

# ISGTCO<sub>2</sub>

International Symposium on  
Green Transformation of Carbon Dioxide  
29 Nov - 1 Dec 2023 | Brisbane, Australia

## Cooperating on a global opportunity



HOSTED BY

# GETCO<sub>2</sub>



SYMPOSIUM PROGRAM  
29 NOV - 1 DEC 2023

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# Welcome

## From the Conference Chairs

It is our great pleasure to welcome you to the International Symposium on Green Transformation of Carbon Dioxide (ISGTCO2), hosted by the Australian Research Council Centre of Excellence for Green Electrochemical Transformation of Carbon Dioxide (GETCO2).

We are gathered in Meanjin (Brisbane) and would like to acknowledge the traditional owners of the land, the Turrbal and Jagera peoples, and pay our respects to their elders, past, present and emerging.

ISGTCO2 is a unique platform for sharing and advancing the latest research and innovation in CO2 conversion technologies. The Symposium marks the beginning of GETCO2's work where we will discover newer and smarter ways to convert CO2 into valuable chemicals and fuels, catalysing a green manufacturing and export revolution and paving the smartest and cleanest path to net zero.

We believe that this Symposium provides a fantastic opportunity to exchange new findings and progress in CO2 conversion technologies, stimulate collaborations, and grow networks among specialists and researchers in this rapidly evolving field.

We would like to express our sincere gratitude to our sponsors and partners for their generous support and contribution to the success of this Symposium.

On behalf of the Organising Committee, we extend our warmest welcome to all of you and look forward to an engaging and inspiring ISGTCO2.

### Co-Chairs

Professor Xiwang Zhang

Professor Rachel Caruso



### Professor Xiwang Zhang

Director of ARC Centre of Excellence for Green Electrochemical Transformation of Carbon Dioxide (GETCO2)

Endowed Dow Chair in Sustainable Engineering Innovation, The University of Queensland



### Professor Rachel Caruso

Deputy Director of ARC Centre of Excellence for Green Electrochemical Transformation of Carbon Dioxide (GETCO2)

Professor of Applied Chemistry & Environmental Science, RMIT University

# Organising Committee



**Prof. Xiwang Zhang**  
Co-Chair  
The University of Queensland



**Prof. Rachel Caruso**  
Co-Chair  
RMIT University



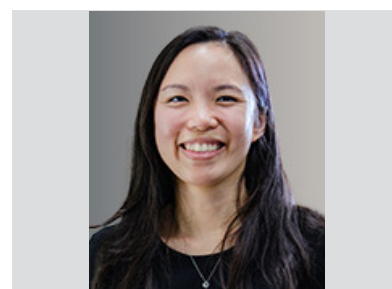
**Dr. Eloise Larsen**  
Symposium Secretary  
The University of Queensland



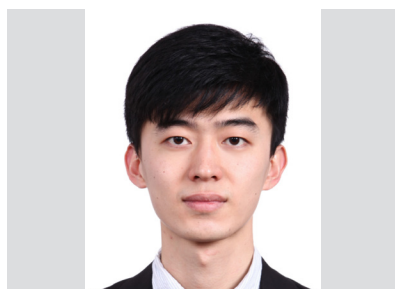
**A/Prof. Tom Rufford**  
The University of Queensland



**Ms. Anna Knudsen**  
The University of Queensland



**Ms. Emilyn Tan**  
The University of Queensland



**Dr. Chao Xing**  
The University of Queensland



**Ms. Catherine Johnson**  
The University of Queensland

# Important Information

## General Information

### Symposium Registration Desk

Registration Desk Opening hours:

- Tuesday 28 November 4:30-6:00pm
- Wednesday 29 November 8:00am onwards
- Thursday 30 November 8:30am onwards
- Friday 1 December 8:30am onwards

### Photography during technical sessions

Presentations will be uploaded to the website if approved by the presenter. Please refrain from taking photographs of the presentations unless approval has been granted.

### Catering

Morning Tea, Lunch, and Afternoon Tea will be provided each day (included in the registration). Morning Tea and Afternoon Tea will be served in the pre-function area on level 1. Lunches will be served in the Courtyard.

All catering will be served buffet style. If you have special dietary requirements or allergies please check the dietary table for your food.

Fresco's Restaurant at Hotel Grand Chancellor is open for breakfast from 6:30am and dinner from 6:00pm (booking is recommended). For other dining options we recommend a visit to Eagle Street Pier on the Brisbane River (15 min walk from Hotel Grand Chancellor).

### Admittance & Name Badges

Delegates are required to wear name badges throughout the conference and these can be collected from the Symposium Registration Desk, in the pre-function room on level 1 entry, upon arrival at the venue. Name badges must be worn at all times to gain entry to sessions and social functions, including Gala Dinner. For security pur-

poses, the conference organizers reserve the right to ask venue security to escort from the venue any persons not wearing an official conference name badge.

### Certificates of Attendance

A certificate of attendance will be provided on request. Please contact the staff at the registration desk.

### Transport

Taxis: Can be hailed or booked by calling 131 008. They can also be arranged from the hotel, please visit the concierge desk.

Uber: Uber operates in Brisbane and can be booked via the Uber app or website: [www.uber.com](http://www.uber.com)

### Dress Code

The dress for the conference is smart casual. Speakers are asked to wear smart casual for their presentation.

### Smoking

Smoking is not permitted anywhere within the Hotel Grand Chancellor building. In addition, smoking is not permitted within five metres of any building entry or door and is not permitted at any external catering area. No smoking within 5 metres of public transport waiting points such as bus stops, taxi ranks, and ferry terminals.

### Electricity

The electrical supply in Australia is 240 Volts, 50 Hz. The connection for appliances is a flat 3-pin plug of unique design.

## Information for Presenters

### Speaker instructions

#### Presentations

All presenters should upload their PPT file (Microsoft PowerPoint\* (\*.ppt) or (\*.pptx)) to the computer in the presentation room at least 20 min before your session starts, during the breaks. You may also upload your presentation on registration. The venue will not allow presenters to use their own laptops. Please prepare your presentation in 16:9 format.

Poster presentations have been upgraded to oral presentations due to popular demand.

#### Duration

- *Plenary speakers* have a total of 40 mins, which includes presentation and Q&A.
- *Keynote, Invited and Submitted speakers* have a total of 20 mins, which includes presentation and Q&A. We suggest allocating 15 min to your presentation and 5 mins for discussion.
- *Student speakers* have a total of 10 mins, which includes presentation and Q&A. We suggest allocating 7 min to your presentation and 3 mins for discussion.

Please be respectful of other presenters and complete your talk within the time allocation.

### Symposium Awards

#### Best Presentation Award

- proudly sponsored by Shimadzu Australasia

#### PerkinElmer Outstanding Young Researcher Award

- proudly sponsored by PerkinElmer

#### Two Best Student Presentation Awards

- proudly sponsored by Elsevier Materials Today Chemistry Journal

#### Advanced Sustainable Systems Advanced Energy & Sustainability Research Outstanding Young Researcher Award

- awarded by Wiley

**We announce the ISGTCO2 Award winners on Friday 1 Dec at the closing ceremony at Hotel Grand Chancellor.**

## Conference Wifi Information

Username: HGCB\_CONF1

Password: banquets

## Venue details

Hotel Grand Chancellor Brisbane is adjacent the beautiful Roma St. Parklands in Brisbane.

The hotel takes exceptional pride in offering the best accommodation at our Wickham Terrace Brisbane hotel. Should you have any questions or comments before, during or after your visit, please contact us, and a member of our staff will be happy to assist you.

### Address:

23 Leichhardt St (Cnr Wickham Terrace)

Brisbane, Queensland, 4000, Australia

Phone: +61 (7) 3831 4055

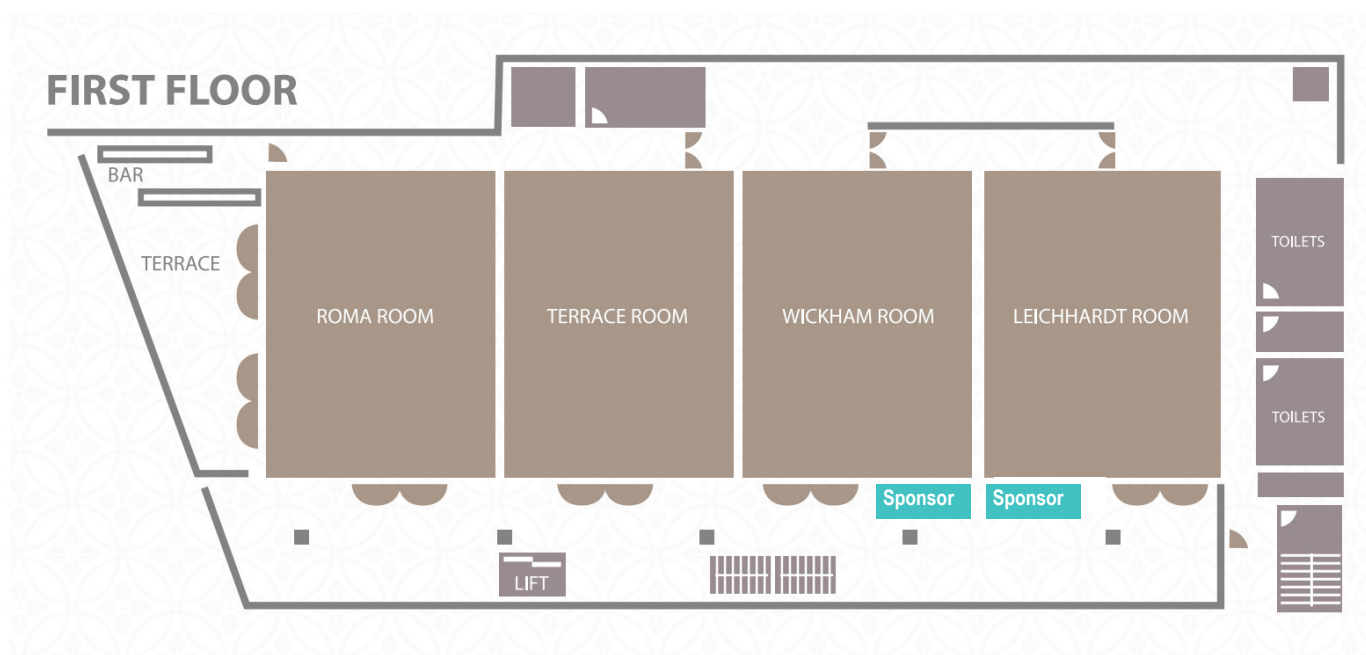
Facsimile: +61 (7) 3831 5031

Email: [reservations@hgcb Brisbane.com.au](mailto:reservations@hgcb Brisbane.com.au)

We invite you to take advantage of a wide range of facilities and services designed to enhance your stay in Brisbane.

- Complimentary Wi-Fi access for hotel guests - 2GB per day
- 24-hour reception desk
- 24-hour room service
- All rooms non smoking
- Dry cleaning/laundry service (charges apply)
- Guest laundry facility (charges apply)
- Hotel airport/city transport booking facility
- Airport Shuttle booking service
- Air Train Tickets available for purchase
- Tesla Destination Charging facilities
- Secure, on-site car parking available
- Hotel Guest \$30 per day (7 days per week)
- Conference Guest \$20 per day

## Room Layout





## Biologic VSP3e



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#### Electrochemical Workstation

- \* 1AMP per channel
- \* +/- 10V Control Adjustable
- \* +/- 12V Compliance
- \* CE-Gnd Capability
- \* Multi working Electrode with Common Reference and Counter electrodes
- \* 20nA lowest measurable current

#### USB and Ethernet Control

- \* Configurable 1 to 8 channels
- \* ECLAB Software Included
- \* Open License for multiple installs
- \* NO Dongles or extra for techniques

#### Disclaimer

In the event of unforeseen circumstances, the organisers do not accept responsibility for loss of monies incurred by delay in the program. The program is correct at the time of publishing and may change. The organisers accept no liability for any speakers' published material or presentations at the conference. In the event of industrial disruptions of service provider failures, neither the ARC Centre of Excellence of Green Electrochemical Transformation of Carbon Dioxide (GETCO2) or The University of Queensland accept any responsibility for losses incurred by delegates and partners. The conference organisers and the Organising Committee will not be responsible for registrations and/or abstract submissions not received. It will be the submitter's responsibility to ensure that official confirmation of registration/abstract submission is received and that instructions have been followed from the conference organisers.

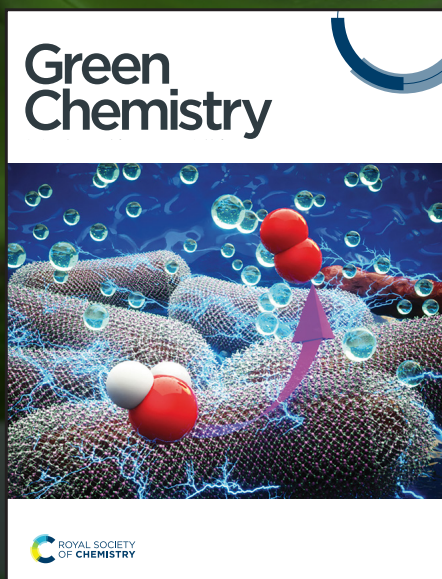
#### Conference contacts

**Eloise Larsen (Conference Secretary):**  
**+61 409 588 610**  
**isgtco2@uq.edu.au**

**In the event of a medical emergency  
 please dial 000**

Our organising committee and volunteers will be on hand to assist you and answer any questions (identifiable by blue 'staff' lanyards).

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[rsc.li/catalysis-journals](https://rsc.li/catalysis-journals)

# About GETCO<sub>2</sub>

The ARC Centre of Excellence for Green Electrochemical Transformation of Carbon Dioxide aims to advance carbon dioxide electrochemistry innovations to enable the conversion of carbon dioxide into valuable products and transition Australia to a carbon-neutral economy.

GETCO<sub>2</sub> expects to generate new knowledge using experimental and computational approaches to develop systems-level understanding to furnish industry-ready carbon dioxide utilisation technologies.

Expected outcomes include enhanced capacity through collaborations establishing the Centre as an international hub for research, training, technology translation and strategic advice for stakeholders and policymakers. This should accelerate Australia's progress towards net zero emissions targets and grow a sustainable economy and create future jobs.

Funding: \$45 million over 7 years

Centre Director: Prof Xiwang Zhang | The University of Queensland

Centre Deputy Director: Prof. Rachel Caruso | RMIT University

Administering Organisation: The University of Queensland

## Our partners



# GETCO<sub>2</sub>

Turning a crisis into an opportunity

# Plenary Speakers

## Prof. Robin Batterham

**The University of Melbourne, Australia**



Professor Robin Batterham joined the Melbourne School of Engineering as Kernot Professor in the Department of Chemical and Biomolecular Engineering in 2010. He has wide interests including reducing emissions through soil sequestration, application of mesoscience to mining, dewatering of tailings and elimination of tailings through in place leaching.

He is past President of the Academy of Technology and Engineering (2007-2012), former Chief Scientist of Australia (1999-2005) and for over 20 years Global Head of Innovation (and other positions) in Rio Tinto. He has twice chaired the International Mineral Processing Congress, Chairs the selection panels for both the Australia India Strategic Research Fund and the Australia China Strategic Research Fund and chaired the International Energy Agency Expert Group on Science for Energy.

## Prof. Alexis T. Bell

**Berkeley University of California, USA**



Dr. Bell is currently Professor Emeritus in the Department of Chemical and Biomolecular Engineering at the University of California, Berkeley and is an Affiliate at the Lawrence Berkeley National Laboratory. He received his B.S. and Ph.D. degrees in chemical engineering from the Massachusetts Institute of Technology. His research specialty is catalysis and chemical reaction engineering with an emphasis on understanding the fundamental relationships between catalyst structure and composition and catalyst activity and selectivity. The objectives of his program are pursued through a combination of experimental and theoretical methods, enabling the attainment of a deeper understanding of the core issues of interest than can be achieved by using either approach alone. Dr. Bell has published nearly 800 papers with numerous national and international recognition. Dr. Bell is a member of the National Acad-

emy of Sciences, the National Academy of Engineering, a Fellow of the American Association for the Advancement of Science, a member of the American Academy of Arts and Sciences, and a foreign member of the Russian Academy of Sciences.

## Prof. Debra Bernhardt

**The University of Queensland, Australia**



Debra Bernhardt is an ARC Australian Laureate Fellow in the Australian Institute for Bioengineering and Nanotechnology (AIBN) and School of Chemistry and Molecular Biosciences (SCMB) at The University of Queensland.

Her research program focuses on theoretical and computational approaches to develop a fundamental understanding of the behaviour of matter. She applies these approaches to a wide range of problems, particularly transport in nanoscale systems, nonequilibrium flow, design of materials, energy storage and conversion. She is a Fellow of the Royal Australian Chemical Institute and Fellow of the Australian Academy of Sciences. Debra publishes as Debra J. Searles

## Prof. Sir Anthony Cheetham

University of California, Santa Barbara



Professor Sir Tony Cheetham is a Research Professor at the University of California, Santa Barbara, and a Distinguished Visiting Professor at the National University of Singapore. He was formerly the Goldsmiths' Professor of Materials Science at the University of Cambridge (2007-2017) and the Treasurer and Vice-President of the Royal Society (2012-2017). He obtained his D.Phil. at Oxford in 1972 and did post-doctoral work in the Materials Physics Division at Harwell. He joined the Chemistry faculty at Oxford in 1974, and then moved to UC Santa Barbara in 1991 to become Professor in the Materials Department. From 1992-2004 he was the Director of UCSB's Materials Research Laboratory. In January 2020 he was knighted by the Queen for Services to Materials Chemistry, UK Science and Global Outreach, and received the Sheikh Saud International Prize for Materials Science in 2022.

## Dr. Mark Jacobs

Queensland Government, Department of Environment and Science, Australia



Mark Jacobs is the Deputy Director-General, Science and Technology at the Department of Environment and Science.

He leads the provision of scientific and technical advice and services to government agencies on environmental, natural resource and climate matters. This advice underpins agency decision-making and legislative responsibilities. He provides oversight of the department's digital capability and ensures digital insights are harnessed to improve organisational performance. Mark is responsible for managing investment in science sector development, which is delivered in close collaboration with the Queensland Chief Scientist.

## Prof. Feng Jiao

Washington University in St. Louis, USA

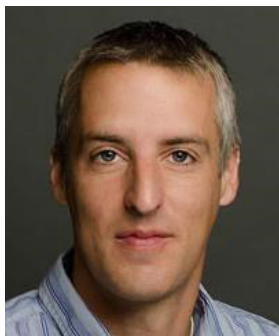


Professor Feng Jiao holds a BSc in Chemistry from Fudan University in China and a PhD in Chemistry from the University of St Andrews in the United Kingdom. Following the completion of his postdoctoral training at the Lawrence Berkeley National Laboratory, he joined the faculty at the University of Delaware in 2010. Then, he was promoted to full professor in 2021 and served as the Director of the Center for Catalytic Science & Technology. In August 2023, Professor Jiao joined the Department of Energy, Environmental & Chemical Engineering at Washington University in St. Louis as the Elvera and William R. Stuckenberg Professor. He also serves as the founding director of the Center for Carbon Management. The Jiao research group is developing innovative electrochemical devices to address critical energy and sustainability challenges.

Professor Jiao has published over 100 research papers, which have collectively received more than 17,000 citations. His contributions have been recognized with several awards and honors, including his election as a Fellow of the Royal Society of Chemistry, the receipt of the NSF CAREER Award, and recognitions as a 2020 Emerging Investigator by the Journal of Materials Chemistry A and a 2020 Scialog Fellow for the Negative Emission Science (NES) initiative.

## Prof. Graeme Henkelman

**The University of Texas at Austin, USA**



Graeme Henkelman is a professor of chemistry at the University of Texas at Austin. He did his undergraduate work in physics at Queen's University in Canada, a PhD in chemistry at the University of Washington in 2001, and a postdoc at Los Alamos National Lab before starting at UT in 2004. His research group has focused on computational methods for modeling reaction dynamics over experimental time scales. These methods are applied to the challenge of developing new materials for energy applications including catalysts and batteries.

## Prof. Sandra Kentish

**The University of Melbourne, Australia**



Professor Sandra Kentish is a Redmond Barry Distinguished Professor at The University of Melbourne. She is a Project Leader within the ARC Hub for Digital Bioprocess Development, the Dairy Innovation Research Hub and within the Future Fuels CRC. She is a member of the Science, Health and Engineering Advisory Committee for EPA Victoria and a Board Member of the Bionics Institute. She was Head of the School of Chemical and Biomedical Engineering (2017-2022), Head of the Department of Chemical Engineering (2012-17) and the Discipline Leader in the CRC for Greenhouse Gas Technologies (CO2CRC) for Membrane Technology from 2003-2015.

She was selected as one of Australia's Most Innovative Engineers by Engineers Australia in 2017 and as a Woman of Influence by the Australian Financial Review in 2018. She was elected to the Australian Academy of Technology and Engineering (ATSE) in 2019.

## Prof. Shizhang Qiao

**The University of Adelaide, Australia**



Dr Shizhang Qiao is a Chair Professor at the School of Chemical Engineering and the founding Director of the Center for Materials in Energy and Catalysis (CMEC) at the University of Adelaide (UoA), Australia. His research expertise lies in nanostructured materials for electrocatalysis, photocatalysis, batteries, and other new energy technologies. He has co-authored 520 papers in refereed journals with 116,880 citation times, resulting in an h-index of 175. In recognition of his research achievements, Dr. Qiao has been awarded several prestigious awards, including inaugural ARC Industry Laureate Fellow (2023), the South Australian Scientist of the Year (2021), ARC Australian Laureate Fellow (2017), ExxonMobil Award (2016), and ARC Discovery Outstanding Researcher Award (DORA, 2013) among others. He is an elected Fellow of Australian Academy of Science (FAA), a Fellow of the International Institute

of Chemical Engineers (FIChemE), the Royal Chemical Society (FRSC), and the Royal Australian Chemical Institute (FRACI CChem). Dr. Qiao is the Editor-in-Chief of EES Catalysis (RSC) and also recognized as a Clarivate Analytics Highly Cited Researcher (over 124 current ESI Top 1% highly cited papers) in three categories (Chemistry, Materials Science, Environment and Ecology).

## Prof. Jennifer Wilcox

The University of Pennsylvania, USA



Jennifer Wilcox is the Presidential Distinguished Professor of Chemical Engineering and Energy Policy at the University of Pennsylvania and is currently on leave to serve as the Principal Deputy Assistant Secretary for the Office of Fossil Energy and Carbon Management at the Department of Energy. At Penn, she oversees the Clean Energy Conversions Lab. She was previously the James H. Manning Chaired Professor of Chemical Engineering at Worcester Polytechnic Institute. Having grown up in rural Maine, Wilcox has a profound respect and appreciation of nature, which permeates her work as she focuses on minimizing negative impacts of humankind on our natural environment. Wilcox's research takes aim at the nexus of energy and the environment, developing both mitigation and adaptation strategies to minimize negative climate impacts associated with society's dependence on

fossil fuels. This work carefully examines the role of carbon management and opportunities therein that could assist in preventing 2° C warming by 2100. Carbon management includes a mix of technologies spanning from the direct removal of carbon dioxide from the atmosphere to its capture from industrial, utility-scale exhaust streams, followed by utilization or reliable storage of carbon dioxide on a timescale and magnitude that will have a positive impact on our current climate change crisis. She has served on a number of committees including the National Academy of Sciences and the American Physical Society to assess carbon capture methods and impacts on climate. She is currently a member of the Energy & Environmental Science Journal Editorial Board. She is the author of the first textbook on carbon capture and, most recently, the CDR Primer.

## Prof. Huijun Zhao

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 the Australian Academy of Technological Sciences & Engineering (FTSE), Fellow of Royal Society of Chemistry (FRSC) and Fellow of the Royal Australian Chemical Institute (FRACI).

He has extensive expertise in functional materials, energy conversion/storage, catalysis and sensing technologies, and 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.

# Session Chairs

## Prof. Adam Lee

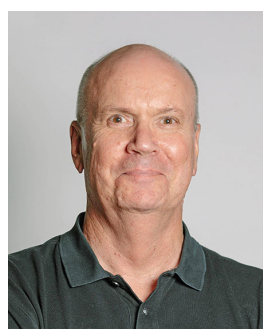
The University of Queensland, Australia



Adam is Professor of Sustainable Chemistry at Griffith University, Distinguished Visiting Professor at Zhengzhou and Nanjing Forestry Universities, and a Professorial Visiting Scientist at the Commonwealth Scientific and Industrial Research Organisation (CSIRO). He has previously held Chair appointments at Cardiff, Warwick, Monash, Aston and RMIT Universities. Adam's research addresses the rational design of nanoengineered materials for energy, environmental and health applications. He is a Fellow of the Royal Society of Chemistry and Royal Australian Chemical Institute, Associate Fellow of the IChemE, Editor-in-Chief of Materials Today Chemistry, and recipient of the 2011 McBain Medal of the Royal Society of Chemistry and SCI, and 2012 Beilby Medal and Prize of the Royal Society of Chemistry, IOM3, and SCI.

## Prof. Andrew Whittaker

The University of Queensland, Australia



Professor Andrew Whittaker is Deputy Director Research, Senior Group Leader and founder member of the Australian Institute for Bioengineering and Nanotechnology (AIBN). He directs research funded through more than \$61.3 million in competitive grants since 2000 and \$39.7M since 2010. Professor Whittaker's work in synthesis and characterisation of polymeric materials has underpinned major development programs in several key areas.

His work in the field of materials for photolithography has been supported by funding from leading semiconductor companies Intel, Sematech, Dow Chemical Company and DuPont. Outcomes include novel high-index resists for 193 nm immersion lithography, new concepts for design of non-chemically amplified resists for EUV lithography, novel approaches to healing roughness in

IC features and block copolymer self-assembly.

## Prof. Christian Doonan

The University of Adelaide, Australia



My Research is focused on the development of new porous materials for application to broad range of areas including biotechnology, gas storage and separation and catalysis. Over the course of my career I have been involved in over 20 large scale multidisciplinary projects which have received in excess of \$42M in funding from research and industry bodies including (the erstwhile) Defence Science and Technology Organisation (DSTO), Australian Research Council, US Department of Energy. I am currently a South Australian State Government Future Making Industry Fellow at the Institute for Sustainability, Energy and Resources, and Research Director of the Scaling Green Hydrogen CRC bid which aims to become the largest single initiative in the country focused on supporting the vital scaling up of the Australian green hydrogen sector.

## Prof. Chuan Zhao

The University of New South Wales, Australia



Chuan Zhao is a Professor at the School of Chemistry at the University of New South Wales (UNSW), and the head of UNSW Nanoelectrochemistry Lab of ~30 researchers. He is also a Professorial Future Fellowship from Australian Research Council. He currently is the Chair of the Royal Australian Chemical Institute (RACI) Electrochemistry Division, and elected the Fellow of Royal Society of Chemistry (FRSC), Fellow of RACI (FRACI) and Fellow of Royal Society of New South Wales (FRSN). Prof Zhao received his PhD in 2002 with an excellence award from Northwest University, then completed postdoctoral research at University of Oldenburg and Monash University. He started his independent research career as a Lecturer at UNSW in Oct 2010, and was promoted to full Professor in 2017.

## Prof. Darren Martin

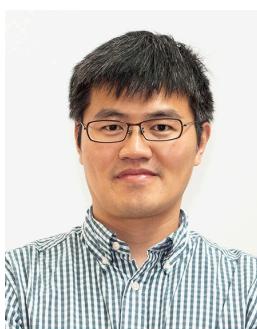
The University of Queensland, Australia



A Translational Materials Scientist and Intensive Connector, Darren's work sits at the nexus of three key themes of strong fundamental materials science, safe biomaterials and nanomaterials and scalable advanced manufacturing. Darren has always had a strong passion for translation, as evidenced by the following four major research translation outputs, which share the capacity of advanced materials to enable impacts in health, sustainability, and social empowerment.

## Prof. Fengwang Li

The University of Sydney, Australia



Dr Fengwang Li is a Lecturer with the School of Chemical and Biomolecular Engineering at the University of Sydney, where he joined in April 2020. His research aims for a "greener", carbon-neutral future relying on electrochemical energy. Dr Li completed his bachelor's and master's degrees in chemistry at Renmin University of China. He gained his PhD in Chemistry in 2017 from Monash University where his doctoral thesis, on the use of atomically thin materials for electrochemical carbon dioxide catalysis, was awarded the university's Mollie Holman Medal for best PhD thesis. He then moved to Canada to complete postdoctoral research at the University of Toronto, where he focused on developing catalysts and systems for the conversion of carbon dioxide to value added fuels and chemicals.

## Prof. Jie Zhang

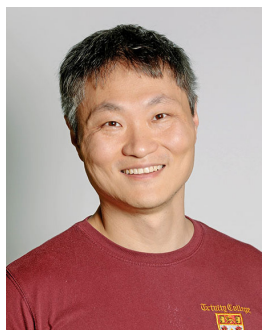
Monash University, Australia



Dr Jie Zhang is currently an associate professor in the School of Chemistry. He is an established electrochemist who has developed a solid background in both the experimental and theoretical aspects of electrochemistry during his research career. His research has led to broad experience in other areas, such as biomedical engineering, materials engineering, and nanotechnology. With published 6 book chapters, over 240 refereed journal articles and 7 international patents, his work has received more than 10,600 citations with an H index of 54 according to Google Scholar.

## Dr. Jingwei Hou

The University of Queensland, Australia



Dr. Jingwei Hou received his Ph.D. in Chemical Engineering from the University of New South Wales in 2015. He then joined the UNESCO Centre for Membrane Science and Technology (2015-2017) and University of Cambridge (2017-2019, affiliate of the Trinity College) for this post-doctoral research. In 2019, he returned Australia as an ARC DECRA Fellow at the School of Chemical Engineering, University of Queensland. In 2021, he was named the ARC Future Fellow. He is currently a Senior Lecturer and group leader of the Functional Materials Engineering (fme) Lab.

## Prof. John Zhu

The University of Queensland, Australia



John Zhu is currently a Professor in the School of Chemical Engineering, UQ. He is also the inaugural Director of Carbon Energy Research Centre. He received his PhD in Chemical Engineering, UQ in 2002, then worked as a lecturer in Curtin University of Technology from 2002 to 2004. He moved back to UQ at the end of 2004 and has been working in the same school until present. He is the recipient of a number of awards and fellowships, including RK Murphy Medal 2013, Freehills Award IChemE 2011, runner up of Innovator of the Year Award International IChemE 2011, the University of Queensland Foundation Research Excellence Award 2007, an ARC Future Fellowship from 2013 to 2016, an ARC Queen Elizabeth II Fellowship from 2008 to 2012, an ARC Postdoctoral Fellowship from 2003 – 2005. In May 2012, John Zhu's long term

collaborative research with Eden Energy was recognised by Thomson Reuters Innovation Award for Innovative Collaboration between the University of Queensland and Eden Energy.

## Prof. Karen Wilson

Griffith University, Australia



Karen holds a B.A. (Hons) in Natural Sciences (1992) from the University of Cambridge, a M.Sc. (Dist) (1993) in Surface Science and Heterogeneous Catalysis from the University of Liverpool, and a PhD entitled 'Poison and promoter effects in Pt catalysed hydrocarbon oxidation reactions' under the supervision of Professor Richard M Lambert from the University of Cambridge (1993-96). Karen also undertook postdoctoral research at the University of Cambridge (1996-98) and in the Green Chemistry Centre of Excellence at York with Professor James H Clark (1998-99). Karen's research interests lie in the design of heterogeneous catalysts for clean chemical synthesis, particularly the design of tuneable porous materials for sustainable biofuels and chemicals production from renewable resources, specifically waste biomass.

## Prof. Rachel Caruso

RMIT University, Australia



Prof. Rachel Caruso is the Director of the Enabling Capability Platform for Advanced Materials and Professor of Chemistry at RMIT University. Her research has focused on controlling the structure of inorganic materials during their synthesis. These materials have potential application in the areas of energy conversion and storage and the removal or breakdown of pollutants in aqueous solution. By careful control of the porosity and ensuring high surface area of the materials, they have been applied in dye-sensitised and perovskite based solar cells, lithium ion batteries, photocatalysis and as heavy metal adsorbents.

## Dr. Ruth Knibbe

The University of Queensland, Australia



Ruth Knibbe joined the School of Mechanical & Mining Engineering at UQ as a Lecturer in 2016 and was promoted to Senior Lecturer in 2020. I received my PhD from UQ in Chemical Engineering in 2007. Since completing my PhD I spent 4 years at DTU-Energy (Danish Technical University) and subsequently 5 years at the Robinson Research Institute at Victoria University of Wellington.

My interests are concerned with: in-situ methods for characterising fuel cell and battery materials, the application of machine learning in new material design, development of new materials for novel battery systems (including solid state batteries) and understanding degradation mechanisms in fuel cell and battery systems.

## Prof. Saleem Ali

University of Delaware and United Nations University



Professor Ali's primary research interests have been in the causes and consequences of environmental conflicts in the research sector, and the process of using ecological factors to promote peace. As an environmental planner, Professor Ali has focused his research on how technical scientific information can be used to more effectively deliver development outcomes. Ultimately his research aims to understand the causes of conflict and the role such conflicts can play in mitigating or exacerbating development disparities. As a professional mediator, his research is geared towards highly applied problem-solving outcomes. Saleem H. Ali holds the Blue and Gold Distinguished Professorship in Energy and the Environment at the University of Delaware (USA) and is a Professorial Research Fellow at SMI, UQ.

## A/Prof. Simon Smart

The University of Queensland, Australia



Simon Smart is Associate Professor in the School of Chemical Engineering at The University of Queensland. His research is centred around the sustainable production and use of energy and chemicals - including the development of enabling technologies and processes for the production of clean energy, materials and water.

Simon has been involved in the Rapid Switch initiative, in relation to pathways to decarbonisation of the global economy, since its inception at the UQ Dow Centre for Sustainable Engineering Innovation, and is the UQ project leader for the Net Zero Australia project (a collaborative partnership with the University of Melbourne, Princeton & Nous).

## A/Prof. Tom Rufford

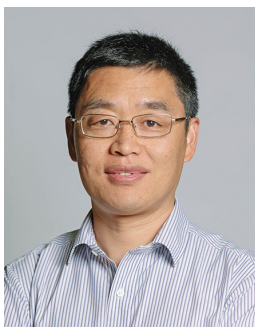
The University of Queensland, Australia



Tom Rufford is an Associate Professor in the UQ School of Chemical Engineering and a chief investigator in the ARC Centre of Excellence for Green Electrochemical Transformation of CO<sub>2</sub> (GETCO<sub>2</sub>). Tom completed his BE and PhD degrees in Chemical Engineering at the University of Queensland in 2000 and 2009, respectively, with a few years spent working as a process engineering in an oil refinery between these degrees. His research interests include electrochemical processes for CO<sub>2</sub> conversion to valuable products, low emission steel production, gas process engineering, porous carbons, and solid-fluid interactions in coal seam gas reservoirs.

## Prof. Xiwang Zhang

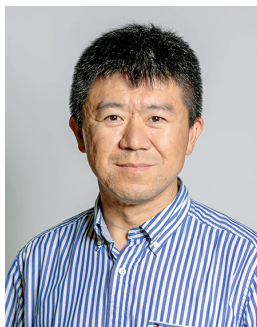
The University of Queensland, Australia



Prof. Xiwang Zhang is the Endowed Dow Chair in Sustainable Engineering Innovation at the University of Queensland, Director of UQ Dow Centre, and Director of ARC Centre of Excellence for Electrochemical Transformation of Carbon Dioxide (GetCO<sub>2</sub>). He was the Founding Director of ARC Industry Transformation Research Hub for Energy-efficient Separation (EESep) and the Deputy Director of Monash Centre for Membrane Innovation (MCMI) at Monash University before he moved to UQ in 2022. Prof. Zhang has more than 15 years of R&D experience in both academia and industry with demonstrated achievements in technology development and translation. His research focuses on membrane and advanced oxidation technologies for energy-efficient separation, water and wastewater treatment, resource recovery, green chemical synthesis, and renewable energy generation. Prof. Zhang was the recipient of the prestigious ARC Australian Research Fellowship, Future Fellowship and Monash Larkins Fellowship.

## Prof. Yansong Shen

**The University of Queensland, Australia**



Yansong Shen is a full Professor (tenured) and ARC Future Fellow (A/Prof, 2019-2021, Senior Lecturer, 2016-2018, UNSW; Lecturer, 2014-2016, Monash). He is the director of a vibrant research lab - Process Modelling and Optimisation of Reacting Flows "ProMO Lab" ([www.promo.unsw.edu.au](http://www.promo.unsw.edu.au)), with applications to a range of complex reactive flow processes in traditional and emerging industries particularly resource and energy sectors, including process metallurgy, solid fuel preparation/utilization, water treatment, recycling processes of e.g. solar panels, plastic, and renewable energy processes e.g. solar cell/biomass/hydrogen. His research interests range from understanding fundamentals to optimising & developing new, cleaner and more efficient technologies, powered by advanced numerical and experimental approaches. He is the member of the editorial boards of "Advanced Powder Technology" and "Metallurgical and Materials Transactions B".

## Prof. Yuan Shen

**The University of Sydney, Australia**



Professor Shen received a bachelor's degree from Tsinghua University and a Ph.D. from Yale University. He is a professor at The University of Sydney. His research focuses on carbon materials and their sustainable energy and environmental applications, including batteries, supercapacitors, electrocatalysts, membranes, and antibacterial coatings. He is a fellow of the Royal Society of Chemistry and the Institution of Chemical Engineers. He is currently an editor for Carbon and Journal of Alloys and Compounds.

## Prof. Zaiping Guo

**The University of Adelaide, Australia**



Professor Zaiping Guo is an ARC Australian Laureate Fellow at School of Chemical Engineering & Advanced Materials, The University of Adelaide. She received a PhD in Materials Engineering from the University of Wollongong in 2003.

Before joining The University of Adelaide, she was a Distinguished Professor in the school of Mechanical, Materials, Mechatronic, and Biomedical Engineering, Faculty of Engineering & Information Sciences, University of Wollongong. Her research focuses on the design and application of electrode and electrolyte materials for energy storage and conversion, including rechargeable batteries, hydrogen storage, and fuel cells.

# Technical Program

Program: International Symposium on Green Transformation of Carbon Dioxide (ISGTCO2)

Wednesday 29<sup>th</sup> November – Friday 01 December 2023, Hotel Grand Chancellor, Brisbane, Australia

Timeslot: presentation + Q&A	Plenary (40 mins)	Keynote (20 mins)	Invited (20 mins)	Submitted (20 mins)	Student (10 mins)
<b>Day 0 - Tuesday 28<sup>th</sup> November 2023</b>					
4:30-6:00pm	Registration				
5:00-6:00pm	Welcome Reception - Courtyard Hotel Grand Chancellor				
<b>Day 1: Wednesday 29<sup>th</sup> November 2023</b>					
8:00 onwards					
Registration					
<b>Chair: Rachel Caruso</b>					
<b>Opening Ceremony</b>					
8:30-8:40	<b>Dr Mark Jacobs</b> , Deputy Director-General - Science Division, Queensland Government Department of Environment and Science				
<b>Opening speech</b>					
8:40-9:10	<b>P1 Welcome: Robin Batterham</b>				
Introducing ARC Centre of Excellence GETCO2					
9:10-9:50	P2 Sandra Kentish				
Carbon Dioxide Capture – the Challenges Ahead					
9:50-10:30	P3 Debra Bernhardt				
Contributions of Simulation to Green Transformation of Carbon Dioxide					
<b>Morning tea – Level 1 (30 mins)</b>					
<b>Roma Room</b>			<b>Terrace Room</b>		
<b>Session 1 Electrolysis System</b>			<b>Session 2 Catalyst</b>		
<b>Chair: Tom Rufford</b>			<b>Chair: Yuan Chen</b>		
11:00	1.1 Brian Seger	An overall analysis of CO2 and CO electrolysis devices		2.1 Yijiao Jiang	Heterogeneous Molecular Catalysis for Electrochemical CO2 Reduction
11:20	1.2 Muxina Konarova	Enabling Hydrogen Storage and Transport: Unleashing Cost-Effective Potential through Liquid Organic Hydrogen Carriers		2.2 Dae-Hyun Nam	Metallurgical Alloy Electrocatalysts for Selective CO2-to-Ethylene/Ethanol Conversion
11:40	1.3 Mengran (Aaron) Li	Designing inherently stable PGM-free CO2 electrolysis		2.3 Chen Jia	Ordered Hierarchical Porous Single-Atom Catalyst with Enhanced Mass Transfer for CO2 Electroreduction
12:00	1.4 Yong Zhao	Integrated CO2 capture and electrolysis for CO production		2.4 Haoming Yu	Biomass-derived carbon-based catalysts for electrocatalytic CO2 reduction
12:10				2.5 Alok Kumar Sahu	Photo- and Electrocatalytic CO2 Reduction based on Ga-doped NiTiO3 Perovskite Nanoparticles
<b>Lunch – Courtyard (1 hour)</b>					
<b>Wickham Room</b>			<b>Session 3 Advanced Characterisation &amp; Simulation</b>		
			<b>Chair: Karen Wilson</b>		
			3.1 David Winkler		
			Artificial Intelligence for Materials Sciences, Quo Vadis?		
			3.2 Benjamin Muir		
			Introducing CSIROs robotic and automated capabilities that enable rapid, materials synthesis, formulation, screening and optimisation		
			3.3 Tu Le		
			Machine Learning for Materials, a Journey from Artificial Intelligence to Intelligent Materials		
			3.4 Ravichandrar Babarao		
			Accelerating the Discovery of Novel Materials for CO2 Capture: Integrating High Throughput Simulation and Machine Learning		

Day 1 continued	Roma Room	Terrace Room	Wickham Room
	<b>Session 4 Electrolysis System</b> <b>Chair: Simon Smart</b>	<b>Session 5 CO2 Capture</b> <b>Chair: Fengwang Li</b>	<b>Session 6 Catalyst</b> <b>Chair: Jie Zhang</b>
13:20	4.1 Tom Rufford Shockingly large volumes of materials may be required for large scale CO2 electrolysis to make a dent in carbon emissions	5.1 Kevin Gang Li In-situ vapor promoted direct air CO2 capture	6.1 Sankar Bhattacharya CO2 conversion to methane – current status and the way forward
13:40	4.2 Lei Ge Microtubular membrane electrodes for CO2 electrochemical conversion	5.2 Kristina Konstas Direct Air Capture with Advanced Porous Materials	6.2 Adam lee Multimetallic catalysts for CO2 methanation
14:00	4.3 Hesamoddin Rabiee Microtubular Gas-diffusion electrode for electrochemical CO2 reduction reaction	5.3 Kaige Sun Capacitive deionization: From ion separation to CO2 capture	6.3 Penghui Yan Influence of supports and metal particle size on CO2 methanation
14:10		5.4 Ibrahim Orhan Accelerating prediction of CO2 capture at low partial pressures in metal-organic frameworks using new machine learning descriptors	
14:20	4.4 Qi Gao Integration of CO2 Capture and Electrochemical Conversion	5.5 TBC	6.4 Ahmad Zhafran Md Azmi Bimetallic Synergies of Ni and Fe on Al2O3 Catalysts in a Hybrid Thermal-Plasma Catalytic System for CO2 Methanation
14:30	4.5 Xiaohe Tian Bipolar Membrane Electrode Assembly for High-performance CO2 Electrolysis		6.5 Zeno Rizqi Ramadhan Stacking Fault in 3D Branched Ni Nanoparticles for Improved Catalytic Activity
<b>14:40-15:20</b>	<b>Afternoon tea – Level 1 (40 mins)</b>		
	<b>Roma Room</b>	<b>Terrace Room</b>	<b>Wickham Room</b>
	<b>Session 7 CO2 Capture</b> <b>Chair: Karen Wilson</b>	<b>Session 8 Publishing for impact</b> <b>Chair: Saleem Ali</b>	<b>Session 9 Membranes</b> <b>Chair: Rijia Lin</b>
15:20	7.1 Lian Zhang High-Temperature Reactions of CO2 and Steam with Calcium Chloride	Panel session with Senior Editors: <ul style="list-style-type: none"><li>• Yaoqing Zhang</li></ul> Senior Editor, Nature Sustainability	9.1 Michael Guiver MOFs and microporous polymer frameworks for gas separation membranes
15:40	7.2 Zhijian Wan A Scalable Material for the Deployment of Direct Air Capture	<ul style="list-style-type: none"><li>• Adam Lee</li><li>• Editor-in-Chief, Materials Today Chemistry</li><li>• Zaiping Guo</li></ul> Board Member, Energy Storage Materials & Green Energy & Environment	9.2 Gloria Monsalve Bravo Gas sorption isotherms in glassy polymer membranes: are mixture predictions sensitive to parameter uncertainty?
16:00	7.3 Jun-Seok Bae Carbon composites in a honeycomb monolithic structure for CO2 capture		9.3 Shuwen Yu Thin film composite membranes with enhanced microporosity for gas separation
16:20	Close		
<b>17:15</b>	<b>Bus departs Hotel Grand Chancellor to Customs House, 399 Queen St. Brisbane</b>		
<b>18:00-21:30</b>	<b>Gala Dinner at Customs House, Chair: Simon Smart</b>		

<b>Day 2: Thursday 30th November 2023</b>	
8:30 onwards	Registration
	<b>Chair: Ruth Knibbe</b> <b>Welcome to Day 2 Plenary session</b>
9:00-9:40	P4 Shizhang Qiao Electrocatalytic Refinery for Production of Fuels and Chemicals
9:40-10:20	P5 Sir Anthony Cheetham Hybrid Perovskite Formates: From Multiferroics to Carbon Capture
10:20-10:40	P6 Jennifer Wilcox The Role of Carbon Capture in Meeting Net-Zero Carbon Goals
<b>10:40-11:20am</b>	<b>Morning tea – Level 1 (40 mins)</b>
	<b>Roma Room</b>
	<b>Session 10 Advanced Characterisation</b> <b>Chair: Adam Lee</b>
11:20	10.1 See Wee Chee Operando Electron Microscopy of Electrocatalysts Transformations under CO2 Electro-reduction Conditions
11:40	10.2 Fengtao Fan Spatiotemporal imaging of charge transfer in photocatalyst particles
12:00	10.3 Neil Robinson Low-field time domain NMR of porous systems
12:10	
12:20	10.4 Jeffrey Harmer Studying Catalytic Reactions using Electron Paramagnetic Resonance Spectroscopy
12:30	
<b>12:40-13:40</b>	<b>Lunch - Courtyard</b>
<b>13:00-14:30</b>	<b>CSIRO - GETCO2 round table (invitation only)</b>
	<b>Leichhardt Room, Level 1</b>
	<b>Terrace Room</b>
	<b>Session 11 Simulation</b> <b>Chair: Karen Wilson</b>
11:20	11.1 Aijun Du Computational Design of new Catalysts for the Reduction of Carbon Oxide into Multi-carbon Product
11:40	11.2 Aoni Xu Theories for electrolyte effects in CO2 electro-reduction
12:00	11.3 Quang Kim Loi Reaction dynamics and molecular transport of CO2 hydrogenation on N-doped graphene using ReaxFF simulations
12:20	11.4 Steffen Jeschke Challenges and Methods for Molecular Modelling of Electrode-Electrolyte Interfaces
	<b>Wickham Room</b>
	<b>Session 12 Membranes</b> <b>Chair: Andrew Whittaker</b>
12:10	12.1 Ingo Pinnau Materials Design for Membrane-Based CO2 Separations
12:20	12.2 Rijia Lin Glassy Metal-Organic Frameworks: New Opportunities in Membrane Gas Separation and Devices
12:30	12.3 Christian Zuluaga-Bedoya Transport of light gases across single-crystal zeolite (MOF) nanomembranes: effect of size, flexibility, and polymer coating
12:40	12.4 Ruiqi Chen Ion Incorporation in ZIF-62 Glasses: Melting Behavior, Interaction Dynamics, and Enhanced Gas Separation Performance
12:50	12.5 Francis McCallum Enhancing the Durability of Polymeric Materials via Sequential Infiltration Synthesis
13:00	12.6 Matthew Kratzer Species-dependant diffusion in flue gas separation through carbon nanotube arrays

Day 2 continued	Roma Room	Terrace Room	Wickham Room
	<b>Session 13 Catalyst</b> <b>Chair: Christian Doonan</b>	<b>Session 14 CO2 Reduction Technology Landscape</b> <b>Chair: Darren Martin</b>	<b>Session 15 Catalyst</b> <b>Chair: Yuan Chen</b>
13:40	13.1 Aaron Marshall Fancy electrocatalysts vs well-designed electrocatalytic systems	14.1 Liu Ye Towards Net-zero Emissions in Urban Water Industry	15.1 Qin Li Biomass to Catalytic Quantum Materials: Enriching the Pathways for CO2 Conversion
14:00	13.2 Haixin Mai Catalysts Synthesis and Development: What we can do for Electrochemical CO2 Reduction	14.2 Zongping Shao Development of functional oxide electrocatalysts for low-to-intermediate temperature CO2 electrolysis	15.2 Zhiliang Wang Dipole Moment Tuning in Semiconductor Photoelectrodes
14:20	13.3 Anoja Kawsihan Production of C2+ products through the electrochemical reduction of CO2 by single atom Fe decorated Cu nano-dendrites	14.3 Rana Afzal Investigating the impact of various treatments on the lignocellulosic biomass and its derived carbon features	15.3 Thi Kieu Oanh Le Heterojunction photocatalysts for aqueous phase CO2 reduction
14:30	13.4 Qian Sun Enhanced C2+ Production from CO Electroreduction by Using Molecular Doping	14.4 Liang Sun High Entropy Alloy Enables Efficient CO2 Redox Reactions	15.4 Daksh Shah TiO2/CoAl-LDH nanocomposites for CO2 photoreduction
14:40	13.5 Calvin Yuen Leong Chow Realising Catholyte-Free CO2 Electrolysis Under Acidic Condition	14.5 TBC	15.5 Wengang Huang Intermarrying MOF glass and nanofunctional perovskite for photo-enzyme coupled CO2 reduction
<b>14:50-15:30</b>	<b>Afternoon tea – Level 1 (40 mins)</b>		
	<b>Session 16 Catalyst</b> <b>Chair: Chuan Zhao</b>	<b>Session 17 Advanced Characterisation &amp; Simulation</b> <b>Chair: Rachel Caruso</b>	<b>Session 18 Catalyst</b> <b>Chair: John Zhu</b>
	<b>Roma Room</b>	<b>Terrace Room</b>	<b>Wickham Room</b>
15:30	16.1 Jun Chen Defective carbon-based materials for electrocatalysis	17.1 Bernt Johannessen Advanced Materials meets X-ray Absorption Spectroscopy: a Strong and Growing Partnership	18.1 Yuan Chen Tailoring heterogeneous molecular Co–N–C catalysts
15:50	16.2 Porun Liu Single Atom Catalyst for Efficient Hydrogen Evolution and Oxygen Reduction Reactions	17.2 Timothy Duignan Calculating activities with equivariant neural networks potentials	18.2 Akshat Tanksale Aqueous Phase Conversion of Carbon Dioxide into Acetic Acid
16:10	16.3 Venkata Dasireddy Development of Ru-based catalysts for the CO2 reduction: Power to Gas process	17.3 Zhe Liu Liquid state nanoionics: high-performance computing for novel physics and cross-scale models for engineering	18.3 Juan Bai Anion-Modulated Generation of Defective Molybdenum Sites as Synergistic Active Centers for Durable Oxygen Evolution
16:30	16.4 Yu Yang Ligand-tuning copper in stable coordination polymer catalysts for selective C-C coupling	17.4 Qingbing Xia Probing Electronic-Scale Charge Storage Mechanisms via Electron Paramagnetic Resonance	18.4 Fangzhou Liu Understanding the Degradation Mechanism of Iron Phthalocyanine- for Acidic Oxygen Reduction Reaction

Day 2 continued	
16:40	16.5 Mohamed Nazmi Catalyst layer ink formulation matters for CO2 electrolysis
16:50	16.6 Zixun Yu Interfacial engineering of heterogeneous molecular electrocatalysts using ionic liquids
17:00	Close
17:00-19:00	<b>Networking drinks &amp; canapes with Gecko's wildlife Courtyard, Hotel Grand Chancellor</b>
18:50	18.5 Leo Lai Structural Evolution of MOF-derived Carbon Catalysts Synthesized by Ultrafast Joule Heating
Day 3: Friday 1st December 2023	
8:30am onwards	Registration
	<b>Chair: Fengwang Li</b> <b>Welcome to Day 3 Plenary session</b>
9:00-9:40	P7 Alexis Bell Electrochemical Reduction of CO2: Challenges for Materials and System Design
9:40-10:20	P8 Feng Jiao CO2 Electrolysis Systems for Chemical and Food Production
10:20-11:00	P9 Graeme Henkelman Correlating structure and function for nanoparticle catalysts
11:00-11:40am	<b>Morning tea – Level 1 (40mins)</b>
	<b>Roma Room</b>
	<b>Session 19 Advanced Characterisation &amp; Simulation</b> <b>Chair: Ruth Knibbe</b>
11:40	19.1 Rosalie Hocking In designing catalysts for clean energy- is the nature of the active site always the right question to ask?
12:00	19.2 Hao Li The Cat-Universe: A "Data-Theory-Methodology-Experiment" Framework to Realize Catalyst Design
12:20	19.3 Adrian Sheppard Directions in 3D and 4D Imaging for Characterising Materials and Processes
12:40	19.4 Cameron Bentley Nanoscale Structure-Activity Mapping of Electrocatalysts
13:00-13:40pm	<b>Lunch – Courtyard (40 mins)</b>
	<b>Terrace Room</b>
	<b>Session 20 CO2 Capture</b> <b>Chair: Jie Zhang</b>
	20.1 Hai Yu Integrated carbon capture and utilization for sustainable carbon mining
	20.2 Huazhen Chang 2D materials used for CO2 adsorption
	20.3 Graeme Puxty Aromatic amines for CO2 capture applications
	20.4 Ngoc Nguyen Unconventional CO2 Capture Based on Gas Hydrates
	<b>Wickham Room</b>
	<b>Session 21 CO2 Reduction Technology Landscape</b> <b>Chair: Zaiping Guo</b>
	21.1 Geoff Wang Development of Technologies Approaching to Low Emission and Carbon Neutrality for Steel Industry
	21.2 Colin Scholes Carbon dioxide hydrogenation to methanol through CuO/ZrO2-polymer composite membrane reactor
	21.3 Yuting Zhuo Optimising the flow behaviours in flow channels via CFD modelling to accelerate electrolyser performance
	21.4 Jinshuo Zou Size Effects of Ru Nanoparticles in Li-CO2 Batteries

<b>Day 3 continued</b>	<b>Chair: Yuan Chen</b> <b>Closing Plenary Session</b>
13:40-14:20	P10 Huijun Zhao Green Electrochemical Transformation of Carbon Dioxide: Challenges and Solutions
14:20-15:00	P11 Chuan Zhao Single-atom catalysts for electroreduction of CO <sub>2</sub>
15:00-15:30	<b>Chair: Xiwang Zhang</b> Presentation of Awards
15:30-15:35	<b>Xiwang Zhang</b> Thanks & final words
<b>15:35</b>	<b>ISGTCO2 Close</b>

# Delegates

Name	Session	Organization
Afzal, Mr. Rana	14.3	The University of Queensland
Ali, Prof. Saleem	8 (Chair)	University of Delaware and United Nations University
Babarao, Dr. Ravichandar	3.4	RMIT University
Bae, Dr. Jun-Seok	7.3	CSIRO
Bai, Dr. Juan	18.2	Queensland University of Technology
Batterham, Prof. Robin	P1	The University of Melbourne
Bell, Alexis	P7	Berkeley University of California
Bentley, Dr. Cameron	19.4	Monash University
Bernhardt, Prof. Debra	P3	Australian Institute for Bioengineering and Nanotechnology
Bhatia, Prof. Suresh		The University of Queensland
Bhattacharya, Prof. Sankar	6.1	Monash University
Burns, Mr. Danny		Vintage Energy Ltd
Caruso, Professor Rachel	17 (Chair)	RMIT University
Chee, Dr. See Wee	10.1	Fritz Haber Institute of the Max Planck Society
Cheetham, Prof. Anthony K.	P5	University of California, Santa Barbara
Chen, Prof. Jun	16.1	University of Wollongong
Chen, Mr. Ruiqi	12.4	The University of Queensland
Chen, Dr. Xingrui		CSIRO
Chen, Prof. Yuan	2, 15 (Chair), 18.1, Closing (Chair)	The University of Sydney
Chow, Mr. Yuen Leong (Calvin)	13.5	Monash University
Cooper, Ms. Emily		The University of Queensland
Dasireddy, Dr. Venkata D B C	16.3	Griffith University
Doonan, Prof. Christian	13 (Chair)	The University of Adelaide
Du, Prof. Aijun	11.1	Queensland University of Technology
Duignan, Dr. Tim	17.2	Griffith University
Echeverria, Dr. Claudia		CSIRO
Fan, Prof. Fengtao	10.2	Dalian Institute of Chemical Physics, CAS
Fong, Dr. Celesta		CSIRO
Freeman, Prof. Benny		Monash University
Fusetto, Dr. Roberto		PerkinElmer
Gao, Ms. Qi	4.4	The University of Melbourne
Garg, Dr. Sahil		Woodside Energy
Ge, A/Prof. Lei	4.2	University of Southern Queensland
Guiver, Prof. Michael	9.1	Tianjin University
Guo, Prof. Zaiping	21 (Chair), 8	The University of Adelaide
Hao, Dr. Mengmeng		CSIRO
Harmer, A/Prof. Jeffrey	10.4	Centre For Advanced Imaging, Australian Institute For Bioengineering And Nanotechnology, The University Of Queensland
Henkelman, Prof. Graeme	P9	The University of Texas at Austin
Hewetson, Mr. John		Shimadzu Scientific Instruments (Oceania) Pty Ltd
Hill, Dr. Anita		CSIRO
Hocking, A/Prof. Rosalie	19.1	Swinburne University of Technology
Hou, Dr. Jingwei		The University of Queensland

Huang, Miss. Jialei		The University of Sydney
Huang, Mr. Sanger		CSIRO
Huang, Mr. Wengang	15.1	The University of Queensland
Iddon, Mr. Darren		Chemiko - PerkinElmer
Idros, Mr. Mohamed Nazmi	16.5	The University of Queensland
Jacobs, Dr. Mark	Opening Speech	Department of Environment and Science
Javed, Mr. Umer	Volunteer	The University of Queensland
Jeschke, Dr. Steffen	11.4	Griffith University
Jia, Dr. Chen		University of New South Wales
Jiang, A/Prof. Yijiao	2.1	Macquarie University
Jiao, Prof. Feng	P8	Washington University in St. Louis
Johannessen, Dr. Bernt	17.1	ANSTO
Johnson, Ms. Catherine	Organising Committee	The University of Queensland
Johnson, Mr. Patrick		ProDigitex Pty Limited
Kawsihan, Mrs. Anoja	13.3	The University of Adelaide
Keller, Prof. Jurg		The University of Queensland
Kentish, Prof. Sandra	P2	The University of Melbourne
Knibbe, Dr. Ruth	19 (Chair)	The University of Queensland
Knudsen, Ms. Anna	Organising Committee	GETCO2
Konarova, Dr. Muxina	1.2	The University of Queensland
Konstas, Dr. Kristina	5.2	CSIRO
Kratzer, Mr. Matthew	12.6	The University of Queensland
Lai, Mr. Leo	18.5	The University of Sydney
Larsen, Dr. Eloise	Symposium Secretariat	GETCO2
Le, Miss. Thi Kieu Oanh	15.3	Griffith University
Le, Dr. Tu	3.3	RMIT University
Lee, Prof. Adam	6.2, 8, 10 (Chair)	Griffith University
Lehnert, Mr. Carl		Shimadzu
Li, Dr. Fengwang	5 (Chair)	The University of Sydney
Li, A/Prof. Gang Kevin	5.1	The University of Melbourne
Li, A/Prof. Hao	19.2	Tohoku University
Li, Dr. Mengran	1.3	The University of Melbourne
Li, Prof. Qin	15.1	Griffith University
Lin, Dr. Rijia	9 (Chair) 12.2	The University of Queensland
Linder-Patton, Dr. Oliver		The University of Adelaide
Liu, Mr. Fangzhou	18.4	The University of Sydney
Liu, A/Prof. Porun	16.2	Griffith University
Liu, Prof. Zhe	17.3	The University of Melbourne
Loi, Dr. Quang	11.3	Australian Institute for Bioengineering and Nanotechnology
Mai, Dr. Haoxin	13.2	RMIT University
Marshall, Prof. Aaron	13.1	University of Canterbury
Martin, Prof. Darren	14 (Chair)	The University of Queensland
Mccallum, Mr. Francis	12.5	The University of Queensland
Md Azmi, Mr. Ahmad Zhafran	6.4	University of New South Wales

Mitchell, Dr. Travis		The University of Queensland
Monsalve Bravo, Dr. Gloria Milena	9.2	The University of Queensland
Morrison, Mr. Alister		Zeotech Limited
Muir, Dr. Benjamin	3.2	CSIRO
Nam, A/Prof. Dae-Hyun	2.2	Daegu Gyeongbuk Institute of Science and Technology (DGIST)
Nguyen, Dr. Ngoc	20.4	The University of Queensland
Orhan, Mr. Ibrahim	5.4	RMIT University
Peng, Dr. Hong		The University of Queensland
Pinnau, Prof. Ingo	12.1	King Abdullah University of Science and Technology
Puxty, Dr. Graeme	20.3	CSIRO
Qiao, Prof. Shizhang	P4	The University of Adelaide
Rabiee, Dr. Hesamoddin	4.3	The University of Queensland
Ramadhan, Mr. Zeno Rizqi	6.5	The University of New South Wales
Robinson, Dr. Neil	10.3	The University of Western Australia
Rufford, A/Prof. Tom	1 (Chair), 4.1	The University of Queensland
Sahu, Mr. Aloka	2.5	The University of Queensland
Scholes, A/Prof. Colin	21.2	The University of Melbourne
Seger, Prof. Brian	1.1	Technical University of Denmark
Shabani, Mr. Shazwan		The University of Adelaide
Shah, Mr. Daksh	15.4	RMIT University
Shao, Prof. Zongping	14.2	Curtin University
Sharma, Dr. Pratigya		Woodside Energy
Shen, Prof. Yansong		University of New South Wales
Sheppard, Prof. Adrian	19.3	Australian National University
Smart, A/Prof. Simon	Gala Dinner Chair, 4 (Chair)	The University of Queensland
Snow, Mr. Jim		Oakley Greenwood Pty Ltd
Soroodan, Dr. Ehsan		CSIRO
Stafrace, Mr. Vincent		ProDigitex Pty Limited
Sun, Mr. Kaige	5.3	The University of Queensland
Sun, Mr. Liang	14.4	The University of Adelaide
Sun, Miss. Qian	13.4	University of New South Wales
Sun, Mr. Xin	Volunteer	The University of Queensland
Tan, Miss. Emilyn	Organising Committee	The University of Queensland
Tanksale, Prof. Akshat	18.2	Monash University
Tao, Ms. Shiwei		The University of Queensland
Tebyetekerwa, Dr Mike		The University of Queensland
Thiruvengkatachari, Dr. Ramesh		CSIRO
Tian, Mr. Xiaohe	4.5	The University of Melbourne
Virdis, Dr. Bernardino		The University of Queensland
Vogrin, Dr. John		Zeotech Limited
Wan, Dr. Zhijian	7.2	CSIRO
Wang, Mr. Cheng		University of Science and Technology of China
Wang, Prof. Geoff	21.1	The University of Queensland
Wang, Dr. Zhiliang	15.2	The University of Queensland
Wang, Dr. Zhuyuan	Volunteer	The university of Queensland
Wei, Miss. Zhang		The University of Sydney
Whittaker, Prof. Andrew	12 (Chair)	The University of Queensland
Wilcox, Jennifer	P6	US Department of Energy

Wilson, Prof. Karen	3, 7 (Chair)	Griffith University
Winkler, Prof. David	3.1	La Trobe University
Wu, Dr. Hsiwen		Monash University
Xia, Dr. Qingbing	17.4	The University of Queensland
Xing, Dr. Chao	Volunteer	The University of Queensland
Xu, Dr. Aoni	11.2	Technical University of Denmark
Xu, Mr. Kaijie	Volunteer	The University of Queensland
Xu, Mr. Zhonghao	Volunteer	The University of Queensland
Yan, Dr. Penghui	6.3	The University of Queensland
Yang, Miss. Jie	Volunteer	The University of Queensland
Yang, Mr. Jindi	Volunteer	The University of Queensland
Yang, Miss. Yu	16.4	The University of Sydney
Ye, A/Prof. Liu	14.1	The University of Queensland
Yu, Dr. Hai	20.1	CSIRO
Yu, Mr. Haoming	2.4	Monash University
Yu, Dr. Shuwen	9.3	The University of Queensland
Yu, Mr. Zixun	16.6	The University of Sydney
Zeng, Dr. Xiangkang		The University of Queensland
Zhang, Mr. Hao	Volunteer	The University of Queensland
Zhang, Mrs. Hongxia	Volunteer	The University of Queensland
Zhang, A/Prof. Jie	6, 20 (Chair)	Monash University
Zhang, Mr. Junyang	Volunteer	The University of Queensland
Zhang, Prof. Lian	7.1	Monash University
Zhang, Prof. Xiwang	Symp. Co-Chair	The University of Queensland
Zhang, Dr. Yaoqing	8	Nature Publishing
Zhao, Prof. Chuan	16 (Chair), P11	University of New South Wales
Zhao, Prof. Huijun	P10	Griffith University
Zhao, Dr. Qinglan	Volunteer	The University of Queensland
Zhao, Dr. Yong	1.4	CSIRO
Zheng, Dr. Zhi		CSIRO
Zhu, Prof. John	18 (Chair)	The University of Queensland
Zhuo, Dr. Yuting	21.3	University of New South Wales
Zou, Dr. Jinshuo	21.4	The University of Adelaide
Zuluaga Bedoya, Mr. Christian Camilo	12.3	The University of Queensland

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CONTACT US

[getco2@uq.edu.au](mailto:getco2@uq.edu.au)

[www.getco2.org](http://www.getco2.org)

