Scientific Program

11th International Conference on
ADVANCED MATERIALS & PROCESSING
September 7-8, 2017 Edinburgh, Scotland
08:00-09:00  Registrations

Day 1  September 07, 2017

Balvenie Glenmorangie

09:00-09:25  Opening Ceremony

Keynote Forum

09:25-09:30  Introduction
Title: Direct recording of myosin head power and recovery strokes in hydrated myosin filaments provides evidence against the swinging lever arm mechanism in muscle contraction
Haru Sugi, Teikyo University Medical School, Japan

09:30-09:55  Title: The skeleton microporous materials with coatings inside the pores for medical and dental applications
Leszek Adam Dobrzanski, World Academy of Materials and Manufacturing Engineering, Poland

09:55-10:20  Title: Single wall and multiwall WS₂ nanotubes synthesis and characterization - the update
Alla Zak, Holon Institute of Technology, Israel

Networking and Refreshments Break 10:45-11:05 @ Academy Breakout Lounge

Sessions: Advancement in Nanomaterials Science And Nanotechnology  |  Coatings and Surface Engineering  |  Functional Materials
Session Chair: Hideo Miura, Tohoku University, Japan

11:05-11:25  Title: Evaluation of atomic scale damages of advanced materials based on the order of atom arrangement
Hideo Miura, Tohoku University, Japan

11:25-11:45  Title: Thermokinetic modeling and simulation of complex phase transformations in the framework of advanced functional materials
Erwin Povoden-Karadeniz, Institute of Materials Science and Technology, Austria

11:45-12:05  Title: Evaluation of sputtered PZT thin films on Ti-substrates upon re-crystallization with a thin Pb-overcoat
Ankita ghatak, S.N.Bose National Centre For Basic Sciences, India

12:05-12:25  Title: Modification of ground state property on size reduction to 1D
Barnali Ghosh (Saha), S.N.Bose National Centre For Basic Sciences, India

12:25-12:45  Title: Towards conductive textiles: coating polymeric fibres with graphene
Ana neves, University of Exeter, UK

12:45-13:05  Title: Functionalization of cocoa shell (CS) surfaces using nanoparticles and their application in CO₂ storage
Julien vieillard, University of Rouen Normandie, France

Lunch Break 13:05-13:45 @ Traders Restaurant

Session Chair: Manfred Martin, RWTH Aachen University, Germany

13:45-14:05  Title: Low friction, wear resistant quasicrystalline coatings
Jean marie dubois, Université de Lorraine, France

14:05-14:25  Title: Hafnium and palladium modified aluminide coatings
Jolanta Romanowska, Rzeszów University of Technology, Poland

14:25-14:45  Title: Resistive switching in highly disordered thin oxide films
Manfred Martin, RWTH Aachen University, Germany
Title: TiO$_2$ nanotubes as potential vascular stents: Effect of oxygen plasma treatment on crystal structure and surface properties

Metka bencina, Jožef Stefan Institute, Slovenia

Title: Particle size versus energetics of nanomaterials: Key parameters controlling the stability and reactivity of nanostructured materials

Speranta Tanasescu, Institute of Physical Chemistry Ilie Murgulescu of the Romanian Academy, Romania

Title: Formation of carbon-based nanostructures from carbon suboxide decomposition at high pressure and temperature – a ReaxFF study

Xavier bidault, Commissariat Energie Atomique, France

Title: Starch capped silver nanoparticles as colorimetric sensor for hydrogen peroxide recognition in aqueous medium

Abdelaziz Elgamouz, University of Sharjah, UAE

Session: Advanced Biomaterials, Bio devices & Tissue Engineering | Advanced Ceramics and Composite Materials

Session Chair: Garcia Garcia Francisco, University of Edinburgh, Scotland

16:25-16:45
Title: Design of nanostructured powders and mechanical properties of WC-AISI 304 stainless steel composites

Ana senos, University of Aveiro, Portugal

Title: Thermal characterization of a thermoplastic resin for resin transfer molding in process conditions: Demonstrating the feasibility of the technology

Bailleul Jean-Luc, Laboratoire de Thermocinétique de Nantes, France

17:05-17:25
Title: Thermoelectric oxides processed by a laser floating zone technique

Nuno M. Ferreira, University of Aveiro, Portugal

Title: LIPSS stimulate stem mesenchymal cells differentiation to osteoblasts in titanium and tantalum

Alberto Jorge Mora, Universidad de Santiago de Compostela, Spain

17:45-18:05
Title: Biological cell inspired reactors for an increasing population world

Garcia Garcia Francisco, University of Edinburgh, Scotland

Title: Synthesis of Nano CaCO$_3$ and Hydroxyapatite by Sol-Gel methods, on spores and in 3D-printed Ca$^{2+}$-crosslinked PVA hydrogels and their use in bone regeneration

Paul Sermon, Brunel University, UK

Breakout @ Edradour

Sessions: Materials Processing and characterization | Materials for Energy application & Energy storage

Session Chair: Alexandre Maitre, University of Limoges, France

11:05-11:25
Title: Atomic layer deposition routes to monolithic integration of crystalline oxides on semiconductors

John Ekerdt, University of Texas at Austin, USA

Title: Tailoring compatibility in ultrapermeable polymer blends to switch off plasticization and physical ageing

Lau Sam, University of Edinburgh, Scotland

11:45-12:05
Title: Mechanism of spark plasma sintering of high temperature ceramics such as carbides

Alexandre Maitre, University of Limoges, France

Title: Testing methodologies for thermo-mechanical fatigue evaluation in advanced aerospace materials

Mark Whittaker, Swansea University, UK

12:05-12:25
Title: Characterization of energy materials by neutron scattering

Martin Jones owen, Science and technology facilities council, UK

12:25-12:45
<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
<th>Institution/University</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:45-13:05</td>
<td>Permanent magnets in energy applications for the clean environment</td>
<td>Spomenka Kobe</td>
<td>Jožef Stefan Institute, Slovenia</td>
</tr>
<tr>
<td></td>
<td>Lunch Break 13:05-13:45 @ Traders Restaurant</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sessions: Advanced Materials Engineering</td>
<td>Materials Science and Engineering</td>
<td>Emerging Areas of Materials Science</td>
</tr>
<tr>
<td></td>
<td>Session Chair: Masumi Saka, Tohoku University, Japan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13:45-14:05</td>
<td>Interaction of nanoparticles with amino acids and a physiologically</td>
<td>Karolina M. Šišková</td>
<td>Palacký University in Olomouc, Czech</td>
</tr>
<tr>
<td></td>
<td>important model protein studied by spectroscopic techniques</td>
<td></td>
<td>Republic</td>
</tr>
<tr>
<td>14:05-14:25</td>
<td>Kovacs effect and the relation between glasses, supercooled liquids</td>
<td>Francesco Aliotta</td>
<td>Istituto per i Processi Chimico-Fisici,</td>
</tr>
<tr>
<td></td>
<td>and crystals</td>
<td></td>
<td>Italy</td>
</tr>
<tr>
<td>14:25-14:45</td>
<td>Co-electrodeposition of Zn-rich Cu-Zn-Sn metallic alloy and its</td>
<td>Ali Rakhshani</td>
<td>Kuwait University, Kuwait</td>
</tr>
<tr>
<td></td>
<td>conversion to Cu$_2$ZnSnS$_4$ and Cu$_2$ZnSnSe$_4$ photovoltaic</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>absorber films</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14:45-15:05</td>
<td>Surface mechanics design of metallic materials by cavitation peening</td>
<td>Hitoshi Soyama</td>
<td>Tohoku University, Japan</td>
</tr>
<tr>
<td>15:05-15:25</td>
<td>Fatigue analysis of a failed connecting rod in race car engine</td>
<td>Klaudio Bari</td>
<td>University of Derby, UK</td>
</tr>
<tr>
<td>15:25-15:45</td>
<td>Crack/damage evaluation and micro-materials fabrication in the</td>
<td>Masumi Saka</td>
<td>Tohoku University, Japan</td>
</tr>
<tr>
<td></td>
<td>relation with electric field</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:45-16:00</td>
<td>YRF: Heat transfer performance of double-layer porous copper</td>
<td>Mosalagae Mosalagae</td>
<td>Sheffield University, UK</td>
</tr>
<tr>
<td></td>
<td>produced by tape casting with lost carbonate sintering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16:25-16:45</td>
<td>Advanced polydimethylsiloxane-urea copolymer based masterbatches</td>
<td>Hans-Joachim Radusch</td>
<td>MLU Halle, Germany</td>
</tr>
<tr>
<td></td>
<td>with multiple functionality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16:45-17:05</td>
<td>Sculpture art and fashion design</td>
<td>Mayssa El Fare</td>
<td>Damietta University, Egypt</td>
</tr>
<tr>
<td>17:05-17:25</td>
<td>Material science and fashion design</td>
<td>Nashwa El Shafey</td>
<td>Damietta University, Egypt</td>
</tr>
<tr>
<td>17:25-17:45</td>
<td>Structures, interactions and optical responses from polymer and</td>
<td>Sarathi Kundu</td>
<td>Institute of Advanced Study in Science</td>
</tr>
<tr>
<td></td>
<td>polymer nanocomposites</td>
<td></td>
<td>and Technology, India</td>
</tr>
<tr>
<td>17:45-18:05</td>
<td>Recent advances in polylactic acid based blends, composites and</td>
<td>Kartikey Verma</td>
<td>Chandigarh University, India</td>
</tr>
<tr>
<td></td>
<td>nanocomposites</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day 2  September 08, 2017</td>
<td>Balvenie Glenmorangie Keynote Forum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>09:30-09:55</td>
<td>Influence of non-Newtonian behavior of polymers on their processing</td>
<td>Mosongo Moukwa</td>
<td>PolyOne Corporation Designed Structures</td>
</tr>
<tr>
<td></td>
<td>characteristics</td>
<td></td>
<td>and Solutions LLC, USA</td>
</tr>
<tr>
<td>09:55-10:20</td>
<td>Continuous nanocrystallizing of medicaments by spray flash</td>
<td>Denis Spitzer</td>
<td>NS3E Laboratory, ISL-CNRS-UNISTRA, France</td>
</tr>
<tr>
<td></td>
<td>evaporation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Title: Hybrid biomaterials for nanobioelectronic device: toward biocomputing system  
Jeong-Woo Choi, Sogang University, Korea

Networking and Refreshments Break 10:45-11:05 @ Academy Breakout Lounge

Title: Molten salts & molten salts technology: past, present and future in materials and processing technology  
Francisco Javier Perez Trujillo, Universidad Complutense de Madrid, Spain
Title: SERS tag-therapeutic drug delivery, multimodal imaging, multiplexed sensing and diagnosis metal-nanosystems  
Nekane Guarrotxena, Institute of Polymer Science and Technology, Spanish National Research Council, Spain

Sessions: Materials Engineering and Performance | Materials For Engineering and Environmental Sustainability | Metals, Metallurgy and Materials | Polymers Science and Engineering | Optical, Electronic and Magnetic Materials
Session Chair: Nekane Guarrotxena, Institute of Polymer Science and Technology, Spanish National Research Council, Spain
Session Chair: Sylvain G.Cloutier, École de Technologie Supérieure, Canada

Title: Adsorptive removal of sulfur compounds using Cu²⁺-based porous coordination polymers  
Masashi Morita, Panasonic Corporation, Japan
Title: Key role of the liquid-surface interactions to reveal hidden elastic properties in liquids  
Laurence Noirez, Université Paris-Saclay, France
Title: Influence of nickel and aluminum additions on the microstructure and tensile properties of innovative, free-carbon, 10% cobalt maraging composit steel  
Saied Elghazaly, Central metallurgical R&D Inst, Egypt
Title: Functionalized well-defined polymeric nanostructures for biomedical applications  
Efrosyni Themistou, Queen's University Belfast, UK

Session Introduction
11:55-12:15
Title: The performance of polypropylene fibre reinforced concrete: Mechanical properties  
Noor Faisal Abas, Universiti Sains Malaysia, Malaysia
Title: Polymeric nanoparticles and gels: modeling of dynamic behavior and properties using Discrete Element Method  
Martin Kroupa, University of Chemistry and Technology Prague, Czech Republic
Title: High-performance perovskite hybrids for printable optoelectronics  
Sylvain G.Cloutier, École de Technologie Supérieure, Canada
Title: Hydrogen production from water using the sun via photocatalytic processes on Au/g-C₃N₄/TiO₂ materials  
Valerie Keller, Institute of Chemistry and Processes for Energy, Environment and Health, France
Title: On unified approach in description of crystalline structures in discrete space  
Vladimir Shevcheko, Institute of Silicate Chemistry RAS, Russia

Lunch Break 13:15-14:00 @ Traders Restaurant

14:00-14:20
Title: The performance of polypropylene fibre reinforced concrete: Mechanical properties  
Noor Faisal Abas, Universiti Sains Malaysia, Malaysia

14:20-14:35
Title: Polymeric nanoparticles and gels: modeling of dynamic behavior and properties using Discrete Element Method  
Martin Kroupa, University of Chemistry and Technology Prague, Czech Republic

14:35-14:55
Title: High-performance perovskite hybrids for printable optoelectronics  
Sylvain G.Cloutier, École de Technologie Supérieure, Canada
Title: Hydrogen production from water using the sun via photocatalytic processes on Au/g-C₃N₄/TiO₂ materials  
Valerie Keller, Institute of Chemistry and Processes for Energy, Environment and Health, France

14:55-15:15
Title: On unified approach in description of crystalline structures in discrete space  
Vladimir Shevcheko, Institute of Silicate Chemistry RAS, Russia

Video Presentations
Title: Engineering columnar crystals: A novel, template-based method of sequential deposition  
Ho-kei Chan, Harbin Institute of Technology, China
Title: Microstructure development affected by electrode geometry during resistance spot welding  
Peng-Sheng Wei, National Sun Yat-Sen University, Taiwan

Networking and Refreshments Break 16:10 Onwards @ Academy Breakout Lounge

Poster Presentations
| AM-01 | Title: Luminescence of morphologically-controlled calcium silicon nitride particles through combined techniques of ultrasonic spray pyrolysis and carbothermal reduction/nitridation  
Satoshi Ono, Sophia University, Japan |
| AM-02 | Title: Natural plant-derived polymer fabricated with sugar-containing hydroxyapatite for biocompatible bone-hemostasis  
Yeonjeong Noh, Sophia University, Japan |
| AM-03 | Title: Encapsulation of oxynitride phosphors into sintered Li$_2$O-ZnO-B$_2$O$_3$-P$_2$O$_5$-CaF$_2$ glass body  
Nanako Akiyama, Sophia University, Japan |
| AM-04 | Title: Electrochemical decoration of MoS$_2$ nanoplatelet arrays with Pt quantum dots for high efficient water splitting  
Arnas Naujokaitis, Vilnius University, Lithuania |
| AM-05 | Title: Detachable photocatalysts of anatase TiO$_2$ nanoparticles: Annulling surface charge for immediate photocatalyst separation  
Al-Hetlani, Kuwait University, Kuwait |
| AM-06 | Title: Luminescence of Mn$^{2+}$ and Eu$^{3+}$ doped zinc phosphate glass  
Hector Octavio Murrieta Sanchez, Universidad Nacional Autónoma de México, México |
| AM-07 | Title: Impact of the granularity of a high-explosive material on its shock properties  
Xavier Bidault, Commissariat Energie Atomique, France |
| AM-08 | Title: Green synthesized biocompatible anode in MFCs for sustainable wastewater treatments and energy recycling  
Ying Cheng, University of Newcastle, Australia |
| AM-09 | Title: Fibers made by centrifugal spinning technology  
Jana Hlavata, Technical University of Liberec, Czech Republic |
| AM-10 | Title: Preparation of composite scaffolds from micro / nano fibers and biocompatible hydrogels  
Radek Jirkovec, Technical University of Liberec, Czech Republic |
| AM-11 | Title: Study of electrically conductive water-based polyurethane  
Valentina Caba, University of Brescia, Italy |
| AM-12 | Title: Study of the mechanical and surface properties of the composites commonly used in lightweight constructions  
Donata Kuczyska, Warsaw University of Technology, Poland |
| AM-13 | Title: The study of point defect properties of Fe-Cr alloys: First-principles calculations  
Marcin Zemla, Warsaw University of Technology, Poland |
| AM-14 | Title: Materials selection for modern and mobile medical constructions  
Agata Sotnickzuk, Warsaw University of Technology, Poland |
| AM-15 | Title: Hybrid polymer nanofibers  
Stanislav Nevyhosteny, Technical University of Liberec, Czech Republic |
| AM-16 | Title: One pot synthesis of acid doped polypyrrole and investigation of its visible light driven dye degradation and room temperature ferromagnetic properties  
Sanchoyita Nag, Indian Institute of Engineering Science and Technology, India |
| AM-17 | Title: Catalytic oxidation of methane into methanol over copper exchanged zsm-5 zeolites  
Madina Ryssakova, The University of Edinburgh, Scotland |