International Conference on
Materials Science and Engineering
September 16-18, 2019

Event Venue
Pullman Melbourne Albert Park
65 Queens Road Melbourne Victoria 3004
Australia

We are excited to use Whova as our event platform. Attendees please download Whova event app.
The event invitation code is: matso
Across International for over 25 years has been manufacturing lab equipment and ensuring each are tested for quality before shipment from our founding facility in New Jersey, and now Nevada and Melbourne, Australia.

We offer a wide variety of material processing equipment including:

- Furnace
- Vacuum pumps
- Ball Mills
- Rotary evaporators
- Vacuum ovens
- Recirculating chillers
- (heated rosin [for botanical customers]) presses

We pride our company on service, quality and precision of instruments (+/-1 C accuracy per GMP standard area), stock equipment, replacement parts and test for functionality and quality at our facilities, and are a call away for whatever you need!

We have worked with industry leaders like Monash, Melbourne, NSW, Wollongong and Curtin universities, Toyota, NASA, the Australian government, DoD, Geoscience Australia, and Consolidated Tin Mines Ltd. to name a few like SGS, Boron Molecules, Coogee Titanium and would like to assist you as we have them!

Thanks so much for your time, look forward to hearing from you and hope you have a great day!

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<td>Invited Session 4: Advanced Functional Materials</td>
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<tr>
<td>Oral Session 2: Students Forum</td>
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<td>City Tour</td>
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<td>Floor Plan of Conference Rooms</td>
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### Conference Schedule

#### Monday, September 16, 2019

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>08:00-08:40</td>
<td>Conference Registrations</td>
<td>@ Mercure Lounge</td>
</tr>
<tr>
<td></td>
<td>Arrival Tea &amp; Coffee</td>
<td></td>
</tr>
<tr>
<td>08:40-09:00</td>
<td>Opening Ceremony (State 3, Pullman Melbourne Albert Park)</td>
<td></td>
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<tr>
<td>09:00-11:00</td>
<td>Keynote Presentations (State 3, Pullman Melbourne Albert Park)</td>
<td></td>
</tr>
<tr>
<td>11:00-11:20</td>
<td>Coffee Break and Group Photograph (State 3, Pullman Melbourne Albert Park)</td>
<td>@ Mercure Lounge</td>
</tr>
<tr>
<td>11:20-11:40</td>
<td>Welcome Speech by Lord Mayor Sally Capp - City of Melbourne (State 3, Pullman Melbourne Albert Park)</td>
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</tr>
<tr>
<td>11:40-12:00</td>
<td>Panel Discussion</td>
<td></td>
</tr>
<tr>
<td>12:00-12:20</td>
<td>Keynote Presentations (State 3, Pullman Melbourne Albert Park)</td>
<td></td>
</tr>
<tr>
<td>13:00-13:40</td>
<td>Buffet Lunch (State 3, Pullman Melbourne Albert Park)</td>
<td>@ Mercure Lounge</td>
</tr>
<tr>
<td>13:40-15:40</td>
<td>Keynote Presentations (State 3, Pullman Melbourne Albert Park)</td>
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</tr>
<tr>
<td>15:40-16:00</td>
<td>Coffee Break (State 3, Pullman Melbourne Albert Park)</td>
<td>@ Mercure Lounge</td>
</tr>
<tr>
<td>16:00-17:00</td>
<td>Keynote Presentations (State 3, Pullman Melbourne Albert Park)</td>
<td></td>
</tr>
<tr>
<td>17:00-18:00</td>
<td>Reception (State 3, Pullman Melbourne Albert Park)</td>
<td>@ Mercure Lounge</td>
</tr>
</tbody>
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#### Tuesday, September 17, 2019

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>08:00-10:00</td>
<td>Invited Session 1: Electronic and Optical Materials (State 3, Pullman Melbourne Albert Park)</td>
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<tr>
<td></td>
<td>Invited Session 3: Biomaterials and Medical Devices (State 1, Pullman Melbourne Albert Park)</td>
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</tr>
<tr>
<td>10:00-10:20</td>
<td>Coffee Break (State 3, Pullman Melbourne Albert Park)</td>
<td>@ Mercure Lounge</td>
</tr>
<tr>
<td>10:20-13:00</td>
<td>Invited Session 1: Electronic and Optical Materials (State 3, Pullman Melbourne Albert Park)</td>
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<td></td>
<td>Invited Session 4: Advanced Functional Materials (State 1, Pullman Melbourne Albert Park)</td>
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<tr>
<td>13:00-13:40</td>
<td>Buffet Lunch (State 3, Pullman Melbourne Albert Park)</td>
<td>@ Mercure Lounge</td>
</tr>
<tr>
<td>13:40-16:00</td>
<td>Invited Session 2: Energy and Environment Materials (State 3, Pullman Melbourne Albert Park)</td>
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<tr>
<td></td>
<td>Invited Session 4: Advanced Functional Materials (State 1, Pullman Melbourne Albert Park)</td>
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<tr>
<td>16:00-16:40</td>
<td>Coffee Break and Poster Presentations (State 3, Pullman Melbourne Albert Park)</td>
<td>Foyer</td>
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<tr>
<td>16:40-18:00</td>
<td>Invited Session 2: Energy and Environment Materials (State 3, Pullman Melbourne Albert Park)</td>
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<tr>
<td></td>
<td>Special Session: Computational Materials Science (State 1, Pullman Melbourne Albert Park)</td>
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#### Wednesday, September 18, 2019

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00-10:00</td>
<td>Invited Session 5: Materials Chemistry (State 3, Pullman Melbourne Albert Park)</td>
<td></td>
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<tr>
<td></td>
<td>Invited Session 6: Advance Structural Materials (State 1, Pullman Melbourne Albert Park)</td>
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</tr>
<tr>
<td>10:00-10:10</td>
<td>Coffee Break (State 3, Pullman Melbourne Albert Park)</td>
<td>@ Mercure Lounge</td>
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<tr>
<td>10:10-12:30</td>
<td>Oral Session 1: Students Forum (State 3, Pullman Melbourne Albert Park)</td>
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<td></td>
<td>Oral Session 2: Students Forum (State 1, Pullman Melbourne Albert Park)</td>
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</tr>
<tr>
<td>12:30-13:30</td>
<td>Closing Ceremony and Buffet Lunch (State 3, Pullman Melbourne Albert Park)</td>
<td>@ Mercure Lounge</td>
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</tbody>
</table>

The city tour operated by Bus Charter starts at 13:30.
Keynote Presentations

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00-09:30</td>
<td>Challenges and opportunities in data-driven materials design</td>
<td>Amanda Barnard</td>
<td>Data61, CSIRO, Australia</td>
</tr>
<tr>
<td>09:30-10:00</td>
<td>Nanomaterial properties as revealed via <em>in situ</em> transmission electron microscopy</td>
<td>Dmitri Golberg</td>
<td>Queensland University of Technology, Australia</td>
</tr>
<tr>
<td>10:00-10:30</td>
<td>Efficient air cathodes for rechargeable lithium oxygen batteries</td>
<td>Jiazhao Wang</td>
<td>University of Wollongong, Australia</td>
</tr>
<tr>
<td>10:30-11:00</td>
<td>Nanostructured materials for energy-relevant electrocatalytic processes</td>
<td>Shizhang Qiao</td>
<td>The University of Adelaide, Australia</td>
</tr>
<tr>
<td>11:00-11:20</td>
<td>Coffee Break and Group Photograph</td>
<td></td>
<td>@ Mercure Lounge</td>
</tr>
<tr>
<td>11:20-11:40</td>
<td>Welcome Speech by Lord Mayor Sally Capp - City of Melbourne</td>
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<tr>
<td>11:40-12:00</td>
<td>Panel Discussion: Women in Materials Science</td>
<td></td>
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<tr>
<td>12:00-12:30</td>
<td>The power of materials innovation; Breaking spectral and performance barriers for quantum devices</td>
<td>Manijeh Razeghi</td>
<td>Northwestern University, USA</td>
</tr>
<tr>
<td>12:30-13:00</td>
<td>Cell membrane penetration without pore formation: Chameleonic properties of dendrimers in response to hydrophobic and hydrophilic environments</td>
<td>Sean Smith</td>
<td>Australian National University, Australia</td>
</tr>
<tr>
<td>13:00-13:40</td>
<td>Buffet Lunch</td>
<td></td>
<td>@ Mercure Lounge</td>
</tr>
<tr>
<td>13:40-14:10</td>
<td>Low-cost and high-performance hybrid phosphors for energy-efficient lighting technologies</td>
<td>Jing Li</td>
<td>Rutgers University, USA</td>
</tr>
<tr>
<td>14:10-14:40</td>
<td>Magnetic nano-catalysts and carbonaceous waste for sustainable applications in chemical transformations</td>
<td>Rajender Varma</td>
<td>Palacky University, Czech Republic</td>
</tr>
<tr>
<td>14:40-15:10</td>
<td>Recent developments of advanced GaN materials for light emitting diodes (LEDs) and laser diodes for energy efficient lighting and displays</td>
<td>Steven Denbaars</td>
<td>University of California, Santa Barbara, USA</td>
</tr>
<tr>
<td>15:10-15:40</td>
<td>Materials spacetectonics: New conceptual paradigm of functional porous system</td>
<td>Yusuke Yamauchi</td>
<td>The University of Queensland, Australia</td>
</tr>
<tr>
<td>Time</td>
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<tr>
<td>15:40-16:00</td>
<td>Coffee Break</td>
<td>@ Mercure Lounge</td>
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</table>
| 16:00-16:30  | Advanced synchrotron x-ray diffraction and imaging techniques for catalysis and electrocatalysis  
Hoydoo You  
Argonne National Laboratory, USA |
| 16:30-17:00  | Nano-structured layered double hydroxide based photocatalysts for solar fuels and value-added chemicals  
Tierui Zhang  
Technical Institute of Physics and Chemistry, CAS, China |
| 17:00-18:00  | Reception                                                 | @ Mercure Lounge |
Invited Session 1: Electronic and Optical Materials
State Room 3, Pullman Melbourne Albert Park

Chairs: Osama O. Awadelkarim, Pennsylvania State University, USA
Osamn Kato, Kyushu University, Japan

08:00-08:20 Superconductivity enhanced by a ferroelectric quantum critical point
Isao H. Inoue
National Institute of Advanced Industrial Science and Technology, Japan

08:20-08:40 Exploring novel engineered materials for flexible electronic system
Osama O. Awadelkarim
Pennsylvania State University, USA

08:40-09:00 Si paste as a novel printing electronic material
Yoshimine Kato
Kyushu University, Japan

09:00-09:20 Gas bubbles, liquid droplets and sound: The new frontier for nonlinear optics
Ivan S. Maksymov
Swinburne University of Technology, Australia

09:20-09:40 Vertically-aligned resonant tunnelling devices with organic molecules as quantum dots
Ryoma Hayakawa
National Institute for Materials Science, Japan

09:40-10:00 A facile strategy to fabricate conductive fabrics-polyaniline based
Mohd Muzamir Mahat
MARA University of Technology, Malaysia

10:00-10:20 Coffee Break
@ Mercure Lounge

10:20-10:40 Femtosecond nonlinear four wave mixing for study of carrier dynamics in porous silicon
Lap Van Dao
Swinburne University of Technology, Australia

10:40-11:00 Effective and stable heat modulation by smart window technology using advanced
electrochromic and electrophoretic nanomaterials
Tam D. Nguyen
Nanyang Technological University, Singapore

11:00-11:20 RIKEN accelerator-driven compact neutron source as a material science investigation probe
Yoshie Otake
RIKEN, Japan

11:20-11:40 Size tuneable NiCr2O4 nanoparticles for high charge storage parallel plate supercapacitor
Biplab Kumar Paul
Jadavpur University, India

11:40-12:00 Wide band gap organic single crystal for thermal and third order nonlinear optical applications
Bincy I.P
MES College, India

12:00-12:20 Francisites as new geometrically frustrated quasi-two-dimensional magnets
Alexander Vassiliev
M.V. Lomonosov Moscow State University, Russia
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<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker</th>
<th>Institution</th>
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<tr>
<td>12:20-12:40</td>
<td>Structure-property relationships in α-, β′-, γ and δ-modifications of Mn₃(PO₄)₂</td>
<td>Olga Maximova</td>
<td>M.V. Lomonosov Moscow State University, Russia</td>
</tr>
<tr>
<td>12:40-13:00</td>
<td>Development of flexible carbon nanotube electrochemical sensor using screen printed technique</td>
<td>Soheli Farhana</td>
<td>University in Kuala Lumpur, Malaysia</td>
</tr>
<tr>
<td>13:00-13:40</td>
<td>Buffet Lunch</td>
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<tr>
<td>Invited Session 2: Energy and Environment Materials</td>
<td>State 3, Pullman Melbourne Albert Park</td>
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<tr>
<td>Chairs:</td>
<td>Barbara Szpunar, University of Saskatchewan, Canada</td>
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<td></td>
<td>Hiromitsu Takaba, Kogakuin University, Japan</td>
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<tr>
<td>13:40-14:00</td>
<td>Comparison of structural stability of β silicon carbide and thoria</td>
<td>Barbara Szpunar</td>
<td>University of Saskatchewan, Canada</td>
</tr>
<tr>
<td>14:00-14:20</td>
<td>Molecular modeling of stability and emission properties of halide perovskites</td>
<td>Hiromitsu Takaba</td>
<td>Kogakuin University, Japan</td>
</tr>
<tr>
<td>14:20-14:40</td>
<td>Enhancement of redox mediator effect at air electrode for rechargeable Li-O₂ batteries</td>
<td>Morihiro Saito</td>
<td>Seikei University, Japan</td>
</tr>
<tr>
<td>14:40-15:00</td>
<td>Nanofabrication processes for catalysts on nano-silicon materials for energy conversion devices</td>
<td>Ahmed Halima</td>
<td>Monash University, Australia</td>
</tr>
<tr>
<td>15:00-15:20</td>
<td>Guest Li⁺ ion conductors based on NaI-NaBH₄ and their potential use for all-solid-state batteries</td>
<td>Reona Miyazaki</td>
<td>Nagoya Institute of Technology, Japan</td>
</tr>
<tr>
<td>15:20-15:40</td>
<td>Nanomaterials for energy conversion and storage</td>
<td>Nasir Mahmood</td>
<td>RMIT University, Australia</td>
</tr>
<tr>
<td>15:40-16:00</td>
<td>Hetero-structured titanium dioxide photocatalyst</td>
<td>Chiaki Terashima</td>
<td>Tokyo University of Science, Japan</td>
</tr>
<tr>
<td>16:00-16:40</td>
<td>Coffee Break and Poster Presentations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16:40-17:00</td>
<td>Nanocomposite catalysts for reduction of 4-nitrophenol</td>
<td>Piotr Cyganowski</td>
<td>Wroclaw University of Science and Technology, Poland</td>
</tr>
<tr>
<td>17:00-17:20</td>
<td>Efficient down/up-conversion rare earth pair doped luminescent materials for Si-solar cell applications</td>
<td>C. K. Jayasankar</td>
<td>Sri Venkateswara University, India</td>
</tr>
<tr>
<td>17:20-17:40</td>
<td>Two dimensional materials preparation and their properties of oxygen evolution reaction</td>
<td>Chuanbao Cao</td>
<td>Beijing Institute of Technology, China</td>
</tr>
<tr>
<td>17:40-18:00</td>
<td>Interaction of corrosion-induced hydrogen with nascent defects in steel under neutron irradiation</td>
<td>Evgenii Krasikov</td>
<td>Kurchatov Institute, Russia</td>
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</tbody>
</table>
**Invited Session 3: Biomaterials and Medical Devices**
State 1, Pullman Melbourne Albert Park

**Chair:** Kun Qian, Shanghai Jiao Tong University, China

08:00-08:20  Hemoglobin-albumin cluster as red blood cell substitute
Teruyuki Komatsu
Chuo University, Japan

08:20-08:40  Use of multivalent-type compounds for enhancement of biological affinities
Koji Matsuoka
Saitama University, Japan

08:40-09:00  Tuning the size and composition of nanohydrogels using a “phantom monomer” for biological applications
Gerardo Byk
Bar Ilan University, Israel

09:00-09:20  Nanoparticle engineering towards highly efficient drug delivery systems and SERS-based bio-sensing
Beatrice Fortuni
Catholic University of Leuven, Belgium

09:20-09:40  Photocontrollable adhesion: A bioinspired microstructured transport device
Emre Kizilkan
Kiel University, Germany

09:40-10:00  Design of new metabolic platforms for in vitro diagnostics
Kun Qian
Shanghai Jiao Tong University, China

10:00-10:20  Coffee Break  
@ Mercure Lounge

**Invited Session 4: Advanced Functional Materials**
State 1, Pullman Melbourne Albert Park

**Chairs:** Katsumi Yoshida, Tokyo Institute of Technology, Japan
Shalini Bahel, Guru Nanak Dev University, India

10:20-10:40  Development of highly microstructure-controlled boron carbide neutron absorbers for fast reactors
Katsumi Yoshida
Tokyo Institute of Technology, Japan

10:40-11:00  Reflection studies of barium lanthanum titanates in 8.2 to 12.4 GHz frequency range
Shalini Bahel
Guru Nanak Dev University, India

11:00-11:20  Cold spray process for thick ceramic coatings
Motohiro Yamada
Toyohashi University of Technology, Japan

11:20-11:40  Stimuli responsive and molecularly imprinted polymers for phthalates removal
Joanna Wolska
Wroclaw University of Science and Technology, Poland

11:40-12:00  Engineered woods based on rice straw: Structure, properties and uses
Nattakan Soykeakbaew
Mae Fah Luang University, Thailand
12:00-12:20 Improving molded pulp products from agro wastes via blending approach
Nattaya Tawichai
Mae Fah Luang University, Thailand

12:20-12:40 Theoretical assessment of wettability on silane coatings: From hydrophilic to hydrophobic
Haiming Huang
Guangzhou University, China

12:40-13:00 Nanofabrication technology for structure control of nano-materials and their applications
Chi Won Ahn
Korea Advanced Institute of Science and Technology, Korea

13:00-13:40 Buffet Lunch

13:40-14:00 Interfacing biomolecules with nanomaterials: Structure and function at the atomic-scale
Tiff Walsh
Deakin University, Australia

14:00-14:20 Chemical engineering of nanostructured materials for varying applications
Xingmao Jiang
Wuhan Institute of Technology, China

14:20-14:40 Preparation of graphene based magnetic hybrids for dye removal application
Ing Kong
La Trobe University, Australia

14:40-15:00 The potential of using gold nanoparticle-based assay for target molecule detection
Dakrong Pissuwan
Mahidol University, Thailand

15:00-15:20 Next-generation latent finger-mark detection using functionalised silicon oxide nano-particles
Fehmida K Kanodarwala
University of Technology Sydney, Australia

15:20-15:40 Colossal reversible barocaloric effects in plastic crystals
Pol Lloveras
Polytechnic University of Catalonia, Spain

15:40-16:00 Magnetic properties of LSMO, LSMKO and LSMPO superparamagnetic nanomaterials
Sunita Keshri
Birla Institute of Technology, India

16:00-16:40 Coffee Break and Poster Presentations

Special Session: Computational Materials Science from Data61, CSIRO, Australia
State 1, Pullman Melbourne Albert Park

16:40-18:00 Active-learning directed simulation of small molecule surface binding
Christopher A. Feigl
Data61, CSIRO, Australia

Feature selection for machine learning of surface catalysts
Julia Melisande Fischer
Data61, CSIRO, Australia

Understanding and predicting defective graphene-oxide structures using machine learning
Benyamin Motevalli Soumehsaraei
Data61, CSIRO, Australia
| ICME001 | Synthesis and drug binding properties of recombinant canine serum albumin  
Tomomi Hasegawa  
Chuo University, Japan |
| --- | --- |
| ICME002 | Insulin receptor binding aptamer and milk exosome conjugates as promising therapeutic agents for Diabetes  
Gna Ahn  
Chungbuk National University, Republic of Korea |
| ICME003 | Protection layer/semiconductor structure of photoelectrode for photoelectrochemical water splitting  
Jianyun Zheng  
Curtin University, Australia |
| ICME004 | Bacterial nanofibrial polymer (BNP) for wound-healing application  
Seon Hyung Lee  
Chungbuk National University, Republic of Korea |
| ICME005 | Super tough, thermally conductive composite hydrogel and its biomedical applications  
Yi Wang  
Sichuan University, China |
| ICME006 | Highly stretchable and self-healing "solid-liquid" elastomer with strain-rate sensing capability  
Qi Wu  
Sichuan University, China |
| ICME007 | Characterizing the multi-scale energy dissipation mechanism of natural rubber  
Cheng Huang  
Sichuan University, China |
| ICME008 | Ultra-tough, defect-tolerant and humidity-responsive self-healing elastomers for intelligent actuators  
Yong Zhu  
Sichuan University, China |
| ICME009 | Ionic modified halogenated elastomers with the capabilities of self-healing and water insensitivity  
Linjun Zhang  
Sichuan University, China |
| ICME010 | Synthesis of catalase microtube motors with controllable velocity and biodegradability  
Natsuho Sugai  
Chuo University, Japan |
| ICME011 | Structural and electrochemical properties of Li- and Mn-rich positive electrode materials exhibiting oxygen activity  
Katarzyna Redel  
AGH University of Science and Technology, Poland |
| ICME012 | Ecofriendly synthesis of gold nanoparticles using low-cost biosorbents from lower Silesia region  
Dorota Jermakowicz-Bartkowiak  
Wroclaw University of Science and Technology, Poland |
ICME013  Investigation on mechanical and frictional properties of barium titanate and PVDF using atomic force microscopy
Yan Zhang
Southeast University, China

ICME014  Overview of the composite nanoceramics prepared by sintering of in-situ made multiphase nanopowders in the bimetallic system aluminum nitride AlN/gallium nitride GaN
Jerzy F. Janik
AGH University of Science and Technology, Poland

ICME015  Comparison of two different metal sulfide systems used in the mechanochemical synthesis of kesterite Cu$_2$ZnSnS$_4$ for photovoltaic applications
Jerzy F. Janik
AGH University of Science and Technology, Poland

ICME016  Electrically colour tunable colloid in nonpolar solvents for the color reflective display film
Woo Jin Yim
NSPECTRA Co., Ltd., Republic of Korea

ICME017  Quantum-dot microcapsule film for an oxygen and moisture problems
Jinseok Song
NSPECTRA Co., Ltd., Republic of Korea

ICME018  Effect of oleothermal synthesis parameters on TiO$_2$ quantum dots functionalized graphene
Felipe Amorim Berutti
Federal University of Rio Grande do Sul, Brazil

ICME019  NaLuGdF$_4$:Yb$^{3+}$/Er$^{3+}$ up-conversion nanoparticles as an optical sensor
Bui The Huy
Changwon National University, Republic of Korea

ICME020  Paper-based sensors coupled with smartphone for fluorescence detection of phenolic pollutants based on amphiphilic quantum dots
Salah M Tawfik
Changwon National University, Republic of Korea

ICME021  Tuning the size and composition of nanohydrogels using a "phantom monomer" for biological applications
Gerardo Byk
Bar Ilan University, Israel

ICME022  Development of selective hydrophilic/hydrophobic treatment towards future application to semiconductor substrate
Hiroshi Ikari
Tokyo University of Science, Japan

ICME023  Effective and stable heat modulation by smart window technology using advanced electrochromic and electrophoretic nanomaterials
Tam Duy Nguyen
Nanyang Technological University, Singapore

ICME024  Effect of W loading on TiO$_2$ electrochromic properties
Annelise Kopp Alves
Federal University of Rio Grande do Sul, Brazil

ICME025  Effects of phase structure on up-conversion photoluminescence and dielectric performance in Er$^{3+}$ doped (Bi$_{0.8}$Na$_{0.2}$)TiO$_3$-BaTiO$_3$ lead-free ceramics
Chao Chen
Jingdezhen Ceramic Institute, China
| ICME026 | A facile synthesis of supported metal nanoparticles with high dispersion by using the melt-infiltration method  
Shin Wook Kang  
Korea Institute of Energy Research, Republic of Korea |
| ICME027 | The utilization of nanocellulose as catalyst support for methanol steam reforming  
Soohyun Kim  
Korea Institute of Energy Research, Republic of Korea |
| ICME028 | Dipicolylamino quinoline derivative as novel dual fluorescent detecting system for Hg²⁺ and Fe³⁺  
Waroton Paisuwan  
Chulalongkorn University, Thailand |
| ICME029 | Ultrasonic observation of H₂ gas replacement in a pipe  
Takuya Kido  
Kyushu University, Japan |
| ICME030 | Performance and durability of flat-tubular solid oxide 3-cell stack in the reversible electrolysis-fuelcell operation  
Sun-Dong Kim  
Korea Institute of Energy Research, Republic of Korea |
| ICME031 | Effects of an inner coating of crystalline GDC nanosol in the porous metal support on the electrochemical properties of metal-supported SOFC cells  
Tae Woo Kim  
Korea Institute of Energy Research, Republic of Korea |
Invited Session 5: Materials Chemistry  
State 3, Pullman Melbourne Albert Park

Chair: Ivan Nemec, Charles University, Czech Republic

08:00-08:20  Advanced phase characterization of novel prospective materials for NLO hydrogen-bonded salts and cocrystals of heteroaromatic bases  
Ivan Nemec  
Charles University, Czech Republic

08:20-08:40  Material design of porous coordination polymer for high performance adsorbent of NH$_3$ and NH$^{+}$  
Tohru Kawamoto  
National Institute of Advanced Industrial Science and Technology, Japan

08:40-09:00  Temperature dependent crystal structure of LaSr$_3$Fe$_3$O$_{10}$ with intercalated H$_2$O and OH$^-$  
Isao Kagomiya  
Nagoya Institute of Technology, Japan

09:00-09:20  Insights into the activation of molecular oxygen for alcohol oxidation over Pd single-atom catalyst  
Yu Cong  
Dalian Institute of Chemical Physics, CAS, China

09:20-09:40  Ceramic composites with zero-thermal-expansion property  
Ikuo Yanase  
Saitama University, Japan

09:40-10:00  Gelcasted solid-state-sintered SiC ceramic foams with excellent permeability  
Haibo Wu  
Shanghai Institute of Ceramics, China

10:00-10:10  Coffee Break  
@ Mercure Lounge

Oral Session 1: Students Forum  
@ State 3, Pullman Melbourne Albert Park

10:10-10:20  Development of a 3D printed scaffold allowing multiple drug delivery for the treatment of bone metastasis in breast cancers  
Habib Belaid  
European Institute Des Membranes, France

10:20-10:30  Uptake, permeability and diffusion of multifunctional mesoporous silica nanoparticles in 3D cell assemblies  
Indra Van Zundert  
Catholic University of Leuven, Belgium

10:30-10:40  Development of antimicrobial and biocompatible fluorescent Hydroxyapatite-chitosan nanocomposite films for biomedical applications  
Somtirtha Kool Banerjee  
Jadavpur University, India
<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
<th>Speaker</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:40-10:50</td>
<td>Polybutylene succinate porous scaffold prepared by fused deposition modeling and salt leaching techniques for drug delivery application</td>
<td>Kasidis Teerasuchai</td>
<td>Silpakorn University, Thailand</td>
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<tr>
<td>10:50-11:00</td>
<td>Characterization of calcineined waste shells</td>
<td>Wiranchana Srichanachaichok</td>
<td>Mahidol University, Thailand</td>
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<tr>
<td>11:00-11:10</td>
<td>The influence of thermoplastic nonwovens containing multi-walled carbon nanotubes on CFRPs properties</td>
<td>Kamil Dydek</td>
<td>Warsaw University of Technology, Poland</td>
</tr>
<tr>
<td>11:10-11:20</td>
<td>3D printed PLA/BN scaffolds for bone tissue engineering application</td>
<td>Habib Belaid</td>
<td>European Institute Des Membranes, France</td>
</tr>
<tr>
<td>11:20-11:30</td>
<td>Effect of co-solvent on the properties of non-woven porous neomycin-loaded poly(lactic acid)/polycaprolactone fibers</td>
<td>Thiphathai Hongthipwaree</td>
<td>Silpakorn University, Thailand</td>
</tr>
<tr>
<td>11:30-11:40</td>
<td>Properties of nonwoven polylactic acid fibers from prepared by simple rotational jet spinning method</td>
<td>Worapon Rodchanasuripron</td>
<td>Silpakorn University, Thailand</td>
</tr>
<tr>
<td>11:40-11:50</td>
<td>Magnetic nanoparticles for monocyte separation</td>
<td>Pornvida Wattanakull</td>
<td>Mahidol University, Thailand</td>
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<tr>
<td>11:50-12:00</td>
<td>Doped ZnO in hybrid nanostructure for lighting and solar cell applications</td>
<td>Yu Zhang</td>
<td>Lyon Institute of Nanotechnology, France</td>
</tr>
<tr>
<td>12:00-12:10</td>
<td>Polyethyleneimine (PEI) impregnated bimetallic MIL-101 metal organic frameworks (MOF) for CO\textsubscript{2} capture study</td>
<td>Sanjit Gaikwad</td>
<td>Changwon National University, South Korea</td>
</tr>
<tr>
<td>12:10-12:20</td>
<td>Generation of charged Ti nanoparticles and their deposition behaviour under the applied bias during RF magnetron sputtering</td>
<td>Ji Hye Kwon</td>
<td>Seoul National University, South Korea</td>
</tr>
<tr>
<td>12:20-12:30</td>
<td>Development of a self-charged photo-power cell based on in situ synthesized electroactive and large dielectric SrF\textsubscript{2}/PVDF nanocomposite film</td>
<td>Farha Khatun</td>
<td>Jadavpur University, India</td>
</tr>
</tbody>
</table>
Invited Session 6: Advance Structural Materials
State 1, Pullman Melbourne Albert Park

Chair: Frank Czerwinski, CanmetMATERIALS, Canada

08:00-08:20 Recycled AA6111 Al alloys manufactured by melt conditioned direct chill casting and thermomechanical forming processes
Isaac Chang
Brunel University London, UK

08:20-08:40 Improving thermal stability of aluminum alloys through additions of rare earths
Frank Czerwinski
CanmetMATERIALS, Canada

08:40-09:00 PM production of tungsten and its alloy: A multi-scale numerical study
Xizhong An
Northeastern University, China

09:00-09:20 Refractories; An essential evil?
Michael Walton
RefMet, Australia

09:20-09:40 Acousto-microfluidic one-step synthesis and activation of metal-organic frameworks (MOFs)
Heba Ahmed
RMIT University, Australia

09:40-10:00 Effect of chicken feather and its carbon derivatives on the compressive strength of cement mortar
Bryan Pajarito
University of the Philippines, Philippines

10:00-10:10 Coffee Break @ Mercure Lounge

Oral Session 2: Students Forum @ State 1, Pullman Melbourne Albert Park

10:10-10:20 Role of colossal dielectric Cu impregnated α-MnO₂ nanoparticles in highly durable asymmetric solid state supercapacitor
Dheeraj Mondal
Jadavpur University, India

10:20-10:30 Homochiral metal-organic frameworks functionalized SERS substrate for atto-molar enantio-selective detection
Olga Guselnikova
University of Chemistry and Technology, Czech Republic

10:30-10:40 A route to reach the absorption limit of perovskite solar cells by using metal-oxide front contacts
Mohammad Ismail Hossain
The Hong Kong Polytechnic University, Hong Kong

10:40-10:50 Capacitive organic anode based on fluorinated-contorted hexabenzocoronene: Applicable to lithium-ion and sodium-ion storage cell
Jaehyun Park
Ulsan National Institute of Science and Technology, Republic of Korea
10:50-11:00
Deterministic growth of a sodium metal anode on a pre-patterned current collector for highly rechargeable seawater batteries
Jaeho Jung
Ulsan National Institute of Science and Technology, Republic of Korea

11:00-11:10
GdBaCo$_{2-x}$Mn$_x$O$_{5+\delta}$ layered perovskites as cathodes for solid oxide fuel cells
Anna Olszewska
AGH University of Science and Technology, Poland

11:10-11:20
A statistical and systemic study of the interaction between lubricin (LUB) on different substrate surfaces
Mingyu Han
Deakin University, Australia

11:20-11:30
Bulk deformation and toughness behavior of titanium alloys comprising the C15-type laves and beta phase
Chirag Dhirajlal Rabadia
Edith Cowan University, Australia

11:30-11:40
Cyclic deformation behaviors of a nickel based superalloy: Potential competing failure mechanism
Wei-Wen Kong
Institute of Metal Research, CAS, China

11:40-11:50
Influence of relative contents of materials in coating mortars with natural river sand and limestone binder filler with similar granulometric distribution
Ieda Maria Fagundes Zanolla
Private University in São Leopoldo, Brazil

11:50-12:00
Preparation of inorganic porous adsorbent by gasification fly ash and adsorption behavior for Cr(VI) removal
Yang Guo
China University of Mining and Technology, China

12:00-12:10
Enhanced electrochemical properties of ultrathin Ni(OH)$_2$-MnO$_2$ hybrid nanosheets by plasma-induced grafted MWCNTs as binder-free electrode for high performance supercapacitor
Ai-Wen Chai
National Cheng Kung University, Taiwan

12:10-12:20
Thermolysis behavior of microcrystalline cellulose at low heating rates
Mohamed Rashid Ahmed-Haras
RMIT University, Australia
City Tour

Schedule
13:30  Depart from the Conference Venue
13:30-16:00  Explore the City by Bus Charter 16:00-16:15 Refreshment
16:15-19:00  Continue the Exploration
19:00  Back to the Conference Venue

Spotlight on Melbourne  Melbourne’s charm is characterised by its enchanting laneways, stunning waterfront precincts and trendy neighbourhoods, and provides an endless choice of shopping hot spots and culturally-diverse, award-winning restaurants, cafés and bars in weird and wonderful locations. There are plenty of things to do in Melbourne. Easily navigated on foot, the city’s confidence and success are infectious; whether closing a deal or relaxing with colleagues and new friends, Melbourne is the perfect destination.

The following are places covered during city tour.

• St Kilda Pier
• Brighton Huts
• Melbourne Star (Docklands)
• Melbourne Cricket Ground
• Royal Exhibition Building
Wi Fi access code- PRIMS0919