

Sustainable Functional Materials (SFM) 2016

We are delighted to be able to welcome a number of international invited speakers to SFM2016. As experts and leading-lights in their respective fields, they will cover a wide range of topics from both an academic and industrial stand-point. This document contains a brief biography of each of our speakers.

Prof Clive Randall, Pennsylvania State University, USA

Clive A. Randall is a Professor of Materials Science and Engineering and Director of the Materials Research Institute at The Pennsylvania State University, University Park, Pennsylvania, USA. He was Director for the Center for Dielectric Studies between 1997 and 2013, and recently formed a new Center as Co-Director, the Center for Dielectrics and Piezoelectrics, for which he is now Technical Advisor to this program. Prof. Randall received a B.Sc. with Honors in Physics in 1983 from the University of East Anglia, and a Ph.D. in Experimental Physics from the University of Essex in 1987, both in the United Kingdom. He has authored/co-authored over 350 technical papers, with over 10,000 citations and an h-factor of 55. He also holds 13 patents (with 3 pending) in the field of electroceramics. Prof. Randall's research interests are in the area of discovery and compositional design of functional materials for electrical energy transduction and storage, defect chemistry and crystal chemistry and their impact on phase transition behavior, electromechanical devices based upon electrostriction and piezoelectrics, supercapacitors, thermoelectrics, and microwave materials. He has used a variety of different processing and characterization methods that have impacted manufacturing and development processes for materials, particularly in the capacitor industry. His research group has been supported from a number of different sources, including the National Science Foundation, the U.S. Air Force Office of Scientific Research, U.S. Department of Energy, the Office of Naval Research, the U.S.-Israel Binational Scientific Foundation, NASA, and substantial funding from the private sector. Prof. Randall was honored with the American Ceramic Society Fulrath Award in 2002; the Wilson Research Award from the College of Earth and Mineral Sciences, Penn State University, in 2003; he spent one year (2004–2005) as a Visiting Fellow of Fitzwilliam College, University of Cambridge, U.K.; he was elected Fellow of the American Ceramic Society in 2005 and Academician of the World Academy of Ceramics in 2006; in 2007, he and his colleagues received the R&D 100 Award for their Integrated Fiber Alignment Package (IFAP); he received the Spriggs Phase Equilibria Award in 2008; in 2009, he received the University Scholar Award (Engineering) from Penn State University; he received the Japanese FMA International Award; he gave the Friedberg Lecture at the American Ceramic Society, both in 2011; in 2013, he received, along with his student, the Edward C. Henry Best Paper of the Year from the American Ceramics Society Electronics Division; and he received the IEEE UFFC-S Ferroelectrics Recognition Award (2014), the US-Japan Electroceramics Bridge Building Award (2015). He is a member of American Ceramic Society, IEEE and the IEEE Ferroelectrics Committee, Materials Research Society, and the Pennsylvania Ceramics Association.

Prof Paula Vilarinho, University of Aveiro, Portugal

Paula Vilarinho is Associate Professor at the University of Aveiro since 2000 and member of the Associate Laboratory, Centre for Research in Ceramics and Composite Materials (CICECO).

She was Visiting Professor at the Department of Materials Science and Engineering of North Carolina State University, USA, in 2001 and Visiting Professor at the Department of Materials Science and Engineering, University of Sheffield, United Kingdom in 2008.

Her present R&D interest include synthesis and characterization of nanoparticles, nanostructures, composites, thin and thick films of dielectrics, piezoelectrics and ferroelectrics for microelectronic and biomedical applications, engineering of thermoelectric oxides towards high figures of merit and adding value to traditional ceramics. In a current project, on "Electric field driven Nano-Assembly involving Ferroics", Vilarinho's group is exploiting the electric field driven properties of ferroics for biodevices. In particular to exploit the unique properties of ferroelectrics, such as "permanent" polarization and polarization switching, for applications in biomedicine and bioengineering.

She has published over 250 papers, 4 book chapters, with ca. 3120 citation (h-index 30), 7 patent applications and edited 4 books. She has given over one hundred scientific and technical talks at international conferences and 69 invited talks. She has(is) supervised(ing) 18 post-docs, 19 PhD

students and 31 Master students. She has been involved and coordinating more than 20 R&D projects and in more than 20 European R&D actions, networks and projects on the development and characterization of dielectric, piezoelectric and ferroelectric materials. She has been collaborating with more than 10 Portuguese R&D groups and 10 foreigner groups, within Europe and USA. She organized 6 International Scientific Meetings and 4 National and International workshops on Materials Science topics. She was distinguished with the prize "Estímulo à Excelência" (Stimulus to Excellence) in February 2007 awarded by the Portuguese Foundation for Science and Technology (FCT). She was a former President of the Portuguese Society of Microscopy (2010-2012) and vice – President of the Portuguese Society of Materials (SPM).

Prof Andy Bell, University of Leeds, UK

Andrew Bell was appointed as Professor of Electronic Materials at the University of Leeds in 2000 and is a founder of Ionix Advanced Technologies Ltd, which manufactures high temperature transducers based on piezoelectric materials. He previously spent 15 years in research positions in UK industry (Plessey, Cookson Group, Oxley Developments) and was a Senior Scientist at EPFL, Lausanne, Switzerland. His research interests have covered a wide range of aspects of dielectric, ferroelectric and piezoelectric materials, including the synthesis of ceramics, thin films & single crystals, their electrical characterization and modelling. His most recent research has focussed on the multiferroic and piezoelectric properties of BiFeO₃ solid solutions.

Mr Jon Booth, Johnson Matthey, UK

Jonathan Booth is a Research Manager at Johnson Matthey technology centre. Jonathan was born in Sheffield and brought up in rural Derbyshire. After graduating from Nottingham University in 1987 with 1st class honours in Physics, he went straight into industrial materials research with Johnson Matthey. His areas of expertise range from powder processing, advanced pigments and contact technology for silicon solar cells. Jonathan also collaborates closely with colleagues working on lithium batteries, fuel cells, thermoelectrics and catalysis. His previous work includes thin-walled palladium alloy hydrogen diffusion membranes, magnetostrictives, thick film electronic materials and sensors. Jonathan has been with Johnson Matthey for 28 years and is currently responsible for the advanced glass technologies, conductive pastes, electro-ceramics and powder technology research groups.

Prof Derek Sinclair, University of Sheffield, UK

Derek was appointed to the academic staff at the University of Sheffield in 1999 as a Lecturer in Functional Materials following from Lecturer appointments in the Department of Chemistry, University of Aberdeen (1994-99) and the Department of Materials Science, University of Leeds (1993-94). He obtained his BSc (1st Class Honours) and PhD (supervised by Professor Tony West) in Chemistry at the University of Aberdeen and held post-doctoral research appointments at the University of Aberdeen (with Profs Tony West and John Irvine) and the Interdisciplinary Research Centre for Superconductivity at the University of Cambridge (with Prof Paul Attfield), before joining the academic staff at Leeds in 1993. Derek is recognised for his ability to probe the structure (crystal and defect)-composition-microstructure-property relationships of a wide range of functional oxides, spanning from superconductors to dielectrics via mixed conductors and solid electrolytes.

Dr Emmanuel Guilmeau, CRISMAT, France

Dr Emmanuel Guilmeau is a CNRS permanent researcher in CRISMAT Laboratory (Caen, France). After receiving his Ph.D. in Materials Science in 2003 from the University of Caen, he spent a year as postdoctoral researcher in the group of Dr. Ryoji Funahashi in Osaka (Japan). In 2004, he was a postdoc at LCIS laboratory in Liège (Belgium) and then moved to CRISMAT laboratory in 2005. His main research interests focus on the synthesis and characterization of bulk thermoelectric materials, such as oxides and chalcogenides. He has co-authored more than 120 peer-reviewed publications, 2 book chapters and 2 patents in inorganic materials chemistry and physics.

Dr Simon Hall, University of Bristol, UK

Simon Hall joined the University of Bristol in 1997, reading for a PhD in Biomimetic Materials Chemistry in the laboratory of Professor Stephen Mann FRS. After a three year postdoctoral study, where he produced advanced functional materials for Vectura Ltd and Toyota Ltd, he was awarded a Royal Society University Research Fellowship in 2004. His research interests centre around crystal control in superconductors, semiconductors, piezoelectrics and polyaromatic hydrocarbons. He is currently a Senior Lecturer in Inorganic Chemistry at the University of Bristol, Director of the Complex Functional Materials Group and Co-I of the Bristol Centre for Functional Nanomaterials Centre for Doctoral Training.

Prof Richard Murphy, University of Surrey, UK

Key interests – Sustainable biomass use for energy and materials Life Cycle Assessment (LCA) and Life Cycle Sustainability Assessment (LCSA) –with special interest in bio-based materials and bioenergy, bio-based plastics, materials and chemicals, including biodegradability, lignocellulosic biomass, including its growth, deconstruction and processing. Richard has a BSc in Botany with Zoology from King's College London and a PhD in Plant Sciences from Imperial College London. He has worked in bio-based materials and energy research in the UK, New Zealand and The Netherlands. His research interests focus mainly on plant-based bio-materials and bio-energy (biofuels and power) using lab-based experimentation, LCA and Techno-Economic assessment to evaluate their sustainability profiles. His research is funded by BBSRC, EPSRC, UK government, the EC and industry and he enjoys extensive international collaborations. He has used LCA since 1992 in materials-focused projects ranging from preservative treated wood products, coppice forestry systems, coating systems for wood, bamboo construction, agro-fibre products and bio-based packaging. In the last six years he has worked extensively on biofuels and bioenergy. His LCA research has explored prospective future contributions of the bio-based economy to energy and materials provision which has required a particular focus on uncertainty and sensitivity analyses and their communication. He has authored/co-authored about 120 publications and conference papers and has founded two spin-out companies (Mycologix Ltd and LCAworks Ltd) with colleagues in the 2000s. He is a Fellow of the Institute of Materials (IoM3), a past President of the Institute of Wood Science (IWSc) and a past Chairman of the International Research Group on Wood Preservation - Section 4 Processes. He was vice-Chairman of the EC COST Action E9 LCA of Forests and Forest Products (1997-2001). He has co-founded two spin-out companies (Mycologix Ltd and LCAworks Ltd) and undertaken consultancy work with The Coca-Cola Company, Braskem SA, Deloitte, and BT amongst others. Richard has advised the UK Climate Change Committee on LCA, was appointed to DEFRA's Hazardous Substances Advisory Committee (Feb 2013 -) and has given evidence to the recent House of Lords Science & Technology Select Committee's enquiry into Waste Opportunities (November 2014) and advised the UK Climate Change Committee on LCA. Richard is married with 3 children, lives in Surrey and enjoys messing about with old motorcycles.