conferenceseries.com

665th Conference

*Scientific Program*

6th International Conference and Exhibition on

# Materials Science and Engineering

September 12-14, 2016 Atlanta, USA




**Hosting Organizations: Conference Series LLC**

2360 Corporate Circle., Suite 400 Henderson, NV 89074-7722, USA

Ph: ++1-888-843-8169, Fax: +1-650-618-1417, Toll free: +1-800-216-6499

**Conference Series Ltd**

Heathrow Stockley Park Lakeside House, 1 Furzeground Way, Heathrow, UB11 1BD, UK, Tel: +1-800-216-6499

Email: materialsscience@conferenceseries.net; materialsscience@conferenceseries.com

## Day 1 September 12, 2016

08:00-09:00 Registrations

## Chattahooche-A

conferenceseries.com 09:00-09:25 **Opening Ceremony**

## Keynote Forum

09:25-09:30 **Introduction**

09:30-09:55 **Title: Small things offer big promise**
**Carlo Montemagno,** University of Alberta, Canada

09:55-10:20 **Title: Materials and processing opportunities and challenges for transformation of global electricity infrastructure**
**Rajendra Singh,** Clemson University, USA

10:20-10:45 **Title: Heat resistant engineering materials for industrial application**
**Zofia Niemczura,** Arcelormittal Global R&D, USA

**Group Photo @ Chattahooche-A**

**Networking & Refreshments Break: 10:45-11:00 @ Foyer**

11:00-11:25 **Title: A multi-layered composite ensuring harmless to the human body and implant longevity of hip prosthesis in orthopedics**
**Masaru Matsuo,** Dalian University of Technology, China

Sessions:
**Materials Science and Engineering | Computational Materials Science | Polymer Technology**

**Session Chair: Matthew E Edwards,** Alabama A&M University, USA
**Session Chair: Michael F Herman,** Tulane University, USA

**Session Introduction**

11:25-11:45 **Title: Electrical conduction mechanism of volume and surface resistivities of multi-walled carbon nanotubes doped polyvinyl alcohol (PVA) and the pyroelectric behavior of polyvinylidene difluoride (PVDF) thin films**
**Matthew E Edwards,** Alabama A&M University, USA

11:45-12:05 **Title: An approximate semiclassical method that uses real valued trajectories for time dependent tunneling calculations**
**Michael F Herman,** Tulane University, USA

12:05-12:25 **Title: Tuning electrical conductivity with photoirradiation and electric field in organic crystals and ionic solids**
**Nobuhiro Ohta,** National Chiao Tung University, Taiwan

12:25-12:45 **Title: Fine-controlled subano-metal particles in a dendrimer reactor**
**Kimihisa Yamamoto,** Tokyo Institute of Technology, Japan

12:45-13:05 **Title: Study of the adsorption of simple molecules on metal oxides by ab initio calculations. Application to the detection of gas**
**Caroline Lambert-Mauriat,** Aix Marseille Université, France

13:05-13:25 **Title: *In situ* investigations of particle-mediated crystal growth**
**Dongsheng Li,** Pacific Northwest National Laboratory, USA

**Lunch Break 13:25-14:05 @ Foyer**

14:05-14:25 **Title: Terahertz laser sources based on difference frequency generation of infrared nonlinear optical materials $SnGa_4Q_7$ (Q = S, Se)**
**Wen-Dan Cheng,** Chinese Academy of Sciences, China

| | |
|---|---|
| 14:25-14:45 | **Title: Microstructure and mechanical properties of a low C medium Mn heavy plate steel**<br>**Lin-Xiu Du**, Northeastern University, China |
| 14:45-15:05 | **Title: Microstructure and mechanical property of vacuum rolled Ni-based alloy/pipeline steel clad plate**<br>**Guang-ming XIE**, Northeastern University, China |

**Panel Discussion 15:05-15:10**

**Memento Presentation to Organizing Committee Members**

**Session Chair: Jun Ding**, National University of Singapore, Singapore
**Session Chair: Hideo Miura**, Tohoku University, Japan

**Session Introduction**

| | |
|---|---|
| 15:10-15:30 | **Title: Spinel ferrite films with enhanced magnetization and large magneto-resistance**<br>**Jun Ding**, National University of Singapore, Singapore |
| 15:30-15:50 | **Title: Degradation of crystallinity and properties of advanced functional materials caused by anisotropic local diffusion of component atoms under severe operating conditions**<br>**Hideo Miura**, Tohoku University, Japan |
| 15:50-16:10 | **Title: A high-entropy alloy with ultrahigh ductility breaks strength-ductility paradox**<br>**Yonghao Zhao**, Nanjing University of Science and Technology, China |
| 16:10-16:30 | **Title: Research on the optimization mechanism of loading path for hydroforming process**<br>**Zong-an LUO**, Northeastern University, China |

**Networking & Refreshments Break: 16:30-16:45 @ Foyer**

| | |
|---|---|
| 16:45-17:05 | **Title: Process research on the stainless steel / low alloy steel clad plate prepared by vacuum hot rolling**<br>**Feng Ying-ying**, Northeastern University, China |

**Young Research Forum**

| | |
|---|---|
| 17:05-17:20 | **Title: On sample structure for fabricating micro-material by electromigration**<br>**Yasuhiro Kimura**, Tohoku University, Japan |
| 17:20-17:35 | **Title: Tailoring surface charge to antifouling applications**<br>**Guo Shanshan**, National University of Singapore, Singapore |

**Panel Discussions 17:35-18:00**

**Day 2 September 13, 2016**

## Chattahooche-A

## Keynote Forum

| | |
|---|---|
| 08:55-09:00 | **Introduction** |
| 09:00-09:25 | **Title: Recent progress in acoustic metamaterials membranes for low frequency sound attenuation**<br>**Ramesh K Agarwal**, Washington University in St. Louis, USA |
| 09:25-09:50 | **Title: Nanostructured functional organic materials synthesized by a laser irradiation method for applications of molecular devices and high-sensitive sensors**<br>**Masahiro Goto**, National Institute for Materials Science, Japan |

Sessions:
**Nanotechnology in Materials Science | Energy Materials | Emerging Areas of Materials Science and Nanotechnology**

**Session Chair: Rajendra Bordia**, Clemson University, USA
**Session Chair: Masumi Saka**, Tohoku University, Japan

**Session Introduction**

| | |
|---|---|
| 09:50-10:10 | **Title: Analysis and simulation guided processing of hierarchical porous and multi-layered ceramics for energy applications**<br>**Rajendra Bordia**, Clemson University, USA |
| 10:10-10:30 | **Title: Effect of passivation on suppression or utilization of atomic migration phenomena in metallic thin-film materials**<br>**Masumi Saka**, Tohoku University, Japan |

**Networking & Refreshments Break: 10:30-10:45 @ Foyer**

| | |
|---|---|
| 10:45-11:05 | **Title: Fabrication of aluminum matrix composites with nano-sized reinforcements via friction stir processing**<br>**Zong-yi Ma**, Chinese Academy of Sciences, China |
| 11:05-11:25 | **Title: Synthesis and preparation of nanocomposites of metal oxide and metal sulphide by electrochemical, hydrothermal and biological method: Its application for polymer nanocomposites, antibacterial, photo-voltaic and as photocatalyst**<br>**Sannaiah Ananda**, University of Mysore, India |
| 11:25-11:45 | **Title: Energy storage material**<br>**Subramanian Selladurai**, Anna University, India |
| 11:45-12:05 | **Title: Micro-beam laser ablation/mass spectrometry for materials depth-profiling and elemental surface distribution studies – Polymers, waxes, asphaltenes, steels**<br>**Avin Pillay**, The Petroleum Institute, UAE |
| 12:05-12:25 | **Title: Synthesis of carbon hollow spheres by a modified hydrothermal carbonization method**<br>**Mingli Qin**, University of Science and Technology Beijing, P.R. China |
| 12:25-12:45 | **Title: Transmission electron microscopy – A versatile tool to study the microstructure of HT-PEMFC**<br>**Christina Scheu**, Max-Planck-Institute, Germany |
| 12:45-13:05 | **Title: Hollow polydopamine nanoparticles loaded ionic liquid and doxorubicin for combined chemotherapy and microwave thermal therapy of cancer**<br>**Tianlong Liu**, Chinese Academy of Sciences, P. R. China |
| **Panel Discussions 13:05-13:10** | |
| **Memento Presentation to Organizing Committee Members** | |
| **Lunch Break 13:10-13:55 @ Foyer** | |
| **Session Chair: Avin Pillay**, The Petroleum Institute, UAE<br>**Session Chair: Zong-yi Ma**, Chinese Academy of Sciences, China | |
| **Session Introduction** | |
| 13:55-14:15 | **Title: Large pulsed electron beam surface treatment of woven carbon fiber/ZnO nanorod/polyester resin composites**<br>**Hyung Wook Park**, Ulsan National Institute of Science and Technology, Rep. of Korea |
| 14:15-14:35 | **Title: The design, synthesis and application of microwave susceptible agents for tumor microwave thermotherapy based on confinement mechanism**<br>**Xianwei Meng**, Chinese Academy of Sciences, China |
| 14:35-14:55 | **Title: Synthesis and characterization of hybrid nanoparticles for biomedical and environmental remediation applications**<br>**Soubantika Palchoudhury**, University of Tennessee, USA |
| 14:55-15:15 | **Title: Luminescent periodic microstructures for medical applications**<br>**Kenta Miura**, Gunma University, Japan |
| 15:15-15:35 | **Title: Alumina-based nanocomposites using graphite nanoplatelets as reinforcement**<br>**Syed Nasimul Alam**, National Institute of Technology Rourkela, India |
| 15:35-15:55 | **Title: $BiVO_4$ and $WO_3$ nanophotocatalysts: Water-splitting and environmental applications**<br>**G. T. Chandrappa**, Bangalore University, India |
| 15:55-16:15 | **Title: Null current hysteresis for acetylacetonate based perovskite solar cells as electron extraction layer**<br>**Abd. Rashid bin Mohd Yusoff**, Kyung Hee University, South Korea |
| **Networking & Refreshments Break: 16:15-16:30 @ Foyer** | |
| 16:30-16:50 | **Title: Nitrogen doping into ZnO branched nanowire by plasma treatment and its effect on photo electrochemical performance**<br>**Shrok Allami**, Ministry of Science and Technology, Iraq |
| **Young Research Forum** | |
| 16:50-17:05 | **Title: Polymeric nanocomposites gate dielectric for organic thin film transistors**<br>**Davoud Dastan**, Savitribai Phule Pune University, India |

| | |
|---|---|
| 17:05-17:20 | **Title: Engineered metal oxide nanoparticles, nano-bio interaction and toxicology**<br>**Avnika S Anand,** Defence Research and Development Organization, India |
| 17:20-17:35 | **Title: Density functional theory calculations for the electronic, magnetic, and chemical bonding properties of geometrically frustrated spinel $CdCr_2O_4$**<br>**Najmeh Bolandhemat,** Universiti Putra Malaysia, Malaysia |

**Panel Discussions 17:35-17:40**

**Poster Presentations: 17:30-18:15 @ Foyer**

| | |
|---|---|
| MSE-01 | **Title: A study of natural radioactivity in the welding workshops waste**<br>**Zain M Al-Amoudi,** King Abdulaziz University, Saudi Arabia |
| MSE-02 | **Title: Synthesis of polymer composites thin films of $Cr_2O_3$ nanoparticles and study of its optical and electrical properties**<br>**Venkatesha B M,** University of Mysore, India |
| MSE-03 | **Title: Solid state decarburization of high carbon ferrochromium**<br>**Amit Bhalla,** University of Witwatersrand, South Africa |
| MSE-04 | **Title: Synthesis of vanadium oxide/carbon nanotubes for anodes for lithium-ion batteries**<br>**Baorui Jia,** University of Science and Technology Beijing, P R China |
| MSE-05 | **Title: Analysis of valonia oak (*Quercus aegylops*) acorn tannin and wood adhesives application**<br>**Fatmah Bahabri,** King Abdulaziz University, Saudi Arabia |
| MSE-06 | **Title: Rate-dependent hardening model for HCP metals with effect of deformation twinning and dynamic recrystallization**<br>**Jonghun Yoon,** Hanyang University, South Korea |
| MSE-07 | **Title: Effect of gamma irradiation on the structural and color properties of CR 6-2 polycarbonate**<br>**Mymona Abutalib,** King Abdulaziz University, Saudi Arabia |
| MSE-08 | **Title: Corrosion inhibition effects of Tungstate and Nitrite ions on sputter-deposited nanocystalline W–42Cr–5Ni Alloy in 0.5 M NaCl solution**<br>**Durga Bhakta Pokharel,** Tribhuvan University, Nepal |
| MSE-09 | **Title: Vanadium nitride nanoparticles encapsulated in carbon sheets for stable high energy lithium ion anodes**<br>**Haoyang Wu,** University of Science and Technology Beijing, China |
| MSE-10 | **Title: An intelligent electronic control unit to limit vehicle speed**<br>**Srivas M C,** B M S College of Engineering, India |

**Best Poster Award Presentation**

**Day 3 September 14, 2016**

## Chattahooche-A

## Keynote Forum

| | |
|---|---|
| 08:55-09:00 | **Introduction** |
| 09:00-09:25 | **Title: Generating efficient and tunable white light using electronically coupled nanocrystal and molecular building blocks**<br>**Pavle V Radovanovic,** University of Waterloo, Canada |
| 09:25-09:50 | **Title: The scientific adventure of packing: From space saving to material design**<br>**Ho-Kei Chan,** Harbin Institute of Technology, Shenzhen, China |

Sessions:
**Mining, Metallurgy and Materials Science | Surface Science and Engineering | Biomaterials and Tissue Engineering | Materials Chemistry and Physics | Electrical, Optical and Magnetic Materials**

**Session Chair: Padmaja Guggilla,** Alabama A&M University, USA
**Session Chair: Nezar H Khdary,** King Abdulaziz City for Science and Technology, Saudi Arabia

| | |
|---|---|
| | **Session Introduction** |
| 09:50-10:10 | **Title: Effects of ionic irradiation on PMN-PT ferroelectric materials for space applications**<br>**Padmaja Guggilla,** Alabama A&M University, USA |
| 10:10-10:30 | **Title: Super high surface area mesoporous carbon for arsenic removal from ground water**<br>**Nezar H Khdary,** King Abdulaziz City for Science and Technology, Saudi Arabia |
| | **Networking & Refreshments 10:30-10:45 @ Foyer** |
| 10:45-11:05 | **Title: Effect of tempering time on strength and toughness of a ultra-low C medium Mn steel**<br>**Hong-Yan Wu,** Northeastern University, China |
| 11:05-11:25 | **Title: Soft nanomaterials of POSS-based copolymer for stone arts conservation**<br>**Ling He,** Xian Jiaotong University, China |
| 11:25-11:45 | **Title: Dielectric study of hydrogen sulphate ( $AHSO_4$ and $BHSO_4$ A= Sodium, B= Potassium) crystals**<br>**Azha Periasamy,** Bharathiar University, India |
| 11:45-12:05 | **Title: Generato retaining ring steel(Mn18Cr18N) prepared by powder metallurgy**<br>**Shubin Ren,** University of Science and Technology Beijing, China |
| 12:05-12:25 | **Title: Biocompatibility and human osteoblast response to template-assisted electrohydrodynamic atomized interlocked ceramic patterns on curved 3D metallic substrates for medical implants**<br>**Anouska Nithyanandan,** University College London, United Kingdom |
| | **Panel Discussions 12:25-12:35** |
| | **Memento Presentation to Organizing Committee Members** |
| | **Lunch Break 12:35-13:35 @ Foyer** |
| | **Session Chair: Sampath Kumar M C,** B.M.S. College of Engineering, India<br>**Session Chair: Veena Prasad,** Centre for Nano and Soft Matter Sciences, India |
| | **Session Introduction** |
| 13:35-13:55 | **Title: Application of cleaner development mechanisms**<br>**Sampath Kumar M C,** B.M.S. College of Engineering, India |
| 13:55-14:15 | **Title: Azo substituted achiral bent-core liquid crystals: photo-induced studies in $B_7$ and $B_2$ mesophases**<br>**Veena Prasad,** Centre for Nano and Soft Matter Sciences, India |
| 14:15-14:35 | **Title: Mechanically deformable and programmable nanoscale surface textures with tunable wetting and mechanical properties**<br>**Wei Li Lee,** Massachusetts Institute of Technology, USA |
| 14:35-14:55 | **Title: The study of fatigue property of S500LF wheel spoke steel**<br>**Cai-Ru GAO,** Northeastern University, China |
| 14:55-15:15 | **Title: A low-C 5-Mn ultra-heavy plate steel with high microstructural homogeneity and excellent strength - toughness combination**<br>**Jun Hu,** Northeastern University, China |
| 15:15-15:35 | **Title: Characterization of plasma sprayed CNT reinforced alumina coatings on ASME-SA213-T91 boiler tube steel**<br>**Buta Singh Sidhu,** IKG Punjab Technical University, India |
| 15:35-15:55 | **Title: Parametric investigations into manufacturing of magnetic abrasives by sintering process**<br>**Balkar Singh,** IKG-Punjab Technical University, India |
| | **Young Research Forum** |
| 15:55-16:10 | **Title: Fracture toughness of austenitic stainless steel welds for ultra-high vacuum and cryogenic applications**<br>**Ignacio Aviles Santillana,** CERN, Switzerland |
| 16:10-16:20 | **Title: Synthesis and luminescence properties of pyrophosphate phosphors doped with rare earth**<br>**Wafa Hami,** Cadi Ayyad University, Morocco |
| | **Panel Discussions 16:20-16:25** |
| | **Special Appreciation Awards** |
| | **Refreshments 16:30 onwards @ Foyer** |