

3<sup>rd</sup> International Conference on  
**Materials Science  
and Engineering**



December 5-8, 2022



Gold Coast Convention  
and Exhibition Centre  
Australia

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## INSTRUCTIONS FOR SPEAKERS

1. Invited talks: Authors will be allotted 17 minutes to present their results, followed by a 3 minutes discussion period.
2. Oral talks: Authors will be allotted 12 minutes to present their results, followed by a 3 minute discussion period.
3. Please do not exceed the allotted time slot
4. Speakers should have their presentations saved on a USB memory stick.
5. It is suggested to email a copy of the presentations to us as back up.
6. Please prepare the presentation in PPT files, PDF is not recommended.
7. Basic AV setup will be provided: laser pointer, cordless mike, desktop mike, sound system.
8. Laptops equipped with Windows 10, Office 2010 Pro English (Word, Powerpoint, Excel) and Adobe Reader are provided.
9. If your presentation files contain movies, please make sure that they are well formatted and connected to the main files. You may check your slides during the breaks.
10. Projectors are equipped with standard VGA connection ports. Mac users should bring their own adapter cord.
11. Please re-check this program prior to the conference to confirm if any changes have been made to your session.
12. Conference volunteers will move the mic during Q&A. Audience with questions may raise hand to receive the mic.

## INSTRUCTIONS FOR POSTER PRESENTATION

1. Maximum poster size is A0
2. Push pins for attaching the poster to the board will be provided.
3. Poster presenters will be directed to the designated board at the start of the poster session.
4. Author must be present to provide details and answer questions during the selected poster session times.

## SPEAKER ZOOM GUIDELINES

How to Participate in a Zoom Meeting?

If you have trouble logging in to Zoom or any technical issues, please write to us at

[rakshith.kumar@materialsocceania.com](mailto:rakshith.kumar@materialsocceania.com) or call us +61 0416 000 202 (Direct phone and WhatsApp).

### Join a Meeting

- Join a meeting by clicking on a Zoom link provided on the program
- Follow the prompts to download and run Zoom application
- Enter the meeting ID if prompted
- Click to join the audio.
- When you are in the meeting, click on the Start Video button to start your video.

If you already have Zoom software installed: Open the Zoom platform, click 'join' and enter the meeting ID and password.

### Mute/Unmute & Audio Settings

You can mute and unmute your microphone. The host also can mute you. We recommend using a headset and/or microphone as it will lead to better sound quality than using your computer audio. Turn off all sound notifications on your device. Note: During the presentation we will unmute everyone except the speaker and the chairs.

### Screen Share

You will be allowed to share your screen during your presentation. Your computer screen will become visible to all the participants once you start sharing your screen. Please close all other applications on your computer so that notifications do not appear during your presentation. Keep the PowerPoint slide open on your system before you click the 'Share Screen' button. You are recommended to share the specific PowerPoint slide and not your desktop.

### Q&A

The participants should use the "Raise Hand" function and the moderator will allow the participants to unmute themselves and ask questions.

### Presentation Timings

Please note that all the timings mentioned in the program are as per the Brisbane time zone. Do ensure that you check the time difference well in advance and join the meeting at least 30 minutes prior to your scheduled presentation time. If you need us to tell the specific time slot for your presentation (in local time zone), do let us know.

## Join Zoom Meeting:

<https://us06web.zoom.us/j/89208544998?pwd=TxZJMGxibjhlL2VyZWFWYXBidz09>

Meeting ID: 892 0854 4998

Passcode: 048909

08:20-08:50 Registrations and Arrival Tea

@ Foyer

**Session: JST-ERATO Special Session: Australian Science and Technology  
(Broadcasting to the JST-ERATO Center Venue)**
**Session Chairs:****Nasim Amiralian**, The University of Queensland, Australia**Md. Shahriar A. Hossain**, The University of Queensland, Australia08:50-09:00 **Opening Speech****Yusuke Yamauchi**, ERATO Research Director09:00-09:30 **Biomimetic Nanostructures Materials Controlling Cellular Activity****Alan Rowan**, The University of Queensland, Australia09:30-10:00 **Online: Engineering Metal-organic Materials via Supramolecular Assembly****Frank Caruso**, University of Melbourne, Australia10:00-10:30 **Designing Electrode Materials and Electrolyte for Metal-ion Batteries****Zaiping Guo**, The University of Adelaide, Australia10:30-11:00 **Nanomaterial Properties Analyzed in an Electron Microscope****Dmitri Golberg**, Queensland University of Technology, Australia

11:00-11:20 Coffee Break

@ Foyer

**Session: Energy and Environmental Materials**
**Session Chairs:****Hieu T. Nguyen**, The Australian National University, Australia**Muhammad Azeem**, University of Sharjah, UAE11:20-11:40 **Investigating Battery Electrode Materials Operating via the Alloying-dealloying Mechanism****Alexey Glushenkov**, The Australian National University, Australia11:40-12:00 **Study on Smelting Metal by Microwave Irradiation****Satoshi Fujii**, Toyohashi University of Technology, Japan12:00-12:20 **Advanced Materials for Non-aqueous Aluminum-ion Batteries****Bin Luo**, The University of Queensland, Australia12:20-12:40 **Boron-doped Diamond Powder for Electrolytic Electrode Material****Takeshi Kondo**, Tokyo University of Science, Japan

12:40-13:20 Lunch Break and Group Photo

@ Foyer

**Session Chairs:****Satoshi Fujii**, Toyohashi University of Technology, Japan**Bin Luo**, The University of Queensland, Australia13:20-13:40 **Gas Phase Photocatalytic CO<sub>2</sub> Reduction and H<sub>2</sub> Production over Anodized Nanotube Arrays****Kei Noda**, Keio University, Japan13:40-14:00 **Band Structure of Ferrites Doped Gd<sub>2</sub>O<sub>3</sub>****Muhammad Azeem**, University of Sharjah, UAE14:00-14:20 **Optical and Electrical Properties of Photovoltaic Materials via Luminescence****Hieu T. Nguyen**, The Australian National University, Australia

14:20-14:35	<b>Conversion of Carbon Dioxide to Useful Substances by In-liquid Microwave Plasma CVD</b> <b>Aiko Ikeda</b> , Tokyo University of Science, Japan
14:35-14:50	<b>Composite Structural Supercapacitor Design with Carbon Nanotubes Electrodes, Boron Nitride Nanotube Separator and Localized Ionic Liquid Electrolyte</b> <b>Benjamin Mapleback</b> , Australian Department of Defence, Australia
14:50-15:05	<b>Development of High Water-Resistant Photocatalytic Coating on Plastic by Using a Surface Modified TiO<sub>2</sub> with Silane Coupling Agents</b> <b>Dylan Shun Izuma</b> , Tokyo University of Science, Japan
15:05-15:20	Coffee Break <span style="float: right;">@ Foyer</span>
	<b>Session Chairs:</b> <b>Kei Noda</b> , Keio University, Japan
15:20-15:35	<b>Oxidation of Silver Nanoparticles at High Temperatures by Reactive Molecular Dynamics</b> <b>Diego Chaparro</b> , University of Melbourne, Australia
15:35-15:50	<b>Design of 2D Ferroelectric Heterogeneous Catalysts for Controllable Hydrogen Evolution Reaction</b> <b>Tsz Lok Wan</b> , Queensland University of Technology, Australia
15:50-16:05	<b>Deep Eutectic Solvents for Rice Husk Treatment for Sustainable Battery Material</b> <b>Chinmayee Padwal</b> , Queensland University of Technology, Australia
16:05-16:20	<b>3D Printed Graphene Aerogels for Energy Storage and Conversion</b> <b>Tuan Sang Tran</b> , RMIT University, Australia
16:20-16:35	<b>Thin Diamond Films as a Functional Material for Gas-Sensing, Electrochemical, and Energy Conversion Applications</b> <b>Petr Ashcheulov</b> , FZU – Institute of Physics of the Czech Academy of Sciences, Czech Republic
16:35-16:50	<b>Molybdenum-promoted Surface Reconstruction in Polymorphic Cobalt for Initiating Rapid Oxygen Evolution</b> <b>Juan Bai</b> , Queensland University of Technology, Australia
16:50-17:05	<b>Biomimetic Dendrite-free Zn-electrode for Long-term Stable Aqueous Zn-ion Battery</b> <b>Fan Zhang</b> , Queensland University of Technology, Australia
<b>Session: Advanced Characterizations and Computational Materials</b>	
	<b>Session Chairs:</b> <b>Minsu Han</b> , The University of Queensland, Australia <b>Hoang-Phuong Phan</b> , University of New South Wales, Australia
17:05-17:25	<b>Application of Advanced Mineral Analysis and Characterization System (AMICS) in Material Research</b> <b>Andrew Kostryzhev</b> , University of Queensland, Australia
17:25-17:45	<b>Experimental Measurements of Chemical-bonding Structure Factors in Nanostructured Materials</b> <b>Philip Nakashima</b> , Monash University, Australia
17:45-18:05	<b>Molecular Modeling of Anti-fouling Properties of Polymer Membrane Surface</b> <b>Hiromitsu Takaba</b> , Kogakuin University, Japan
18:05-18:20	<b>Towards <i>In-situ</i> Observation of Potassium Electroplating and Stripping Processes in a Transmission Electron Microscope</b> <b>Lizbeth Dimonti</b> , The Australian National University, Australia
18:20-18:35	<b>Investigation of CO<sub>2</sub> Permeation Mechanism on Mixed Matrix Membrane Using Non-molecular Dynamics Simulation</b> <b>Fumiya Hirose</b> , Kogakuin University, Japan



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Meeting ID: 892 0854 4998

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08:45-09:15 Arrival Coffee and Networking

@ Foyer

## Session: Nanotechnology and Nanoscience

## Session Chairs:

Ary Anggara Wibowo, The Australian National University, Australia

09:15-09:35 **Tailoring the Functionality of Topological Transistors by Targeted Materials Choices**  
Dimitrie Culcer, University of New South Wales, Australia

09:35-09:55 **Ambipolar Control in Resistance Driven by an Electronic Attractive Force Using VO<sub>2</sub> Nano-bridge Transistors**  
Teruo Kanki, Osaka University, Japan

09:55-10:15 **Controlled Synthesis of Zeolites via Mechanochemical Route and Confirmation of their Framework with Use of Synchrotron Radiations**  
Atsushi Muramatsu, Tohoku University, Japan

10:15-10:35 **2D Materials for Sustainable Energy Conversion and Storage**  
Ziqi Sun, Queensland University of Technology, Australia

10:35-10:55 **Anomalous Effect of Fluorous Surfaces Confined within a Nanochannel: Highly Efficient Desalination**  
Yoshimitsu Itoh, The University of Tokyo, Japan

10:55-11:10 Coffee Break

@ Foyer

## Session Chairs:

Ziqi Sun, Queensland University of Technology, Australia

Yoshimitsu Itoh, The University of Tokyo, Japan

11:10-11:30 **Revealing the Amorphous-to-crystalline Transformation in Zeolite Synthesis using High-energy X-ray Total Scattering Measurement**  
Toru Wakihara, The University of Tokyo, Japan

11:30-11:50 **Guided Formation of Nanoparticles and Polymer Brushes on Nanocellulose**  
Nasim Amiralian, The University of Queensland, Australia

11:50-12:05 **Large-size, High-quality 2D Transition Metal Dichalcogenides Lateral Heterostructures by Mixed Molten-salt-supported Chemical Vapour Deposition**  
Ary Anggara Wibowo, The Australian National University, Australia

## Session: Biomaterials, Bioengineering and Bio-related Applications

## Session Chairs:

Ziqi Sun, Queensland University of Technology, Australia

Yoshimitsu Itoh, The University of Tokyo, Japan

12:05-12:25 **Delivery of Therapeutic Agents using Biopolymers**  
Lisbeth Grøndahl, University of Queensland, Australia

12:25-12:45 **Controlling Solid-state Dynamics of Pharmaceutical Glasses**  
Kohsaku Kawakami, National Institute for Materials Science (NIMS), Japan

12:45-13:30 Lunch Break

@ Foyer

## Session Chairs:

Toru Wakihara, The University of Tokyo, Japan

Kohsaku Kawakami, National Institute for Materials Science (NIMS), Japan

13:30-13:50 **Systematic Synthesis of a Series of Glycopolymers Having N-acetyl-D-glucosamine Moieties for Evaluations of Lectin-carbohydrate Interactions**  
Koji Matsuoka, Saitama University, Japan

13:50-14:05 **Melt Mixing of PCL/PEG/Curcumin-loaded PLA Microspheres for the Suture Applications**  
**Xiaoxuan Deng**, University of Otago, New Zealand

**Session: Ceramics, Polymers and Composite Materials**

14:05-14:20 **Instability-directed Architectural Design of Oxides and Heterojunction Nanostructures for Energy and Environmental Applications**  
**Sajjad Mofarah**, University of New South Wales, Australia

14:20-14:40 **Harnessing Kinetic Energy via Electromechanically Active Polymers**  
**Peter Sherrell**, University of Melbourne, Australia

14:40-14:55 **Highly Efficient Flexible Organic Photovoltaic Modules for Sustainable Energy Harvesting Under Low-light Condition**  
**Soyeon Kim**, Korea Institute of Materials Science, Republic of Korea

14:55-15:10 **Inverse Design of Polymer Membrane Structure for CO<sub>2</sub> Separation Using Junction Tree Variational Autoencoder**  
**Takumi Matsumoto**, Kogakuin University, Japan

15:10-15:25 **Sb-substituted Cs<sub>2</sub>AgBiBr<sub>6</sub>/g-C<sub>3</sub>N<sub>4</sub> Composite for Photocatalytic C(sp<sup>3</sup>)-H Bond Activation in Toluene**  
**Xuying Li**, RMIT University, Australia

15:25-15:40 **Tailoring the Structural Properties of the Barrier Oxide Layer of Nanoporous Anodic Alumina for Iontronic Sensing**  
**Cheryl Suwen Law**, University of Adelaide, Australia

15:40-15:55 **Engineering of Slow Light Lasing from Solid-state One-dimensional Nanoporous Photonic Crystals**  
**Abel Santos Alejandro**, University of Adelaide, Australia

15:55-16:05 **Coffee Break** @ Foyer

**Session Chairs:**

**Valentino Kaneti**, The University of Queensland, Australia  
**Mostafa Kamal Masud**, The University of Queensland, Australia

16:05-16:20 **Carbon Nanomaterial Sensitized TiO<sub>2</sub> Composites for Efficient Visible Light Photocatalysis**  
**Amanda Ekanayake**, RMIT University, Australia

**Poster Setup**

16:30-17:30 **Poster Presentations** @ Foyer

**Session Chairs:**

**Valentino Kaneti**, The University of Queensland, Australia  
**Mostafa Kamal Masud**, The University of Queensland, Australia

MO001 **Ratiometric Fluorescent Nanoprobe for ROS Detection Using Coumarin-3-Carboxylic Acid as a Detector**  
**Mazen Alanazi**, The University of Queensland, Australia

MO002 **Large-scale Silver Sulfide Nanomesh Membranes with Ultrahigh Flexibility**  
**Yuting Wang**, Queensland University of Technology, Australia

MO003 **Integrated Supramolecular Copolymerization of Hydrophobic and Hydrophilic Monomers in Liquid Crystalline Media**  
**Daiki Morishita**, The University of Tokyo, Japan

MO004 **Joining of Carbon Fiber Reinforced Thermoplastic to Metal using Electrodeposited Film**  
**Kohei Yamazaki**, Gunma University, Japan

MO005 **Deposition Mechanism and Water Repellency of Specially Shaped Plating Films**  
**Akifumi Kubo**, Gunma University, Japan

MO006 **Brazing of Ferritic Stainless Steel with Al using Cr-free Brazing Filler Metal**  
**Yuya Matsuo**, Gunma University, Japan

MO007 **Observation of Early Fatigue Damage of Oxygen-free Copper for Electric Power Application by EBSD Analysis**  
**Togo Sugioka**, Gunma University, Japan

- MO008 **Interfacial Reaction Between Pd-Cu-Ni Alloy and Sn-58Bi Solder**  
Kazumi Watarai, Gunma University, Japan
- MO009 **Experimental Study on a Use of Metal Sputtered Cellulose Powder as the Codeposited Particle into Nickel Electroplating Film**  
Makoto Iioka, Gunma University, Japan
- MO010 **Effect of Durability Improvement of Steel/Al Alloy Adhesive Joints by Ti-based Conversion Treatment**  
Tsuyoshi Kosaka, Gunma University, Japan
- MO011 **Interfacial Dipole for Suppressing Charge Recombination in Perovskite Solar Cells Under Low-intensity Indoor Lights**  
So Jeong Shin, Ajou University, Korea
- MO012 **The Introduction of Gd<sup>3+</sup> and its Effect on the Luminescent Properties of  $\alpha$ -Al<sub>2</sub>O<sub>3</sub>:Mn Phosphors**  
Norfadira Wahib, The University of New South Wales, Australia
- MO013 **X-ray-induced Sm<sup>2+</sup> Ions in SrF<sub>2</sub>:Sm<sup>3+</sup> Nanocrystals**  
Siti Rozaila Zahariman, The University of New South Wales, Australia
- MO014 **Nanoengineering of Printable Graphene Electrocatalyst for Sustainable Fuel Cells**  
Tuan Sang Tran, RMIT University, Australia
- MO015 **Passivation Performance of ALD-NiOx Thin Film Using Ni(dmb)2 Precursor in Si Solar Cells**  
Hyo Sik Chang, Chungnam National University, Korea
- MO016 **Neutron Reflectivity Study for Diffusion Dynamics of Polymer-Graphene Composite Films**  
Jaseung Koo, Chungnam National University, Korea
- MO017 **Influence of Substrates on Liquefied Petroleum Gas Sensing Performance of Electro-chemically Deposited Cuprous Oxide Thin Films**  
Neranj Bandara, The Open University of Sri Lanka, Sri Lanka
- MO018 **Symmetry-breaking Plasmonic Mesoporous Gold Nanoparticles with Large Pores**  
Asep Nugraha, The University of Queensland, Australia
- MO019 **Machine Learning Study on Screening and Prediction of CO<sub>2</sub> Reduction Reaction Electrocatalysts**  
Haoyu Yang, Queensland University of Technology, Australia
- MO020 **Strategic Design of ZIF-8-Derived Hierarchically Porous Carbons for Superior ORR Electrocatalyst: From the Perspective of Nanoarchitectonics**  
Minjun Kim, The University of Queensland, Australia
- MO021 **Self-assembling of Metal Ions and Melem through Selective Coordination**  
Hang Meng, Queensland University of Technology, Australia
- MO022 **LUCID: Inside View of Organs and Tissues, Enabler of 3D Imaging**  
Junji Yumoto, The University of Tokyo, Japan
- MO023 **Influence of Various Binder Initiators of Low-temperature Silver Electrode Materials on Wire Bonding Strength for Hjt Solar Cell**  
Sung Hyun Kim, Korea Electronics Technology Institute, Korea
- MO024 **Dependence of the Ratio of Oligomers and Monomers in Acrylic Binders for Electrically Conductive Adhesives and their Properties**  
Hyunsoo Lim, Korea Electronics Technology Institute, Korea
- MO025 **Leaching Rate of Silver Nanoparticles by Reactive Molecular Dynamics**  
Diego Chaparro, University of Melbourne, Australia
- MO026 **Future Mutli-analyser Upgrade for Thermal-Neutron Triple-axis Spectrometer Taipan at ANSTO**  
Guochu Deng, Australian Nuclear Science and Technology Organization, Australia
- MO027 **Extraordinary Non-linear Optical Interaction from Strained Nanostructures in van der Waals CuInP<sub>2</sub>S<sub>6</sub>**  
Sharidya Rahman, The Australian National University, Australia

18:00-19:00 Cocktails

@ Foyer

## Join Zoom Meeting:

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**Session: JST-ERATO Special Session: Australian Science and Technology (Broadcasting to the JST-ERATO Center Venue)**
**Session Chairs:****Nasim Amiralian**, The University of Queensland, Australia**Md. Shahriar A. Hossain**, The University of Queensland, Australia08:40-08:50 **Opening Speech****Yusuke Yamauchi**, ERATO Research Director08:50-09:20 **Multi-colour Synergistic, Antagonistic and Orthogonal Photochemistry for Macromolecular Synthesis****Christopher Barner-Kowollik**, Queensland University of Technology, Australia09:20-09:50 **Assembly and Reaction of Molecular Fluids Undergoing Flow****Debra Bernhardt**, The University of Queensland, Australia09:50-10:20 **Online: Nanostructured Materials for Electrocatalytic Refinery****Shizhang Qiao**, University of Adelaide, Australia10:20-10:50 **Online: Harnessing Solar Energy through Catalysis to Make Chemical and Fuel****Rose Amal**, University of New South Wales, Australia10:50-11:20 **Coffee Break**

@ Foyer

**Session: Electronics and Optical Materials**
**Session Chairs:****Govind S. Gupta**, Indian Institute of Science, India**Petr Ashcheulov**, FZU – Institute of Physics of the Czech Academy of Sciences, Czech Republic11:20-11:40 **Electrochemical Manufacturing: Where are We Now?****Xunyu Lu**, University of New South Wales, Australia11:40-12:00 **3D-Printed and Surface Metallized Plastic Waveguides for sub-THz Communications****Junji Yumoto**, The University of Tokyo, Japan12:00-12:20 **Additive Manufacturing of Advanced Materials****Bhavana Deore**, National Research Council, Canada12:20-12:40 **Near Unity Anti-stokes Photoluminescence Quantum Efficiency from CsPbBr<sub>3</sub> Perovskite Quantum Dots Embedded in a Cs<sub>4</sub>PbBr<sub>6</sub> Crystal****Yasuhiro Yamada**, Chiba University, Japan12:40-13:20 **Lunch Break**

@ Foyer

**Session Chairs:****Bhavana Deore**, National Research Council, Canada**Yasuhiro Yamada**, Chiba University, Japan13:20-13:40 **Characterization of SiC Formed at Various Locations in the Acheson Process****Govind S. Gupta**, Indian Institute of Science, India13:40-13:55 **Understanding the Dynamics of Precursor Gases for the Growth of Doped Diamond: Pulsed Gas Injection Study via Optical Emission Spectroscopy Analysis****Petr Ashcheulov**, FZU – Institute of Physics of the Czech Academy of Sciences, Czech Republic



**Session Chairs:**

**Ni Luh Wulan Septiani**, Institut Teknologi Bandung, Indonesia  
**Mostafa Kamal Masud**, The University of Queensland, Australia

13:55-14:15 **Modified Metal Organic Frameworks as Highly Sensitive Biomarkers for Detection of Viruses and Cancers**  
**Brian Yulianto**, Institut Teknologi Bandung, Indonesia

14:15-14:35 **Transparent NIR Absorbing Films for Photothermal Application**  
**Minsu Han**, The University of Queensland, Australia

14:35-14:55 **Development of Ordered Honeycomb Vanadium Dioxide Films for Ultra-transparent Solar Modulating Coatings**  
**Yusuf Valentino Kaneti**, The University of Queensland, Australia

14:55-15:10 **Modification of HKUST-1 for Highly Sensitive DENV-3 Immunosensor**  
**Kariana Kusuma Dewi**, Institut Teknologi Bandung, Indonesia

15:10-15:25 **Mesoporous Soft Electronics: A Novel Approach towards Biosensing and Bioimplant Applications**  
**Aditya Ashok**, The University of Queensland, Australia

15:25-15:40 **Development of Metal Organic Framework for Optical Biosensor**  
**Gilang Gumilar**, Institut Teknologi Bandung, Indonesia

15:40-16:00 **Coffee Break** @ Foyer

**Session Chairs:**

**Brian Yulianto**, Institut Teknologi Bandung, Indonesia  
**Yusuf Valentino Kaneti**, The University of Queensland, Australia

16:00-16:20 **Gold-loaded Superparamagnetic Mesoporous Bimetallic CoFeB Amorphous Nanovehicle for Autoantibody Detection**  
**Mostafa Kamal Masud**, The University of Queensland, Australia

16:20-16:35 **Palm Sugar-induced Formation of Hexagonal Tungsten Oxide with Nanorods-assembled Three-dimensional Hierarchical Frameworks for Nitrogen Dioxide Sensing**  
**Ni Luh Wulan Septiani**, Institut Teknologi Bandung, Indonesia

16:35-16:50 **Nanoengineered Glass-grown Mesoporous Gold for Ultrasensitive Detection and Quantification of SARS-CoV-2**  
**Hyeongyu Park**, The University of Queensland, Australia

16:50-17:05 **Modification of Surface Plasmon Resonance (SPR) Biosensor Using MoS<sub>2</sub>-MoO<sub>3</sub> Hybrid Microflowers for CFP-10 Tuberculosis Detection**  
**Chandra Wulandari**, Institut Teknologi Bandung, Indonesia

17:05-17:20 **Hierarchical Porous Carbon Materials Derived from Nickel-based Metal-organic Framework with Coordinated Water for Adsorption Applications**  
**Ping Cheng**, The University of Queensland, Australia

17:20-17:35 **Enlarging the Porosity of Metal-organic Framework Derived Carbons for Supercapacitor Applications by Template-free Ethylene Glycol Etching Method**  
**Ruijing Xin**, The University of Queensland, Australia

17:35-17:50 **Development of Copper-Nickel Based Metal-organic Framework Material for Electrochemical Immunosensor Applications to Detect Dengue Virus NS-1 Serotype 3**  
**Neng Astri Lidiawati**, Institut Teknologi Bandung, Indonesia

17:50-18:05 **One-Pot Synthesis of Hollow Two-dimensional Bimetallic Metal-organic Framework Hexagonal Nanoplates for Ammonia Sensing**  
**Silvia Chowdhury**, The University of Queensland, Australia

18:05-18:20 **Nanoarchitected Superparamagnetic Iron Oxide-doped Mesoporous Carbon Nanozymes for Biosensing Application**  
**Azad SM Hossain**, The University of Queensland, Australia

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8:45-09:00 Av Check and Opening Speech

### Session: Invited Online Talks

- 09:00-09:20 **Online: Scalable Nanomechanical Computing**  
Warwick Bowen, University of Queensland, Australia
- 09:20-09:40 **Online: Computational Platform for Designing High-functional Nanocatalysts via AI-machine Learning and First-principles Calculations**  
Byungchan Han, Yonsei University, Korea
- 09:40-10:00 **Online: Two-dimensional Material Design for Electronic Applications**  
Qinghong Yuan, East China Normal University, China
- 10:00-10:20 **Online: Interface Design for Stable Lithium Metal Anode**  
Jia-Qi Huang, Beijing Institute of Technology, China
- 10:20-10:40 **Online: The Lithium Bonds in Lithium Batteries**  
Qiang Zhang, Tsinghua University, China
- 10:40-11:00 **Online: Preparation of Janus-type Surface-modified Niobate Nanosheets**  
Yoshiyuki Sugahara, Waseda University, Japan
- 11:00-11:20 Coffee Break
- 11:20-11:40 **Online: Polymorphism Engineering for Energy Conversion**  
Zongyou Yin, Australian National University, Australia
- 11:40-12:00 **Online: MOFs and Composites for CO<sub>2</sub> Cycloaddition Reactions**  
Chia-Her Lin, National Taiwan Normal University, Taiwan
- 12:00-12:20 **Online: Transport of Nanofluids with Applications**  
Ali J. Chamkha, Kuwait College of Science and Technology, Kuwait
- 12:20-12:40 **Online: High Performance of Ceramics and Manufacturing Process Innovation**  
Yoshio Sakka, National Institute for Materials Science, Japan
- 12:40-13:10 Lunch Break
- 13:10-13:30 **Online: Electrocatalytic Performance of the Strontium Selenide Nanowires as pH-dependent for Hydrogen Evolution Reaction**  
Muhammad Faisal Iqbal, Zhejiang Normal University, China
- 13:30-13:50 **Online: Direct Air Capture at Room Temperature of Sodium Manganates**  
Ikuo Yanase, Saitama University, Japan

### Session: JST-ERATO Special Session: Yamauchi Materials Space-Tectonics Project (Broadcasted from the JST-ERATO Center Venue)

- 13:50-14:00 **Opening Speech**  
Yusuke Yamauchi, ERATO Research Director
- 14:00-14:20 **Online: Acceleration of an Electrophilic Reaction Driven by the Polar Surface of Two-dimensional Aluminosilicate Nanosheets**  
Miharu Eguchi, JST-ERATO / NIMS

- 14:20-14:40 **Online: Metal-organic Framework Derivatives for Promoted Capacitive Deionization: From Oxygen-free to Oxygenated Saline Water**  
Xingtao Xu, JST-ERATO / NIMS
- 14:40-15:00 **Online: “Functional Upcycling” of Polymer Waste Towards the Design of New Materials**  
Olga Guselnikova, JST-ERATO / NIMS
- 15:00-15:20 **Online: Measurements of Chiroptical Properties and Development of Chiral Sensors**  
Kenta Nakagawa, JST-ERATO / Wasdea University
- 15:20-15:40 **Online: Ferroelectric and Piezoelectric Properties in Single Crystal and Nanoporous Thin Film**  
Yukana Terasawa, JST-ERATO / Wasdea University
- 15:40-16:00 **Online: Synthesis of Hydroxide Hollow Nanoparticles by Using Water-soluble Self-sacrificing Templates**  
Yusuke Asakura, JST-ERATO / Wasdea University

### Session: UQ-ITB Special Session

- 16:00-16:15 **Online: Surface Area Enhancement of Ceria Photocatalyst using Bicontinuous Concentric Lamellar Silica as Support Material**  
Nadiatus Silmi, Institut Teknologi Bandung, Indonesia
- 16:15-16:30 **Online: Macroemulsion-Assisted Synthesis of Fibrous ZnO Microrods with High Photocatalytic Degradation Rate**  
Didi Prasetyo Benu, Institut Teknologi Bandung, Indonesia
- 16:30-16:45 **Online: Microwave-Hydrogen-Plasma-Assisted Synthesis of Black Titania as Photocatalyst in Photodegradation of Rhodamine B**  
Muhamad Nur Siddik, Institut Teknologi Bandung, Indonesia

16:45- 17:00 Closing

We look forward to seeing you  
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