Conference Program

2026 International Conference on Materials Innovation (ICMI26)

13th-15th August, 2026 – Brisbane, Australia

Time: Presentation + Q&A	Plenary Lecture (30 min)	Keynote Lecture (20 min)	Invited Lecture (15 min)	HDR Student Lecture (5 min)

13th August	**Registration (13:00-18:00) and Welcome reception (18:00-20:00)** **Venue: Motion and M Deck, Level 1, Brisbane Marriott Hotel**				
14th August Plenary Session	**Chairs: Lianzhou Wang & Huijun Zhao (Venue: Grand Ballroom)**				
08:30 - 08:50	**Conference Opening** **Prof Matthew Dargusch**, Associate Dean (Research), Faculty of Engineering, Architecture, and Information Technology (EAIT), UQ				
08:50 - 09:20	**Plenary 1: Prof Chennupati Jagadish** Semiconductor Nanostructures for Optoelectronics Applications				
09:20 - 09:50	**Plenary 2: Prof Dmitri Golberg** Nanomaterial Property Exploration Using in situ TEM				
09:50 - 10:20	**Plenary 3: Prof Nam-Trung Nguyen** Flexible Microfluidics and Electronics for Wearable Preventive-Care and Wellness Applications				
10:20 - 10:50	**Morning Tea**				
Venue	**Grand Ballroom**	**Adelaide Room One**	**Adelaide Room Two**	**Jacaranda Room**	**Atcherley Room**
14th August Morning Session	**Session 1: Bioengineering** **Chair: Arnold Lining Ju**	**Session 2: Clean Energy** **Chair: Julian A Steele**	**Session 3: Catalysis** **Chair: Xiaoguang Duan**	**Session 4: Emerging Tech.** **Chair: Fengxia Wei**	**HDR Forum Session A** **Chair: Jingwei Hou**

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10:50 - 11:10	**Prof Chunxia Zhao** Bioinspired Materials and Devices: From Biomedical Applications to Resource Recovery	**Prof Haolan Xu** Interfacial Solar Evaporation-Drive Seawater Desalination and Salt Recovery	**Prof Jun Huang** Nanocatalysts for the Activation and Transformation of Greenhouse Gases to Hydrogen	**Prof Baohua Jia** Laser Nanoprinting of Atomaterials	**HDR Presenters:** **Miss Elise Elkington** **Mr Wenming Zhao** **Mr Haofu Liu** **Mr Siqi Liu** **Miss Yingkun Sheng** **Mr Tony Ochsner** **Mr Di Zhao** **Miss Jianfei Yu** **Mr Dayu Liu**
11:10 - 11:30	**Prof Rona Chandrawati** Nanozymes and Polymers for Nitric Oxide Delivery	**A/Prof Jung-Ho Yun** Perovskite-Based Space Solar Cells for the New Space Era: Ongoing R&D and Directions at G-Hub Centre	**Dr Jingrun Ran** Atomic-Level Regulation on Photocatalyst for Energy-Related Reaction	**Prof Bingjie Ni** Dynamic Magnetic Capture-Catalytic Pyrolysis for Aquatic Micro- and Nanoplastic Management	
11:30 - 11:50	**Prof Shaun Gregory** The Artificial Heart Frontiers Program	**Dr Bing Sun** Interphase and Interface Design for High-Energy Lithium Metal Batteries	**Dr Mengran Li** Unlocking Catalyst Potentials in Zero-Gap Cells	**A/Prof Mark Edmonds** Twisted 2D Semiconductors – Novel Quantum Materials for Low-Energy Electronics	
11:50 - 12:05	**Dr Chang Lei** Advanced Nano-Platforms for Sensitive Biomolecule Detection	**Dr Yijun Zhong** Material Design of Transition Metal Phosphates for Proton Batteries	**Dr Zhipeng Ma** Coupled NO_x Production and Electrochemical NO_x Conversion Processes for Renewable Ammonia Synthesis from Air	**Dr Mohammad B Ghasemian** Liquid Metal Media as an Emerging Platform for Functional Materials Manufacturing	
12:05 - 12:20	**Dr Qianqian Shi** Engineering Soft Plasmonic Nanoarchitectures for Chemical Sensing	**Dr Chao Xing** Interfacial and Ion-Migration Engineering for High-Rate, Dendrite-Free Zinc-Based Energy Storage	**Dr Min Liu** Porous Separator-based CO/CO_2 Electrolyzers	**Dr Qingfeng Zhai** Probing the Active Site of Carbon-based Catalysts through EC-STM	
12:20 - 13:20	**Lunch**				
Venue	**Grand Ballroom**	**Adelaide Room One**	**Adelaide Room Two**	**Jacaranda Room**	**Atcherley Room**
14th August Afternoon Session	**Panel Discussion Session: Chair: Lianzhou Wang**	**Session 5: Clean Energy Chair: Jung-Ho Yun**	**Session 6: Catalysis Chair: Jingrun Ran**	**Session 7: Emerging Tech. Chair: Li Gao**	**HDR Forum Session B Chair: Haijiao Lu**
13:20 - 13:40		**Prof Zhigang Chen**	**Prof Xiaoguang Duan**	**Prof Ziqi Sun**	

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	Topics: **Career Development of EMCRs, AI-Assisted Research & Publications** **Panellists:** **Prof Chennupati Jagadish** **Prof Huijun Zhao** **Prof Mary Garson** **Prof Chunxia Zhao** **Dr Esther Levy** **A/Prof Ruirui Qiao**	Zero-Emission Thermoelectrics for Solid-State Power Generation and Cooling	Single Atom Materials for Catalytic Water Purification	Organic Molecular Promoters in Rechargeable Aqueous Zn-ion Batteries	**HDR Presenters:** **Mr Yifan Bao** **Miss Georgia York** **Miss Cailing He** **Miss Yunping Tu** **Miss Xinyan Gu** **Mr Luis G. B. Campos** **Mr Mingli Li** **Mr Xingchen Yang** **Mr Naufal Kabir Ahamed Nasar**
13:40 - 14:00		**A/Prof Sudha Mokkapati** Two-Dimensional Hybrid Perovskite Monolayers for Optoelectronics	**Prof Qin Li** Sustainable Chemical Synthesis with Carbon Dot-Based Photocatalysts	**A/Prof Shiyang Tang** Harnessing the Giant and Switchable Surface Energy of Liquid Metals for Robotics	
14:00 - 14:20		**Dr Meng Zhang** Crystallization Engineering of Wide Bandgap Perovskite Thin Films for Photovoltaic Applications	**Prof Ruotian Chen** Spatiotemporal Imaging of Charge Transfer in Semiconductor Photocatalyst Particles	**Dr Bernt Johannessen** Looking Beyond Crystal Structures: Understanding Functional Materials with X-ray Absorption Spectroscopy	
14:20 - 14:35		**A/Prof Yongtao Qu** ZnO Nanorod Hemispherical Light Scatterers for Thin Film Solar Cell Applications	**Dr Doudou Zhang** Engineering Single-Atom Catalysts for Durable Green Hydrogen Production through Interface Design	**Dr Siqi Huo** Strong, Recyclable, Bio-Based Vitrimers by Tailored Rigid-Flexible Structures for Advanced Carbon Fiber-Reinforced Polymers	
14:35 - 14:50		**Dr Jincheol Kim** Advanced Manufacturing Strategies for Scalable Perovskite Solar Cells	**Dr Lunjie Liu** Accelerating Discovery of Polymer Photocatalysts for Solar-Driven Fuel Production	**Dr Ming Zhou** Molecularly Imprinted Polymer-Functionalised Lateral-Flow Membrane for PFAS Detection in Water	
14:50 - 15:20	**Afternoon Tea**				
Venue	**Grand Ballroom**	**Adelaide Room One**	**Adelaide Room Two**	**Jacaranda Room**	**Atcherley Room**
14th August Afternoon Session	**Session 8: Bioengineering** **Chair: Rona Chandrawati**	**Session 9: Clean Energy** **Chair: Jincheol Kim**	**Session 10: Catalysis** **Chair: Doudou Zhang**	**Session 11: Emerging Tech.** **Chair: Shiyang Tang**	**Session 12: Bioengineering** **Chair: Ruirui Qiao**
15:20 - 15:40	**A/Prof Qian Peter Su** The Interplay of Physical, Chemical and Biological	**Prof Yi Du** Realization and Manipulation of 2D	**A/Prof Muxina Konarova** Feedstock and Catalyst Optimisation for Sustainable	**Dr Fengxia Wei** ALF – the Smallest MOF for Gas Separation	**Prof Arnold Lining Ju** Personalized 3D Vessel-on-a-Chip and Digital Twins for

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	Dynamics in Living Cells	Magnetic Skyrmions Lattice at Room Temperature	Aviation Fuels		Thrombotic Phenotype Profiling and Drug Screening
15:40 - 16:00	**A/Prof Chun Xu** Functional Nanomaterials for Bone and Joint Regeneration	**Dr Kaiwen Sun** Wide Bandgap Chalcogenide Solar Cells for Tandem Photovoltaic Applications	**Dr Yan Li** Atomically Dispersed Copper Electrocatalysts with Proton-feeding Centers for Efficient Ammonia Synthesis by Nitrate Electroreduction	**Prof Yongqi Sun** A Transition Shuttle in Calcium Oxide for Carbon Capture	**Dr Changkui Fu** Modulating Material-Bio Interactions with Advanced Polymer Brushes
16:00 - 16:20	**Dr Jieying Liang** Engineering Biocatalytic Nanomaterials for Precision Therapy and Biosensing	**Dr Munkhbayar Batmunkh** Engineering Metal Halide Perovskite Semiconductors for Solar Cells	**Dr Hangjuan Ren** Making Operando Electrochemical Characterisation Truly Representative of Working Conditions	**Dr Zijian Wang** Semantic Segmentation: Evolution, Challenges, and Future Directions	**Dr Yannan Yang** Biomaterial-Mediated Intratumoral Drug Delivery for Cancer Immunotherapy
16:20 - 16:35	**Dr Mostafa Kamal Masud** Engineering the Evolution of Nanozymes from Metal Oxides to Porous Multimetallic Alloys for Rapid Biosensing	**Dr Dongxu He** Towards Efficient and Stable Tin Halide Perovskite Solar Cells	**Dr Juan Bai** Rational Design of Defective Molybdenum Centers for Accelerated and Durable Oxygen Evolution	**Dr Xiyue Peng** Development of Organic Cathode Materials for Advanced Aluminium Batteries	**Dr Fei Deng** Advancements in CRISPR-based Diagnostics
16:35 - 16:50		**Dr Shuangyue Wang** Open-Ended Graphene–CNT Carpet Cathodes with Additional Protected Oxygen Pathways for High-Power Li–O_2 Batteries	**Dr Francois Allioux** Homogenization of Post-Transition Metal Alloys into High-Entropy-Like Nanoparticles	**Dr Hongda Lu** Advanced Liquid Metal-Enabled Soft Systems	**Dr Yuang Gu** Metal–Phenolic Network Nanoparticles for Organ-Selective Delivery
16:50 - 17:05			**Mr Tianzhuo Xia** Integrating Photocatalysts with Microorganisms for Sustainable CO_2-to-CH_4 Conversion		
18:30 - 21:30	**Banquet Dinner (Venue: Grand Ballroom)**				

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15th August Plenary Session	Chairs: Debra Bernhardt & Zhiliang Wang (Venue: Grand Ballroom)				
08:30 - 09:00	**Plenary 4: Prof Rachel Caruso** Electrocatalysts and Photocatalysts for Energy and Environmental Applications				
09:00 - 09:30	**Plenary 5: Prof Guoxiu Wang** Green Hydrogen and Battery Technology Driving Clean Energy Transition				
09:30 - 10:00	**Plenary 6: Prof Kourosh Kalantar-Zadeh** Ingestible Gas-Sensing Capsules: From Development to Clinical Practice				
10:00 - 10:30	**Morning Tea**				
Venue	**Grand Ballroom**	**Adelaide Room One**	**Adelaide Room Two**	**Jacaranda Room**	**Atcherley Room**
15th August Morning Session	**Session 13: Bioengineering** **Chair: Maggie Zhai**	**Session 14: Clean Energy** **Chair: Jianfeng Mao**	**Session 15: Catalysis** **Chair: Jinqiang Zhang**	**Session 16: Emerging Tech.** **Chair: Zhuyuan Wang**	
10:30 - 10:50	**Prof Kang Liang** Controlling Nanozyme Selectivity through Materials Engineering and Mechanistic Design	**Prof Shanqing Zhang** Sustainable Electrochemical Recycling of PFAS from Spent Lithium-Ion Batteries	**Prof Tianyi Ma** Integrated CO_2 Capture-Upgrading	**Prof Dewei Chu** Atmospheric Water Sorption–Desorption as a Pathway for Green Energy Generation	
10:50 - 11:10	**Prof Zhiyong Li** AI-Enhanced Biomechanical Assessment of Left Atrial Function in Patients with Atrial Fibrillation	**A/Prof Paul Shaw** Strategies for Achieving High-Performance Y6 Homojunction Organic Solar Cells	**Prof Porun Liu** Engineering and Probing Sub-Nanoscale Catalytic Active Sites	**Prof Yun Wang** Towards Predictive Electrocatalysis: Theory and Modelling of Electrified Solid–Liquid Interfaces	
11:10 - 11:30	**A/Prof Jiaojiao Li** Developing Regenerative Therapies for Bone and Joint Diseases	**Dr Jinqiang Zhang** Refining Structures of Electrochemical Catalysts	**Prof Songcan Wang** Design of Materials and Devices for Solar Hydrogen Production	**A/Prof Jingwei Hou** Physical and Optical Properties of Hybrid Glasses	

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		for Energy Storage and Conversion			
11:30 - 11:45	**Dr Hank Han** Decoding Protein Crystallisation and Aggregation in Ionic Liquids with High-Throughput and Grazing-Incidence Small-Angle X-Ray Scattering and Machine Learning	**Prof Fengshuo Xi** Research on the Preparation of High-Performance Silicon-Based Anode Materials from Photovoltaic Silicon Waste	**Dr Aoni Xu** The Dynamic Electrochemical Interface in CO_2 Reduction	**Dr Ali Zavabeti** Liquid-Metal Interfaces for Sustainable Environmental Technologies	
11:45 - 12:00	**Dr Jingqu Chen** Engineering Bioactive Nanoparticles as a Versatile Therapeutic Delivery Platform	**Dr Heng Xu** Advanced Electrocatalytic Systems Constructed by a Multi-Chemical-Process Coupling Strategy	**Dr Hefei Li** Interfacial and Microenvironment Engineering for High-Rate CO_2 Electrolysis to Valuable Chemicals	**Dr Xin Mao** Computational Simulation of Metal Organic Frameworks for CO_2 Reduction to C_2 Products	
12:00 - 13:00	**Lunch**				
Venue	Grand Ballroom	Adelaide Room One	Adelaide Room Two	Jacaranda Room	Atcherley Room
15th August Afternoon Session	**Session 17: Bioengineering** **Chair: Kang Liang**	**Session 18: Clean Energy** **Chair: Bin Luo**	**Session 19: Catalysis** **Chair: Aoni Xu**	**Session 20: Clean Energy** **Chair: Yun Wang**	
13:00 - 13:20	**Prof Yuning Hong** A Novel Lipophagy Reporter for Potential Diagnosis of Lysosomal Storage Diseases	**Prof Han Hu** Creating Energy Materials Based on Spin Regulation	**Prof Zongyou Yin** Microenvironment Roles in Nano-to-Atomic Catalysis	**Prof Jenny Pringle** Organic Ionic Plastic Crystals for Sustainable Cooling	
13:20 - 13:40	**Prof Sophia Gu** ROS Regulation via Nanozymes and Biomass-Derived Nanomaterials for Cancer and Cardiovascular Disease	**Prof Min Hong** Enhancing Thermoelectric Performance by Phonon Engineering	**Dr Jinqiang Zhang** Photothermal Catalysis for Solar Fuels Production	**Dr Xiaodan Huang** Separator Innovation for New Aluminium Battery Paradigm	

13:40 - 14:00	**A/Prof Maggie Zhai** Probing Mesophase Structure Changes and Orientations of Ionisable Lipid Nanoparticles at Interface	**A/Prof Jianfeng Mao** Development of Next-Generation Lithium Metal Batteries for High Energy Storage	**Dr Dechao Chen** Colloidal Synthesis of Photocatalytic Quantum Dots Heterostructure	**Dr Julian A Steele** Microscopic Phonons to Macroscopic Properties	
14:00 - 14:20	**A/Prof Vi Khanh Truong** Engineering Adaptive Biointerfaces for Coordinated Antimicrobial Defence and Immune-Regeneration Modulation	**Dr Liang Wang** Interface Engineering of Heterostructures for Energy Storage and Conversion	**Dr En Zhao** Catalytic Transfer Hydrogenation Using Water as a Green Hydrogen	**Dr Zhuyuan Wang** Regulation of Matter in Spatial Nanoconfinement and Its Applications in Membrane Technologies	
14:20 - 14:50	**Afternoon Tea**				
15th August Plenary Session	**Charis: Kristopher Thurecht & Peng Chen (Venue: Grand Ballroom)**				
14:50 - 15:20	**Plenary 7: Prof Debra Bernhardt** Advances in Simulation of Interfacial Processes				
15:20 - 15:50	**Plenary 8: Prof Shuhong Yu** Bio-Inspired Sustainable Structural Materials				
15:50 - 16:30	**Presentation Awards and Closing Remark (Venue: Grand Ballroom)**				
18:30 - 21:30	**Invited Speaker Dinner (Venue: Golden Lane Chinese Restaurant, Address: Shop 109, Sunnybank Plaza)**				