

MATERIALS OCEANIA-2025

SEPTEMBER 16-19, 2025

Yonsei University, Seoul, South Korea



6th INTERNATIONAL CONFERENCE ON

MATERIALS SCIENCE AND ENGINEERING

SEPTEMBER 16-19, 2025

YONSEI UNIVERSITY, SEOUL, SOUTH KOREA



OUR CONFERENCE PARTNERS



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INSTRUCTIONS FOR SPEAKERS

1. **Plenary Talks:** Plenary speakers will be allotted 25 minutes to present their results, followed by a 5 minutes discussion period.
2. **Keynote Talks:** Keynote speakers will be allotted 20 minutes to present their results, followed by a 5 minutes discussion period.
3. **Invited Talks:** Invited speakers will be allotted 17 minutes to present their results, followed by a 3 minute discussion period.
4. **Oral Talks:** Oral speakers will be allotted 12 minutes to present their results, followed by a 3 minute discussion period.
5. Please do not exceed the allotted time slot.
6. Speakers should have their presentations saved on a USB memory stick.
7. It is suggested to email a copy of the presentations to us as back up.
8. Please prepare the presentation in PPT files, PDF is not recommended.
9. Basic AV setup will be provided: laser pointer, cordless mike, desktop mike, sound system.
10. Laptops equipped with Windows 10, Office 2010 Pro English (Word, Powerpoint, Excel) and Adobe Reader are provided.
11. 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.
12. Projectors are equipped with standard VGA connection ports. Mac users should bring their own adapter cord.
13. Please re-check this program prior to the conference to confirm if any changes have been made to your session.
14. Conference volunteers will move the mic during Q&A. Audience with questions may raise hand to receive the mic.

INSTRUCTIONS FOR POSTER

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.

MATERIALS OCEANIA 2025

DAY-0 SEPTEMBER 16, 2025

15:30–20:00

COCKTAILS AND WELCOME DRINKS

DAY-1 SEPTEMBER 17, 2025 GRAND ROOM-A

08:30–09:00 Registrations

09:00–09:15 Opening Ceremony Speech

PLENARY SESSION

COFFEE WILL BE AVAILABLE OUTSIDE ROOM A THROUGHOUT THE PLENARY SESSIONS

09:15–09:45 Advances in the Synthesis of Hexagonal Boron Nitride Nanomaterials: Methods and Applications
Yoshio Bando, King Saud University, Saudi Arabia

09:45–10:15 Liquid Interface As Delicate Zone for Materials Science: Molecular Machine, Living Cell, and Organic Semiconductor
Ariga Katsuhiko, The University of Tokyo, Japan

10:15–10:45 Unveiling the Topology–Property Relationship in the Polyethers
Byeong-Su Kim, Yonsei University, South Korea

10:45–11:15 Electrically Conductive Nanomaterials-Based Composite Membranes With Electro-Promoted Water Treatment Performance
Xie Quan, Dalian University of Technology, China

11:15–11:45 Beyond the Lab: Binder Design for Scalable High-Energy Lithium Battery Electrodes
Sang-Young Lee, Yonsei University, South Korea

11:45–12:15 The Development of Cost-Effective Platforms for Photocatalytic and Non-Photocatalytic Environmental Remediation and Carbon Capture
Ki-Hyun Kim, Hanyang University, South Korea

12:15–13:30 LUNCH BREAK

ENERGY AND ENVIRONMENTAL MATERIALS

13:30–13:55 **Keynote:** Ion Solvating Membranes: Quaternary Ammonium-Free Alternatives to AEM
Dirk Henkensmeier, Korea Institute of Science and Technology (KIST), South Korea

13:55–14:15 **Invited:** Revisiting Electrolyte Thermodynamics Beyond Debye–Hückel Theory
Norio Takenaka, The University of Tokyo, Japan

14:15–14:35 **Invited:** Recent Developments in Three-Dimensional Junction Bipolar Membranes: Toward Enhanced Water Dissociation Efficiency, Structural Integrity, and Chemical Robustness
Jaewoo Lee, Jeonbuk National University, South Korea

14:35–14:55 **Invited:** Design of Organic Solar Cells Using Ternary Blends of Semiconducting Polymers
Hiroaki Benten, Nara Institute of Science and Technology, Japan

14:55–15:15 **Invited:** Designing Nanostructured Catalytic Materials that Steer Selective Electrosynthesis
Sang Hoon Joo, Seoul National University, South Korea

15:15–15:45 COFFEE BREAK

- 15:45–16:05** **Invited:** Synthesis and Characterization of Nanostructured Carbides for HER
Fabien Grasset, IRL3629 CNRS, National Institute for Materials Science, Japan
- 16:05–16:25** **Invited:** Spray-coated Diamond Electrode for Electrolytic Applications
Takeshi Kondo, Tokyo University of Science, Japan
- 16:25–16:45** **Invited:** Integrative Battery Research: from Materials to Intelligent Systems for Future Mobility
Jimin Oh, Kyungpook National University, South Korea
- 16:45–17:05** **Invited:** Enhancement of Piezoelectric Properties in Textured CaBi₂Nb₂O₉ Ferroelectric Ceramics with High Curie Temperature *via* Rare-Earth Ion Doping and Spark Plasma Sintering
Chun-Ming Wang, Shandong University, China

18:00–21:00 **CONFERENCE BANQUET @ GRAND ROOM A**

DAY-1 SEPTEMBER 17, 2025 ROOM-B

POROUS MATERIALS

- 13:30–13:50** **Keynote:** Printed Porous Composite Layers for Flexible Sensors
Shizuo Tokito, Yamagata University, Japan
- 13:50–14:10** **Invited:** Multilayer Nanoporous Graphene Membrane for Ultrafast Organic Solvent Nanofiltration
Dae Woo Kim, Yonsei University, South Korea
- 14:10–14:30** **Invited:** Stabilization of Overloaded Pharmaceutical Glass Using Mesoporous Silica Particles
Kohsaku Kawakami, National Institute for Materials Science, Japan
- 14:30–14:50** **Invited:** Porous Silicon Nanoparticles for Overcoming Brain-Related Diseases
Dokyoung Kim, Kyung Hee University, South Korea
- 14:50–15:10** **Invited:** Synthesis of Two-dimensional Metal-organic Frameworks
Fei-Bao Zhang, Hangzhou Normal University, China

15:10–15:45 **COFFEE BREAK**

- 15:45–16:05** **Invited:** Transformation of the Phase and Shape of Transition Metal Dichalcogenides *via* Molecular Surface Treatments
Daisuke Kiriya, The University of Tokyo, Japan
- 16:05–16:25** **Invited:** Lyotropic Liquid Crystalline Phases for Designing Porous Electrodes for Various Applications
Omer Dag, Bilkent University, Turkey
- 16:25–16:45** **Invited:** Mesoporous Clay Structures for Heterogeneous Catalyst and Support Material
Eun-Bum Cho, Seoul National University of Science and Technology, South Korea
- 16:45–17:00** **TBA:**
TBA,

18:00–21:00 **CONFERENCE BANQUET @ GRAND ROOM A**

DAY-1 SEPTEMBER 17, 2025 ROOM-C

COMPUTATIONAL MATERIALS

- 13:30-13:50** **Invited:** Deciphering Functional Emergence in Advanced Superconducting Wires through Deep Learning Segmentation of 3D Microstructures
Akiyasu Yamamoto, Tokyo University of Agriculture and Technology, Japan
- 13:50-14:10** **Invited:** Computational Design of Electrochemical Energy Conversion Materials Using First-principles Calculations and Machine Learning Techniques
Byungchan Han, Yonsei University, South Korea
- 14:10-14:30** **Invited:** Multi-scale Modeling and Inverse Design of Catalytic Substrates for Isothermal Segregation Growth of Two-Dimensional Materials
Qinghong Yuan, East China Normal University, China
- 14:30-14:50** **Invited:** Analytical Modeling and Mechanical Behaviors of Crosslinked Graphene Layers
Toshiaki Natsuki, Shinshu University, Japan
- 14:50-15:10** **Invited:** Ultra-flexible Skin-compatible Organic Optoelectronics
Sungjun Park, Ajou University, South Korea

15:10-15:45 **COFFEE BREAK**

STRUCTURAL MATERIALS

- 15:45-16:10** **Keynote 1:** Metallurgy Revised
John Campbell, University of Birmingham, UK
- 16:10-16:35** **Keynote 2:** Metallurgy Revised
John Campbell, University of Birmingham, UK
- 16:35-16:50** **Oral:** Incremental Forming of Tailor-Welded Sheet of AA1050 Aluminum with Dissimilar Thickness Made by Bobbin Tool Friction Stir Welding
Masaaki Otsu, University of Fukui, Japan
- 16:50-17:05** **Oral:** Synthesis and Structural Characterization of Phosphine Ligands for Pd-catalyzed Carbonylations
Ye Liu, East China Normal University, China

18:00-21:00 **CONFERENCE BANQUET @ GRAND ROOM A**

DAY-1 SEPTEMBER 17, 2025 ROOM-D

CERAMICS, POLYMERS AND COMPOSITE MATERIALS

- 13:30-13:50** **Invited:** Advanced Materials for Roadway Infrastructure Renewal: the Role of Composite Materials in Sustainable and Resilient Rehabilitation Strategies
Francesco Micelli, University of Salento, Italy
- 13:50-14:10** **Invited:** Advanced Functional Materials and Technologies for Additive Manufacturing of 5G/6G Applications
Bhavana Deore, National Research Council, Canada
- 14:10-14:30** **Invited:** Designing Multifunctional Waterborne Polymer Nanocomposites
Vipul Agarwal, University of New South Wales, Australia

14:30–14:50	Invited: The Role of Natural Fibers in High-Strength and Sustainable Composites Thamer Alomayri , Umm Al-Qura University, Saudi Arabia
14:50–15:10	Invited: Design of Stable and Highly Efficient Conjugated Polymer/2D Nanosheet P–N Heterojunction Composites for Hydrogen Evolution Reactions Chih-Chia Cheng , National Taiwan University of Science and Technology, Taiwan
15:10–15:45	COFFEE BREAK
15:45–16:05	Invited: Magneto-dielectric Effect in Corundum-type Oxide Asish Kundu , IIITDM Jabalpur, India
16:05–16:25	Invited: Polyisoprene-Coated Silica for Non-Black Rubber: Enhancing Processing, Mechanical, and Barrier Properties Thirawudh Pongprayoon , King Mongkut's University of Technology North Bangkok, Thailand
16:25–16:45	Oral: Evaluating The Impact of Manufacturing Parameters on Properties of Sunn Hemp Bio-Composites Babatunde Olatunbosun , University of Southern Queensland, Australia
16:25–16:45	Oral: Data-driven Investigation of Lattice Parameter Evolution in Fe-based Superconductors Nur Rahmawati Ayukaryana , Tokyo University of Agriculture and Technology, Japan
18:00–21:00	CONFERENCE BANQUET @ GRAND ROOM A

DAY-2 SEPTEMBER 18, 2025 ROOM-A

ENERGY AND ENVIRONMENTAL MATERIALS

09:00–09:25	Keynote: Development of Robust and Environmentally-Friendly Photocatalysts and Photoelectrocatalysts for Organic Removal and Green Hydrogen Production Byeong-Kyu Lee , University of Ulsan, South Korea
09:25–09:45	Invited: Entropy-driven Derivative Organic Coverage Designs on Ni-rich Layered Cathodes in Lithium-ion Battery Fu Ming Wang , National Taiwan University of Science and Technology, Taiwan
09:45–10:05	Invited: High Performance Nano-Bulk Si-Ge Thermoelectric Materials Tsunehiro Takeuchi , Toyota Technological Institute, Japan
10:05–10:25	Invited: Energy-efficient Synthesis of Thermoelectric Materials Chia-Jyi Liu , National Changhua University of Education, Taiwan
10:25–11:00	COFFEE BREAK
11:00–11:20	Invited: Hybrid Low-Dimensional TiO ₂ Photocatalysts: Role of Carbon and Metal Modification in Morphology and Pollutant Removal Performance Rika Tri Yunarti , Universitas Indonesia, Indonesia
11:20–11:40	Invited: Precise Synthesis of Advanced Conjugated Polymers for Efficient Perovskite Solar Cells Chang-Zhi Li , Zhejiang University, China
11:40–12:00	Invited: PFAS-Free Functional Polymers for High-Performance Triboelectric Nanogenerators and Sensors Ju-Hyuck Lee , Daegu Gyeongbuk Institute of Science and Technology, South Korea
12:00–13:00	LUNCH BREAK
13:00–13:20	Invited: Cobalt Oxidation-State Engineering for Enhanced Electrocatalytic Water-Splitting in Copper-Cobalt-Based High-/Medium-Entropy Oxides Yun-Hyuk Choi , Daegu Catholic University, South Korea
13:20–13:40	Invited: Development of Flexible Electrodes for Energy Storage and Sensing Applications Muhammad Iqbal , Institut Teknologi Bandung, Indonesia
13:40–14:00	Invited: Synergistic Dual-Site Janus MXene Quantum Dots for Sustainable Alcohol Oxidation Lagnamayee Mohapatra , Jeonbuk National University, South Korea
14:00–14:20	Invited: Sunlight-Driven Photocatalytic Hydrogen Generation: Engineering Strategies for Sustainable Energy and Environmental Solutions Muthukonda Venkatakrishna Shankar , Konkuk University, South Korea
14:20–14:40	Invited: Thermal-to-Electrical Energy Conversion <i>via</i> a High-Efficiency, High-Power Air-Bridge III-V Thermophotovoltaic System Jihun Lim , Jeonbuk National University, South Korea
14:40–15:00	Invited: Single-Atom Decorated Platinum for High-Performance Ammonia Oxidation Sang-Il Choi , Kyungpook National University, South Korea
15:00–15:30	COFFEE BREAK

- 15:30–15:50** **Invited:** Ion Conducting Membranes through Self-Assembly of Graft Copolymers
Jong Hak Kim, Yonsei University, South Korea
- 15:15–16:10** **Invited:** Aluminosilicate-Reinforced Graphene Oxide Membranes with Tunable Hierarchical Spacings for Electrochemical Lithium Recovery Beyond the Selectivity–Permeability Trade-off
Jongkook Hwang, Ajou University, South Korea
- 16:10–16:30** **Invited:** Strategies for High-Performance Aqueous Rechargeable Zinc Batteries
Kwan Woo Nam, Ewha Womans University, South Korea
- 16:30–16:50** **Invited:** Synergistic Strategies for Low-PGM Electrocatalysts in HER and OER toward Efficient and Scalable PEM Water Electrolysis
Hyunsoo Lim, Korea Electronics Technology Institute (KETI), South Korea

17:00–18:00 POSTER PRESENTATIONS

DAY-2 SEPTEMBER 18, 2025 ROOM-B

NANOTECHNOLOGY AND NANOSCIENCE

- 09:00–09:25** **Keynote:** Material Design of Conductive Oxide Semiconductor Films to Achieve Thickness-Dependent Properties for a Wide Range of Applications
Yamamoto Tetsuya, Kochi University of Technology, Japan
- 09:25–09:45** **Invited:** Molecularly Engineered Nanoplatfoms for Selective Detection and Neutralization of Molecular Threats
Young Hun Seo, KIST Europe, Germany
- 09:45–10:05** **Invited:** Stimuli-Responsive, Morphology-Switching Bottlebrush Copolymer Particles
Shin Jaeman, Soongsil University, South Korea
- 10:05–10:25** **Invited:** A Shock Tube Investigation of Structural, Morphological and Photocatalytic Properties of Strontium Stannate Nanostructures
Sivaprakash Paramasivam, Keimyung University, South Korea

10:30–11:00 COFFEE BREAK

- 11:00–11:20** **Invited:** Resolving Intrinsic 3D Structural Variations in Nanoparticles *via* Liquid-Phase Electron Microscopy
Byung Hyo Kim, Soongsil University, South Korea
- 11:20–11:40** **Invited:** Development of LiDAR-Detectable Black Materials *via* Various Strategies and Their Application as Eco-friendly Paints for Autonomous Driving Environments
Chang-Min Yoon, Inha University, South Korea
- 11:40–12:00** **Invited:** Insights of Carbon-Material Stabilized Nano-Metallic Catalysis to Boost C–C Bond Formation/polymerization
Md. Shahajahan Kutubi, Nagoya University, Japan

12:00–13:00 LUNCH BREAK

- 13:00–13:20** **Invited:** Synthesis-with-direction of Gold Nanoparticles by DNA
Ma Xingyi, Harbin Institute of Technology, China

13:20–13:40	Invited: Three-Dimensionally Nanofabricated Ir Nanoarchitecture Electrode for Highly Efficient and Robust PEMWE Jong Min Kim , Korea Institute of Science and Technology, South Korea
13:40–14:00	Invited: Jing Tang , East China Normal University, China
14:00–14:15	Oral: Boosted Performance and Stability in LaFeO ₃ /MXene/rGO Nanocomposites through Dual-Conductive Network for Supercapacitor Energy Storage Application Harish Verma , Indian Institute of Technology (B.H.U.) Varanasi, India
14:15–14:30	E-Poster Presentation –Current Rectification in a Sub-2 nm Vertical PN Diode Van Dam Do , Sungkyunkwan University, South Korea
14:30–14:45	TBA: TBA ,
15:00–15:30	COFFEE BREAK
17:00–18:00	POSTER PRESENTATIONS

DAY-2 SEPTEMBER 18, 2025 ROOM-C

BIOMATERIALS, BIOENGINEERING AND BIO-RELATED APPLICATION

09:00–09:25	Keynote: Micropatterned Bioresponsive Hydrogel for Real-Time and Label-Free Monitoring Proteins and Cell Behaviors Won-Gun Koh , Yonsei University, South Korea
09:25–09:45	Invited: Intermolecular FRET can be Utilized for Evaluations of Lectin–Carbohydrate Interactions Koji Matsuoka , Saitama University, Japan
09:45–10:05	Invited: A Multifunctional, Transparent, Adhesive, and Antioxidative Hydrogel for Minimally Invasive Therapy for Retinal Tissue Repair Jiashing Yu , National Taiwan University, Taiwan
10:05–10:25	Invited: Poly(2-ethyl-2-oxazoline)–Conjugated Hemoglobins: Artificial O ₂ Carriers as Red Blood Cell Substitutes Teruyuki Komatsu , Chuo University, Japan
10:25–11:00	COFFEE BREAK
11:00–11:20	Invited: Multifunctional Nanoparticles: Design, Antibacterial Applications, and Mechanistic Studies Jun Wang , Anhui Polytechnic University, China
11:20–11:40	Invited: WR-3.4 Hollow-Waveguide Mach–Zehnder Interferometer Composed of Two Y-Branch Structures Fabricated Using a 3D Printer and Metal Plating (Online) Junji Yumoto , The University of Tokyo, Japan
11:40–12:00	Invited: Advances and Emerging Trends in Medical Applications of Diamond-Like Carbon (DLC) Coatings Yasuhiro Fujii , Okayama University, Japan
12:00–13:00	LUNCH BREAK

13:00–13:20	Invited: Multiplexed Ultrafast Photothermal Digital PCR based on Oligo(Phenylene–Ethynyl) Interfacing Compound Oh Seok Kwon , Sungkyunkwan University, South Korea
13:20–13:40	Invited: Peptide–Based Biomimetic Nanoparticle Vaccines against Breast Cancer: Prophylactic and Therapeutic Modalities Fazren Azmi , National University of Malaysia, Malaysia
13:40–14:00	Invited: Biomimetic Nanotechnology–Mediated Physical Bioregulation to Induce in Situ Tissue Regeneration Masahiro Yamada , Tohoku University Graduate School of Biomedical Engineering, Japan
14:00–14:20	Invited: Self–Assembly of Amorphous and Functional Polymer Nanodiscs in Water Markus Muellner , The University of Sydney Nano Institute, Australia
14:20–14:40	Invited: Soft Sensing Fibers with Chemically Embedded Nanoparticles for Biomedical and Biomechanical Applications Jaehong Lee , Daegu Gyeongbuk Institute of Science and Technology, South Korea
14:40–15:00	Invited: Immune–Modulative Nano–Gel–Nano for Patient–Favorable Cancer Therapy Sung Hoon Kim , Korea Institute of Science and Technology (KIST), South Korea
15:00–15:30	COFFEE BREAK
15:30–15:50	Invited: Van der Waals 3D Assembly of 2D Nanomaterials for Scalable Electronics Joohoon Kang , Yonsei University, South Korea
15:50–16:10	Invited: Development of Lensless Light–Sheet Sources and Their Application for 3D Imaging in Bio and Medical Science (Online) Junji Yumoto , Soongsil University, South Korea
16:10–16:25	Oral: Surface–enhanced Raman Scattering Properties of Gold–open Shell Nanoprobes and their Application to Cell Imaging Yuka Hori , Nihon University, Japan
16:25–16:40	Oral: Flexible Smart Knee Sleeve Integrating Textile Pressure Sensors and IMUs for Lower–Limb Rehabilitation Monitoring Hyejeong Choi , University of British Columbia, Canada
16:40–16:55	TBA: TBA,
17:00–18:00	POSTER PRESENTATIONS

DAY-2 SEPTEMBER 18, 2025 ROOM-D

ELECTRONICS AND OPTICAL MATERIALS

- 09:00–09:20** **Invited:** Anisotropic Spin Hamiltonian Generalized for NiPS₃
Myung Joon Han, Anisotropic Spin Hamiltonian Generalized for NiPS₃, South Korea
- 09:20–09:40** **Invited:** Synthesis of van der Waals Heterostructure *via* Chemical Vapor Deposition
Ki Kang Kim, Sungkyunkwan University, South Korea
- 09:40–10:00** **Invited:** Development of Red and Infrared Emitting Scintillators with High Emission Efficiencies
Shunsuke Kurosawa, Tohoku University, Japan
- 10:00–10:20** **Invited:** Influence of Plasmonic Metal Nanostructures on Triplet-Triplet Annihilation Upconversion
Kosuke Sugawa, Nihon University, Japan

10:20–11:00 COFFEE BREAK

- 11:00–11:20** **Invited:** Acoustic Shock Wave-Induced Phase Transitions in Solid-State Materials via Dynamic Recrystallization: Case Studies and Insights
S.A. Marin Britto Dhas, Keimyung University, South Korea
- 11:20–11:40** **Invited:** Artificial Synaptic Devices for Physical Reservoir Computing
Hongseok Oh, Soongsil University, South Korea
- 11:40–12:00** **Invited:** High-Purity Low-Radioactive Background Materials for Extremely Rare-Event Physics at CUP
Olga Gileva, Institute for Basic Science (IBS), South Korea

12:00–13:00 LUNCH BREAK

- 13:00–13:20** **Invited:** High Performance of Ti-Ge-Te Thin Film for Flexible Electronics Application
Weihua Wu, Jiangsu University of Technology, China
- 13:20–13:40** **Invited:** Demonstration of Time-Reversal Symmetry Breaking in Chiral Terahertz Photonic-Crystal Cavities (online)
Andrey Baydin, Rice University, USA
- 13:40–14:00** **Invited:** Strategic Electrolyte Design for Highly Nonvolatile Artificial Synapse
Eunho Lee, Seoul National University of Science and Technology, South Korea
- 14:00–14:20** **Invited:** Extended-Gate-Type Organic Field-Effect Transistors for Chemical Sensing Applications
Tsuyoshi Minami, University of Tokyo, Japan
- 14:20–14:40** TBA:
TBA,
- 14:40–14:55** TBA:
TBA,

14:55–15:30 COFFEE BREAK

16:00–17:00 POSTER PRESENTATIONS

- MO-01** **Title:** Boosting Oxygen Reduction Reaction with Single-Atom Fe Anchored on Hollow N-Doped Carbon
Kyubin Shim, Korea Basic Science Institute, South Korea
- MO-02** **Title:** Racolyte: A Raman Spectra Identification Software of Mineral Materials
Huei-Fen Chen, Institute of Earth Sciences, National Taiwan Ocean University, Taiwan

- MO-03** **Title:** Modeling Adsorbate-Induced Surface Segregation in Ternary Nanoparticles Under Reactive Environments Using Machine-Learning Potentials
Narmandakh Khayankhyarvaa, Yonsei University, South Korea
- MO-04** **Title:** Toward Accurate Crack Detection in Ceramics: Semantic Segmentation with Limited Training Data
Mio Ito, Tokyo University of Agriculture and Technology, Japan
- MO-05** **Title:** Synthesis of Polymer-Based Tubular Micromotors Capable of High-Density Drug Delivery and Light-Triggered Release
Saki Batori, Chuo University, Japan
- MO-06** **Title:** Polymerized Stromal-Free Hemoglobin Nanoparticles Coated with Serum Albumin as a Red Blood Cell Substitute
Ryo Hoshiya, Chuo University, Japan
- MO-07** **Title:** Green One-Step Synthesis of AgNPs/MWCNTs Composites for Flexible Transparent Conductive Films
Jun Natsuki, Shinshu University, Japan
- MO-08** **Title:** Plasmonic Carbon-Gold Hybrid Layer Integrated with Aligned Cellulose Aerogel for Efficient Solar-Driven Evaporation
Suji Lee, Kyung Hee University, South Korea
- MO-09** **Title:** High Performance Lignocellulose Nanofiber-Derived Films for Efficient Light Management
Yuri Seo, Kyung Hee University, South Korea
- MO-10** **Title:** Preparation of Artificial Lipid Lamellar Body Mimicking Giant Multilamellar Liposome and Its Skin Barrier Function Modulation Effect
Minkyung Kim, Dongduk Women's University, South Korea
- MO-11** **Title:** 3D Electron Tomography for Semiconductor Device Structure Analysis
Yu-Lun Liu, National Tsing Hua University, Taiwan
- MO-12** **Title:** Quantum Neural Network for High Generalization Performance for Lubricant Property Prediction
Chanho Kim, Yonsei University, South Korea
- MO-13** **Title:** Physics-Informed Neural Network Based Crystallization Modeling of NCM Precursor Recovery from Spent Batteries
Gyeonggeun Park, Yonsei University, South Korea
- MO-14** **Title:** AI-driven Catalyst Design for Photocatalytic Hydrogen Production: Techno-Economic and Regional Optimization
Juyoung Byun, Yonsei University, South Korea
- MO-15** **Title:** Solution Plasma Synthesis of Nitrogen-doped Carbon Catalysts for Oxygen Reduction Reaction toward Li-Air Battery
Takahiro Ishizaki, Shibaura Institute of Technology, Japan
- MO-16** **Title:** A Review of Visible Light-Activated S-Scheme Heterojunction Photocatalysts for Environmental Pollutants Degradation
Chiung-Fen Chang, Tunghai University, Taiwan

DAY-3 SEPTEMBER 19, 2025 ROOM-A

ENERGY AND ENVIRONMENTAL MATERIALS

- 09:00-09:25** **Keynote:** Effects of Perovskite Quantum Dots on Photovoltaic and Photocatalytic Activities (Online)
Toyoko Imae, National Taiwan University of Science and Technology, Taiwan
- 09:25-09:45** **Invited:** Defect Engineering of Inorganic Nanosheet-Based Materials for Electrocatalytic Water Splitting
Xiaoyan Jin, University of Seoul, South Korea
- 09:45-10:05** **Invited:** A Novel Wastewater Treatment Method Utilizing the Combination of Ultrasound and Plasma
Yifan Xu, Hubei University of Technology, China
- 09:05-10:25** **Invited:** Granule-Induced Dry Processing for Accelerating Ion Transport in Thick-Film Electrodes for High-Energy-Density Lithium-Ion Batteries
Junghyun Choi, Gachon University, South Korea

10:25-11:00 COFFEE BREAK

- 11:00-11:20** **Invited:** Precise Synthesis of Advanced Conjugated Polymers for Efficient Perovskite Solar Cells
Chang-Zhi Li, Zhejiang University, China
- 11:20-11:35** **Oral:** Sustainable Synthesis of High-Performance Ni/Co-AC Pseudocapacitor Electrodes from Recycled Battery and Biomass Waste
Cindy Rusly, National Taiwan University, Taiwan
- 11:35-11:50** **Oral:** Proton Conduction Mechanism in a Material Consisting of Packed Acids for High Proton Conductivity with Low Humidity Conditions
Takaya Ogawa, Kyoto University, Japan
- 11:50-12:05** **Oral:** Impact of Acetic Acid and Flux Residues on ITO Corrosion in Heterojunction Silicon Solar Cells
Godeung Park, Yonsei University, South Korea

13:00-14:00 SONGBYEOLHOE AND CLOSING EVENT



PRISM

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WE WISH TO SEE YOU AT MATERIALS OCEANIA-2026



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