

International Workshop on Advanced Materials for Healthcare
Applications
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PLENARY SPEAKERS
Short-Bios



Alvaro Mata

Queen Mary University of London, UK

New supramolecular engineering approaches for advanced biomaterials

Alvaro Mata's research is focused on supramolecular engineering approach to create functional biomaterials for tissue engineering, regenerative medicine, and *in vitro* models. He holds a Bachelor's Degree from the University of Kansas, a Master's Degree from the University of Strathclyde, and a Doctor of Engineering Degree from Cleveland State University. During his Postdoctoral Fellowship he worked with Prof. Samuel Stupp at Northwestern University. From 2008-2013 he was Head of the Nanotechnology Platform at Parc Científic Barcelona in Spain and from 2015-2017 Director of the Institute of Bioengineering at Queen Mary University of London (QMUL). He is now Professor in Biomaterials and Biomedical Engineering at QMUL. He holds six patents or patent applications; publications in journals including Science, Nature Chemistry, and Nature Materials; and awards such as the Baxter Early Career Award in 2006, Ramon y Cajal Award in 2010, ERC Staring Grant in 2013, and Frontiers Innovator Award from the Wellcome Trust in 2015. More information can be found at: <http://www.matabioengineering.com/>, https://twitter.com/mata_lab.



Carlos Baleizão

I.S.T., University of Lisbon, Portugal

Chemical toolbox for advanced imaging nanoparticles

Carlos Baleizão is Assistant Professor of Nanochemistry and Nanomaterials at the Chemical Engineering Department of Instituto Superior Técnico-University of Lisbon (IST-UL). He studied Applied Chemistry-Organic Chemistry at Universidade Nova Lisboa, before undertaking PhD studies at the Technical University of Lisbon, with Professors Barbara Gigante (INETI-Portugal) and Prof. Hermenegildo Garcia and Avelino Corma (ITQ-UPV/CSIC, Spain), developing nanostructured hybrid materials for asymmetric catalysis. Carlos completed post-doctoral studies with Professor Otto Wolfbeis (University of Regensburg, Germany) and Prof. Mário Santos (CQFM-UTL, Portugal) working on optical sensing polymeric materials. In 2008, he was appointed as Assistant researcher at IST, and in 2013 we was promoted to Principal

Researcher, before taking the present position. Carlos received the award of the *Best Ph.D. thesis in Catalysis and Porous Materials* in 2004 (Catalysis and Porous Materials Division - Portuguese Chemical Society), the *Deloitte/Technical University of Lisbon Young Researchers Prize* in 2008, the *Scientific Prizes UTL/Santander Totta* in 2011 for senior researchers, and the *Portuguese Award for Best Young Organic Chemist (Honor)* in 2015 from the Organic Chemistry Division of the Portuguese Chemical Society.



Harm-Anton Klok

École Polytechnique Fédérale de Lausanne, Switzerland

Cell and bacteria-mediated delivery of polymer nanomedicines

Harm-Anton Klok is Full Professor at the Institutes of Materials and Chemical Sciences and Engineering at the Ecole Polytechnique Fédérale de Lausanne (EPFL) (Lausanne, Switzerland). He received his Ph.D. in 1997 from the University of Ulm (Germany). After postdoctoral research at the University of Twente (The Netherlands) and at the University of Illinois at Urbana–Champaign (USA), he joined the Max Planck Institute for Polymer Research (Mainz, Germany) in 1999. In November 2002, he joined EPFL. Since 2012 he is Director of the Institute of Materials (~ Department Head) and also directs the Molecular and Hybrid Materials Characterization Center at EPFL. He is recipient of the 2007 Arthur K. Doolittle Award of the American Chemical Society (ACS), Associate Editor of the ACS journal *Biomacromolecules* and serves /has served on the editorial advisory board of half-a-dozen journals. He has been a Visiting Professor at the University of Bordeaux (France) and the University of Massachusetts/Amherst (USA), is a Chair Professor at Soochow University (Suzhou, China), guest professor at the Changchun Institute of Applied Chemistry (Changchun, China), Shanghai University (Shanghai, China) and Nanyang Technological University (Singapore) and was awarded a Chinese Academy of Sciences visiting professorship for senior international scientists (Institute of Chemistry, Chinese Academy of Sciences).



Håvard J. Haugen

University of Oslo, Norway

In vivo performance of a highly porous titanium dioxide bone scaffold and its way to the medical device market

Håvard received a Master in chemical engineering at the Imperial College of Science, Technology and Medicine in London, UK in 2001 and a doctoral engineering in biomaterials from the Technische Universität München in 2004. His PhD thesis was "Development of an implant to heal gastro-oesophageal reflux diseases". Previously Håvard has been working with characterisation and manufacturing of porous materials for biomedical purposes at the Central Institute for Medical Engineering in Munich

(2001-2004), calcification of heart valves at Helmholtz Institute for Biomedical Engineering in Aachen (1999-2000), Germany and scaffolds production for the Tissue Engineering Center at Imperial College, London (2000-2001). Since 2014 he has been Professor and Head of Department of Biomaterials, and Professor in Biomaterials. He is currently involved in bone graft material/scaffold production funded by the Norwegian Research Council and EU Eureka-Eurostar. Other research interests are porous materials, surface modification and intrinsic disorder proteins. He is also involved in Start-up companies, Corticalis AS (www.corticalis.com) and Labrida AS (www.labrida.no) which have launched several medical devices to the market.



H  l  ne L. Lauzon

PRIMEX EHF, Iceland

Opportunities of chitosan in health care applications

Dr. H  l  ne L. Lauzon, R&D Director at PRIMEX EHF since 2013, has a PhD in Biomedical Science (2010) and MSc/BSc (1997/1991) in Food Science. She is responsible of the research and product development at the company, emphasizing and determining business opportunities, and oversees the quality matters relating to the whole production. As a senior researcher at Mat  s (1992-2013), she has been involved in fish microbiological research with expertise in spoilage and safety of fishery products, biopreservation with chitosan among others, methods to extend shelf life of various fish products, predictive microbiology, development of preventive measures and application of probiotics in aquaculture. She has more than 30 peer-reviewed publications and over 25 years' experience in coordinating, managing and participating in national, Nordic and European RTD projects.



Henrik Birkedal

University of Aarhus, Denmark

Self-healing mussel-inspired hydrogels

Henrik Birkedal obtained his PhD with honors from Universit   de Lausanne, Switzerland, followed by a postdoc at University of California, Santa Barbara. In 2004, he was awarded a stipend to establish his own research program at Aarhus University where he is now an associate professor and leads a research group with the area of biological and bioinspired materials. His research interest are diverse and span advanced structural characterization using synchrotron imaging, diffraction, fluorescence and scattering; crystallization; biomineralization; self-healing hydrogel materials; catechol chemistry etc. He has published over 107 papers.



João Rocha

University of Aveiro, Portugal

Quo Vadis: Inorganic and organic-inorganic hybrid nanomaterials

João Rocha is Full Professor of Inorganic and Materials Chemistry at the Department of Chemistry, University of Aveiro, and Director of the Aveiro Institute of Materials-CICECO. He is member of the European Academy of Sciences (EURASC) and of the Lisbon Academy of Sciences, and Fellow of Royal Society of Chemistry and of the ChemPubSoc Europe. He received the Madinabeitia-Lourenço award from the Real Sociedad Española de Química, the prize Ferreira da Silva (Portuguese Chemical Society), and the prize for Scientific Excellence from the Portuguese Science Foundation. He was member of the National Science and Technology Council (advising the Prime Minister). He headed the Commission on Inorganic and Mineral Structures of the International Union of Crystallography and is consultant for the Commission on NMR Crystallography and Related Methods. He published ca. 480 SCI papers and 24 book chapters with 15,000 citations (h index 57) and 4 patents, gave over 200 talks at conferences, and supervised 40 post-docs and 25 PhDs. His present main research interests encompass microporous transition metal and lanthanide silicates, photoluminescent lanthanide-bearing materials, and Metal Organic Frameworks for sensing applications, including nanothermometry; nanosystems for multimodal (magnetic resonance, optical and thermometry) imaging and small molecules drug delivery; solid-state NMR and X-ray diffraction.



José Carlos Rodríguez-Cabello

University of Valladolid, Spain

"4D" hydrogels based on elastin-like recombinamers

Carlos (1963) has a double background in Biochemistry and Condensed Matter Physics (University of Valladolid) and is Full Professor of Condensed Matter Physics at University of Valladolid. He is also CEO and cofounder of the company Technical Proteins Nanobiotechnology SL. He is the director of the Bioforge Lab, a research group founded in 1996 and devoted to the development of Elastin-like materials in a pioneering effort on the use of genetic engineering and other biotechnologies for the creation of advanced materials. Carlos has published more than 150 paper in indexed journals and is inventor on 15 patent applications, four of them transferred and under exploitation.



José Paulo Farinha

I.S.T., University of Lisbon, Portugal

Hybrid nanocontainers for controlled release

José Paulo Farinha is Professor of the Chemical Engineering Department and director of the Materials Engineering MSc program at Instituto Superior Técnico, University of Lisbon, Portugal. He completed his PhD in Chemical Engineering in 1996 by the Technical University of Lisbon, and a postdoc in Polymer and Colloid Chemistry at the University of Toronto (1997-1999). He authored over 20 patents and 90 papers in the areas of polymers, colloids and nanostructured hybrid materials.



Laura Cipolla

University of Milan Bicocca, Italy

New strategies towards material biofunctionalisation: Case studies

Laura Cipolla is Associate Professor in Organic Chemistry at the University of Milano-Bicocca, Department of Biotechnology and Biosciences since 2005. She obtained her PhD in chemistry in 1996 at the University of Milan, Department of Organic and Industrial Chemistry and was a postdoctoral fellow at Carlsberg Research Laboratory, Copenhagen (1997, C. Bock) and at University of Milan (1998-1999, F. Nicotra). She joined the Biotechnology and Bioscience Department of the University of Milano-Bicocca as an Assistant Professor in 1999. Scientific interests focus on biologically relevant compounds, especially carbohydrates, peptides and their analogues. Recently she moved to a new research topic focussed on biomaterial functionalisation for regenerative applications. She co-authored 120 publications, and 20 book chapters.



Luís Carlos

University of Aveiro, Portugal

Luminescence thermometry: A new tool in bioimaging

Luís António Dias Carlos got his Ph.D. in physics from the University of Évora, Portugal, in 1995 working on photoluminescence of polymer electrolytes incorporating lanthanide salts. Currently, he is Full Professor in the Department of Physics at the University of Aveiro and vice-director of the CICECO-Aveiro Institute of Materials (Portugal). He is member of the Lisbon Academy of Sciences and of the Brazilian Academy of Sciences. His current research interests include luminescent nanothermometers, luminescent solar concentrators, organic-inorganic hybrids for green photonics (solid-state lighting and integrated optics), and luminescent/magnetic

nanoparticles, as new probes for multimodal imaging. He has published around 410 papers and 4 international patents, which have received ca. 13500 citations (Hirsch' index h of 57), and co-guest editor of a RSC book on Nanoscale Thermometry (Nanoscience & Nanotechnology series) and special issues of the Journal of Sol-Gel Science and Technology (2010) and of the Journal of Luminescence (2015 and 2018). He is editor of Physica B – Condensed Matter, specialty chief editor of Frontiers in Chemistry (Inorganic Chemistry), associate editor of the Journal of Luminescence and member of the editorial board of the Journal of Coordination Chemistry, Journal of Sol-Gel Science and Technology and Journal of Rare Earths.



Magnus K. Gislason

University of Iceland, Iceland

New directions in 3D modeling and rapid prototyping technologies for surgical planning

Dr. Magnús K. Gislason is a Mechanical Engineer and has B.Sc. in Technical Physics from the University of Iceland. He received his M.Sc. in Biomedical Engineering and PhD in Biomechanics in 2008 from the University of Strathclyde, Glasgow. Since 2013 he's been an Assistant Professor at the Department of Biomedical Engineering focussing on biomechanical research on material distribution in bones and muscles in collaboration with Dr. Paolo Gargiulo



Manuel Salmeron-Sanchez

University of Glasgow, UK

Engineering the cellular microenvironment – physics, growth factors and beyond

Prof Manuel Salmeron-Sanchez did a PhD in Valencia and postdoctoral work at the Institute for Macromolecular Chemistry in Prague and the Katholieke Universiteit Leuven. In 2005 he was appointed as Assistant Professor at Universitat Politècnica de València, promoted to Associate Professor in 2008 and Full Professor in 2010. He did a sabbatical year at the Georgia Institute of Technology and moved to the University of Glasgow in 2013 as the Chair of Biomedical Engineering. Manuel holds a Consolidator grant from the European Research Council (ERC) to investigate growth factor delivery systems. This work has attracted significant additional funding from the ERC (PoC, 2 awards) and the Medical Research Council (MRC) in the UK and has set up the basis for a programme of research to help civilians affected by landmines, funded by Find a Better Way – a charity founded by Sir Bobby Charlton. Overall, his work spans fundamental mechanisms at the cell/material interface as well as translational research that has saved from amputation the leg of a first veterinary patient, a dog called Eva

(<https://goo.gl/1Z3r8t>). He authored more than 150 papers in major journals including PNAS, Science Advances, Nature Biomedical Engineering, ACS Nano and Biomaterials. He has had his research featured in newspapers, websites and TV channels around the world.



Ólafur Sigurjónsson

Reykjavik University, Iceland

The use of platelet lysate in biomaterial research

Professor Ólafur E. Sigurjónsson holds a PhD in stem cell biology and immunology from the University of Oslo. He is a Professor in tissue engineering at the school of science and engineering, Reykjavik University and a clinical Professor at the department of medicine, school of health sciences, University of Iceland. Professor Sigurjónsson is the director of research and development at the Blood bank, Landspítali University Hospital, Iceland and the laboratory director for the clinical hematopoietic stem cell program at the same institute. He is the founder and CSO of Platome biotechnologies and is the current president of the Scandinavian Society for Biomaterials. Professor Sigurjónsson's research group focuses research in tissue engineering of bone, GMP culture of mesenchymal stem cells and storage of blood components.



Paolo Netti

University of Naples Federico II, Italy

Engineered viable and competent human tissue in vitro for tissue-on-chip applications

Paolo A. Netti received his PhD in Chemical Engineering in 1994 from the University of Naples Federico II. Then he spent 4 years postdoc at Harvard Medical School working with Rakesh K. Jain. He has pioneered the concept of integrating molecular sequestration and release mechanisms in the design of novel biomaterial scaffolds able to control and guide the complex process of tissue growth at single cell level. Following this bioinspired approach, he has proposed a novel class of cell instructive materials, that -by recapitulating the basic functions of the extracellular matrix- provide a tight spatial and temporal control of the cellular microenvironment and offer the potentiality to control cell and tissue fate. He has served on several European Scientific Commission panels for defining a viable European roadmap for the development of novel biomaterials platforms (VII framework program), he is currently the panel chair of the ERC Advanced Grant committee for the PE5 domain and has also served as a scientific tutor for several research platforms from the Italian Minister of Research and University

(Program FIRB by MIUR). He is member of several advisory boards and committees and has authored over 400 scientific articles accumulating over 10000 citations. He is today a full professor of Bioengineering at the University of Naples "Federico II" and the director of the Centre for Advanced Biomaterials for Health Care (IIT@CRIB) of the Italian Institute of Technology.



Róisín Owens

University of Cambridge, UK

The world is not flat: 3D cell biology integrated with 3D conducting polymer devices

Dr. Róisín M. Owens is a University Lecturer at the Dept. of Chemical Engineering and Biotechnology in the University of Cambridge. She received her BA in Natural Sciences (Mod. Biochemistry) at Trinity College Dublin, and her PhD in Biochemistry and Molecular Biology at Southampton University. She carried out two postdoc fellowships at Cornell University, on host-pathogen interactions of *Mycobacterium tuberculosis* in the dept. of Microbiology and Immunology with Prof. David Russell, and on rhinovirus therapeutics in the dept. of Biomedical Engineering with Prof. Moonsoo Jin. From 2009-2017 she was a group leader in the dept. of bioelectronics at Ecole des Mines de St. Etienne, on the microelectronics campus in Provence. Her current research centers on application of organic electronic materials for monitoring biological systems in vitro, with a specific interest in studying the gut-brain-microbiome axis. She has received several awards including the European Research Council starting (2011), proof of concept grant (2014) and consolidator (2016) grants, a Marie Curie fellowship, and an EMBO fellowship. In 2014, she became principle editor for biomaterials for MRS communications (Cambridge University Press), and she serves on the advisory board of Advanced BioSystems and Journal of Applied Polymer Science (Wiley). She is author of 60+ publications and 2 patents.



Thomas Groth

Martin Luther University Halle-Wittenberg, Germany

Engineering of biomimetic surface coatings and hydrogels with polysaccharides

Thomas Groth is full Professor of Biomedical Materials at Martin Luther University Halle-Wittenberg with research interest in engineering of musculoskeletal system focusing on biomimetic surface modification of biomaterials by lithographic methods and layer-by-layer technique and development of injectable hydrogel systems based on semisynthetic polysaccharides. Thomas Groth graduated in Biology (Diploma) and obtained his PhD degree in Biophysics at Humboldt University Berlin with research on

blood compatibility of biomaterials. He moved then to Institute of Chemistry at GKSS Research Center Geesthacht working there as Research Associate and later as Head of Department Biomaterials and Medical Engineering doing research on development of polymer membranes for bioartificial organs. He did his postdoctoral thesis (DSc) at University of Potsdam. In 2004, he was appointed as full professor at Martin Luther University Halle-Wittenberg. Thomas Groth is currently the Past-President of the European Society for Artificial Organs (ESAO), Elected Member of Leibniz-Sozietät der Wissenschaften zu Berlin e.V., Board Member of the International Federation for Artificial Organs and ESAO Editor of The International Journal of Artificial Organs. Website: <http://bmm.pharmazie.uni-halle.de/>