



International Conference on

Materials for Green Future

March 25-28, 2024

JW Marriott Phuket Resort & Spa
Phuket, Thailand



Exhibitor

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Instructions For Speakers

1. **Plenary Talks:** Plenary speakers will be allotted 30 minutes to present their results, followed by a 5 minutes discussion period.
2. **Keynote Talks:** Keynote speakers will be allotted 17 minutes to present their results, followed by a 3 minutes discussion period.
3. **Invited and Oral Talks:** Invited and oral speakers will be allotted 12 minutes to present their results, followed by a 3-minute discussion period.
4. Please do not exceed the allotted time slot
5. Speakers should have their presentations saved on a USB memory stick.
6. It is suggested to email a copy of the presentations to us as back up.
7. Please prepare the presentation in PPT files, PDF is not recommended.
8. **Basic AV setup will be provided:** laser pointer, cordless mike, desktop mike, sound system.
9. Laptops equipped with Windows 10, Office 2010 Pro English (Word, Powerpoint, Excel) and Adobe Reader are provided.
10. 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.
11. Projectors are equipped with standard VGA connection ports. Mac users should bring their own adapter cord.
12. Please re-check this program prior to the conference to confirm if any changes have been made to your session.
13. 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.

Conference Chairs



Ziqi Sun

Professor, Faculty of Science
School of Chemistry & Physics
Queensland University of Technology
Australia

Prof. Ziqi Sun, Fellow of the Higher Education Academy and Fellow of the Royal Chemical Society, is currently a full professor, ARC Future Fellow, and ARC Industry Mid-Career Fellow at the Queensland University of Technology (QUT), Australia. His research interest includes rational design of multiscale-ordered metal oxide nanomaterials and bio-inspired inorganic smart nanomaterials for sustainable energy and environmental technologies, such as rechargeable batteries, oil-water separations, and catalysis. Ziqi received his PhD degree on advanced structural ceramics from Institute of Metal Research, Chinese Academy of Sciences in 2009. After one-year experience as NIMS postdoctoral fellowship (Japan) on solid oxide fuel cells, he joined University of Wollongong (UOW), Australia in 2010 and moved to QUT as a faculty member in 2015. Ziqi has published over 200 refereed articles in field-leading journals, such as Nature Nanotechnology, Nature Communications, Journal of the American Chemical Society, Advanced Materials, etc. Ziqi serves as the Editor-in-Chief of Sustainable Materials and Technologies (IF = 9.6), Principal Editor of Journal of Materials Research (MRS), and Handling Editor of Physics Open.



Liangzhi Kou

Associate Professor
Faculty of Engineering, School of
Mech., Medical & Process Engineering,
Queensland University of Technology
Australia

A/Prof. Liangzhi Kou received his Ph.D. in 2011 from Nanjing University of Aeronautics and Astronautics. He was an Alexander von Humboldt Fellow at the Bremen Center of Computational Materials Sciences (BCCMS) in Germany during 2012–2014, a Research Associate at UNSW Australia in 2014, and ARC-DECRA fellow during 2015–2018. He has been a Lecturer at Queensland University of Technology since 2015 and promoted to senior lecturer in 2018 and Associate Professor in 2021. His research mainly focuses on computational discovery and design of novel 2D materials for energy applications and electronics devices. Until now, he has published over 180 papers with h-index of 55, including Nature Communications, JACS, Nano Letters, ACS Nano, Adv. Sci, Adv. Func. Mater., which have been cited over 11,000 times.

Plenary Speakers



Zaiping Guo

Fellow of Australian Academy of Science and Fellow of Australian Academy of Technological Sciences and Engineering, Australian Laureate Fellow, School of Chemical Engineering, The University of Adelaide, Australia

Prof. Zaiping Guo is an Australian Laureate Fellow at School of Chemical Engineering, The University of Adelaide. She received her PhD from University of Wollongong in 2003 and was elected to Fellow of the Australian Academy of Science in 2023. Her research focuses on the design and application of electrode materials and electrolyte for energy storage and conversion, including rechargeable batteries, hydrogen storage, and fuel cells. Her research achievements have been recognized through numerous awards, including an ARC Queen Elizabeth II Fellowship in 2010, an ARC Future Professorial Fellowship in 2015, an ARC Laureate Fellowship (2021), and the Clarivate Analytics Highly Cited Researcher Award in 2018, 2019, 2020, 2021, and 2022. She was also awarded 2020 NSW Premier's Prizes for Science & Engineering for Excellence in Engineering or Information and Communications Technology.

Dongyuan Zhao

Academician of Chinese Academy of Sciences, Professor, Laboratory of Advanced Materials, Department of Chemistry, Fudan University, P.R. China



Prof. Dongyuan Zhao was born in Northeastern of China, he received B.S. (1984), M.S. (1987) and PhD (1990) from Jilin University. He was a post-doctoral fellow in University of Houston (1995–96), University of California at Santa Barbara (1996–98). Now he is a Professor (Cheung Kong and Hao-Qing Professorship) in the Department of Chemistry at Fudan University. He was a member of Chinese Academy of Sciences and The World Academy of Science (TWAS). He has received many awards such as ACS Nano Award (2021); 1st Grade Award of Natural Science; Nano Research Award (2020); Khwarizmi International Award (KIA) (2019); JCIS Darsh Wasan Award (2018); Chemistry Contribution Award, China Chemical Society (2018); TWAS Lenovo Science Prize (2016); CRN Rao Award from India Chemical Research Society (2013); Muetterties Memory Award (2012); The Ho Leung Ho Lee Award (2009), TWAS Prize (2008); IMMS Award (2008); DuPond Award (2005). He is now appointed as senior Editor of ACS Central Science. He published more than 800 peer-review papers and is listed as one of highly cited researchers ISI in both Chemistry and Materials Science fields (Total citation ~ 145,000, h index 184). His research interests mainly include designed synthesis, assembly, structure and application of ordered mesoporous materials.



Shaobin Wang

ARC Laureate Fellow and Professor, University of Adelaide, Australia

Prof. Shaobin Wang obtained the degrees of BSc and MSc in Chemistry from Peking University and PhD in Chemical Engineering from the University of Queensland (Australia). He has been a John Curtin Distinguished Professor at Curtin University (Australia) and is now a Laureate Professor at the School of Chemical Engineering, the University of Adelaide (Australia). His research interests focus on nanomaterial synthesis and application for adsorption and catalysis, fuel and energy conversion and environmental remediation. He was awarded 2012 Thomson Reuters Citation & Innovation Awards in Australia and is listed as a highly cited researcher in Engineering, Chemistry and Environment & Ecology in 2016-2022. He is a co-editor of Journal of Colloid and Interface Science and an editor of Applied Catalysis B: Environmental as well as an editorial board member of several international journals.



Hua Zhang

Herman Hu Chair Professor of Nanomaterials,
Department of Chemistry,
City University of Hong Kong, China

Prof. Hua Zhang, a Chair Professor at City University of Hong Kong, is a leading figure in nanomaterials research. His work revolves around phase engineering of nanomaterials and controlled epitaxial growth of heterostructures. With over 500 papers and numerous patents, he's made significant contributions to the field. Prof. Zhang's research spans various applications, including catalysis, clean energy, electronics, sensors, and water remediation. He has received prestigious awards, including being elected as a Foreign Fellow of the European Academy of Sciences and an Academician of the Asia Pacific Academy of Materials. His expertise has led to editorial roles in esteemed journals, showcasing his influence in the scientific community.

Wanlin Guo

Academician of Chinese Academy of Sciences,
Professor of Mechanics, Nanjing University of
Aeronautics and Astronautics, P.R. China



Prof. Wanlin Guo Academician of Chinese Academy of Sciences, Chair Professor in mechanics and nanoscience, founder and director of the Key Laboratory of Intelligent Nano Materials and Devices of Ministry of Education and the Institute of Nanoscience of Nanjing University of Aeronautics and Astronautics. He received the National Science Foundation of China for Distinguished Young Scholars in 1996 and the honor of Cheung Kong Scholars in 1999. He obtained the National Nature Science Prize of China in 2012 and the Ho Leung Ho Lee Foundation Mathematical Mechanics Prize in 2019. He has published 400+ refereed papers in journals such as Nature Nanotech, Nature Comm., Phys. Rev. Lett., Nano Lett., J. Am. Chem. Soc., Adv. Mater., J. Mech. Phys. Solids et al. His current research focuses on 1) three-dimensional fatigue fracture and damage tolerance and durability design of structures at high temperature; 2) intelligent nano materials and devices, multiscale physical mechanics, novel conception and technology for efficient energy conversion; 3) Hydrovoltaics and brain-like intelligence.



Huijun Zhao

Fellow of the Australian Academy of
Sciences and Fellow of Australian Academy
of Technological Sciences and Engineering,
Professor and Director of Griffith University,
Australia

Prof. Huijun Zhao is the Funding Director of the Centre for Catalysis and Clean Energy at Griffith University, the elected Fellow of Australian Academy of Science (FAA) and Australian Academy of Technological Sciences & Engineering (FTSE), the Fellow of Royal Society of Chemistry (FRSC) and the Fellow of the Royal Australian Chemical Institute (FRACI). He has extensive expertise in functional materials, energy conversion and storage, catalysis and sensing technologies. He has published over 550 refereed journal papers and gained 68 international patents within 8 world-wide patent families. One of his current research pursuits is to explore new ways to unlock the catalytic capabilities of nonprecious materials as high performance catalysts for important catalysis reactions.



Jinlong Yang

Academician of Chinese Academy of Sciences, Professor of Physical Chemistry, University of Science & Technology of China, P.R. China

Prof. Jinlong Yang is a professor of chemistry at the University of Science and Technology of China (USTC). He received his PhD in condensed matter physics from USTC in 1991, and then worked as a visiting Scholar at Padova University, Cagliari University, Hong Kong University of Science and Technology, University of Tokyo, Hong Kong University, and National University of Singapore. He has served as the Vice President of USTC since 2018. In 2019, he was elected as an Academician of the Chinese Academy of Sciences. Professor Yang's research interest lies in applied quantum chemistry. He has achieved original and systematic results in design and simulation of new functional materials, and quantum manipulations and characterizations of single molecule on surfaces. These results have made an important impact both domestically and internationally. Professor Yang has published more than 600 papers, which have been cited more than 35,000 times.

Zongping Shao

John Curtin Distinguished Professor
Minerals, Energy and Chemical Engineering
Faculty of Science and Engineering
Curtin University, Australia



Prof. Zongping Shao is a John Curtin Distinguished Professor at Curtin University. His major research areas are located at (photo)electrochemical energy storage and conversion and new energy materials. Up to now, Prof. Shao has published about 800 materials-related papers in various reputed journals, like Nature (5), Science (1), Nature Energy (2) Nature Catalysis (1), Nature Communications (13), and Science Advances (1) He is also selected as world-highly cited researcher by (Thomson Reuters) Clairvate Analytics for the years, 2014, 2017-2023, in particular, he is highly cited in two fields of Materials Science and Chemistry at 2022 and 2023.

17:00 - 21:00 Welcome Reception

@ M Beach Club

08:30-09:00 Registration and Arrival Coffee

@ Salon ABC Foyer

09:00-09:15 **Welcoming Speech: Conference Chairs**

@ Salon ABC

Ziqi Sun, Queensland University of Technology, Australia

Liangzhi Kou, Queensland University of Technology, Australia

Plenary Talks

09:15-09:50 **Title: Interfacial Design and Engineering for High Performance Aqueous Zinc Ion Batteries**
Zaipeng Guo, The University of Adelaide, Australia

09:50-10:25 **Title: Molecular Aggregates -- Functional Mesoporous Materials Assembled by Single Micelles**

Dongyuan Zhao, Fudan University, China

10:25-10:55 **Coffee Break**

@ Salon ABC Foyer

10:55-11:30 **Title: Carbon-Based Materials for Catalytic Energy Conversion and Environmental Remediation**

Shaobin Wang, University of Adelaide, Australia

11:30-12:05 **Title: Phase Engineering of Nanomaterials (PEN)**

Hua Zhang, City University of Hong Kong, China

12:05-12:40 **Title: From Intelligent Nano Materials to Hydrovoltaic Systems**

Wanlin Guo, Nanjing University of Aeronautics and Astronautics, China

12:40-14:00 **Lunch Break**

@ JW Café

Session Chair: Nicola Pinna, Humboldt University, Germany

14:00-14:35 **Title: Endowing Nonprecious Materials with Catalytic Capability for Green and Sustainable Production of Chemicals and Fuels**

Huijun Zhao, Griffith University, Australia

14:35-15:10 **Title: Theoretical Design of Two-Dimensional Visible Light-Driven Photocatalysts for Overall Water Splitting**

Jinlong Yang, University of Science & Technology of China, China

15:10-15:45 **Title: A New Electrolysis Technology for Hydrogen Generation**

Zongping Shao, Curtin University, Australia

15:45-16:15 **Coffee Break**

@ Salon ABC Foyer

Materials Science and Engineering @ Salon ABC

Session Chair: Rose Zhu, Elsevier

Keynote Talks

- 16:15-16:35 **Title: Novel Materials Chemistry for Applications in Energy Storage and Conversion**
Nicola Pinna, Humboldt University, Germany
- 16:35-16:55 **Title: Mitigating Challenges of Aqueous Zn Batteries**
Hongjin Fan, Nanyang Technological University, Singapore
- 16:55-17:15 **Two-Dimensional Materials for Next-Generation Electronics and Optoelectronics Technologies**
Sumeet Walia, RMIT University, Australia
- 17:15-17:35 **Title: Recent Alloy Design and Process Development for 3D Printed Aerospace Applications in Monash Centre for Additive Manufacturing**
Aijun Huang, Monash University, Australia
- 17:35-17:55 **Title: Harnessing Renewables for Smart Materials: Research to Commercialization**
Mohini Sain, University of Toronto, Canada

19:00 Onwards Conference Banquet

@ Salon ABC

08:30-09:00 Registration and Arrival Coffee

@ Salon ABC Foyer

ROOM A @ Rawai**Materials for Energy Conversion and Storage****Session Chairs:** Hongjin Fan, Nanyang Technological University, Singapore

Junjie Guo, Taiyuan University of Technology, China

Keynote Talks

- 09:00-09:20 **Title:** Electrochemical Engineering and Direct Ink Writing 3D Printing: Cost-Effective Production of 2D Nanomaterials and their Bespoke Assemblies
Yulin Zhong, Griffith University, Australia
- 09:20-09:40 **Title:** Atom-Scale Defect Manipulating of 2D Materials for Boosted Electrocatalytic Properties
Junjie Guo, Taiyuan University of Technology, China
- 09:40-10:00 **Title:** Ceramic Materials for Energy Conversion: From Joining and Integration Challenges to Recycling Strategies
Federico Smeacetto, Politecnico di Torino, Italy
- 10:00-10:20 **Title:** Efficient Solution to Suppress Charge Recombination Derived from Bad P-Sn Interaction
Ji-Hyun Jang, Ulsan National Institute of Science and Technology, South Korea
- 10:20-10:40 **Title:** Hydrogen Evolution *via* Interface Engineered Nanocatalysis
Wei Chen, National University of Singapore, Singapore
- 10:40-11:10 **Coffee Break** @ Salon ABC Foyer
- 11:10-11:30 **Title:** Strategies to Boost Electrochemical Reversibility and Performance for Atmospheric Energy Storages
Won-Hee Ryu, Sookmyung Women's University, South Korea
- 11:30-11:50 **Title:** Precise Construction of Porous Carbon Materials for Energy Conversion
Jian Liu, Dalian Institute of Chemical Physics, CAS, China
- 11:50-12:10 **Title:** HOMO Energy Level Modulation with Fluorinated Poly(aryl)amines for Wide-Bandgap Perovskite Solar Cells
Thomas J. Macdonald, University College London, United Kingdom
- 12:10-12:30 **Title:** Toward Energetic Aqueous Battery: Electrochemistry and Device
Dongliang Chao, Fudan University, China
- 12:30-14:00 **Lunch Break** @ Cucina
- Session Chairs:** Yu Jing, Nanjing Forestry University, China
Won-Hee Ryu, Sookmyung Women's University, South Korea
- 14:00-14:20 **Title:** Rational Design of Cathode Materials for Proton-Conducting Solid Oxide Fuel Cells
Lei Bi, University of South China, China
- 14:20-14:40 **Title:** Photoelectrocatalytic Properties of Janus Transition Metal Dichalcogenides
Lin Ju, Anyang Normal University, China
- 14:40-15:00 **Title:** Energy Conversion and Storage over Carbon-Based Materials with High-Density Active Sites
Ji Liang, Tianjin University, China

15:00-15:20 **Title: Rational Molecular Design of Carbonyl Compounds for Lithium-Ion Batteries**
Yu Jing, Nanjing Forestry University, China

15:20-16:00 **Coffee Break** @ Salon ABC Foyer

Invited Talks

16:00-16:15 **Title: Manipulating Nb-Doped SrFeO_{3-δ} with Excellent Performance for Proton-Conducting Solid Oxide Fuel Cells**
Hailu Dai, Yancheng Institute of Technology, China

16:15-16:30 **Title: Developing Nanomaterials and Electrolyser Systems for Power to X Applications**
Rahman Daiyan, University of New South Wales, Australia

16:30-16:45 **Title: Structure Design and Performance Optimization of Metal-Supported Proton Ceramic Fuel Cells**
Lichao Jia, Huazhong University of Science and Technology, China

17:00-18:00 **Poster Presentations** @ Salon ABC Foyer

ROOM B @ Layan

Sustainable Materials and Environment

Session Chairs: Hongqi Sun, The University of Western Australia, Australia

Antonio Tadeu, University of Coimbra, Portugal

Keynote Talks

09:00-09:20 **Title: The Properties of Nanobubbles and Their Applications in Sustainable Agriculture**
Lijuan Zhang, Shanghai Synchrotron Radiation Facility, Shanghai Advanced Research Institute, Chinese Academy of Sciences, China

09:20-09:40 **Title: Reimaging Catalyst Development for CO₂ Reduction and Hydrogen Production**
Kang Hui Lim, National University of Singapore, Singapore

09:40-10:00 **Title: Designing New Materials for Sustainable Technologies**
Michelle Spencer, RMIT University, Australia

10:00-10:20 **Title: Microwave Responsive Catalysts: Coupling Reaction and External Fields for Improved Energy Efficiency**
Jiahua Jack Zhu, Nanjing Tech University, China

10:20-10:40 **Title: Fabrication of Three-Dimensional Graphene for Advanced Oxidation**
Hongqi Sun, The University of Western Australia, Australia

10:40 - 11:10 **Coffee Break** @ Salon ABC Foyer

11:10-11:30 **Title: Green Roof Systems and Building Facades - Absorption, Scattering, and Diffusion Coefficients of Vegetation**
Antonio Tadeu, University of Coimbra, Portugal

11:30-11:50 **Title: Single-Atom Catalysis for Advanced Water Decontamination**
Xiaoguang Duan, The University of Adelaide, Australia

Invited Talks

Session Chairs: Jiahua Jack Zhu, Nanjing Tech University, China

Xiaoguang Duan, The University of Adelaide, Australia

11:50-12:05 **Title: 2D Nanosheets Based Membrane for Fast Wastewater Treatment**
Cheng Chen, Anhui Agricultural University, China

12:05-12:20 **Title: Exploration of C-N Coupling for Electrocatalytic Urea Synthesis**
Junxian Liu, Queensland University of Technology, Australia

12:20-12:35 **Title: Greening the Catalyst Landscape: Basalt Fiber-Supported Ni/LTA Catalysts for Hydrogen Production and Carbon Nanotube Synthesis**
Claudia Li, National University of Singapore, Singapore

12:35-14:00 **Lunch Break** @ Cucina

14:00-14:15 **Title: Green Future or Emerging Contamination of Nanoplastic: How to Know?**
Xian Zhang, Chinese Academy of Sciences, China

14:15-14:30 **Title: Potential Use of Biomass Ash to Contribute to Reduce CO₂ Emissions in the Construction Sector**
Julieta Antonio, University of Coimbra, Portugal

Australian-Korean Workshop on Energy Materials

Session Chairs: Dong Chan Lim, Korea Institute of Materials Science (KIMS), Republic of Korea
Yang Yang, Queensland University of Technology, Australia

14:30-14:50 **Title: Interfacial Materials Engineering for Scalable Transparent Organic Photovoltaics**
Dong Chan Lim, Korea Institute of Materials Science (KIMS), Republic of Korea

14:50-15:05 **Title: Highly Conductive Polymers for High Performance, Low-Cost Organic Electronics**
Yong Hyun Kim, Pukyong National University, Republic of Korea

15:05-15:20 **Title: Development of Metal Halide Perovskites for High-Performance Solar Cell and Artificial Synapse**
Zitong Wang, University of Queensland, Australia

15:20-16:00 **Coffee Break** @ Salon ABC Foyer

16:00-16:15 **Title: Advanced Smart Window Technology with Dielectric/Metal/Dielectric (DMD) Electrodes and Electrochromic Innovations**
Soyeon Kim, Korea Institute of Materials Science (KIMS), Republic of Korea

16:15-16:30 **Title: Efficient Bifacial Semitransparent Perovskite Solar Cells Using Down-Conversion 2D Perovskite Nanoplatelets-PMMA Composite Film**
Yang Yang, Queensland University of Technology, Australia

16:30-16:45 **Title: Perovskite Solar Cells with Two-Dimensional (2D) Materials**
Munkhbayar Batmunkh, Griffith University, Australia

16:45-17:00 **Title: On-Skin Health-Monitoring Devices Using Highly Stretchable Conductive Hydrogels**
Jungha Kim, Pukyong National University, Republic of Korea

17:00-18:00 **Poster Presentations** @ Salon ABC Foyer

ROOM C @ Salon DE

Nanomaterials and Nanotechnology

Session Chairs: Jun Ma, University of South Australia, Australia
Wengui Li, The University of New South Wales (UNSW Sydney), Australia

Keynote Talks

09:00-09:20 **Title: Monomicellar Assembly to Synthesize Mesoporous Materials**
Wei Li, Fudan University, China

09:20-09:40 **Title: Self-Sensing Graphene/Cementitious Concrete: A Pathway toward Intelligent Infrastructure**
Wengui Li, The University of New South Wales (UNSW Sydney), Australia

09:40-10:00 **Title: Design and Fabrication of Oxide Nanostructures on Metallic Foils via Thermal and Anodic Oxidation for Heavy Metal Mitigation**
Wai Kian Tan, Toyohashi University of Technology, Japan

10:00-10:20 **Title: Controllable Fabrication, Properties and Engineering of Green Polymer Nanocomposite**

Haihua Wang, Shaanxi University of Science & Technology, China

10:20-10:40 **Title: Multifunctional Epoxy/Graphene Nanoplate Composites: A Decade of Advancements**

Jun Ma, University of South Australia, Australia

10:40-11:10 **Coffee Break** @ Salon ABC Foyer

11:10-11:30 **Title: Defect Engineering in Accelerating Charge Separation and Transfer in Photoelectrochemical Water Splitting**

Zhiliang Wang, The University of Queensland, Australia

Invited Talks

Session Chair: Zhiliang Wang, The University of Queensland, Australia

11:30-11:45 **Title: Facile One-Step Synthesis of High Metal-Loading Single-Atom Catalysts on Two-Dimensional Nitro-Oxygeneous Carbon as Efficient Electrocatalysts**

Teera Butburee, National Nanotechnology Center, Thailand

11:45-12:00 **Title: Generation of Defective Molybdenum Sites as Synergistic Active Centers for Durable Oxygen Evolution**

Juan Bai, Queensland University of Technology, Australia

12:00-12:15 **Title: Ligand Mediated Surface Engineering of High-Performance Quantum Dots**

Dechao Chen, Griffith University, Australia

12:15-14:00 **Lunch Break** @ Cucina

Green Process for Resource Recovery

Session Chair: Hong Peng, The University of Queensland, Australia

Keynote Talk

14:00-14:20 **Title: A Facial Method for Preparing Battery-Grade Iron Phosphate from Iron Phosphate Residue (IPR)**

Shili Zheng, Chinese Academy of Sciences, China

14:20-14:40 **Title: Sustainable Process for Mine Waste Utilisation and Critical Metals Recovery**

Hong Peng, The University of Queensland, Australia

Invited Talks

14:40-14:55 **Title: Research Progress on Clean and Efficient Recovery and Directly-Optimized Regeneration of Spent Lithium-Ion Battery Electrode Materials**

Jianwen Liu, Hubei University, China

14:55-15:10 **Title: Hydrothermal Treatment of Secondary Wastes from End-Of-Life Tire Pyrolysis**

Tak Kim, Griffith University, Australia

Materials Chemistry

Session Chairs: Adam Lee, Griffith University, Australia

Minghu Pan, Shaanxi Normal University, China

Keynote Talks

15:10-15:30 **Title: Assembly of Organic-Inorganic Hybrid Nanoparticles for Precision Nanobiotechnology**

Zi Sophia Gu, University of New South Wales, Australia

15:30-16:00 **Coffee Break** @ Salon ABC Foyer

16:00-16:20 **Title: Fabrication and Characterization of Two-Dimensional Inorganic/ Organic Materials and the Heterostructures**

Minghu Pan, Shaanxi Normal University, China

- 16:20-16:40 **Title: Save Energy Consumed by Catalysts for Water Electrolysis**
Wenxian Li, University of New South Wales, Australia
- 16:40-17:00 **Title: Multifunctional Catalysts for Sustainable Chemicals and Fuels Production**
Adam Lee, Griffith University, Australia

17:00-18:00 Poster Presentations @ Salon ABC Foyer

- GM01 **Title: Cu and Mn Co-Incorporated NH₂-MIL-125 for Efficient Photocatalytic CO₂ Reduction**
Wenhao Gu, University of Macau, Macau
- GM02 **Title: Electrodeposition-Manufactured Ternary Metal Hydroxide Achieves Efficient Alkaline Water Electrolysis under Simulated Industrial Conditions**
Chunfa Liu, University of Macau, Macau
- GM03 **Title: High-Valence Metal Sites Enable Lattice Oxygen Activation Boosting Water Oxidation**
Li Lun, University of Macau, Macau
- GM04 **Title: Spin Evolution and Flip in Oxygen Reduction Reaction: A Theoretical Study of Cu(Ni)XP₂S₆ (X = In, Bi and Cr)**
Haoyun Bai, University of Macau, Macau
- GM05 **Title: Two-Dimensional Janus Perovskite Oxynitrides as Active Photocatalysts for Overall Water Splitting with Ferroelectric Modulation**
Zhichao Yu, University of Macau, Macau
- GM06 **Title: Fabrication and Characterization of Ultrathin Copper Foils by Accumulative Pack Rolling Process**
Ning Nie, University of Wollongong, Australia
- GM07 **Title: Microstructure Control of 2D Metal Based (hydr)Oxides for Water Electrolysis**
Yanhui Song, Taiyuan University of Technology, China
- GM08 **Title: Dissolution Energy Engineering by Conjugated Adsorptive Additives for Stable Aqueous Zinc-Ions Batteries**
Zhongheng Li, University of Macau, Macau
- GM09 **Title: Industrial Fabricated Si-Based Photoanode for Efficient and Stable Photoelectrochemical Water Splitting**
Shuyang Peng, University of Macau, Macau
- GM10 **Title: Scalable and Degradable Bioplastic Films from Moringa Oleifera Gum as Packaging Material**
Sunita Ranote & Khadar Duale, Polish Academy of Sciences, Poland
- GM11 **Title: Layer Hall Effect in Two-Dimensional Materials**
Ying Dai, Shandong University, China
- GM12 **Title: Exploration and System Construction of New Materials System**
Baibiao Huang, Shandong University, China
- GM13 **Title: Solvent-Induced Deformation of Aramid Nanofibers for Ultrahigh-flux Nanofiltration Membranes**
Yuxi Ma, Deakin University, Australia
- GM14 **Title: ZIF-8 Derived Carbon Supported Non-Noble Metal Catalysts for Oxygen Reduction Reaction**
Haixia Zhang, Taiyuan University of Technology, China
- GM15 **Title: Selective Photocatalytic Conversion of Alcohol to Aldehydes by Singlet Oxygen over Bi-Based Metal-Organic Frameworks**
Xiaoyang Zhang, Shandong University, China
- GM16 **Title: Radical-Induced Polymerization Enables Ultrafast Molecular Sieving via 2D Robust Nanochannels**
Yue You, Deakin University, Australia

08:30-09:00 Registration and Arrival Coffee

@ Salon ABC Foyer

ROOM A @ Rawai**Materials for Energy Conversion and Storage**

Session Chairs: Daniel Chua, National University of Singapore, Singapore
Li Song, University of Science and Technology, China

Keynote Talks

- 09:00-09:20 **Title: Red TiO₂: Color Origin and Present Status**
Li Chang Yin, University of Chinese Academy of Sciences, China
- 09:20-09:40 **Title: Materials Advances for Robust Proton Exchange Membrane Fuel Cells**
Daniel Chua, National University of Singapore, Singapore
- 09:40-10:00 **Title: Hydrogen-Rich B Containing Systems for Hydrogen Storage**
Zhenguo Huang, University of Technology Sydney, Australia
- 10:00-10:20 **Title: Synchrotron Radiation Study on MXene-Based Energy Materials**
Li Song, University of Science and Technology, China
- 10:20-10:40 **Title: Rational Catalyst Design for CO₂ Electrochemical Reduction Reaction**
Ziyun Wang, University of Auckland, New Zealand

10:40-11:10 Coffee Break

@ Salon ABC Foyer

- 11:10-11:30 **Title: Advanced Electrode and Electrolyte Materials for Potassium Ion Batteries**
Jianfeng Mao, The University of Adelaide, Australia

Invited Talks

- 11:30-11:45 **Title: Electronic State Modulation in Semiconductor Materials towards Photocatalytic CO₂ Reduction Performance**
Hefeng Cheng, Shandong University, China
- 11:45-12:00 **Title: High Entropy Alloy Enables Efficient CO₂ Redox Reactions**
Shilin Zhang, The University of Adelaide, Australia
- 12:00-12:15 **Title: Physics and Design of Two-Dimensional Semiconductors and Heterostructures for Sustainable Nanoelectronics Applications**
Yee Sin Ang, Singapore University of Technology and Design, Singapore
- 12:15-12:30 **Title: Halide Perovskite for Photocatalytic H₂ Evolution**
Wang Peng, Shandong University, China

12:30-14:00 Lunch Break

@ Cucina

Session Chairs: Li Chang Yin, University of Chinese Academy of Sciences, China
Ziyun Wang, University of Auckland, New Zealand
Jianfeng Mao, The University of Adelaide, Australia

- 14:00-14:15 **Title: The Research Progress of High Bandgap Cu₂ZnSnS₄ Solar Cells**
Kaiwen Sun, University of New South Wales, Australia
- 14:15-14:30 **Title: Catalysts Design Promoting N₂ Electrofixation**
Sheng Chen, Nanjing University of Science and Technology, China
- 14:30-14:45 **Title: Controlled Growth and Electrocatalytic Hydrogen Evolution Property Tuning of TMDCs**
Peizhi Liu, Taiyuan University of Technology, China

- 14:45-15:00 **Title: Nonmetallic Plasmonic Materials for Photocatalysis**
Zaizhu Lou, Jinan University, China
- 15:00-15:15 **Title: Optimising The Flow Behaviours in Flow Channels via CFD Modelling to Accelerate Electrolyser Performance**
Yuting Zhuo, University of New South Wales, Australia
- 15:15-15:30 **Title: Nanomaterial and Coating for Solar Energy Applications and Perovskite Solar Cells**
Pisist Kumnorkaew, National Nanotechnology Center, Thailand
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- 15:30-16:00 **Coffee Break** @ Salon ABC Foyer
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- 16:00-16:15 **Title: Silicon-Based Anode Materials for Energy Storage Systems**
Lei Zhang, Griffith University, Australia
- 16:15-16:30 **Title: MXene-Based Membranes for Clean Energy Harvesting**
Guoliang Yang, Deakin University, Australia

Oral Talks

- 16:30-16:45 **Title: Surface Reconstructions Optimizations in Energy Conversion Electrocatalysts**
Jinxian Feng, University of Macau, Macau
- 16:45-17:00 **Title: Hydrogen Production from Photocatalytic Ammonia Splitting through Single-Atom Catalysis**
Jingkai Lin, The University of Adelaide, Australia
- 17:00-17:15 **Title: Green Plasma Enhanced Synthesis of Multi-Phase NiMnO₃ Cathode for Aqueous Zn-Ion Batteries**
Mitchell Barclay, Queensland University of Technology, Australia
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- 18:00 **Onwards Cocktails** @ Salon ABC Foyer

ROOM B Z@ Layan

Biomaterials and Medical Devices

Session Chairs: **Kang Liang**, University of New South Wales, Australia
Sonia Lucia Fiorilli, Politecnico di Torino, Italy

Keynote Talks

- 09:00-09:20 **Title: Self-Propelled Biocatalytic Nano/Microswimmers**
Kang Liang, University of New South Wales, Australia
- 09:20-09:40 **Title: Self-Powered Flexible Thermoelectric Device for Accelerated Wound Healing**
Chongjian Zhou, Northwestern Polytechnical University, China
- 09:40-10:00 **Title: Sustainable Manufacturing and Biomaterials for the Regeneration of Functional (Hard and Soft) Tissues**
Sonia Lucia Fiorilli, Politecnico di Torino, Italy
- 10:00-10:20 **Title: Enabling Highly Sensitive and Stable Electrochemical Biosensors for Continuous Biomarker Detection**
Ming Li, University of New South Wales, Australia

Oral Talk

- 10:20-10:35 **Title: Enhanced Hydrogen Therapy by Biomaterial Loaded with Near-Infrared Polymer Dots for Wound Healing**
Ziyi Zhang, Hong Kong University of Science and Technology, Hong Kong
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- 10:35-11:10 **Coffee Break** @ Salon ABC Foyer

Materials Modelling, Characterization and Data Analytics

Session Chairs: **Shixuan Du**, Chinese Academy of Sciences, China
Yi Liu, Shanghai University, Shanghai, China
Yandong Ma, Shangdong University, China

Keynote Talks

- 11:10-11:30 **Title: Theoretical Design of Solid-State Electrolytes**
Zhenyu Li, University of Science and Technology, China
- 11:30-11:50 **Title: Green Materials Meets X-ray Absorption Spectroscopy: A Strong and Growing Partnership**
Bernt Johannessen, XAS Australian Synchrotron, Australia
- 11:50-12:10 **Title: Two-Dimensional Moenes: Structure, Functionalization and Regulation on Physical Properties**
Liujiang Zhou, University of Electronic and Technology of China, China
- 12:10-12:30 **Title: Rational Design of Low-Dimensional Materials and Database Construction of Two-Dimensional Charged Building Blocks for Functional-Oriented Material Design**
Shixuan Du, Chinese Academy of Sciences, China
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- 12:30 -14:00 **Lunch Break** @ Cucina
- 14:00-14:20 **Title: Theoretical Study on Topological Magnetism in Two-Dimensional Lattice**
Yandong Ma, Shangdong University, China
- 14:20-14:40 **Title: New Generation of Reactive Force Field ReaxFF_c-S22 for All-Carbon Materials Across Dimensions and Hybridizations**
Yi Liu, Shanghai University, Shanghai, China

Invited Talks

- 14:40-14:55 **Title: Mechanical Properties and Deformation Behaviour of Graphene/Metal Composites: Insights from Molecular Dynamic Simulations**
Che Zhang, The University of Melbourne, Australia
- 14:55-15:10 **Title: Silicon-Based Anodes for Li Batteries: Thermodynamics, Structural Analysis, and Li Diffusion**
Marco Fronzi, University of Technology Sydney, Australia
- 15:10-15:25 **Title: Focused Ion Beam Sample Preparation for Atom Probe Tomography**
Limei Yang, University of Technology Sydney, Australia
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- 15:25-16:00 **Coffee Break** @ Salon ABC Foyer
- 16:00-16:15 **Title: Stress-Induced High-T_c Superconductivity in Solid Molecular Hydrogen**
Xianqi Song, Jilin University, China

Oral Talks

- 16:15-16:30 **Title: Ferroelectric Domain and Switching Dynamics in Curved In₂Se₃: First Principles and Deep Learning Molecular Dynamics Simulations**
Dongyu Bai, Queensland University of Technology, Australia
- 16:30-16:45 **Title: Simulation of Outside Vapor Deposition Process under Various Operational Conditions**
Jun He, Southeast University, China
- 16:45-17:00 **Title: Light-Switchable Biocatalytic Covalent–Organic Framework Nanomotors for Aqueous Contaminants Removal**
Jueyi Xue, The University of New South Wales, Australia

18:00 Onwards **Cocktails** @ Salon ABC Foyer

ROOM C @ Salon DE

Electronic Materials

Session Chairs: Dongchen Qi, Queensland University of Technology, Australia
Quan Li, Jilin University, China

Keynote Talks

- 09:00-09:20 **Title: Interfacial Synthesis of 2D Framework Electronic Materials**
Renhao Dong, Shandong University, China
- 09:20-09:40 **Title: Engineering Topological States in Two-Dimensional Antiferromagnets**
Chengwang Niu, Shandong University, China
- 09:40-10:00 **Title: Optomechanics Induced Phase Transition Under Light**
Jian Zhou, Xi'an Jiaotong University, China
- 10:00-10:20 **Title: Interlayer Magnetoelectric Coupling in Van Der Waals Structures**
Wei Wei, Shandong University, China
- 10:20-10:40 **Title: Engineering Diamond Surfaces for Quantum Diamondtronics**
Dongchen Qi, Queensland University of Technology, Australia
- 10:40-11:10 **Coffee Break** @ Salon ABC Foyer
- 11:10-11:30 **Title: Non-Hydrostatic Pressure Induced Superconductivity in Diamond and Solid Molecular Hydrogen**
Quan Li, Jilin University, China
- 11:30-11:50 **Title: Manipulating the Structure and Properties of Two-Dimensional Carbon-Nitrogen Materials**
Qinghong Yuan, East China Normal University, China

Invited Talks

- 11:50-12:05 **Title: Computational Design of Novel Nanomaterials**
Zhenpeng Hu, Nankai University, China
- 12:05-12:20 **Title: 2D Materials as Hardmasks**
Ya-Ping Hsieh, Academia Sinica, Taiwan
- 12:20-14:00 **Lunch Break** @ Cucina

Materials Science and Engineering

Session Chairs: Lihong Su, University of Wollongong, Australia
Zaiwang Zhao, Inner Mongolia University, China

Keynote Talks

- 14:00-14:20 **Title: Lubrication and Mechanism of Carbonate at High Temperature**
Long Wang, Northwestern Polytechnical University, China
- 14:20-14:40 **Title: A Promising Experimental Platform: *In-situ* Magnetization Measurement Setup Under Magnetic Field**
Yixuan He, Northwestern Polytechnical University, China
- 14:40-15:00 **Title: Bulk Nanostructured Metallic Materials by Advanced Rolling Process**
Lihong Su, University of Wollongong, Australia
- 15:00-15:20 **Title: Discovery of Two-Dimensional Organic Polymer Photocatalysts for Overall Water Splitting under Visible Light through Theory**
Xiaojun Wu, University of Science and Technology, China
- 15:20-15:40 **Title: Influence of Ru on the Thermo-Mechanical Fatigue Deformation Mechanism of a 4th Generation Nickel-Base Single Crystal Superalloy**
Guang Xie, Chinese Academy of Sciences, China

15:40-16:00 Coffee Break @ Salon ABC Foyer

16:00-16:20 **Title: Hierarchical Mesoporous Superparticles: Precise Synthesis and Applications**
Zaiwang Zhao, Inner Mongolia University, China

Invited Talks

16:20-16:35 **Title: New Technology to Degrade PFAS**
Cheng Fang, The University of Newcastle, Australia

16:35-16:50 **Title: Ultrastrong Nanotwinned Titanium Alloys through Additive Manufacturing**
Yuman Zhu, Monash University, Australia

16:50-17:05 **Title: Designing Oxygen Evolution Electrocatalysts by Leveraging the Lattice-Oxygen Mediated Mechanism**
Xiaomin Xu, Curtin University, Australia

Oral Talk

17:05-17:20 **Title: Carrageenans as Sustainable Water-Processable Binders for High-Voltage NMC811 Cathodes**
Ana Rolandi, Deakin University, Australia

17:20-17:35 **Title: Natural Coaxial Plant Tips Reach Ultrahigh Toughness and Sharpness**
Binodhya Wijerathne, Queensland University of Technology, Australia

18:00 Onwards Cocktails @ Salon ABC Foyer



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