



PRISM

MATERIALS OCEANIA-2023

SEPTEMBER 26 - 29, 2023

Noyori Conference Hall, Nagoya University, Japan

4th International Conference on

Materials Science and Engineering



September
26-29, 2023

Conference Program



Day 0: Sakata-Hirata Hall
Nagoya University, Japan

Day 1-3: Noyori Conference Hall
Nagoya University, Japan

<https://www.materialsconferenceaustralia.com/>

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@materialsocenia.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 and 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 Nagoya (JST) 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://us02web.zoom.us/j/85627620053?pwd=Yi9yTFo5SRXdLmFBITFQ4ekNFbjJLUT09>**Meeting ID:** 856 2762 0053**Passcode:** 179946

10:30-11:35 Welcome Reception

11:35-11:40 Group Photo (Only for ERATO Members)

11:40-11:45 Opening remarks: **President Professor Naoshi Sugiyama** (Nagoya University)11:45-12:10 **Description of Yamauchi Materials Space-Tectonics Project**
Professor Yusuke Yamauchi (Nagoya University and University of Queensland)12:10-13:00 **Special Lecture**
Professor Kazunari Domen (The University of Tokyo and Shinshu University)

13:00-14:20 Lunch Break

14:20-15:10 **Topics from Group Leaders****Function Integration Tecton****Yusuke Asakura** (Nagoya University, JST-ERATO)**Interfacial Control Tecton****Miharu Eguchi** (Waseda University, JST-ERATO)**Nanoinstrumentation Tecton****Kenta Nakagawa** (Waseda University, JST-ERATO)**Nano-structural Control Tecton****Joel Henzie** (National Institute for Materials Science, JST-ERATO)**New Materials Exploration Group****Jonathan P. Hill** (National Institute for Materials Science, JST-ERATO)15:15-15:30 **ERATO Short Presentation**15:30-17:00 **ERATO Poster Presentation / Symposium Mixer**01ER **Design and Synthesis of Sulfur-doped Mesoporous Carbons**
Takashi Hamada (Nagoya University, JST-ERATO)02ER **Controlled Growth of Large-sized ZIF-8 Single Crystals via Solvothermal Method with Effects of Various Temperature**
Azhar Alowasheer (Nagoya University, JST-ERATO)03ER **Universal Method to Synthesize Ultrathin Polymetallic 2D MOFene Derived Superfine High Entropy Nanoparticle**
Wenyang Zhang (Waseda University, JST-ERATO)04ER **Hierarchical Macroporous-mesoporous Metal Foams for the Detection of Large Macromolecules**
Olga Guselnikova (National Institute for Materials Science, JST-ERATO)05ER **Constructing Conformal Metal-organic Frameworks Inside Mesoporous Metals for Selective Sensing of Chlorinated Aromatic Hydrocarbons**
Sarah Zulfa Khairunnisa (National Institute for Materials Science, JST-ERATO)

06ER	Mesoporous Gold Electrodes Modified with Peptide Nucleic Acid for Detecting MicroRNA Mayuka Iida (Waseda University, JST-ERATO)
07ER	Development of Chiral Sensor using Mesoporous Gold Films with Chiroptical Properties Yuta Shiga (Waseda University, JST-ERATO)
17:00-17:10	Closing Remarks

Join Zoom Meeting:<https://zoom.us/j/97961469804?pwd=TDc2Y3ROOW1pdFB0Ym1xRmhNdmVKUT09>**Meeting ID:** 979 6146 9804**Passcode:** 926991

08:30-09:00 Registration

Session: JST-ERATO Special Session - (Online)09:00-09:10 Opening Ceremony Speech (**Yusuke Yamauchi** / **Hirokatsu Miyata**)09:10-09:40 **Invited Talk: Bio-nano Science – insights for Nanomedicine - (Online)**
Frank Caruso, University of Melbourne, Australia09:40-10:10 **Invited Talk: Micro Elastofluidics: Elasticity and Flexibility for Efficient Microscale Liquid Handling - (Online)**
Nam-Trung Nguyen, Griffith University, Australia10:10-10:40 **Invited Talk: Carbon-based Materials for Catalytic Oxidation - (Online)**
Shaobin Wang, University of Adelaide, Australia

10:40-11:00 Coffee Break

11:00-11:30 **Invited Talk: Photochemical Action Plots Reveal the Fundamental Mismatch between Absorptivity and Photochemical Reactivity - (Online)**
Christopher Barner-Kowollik, Queensland University of Technology, Australia11:30-12:00 **Theoretical and Computational Molecular Science: Nonequilibrium Systems, Fluids and Materials - (Online)**
Debra Bernhardt, The University of Queensland, Australia12:00-12:30 **Invited Talk: Nanomaterial Properties as Revealed by *in situ* Transmission Electron Microscopy - (Online)**
Dmitri Golberg, Queensland University of Technology, Australia12:30-13:00 **Invited Talk: Uncovering the Radical Character of Quinone Dimethides - (Online)**
Michelle Coote, Flinders University, Australia

13:00-14:00 Lunch Break

Biomaterials, Bioengineering and Bio-related Applications**Session Chairs:****Tzu-En Lin**, National Yang-Ming Chiao Tung University, Taiwan
Shanmugavel Chinnathambi, Kyoto University, Japan14:00-14:20 **Invited Talk: Chiral Mesosstructured Inorganic Materials with Various Chiral Anisotropy**
Shunai Che, Shanghai Jiao Tong University, China14:20-14:40 **Invited Talk: Prodrug-based Nano-delivery Strategy to Improve the Antitumor Ability of SN-38**
Yoshitaka Koseki, Tohoku University, Japan14:40-15:00 **Invited Talk: Miura-Ori Structured MXene Electrode: A Breathable Solution for Biosensing**
Tzu-En Lin, National Yang-Ming Chiao Tung University, Taiwan15:00-15:20 **Invited Talk: Unlocking the Power of Biocatalysis with Reticular Chemistry**
Kang Liang, The University of New South Wales, Australia

- 15:20-15:40 **Invited Talk: Design and Characterization of a Nanodrug-Loaded, ROS Scavenging Hydrogel for Retinal Tissue Repair - (Online)**
Jiashing Yu, National Taiwan University, Taiwan
- 15:40-16:00 **Invited Talk: Long-lived Neural Interfaces with Implanted Bioelectronics and Microfluidics**
Khoa Nguyen, Griffith University, Australia
- 16:00-16:15 **Biomass-derived Carbon Quantum Dots as Bioimaging Agents**
Shanmugavel Chinnathambi, Kyoto University, Japan
- 16:15-16:30 **Innovative Composite Graft of Tricalcium Phosphate and Magnesium Promotes Angiogenesis in Bone Regeneration**
Howida M. Nail, National Chung Hsing University, Taiwan
- 16:30-16:40 Group Photo
- From 16:40 Cocktails and Welcome Drinks

Join Zoom Meeting:<https://us06web.zoom.us/j/88562944091?pwd=ObvcQTsD1et12DBLUPltwaY5Xbkj0F.1>**Meeting ID:** 885 6294 4091**Passcode:** 948008**Nanotechnology and Nanoscience**

13:00-14:00 Lunch Break

Session Chairs:**Junma Tang**, University of New South Wales, Australia**Jing Tang**, East China Normal University, China14:00-14:20 **Invited Talk: Effects of Negatively Charged Colloidal Clay Particles on the Spectroscopic Properties of Anionic Dyes without Adsorption****Teruyuki Nakato**, Kyushu Institute of Technology, Japan14:20-14:40 **Invited Talk: Towards Quantum Control of a Room Temperature Mechanical Resonator - (Online)****Warwick Bowen**, The University of Queensland, Australia14:40-15:00 **Invited Talk: Physical Sensing Effect in SiC-on-Si Heterojunction for Enhanced Performance of Microsensors****Toan Dinh**, University of Southern Queensland, Australia15:00-15:20 **Invited Talk: Hydrogen Assisted Functionalization of Tungsten Disulfide Nanoparticles****Alex Laikhtman**, Holon Institute of Technology, Israel15:20-15:40 **Invited Talk: Dynamic Configurations of Metallic Atoms in Liquid State for Selective Propylene Synthesis****Junma Tang**, University of New South Wales, Australia15:40-16:00 **Invited Talk: Electron Modulation of Cu-based Catalyst for Electroreduction of CO₂ Towards C₂₊ Products****Jing Tang**, East China Normal University, China16:00-16:15 **Biogenic Silver Nanoparticles Capped with Phoenix Dactylifera L. Seed Extract: Synthesis and its Promising Antimicrobial Activity against Staphylococcus Epidermidis and Escherichia coli****Pushpa Thirubuanesvari-Duraivelu**, University Putra Malaysia, Malaysia

16:15-16:25 Group Photo

From 16:40 Cocktails and Welcome Drinks

Join Zoom Meeting:<https://us06web.zoom.us/j/83907706623?pwd=1I19Y4VmGk1uxn3EOjZ4uGbErlgPQR.1>**Meeting ID:** 839 0770 6623**Passcode:** 244821**Porous Materials**

13:00-14:00 Lunch Break

Session Chairs:**Takamichi Matsuno**, Waseda University, Japan**Yunqi Li**, Beihang University, China14:00-14:20 **Invited Talk: Mesoporous Metal Oxide and Metal Pyrophosphate Thin Film Electrodes: Fabrication and Their Electrochemical Properties****Omer Dag**, Bilkent University, Turkey14:20-14:40 **Invited Talk: Zeolite Crystallization Inside Three-dimensionally Ordered Nanoporous Cobalt Oxides****Takamichi Matsuno**, Waseda University, Japan14:40-15:00 **Invited Talk: Heavy-duty Anticorrosion Coatings Prepared from Epoxy Zinc-rich Composites with Small-loading of rGO to Partial Replacement of Large Amount of Zinc Dust****Jui-Ming Yeh**, Chung Yuan Christian University, Taiwan15:00-15:20 **Invited Talk: Study on the Structure Design and Electrochemical Performance of Non-precious Metal Catalyst Layer for Fuel Cell****Yunqi Li**, Beihang University, China15:20-15:40 **Invited Talk: Tailoring Hierarchical MOF Materials for Efficient Supercapacitors - (Online)****Fei-Bao Zhang**, Hangzhou Normal University, China15:40-15:55 **Evaluation of the Influence of the use of Aggregates with Different Thermal Expansion Coefficients on the Behavior of Coating Mortar Submitted to Accelerated Aging****Ieda Maria Fagundes Zanolla**, The University of Vale do Rio dos Sinos, Brazil

16:30-16:40 Group Photo

From 16:40 Cocktails and Welcome Drinks

Join Zoom Meeting:<https://zoom.us/j/97961469804?pwd=TDc2Y3ROOW1pdFB0Ym1xRmhNdmVKUT09>**Meeting ID:** 979 6146 9804**Passcode:** 926991**Session: JST-ERATO Special Session**

- 09:30-09:40 Opening Speech (**Yusuke Yamauchi** / **Hirokatsu Miyata**)
- 09:40-10:00 **Invited Talk: New Pore Size Control Technique of Mesoporous Gold Films by Electrochemical Synthesis Using Advanced Soft Template Method**
Tokihiko Yokoshima, Nagoya University, Japan
- 10:00-10:20 **Invited Talk: Multiscale Organization in Mesoporous Titania Films for Remarkable Optical Anisotropy**
Hirokatsu Miyata, Nagoya University, Japan
- 10:20-10:40 **Invited Talk: Tailor-made Synthesis of Sulfur-doped Mesoporous Carbons**
Takashi Hamada, Nagoya University, Japan
- 10:40-11:00 **Invited Talk: Controlled Growth of Large-Sized ZIF-8 Single Crystals via Solvothermal Method with Effects of Various Temperature**
Azhar Alowasheir, Nagoya University, Japan
- 11:00-11:30 Coffee Break
- 11:30-11:50 **Invited Talk: Balancing between Porosity and Connectivity: MgB₂ Superconducting Joint Architecture with the Functionality to Screen External Magnetic Fields**
Md Shahriar Hossain, The University of Queensland, Australia
- 11:50-12:10 **Invited Talk: Enhanced Light-matter Interactions in Mesoporous Plasmonic Structures for Advanced Sensing and Catalysis**
Olga Guselnikova, National Institute for Materials Science, Japan
- 12:10-12:30 **Invited Talk: Development of Ordered Honeycomb Vanadium Dioxide Films for Highly Transparent Smart Window Coatings**
Yusuf Valentino Kaneti, The University of Queensland, Australia
- 12:30-12:50 **Invited Talk: Multicomponent Ultrathin MOF derived Adjustable High Entropy Oxide Nanoparticles**
Wenyang Zhang, Waseda University, Japan
- 12:50-14:00 Lunch Break

Materials Science and Engineering**Session Chairs:****Hoang-Phuong Phan**, University of New South Wales, Australia**Jeonghun Kim**, Yonsei University, South Korea

- 14:00-14:20 **Invited Talk: Persistent Homology Analysis of the Effect of Structure on the Elastic Modulus of Wet Powder Materials**
Shingo Ishihara, Tohoku University, Japan
- 14:20-14:40 **Invited Talk: Quantitative Characterization and Multimodal Imaging of Materials using Synchrotron-radiation Based Microtomography at PETRA III**
Felix Beckmann, The Helmholtz Center Hereon, Germany

- 14:40-15:00 **Invited Talk: Local Photons in Hermitian and Non-hermitian Quantum Optics**
Daniel Hodgson, University of Leeds, UK
- 15:00-15:20 **Invited Talk: Engineering Nanomembrane Semiconductors for Long-lived Bioimplanted Electronics**
Hoang-Phuong Phan, University of New South Wales, Australia
- 15:20-15:40 **Invited Talk: Testing Geopolymer Concrete Performance in Chloride Environment**
Arnaud Castel, University of Technology Sydney, Australia
- 15:40-16:00 **Invited Talk: Nanoarchitected Nanoporous Plasmonic Metals for High-performance Surface-enhanced Raman Spectroscopy Substrates**
Jeonghun Kim, Yonsei University, South Korea
- 16:00-17:00 Coffee Break and Poster Presentations
- 01ER **Design and Synthesis of Sulfur-doped Mesoporous Carbons**
Takashi Hamada (Nagoya University, JST-ERATO)
- 02ER **Controlled Growth of Large-sized ZIF-8 Single Crystals via Solvothermal Method with Effects of Various Temperature**
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- 03ER **Universal Method to Synthesize Ultrathin Polymetallic 2D MOFene Derived Superfine High Entropy Nanoparticle**
Wenyang Zhang (Waseda University, JST-ERATO)
- 04ER **Hierarchical Macroporous-mesoporous Metal Foams for the Detection of Large Macromolecules**
Olga Guselnikova (National Institute for Materials Science, JST-ERATO)
- 05ER **Constructing Conformal Metal-organic Frameworks Inside Mesoporous Metals for Selective Sensing of Chlorinated Aromatic Hydrocarbons**
Sarah Zulfa Khairunnisa (National Institute for Materials Science, JST-ERATO)
- 06ER **Mesoporous Gold Electrodes Modified with Peptide Nucleic Acid for Detecting MicroRNA**
Mayuka Iida (Waseda University, JST-ERATO)
- 07ER **Development of Chiral Sensor using Mesoporous Gold Films with Chiroptical Properties**
Yuta Shiga (Waseda University, JST-ERATO)
- 08MO **Achieving Cardiac Transdifferentiation through miRNA Delivery via Scaffold**
Vivekanandan Palaninathan, Toyo University, Japan
- 09MO **Green Chemistry Advancement: Unravelling Dye Removal Potential Using Nitrogen-doped Palm Oil Mill Effluent Sludge-biochar as Peroxydisulfate Activator**
Sabrina Karim, Universiti Kuala Lumpur, Malaysia
- 10MO **Infrared FT-IR Insight Into Prolonged Exposure to Ambient Air of Semiconductor Kesterite $\text{Cu}_2\text{ZnSnS}_4$ Nanopowders Prepared via Mechanochemical Synthesis Route**
Jerzy F. Janik, AGH University of Kraków, Poland
- 11MO **Micro-Raman Spectroscopy used to Follow Oxidation in Ambient Air of Semiconductor Kesterite $\text{Cu}_2\text{ZnSnS}_4$ Nanopowders Made by Mechanochemically-assisted Synthesis Route**
Jerzy F. Janik, AGH University of Kraków, Poland
- 12MO **Impact of Temperature on Optical Properties of Oxyfluorotellurite Glasses Doped with Praseodymium**
Barbara Klimesz, Opole University of Technology, Poland

- 13MO **Susceptibility to Metal Working Processes of High-strength CuMg Alloys Assessed with Finite Element Method**
[Pawel Strzepek](#), AGH University of Krakow, Poland
- 14MO **Penta Nitrogen Coordinated Cobalt Single Atom Catalysts with Oxygenated Carbon Black for Electrochemical H₂O₂ Production**
[Jong Min Kim](#), Korea Institute of Science and Technology, South Korea
- 15MO **Comparative Studies for the Effect of Different Pore Surface Area and Center Metal Species of Mono-metallic and Bi-metallic MOF Materials in the Application of Gas Sensing Devices**
[Hsun-Yin Chang](#), Chung Yuan Christian University, Taiwan
- 16MO **Comparative studies of Inorganic Iron-containing MOF, Organic ACAT, and Corresponding Organic-inorganic Composite in H₂S Gas Sensing Application**
[Yun-Ting Chen](#), Chung Yuan Christian University, Taiwan
- 17MO **Ordered Mesoporous Intermetallic with Enhanced Electrocatalytic Activity and Stability for Hydrogen Evolution**
[Yanzhi Wang](#), Sichuan University, China
- 18MO **Mesoporous Palladium-nonmetal Alloy Nanocubes for Efficient Electrochemical Nitrate Reduction to Ammonia**
[Lizhi Sun](#), Sichuan University, China
- 19MO **Catalytic Performance Enhancement of Post-modified Metal-Organic Frameworks for CO₂ Cycloaddition Reaction**
[Jongbeom Na](#), Korea Institute of Science and Technology, South Korea
- 20MO **Categorization of Data-driven Models to Improve Prediction Performance for Polypropylene Composite Development**
[Junghwan Kim](#), Yonsei University, South Korea
- 21MO **Construction of 2D Lamellar Membrane for Comprehensive Utilization of Solar Energy -**
[Zhanhui Yuan](#), Fujian Agriculture and Forestry University, China
- 22MO **Impact on Charge Distribution in Molecules by Nano-glass Surface**
[Miharu Eguchi](#), Waseda University, Japan
- 23MO **Self-healing Polyurethane Nanocomposite Containing Aminated-cellulose Nanocrystal**
[Myongkeon Oh](#), Korea Institute of Industrial Technology, South Korea
- 24IR **Synthesis of Hollow Metal Hydroxide Nanoparticles Containing Cobalt and Iron from Metal Fluoride Nanoparticles**
[Toshiki Yamada](#), Nagoya University, Japan
- 25IR **Development of Chiral Mesoporous Gold Films for Chiral Discrimination**
[Yuta Shiga](#), Waseda University, Japan
- 26IR **Electroless Deposition of Mesoporous Metal Films by Displacement Plating**
[Kaito Kono](#), Nagoya University, Japan
- 27IR **A One Stop Global Service Platform for Research, Development, Compliance, Protection, and Commercialization**
[ZaZzTech](#),
- 28IR **Mesoporous Gold Electrodes Modified with Peptide Nucleic Acid for Detecting MicroRNA**
[Mayuka Iida](#), Waseda University, Japan

- 29IU **Synthesis and Characterization of Nickel Cobalt Glycerate Derived Nickel Cobalt Based Metal-Organic Framework**
Neng Astri Lidiawati, Bandung Institute of Technology, Indonesia
- 30IU **A Theoretical Investigation on Nitrogen Dioxide Adsorption on Self-assembled Monolayer-functionalized ZnO Monolayer**
Muhammad Fadlan Raihan, Bandung Institute of Technology, Indonesia
- 31IU **Synthesis and Characterization of ZIF 67 Mangan Bimetal for Electrochemical Sensor Application**
Atqiya Muslihati, Bandung Institute of Technology, Indonesia
- 32IU **Preparation and Properties of Bimetallic Co/Cu ZIF-67 for Electrochemical Application**
Chandra Wulandari, Bandung Institute of Technology, Indonesia
- 33IU **Facile Preparation and Characterization of Metal Phosphate for Battery-like Supercapacitor**
Miftahul Khoiri, Bandung Institute of Technology, Indonesia

ER: ERATO Special Session

MO: Materials Oceania

IR: Industrial Road on Smart Nanotechnology

IU: ITB-UQ Special Session

Join Zoom Meeting:<https://us06web.zoom.us/j/88562944091?pwd=ObvcQTsD1et12DBLUPltwaY5Xbkj0F.1>**Meeting ID:** 885 6294 4091**Passcode:** 948008**Energy and Environmental Materials****Session Chairs:****Kazuyuki Iwase**, Tohoku University, Japan**Md. Arifur Rahim**, University of Sydney, Australia

- 09:30-09:50 **Invited Talk: Sustainable Manufacturing of Valuable Chemical Commodities**
Xunyu Lu, The University of New South Wales, Australia
- 09:50-10:10 **Invited Talk: CD-COOFe^{III} Fenton-like Catalytic Activation of H₂O₂**
Xufang Qian, Shanghai Jiao Tong University, China
- 10:10-10:30 **Invited Talk: CeO₂-Based Catalysts: Their Unique Catalysis for Transformation of CO₂-Captured Amines to Organic Urea Derivatives**
Mizuho Yabushita, Tohoku University, Japan
- 10:30-10:50 **Invited Talk: Fluorine Substituted Perovskite Oxides Synthesized via Low-temperature Processing as Electrocatalysts for Oxygen Evolution Reactions**
Kazuyuki Iwase, Tohoku University, Japan
- 10:50-11:10 Break
- 11:10-11:30 **Invited Talk: Photoelectrochemical Water Splitting Process by Visible-light-absorbing Semitransparent Tantalum Nitride Thin Film Photoelectrodes**
Tomohiro Higashi, University of Miyazaki, Japan
- 11:30-11:50 **Invited Talk: Dynamic, Single-atom Liquid Noble Metal Catalysts**
Md. Arifur Rahim, University of Sydney, Australia
- 11:50-12:10 **Invited Talk: Sustainable Materials for a Clean Energy Future**
Mahesh P. Suryawanshi, University of New South Wales, Australia
- 12:10-12:30 **Invited Talk: Advanced Atomic Catalysts Design for Energy Systems**
Bolong Huang, The Hong Kong Polytechnic University, Hong Kong
- 12:30-12:45 **Slow Photon Engineering in Nanoporous Photonic Crystals for Sunlight-driven Photocatalysis**
Siew Yee Lim, The University of Adelaide, Australia
- 12:45-14:00 Lunch Break
- Session Chairs:**
Kyubin Shim, Korea Basic Science Institute, South Korea
Arturo Barrera, University of Guadalajara, Mexico
- 14:00-14:15 **Perfluorosilanized Nanoporous Interferometers for Real-time Detection of Per-fluoroalkyl Substances (PFAS)**
Cheryl Suwen Law, The University of Adelaide, Australia
- 14:15-14:30 **Co₃O₄/NiOH Mixed Oxide Nanoflowers as Highly Active and Durable Anode Materials for High-performance Li-ion Batteries**
Paskalis Sahaya Murphin Kumar, Yonsei University, South Korea

- 14:30-14:45 **Low-cost and High-safety Aqueous Zn Batteries**
Junnan Hao, University of Adelaide, Australia
- 14:45-15:00 **Construction and Gas Sensing Properties of ZnO-based One-dimensional Heterostructures**
Sikai Zhao, Northeastern University, China
- 15:00-15:15 **Synthesis of MnS/MnO Decorated N, S-doped Carbon Prepared by the Mn Ion-coordinated Polymer Obtained using a New Synthetic Method**
Kyubin Shim, Korea Basic Science Institute, South Korea
- 15:15-15:30 **Coupled Al₂O₃-Nd₂O₃-ZnO and Al₂O₃-Ga₂O₃-Ag₂O Composites Prepared by the Sol-gel Method for the Photocatalytic Degradation of Contaminant Organic Compounds in Aqueous Medium**
Arturo Barrera, University of Guadalajara, Mexico
- 15:30-15:45 **Low-temperature and Highly Enhanced NO₂ Sensing Performance of Au-functionalized WO₃ Microspheres with a Hierarchical Nanostructure**
Cong Han, Northeastern University, China
- 16:00-17:00 Poster Presentations

Join Zoom Meeting:<https://us06web.zoom.us/j/83907706623?pwd=1I19Y4VmGk1uxn3EOjZ4uGbErlgPQR.1>**Meeting ID:** 839 0770 6623**Passcode:** 244821**Industrial Road on Smart Nanotechnology (Sponsored by the AJF)**

- 09:30-09:40 Opening Speech by **Md Shahriar Hossain**, The University of Queensland, Australia
- 09:40-09:55 **Cobalt phthalocyanine-based Conjugated Polymer as Electrocatalyst for CO₂ Reduction to Ethanol**
Dong Jiang, Waseda University, Japan
- 09:55-10:10 **Enhancing Electrocatalytic Performance via Curvature-tuned Hollow N-doped Mesoporous Carbon with Embedded Co Nanoparticles for Oxygen Reduction Reaction**
Yingji Zhao, Waseda University, Japan
- 10:10-10:25 **When Single Atom Meet Nanoparticles/Nanoclusters for Oxygen Reduction**
Xiaoqian Wei, Waseda University, Japan
- 10:25-10:40 **Plasmon-driven Extra-high MOR Performance of Pd@Pt@Au Three-layer Core-shell Mesoporous Nanoparticles with Ex-situ Gold Positioning Enhancement**
Liyang Zhu, Waseda University, Japan
- 10:40-10:55 **Mesoporous Nanostructures for Exosome Profiling: A New Approach to Disease Diagnosis**
S. M. Azad Hossain, The University Of Queensland, Australia
- 10:55-11:30 Break
- 11:30-11:45 **Hierarchically Porous Carbon Heterostructures from 2D Graphene Oxide with Enhanced Electrochemical Performance and Restacking Prevention**
Jacob Earnshaw, The University Of Queensland, Australia
- 11:45-12:00 **Temperature-controlled Crystallization Technique for Enhanced Metastable CuTe₂ Thin Films for Optoelectronic Applications - (Online)**
Aditya Ashok, The University Of Queensland, Australia

ITB-UQ Special Session (Sponsored by UQ Global Engagement)

- 12:00-12:10 Opening Speech by **Md Shahriar Hossain**, The University of Queensland, Australia
- 12:10-12:30 **Modification of Metal Organic Frameworks (MOFs) for Electrochemical and Optical Biosensor - (Online)**
Brian Yulianto, Bandung Institute of Technology, Indonesia
- 12:30-12:50 **Invited Talk: Micellar Solutions Approach of Mesoporous Pd and PdCu Nanoarchitectures for Electrocatalytic Applications**
Muhammad Iqbal, Bandung Institute of Technology, Indonesia
- 12:50-14:00 Lunch Break
- 14:00-14:215 **Hollow Zinc-oxide Microsphere–multiwalled Carbon Nanotube Composites for Selective Detection of Sulfur-dioxide - (Online)**
Ni Luh Wulan Septiani, Bandung Institute of Technology, Indonesia
- 14:15-14:30 **Sodium Dodecyl Sulfate Assisted Synthesis of NiO Microflowers-like on Nickel Foam as an Advanced Supercapacitor Electrode**
Siti Wihdatul Himmah, Bandung Institute of Technology, Indonesia

- 14:30-14:45 **Designing Aptasensor based on Surface Plasmon Resonance for COVID-19 RNA Detection**
Feraliana, Bandung Institute of Technology, Indonesia
- 14:45-15:00 **One Pot Synthesis Process of Hollow Two-dimensional Bimetallic Metal-Organic Framework Hexagonal Nanoplates for Ammonia Sensing - (Online)**
Silvia Chowdhury, The University Of Queensland, Australia
- 15:00-15:15 **Template-free Method to Enlarge the Porosity of Metal-Organic Framework Derived Carbons for Supercapacitor Electrodes - (Online)**
Sophie Ruijing Xin, The University Of Queensland, Australia
- 15:15-15:30 **Synergistic Mesoporous Bimetallic Gold-silver Nanoparticles: Synthesis, Structure, and Superior Electrocatalytic Activity - (Online)**
Asep Sugih Nugraha, The University Of Queensland, Australia
- 16:00-17:00 Poster Presentations

Join Zoom Meeting:<https://zoom.us/j/97961469804?pwd=TDc2Y3ROOW1pdFB0Ym1xRmhNdmVKUT09>**Meeting ID:** 979 6146 9804**Passcode:** 926991**Session: JST-ERATO Special Session- (Online)**

- 09:30-09:40 Opening Speech (**Yusuke Yamauchi** / **Hirokatsu Miyata**)
- 09:40-10:00 **Invited Talk: Extraordinary Properties of Mesoporous Bi₂Se₃ Film - (Online)**
Minsu Han, The University of Queensland, Australia
- 10:00-10:20 **Invited Talk: Nanoarchitected Porous Carbons to Achieve Controlled and Open Porosity - (Online)**
Minjun Kim, The University of Queensland, Australia
- 10:20-10:40 **Invited Talk: Mesoporous Architectures of Metallic Amorphous Alloys - (Online)**
Yunqing Kang, National Institute for Materials Science (NIMS), Japan
- 10:40-11:00 **Promoting Electrochemical Energy Storage Performance of Nanosheets by Developing Novel 2D Nanoarchitected Hybrid Materials - (Online)**
Jie Wang, The University of Queensland, Australia
- 11:00-11:30 Coffee Break
- 11:30-11:50 **Invited Talk: Flexible Mesoporous Gold Sensor for Biosensing and Physiological Neural Recording- (Online)**
Mostafa Kamal Masud, The University of Queensland, Australia
- 11:50-12:10 **Invited Talk: Piezoelectric Properties in Nanoporous Thin Film - (Online)**
Yukana Terasawa, Kumamoto University, Japan
- From 13:00 Conference Banquet (Sayonara's Party)

Join Zoom Meeting:<https://us06web.zoom.us/j/88562944091?pwd=ObvcQTsD1et12DBLUPltwaY5XbKj0F.1>**Meeting ID:** 885 6294 4091**Passcode:** 948008**Ceramics, Polymers and Composite Materials****Session Chair:****Fabien Grasset**, IRL LINK CNRS – Saint-Gobain – NIMS, Japan

- 09:30-09:45 **Analysis of Pathological Manifestations in Reservoirs of Reinforced Concrete in the City of Porto Alegre in Buildings with Age Over 20 Years**
Ieda Maria Fagundes Zanolla, The University of Vale do Rio dos Sinos, Brazil
- 09:45-10:00 **Sandwich-structured MSn_x-rGO-SnO₂ Nanocomposites Modified by Intermetallic Compounds for Enhancing Sub-ppm H₂ Detection**
Yanbai Shen, Northeastern University, China
- 10:00-10:15 **Effect of Saltwater Mixing and Curing on the Compressive Strength of Cement Mortar with Blast Furnace Slag**
Chung-Hao Wu, National Kaohsiung University of Science and Technology, Taiwan
- 10:15-10:30 **Nanocomposites Thin Films Based on Octahedral Metal Atom Clusters**
Fabien Grasset, IRL LINK CNRS – Saint-Gobain – NIMS, Japan
- 10:30-10:45 **Biomass-derived Functional Nanocomposites for Practical Applications**
Youngsang Ko, Kyung Hee University, South Korea
- 10:45-11:00 **Reduced Ice Adhesion using Amphiphilic Poly (Ionic Liquid)-based Surfaces**
Zahra Mossayebi, The University of Melbourne, Australia
- 11:00-11:30 Break
- 11:30-11:45 **Catalytic Conversion of Pulegone to Thymol using a Novel Trimetallic (Al-B-Pd/Ac) Composite Material: A Perspective on Flavor and Food Control**
Prashant Kumar, RMIT University, Australia

Advanced Nanomaterials**Session Chair:****Yusuke Yamauchi** (Nagoya University and University of Queensland)

- 11:45-12:05 **Invited Talk: Self-assembly of Monodisperse Nanosheets**
Nobuyoshi Miyamoto, Fukuoka Institute of Technology, Japan
- 12:05-12:25 **Invited Talk: Surfactant-assisted Synthesis of Mesoporous Metal Phosphonates and Unique Surface and Interior Properties**
Tatsuo Kimura, National Institute of Advanced Industrial Science and Technology, Japan
- 12:25-12:45 **Invited Talk: Rational Design of Single-phase Multi-metal Mesoporous Nanostructures for a Sustainable Future**
Ravi Nandan, National Institute for Materials Science (NIMS), Japan

From 13:00 Conference Banquet (Sayonara's Party)

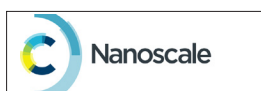
Join Zoom Meeting:<https://us06web.zoom.us/j/83907706623?pwd=1I19Y4VmGk1uxn3EOjZ4uGbErlgPQR.1>**Meeting ID:** 839 0770 6623**Passcode:** 244821**Energy and Environmental Materials****Session Chairs:****Xiaoguang Duan**, The University of Adelaide, Australia**Tomoyo Goto**, Osaka University, Japan

- 09:30-09:50 **Invited Talk: Surface Tension and Viscosity Measurement of Molten Materials using Aerodynamic Levitation Technique**
Masayoshi Adachi, Tohoku University, Japan
- 09:50-10:10 **Invited Talk: Concentrated Solar Catalytic Dry Reforming of Methane and Carbon Dioxide over Ni Loaded Metal Oxides**
Zeai Huang, Southwest Petroleum University, China
- 10:10-10:30 **Invited Talk: Sorption Property of Sr²⁺ on Seaweed-like Sodium Titanate Mat Synthesized by Hydrothermal Method**
Tomoyo Goto, Osaka University, Japan
- 10:30-10:50 **Invited Talk: Enhancement of Electrocatalytic Behavior of Metallic Organic Frame Works for Water Splitting at Elevating Temperature Measurements - (Online)**
Muhammad Faisal Iqbal, Zhejiang Normal University, China
- 10:50-11:10 **Invited Talk: High-performance See-through Power Windows - (Online)**
Chang-Zhi Li, Zhejiang University, China
- 11:10-11:30 Break
- 11:30-11:50 **Invited Talk: Microplastic Degradation by Advanced Oxidation Processes**
Xiaoguang Duan, The University of Adelaide, Australia
- 11:50-12:10 **Invited Talk: Nanoporous Metal-Organic Frameworks (MOFs) Catalysts for Biomass and Plastics Conversion**
Kevin C.-W. Wu, National Taiwan University, Taiwan
- 12:10-12:25 **N-doped Graphitic Carbon Nitride and Potassium Dichromate: A Rapid Approach Towards Humic-like Substance Formation**
Mahmoud M. M. Ahmed, National Chung Hsing University, Taiwan
- 12:25-12:40 **Temperature-dependent Structural Behavior of Cobalt/nickel Selenite Hydrates as Solar Water Evaporators**
Anastasiia Taranova, Kyoto Institute of Technology, Japan
- 12:40-12:55 **Trace Gases and Particulate Matter Emitted During Thermal Treatment of Waste Silicon Solar Panels for Extraction of Materials**
Chitra Sulkan, RMIT University, Australia
- From 13:00 Conference Banquet (Sayonara's Party)

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