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21st International Conference on

Advanced Energy Materials and Research

July 11-12, 2019

Zurich, Switzerland



SCIENTIFIC PROGRAM

DAY 1
Thursday, 11th July

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 Energy Materials
- Advanced Nanomaterials
- Hydrogen Energy and Fuel Cell Technology

13:10-13:15 GROUP PHOTO

13:15-14:00 LUNCH BREAK

14:00-16:00

MEETING HALL 01

Talks On:

- Solar Energy Materials
- Polymer Energy Materials
- Crystalline Porous Materials

16:00-16:20 COFFEE BREAK

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

Young Researchers in Advanced Energy Materials and Research

DAY 2
Friday, 12th July

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

10:30-10:50 COFFEE BREAK

10:50-12:50 — **MEETING HALL 01**

Talks On:

- Catalysis and Energy Materials
- Biomaterials for Energy production
- Advanced Graphene & 2D Materials

12:50-13:35 LUNCH BREAK

13:35-15:55 — **MEETING HALL 01**

Talks On:

- Batteries and Solid Electrolyte Materials
- Optical, Electrical and Magnetic Materials
- Energy Harvesting Materials
- Emerging Technologies for Energy Applications

15:55-16:15 COFFEE BREAK

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

Poster Presentations

Previous Organizing Committee



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AGENDA

Novel polyolefin-based proton exchange membranes for fuel cell applications

T. C. Mike Chung,
The Pennsylvania State University, USA

Dr. T. C. Mike Chung is a professor of the Department of Materials Science and Engineering at Pennsylvania State University. He obtained his B.S. in Chemistry from Chung Yuan University (Taiwan) in 1976. In 1979, he came to US for his graduate study in the Department of Chemistry, University of Pennsylvania. After finishing his Ph.D work in 1982 on conducting polymers with Professor A. J. MacDiarmid (Nobel Laureate), he spent two years as a Research Associate at the Institute for Polymers and Organic Solids with Professor Alan J. Heeger (Nobel Laureate), University of California, Santa Barbara. In 1989, he joined the Pennsylvania State University, as an associate Professor. In 1992, he was promoted to Full Professor. He pioneered the research in synthesis of functional polyolefin using the combination of single-site metallocene catalysts and designed comonomers and chain transfer agents. In the past decade, he has been focusing on new functional polyolefin materials for energy storage and green environment applications. He has published 2 books, 235 papers, and 45 US and 10 international patents in polyolefin technology area.

Interfacial energy materials for flexible, safe batteries: gummy electrolyte and gummy binder

W.H. Katie Zhong,
Washington State University, USA

Dr. Zhong currently is an endowed chair professor, Westinghouse Distinguished Professor in the School of Mechanical and Materials Engineering at Washington State University in the US. Her research interests include polymers, nanocomposites for energy and environment applications. Dr. Zhong received numerous awards/honors including the Dow Chemical Composites Educator of the Year by SPE and an honored Fellow of American Association for the Advancement of Science (AAAS). Dr. Zhong has had over 300 publications in polymer composites and energy materials, including 213 peer-reviewed papers, 2 books and 5 book chapters, more than 90 conference papers, and a number of US patents.

Photoluminescence studies of silica stabilized zirconia after CO_2 laser annealing for high temperature applications

Clara Goyes
Universidad Autónoma de Occidente, Colombia

Clara Goyes is a scientific researcher at the Universidad Autónoma de Occidente in Cali, Colombia. Her scientific interest includes laser material interaction both for ceramic materials in extreme conditions as biomaterials scaffolds in bone regeneration. The main focus in her work are in spectroscopy properties and photonic usefulness of vitroceramic based materials.

SPEAKER SLOTS AVAILABLE

Material synthesis and optimization for high performance triboelectric nanogenerators

Jikui Luo
University of Bolton,
UK

Jack Luo received his PhD degree from the University of Hokkaido, Japan in 1989. He worked in Cardiff University as a research fellow, in Newport Wafer Fab. Ltd., Philips Semiconductor Co. and Cavendish Kinetics Ltd as an engineer, senior engineer and manager, and then in Cambridge University as a senior researcher from 2000. From January 2007, he became a Professor in MEMS at the Centre for Material Research and Innovation (CMRI), University of Bolton. His current research interests focus on sensors, actuators, flexible/wearable electronics and lab-on-chips for biotechnology and healthcare applications, and nanomaterials, nanodevices, energy harvesting technology, wireless sensors etc. He has over 230 publications in peer review international journals, and about 190 talks and presentations at international conferences, among them about 40 are invited talks or plenary/keynote speaks.

Sustainable development in green energies and the environment

Abdeen Omer
Energy Research Institute (ERI)
UK

Abdeen Mustafa Omer (BSc, MSc, PhD) is an Associate Researcher at Energy Research Institute (ERI). He obtained both his PhD degree in the Built Environment and Master of Philosophy degree in Renewable Energy Technologies from the University of Nottingham. He is qualified Mechanical Engineer with a proven track record within the water industry and renewable energy technologies. He has been graduated from University of El Menoufia, Egypt, BSc in Mechanical Engineering. His previous experience involved being a member of the research team at the National Council for Research/Energy Research Institute in Sudan and working director of research and development for National Water Equipment Manufacturing Co. Ltd., Sudan. He has been listed in the book WHO'S WHO in the World 2005, 2006, 2007 and 2010. He has published over 300 papers in peer-reviewed journals, 200 review articles, 7 books and 150 chapters in books.

Sustainability in production of cement composite boards using waste and supplementary cementitious materials

Morteza Khorami,
Coventry University, UK

Dr Morteza Khorami has his expertise in Civil engineering subjects include; structural behaviour of reinforced concrete elements, corrosion, application of waste materials in production of concrete and production of cement composite board using waste materials. Over the past 16-year, He has worked in academic activities including; Researcher, senior Researcher, Assistant lecturer, Head of Research Department, Assistant Professor, lecturer, and Senior lecturer in UK/Oman/Iran. He has over fifty publications from his scientific research including books, a patent, research reports, journal articles and international conferences. Currently, He is a lecturer at Coventry University.

SPEAKER SLOTS AVAILABLE

Biography

Investigation of the $CuIn_{1-x}Al_xSe_2$ structure-properties relationships by coupling density functional and Bader's theories

Marie-Christine Record
Aix-Marseille University and CNRS, France

Marie-Christine Record is Full Professor of Materials Chemistry at the University of Aix-Marseille (France) since 2004. Her field of interest is solid-state chemistry both from the experimental and computational standpoints. Her experimental skills spread from the determination of phase diagrams and the synthesis of materials, by using methods as varied as mechanical alloying, Self-propagating High temperature Synthesis (SHS), reactive diffusion in thin films, and Electro Chemical Atomic Layer Epitaxy (EC-ALD), to materials structures (X-ray diffraction) and properties (electronic) characterization. For the purpose of better understanding the materials structure-properties relationships, she has developed for more than a decade computational strategies based on ab initio methods. She has been working on different kinds of materials such as intermetallics, chalcogenides for application purposes, especially for thermoelectric ones. She is author and co-author of more than 90 papers published in international scientific journals.

A framework for critically assessing the ideality of carrier-selective contacts for solar cells

Gabriel J. Man,
Uppsala University,
Sweden

Gabriel Man has worked as a postdoctoral researcher in the Division of Molecular and Condensed Matter Physics at Uppsala University since April 2018. In his current work, he applies and develops X-ray spectroscopic techniques to gain fundamental understanding of the relationships between the crystal and electronic structures of advanced energy materials. His work spans both fundamental and applied science, and is guided by his background in engineering and technology entrepreneurship. Prior to his postdoctoral appointment, Gabriel spent nearly a year working in industry as a device engineer/physicist at a thin film solar cell startup company. Gabriel received his Ph.D. in 2017 in Electrical Engineering and Materials Science from Princeton University (New Jersey, USA) under the supervision of Prof. Antoine Kahn. His Ph.D. research was partially supported by a prestigious Ph.D. fellowship from the Natural Sciences and Engineering Research Council of Canada (NSERC), and by a fellowship from Princeton University.

DFT simulations applied to multiferroic materials

Sergio R. de Lazaro,
State University of Ponta,
Brazil

Sergio Ricardo de Lazaro has him expertise in DFT simulations applied in chemistry of materials in bulk and surface dimensions to improve electronic, magnetic and structural properties. He is professor in State University of Ponta Grossa since 2006, he created the chemical simulation group in department of Chemistry. He has participated as referee in many scientific journals and has 54 manuscripts published in reputed journals.

SPEAKER SLOTS AVAILABLE

Magnetic instability in heavily n-doped Fe-based full-Heusler compounds: origin and impact on thermoelectric properties

Fabio Ricci
University of Liège,
Belgium

Fabio Ricci did his PhD on both simulations and experimental measurements on magnetic properties of materials (diluted magnetic semiconductors and soft magnetic materials) by means of the magneto-optical Kerr effect. Subsequently, he worked on theoretical simulations on Fe-based superconductors, principally iron-chalcogenides. He developed and implemented in the ABINIT code the formalism for the non-collinear magnetism in the density functional perturbation theory and, at the same time, started to work on the theoretical engineering of thermoelectric properties of the Fe-based full-Heusler compounds.

Performance of Dye Sensitized Solar Cells (DSSCs) based on Cu-doped TiO_2 nanostructures photoanodes.

Sara Chahid
Universidad de Cádiz,
Spain

Sara Chahid has her expertise in synthesis and characterization of semiconductors, with photovoltaic and photocatalytic applications. Her open and contextual evaluation of new semiconductors based on TiO_2 (Cu/ TiO_2, MoS_2/TiO_2 and Cu-MoS_2/TiO_2) creates new pathways for improving renewable energy.

Charge density distribution as a tool for understanding relationships between structure and properties of thermoelectrics

Pascal Boulet,
Aix-Marseille University,
France

Prof. Pascal Boulet earned his PhD thesis diploma from both the University of Lyon (France) and the University of Geneva (Switzerland) in 2001 under the supervision of Prof. H. Chermette and Prof. J. Weber. His PhD thesis was related to the Density-Functional Theory calculations on heterogeneous catalytic processes, photochemical processes in organic and organometallic species using Time-Dependent DFT and electron density-based chemical reactivity indexes. Pascal Boulet then moved to University College London (UK) in Prof. P. V. Coveney's group where he worked as a postdoctoral research fellow on clay-polymers nanocomposite materials using Monte Carlo and molecular dynamics simulations. From 2004 to 2017, he was associate professor at the University of Aix-Marseille (France) where he got a full professorship position in 2017. His field of interest mainly deals with transport properties in bulk and low-dimensional materials for energy applications (thermoelectricity and photovoltaics). He has published over 60 papers in renowned journals.

SPEAKER SLOTS AVAILABLE

Biography

Reactive plasma processes for formation of high-mobility IGZO thin-film transistors

Yuichi Setsuhara,
Osaka University,
Japan

Yuichi Setsuhara received his Dr. Eng. in Electrical Engineering from Osaka University in 1991. He joined Welding Research Institute, Osaka University as Research Associate in 1991, Department of Aeronautics and Astronautics, Graduate School of Engineering, Kyoto University as Associate Professor in 2001, and has been a professor in Joining and Welding Research Institute, Osaka University since 2004. He is currently a Vice Director of Joining and Welding Research Institute (JWRI), Osaka University since 2014. He has published more than 150 papers in SCI journals and has been serving as board members of several committees such as International Scientific Committee for International Conference on Plasma Surface Engineering and International Advisory Board for the journal "Plasma Processes and Polymers".

Synthesis of vertical graphene network as platform for electrochemical applications

Mineo Hiramatsu,
Meijo University,
Japan

Dr. Mineo Hiramatsu is a Full Professor of Department of Electrical and Electronic Engineering and the Director of Research Institute, Meijo University, Japan. He served as the Director of The Japan Society of Applied Physics. His main fields of research are plasma diagnostics and plasma processing for the synthesis of thin films and nanostructured materials. He served as chairman and member of organizing and scientific committees of international conferences on plasma chemistry and plasma processing. He was awarded the Japan Society of Applied Physics Fellow in 2017.

Studies of $(Pb,La)(Zr,Sn,Ti)O_3$ antiferroelectric single crystal with high electrocaloric effect

Qiang Li,
Tsinghua University,
China

Prof. Qiang Li graduated from Dept. of Material Science & Engineering, Shanghai Jiao Tong University in 1985, and received his Ph.D in the State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology in 1993. He moved to the Department of Chemistry, Tsinghua University, as a full professor in materials chemistry, in 2000, from Wuhan University of Technology. His research interests were mainly focused on crystal materials & crystal growth, ferroelectric (anti-ferroelectric) materials and related functional materials etc.

SPEAKER SLOTS AVAILABLE

The strategies to improve the properties of Lithium ion batteries

Chuanbao Cao
Beijing Institute of Technology, China.

Dr. Chuanbao Cao is currently the Chair Professor of School of Materials Science and Engineering, Director of Research Center of Materials Science of Beijing Institute of Technology. He received B.S (1983) degree in Chemistry from Nanjing University, M.S(1989) and PhD (1992) degrees in Materials Science from University of Science and Technology of China. He was a postdoctoral fellow in Fudan University (1992-1994). In 1994, he joined Beijing Institute of Technology. His current research focuses on the low dimensional materials synthesis and their energy application, .Until now, he was granted more than 40 patents, authored more than 320 peer-reviewed papers, cited by more than 7300 times.

Rational design of Pre-Intercalation electrodes for rechargeable battery

Liqiang Mai,
Wuhan University of Technology, China

Liqiang Mai, Changjiang Scholar Chair Professor of Materials Physics and Chemistry, Distinguished Young Scholar of the National Science Fund of China, Dean for International Affairs of International School of Materials Science and Engineering at Wuhan University of Technology, fellow of the Royal Society of Chemistry. He received Ph.D. degree from WUT in 2004 and carried out postdoctoral research in Prof. Zhonglin Wang's group at Georgia Institute of Technology (2006-2007). He worked as an advanced research scholar in Prof. Charles M. Lieber's group at Harvard University (2008-2011) and Prof. Peidong Yang's group at University of California, Berkeley (2017).Prof. Liqiang Mai is mainly engaged in research field of nano energy materials and micro/nano devices. He has published over 300 papers tagged by SCI in leading journals. He is the guest editor of Adv. Mater., and serves on the Editorial and Advisory Boards of Joule (Cell press), Acc. Chem. Res., ACS Energy Lett., Adv. Electron. Mater., Nano Res. and Sci. China Mater.

Semiconductor nanostructure engineering for solar hydrogen production

Akter Monny
The University of Queensland

Sabiha Akter Monny is a PhD student at the University of Queensland. She specialises in renewable energy, energy conversion, and nanomaterials. Her research focuses on developing photocatalysts using semiconductor nanomaterials for photoelectrochemical energy conversion.

SPEAKER SLOTS AVAILABLE

Natural plants: An efficient inhibitors of mild steel corrosion in H_2SO_4 acid

Aisha H. Al-Moubaraki
Faculty of Sciences–Alfaisaliah Campus, University of Jeddah

Aisha H. Al-Moubaraki assistant professor of physical chemistry University of Jeddah KSA. Research interest in: Corrosion Behavior of Metals in Aqueous Solutions-Kinetic and Thermodynamic Studies, Corrosion Inhibition of Metals in Aqueous Solutions by some Organic and Natural Inhibitors. Corrosion Behavior of Metals in natural environments such as soils and seawater.

Novel heterostructured nanoporous silicon (HNPS) anode for lithium ion battery: economic prudence, system demonstration and first principle insights

Anil Pathak,
School of Minerals, Metallurgical and Materials Engineering, IIT

Anil Pathak is currently pursuing his PhD at Indian Institute of Technology, Bhubaneswar, India. His area of focus is energy storage technology, mainly lithium ion and metal air battery. His present thesis work deals with development of anode material and modification of electrolyte for high energy density lithium ion battery. Prior to PhD, he has developed electrochemical and first principle based model for lithium ion and metal air battery application. Here he has developed novel structured silicon material which has characterized and tested in lithium ion cell. Further he has patented this technology and is looking forward for its industrial usage.

The behavior of system temperature, volume, enthalpy, and total energy of ZnO wurtzite phase under different temperature and pressure, A molecular dynamics prediction.

Y. Chergui
IGEE Institute, University M'Hamad Bougara of Boumerdes

Yahia CHERGUI has completed his PhD from Badji Mokhtar University in Annaba, Algeria. He is a teacher in Boumerdes University since 2012. He has published more than 7 papers in reputed journals and has been serving as a referee with condensed matter journal (IOP) and Energy journal(Elsevier).He passed 6 months in Cardiff university and Queen University for summer school.

SPEAKER SLOTS AVAILABLE

Biography

Superior Shuttling of lithium and sodium ions in manganese- doped titania @ functionalized multiwall carbon nanotubes anode

Syed Mustansar Abbas,
NCP

Syed Mustansar Abbas completed his doctorate degree from Quaid-i-Azam University, Islamabad, Pakistan and is currently working as a research scientist at National Centre for Physics, Pakistan. He has received Research and Productivity Award (RPA) twice from Pakistan Council of Science and Technology (PCST) and has been among the list of Productive Young Scientist of Pakistan. His area of research lies in the field of synthesis of various nanostructures, nanocomposites and their applications for energy storage and catalysis.

Magnesium ferrite/polyvinyl alcohol (PVA) nanocomposites: fabrication and characterization

Gulfam Nasar
Balochistan University of Information Technology

Gulfam Nasar currently works at BUITEMS, Quetta Pakistan as Assistant Professor. His research interests are mainly Material Chemistry, Polymer Chemistry and Nanotechnology. His current project is on 'polymer-ferrites nanocomposites'. Dr. Gulfam Nasar is a member of editorial boards of a number of research journals. He has presented his work in many international conferences around the world. He has published more than 20 publications in internationally reputed journals.

The ZnO based nanostructured anode materials for energy conversion applications @ LTSOFC

Ghazanfar Abbas,
Department of Physics,
COMSATS University.

Dr. Ghazanfar Abbas has completed his Ph.D. in 2013 in the field of Nanocomposite Materials for Energy Conversion Applications (Solid Oxide Fuel Cells). Currently, he is working as Assistant Professor in the Department of Physics, COMSATS University Islamabad, Lahore Campus, Lahore-54000, Pakistan and involved in teaching graduate undergraduate classes. I have joined Clean Energy Reseach Lab and orking in the field of fuel cell technology with nano-engineering technique. I have a professional skill to synthesize the materials by different techniques; solid state reaction, co-precipitation, sol-gel, wet-chemical root and auto-clave techniques and well known knowledge of XRD, EDX, SEM, TEM, and TGA analysis. I have been working to measure the electronic/ionic conductivities of the materials and fuel cell performance of three layers (anode/electrolyte/cathode) which includes the measurement of open circuit voltage (OCV), current density and power density at various temperature from 400-600^{o}C.

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Glimpses of Energy Materials Conferences

















Zurich Attractions

