

Materials Oceania 2025	
	Day 0
15:30-20:00	Cocktails and Welcome Drinks
	Day 1- Grand Room A
08:30-09:00	Registration
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: 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

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- 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- 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- 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
16:45-17:05	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- Room A
	Session: Energy and Environmental Materials
09:00-09:25	Keynote: Development of Robust and Environmentally-Freindly Photocatalysts and Photoelectrocatalysts for Organic Removal and Green Hydrogen Production Byeong-Kyu Lee, University of Ulsan, South Korea
09:25-09:45	Invited: Synthesis and Structural Characterization of Phosphine Ligands for Pd-catalyzed Carbonylations Ye Liu, East China Normal University, China
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 TiO₂ Photocatalysts: Role of Carbon and Metal Modification in Morphology and Pollutant Removal Performance Rika Tri Yunarti, Universitas Indonesia, Indonesia
11:20-11:40	Invited: Manipulating Nanostructure-Evolution under Dynamic Conditions for Advanced Electrochemical Devices Cheng Yang, Tsinghua 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 via 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- 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
09:25-09:50	TBA TBA
09:50-10:15	Keynote: Spin-Polarization Catalysis Enabled by Chiral Inorganic Materials (Online) Shunai Che, Shanghai Jiao Tong University, China (Yet to Register)
10:15-10:35	TBA TBA
10:30-11:00	Coffee Break
11:00-11:20	Invited: Molecularly Engineered Nanoplatfoms for Selective Detection and Neutralization of Molecular Threats Young Hun Seo, KIST Europe, Germany
11:20-11:40	Invited: Stimuli-Responsive, Morphology-Switching Bottlebrush Copolymer Particles Shin Jaeman, Soongsil University, South Korea
11:40-12:00	Invited: A shock tube investigation of structural, morphological and photocatalytic properties of strontium stannate nanostructures Sivaprakash Paramasivam, Keimyung University, South Korea
12:00-13:00	Lunch Break
13:00-13:20	Invited: Resolving Intrinsic 3D Structural Variations in Nanoparticles via Liquid-Phase Electron Microscopy Byung Hyo Kim, Soongsil University, South Korea
13:20-13:40	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
13:40-14:00	Invited: insights of Carbon-Material Stabilized Nano-Metallic Catalysis to Boost C-C Bond Formation/polymerization Md. Shahajahan Kutubi, Nagoya University, Japan
14:00-14:20	Invited: Synthesis-with-direction of Gold Nanoparticles by DNA Ma Xingyi, Harbin Institute of Technology, China
14:20-14:40	TBA TBA
14:40-15:00	TBA TBA
15:00-15:30	Coffee Break
15:30-15:50	TBA TBA
15:50-16:10	TBA TBA

16:10-16:30	TBA
	TBA
16:30-16:50	TBA
	TBA
17:00-18:00	Poster Presentations

	Day 2- Room C
	Biomaterials, Bioengineering and Bio-related Application
09:00-09:20	Invited: Intermolecular FRET can be Utilized for Evaluations of Lectin—Carbohydrate Interactions
	Koji Matsuoka, Saitama University, Japan
09:20-09:40	Invited: A Multifunctional, Transparent, Adhesive, and Antioxidative Hydrogel for Minimally Invasive Therapy for Retinal Tissue Repair
	Jiasheng Yu, National Taiwan University, Taiwan
09:40-10:00	Invited: Poly(2-ethyl-2-oxazoline)-Conjugated Hemoglobins: Artificial O₂ Carriers as Red Blood Cell Substitutes
	Teruyuki Komatsu, Chuo University, Japan
10:00-10:25	Keynote: Micropatterned bioresponsive hydrogel for real-time and label-free monitoring proteins and cell behaviors
	Won-Gun Koh, Yonsei University, South Korea
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-Ethynylene) Interfacing Compound
	Oh Seok Kwon, Sungkyunkwan University, South Korea
13:20-13:40	Invited: Entropy-driven Derivative Organic Coverage Designs on Ni-rich Layered Cathodes in Lithium-ion Battery
	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, DGIST, 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, The University of Tokyo, Japan
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 LowerLimb Rehabilitation Monitoring Hyejeong Choi, University of British Columbia, Canada
16:40-16:55	TBA
	TBA
17:00-18:00	Poster Presentations
	Day 2- 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, 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
15:30-15:55	TBA
	TBA
15:55-16:20	TBA
	TBA
16:20-16:35	TBA
	TBA
16:35-16:50	TBA
	TBA
16:00-17:00	Poster Presentations
MO01	Boosting Oxygen Reduction Reaction with Single-Atom Fe Anchored on Hollow N-Doped Carbon
	Kyubin Shim, Korea Basic Science Institute
MO02	Racolyte: A Raman Spectra Identification Software of Mineral Materials
	Huei-Fen Chen, Institute of Earth Sciences, National Taiwan Ocean University, Taiwan
MO03	Modeling Adsorbate-Induced Surface Segregation in Ternary Nanoparticles Under Reactive Environments Using Machine-Learning Potentials
	Narmandakh Khayankhyarvaa, Yonsei University, South Korea
MO04	Toward Accurate Crack Detection in Ceramics: Semantic Segmentation with Limited Training Data
	Mio Ito, Tokyo University of Agriculture and Technology, Japan
MO05	Synthesis of Polymer-Based Tubular Micromotors Capable of High-Density Drug Delivery and Light-Triggered Release
	Saki Batori, Chuo University, Japan
MO06	Polymerized Stromal-Free Hemoglobin Nanoparticles Coated with Serum Albumin as a Red Blood Cell Substitute
	Ryo Hoshiya, Chuo University, Japan
MO07	Green One-Step Synthesis of AgNPs/MWCNTs Composites for Flexible Transparent Conductive Films
	Jun Natsuki, Shinshu University, Japan
MO08	Plasmonic Carbon-Gold Hybrid Layer Integrated with Aligned Cellulose Aerogel for Efficient Solar-Driven Evaporation
	Suji Lee, Kyung Hee University, South Korea
MO09	High Performance Lignocellulose Nanofiber-Derived Films for Efficient Light Management
	Yuri Seo, Kyung Hee University, South Korea
MO10	Metal-organic Framework Derived Sulfur-doped Bimetallic Phosphoselenide Electrocatalysts for Hydrogen and Oxygen Evolution Reactions
	Munisamy Maniyazagan, Sejong University, South Korea (Yet to register)
MO11	3D Electron Tomography for Semiconductor Device Structure Analysis
	Yu-Lun Liu, National Tsing Hua University, Taiwan

MO12	Quantum Neural Network for High Generalization Performance for Lubricant Property Prediction
	Chanho Kim, Yonsei University, South Korea
MO13	Physics-Informed Neural Network Based Crystallization Modeling of NCM Precursor Recovery from Spent Batteries
	Gyeonggeun Park, Yonsei University, South Korea
MO14	AI- driven Catalyst Design for Photocatalytic Hydrogen Production: Techno-Economic and Regional Optimization
	Juyoung Byun, Yonsei University, South Korea
MO15	Solution Plasma Synthesis of Nitrogen-doped carbon Catalysts for Oxygen Reduction Reaction toward Li-Air Battery
	Takahiro Ishizaki, Shibaura Institute of Technology, Japan
MO16	TBA
	TBA
	Day 3- 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 (Yet to Register)
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: Integrative Battery Research: from Materials to Intelligent Systems for Future Mobility
	Jimin Oh, Kyungpook National University, South Korea
09:05-10:25	Invited: A Novel Wastewater Treatment Method Utilizing the Combination of Ultrasound and Plasma
	Yifan Xu, Hubei University of Technology, China
10:25-11:00	Coffee Break
11:00-11:20	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
11:20-11:40	Invited: Precise Synthesis of Advanced Conjugated Polymers for Efficient Perovskite Solar Cells
	Chang-Zhi Li, Zhejiang University, China
11:40-11:55	Oral: Sustainable Synthesis of High-Performance Ni/Co-AC Pseudocapacitor Electrodes from Recycled Battery and Biomass Waste
	Cindy Rusly, National Taiwan University, Taiwan
11:55-12:10	Oral: Proton Conduction Mechanism in a Material Consisting of Packed Acids for High Proton Conductivity with Low Humidity Conditions
	Takaya Ogawa, Kyoto University, Japan
12:10-12:30	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