



**PRISM**

International Conference on

# Materials Science and Engineering

**September 16-18, 2019**



## Our Supporters



## Event Venue

**Pullman Melbourne Albert Park**  
65 Queens Road Melbourne Victoria 3004  
Australia



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

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# Conference Schedule

## Monday, September 16, 2019

08:00-08:40	Conference Registrations Arrival Tea & Coffee	@ Mercure Lounge
8:40-09:00	Opening Ceremony (State 3, Pullman Melbourne Albert Park)	
09:00-11:00	Keynote Presentations (State 3, Pullman Melbourne Albert Park)	
11:00-11:20	Coffee Break and Group Photograph	@ Mercure Lounge
11:20-11:40	Welcome Speech by Lord Mayor Sally Capp - City of Melbourne State 3, Pullman Melbourne Albert Park	
11:40-12:00	Panel Discussion	
12:00-13:00	Keynote Presentations (State 3, Pullman Melbourne Albert Park)	
13:00-13:40	Buffet Lunch	@ Mercure Lounge
13:40-15:40	Keynote Presentations (State 3, Pullman Melbourne Albert Park)	
15:40-16:00	Coffee Break	@ Mercure Lounge
16:00-17:00	Keynote Presentations (State 3, Pullman Melbourne Albert Park)	
17:00-18:00	Reception	@ Mercure Lounge

## Tuesday, September 17, 2019

08:00-10:00	Invited Session 1: Electronic and Optical Materials (State 3, Pullman Melbourne Albert Park) Invited Session 3: Biomaterials and Medical Devices (State 1, Pullman Melbourne Albert Park)	
10:00-10:20	Coffee Break	@ Mercure Lounge
10:20-13:00	Invited Session 1: Electronic and Optical Materials (State 3, Pullman Melbourne Albert Park) Invited Session 4: Advanced Functional Materials (State 1, Pullman Melbourne Albert Park)	
13:00-13:40	Buffet Lunch	@ Mercure Lounge
13:40-16:00	Invited Session 2: Energy and Environment Materials (State 3, Pullman Melbourne Albert Park) Invited Session 4: Advanced Functional Materials (State 1, Pullman Melbourne Albert Park)	
16:00-16:40	Coffee Break and Poster Presentations	@ Foyer
16:40-18:00	Invited Session 2: Energy and Environment Materials (State 3, Pullman Melbourne Albert Park) Special Session: Computational Materials Science (State 1, Pullman Melbourne Albert Park)	

## Wednesday, September 18, 2019

08:00-10:00	Invited Session 5: Materials Chemistry (State 3, Pullman Melbourne Albert Park) Invited Session 6: Advance Structural Materials (State 1, Pullman Melbourne Albert Park)	
10:00-10:10	Coffee Break	@ Mercure Lounge
10:10-12:30	Oral Session 1: Students Forum (State 3, Pullman Melbourne Albert Park) Oral Session 2: Students Forum (State 1, Pullman Melbourne Albert Park)	
12:30-13:30	Closing Ceremony and Buffet Lunch	@ Mercure Lounge

Keynote Presentations

- 09:00-09:30**    **Challenges and opportunities in data-driven materials design**  
Amanda Barnard  
Data61, CSIRO, Australia
- 09:30-10:00**    **Nanomaterial properties as revealed via *in situ* transmission electron microscopy**  
Dmitri Golberg  
Queensland University of Technology, Australia
- 10:00-10:30**    **Efficient air cathodes for rechargeable lithium oxygen batteries**  
Jiazhao Wang  
University of Wollongong, Australia
- 10:30-11:00**    **Nanostructured materials for energy-relevant electrocatalytic processes**  
Shizhang Qiao  
The University of Adelaide, Australia
- 
- 11:00-11:20**    **Coffee Break and Group Photograph** @ Mercure Lounge
- 
- 11:20-11:40**    **Welcome Speech by Lord Mayor Sally Capp - City of Melbourne**
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- 11:40-12:00**    **Panel Discussion: Women in Materials Science**
- 12:00-12:30**    **The power of materials innovation; Breaking spectral and performance barriers for quantum devices**  
Manijeh Razeghi  
Northwestern University, USA
- 12:30-13:00**    **Cell membrane penetration without pore formation: Chameleonic properties of dendrimers in response to hydrophobic and hydrophilic environments**  
Sean Smith  
Australian National University, Australia
- 
- 13:00-13:40**    **Buffet Lunch** @ Mercure Lounge
- 
- 13:40-14:10**    **Low-cost and high-performance hybrid phosphors for energy-efficient lighting technologies**  
Jing Li  
Rutgers University, USA
- 14:10-14:40**    **Magnetic nano-catalysts and carbonaceous waste for sustainable applications in chemical transformations**  
Rajender Varma  
Palacky University, Czech Republic
- 14:40-15:10**    **Recent developments of advanced GaN materials for light emitting diodes (LEDs) and laser diodes for energy efficient lighting and displays**  
Steven Denbaars  
University of California, Santa Barbara, USA
- 15:10-15:40**    **Materials spacetronics: New conceptual paradigm of functional porous system**  
Yusuke Yamauchi  
The University of Queensland, Australia

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<b>15:40-16:00</b>	<b>Coffee Break</b>	<b>@ Mercure Lounge</b>
<b>16:00-16:30</b>	<b>Advanced synchrotron x-ray diffraction and imaging techniques for catalysis and electrocatalysis</b> Hoydoo You Argonne National Laboratory, USA	
<b>16:30-17:00</b>	<b>Nano-structured layered double hydroxide based photocatalysts for solar fuels and value-added chemicals</b> Tierui Zhang Technical Institute of Physics and Chemistry, CAS, China	
<b>17:00-18:00</b>	<b>Reception</b>	<b>@ Mercure Lounge</b>

**Invited Session I: Electronic and Optical Materials**

State 3, Pullman Melbourne Albert Park

**Chairs:** *Osama O. Awadelkarim, Pennsylvania State University, USA*  
*Yoshimine 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 Hayakaw  
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 NiCr<sub>2</sub>O<sub>4</sub> 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

- 12:20-12:40**     **Structure-property relationships in  $\alpha$ -,  $\beta'$ -,  $\gamma$  and  $\delta$ -modifications of  $\text{Mn}_3(\text{PO}_4)_2$**   
Olga Maximova  
M.V. Lomonosov Moscow State University, Russia
- 12:40-13:00**     **Development of flexible carbon nanotube electrochemical sensor using screen printed technique**  
Soheli Farhana  
University in Kuala Lumpur, Malaysia

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**13:00-13:40**     **Buffet Lunch** **@ Mercure Lounge**

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### Invited Session 2: **Energy and Environment Materials**

State 3, Pullman Melbourne Albert Park

**Chairs:**            *Barbara Szpunar, University of Saskatchewan, Canada*  
*Hirimitsu Takaba, Kogakuin University, Japan*

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- 13:40-14:00**     **Comparison of structural stability of  $\beta$  silicon carbide and thoria**  
Barbara Szpunar  
University of Saskatchewan, Canada
- 14:00-14:20**     **Molecular modeling of stability and emission properties of halide perovskites**  
Hirimitsu Takaba  
Kogakuin University, Japan
- 14:20-14:40**     **Enhancement of redox mediator effect at air electrode for rechargeable  $\text{Li-O}_2$  batteries**  
Morihiro Saito  
Seikei University, Japan
- 14:40-15:00**     **Nanofabrication processes for catalysts on nano-silicon materials for energy conversion devices**  
Ahmed Halima  
Monash University, Australia
- 15:00-15:20**     **Guest  $\text{Li}^+$  ion conductors based on  $\text{NaI-NaBH}_4$  and their potential use for all-solid-state batteries**  
Reona Miyazaki  
Nagoya Institute of Technology, Japan
- 15:20-15:40**     **Nanomaterials for energy conversion and storage**  
Nasir Mahmood  
RMIT University, Australia
- 15:40-16:00**     **Hetero-structured titanium dioxide photocatalyst**  
Chiaki Terashima  
Tokyo University of Science, Japan

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**16:00-16:40**     **Coffee Break and Poster Presentations** **@ Foyer**

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- 16:40-17:00**     **Nanocomposite catalysts for reduction of 4-nitrophenol**  
Piotr Cyganowski  
Wroclaw University of Science and Technology, Poland
- 17:00-17:20**     **Efficient down/up-conversion rare earth pair doped luminescent materials for Si-solar cell applications**  
C. K. Jayasankar  
Sri Venkateswara University, India
- 17:20-17:40**     **Two dimensional materials preparation and their properties of oxygen evolution reaction**  
Chuanbao Cao  
Beijing Institute of Technology, China
- 17:40-18:00**     **Interaction of corrosion-induced hydrogen with nascent defects in steel under neutron irradiation**  
Evgenii Krasikov  
Kurchatov Institute, Russia



**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 Soykeabkaew  
Mae Fah Luang University, Thailand

<b>12:00-12:20</b>	<b>Improving molded pulp products from agro wastes via blending approach</b> Nattaya Tawichai Mae Fah Luang University, Thailand	
<b>12:20-12:40</b>	<b>Theoretical assessment of wettability on silane coatings: From hydrophilic to hydrophobic</b> Haiming Huang Guangzhou University, China	
<b>12:40-13:00</b>	<b>Nanofabrication technology for structure control of nano-materials and their applications</b> Chi Won Ahn Korea Advanced Institute of Science and Technology, Korea	
<b>13:00-13:40</b>	<b>Buffet Lunch</b>	<b>@ Mercure Lounge</b>
<b>13:40-14:00</b>	<b>Interfacing biomolecules with nanomaterials: Structure and function at the atomic-scale</b> Tiff Walsh Deakin University, Australia	
<b>14:00-14:20</b>	<b>Chemical engineering of nanostructured materials for varying applications</b> Xingmao Jiang Wuhan Institute of Technology, China	
<b>14:20-14:40</b>	<b>Preparation of graphene based magnetic hybrids for dye removal application</b> Ing Kong La Trobe University, Australia	
<b>14:40-15:00</b>	<b>The potential of using gold nanoparticle-based assay for target molecule detection</b> Dakrong Pissuwan Mahidol University, Thailand	
<b>15:00-15:20</b>	<b>Next-generation latent finger-mark detection using functionalised silicon oxide nano-particles</b> Fehmida K Kanodarwala University of Technology Sydney, Australia	
<b>15:20-15:40</b>	<b>Colossal reversible barocaloric effects in plastic crystals</b> Pol Lloveras Polytechnic University of Catalonia, Spain	
<b>15:40-16:00</b>	<b>Magnetic properties of LSMO, LSMKO and LSMPO superparamagnetic nanomaterials</b> Sunita Keshri Birla Institute of Technology, India	
<b>16:00-16:40</b>	<b>Coffee Break and Poster Presentations</b>	<b>@ Foyer</b>

### Special Session: Computational Materials Science from Data61, CSIRO, Australia

State 1, Pullman Melbourne Albert Park

<b>16:40-18:00</b>	<b>Active-learning directed simulation of small molecule surface binding</b> Christopher A. Feigl Data61, CSIRO, Australia
	<b>Feature selection for machine learning of surface catalysts</b> Julia Melisande Fischer Data61, CSIRO, Australia
	<b>Understanding and predicting defective graphene-oxide structures using machine learning</b> Benyamin Motevalli Soumehsaraei Data61, CSIRO, Australia

16:00-16:40

Location: Foyer

- 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 nanofibril 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  $\text{Cu}_2\text{ZnSnS}_4$  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  $\text{TiO}_2$  quantum dots functionalized graphene  
Felipe Amorim Berutti  
Federal University of Rio Grande do Sul, Brazil
- ICME019**  $\text{NaLuGdF}_4:\text{Yb}^{3+}/\text{Er}^{3+}$  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  $\text{TiO}_2$  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  $\text{Er}^{3+}$  doped  $(\text{Bi}_{0.5}\text{Na}_{0.5})\text{TiO}_3\text{-BaTiO}_3$  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 Hg<sup>2+</sup> and Fe<sup>3+</sup>**  
[Waroton Paisuwan](#)  
Chulalongkorn University, Thailand
- ICME029**      **Ultrasonic observation of H<sub>2</sub> 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 Nemeč, 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 Nemeč  
Charles University, Czech Republic
- 08:20-08:40** **Material design of porous coordination polymer for high performance adsorbent of NH<sub>3</sub> and NH<sub>4</sub><sup>+</sup>**  
Tohru Kawamoto  
National Institute of Advanced Industrial Science and Technology, Japan
- 08:40-09:00** **Temperature dependent crystal structure of LaSr<sub>3</sub>Fe<sub>3</sub>O<sub>10</sub> with intercalated H<sub>2</sub>O and OH<sup>-</sup>**  
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

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

**Invited Session 6: Advance Structural Materials**

State 1, Pullman Melbourne Albert Park

**Chair:** *Frank Czerwinski, CanmetMATERIALS, Canada*

- 08:00-08:20** **Recycled AA6III 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  $\alpha$ -MnO<sub>2</sub> 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<sub>2-x</sub>Mn<sub>x</sub>O<sub>5.6</sub> 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)<sub>2</sub>-MnO<sub>2</sub> 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

### 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





## Our Media Partners



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## Conference Secretariat

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