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20th International Conference on

Advanced Energy Materials And Research

August 13-14, 2018

Dublin, Ireland



SCIENTIFIC PROGRAM

DAY 1
Monday, 13th August

08:30-09:00 **Registrations**

09:00-09:30 **Introduction**

09:30-09:50 COFFEE BREAK

09:50-11:50 Meeting Hall 01

KEYNOTE LECTURES

11:50-13:10

MEETING HALL 01

Talks On:

- Advanced Materials
- Solar Energy Materials
- Batteries and Energy Materials

13:10-13:15 GROUP PHOTO

13:15-14:00 LUNCH BREAK

14:00-16:00

MEETING HALL 01

Talks On:

- Hydrogen Energy
- Advanced Nanomaterials
- Nanotechnology and Energy Materials

16:00-16:20 COFFEE BREAK

MEETING HALL 01 (16:20-17:00)

Young Researchers in Advanced Energy Materials

DAY 2
Tuesday, 14th August

09:00-10:30 Meeting Hall 01 — **KEYNOTE LECTURES**

10:30-10:50 COFFEE BREAK

MEETING HALL 01

10:50-12:50 **Talks On:**

- Biomaterials and Surface Science Engineering
- Energy Harvesting Materials
- Advanced Graphene Materials

12:50-13:35 LUNCH BREAK

MEETING HALL 01

13:35-15:55 **Talks On:**

- Solid Electrolytes
- Fuel Cell Technology
- Polymer Materials

15:55-16:15 COFFEE BREAK

MEETING HALL 01 (16:15-17:00)

Poster Presentations

Organizing Committee Members



Jerzy A. Szpunar

University of Saskatchewan

Canada



Dequan Xiao

University of New Haven

United States



Leszek Adam Dobrzałski

Silesian University of Technology in Gliwice

Poland



Wei Li

University of Texas at Austin

USA



Mahi R. Singh

University of Western Ontario

Canada



Iman El-Mahallawi

The British University in Egypt

Egypt

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AGENDA

Title: Hydrogen generation in metal water reaction and strategies of storage

Jerzy. A. Szpunar,

University of Saskatchewan, Canada

J.A.Szpunar, joined the Department of Mechanical Engineering at the University of Saskatchewan in August 2009, as Tier I Canada Research Chair. He came from McGill University where he was Professor of Materials Science and Birks Chair in Metallurgy. His research interests extend to various areas of materials related investigations. More recently his research has focused on environmentally friendly energy generation, in particular the extraction and purification of hydrogen, accident tolerant nuclear fuel and research on advanced materials for Generation IV nuclear reactors. Dr Szpunar has a strong record of research productivity. 40 PhD students and 27 MSc. students graduated under his supervision. He is an author and co-author of more than 900 research papers.

Title: Promising oxyborates for solid-oxide fuel cell applications

Olivier JOUBERT,
Nantes University, France

Olivier JOUBERT is professor at Nantes University and chairs the Fuel Cell group of "Institut des Matériaux Jean Rouxel" (CNRS-IMN). His major research interests concern new ceramic materials.He is co-author of 95 publications, 20 invited talks and 5 patents. Olivier Joubert is chairing the HySPàC research grouping which assembles all French academic research groups in the field of production and storage of hydrogen and also fuel cell and electrolysers, about 108 laboratories mainly from the CNRS and CEA. He is the main organizer of the IDHEA meetings held in Nantes in 2014 and 2016. O. Joubert is in charge of the expertise cell ERIMAT in Capacités SAS, a private subsidiary of the University of Nantes dedicated to the development of research, and provides assessment, advice to industries.

Title: Controlling Energy Bandgap of Semiconducting Materials for Energy and Environment

Hyoyoung Lee,

University of Mississippi, Republic of Korea

Prof. Hyoyoung Lee has completed his PhD at Department of Chemistry, University of Mississippi, USA in 1997. He did his postdoctoral studies at North Carolina State University. He worked at Electronics and Telecommunications Research Institute and then moved to Dept. of chemistry, Sungkyunkwan University as a full professor. He served as a director of National Creative Research Initiatives. Currently, he has served as an associate director of Centre for Integrated Nanostructure Physics, Institute of Basic Science. His current research area is 0-2D semiconducting materials and their devices. He has written more than 140 journal articles in top-tier journals and has been serving as an editorial board member of scientific reports

SPEAKER SLOTS AVAILABLE

Title: Biomass-derived activated carbon scaffolds for electrochemical energy

Dr. Li

University of Virginia, USA

Dr. Li is a Rolls-Royce Commonwealth Professor at the University of Virginia with expertise and interests including nanomaterial-enabled energy systems, biological and bio-inspired materials and devices, additive manufacturing, smart manufacturing, biomechanics, micro/nanomechanics, surface engineering, and tribology. His stature in the field of his expertise includes over 230 peer-reviewed journal articles in prestigious journals such as *Science*, *Nature Communications*, *Advanced Materials*, and *Advanced Energy Materials*; over 12,000 citations with H-index of 54; TMS MPMD Distinguished Scientist/Engineer Award (2015), Professional Engineering Publisher's PE Prize (2008); over 80 invited plenary lectures/keynotes/talks at international conferences/workshops; Fellow of the American Society of Mechanical Engineers (ASME); and Fellow of the Society of Experimental Mechanics (SEM).

Title: Organic biosourced Phase Change Materials for seasonal thermal energy storage

Marie Duquesne,
Université de Bordeaux, France

Marie Duquesne defended her PhD "Resolution and reduction of a non-linear energy storage model by adsorption on zeolites" in 2013. She is Associated Professor at the National Polytechnic Institute of Bordeaux since 2015 and Researcher at TREFLE Department (Fluids & Transfers) of the I2M and a member of TESLab (Thermal Energy Storage Laboratory), I2M/Abengoa Joint Research Unit. She has expertise in thermal energy storage at low-to medium temperatures and contributes to an ANR Project SIMINTHEC (National Project, 2008-2011) and to the European FP7 SAM.SSA Project (Sugar alcohol-based material for seasonal storage applications, 2012-2015).

Title: Active materials for stable perovskite solar cells

Antonio Abate,
Fuzhou University, Germany

Antonio Abate is a Helmholtz Association Young Group leader fellow at the Helmholtz-Centrum Berlin in Germany and Visiting Professor at Fuzhou University in China. He is an expert in hybrid organic-inorganic materials for optoelectronics. His group is currently researching active materials and interfaces to make stable perovskite solar cells. Before to move to the Helmholtz-Centrum Berlin, Antonio was leading the solar cell research at the Adolphe Merkle Institute, and he was a Marie Skłodowska-Curie Fellow at École Polytechnique Fédérale de Lausanne in Switzerland. After getting his PhD at Politecnico di Milano in 2011, he worked for 4 years as a postdoctoral researcher at the University of Oxford and the University of Cambridge.

SPEAKER SLOTS AVAILABLE

Biography

Title: Multi-striped orthogonal photon-photocarrier-propagation solar cells (MOP3SCs) with new asymmetric redirection waveguides

Akira Ishibashi
University of Tokyo,
Japan

Akira Ishibashi received the B.Sc., M.Sc., and Ph.D. degrees in physics in 1981, 1983, and 1990, respectively, all from the University of Tokyo, Japan. During 1982–1983, In Sony he achieved world-first RT CW operation of blue/green laser diodes using ZnMgSSe, in 1993. He was a Visiting Professor at Center for Interdisciplinary Research, Tohoku University, Japan in 1998. Since 2003 he has been a full professor, leading Nanostructure Physics Lab in RIES, Hokkaido University, Japan. In 2006, he started Hokkaido Univ. Venture Company, C'sTEC Corp., based on Clean Unit System Platform (CUSP). His main target is to realize high-efficiency solar cells exploiting CUSP that helps people live in a high standard.

Title: Graphene-Silicon Schottky heterojunctions for optoelectronic applications

Antonio Di Bartolomeo,
Salerno University, Italy

Prof. Antonio Di Bartolomeo received MS and PhD degree in Physics from Salerno University, Italy. He worked as System Engineer for Creative Electronic Systems (CH) and as Device His present research interests include: Optical and electrical properties of carbon nanotubes, graphene, 2D materials and composite materials; grapheme/semiconductor heterojunctions and their application as photodetectors, solar cells and chemical sensors; Van der Waals heterojunctions of 2D layered materials; field-effect transistors; tunnelling transistors; non-volatile memories; CMOS technologies; solid-state radiation detectors; field emission.

Title: Production and characterization of electroactive nickel oxides on nickel foam and self-standing nickel nanowires by anodic oxidation in molten salt for supercapacitor

Mustafa URGEN,
Istanbul Technical
University, TURKEY

Prof. Dr. Mustafa URGEN is presently working in the Metallurgical and Materials Engineering Department of Istanbul Technical University and leading the "Surface Technologies" group. He has more than 130 journal and conference publications. The innovative coating, he has developed in collaboration with Dr. Ali Erdemir (ANL, Chicago-USA) has received the R&D 100 award in 2009. His research interest areas are: electrolytic, diffusion, PVD and Hybrid-PVD coatings, corrosion, nanopatterning of surfaces and energy materials. He is one of the authors of 5 issued and 4 pending patents.

SPEAKER SLOTS AVAILABLE

Title: An energy-efficient single-pane "green window" via the photothermal effect of chlorophyll thin film coatings

Donglu Shi,
University of Cincinnati, USA

Donglu Shi is currently the Chair and Graduate Director of the Materials Science and Engineering Program and a Graduate School Fellow at the University of Cincinnati. Donglu Shi has so far published 280 refereed SCI journal publications including Physical Review Letters, Nature, ACS Nano, and Advanced Materials, with an h-index of 47. He has edited 12 books in superconductivity, functional thin films, nanomaterials, biomaterials, tissue engineering, and nano biomedicine (World Scientific, Pergamon Press, Springer-Verlag). He is currently the Editor-in-Chief of Nano LIFE, and Associate Editor of Materials Science & Engineering: C, and J. of Nanomaterials.

Title: Polyacetylene: Myth, Reality and a Way Forward

Bruce S. Hudson,
Syracuse University, USA

Bruce S. Hudson received his Bachelors and Masters degrees in biophysical chemistry from the California Institute of Technology in Pasadena, California and his PhD degree in Physical Chemistry from Harvard University As part of his PhD thesis he proposed that the lowest excited electronic state of linear polyenes has the same symmetry as the ground electronic state involving doubly excited configurations. It is the merging of this excited state with the ground state for very long linear polyenes that gives rise to the double minimum potential of polyacetylene. He is a fellow of the American Physical Society.

Title: Extremely Foldable and Highly Transparent Nanofiber-Based Electrodes for Liquid Crystal Smart Devices

Byoung-Suhk Kim,
Chonbuk National University, Republic of Korea

Byoung-Suhk Kim has his expertise in develop the highly transparent and extremely foldable nanofiber-reinforced electrodes. His new nanofiber-based foldable electrode creates new pathways for developing the wearable electronics. His other research expertise includes energy nanomaterials, nanocarbons and carbon fibers, supercapacitors, electrocatalysts, metal nanoparticles, functional nanofibers, biosensors, fuel cells, layer-by-layer self-assembled thin films and capsules, nanostructured molecular nanocomposites, hydrogels, and hybrid POSS materials.

SPEAKER SLOTS AVAILABLE

Biography

Title: Insights into the Dynamic Interplay between Mobile Ions and Photovoltaic Performance of Organometal Halide Perovskites

Byungwoo Park,
Seoul National University, South Korea

Byungwoo Park received his Ph.D. degree in Applied Physics from Harvard University. He worked as a post doctor at IBM T. J. Watson Research Center and a research fellow at California Institute of Technology. He joined the School of Materials Science and Engineering at Georgia Institute of Technology as an Assistant Professor. His current research interests include the development of nanoscale coating, novel nanocomposites, heterojunction nanorod and perovskite solar cells, Li-ion rechargeable batteries, and the growth kinetics of nanostructures.

Title: The modeling of selected mechanical properties of plastic materials under influence of complex external load state

Dariusz KURPISZ,
Poznan University, Poland

Dariusz Kurpisz is a scientific worker at the Poznan University of Technology. His scientific interests includes mathematical modeling of physical process both for materials as well for more complicated structures. One of the most important tools in his work are phenomenological approach and energy method of modeling based on experimental approach and the strain energy density function.

Title: Comparison of the thermophysical properties of eutectic with peritectic compounds for thermal energy storage at high temperatures

Fouzia Achchaq,

University of Bordeaux, France

Fouzia Achchaq is Associated Professor at the University of Bordeaux and Researcher at TREFLE Department (Fluids & Transfers) of the I2M Institute and a member of TESLab (Thermal Energy Storage Laboratory), I2M/Abengoa Joint Research Unit. She has expertise in thermal energy storage materials used at high temperatures and contributes to an ANR Project Pc2TES (National Project, 2017-2020).

SPEAKER SLOTS AVAILABLE

Title: A Sustainable technology for extraction of cobalt and nickel from laterite ores

Guangqing Zhang,
University of Wollongong, Australia

Dr Guangqing Zhang has expertise in the development of sustainable technologies for metals production. He has applied the kinetics and thermodynamics and engineering knowledge in the development of alternative technologies and improvement of current technologies for metals production. His research fields include process metallurgy, energy conversion, and recycling of waste materials.

Title: Material innovation in solar selective absorber coatings

Iman El-Mahalawi,
Cairo University, Egypt

Iman El-Mahalawi has her expertise in developing materials and manufacturing methods for different engineering applications. This includes design, manufacturing, testing, characterization and assessing the materials for each engineering application. She has more than 100 publications, 50 of which are cited in Scopus, on different materials engineering applications. Recently, she included energy harvesting in here interests and led research groups on topics related to solar energy and thermoelectric materials. Her current work aims at developing novel economic, ecofriendly and practically feasible materials to be manufactured by conventional and advanced production methods.

Title: Cyclic oligosaccharide modification of Lanthanide-doped upconversion nanoparticles: as Novel Nanostructural Drug Carriers via host-guest interactions

Jun Ou,
Guilin University of Technology, China

Jun Ou obtained a Ph D in Biomedical Engineering from Sichuan University in 2010, during which time he investigated biometal and tissue engineering scaffolding and systems for controlled delivery of drugs. He subsequently obtained a China Scholarship Council fellowship to work in Canberra, Australia for one years studying. Upon his return to china he received the China Natural Science and Guangxi Natural Science grant. Currently, He is employed as full professor at Guilin University of Technology, Guilin, contributing to research and education in the field of nanotechnology, inorganic chemistry, biometal biomaterials including electrospun collagen fiber about the cell-materials interaction in vitro and photodynamic therapy.

SPEAKER SLOTS AVAILABLE

Title: Asymmetric rolling of polycrystalline metals: modification of microstructure and mechanical properties

K. Wierzbanowski,
AGH University of Science and Technology, Poland

Prof. Krzysztof Wierzbanowski has his expertise in the field of mechanical properties of metals, residual stresses and crystallographic textures. He developed crystalline models for elasto-plastic deformation and for recrystallization of metallic materials. He performed also analysis and interpretations of experimental results in the domain of X-ray diffraction, electron backscattering diffraction (EBSD) and mechanical testing. He gives academic lectures in the field of General Physics and Material Science. Prof. Wierzbanowski is author of 180 publications and of numerous presentations in conferences dedicated to material science.

Title: The phenomenological energy model of orthotropic nonlinear elastic material on the example of rolled sheet of cylindrical tank

Maciej OBST,
Poznan University of Technology, Poland

Maciej Obst is a scientific worker at the Poznan University gy. His scientific interests includes experimental and analytical research of mechanical properties of materials, dynamics, constructions and complex structures where strength of materials, mechanics and energy dependences are used for analysis and research. Research experience and academic activity are energy based method material properties modeling, material properties experimental research, construction experimental research such as car seat belts, lashing straps, suspension air springs, brakes and friction research, scientific experimental stands design and other interesting devices.

Title: Water contained ionic liquid medium for V(III)(acac)3 reduction: A paired electrolysis and application studies.

I.S. Moon,
Sunchon National University, South Korea

Prof. I.S. Moon is working as full professor at Sunchon National University. He has over 18 years of experience on the electrochemically assisted removal of liquid and air pollutants at electro-scrubbing process and its design development sector. His credentials include a Master of Engineering (ME) Chemical Engineering, and Bachelor of engineering (BEng) Chemical Engineering. Moon's expertise includes desalination using DCMD (Direct Contact Membrane Desalination) with Modelling. Currently, Moon has colloborate work at Crandfield University, UK, for CO2 removal by electro-scrubbing process.

SPEAKER SLOTS AVAILABLE

Title: New approach for local treatment of defects on glazed ceramics by CO2 laser

Nuno Ferreira
University of Aveiro,
Portugal

Nuno Ferreira, is a PhD in Physics Engineering (2014). He is an experienced researcher in study and development of ceramics-based materials, prepared through conventional methods (melting, solid stated), with particular focus on laser processing. Current focus materials: thermoelectrics, ferroelectrics and glass matrices doped with transition metals and rare earth for energy storage and conversion applications. Main expertise is related to structural, magnetic and electrical properties of materials prepared by laser processing.

Title: Research and Development Results on Advanced Materials for Light Water Reactors and Future Works

Toshio Yonezawa
Tohoku University,
Japan

Toshio Yonezawa has his expertise in the metallurgical evaluation and corrosion characterization for steels and nickel-based alloys. He has studied on the metallurgical characteristics and corrosion properties for low alloybsteels, austenitic steels and nickel based alloys during more than 47years. He studied in Takasago R&D Center of Mitsubishi Heavy Industries during 35years, final position in that company was Chief Staff Engineer. After retirement of that company, he moved to Tohoku University, and lectured during more than 12 years as Professor, and he is Senior Research Fellow of Tohoku University, now.

Elucidating the role of Sn-substitution and Pb-Vc in regulating stability and carrier concentration in $CH_3NH_3Pb_{1-x-y}Sn_XVc_YI_3$

Saswata Bhattacharya
Indian Institute of
Technology Delhi,
New Delhi

Saswata Bhattacharya aims at developing theoretical methods that allow in understanding general rules of a given problem in materials science. He solves the problem by including electronic correlation effects by combining density functional theory (DFT) with quantum chemistry methods (eg. HF, MP2, CCSD). Over the last ten years, he works in inter-disciplinary areas of condensed matter physics with broad research interest in first principles based simulation of designing new materials and understanding their properties using state-of-the-art DFT.

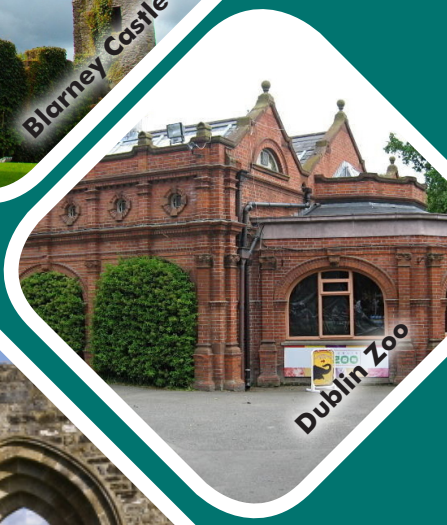
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Dublin Attractions

















Advanced Energy Materials Reminisce













Glimpses of Advanced Energy Materials Conferences











