universitat de Girona (UdG) Engineering Sciences

I was born in 1955 in Budapest, Hungary. MSc. in Engineering and Mathematics, 1978 TU Budapest, Mechanical Engineering: computer tomography. PhD 1982, Applied Mathematics: economical modeling. Publications: conference proceedings 47, journals 32, 3 books, chapters in books 18, others 55. As a head of industrial departments and projects, I led research and software development in architectural CAD, cartography, medical imaging, 3D face modeling, color harmony design, and numerical methods. Between 1995-2007: visiting lecturer at TU Vienna. Since 2002 ICREA Research Professor. My strengths are the interdisciplinary approach, mathematical modeling and motivating people. I am member of over a dozen IPC and other committees.

Research interests

My research has an interdisciplinary character in the common focus of computer imagery and applied mathematics. This wide field covers image processing, color science, computer graphics, and computational photography. My profile in VICOROB at Universitat de Girona encompasses underwater color image enhancement and visualization – de-hazing, efficient gradient domain solvers, illumination fusion and HDRI techniques. My most important results have been achieved here in the field of high quality large-area undersea image mosaicing. In this challenging field we computed the largest ever seamless deep-water gigamosaic images. In color research I am currently focusing on high-precision calibration of digital image capturing with noise analysis. On the other hand, after ten years of thorough research, I am going to accomplish development of the Coloroid Renotation system, which is based on a huge amount of observations led by the inventor of the Coloroid system in the last 50+ years.

Selected publications

 - Neumann L, Magdics M, Hegedüs R 2016, 'Parallelization of a Multi-scale Gradient Solver', *Proceedings of Eighth Hungarian* Conference on Computer Graphics and Geometry, Ed.: Szirmay-Kalos László, Renner Gábor, ISBN 9786155036118, pp. 200-212.
 - Gracias N, Garcia R, Campos R, Prados R, Bosch J, Elibol A, Nicosevici T, Neumann L & Quintana J 2016, 'Omnidirectional Underwater Surveying and Telepresence', *Proceedings of the 7th International Workshop on Marine Technology* (MARTECH), Barcelona, Spain.



Neyman, Konstantin M Universitat de Barcelona (UB) Experimental Sciences & Mathematics

Prof. Dr. Konstantin Neyman is ICREA Professor at the Department de Ciència de Materials i Química Física and the Institut de Química Teòrica i Computacional, Universitat de Barcelona, leading the group *Reactivity of Nanostructures*. He obtained his PhD in Chemistry from the Inst. of Inorganic Chemistry in Novosibirsk and completed his Habilitation and *Venia Legendi* in Theoretical Chemistry at the Technische Universität München. He published a book, 10 reviews, ca. 170 articles in referred journals and has made ~280 presentations at conferences and in universities, ~100 of them as invited lectures. His publications were cited ~6000 times, h-index = 45 (since 1991). Before joining ICREA, Konstantin Neyman held positions as a senior research associate in Germany: at the TU München, Ludwig-Maximilian Universität München and Fritz-Haber-Institut (Berlin) of the Max-Planck Society. He has contributed to the attraction of funds for more than 40 research projects.

Research interests

My research group deals with modelling of advanced, in particular, nanostructured inorganic materials important for catalysis, hydrogen technology, energy storage and related applications. A general aim is to understand at the atomic level, by carrying out large-scale quantum mechanical computer calculations, how the structure and composition of a material are related with its function in a given chemical process. It is often hardly possible to obtain this information experimentally. Yet, its absence drastically hinders creation of materials with desired improved properties.

Selected publications

- Lykhach Y, Kozlov SM, Skála T, Tovt A, Stetsovych V, Tsud N, Dvořák F, Johánek V, Neitzel A, Mysliveček J, Fabris S, Matolín V, **Neyman KM*** & Libuda J* 2016, 'Counting electrons on supported nanoparticles', *Nature Materials*, vol. 15, pp 284-288.

- Vorokhta M, **Neyman KM**, Matolín V et al. 2016, 'Surface composition of magnetron sputtered Pt-Co thin film catalyst for proton exchange membrane fuel cells' *Appl. Surf. Sci.*, vol. 365, pp 245-251.

- Kozlov SM & **Neyman KM** 2016, 'Insights from methane decomposition on nanostructured palladium', *Journal of Catalysis*, vol. 337, pp 111-121.

- Fiala R, Figueroba A, **Neyman KM**, Matolin V et al. 2016 'High efficiency Pt2+-CeOx novel thin film catalyst as anode for proton exchange membrane fuel cells', *Appl. Catal. B: Environ.*, vol. 197, pp 262-270.

- Lykhach Y, Figueroba A, **Neyman KM**, Matolín V, Libuda J et al. J 2016, 'Reactivity of atomically dispersed Pt2+ species towards H2: Model Pt-CeO2 fuel cell catalyst', *Physical Chemistry Chemical Physics*, vol. 18, pp 7672-7679.

- Figueroba A, Kovács G, A. Bruix A & **Neyman KM** 2016, 'Towards stable single-atom catalysts: Strong binding of atomically dispersed transition metals on the surface of nanostructured ceria', *Catalysis Science & Technology*, vol. 6, pp 6806-6813.

- Neitzel A, Figueroba A, **Neyman KM**, Matolín V, Libuda J et al. 2016, 'Atomically dispersed Pd, Ni and Pt species in ceria-based catalysts: Principal differences in stability and reactivity', *J. Phys. Chem. C*, vol. 120, no. 18, pp 9852-9862.

- Bruix A & **Neyman KM** 2016, 'Modeling ceria-based nanomaterials for catalysis and related applications', *Catalysis Letters*, vol. 146, pp 2053-2080.

- Kozlov SM & **Neyman KM** 2016 'Effects of electron transfer in model catalyst composed of Pt nanoparticles on CeO2(111) surface', *Journal of Catalysis*, vol. 344, pp 507-514.

Selected research activities

Overall, 12 ISI journal articles, 8 invited or keynote lectures at established conferences (UK, PL, RU, ES, BG, DE, CN) and 2 invited lectures at universities (PL, DE).



Nogués Sanmiquel, Josep Institut Català de Nanociència i Nanotecnologia (ICN2) Engineering Sciences

ICREA Research Professor and Group Leader of the Magnetic Nanostructures group at the Institut Català de Nanociència i Nanotecnologia. Graduated in Physics from the Universitat Autònoma de Barcelona in 1986, earned his PhD in Condensed Matter Physics from the Royal Institute of Technology (Stockholm, Sweden) in 1993. He was post-doc fellow at the University of California San Diego from 1993 to 1997. From 1997-2001 research associate at the Universitat Autònoma de Barcelona and since 2001 ICREA Research Professor at the same university. In 2007 he moved to the ICN2 - Institut Català de Nanociencia I Nanotecnologia. His research interests are on the magnetic properties of lithographed nanostructures and nanoparticles and the exchange coupling between dissimilar magnetic materials.

Research interests

We study the magnetic properties of different types of exchange coupled nanostructures, e.g., lithographically patterned structures and core-shell type nanoparticles. The idea is to use magnetic interactions that arise between different magnetic materials to improve the overall magnetic properties of the materials. We correlate the different structural, morphological or magnetic parameters with the enhanced magnetic properties. We also investigate magnetoplasmonic nanostructures for biomedical applications (e.g., hyperthermia).

Selected publications

- Zeeshan MA, et al. 2016, 'Electrochemically synthesized amorphous and crystalline nanowires: dissimilar nanomechanical behavior in comparison with homologous flat films', *Nanoscale*, 8, 3, 1344-1351

- Agramunt-Puig S et al. 2016, 'Modeling the collective magnetic behavior of highly-packed arrays of multi-segmented nanowires', New Journal of Physics, 18, 1, 013026

- Zhang, J et al., 2016, 'Tailoring Staircase-like Hysteresis Loops in Electrodeposited Trisegmented Magnetic Nanowires: a Strategy toward Minimization of Interwire Interactions', Acs Applied Materials & Interfaces, 8, 6, 4109 - 4117.

- Serra, A et al. 2016, 'Effective ionic-liquid microemulsion based electrodeposition of mesoporous Co-Pt films for methanol oxidation catalysis in alkaline media', *Journal Of Materials Chemistry A*, 4, 20, 7805 – 7814.

- Golvano-Escobal, I et al. 2016, 'Spontaneous formation of spiral-like patterns with distinct periodic physical properties by confined electrodeposition of Co-In disks', *Scientific Reports*, 6, 30398.

- Torruella P et al. 2016, '3D visualization of the iron oxidation state in FeO/Fe3O4 core-shell nanocubes from electron energy loss tomography' *Nano Letters*, 16, 8, 5068-5073

- Salazar-Alvarez, G et al. 2016, 'Tunable High-Field Magnetization in Strongly Exchange-Coupled Freestanding Co/CoO Core/Shell Coaxial Nanowires', Acs Applied Materials & Interfaces, 8, 34, 22477 – 22483.

- Serra, A et al. 2016, 'Highly efficient electrochemical and chemical hydrogenation of 4-nitrophenol using recyclable narrow mesoporous magnetic CoPt nanowires', *Journal Of Materials Chemistry A*, 4, 40, 15676 - 15687.

Selected research activities

Selected Invited Talks:

- 'New Reversal Mode in Exchange Coupled Antiferromagnetic/Ferromagnetic Disks: Distorted Viscous Vortex' - Conference on Magnetism and Magnetic Materials / International Magnetics Conference, San Diego USA

- 'Magneto-plasmonic nanoparticles for enhanced hyperthermia applications', Brazilian Materials Research Society Meeting, Campinas, Brazil



Odintsov, Sergei Institut de Ciències de l'Espai (CSIC - ICE) Experimental Sciences & Mathematics

ICREA Research Professor at ICE (CSIC-IEEC) since 2003. He wrote about 500 journal articles, with more than 30000 citations. Three ms written while in ICREA were cited more than 1000 times, 2 books and 5 articles-more than 500 times. Foreign Member of the Royal Norwegian Academy, member of European Phys. Soc. and Italian Grav. Soc. Awarded by Amaldi Gold Medal: European Prize for Gravitational Physics 2014. Editorial Board Member of six journals and referee of about 20 journals (with excellence certificates from PLB, EPL, PRD). Hirsh index h=87 (Google Scholar) and h=81(inspirehep). Supervisor of 12 PhDs. Speaker/lecturer/participant of about 120 conf. and Org. Comm.member/organizer of about 40 int. workshops. Top Cited Thomson-Reuters Researcher in 2014, 2015 and 2016. Awarded by several short-term JSPS fellowships to conduct research at KMI, Nagoya Univ., Japan.

Research interests

I develop the theory which should describe our universe history. My main purpose is to formulate the consistent alternative to Einstein gravity in order to resolve the fundamental puzzle of modern cosmology: why and how the universe accelerates? In fact, I proposed the first modified gravity which may describe the unification of the early-time inflation (including singular one) and late-time acceleration. We also proposed a bouncing universe in modified gravity as scenario that is alternative to the inflation. The alternative gravity we develop should describe the whole sequence of the universe eras: inflation, radiation-matter dominance and dark energy era with consistent transitions from one era to other era. The study of the current universe should clarify its future: if it will expand eternally or if its evolution will be finished in the finite-time future singularity (actually much before via the disintegration of bound objects).

Selected publications

- Odintsov SD & Oikonomou VK 2016, 'Deformed matter bounce with dark energy epoch', Physical Review D, 94, 6, 064022.

- Nojiri S, Odintsov SD & Oikonomou VK 2016, 'Unimodular-Mimetic Cosmology', Class. Quant. Grav., v. 33, p.125017.
- Nojiri S, **Odintsov SD** & Oikonomou VK 2016, 'Viable mimetic completion of unified inflation-dark energy evolution in modified gravity', Physical Review D94, 104050.
- Nojiri S, Odintsov SD & Oikonomou V 2016, 'Unimodular F(R) gravity', JCAP, 1605, 046.
- de la Cruz Dombriz A, Elizalde E, Odintsov SD & Saez-Gomez D 2016, 'Spotting deviations from R2 inflation', JCAP, 1605, 060.
- Katsuragawa T, Nojiri S, **Odintsov SD** & Yamazaki M 2016, 'Relativistic stars in dRGT massive gravity', *Phys. Rev. D* 93, 24013.
- Addazi A, Capozziello S & **Odintsov SD** 2016, 'Born-Infeld condensate as a possible origin of neutrino masses and dark energy', *Phys. Lett. B* 760, 611-616.

- Capozziello S, de Laurentis M, Farinelli R & **Odintsov SD** 2016, 'Mass-radius relation for neutron stars in F(R) gravity', *Physical Review* D 93, 023501.

- Odintsov SD & Oikonomou VK 2016, 'Gauss-Bonnnet gravitational baryogenesis', Physics Letters B 760, 259-262.
- Bamba K & Odintsov SD 2016, 'Inflation in a viscous fluid model', Eur. Phys. J. C 76,18 (1-8).
- Odintsov SD & Oikonomou VK 2016, 'Dark Energy Oscillations in Mimetic F(R) gravity', Physical Review D 94, 044012.
- Brooker DJ, **Odintsov SD** & Woodard RP 2016, 'Precision Predictions for the Primordial Power Spectra from F(R) Models of Inflation', *Nucl. Phys. B* 911, 318-337.

- Nojiri S, **Odintsov SD** & Oikonomou VK 2016, 'The bounce universe history from unimodular F(R) gravity', *Phys. Rev. D* 93, 084050 (1-14)

Selected research activities

Invited speaker at:

- Int. fields and ext. universe, Hiroshima.
- QFTG2016,Tomsk.
- Siberian Cosm. Days 2016,Tomsk.
- CQV, Benasque.
- SIGRAV conf, Cefalu.
- Beyond Conc.Model,Capetown.
- 2016 Petrov School, Kazan.



Olsaretti, Serena Universitat Pompeu Fabra (UPF) Humanities

I studied at the University of Oxford where I obtained a BA in Philosophy, Politics and Economics, an MPhil and a PhD in Political Philosophy. I then moved to Cambridge where I was a Research Fellow at Emmanuel College before joining the Faculty of Philosophy and St. John's College. ICREA Research Professor at UPF since October 2010.

Research interests

My work is in moral and political philosophy. I have worked on the ethics of markets, egalitarianism, and theories of well-being. Since September 2015, I am the PI of an ERC Consolidator project on "Justice and the Family. An Analysis of the Normative Significance of Procreation and Parenthood in a Just Society". The project examines what liberal egalitarian theorists of justice should think about how the costs and benefits of children should be distributed, both among contemporaries and across generations. I hold we need to address these relatively neglected questions to develop a complete and defensible theory of justice.

Selected publications

- Bou-Habib P & **Olsaretti S** 2016, 'Equality of resources and the demands of authenticity', *Critical Review Of International Social And Political Philosophy*, 19, 4, 434 - 455.

- **Olsaretti S** 2016, 'Review of K. Lippert-Rasmussen's Born Free and Equal? A Philosophical Inquiry into the Nature of Discrimination', Analysis, 76, 1, 111 - 113.

- Olsaretti S 2016, 'Review of J. Fishkin's Bottlenecks: A New Theory of Equal Opportunity', Ethics, 126, 3, 821 - 825.

Selected research activities

The *Erasmus Journal for Philosophy & Economics* published 'Justice, markets, and the family: an interview with Serena Olsaretti', vol. 9, issue 2 (2016).

PI of ERC Consolidator Grant (648610) on 'Justice and the Family: An Analysis of the Normative Significance of Procreation and Parenthood'.

Keynote speaker, Society for Applied Philosophy Annual Conference, Belfast 1-3 July 2016.

Invited speaker at the Political Philosophy Speaker Seminar, University of Oxford (May 2016); Political Philosophy and Child Poverty Workshop, University of Salzburg (August 2016); 7th International Lauener Symposium on Analytical Philosophy, University of Bern (September 2016); Philosophy Speakers Seminar, Central European University, Budabest (October 2016).

Co-organiser (with P Casal and A Williams) of Oxford Studies in Political Philosophy annual conference, Universitat Pompeu Fabra, 1-3 June 2016.



O'Sullivan, Ciara Universitat Rovira i Virgili (URV) Engineering Sciences

Ciara O' Sullivan received a BSc in Analytical Chemistry from Dublin City University in 1992, a PhD in Biotechnology from Cranfield University in 1996 and then went on to lead the sensors group at University College Cork from 1996-99. She then took up a Marie Curie Fellowship at the Universitat Rovira i Virgili (1999-2001) and was then awarded a Ramón y Cajal Fellowship which she pursued for 1 year prior to taking up her current position as ICREA Research Professor and establishing the Nanobiotechnology and Bioanalysis Group at the Universitat Rovira i Virgili. She is group leader of the GENCAT funded Consolidated Group INTERFIBIO.

Research interests

Her research interests lie in the development of electrochemical and optical biosensors exploiting advances in tailored biocomponents. Presently, her work focuses on reducing to practise cost-effective molecular diagnostics for screening and monitoring of disease, as well as on the development of aptamers for application in optical and electrochemical molecular aptamer beacons. The approaches for molecular diagnostics being developed include parallelised real-time electrochemical next generation sequencing, electrochemical array based primer extension and quantitative paper diagnostics as companion tools for the future paradigm of pharmacogenomics and personalised medicine.

Selected publications

- Debela AM, Beni V, Thorimbert S, Hasenknopf B, **O' Sullivan CK*** & Ortiz M* 2016, 'Electrochemical primer extension for detection of single nucleotide polymorphisms in the cardiomyopathy associated MYH7 gene', *Chem. Commun.*, 52, 757-759.

- Jauset Rubio M, Mairal T, Svobodová M, Saeed A, Nooredeen Abbas M, El-Shahawi M, Bashammakh AS,... Alyoubi AO & O 'Sullivan CK 2016, 'Ultrasensitive, rapid and inexpensive detection of DNA using paper based lateral flow assay', *Sci Rep*, 6, 37732.

- Jauset Rubio M, Mairal T, Svobodová M, Keegan N, McNeil C, El-Shahawi M, Bashammakh AS,... Alyoubi AO & **O 'Sullivan CK** 2016, 'Aptamer lateral flow assays for ultrasensitive detection of β-conglutin combining recombinase polymerase amplification and tailed primers', *Analytical Chemistry*, 88 (21), pp 10701–10709.

- Jauset M, Mairal T, Svobodova M and **O' Sullivan CK** 2016, 'Surface plasmon resonance imaging (SPRi) for analysis of DNA aptamer:βconglutin interactions', *Methods*, 97, 20-26.

- Acero Sanchez JL et al. 2016, 'Multiplex PCB-based electrochemical detection of cancer biomarkers using MLPA-barcode approach', *Biosensors & Bioelectronics*, 15; 82: 224-32.

- Sabaté del Rio J, Conejeras P & **O' Sullivan** CK 2016, 'Electrochemical detection of *Piscirickettsia salmonis* genomic DNA from salmon samples using solid-phase recombinase polymerase amplification', *Anal Bioanal Chemistry*, 408(30), 8611-8620.

- Dabbagh-Bazarbachi H et al. 2016, 'A simple liposome assay for the screening of zinc ionophore activity of polyphenols', *Food Chemistry*, 197, pp. 916-923.

Selected research activities

Executive Editor of Analytical Biochemistry.

Editorial Board of Analytical & Bioanalytical Chemistry.

Director of Interfibio – AGAUR funded Consolidated Research Group.

Technology transfer contract from 2Bind GmBH for aptamer selection.

Visiting Professor Newcastle University, UK and University of the Western Cape, South Africa.



Padoan, Paolo Universitat de Barcelona (UB) Experimental Sciences & Mathematics

Academic Degrees: - PhD in Astrophysics, Niels Bohr Institute, Copenhagen, 1997 - Degree in Astronomy, University of Padova, 1992 Academic Positions: - ICREA Research Professor, University of Barcelona, March 2010 - present - Associate Professor, UC San Diego, June 2007 - February 2010 - Assistant Professor, UC San Diego, June 2003 - June 2007 - Postdoctoral Fellow, Jet Propulsion Laboratory, Caltech, 2001 - 2003 - Postdoctoral Fellow, Harvard University, 1999 - 2001 - Postdoctoral Fellow, INAOE, Puebla, 1998 - 1999

Research interests

A major goal of my research is to understand the origin of stars. Star formation is a central problem in the study of galaxy evolution and cosmology. Stars are a dominant energy source to the interstellar medium of galaxies and control their chemical enrichment; the first massive stars in the universe contributed to its re-ionization. Because star-forming gas in galaxies is highly turbulent, the study of star formation involves the investigation of turbulence as well. A general theory of turbulence does not exist, but computer simulations provide valuable information on universal properties of turbulent flows. I conduct numerical experiments of super-sonic, self-gravitating magneto-hydrodynamic turbulence with physical parameters appropriate for describing star-forming gas in galaxies. Using adaptive mesh refinement methods, numerical simulations may span a huge range of scales, from the size of a galactic disk to that of an individual circumstellar disk.

Selected publications

- **Padoan P**, Juvela M, Pan L, Haugbolle T & Nordlund A 2016, 'SUPERNOVA DRIVING. III. SYNTHETIC MOLECULAR CLOUD OBSERVATIONS', *Astrophysical Journal*, 826, 2, 140.

- **Padoan P**, Pan L, Haugbolle T & Nordlund A 2016, 'SUPERNOVA DRIVING. I. THE ORIGIN OF MOLECULAR CLOUD TURBULENCE', *Astrophysical Journal*, 822, 1, 11.

- Pan L, **Padoan P**, Haugbolle T & Nordlund A 2016, 'SUPERNOVA DRIVING. II. COMPRESSIVE RATIO IN MOLECULAR-CLOUD TURBULENCE', *Astrophysical Journal*, 825, 1, 30.

- Frimann S, Jørgensen JK, **Padoan P** & Haugbølle T 2016, 'Protostellar accretion traced with chemistry: Comparing synthetic C180 maps of embedded protostars to real observations', *Astronomy & Astrophysics*, **(**587) A60.



Palomares, Emilio Institut Català d'Investigació Química (ICIQ) Experimental Sciences & Mathematics

Emilio Palomares (València, 1974). He studied Biology at the Universitat de València (1997). After graduating he joined Prof. Hermenegildo García's group at the Universitat Politècnica de València where he got his PhD (2001). In 2001 he was awarded a "Marie Curie" Fellowship at Imperial College of London (UK). There he began his work with molecular devices for energy conversion, under the direction of Prof. James R. Durrant. In 2004 Emilio got a "Ramón y Cajal" Fellowship at the ICMol-UVEG. In April 2006 he took a position at ICIQ, where he currently leads a research group which is focussed on energy conversion devices. In 2009 he was awarded an ERC starting grant to work on quantum dots for energy conversion devices. In 2006, Prof. Palomares got the Young Chemist Award by the Spanish Royal Society of Chemistry and in 2010, the INNOVA 2010 Award by the SusChem Spanish Association.

Research interests

My research is focused on several aspects of light induced electron transfer reactions in supramolecular structures and nanostructured inorganic materials. Such research activity has evolved towards the control and improvement of the reactions that govern the efficiency on molecular and supramolecular optoelectronic devices such as molecular solar cells – strategy which holds the promise for the achievement of low cost light-to-energy conversion devices- and the creation of new hybrid nanomaterials for hydrogen production and molecular based sensing devices to detect toxic substance on the environment.

Selected publications

- Moran G et al.'CuSCN as selective contact in solution-processed small-molecule organic solar cells leads to over 7% efficient porphyrin-based device', *Journal Of Materials Chemistry A*, 4, 28, 11009 – 11022.

- Wu K-L et al. 2016, 'Molecularly Engineered Ru(II) Sensitizers Compatible with Cobalt(II/III) Redox Mediators for Dye-Sensitized Solar Cells', *Inorganic Chemistry*, 55, 15, 7388 - 7395.

- Montcada NF et al. 2016, 'High photo-current in solution processed organic solar cells based on a porphyrin core A-pi-D-pi-A as electron donor material', *Organic Electronics*, 38, 330 - 336.

- Arrechea S et al. 2016, 'Efficiency improvement using bis(trifluoromethane) sulfonamide lithium salt as a chemical additive in porphyrin based organic solar cells', *Nanoscale*, 8, 41, 17953 – 17962.

- Farras P et al. 2016, 'Light driven styrene epoxidation and hydrogengeneration using H2O as an oxygen source ina photoelectrosynthesis cell', Green Chem, 18, 255-260.

- Reig M et al. 2016, 'New solution-processable carbazole derivatives as deep blue emitters for organic light-emitting diodes', RSC Adv, 6, 9247-9253.

- Wang S et al. 2016, 'Encapsulation of MEH-PPV:PCBM Hybrids in the Cores of Block Copolymer Micellar Assemblies: Photoinduced Electron Transfer in a Nanoscale Donor-Acceptor System', Langmuir, *32*, 329-337.

- Marin-Beloqui JM et al. 2016, 'Decreasing Charge Losses in Perovskite Solar Cells Through mp-TiO2/MAPI Interface Engineering', Chem Mater, 28, 207-213.

Selected research activities

-1st Workshop on Future Emerging Technologies for Low Carbon Energy Supply-Joint Research Center (Ispra-Italia)

-ORGANIC & PEROVSKITE SOLAR CELLS CONFERENCE AND MC/WG MEETINGS OF COST ACTION MP1307 /Heraklion-Creta(Greece) -The International Conference on Hybrid and Organic Photovoltaics (HOVP16)

-Conference chair at International Conference on Perovskite Thin Film Photovoltaics (ABXPV)

-NIMS and ICYS -National Institute for Materials Science (NIMS) and International Center for Young Scientists



Papaspiliopoulos, Omiros Universitat Pompeu Fabra (UPF) Social & Behavioural Sciences

Omiros Papaspiliopoulos is ICREA Research Professor at Universitat Pompeu Fabra. Previous positions include Research Associate at Lancaster and Oxford University, Assistant Professor at Warwick University, and Professor at UPF. He is currently the scientific director of the Masters in Data Science at Barcelona GSE. His research has appeared in the top journals in Statistics. He has served as Associate Editor for the Journal of the Royal Statistical Society Series B, Biometrika and Statistics and Computing. He has delivered more than 80 invited talks, and has given courses at ENSAE in Paris, the Berlin Mathematical School, the Department of Mathematics at University of Copenhagen, and the Engineering Department at Osaka University. In 2010 he was awarded the Royal Statistical Society's Guy Medal in Bronze. His research interests include Monte Carlo Methods, Bayesian Statistics, Stochastic Processes, Prediction, Statistical Modelling, Data Science.

Research interests

I develop modern statistical methodology appropriate for problems that arise in Economics, Finance, the Social Sciences and Biology. A unifying theme in my research is the statistical estimation of highly structured stochastic models from partially informative observations using computational methods. I am interested in phenomena that exhibit temporal dependence that can be modelled using stochastic processes, e.g. stochastic differential equations, hidden Markov models, state-space models, and cross-sectional dependence, which can be modelled using networks and partial differential equations. I often work within the framework of Bayesian inference. My research has focused on the development of new algorithms for statistical inference in such settings, and the theoretical analysis of their properties. In particular, I have worked extensively on Markov chain Monte Carlo methods, particle filters, and the simulation of stochastic processes.

Selected publications

- **Papaspiliopoulos O**, Roberts GO & Taylor KB 2016, 'EXACT SAMPLING OF DIFFUSIONS WITH A DISCONTINUITY IN THE DRIFT', *Advances In Applied Probability*, 48, A, 249 – 259.

- **Papaspiliopoulos O**, Ruggiero M & Spanò D 2016, 'Conjugacy properties of time-evolving Dirichlet and gamma random measures Filtering hidden Markov measures', *Electronic Journal of Statistics*, 10:2, 3452–3489.

Selected research activities

Editorial activity: Biometrika SIAM Journal of Uncertainty Quantification Statistics and Computing Bulletin of the Hellenic Mathematical Society Research visits: TU Delft (April) University of Chicago (July-August) Big Data Institute University College London (December) Seminars: Institute for Statistics and Mathematics, Vienna, January 2016 Department of Statistics, University of Warwick, January 2016 Van Dantzig Seminar, Delft, April, 2016 Department of Probability and Statistics, Delft, April 2016 Department of Statistics, Chalmers University, April 2016 Department of Statistics, Athens University of Economics and Business, June 2016 Department of Decision Sciences, Bocconi University, November 2016 Department of Statistical Science, UCL, December 2016 Invited talks at conferences and workshops: "Data Assimilation and Inverse Problems", Warwick, February 2016 Uncertainty Quantification, SIAM conference, Lausanne, April 2016 Predicting elections: http://558project.blogspot.gr/



Pelaz Herrero, Soraya Centre de Recerca en Agrigenòmica (CRAG) Life & Medical Sciences

Born in Bilbao, started Biology studies in the Basque Country University but moved to Madrid to follow the Molecular Biology and Biochemistry specialty. She obtained her BSc at Autonomous University of Madrid (UAM) in 1989. For her PhD studies she joined Dr. Morata's laboratory at the CBM where she performed research on Developmental Genetics working with Drosophila with a Basque Predoctoral fellowship and got the PhD in 1993 at UAM. For her postdoctoral research she moved from flies to flowers by joining Dr. Yanofsky's laboratory at the University of California at San Diego. There she performed Developmental Biology on Arabidopsis with fellowships from the Spanish Ministry of Education and Science and from the Human Frontiers Science Program Organization. In 2001 she got a "Ramón y Cajal" contract at INIA in Madrid to establish her own line of research in Flower Development. In 2003 she joined ICREA and moved to Barcelona.

Research interests

Floral induction is probably the most important process in plant development since it takes to the formation of flowers and fruits. Flowering must happen in a favorable time of the year to allow successful seed formation and reproduction. Our goal is to elucidate how plants know when to flower in response to a variety of external and endogenous signals and what genes are responsible for the flower development itself. Flowers are composed of four types of organs: sepals, petals, stamens and pistils, whose differentiation is the result of the coordinated action of different genes. Unraveling the intimate mechanisms governing these events became our main interest. As a consequence of our studies in plant development we lately focused on trichomes (plant hairs) as putative biofactories for anticancer and antimalarial compounds. We will generate hairy plants of species known for their anticancer properties with new compounds inside their trichomes to improve anticancer treatments.

Selected publications

- Pulice G, **Pelaz S** & Matías-Hernández L 2016, 'Molecular Farming in *Artemisia annua*, a sustainable approach to improve anti-malarial drug production', *Frontiers in Plant Science*, 7, 329. doi: 10.3389/fpls.2016.00329.

- Matías-Hernández L, Aguilar-Jaramillo AE, Osnato M, Weinstain R, Shani E, Suárez-López P & **Pelaz S** 2016, 'TEMPRANILLO reveals the mesophyll as crucial for epidermal trichome formation', *Plant Physiology*, vol. 170, pp 1624-1639.

- Matías-Hernández L, Aguilar-Jaramillo AE, Cigliano RA, Sanseverino W & **Pelaz S** 2016, 'Flowering and trichome development share hormonal and transcription factor regulation', *Journal of Experimental Botany*, 67, 5, 1209 – 1219.

Selected research activities

Funded Projects

* Proyectos de I+D. Programa Estatal de Fomento de la Investigación Científica y Técnica de Excelencia. Subprograma Estatal de Generación de Conocimiento. Evolution and function of TEMPRANILLO in plant development and adaptive responses. MINECO (BFU2015-64409-P).

* Garante Researcher of Centro de Excelencia Severo Ochoa (SEV-2015-0533) awarded to CRAG.

* EXPLORA. MINECO. "Hairy but Aromatic" plants: a possible solution to improve cancer treatment. (BIO2013-50388-EXP).

* Redes de Excelencia. MINECO. Red de Floración. (BIO2014-54481REDT).

* **Torres Quevedo**. MINECO. Use of trichomes as "natural factories" for the pharmaceutical agriculture. A CRAG-Sequentia Collaboration. (PTQ-13-06459).

* SGR (Grups de Recerca Reconeguts i Finançats). AGAUR. Arabidopsis Developmental Genomics. (2014-SGR-1406).

Research Stay

* Visiting Professor at the NYU with a "Co-operative Research Programme" fellowship from OECD.



Pelejero Bou, Carles Institut de Ciències del Mar (CSIC - ICM) Experimental Sciences & Mathematics

Born in Barcelona in 1968, Carles Pelejero graduated in Chemistry at the Autonomous University of Barcelona in 1991, with a speciality in Organic Chemistry. He obtained his PhD in Chemistry at the University of Barcelona in 2000, doing research in the fields of paleoceanography and paleoclimatology through the study of molecular biomarkers in deep sea sediments. He then spent four years of postdoctoral research in Australia, at the Australian National University and Geoscience Australia. There, he developed new methodologies for the elemental and isotopic analysis of marine biogenic carbonates using MC-ICPMS and TIMS. In 2005 he moved to the Institut de Ciències del Mar (ICM-CSIC), in Barcelona, with a "Ramón y Cajal" contract. In October 2006 he was appointed ICREA Research Professor.

Research interests

I am interested in understanding and quantifying how the marine environment and climate are changing today, in which ways they have changed in the past, and how will they influence marine organisms and ecosystems in the future. To this end, I analyse deep sea sediments and corals as archives of changes in the past, use systems to monitor the present, and run manipulative experiments in aquaria to simulate the future. A main environmental issue that I am currently studying is the progressive acidification of the oceans that is occurring due to the marine absorption of part of the CO_2 that humans are emitting to the atmosphere. I am also setting up culture-based systems to calibrate paleoceanographic proxies in corals, making use of the aquaria facilities at the ICM.

Selected publications

- Isari S, Zervoudaki S, Peters J, Papantoniou G, **Pelejero C** & Saiz E 2016, 'Lack of evidence for elevated CO₂-induced bottom-up effects on marine copepods: A dinoflagellate-calanoid prey-predator pair', *ICES J. Mar. Sci.* 73, 650-658.

Sala MM, Aparicio FL, Balagué V, Boras JA, Borrull E, Cardelús C, Cros L, Gomes A, López-Sanz A, Malits A, Martínez RA, Mestre M, Movilla J, Sarmento H, Vázquez-Domínguez E, Vaqué D, Pinhassi J, Calbet A, Calvo E, Gasol JM, Pelejero C & Marrasé C 2016, 'Contrasting effects of ocean acidification on the microbial food web under different trophic conditions', *ICES J. Mar. Sci.* 73, 670-679.
Bunse C, Lundin D, Karlsson CMG, Akram N, Vila-Costa M, Palovaara J, Svensson L, Holmfeldt K, González JM, Calvo E, Pelejero C, Marrasé C, Dopson M, Gasol JM & Pinhassi J 2016, 'Response of marine bacterioplankton pH homeostasis gene expression to elevated CO₂', *Nat. Clim. Change*, 6, 483-487.

- Marañón E, Balch WM, Cermeño P, González N, Sobrino C, Fernández A, Huete-Ortega M, López-Sandoval DC, Delgado M, Estrada M, Álvarez M, Fernández-Guallart E & **Pelejero C** 2016, 'Coccolithophore calcification is independent of carbonate chemistry in the tropical ocean', *Limnol. Oceanogr.* 61, 1345-1357.

- Aparicio FL, Nieto-Cid M, Borrull E, Calvo E, **Pelejero C**, Sala MM, Pinhassi J, Gasol JM & Marrasé C, 2016, 'Eutrophication and acidification: do they induce changes in the dissolved organic matter dynamics in the coastal Mediterranean Sea?', *Sci. Total Environ.* 563-564, 179-189

- Movilla J, Calvo E, Coma R, Serrano E, López-Sanz A & **Pelejero C** 2016, 'Annual response of two Mediterranean azooxanthellate temperate corals to low-pH and high-temperature conditions', *Mar. Biol.* 163, 135, doi:10.1007/s00227-016-2908-9.

- Ribes M, Calvo E, Movilla J, Logares R, Coma R & **Pelejero C** 2016, 'Restructuring of the sponge microbiome favors tolerance to ocean acidification', *Env. Microbiol. Rep.* 8, 536–544.



Pérez Enciso, Miguel Universitat Autònoma de Barcelona (UAB) Life & Medical Sciences

I am a Biologist and obtained my PhD in 1990 in Genetics (Universidad Complutense, Madrid). After that I moved to the USA and France during three years to carry out post doctoral studies, specializing in Bayesian Statistics applied to Animal Breeding and Quantitative Genetics. I worked at the Institut de Recerca i Tecnologia Agroalimentàries (IRTA) from 1993 - 1999 and at INRA (Toulouse, France) from 1999 til 2003, when I became an ICREA Research Professor. I am also part-time professor in Universitat Autònoma de Barcelona.

Research interests

Most of the genes that are of socioeconomic importance, e.g., genes affecting disease susceptibility or that makes lberian pig meat taste good, are very difficult to find because they are influenced by many genes of small effect. My main area of research is to develop statistical and computational tools that help us to identify these genes, now using high throughput sequencing technology. A topic of particular interest is studying the benefits (if any) of using complete sequence to predict genetic merit. I am also concerned with studying how man has shaped the pattern of genetic variation in livestock species, mainly in the pig, through domestication and artificial selection, and how pigs have adapted to extreme environments. I participated in the consortium leading to the publication of the pig genome sequence (Nature, 2012) and I am responsible for the first genome sequence of an ancient pig, a sow that lived in the 16th century in Montsoriu Castle (Girona) and of the first Iberian pig genome.

Selected publications

- Perez-Enciso M & Legarra A 2016, 'A combined coalescence gene-dropping tool for evaluating genomic selection in complex scenarios (ms2gs)', Journal Of Animal Breeding And Genetics, 133, 2, 85 – 91.

Selected research activities

Editor of BMC Bioinformatics and of the Journal of Animal Breeding and Genetics.

Participation in PhD committees in Chinese Agricultural University (Beijing), University of Turku (Finland) and University of Wageningen (Holland).

Invited plenary talk at the 5th International Conference Quantitative Genetics, Madison, Wisconsin, USA. Participation in the UAB MSc of Bioinformatics.



Perucho Martinez, Manuel Institut de Medicina Predictiva i Personalitzada del Càncer (IMPPC) Life & Medical Sciences

Manuel Perucho completed his PhD in Biological Sciences at the University of Madrid, Spain, in 1976 and continued as a postdoctoral at the Max-Planck-Institut, Berlin. In 1979 he moved to Cold Spring Harbor Laboratory, and in 1983 to the State University of New York (SUNY) at Stony Brook, New York. In 1988 he moved to California Institute for Biological Research (CIBR) and in 1995 to Sanford-Burnham Medical Research Institute (SBMRI), both in La Jolla, California. He was appointed Director of the Institute of Predictive and Personalized Medicine of Cancer (IMPPC) of Barcelona in 2008. His work has pioneered landmarks in the molecular basis of cancer, including the discovery of the human oncogenes in the 80's and the mutator phenotype in the 90's. Among other prizes and awards, he was recipient of a Merit Award from the National Cancer Institute for NIH grant CA 63585 and the AACR-National Foundation for Cancer Research Professorship in Basic Cancer Research in 2003.

Research interests

We aim to understand genomic and epigenomic instability as "remote" and "ultraremote" control mechanisms underlying cancer. Epigenetic alterations precede and determine the occurrence of genetic alterations: In colon tumors with microsatellite instability (MSI), age-associated DNA hypermethylation leads to a mutator phenotype when MLH1 DNA mismatch repair gene becomes epigenetically silenced. In some MSI negative tumors, DNA hypomethylation spreads during aging eventually leading to mitotic errors. Testing this "wear & tear" model yielded two instances not conforming the model (not excluding it), but revealing interesting clues on the epigenetic roots of some colon cancers: a defect increasing the demethylation observed in relatively younger patients with multiple neoplasms (synchronous and metachronous); and an exacerbated demethylation of some pericentromeric repeats especially affecting tumors with wild type TP53, linked to aberrant expression of long non-coding RNA.

Selected publications

- Buj R, Mallona I, Diez-Villanueva A, Barrera V, Mauricio D, Puig-Domingo M, Reverter JL, Matias-Guiu X, Azuara D, Ramirez JL, Alonso S, Rosell R, Capella G, **Perucho M**, Robledo M, Peinado MA & Jorda M 2016, 'Quantification of Unmethylated Alu (QUAlu): a tool to assess global hypomethylation in routine clinical samples', *Oncotarget*, 7, 9, 10536 – 10546.

- Kato T, Alonso S, Muto Y, **Perucho M** & Rikiyama T 2016, 'Tumor size is an independent risk predictor for metachronous colorectal cancer', *Oncotarget*, 7, 14, 17896 - 17904.

- Kato T, Alonso S, Noda H, Miyakura Y, Tsujinaka S, Saito M, Muto Y, Fukui T, Ichida K, Takayama Y, Watanabe F, Kakizawa N, Perucho
 M & Rikiyama T 2016, 'Malignant, but not benign, intraductal papillary mucinous neoplasm preferentially associates with prior extrapancreatic malignancies', Oncology Reports, 35, 6, 3236 – 3240.

Paolo Fiorentino F, Tokgun E, Sole-Sanchez S, Giampaolo S, Tokgun O, Jauset T, Kohno T, **Perucho M**, **Soucek L** & Yokota J 2016, 'Growth suppression by MYC inhibition in small cell lung cancer cells with TP53 and RB1 inactivation', *Oncotarget*, 7, 21, 31014 – 31028.
Kato T, Alonso S, Muto Y, Noda H, Miyakura Y, Suzuki K, Tsujinaka S, Saito M, **Perucho M** & Rikiyama T 2016, 'Clinical characteristics of synchronous colorectal cancers in Japan', *World Journal Of Surgical Oncology*, 14, 272.



Petrova, Maria Institute for Political Economy and Governance (IPEG) Social & Behavioural Sciences

Maria Petrova received PhD from Harvard University in 2008. She spent 2012 - 2013 as a Visiting Associate Research Scholar at the Center for the Study of Democratic Politics at Princeton University. In 2012-2013, she was Research Director at the Center for New Media and Society at the New Economic School, Russia. Her research interests include political economy, mass media economics, and Internet Economics. She has published in American Economic Review, Quarterly Journal of Economics, American Political Science Review, Proceedings of National Academy of Sciences, American Economic Journal: Applied Economics, Journal of Public Economics, Journal of the Review of Economic Studies and a Co-Editor of the Journal of Public Economics.

Research interests

I am an applied microeconomist whose focus is information economics, political economy, and development. I seek to understand how information flows affect complex links between economic and political phenomena. Existing works traditionally underestimate the role of information provision in media for different aspects of development, and my research fills this gap. The main question that I address in my work is how information affects political, economic, and financial outcomes in different countries. My recent research is focused on the political economy of traditional and social media, and on the determinants and implications of individual political donations.

Selected publications

- **Petrova M** & **Enikolopov R** 2016, 'Media Capture: Empirical Evidence', in 'Handbook of Media Economics', eds. Anderson S, Waldfogel J & Strömberg D, *North-Holland*, pp. 687-700.

Selected research activities

In 2016, Maria Petrova joined the Editorial Board of the *Review of Economic Studies* and became a Co-Editor of the *Journal of Public Economics*. She also gave a number of talks at multiple conferences and seminars.



Petrovic, Mira Institut Català de Recerca de l'Aigua (ICRA) Experimental Sciences & Mathematics

ICREA Research Professor since December 2005. PhD in Chemistry (1995), Faculty of Chemical Engineering and Technology, University of Zagreb, Croatia. From 1999-2011 research scientist at the Department of Environmental Chemistry, Institute for Environmental Assessment and Water Studies (IDAEA-CSIC), Barcelona. Since July 2011 senior researcher at the Catalan Institute for Water Research (ICRA), Girona, Spain. At ICRA she is responsible for the research line "Pollutants in wastewater". She has participated in 16 EU projects since 1999; published 171 papers in SCI journals (Hirsch Index 52); edited 7 books and published 34 book chapters. Coordinator of a MSCA EID project TreatREC (H2020).

Research interests

My main expertise is in the field of analytical environmental chemistry, specifically analysis of trace organic contaminants, such as pharmaceuticals, endocrine disrupting compounds and surfactants by advanced mass spectrometric techniques (liquid chromatography-tandem and hybrid MS) and the study of their fate and behaviour in the aquatic environment and during wastewater and drinking water treatment. Specific research lines are: (i) non-target analysis and fingerprinting of organic substances in wastewater and receiving environment, (ii) the study of biotic and abiotic transformation of emerging contaminants, identification of transformation products, elucidation of transformation pathways; (iii) the study of occurrence and distribution of emerging contaminants in aquatic environment and environmental risk assessment and (iv) sustainable wastewater management; application of innovative wastewater treatment technologies; innovative practices for reuse of reclaimed waters.

Selected publications

- Radjenovic J & **Petrovic M** 2016, 'Sulfate-mediated electrooxidation of X-ray contrast media on boron doped diamond anode', *Water Research*, 94, 128 – 135.

- Aristi I, Casellas M, Elosegi A, Insa S, **Petrovic M**, Sabater S & Acuna V 2016, 'Nutrients versus emerging contaminants-Or a dynamic match between subsidy and stress effects on stream biofilms', *Environmental Pollution*, 212, 208 - 215.

- Sabater S, Barcelo D, De Castro-Catala N, Ginebreda A, Kuzmanovic M, **Petrovic M**, Pico Y, Ponsati L, Tornes E & Munoz I 2016, 'Shared effects of organic microcontaminants and environmental stressors on biofilms and invertebrates in impaired rivers', *Environmental Pollution*, 210, 303 – 314.

- Aymerich I, Acuna,V, Barcelo D, Garcia MJJ, **Petrovic M**, Poch M, Rodriguez-Mozaz S, Rodriguez-Roda I, Sabater S, von Schiller D & Corominas Ll 2016, 'Attenuation of pharmaceuticals and their transformation products in a wastewater treatment plant and its receiving river ecosystem', *Water Research*, 100, 126 – 136.

- Ekowati Y, Buttiglieri G, Ferrero G, Valle-Sistac J, Diaz-Cruz MS, Barcelo D, **Petrovic M**, Villagrasa M, Kennedy MD & Rodriguez-Roda I 2016, 'Occurrence of pharmaceuticals and UV filters in swimming pools and spas', *Environmental Science And Pollution Research*, 23, 14, 14431 - 14441.

- Kuzmanović M, López-Doval JC, De Castro-Català N, Guasch H, **Petrović M**, Muñoz I, Ginebreda A & Barceló D 2016, 'Ecotoxicological risk assessment of chemical pollution in four Iberian river basins and its relationship with the aquatic macroinvertebrate community status, *Sci. Total Environ.* 540: 324-333

- Gabarron S, **Gernjak W**, Valero F, Barcelo A, **Petrovic M** & Rodriguez-Roda I 2016, 'Evaluation of emerging contaminants in a drinking water treatment plant using electrodialysis reversal technology', *Journal Of Hazardous Materials*, 309, 192 – 201.



Peydró Alcalde, José Luis Universitat Pompeu Fabra (UPF) Social & Behavioural Sciences

Peydró is ICREA Research Professor at UPF, Professor of Economcis and Finance at UPF, Barcelona GSE Research Professor, CREI Research Associate, CEPR Research Fellow, member of the advisory scientific committee at the European Systemic Risk Board, research advisor of the Bank of Spain, Bundesbank Research Professor, and consultant in several central banks and international organizations. He has been a visiting scholar at Banque de France, Becker Friedman Institute at Chicago University, MIT Sloan, Bank of Spain, IMF, De Nederlandsche Bank and the World Bank. At present, he is recipient of an ERC Consolidator grant, a senior Houblon-Norman Fellowship from the Bank of England and two MINECO grants. He serves as an associate editor for the Review of Finance, Financial Management and the Spanish Review of Financial Economics. He has presented his research in the main universities and central banks in the world.

Research interests

Specializing in Finance and Macroeconomics, mainly on banking, systemic risk, financial crises, central bank policies (monetary and prudential policy), financial globalization, contagion, macroeconomics and credit markets, capital and liquidity. He is also working on the effects of financial distress on households' welfare. He has recently coauthorized a book on Systemic Risk, Crises and Macroprudential Policy at MIT Press.

Selected publications

- Abbasi P, Iyer R, **Peydró JL** & Tous F 2016, 'Securities Trading by Banks and Credit Supply: Micro-Evidence from the Crisis', *Journal of Financial Economics*, vol. 121, no. 3, pp. 569-594.

- Ippolito F, **Peydró JL**, Polo A & Sette E 2016, 'Double Bank Runs and Liquidity Risk Management', *Journal of Financial Economics*, vol. 122, no. 1, pp. 135-154.

- Maddaloni A & **Peydró JL** 2016, 'The Credit Channel of Monetary Policy in the Euro Area' in Badinger H & Nitsch V (eds.), *Routledge* Handbook of the Economics of European Integration, Oxford.

- Jiménez G, Ongena S, **Peydró JL** & Saurina J 2016, 'Macroprudential Policy, Countercyclical Bank Capital Buffers and Credit Supply: Evidence from the Spanish Dynamic Provisioning Experiments', *Journal of Political Economy*, *152*, 305-318.

- Baskaya Y, di Giovanni J, Kalemli-Ozcan S, **Peydró JL** & Ulu MF 2016, 'Capital Flows, Credit Cycles and Macroprudential Policy', Journal of International Economics, vol. 86, pp 63-68.

Selected research activities

European Research Council Consolidator Grant (2015-2020).

Member of the Advisory Scientific Committee, European Systemic Risk Board (ESRB).

European Central Bank, consultant on negative monetary rates.

Senior Houblon-Norman Fellowship at the Bank of England.

Review of Finance and Financial Management, Associate Editor.

Keynote lectures at OFCE-Sciences Po's Empirical Monetary Economics and European Central Bank-Banco de Portugal's Transmission and Effectiveness of Macroprudential Policies.

Seminar presentations at Stanford, LSE, Berkeley, European Commission and high level conference BoE-HKMA-IMF (Hong Kong) copresenting with the IMF, BIS, ECB and BoE Chief Economists.

Organizer of European Central Bank's conference "Monetary Policy Pass-Through and Credit Markets" and BGSE Workshop on Financial Intermediation, and UPF Departmental Seminar Series.

2016 SERIEs Award, for best articles published from 2012 to 2015.

PhD thesis supervision: Dmitry Khametshin "Essays in empirical banking" and Paul Eduardo Soto "Essays on the Bank Lending Channel".



Poater Teixidor, Jordi Universitat de Barcelona (UB) Experimental Sciences & Mathematics

Born in 1977. I got my PhD in Chemistry in 2003 at the Universitat de Girona (UdG) with a thesis on the analysis of chemical bonding and aromaticity of organic systems with tools based on the electron-pair density. Next I moved to the Vrije Universiteit Amsterdam (VUA), with a Marie Curie postdoctoral fellowship, where I carried out research on the DNA replication mechanism by means of Kohn-Sham molecular orbital theory complemented with quantitative bond energy decomposition analyses. In 2008 I was awarded with a Ramón y Cajal tenure-track position at the Institute of Computational Chemistry and Catalysis of the UdG. Afterwards I was appointed Senior Associate Researcher at the Department of Theoretical Chemistry and Amsterdam Center for Multiscale Modeling of the VUA. I have published 112 scientific publications in peer-reviewed journals, which have received more than 3.600 citations. My H-Index is 33, and I appear as "Scientist" at the Essential Science Indicators.

Research interests

My research takes off from two main lines, which are interconnected and reinforce each other. First, the study of aromaticity in organic and metal systems, with tools derived from the electron-pair density, with the purpose of analyzing the electronic structure and molecular bonding in a wide range of molecular systems. Afterwards, I have become an expert in the application of Kohn-Sham molecular orbital theory complemented with quantitative bond energy decomposition analyses to biological issues. In particular, the study of the DNA replication mechanism has become my main research line. I have got closer to experiment by studying the selectivity in DNA replication mechanism taking into study the steric shape, hydrogen bonds, pi-stacking and solvent effects in DNA bases.

Selected publications

Ehbets J, Lorenzen S, Mahler C, Bertermann R, Berkefeld A, **Poater J**, Fritz-Langhals E, Weidner R, Bickelhaupt MF & Tacke R 2016, 'Synthesis and Hydrolysis of Alkoxy(aminoalkyl)diorganylsilanes of the Formula Type R-2(RO)Si(CH2)(n)NH2 (R = Alkyl, n=1-3): A Systematic Experimental and Computational Study', *European Journal Of Inorganic Chemistry*, vol. 11, pp. 1641 - 1659.
 Poater J, Solà M, Vinas C & Teixidor F 2016, 'Hückel's Rule of Aromaticity Categorizes Aromatic closo Boron Hydride Clusters', *Chemistry-a European Journal*, vol. 22, pp. 7437 - 7443.

- El Bakouri O, Solà M & **Poater J** 2016, 'Planar vs. three-dimensional X_6^{2} , $X_2Y_4^{2}$, and $X_3Y_3^{2}$ (X, Y = B, Al, Ga) metal clusters: an analysis of their relative energies through the turn-upside-down approach', *Physical Chemistry Chemical Physics*, vol. 18, pp. 21102 – 21110. - El Bakouri O, **Poater J**, Feixas F & Solà M 2016, 'Exploring the validity of the Glidewell-Lloyd extension of Clar's π -sextet rule: assessment from polycyclic conjugated hydrocarbons', *Theoretical Chemistry Accounts*, vol. 135, no. 205, pp. 1-12. - El-Hamdi M, Solà M, **Poater J** & Timoshkin AY 2016, 'Complexes of adamantane-based group 13 Lewis acids and superacids: Bonding analysis and thermodynamics of hydrogen splitting', *Journal of Computational Chemistry*, vol. 37, pp. 1355-1362.

Selected research activities

- PI of MINECO research project "Computer-aided design of unnatural DNA base pairs that can undergo DNA replication" (2016-19).
- Co-PI of Holland Research School of Molecular Chemistry (HRSMC) Fellowship Programme with the research project: "Palladium-
- Catalyzed Oxidative Aerobic Isocyanide Insertion A Mechanistic Study".
- Delivered 3 talks at 251st ACS National Meeting in San Diego (USA).
- Oral communication delivered at 6th EUCHEMS Chemistry Conference in Seville (Spain).
- Session chairman of Girona Seminar 2016 in Girona (Spain).
- Supervisor of 3 master theses.



Pol, Albert Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS) Life & Medical Sciences

In June 1993 I obtained my degree in Biology at the University of Barcelona (UB). I continued my studies in the Biochemistry Dept. and the Cell Biology Dept. of the Medical School (UB). In July 1998 I obtained my PhD and I moved to the laboratory of Prof RG Parton in the University of Queensland (Australia) as a NHMRC Research Officer. My professional independent research career started in 2002 when I was awarded a "Ramón y Cajal" grant from the Spanish Science and Technology Ministry. In November 2006 I obtained an I3 grant from the same ministry and in November 2007 I was incorporated as an ICREA Research Professor at the Cell Proliferation and Signalling team (IDIBAPS). In addition, I am Associated Professor in the Cell Biology Dept. of the Medical School (UB). Today I combine my research with teaching in biomedical sciences and in a PhD Programme for young investigators. www.celltrafficbcn.cat/Home.html.

Research interests

The aim of our project is to characterize – in health and in disease – the cellular processes that are regulated or altered due to lipid accumulation within the cells. All prokaryote and eukaryote cells maintain the competence of accumulating lipids in organelles known as intracellular lipid droplets. In healthy cells, a small population of lipid droplets is present at all times, though these organelles become abundant in response to different physiopathological conditions such as obesity, diabetes, fatty liver, arteriosclerosis and even cancer. Recent advances in the cell biology of lipid droplets have shown that they are multifunctional organelles that are metabolically very active and thus constitute key elements in the complex exchange of lipids and proteins in constant movement within the cells. In this scenario, we are especially focused in the biological cost of the accumulation of cholesterol in organelles such as mitochondria and the role of caveolin in these fluxes.

Selected publications

- Garcia-Melero A, Reverter M, Hoque M, Meneses-Salas E, Koese M, Conway JR, Johnsen CH, Alvarez-Guaita A, Morales-Paytuvi F, Elmaghrabi YA, **Pol A**, Tebar F, Murray RZ, Timpson P, Enrich C, Grewal T & Rentero C 2016, 'Annexin A6 and late endosomal cholesterol modulates integrin recycling and cell migration', *J Biol Chem.*, 291(3):1320-35.

Bosch M, Fajardo A, Alcala-Vida R, Fernandez-Vidal A, Tebar F, Enrich C, Cardellach F, Perez-Navarro E & **Pol A** 2016, 'Hepatic Primary and Secondary Cholesterol Deposition and Damage in Niemann-Pick Disease', *American Journal Of Pathology*, 186, 3, 517 – 523.
Sala-Vila A, Navarro-Lerida I, Sanchez-AlvarezM, Bosch M, Calvo C, Lopez JA, Calvo E, Ferguson C, Giacomello M, Serafini A, Scorrano L, Enriquez JA, Balsinde J, Parton RG, Vazquez J, **Pol A**, Del Pozo MA 2016, 'Interplay between hepatic mitochondria-associated membranes, lipid metabolism and caveolin-1 in mice', *Scientific Reports*, 6, 27351.



Postigo, Antonio Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS) Life & Medical Sciences

CURRENT POSITION: * ICREA Research Professor. IDIBAPS (Barcelona). * Adjunct Visiting Professor, JG Brown Cancer Center (USA) PAST POSITIONS: * Research Instructor & Special Fellow (Div Mol. Oncology, Washington Univ, USA) * Research Associate and Fellow (Depts. of Cell Biology & Medicine, Washington Univ, USA) * PhD student (Dept. of Immunology, Hosp. de la Princesa, Madrid) FUNDING: * Public agencies: Spanish Ministry of Economy & Competitiveness, AGAUR, European Commission * Private institutions: Leukemia Research Foundation, La Marató de TV3 Foundation, Spanish Association Against Cancer, AVON Breast Cancer Campaign, La Caixa Foundation, Olga Torres Foundation, Academy of Medical and Health Sciences of Catalonia & Balearic Islands

Research interests

The group investigates the molecular mechanisms regulating gene expression during cell differentiation and cancer. As molecular model we use the ZEB family of transcription factors (ZEB1 and ZEB2) and their different cofactors. Research in the laboratory aims at understanding the expression and function of ZEB factors in stem cell determination, normal cell differentiation, malignant transformation and tumor initiation and progression. Our work involves cell line and human tissue based approaches as well as in vivo mouse models in normal and malignant cells from multiple tissue systems, namely, epithelial, skeletal muscle and hematopoietic.

Selected research activities

Grant evaluator during 2016: Medical Research Council (UK), Cancer Research UK (UK) and Czech Science Foundation (Czech Republic).



Prieto Vives, Pilar Universitat Pompeu Fabra (UPF) Humanities

Pilar Prieto is an ICREA Research Professor at the Department of Translation and Language Sciences at UPF (Universitat Pompeu Fabra), Barcelona, Catalunya. After obtaining her doctoral degree in Romance Linguistics at the University of Illinois at Urbana-Champaign, she worked as a postdoctoral fellow at Bell Laboratories (Murray Hill, New Jersey), where she continued working on the linguistic meaning of prosody across languages. Since 2008 she coordinates the "Prosodic Studies Group" at the Department of Translation and Language Sciences, Universitat Pompeu Fabra.

Research interests

My main research goal is to understand the role of prosody and co-speech gestures in human communication from a crosslinguistic, developmental, and cognitive perspective. Three important strands of this research include: (a) to incorporate this knowledge into semantic models of language that model the interface areas with other components; (b) to empirically investigate how humans process prosodic and gestural patterns in combination with speech; and (c) to investigate the cognitive and developmental benefits of prosody and gesture in different areas, such as first and second language acquisition, as well as communication training for language impaired and non-impaired populations. The social significance of this research topic is high, as ICT training procedures based on prosodic and gestural awareness can be proven valuable to improve language abilities in populations with neurodevelopmental disorders characterized by impaired social interaction.

Selected publications

- Armstrong ME, Andreu L, Esteve-Gibert N & **Prieto P** 2016, 'Children's processing of morphosyntactic and prosodic cues in overriding context-based hypotheses: an eye tracking study', *Probus*, 28, 1, 57 – 90.

- Hualde JI & **Prieto P** 2016, 'Towards an International Prosodic Alphabet', *Laboratory Phonology: Journal of the Association for Laboratory Phonology*, 7(1):5, pp. 1-25.

- Roseano P, Gonzalez M, Borras-Comes J & **Prieto P** 2016, 'Communicating Epistemic Stance: How Speech and Gesture Patterns Reflect Epistemicity and Evidentiality', *Discourse Processes*, 53, 3, 135 – 174.

- Li F, González-Fuente S, **Prieto P** & Espinal MT 2016, 'Is Mandarin Chinese a truth-based language? Rejecting responses to negative propositions', *Frontiers in Psychology*, 7: 1967.

- Astruc L, Vanrell MM & **Prieto P** 2016, 'Cost of the action and social distance affect the selection of question intonation in Catalan', Intonational grammar in Ibero-Romance. Approaches across linguistic subfields, ed. by Armstrong ME, Henriksen N & Vanrell MM, pp. 93-114. Amsterdam: *John Benjamins*.

- Esteve-Gibert N, Liszkowski U & **Prieto P** 2016, 'Prosodic and gestural features distinguish the intention of pointing gestures in childdirected communication', Intonational grammar in Ibero-Romance. Approaches across linguistic subfields, ed. by Armstrong ME, Henriksen N & Vanrell MM, pp. 251-276, Amsterdam: *John Benjamins*.

- Hübscher I, Wagner L & **Prieto P** 2016, 'Young children's sensitivity to polite stance expressed through audiovisual prosody in requests', *Proceedings of Speech Prosody 2016*, Boston, USA, May 31-June 3.

- Kushch O & **Prieto P** 2016, 'The effects of pitch accentuation and beat gestures on information recall in contrastive discourse', *Proceedings of Speech Prosody 2016*, Boston, USA, May 31-June 3.



Pruneri, Valerio Institut de Ciències Fotòniques (ICFO) Engineering Sciences

Valerio Pruneri is Corning Inc. Chair leading the Optoelectronics group at the Institute of Photonic Sciences (ICFO) in Spain. Previously he worked for Avanex, Corning, Pirelli, and the Optoelectronics Research Centre (University of Southampton). He has given more than 60 invited talks at major international conferences and he is author or co-author of more than 35 granted or pending patents. He has taken part in more than 40 technical or steering committees of international conferences. He serves on the QEOD board of the European Physical Society, the advisory board of ACREO AB Fiber Optic Centre, VLC Photonics, B-able seed funding capital and is technical advisor of Medlumics. He was awarded several industrial prizes: Philip Morris Prize for scientific and technological research, Pirelli Fellowship, IBM Faculty award, Corning Inc. Professorship and Duran Farell Prize for technological research.

Research interests

Valerio Pruneri leads the Optoelectronics group at the Institute of Photonic Sciences (ICFO). The group is working on ultrathin materials, nano-structured biomimetic surfaces, micro- and nano-engineered integrated and fibre optic devices for telecommunication, sensing, aerospace, energy and quantum cryptography. In particular the main driving is to carry out research which bridges the academic and the industrial worlds, by developing fundamental ideas which will have an impact on commercial products.

Selected publications

- Maniyara RA, Mkhitaryan VK, Chen TL, Ghosh DS & **Pruneri V** 2016 'An antireflection transparent conductor with ultralow optical loss (<2 %) and electrical resistance (<6Ωsq-1)', *Nature Commun.* 7, 11954

- Terborg RA, Pello J, Mannelli I, Torres JP & **Pruneri V** 2016, 'Ultrasensitive interferometric on-chip microscopy of transparent objects', *Science Advances*, 2, 6, UNSP e1600077.

- Abellan C, Amaya W, Domenech D, Munoz P, Capmany J, Longhi S, **Mitchell MW** & **Pruneri V** 2016, 'Quantum entropy source on an InP photonic integrated circuit for random number generation', *Optica*, 3, 9, 989 – 994.

- Yu R, Mazumder P, Bonelli NF, Carrilero A, Ghosh DS, Maniyara RA, Baker D, **Garcia de Abajo FJ** & **Pruneri V** 2016, 'Structural Coloring of Glass Using Dewetted Nanoparticles and Ultrathin Films of Metals', *ACS Photonics*, 3, 7, 1194 – 1201.



Pujol Onofre, Aurora Institut d'Investigació Biomèdica de Bellvitge (IDIBELL) Life & Medical Sciences

After receiving her MD from the Autonomous University of Barcelona Medical School (Spain), Aurora Pujol moved to the laboratory of Applied Tumor Virology (Prof. Rommelaere) at the German Cancer Research Center (DKFZ), in Heidelberg, where she obtained her PhD in Molecular and Cellular Biology from the University of Heidelberg. From 1998 to 2001 she worked as postdoctoral researcher at the laboratory of Human Genetics of the IGBMC, Strasbourg, France, lead by Prof. Jean Louis Mandel, where she generated and characterized mouse models for a rare neurometabolic disorder, X-linked adrenoleukodystrophy (X-ALD). In 2002, she obtained a position as clinician in Medical Genetics at the Louis Pasteur University Hospital, and combined genetic diagnosis with a position as Junior Group Leader at the IGBMC to continue her research. In January 2005, she moved back to Barcelona as an ICREA Research Professor and funded the Neurometabolic Diseases Laboratory.

Research interests

Our lab is committed to finding a cure for a rare and fatal demyelinating, neurometabolic disorder called adrenoleukodystrophy. We are using mouse models for molecular dissection of neuropathogenesis leading to disease and for assaying therapeutic strategies, with a clear translational aim. We are focusing on oxidative stress and mitochondria depletion as early events on the pathogenic cascade. Moreover, by means of an integrative genomics approach, we are exploring the evolutionary origin of peroxisomes and their related metabolic routes. The derived knowledge might contribute to unravelling the role of this poorly studied organelle in ageing, neurodegenerative diseases, and in rare metabolic syndromes of yet unknown origin.

Selected publications

- **Pujol A** 2016, 'Novel Therapeutic Targets and Drug Candidates for Modifying Disease Progression in Adrenoleukodystrophy', *Endocr. Dev.*, 2016;30:147-60.

- Pardo L, Schlueter A, Valor LM, Barco A, Giralt M, Golbano A, Hidalgo J, Jia P, Zhao Z, Jove M, Portero-Otin M, Ruiz M, Gimenez-Llort L, Masgrau R, **Pujol A** & **Galea E** 2016, 'Targeted activation of CREB in reactive astrocytes is neuroprotective in focal acute cortical injury', *Glia*, 64, 5, 853 – 874.

- Soehn AS, Rattay TW, Beck-Woedl S, Schaeferhoff K, Monk D, Doebler-Neumann M, Hoertnagel K, Schluter A, Ruiz M, **Pujol A**, Zuchner S, Riess O, Schule R, Bauer P & Schoels L 2016, 'Uniparental disomy of chromosome 16 unmasks recessive mutations of FA2H/SPG35 in 4 families', *Neurology*, 87, 2, 186 – 191.

- Pàmpols T, Ramos FJ, Lapunzina P, Gozalo-Salellas I, Pérez-Jurado LA, **Pujol A** 2016, 'A view on clinical genetics and genomics in Spain: of challenges and opportunities', *Mol. Genet. Genomic Med.*, 4(4):376-91

- Klionsky DJ, Abdelmohsen K, Abe A, Abedin MJ, Abeliovich H, Acevedo Arozena A, Adachi H, Adams CM, Adams PD, Adeli K, Adhihetty PJ, Adler SG, Agam G, Agarwal R, Aghi MK, Agnello M, Agostinis P, Aguilar PV, **Pujol A** and 89 coauthors 2016, '*Guidelines for the use and interpretation of assays for monitoring autophagy*', (3rd edition). *Autophagy*. 12(1):1-222. PubMed PMID: 26799652;



Puntes, Víctor F. Institut Català de Nanociència i Nanotecnologia (ICN2) & Vall d'Hebron Institut de Recerca (VHIR) Experimental Sciences & Mathematics

Born in Barcelona, 1970, Prof. Víctor Franco Puntes studied chemical engineering at the Louis Pasteur University (Strasbourg, France) and chemistry at the Autonomous University of Barcelona (Barcelona, Spain), graduating in 1994. He obtained his PhD in Physics at the University of Barcelona (1998), working on Giant Magnetoresistance in granular alloys. Then he spent more than 3 years in Berkeley (California, USA) as a postdoc, first in the group of Prof. Krishnan Kannan (National Center for Electron Microscopy, Lawrence Berkeley Laboratory) and then in the group of Prof. Paul Alivisatos (College of Chemistry, UC Berkeley). In 2003 he obtained a Ramón y Cajal Fellowship and worked in the Physics Dep. at the University of Barcelona. In 2005, he moves to the Catalan Institute of Nanotechnology (ICN - now ICN2) as ICREA Research Professor and creates the Inorganic Nanoparticles Group. Since December 2014 he holds a double affiliation ICN2 and VHIR.

Research interests

Prof. Víctor Puntes works on the synthesis, characterisation and applications of engineered inorganic nanoparticles (NPs). By controlling the size, structure and shape of the inorganic core, and manipulating the linking of organic molecules to the nanoparticle surface, the group aims to design nanoparticles that interact with a variety of systems (biological, medical, materials, etc.). This allows for the deliberate modification of these systems, or the use of NPs for witnessing and reporting things.

Selected publications

- Gonzalez E, Merkoci F, Arenal R, **Arbiol J**, Esteve J, Bastus NG & **Puntes V** 2016, 'Enhanced reactivity of high-index surface platinum hollow nanocrystals', *Journal Of Materials Chemistry A*, 4, 1, 200 – 208.

- Piella J, Bastus NG & **Puntes V** 2016, 'Size-Controlled Synthesis of Sub-10-nanometer Citrate-Stabilized Gold Nanoparticles and Related Optical Properties', *Chemistry Of Materials*, 28, 4, 1066 – 1075.

- Oro D, Yudina T, Fernandez-Varo G, Casals E, Reichenbach V, Casals G, Gonzalez de la Presa B, Sandalinas S, Carvajal S, **Puntes V** & Jimenez W 2016, 'Cerium oxide nanoparticles reduce steatosis, portal hypertension and display anti-inflammatory properties in rats with liver fibrosis', *Journal Of Hepatology*, 64, 3, 691 – 698.

- Genç A, Patarroyo J, Sancho-Parramon J, Arenal R, Duchamp M, Gonzalez EE, Henrard L, Bastus NG, Dunin-Borkowski RE, **Puntes VF** & **Arbiol J** 2016, 'Tuning the Plasmonic Response up: Hollow Cuboid Metal Nanostructures', *Acs Photonics*, 3, 5, 770 - 779.

- Patarroyo J, Genç A, **Arbiol J**, Bastus NG & **Puntes V** 2016, 'One-pot polyol synthesis of highly monodisperse short green silver nanorods', *Chemical Communications*, 52, 73, 10960 – 10963.



Quer Villanueva, Josep Universitat Pompeu Fabra (UPF) Humanities

As ICREA Research Professor, I am member of the "Grup de Lingüística Formal" at the Department of Translation and Language Sciences (UPF) since January 2009. In 2007-2008 I was professor and chair of Romance Linguistics at the University of Amsterdam and previously I was ICREA Research Professor at the Department of General Linguistics of the University of Barcelona (2002-2006). In that period I set up a new research project on the formal study of sign languages, both with a focus on the morphosyntax and semantics of Catalan Sign Language (LSC) and on crosslinguistic and crossmodal research. I led the research group GRIN, which published the first comprehensive grammatical description of LSC. I obtained my PhD in Linguistics at Utrecht University in 1998 with a dissertation on the semantics of mood. I am co-editor of the journal Sign Language and Linguistics.

Research interests

Research into natural language can no longer ignore sign languages as manifestations of the same innate human faculty realized in a different perceptual-articulatory modality. As a formal linguist, my research has focused on the analysis of a range of phenomena (negation, agreement, quantification, etc.) that hinge on the interaction between different grammar components (morphosyntax, semantics, prosody) both in spoken and sign languages. The goal is to better understand the division of labour across different grammar modules.

Selected publications

- Quer J 2016, 'Mood' In The Oxford Guide to the Romance Languages, eds. Ledgeway A & Maiden M, 954-966. Oxford: Oxford University Press.

- **Quer J** 2016, 'Intonation and grammar in the visual-gestural modality: a case study on conditionals in Catalan Sign Language (LSC)' In Intonational grammar in Ibero-Romance: Approaches across linguistic subfields, eds. Armstrong ME, Henriksen N & Vanrell M, 369-386, Amsterdam/Philadelphia: *John Benjamins*.

- **Quer J** 2016, 'Reporting with and without role shift: sign language strategies of complementation' In A matter of complexity: Subordination in sign languages, eds. Herrmann A, Pfau R & Steinbach M, 204-230, Berlin: *Mouton de Gruyter*.

- Lekakou M & **Quer J** 2016, 'Aspect in the service of mood: the morphosyntax of subjunctive in Griko', In Proceedings of the 6th International Conference on Modern Greek Dialects and Linguistic Theory, eds. Ralli A, Koutsoukos N & Bompolas S, 79-92, *Patras*: University of Patras.

- Barberà G, **Quer J** & Frigola S 2015, 'Primers passos cap a la documentació de discurs signat. El projecte pilot de constitució del corpus de la llengua de signes catalana', *Treballs de Sociolingüística Catalana*, 25: 287-302. (This publication gets published in 2016 but with date of 2015).

- Quer J 2016, 'Les oracions condicionals en llengua de signes catalana' In Miscel·lània d'homenatge a Joan Martí i Castell, ed. Pradilla MÀ (ed.), 205-211, Tarragona: *Publicacions URV*.

- Quer J 2016, 'Linguistics: Non-manual markers', In The SAGE Deaf Studies Encyclopedia, Gertz G & Boudreault P, 618-620, Thousand Oaks: SAGE.

- Quer J 2016, 'Sign Language: Southern Europe' In The SAGE Deaf Studies Encyclopedia, Gertz G & Boudreault P, 818-819, Thousand Oaks: SAGE.

- Lekakou M & Quer J 2016, 'Subjunctive mood in Griko: A micro-comparative approach', Lingua, 174, 65 - 85.

Selected research activities

Projects:

• SIGN-HUB (Horizon2020, 693349). 2016-2020. Coordinator.

• The Grammar of Reference in Catalan Sign Language (LSC) (MINECO-FEDER, FFI2015-68594-P) 2016-2019. PI.


Quidant, Romain Institut de Ciències Fotòniques (ICFO) Engineering Sciences

Romain Quidant received his PhD in Physics in 2002 from the University of Dijon (France). In 2006, he was appointed junior Professor and group leader of the Plasmon NanoOptics group at ICFO. In 2009, he became tenure Professor both at ICFO and ICREA. His research trajectory has been acknowledged by several national and international prizes among which the Fresnel prize from the European Physics Society (2009), the prizes of the City of Barcelona (2010) and the Fundació Príncep de Girona (2010), the 2012 ICO prize from the International Commission for Optics as well as the 2014 national prize for research (category young talent). In 2010 he received a Starting Grant from the European Research Council (ERC) as well as two Proof-of-Concept ERC grants, in 2011 and 2015. In 2015, he was awarded a Consolidator ERC grant. Quidant is co-author of about 125 articles in international journals and delivered more than 100 invited talks at international conferences.

Research interests

Romain Quidant carries out his research at ICFO – The Institute of Photonic Sciences in Barcelona where he leads the group of "Plasmon nanooptics". His research focuses on the study of the optical properties of metal nano-structures, known as nanoplasmonics. The activities of his group cover both fundamental and applied research. The fundamental part of his work is mainly directed towards enhanced light/matter interaction for quantum optics. From a more applied viewpoint, his group investigates news strategies to control light and heat at the nanometer scale for biomedical applications, including early detection and photothermal therapy of cancer.

Selected publications

– Jain V, Gieseler J, Moritz C, Dellago C, **Quidant R** & Novotny L 2016, 'Direct Measurement of Photon Recoil from a Levitated Nanoparticle', *Physical Review Letters*, 116, 24, 243601.

- Alda I, Berthelot J, Rica RA & **Quidant R** 2016, 'Trapping and manipulation of individual nanoparticles in a planar Paul trap', *Applied Physics Letters*, 109, 16, 163105.

- Mestres P, Berthelot J, Acimovic SS & **Quidant R** 2016, 'Unraveling the optomechanical nature of plasmon trapping', *Nature – Light-Sci. Appl. 5*, e16092.



Quirós Carcelén, Mariano Institut de Física d'Altes Energies (IFAE) Experimental Sciences & Mathematics

I defended my PhD thesis at the University of Geneva on 20 March 1975. My supervisors were Prof. H. Ruegg (University of Geneva) and Prof. C. Itzykson (Centre de Physique Theorique de Saclay, Paris). Since then I held different positions at the university and at the Spanish Council for Scientific Research (CSIC). In particular before my ICREA position I tenured a Research Professorship at the "Instituto de Estructura de la Materia", Madrid (CSIC). During my scientific career I have got in contact with many researchers and Research Centers worldwide. I have been Invited Professor and/or Guest Scientist at: CERN (Geneva), Fermilab (USA), Université de Pierre et Marie Curie, École Normale Superieure, Université d'Orsay and Ecole Polytechnique (Paris, France), University of Padua (Italy), International Centre for Theoretical Physics in Trieste (Italy and Sao Paulo), University of Ann Arbor (USA), University of California at Santa Cruz (USA), University of Notre Dame (USA), etc.

Research interests

I am a particle theorist. This means that my research concerns the smallest particles that exist (e.g. quarks, leptons, photons, gluons and other gauge bosons) or might exist (e.g. Kaluza-Klein and string modes, etc.) as well as the Early Universe and its behavior (e.g. inflationary epoch, baryon generation, nucleosynthesis, large scale structure, etc.). The relevant theories must be contrasted with experimental data in particle accelerators and astrophysical observations. As for particle accelerators the Large Hadron Collider (LHC), now operating at CERN, is the world's most powerful machine ever built and will provide an ultimate answer to many of the present open questions of particle physics. In 2012-2013 LHC found a Higgs-like boson weighing around 125 times the proton mass (with a statistical evidence of five standard deviations), which is an essential ingredient in the Standard Model and many beyond the Standard Model theories of electroweak interactions.

Selected publications

- Antoniadis I, Benakli K & Quiros M 2016, 'Sequestered gravity in gauge mediation', European Physical Journal C, 76, 7, 363.

- Megias E, Pujolas O & Quiros M 2016, 'On dilatons and the LHC diphoton excess', Journal of High Energy Physics 1605, 137.

- García-Pepin, M & **Quiros M** 2016, 'Strong electroweak phase transition from Supersymmetric Custodial Triplets', Journal of High Energy Physics 1605.177.

- Delgado A, Garcia-Pepin M, **Quiros M**, Santiago J & Vega-Morales R 2016, "Diphoton and Diboson Probes of Fermiophobic Higgs Bosons at the LHC", *Journal of High Energy Physics 1606.042*.

- Delgado A, Garcia-Pepin M, Nardini G & **Quirós M** 2016, "Natural supersymmetry from extra dimensions", *Physical Review D*94. no.9, 095017.

- Megías E, Panico G, Pujolas O & **Quirós M** 2016, 'A natural origin for the LHCb anomalies', *Journal of High Energy Physics*, 1609.118.

Selected research activities

International Conferences

- "Natural Supersymmetry from Extra Dimensions", Plenary talk at "*Planck 2016: from the Planck scale to the electroweak scale*", Valencia, Spain, 23-27 May 2016.

- "Supersymmetry/Theory", Plenary talk at "XLIV International Meeting on Fundamental Physics", IFT/UAM-CSIC, Madrid, 4-8 April 2016. Advanced Courses

- "Problems of the Standard Cosmological Model", Course given at the "IFAE-Master on Particle Physics, Astroparticles and Cosmology", 14-19 March 2016.

PhD Theses Advisor

- Mateo Garcia-Pepin (PhD student), "Supersymmetry with custodial triplets", Autonomous University of Barcelona, 15 June 2016, Grading: Excelente Cum Laude.

<u>Committees</u>

- Member of the IFAE Advisory Boarding Panel.

- Member of the Severo Ochoa IFAE Strategy Committee.



Raya Chamorro, Ángel Centre de Medicina Regenerativa de Barcelona (CMRB) Life & Medical Sciences

Ángel Raya is an ICREA Research Professor at the Center of Regenerative Medicine in Barcelona (CMRB). He obtained his MD in 1990 from the University of Valencia, Spain and a PhD degree from the same university in 1995 for studies carried out at the Department of Physiology and at the Department of Neurology, Mayo Clinic, Rochester, MN. He pursued postdoctoral training at the Instituto de Investigaciones Citológicas (currently, Centro de Investigación Príncipe Felipe) in Valencia, from 1995-2000. He then was a Research Associate (2000-2004) and a Senior Research Associate (2004-2006) in the Gene Expression Laboratory of the Salk Institute for Biological Studies, La Jolla, CA. He returned to Spain in 2006 and was the Scientific Coordinator at the CMRB until 2009, when he joined the Institute for Bioengineering of Catalonia (IBEC) as Group Leader of the Control of Stem Cell Potency group. In 2014 he was appointed Director at CMRB.

Research interests

Our research work aims to understand the tissue, cellular and molecular mechanisms that determine the regenerative response in certain species of vertebrates, as well as the genetic and epigenetic mechanisms that control cellular reprogramming. This phenomenon provides a link between the traditional study of epimorphic regeneration and the induced pluripotency strategies of regenerative medicine.

Selected publications

- Tekeli I, Aujard I, **Trepat X**, Jullien L, **Raya A*** & Zalvidea D* 2016, 'Long-term in vivo single cell lineage tracing of deep structures using three-photon activation', *Light, Sci & Appl*, 5, e16084.

- Prieto J, Leon M, Ponsoda X, Sendra R, Bort R, Ferrer-Llorente R, **Raya A**, López-García C & Torres J 2016, 'Early ERK1/2 activation promotes DRP1-dependent mitochondrial fission necessary for cell reprogramming', *Nat Commun* 7, 11124.

- Vassena R, Heindryckx B, Peco R, Pennings G, **Raya A**, Sermon K, Veiga A 2016, 'Genome engineering through CRISPR/Cas9 technology in the human germline and pluripotent stem cells', *Hum Reprod Update*, 22, 4, 411-9.

- Riera M, Fontrodona L, Albert S, Ramirez DM, Seriola A, Salas A, Muñoz Y, Ramos D, Villegas-Perez MP, Zapata MA, **Raya A**, Ruberte J, Veiga A & Garcia-Arumi J 2016, 'Comparative study of human embryonic stem cells (hESC) and induced pluripotent stem cells (hiPSC) as a treatment for retinal dystrophies', *Mol Therapy – Meth & Clin Dev*, 3, 16010.

- Capellera-Garcia S, Pulecio J, Dhulipala K, Siva K, Rayon-Estrada V, Singbrant S, Sommarin MNE, Walkley CR, Soneji S, Karlsson G, **Raya A**, Sankaran VG, Flygare J 2016, 'Defining the minimal factors required for erythropoiesis through direct lineage conversion', *Cell Rep*, 15, 11, 2550-62.

- Bedford-Guaus SJ et al. 2016, 'Expression of the T85A mutant of zebrafish aquaporin 3b improves post-thaw survival of cryopreserved early mammalian embryos', *Zygote*, 24, 6, 839-847.

- Bedford-Guaus S et al. 2016, 'Molecular markers of putative spermatogonial stem cells in the domestic cat', *Reprod Dom Anim*, 51 (Suppl. 3): 1–10.

- Pulecio J et al. 2016, 'Direct conversion of fibroblasts to megakaryocyte progenitors', Cell Rep, 17, 3, 671 - 683.

Selected research activities

Invited Speaker

SFTCG Annual Congress, Marseille 03/16 ESHG Congress, Barcelona 05/16 Joint ESGCT/ISSCR Meeting, Florence 10/16 iForum Meeting, Paris 10/16 9th Guangzhou International Conference on Stem Cells and Regenerative Medicine, Guangzhou (China) 12/16



Reyes García, Victoria Universitat Autònoma de Barcelona (UAB) Social & Behavioural Sciences

Victoria Reyes-García (PhD Anthropology, 2001, U of Florida) is ICREA Research Professor at the Institut de Ciència i Tecnologia Ambientals (ICTA), Universitat Autònoma de Barcelona. Her research focuses on local ecological knowledge systems, including the benefits they provide, the drivers of change affecting them, and their potential contributions to conservation and development. From 1999 to 2004 she lived among Tsimane' hunter-gatherers in the Amazon, where she has long-term research. Since 2006 she coordinates the Laboratory for the Analysis of Socio-Ecological Systems in a Global World (LASEG, previously Ethnoecology Lab), which catalyses research on the dynamic relations people-environments. She has about 200 peer-reviewed articles and has edited three books. In 2010 she received an ERC Starting Grant to study the adaptive nature of local knowledge using a cross-cultural approach and since 2016 she serves as a Guarantor of ICTA's María de Maeztu Unit of Excellence.

Research interests

My research encompasses the interdisciplinary study of dynamic relations among peoples, biota, and environments. I use a multidisciplinary perspective (working with ecologists, economists, psychologists, agronomists, archaeologists, and computer scientists) and empirical data to analyse 1) the effects of global change on rural societies, and 2) social responses to environmental issues. My research draws on the insights from the natural and behavioural sciences at multiple levels- from the views of villagers in developing nations to those of policy-makers in industrial nations. My current areas of research include 1) the adaptive nature of local environmental knowledge, 2) indigenous peoples and cultural change, (3) local participation in biodiversity conservation, 4) people and plants, and 5) ethnoclimatology.

Selected publications

- Reyes-García V, Balbo AL, Gómez-Baggethun E, Gueze M, Mesoudi A, Richerson P, Rubio-Campillo X, Ruiz-Mallén I & Shennan S 2016, 'Multilevel processes and cultural adaptation: Examples from past and present small-scale societies', *Ecology and Society*, 21(4):2.
 - Salpeteur M, Patel HR, Molina JL, Balbo AL, Rubio-Campillo X, Reyes-Garcia V & Madella M 2016, 'Comigrants and friends: informal networks and the transmission of traditional ecological knowledge among seminomadic pastoralists of Gujarat, India', *Ecology and Society*, 21(2):20.

- **Reyes-Garcia V**, Diaz-Reviriego I, Duda R, Fernandez-Llamazares A, Gallois S, Gueze M, Napitupulu L & Pyhala A 2016, 'Peer Evaluation Can Reliably Measure Local Knowledge', *Field Methods*, 28(4):345-362.

- **Reyes-García V**, Fernández-Llamazares A, Guéze M, Garcés A, Mallo M, Vila-Gomez M & Vilaseca M 2016, 'Local indicators of climate change: The potential contribution of local knowledge to climate research', *WIREs: Climatic Change*, 7(1):109-124.

- **Reyes-García V**, Babigumira R, Wunder S, Pyhälä A, Zorondo-Rodriguez F & Angelsen A 2016, 'Subjective wellbeing and income: empirical patterns in the rural developing world', *J. of Happiness Studies*, 17(2):773 – 791.

- **Reyes-García V**, Díaz-Reviriego I, Duda R, Fernández-Llamazares Á, Gallois S, Guèze M, Napitupulu L, Orta-Martinez M & Pyhälä A 2016, 'The adaptive nature of culture. A cross-cultural analysis of the returns of Local Environmental Knowledge in three indigenous societies', *Current Anthropology*, 57(6):711-784.

- **Reyes-Garcia V**, Pyhälä A, Diaz-Reviriego I, Duda R, Fernandez-Llamazares A, Gallois S, Gueze M & Napitupulu L 2016, 'Schooling, Local Knowledge and Working Memory: A Study among Three Contemporary Hunter-Gatherer Societies', *Plos One*, 11(1) e0145265.

Selected research activities

Academic coordinator (with J. Espluga): Diplomatura de Postgrau en Dinamització Local Agroecològica, UAB **Guarantor:** ICTA´s "María de Maeztu Unit of Excellence"



Reynal-Querol, Marta Universitat Pompeu Fabra (UPF) Social & Behavioural Sciences

Marta Reynal-Querol is an ICREA Research Professor at the Department of Economics and Business at Universitat Pompeu Fabra (UPF) and Research Professor of the Barcelona GSE. She is also an Affiliated Professor at the Barcelona GSE, and Director of the Master in Economics at UPF since 2012. She is a Research Fellow at the CEPR, a Research Fellow at the CEsifo and a Full Member at the EUDN. She is Fellow of the EEA. She was member of the Council of the European Economic Association (EEA) between 2011 and 2015. She is member of the Editorial Board of the Journal of Conflict Resolution. She won an ERC-Consolidator grant in 2014 and also an ERC-Starting grant obtained in the first call of the European Research Council. She won the Banco Herrero prize 2011 awarded annually to an Spanish Social Scientist under 40 years old. She worked at the World Bank between 2001 and 2005. She holds a Ph. D. in Economics from the LSE (2001) and a Master with Honors from UPF.

Research interests

My main research interest is the study of the causes and consequences of conflict and civil wars. In my first research area, I analyzed the relationship between religious and ethnic fractionalization, polarization, and conflict. I have also worked on the effectiveness of foreign aid, and its impact on institutional development. More recently I work on the relationship between poverty and civil war. I find that the relationship between poverty and civil war is spurious, and it is accounted for by historical phenomena that jointly determine income evolution and conflict. I now study the institutional designs that may prevent, or mitigate, such social conflicts. In particular I construct a database on the characteristics of leaders over the 20th century. I investigate whether there are systematic differences in the type of leaders that can explain the economic development of countries.

Selected publications

- Besley T, Persson T & **Reynal-Querol M** 2016, 'Resilient Leaders and Institutional Reform: Theory and Evidence', *Economica*, 83, 584-623

Selected research activities

Research Professor, Barcelona GSE, since December 2016; Fellow of the EEA since 2015.

Research Fellow CEPR since 2012; Full Member EUDN (European Development Network) since 2012

Research Fellow CESifo, since 2013; Editorial Board, Journal of Conflict Resolution, March 2007-present.

ERC-Consolidator Grant (2015-2020)

PI of the Grant (Grant BFU2011-12345), Spanish Ministery of Economy and Competitiveness.

June 2016: Invited speaker "Ethnicity and Diversity: Concept and Measures, Causes and Consequences", Carlos III-Juan March Institute; July 2016: NBER summer Institute Political Economy;

Director of the Master in Economics (BarcelonaGSE-UPF), since September 2012



Reynolds, Paul Universitat de Barcelona (UB) Humanities

Studied for BA at the Institute of Archaeology, University of London, gaining a PhD there in 1991 on the Settlement and Pottery of the Vinalopo Valley (Alicante), AD 400-700, which included a detailed review of ceramics and trade in W Mediterranean ports (BAR 588 and 604, published 1993, 1995). Engaged in the study and publication of ceramics from excavations in the Beirut Souks, Butrint and Durres (Albania), Athens, Thesproteia and Nicopolis-Actium (Greece), Carthage, Utica, Leptis Magna, Zeugma and the Homs Survey. "Hispania and the Roman Mediterranean, AD 100-700: ceramics and trade" was published in 2010. Major projects are a volume on the Roman Imperial Amphorae of the Athenian Agora. Co-editor of the Archaeopress (Oxford) series Roman and Late Antique Mediterranean Pottery. In 2016 I will lead the study of ceramics in a 3 year American project of survey and excavation in Lechaion, the western port of Corinth (Greece).

Research interests

The principal aim of my research is the study of the economy of the Classical and Late Antique Mediterranean, the lower Danube-Black Sea and Atlantic through the analysis of the regional distribution of ceramics in major ports. This focuses on the long-distance movement of fine table-wares, amphorae & cooking wares. I am interested in all factors that contributed to the supply of goods: private, state, city, ecclesiastical & administrative structures. I have been or am currently engaged in the classification of the Classical to early Islamic pottery of surveys & excavations from a wide range of sites and regions across the Mediterranean: Alicante-SE Spain, NW Sicily, Carthage, Leptis Magna, Butrint and Durres (Albania), Athens, Nicopolis-Actium and Thesproteia (W Greece), Zeugma (Turkey), Beirut-Lebanese sites, and Syria (Homs survey; Ras al Basit). Recent work has focussed on the Islamic pottery of North Africa.

Selected publications

- Reynolds P 2016, 'From Vandal Africa to Arab Ifriqīya: tracing ceramic and economic trends through the 5th to the 11th centuries', in Stevens S & Conant J (eds.), North Africa under Byzantium and Islam, Dumbarton Oaks Byzantine Symposia and Colloquia, (Spring Symposium on Rome Re-imagined: Byzantine North Africa, c. 400-800, 2012), *Harvard University Press*, Cambridge, MA.: 129-171.
 - Mukai T 2016, 'La céramique du groupe épiscopal d'Aradi/Sidi Jidi (Tunisie)', Roman and Late Antique Mediterranean Pottery 9, Archaeopress, Oxford (434pp).

- Various authors 2016, Vaz Pinto I, De Almeida RR & Martin A (eds.), Lusitanian Amphorae: Production and Distribution, RLAMP 10, Archaeopress, Oxford (464pp). (**Reynolds P** - Series Editor).

Selected research activities

'Analysing Roman Pottery: Archaeological Contexts, Economy and Trade in the Mediterranean', Invited Course Lecture (May 2016), GRK 878, DFG research training group, *Archaeology of pre-modern economies*, Institute of Archaeology, Cologne University (Germany). PhD: Maxine Anastasi. *Roman Malta : ceramics and trade.* All Souls College, Oxford. Joint director with Andrew Wilson. Passed January 2016.



Ribas de Pouplana, Lluís Institut de Recerca Biomèdica de Barcelona (IRB Barcelona) Life & Medical Sciences

Born in Girona. He studied Biology at the University of Barcelona, and Biochemistry at Edinburgh University, where he obtained a PhD in 1992 with the help of a fellowship from La Caixa/British Council. He then joined the Biology department of the Massachusetts Institute of Technology as a postdoc. In 1997 he moved to The Scripps Research Institute where he became assistant professor of Molecular Biology in 2001. In 2003 he joined ICREA, and became Principal Investigator at the Institute for Research in Biomedicine, where he heads the Laboratory of Gene Translation. He is the founder of two biotechnology companies and currently serves as Chief Scientific Officer of Omnia Molecular SL. Omnia Molecular is an antiinfectives discovery company located at the Barcelona Science Park. In addition, Dr. Ribas serves as a scientific advisor to aTyr Ltd.

Research interests

Our laboratory investigates the process of protein synthesis, its evolution, and its connections to human health.

More specifically, we are preoccupied by two fundamental questions: what are the functional limits of the protein synthesis apparatus, and how is protein synthesis regulated and integrated within the context of the cell.

We want to understand what defines the boundaries of the proteomes of species, what specific adaptations allow certain organisms to fabricate proteins that are inaccessible to other species, and, in the case of the human proteome, what aspects of our health and our diseases depend upon our ability to produce specific proteins. We are investigating the importance of chemical modifications of the transfer RNAs for the production of highly repetitive proteins that are essential constituents of our tissues.

In addition, we are studying protein synthesis in the mitochondria, with a particular emphasis on the mechanisms that coordinate mitochondrial protein synthesis to mitochondrial dynamics and cell cycle. Mitochondria are cellular organelles of endosymbiotic origin that mantain a limited genome and their own translation apparatus. The vast majority of mitochondrial proteins are produced in the cytosol, and are imported into the mitochondria, where they are functionally integrated with the proteins that are synthesized within the organelle. How this two biosynthetic routes are coordinated, and how are they synchronized with the cell cycle is unknown. We want to contribute to the resolution of this problem through the study of an essential mitochondrial protein that we discovered in the lab.

Selected publications

- Saint-Leger A, Bello C, Dans PD, Torres AG, Novoa, EM, Camacho N, Orozco M, **Kondrashov FA** & **Ribas de Pouplana L** 2016, 'Saturation of recognition elements blocks evolution of new tRNA identities', *Science Advances*, 2, 4, UNSP e1501860.

- Anadón C, Guil S, Simó-Riudalbas L, Moutinho C, Setien F, Martínez-Cardús A, Moran S, Villanueva A, Calaf M, Vidal A, Lazo PA, Zondervan I, Savola S, Kohno T, Yokota J, **Ribas de Pouplana L** & **Esteller M** 2015, 'Gene amplification-associated overexpression of the RNA editing enzyme ADAR1 enhances human lung tumorigenesis', *Oncogene*, 35, 33, 4407 – 4413.

- Saint-Leger A, Sinadinos C & **Ribas de Pouplana L** 2016, 'The growing pipeline of natural aminoacyl-tRNA synthetase inhibitors for malaria treatment', *Bioengineered*, 7, 2, 60 – 64.

- Torres AG & **Ribas de Pouplana L** 2016, 'Transfer RNA modifications: from biological functions to biomedical applications' In Erdmann VA & Barciszewski (eds.), *Modified Nucleic Acids in Biology and Medicine*, Springer, New York City.



Riechmann Fernández, Jose Luis Centre de Recerca en Agrigenòmica (CRAG) Life & Medical Sciences

Born in Madrid in 1964. Studied Biological Sciences at the Universidad Autónoma de Madrid (UAM, 1987), where he also obtained his PhD (1991; Molecular Biology and Biochemistry), in the field of plant molecular virology. Postdoctoral training in the laboratory of Dr. Elliot Meyerowitz, at the California Institute of Technology (Caltech), studying Arabidopsis flower development. Joined a start-up company in the field of plant functional genomics (Mendel Biotechnology, Hayward, CA), in 1998, studying Arabidopsis transcription factors. In 2002, joined Caltech as Director of the Millard and Muriel Jacobs Genetics and Genomics Laboratory, continuing studies on genome-wide analyses of gene expression, gene expression in Arabidopsis flower development, microRNAs, and microarray technology. Since 2007, ICREA Research Professor at the Center for Research in Agricultural Genomics (CRAG), Barcelona. Director of CRAG since 2013.

Research interests

Developmental processes in multicellular organisms are dependent on the cellular capacity for differential gene expression. That capacity (i.e., the developmental program of an organism) is hardwired and encoded in the genome, in the form of cis-regulatory sequences that determine when, where, and how genes are expressed, of transcription factors and transcriptional co-regulators that act on those sequences, and of other types of regulatory proteins or RNAs. My research interest has focused on transcriptional regulation and development, using the plant Arabidopsis thaliana as a model system. This has included studies on the floral transition and flower development, genomic analyses of transcription factors, and global gene expression analyses, as well as an interest in genomic technologies. The current focus of the laboratory is the study at a global level of gene regulatory networks that control development in Arabidopsis.

Selected publications

- Bustamante M, Tomas Matus J & **Riechmann JL** 2016, 'Genome-wide analyses for dissecting gene regulatory networks in the shoot apical meristem', *Journal Of Experimental Botany*, 67, 6, 1639 – 1648.

Selected research activities

The 'Severo Ochoa Center of Excellence' distinction, an award from the 'Ministerio de Economía y Competitividad', was granted to CRAG (1/2016-12/2019). Pl and Scientific Director in the award.



Rivals, Florent Institut Català de Paleoecologia Humana i Evolució Social (IPHES) Humanities

Graduated in Biology at the University Paul Sabatier in Toulouse, Florent Rivals received his PhD in Prehistory from the University of Perpignan (France) in 2002. In 2004, with the support of a grant from the French ministry of Foreign Affairs, he completed a postdoctoral research at the American Museum of Natural History. In 2005, he was awarded a postdoctoral fellowship from the Humboldt Foundation at the University of Hamburg (Germany). He was appointed ICREA Junior Researcher (2007 to 2012) at the Institut Català de Paleoecologia Humana i Evolució Social (IPHES) in Tarragona and since October 2013, he is ICREA Research Professor at the same institution. F. Rivals is co-author of about 70 peer-reviewed articles in international journals.

Research interests

Florent Rivals has a primary research interest in evolutionary paleoecology and the ecological context of evolution. The analysis of mammalian fauna from Plio-Pleistocene sites provides the framework for studying the evolution of hominins. His research focuses on the impact of climate-driven environmental changes on hominins, and Neanderthals in particular. Examining mammal teeth, such as bison, deer, horse and mammoth, under a microscope and looking at the marks left by the food they ate, provides insight into the habitats they roamed just before they died. The changes in diet over thousands of years are used to reconstruct ancient environments, to track shifts related to climatic changes, and to understand Neanderthal behavioral strategies in different ecological settings.

Selected publications

Sánchez-Hernández C, **Rivals F**, Blasco R & Rosell J 2016 'Tale of two timescales: Combining tooth wear methods with different temporal resolutions to detect seasonality of Palaeolithic hominin occupational patterns', *Journal of Archaeological Science: Reports*, vol. 6, pp 790-797.

- **Rivals F** & Lister AM 2016, 'Dietary flexibility and niche partitioning of large herbivores through the Pleistocene of Britain', *Quaternary Science Reviews*, vol. 146, pp. 116-133.

- Camarós E, Cueto M, Lorenzo C, Villaverde V & **Rivals F** 2016, 'Large carnivore attacks on hominins during the Pleistocene: a forensic approach with a Neanderthal example', *Archaeological and Anthropological Sciences*, vol. 8, no. 3, pp 635-646.

- Talamo S, Blasco R, **Rivals F**, Picin A, Chacón MG, Iriarte E, López-García JM, Blain HA, Arilla M, Rufà A, Sánchez-Hernández C, Andrés M, Camarós E, Ballesteros A, Cebrià A, Rosell J & Hublin JJ 2016, 'The radiocarbon approach to Neanderthals in a carnivore den site. A well-defined chronology for Teixoneres cave (Moià, Barcelona, Spain)', *Radiocarbon*, vol. 58, pp 247-265.

- Rivals F, Sanz M & Daura J 2016, 'First reconstruction of the dietary traits of the Mediterranean deer (*Haploidoceros mediterraneus*) from the Cova del Rinoceront (NE Iberian Peninsula)', *Palaeogeography, Palaeoclimatology, Palaeoecology*, vol. 449, pp 101-107.
 - Rivals F, Camarós E & Sánchez-Hernández C 2016, 'Stories written in teeth: New archeological insights from tooth-related studies', *Journal of Archaeological Science: Reports*, vol. 6, pp 777-779.

Selected research activities

- Principal investigator of the research grant "Snapshots of Neanderthal lifestyles: Behavioral patterns and high resolution archaeology" funded by the Ministerio de Economía y Competitividad.

- Co-direction of the excavations at Teixoneres and Toll caves, Moià (Barcelona), Spain.

- Associate editor of Quaternary International.

- Associate Professor at Universitat Rovira i Virgili (Tarragona): Master in Quaternary Archeology and Human Evolution.



Roche, Stephan Institut Català de Nanociència i Nanotecnologia (ICN2) Engineering Sciences

Stephan Roche is ICREA Research Prof. working at the Catalan Institute of Nanosciences and Nanotechnology-ICN2 and the Barcelona Institute of Science and Technology. He leads the "Theoretical and Computational Nanoscience" group which focuses on quantum transport in Dirac materials (graphene and topological insulators). He pioneered the development of linear scaling computational approaches for wavepacket dynamics, Kubo conductivities, and Landauer-Büttiker conductance in disordered materials. He studied Theoretical Physics at ENS and UJF (France), received a PhD in Physics in 1996 (CNRS), and worked in Japan, Spain and Germany. He was appointed Prof. assistant at UJF (2000) and CEA Researcher (2004), and received the Friedrich Wilhelm Bessel prize from the A.v. Humboldt Foundation (Germany). He is the PI of ICN2 in the GRAPHENE FLAGSHIP, and deputy leader of the Graphene Spintronics WP.

Research interests

At ICN2, S. Roche and his group theoretically explore exotic quantum transport in Dirac Matter including graphene and topological insulators. Main current interests include (i) the study of quantum interferences and decoherence mechanisms in presence of electron-phonon coupling and spin-orbit interaction, (ii) spin dynamics and spin-torques phenomena in heterostructures, (iii) spin Hall and quantum spin Hall effects, valley Hall effects in graphene and (iv) thermoelectricity in two-dimensional materials.

Selected publications

- Van Tuan D, Marmolejo-Tejada JM, Waintal, X Nikolić BK, **Valenzuela SO** & **Roche S** 2016, 'Spin Hall Effect and Origins of Nonlocal Resistance in Adatom-Decorated Graphene', *Physical Review Letters, vol.* 117, p. 176602

- Tuan DV & **Roche S** 2016, 'Spin Manipulation in Graphene by Chemically Induced Pseudospin Polarization', *Physical Review Letters*, 116, 10, 106601.

- Cummings AW & **Roche S** 2016, 'Effects of Dephasing on Spin Lifetime in Ballistic Spin-Orbit Materials', *Physical Review Letters* 116, 086602.

- Settnes M, Leconte L, Barrios-Vargas JE, Jauho AP & **Roche S** 2016, 'Quantum transport in graphene in presence of strain-induced pseudo-Landau leves', 2D Materials 3, 034005.

Sledzinska M, Graczykowski B, Placidi M, Saleta Reig D, Sachat AEI, Reparaz JS, Alzina F, Mortazavi B, Quey R, Colombo L, Roche S & Sotomayor Torres CM 2016, 'Thermal conductivity of MoS2 polycrystalline nanomembranes', 2D Materials 3, 035016.
 Van Tuan D, Ortmann F, Cummings AW, Soriano D & Roche S 2016, 'Spin dynamics and relaxation in graphene dictated by electron-

- Van Tuan D, Ortmann F, Cummings AW, Soriano D & **Roche S** 2016, 'Spin dynamics and relaxation in graphene dictated by electronhole puddles', *Scientific Reports*, 6, 21046.

- Woessner A, Alonso-González P, Lundeberg MB, Gao Y, Barrios-Vargas JE, Navickaite G, Ma Q, Janner D, Watanabe K, Cummings AW, Taniguchi T, **Pruneri V**, **Roche S**, Jarillo-Herrero P, Hone J, Hillenbrand R & **Koppens F** 2016, 'Near-field photocurrent nanoscopy on bare and encapsulated graphene', *Nature Communications* 7, 10783.

- Katagiri Y, Nakamura T, Ishii A, Ohata C, Hasegawa M, Katsumoto S, Cusati T, Fortunelli A, Iannaccone G, Fiori G, **Roche S** & Haruyama J 2016, 'Gate-tunable atomically-thin lateral MoS2 Schottky junction patterned by electron beam' *Nano Letters* 16 (6), 37788-3794.

- Cresti A, Nikolíc BK, García JH & **Roche S** 2016, 'Charge, spin and valley Hall effects in disordered graphene', *Rivista del Nuovo Cimento* 39 (12): 587-667.

Selected research activities

-Member of the organization Committee of Graphene 2016 (Genoa, Italy)



Rodó i López, Xavier Institut Català de Ciències del Clima (IC3) Experimental Sciences & Mathematics

Xavier Rodó (Terrassa, 1965). Head of the Climate & Health Program at ISGlobal. Founding director of the Cat. Inst. Clim. Sci. (IC3) and former head of the Clim. Res. Lab. at the PCB. MSc in engineering, completed his PhD in 1997 (UB) on the simulation of extreme systems under climate forcing. Visiting fellow at Princeton U. and afiliated scientist at COLA, US. Taught ecology, advanced statistics and sustainability (Unesco Chair). RyC researcher at the Dep. Met. & Astr. UB. In 2003 he edited the book `Global Climate: Current Research and Uncertainties in the Climate System, Springer-Verlag'. He was co-chair of CLIVAR-Spain (-2007) and SSC of the MEDCLIVAR-ESF. CA and ER of the AR4-WGII (IPCC2007). SCM of the Drought Integration Group (DIG) of the World Climate Research Program (WCRP). Editorial Board Member of Nature Scientific Reports `Earth & Environmental Sciences'. Member of the OPCC to monitor climate change in the Pyrenees.

Research interests

Mediterranean climate; tropical teleconnections; ENSO origin&dynamics; role of climate variability on the global carbon cycle; simulation of climate impacts (health, water, extremes). In the former I am particularly involved in trying to disentangle the origin of El Niño, the ways ENSO, the tropical Atlantic and the Atlantic tripole interact to modulate SW Mediterranean climate and the role that the monsoon plays modulating this interplay with both statistical and dynamical models. In the latter, I focus essentially on infectious diseases driven by climate (ABM, ODE), and on the impacts of climate on the hydrological cycle. The development of statistical techniques for improving climate diagnostics is another of my historical interests. Last but not least, I am also involved in the study of the interactions between climate and biogeochemistry of the global carbon cycle. To this end we implemented a network of EGE gases observatories in the Iberian Peninsula.

Selected publications

- Ballester J, **Rodó X**, Robine JM & Herrmann FR 2016, 'European seasonal mortality and influenza incidence due to winter temperature variability', *Nature Climate Change 6*, 927-930 — Highlighted in the **Issue Cover** —

- Lowe R & **Rodó X** et al. 2016, 'Evaluating probabilistic dengue risk forecasts from a prototype early warning system for Brazil', *eLife 5*, e11285.

- Rodó X et al. 2016, 'Revisiting the role of environmental and climate factors on the epidemiology of Kawasaki disease', Ann. New York Acad. Sci., 1382, 84-98.

- Ballester J, Petrova D, Bordoni S & Rodó X 2016, 'Sensitivity of El Niño intensity and timing to preceding subsurface heat magnitude', Nat. Sci. Rep., 6: 36344.

- Ballester J, **Rodó X** et al. 2016, 'Heat advection processes leading to El Nino events as depicted by an ensemble of ocean assimilation products', J. Geophys. Res.-Oceans, 121,6,3710-3729.

- Grossi C, **Rodó X** et al. 2016, 'Analysis of ground-based Rn-222 measurements over Spain: Filling the gap in southwestern Europe', J. Geophys. Res.-Atm. 121,18,11021-11037.

- Bouma MJ, **Rodó X** et al. 2016, 'El Nino-based malaria epidemic warning for Oromia, Ethiopia, from August 2016 to July 2017', *Trop. Med. Int. Health*, 2,1,1481-1488.

- Lowe R, **Rodó X** et al. 2016, 'Evaluation of an early-warning system for heat wave-related mortality in Europe: implications for subseasonal to seasonal forecasting and climate services', *Int. J. of Env. Res. Pub. Health*, 13(2): 206.

Selected research activities

-Member of the Editorial Board 'Nature Scientific Reports'.

-Steering Committee Member of the 'Observatoire Pyrénéen du Changement Climatique'

-Editor of the Annals of the New York Academy of Sciences Special Issue: Human Health in the Face of Climate Change.

-Invited scientist at the Istituto Politecnico de Milano, July 2016.

-Keynote Speaker at the International Conference on Climate Science and Climate Services, MetOffice, Exeter, UK, Oct. 2016.



Rodríguez Fornells, Antoni Universitat de Barcelona (UB) & Institut d'Investigació Biomèdica de Bellvitge (IDIBELL) Social & Behavioural Sciences

I got my PhD at the University of Barcelona (UB, 1996) about individual differences in impulsiveness. Afterwards, I worked at the University of Magdeburg (Germany, 1999-2002) as a post-doctoral researcher. My main topics of research were bilingual language processing, executive functions and the brain correlates of error monitoring. In 2002, I got a "Ramón y Cajal" research position from the Spanish Government and afterwards I joined ICREA as a Research Professor. Since then, I have created a interdisciplinar research group (Cognition and Brain Plasticity Unit, CDBU), at ICREA-IDIBELL-UB devoted to the study of learning process and brain plasticity effects in healthy and brain damaged patients. The group is located at the Hospital of Bellvitge – IDIBELL biomedical institute. Our research is inherently interdisciplinary and requires expertise in interfacing research fields as brain plasticity, brain development and learning and memory mechanisms.

Research interests

My recent interests have been on the cognitive neuroscience of language learning and error monitoring. I have tried to combine the use of different neuroimaging techniques (electrophysiological and magnetic resonance imaging), crucial to better understand human cognitive functions. During the last years, my research has been focused on the investigation of the neural mechanisms involved when adults and infants learn a new language (an specially its interface with executive functions and the reward system). This approach has been recently applied to understand the preserved learning mechanisms in aphasic people. We recently explored the inherent relationship between brain structure and brain function (to which extent individual differences in white-matter connectivity constraint cognitive processing). Finally, we have focused on the possible neurorehabilitation effects of learning specific skills (music training) in stroke patients.

Selected publications

- Ripolles P, Rojo N, Grau-Sanchez J., Amengual JL, Camara E, Marco-Pallarés J, Juncadella M, Vaquero L, Rubio F, Duarte E, Garrido C, Altenmuller E, Münte TF & **Rodríguez-Fornells A** 2016, 'Music supported therapy promotes motor plasticity in individuals with chronic stroke', *Brain Imaging and Behavior*, 10, 1289-1307.

- Francois C, Ripolles P, Bosch L, Garcia-Alix A, Muchart J, Sierpowska J, Fons C, Sole J, Rebollo M, Gaitan H & **Rodriguez-Fornells A** 2016, 'Language learning and brain reorganization in a 3.5-year-old child with left perinatal stroke revealed using structural and functional connectivity', *Cortex*, 77, 95 – 118.

- Vaquero L, **Rodriguez-Fornells A** & Reiterer S 2016, 'The left, the better: white matter brain integrity predicts foreign language imitation ability', *Cerebral Cortex 1-12*.

- Sarkamo T, Altenmueller E, **Rodriguez-Fornells A**, Peretz I 2016, 'Editorial: Music, Brain, and Rehabilitation: Emerging Therapeutic Applications and Potential Neural Mechanisms', *Frontiers In Human Neuroscience*, 10, 103.

- Penaloza C, Mirman D, Tuomiranta L, Benetello A, Heikius I, Jarvinen S, Majos MC, Cardona P, Juncadella M, Laine M, Martin N & **Rodriguez-Fornells A** 2016, 'Novel word acquisition in aphasia: Facing the word-referent ambiguity of natural language learning contexts', *Cortex*, 79, 14 – 31.

- Ripolles P, Marco-Pallares J, Alicart H, Tempelmann C, **Rodriguez-Fornells A** & Noesselt T 2016, 'Intrinsic monitoring of learning success facilitates memory encoding via the activation of the SN/VTA-Hippocampal loop', *Elife*, 5, e17441.

- Martínez-Molina N, Mas-Herrero E, **Rodriguez-Fornells A**, Zatorre RJ & Marco-Pallarés J 2016, 'The broken link in specific musical anhedonia: reduced NAcc activation and functional connectivity with auditory cortex', *Proceedings of the National Academy of Sciences*, 113, E7337-E7345.



Rodriguez Nebreda, Angel Institut de Recerca Biomèdica de Barcelona (IRB Barcelona) Life & Medical Sciences

Angel R. Nebreda obtained his PhD in Biochemistry and Molecular Biology at the University of Salamanca (Spain) and then worked as a postdoc at the National Institutes of Health in Bethesda (USA), and the Cancer Research-UK Clare Hall Laboratories in South Mimms (UK). In 1995, he started his own group at the European Molecular Biology Laboratory in Heidelberg (Germany) where he worked for 9 years and then moved to the newly created Centro Nacional de Investigaciones Oncológicas in Madrid (Spain). He is currently an ICREA Research Professor at the Institute for Research in Biomedicine, in Barcelona (Spain). His research interests focus on signal transduction mechanisms (MAPKs, CDKs) in cell proliferation, differentiation and survival, particularly in relation to cancer. He was elected EMBO member in 2003 and is an Editor of FEBS Letters and the Biochemical Journal.

Research interests

We are investigating molecular mechanisms of tumorigenesis, specially regarding how the p38 MAPK signaling pathway regulates cell viability, proliferation and invasion, using a combination of biochemical approaches and studies in human cancer cell lines. An important question is how this signalling pathway contributes to the ability of tumor cells to bypass normal controls. We also use genetically modified mice, which allow the inactivation of this pathway in a regulated and tissue-specific manner, and chemical inhibitors to investigate physiological functions of p38 MAPKs and their role in lung, colon and breast cancer, as well as the connection between inflammation and tumorigenesis. We are very interested in the identification of therapeutic opportunities based on the modulation of p38 MAPK signaling. Moreover, we are studying the regulation and functions of a new family of proteins named RINGO that can activate the cell cycle kinases Cdk1 and Cdk2.

Selected publications

Mikolcevic P, Isoda M, Shibuya H, del Barco Barrantes I, Igea A, Suja JA, Shackleton S, Watanabe Y & Nebreda AR 2016, 'Essential role of the Cdk2 activator RingoA in meiotic telomere tethering to the nuclear envelope', *Nature Communications*, 7, 11084.
Clemente-Ruiz M, Murillo-Maldonado JM, Benhra N, Barrio L, Perez L, Quiroga G, Nebreda AR & Milan M 2016, 'Gene Dosage Imbalance Contributes to Chromosomal Instability-Induced Tumorigenesis', *Developmental Cell*, 36, 3, 290 – 302.

- Galanos P, Vougas K, Walter D, Polyzos A, Maya-Mendoza A, Haagensen EJ, Kokkalis A, Roumelioti FM, Gagos

S, Tzetis M, Canovas B, Igea

A, Ahuja AK, Zellweger R, Havaki S, Kanavakis E, Kletsas D, Roninson IB, Garbis SD, Lopes M, **Nebreda A**, Thanos D, Blow JJ, Townsend P, Sorensen CS, Bartek J, Gorgoulis VG 2016, 'Chronic p53-independent p21 expression causes genomic instability by deregulating replication licensing', *Nature Cell Biology*, 18, 7, 777 – 789.

- Isoda M, Mikolcevic P & Nebreda AR 2016, 'New insights into Cdk2 regulation during meiosis', Cell Cycle, 15, 20, 2681 - 2682.

Selected research activities

Invited talks at:

- The Weizmann Institute of Science. June 2016. Rehovot, Israel.
- University Hospital Tubingen. July 2016. Tubingen, Germany.
- The 16th IUBMB Conference. July 2016. Vancouver, Canada.

- The XXXIX Congreso de la Sociedad Española de Bioquímica y Biología Molecular. September 2016. Salamanca, Spain.



Rodríguez Ranero, César Institut de Ciències del Mar (CSIC - ICM) Experimental Sciences & Mathematics

My Dr. degree was awarded (1993) by Barcelona University for work at the Earth Sciences Institute (CSIC). A postdoc (93-99) and tenured researcher (2000-05) at GEOMAR. I joined ICREA in 2005 to work at the Marine Sciences Institute (CSIC). I have published >75 articles with >3400 citations and h-index = 35. I have written several book chapters and ~20 non SCI papers. I have >350 contributions to international congresses and delivered >40 invited talks and seminars at European/American universities, research centers, and congresses/workshops. I have been organizer, convener, or program committee member of >30 international scientific meetings. I have been PI or CO-PI of over a dozen projects that included ship cruises. I have supervised the work of more than 20 graduated and postdoctoral researchers. Since 2007 I coordinate the Barcelona Center for Subsurface Imaging (http://www.barcelona-csi.cmima.csic.es) with 25-30 scientists.

Research interests

My research interest is focused on the study of the structure of the lithosphere to understand geological processes at subduction zones, rifted continental margins and oceanic spreading centers. I primarily work on the analysis, processing, and imaging of seismic data using modern techniques like pre-stack depth migration, and both travel-time and full-waveform inversions. I integrate seismic images and other geophysical observations with geological data to study the tectonic and magmatic processes that lead to the formation of oceanic lithosphere at spreading centers and the rift architecture of continental margins. I also study tectonic processes at convergent plate boundaries, where my interest has been centered on the relations between long-term tectonics and fluids in the incoming oceanic and overriding plates. I am particularly interested on the processes that govern the generation of earthquakes at subduction zones.

Selected publications

- Bangs NL, McIntosh KD, Silver EA, Kluesner JW & **Ranero CR** 2016, 'A recent phase of accretion along the southern Costa Rican subduction zone', *Earth And Planetary Science Letters*, 443, 204 – 215.

- Bayrakci G, Minshull TA, Sawyer DS, Reston TJ, Klaeschen D, Papenberg C, **Ranero CR**, Bull JM, Davy RG, Shillington DJ, Perez-Gussinye M & Morgan JK 2016, 'Fault-controlled hydration of the upper mantle during continental rifting', *Nature Geoscience*, 9, 5, 384 - +.

- Dagnino D, Sallares V, Biescas B & **Ranero CR** 2016, 'Fine-scale thermohaline ocean structure retrieved with 2-D prestack fullwaveform inversion of multichannel seismic data: Application to the Gulf of Cadiz (SW Iberia)', *Journal Of Geophysical Research-oceans*, 121, 8, 5452 – 5469.

- Gomez de la Pena L, Gracia E, Munoz A, Acosta J, Gomez-Ballesteros M, **Ranero CR** & Uchupi E 2016, 'Geomorphology and Neogene tectonic evolution of the Palomares continental margin (Western Mediterranean)', *Tectonophysics*, 689, 25 – 39.

 Prada M, Ranero CR, Sallares V, Zitellini N, Grevemeyer I 2016, 'Mantle exhumation and sequence of magmatic events in the Magnaghi-Vavilov Basin (Central Tyrrhenian, Italy): New constraints from geological and geophysical observations', *Tectonophysics*, 689, 133 – 142.

- Carbonell R, Sallares V, **Ranero CR**, Booth-Rea G 2016, 'Preface to the "Deep Seismix-2014" special issue', *Tectonophysics*, 689, 1 – 3.



Rosell i Melé, Antoni Universitat Autònoma de Barcelona (UAB) Experimental Sciences & Mathematics

I trained as an analytical chemist at the Chemical Institute of Sarrià (IQS), in Barcelona, and as an environmental chemist at CSIC under the supervision of J. Grimalt and J. Albaigés. I moved to England in 1990 to earn a PhD in the School of Chemistry at the University of Bristol (completed in 1994), in the group of G. Eglinton, on the application of biomarkers to decipher natural causes of climate change. This has become the central topic of my research career. In 1994 I joined the group of J. Maxwell as a post-doctoral researcher also in the School of Chemistry of Bristol to develop the use of fossil chlorophylls as climatic proxies. In 1996 I was awarded a NERC fellowship at the Department of Fossil Fuels and Environmental Geochemistry at the University of Newcastle, England. In 1999 I became a lecturer in the department of Geography at Durham University, England, until 2001, when I moved back to Barcelona as an ICREA Research Professor.

Research interests

The main focus of my work is the study of the natural variability of the Earth's climate. My research tools are organic geochemical techniques, which allow the quantitative reconstruction of past climates. My work develops in three main areas i) the development of novel biomarker methods of climate reconstruction; ii) their application to reconstruct the dynamics and role of the ocean on climate over the last 5 million years; and iii) the use of such information to validate and constrain the sensitivity of climate models. I am also involved in the study of the impacts of anthropogenic activities in natural environments. I apply an environmental forensics approach to study the origin and fate of organic pollutants in remote environments, like the deep sea or the Amazonian rainforests. A third area of research is the study of organic matter in an archaeological context, mainly to reconstruct palaeodiets of ancient cultures and the use or function of archaeological artifacts.

Selected publications

- Fietz S, Ho SL, Huguet C, **Rosell-Melé A** & Martínez-García A 2016, "Appraising GDGT-based seawater temperature indices in the Southern Ocean", *Organic Geochemistry*, vol. 102, pp. 93–105.



Rosell Llompart, Joan Universitat Rovira i Virgili (URV) Engineering Sciences

He graduated in Physics in 1987 from Universitat Autònoma de Barcelona. Until his PhD (awarded in 1994 at Yale University), he worked with Prof. J. Fernández de la Mora on aerodynamic focusing, inertial impaction, electrospray atomization, and differential mobility analysis. As postdoc associate with Prof. John B. Fenn at Virginia Commonwealth University, he carried research on electrospray ionization mass spectrometry. In 1996 he joined Aradigm Corporation (Hayward CA, USA) to help develop liquid micro-jet technology for inhalation drug delivery. There he co-discovered, with Prof. Alfonso Gañán-Calvo of Universidad de Sevilla (Spain), the Flow Blurring regime for fine liquid atomization. Since joining ICREA and Universitat Rovira i Virgili (URV) in 2004, his research has focused on electrospray and electrospinning for the manufacturing of nanomaterials. He leads the Droplets, intErfaces, and floWs (DEW) research lab at URV.

Research interests

Under the action of electrostatic fields, liquid interfaces can form stable ultrathin liquid jets, thinner than one hundreth of a human hair. We use such "electro-hydrodynamic" jets and the droplets they lead to as templates for the one-step manufacturing of nanofibers, microparticles, and nanoparticles. Such structures (fibers and particles) are building blocks for making larger structures which find use in many fields, e.g. heterogeneous catalysis, non-linear optics, drug delivery, chemical sensing, energy, and others. I am currently devising strategies for engineering the internal nanostructure of such micro/nano-blocks, as well as for their assembly into suprastructures. A key aspect of the research is the modelling of underlying physical and physicochemical processes, and the understanding the function-structure relationships of the synthesized materials. I am also investigating the scaling up into arrays of electro-hydrodynamic emitters for materials production.

Selected publications

- Álvarez MG, Chimentão RJ, Tichit D, Santos JO, Dafinov A, Modesto-López LB, **Rosell-Llompart J**, Güell EJ, Gispert-Guirado F, Llorca J & Medina F 2016, 'Synthesis of tungsten carbide on Al-SBA-15 mesoporous materials by carburization', *Microporous and Mesoporous Materials*, 219: 19-28.

Selected research activities

* Doctoral thesis supervision – Eszter Bodnár, "Electrospraying of polymer solutions for the generation of micro-particles, nanostructures, and granular films." Universitat Rovira i Virgili, Departament d'Enginyeria Química. Defended Jan. 28, 2016. * Organization of congress – Member of Scientific Committee of RICTA-2016, the 4th Iberian Meeting on Aerosol Science and Technology, 29 June – 1 July 2016, Aveiro, Portugal.

* Oral presentation at international congress: "Polymer particle formation by electrospray drying" [O5-AT-EE-05]. EAC-2016 (European Aerosol Conference 2016), Tours (France), September 4-9, 2016 (with E. Bodnár and J. Grifoll).

- * Poster contributions at RICTA-2016 (4th Iberian Meeting on Aerosol Science and Technology), Aveiro (Portugal), June 29 July 1, 2016:
- "Electrospray drying of polymeric solution droplets" (with E. Bodnár and J. Grifoll).
- "Electro-hydrodynamic spraying with extractor-free 1D emitter arrays" (with N. Sochorakis, E. Bodnár, and J. Grifoll).
- * Poster contributions at EAC-2016 (European Aerosol Conference 2016), Tours (France), September 4-9, 2016:
- "Morphologies of polymeric particles formed during electrocapillary instability of electrospray microdroplets" [P1-AT-EE-014] (with E. Bodnár and J. Grifoll).
- "Electrohydrodynamic spraying from extractor-free one-dimensional arrays" [P1-AT-EE-012] (with N. Sochorakis and J. Grifoll).
- "Electrostatics of arrays of quasilinear electrospray plumes" [P1-AT-EE-013] (with N. Sochorakis and J. Grifoll).



Rosenkranz, Sven Universitat de Barcelona (UB) Humanities

Sven received his PhD from the University of St Andrews in 1999. After a postdoc research fellowship at UNAM, he worked at the philosophy department at FU Berlin until 2005 and was awarded his senior doctorate (habilitation) in 2004. From 2005 until 2008 he received a DFG Heisenberg Research Fellowship. Sven joined ICREA in 2008. He is Associate Fellow at *Arché*, St Andrews, and was until its closure in 2015 Honorary Research Fellow at the Northern Institute of Philosophy, Aberdeen. From 2010 until 2013 he coordinated the FP7 ITN *PETAF* (EC-GA 238128, €1465432) and from 2010 until 2015 served on the executive committee of the Consolider-Ingenio *PERSP* (CSD2009-00056, €2000000). Since 2014 he is coordinator of the research group *LOGOS* (2014-SGR-81) and PI of the project Fallibility, Rational Belief, and Knowledge (FFI2013-45968-P, €66550). From 2016 until 2019, Sven coordinates the ETN *Diaphora* (H2020-MSCA-ITN-2015-675415, €3670854).

Research interests

Sven's main research interests lie in metaphysics and epistemology. He is particularly interested in realism, objectivity, fallibility, the logic of justification, the limits of thought and knowledge (if any), and the philosophy of time.

Selected publications

- **Rosenkranz S** 2016, 'Being in a position to know and closure: reply to Heylen', *Thought - a Journal of Philosophy*, 5, 1, 68 - 72.

Selected research activities

Invited speaker at the 12th Conference of the Italian Society for Analytic Philosophy, Pistoia, the 3rd Conference on Contemporary Philosophy in East Asia, Seoul, the Veritas Research Center, Yonsei University, Incheon, and the LanCog Research Group, University of Lisbon

Coordinator of *LOGOS*, the Consolidated Research Group in Analytic Philosophy (2014-SGR-81), from 2014 until 2019 Network coordinator and PI of the H2020 ETN *Diaphora* (H2020-MSCA-ITN-2015-675415), involving the Universities of Barcelona, Neuchâtel, Stockholm, Stirling, Edinburgh, the Ludwig-Maximilians-Universität München and the École Normale Supérieure Paris, from 2016 until 2019

PI of the research project *Fallibility, Rational Belief and Knowledge* (FARBEK), financed by the Spanish Ministry of Economy (MINECO) (FFI2013-45968-P), from 2014 until 2017

Associate Fellow of Arché, Philosophical Research Centre for Logic, Language, Metaphysics and Epistemology, University of St Andrews, since 2003

Advisor to the Committee for the Rolf Schock Prize for Logic and Philosophy, The Royal Swedish Academy of Sciences Member of the Editorial Panel for *Thought: A Journal of Philosophy*, since March 2012

Member of the Editorial Board for Disputatio: International Journal of Philosophy, since January 2009

Director of the Beatriu de Pinós Postdoctoral Research Grant awarded to Roberto Loss (modalidad B), financed by AGAUR (Generalitat de Catalunya) and COFUND, from 2015 until 2017

Supervisor of four doctoral students, two of whom were awarded their PhD in 2016 with excellent cum laude



Rossi, Barbara Universitat Pompeu Fabra (UPF) Social & Behavioural Sciences

Before joining UPF, Prof. Rossi was Associate Professor (with tenure) at Duke University. She held visiting positions at the Philadelphia Fed, University of California-Berkeley, ENSAE-CREST, University of Montreal, Atlanta Fed, UCSD, and Concordia University. Prof. Rossi is the editor of the Journal of Applied Econometrics and a coeditor of the International Journal of Central Banking, and served as associate editor of the Journal of Business and Economic Statistics, Quantitative Economics and Journal of Economic Dynamics and Control. She is a CEPR Fellow and member of the CEPR Business Cycle Dating Committee, a member of the Council of the European Economic Association, the Vice Chair of the Scientific Committee of the EABCN and a director of the International Association for Applied Econometrics. Currently she is also a research associate at CREI and a Barcelona GSE Research Professor. Her past or present grants include NSF, ERC, MICINN, BBVA and Marie Curie CIG.

Research interests

Specializing in time series econometrics and empirical applications in international finance and macroeconomics, her current research has both a theoretical and an empirical focus. It encompasses theoretical analyses of the forecasting ability of economic models as well as model selection in the presence of instabilities. Her empirical works range from model comparisons of DSGE models, forecasting exchange rates, purchasing power parity analysis, to impulse response functions. She teaches applied time series econometrics as well as graduate econometrics and macroeconometrics courses.

Selected publications

- **Rossi B** & Sekhposyan T 2016, 'Forecast Rationality Tests in the Presence of Instabilities, With Applications to Federal Reserve and Survey Forecasts', *Journal of Applied Econometrics*, 31, 3, 507 – 532.

- Giacomini R & Rossi B 2016, 'Model Comparisons in Unstable Environments', International Economic Review, 57, 2, 369 - 391.

- Carrasco M, **Rossi B** 2016, 'In-Sample Inference and Forecasting in Misspecified Factor Models', *Journal Of Business & Economic Statistics*, 34, 3, 313 – 338.

- Rossi B 2016, 'A Review of Economic Forecasting', Econometrics Journal, 19, 3, B1 - B3.

- Anderson E, Inoue A & **Rossi B** 2016, 'Heterogeneous Consumers and Policy Shocks', *Journal of Money, Credit and Banking* 48(8), 1877-1888.

Selected research activities

- Spanish Business Cycle Committee Invited Lecture, Symposium of the Spanish Economic Association.
- Keynote Speaker, NBP Workshop in Forecasting.
- BBVA Grant, 2016-2018.
- Duisemberg Fellow, European Central Bank.
- Invited Speaker, Bristol Econometrics Study Group.
- Invited Speaker, The Impact of Uncertainty Shocks on the Global Economy, Bank de France and UCL.
- Keynote Speaker, Fourth International Symposium in Computational Economics and Finance.
- Keynote Speaker, Applied Macroeconomics Workshop, Henan University.
- Invited Speaker, Journal of Business and Economic Statistics Session at the American Economic Association Meetings.
- Program Chair, Econometric Society European Meetings.
- Co-organizer, 9th ECB Workshop on Forecasting Techniques.
- Program Committee Member and Organizer, Fourth Time Series in Macroeconomics and Finance Conference, BGSE Summer Forum.

- Program Committee Member 2016: Info-Metrics Conference on Information-Theoretic Methods of Inference; 9-th Society for Financial Econometrics (SoFiE) Conference; Spanish Economic Association Conference.



Rovira Virgili, Carme Universitat de Barcelona (UB) Experimental Sciences & Mathematics

Dr. Rovira is an ICREA Research Professor at the University of Barcelona (UB). She did part of her PhD research in USA (North Carolina State University and Southern Illinois University) and obtained her PhD degree in Chemistry from the UB in 1995, working with J Novoa. Afterwards, she spent almost three years (1996-1998) as postdoctoral fellow at the Max-Planck-Institute für Festkörperforschung (Stuttgart, Germany), working with M. Parrinello. In 2002 she obtained a Ramón y Cajal position and moved to the Parc Científic de Barcelona and in 2003 she received an award from the Generalitat de Catalunya ("Distinció de la Generalitat per la promoció de la recerca universitaria", young scientist category). She was appointed ICREA Research Professor in 2007 and in 2012 she moved to the Chemistry Department of the UB. Dr. Rovira is the author of about 120 publications in peer-reviewed journals, mainly in the fields of Theoretical Chemistry and Computational Biology.

Research interests

The research at Dr. Rovira's group is focused on the computer simulation of biological processes at atomic-electronic detail, i.e. using computers to understand how biomolecules work. Her goal is to simulate the molecular mechanisms underlying ligand-protein interactions and enzymatic reactions to help in the design of more efficient enzymes and inhibitors. In the last few years, her research has been focused on hemeproteins (peroxidases and catalases) and carbohydrate-active enzymes.

Selected publications

- Raich L, Borodkin V, Fang W, Castro-Lopez J, van Aalten DMF, Hurtado-Guerrero R & **Rovira C** 2016, 'A Trapped Covalent Intermediate of a Glycoside Hydrolase on the Pathway to Transglycosylation. Insights from Experiments and Quantum Mechanics/Molecular Mechanics Simulations', *Journal of the American Chemical Society*, vol. 138, pp 3325-3332.

Thompson AJ, Speciale G, Iglesias-Fernández J, Hakki Z, Belz T, Cartmell A, Spears RJ, Chandler E, Temple MJ, Stepper J, Gilbert HJ,
 Rovira C, Williams S & Davies GJ 2016, 'Evidence for a boat conformation at the transition state of GH76 α-1,6-mannanases — key enzymes in bacterial and fungal mannoprotein metabolism', *Angewandte Chemie International Edition*, vol. 55, pp 1949.
 Jin Y, Petricevic M, John A, Raich L, Jenkins H, Portela de Souza L, Cuskin F, Gilbert H, **Rovira C**, Goddart-Borger ED, Williams SJ & Davies GL 2016, 'A & Management with a hyperpresenville field and a payel malegular activation at the transition state of a state of Control Contro Control Control Control Control Control Control Control Contr

Davies GJ 2016, 'A β-Mannanase with a lysozyme-like fold and a novel molecular catalytic mechanism', ACS Central Science, vol. 2, pp 896-903.

- Ardevol A, Iglesias-Fernandez J, Rojas-Cervellera V & **Rovira C** 2016, 'The reaction mechanism of retaining glycosyltransferases', *Biochemical Society Transactions*, vol. 44, pp 51-60.

- Brun O, Agramunt J, Raich L, **Rovira C**, Pedroso E & Grandas A 2016, 'Selective Derivatization of N-Terminal Cysteines Using Cyclopentenediones', *Organic Letters*, vol. 18, pp 4836-4839.

- Raich L, Nin-Hill A, Ardèvol A, **Rovira C** 2016, 'Enzymatic cleavage of glycosidic bonds: strategies on how to set up and control a QM/MM metadynamics simulation', *Methods Enzymology*, 577, 159 – 183.

Selected research activities

Invited speaker

* Partnership for advanced computing in Europe (PRACEdays16). Prague, Check Republic (May 10-12). Keynote.

- * 10th congress on electronic structure: principles and applications (ESPA). Castellón de la Plana, Spain (June 28 July 2).
- * 252th National ACS Meeting. Symposium on Advanced Potential Energy Surfaces. Philadelphia, USA (Aug. 21-25).

Theses

Master theses of Alba Nin-Hill and Joan Coines



Rubiés Mirabet, Joan-Pau Universitat Pompeu Fabra (UPF) Humanities

Joan-Pau Rubiés graduated in Early Modern History at the University of Barcelona (1987), where he received the extraordinary degree prize. He went on to do a PhD at the University of Cambridge, funded with an external studentship from King's College (1987-1991). He was subsequently Research Fellow at Queens's College, Cambridge, and Jean Monnet Fellow at the European University Institute in Florence. In 1994 he became Lecturer in Modern History at the University of Reading, and in 1999 he joined the Department of International History at the London School of Economics and Political Science. He was Reader in International History at the LSE until 2012, when he accepted the offer of a Research Professorship at ICREA, which he holds at Universitat Pompeu Fabra. He has been twice visiting professor at the École des Hautes Études (Paris and Marseille). He is currently leading a Research Project on Ethnographies, Religious Missions and Cultural Encounters in the Early Modern World.

Research interests

I am a historian and have specialized in the study of cross-cultural encounters in the early modern world, from a perspective combining the contextual analysis of ethnographic sources with the intellectual history of early modern Europe. I am currently developing various lines of research: 1. Travel writing and ethnography, literary and visual 2. Religious missions, religious dialogue and cultural mediation 3. The intellectual impact of travel writing and the origins of the Enlightenment 4. Diplomacy and cultural encounters 5. The comparative history of early modern empires and globalization. I am the coordinator of the Research Grup on Ethnographies, Cultural Encounters and Religious Missions (ECERM) at Universitat Pompeu Fabra, which has received funding from the ERC (Marie Curie Program), AGAUR (SGR) and MINECO: http://www.upf.edu/ecerm/

Selected publications

- **Rubiés JP** & Ollé M, 'The comparative history of a genre: The production and circulation of books on travel and ethnographies in early modern Europe and China', *Modern Asian Studies*, 50, 1 (2016): 259-309.

- **Rubiés JP** 2016, 'From Christian apologetics to Deism: Libertine readings of Hindusim, 1600-1730', in Bulman W & Ingram R (eds), God in the Enightenment, *Oxford University Press*, pp. 107-135.

- Rubiés JP 2016, 'Political Rationality and Cultural Distance in the European Embassies to Shah Abbas', Journal of Early Modern History, 20: 351-389.

- Osborne T & **Rubiés JP** 2016, 'Introduction: Diplomacy and Cultural Translation in the Early Modern World', *Journal of Early Modern History*, 20: 313-330.

Selected research activities

In 2016 I spoke about 'Catalan Independence Referendums: Problem or Solution?' at New York University; 'Imperial Emulation and the Making of The Principal Navigations' at Christ Church Oxford; 'Conceptualizing the Local in Early Modern Religious and Political Encounters' at UPF Barcelona; 'Comparing Cultures in the Early Modern World' at the University of Cambridge; 'Sacred History and Comparative Ethnography in Lafitau' in Geneva; 'Re-thinking *La Crise de la Conscience Européenne*' at EUI Florence; and 'The Boxer Codex in a Comparative Perspective' at UPF.

I also offered two keynote lectures, 'Etnografías misioneras y el problema de la traducción cultural', XVI Jornadas Internacionales sobre Misiones Jesuíticas (Resistencia, Argentina), and 'Civility across cultures in the early Modern World', Government College, Lahore. Our Research Group ECERM organized a colloquium on *The Boxer Codex: Colonial Ethnography in the Spanish Philippines*, and an international conference on *Locality and Globality in Early Modern Cultural Encounters: A Comparative Analysis of Religious and Political Accommodation.* We received confirmation of a new grant from MINECO to develop a project on *Cultural Mediations in the Iberian Empires* (2017-2020).



Rubin, Nava Universitat Pompeu Fabra (UPF) Engineering Sciences

Nava Rubin joined the Department of Information and Communication Technology at Universitat Pompeu Fabra (UPF) in 2012, as an ICREA Research Professor. She is currently on leave from her position as Professor of Neural Science and Psychology at New York University, where she has been a faculty member since 1996. Prior to that, she was a Postdoctoral Fellow at the Harvard University Vision Lab (1993-1996). In 1993 she received a PhD in Neuroscience from the Hebrew University in Jerusalem, for her thesis "The use of 1D and 2D motion information for the computation of global motion". Prior to that she received a MSc degree in Physics from the same university for her thesis "Equilibrium and oscillations in stochastic neural networks". Dr. Rubin is the recipient of several research awards, including a McDonnell-Pew award in Cognitive Neuroscience and an Alfred P. Sloan Fellowship.

Research interests

Nava Rubin works on the computational and neural basis of human visual perception: how the brain transforms the fragmented, localized information present on the retina into the unitary, global representations of external shapes we experience. Much of her research has focused on mid-level processes such as figure/ground segregation, global motion and perceptual bi-stability, where network activity must provide flexible and efficient scene organizations that cannot rely on stored representations of familiar objects. She combines psychophysical experiments, theoretical analysis, modeling and brain imaging (fMRI) to tackle these phenomena from different angles and levels of analysis. More recently, she has also done research on interactions between visual perception and social cognition, as well as neuroaesthetics.



Ruiz Trillo, Iñaki Institut de Biologia Evolutiva (CSIC - IBE) Life & Medical Sciences

Iñaki Ruiz Trillo works at the Institut de Biologia Evolutiva (CSIC-UPF) in Barcelona. His educational background includes a BS in Biology from the University of Barcelona. He earned a PhD in Biology from the University of Barcelona. During his PhD he worked in improving the metazoan phylogenetic tree. Using molecular tools, he showed that acoel flatworms are not members of the Platyhelminthes but rather an independent lineage. He completed a post-doctoral stage at the Dalhousie University (Canada) working on eukaryotic evolution using EST data. His current research interests include the study of the molecular mechanisms involved in the origin of multicellular animals, the analysis of genomes of different protists, the study of higher phylogenetic relationships of eukaryotes, and the understanding of the genetic repertoire of the last eukaryotic common ancestor.

Research interests

The lab is interested in understanding how multicellular animals emerged from their unicellular ancestors. To this aim we perform comparative genomic analyses between multicellular animals and their closest unicellular relatives to unravel the nature of the unicellular ancestor that gave rise to animals. We are also currently developing molecular techniques and transgenesis tools in the closest unicellular relatives to Metazoa. Finally, we are also interested in unravelling the hidden diversity among opisthokonts lineages using metabarcoding data.

Selected publications

- Arroyo AS, Lopez-Escardo D, de Vargas C & **Ruiz-Trillo I** 2016, 'Hidden diversity of Acoelomorpha revealed through metabarcoding', *Biology Letters*, 12, 9, 20160674.

- Sebe-Pedros A, Pena MI, Capella-Gutierrez S, Anto M, **Gabaldon T**, **Ruiz-Trillo I** & Sabido E 2016, 'High-Throughput Proteomics Reveals the Unicellular Roots of Animal Phosphosignaling and Cell Differentiation', *Developmental Cell*, 39, 2, 186 – 197.

- Esquerdo M, Grau-Bové X, Garanto A, Toulis V, Garcia-Monclús S, Millo E, López-Iniesta MJ, Abad-Morales V, **Ruiz-Trillo I** & Marfany G 2016, 'Expression atlas of the deubiquitinating enzymes in the adult mouse retina, their evolutionary diversification and phenotypic roles', *Plos One* 11(3): e0150364.

- Ruiz-Trillo I & Paps J 2016, 'Acoelomorpha: earliest-branching bilaterians or deuterostomes?', Organisms Diversity and Evolution 16, 2, 391 – 399.

- Gold DA, Grabenstatter J, de Mendoza A, Riesgo A, **Ruiz-Trillo I** & Summons RE 2016, 'Sterol and genomic analyses validate the sponge biomarker hypothesis', *Proceedings Of The National Academy Of Sciences Of The United States Of America*, 113, 10, 2684 - 2689.

- Sebe-Pedros A, Ballare C, Parra-Acero H, Chiva C, Tena JJ, Sabido E, Gomez-Skarmeta JL, **Di Croce L** & **Ruiz-Trillo I** 2016, 'The Dynamic Regulatory Genome of Capsaspora and the Origin of Animal Multicellularity', *Cell*, 165, 5, 1224 – 1237.

- O'Malley MA, Wideman JG & **Ruiz-Trillo I** 2016, 'Losing Complexity: The Role of Simplification in Macroevolution', *Trends In Ecology & Evolution*, 31, 8, 608 - 621.

- Najle SR, Molina MC, **Ruiz-Trillo I** & Uttaro AD 2016, 'Sterol metabolism in the filasterean Capsaspora owczarzaki has features that resemble both fungi and animals', *Open Biology*, 6, 7, 160029.



Russo Guillermo, Jorge G. Universitat de Barcelona (UB) Experimental Sciences & Mathematics

In 1983 JG Russo obtained a fellowship to study physics at the Instituto Balseiro, Bariloche, Argentina, where he obtained the degree (Licenciatura) in Physics (12/1986). He was awarded a SISSA fellowship to follow the PhD programme at SISSA, Trieste, Italy, where he finished his PhD (10/1990) under the supervision of Daniele Amati on Quantum gravity and String theory. As a postdoc at Stanford University, USA, he collaborated with L. Susskind on black hole physics. He continued his research on black holes and string theory first at the University of Texas at Austin, USA, and then at CERN, Geneva. In 1998 JG Russo moved to the University of Buenos Aires as a Professor and in 04/2003 joined ICREA as a Research Professor.

Research interests

A major challenge of theoretical physics is unveiling the fundamental laws that govern the universe. The microscopic world, governed by quantum mechanics, is fuzzy, uncertain and involves three forces among elementary particles: electromagnetic, weak nuclear and strong nuclear. The gravitational force, described by Einstein general relativity, is instead observed at large scales. But this theory is incompatible with quantum mechanics. Superstring theory is presently the best candidate to reconcile gravity with quantum mechanics and thus to provide a unifying framework for the four forces of nature.

Selected publications

- Rodriguez-Gomez D & **Russo JG** 2016, 'Large N correlation functions in superconformal field theories', *Journal Of High Energy Physics*, , 6, 109.

- Russo JG 2016, 'D branes in background fluxes and Nielsen-Olesen instabilities,'*Journal Of High Energy Physics* vol. 1606, pp. 021.
 - Rodriguez-Gomez D & Russo JG 2016, 'Operator mixing in large N superconformal field theories on S4 and correlators with Wilson loops', *Journal Of High Energy Physics*, 12, 120.

Selected research activities

Plenary address:

- "Exact results in four-dimensional Gauge Theories from Matrix models", in Workshop "Recent Developments in Strings and Gravity", Corfu, Greece.

Invited Lecture:

"Supersymmetric Localization and some applications to gauge theories" Dept. de Fisica, University of La Plata, Argentina.

Invited talks:

- "D branes in background fluxes and Nielsen-Olesen Instabilities" in "5th Bangkok Workshop on High-Energy Theory", Bangkok, Thailand.

- "Novel phase transition in quantum electrodynamics with matter" in "Topics in Theoretical Physics", University of La Plata, Argentina.

- "Supersymmetric gauge theories and resurgence", at "Resurgence in Gauge and String Theories", Instituto Superior Técnico, Lisbon, Portugal.

Invited Seminars:

- "Phases of N = 2 theories with massive matter" at Dipartimento di Fisica, Universita di Torino, Torino, Italy.

- "D branes in background fluxes and instabilities" at STAG Research Centre and Mathematical Sciences, Univ. of Southampton, UK. Supervisor of Master theses at U. Barcelona. "Matrix Models and Confinement" (by G. Valocchi) and "Orbits of Electrically Charged Particle in Magnetic Reissner-Nordstron Metric" (by A. Liaghat), defended Sep 7, 2016.

Member of Ph D thesis committee at U. Barcelona. Thesis: "New insights into holography from supersymmetric localization" (by G. Torrents) defended Jun 27, 2016.

Member of Evaluation Panel for research projects - appointed by Austrian Science Fund (FWF).

Reviewer for funding proposals - appointed by Fund for Scientific Research - FNRS, Belgium.



Sabaté Vizcarra, Neus Institute of Microelectronics of Barcelona - Centre Nacional de Microelectrònica (CSIC - IMB-CNM) Engineering Sciences

I obtained my Degree in Physics in 1998 at the University of Barcelona (UB). After that, I joined UB Electronics Dep. to develop ionizing radiation detectors. After that I joined for several months the LAAS-CNRS in Toulouse, where I discovered my passion for silicon-based microsystems (MEMS) technologies. Back to Barcelona in 1999, I started my PhD at the Microelectronics Institute of Barcelona (CSIC) where I developed silicon-based flow and gas sensors for industrial applications. After the obtaining of my PhD in 2003, I joined again the Electronics Dep. of UB to work on sensor reliability issues. This research moved me to join in 2004 the IZM Fraunhofer in Berlin where I played a key role in the development of a new technique for stress measurements in thin films for the microelectronics industry. In 2006 I started a research line in silicon microfabricated fuel cells at IMB-CSIC that has evolved until the biodegradable electrochemical power sources I develop today.

Research interests

Since 2006, I have focused on the development of microfuel cells, with the final goal of integrating them within microdevices requiring power autonomy. After many years of development using silicon-related technologies I decided to approach printed electronics technology that allows to build devices entirely made of polymer-based and paper materials at a very competitive cost. The main goal of my research line is to obtain single-use electrochemical power sources that can provide with power autonomy the new generation of paper-based lab-on-a-chip devices while being environmentally friendly.

Selected publications

- Jose Gonzalez-Guerrero M, Javier del Campo F, Pablo Esquivel J, Giroud F, Minteer SD & **Sabate N** 2016, 'Paper-based enzymatic microfluidic fuel cell: From a two-stream flow device to a single-stream lateral flow strip', *Journal Of Power Sources*, 326, 410 – 416.

Selected research activities

Invited Talks

Powerpad: Non-Toxic Capillary-Based Flow Battery for Single Use Applications – Science for Solving Society's Problems Challenge: Grant Winners Session at the 229th ECS Meeting, May 2016, San Diego, USA.

Single Use Paper Fuel Cells – Smart and Multifunctional Materials, Structures and Systems Session at the CIMTEC 5th International Conference, June 2016, Perugia, Italy.

Paper-Based Fuel Cells and Batteries as Sustainable Power Sources for a New Generation of Disposable Analytical Devices, 67th Meeting of the International Society of Electrochemistry, August 2016, The Hague, Netherlands.

Technology Transfer Activities

In July 2016, my spin-off FUELIUM – that develops paper batteries for in-vitro diagnostic devices – was awarded in the category of *Enterpreneurial Projects* with a grant of 144.000 Euros (expandable to 288.000 Euros) by the REPSOL Enterpreneurship Fund.



Salvatella Giralt, Xavier Institut de Recerca Biomèdica de Barcelona (IRB Barcelona) Experimental Sciences & Mathematics

I was born in Barcelona, Spain. I obtained my first degree in Chemistry at the University of Barcelona followed by a MSc in Chemical Research at the University of London and a PhD in Organic Chemistry at the University of Barcelona. In 2003, I moved to the University of Cambridge to work as a Research Fellow with Christopher Dobson on the structural and dynamical characterization of proteins. In July 2008, I joined ICREA as a Researcher and the IRB as a Group Leader and in 2013 I became ICREA Research Professor.

Research interests

A high resolution description of the structure and dynamics of proteins is a very useful tool to study the properties and the function of these important biomacromolecules and, most importantly, to understand how changes in sequence or environment can lead to disease. My research work aims, on the one hand, at developing methods to probe the fluctuations of the structure of proteins by combining experimental data and molecular simulations and, on the other hand, at understanding how changes in such motions relate to the molecular recognition of proteins, to their function and to disease.

Selected publications

- Slebe F, Rojo F, Vinaixa M, García-Rocha M, Testoni G, Guiu M, Planet E, Samino S, Arenas EJ, Beltran A, Rovira A, Lluch A, **Salvatella** X, Yanes O, Albanell J, Guinovart JJ, Gomis RR 2016, 'FoxA and LIPG endothelial lipase control the uptake of extracellular lipids for breast cancer growth', *Nature Communications*, vol. 7, ncomms.11199

- Eftekharzadeh B, Piai A, Chiesa G, Mungianu D, Garcia J, Pieratelli R, Felli I & **Salvatella X** 2016, 'Sequence Context Influences the Structure and Aggregation Behavior of a PolyQ Tract', *Biophysical Journal*, 110, 11, 2361 – 2366.

- Pratihar S, Sabo T M, Ban D, Fenwick RB, Becker S, **Salvatella X**, Griesinger C & Lee D 2016, 'Kinetics of the Antibody Recognition Site in the Third IgG-Binding Domain of Protein G', *Ange Chem Int Ed*, 55, 9567-9570.

- De Mol E, Fenwick RB, Phang CTW, Buzón V, De la Fuente A, Escobedo A, García J, Bertoncini CW, Estébanez-Perpiñá E, McEwan IJ, Riera A and **Salvatella X** 2016 'EPI-001, a compound active against castration-resistant prostate cancer, targets transactivation unit 5 of the androgen receptor', ACS Chemical Biology, 11, 2499-2505.

- Guillén-Boixet J, Buzón V, **Salvatella X** & Méndez V 2016, 'CPEB4 is regulated during cell cycle by ERK2/Cdk1-mediated phosphorylation and its assembly into liquid-like droplets', *eLife* 5, e19298.



Sánchez Ordónez, Samuel Institut de Bioenginyeria de Catalunya (IBEC) Engineering Sciences

Samuel (PhD Chemistry, UAB, 2008) is a Group Leader at the Max Planck Institute for Intelligent Systems, Stuttgart, Germany, and since January 2015 concurrently ICREA Professor at the Institute for Bioengineering of Catalonia (IBEC) in Barcelona. In 2009, he worked at NIMS, Japan and from 2010 until 2013, he was Group Leader at the Institute for Integrative Nanosciences, IFW Dresden, Germany. He received several awards: the Guinness World Record® 2010 for smallest jet engine; the IFW-IIN Research Prize 2011 for outstanding scientist; the ERC Starting Grant 2012 "Lab-in-a-tube and Nanorobotic Biosensors" ERC Proof-of Concept 2016; the MIT TR35 as "Innovator of the year under 35" Spain 2014; the Princess of Girona Scientific Research Award 2015; the "Joven Relevante" Award by the Círculo Ecuestre de Barcelona and the National Research Award for Young Talent from the Generalitat de Catalunya and the Catalan Foundation of Research and Innovation (FCRi).

Research interests

Samuel Sánchez is leader of the "Smart Nano-Bio-Devices" group, working in the multidisciplinary field of Nanosciences with interest in self-powered micro- and nano-systems, microscale robots, integratedand flexible nano-(bio)-sensors, microfluidics, Lab on a Chip devices, active drug delivery systems and 3D (Bio) Printed Soft Robotics. Sánchez's group has been consolidated as one of the leading groups in catalytic nano-motors/nanorobotics and now developing different types of nano- to micro- robotics by, sol-gel, thin films, 3D printing and electrodeposition. Currently, the main research lines in the group are: 1. Nanofabrication of self-powered micro- and nanorobots using nanotechnology and new fabrication tools for biomedicine and environmental applications. 2. 3D Printing and 3D BioPrinting for soft robotics and nanomedicine. 3. Fabrication of ultracompact and flexible devices for biosensing. 4. Physics of actibve colloids in confinement.

Selected publications

- Ma X, Wang X, Hahn K & **Sanchez S** 2016, 'Motion Control of Urea-Powered Biocompatible Hollow Microcapsules', *Acs Nano*, 10, 3, 3597 - 3605.

- Simmchen J, Katuri J, Uspal WE, Popescu MN, Tasinkevych M & **Sanchez S** 2016, 'Topographical pathways guide chemical microswimmers', *Nature Communications*, 7, 10598.

– Maggi C, Simmchen J, Saglimbeni F, Katuri J, DipaloM, De Angelis F, **Sanchez S** & Di Leonardo R 2016, 'Self-Assembly of Micromachining Systems Powered by Janus Micromotors', *Small*, 12, 4, 446 – 451.

- Parmar J, Vilela D, Pellicer E, Esque-de los Ojos D, **Sort J** & **Sanchez S** 2016, 'Reusable and Long-Lasting Active Microcleaners for Heterogeneous Water Remediation', *Advanced Functional Materials*, 26, 23, 4152 – 4161.

- Ma X, Jang S, Popescu MN, Uspal WE, Miguel-Lopez A, Kersten H, Dong-Pyo K & **Samuel S** 2016, 'Reversed Janus Micro/Nanomotors with Internal Chemical Engine', *Acs Nano*, 10, 9, 8751 - 8759.

- Ma X,Hortelao AC, Miguel-López A & **Sanchez S** 2016, 'Bubble-Free Propulsion of Ultrasmall Tubular Nanojets Powered by Biocatalytic Reactions', *Journal of the American Chemical Society*, *138* (42), pp 13782–13785

Ma X, Hortelao AC, Patiño T & Sanchez S 2016, 'Enzyme-Catalysis to Power Micro/Nano-machines', ACS Nano, 10 (10), pp 9111-9122.
 Vilela D, Parmar J, Zeng Y, Zhao Y & Sánchez S 2016, 'Graphene-Based Microbots for Toxic Heavy Metal Removal and Recovery from Water', Nano Letters, 16 (4), pp 2860-2866.

- Stanton MM, Simmchen J, Ma X, Miguel-Lopez A, **Sanchez S** 2016, 'Biohybrid Janus Motors Driven by Escherichia coli', *Advanced Materials Interfaces*, 3, 2, 1500505.

Selected research activities

- 20 Invited talks/seminars
- 64 Media appearances
- 3 Journal Covers
- Organizer of 3 Int. Conferences
- Scientific Adv. Board of "LabChip"
- FCRi Award



Sánchez-Vives, María Victoria Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS) Life & Medical Sciences

María V. Sanchez-Vives, MD, PhD in Neurosciences, has been ICREA Research Professor at the IDIBAPS (Institut d'Investigacions Biomèdiques August Pi i Sunyer) since 2008, where she is Head of the Systems Neuroscience group. She is also co-Director of the Event Lab (Experimental Virtual Environments in Neuroscience and Technology) and Adjunct Professor at the Dept. of Basic Physiology, University of Barcelona. She previously held a position as Associate Professor of Physiology and Group Leader at the Instituto de Neurociencias de Alicante (UMH-CSIC). She was Postdoctoral Fellow at Rockefeller University and Postdoctoral and Research Associate scientist at Yale University. Her independent research has been supported by national and international agencies. Since 2013 she is Chief Editor of Frontiers in Systems Neuroscience.

Research interests

Cellular and synaptic properties as well as connectivity determine the emergent activity generated by neuronal networks. I am interested in different aspects of spontaneous rhythmic neural activity: its regulating mechanisms, the information it encodes, and the consequences of this activity upon the network. In my group we study these aspects from an experimental and computational approach. Regarding the processed information, the work of my group has included different sensory systems as well as spatial processing occurring in the hippocampal complex. The integration of the cortical information giving rise to bodily representation and the combination of brain-computer interfaces and virtual reality for understanding these processes is another research line that we are pursuing.

Selected publications

- Sancristobal B, Rebollo B, Boada P, **Sanchez-Vives MV*** & Garcia-Ojalvo J* 2016, 'Collective stochastic coherence in recurrent neuronal networks', *Nature Physics* 12, 881–887. doi:10.1038/nphys3739.

- Ruiz-Mejias M, Martinez de Lagran M, Mattia M, Castano-Prat P, Perez-Mendez L, Ciria L, Gener T, Sancristobal B, García-Ojalvo J, Gruart A, Delgado-García JM, **Sanchez-Vives MV*** & Dierssen M* 2016, 'Overexpression of Dyrk1A, a Down syndrome candidate, decreases excitability and impairs gamma oscillations in the prefrontal cortex', *Journal of Neuroscience*, 36: 3648-3659.

- Slater M & Sanchez-Vives MV 2016, 'Enhancing Our Lives with Immersive Virtual Reality', Frontiers in Robotics and

Al. https://doi.org/10.3389/frobt.2016.00074

- Padrao G, Gonzalez-Franco M, **Sanchez-Vives MV**, **Slater M** & **Rodriguez-Fornells A** 2016, 'Violating body movement semantics: neural signatures of self-generated and external-generated errors', *NeuroImage*,124, 147-156.

Selected research activities

- Invited talks/Chair: Carlsberg Academy, Copenhagen; Bernstein Center Berlin; Symposium Severo Ochoa; EuroNeuro; Univ of Montpellier; ICANN; ICNR; SECP.

- Plenary talk at the Human Brain Project summit.

- Director of 2 PhD Theses defended in 2016.

- Member of Thesis Committee: Univ Tilburg, Karolinska Institute, UPF (2), UPO.



Sanpera Trigueros, Anna Universitat Autònoma de Barcelona (UAB) Experimental Sciences & Mathematics

I graduated at Universitat Autònoma de Barcelona in 1986. From 1988-1992 Ph.D fellow (FPI) from the Ministerio de Educación y Ciencia at the Universitat Autònoma de Barcelona. In 1993, I moved to the University of Oxford, as research fellow and I obtained a Fleming fellowship. In 1996, I moved to Saclay (Paris) as an European Post-Doctoral Research Fellow. In 1998 I was appointed research fellow at the Leibninz University, in Hannover (Germany) where I did my habilitation and became Professor Assistant. Since 2005 I am an ICREA Research Professor. My research interests are quite interdisciplinary and range from quantum information theory, to quantum gases and more recently condensed matter. Presently, I am working in the interface between quantum information and condensed matter. I have stable collaborations with different research groups both at national and international level. Otherwise I am fond of literature, sports and children.

Research interests

My research belongs to the area of Quantum Information, Atomic Physics and more recently Condensed Matter Physics. On one hand, we study the properties that atoms frozen to very low temperatures display. Ultracold atomic gases permit to study, in a very clean way, a rich variety of systems which appear in Nature but whose properties are very difficult to observe and understand. On the other hand, I am also involved in the mathematical description of entanglement, arguably the most distinct feature of quantum physics. Taking advantage of the quantum properties of matter, we can engineer more powerful ways to process and distribute information and build, in a near future, a quantum computer able to perform tasks that a classical computer cannot. I have initiated a new research line in my group "Quantum Thermometry" within a STREP Europen Project and I am starting to work in "Quantum learning" and "Quantum sensing" to explot the advantatges quantum physics offers us to improve machine learning tasks as well as the determination of unknown parameters with a precission that classical physics cannot achieve.

Selected publications

- Mehboudi M, Correa LA & **Sanpera A** 2016, 'Achieving sub-shot-noise sensing at finite temperatures', *Physical Review A*, 94, 4, 042121.

- Celi A, **Sanpera A**, Ahufinger V & **Lewenstein M** 2016, 'Quantum optics and frontiers of physics: the third quantum revolution", *Physica Scripta*, Volume 92, 1.

- Gallemí A, Queraltó G, Guilleumas M, Mayol R & **Sanpera A** 2016, "Quantum spin models with mesoscopic Bose-Einstein condensates", Phys. Rev. A 94, 063626.



Seoane Suárez, Joan Vall d'Hebron Institut d'Oncologia (VHIO) Life & Medical Sciences

Director of the Translational Research program at the Vall d'Hebron Institute of Oncology (VHIO) within the Vall d'Hebron Hospital since 2011. In 1998, he obtained his PhD from the University of Barcelona. Previously, in 1993, he obtained his BSc degree in Chemistry. Joan joined the Memorial Sloan-Kettering Cancer Center (MSKCC) in New York as a post-doctoral fellow in 1998 (first as a Research Fellow and then Research Associate since 2001). He was appointed ICREA Research Professor in 2004 and joined VHIO. In 2008, he was the recipient of a European Research Council (ERC) grant. He obtained two ERC Proof of Concept grants (2011, 2013). In 2008, he became Board member of the European Association of Cancer Research (EACR) and Associate Professor of the Autonomous University of Barcelona. In 2012, founded Mosaic Biomedicals as a spin-off company from his lab and, in 2013, he was the recipient of the Dr. Josef Steiner Award. In 2016, he became Secretary General of the EACR.

Research interests

Our main objective is to understand the molecular mechanisms involved in the initiation and progression of cancer. Specifically, our research is focused on the study of brain tumours, including glioma and brain metastasis. Both glioblastoma (the most aggressive form of glioma) and brain metastasis are dismal diseases with limited therapeutic options. The understanding of the molecular mechanisms that govern these types of cancer is required in order to design rational, specific and successful therapeutic approaches.

Selected publications

- Seoane J 2016, 'The Taming of the TAM's', Trends in Cell Biology, 26(8):562-3.

- Gueorguieva I, Cleverly A, Desaiah D, Azaro A, **Seoane J**, Braña I, et al. 2016, '*Relative bioavailability of three formulations of galunisertib administered as monotherapy in patients with advanced or metastatic cancer*", Drugs in Context, 5: 201303. DOI: 10.7573/dic.212303.

Selected research activities

Co-Chairperson & organizer of the Conference: Patient-Derived Cancer Models: Present and Future Applications from Basic Science to the Clinic. American Association for Cancer Research (**AACR**) . February 11-14, 2016. New Orleans, LA. Awarded: La Vanguardia de la Ciencia y Fundació Catalunya La Pedrera. April 2016 General Secretary of the European Association for Cancer Research (**EACR**) July 2016



Serrano, M. Ángeles Universitat de Barcelona (UB) Experimental Sciences & Mathematics

M. Ángeles Serrano obtained her Ph.D. in Physics at the Universitat de Barcelona in 1999. One year later, she also received her Masters in Mathematics for Finance at the CRM-Universitat Autònoma de Barcelona. After four years in the private sector as IT consultant and mutual fund manager, she returned to academia in 2004. She completed her postdoctoral research at Indiana University (USA), the École Polytechnique Fédérale de Lausanne (Switzerland) and IFISC Institute (Spain). She came back to Barcelona in 2009, when she was awarded a Ramón y Cajal Fellowship at UB. In February 2009, she obtained the Outstanding Referee award of the American Physical Society. She is a Founder Member of Complexitat, the Catalan Network for the study of Complex Systems, and a Promoter Member of UBICS, the Universitat de Barcelona Institute of Complex Systems. M. Ángeles Serrano is ICREA Research Professor at the Universitat de Barcelona from October 2015.

Research interests

Complex networks -e.g. the Internet, molecular networks in the cell, or the international trade system- are ubiquitous and around us. All of them, regardless of their origin, talk a common language that we are starting to understand. A major challenge for a better comprehension of the relation between their structure and function, and so for the prediction of their adaptation capabilities and evolution, is the characterization of the multilevel nature of complex networks in space and time. We are investigating the role of space, producing maps of networks embedded in a hidden geometry where distance stands as a measure of the tendency of elements to interact. Our focus is also on multiplexes and on networks of networks, in which different types of interactions coexist, and on the impacts of time variability in the presence of connections. Our applications cover a wide variety of real systems, from biological systems to economic and sociotechnological networks.

Selected publications

- Vazquez F, **Serrano MA** & San Miguel M 2016, 'Rescue of endemic states in interconnected networks with adaptive coupling', *Scientific Reports*, 6, 29342.

- Garcia-Perez G, Boguna M, Allard A & Serrano MA 2016, 'The hidden hyperbolic geometry of international trade: World Trade Atlas 1870-2013', Scientific Reports, 6, 33441.

- Kleineberg K-K, Boguna M, **Serrano MA** & Papadopoulos F 2016, 'Hidden geometric correlations in real multiplex networks', *Nature Physics*, 12, 11, 1076 - 1081.

Selected research activities

- "Network geometry and gravity models in complex networks", Invited Speaker at the Symposium Leiden Networks Days, Leiden, The Netherlands, 23 September 2016.
- "The hidden geometry of complex networks", Distinguished Keynote Speaker at CCS 2016, Conference on Complex Systems, Beurs Van Berlage, Amsterdam, The Netherlands, 19-22 September 2016.
- "Network geometry: expanding the heritage of Newton's gravity law", Invited Speaker at the Network Geometry and Topology
- Workshop, Satellite Meeting of NetSci 2016 International Conference on Network Science, Seoul, South Korea, May 30 June 3, 2016. • Pl of an awarded grant, MINECO 2016.
- Program Committee Member of 2 international conferences.
- Promoter Member of UBICS, the Universitat de Barcelona Institute of Complex Systems, created in 2016.
- Catalan Network for the study of Complex Systems, Founder and Board Member.
- Director, Master Thesis "Navigability of time-varying networks embedded in hidden metric spaces", Elisenda Ortiz Castillo, UB January 2016.



Serrano Pubul, Luis Centre de Regulació Genòmica (CRG) Life & Medical Sciences

I did my PhD at the CBM in Madrid on the role of the carboxy-terminal region of tubulin on polymerization and MAP binding. Then I moved to the UK to work on protein folding. In 1993 I moved to the EMBL as a GL and started a new activity related to Protein design. After 6 years I was promoted to Senior Scientist. 2 years later I was appointed head of the Structural & Computational Biology programme. At that time we moved into the field of protein misfolding and amyloidoses diseases. We also started a new area of research on Systems Biology, designing small gene networks, doing computer simulations on them and performing experiments to test the predictions. After 14 years at the EMBL I moved to Spain to lead a programme working on Systems Biology. I was appointed vice-director before finally becoming the CRG director in July 2011. My group is focused on Synthetic Biology, engineering and designing of biological systems using our knowledge on protein design and gene networks.

Research interests

The group of Luis Serrano is interested in the quantitative understanding and in the rational design of Biological Systems. To achieve this goal they combine theoretical and experimental approaches and develop appropriate software. Of particular interest for the group is the combination of protein design and network analysis to understand signal transduction and gene regulation. As a more ambitious project the group is part of a consortium with the EMBL in Heidelberg aiming at obtaining for the first time a global quantitative understanding of a living system, Mycoplasma pneumonia.

Selected publications

- Hernández J, Bechara E, Schlesinger D, Delgado J, **Serrano L** & **Valcárcel J** 2016, 'Tumor suppressor properties of the splicing regulatory factor RBM10', *Rna Biology*, 13, 4, 466 - 472.

- Kiel C, Benisty H, Llorens-Rico V & **Serrano L** 2016, 'The yin-yang of kinase activation and unfolding explains the peculiarity of Val600 in the activation segment of BRAF', *Elife*, 5, e12841.

- Llorens-Rico et al 2016, 'Bacterial antisense RNAs are mainly the product of transcriptional noise', *Science Adv.* 2:e1501363.

- Schaefer MH & **Serrano L** 2016, 'Cell type-specific properties and environment shape tissue specificity of cancer genes', *Scientific Reports*, 6, 20707.

- Chen W-H, van Noort V, Lluch-Senar M, Hennrich ML, Wodke JAH, Yus E, Alibes A, Roma G, Mende DR, Pesavento C, Typas A, Gavin A-C, **Serrano L** & Bork P 2016, 'Integration of multi-omics data of a genome-reduced bacterium: Prevalence of post-transcriptional regulation and its correlation with protein abundances', *Nucleic Acids Research*, 44, 3, 1192 – 1202.

- Lluch-Senar M, Mancuso FM, Climente-Gonzalez H, Pena-Paz MI, Sabido E & **Serrano L** 2016, 'Rescuing discarded spectra: Full comprehensive analysis of a minimal proteome', *Proteomics*, 16, 4, 554 – 563.



Sharpe, James Centre de Regulació Genòmica (CRG) Life & Medical Sciences

1997: PhD MRC National Institute for Medical Research at Mill Hill, London (UK). "Cis-regulatory mechanisms of the Hox genes in mouse development". Lab of Dr. Robb Krumlauf. 1997-1998: Postdoc on Xenopus development, University of Chile. 1998: MRC Human Genetics Unit, Edinburgh. Postdoc on computational approaches to study mouse limb development. 2001: Development of a 3D optical imaging technique and introduction of the term "Optical Projection Tomography", commercialised under the name Bioptonics. 2003: Group Leader in Edinburgh. 2006: Senior Group Leader at the Centre de Regulació Genòmica, Barcelona (Spain). 2011: Acting Coordinator of the EMBL-CRG Systems Biology Program.

Research interests

The physical complexity of a human being, or even a single organ, is truly astounding. The goal of my lab is to understand how the activities of gene networks controls the millions of cells which make up our organs – allowing them to communicate with each other, to decide what to do at each moment during embryo development: whether to divide, which way to move, and which cells types to become (cartilage, bone, connective tissue, etc.) We believe this will only be achieved by integrating information into a computer model, and to this end we are developing new imaging and computational methods to understand one example of organogenesis – vertebrate limb development. We combine various systems biology approaches to integrate data on cell activities and gene networks into a realistic 4D computer simulation of the process. This is a truly interdisciplinary endeavour, and the lab is therefore composed of physicists, engineers and computer scientists as well as biologists.

Selected publications

- Martinez-Abadias N, Mateu R, Niksic M, Russo L & **Sharpe J** 2016, 'Geometric Morphometrics on Gene Expression Patterns Within Phenotypes: A Case Example on Limb Development', *Systematic Biology*, 65, 2, 194 – 211.

- Abe J, Ozga AJ, Swoger J, **Sharpe J**, Ripoll J & Stein JV 2016, 'Light sheet fluorescence microscopy for in situ cell interaction analysis in mouse lymph nodes', *Journal Of Immunological Methods*, 431, 1 – 10.

- Onimaru K, Marcon L, Musy M, Tanaka M & **Sharpe J** 2016, 'The fin-to-limb transition as the re-organization of a Turing pattern', *Nature Communications*, 7, 11582.

- Marcon L, Diego X, **Sharpe J** & Mueller P 2016, 'High-throughput mathematical analysis identifies Turing networks for patterning with equally diffusing signals', *Elife*, 5, e14022.

Selected research activities

In addition to giving many invited seminars and presentations at international conferences and institutes, a major activity was coorganising this year's ICSB (International Conference on Systems Biology), with my great colleague from the UPF (universitat Pompeu Fabra) Jordi Garcia-Ojalvo.

A particular highlight was that I organised and chaired an open discussion entitled "Biohacking the Planet" which focused on projects whose goals are to release genetically-altered organisms into the environment with the explicit goal of having an impact on the environment. We had 4 eminent speakers discussing both the sceince and the ethics of projects such as using CRISPR-based gene-drive to /control mosquito populations, and synthtic biology to terraform destroyed habitats.



Skumryev, Vassil Universitat Autònoma de Barcelona (UAB) Engineering Sciences

Vassil Skumryev is ICREA Research Professor at Universitat Autònoma de Barcelona. He received a PhD from the University of Sofia (Bulgaria) in 1983, where he was habilitated in 1991. Prior to joining ICREA in 2003, he had long term appointments, including Visiting Scientist / Professor Positions at Trinity College (Dublin, Ireland); University of Delaware (USA); Max-Plank Institute für Metalforschung (Stuttgart, Germany); The Royal Institute of Technology (Stockholm, Sweden). He has worked in a broad range of magnetic materials and phenomena publishing over 130 scientific papers (incl. Nature, Physical Review Letters, Physics Reports, Physical Review, Advanced Materials, Applied Physics Letters ...).

Research interests

Magnetic Structures and Magnetic Phase Transitions (incl. neutron diffraction studies and such at very high magnetic fields); Magnetoelectric Materials and how the interface phenomena in nanostructures of such materials could allow an additional degree of freedom in device design (e.g. new type memory, where the magnetic state is controlled by an electric field or vice versa); Magnetic Nanostructures with Enhanced Thermal Stability (e.g. for a possible application as high-density recording media); Intrinsic Magnetic Phase Separation; Metal-Based Pharmaceutics (studying the magnetic properties can provide important information for the structure and other properties of such pharmaceuticals).

Selected publications

- Wang Z, Qureshi N, Yasin S, Mukhin A, Ressouche E, Zherlitsyn S, Skourski Y, Geshev J, Ivanov V, Gospodinov M & **Skumryev V** 2016, 'Magnetoelectric effect and phase transitions in CuO in external magnetic', *Nature Communications*, 7:10295.

Scigaj M, Dix N, Gázquez J, Varela M, Fina I, Domingo N, Herranz G, Skumryev V, Fontcuberta J & Sánchez F 2016, 'Monolithic integration of room-temperature multifunctional BaTiO₃-CoFe₂O₄ epitaxial heterostructures on Si(001)', *Scientific Reports*, 6, 31870.
 Harres A, Mikhov M, Skumryev V, de Andrade AMH, Schmidt JE & Geshev J 2016, 'Criteria for saturated magnetization loop', *Journal of Magnetism and Magnetic Materials*, vol. 402, pp. 76-82.

- Urcelay-Olabarria I, García-Muñoz JL, Ressouche E, Mukhin AA & **Skumryev V** 2016, 'Comparative study of the field-induced and spontaneous AF2 ' multiferroic phases in $MnWO_4$ and $Mn_{0.90}Co_{0.10}WO_4$ within the magnetic symmetry framework', *Journal of Applied Crystallography*, 49, 2, 520 – 527.

– Qureshi N, Ressouche E, Mukhin AA, Ivanov VY, Barilo SN, Shiryaev SV & **Skumryev V** 2016, 'Magnetic field-temperature phase diagrams of multiferroic ($Ni_{0.9}Co_{0.1}$) $3V_2O_8$ ', *Physical Review* B, vol. 94, 174441.

Selected research activities

Research stay at Universidade Federal do Rio Grande do Sul, Brazil ("Special Visiting Researcher Fellowship"), Nov-Dec 2016.



Slafer, Gustavo A. Universitat de Lleida (UdL) Life & Medical Sciences

Dr. Gustavo A. Slafer (PhD, University of Melbourne) is ICREA Research Professor at the University of Lleida (Catalonia, Spain), where he is also Associate Professor of the Department of Crop & Forest Sciences. He is also currently (i) Honorary Professor of the School of Biosciences, University of Nottingham, UK; (ii) Associate Editor of Crop Science and Euphytica; and (iii) member of the Editorial Boards of Field Crops Research, European Journal of Agronomy and Food and Energy Security. Until Dec. 2016 he has co-edited 6 scientific books, by publishers in USA and UK, and published 40 chapters in international books and 165 papers in international journals). His h-index at Dec. 2016 was 46 using WebOfScience (CoreCollection). He has been invited several times to deliver talks on different aspects of crop physiology in international conferences.

Research interests

I study the mechanisms underlying the responses of grain crops to environmental and genetic factors. My research approach has been always focused at the crop level of organization. The environmental factors include management practices such us irrigation or fertilization (among other less manageable environmental factors including radiation, photoperiod and temperature). Genetic factors include from general breeding strategies to the action of particular genes or groups of genes. The general aim is identifying alternatives to traditional farming and breeding practises to enhance the efficiency of resource use, as an avenue to increase simultaneously both crop productivity and agricultural sustainability.

Selected publications

- Marti J, Araus JL & **Slafer GA** 2016, 'Sink-strength determines differences in performance between bread and durum wheat', *Field Crops Research*, 198, 101 – 111.

- Gonzalez-Navarro OE, Griffiths S, Molero G, Reynolds MP & **Slafer GA** 2016, 'Variation in developmental patterns among elite wheat lines and relationships with yield, yield components and spike fertility', *Field Crops Research*, 196, 294 – 304.

- Elia M, Savin R & **Slafer GA** 2016, 'Fruiting efficiency in wheat: physiological aspects and genetic variation among modern cultivars', *Field Crops Research*, 191, 83 – 90.

- Zanga D, Capell T, **Slafer, GA**, **Christou P** & Savin R 2016, 'A carotenogenic mini-pathway introduced into white corn does not affect development or agronomic performance', *Scientific Reports*, 6, 38288.

- Gabaldon-Leal C, Webber H, Otegui ME, **Slafer GA**, Ordonez RA, Gaiser T, Lorite IJ, Ruiz-Ramos M & Ewert F 2016, 'Modelling the impact of heat stress on maize yield formation', *Field Crops Research*, 198, 226 – 237.

- Guo Z, **Slafer GA** & Schnurbusch T 2016, 'Genotypic variation in spike fertility traits and ovary size as determinants of floret and grain survival rate in wheat', *Journal Of Experimental Botany*, 67, 14, 4221 - 4230.

- Kowalski AM, Gooding M, Ferrante A, **Slafer GA**, Orford S, Gasperini D & Griffiths S 2016, 'Agronomic assessment of the wheat semidwarfing gene Rht8 in contrasting nitrogen treatments and water regimes', *Field Crops Research*, 191, 150 – 160.

- Elazab A, Ordonez RA, Savin R, **Slafer GA** & Araus JL 2016, 'Detecting interactive effects of N fertilization and heat stress on maize productivity by remote sensing techniques', *European Journal Of Agronomy*, 73, 11 – 24.



Slater, Mel Universitat de Barcelona (UB) Engineering Sciences

Mel Slater joined ICREA in January 2006 and is at the University of Barcelona. He became Professor of Virtual Environments at University College London in 1997. He was a UK EPSRC Senior Research Fellow from 1999 to 2004, and was founder of the Virtual Environments and Computer Graphics group at UCL. Thirty six of his PhD students have obtained their PhDs since 1989. In 2005 he was awarded the Virtual Reality Career Award by IEEE Virtual Reality `In Recognition of Seminal Achievements in Engineering Virtual Reality.' He is Co-Director of the Event Lab (www.event-lab.org) at UB. He was Coordinator of the EU 7th Framework Integrated Project VERE (www.vereproject.org), and was scientific leader of the Integrated Project BEAMING (www.beaming-eu.org). He held a European Research Council grant TRAVERSE (www.traverserc.org), and has been awarded two ERC Proofs of Concept.

Research interests

Mel Slater's main goal is to radically extend the boundaries of virtual reality. His research aims to provide a framework for the scientific understanding of how people act and respond in immersive virtual reality. He works on applications that involve simulations of social situations that are difficult or impossible to realise in physical reality, even to the extent of transforming the very body of the participant. This research also contributes to the neuroscience of body representation. His research is concerned with presence, that is, understanding the conditions under which people tend to respond realistically to virtual situations and events. The Event Lab at UB carries out research on both the technical side of real-time computer graphics and virtual reality systems, as well as on the scientific side. The application areas of interest include various forms of rehabilitation, including psychological therapy.

Selected publications

- Fornells-Ambrojo M, Elenbaas M, Barker C, Swapp D, Navarro X, Rovira A, Sanahuja JMT & **Slater M** 2016, 'Hypersensitivity to Contingent Behavior in Paranoia: A New Virtual Reality Paradigm', *The Journal of Nervous and Mental Disease*. 204:148-152.

- Kilteni K, Grau-Sánchez J, Veciana De Las Heras M, **Rodriguez-Fornells A** & **Slater M** 2016, 'Decreased corticospinal excitability after the illusion of missing part of the arm', *Front. Hum. Neurosci.* 10, 145.

- Padrao G, Gonzalez-Franco M, **Sanchez-Vives MV**, **Slater M** & **Rodriguez-Fornells A** 2016, 'Violating body movement semantics: Neural signatures of self-generated and external-generated errors', *Neuroimage*, 124, A, 147 – 156.

- Kokkinara E, Kilteni K, Blom KJ & **Slater M** 2016, 'First Person Perspective of Seated Participants Over a Walking Virtual Body Leads to Illusory Agency Over the Walking', *Scientific Reports*, 6, 28879.

– Maselli A, Kilteni K, López-Moliner J & **Slater M** 2016, 'The sense of body ownership relaxes temporal constraints for multisensory integration', *Sci Rep* 6, 30628. doi:10.1038/srep30628.

- Banakou D, H PD & **Slater M** 2016, 'Virtual Embodiment of White People in a Black Virtual Body Leads to a Sustained Reduction in their Implicit Racial Bias', *Front. Hum. Neurosci.* 10:601. doi: 10.3389/fnhum.2016.00601.

- Slater M & Sanchez-Vives MV 2016, 'Enhancing Our Lives with Immersive Virtual Reality', Front. Robot. Al 3:74. doi: 10.3389/frobt.2016.00074

- Bergström I, Kilteni K & **Slater M** 2016, 'First-Person Perspective Virtual Body Posture Influences Stress: A Virtual Reality Body Ownership Study', PLoS ONE 11(2): e0148060. doi:10.1371/journal.pone.0148060.

Selected research activities

- The Event Lab exibited at the CCCB Humans+ October 2015 - April 2016.

- Mel Slater organised a symposium at the 10th FENS Forum of Neuroscience, July 2016, Copenhagen, Denmark: "The Neuroscience of Body Consciousness".

- Mel Slater is Field Editor of Frontiers in Robotics and Al.



Solé Vicente, Ricard Universitat Pompeu Fabra (UPF) Life & Medical Sciences

I am ICREA Research Professor at the Universitat Pompeu Fabra, where I'm the head of the Complex Systems Lab. I am also External Professor of the Santa Fe Institute (New Mexico, USA) and external faculty of the Center for Evolution and Cancer at UCSF. I am also member of the editorial board of several international journals. I obtained my degrees in Physics and Biology at the University of Barcelona and received my PhD in Physics at the Universitat Politècnica de Catalunya. I have been awarded with grants of the James McDonnell Foundation, the Botín Foundation and an ERC Advanced Grant.

Research interests

One of my main research interests is understanding the origins of complexity and its decay in biological systems and their engineered counterparts. How cells, genetic codes, symbiosis, multicellularity, computation, cooperation, neural systems, language, intelligence or consciousness emerge are some of the key problems that I would like to understand. To this goal, my Lab develops both theoretical and experimental research, including an ambitious program on synthetic biology. The later area includes an exploration of synthetic multicellular systems, synthetic swarm intelligence and strategies to redesign existing ecosystems to fight agains climate change and its impacts.

Selected publications

- Seoane LF & **Sole R** 2016, 'Multiobjective Optimization and Phase Transitions', *Proceedings Of Eccs 2014: European Conference On Complex Systems*, 259 – 270.

- de Lorenzo V, Marliere P & **Sole R** 2016, 'Bioremediation at a global scale: from the test tube to planet Earth', *Microbial Biotechnology*, 9, 5, 618 – 625.

- **Sole R**, Amor DR, Duran-Nebreda S, Conde-Pueyo N, Carbonell-Ballestero M, Montanez R, 2016, 'Synthetic collective intelligence', *Biosystems*, 148, 47 – 61.

- **Sole R**, Amor DR & Valverde S 2016, 'On Singularities and Black Holes in Combination-Driven Models of Technological Innovation Networks', *Plos One*, 11, 1, e0146180.

- Olle-Vila A, Duran-Nebreda S, Conde-Pueyo N, Montanez R & **Sole R** 2016, 'A morphospace for synthetic organs and organoids: the possible and the actual', *Integrative Biology*, 8, 4, 485 – 503.

- Macia J, Manzoni R, Conde N, Urrios A, de Nadal E, **Sole R** & Posas F 2016, 'Implementation of Complex Biological Logic Circuits Using Spatially Distributed Multicellular Consortia', *Plos Computational Biology*, 12, 2, e1004685.

- Duran-Nebreda S, Bonforti A, Montanez R, Valverde S & **Sole R** 2016, 'Emergence of proto-organisms from bistable stochastic differentiation and adhesion', *Journal Of The Royal Society Interface*, 13, 117, 20160108.

- Urrios A, Macia J, Manzoni R, Conde N, Bonforti A, de Nadal E, Posas F & **Sole R** 2016, 'A Synthetic Multicellular Memory Device', Acs Synthetic Biology, 5, 8, 862 - 873.

- Duran-Nebreda S & **Sole RV** 2016, 'Toward Synthetic Spatial Patterns in Engineered Cell Populations with Chemotaxis', Acs Synthetic Biology, 5, 7, 654 - 661.

- **Sole R** 2016, 'Synthetic transitions: towards a new synthesis', *Philosophical Transactions Of The Royal Society B-biological Sciences*, 371, 1701, 20150438.

- **Sole R** 2016, 'The major synthetic evolutionary transitions', *Philosophical Transactions Of The Royal Society B-biological Sciences*, 371, 1701, 20160175.


Sombra, Martín Universitat de Barcelona (UB) Experimental Sciences & Mathematics

Born in 1970 in Ezpeleta (Argentina), Martín Sombra studied Mathematics as an undergraduate at the University of La Plata. He did his PhD thesis on Computer Algebra at the University of Buenos Aires. He then did postdoctoral stays at the MSRI at Berkeley, the IAS at Princeton, and the IMJ at Paris. He became Maître de Conférences at the University of Lyon 1, then spent four years as a "Ramón y Cajal" Researcher at the University of Barcelona, and became afterwards Full Professor at the University of Bordeaux 1. He finally moved back to Barcelona, joining ICREA in 2009. He works on problems at the interface of Algebraic Geometry, Number Theory and Complexity Theory. He currently collaborates with research groups in Barcelona, Paris, Caen, Bordeaux and Buenos Aires.

Research interests

Polynomials appear in a wide variety of contexts in Mathematics, Engineering and Computer Science. Polynomials in those situations are not random but come up with a certain structure which is important to exploit. I am interested in systems of structured polynomial equations and particularly in questions like: how many solutions does a given system have? How complicated those solutions can be? Can we predict where they will accumulate? Can we efficiently solve systems of polynomial equations? These problems have conduced me to study combinatorial objects like polytopes and fans, geometrical objects like curves and surfaces, and arithmetic objects like height of points and Diophantine equations. This gives a rich interplay between Complexity Theory, Combinatorics, Algebraic Geometry and Number Theory, leading to interesting results and stimulating research directions.

Selected publications

- Burgos Gil JI, Moriwaki A, Philippon P & **Sombra M** 2016, 'Arithmetic positivity on toric varieties', *Journal of Algebraic Geometry*, vol. 25, pp. 201-272

- Burgos Gil JI, Philippon P & **Sombra M** 2016, 'Height of varieties over finitely generated fields', *Kyoto Journal of Mathematics*, vol. 56, pp. 13-32

- Basu S & **Sombra M** 2016, 'Polynomial partitioning on varieties of codimension two and point-hypersurface incidences in four dimensions', *Discrete & Computational Geometry*, vol. 55, pp 158-184.

Selected research activities

Invited talks (selected)

- Mini-course at the CIMPA-ICTP research school on toric methods in geometry, arithmetic and dynamics at U. Católica de Chile, Santiago de Chile, 11 - 22 January

- Meeting on Okounkov bodies at Télécom Paris, 16 18 March
- Conference on geometric and combinatorial methods in number theory at Iasi, Romania, 27 June 1 July
- Conference on Arakelov geometry at U. Regensburg, Germany, 5 9 September
- Colloquium of the Department of Mathematics of the U. La Plata, Argentina, 15 December

Organization

- CIMPA-ICTP research school on toric methods in geometry, arithmetics and dynamics at U. Católica de Chile, Santiago de Chile, 11 - 22 January

- IMUB Colloquium
- Algebra and Geometry Meeting, UB, 30 November 2 December

Outreach activity

- "El que diuen els nombres". Talk for high-school students from three schools at El Prat de Llobregat, on aspects of applied probability and the nature of the work of a researcher in Mathematics

Supervision of PhD thesis

- Marta Narváez-Clauss, "Quantitative equidistribution of Galois orbits of points of small height on the algebraic torus", UB, 21 June (joint with C. D'Andrea)



Sort Viñas, Jordi Universitat Autònoma de Barcelona (UAB) Engineering Sciences

Jordi Sort leads the 'Group of Smart Nanoengineered Materials, Nanomechanics and Nanomagnetism' as an ICREA Research Professor at the Universitat Autònoma de Barcelona. After finishing his PhD in 2002 in the field of "magnetic interfacial effects" (Extraordinary Award), Prof. Sort performed two postdoctoral stays at SPINTEC (Grenoble) and at Argonne National Laboratory. His research is focused on the synthesis and characterization of a wide variety of materials (electrodeposited films, lithographed structures, porous materials, metallic glasses, composites) with emphasis on their magnetic and mechanical performance. His work has been awarded by the Catalan and Spanish Physical Societies (Young Researcher Award). At present, Prof. Sort has supervised 7 PhD Theses, has published 220 articles (5100 citations, h = 35), has issued 4 patents and has managed 22 national/international research projects, including an ITN and a Consolidator Grant-2014 from the European Research Council.

Research interests

Jordi Sort is currently investigating the nanomechanical and nanomagnetic properties of a wide range of materials, including lithographed structures, thin films and bulky specimens. Among the most relevant recent achievements one can mention: the use of nanoindentation and selective ion irradiation to form magnetic structures embedded in non-magnetic matrices; magneto-electric effects in nanoporous alloys; the ductilization of metallic glasses by development of nanostructured morphologies; the growth of new types of coatings with enhanced mechanical and magnetic properties; the characterization of metagradable materials for orthopedic implants; the characterization of remotely-actuated magnetic nanowires for biomedical applications. Further information at: http://jsort-icrea.uab.cat/index.htm.

Selected publications

Zeeshan MA, Esqué-de los Ojos D, Castro-Hartmann P, Guerrero M, Nogués J, Suriñach S, Baró MD, Nelson BJ, Pané S, Pellicer E & Sort J 2016, "Electrochemically Synthesized Amorphous and Crystalline Nanowires: Dissimilar Nano-mechanical Behavior in Comparison to Homologous Flat Films", Nanoscale, 8, 1344-1351.

- Parmar J, Vilela D, Pellicer E, Esqué-de los Ojos D, **Sort J & Sánchez S** 2016, 'Reusable and long-lasting active micro-cleaners for heterogeneous water remediation', *Adv. Func. Mater.*, 26, 4152–4161.

- Tsyntsaru N, Silkin S, Cesiulis H, Guerrero M, Pellicer E & **Sort J** 2016, 'Toward uniform electrodeposition of magnetic Co-W mesowires arrays: direct versus pulse current deposition', *Electrochim Acta*, 188, 589-601.

- Golvano-Escobal I, Gonzalez-Rosillo JC, Domingo N, Illa X, López-Barbera JF, Fornell J, Solsona P, Aballe L, Foerster M, Suriñach S, Baró MD, Puig T, Pané S, **Nogués J**, Pellicer E & **Sort J** 2016, 'Spontaneous formation of spiral-like patterns with distinct periodic physical properties by confined electrodeposition of Co-In disks', *Sci. Rep.*, 6, 30398.

- Zhang J, Coll M, Puig T, Pellicer E & **Sort J** 2016, 'Conformal oxide nanocoatings on electrodeposited 3D porous Ni films by atomic layer deposition', *J. Mater. Chem. C*, 4, 8655-8662.

- Shamsudhin N, Tao Y, **Sort J**, Jang B, Degen CL, Nelson BJ & Pané S 2016, "Magnetometry of Individual Polycrystalline Ferromagnetic Nanowires", *Small*, 12, 6363-6369.

- Zhang J, Agramunt-Puig S, Del-Valle N, Navau C, Baró MD, Estradé S, Peiró F, Pané S, Nelson BJ, Sanchez A, Nogués J, Pellicer E & Sort J 2016, 'Tailoring Staircase-like Hysteresis Loops in Electrodeposited Tri-segmented Magnetic Nanowires: a Strategy towards Minimization of Interwire Interactions', ACS Appl. Mater. Interf., 8, 4109-4117.

Selected research activities

30 publications in ISI journals.
Editorial Board of 4 ISI journals.
11 invited talks at International Conferences.
Organizer of 3 conferences.
Coordinator: H2020-ITN (SELECTA) and ERC-CoG (SPIN-PORICS).
Interviews: ABC and RTVE.
4 Covers.



Soto-Faraco, Salvador Universitat Pompeu Fabra (UPF) Social & Behavioural Sciences

I graduated in Psychology at the Universitat de Barcelona (1994), and I got a PhD in Cognitive Science and Language (1999) in the same university. I worked as a postdoctoral researcher at the University of Oxford (UK) and at the University of British Columbia (Canada). In 2002 I was awarded a "Ramón y Cajal" research fellowship, which allowed me to start my own research group at Universitat de Barcelona and in 2005 I became ICREA Research Professor and established the Multisensory Research Group at the Parc Científic de Barcelona thanks to public and private funding. Since 2009, I am based at the Universitat Pompeu Fabra, where I combine research and teaching as one of the group leaders at the Center for Brain and Cognition. In 2010 I received an individual Starting Grant from the ERC. Currently, the MRG group works on basic and applied research projects supported by local (MINECO, AGAUR) and EU (ERC) funding agencies.

Research interests

Humans, like other animals, are endowed with a wide range of sensory capacities such as hearing, feeling, seeing, smelling,... This rich variety of senses allows our brains to represent the surrounding environment with fidelity and precision, so that we can select, store and react successfully to events. However, to achieve coherent mental representations of the environment our brains must coordinate the distinct sources of sensory information effectively across their different temporal properties, spatial frames of reference, and encoding formats. I am interested in the neural and behavioural principles underlying the selection and integration of such multi-sensory information. To achieve this, I use an experimental approach based on psychophysics, a variety of neuroimaging methods to measure neural activity (EEG, fMRI), and brain stimulation techniques (TMS).

Selected publications

- Overvliet KE, Karana E & Soto-Faraco S 2016, 'Perception of Naturalness in Textiles', Materials & Design, vol 90:1192-1199.

- Biau E, Moris Fernandez L, Holle H, Avila C & **Soto-Faraco S** 2016, 'Hand gestures as visual prosody: BOLD responses to audio-visual alignment are modulated by the communicative nature of the stimuli', *Neuroimage*, 132, 129 – 137.

- ten Oever S, Romei V, van Atteveldt N, **Soto-Faraco S**, Murray MM & Matusz PJ 2016, 'The COGs (context, object, and goals) in multisensory processing', *Experimental Brain Research*, 234, 5, 1307 – 1323.

- Birules-Muntane J & **Soto-Faraco S** 2016, 'Watching Subtitled Films Can Help Learning Foreign Languages', *Plos One*, 11, 6, e0158409.

Selected research activities

Special Issue: A matter of bottom-up or top-down processes: the role of attention in multisensory integration. Adam R, Hartcher-O'Brien J and **Soto-Faraco S** (Eds). Research Topic published in *Frontiers in Integrative Neuroscience* (http://journal.frontiersin.org/researchtopic/2702/a-matter-of-bottom-up-or-top-down-processes-he-role-of-attention-in-multisensory-integration). Member of the Scientific Committee of the European Conference for Visual Perception, Barcelona Aug 28-Sept 1.



Sotomayor Torres, Clivia Marfa Institut Català de Nanociència i Nanotecnologia (ICN2) Engineering Sciences

Clivia obtained her PhD in Physics in 1984 from Manchester Univ. (UK). She held tenured appointments at St. Andrews and Glasgow Universities in the UK and became a C4 professor at Wuppertal Univ. (Germany) in 1996. From 2004 to 2008 she was a research professor at Univ. College Cork, Tyndall National Institute (Ireland) funded by Science Foundation Ireland. Since May 2007 she is with ICREA based at the Catalan Institute of Nanoscience & Nanotechnology (ICN2). Clivia received awards from the Royal Society of Edinburgh, the Nuffield Foundation and an Amelia Earhart Fellowship from ZONTA International (USA). She is author of over 470 scientific publications and has edited six books (Researcher ID; E-8418-2010, WoS: h-index 40 and over 6900 citations). She leads a 20-strong team working on phonon engineering and participates in European-level research. Since 2013 she is a visiting professor at the KTH Royal Institute of Technology in Stockholm.

Research interests

Her group develops new concepts for multi-state variables based on the engineered interactions of phonons with electrons and with photons, in device-like structures. One particular interest is thermal transport in the nanoscale to address heat dissipation in nanoelectronics, the role of phonons in noise and dissipation in nano-scale systems. Another strand is Si-based opto-mechanics for phonon-based information processing. Our experimental research is anchored in novel nanofabrication methods, such as nanoimprint lithography and directed self-assembly including dimensional and defectivity metrology. The latter is essential to set up standards in manufacturing to ease the uptake of nanotechnology products. In our research we use state of the art linear optical spectroscopy methods, pump-and-probe down to 10's of femtoseconds and develop new techniques to reach the nanoscale in thermal transport, most notably laser Raman thermometry.

Selected publications

- Wagner MR, Graczykowski B, Reparaz JS, El Sachat A, Sledzinska M, Alzina F & **Sotomayor Torres CM** 2016, 'Two-Dimensional Phononic Crystals: Disorder Matters', *Nano Letters*, 16, 9, 5661 – 5668.

- Graczykowski B, Alzina F, Gomis-Bresco J & **Sotomayor Torres CM** 2016, 'Finite element analysis of true and pseudo surface acoustic waves in one-dimensional phononic crystals', *J Appl Phys*, 119, 2, 025308.

- Sledzinska M, Graczykowski B, Placidi M, Saleta Reig D, El Sachat A, Reparaz JS, Alzina F, Mortazavi B, Quey R, Colombo L, **Roche S** & **Sotomayor Torres CM** 2016, 'Thermal conducitivity of MoS2 polycrystalline nanomembranes', *2D Materials* 3, 3, 35016.

- Volz S, Ordonez-Miranda J, Shchepetov A, Prunnila M, Ahopelto J, Pezeril T, Vaudel G, Gusev V, Ruello P, Weig EM, Hettich M, Grossman M, Dekorsy T, Alzina F, Graczykowsky B, Chavez-Angel E, Reparaz JS, Wagner MR, **Sotomayor-Torres CM**, Xiong S, Neogi S & Donadio D 2016, 'Nanophononics: state of the art and perspectives', *Eur Phys J B*, 89, 1, 15.

- Yudistira D , Boes A, Graczykowski B, Alzina F, Yeo LY, **Sotomayor Torres CM** & Mitchell A 2016, 'Nanoscale pillar hypersonic surface phononic crystals', *Phys Rev B*, 94, 9, 094304.

- Garcia Y, Ruiz-Blanco YB, Marrero-Ponce Y & **Sotomayor-Torres CM** 2016, 'Orthotropic Piezoelectricity in 2D Nanocellulose', *Sci Rep*, 6, 34616.

- Navarro Urrios D, Gomis Bresco J, Alzina F, Capuj NE, Garcia PD, Colombano MF, Chavez-Angel E, **Sotomayor-Torres CM** 2016, 'Selfsustained coherent phonon generation in optomechanical cavities', *J. Optics*, 18, 9, 094006.

Selected research activities

- EU H2020 Member of the Advisory Group of FET.
- ERC Panel member.
- EU FET Open project coordinator "All-phononic circuits enabled by opto-mechanics" (PHENOMEN)
- Member of the Expert Committee for the Excellence Strategy of German Universities.
- Member of the International Panel evaluating the 10-year CNRS activities for the French Ministry of Education.



Soucek, Laura Vall d'Hebron Institut d'Oncologia (VHIO) Life & Medical Sciences

Laura Soucek graduated in 1996 in Biological Sciences at University La Sapienza in Rome, Italy. She obtained her PhD in Genetics and Molecular Biology at the National Research Center, in Rome. In 2001 she joined University of California San Francisco, initially as postdoctoral fellow and later, in 2006 as Assistant Researcher. There she published in some of the most prestigious international journals. Since early 2011, Dr. Soucek heads the Mouse Models of Cancer Therapies Group at the Vall d'Hebron Institute of Oncology (VHIO), in Barcelona. She received prestigious awards and grants from AACR, the Miguel Servet Program, the FERO Foundation, the Association for International Cancer Research, the European Research Council, FIS and BBVA. In October 2014 she was appointed ICREA Research Professor. In December 2014 she founded a spin-off company, Peptomyc S.L.. In April 2015, she became Associate Professor at the Universitat Autònoma de Barcelona.

Research interests

Our focus is the Myc oncoprotein, whose deregulation is implicated in almost all human cancer types. We have designed a Myc dominant negative, Omomyc, to investigate the therapeutic benefit of inhibiting Myc in cancer. We demonstrated that Myc inhibition has a remarkable therapeutic index in many mouse models of cancer, while only causing mild and reversible side effects in normal tissues. We also showed that Myc is a safe pharmacological target for many, perhaps all, cancers. Our goal is now to push such a therapeutic approach further towards the clinic. To do so we are making use of a new generation of Myc inhibitory small molecules, as well as Omomyc-based Cell-Penetrating Peptides (CPPs) and nanoparticle technologies. These innovative potential treatments could boost our therapeutic arsenal against the majority of human cancers.

Selected publications

Fiorentino FP, Tokgün E, Solé-Sánchez S, Giampaolo S, Tokgün O, Jauset T, Kohno T, Perucho M, Soucek L & Yokota J 2016, 'Growth suppression by MYC inhibition in small cell lung cancer cells with TP53 and RB1 inactivation', *Oncotarget*, 7, 21, 31014 – 31028.
Massó-Vallés D, Jauset T & Soucek L 2016, 'Ibrutinib repurposing: from B cell malignancies to solid tumors', *Oncoscience*, 3(5-6):14-8, DOI: 10.18632/oncoscience.310. Editorial.

Selected research activities

- Co-organizer of the Vall d'Hebron Institute of Oncology (VHIO) Special Symposium: Towards Predictive Cancer Models.



Staliunas, Kestutis Universitat Politècnica de Catalunya (UPC) Engineering Sciences

Graduated Theoretical Physics, Vilnius University, Lithuania, 1985. PhD in Physics, Vilnius University, 1989. Habilitation in Physics, Vilnius University, 2001. A.v. Humboldt fellow in Physikalisch-Technische Bundesantstalt (PTB) Braunschweig, Germany, 1991-1992. Between 1993-2003 senior research fellow in Braunschweig PTB and University of Hanover researching on nonlinear pattern formation in lasers (optical vortices, spatial solitons) and in Bose condensates. Since 2004 ICREA research professor in Universitat Politècnica de Catalunya (UPC), Barcelona, head of research group on lasers, photonic and sonic crystals, nonlinear laser dynamics. Professional experience: around 250 articles in scientific journals; around 500 presentations in conferences among them around 60 invited presentations; 2 patents. Monograph "Transverse Patterns in Nonlinear Optical Resonators" Springer, 2003; Up to now directed (or currently directing) 13 PhD projects.

Research interests

Spatial quality of the laser beams is of high importance in technologies: good quality beams propagate better, and can be more tight focused. Not all lasers, however, produce good beams: the radiation of some lasers, especially of very important semiconductor microlasers, are too random and noisy. We developed new techniques to manipulate the spatial structure of radiation, by letting them propagate through micro-modulated photonic materials. The main research direction of the group is the development of these light-manipulation techniques and implementing them. Also the good quality beams of other waves, microwaves, sound waves, or matter waves are required. We apply our experience in "light beam manipulation" to the other types of waves, and we are producing "clean" and well directed sound beams by so called "sonic crystals" in acoustics (coordinated research projects with Technical University of Valencia), as well as matter wave beams in periodically modulated Bose condensates.

Selected publications

- Tarasov N, Perego AM, Churkin DV, **Staliunas K** & Turitsyn SK 2016, 'Mode-locking via dissipative Faraday Instability', *Nat. Commun.*, 7, 12441.

- Perego AM, Tarasov N, Churkin DV, Turitsyn SK & **Staliunas K** 2016, 'Pattern Generation by Dissipative Parametric Instability', *Physical Review Letters*, 116, 2.

- Gailevicius D, Koliadenko V, Purlys V, Peckus M, Taranenko V & **Staliunas K** 2016, 'Photonic Crystal Microchip Laser', *Scientific Reports*, 6, 34173.

- Hayran Z, Turduev M, Botey M, Herrero R, **Staliunas K** & Kurt H 2016, 'Numerical and experimental demonstration of a wavelength demultiplexer design by point-defect cavity coupled to a tapered photonic crystal waveguide', *Optics Letters*, 41, 1, 119.

- Kumar S, Herrero R, Botey M & **Staliunas K** 2016, 'Suppression of pattern-forming instabilities by genetic optimization', *Physical Review E*, 94, 1, 010202.

- Ahmed WW, Herrero R, Botey M & **Staliunas K** 2016, 'Locally parity-time-symmetric and globally parity-symmetric systems', *Physical Review A*, 94, 5, 053819.

- Giden IH, Dadashi K, Botey M, Herrero R, **Staliunas K** & Kurt H 2016, 'Asymmetric Light Transmission in PT-Symmetric Microring Resonators', *IEEE Journal of Selected Topics in Quantum Electronics*, 22, 5, 19-24.

– Jimenez N, Pico R, Sanchez-Morcillo V, Romero-Garcia V, Garca-Raffi LM & **Staliunas K** 2016, 'Formation of high-order acoustic Bessel beams by spiral diffraction gratings', *Phys. Rev. E*, 94, 053004.

Selected research activities

Invited talks: ICTON'16, Trento, Italy; Meta'16, Malaga, Spain; SPIE'16, San Diego, USA; NDSL'16, Berlin, Germany; No Lineal' 16, Seville, Spain; CAOL'16, Odessa, Ukraine.

Masters Course: "Optical Materials and Metamaterials" in Masters of Photonics, (Barcelona, Spain).

Defended PhD thesis: Chih-Hua Ho, UPC; Simonas Kicas, (Vilnius University, Lithuania).

Committees of PhD thesis: Jena University (Germany), Vilnius University (Lithuania).

Committee of Nonlinear Photonics, Sydney (Australia).

Leverhulm schollarship, Aston University (Birmingham, UK), 4 month.

European EUROSTARS project (co-IP); US Army project (IP).



Steels, Luc Universitat Pompeu Fabra (UPF) Engineering Sciences

Luc Steels studied linguistics at the University of Antwerp (Belgium) and computer science at the Massachusetts Institute of Technology (USA). His main research field is Artificial Intelligence covering a wide range of intelligent abilities, including vision, robotic behavior, conceptual representations and language. In 1983 he became a professor of computer science at the University of Brussels (VUB) and in 1996 he founded the Sony Computer Science Laboratory in Paris and became its first director. Currently he is ICREA Research Professor at the Institute for Evolutionary Biology (CSIC,UPF). Steels has been PI in a dozen large-scale European projects and more than 30 PhD theses have been granted under his direction. He has produced over 200 articles and edited 15 books directly related to his research.

Research interests

The origins and evolution of human language remains one of the most exciting unresolved puzzles of science today. The problem is even more difficult than biological evolution because there are no fossil records. Clearly social, biological and cultural evolution all have played a role but the details still allude scientific explanation. My research over the past decade has focused on developing theoretical models of language evolution. I set up experiments in which a population of robots autonomously develops their own communication systems with properties similar to human languages. We have focused on explaining the origins of color terms, spatial expressions, determiners, case grammar and agreement systems. So far these experiments use exclusively a process of cultural evolution, but through my recent affiliation with the Institute for Evolutionary Biology I now try to complete this picture by looking at the biological evolution of the cognitive foundations needed for language.

Selected publications

- **Steels L** 2016, 'Agent-based models for the emergence and evolution of grammar', *Philosophical Transactions Of The Royal Society B-biological Sciences*, 371, 1701, 20150447.

- Garcia-Casademont E & Steels L 2016, 'Insight Grammar Learning', Journal Of Cognitive Science, 17, 1, 27 - 62.



Stengel, Massimiliano Institut de Ciència de Materials de Barcelona (CSIC - ICMAB) Experimental Sciences & Mathematics

Massimiliano Stengel graduated in Physics at the University of Trieste (1999) and received his PhD in Science from the Swiss Polytechnic School of Lausanne (EPFL) in 2004. From February 2005 to April 2009 he was a postdoctoral researcher in the group of Prof. Nicola Spaldin at the Materials Department (UC Santa Barbara), and from May to September 2009 at CECAM (EPFL) under the supervision of Prof. Wanda Andreoni. From February 2010 to September 2011 he worked at ICMAB in Barcelona as a "Ramón y Cajal" fellow, before joining ICREA as a Research Professor in October 2011.

Research interests

My research develops and uses frontier electronic-structure methods to tackle key fundamental and technological questions in ferroelectricity, magnetism, surface science and metal/oxide interfaces. In the past few years I have focused on perovskite thin films, and in particular on understanding how the reduced size affects their functional properties. I am currently interested in the study of novel functionalities in oxide-based systems (e.g. flexoelectricity, magnetoelectric effects, confined electron gases, improper ferroelectricity) and in development of accurate modeling strategies to bridge the gap between the microscopic and macroscopic worlds.

Selected publications

- **Stengel M** & Vanderbilt D 2016, 'First-principles theory of flexoelectricity', in *Flexoelectricity in Solids: From Theory to Applications*, Tagantsev AK & Yudin P, eds. (World Scientific, Singapore).

Stengel M 2016, 'Unified ab initio formulation of flexoelectricity and strain-gradient elasticity', *Physical Review B*, 93, 24, 245107.
 Salje EKH, Li S, Stengel M, Gumbsch P & Ding X 2016, 'Flexoelectricity and the polarity of complex ferroelastic twin patterns', *Physical Review B*, 94, 2, 024114.

Selected research activities

Invited talks:

- Workshop on the Fundamental Physics of Ferroelectrics (Washington, DC). 'First-principles theory of flexoelectricity.'



Sturm, Thomas Universitat Autònoma de Barcelona (UAB) Humanities

After studies in philosophy, history, and political science at the University of Göttingen and the University of California at San Diego (UCSD), I obtained my PhD in 2007 from Marburg University. Before joining ICREA in 2014, I held positions at Marburg (Scientific Assistant, 1995-2000); UCSD (Visiting Lecturer, 2000), at the Berlin-Brandenburg Academy of Sciences & Humanities (BBAW - Scientific Coordinator, research group "Psychological Thought and Practice", 2001-2005), the Max Planck Institute for the History of Science (Lorenz Krüger Fellow, 2005-2007, Research Fellow 2007-2009; here I co-directed 2 projects on "Historical Epistemology" & "Crisis Debates in Psychology"), and the Dept. of Philosophy, UAB (Ramón y Cajal Scholar, 2009-2014). I am member of the UAB's Center for History of Science (CEHIC) and an Associate Research Fellow at the Wilhelm Wundt Center for Philosophy & History of Psychology, Universidade Federal Juiz de Fora (Brazil).

Research interests

How is rationality understood in philosophy and the human sciences? How should it be understood? These are the guiding questions for much of my research, which comprises topics reaching from early modern philosophy – esp. from Immanuel Kant – up to ongoing discussions at the interface of philosophy, psychology, and economics. I focus on potentials and limits of empirical theories of rationality for naturalism, but I also study the role of such theories in politics, political science, and ethics. I'm moreover interested in the philosophy of knowledge, mind, and science. In all of this, I combine methods of analytic philosophy with the history of science: I am unconvinced by widespread opinions according to which they cannot, or should not, be integrated.

Selected publications

- **Sturm T** 2016, 'La intuición en la psicología de la racionalidad de Kahneman y Tversky', In Cognición: Estudios multidisciplinarios, ed. by Hernández Chavez P, Garcia Campos J & Romo Pimientel M, México: *Centro de Estudios Vicente Lombardo Toledano*, pp. 265-304.

Selected research activities

As PI of the Barcelona HPS Group, I obtained MINECO funding for the project "Naturalism and the sciences of rationality: An integrated philosophy and history" (FFI2016-79923-P).

April-July 2016: Visiting professor, Dept. of Philosophy, Goethe University Frankfurt/Main, Germany. Here I collaborated with Prof. Markus Willaschek and his team on Kant's theory of reason, current theories of rationality, and and how to study these topics by an integrated history and philosophy of science. Prof. Willaschek and I also work on the Academy edition of *Kant's Gesammelte Schriften* (Berlin-Brandenburg Academy of Sciences and Humanities).

November 2016: Organization of 1st Barcelona HPS Workshop on *Scientific Authority and Scientific Fraud* (jointly hosted by the Dept. of Philosophy and the Centre for History of Science (CEHIC), UAB)

Invited talks (selected)

- 1. Dept. of Philosophy, U of the Basque Country, San Sebastian: Naturalism and the rationality debate in psychology and philosophy. Dec. 19, 2016
- 2. **Philosophische Sprache zwischen Innovation und Tradition Conference, U of Düsseldorf**: Rationality versus reason? Conceptual and terminological reflections on a distinction in John Rawls. August 6, 2016
- 3. Dept. of Philosophy, U of Frankfurt: Rationality: The interface between philosophy and psychology. July 12, 2016
- 4. The Current Relevance of Kant's Method in Philosophy Conference, U of Frankfurt: Kant and the disunity of reason in science. July 8-9, 2016
- 5. Critical Connections Conference, Tel Aviv University & The Van Leer Jerusalem Institute: The disunity of reason in science. June 20-23, 2016



Supèr, Hans Universitat de Barcelona (UB) Life & Medical Sciences

2013-present: CTO Braingaze SL 2009-2014: Director of the VISCA lab, www.visca.cat 2005-present: Research Professor, ICREA 2005present: Assistant professor University of Barcelona 2002-2005: Head of the Vision and Cognition-II group, NIN, KNAW, The Netherlands 1999-2001: Senior postdoc, NIN, NWO, The Netherlands 1997-1999: Postdoc in the lab of Prof. Dr. V. Lamme, NORI, The Netherlands 1992-1996: PhD student in the lab of Prof. Dr. E. Soriano, University of Barcelona

Research interests

The understanding of the functional organization of the cerebral cortex that underlies cognitive behavior, and to implement the underlying principles in artificial systems drives my passion for research. I started my scientific journey by studying the ontogenetic and evolutionary development of the cerebral cortex to get a grasp of the immense complexity of the cortex. To learn about the functional organization of the neocortex, I continued my research studying system neurophysiology of the visual cortex in awake, behaving monkeys. Currently my group at teh UB investigates the neural mechanism of recurrent neural interactions and the role of eye movements in visual cognitive processes, and we build bio-inspired computer models for simulating cognitive operations.

Selected publications

- Romeo A & Super H 2016, 'Feature-Based Attention by Lateral Spike Synchronization', Neural Computation, 28, 4, 629 651.
- Romeo A & Supèr H 2016, 'Global oscillation regime change by gated inhibition', Neural Netw., 82:76-83.

- Solé Puig M, Pallarés JM, Perez Zapata L, Puigcerver L, Cañete Crespillo J & **Supèr H** 2016, 'Attentional selection accompanied by eye vergence as revealed by event-related brain potentials', *PLoS One*, 11(12): e0167646.



Swart, Marcel Universitat de Girona (UdG) Experimental Sciences & Mathematics

Marcel Swart obtained his PhD in Groningen (NL) with a study on copper proteins (2002). He works since 2006 at the IQCC (Univ. Girona), and was promoted to ICREA Research Professor in 2009. He has published over 130 papers (cited >3900 times, H-index 32), formed part of tribunals for Masters and PhD ceremonies, evaluation committees (ANEP), reviewer for >30 journals and science organizations (ANEP, NWO, FWO, SNF, Prace). He received funding from science organizations and companies, organized a CECAM/ESF Workshop (Zaragoza, 2012) and is main organizer of Girona Seminars. He is Editor of a Wiley-book on "Spin states in Biochemistry and Inorganic Chemistry" (2015), director IQCC, and Chair of a COST Action (CM1305, ECOSTBio). He supervised two PhD theses with Premi Extraordinari, was awarded the Young Scientist Excellence Award 2005, the MGMS Silver Jubilee Prize 2012, was elected for the Young Academy of Europe (2014) and its Board (2016), and elected fellow of RSC (2015).

Research interests

He works in the field of theoretical (bio)inorganic and supramolecular chemistry, and works on transition-metal complexes, metalloproteins, enzymes, and DNA. The effect of (transition) metal ions on reactivity, selectivity and chemical bonding is one of the main topics in these studies. The development of computational tools for these studies is an important ingredient, to which he has contributed largely both with his own software (QUILD, DRF90) as in contributions in general purpose software (ADF, NWCHEM). One of the main areas where these tools are applied is in the field of transition-metal chemistry, the spin states involved, and the effect this has on reactivity.

Selected publications

- Spin states in biochemistry and inorganic chemistry: Influence on Structure and Reactivity, Swart M & Costas M (Eds.), Wiley, 2016,
- Swart M & Gruden M 2016, 'Spinning around in transition-metal chemistry", Acc. Chem. Res. 49, 2690-2697

- Pirovano P, Farquhar E, **Swart M** & McDonald AR 2016, 'Tuning the reactivity of terminal nickel(III)-oxygen adducts for C-H bond activation', *J. Am. Chem. Soc.*, 138, 14362-14370

- Hill EA, Weitz AC, Onderko E, Romero-Rivera A, Guo Y, **Swart M**, Bominaar EL, Green MT, Hendrich MP, Lacy DC & Borovik AS 2016, 'Reactivity of an FeIV-Oxo Complex with Protons and Oxidants', *J. Am. Chem. Soc.*, 138, 13143-13146

- Adhikary J, Chakraborty A, Dasgupta S, Chattopadhyay SK, Kruszynski R, Trzesowska-Kruszynska A, Stepanovic S, Gruden-Pavlovic M, **Swart M** & Das D 2016, 'Unique mononuclear MnII complexes of end-off compartmental Schiff base ligand: experimental and theoretical study on their bio-relevant catalytic promiscuity', *Dalton Trans.*, 2016, 45, 12409-12422.

Selected research activities

- Author of computational chemistry software (ADF, DRF90, NWChem, QUILD)
- Supervisor of two new PhD students
- Member of Editorial Board of Inorg. Chim. Acta, J. Mol. Graph. Model., J. Serb. Chem. Soc., Comp. Chem. Highlights and J. Comp. Meth. Sci. Engin.
- Organizer Girona Seminar 2016, Summer Training School COST Action CM1305, and online popularity poll for density functionals (DFT2016)
- Plenary speaker at "Annual Meeting Serbian Chemical Society", and at "VII Current Trends in Theoretical Chemistry"
- Invited speaker at "Japan-France-Spain Symposium on Theoretical chemistry of complex systems", KTH Institute (Stockholm, SE), Center for Biomimetic Systems (Seoul, KR), and BSC Life Sciences (Barcelona)



Tartaglia, Gian Gaetano Centre de Regulació Genòmica (CRG) Life & Medical Sciences

* October 2014 - ICREA Research Professor *Jan 2013 ERC Starting Grant * May 2010 - Group Leader, Bioinformatics and Genomics Program, Centre for Genomic Regulation, Barcelona (Spain) * November 2011 - Clare Hall Life Member, University of Cambridge (UK) * 2005-2010 - Postdoctoral Fellow, Clare Hall College, Chemistry Department, University of Cambridge (UK) * 2001-2005 - PhD, Biochemistry Department, University of Zurich, Zurich (CH) * 1996-2000 - MPhil Theoretical Physics, Statistical Mechanics, University la Sapienza, Rome (Italy)

Research interests

My main focus is to understand the role played by RNA molecules in protein networks. Characterizing protein-RNA associations is key to unravel the complexity and functionality of mammalian genomes and will open up therapeutic avenues for the treatment of a broad range of disorders. My research focuses on associations of coding/non-coding RNAs with proteins involved in i) transcriptional and translational regulation (e.g., X-chromosome inactivation) and ii) neurodegenerative diseases (examples include Parkinson's asynuclein, Alzheimer's disease amyloid protein APP, TDP-43 and FUS). I aim to discover the involvement of RNA molecules in regulatory networks controlling protein production. More specifically, I am interested in understanding mechanisms whose alteration lead to aberrant aggregation. We have observed that interaction between proteins and their cognate mRNAs (autogenous associations) induce feedback loops that are crucial in protein homeostasis. In addition to amyloid aggregates, we study the physico-chemical principles leading to formation of protein-RNA granules.

Selected publications

- Botta-Orfila T, **Tartaglia GG** & Michalon A 2016, 'Molecular Pathophysiology of Fragile X-Associated Tremor/Ataxia Syndrome and Perspectives for Drug Development', Cerebellum, 15, 5, 599 – 610.

- Tartaglia GG 2016, 'The Grand Challenge of Characterizing Ribonucleoprotein Networks', Front Mol Biosci. 9;3:24.

- Marchese D, de Groot NS, Lorenzo Gotor N, Livi CM & **Tartaglia GG** 2016, 'Advances in the characterization of RNA-binding proteins', *Wiley Interdiscip Rev RNA*. 7, 6, 793 – 810.

Bolognesi B, Lorenzo Gotor N, Dhar R, Cirillo D, Baldrighi M, **Tartaglia GG*** & Lehner B* 2016, 'A Concentration-Dependent Liquid Phase Separation Can Cause Toxicity upon Increased Protein Expression', *Cell Reports*, 16, 1, 222 – 231. (*corresponding authors).
 Lobanov MY, Klus P, Sokolovsky IV, **Tartaglia GG*** & Galzitskaya OV* 2016, 'Non-random distribution of homo-repeats: links with biological functions and human diseases', *Scientific Reports*, 6, 26941. (* corresponding authors).

Selected research activities

-Participation in editorial boards: Frontiers in Molecular Biosciences; PeerJ; Translational Genetics and Genomics; Current Updates in Bioinformatics.

-Teacher in the doctoral courses at La scuola normale di Pisa, Italy.

- Publication of a layman's book on Biotechnology: "Biotecnologia, la vida al servicio de la vida", El Pais December 25th n.38 (Matera).
- Licence of the catRAPID algorithm for protein-RNA interactions (http://technologies.tbdo.crg.eu/technology/21539).



Tikhonov, Sergey Centre de Recerca Matemàtica (CRM) Experimental Sciences & Mathematics

I was born in Russia in 1976. I graduated from the Lomonosov Moscow State University in 1999 and obtained my PhD in Mathematics from MSU in 2003. 2004-2006: Marie Curie Fellow at the Centre de Recerca Matemàtica, Barcelona. 2006-2008: Post-doctoral Fellow at the Scuola Normale Superiore, Pisa. 2008-September 2012: ICREA Researcher, CRM From September 2012, I am an ICREA Research Professor at the Centre de Recerca Matemàtica. 2009: ISAAC Award. 2013: Humboldt Research Fellowship for Experienced Researchers.

Research interests

Mostly my research deals with Fourier Analysis and Approximation Theory. Particularly, I study the relationship between "smoothness" of a function and the possibility to approximate or to represent this function by a sum of "simple" functions. The case when "simple" functions have wave structure is of special interest.

Selected publications

- Gorbachev D, Ivanov V & **Tikhonov S** 2016 'Pitt's inequalities and uncertainty principle for generalized Fourier transform', *International Mathematics Research Notices*, vol. 2016, no. 23, pp. 7179-7200.

- Nursultanov E, Ruzhansky M & **Tikhonov S** 2016, 'Nikolskii inequality and Besov, Triebel-Lizorkin, Wiener and Beurling spaces on compact homogeneous manifolds', *Annali della Scuola Normale Superiore di Pisa, Classe di Scienze* (5) vol. XVI, pp 981-1017.

- Dai F & **Tikhonov S** 2016, 'Weighted fractional Bernstein's inequalities and their applications', J. d'Analyse Math., vol. 129, no. 1, pp 33-68.

- Dai F, Feng H & **Tikhonov S** 2016, 'Reverse Hölder's inequality for spherical harmonics', *Proc. Amer. Math. Soc.*, vol. 144, no. 3, pp 1041-1051.

- Gorbachev D, Ivanov V & **Tikhonov S** 2016, 'Sharp Pitt inequality and logarithmic uncertainty principle for Dunkl transform in L2', *Journal of Approximation Theory*, vol. 202, no. 2, pp 109-118.

Selected research activities

Editorial

- Journal of Mathematical Analysis and Applications,
- Analysis Mathematica,
- Abstract and Applied Analysis,
- Bulletin of Mathematical Analysis and Applications,
- The Scientific World Journal.

Main organizer of the Research program "Constructive Approximation and Harmonic Analysis" in CRM

Conference organisation

May 2-6: Main organizer of the Workshop on Function Spaces and High-dimensional Approximation, Barcelona, Spain May 30- June 4: Main organizer of the Advanced course on Constructive Approximation and Harmonic Analysis, Barcelona, Spain June 6-10: Main organizer of the Conference on Harmonic Analysis and Approximation Theory (HAAT 2016), Barcelona, Spain

Colloquium talks

- Delft University of Technology, The Netherlands.
- Colloquium, Nepal Mathematical Society.
- Università degli Studi di Perugia, Italy.

Talks

- Functional Analysis Seminar, Université de Franche-Comté , Besançon, France.
- Mathematics of Computation, Hausdorff Center for Mathematics, Germany.
- Approximation Theory Seminar, Steklov Mathematical Institute, Moscow, Russia.

Research stay: Institute of Mathematics of Acad. of Sciences, Prague, Czech Republic



Tolsa Domènech, Xavier Universitat Autònoma de Barcelona (UAB) Experimental Sciences & Mathematics

I was born in Barcelona in 1966. First I studied engineering, but later I turned to mathematics. After obtaining my PhD in mathematics in 1998 (UAB), I spent about one year in Gotteborg (University of Gotteborg - Chalmers) and another year in Paris (Université de Paris-Sud), until I came back to Barcelona (UAB) by means of a "Ramón y Cajal" position. In 2002 I was awarded the Salem Prize by the Institute of Advanced Study and Princeton University for the proof of the semiadditivity of analytic capacity and my works in the so called Painlevé problem. Since 2003 I am an ICREA Research Professor. In 2004 I received the prize of the European Mathematical Society for young researchers. In 2012 I was awarded an ERC Advanced Grant to develop the project "Geometric analysis in the Euclidean space". My current research in mathematics focuses in Fourier analysis, geometric measure theory, and potential theory.

Research interests

I work in mathematical analysis. My research deals with complex analysis, Fourier analysis, geometric measure theory, and quasiconformal mappings. Particularly, I am interested in the relationship between analytic notions such as analytic capacity and geometric concepts like rectifiability. In a sense, analytic capacity measures how much a set in the plane is visible or invisible for analytic functions. On the other hand, rectifiability tells you if a set is contained in a (countable) collection of curves with finite length. Some years ago, I proved that analytic capacity is semiadditive. This means that the analytic capacity of the union of two sets A and B is smaller or equal than some constant times the addition of the analytic capacites of A and B. This was an open problem since the early 1960s. More recently I have studied related problems in higher dimensions. In particular, in a recent collaboration with F. Nazarov and A. Volberg I have proved the so called David-Semmes conjecture in the codimension 1 case. This result has important applications to the study of harmonic measure.

Selected publications

Chousionis V, Garnett J, Le T & Tolsa X 2016, 'Square functions and uniform rectifiability', *Trans. Amer. Math. Soc.*, 368, 6063-6102.
 Chousionis V, Prat L & Tolsa X 2016, 'Square Functions of Fractional Homogeneity and Wolff Potentials', *Int Math Res Notices*, Vol. 2016 2239-2294.

- Azzam J, Hofmann S, Martell JM, Mayboroda S, Mourgoglou M, **Tolsa X** & Volberg A 2016, 'Rectifiability of harmonic measure', *Geometric and Functional Analysis*, 26(3), 703-728.

- Reguera MC & **Tolsa X** 2016, 'Riesz tranforms of non-integer homogeneity on uniformly disocnnected sets', *Transactions Of The American Mathematical Society*, 368, 10, 7045 - 7095.

Selected research activities

Conferences and minicourses

- International Conference on Harmonic Analysis and PDE's. El Escorial (Madrid), June 2016. Plenary speaker: "The Riesz transform, quantitative rectifiability, and a two-phase problem for harmonic measure".

- Harmonic analysis, complex analysis, spectral theory and all that. Bedlewo (Poland), August 2016. Plenary speaker: "The Riesz transform, quantitative rectifiability, and a two-phase problem for harmonic measure"

- Harmonic Analysis and its Applications. Matsumoto (Japan), August 2016. Minicourse: "The Riesz transform, rectifiability, and harmonic measure".

- Journées du GdR Analyse Fonctionnelle, Harmonique et Probabilités. Toulouse, October 2016. Plenary speaker: "Riesz transforms, square functions, and rectifiability".

- Spaces of analytic functions and singular integrals. Chebyshev Laboratory, St. Petersburg, October 2016. Minicourse: "The Riesz transform, rectifiability, and harmonic measure".

- Albert Einstein Institute (Potsdam), January 2016. Seminar: "Riesz transform and quantitative rectifiability for general Radon measures".

Others

Direction of the PhD thesis by Daniel Girela Sarrión "Singular integrals and rectifiability", Universitat Autònoma de Barcelona (2016). Excellent cum Laude.

President of the Scientific Committee of the Barcelona Analysis Conference 2016.



Toribio, Josefa Universitat de Barcelona (UB) Humanities

I got my PhD in Philosophy from Complutense University, Madrid, in 1988. I worked as Assistant Professor in the Department of Logic and Philosophy of Science at Complutense between 1989 and 1991. I was then awarded a postgraduate fellowship by the British Council to work in the School of Cognitive and Computing Sciences at the University of Sussex (1991-93). I was Assistant Professor at Washington University in St. Louis (1993-2000), Lecturer in Philosophy in the School of Cognitive and Computing Sciences at the University of Sussex (2000-2002), Associate Professor at the University of Indiana, Bloomington (2002-2004), and Senior Lecturer at the University of Edinburgh (2004-2008). I joined ICREA in 2009. I am a member of the research group LOGOS (Research Group in Analytic Philosophy) at the UB. Since September 2010, I have been president of the Spanish Society of Analytic Philosophy (SEFA) between 2010 and 2016.

Research interests

My goal in philosophy has long been the same: to explore the nature of the mind within a naturalistic framework. What is most distinctive of my research is my ongoing effort to respect scientific findings about mental phenomena while insisting on the critical importance of the method of analysis and the theoretical tools provided by analytic philosophy. My current research focuses on the analysis of central topics in the philosophy of mind and the philosophy of cognitive science, with a focus on the philosophy of perception and rationally responsive unconscious mental states such as implicit attitudes.

Selected research activities

Research Grant (as PI):

"The Complexity of Perception: A multidimensional approach", MINECO. Project FFI2014-51811-P.

Research Grants (as researcher):

· 2014-2016: LOGOS. 2014-SGR-81 AGAUR. €51,000. PI: Sven Rosenkranz.

- · 2015-2017: Attention and Perception. IN-4013015. DGAPA, UNAM. Programme PAPIIT. €36,000. PI: Maite Ezcurdia.
- · 2016-2019: DIAPHORA: Philosophical Problems, Resilience and Persistent Disagreement. Project: 675415. MSCA-ITN-ETN.
- · H2020-MSCA-ITN-2015. ETN. € 3,670,853.76. IP: Sven Rosenkranz.

PhD Funding

· Abel Martínez (FPI).

Post-doc funding

 \cdot David Lobina (Juan de la Cierva: incorporation).

· Indrek Reiland (Juan de la Cierva: formation).

Teaching

 \cdot MA APhil – CCiL – Philosophy and the Cognitive Sciences (UB).

 \cdot Visiting Professor at the University of Costa Rica: May 18-24, 2016.

Conference Presentations (Refereed)

· Toribio, J. "Underground traits". VIII Conference of SEFA. Oviedo, November 10-12, 2016.

Invited Presentations

• Toribio, J. "Visual experience: rich only if irresistible". Workshop on top-down influences on perception. Centre for Philosophical Psychology. University of Antwerp, Belgium. February 25th, 2016.

· Toribio, J. "The judging skill". Workshop: Two systems accounts of cognition and the nature of judgment. Berlin School of Mind and Brain. Berlin, March 30-31, 2016.

· Toribio, J. "Perception and its content". University of Costa Rica. Facultad de Letras. San José, Costa Rica, May, 18-24, 2016.

· Toribio, J. "Revisiting the link between nonconceptualism and cognitive impenetrability". IV ALFAn Conference. San José, Costa Rica, May 25-27, 2016.

· Toribio, J. "Underground traits". Workshop "Knowledge and Experience of the Self". UCL, London, June 22-23, 2016.

· Toribio, J. "Underground traits". University of Granada, December, 13th, 2016. Service

· Coordinator of the MA in Analytic Philosophy (UB-UAB-UdG-PF).

 \cdot President of the Spanish Society for Analytic Philosophy (SEFA).



Toro, Juan Manuel Universitat Pompeu Fabra (UPF) Social & Behavioural Sciences

I was born in Bogotá (Colombia) in 1976. I studied Psychology at the Universidad Nacional de Colombia. In 2005, I got a PhD from the Universitat de Barcelona, and moved to work as a postdoc with Jacques Mehler at the Language and Cognitive Development lab at SISSA (Trieste, Italy). Later I was a research fellow under the Ramón y Cajal program. My studies are mainly funded through a grant awarded by the European Research Council (ERC Starting Grant). Currently I am an ICREA Research Professor at the Center for Brain and Cognition of the Universitat Pompeu Fabra, where I coordinate the Language and Comparative Cognition Group.

Research interests

I am interested in studying why the extraordinary ability of language has only emerged in humans and not in other animals. I tackle this issue using a combination of experimental techniques and populations that include human adults & infants, and non-human animals. Our studies have demonstrated that some of the building blocks of language learning are found in other animals, including the ability to extract information from speech using prosodic and statistical regularities. We have also showed how phonological representations guide of rule learning (providing the ground to explore how linguistic representations constrain general structure extraction mechanisms). Through this work, I have experimentally tackled the issue of how mechanisms interact while processing language, and to what extent they might be present in other species. More generally, this research has tried to unveil what is uniquely human and what is shared with other animals in the field of language processing.

Selected publications

- **Toro JM** 2016, 'Something Old, Something New: Combining Mechanisms During Language Acquisition', *Current Directions In Psychological Science*, 25, 2, 130 - 134.

- **Toro JM**, Nespor M & Gervain J 2016, 'Frequency-based organization of speech sequences in a nonhuman animal', *Cognition*, 146, 1-7.

- Crespo-Bojorque P & **Toro JM** 2016, 'Processing advantages for consonance: A comparison between rats (Rattus Norvegicus) and humans (Homo Sapiens)', *Journal of Comparative Psychology, 130*, 97-108.

- Celma-Miralles A, Menezes R & **Toro JM** 2016, 'Look at the beat, feel the meter: Top-down effects of meter induction on auditory and visual modalities', *Frontiers in Human Neuroscience*, 10, 108.

- Langus A, Seyed-Allaei S, Uysal E, Pirmoradian S, Marino C, Asaadi S, Eren O, **Toro JM**, Peña M, Bion R & Nespor M 2016, 'Listening natively across perceptual domains?', *Journal of Experimental Psychology: Learning, Memory and Cognition, 42*, 1127-1139.

Selected research activities

- Organizing committee: Beyond language learning workshop. Barcelona, September 29th-30th, 2016.
- Coordinator, Master in Brain and Cognition, Universitat Pompeu Fabra.
- Associate editor, Journal of Language Evolution.



Torrents Arenales, David Barcelona Supercomputing Center - Centro Nacional de Supercomputación (BSC - CNS) Life & Medical Sciences

After graduating in Biochemistry and Molecular Biology, I obtained the PhD in Molecular Biology at the University of Barcelona in 2000 in the group of Manuel Palacín working on amino acid transporters and associated genetic diseases. This PhD was awarded with the University PhD Extraordinary Prize. Then I moved with an EMBO long term fellowship to the group of Peer Bork to enter in the world of genomics, at the EMBL in Heidelberg, where I stayed from 2000 to 2006. There, I worked on genome annotation and analysis using bioinformatics approaches. Currently, since 2006, I'm group leader at the Joint IRB-BSC program on Computational Biology in the Barcelona Supercomputing Center doing research in computational biomedicine.

Research interests

Genomes are the central molecules of life because they carry all the information necessary for the development, the survival and the reproduction of all organisms. They have been carrying this information from the origins of life without interruption, acquiring complexity and changes that provide adaptation and improvements to the species. Over the lasts 20 years, the study of the genome in a biomedical context has provided valuable information about the genetic and molecular basis of diseases. The technological revolution in the sequencing of DNA has now pushed all this knowledge and possibilities to a scenario where we can plan the incorporation of the genome analysis as an integrated and regular protocol within the health-care system, resulting in a Precision Medicine, where the genomic information will be determinat for a more accurate diagnosis and for the selection of a more precise treatment. In this context, our group and my research activity is focused in understanding the relationship between genomic variation and disease, in order to generate the basis for more precise medical care. As pilot diseases, we are intensively investigating somatic variations in cancer genomes and identifying genetic factors increasing the risk of type 2 diabetes, among other genetic diseases. See http://cg.bsc.es/.

Selected publications

- Horikoshi M, Beaumont RN, Day FR, Warrington, ..., **Torrents D**, ..., John RB, Evans DM, McCarthy MI & Freathy RM 2016, 'Genomewide associations for birth weight and correlations with adult disease', *Nature*, 538, 7624, 248.

- Fernández JM, de la Torre V, Richardson D, Royo R, Puiggròs M, Moncunill V, Fragkogianni S, Clarke L, BLUEPRINT Consortium, Flicek P, Rico D, **Torrents D**, Carrillo de Santa Pau E & Valencia A 2016, 'The BLUEPRINT Data Analysis Portal', *Cell Syst.*, 3(5):491-495.e5. doi: 10.1016/j.cels.2016.10.021.

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Eiler A, Mondav R, Sinclair L, Fernandez-Vidal L, Scofield DG, Schwientek P, Martinez-Garcia M, **Torrents D**, McMahon KD, Andersson SGE, Stepanauskas R, Woyke T & Bertilsson S 2016, 'Tuning fresh: radiation through rewiring of central metabolism in streamlined bacteria', *Isme Journal*, 10, 8, 1902 – 1914.

- Heyn H, Vidal E, Ferreira HJ, Vizoso M, Sayols S, Gomez A, Moran S, Boque-Sastre R, Guil S, Martinez-Cardus A, Lin CY, Royo R, Sanchez-Mut JV, Martinez R, Gut M, **Torrents D**, Orozco M, Gut I, Young RA & **Esteller M** 2016, 'Epigenomic analysis detects aberrant super-enhancer DNA methylation in human cancer', *Genome Biol.*, 17:11. doi: 10.1186/s13059-016-0879-2.



Torres, Diego F. Institut de Ciències de l'Espai (CSIC - ICE) Experimental Sciences & Mathematics

I was born in Argentina, where I studied up to obtaining a PhD from the National University at La Plata. After several fellowships (Sussex University, Inst. for Radioastronomy, Princeton University, Lawrence Livermore Natl. Lab.) and long stays in Italy, I started a new group on high-energy astrophysics in Barcelona. I have received several scientific awards (among them, the Chinese Academy of Science Senior Visiting Professorship in 2014/15, the Friedrich Wilhelm Bessel Award of the Humboldt Foundation of Germany in 2012, the Shakti Duggal Award on Cosmic Ray Physics of the International Union of Pure and Applied Physics in 2007, and the Guggenheim Fellowship in 2006). I have published 220+ papers, which have 10700+ citations. These papers can be accessed from ADS (http://bit.ly/1f9pno4) I edited 5 books.

Research interests

The familiar sights of peacefully shining stars would be replaced by something extreme and variable should you look with gamma-ray eyes. You would be glancing at the most energetic phenomena known in astrophysics: accreting masses around black holes, pulsars, close binaries, regions of stellar formation, explosions of supernovae, and others. I develop theoretical models for these scenarios, and test them with observations using ground-based telescopes and satellites. My research group hosted about 30 scientists and published more than 250 papers since its foundation in 2006. You can know more about this all from my webpage, http://www.ice.csic.es/personal/dtorres

Selected publications

- Ahnen ML et al. (including **Torres DF**) 2016, 'Super-orbital variability of LS I+61 degrees 303 at TeV energies', Astronomy & Astrophysics, 591, A76.

- Li J,**Torres DF**, de Ona Wilhelmi E, Rea N & Martin J 2016, 'Gamma-ray emission from PSR J0007+7303 using seven years of FERMI-LAT observations', *Astrophysical Journal*, 831, 1, 19.

- Campana S, Coti Zelati F, Papitto A, Rea N, **Torres DF**, Baglio MC & D'Avanzo P 2016, 'A physical scenario for the high and low X-ray luminosity states in the transitional pulsar PSR J1023+0038', *Astronomy & Astrophysics*, Volume 594, id.A31, 7 pp.

- Martín J, **Torres DF** & Pedaletti G 2016, 'Molecular environment, reverberation, and radiation from the pulsar wind nebula in CTA 1', Monthly Notices of the Royal Astronomical Society, Volume 459, Issue 4, p.3868-3879.

- de Ona Wilhelmi E, Papitto A, Li J, Rea N, **Torres DF**, Burderi L, Di Salvo R, Iaria R, Riggio A & Sanna A 2016, SAX J1808.4-3658, an accreting millisecond pulsar shining in gamma rays?, *Monthly Notices of the Royal Astronomical Society*, 456, 3, 2647 – 2653.

- The MAGIC Collaboration (including **Torres DF**) 2016, 'Teraelectronvolt pulsed emission from the Crab pulsar detected by MAGIC', Astronomy & Astrophysics, 585, A133.

Selected research activities

-Have published 11 papers in international journals with small groups of authors or with significant responsibilities within larger collaborations.

-Since March 2016, I am Director, Institute of Space Sciences (IEEC-CSIC).

-Editor-in-Chief, Journal of High Energy Astrophysics, Elsevier.

-Director, Sant Cugat Forum on Astrophysics (2 workshops were hosted there this year).

-Member of CTA, Fermi-LAT, and MAGIC collaborations.

-Have been an evaluator for projects or promotions of six countries and a peer reviewer for several astrophysical journals.



Torruella Casañas, Joan Universitat Autònoma de Barcelona (UAB) Humanities

Joan Torruella holds a PhD in Linguistics by the Autonomous University of Barcelona, a Masters in Philosophy by the University of Manchester, and a Masters in Lexicography by the University Pompeu Fabra in Barcelona. He obtained a research grant by the Ministero degli Affari Esteri of Italy to conduct research on Romance Studies at the University of Florence. Later he worked at the University of Manchester as a Lecturer of Spanish and Catalan, while in turn he conducted his Masters in Philosophy. He has worked on a wide range of computing tools and resources in collaboration with the Istituto di Linguistica Computazionale of the Consiglio Nazionale delle Richerche in Pisa (Italy). He is ICREA Research Professor since January 2005. He is also co-director of the journal "Scriptum Digital" and a member of the Seminar of Philology and Computer Science. In 2009 he was awarded the Research Excellence Prize (PREI 2008).

Research interests

My work consists of the research in the mediaeval Hispanic lexicon and of the development and application of new computer tools in order to understand and describe the process of language from real and quantifiable datum extracted from balanced corpora. At this moment I am working in contrastive studies among different Hispanic languages and in the realization of a corpus of texts of the Catalan language previous to the XVII century (Corpus Informatitzat del Català Antic). I am also working in the development of a portal in internet with scientific information about the lexicon of the Ibero-Romance languages (Portal de Léxico Hispánico). I'm currently working on those projects: development of a semi-automatic lemmatisator of the Old Catalan language; study of how to measure the lexical richness of the texts and the preparation of a computer program to do it, and a corpus of notarial documents written in Castilian language in Catalonia in the XVIII century.

Selected publications

- **Torruella J** 2016, 'Tres propuestas en el ámbito de la lingüística de corpus', in Kabetek J (ed.), Lingüística de corpus y lingüística histórica iberorrománica, *De Gruyter*, Berlin, pp. 92 - 114.

- Glavería G & **Torruella J** 2016, 'La introducción de las familias léxicas de *fácil* y *difícil* en catalán a partir de un corpus histórico', *Scriptum digital*, vol. 5, pp. 65-83.

- Torruella J et al. 2016, 'La morfología léxica en el Portal de léxico hispánico: resultados del proyecto de investigación (FFI2011-24183)', in Buenafuentes, Clavería and Pujol (eds.), Cuestiones de morfología léxica, *Iberoamericana/Vervuert*, Madrid/Frankfurt, pp. 167 – 229.



Trepat, Xavier Institut de Bioenginyeria de Catalunya (IBEC) Engineering Sciences

Xavier Trepat received a BSc in Physics in 2000 and a BSc in Engineering in 2001. In 2004 he obtained his PhD from the Medical School at the University of Barcelona. He then joined the Program in Molecular and Integrative Physiological Sciences at Harvard University as a postdoctoral researcher. In 2008 he became a "Ramón y Cajal" researcher at the University of Barcelona and in January 2011 an ICREA Research Professor at the Institute for Bioengineering of Catalonia (IBEC). He is Group Leader of the Integrative Cell and Tissue Dynamics research line at IBEC. In 2015 he won the Banc de Sabadell Award for Biomedical Research.

Research interests

The ability of eukaryotic cells to migrate within living organisms underlies a wide range of phenomena in health and disease. When properly regulated, cell migration enables morphogenesis, host defense, and tissue healing. When regulation fails, however, cell migration mediates devastating pathologies such as cancer, vascular disease and chronic inflammation. Our research focuses in understanding the fundamental biophysical mechanisms underlying migration both at the single cell level and at the tissue level. To this aim, we develop novel technologies to measure nanoscale inter- and intra-cellular forces.

Selected publications

Sunyer R, Conte V, Escribano J, Elosegui-Artola A, Labernadie A, Valon L, Navajas D, Garcia-Aznar, JM, Munoz JJ, Roca-Cusachs P & Trepat X 2016, 'Collective cell durotaxis emerges from long-range intercellular force transmission', *Science*, 353, 6304, 1157 – 1161.
Elosegui-Artola A, Oria R, Chen Y, Kosmalska A, Perez-Gonzalez C, Castro N, Zhu C, Trepat X & Roca-Cusachs P 2016, 'Mechanical regulation of a molecular clutch defines force transmission and transduction in response to matrix rigidity', *Nature Cell Biology*, 18, 5, 540-8.

- Ladoux B, Mege R & **Trepat X** 2016, 'Front-Rear Polarization by Mechanical Cues: From Sincle Cells to Tissues', *Trends In Cell Biology*, 26, 6, 420 - 433.

- Tekeli I, Aujard I, **Trepat X**, Jullien L, **Raya A &** Zalvidea D 2016, 'Long-term in vivo single-cell lineage tracing of deep structures using three-photon activation', *Light-science & Applications*, 5, e16084.

- Alencar AM, Ferraz MSA, Park CY, Millet E, **Trepat X**, Fredberg JJ & Butler JP 2016, '*Non-equilibrium cytoquake dynamics in cytoskeletal remodeling and stabilization'*, Soft Matter, 12, 41, 8506 – 8511.

- Przybyla L, Lakins JN, Sunyer R, **Trepat X** & Weaver VM 2016, 'Monitoring developmental force distributions in reconstituted embryonic epithelia', *Methods*, 94, 101 - 113.

- Asadipour N, **Trepat X** & Muñoz JJ 2016, 'Porous-based rheological model for tissue fluidisation', Journal of the Mechanics and Physics of Solids, 96: 535-549.



Usón Finkenzeller, Isabel Institut de Biologia Molecular de Barcelona (CSIC - IBMB) Life & Medical Sciences

Isabel Usón Finkenzeller completed a Chemistry degree (1987) and Ph. D. (1992) in synthetic organometallic chemistry at the U. of Zaragoza. In November 1992, she joined Procter & Gamble as Product Research Scientist in Brussels, gaining insight into the science and management of industrial chemistry. She moved as HCM postdoc to the U. of Göttingen in 1994. She has developed methods for crystallography for 23 years, first within the group of Prof. Sheldrick FRS, author of SHELX, during her postdoctoral research and Habilitation (1994-2001) and as of July 2001 leading an emergent group. September 2003, she moved to Barcelona as ICREA Research Professor. Her work on structural chemistry and biology has led to over 135 publications. The software ARCIMBOLDO is the central output of her work. She is one of the seven members of the *Maria de Maeztu* Excellence Unit of Structural Biology at the IBMB-CSIC.

Research interests

Macromolecular crystallography provides conclusive structural information down to atomic detail and has been inextricable from major advances in the life sciences. Nevertheless, this structural model cannot be directly calculated from the experimental data, as we cannot measure the phases of the diffracted X-ray beams. Our group develops methods to exploit the stereochemical knowledge present in small, accurate units such as secondary structure fragments and their association into local folds. Their use to solve the central phase problem of crystallography is implemented in our software ARCIMBOLDO. This has required devising our own particular toolbox for fragments. We are extending this detailed view to map interpretation within the program SHELXE (Sheldrick) and general structure interpretation within our program BORGES_MATRIX. As illustrated in paintings by G. Arcimboldo, the information content derived from a correct combination of fragments goes beyond their simple addition.

Selected publications

- Osman D, Piergentili C, Chen J, Sayer LN, **Usón I**, Huggins TG, Robinson NJ & Pohl E 2016, 'The Effectors and Sensory Sites of Formaldehyde-Responsive Regulator FrmR and Metal-Sensing Variant', *J. Biol. Chem.*, 291(37):19502-16.

- Fedosyuk S, Bezerra GA, Radakovics K, Smith TK, Sammito M, Bobik N et al. 2016, 'Vaccinia Virus Immunomodulator A46: A Lipid and Vaccinia Virus Immunomodulator A46: A Lipid and Protein-Binding Scaffold for Sequestering Host TIR-Domain Proteins', *PLOS Pathogens*, 12(12):e1006079.

Selected research activities

- Release of the ARCIMBOLDO programs within the main European consortium for crystallographic software, CCP4 in January 2016, further integration and extension of the CCP4 version along the year.

- Release of a new ARCIMBOLDO SHREDDER in December 2016.
- Release of coauthored SHELXE beta version.
- Sabbatical research stay at the CIMR, University of Cambridge.
- Member of the management board for the construction of the XAIRA microfocus beamline at ALBA.



Vaccaro, Pablo Oscar Institut de Ciència de Materials de Barcelona (CSIC - ICMAB) Engineering Sciences

Pablo Vaccaro earned his Licenciatura in Physics working on LPE of IV-VI compound semiconductors, in 1986, and his Doctor in Physics degree working on CdS/CdTe solar cells, in 1991, at Balseiro Institute, Bariloche, Argentina. He joined Prof. Hiroyuki Matsunami's laboratory at the Dept. of Electrical Engineering, Kyoto University, Japan, where he conducted post-doctoral research on chemical beam epitaxy (CBE) of III-V compound semiconductors until 1993. He then moved to Advanced Telecom. Research Institute, in Kyoto, Japan, where he conducted research on MBE of III-V compound semiconductors and optoelectronic devices fabrication, reaching the position of Senior Researcher. In 2006 he was hired by Sharp Corporation at the Advanced Technology Research Labs., in Nara, Japan, where he worked on MOCVD of III-N compound semiconductors and fabrication process of blue laser diodes and LEDs. He became ICREA Research Professor at the Institute of Materials Science of Barcelona in 2010.

Research interests

SiGe thermoelectric far-infrared sensors integrated on silicon substrates.

Tensile strained germanium on silicon substrates for monolithically integrated optoelectronics.

SiGe nanowires for thermoelectric applications.

Piezoresistivity in Si/Ge nanostructures and III-V heterostructures.

Selected research activities

Communications at Conferences:

M. I. Alonso, A. Ruiz, M. Alonso, E. Bailo, P.O.Vaccaro, and M. Garriga, "SiGe alloy nanowires grown by molecular beam epitaxy: a μ-Raman study", 19th International Conference on Molecular Beam Epitaxy (MBE 2016) Montpellier, France, Sep 4-9, 2016.
 P. O. Vaccaro, J. Gutiérrez, M. I. Alonso, M. Garriga, and A. R. Goñi, "SiGe thermoelectric far-infrared sensors" 14th European Conference on Thermoelectrics (ECT 2016), Lisbon, Portugal, Sep 20-23, 2016.

P. O. Vaccaro, M. I. Alonso, M. Garriga, J. Gutiérrez, D. Peró and A. R. Goñi, "Proof of concept of thermoelectric sensors for human-body heat detection", NanoTHERM review meeting, Barcelona, Spain, Oct 14, 2016.



Valcárcel Juárez, Juan Centre de Regulació Genòmica (CRG) Life & Medical Sciences

Juan Valcárcel studied biology and chemistry at the Universities of Santiago de Compostela and Autónoma de Madrid. He obtained his PhD in 1990 for work carried out at the Centro de Biología Molecular Severo Ochoa under the supervision of Juan Ortín. He did postdoctoral work in the laboratory of Michael Green at the University of Massachusetts and in 1996 he joined the European Molecular Biology Laboratory in Heidelberg as a group leader. In 2002 his group moved to the Centre de Regulació Genòmica in Barcelona, where he is a senior scientist and ICREA Research Professor. Since the time of his PhD work, his research has focused on how pre-mRNAs are spliced and how this process can be regulated.

Research interests

The genome provides the instructions to build and maintain the function of a living organism. Strangely, in complex organisms these instructions are not written as continuous messages, but rather as smaller pieces interrupted by meaningless text. This arrangement has the advantage that the pieces can be combined in different ways to generate alternative instructions. We study the molecular machinery that puts messages together and how the production of alternative messages is regulated.

Selected publications

- Papasaikas P & **Valcárcel J** 2016, 'The Spliceosome: the ultimate RNA chaperone and sculptor', *Trends in Biochemical Sciences*, vol. 41, pp. 33-45.

– Julien P, Minana B, Baeza-Centurion P, **Valcarcel J** & **Lehner B** 2016, 'The complete local genotype-phenotype landscape for the alternative splicing of a human exon', *Nature Communications*, vol. 7, pp 11558.

- Hernández J, Bechara E, Schlesinger D, Delgado J, Serrano L & **Valcárcel J** 2016, 'Tumor suppressor properties of the splicing regulatory factor RBM10', *RNA Biology*, vol. 13, pp 466 - 472.

- Valcarcel J & Ortin J 2016, 'Influenza raids the splicing store', Nature Microbiology, vol. 1, no. 7, pp 16100.

- Mourao A, Bonnal S, Warner L, Soni K, Bordonné R, **Valcárcel J** & Sattler M 2016, 'Structural basis for the recognition of proline-rich motifs in spliceosomal SmN/B/B' proteins by the RBM5 OCRE domain in alternative splicing regulation', *eLife*, vol. 5, pp e14707.

Selected research activities

- Elected President of the RNA Society 2017 - 2018.



Valenzuela, Sergio O. Institut Català de Nanociència i Nanotecnologia (ICN2) Engineering Sciences

Sergio O. Valenzuela is an ICREA Prof. at the Catalan Institute of Nanoscience and Nanotechnology (ICN2), The Barcelona Institute of Science and Technology. He leads the Physics and Engineering of Nanodevices group, which focuses on quantum transport, spintronics, and thermoelectricity in materials such as graphene and topological insulators. He has pioneered the use of nonlocal devices to study the spin Hall effect, thermopiles to isolate the magnon drag in ferromagnetic materials, and implemented novel qubit control and spectroscopy methods. Prof. Valenzuela received a PhD in Physics at the University of Buenos Aires, and held research positions at Harvard University and MIT. He is recipient of the Giambiagi prize, the IUPAP Young Scientist Prize and a ERC Consolidator Grant. He is also Principal Investigator of the Graphene Flagship and Grantor of the ICN2 "Severo Ochoa" Centre of Excellence Project.

Research interests

In recent years, electronic devices have been scaled down to nanoscale sizes where quantum effects begin to interfere with their functioning. Materials and devices in such scales often present unexpected and unintuitive physical properties. Prof. Valenzuela's Group focus is the development of novel devices, which are designed to gain insight of specific physical properties of the system components, relevant both for fundamental reasons and applications at the nanoscale. The current research interests of the group span Spintronics, Spin Caloritronics, and quantum transport in particular in graphene and topological insulators. For more information see: http://nanodevices.icn2.cat.

Selected publications

- Raes B, Scheerder JE, Costache MV, Bonell F, Sierra JF, Cuppens J, Van de Vondel J & Valenzuela SO 2016, 'Determination of the spin-lifetime anisotropy in graphene using oblique spin precession', *Nature Communications*, 7, 11444.
- Van Tuan D, Marmolejo-Tejada JM, Waintal X, Nikolic BK, Valenzuela SO & Roche S 2016, 'Spin Hall Effect and Origins of Nonlocal Resistance in Adatom-Decorated Graphene', *Physical Review Letters*, 117, 17, 176602.

Selected research activities

Selected Invited/Plenary Talks

- ICTP Workshop on Driven Quanttum Systems, Bariloche, Argentina, December 2016
- Recent Progress in Spintronics of 2D Materials, Hsinchu, Taiwan, November 2016
- Functional Properties of Two-Dimensional Materials Workshop, Leuven, Belgium, October, 2016
- Simposio Internacional: Materiales Bidimensionales (MIT-Spain Cooperation). Fundación Areces, Madrid, Spain, July, 2016
- Graphene 2016, Genova, Italy, April, 2016

Selected Schools

- ESONN'16 European School on Nanosciences & Nanotechnologies (Spintronics), Grenoble, France
- Scientific Advisory Committee Member of the European Schooll of Magnetism (ESM)

Co-Editor Focus Issue on Tailorin Spin-Dependen Transport in 2D Materials (2D Materials Journal; http://2dmaterials.org)
 Scientific Committee Member of New Trends of Topological Insulators Workshop
 Principal Investigator of ERC Consolidator Grant SPINBOUND
 Principal Investigator within the Graphene Flagship



van den Bergh, Jeroen Universitat Autònoma de Barcelona (UAB) Social & Behavioural Sciences

Jeroen van den Bergh is ICREA Research Professor at the Institute of Environmental Science & Technology of Universitat Autònoma de Barcelona. He is also honorary professor of Environmental & Resource Economics in the Faculty of Economics & Business Administration and the Institute for Environmental Studies, VU University Amsterdam. Previously, he was professor of Environmental Economics (1997-2007) at VU University Amsterdam, and a member of the Energy Council of the Netherlands (2003-2007). He obtained a Masters degree in Econometrics and Operations Research from Tilburg University, and a PhD in Economics from VU University Amsterdam. He has published 16 books and more than 180 journal articles. He was awarded the Royal Shell Prize 2002 and the IEC Environmental Prize (Premi Sant Jordi de Medi Ambient) 2011, and received awards for several publications. He is editor-in-chief of the Elsevier journal "Environmental Innovation and Societal Transitions".

Research interests

The intersection of economics, environmental science and innovation studies. Work in recent years is focused on environmental innovation, notably renewable energy, the design of effective climate policy, assessment of climate policy impacts, carbon and energy rebound, and modelling a transition to a low-carbon economy. He makes frequent use of insights and approaches of behavioral and evolutionary economics. Past work covered integrated environmental-economic modelling, construction of aggregate performance indicators, contributions to the growth-versus-environment debate, economic aspects of dematerialization and recycling, and spatial/international aspects of environmental policy.

Selected publications

- van den Bergh JCJM 2016, 'Disagreement on sustainability policy within the social sciences?', *European Review*, 24(1): 83-88.
 - Shemelev S & van den Bergh J 2016, 'Optimal diversity of renewable energy alternatives under multiple criteria: An application to the UK', *Renewable and Sustainable Energy Reviews*, 60: 679-691.

- Drews S & **van den Bergh J** 2016, 'Public views on economic growth, the environment and prosperity: Results of a questionnaire survey', *Global Environmental Change*, 39: 1-14.

- Maestre-Andres S, Calvet-Mir L & **van den Bergh J** 2016, 'Sociocultural valuation of ecosystem services to improve protected area management: a multi-method approach applied to Catalonia, Spain', *Regional Environmental Change*, 16(3): 717 – 731.

- van den Bergh J 2016, 'Spatial inequity of resources impedes autarky, Comment on "The Island Logic"', *Journal of Industrial Ecology*, 20(5): 1212-1213.

- Drews S, **van den Bergh JCJM** 2016, 'What explains public support for climate policies? A review of empirical and experimental studies', *Climate Policy*, 16, 7, 855 - 876.

Rodrigues L, van den Bergh J, Loureiro M, Nunes P & Rossi S 2016, 'The cost of Mediterranean sea warming and acidification: A choice experiment among scuba divers at Medes Islands, Spain', *Environmental and Resource Economics*, 63(2): 289-311.
 Subtil Lacerda L & van den Bergh L 2016, 'Mismatch of wind power capacity and generation: Causing factors, GHG emissions and

- Subtil Lacerda J & **van den Bergh J** 2016, 'Mismatch of wind power capacity and generation: Causing factors, GHG emissions and potential policy responses', *Journal of Cleaner Production*, 128(1): 178-189.

- Antal M & **van den Bergh JCJM** 2016, 'Green growth and climate change: Conceptual and empirical considerations', *Climate Policy*, 16(2): 165-177.



van Hulst, Niek F. Institut de Ciències Fotòniques (ICFO) **Engineering Sciences**

Following study in Astronomy and Physics, I obtained my PhD (1986) in Molecular & Laser-Physics at the University of Nijmegen (the Netherlands), on microwave-laser double resonance molecular-beam spectroscopy. After research in non-linear optics of organic materials, integrated optics, atomic force and near-field optical microscopy, since 1997 full Professor in Applied Optics at MESA+ Institute for NanoTechnology, University of Twente (the Netherlands) with focus on single molecule detection and scanning probe technology. In 2005, attracted by the Catalan quality-based science policy, I started as ICREA Research Professor and senior group leader at ICFO - the Institute of Photonic Sciences, within The Barcelona Institute of Science & Technology; also I am Head Academic Programs at ICFO. I coordinate the Spanish CONSOLIDER program NanoLight.es. Recipient of 2003 Körber European Science Award, 2010 City of Barcelona Prize; ERC Advanced Grants in 2010 and 2015.

Research interests

My current interest is to control light interaction at the nanometer scale. To this end, my group specializes on optical antennas, with nanoscale hot spots, and on coherent control schemes to command light on the "femto-nano" scale. We study individual molecules, quantum dots and single proteins, in strong interaction with nanoantenna-cavities and sub-10-fs pulses; controlling excitation-emission rates, direction, spectra, polarization, single photon character. We focus particularly on long-lived coherences in single light-harvesting antenna complexes at native conditions, to unravel the remarkably high efficiency of energy conversion in such natural molecular antennas. At ICFO I aim to stimulate young researchers, towards well-rooted skilled scientists and assertive critical thinkers, ready to shape their future and sustain the world. To recharge, I like to touch ground in the Massis del Garraf or to stroll around the coast, inspired by the ancient Mediterranean waters.

Selected publications

- Piatkowski L, Gellings E & van Hulst N F 2016, 'Broadband Single Molecule Excitation Spectroscopy', Nature Communications, 7:10411.

- Accanto N, Piatkowski L, Hancu IM, Renger J & van Hulst NF 2016, 'Resonant Plasmonic Nanoparticles for Multicolor Second Harmonic Imaging', Appl. Phys. Lett., 108, 083115.

- de Torres J et al. 2016, 'Plasmonic Nanoantennas Enable Forbidden Förster Dipole-Dipole Energy Transfer and Enhance the FRET Efficiency', NanoLetters, 16 (10), 6222-6230.

- Wientjes E, Renger J, Cogdell R & van Hulst NF 2106, 'Pushing the Photon Limit: Nanoantennas Increase Maximal Photon Stream and Total Photon Number', J. Phys. Chem. Lett., 7, 1604-1609.

- Piatkowski L, Accanto N & van Hulst NF 2016, 'Ultrafast meets Ultrasmall: Controlling Nano-antennas and Molecules', ACS Photonics, 3, 1401-1414.

- Di Fabrizio E et al. 2016, 'Roadmap on biosensing and photonics with advanced nano-optical methods', J. Opt., 18, 063003.

Selected research activities

• Organization of "OSA Siegman International School on Lasers" at ICFO Castelldefels, 24-29 July 2016: with 11 lecturers and 90 international students.

Selected invited talks:

- Quantum & Topological Nanophotonics, NTU, Singapore
- Physics Colloquium, WWU Muenster, Germany
- Microscopy Congress, London, UK
- Strong Coupling with Organic Molecules, Donostia, Pais Vasco
- PIER Graduate Week, CFEL, Hamburg, Germany
- Colloquium Instituto Nicolas Cabrera, UAM, Spain

- Physics Meets Biology, Cambridge, UK
- AIP Publishing Horizons: "Future of Chemical Physics" Oxford, UK
- DPC'16 Paris, France
- Leading Light Symposium, AMOLF, Amsterdam, the Netherlands COST: Quantum Coherence on the Nanoscale, Marseille, France
 - Femto-Nano-Photonics, Les Houches Physics Center, France
 - Colloquium CNR-Nano Modena, Italy
 - COST Nonlinear Plasmonics and Applications, Rome, Italy



Verde, Licia Universitat de Barcelona (UB) Experimental Sciences & Mathematics

Originally from Venice (Italy) Licia Verde studied physics as an undergraduate at the Università degli Studi di Padova. She obtained her PhD from the University of Edinburgh (UK) sponsored by a Marie Curie grant from the EU, and then moved to a research assistant position at Princeton University and at Rutgers University (USA). At Princeton she held a Chandra postdoctoral fellowship and a Spitzer postdoctoral fellowship and she entered the WMAP science team. She spent 4 years as faculty at the University of Pennsylvania (USA). In September 2007, she moved to Barcelona as an ICREA Research Professor.

Research interests

I am interested in Cosmology, which is the study of the origin, evolution and composition of the universe. One of the recent discoveries in cosmology is that more than 70% of what makes up the universe is not even matter, but something that suggests that some energy is associated with the nothingness of vacuum. This component has been dubbed "dark energy". Dark energy may as well be one of the major problems in physics today and is motivating a host of future and planned experiments. I study the "large-scale distribution of galaxies" and the statistical properties of the heat left over from the big bang to shed some light on the universe composition, including the dark energy component, and its history.

Selected publications

- Moresco M, Pozzetti L, Cimatti A, **Jimenez R**, Maraston C, **Verde L**, Thomas D, Citro A, Tojeiro R & Wilkinson D 2016, 'A 6% measurement of the Hubble parameter at z similar to 0.45: direct evidence of the epoch of cosmic re-acceleration', *Journal Of Cosmology And Astroparticle Physics*, 4, 014.

- Cuesta AJ, Niro V & **Verde L** 2016, 'Neutrino mass limits: Robust information from the power spectrum of galaxy surveys', *Physics Of The Dark Universe*, 13, 77 – 86.

- Bellini E, Cuesta AJ, Jimenez R & Verde L 2016, 'Constraints on deviations from ACDM within Horndeski gravity, JCAP, 02053.

- Ravenni A, **Verde L** & Cuesta AJ 2016, 'Red, Straight, no bends: primordial power spectrum reconstruction from CMB and large-scale structure, *JCAP*, 08028.

- Bernal JL, Verde L & Riess AG 2016, "The trouble with H0", JCAP 10019

- Piran T, **Jimenez R**, Cuesta AJ, Simpson F & **Verde L** 2016, 'Cosmic Explosions, Life in the Universe, and the Cosmological Constant', *Physical Review Letters*, 116, 8, 081301.

- Bernal JL, **Verde L** & Cuesta AJ 2016, 'Parameter splitting in dark energy: is dark energy the same in the background and in the cosmic structures?', *Journal Of Cosmology And Astroparticle Physics*, 2, 059.

- Kitching TD, **Verde L**, Heavens AF & **Jimenez R** 2016, 'Discrepancies between CFHTLenS cosmic shear and Planck: new physics or systematic effects?', *Monthly Notices Of The Royal Astronomical Society*, 459, 1, 971 - 981.

Selected research activities

Young Academy of Europe member. Editor of Physics of the Dark Universe. International Astrostatstics association council member. WHBG Public broadcasting, "Probing The Large-Scale Universe". ArXiv Science Advisory Board Scientific Advisory Board of the Max Planck Institute for Astrophysics



Vernos, Isabelle Centre de Regulació Genòmica (CRG) Life & Medical Sciences

1989-1992 PhD UAM, Madrid, Spain 1989-1992 Postdoc, Wellcome/CRC Institute, Cambridge, UK 1992-1996 Postdoc, EMBL, Heidelberg, Germany 1996-2001 Staff Scientist, EMBL, Germany 2001-2005 Team Leader, EMBL, Germany Since 2005 ICREA Research Professor, CRG, Barcelona, Spain Since 2005, EMBO member Since 2011, member of the ERC Scientific Council 2015 Narcis Monturiol medal

Research interests

Life depends on the ability of cells to divide while maintaining their genomic integrity. Cell division is therefore a critical process and yet involves the full reversible reorganization of the intra-cellular components. We are currently trying to understand the mechanism and regulatory signalling pathways involved in the transient formation of the mitotic spindle, the microtubule based molecular machine that segregates the chromosomes during cell division.

Selected publications

- Cavazza T, Malgaretti P & **Vernos I** 2016, 'The sequential activation of the mitotic microtubule assembly pathways favors bipolar spindle formation', *Mol Biol Cell.*, 27(19):2935-45

- Cavazza T, Peset I & **Vernos I** 2016 'From meiosis to mitosis – the sperm centrosome defines the kinetics of spindle assembly after fertilization in Xenopus', *Development*, 143(14):e1.1.

- Cavazza T &, **Vernos I** 2016, 'The RanGTP Pathway: From Nucleo-Cytoplasmic Transport to Spindle Assembly and Beyond' *Front Cell Dev Biol.* 3:82.

- Meunier S & **Vernos I** 2016, 'Acentrosomal Microtubule Assembly in Mitosis: The Where, When, and How', *Trends Cell Biol.*, 26(2):80-7.

- Meunier S, Timón K & Vernos I 2016, 'Aurora-A regulates MCRS1 function during mitosis'. Cell Cycle' 15(13):1779-86

- Garrido G & Vernos I 2016, 'Non-centrosomal TPX2-Dependent Regulation of the Aurora A Kinase: Functional Implications for Healthy and Pathological Cell Division', *Frontiers In Oncology*, 6, 88.

- Cavazza T, Peset I & **Vernos I** 2016, 'From meiosis to mitosis - the sperm centrosome defines the kinetics of spindle assembly after fertilization in Xenopus', *J Cell Sci.*, 129(13):2538-47.

- Meunier S & **Vernos I** 2016, 'Microtubule Organization in Mitotic Cells'. In *The Microtubule Cytoskeleton: Organisation, Function and Role in Disease,* Jens Lüders Editor. Springer. ISBN 978-3-7091-1901-3.

- Burgess SG, Oleksy A, Cavazza T, Richards MW, **Vernos I**, Matthews D & Bayliss R 2016, 'Allosteric inhibition of Aurora-A kinase by a synthetic vNAR domain', *Open Biology*, 6, 7, 160089.



Verschure, Paul FMJ Universitat Pompeu Fabra (UPF) Engineering Sciences

Dr. Paul Verschure (1962) is an ICREA Research Prof. and director of the Center of Autonomous Systems and Neurorobotics at Univ. Pompeu Fabra where he runs the Laboratory of Synthetic Perceptive, Emotive and Cognitive Systems (SPECS). He received both his MA and PhD in Psychology and pursued his research at different leading institutes: the Neurosciences Institute and The Salk Institute, both in San Diego, the Univ. of Amsterdam, Univ. of Zurich and the Swiss Federal Institute of Technology-ETH and currently with ICREA and Universitat Pompeu Fabra. Paul's research group comprises a multidisciplinary team of 25 doctoral and post-doctoral researchers including psychologists, engineers and biologists. He is a consultant for the European Commission regarding the integration of Neuroinformatics in the 5th-6th & 7th FP, Horizon 2020 and a referee for Science, Nature, Royal Society London, Trends in Neuroscience, IEEE neural networks, PLoS Computational Biology and PLoS ONE.

Research interests

His scientific aim is to find a unified theory of mind, brain and body through the use of synthetic methods and to apply such a theory to the development of novel technologies and quality of life enhancing applications. Paul's research group on Synthetic Perceptive, Emotive and Cognitive Systems (specs.upf.edu) comprises a multidisciplinary team of about 25 doctoral and post-doctoral researchers that include physicists, psychologists, engineers and biologists. Paul has organized SPECS along three dimensions: 1) computational models of neuronal mechanisms underlying perception, cognition, emotion and behavior, including: the cerebellum and motor learning, the hippocampus, ventral striatum and prefrontal cortex in decision making and the amygdala and cortex in emotional learning. 2) robotics and avatars as artificial bodies for neuronal models. 3) the application of the technologies developed in 2) combined with the theories from 1) to the enhancement of the quality of life.

Selected publications

- **Verschure PF** 2016, 'Synthetic consciousness: the distributed adaptive control perspective', *Phil. Trans. R. Soc. B*, 371(1701), 20150448.

- Arsiwalla XD & **Verschure PF** 2016, 'Computing Information Integration in Brain Networks', In *International Conference and School on Network Science* (pp. 136-146). Springer International Publishing.

- Van Wijngaarden JB, Zucca R, Finnigan S & **Verschure PF** 2016, 'The impact of cortical lesions on thalamo-cortical network dynamics after acute ischaemic stroke: a combined experimental and theoretical study', *PLoS Comput Biol.*, 12(8), e1005048.

- Ballester BR, Maier M, Mozo RMSS, Castañeda V, Duff A & **Verschure PF** 2016, 'Counteracting learned non-use in chronic stroke patients with reinforcement-induced movement therapy', *Journal of NeuroEngineering and Rehabilitation*, 13(1), 74.

- Betella A & Verschure PF 2016, 'The Affective Slider: A Digital Self-Assessment Scale for the Measurement of Human Emotions', *PloS* one, 11(2), e0148037.

- Moulin-Frier C & **Verschure PFMJ** 2016, 'Two possible driving forces supporting the evolution of animal communication Comment on "Towards a Computational Comparative Neuroprimatology: Framing the language-ready brain" by Michael A. Arbib', *Physics Of Life Reviews*, 16, 88 – 90.



Vidal, Fernando Universitat Autònoma de Barcelona (UAB) Humanities

Born in Buenos Aires (Argentina), I received a BA from Harvard University, graduate degrees in psychology and the history and philosophy of science from the Universities of Geneva and Paris, and a Habilitation from the École des Hautes Études en Sciences Sociales, Paris. From 2000 to 2012 I was permanent Research Scholar at the Max Planck Institute for the History of Science, Berlin. I work on the history of the human sciences from the early modern period to the present, a topic I have taught at the undergraduate and graduate levels. I have been a Guggenheim Fellow, Athena Fellow of the Swiss National Science Foundation, Visiting Scholar at the American Academy in Rome and Harvard University's Department of the History of Science, and Visiting Professor in Buenos Aires, Paris, Rio de Janeiro, Mexico and Japan.

Research interests

My research concerns the history of the human sciences, especially the relationships of science and values as they shape views about the human being. I have written on topics such as the early modern sciences of the soul; the history of psychology, the imagination, miracles and science, and sexuality in the 18th century; the longue-durée history of the body and personal identity; psychoanalysis and psychiatry in the early 20th century; the progressive education movement; and the history of the notion of biocultural diversity. 'Being Brains,' a book focused on 'neurocultures' since the mid-20th century, is currently in press. Work in progress includes a book on 'performing' brains in film, and a project on how neurological conditions (in particular the disorders of consciousness and the locked-in syndrome) articulate with conceptions of personhood and the making of subjectivities in historical and transcultural perspective.

Selected publications

- Vidal F 2016, 'Modernizing the Miraculous Body in Prospero Lambertini's *De Servorum Dei'*, In Messbarger R, Johns CMS & Gavitt, P, eds., *Benedict XIV and the Enlightenment: Art, Science, and Spirituality*, Toronto, University of Toronto Press, 151-174.

- Vidal F 2016, 'Frankenstein's Brains: the 'Final Touch', SubStance, 45(2), 88-117.

- Vidal F 2016, 'Desire, indefinite lifespan, and transgenerational brains in literature and film,' Theory & Psychology, 26, 5, 665 - 680.

- Vidal F & Ortega F 2016, 'Culture: by the brain and in the brain?' História, Ciências, Saúde - Manguinhos, 23(4), 965-983.

Selected research activities

In 2016 I was asked to join the Editorial Board of the journal *History of the Human Sciences*, was made Associate Member of the Centre Alexandre Koyré – Histoire des Sciences et de Techniques, École des Hautes Études en Sciences Sociales (Paris), and organized the international ICREA Conference "Personhood and the Locked-in Syndrome."



Vidal i Ferran, Anton Institut Català d'Investigació Química (ICIQ) Experimental Sciences & Mathematics

Anton Vidal graduated in Chemical Engineering at the "Institut Químic de Sarrià" in 1987 and completed his PhD on the synthesis of new heterocycles at the same institution in 1992 with Prof. P. Victory. Throughout the two post-doctoral appointments that followed (at the University of Cambridge 1993-1994 with Prof. J.K.M. Sanders and the University of Barcelona 1995-1999 with Prof. M.A. Pericàs) he studied topical and diverse areas of chemistry such as Molecular Recognition, Supramolecular Chemistry and aspects of Enantioselective Catalysis. He had the opportunity to complement his academic background with the industrial experience gained during his tenure in a number of research departments at Bayer-AG (Leverkusen 1999 – 2003). Following the appointment as ICREA Research Professor (Catalan Institution for Research and Advanced Studies) he started his independent research activities as a Group Leader at the ICIQ in September 2003.

Research interests

Our past and current objectives encompass the Design of Efficient Enantioselective Catalysts for Transformations of Interest, and the study of their use to prepare products with relevance in the life-science sector. We are working in an area of research in which cutting-edge chemistry combines concepts from supramolecular and physical organic chemistry with traditional approaches from enantioselective catalysis. Crucial aspects of this work include modular design of the catalysts; use of versatile synthetic procedures; incorporation of regulation mechanisms to optimize the geometry of the catalyst's active-site; and computational study of their catalytic cycles (through collaborations).

Selected publications

- Rovira L, Fernández-Pérez H & **Vidal-Ferran A** 2016, 'Palladium-Based Supramolecularly Regulated Catalysts for Asymmetric Allylic Substitutions', *Organometallics*, 35, 528-533.

- Fernández-Pérez H, Lao JR & **Vidal-Ferran A** 2016, 'Stereoselective Rh-Catalyzed Hydrogenative Desymmetrization of Achiral Substituted 1,4-Dienes', *Org. Lett.*, 18, 2836 – 2839.

- Balakrishna B, Bauzá A, Frontera A & **Vidal-Ferran A** 2016, 'Asymmetric Hydrogenation of Seven-Membered C=N-containing Heterocycles and Rationalization of the Enantioselectivity', *Chem. – Eur. J.*, 22, 10607 – 10613.

- Balakrishna B & Vidal-Ferran A 2016, 'A Practical Synthesis of Rhodium Precatalysts for Enantioselective Hydrogenative Transformations', *Synthesis*, 48, 997-1001.

- Desmarchelier A, Caumes X, Raynal M, **Vidal-Ferran A**, van Leeuwen PWNM & Bouteiller L 2016, 'Correlation between the Selectivity and the Structure of an Asymmetric Catalyst Built on a Chirally Amplified Supramolecular Helical Scaffold', *J. Am. Chem. Soc.*, 138, 4908 - 4916.

- Vaquero M, Rovira L & Vidal-Ferran A 2016, 'Supramolecularly fine-regulated enantioselective catalysts', Chem. Commun., 52, 11038 - 11051.

Selected research activities

Selection of Invited Talks:

- 21st International Conference on Phosphorus Chemistry (ICPC 2016), "Rh-P-OP and Ir-P-OP-Mediated Asymmetric Hydrogenations: Beyond Typical Substrates", Kazan, June 2016.
- Seminar programme of the van't Hoff Institute for Molecular Sciences (University of Amsterdam), "Efficient Ligand Platforms for Enantioselective Catalysis", Amsterdam, February 2016.

Visiting Professor at the "Institut Parisien de Chimie Moléculaire (IPCM)" of the "Université Pierre et Marie Curie", Paris. Principal investigator in a joint research program with COVESTRO AG on developing new catalysts for transformations of interest. Evaluator of projects for a number of chemistry panels and reviewer for a number of editorial boards (ACS, Wiley, RSC, etc.). Student promotions (two PhD students and one Master student at the URV University).



Vila Bover, Miquel Vall d'Hebron Institut de Recerca (VHIR) Life & Medical Sciences

Miquel Vila received his MD from the University of Barcelona Medical School (Spain) and then moved to the laboratory INSERM U289 (Prof. Yves Agid) at the Salpêtrière Hospital in Paris (France), where he obtained his Masters degree (D.E.A.) and PhD in Neuroscience from the University of Paris VI (Pierre et Marie Curie). From 1998 to 2001, he worked as a postdoctoral researcher at the laboratory of Dr. Serge Przedborski at the Department of Neurology, Movement Disorders Division, at Columbia University (New York, USA). To continue his work, he obtained in 2001 a position as an Assistant Professor of Neurology at Columbia University. In December 2005, he moved back to Barcelona as an ICREA Research Professor to develop a new research lab on Neurodegeneration at the Vall d'Hebron, thanks to the support of the European Commission's Marie Curie Excellence Grants program. He also holds positions as Associate Professor at the UAB and as Principal Investigator at the CIBERNED.

Research interests

Our research is geared toward elucidating the molecular mechanisms of neuron cell death occurring in Parkinson's disease, a particular neurodegenerative disorder characterized by the degeneration of a specific set of neurons that are anatomically confined to a region of the brain called substantia nigra pars compacta and that produce the neurotransmitter dopamine. Elucidating the molecular mechanisms underlying neurodegeneration in Parkinson's disease should allow the development of new therapeutic strategies aimed at blocking neuronal death in this disabling, currently incurable, disorder, as well as elicit important clues to identifying molecular pathways that might be common to other neurodegenerative conditions.

Selected publications

Altarche-Xifro W, di Vicino U, Muñoz-Martin MI, Bortolozzi A, Bové J, Vila M & Cosma MP 2016, 'Functional rescue of dopaminergic neuron loss in Parkinson's disease mice after transplantation of hematopoietic stem and progenitor cells', *EBioMedicine* 8:83-95
 Dehay B, Vila M, Bezard E, Brundin P & Kordower JH 2016, 'Alpha-synuclein propagation: New insights from animal models', *Movement Disorders*, 31(2):161-8.

- Klionsky DJ et al. 2016, 'Guidelines for the use and interpretation of assays for monitoring autophagy (3rd edition)', *Autophagy* 12(1):1-222

- Franco-Iborra S, **Vila M** & Perier C 2016, 'The Parkinson disease mitochondrial hypothesis: where are we at?', *The Neuroscientist*, 22(3):266-277.



Vilardell Trench, Josep Institut de Biologia Molecular de Barcelona (CSIC - IBMB) Life & Medical Sciences

 \cdot 1990: PhD in Biochemistry from the Universitat Autònoma de Barcelona (Spain) \cdot 1991: Albert Einstein College of Medicine, New York (USA) \cdot 2002: Group Leader at the Center of Genomic Regulation, Barcelona (Spain) \cdot 2009: ICREA Research Professor at the Molecular Biology Institute, Barcelona

Research interests

We investigate the control of the spliceosome, the catalyst of pre-mRNA splicing, with an emphasis on intron recognition. Our strategy is to follow a reductionist approach with the yeast model, aiming to develop models relevant to all cells. In addition, we explore in humans the link between cell growth and splicing of transcripts connected to ribosome biogenesis.

Briefly, our research projects are as follows. We have identified a regulated event during the recognition of the 3' end of the intron (3' ss), and we are dissecting its mechanisms, that include chromatin status. In addition, and encouraged by our discovery of certain sequences in the yeast genome that are identified by the spliceosome depending on their position on the pre-mRNA, we are asking whether the yeast spliceosome, a "barebones" version of the human one, can sense exon size -the basis for the "exon definition" step in human splicing. If confirmed, it would provide an unexpected opportunity to study a process critical for alternative splicing in humans and other metazoans. Regardless of the answer, it will contribute to our current view of splicing, since it currently cannot account for our findings. Thirdly, previous work in the lab identified the parameters involved in 3'ss definition in yeast, and we are working on their molecular basis.

We have added Bioinformatics to our laboratory toolset to investigate how changes in splicing of ribosomal components relate to cancer. This group of transcripts include those encoding ribosomal proteins. They are among the most abundant in the cell, and interestingly they have, in general, little alternative splicing. There are indications that their levels change during cancer, and we are investigating whether splicing is involved in these alterations. In addition, given their relative abundance, we are also testing the possibility that their splicing landscape reflects spliceosomal alterations that have been linked to disease.

Selected research activities

Co-organizer of the XXIII Molecular Biology Symposium of the Catalan Society of Biology (Jornades de Biologia Molecular de la Societat Catalana de Biologia).

Organizer of the bi-monthly meetings of laboratories using yeast (budding and fission) as a working model.



Voityuk, Alexander Universitat de Girona (UdG) Experimental Sciences & Mathematics

Dr. Alexander Voityuk leads the group "Electron transfer in biomolecules" in the Departament de Química & Institut de Química Computacional. He obtained his PhD in Physical Chemistry (Institute of Inorganic Chemistry, Academy of Sciences, USSR) in 1983. 1985-1992 he was Associate Professor of Physical Chemistry and led the Quantum Chemistry group at the Institute of Bioorganic Chemistry (Novosibirsk, Russia). Before obtaining his ICREA position in 2004, he was a senior research associate at the University of Zurich, Switzerland (1992-1995), Technical University of Munich (1995-2000) and Max-Planck-Institute of Quantum Optics, Garching, Germany (2000-2004). He has published >150 articles with more than 2000 citations in the field of quantum chemistry and computational modeling of charge transfer in biomolecules.

Research interests

Electron transfer (ET) and excitation energy transfer (EET) are very important processes in biochemistry and material science. The main area of my research is the development of theoretical and computational tools to explore ET and EET in biomolecules and organic materials and the use of the elaborated techniques to understand the underlying mechanisms that control charge and exciton migration in the molecular systems. The effects of structural fluctuations on the ET and EET properties of DNA are of special interest.

Selected publications

- Voityuk AA & Sola M 2016, 'Photoinduced Charge Separation in the Carbon Nano-Onion C60@C240', Journal of Physical Chemistry A 120, 5798-5804.

- Martinez JP, Sola M & **Voityuk AA** 2016, 'The Driving Force of Photoinduced Charge Separation in Metal-Cluster-Encapsulated Triphenylamine-[80]-Fullerenes', *Chemistry-a European Journal*, *22*, 17305-17310.

- Ma L, Hu P, Jiang H, Kloc C, Sun H, Soci C, **Voityuk AA**, Michel-Beyerle ME, Gurzadyan G 2016, 'Single Photon Triggered Dianion Formation in TCNQ and F(4)TCNQ Crystals', *Scientific Reports*, *6*, 28510.

- Martinez JP, Sola M & **Voityuk AA** 2016, 'Theoretical Estimation of the Rate of Photoinduced Charge Transfer Reactions in Triphenylamine C60 Donor-Acceptor Conjugate', *Journal of Computational Chemistry*, *37*, 1396 - 1405.

- Li Q, Giussani A, Segarra-Marti J, Nenov A, Rivalta I, **Voityuk AA**, Mukamel S, Roca-Sanjuan D, Garavelli M & Blancafort L 2016, 'Multiple Decay Mechanisms and 2D-UV Spectroscopic Fingerprints of Singlet Excited Solvated Adenine-Uracil Monophosphate', *Chemistry-a European Journal*, 22, 7497 – 7507.

Selected research activities

- Invited Professor at Nanyang Technological University, Singapore, October-November 2016.



Wagner, Peter Universitat de Barcelona (UB) Social & Behavioural Sciences

Educated in economics, political science and sociology in Hamburg, London and Berlin, Peter Wagner has been academically active in various European countries, including Germany, the United Kingdom, France, Italy and Norway, as well as in the USA and South Africa, before coming to Barcelona. He was Research Fellow at the Wissenschaftszentrum Berlin für Sozialforschung, Professor of Sociology at the U of Warwick and the U of Trento as well as Professor of Social and Political Theory at the European University Institute in Florence. Furthermore, he held visiting positions at Université de Paris 8 (2011); U catholique de Louvain-la-neuve (2009-10); U of Cape Town (2009-10); U of Bergen (2001); Ecole des Hautes Études en Sciences Sociales, Paris (1998; 2001); U of California at Berkeley (1996; 1997); Swedish Collegium for Advanced Study, Uppsala; Institute for Advanced Study, Princeton (1990-91); Centre National de la Recherche Scientifique, Paris (1994), among others.

Research interests

Located in the areas of comparative historical and political sociology, social and political theory, and the sociology of the social sciences, Peter Wagner's research is focused on the identification and comparative analysis of different forms of social and political modernity and of the historical trajectories of modern societies. Initially, he applied it in a comparative political sociology of European national societies. Subsequently, he analyzed the process of European integration by reviewing both the institutional transformations of European societies over the past two centuries and the transformations in the self-understanding of Europe. "Modernity" then does not appear as a single and unique model of social organization, but rather emerges as variable interpretations of basic human problématiques in the light of specific historical experiences. Currently, a key task of social analysis is the comparative analysis of plural forms of modernity in their global context.

Selected publications

- Peter Wagner 2016, 'Sauver le progrès', La découverte, Paris.

- Casassas D & Wagner P (eds) 2016, 'Modernity and capitalism', European Journal of Social Theory, London.
- Wagner P 2016, 'Modernity, capitalism, crisis: towards understanding the new great transformation', The Global Policy Journal.
- Wagner P 2016, 'Outline of a world-sociology', Social Imaginaries, vol. 2, no. 2.

- Rosich G & Wagner P (eds) 2016, The trouble with democracy: political modernity in the 21st century, Edinburgh: Edinburgh UP.

- **Wagner P** 2016, 'Democracy and capitalism in Brazil, South Africa and Europe', in Rosich G & Wagner P (eds), *The trouble with democracy: political modernity in the 21st century*, Edinburgh: Edinburgh UP.

- Dlamini J, Mota A & **Wagner P** (eds) 2016, 'Trajectories of modernity: towards a new historical-comparative sociology', special issue of *Social Imaginaries*, vol. 2, no. 2.

- Wagner P 2016, 'Crisis y modernidad' in Tejerina B & Gatti G, ed., 'Pensar la agencia en la crisis', Madrid: CIS.

Selected research activities

Research in 2016 was marked by concluding activities for the ERC-funded project "Trajectories of modernity" (TRAMOD, 2010-2015) and the beginning of the project "The debt: historicizing Europe's relations to the 'South'", funded by the consortium Humanities in the European Research Area (HERA, 2016-2019) and pursued in co-operation with the Institute for Social Research, Frankfurt; the University of Helsinki; and the University of Eastern Piedmont. In parallel, exploratory work was done for extending the historical-comparative perspective, elaborated in earlier work, into a comprehensive "world-sociology". Furthermore, Peter Wagner participated in the International Panel on Social Progress, which aims to publish its final report in 2017, and was appointed editor-in-chief (together with David Jaclin, University of Ottawa) of the journal Social Science Information/Information sur les sciences sociales, published by the Maison des Sciences de l'Homme, Paris.



Wanner, Leo Universitat Pompeu Fabra (UPF) Humanities

Leo Wanner earned his Diploma degree in Computer Science from the University of Karlsruhe and his PhD in Linguistics from the University of The Saarland. Prior to joining ICREA, he held positions at the German National Centre for Computer Science, University of Waterloo, the University of Stuttgart and the Pompeu Fabra University, Barcelona. As visiting researcher, he was also affiliated with U of Montreal, U of Sydney, U of Southern California's Institute for Information Sciences, U Paris 7, and the Columbia University, New York. Throughout his career, Dr Wanner has been involved in various large scale national, European, and transatlantic research projects. He has published eight books and about 170 refereed journal and conference articles and serves as regular reviewer for a number of high profile conferences and journals.

Research interests

Leo Wanner is working in the field of computational linguistics, teaching the computer how to supply people with information that might be useful to them in their language and how to serve as interpreter between people who do not speak a common language. Leo's research foci include automatic multilingual report generation, automatic summarization of written material, data-driven parsing, and concept extraction. He is furthermore interested in lexicology and lexicography, and there, in particular, in the recognition, representation and use of lexical idiosyncrasies by both native speakers and learners of a language.

Selected publications

- Ballesteros M, Bohnet B, Mille S & **Wanner L** 2016, 'Data-driven deep-syntactic dependency parsing', *Natural Language Engineering*, 22, 6, 939 – 974.

- Epitropou V, Bassoukos T, Karatzas K, Karppinen A, **Wanner L**, Vrochidis S, Kompatsiaris I & Kukkonen J 2016, 'Environmental data extraction from heatmaps using the AirMerge system', *Multimedia Tools And Applications*, 75, 3, 1589 - 1613.

- Espinosa Anke L, Camacho-Collados J, Rodríguez-Fernández S, Saggion H & **Wanner L** 2016, 'Extending WordNet with Fine-Grained Collocational Information', Proceedings of the International Conference on Computational Linguistics (COLING), Osaka, Japan.

- Domínguez M, Farrús M & **Wanner L** 2016, 'An Automatic Prosody Tagger for Spontaneous Speech', In Proceedings of the International Conference on Computational Linguistics (COLING), Osaka, Japan.

- Ballesteros M & **Wanner L** 2016, 'A Neural Network Architecture for Multilingual Punctuation Generation', In Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP), Short paper track, Austin, TX.

- Rodríguez Fernández S, Espinosa Anke L, Carlini R & **Wanner L** 2016, 'Semantics-Driven Recognition of Collocations Using Word Embeddings' In Proceedings of the Annual Meeting of the Association for Computational Linguistics (ACL), Short paper track, Berlin, Germany.

Rodríguez-Fernández S, Carlini R, Espinosa Anke L & Wanner L 2016, 'Example-based Acquisition of Fine-grained Collocation Resources', Proceedings of the International Conference on Linguistic Resources and Evaluation (LREC), Portoroz, Slovenia.
 Domínguez M, Burga A, Farrùs M & Wanner L 2016, 'Using hierarchical information structure for prosody prediction in content-t--speech applications', Proceedings of the 8th Speech Prosody Conference, Boston, MA.

Selected research activities

During 2016, Dr. Wanner was also involved as PI and Coordinator in several large scale European R&D projects.


Williams, Andrew Universitat Pompeu Fabra (UPF) Humanities

Andrew Williams read Philosophy, Politics and Economics at the University of Oxford and was a graduate student at Nuffield College, Oxford and Harvard University. He then became a Junior Research Fellow at Jesus College, Oxford, and later taught at York, Reading and Warwick, where he was a Professor of Philosophy before joining ICREA in October 2009. He has also been a visiting professor in the Program in Ethics, Politics and Economics at Yale University and the Department of Philosophy at Harvard, and a Faculty Fellow in Ethics at the Kennedy School of Government at Harvard. He is an Editor of Politics, Philosophy & Economics and his articles have been published in such journals as Ethics, Economics and Philosophy, Philosophical Quarterly, Philosophy & Public Affairs, and Utilitas.

Research interests

My interests lie in moral and political philosophy and practical rationality, as well as intersecting areas in economics and politics. I am especially interested in issues of distributive justice, including ones arising across states and generations. My current work examines how egalitarian distributive principles should accommodate concerns with risk and with personal and collective choice and responsibility. It also explores how such principles should guide the design of social institutions that shape the prospects of children, parents, the elderly, and future generations.

Selected publications

- Williams A 2016, 'Family Values: An Introduction', Law, Ethics and Philosophy, vol. 3, pp. 178-179.

Selected research activities

Talks

Justice, Constructivism, and State-Given Reasons, Fudan-Harvard-NYU Conference on Justice, School of Philosopy, Fudan University, Shanghai, July 2, 2016

Justice, Age, and Insurance: What's the Point of Pensions?, Panel on Ageing and Risk with Professor Paul Bouhabib in Workshop on Justice and Risk, Nuffield College, Oxford, July 14, 2016

Constructivism and State-Given Reasons, Themes from Scanlon, 7th Lauener Symposium on Analytical Philosophy, Bern, September 2, 2016

Access, Isolation, and Territory, Inaugural Conference of Academics Stand Against Poverty – Chile, University of Valparaiso, December 5, 2016

Fairness and Demographic Change, Law School, University of Chile, Santiago de Chile, December 7, 2016

Other Activities

Co-Editor, Politics, Philosophy & Economics

Coordinator of Marie Sklodowska-Curie Project by Professor Paul Bouhabib on Ethics and Aging, October 1, 2015 to September 29, 2017 Co-organized conference on Moral and Political Philosophy, Murphy Institute, Tulane University, February 19 – 20, 2016

Co-organized Fourth Annual Oxford Studies in Political Philosophy Conference, June 1 – 3, 2016

Supervised two successful PhD dissertations: Josep Ferret Mas, Distributive Justice, Political Legitimacy, and Independent Financial Institutions (Pompeu Fabra University); Tom Parr, On the Job (University of Warwick)

External Examiner of two DPhil dissertations (University of Oxford) and one PhD dissertation (University of Warwick) ERC Panel Evaluator



Winter, Andreas Universitat Autònoma de Barcelona (UAB) Experimental Sciences & Mathematics

Andreas Winter was born in Altötting, a small rural town near Munich, known also as the Heart of Bavaria. After developing an infatuation with science early on, and in particular with mathematics, he decided to study this subject in Konstanz and Berlin. He graduated in 1997 from the Freie Universität Berlin, and went on to obtain a doctorate in mathematics from the Universität Bielefeld in 1999, with the late Rudolf Ahlswede. In 2001 he joined the quantum information group in Bristol as a postdoc, became Lecturer in Applied Mathematics there in 2003, and Professor of the Physics of Information in 2006. In 2012 he left Bristol after 11 years, to move to the Universitat Autònoma de Barcelona as ICREA Research Professor, where he is now part of the quantum information group.

Research interests

I work on quantum information, especially quantum Shannon theory, which aims at incorporating information-theoretic ideas into physics. The Shannon theoretic approach has succeeded in quantifying entanglement as a resource in information processing task, and likewise for other properties of quantum systems such as channel and storage capacities of quantum systems. One of my favourite topics is the interplay between classical and quantum information, evident in the intricate structure of local operations in composite quantum systems (LOCC), such as data hiding or "information locking". I also work on additivity and non-additivity of quantum channel capacities, quantum data compression, and zero-error quantum communication. Further quantum information interests include statistical mechanics, entropy characterization and entanglement measures. But at heart I am a mathematician and will still get fascinated by classic problems: existence of Hadamard matrices, incompleteness, etc.

Selected publications

- Paulsen V I, Severini S, Stahlke D, Todorov I G & **Winter A** 2016, 'Estimating quantum chromatic numbers', *J. Func. Anal.*, vol. 270, no. 6, pp. 2188-2222.

- Winter A & Yang D 2016, 'Operational Resource Theory of Coherence', Phys. Rev. Lett., vol. 116, 120404.

- Winter A 2016, 'Tight Uniform Continuity Bounds for Quantum Entropies: Conditional Entropy, Relative Entropy Distance and Energy Constraints', *Commun. Math. Phys.*, vol. 347, no. 1, pp. 291-313.

- Lancien C, Di Martino S, Huber M, Piani M, Adesso G & **Winter A** 2016, 'Should Entanglement Measures be Monogamous or Faithful?', *Phys. Rev. Lett.*, vol. 117, 060501.

- Yunger Halpern N, Faist Ph, Oppenheim J & **Winter A** 2016, 'Microcanonical and resource-theoretic derivations of the thermal state of a quantum system with noncommuting charges', *Nature Commun.*, vol. 7, 12051.

- Duan R, Severini S & **Winter A** 2016, 'On zero-error communication via quantum channels in the presence of noiseless feedback', *IEEE Trans. Inf. Theory*, vol. 62, no. 9, pp. 5260-5277.

- Monras A & Winter A 2016, 'Quantum learning of classical stochastic processes: The Completely-Positive Realization Problem', J. Math. Phys., vol. 57, 015219.

- Lancien C & **Winter A** 2016, 'Parallel repetition and concentration for (sub-)no-signalling games via a flexible constrained de Finetti reduction', *Chicago J. Theor. Comput. Sci.*, vol. 2016, 11.

- Duan R & **Winter A** 2016, 'No-Signalling-Assisted Zero-Error Capacity of Quantum Channels and an Information Theoretic Interpretation of the Lovasz Number', *IEEE Trans. Inf. Theory*, vol. 62, no. 2, pp. 891-914.

Selected research activities

Organisation "Beyond IID in Information Theory 4", 18-22/7/2016, Institut d'Estudis Catalans, uniting 80 information theory experts. Programme at https://sites.google.com/site/beyondiid4/. The next editions (2017 in Singapore and 2018 in Cambridge) are already in preparation.



Yaroshchuk, Andriy Universitat Politècnica de Catalunya (UPC) Experimental Sciences & Mathematics

Born on 7 March 1959 in Kiev, Ukraine. Candidate of Sciences (equivalent to PhD) in Colloid Chemistry, A.V. Dumanskiy Institute of Colloid and Water Chemistry, National Academy of Sciences of Ukraine, Kiev, 1983. Doctor of Sciences in Physics and Mathematics, Institute of Physical Chemistry of Russian Academy of Sciences, Moscow, 1992. ICREA Research Professor at the Polytechnic University of Catalonia, since 2007. Invited researcher/professor at Karl-Franzens Universität, Graz, Austria; École Nationale Supérieure de Chimie et de Physique de Bordeaux (France); École Supérieure Chimie Physique Electronique de Lyon (France); Universität Duisburg - Essen (Germany); Paul-Scherrer-Institute (Switzerland), etc. Member of Editorial Board of Desalination and Water Treatment (Taylor & Francis UK). Published 114 papers on theoretical and experimental studies of membranes, colloids, porous media and micro-/nano-fluidic systems.

Research interests

The keyword is the behaviour of fluids at nano-scale. I study the transfers of ions and water molecules through nano-metric (tens of nanometers) barrier layers of composite nanofiltration membranes. They are used, for example, to remove hardness from seawater. Another example is the transfer of ions and water through nano-porous track-etched membranes having identical cylindrical pores. I also study processes of current-induced concentration polarization of nano-/micro-interfaces where the concentration polarization is strongly-coupled to electroosmosis. Recently, I discovered that a layered structure consisting of a micro-perforated ion-exchange membrane and a nanoporous layer can have very interesting properties useful for AC electroosmotic pumps. Another topic is experimental and theoretical studies of ion transfer across polyelectrolyte multilayers where we have recently discovered very high (>1000) selectivities in the electrically-driven transfer of ions of different charge magnitudes. I'm also interested in the emerging membrane process of forward osmosis trying to understand where it can be better than the more traditional pressure-driven processes (e.g., reverse osmosis).

Selected publications

- **Yaroshchuk A**, Zhu Y, Bondarenko M & Bruening ML 2016, 'Deviations from Electroneutrality in Membrane Barrier Layers: A Possible Mechanism Underlying High Salt Rejections', *Langmuir*, 32,11, 2644 – 2658.

- Licon Bernal EE, Kovalchuk VI, Zholkovskiy EK & **Yaroshchuk A** 2016, 'Hydrodynamic dispersion in long microchannels under conditions of electroosmotic circulation: II. Electrolytes', *Microfluidics And Nanofluidics*, 20, 4, 58.

Reig M, Licon E, Gibert O, Yaroshchuk A, Cortina JL 2016, 'Rejection of ammonium and nitrate from sodium chloride solutions by nanofiltration: Effect of dominant-salt concentration on the trace-ion rejection', *Chemical Engineering Journal*, vol.303, pp.401-408
 White N, Misovich M, Alemayehu E, Yaroshchuk A & Bruening ML 2016, 'Highly Selective Separations of Multivalent and Monovalent Cations in Electrodialysis Through Nafion Membranes Coated with Polyelectrolyte Multilayers', *Polymer*, 103 (2016) 478-485
 Fernandez de la Bastida M, Licon EE & Yaroshchuk A 2016, 'Implications of inhomogeneous distribution of concentration polarization for interpretation of pressure-driven membrane measurements', *J Membr Sci*, 520, 693-698.

Selected research activities

Stay of research at the Department of Chemical and Biomolecular Engineering of Notre Dame University (Indiana, USA) Patent application "Layered Electroosmotic Structure" filed



Zabala, Santiago Universitat Pompeu Fabra (UPF) Humanities

Santiago Zabala was raised in Rome, Vienna, and Geneva. He first studied philosophy at the University of Turin where in 2002 he obtained his MA and in 2006 his PhD (summa cum laude) from the Pontifical Lateran University of Rome. In November 2007 he was awarded the Humboldt Research Fellowship by Germany's Alexander von Humboldt Foundation for the years 2008/2009. After spending the spring semester of 2010 as a visiting scholar at Johns Hopkins University, Zabala was appointed ICREA Research Professor. First he worked at the University of Barcelona and, as of 2015, at the Pompeu Fabra University, where he currently teaches contemporary and political philosophy and supervises MA and PhD theses. He is also visiting professor at Renmin University, the IDSVA and several other international institutions. He is editor of three series and author of numerous authored and edited books and opinion articles for *The Guardian, New York Times*, and *Al-Jazeera*.

Research interests

Zabala's research concentrates in three areas each of which have generated several authored and edited books: ontology, political philosophy, and aesthetics. All these three areas are studied following the hermeneutic principle according to which truth is not an objective goal that philosophy must submit to, but rather the effect of the conflict of interpretations. Following the work of Martin Heidegger, Hans-Georg Gadamer, and Gianni Vattimo Zabala has emphasized the ontological nature of hermeneutics in order to demonstrate the danger of truth impositions for religious and political emancipation. His next books and articles will be on political ontology and aesthetics.

Selected publications

- Gamper D 2016, Laicidad Europea, Bellaterra editores, Zabala S (ed.), Barcellona.

- **Zabala S** 2016, 'The Anarchy of Hermeneutics: Interpretation as a Vital Practice' in Inheriting Gadamer: New Directions in Philosophical Hermeneutics, ed. Warnke G, Edinburgh: Edinburgh University Press, 2016: 67-77.

- **Zabala S** 2016, 'Fé Fraca comom gerir a diversidade religiosa sem divergencias' in *Religiao Olhares* edited by Brandão Calvani CE, Cunha Bezerra C & Gonçalves dos Santos JM- EDITORA CRV Curitiba – Brasil 2016: 197-204.

Selected research activities

In 2016 Zabala has brought to the UPF the personal archives of renown Italian philosopher and politician Gianni Vattimo. The inauguration took place on June 6 at the auditorium of the Ciutadella Campus of Pompeu Fabra University with the participation of the Rector Jaume Casals as well as representatives of the Generalitat. In order to promote the archives the "UPF Center for Vattimo's Philosophy and Archives" is established under the direction of Zabala.

Dissemination:

- "Series: el cine del siglo XXI" edited by **Zabala S**. Dossier for La Maleta with contributions from Woessner A, Garin M, Benavente F, Salvado G, Jaramillo DL. No. 15, January-February, 2016): 32-54.

- "Mundos Imposibles y sensaciones" in La Maleta 15 (January-February 2016): 33.
- "Weakening Philosophy: A Forum on Gianni Vattimo" in The Los Angeles Review of Books, 10th November, 2016.
- "How to Think through Cages" in Public Sphere, 3rd November, 2016.
- "We should all be allowed to vote on November 8" in Al-Jazeera English, 3rd November, 2016.
- "Opinion is starkly different from blind violence" in *Al-Jazeera English*, 20th July, 2016.
- "Don't be afraid of Populism" in Al-Jazeera English, 18th June, 2016.
- "A Philosophical Approach to the Refugee Crisis" in Al-Jazeera English, 19th May, 2016.
- "Art for the TROIKA" in Public Sphere, 27th April, 2016.
- "The Winners and Losers in Spain's Political Deadlock" in Al-Jazeera English, 3rd March, 2016.



Zilhão, João Universitat de Barcelona (UB) Humanities

Prior to current appointment, taught at the Universities of Bristol and Lisbon, as well as, on a temporary basis, Paris I and Bordeaux I. Appointed January 1996 by the Portuguese government to set up the Côa Valley Archeological Park, coordinate scientific research to establish the age of its Paleolithic rock art, and prepare the nomination of the site for World Heritage status (listing date, December 1998). Created and directed the Instituto Português de Arqueologia (IPA), a department of the Ministry of Culture for the supervision of archaeological activity in the country (May 1997-2002). Member of the Executive Board of the European Association of Archeologists (2003-06). Humboldt Foundation Research Awardee (2003-04, University of Cologne) for "past achievements in teaching and research". Recipient of the London Prehistoric Society's Europa Prize (2005), for "significant and enduring contribution to the study of European prehistory". In 2012 profiled in "Science."

Research interests

The Middle-to-Upper Paleolithic transition in Europe has been the focus of my research for the last 15 years. This research interest has led to fieldwork at different sites, namely:

(a) The Lagar Velho rock-shelter (Portugal) and its burial of an early modern human child with diagnostic Neandertal features (skeletal evidence of interbreeding at the time of Neandertal/modern contact in Europe);

(b) The Gruta da Oliveira (Almonda karstic system, Portugal), where ongoing work has already exposed 11 m of deposits spanning the \sim 35-70 ka cal BP interval;

(c) The Pestera cu Oase (Romania), site of Europe's oldest modern humans;

(d) Cueva Antón (Murcia, Spain), with Mousterian painted and perforated marine shell ornaments that proved the behavioral modernity of the last Neandertals.

My current research focuses on documenting the late persistence of the Neandertals in Iberian regions located to the south of the Ebro drainage and its ecological and cultural underpinnings.

Selected publications

- Eixea A, Villaverde V & **Zilhão J** 2016, 'Not Only Flint: Levallois on Quartzite and Limestone at Abrigo de la Quebrada (Valencia, Spain): Implications for Neandertal Behavior', *Journal of Anthropological Research*, 72 (1), p. 24-57.

- d'Enrrico F, Dayet-Bouillot L, García-Díez M, Pitarch Martí A, Garrido Pimentel D & **Zilhão J** 2016, 'The technology of the earliest European cave paintings: El Castillo Cave, Spain', *Journal of Archaeological Science*, 70, 2016, p. 48-65.

- **Zilhão J** 2016, 'O Neolítico Antigo de Vale da Mata (Cambelas, Torres Vedras)', in Sousa AC, Carvalho A, Viegas C (eds.) *Terra e Água.* Escolher sementes, invocar a Deusa. Estudos em Homenagem a Victor S. Gonçalves. Estudos & Memórias 9, Lisboa, UNIARQ/FL-UL, p. 97-111.

- **Zilhão J** 2016, 'Beaker people without beaker pots: the Chalcolithic funerary context from the Galeria da Cisterna (Almonda karst system, Torres Novas, Portugal)', in *Del neolític a l'edat del bronze en el Mediterrani occidental. Estudis en homenatge a Bernat Martí Oliver*, Serie de Trabajos Varios 119, València, Servicio de Investigación Prehistórica de Valencia, p. 379-386.

- **Zilhão J**, Ajas A, Badal E, Burow Ch, Kehl M, López-Sáez JA, Pimenta C, Preece RC, Sanchis A, Sanz M, Weniger G-C, White D, Wood R, Anglelucci DA, Villaverde V & Zapata J 2016, 'Cueva Antón: A multi-proxy MIS 3 to MIS 5a paleoenvironmental record for SE Iberia', *Quaternary Science Reviews*, 146, p. 251-273.

- Hoffmann DL, Pike AWG, García-Díez M, Pettitt PB & **Zilhão J** 2016, 'Methods for U-series dating of CaCO₃ crusts associated with Palaeolithic cave art and application to Iberian sites', *Quaternary Geochronology*, 36, p.104-119.



Ziveri, Patrizia Universitat Autònoma de Barcelona (UAB) Experimental Sciences & Mathematics

Patrizia Ziveri is ICREA Research Professor and Scientific Director at the Institute of Environmental Science and Technology (ICTA) Unit of Excellence, Universitat Autònoma de Barcelona (UAB). Her scientific career has developed in Italy, USA, the Netherlands and Spain. She earned the PhD in Earth Sciences at the University of Padua, Italy, within an exchange program with the University of South Carolina (USC). Her dissertation dealt with the impacts of El Niño climate oscillations on calcareous phytoplankton in the California Borderlands and the Gulf of California, followed by a postdoc at the USC in the group of R. Thunell. She moved to the Vrije Universiteit Amsterdam, The Netherlands, first as a researcher joining the groups of J. van Hinte and P. Westbroek, then as professor/senior scientist. Finally she was awarded with a Ramón y Cajal fellowship in Spain at the UAB before joining ICREA in 2014.

Research interests

She is unraveling the impacts of global environmental changes on marine ecosystems and biogeochemistry at various time scales and complexity through multidisciplinary investigation of key marine calcifying groups at the base of the food web. Her work on the oceans in a high CO₂ world is focusing on the links between CO₂ dynamics, climate change and marine organisms in areas such as the Mediterranean Sea and the Southern Ocean, integrating both modern and past global changes. These changes disturb the capacity of marine systems to provide ecosystem services, which affect economic activities and human welfare. Evolving interests have led to new research on microplastics in the Mediterranean island coastlines, and invited memberships, such as the UN-GESAMP, WG 40, Sources, fate and effects of microplastics, advisory board member of the IAEA project OA-ICC, Monaco and a SOLAS/IMBER carbon group member, WG3 ocean acidification.

Selected publications

Snelgrove P & Ziveri P 2016, 'Biodiversity loss', In Williamson, P., Smythe-Wright, D., and Burkill, P., Eds. Future of the Ocean and its Seas: a non-governmental scientific perspective on seven marine research issues of G7 interest. ICSU-IAPSO-IUGG-SCOR, Paris, 53pp.
 Milner S, Langer G, Grelaud M & Ziveri P 2016, 'Ocean warming modulates the effects of acidification on Emiliania huxleyi calcification and sinking', Limnology & Oceanography, 61, 4, 1322-1336.

- Rosas-Navarro A, Langer G & **Ziveri P** 2016, 'Temperature affects the morphology and calcification of *Emiliania huxleyi* strains', *Biogeosciences*, 13, 2913–2926.

Rembauville M, Meilland J, Ziveri P, Schiebel R., Blain S & Salter I 2016, 'Planktic foraminifer and coccolith contribution to carbonate export fluxes over the central Kerguelen Plateau', *Deep Sea Research Part I: Oceanographic Research Papers*, 111, 91–101.
Lacoue-Labarthe T, Nunes PALD, Ziveri P, Cinar M, Gazeau F, Hall-Spencer JM, Hilmi N, Moschella P, Safa A, Sauzade D & Turley C 2016, 'Impacts of ocean acidification in a warming Mediterranean Sea: an overview', *Regional Studies in Marine Sciences*, 5, 1–11.
Chaabane S, López Correa M, Montagna P, Kallel N, Taviani M, Linares C, Ziveri P 2016, 'Exploring the oxygen and carbon isotopic composition of the Mediterranean red coral (*Corallium rubrum*) for seawater temperature reconstruction', *Marine Chemistry*, 186, 11–23.

- Incarbona A*, Martrat B*, Mortyn PG*, Sprovieri M*, **Ziveri P***, et al. 2016, 'Mediterranean circulation perturbations over the last five centuries: Relevance to past Eastern Mediterranean Transient-type events', *Scientific Reports*, 6:29623. *These authors contributed equally to this work.

Selected research activities

GESAMP (2016). "Sources, fate and effects of microplastics in the marine environment: part two of a global assessment" (IMO/FAO/UNESCO-IOC/UNIDO/WMO/IAEA/UN/ UNEP/UNDP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection). Rep. Stud. GESAMP No. 93, 220 p.