

Thur 30 Nov to  
Sat 2 Dec 2023

Esplanade Hotel  
Fremantle Western  
Australia

# The 1st Australian Materials Chemistry Conference (AMCC23)

## Conference Program

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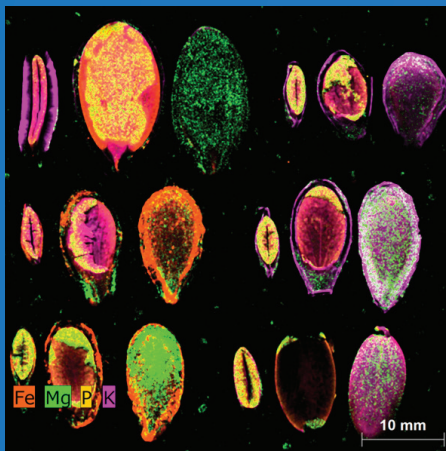
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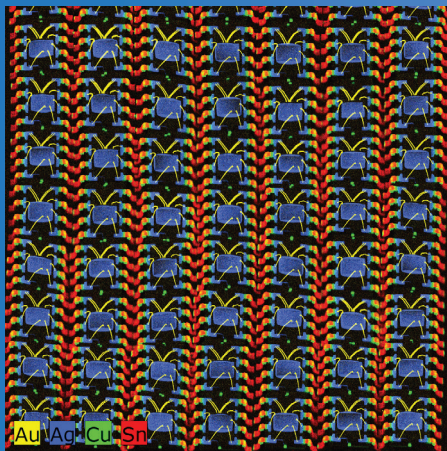
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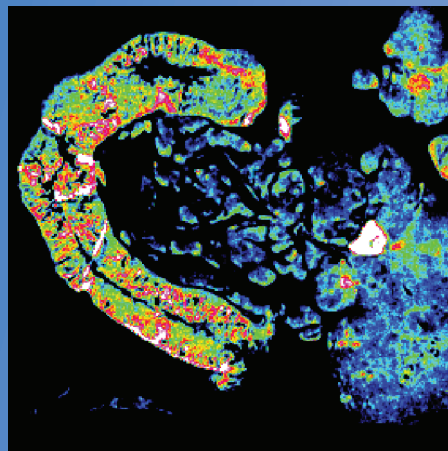
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| Time: Presentation + Q&A   |  | Plenary Lecture (35+5 min) |  | Keynote Lecture (20+5 min) |  | Invited Lecture (17+3 min) |   | Oral Lecture (13+2min) |  | ECR Flash Talk (8+1 min)  |                |
|--|--|----------------------------|--|----------------------------|--|----------------------------|---|------------------------|--|---------------------------|----------------|
| 2nd Dec. Registration (8:30-12:00, Southern Cross Lobby, Esplanade Hotel Fremantle by Rydges, Fremantle)                                   |  |                            |  |                            |  |                            |   |                        |  |                           |                |
| 08:00-08:40 Arrival tea and coffee (Southern Cross Lobby, Esplanade Hotel Fremantle by Rydges)   |  |                            |  |                            |  |                            |   |                        |  |                           |                |
| 08:40-09:20 Prof. Baohua Jia, RMIT University (Sirius Room)  |  |                            |  |                            |  |                            |   |                        |  | Chair: A/Prof. Guohua Jia |                |
| 09:20-10:00 Prof. Douglas Macfarlane, Monash University (Sirius Room)  |  |                            |  |                            |  |                            |   |                        |  | Chair: Prof. Yun Liu      |                |
| 10:00-10:30 Morning Tea / Networking (Southern Cross Lobby, Esplanade Hotel Fremantle by Rydges)   |  |                            |  |                            |  |                            |   |                        |  |                           |                |
| 10:30-12:00 Morning parallel sessions (Theme sessions)   |  |                            |  |                            |  |                            |   |                        |  |                           |                |
| Venue  | Sirius Room  |                            | Pleiades Room  |                            | Admiralty Gulf Room  |                            | King Sound Room   |                        | Prince Regent Room   |                           |                |
| Theme  | Biomaterials (Dr. Amy Gelmi and Prof. Yuling Wang) |                            | Energy materials (Dr. Karolina Matuszek and Prof. Antonio Tricoli)     |                            | Materials characterisation techniques and applications (A/Prof. Nick Cox and Prof. Christopher Ling) |                            | Functional soft materials and flexible devices (Dr. Peter Sherrel and Prof. Prashant Sonar) |                        | Materials for environment (Dr. Xiaoguang Duan and Dr. Muxina Konarova) |                           |                |
| 10:30-10:50  | A/Prof. Alf Garcia-Bennett                         |                            | Prof. Antonio Tricoli  |                            | Dr. Lucy Gloag   |                            | Dr. Bryan Tuten   |                        | Prof. Youhong Tang   |                           |                |
| 10:50-11:10  | Dr. Haiyan Li                                      |                            | Prof. Haolan Xu  |                            | A/Prof. Weikong Pang   |                            | Dr. Chien-Chung Shih  |                        | Dr. Zhaojun Han  |                           |                |
| 11:10-11:35  | Prof. Chunxia Zhao                                 |                            | Prof. Zongping Shao  |                            | Prof. Anthony Masters (11:10-11:30)  |                            | Prof. Paul Low  |                        | Prof. Shaobin Wang   |                           |                |
| 11:35-12:00  | A/Prof. Kang Liang                                 |                            | Dr. Li Wei (11:35-11:55)   |                            | Dr. Alison Edwards (11:30-11:50)   |                            | Prof. Zhigang Chen  |                        | Dr. Xiaoguang Duan (11:35-11:55)                                       |                           |                |
| 12:00-13:00 Lunch (Atrium Garden Restaurant, Esplanade Hotel Fremantle by Rydges)  |  |                            |  |                            |  |                            |   |                        |  |                           |                |
| 12:15-12:45 RACI Materials Chemistry Division meeting: How to make our community active, Admiralty Gulf Room                               |  |                            |  |                            |  |                            |   |                        |  |                           |                |
| 13:00-15:00 Afternoon parallel sessions 1 (Theme sessions)   |  |                            |  |                            |  |                            |   |                        |  |                           |                |
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| 13:00-13:25  | Prof. Laichang Zhang                               |                            | A/Prof. Dawei Su (13:00-13:20)   |                            | Dr. Kaye Minkyung Kang   |                            | Prof. Lam Yeng Ming (13:00-13:20)   |                        | Prof. Hongqi Sun   |                           |                |
| 13:25-13:50  | A/Prof. Sophia Gu                                  |                            | A/Prof. Alexey Glushenkov (13:20-13:40)<br>Dr. Xia Huang (13:40-14:00) |                            | Prof. Rob Atkin  |                            | A/Prof. Matthew Griffith (13:20-13:40)<br>A/Prof. Jennifer MacLeod (13:40-14:00)            |                        | Prof. Michael Stockenhuber   |                           |                |
| 13:50-14:10  | Dr. Aaron Elbourne                                 |                            | Dr. Bing Sun (14:00-14:20)   |                            | Dr. Neil Robinson  |                            | Dr. Qiang Fu (14:00-14:20)  |                        | A/Prof. Yazhi Liu  |                           |                |
| 14:10-14:30  | Prof. Lisbeth Grondahl                             |                            | Dr. Junnan Hao (14:20-14:40)   |                            | Dr. Pei Lay Yap  |                            | Dr. Eleanor Kearns (14:20-14:40)  |                        | Dr. Cameron Shearer  |                           |                |
| 14:30-14:50  |  |                            | Dr. Yijun Zhong (14:40-15:00)  |                            | Dr. Ryan Shaw  |                            | Dr. Fatemah Mokhtari (14:40-15:00)  |                        | Dr. Wenjie Tian  |                           |                |
| 15:00-15:30 Afternoon Tea / Networking (Southern Cross Lobby, Esplanade Hotel Fremantle by Rydges)   |  |                            |  |                            |  |                            |   |                        |  |                           |                |
| 15:30-16:51 Afternoon parallel sessions 2 (Theme sessions)   |  |                            |  |                            |  |                            |   |                        |  |                           |                |
| Venue  | Sirius Room  |                            | Pleiades Room  |                            | Admiralty Gulf Room  |                            | King Sound Room   |                        | Prince Regent Room   |                           |                |
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| 15:30-15:50  | A/Prof. Daniel Heath                               |                            | Prof. Prashant Sonar   |                            | Prof. Chaoyu Xiang   |                            | Prof. Wenxian Li  |                        | Blake Armstrong  |                           | 15:30-15:39    |
| 15:50-16:10  | A/Prof. Franca Jones                               |                            | Dr. Jinqiang Zhang (15:50-16:05)<br>Dr. Mariam Ameen (16:05-16:20)     |                            | Dr. Aditya Rawal   |                            | A/Prof. Wei Deng  |                        | Chaoyue Zhao   |                           | 15:39-15:48    |
| 16:10-16:30  | Dr. Changkui Fu                                    |                            | Dr. Dan Yang (16:20-16:35)   |                            | Dr. Qinfen Gu  |                            | Dr. Rijia Lin   |                        | Hengyue Xu   |                           | 15:48-15:57    |
| 16:30-16:45  | Dr. Mingyu Han                                     |                            | Dr. Daqin Guan (16:35-16:50)   |                            | Dr. Vaishnavi Krishnamurthi  |                            | Dr. Alexander Corletto  |                        | Jierui Zhang   |                           | 15:57-16:06    |
| 17:00-17:30  |  |                            |  |                            |  |                            |   |                        | Tanika Duivenvoorden   |                           | 16:06-16:15    |
| 18:00-22:00  |  |                            |  |                            |  |                            |   |                        | Tamsyn Lovass  |                           | 16:15-16:24    |
| Closing Ceremony (Sirius Ballroom)   |  |                            |  |                            |  |                            |   |                        |  |                           |                |
| 18:00-22:00 Museum self-guided tour (18:00-18:30) and dinner (18:30-22:00), Western Australian Maritime Museum - Function Centre & Balcony |  |                            |  |                            |  |                            |   |                        |  |                           |                |

| Time: Presentation + Q&A   |   | Plenary Lecture (35+5 min)  | Keynote Lecture (20+5 min)   | Invited Lecture (17+3 min)  | Oral Lecture (13+2 min)  | ECR Flash Talk (8+1 min)  |
|--|---|---|--|---|--|---------------------------|
| 30th Nov. Registration and welcome reception (Esplanade Hotel Fremantle by Rydges, Fremantle)                          |   |   |  |   |  |                           |
| 14:00-21:00 Registration, Main Hotel Lobby area, Esplanade Hotel Fremantle by Rydges                                   |   |   |  |   |  |                           |
| 17:00-19:00 Welcome Reception, Resort Pool, Esplanade Hotel Fremantle by Rydges  |   |   |  |   |  |                           |
| 1st Dec. Registration (08:30-17:00, Southern Cross Lobby, Esplanade Hotel Fremantle by Rydges, Fremantle)              |   |   |  |   |  |                           |
| 08:00-08:30 Arrival tea and coffee (Southern Cross Lobby, Esplanade Hotel Fremantle by Rydges)                         |   |   |  |   |  |                           |
| 08:30-09:00 Opening Ceremony: Prof. Yun Liu, Prof. Mark Ogden, Prof. Mark Buntine and A/Prof. Guohua Jia (Sirius Room) |   |   |  |   |  |                           |
| 09:00-09:40 Prof. Dmitri Golberg, Queensland University of Technology (Sirius Room)                                    |   |   |  |   |  | Chair: Prof. Cynthia Joll |
| Boron nitride nanotubes and nanosheets: synthesis, properties and applications   |   |   |  |   |  |                           |
| 09:40-10:20 Prof. Debra Bernhard, The University of Queensland (Sirius Room)   |   |   |  |   |  | Chair: Prof. Shaobin Wang |
| Modelling materials at the atomic and molecular level: Application to batteries and supercapacitors                    |   |   |  |   |  |                           |
| 10:20-10:50 Morning Tea / Networking (Southern Cross Lobby, Esplanade Hotel Fremantle by Rydges)                       |   |   |  |   |  |                           |
| 10:50-13:00 Morning parallel sessions (Theme sessions)   |   |   |  |   |  |                           |
| Venue  | Sirius Room   | Pleiades Room   | Admiralty Gulf Room  | King Sound Room   | Prince Regent Room   |                           |
| Theme  | Materials for industry, defence and space applications (Prof. Dewei Chu and Prof. Aijun Huang)                        | Energy materials (Dr. Karolina Matuszek and Prof. Antonio Tricoli)  | Multifunctional materials (Prof. Zhenxiang Cheng and A/Prof. Weikang Fang)   | Materials computations (A/Prof. Raffaella Demicheli and A/Prof. Asaph Widmer-Cooper)  | Emerging materials (Xueqian Sun)   |                           |
| 10:50-11:15  | Prof. Aijun Huang   | Prof. Feng Wang   | Prof. Xiaozhou Liao  | Prof. Sean Smith  | Prof. Francesca Iacopi   |                           |
|  | Ultrastrong nanotwinned titanium alloys through additive manufacturing  | Intelligent design high performance PDI based dyes in solar cell applications   | Exploring ferroelectric domain switching behaviours using in-situ stressing and biasing transmission electron microscopy | TBD   | Understanding the epitaxial growth of graphene on 3C-SiC using a Ni/Cu alloy               |                           |
| 11:15-11:40  | A/Prof. Neeraj Sharma   | Prof. Valeska Ting  | A/Prof. Chunyan Chi  | Dr. Sherif Abdulkader Tawfik Abbas (11:15-11:35)  | Dr. Hieu Nguyen (11:15-11:35)  |                           |
|  | Understanding battery materials during function and their thermal response  | Hydrogen storage and separation in porous materials for sustainable energy applications                                       | Molecular carbons with different topologies and size   | The power of physics-informed machine learning in solving nanoscale challenges  | Characterization and material growth of two-dimensional transition metal dichalcogenides   |                           |
| 11:40-12:00  | Prof. Adam Periman  | Dr. Mega Kar  | A/Prof. Torben Daeneke   | A/Prof. Terry Frankcombe (11:55-12:15)  | Dr. James Bullock (11:35-12:15)  |                           |
|  | Engineered living and dead materials: from 3D printable enzyme plastics to living bacterial microreactors             | Advanced, non-aqueous electrolytes for rechargeable metal batteries   | Liquid metals – A unique class of catalysts for CO <sub>2</sub> reduction and NH <sub>3</sub> synthesis                  | Simulating X-ray photoelectron spectra  | van der Waals materials for Infrared (IR) photodetection                                   |                           |
| 12:00-12:20  | Dr. Nigel Brand   | Dr. Xiaolei Shi   | A/Prof. Huacheng Zhang   | Prof. Michelle Spencer (11:55-12:15)  | Dr. Long Hu (11:55-12:15)  |                           |
|  | Materials Chemistry – A Micro XRF Perspective   | Novel solvothermal synthetic designs for SnSe-based thermoelectric materials  | Enhanced gating effects in responsive sub-nanolitric ion channels  | 2D materials for flexible electronics and piezoelectric actuators   | Halide perovskite quantum dot electronics  |                           |
| 12:20-12:40  | Dr. Karolina Matuszek   | Dr. Xiaodan Huang   | Dr. Lei Bao  | Dr. Fangfang Chen (12:15-12:35)   | Dr. Peter Sherrell (12:15-12:35)   |                           |
|  | Designing thermal energy storage for industrial applications  | Origin and prevention of dendrites in aluminium metal anode containing electrochemical cells                                  | Surface nanodroplet confined engineering of gold nanostructures  | A comparison of constant charge and constant potential models in investigating ionic liquid electrolyte-electrode interface | Harnessing motion via polymers: From ferroelectricity to electrostatics                    |                           |
| 12:40-13:00  | Dr. Muxina Konarova   | Dr. Jianfeng Mao  | Dr. Yichao Wang  | Prof. Alister Page (12:35-12:55)  | Dr. Patrick Doherty (12:35-12:55)  |                           |
|  | Enabling hydrogen storage and transport: Unleashing cost-effective potential through liquid organic hydrogen carriers | Design of solid-electrolyte interphase for emerging aqueous zinc metal batteries  | Advanced chemical sensing enabled by low-dimensional nanomaterials   | What can we learn about CVD and nanomaterial growth using computational approaches?   | Investigations of a 2D Co(II) system on a highly frustrated triangular lattice             |                           |
| 13:00-14:00 Lunch (Atrium Garden Restaurant, Esplanade Hotel Fremantle by Rydges)                                      |   |   |  |   |  |                           |
| 14:00-16:05 Afternoon parallel sessions 1 (Theme sessions)   |   |   |  |   |  |                           |
| Venue  | Sirius Room   | Pleiades Room   | Admiralty Gulf Room  | King Sound Room   | Prince Regent Room   |                           |
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| 14:00-14:20  | Prof. Dewei Chu   | Prof. Richard Tilley  | Prof. Yuling Wang (14:00-14:25)  | A/Prof. Asaph Widmer-Cooper   | Prof. Sumeet Walla (14:00-14:25)   |                           |
|  | Bio-inspired nanonic materials for energy & information related device applications                                   | Decorated metal branched nanoparticle catalysts   | Engineering of plasmonic nanomaterials for surface-enhanced Raman scattering-based in vitro cancer diagnosis             | Controlling halide segregation in mixed-halide perovskites  | Two-dimensional materials for next-generation electronics and optoelectronics technologies |                           |
| 14:20-14:40  | Prof. Neil Cameron  | Prof. Rongkun Zheng   | Prof. Pingan Song (14:25-14:45)  | Dr. Yuan Mei  | Dr. Zhiyu Wang (14:25-14:45)   |                           |
|  | Cardiac tissue engineering scaffolds by 3D printing with multilayer polymer composites                                | Tuning the microstructure of halide perovskites for better performance and stability  | Engineering robust, fire-retardant advanced composites for electromagnetic interference shielding                        | Insights into metal transport in one-forming processes through molecular simulations  | Novel 2D nanomaterials for thermal management and energy storage                           |                           |
| 14:40-15:00  | Kristoffer Collopy  | Prof. Christopher Ling  | A/Prof. Jiabao Yi (14:45-15:05)  | Dr. Peter Spackman  | A/Prof. Stephen Mogach (14:45-15:05)   |                           |
|  | DNC technology: Nanotechnology master process for the scalable production of advanced materials                       | Structural studies of solid-state ionic conductors at the limits of diffraction and beyond                                    | Development of high magnetization materials by nanoengineering   | An improved intermolecular interaction energy model for the prediction of free energies that determine crystal growth       | The effect of pressure on metal complexes and porous framework materials                   |                           |
| 15:00-15:20  |   | Dr. Tao Wan   | A/Prof. Min Hong (15:05-15:25)   | Prof. Paolo Raiteri   | Dr. Dechao Chen (15:05-15:25)  |                           |
|  |   | Development of robust flexible quasi-solid-state Ag-Zn batteries with long cycle life   | Reinforcing phonon scatterings to enhance zT   | Bridging the gap between atomistic simulations and experimental thermodynamics in geochemical systems                       | Ligand mediated surface engineering of environmentally friendly quantum dots               |                           |
| 15:20-15:40  |   | Dr. Gemeng Liang  | Dr. Sandra Wiedbrauk (15:25-15:45)   | Dr. Isaac Mitchell  | Dr. Jacob Martin (15:25-15:45)   |                           |
|  |   | Developing high-voltage spinel cathodes for high-energy-density lithium-ion batteries   | Shining bright: Diarylethene photoswitches illuminate wearable UV sensors  | Modeling and methods for the characterisation of Olivine/water interfaces for CO <sub>2</sub> sequestration                 | Caveman's quantum computer: Ferromagnetic nanographene synthesis in flames                 |                           |
| 15:40-16:00  |   | Dr. Mengyao Li  | Dr. Liang Wang (15:45-16:05)   | Dr. Nevena Todorova   | Xueqian Sun (15:45-16:05)  |                           |
|  | Room ends early for dinner preparation  | Thermostable 1T MoS <sub>2</sub> by spontaneous intercalation of Cu single atoms and the enhanced water splitting performance | 2D Bismuth-based nanomaterials for catalytic applications  | Graphitic nanoflakes modulate amyloid fibril formation: Effects of size and oxidation                                       | Enhanced interactions of interlayer excitons in free-standing heterobilayers               |                           |
| 16:00-16:30 Afternoon Tea / Networking (Southern Cross Lobby, Esplanade Hotel Fremantle by Rydges)                     |   |   |  |   |  |                           |
| 16:30-18:36 Afternoon parallel sessions 2 (Theme sessions)   |   |   |  |   |  |                           |
| Venue  | Sirius Room   | Pleiades Room   | Admiralty Gulf Room  | King Sound Room   | Prince Regent Room   |                           |
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| 16:30-16:50  |   | Prof. Yasuhiro Tachibana  | Prof. Zhenxiang Cheng  | Prof. Katya Pas (16:30-16:55)   | Group A  |                           |
|  |   | Correlation of charge carrier dynamics with the performance of metal halide perovskite solar cells                            | Tuning of electron configurations in transition metal oxides for higher OER  | Resolving polydopamine structure: when theory guides experiment   | Haritha Kiria  | 16:30-16:39               |
| 16:50-17:10  |   | Dr. Wesley Dose   | Prof. Hu Tong Chua   | A/Prof. Raffaella Demicheli (16:55-17:15)   | Ola Aljanpourtolouti   | 16:39-16:48               |
|  |   | Understanding degradation in lithium-ion batteries  | Production of few-layer graphene and boron nitride nanotubes via lamp ablation   | Modelling the dynamics of molecules with conformational freedom in water: the example of aspartic acid                      | Muhammad Shaharyar   | 16:48-16:57               |
| 17:10-17:30  |   | Dr. Peng Chen   | A/Prof. Yun Wang   | Dr. Charlotte Petersen (17:15-17:35)  | Mingli Tan   | 16:57-17:06               |
|  |   | Phase stabilization strategies for efficient perovskite solar cells   | Affordable double-reference approach for simulating electrified solid/water interfaces                                   | Direct measurement of structural change with amorphous solidification from static speckle scattering                        | Maryam Adavoudi Jolfaei  | 17:06-17:15               |
| 17:30-17:50  |   | Dr. Xiaomin Xu  | Dr. Guoliang Yang  | Dr. Stephen Sanderson (17:35-17:55)   | Group B  |                           |
|  |   | Development of complex oxide materials for CO <sub>2</sub> electrolysis   | Functional nanomaterials for water and energy harvesting   | Simulating molecular flow   | Tiexin Li  | 17:15-17:24               |
| 17:50-18:05  |   | Dr. Faezeh Makhlooghiazad   | Dr. Teng Lu (17:50-18:10)  |   | Shahzad Rezvani-Baboli   | 17:24-17:33               |
|  |   | Physicochemical and electrochemical properties of novel solid-state electrolytes for alkali metal batteries                   | Multiscale structural parameters affecting antiferroelectric ferroelectric phase transition                              |   | Wenzhong Ji  | 17:33-17:42               |
| 18:05-18:20  |   | Dr. Shilin Zhang  |  |   | Sandani Amanda Ekanyake  | 17:42-17:51               |
|  |   | High entropy alloy enables efficient CO <sub>2</sub> redox reactions  |  |   | Ekyu Han   | 17:51-18:00               |
| 18:20-18:35  |   | Dr. Yueqi Kong  |  |   | Group C  |                           |
|  |   | High-capacity organic cathode materials for aluminium-ion batteries   |  |   | Ziheng Feng  | 18:00-18:09               |
|  |   |   |  |   | Leqi Zhao  | 18:09-18:18               |
|  |   |   |  |   | Hang Yin   | 18:18-18:27               |
|  |   |   |  |   | Alvin Jenner Walsinghe   | 18:27-18:36               |
| 19:00-22:00 Conference Banquet (Sirius Room)   |   |   |  |   |  |                           |

| Time: Presentation + Q&A  |   | Plenary Lecture (35+5 min)  | Keynote Lecture (20+5 min)  | Invited Lecture (17+3 min)  | Oral Lecture (13+2min)   | ECR Flash Talk (8+1 min)  |
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| 08:00-08:40 Arrival tea and coffee (Southern Cross Lobby, Esplanade Hotel Fremantle by Rydges)  |   |   |   |   |  |   |
| 08:40-09:20 Prof. Baohua Jia, RMIT University (Sirius Room)<br>Atomaterials for sustainability  |   |   |   |   |  | Chair: A/Prof. Guohua Jia   |
| 09:20-10:00 Prof. Douglas Macfarlane, Monash University (Sirius Room)<br>Ionic materials for electrochemical generation of ammonia as an energy carrier |   |   |   |   |  | Chair: Prof. Yun Liu  |
| 10:00-10:30 Morning Tea / Networking (Southern Cross Lobby, Esplanade Hotel Fremantle by Rydges)  |   |   |   |   |  |   |
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| Theme   | Biomaterials (Dr. Amy Gelmi and Prof. Yuling Wang)  | Energy materials (Dr. Karolina Matuszek and Prof. Antonio Tricoli)  | Materials characterisation techniques and applications (A/Prof. Nick Cox and Prof. Christopher Ling)  | Functional soft materials and flexible devices (Dr. Peter Sherrel and Prof. Prashant Sonar)   | Materials for environment (Dr. Xiaoguang Duan and Dr. Muxina Konarova)   |   |
| 10:30-10:50   | A/Prof. Alf Garcia-Bennett<br>Protein corona mediated biological properties of mesoporous silica particles  | Prof. Antonio Tricoli<br>Engineering Scalable Electrocatalysts for Renewable Hydrogen Production at a Global Scale  | Dr. Lucy Glog<br>Electron microscopy for electrocatalytic materials   | Dr. Bryan Tuten<br>Dynamic chalcogen squares for material and topological control over macromolecules   | Prof. Youhong Tang<br>Multifunctional materials with aggregation-induced emission features   |   |
| 10:50-11:10   | Dr. Haiyan Li<br>Granular hydrogels for promoting tissue regeneration   | Prof. Haolan Xu<br>Interfacial solar evaporation for environmental applications   | A/Prof. Weikong Pang<br>Site-specific doping strategy for better-performance energy materials: A root-cause analysis using neutron and X-ray scattering | Dr. Chien-Chung Shih<br>Stretchable electronics based on single-walled carbon nanotubes   | Dr. Zhaojun Han<br>Electrochemically synthesized H <sub>2</sub> O <sub>2</sub> for environmental applications                        |   |
| 11:10-11:35   | Prof. Chunxia Zhao<br>Bioinspired nanomaterials for drug delivery   | Prof. Zongping Shao<br>Perovskites for electrochemical clean energy and environment   | Prof. Anthony Masters (11:10-11:30)<br>BTEX from kligin using a novel molybdenum carbo-nitride@titanium nitride catalyst                                | Prof. Paul Low<br>Molecular electronics: From fundamentals to materials   | Prof. Shaobin Wang<br>Design of micromotors for environmental applications   |   |
| 11:35-12:00   | A/Prof. Kang Liang<br>Self-propelled biocatalytic nano/microswimmers for cancer diagnosis and therapy   | Dr. Li Wei (11:35-11:55)<br>Curvature-dependent performance of oxidized carbon nanotubes for hydrogen peroxide synthesis  | Dr. Alison Edwards (11:30-11:55)<br>Single-crystal neutron diffraction KOALA2 leads the way!  | Prof. Zhigang Chen<br>Zero-emission thermoelectric power generation and coolers for carbon neutrality   | Dr. Xiaoguang Duan (11:35-11:55)<br>Single atom catalyst for photo-Fenton-like reactions   |   |
| 12:00-13:00 Lunch (Atrium Garden Restaurant, Esplanade Hotel Fremantle by Rydges)   |   |   |   |   |  |   |
| 12:15-12:45 RACI Materials Chemistry Division meeting: How to make our community active, Admiralty Gulf Room  |   |   |   |   |  |   |
| 13:00-15:00 Afternoon parallel sessions 1 (Theme sessions)  |   |   |   |   |  |   |
| Venue   | Sirius Room   | Pleiades Room   | Admiralty Gulf Room   | King Sound Room   | Prince Regent Room   |   |
| Theme   | Biomaterials (Dr. Amy Gelmi and Prof. Yuling Wang)  | Energy materials (Dr. Karolina Matuszek and Prof. Antonio Tricoli)  | Materials characterisation techniques and applications (A/Prof. Nick Cox and Prof. Christopher Ling)  | Functional soft materials and flexible devices (Dr. Peter Sherrel and Prof. Prashant Sonar)   | Materials for environment (Dr. Xiaoguang Duan and Dr. Muxina Konarova)   |   |
| 13:00-13:25   | Prof. Laichang Zhang<br>Corrosion behaviour of titanium alloys fabricated by additive manufacturing   | A/Prof. Dawei Su (13:00-13:20)<br>Precise defect engineering on graphitic carbon nitrides for boosted solar H <sub>2</sub> production   | Dr. Kaye Minkyoung Kang<br>High throughput correlative electrochemistry-microscopy analysis on complex electrolytes                                     | Prof. Lam Yeng Ming (13:00-13:20)<br>Materials strategies for hybrid perovskite devices   | Prof. Hongqi Sun<br>Engineered carbon nitride for energy and environmental catalysis   |   |
| 13:25-13:50   | A/Prof. Sophia Gu<br>Ultrathin nanosheets: sustainable synthesis and biomedical applications  | Assessment of dual-ion batteries with antimony-based and phosphorus-based anodes<br>Dr. Xia Huang (13:40-14:00)<br>Developing high-energy-density and low-cost cathode materials for lithium-ion batteries  | Prof. Rob Atkin<br>Potential dependent dynamics of ionic liquids at graphite electrodes revealed by atomic force microscopy videos                      | Semiconducting polymer nanoparticles: Enabling a new frontier in bioelectronic neural interfacing<br>A/Prof. Jennifer MacLeod (13:40-14:00)<br>Design and characterisation of one-dimensional organic molecular materials | Prof. Michael Stockenhuber<br>Understanding the role of porosity, redox and acid sites in hydrodeoxygenation of biooils              |   |
| 13:50-14:10   | Dr. Aaron Elbourne<br>Behaviour of citrate-capped gold nanoparticles at biomembranes – Atomic insight at supported lipid bilayer and liposome interfaces                        | Dr. Bing Sun (14:00-14:20)<br>Materials design for renewable energy storage systems   | Dr. Neil Robinson<br>Understanding functional porous materials with low-field NMR relaxation  | Dr. Qiang Fu (14:00-14:20)<br>Nanoengineered membrane materials of energy and environmental applications  | A/Prof. Yazhi Liu<br>Atomically dispersed silver-cobalt dual-metal sites synergistically promoting photocatalytic hydrogen evolution |   |
| 14:10-14:30   | Prof. Lisbeth Grondahl<br>Delivery of therapeutic agents using biopolymers  | Dr. Junnan Hao (14:20-14:40)<br>New electrolytes and electrodes for aqueous Zn batteries  | Dr. Pei Lay Yap<br>Towards reliable quality control and standardization of graphene related 2D materials (GR2Ms) by thermogravimetric analysis (TGA)    | Dr. Eleanor Kearns (14:20-14:40)<br>3D printing of metal-organic framework composite materials for electrochemical and direct air capture applications  | Dr. Cameron Shearer<br>Highly efficient wide band gap semiconductors for breakdown of perfluoroalkyl substances                      |   |
| 14:30-14:50   |   | Dr. Yijun Zhong (14:40-15:00)<br>Electrode and interface designs towards better solid-state lithium batteries   | Dr. Ryan Shaw<br>A new superstructure in beam sensitive cathode material revealed by multimodal STEM combining ADF, IDPC and EDX mapping techniques     | Dr. Fatemeh Mokhtari (14:40-15:00)<br>Piezofiber to smart textiles: processing and challenges   | Dr. Wenjie Tian<br>Cobalt-catalyzed biomass conversion to functional carbon-based catalysts for environmental catalysis              |   |
| 15:00-15:30 Afternoon Tea / Networking (Southern Cross Lobby, Esplanade Hotel Fremantle by Rydges)  |   |   |   |   |  |   |
| 15:30-16:51 Afternoon parallel sessions 2 (Theme sessions)  |   |   |   |   |  |   |
| Venue   | Sirius Room   | Pleiades Room   | Admiralty Gulf Room   | King Sound Room   | Prince Regent Room   |   |
| Theme   | Biomaterials (Dr. Amy Gelmi and Prof. Yuling Wang)  | Energy materials (Dr. Karolina Matuszek and Prof. Antonio Tricoli)  | Materials characterisation techniques and applications (A/Prof. Nick Cox and Prof. Christopher Ling)  | Functional soft materials and flexible devices (Dr. Peter Sherrel and Prof. Prashant Sonar)   | ECR Forum (Prof. Yun Liu)  | ECR Forum time  |
| 15:30-15:50   | A/Prof. Daniel Heath<br>Improving biomaterials through the design of polymeric materials that enable control over the type and nano-scale presentation of cell-adhesive ligands | Prof. Prashant Sonar<br>Soft semiconductors for stretchable electronics, light harvesting and sensing   | Prof. Chaoyu Xiang<br>Stable perovskite quantum dots light-emitting diodes with high efficiency   | Prof. Wenxian Li<br>Reduce energy loss in water electrolysis  | Group D<br>Blake Armstrong<br>Chaoyue Zhao<br>Hengyue Xu<br>Jierui Zhang<br>Tanika Duivenvoorden                                     | 15:30-15:39<br>15:39-15:48<br>15:48-15:57<br>15:57-16:06<br>16:06-16:15 |
| 15:50-16:10   | A/Prof. Franca Jones<br>Impact of stereochemistry on the formation of solids contributing to crystal arthritis  | Dr. Jinqiang Zhang (15:50-16:05)<br>Photothermal catalytic technology for solar fuels production<br>Dr. Mariam Ameen (16:05-16:20)<br>Unique liquid metal activation pathways with applications for renewable transportation fuel additives and hydrogen production | Dr. Aditya Rawal<br>Solid-state nuclear magnetic resonance spectroscopy for materials characterization  | A/Prof. Wei Deng<br>Light-triggered liposome system for targeted gene editing   |  |   |
| 16:10-16:30   | Dr. Changkui Fu<br>Antifouling and antibacterial polymers and surfaces  | Dr. Dan Yang (16:20-16:35)<br>Liquid metal catalysts for direct alcohol fuel cells  | Dr. Qinfen Gu<br>Utilizing synchrotron technology for researching energy and environmental materials to shape our future                                | Dr. Rijia Lin<br>Interfacial engineering of glassy metal-organic framework composites   | Group E<br>Tamsyn Lovass<br>Preetham Permude<br>Owen Horoch<br>Jiyun Kim   | 16:15-16:24<br>16:24-16:33<br>16:33-16:42<br>16:42-16:51                |
| 16:30-16:45   | Dr. Mingyu Han<br>Multifunctional interfaces inspired by the self-assembled lubricin  | Identifying a universal activity descriptor and a unifying mechanism concept on perovskite oxides for green hydrogen production   | Dr. Vaishnav Krishnamurthi<br>Fundamentals of liquid metals and alloys  | Dr. Alexander Corletto<br>Wafer-scale fabrication of black phosphorous films for infrared photodetectors  |  |   |
| 17:00-17:30 Closing Ceremony (Sirius Ballroom)  |   |   |   |   |  |   |
| 18:00-22:00 Museum self-guided tour (18:00-18:30) and dinner (18:30-22:00), Western Australian Maritime Museum – Function Centre & Balcony              |   |   |   |   |  |   |



| No.                          | Name                               | Affiliation   | Email                                 | Abstract title  |
|------------------------------|------------------------------------|---|---------------------------------------|---|
| <b>Invited Lectures (UK)</b> |                                    |   |                                       |   |
| F101                         | Prof. Lebra Bernhardt              | The University of Queensland  | l.bernhardt@uq.edu.au                 | Modeling materials at the atomic and molecular level: Application to batteries and supercapacitors  |
| F102                         | Prof. Dimitri Golberg              | Queensland University of Technology   | dimitri.golberg@qut.edu.au            | Boron nitride nanotubes and nanosheets: Synthesis, properties and applications  |
| F103                         | Prof. Baochao Jiang                | RMIT University   | baochao.jiang@rmit.edu.au             | Atomaterials for sustainability   |
| F104                         | Prof. Douglas Macfarlane           | Monash University   | douglas.macfarlane@monash.edu         | ionic materials for electrochemical generation of ammonia as an energy carrier  |
| <b>Keynote Lectures (UK)</b> |                                    |   |                                       |   |
| K101                         | Prof. Rob Atkin                    | The University of Western Australia   | rob.atkin@uwa.edu.au                  | Potential dependent dynamics of ionic liquids at graphite electrodes revealed by atomic force microscope videos   |
| K102                         | Prof. Zheng Chen                   | Queensland University of Technology   | zheng.chen@qut.edu.au                 | Zero emission thermoelectric power generation and coolers for carbon neutrality   |
| K103                         | A/Prof. Chuanmin Chi               | National University of Singapore  | chi@nus.edu.sg                        | Molecular carbons with different topologies and size  |
| K104                         | A/Prof. Sophia Guo                 | University of New South Wales   | s.guo@unsw.edu.au                     | Ultrathin nanosheets: sustainable synthesis and biomedical applications   |
| K105                         | Prof. Alan Haines                  | Monash University   | alan.haines@monash.edu                | Ultrastrong nanomaterials: from atom to additive manufacturing  |
| K106                         | Prof. Francesco Iacopi             | University of Technology Sydney   | francesco.iacopi@uts.edu.au           | Understanding the epitaxial growth of graphene on SiC using a Ni/Cu alloy   |
| K107                         | Dr. Kaye Minkun Tang               | The University of Sydney  | kaye.tang@sydney.edu.au               | High-throughput correlative electrochemistry microscopy analysis on complex electrodes  |
| K108                         | A/Prof. Kang                       | University of New South Wales   | kang@unsw.edu.au                      | Empowered nanoscale micro/nanoinstruments for cancer diagnosis and therapy  |
| K109                         | Prof. Xiaochou Luo                 | The University of Sydney  | xiaochou.luo@sydney.edu.au            | Exploring ferroelectric domains switching behaviours using in situ stressing and biasing transmission electron microscopy                               |
| K110                         | Prof. Paul Low                     | The University of Western Australia   | paul.low@uwa.edu.au                   | Molecular electronics: From fundamentals to materials   |
| K111                         | Prof. Edith Pa                     | RMIT University   | edith.pa@rmit.edu.au                  | Modelling the electrode structure when there are no direct measurements   |
| K112                         | Prof. Zongming Shao                | Curtin University   | zongming.shao@curtin.edu.au           | Perovskites for electrochemical clean energy and environment  |
| K113                         | A/Prof. Neezar Sharma              | University of New South Wales   | neezar.sharma@unsw.edu.au             | Understanding battery materials during function and their thermal response  |
| K114                         | Prof. Sean Smith                   | Australian National University  | sean.smith@anu.edu.au                 | Y80   |
| K115                         | Prof. Michael Stockenhuber         | University of Newcastle   | michael.stockenhuber@newcastle.edu.au | Understanding the role of porosity, redox and acid sites in hydrodeoxygenation of biooil  |
| K116                         | Prof. Hongqi Sun                   | The University of Western Australia   | hongqi.sun@uwa.edu.au                 | Engineered carbon nitride for energy and environmental catalysis  |
| K117                         | Prof. Xiang Tang                   | Australian National University  | xiang.tang@anu.edu.au                 | Hydrogen storage and conversion porous materials for sustainable energy applications  |
| K118                         | Prof. Junjie Wang                  | RMIT University   | junjie.wang@rmit.edu.au               | Two-dimensional materials for next-generation electronics and optoelectronics technologies  |
| K119                         | Prof. Yuliang Wang                 | Macquarie University  | yuliang.wang@mq.edu.au                | Engineering of plasmonic nanomaterials for surface-enhanced raman scattering-based in vitro cancer diagnosis  |
| K120                         | Prof. Wang Wang                    | Swinburne University of Technology  | wang.wang@swinburne.edu.au            | Intelligent design high performance Pd based dyes in solar cell applications  |
| K121                         | Prof. Shaojun Wang                 | University of Adelaide  | shaojun.wang@adelaide.edu.au          | Protein corona mediated biological properties of mesoporous silica particles  |
| K122                         | Prof. Laichang Zhang               | Edith Cowan University  | l.zhang@ecu.edu.au                    | Corrosion behaviour of titanium alloys fabricated by additive manufacturing   |
| K123                         | Prof. Chuntao Zhao                 | The University of Adelaide  | chuntao.zhao@adelaide.edu.au          | Bioinspired nanomaterials for drug delivery   |
| <b>Invited Lectures (AU)</b> |                                    |   |                                       |   |
| I01                          | Dr. Sherif Abdulkader Twafik Abbas | Deakin University   | s.abbas@deakin.edu.au                 | The power of physics-informed machine learning in solving nanoscale challenges  |
| I02                          | Dr. Jan Bao                        | RMIT University   | jan.bao@rmit.edu.au                   | Surface nanotopology-confined engineering of gold nanostructures  |
| I03                          | Dr. Richard Brand                  | IBM Research Service  | richard.brand@ibm.com                 | Materials chemistry - A new VUCA perspective  |
| I04                          | Dr. James Bullock                  | The University of Melbourne   | james.bullock@unimelb.edu.au          | van der Waals materials for infrared (IR) photodetection  |
| I05                          | Prof. Neil Cameron                 | Monash University   | neil.cameron@monash.edu               | Cardiac tissue engineering scaffolds by 3D printing with multilayer polymer composites  |
| I06                          | Dr. Samuel Chen                    | The University of Melbourne   | samuel.chen@unimelb.edu.au            | 1TbD  |
| I07                          | Dr. Dechao Chen                    | Griffith University   | dechao.chen@griffith.edu.au           | Ligand mediated surface engineering of environmentally friendly quantum dots  |
| I08                          | Dr. Peng Chen                      | The University of Queensland  | p.chen@uq.edu.au                      | Phase stabilization strategies for efficient perovskite solar cells   |
| I09                          | Dr. Jiansong Chen                  | The University of Queensland  | jiansong.chen@uq.edu.au               | Understanding degradation in lithium-ion batteries  |
| I10                          | Prof. Jiansong Chen                | University of Wollongong  | chensong_cheng@uow.edu.au             | Tuning of electron configurations in transition metal oxides for higher OER   |
| I11                          | Prof. Deyun Chu                    | University of New South Wales   | d.chu@unsw.edu.au                     | Bio-inspired nanomaterials for energy & information related device applications   |
| I12                          | Prof. Chao Chu                     | The University of Western Australia   | chao.chu@uwa.edu.au                   | Artificial neural networks for environmental applications   |
| I13                          | Dr. Kristoffer Colopy              | Adoxima Pty Ltd   | kristoffer.colopy@adoxima.com         | DNC technology: Nanotechnology master process for the scalable production of advanced materials   |
| I14                          | A/Prof. Torben Dammeke             | RMIT University   | torben.dammeke@rmit.edu.au            | Liquid Metals - A unique class of catalysts for CO2 reduction and H2 synthesis  |
| I15                          | A/Prof. Raffaella Demicheli        | Curtin University   | raffaella.demicheli@curtin.edu.au     | Modelling the dynamics of molecules with conformational freedom in water: The example of aspartic acid  |
| I16                          | A/Prof. Wei Deng                   | University of Technology Sydney   | wei.deng@uts.edu.au                   | Light-regulated liposome system for targeted gene editing   |
| I17                          | Dr. Patrick Doehry                 | The University of Sydney  | patrick.doehry@sydney.edu.au          | Investigations of a 2D Ce(III) system on a highly frustrated triangular lattice   |
| I18                          | Dr. Dong Du                        | University of New South Wales   | dong.du@unsw.edu.au                   | Understanding degradation in lithium-ion batteries  |
| I19                          | Dr. Xiaoguang Duan                 | The University of Adelaide  | xiaoguang.duan@adelaide.edu.au        | Single atom catalyst for photo-fenton-like reactions  |
| I20                          | Dr. Alison Edwards                 | ANSTO   | a.edwards@ansto.gov.au                | Single-crystal neutron diffraction KDM22 leads the way!   |
| I21                          | Dr. James Ellwood                  | RMIT University   | james.ellwood@rmit.edu.au             | Behaviour of surface-capped gold nanoparticles at biomembranes - atomic insight at supported lipid bilayer and liposome interfaces                      |
| I22                          | A/Prof. Jerry Frankcombe           | University of New South Wales   | jerry.frankcombe@unsw.edu.au          | Simulating X-ray photoelectron spectra  |
| I23                          | Dr. Changkui Fu                    | The University of Queensland  | changkui.fu@uq.edu.au                 | Antifouling and anticorrosive polymers and surfaces   |
| I24                          | Dr. Chang Fu                       | University of Technology Sydney   | chang.fu@uts.edu.au                   | Nanoporous membrane materials for energy and environmental applications   |
| I25                          | Prof. Ian Garcia-Bennett           | University of Technology Sydney   | ian.garcia-bennett@uts.edu.au         | Protein corona mediated biological properties of mesoporous silica particles  |
| I26                          | Dr. Lucy Gligo                     | University of Technology Sydney   | lucy.gligo@uts.edu.au                 | Electron microscopy for electrocatalytic materials  |
| I27                          | A/Prof. Andrew Glushchenko         | Australian National University  | andrew.glushchenko@anu.edu.au         | Assessment of dual-ion batteries with antimony-based and phosphorus-based anodes  |
| I28                          | A/Prof. Matthew Green              | University of South Australia   | matthew.green@unisa.edu.au            | Conducting polymer capacitors: Enabling a new frontier in bioelectronics/neural interfacing   |
| I29                          | Prof. Judith Grondahl              | The University of Queensland  | j.grondahl@uq.edu.au                  | Delivery of therapeutic agents using biopolymers  |
| I30                          | Dr. Griffin Guo                    | ANSTO   | griffin.guo@ansto.gov.au              | Utilising synchrotron technology for researching energy and environmental materials to shape our future   |
| I31                          | Dr. Zhaoyan Han                    | University of New South Wales   | zhaoyan.han@unsw.edu.au               | Electrochemically synthesized ZnO for environmental applications  |
| I32                          | Dr. Junnan Hao                     | The University of Adelaide  | junnan.hao@adelaide.edu.au            | New electrolytes and electrodes for aqueous Zn batteries  |
| I33                          | A/Prof. Daniel Heath               | The University of Melbourne   | daniel.heath@unimelb.edu.au           | Improving biomaterials through the design of polymeric materials that enable control over the type and nano-scale presentation of cell-adhesive ligands |
| I34                          | A/Prof. Hong He                    | University of Southern Queensland   | hong.he@usq.edu.au                    | Electrochromic perovskite solar cells   |
| I35                          | Dr. Long He                        | University of New South Wales   | long.he@unsw.edu.au                   | Halide perovskite quantum dot electronics   |
| I36                          | Dr. Xianfan Huang                  | The University of Queensland  | xianfan.huang@uq.edu.au               | Origin and prevention of dendrites in aluminum metal anode containing electrochemical cells   |
| I37                          | Dr. Hai Huang                      | The University of Queensland  | hai.huang@uq.edu.au                   | Developing high-energy-density and low-cost cathode materials for lithium-ion batteries   |
| I38                          | A/Prof. Francis Jiang              | Curtin University   | francis.jiang@curtin.edu.au           | Impact of stereochemistry on the formation of solids contributing to crystal anisotropy   |
| I39                          | A/Prof. Rakesh Joshi               | University of New South Wales   | rakesh.joshi@unsw.edu.au              | Graphene oxide membranes for purification and separation  |
| I40                          | Dr. Heekyoung Kim                  | RMIT University   | heekyoung.kim@rmit.edu.au             | Non-aqueous zinc-ion secondary batteries  |
| I41                          | Dr. Eleanor Kearns                 | The University of Sydney  | eleanor.kearns@sydney.edu.au          | 3D Printing of metal-organic framework composite materials for electrochemical and direct air capture applications                                      |
| I42                          | Dr. Marina Kononova                | The University of Queensland  | m.kononova@uq.edu.au                  | Enabling hydrogen storage and transport: unleashing cost-effective potential through liquid organic hydrogen carriers                                   |
| I43                          | Dr. Xing Meng                      | Queensland Technological University   | xing.meng@qut.edu.au                  | Novel strategies for energy storage in perovskite devices   |
| I44                          | Dr. Guoliang Yang                  | Deakin University   | guoliang.yang@deakin.edu.au           | Functional nanomaterials for water and energy harvesting  |
| I45                          | Dr. Haiyan Li                      | RMIT University   | haiyan.li@rmit.edu.au                 | Granular hydrogels for promoting tissue regeneration  |
| I46                          | Dr. Minmin Li                      | University of New South Wales   | minmin.li@unsw.edu.au                 | Reduced energy loss in water electrolysis   |
| I47                          | Dr. Mengyao Li                     | University of New South Wales   | mengyao.li@unsw.edu.au                | Thermodynamic stability of Cu single atoms and the enhanced water splitting performance   |
| I48                          | Dr. Gemeng Ling                    | The University of Adelaide  | gemeng.ling@adelaide.edu.au           | Developing high-voltage spinel cathodes for high-energy-density lithium-ion batteries   |
| I49                          | Dr. Jiahui Liu                     | The University of Queensland  | jiahui.liu@uq.edu.au                  | Atomic engineering of dual metal-organic framework composites   |
| I50                          | Prof. Christopher Line             | The University of Sydney  | christopher.line@sydney.edu.au        | Structural studies of solid-state ionic conductors at the limits of diffusion and beyond  |
| I51                          | Dr. Zhiyu Wang                     | RMIT University   | zhiyu.wang@rmit.edu.au                | Novel 2D nanomaterials for thermal management and energy storage  |
| I52                          | A/Prof. Hai Liu                    | Monash University   | hai.liu@monash.edu.au                 | Atomically dispersed silver-coated dual-metal sites synergistically promoting photocatalytic hydrogen evolution   |
| I53                          | Dr. Ming Li                        | Australian National University  | ming.li@anu.edu.au                    | Design of structural parameters affecting anticorrosive electrocatalytic performance  |
| I54                          | A/Prof. Jennifer Macleod           | Queensland University of Technology   | jennifer.macleod@qut.edu.au           | Design and characterisation of one-dimensional organic molecular materials  |
| I55                          | Dr. Jianfeng Mao                   | The University of Adelaide  | jianfeng.mao@adelaide.edu.au          | Design of solid electrolyte interphase for emerging aqueous zinc metal batteries  |
| I56                          | Prof. Martin Mastromarino          | Curtin University   | martin.mastromarino@curtin.edu.au     | Carefree quantum computer: Ferromagnetic nanowire synthesis in flames   |
| I57                          | Prof. Anthony Masters              | The University of Sydney  | anthony.masters@sydney.edu.au         | BiTEC from lignin using a novel molybdenum-carbo-nitride@titanium nitride catalyst  |
| I58                          | Dr. Karolina Matczak               | Monash University   | karolina.matczak@monash.edu.au        | Designing thermal storage for industrial applications   |
| I59                          | Dr. Yuhang Mei                     | RMIT University   | yuhang.mei@rmit.edu.au                | SiC: SiC into metal transition in one-formal process through molecule simulations   |
| I60                          | Dr. Isaac Mitchell                 | Curtin University   | isaac.mitchell@curtin.edu.au          | Modeling and methods for the characterisation of porous/water interfaces for CO2 sequestration  |
| I61                          | A/Prof. Stephen Moggin             | The University of Western Australia   | stephen.moggin@uwa.edu.au             | The effect of pressure on metal complexes and organic framework materials   |
| I62                          | Dr. Anshu Mohapatra                | RMIT University   | anshu.mohapatra@rmit.edu.au           | Resilient smart textiles: Processing and challenges   |
| I63                          | Dr. Hieu Nguyen                    | Australian National University  | hieu.nguyen@anu.edu.au                | Characterization and material growth of two-dimensional transition metal dichalcogenides  |
| I64                          | Prof. Alistair Page                | University of Newcastle   | alistair.page@newcastle.edu.au        | What can we learn about CO2 and non-metal growth using computational approaches?  |
| I65                          | A/Prof. Weiqiang Pang              | University of Wollongong  | weiqiang.pang@uow.edu.au              | Resilient quantum computing: Ferromagnetic nanowire synthesis in flames   |
| I66                          | Prof. Adam Perriman                | Australian National University  | adam.perriman@anu.edu.au              | Engineered live and dead materials: From 3D printable emulsion plastics to living bacterial microreactors   |
| I67                          | Dr. Charlotte Petersen             | The University of Melbourne   | charlotte.petersen@unimelb.edu.au     | Direct measurement of structural change with amorphous solidification from static speckle scattering  |
| I68                          | Prof. David Phillips               | Curtin University   | david.phillips@curtin.edu.au          | Linking metal-organic frameworks and experimental thermodynamics in geochemical systems   |
| I69                          | Dr. Aditya Rawal                   | University of New South Wales   | a.rawal@unsw.edu.au                   | Solid-state nuclear magnetic resonance spectroscopy for materials characterisation  |
| I70                          | Dr. Neil Robinson                  | The University of Western Australia   | neil.robinson@uwa.edu.au              | Understanding functional porous materials with low-field NMR relaxation   |
| I71                          | Dr. Andrew Ross                    | The University of Queensland  | andrew.ross@uq.edu.au                 | Modelling molecular flow  |
| I72                          | Dr. Ryan Shaw                      | Thermofisher  | ryan.shaw@thermo.com                  | A new superstructure in beam sensitive cathode material revealed by multimodal STEM combining ADF, IOPC and EDW mapping techniques                      |
| I73                          | Dr. Cameron Shearer                | The University of Adelaide  | cameron.shearer@adelaide.edu.au       | Highly efficient wide band gap semiconductor for breakdown of perfluorinated substances   |
| I74                          | Dr. Sheng Shen                     | RMIT University   | sheng.shen@rmit.edu.au                | Resilient smart textiles: Processing and challenges   |
| I75                          | Dr. Xiaoli Shi                     | Queensland University of Technology   | xiaoli.shi@qut.edu.au                 | Novel solvothermal synthetic designs for Se-based thermoelectric materials  |
| I76                          | Dr. Chen-Chung Shih                | National Yunlin University of Science and Technology                                | shihcc@ylnu.edu.tw                    | Stretchable electronics based on single-walled carbon nanotubes   |
| I77                          | Prof. Jianbin Shiu                 | Queensland University of Technology   | shiu@qut.edu.au                       | Self-assembled structures for dielectric electronics, light harvesting and sensing  |
| I78                          | Prof. Jagan Song                   | University of Southern Queensland   | jagan.song@usq.edu.au                 | Engineering robust, fire-retardant advanced composites for electromagnetic interference shielding   |
| I79                          | Dr. Peter Spackman                 | Curtin University   | peter.spackman@curtin.edu.au          | An improved intermolecular interaction energy model for the prediction of free energies that determine crystal growth                                   |
| I80                          | Prof. Michelle Spencer             | RMIT University   | michelle.spencer@rmit.edu.au          | 2D materials for flexible electronics and optoelectronic detectors  |
| I81                          | A/Prof. Sun Xuegan                 | Australian National University  | sun.xuegan@anu.edu.au                 | Process defect engineering on graphene carbon nitride for boosting solar H2 production  |
| I82                          | Dr. Bing Sun                       | University of Technology Sydney   | bing.sun@uts.edu.au                   | Enhanced interactions of interlayer excitons in free-standing heterobilayers  |
| I83                          | Prof. Yuchang Tang                 | RMIT University   | yuchang.tang@rmit.edu.au              | Materials design for renewable energy storage systems   |
| I84                          | Prof. Yuchang Tang                 | RMIT University   | yuchang.tang@rmit.edu.au              | Correlation of charge carrier dynamics with the performance of metal halide perovskite solar cells  |
| I85                          | Prof. Yuchang Tang                 | RMIT University   | yuchang.tang@rmit.edu.au              | Multifunctional materials with aggregation-induced emission features  |
| I86                          | Dr. Wenjie Tian                    | The University of Adelaide  | wenjie.tian@adelaide.edu.au           | Cobalt-catalyzed biomass conversion to functional carbon-based catalysts for environmental catalysis  |
| I87                          | Prof. Shuang Tian                  | University of New South Wales   | shuang.tian@unsw.edu.au               | Incorporate metal-organic framework catalysts   |
| I88                          | Dr. Naveena Todouva                | RMIT University   | naveena.todouva@rmit.edu.au           | Graphitic nanoflakes modulate amyloid fibril formation: Effects of size and oxidation   |
| I89                          | Prof. Antonio Tricoli              | The University of Sydney  | antonio.tricoli@sydney.edu.au         | Engineering scalable electrocatalysts for renewable hydrogen production at a global scale   |
| I90                          | Dr. Trent Tuten                    | Queensland University of Technology   | trent.tuten@qut.edu.au                | Process defect engineering for material and topological control over macro-molecules  |
| I91                          | Dr. Tao Wan                        | University of New South Wales   | tao.wan@unsw.edu.au                   | Development of robust flexible quasi-solid Ag-Zn batteries with long cycle life   |
| I92                          | A/Prof. Yun Wang                   | Griffith University   | yun.wang@griffith.edu.au              | Affordable double-reference approach for simulating electrified solid/water interfaces  |
| I93                          | Dr. Yuhang Wang                    | Western Sydney University   | yuhang.wang@westernsydney.edu.au      | High performance electrocatalytic materials enabled by low-dimensional nanomaterials  |
| I94                          | Dr. Liang Wang                     | Griffith University   | liang.wang@griffith.edu.au            | 2D bimorph-based nanomaterials for catalytic applications   |
| I95                          | Dr. Li Wei                         | The University of Sydney  | liwei@sydney.edu.au                   | Curvature-dependent performance of oxidized carbon nanotubes for hydrogen peroxide synthesis  |
| I96                          | A/Prof. Joseph Wilmer-Cooper       | The University of Sydney  | joseph.wilmer-cooper@sydney.edu.au    | Controlling halide segregation in mixed halide perovskites  |
| I97                          | Dr. Sandra Xiaoqin Xiang           | Queensland University of Technology   | sandra.xiang@qut.edu.au               | Shining bright: diarylethene photoswitches illuminate wearable UV sensors   |
| I98                          | Prof. Xiaoyun Xiang                | Ningbo Institute of Materials Technology & Engineering, Chinese Academy of Sciences | xiaoyun.xiang@nimte.ac.cn             | Stable perovskite quantum dots light-emitting diodes with high efficiency   |
| I99                          | Prof. Huiyan Xu                    | University of South Australia   | huiyan.xu@unisa.edu.au                | Interfacial solar evaporation for environmental applications  |
| I100                         | Dr. Chaoxin Xu                     | Curtin University   | chaoxin.xu@curtin.edu.au              | Development of complex oxide materials for CO2 electrolysis   |
| I101                         | Dr. Pei-Lay Yap                    | The University of Adelaide  | peilay.yap@adelaide.edu.au            | Towards reliable quality control and standardisation of graphene related 2D materials (GR2Ms) by thermogravimetric analysis (TGA)                       |
| I102                         | A/Prof. Babar Yaqoob               | University of Newcastle   | babar.yaqoob@newcastle.edu.au         | Development of high magnetization materials by nanotechnology   |
| I103                         | A/Prof. Huacheng Zhang             | RMIT University   | huacheng.zhang@rmit.edu.au            | Enhanced gating effects in responsive sub-nanofluidic ion channels  |
| I104                         | Prof. Rongjun Zhang                | The University of Sydney  | rongjun.zhang@sydney.edu.au           | Tuning the microstructure of halide perovskites for better performance and stability  |
| I105                         | Dr. Yijun Zhang                    | Curtin University   | yijun.zhang@curtin.edu.au             | Electrode and interface design towards better solid-state lithium batteries   |
| <b>Invited Lectures (CN)</b> |                                    |   |                                       |   |
| C101                         | Dr. Marwan Ameen                   | RMIT University   | marwan.ameen@rmit.edu.au              | Unique liquid metal activation pathways with applications for renewable transportation fuel additives and hydrogen production                           |
| C102                         | Dr. Alexander Corinto              | The University of Melbourne   | alexander.corinto@unimelb.edu.au      | Water-scale fabrication of black phosphorus films for infrared photodetectors   |
| C103                         | Dr. Guo Guan                       | Curtin University   | guo.guan@curtin.edu.au                | Designing a universal active descriptor and a unified mechanism concept on perovskites oxides for green hydrogen production                             |
| C104                         | Dr. Mingyu Han                     | CSIRO   | mingyu.han@csiro.au                   | Multifunctional interfaces inspired by the self-assembled bilayers  |
| C105                         | Dr. Yuesi Han                      | The University of Queensland  | yuesi.han@uq.edu.au                   | High-capacity organic cathode materials for aluminium-ion batteries   |
| C106                         | Dr. Yuchuan He                     | RMIT University   | yuchuan.he@rmit.edu.au                | Fundamentals of acid metals and alloys  |
| C107                         | Dr. Ferehteh Makhlooghiazad        | Deakin University   | f.makhlooghiazad@deakin.edu.au        | Physicochemical and electrochemical properties of novel solid-state electrolytes for alkali metal batteries   |
| C108                         | Dr. Dan Yang                       | RMIT University   | dan.yang@rmit.edu.au                  | Liquid metal catalysts for direct alcohol fuel cells  |
| C109                         | Dr. Shihua Zhang                   | The University of Adelaide  | shihua.zhang@adelaide.edu.au          | High entropy alloy enables efficient CO2 redox reactions  |
| C110                         | Dr. Jianming Zhang                 | The University of Adelaide  | jianming.zhang@adelaide.edu.au        | Photothermal catalytic technology for solar fuels production  |
| <b>ECR Flash talk (EFT)</b>  |                                    |   |                                       |   |
| EFT01                        | Marqam Adawood Kollati             | University of Wollongong  | marqam@uowmail.edu.au                 | Superfast large-size hydrogen activation  |
| EFT02                        | Dr. Olla Alilanzourlou             | Murdoch University  | olla.alilanzourlou@murdoch.edu.au     | Synthesis of mesoporous silica nanomaterials with specific features for drug delivery in brain disorders  |
| EFT03                        | Sandrine Amenda Enayaké            | RMIT University   | sandrine.amenda@rmit.edu.au           | Synthesis of Magnesi phase titanium anodes and their role as efficient photothermal materials in solar steam generation                                 |
| EFT04                        | Dr. Amrota Arora                   | Curtin University   | amrota.arora@curtin.edu.au            | Stable amorphous electrocatalysts for multi-scale reactive desulfurization using emulsion based theory  |
| EFT05                        | Tanika Dauvervoorden               | The University of Queensland  | tanika.dauvervoorden@uq.edu.au        | Calculating ionic conductivity of electrolytes for magnesium batteries  |
| EFT06                        | Zhenfeng Feng                      | University of New South Wales   | zhenfeng.feng@unsw.edu.au             | A self-rechargeable moist electric generator with diverse applicable conditions   |
| EFT07                        | Dr. Han Han                        | The University of Queensland  | han.han@uq.edu.au                     | High performance indoor perovskite solar cells via self-suppression of intrinsic defects via DMF-free solvent engineering                               |
| EFT08                        | Owen Horath                        | Murdoch University  | owen.horath@murdoch.edu.au            | Functionalised silica nanoparticles for agriculture   |
| EFT09                        | Alvin Jenner Walshgate             | Curtin University   | a.walshgate@curtin.edu.au             | Crystal shape and topography: Prediction and optimisation with the CrystalGrowth model  |
| EFT10                        | Wenrong Jiang                      | Australian National University  | wenrong.jiang@anu.edu.au              | Electrostatic effect of the BiTeCl3 films integrated on silicon   |
| EFT11                        | Dr. Jun Kim                        | University of New South Wales   | jun.kim@unsw.edu.au                   | High performance all-inorganic perovskite nanocrystals based NO2 gas sensor   |
| EFT12                        | Heather Kim                        | Murdoch University  | heather.kim@murdoch.edu.au            | A novel perovskite targeted photodynamic therapy for triple negative breast cancer  |
| EFT13                        | Curtin University                  | Curtin University   | curtin@curtin.edu.au                  | Corrosion inhibition through protected silicon from oxidation   |
| EFT14                        | Tamara Lovas                       | Australian National University  | tamara.lovass@anu.edu.au              | The synthesis, structure and properties of ferroelectric, lead-based perovskite materials   |
| EFT15                        | Preecham Permudde                  | Australian National University  | preecham.permudde@anu.edu.au          | Noble metal free transition metal oxide for hydrogenation of N-ethylcarbazole in hydrogen storage application   |
| EFT16                        | Shahzad Shahzad                    | Monash University   | shahzad.shahzad@monash.edu.au         | Cobalt-free organic-inorganic hybrid perovskites with controlled optical properties for biological applications   |
| EFT17                        | Muhammad Shuhairi                  | Deakin University   | muhammad.shuhairi@deakin.edu.au       | Development of new organic ionic plastic crystal based membranes for CO2 separation   |
| EFT18                        | Mingqi Tan                         | Australian National University  | mingqi.tan@anu.edu.au                 | Material properties and tunability of vinylidene block copolymer systems  |
| EFT19                        | Dr. Yuhang Tang                    | University of Wollongong  | yuhang.tang@uow.edu.au                | High performance electrocatalytic materials for multi-scale reactive desulfurization using emulsion based theory  |
| EFT20                        | Dr. Hang Yin                       | Australian National University  | hang.yin@anu.edu.au                   | Defect engineering enhances plasmonic hot electron excitation for CO2 reduction over polymeric catalyst   |
| EFT21                        | Dr. Rencun Zhang                   | University of New South Wales   | rencun.zhang@unsw.edu.au              | Water harvesting using the LO-66 metal-organic framework: Unravelling the role of functionalization and defects using computational tools               |
| EFT22                        | Dr. Jie Zhang                      | Curtin University   | jie.zhang@curtin.edu.au               | Enhanced high-temperature cycling stability of garnet-based solid-state lithium-ion batteries by Bi-functional cathode electrolyte interface            |
| EFT23                        | Dr. Zhaoyue Zhao                   | Deakin University   | zhaoyue.zhao@deakin.edu.au            | Predicting ion transport through structurally complex graphene oxide structures   |