



ARC Centre of Excellence for  
Carbon Science  
& Innovation

# 2024

## International Conference on Advances in Carbon Science and Innovation

*11-13 November  
Sydney, Australia*





**ICACSI**

**2024**

**International Conference on  
Advances in Carbon Science and Innovation**

*11-13 November  
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# Welcome Message

Welcome to the inaugural International Conference on Advances in Carbon Science and Innovation (ICACSI) 2024! ICACSI is proudly hosted by the ARC Centre of Excellence for Carbon Science and Innovation.

ICACSI will serve as a dynamic platform for scientists, engineers, researchers and students from diverse disciplines to converge and exchange recent breakthroughs in carbon science and innovation. ICACSI aims to facilitate discussions on current findings and provide valuable networking opportunities to propel the advancement of carbon science and innovation. With a focus on the latest trends in this field, the program will emphasise interdisciplinary fundamental and applied research, nurturing the research and development of cutting-edge carbon science and technologies. The conference will feature plenary lectures, keynote speeches, invited talks, oral speeches, exhibitions, and poster presentations showcasing research progress, addressing current challenges and exploring future perspectives in the field.

We are excited to welcome our delegates from 15 countries and hope that your experience will not only deepen your understanding of carbon science but also inspire new carbon innovations and collaborations.

We Welcome you to Sydney and trust that you will enjoy the city's beautiful attractions including Sydney Harbour where we will host our conference cruise dinner on the Starship Sydney on Tuesday 12 November.

Once again, we warmly welcome you to ICACSI 2024! We hope that our conference inspires you and expands your perspective on the exciting world of carbon science and innovation!

## Conference Chair and Co-Chairs:



**Liming Dai**  
ARC Laureate Professor



**Rose Amal**  
Scientia Professor



**Shizhang Qiao**  
ARC Laureate Professor

# ICACSI Steering Committee

- **Committee members (alphabetical order):**

Professor Hui Tong Chua, The University of Western Australia

Emeritus Professor Shi Xue Dou, University of Wollongong

Dr Rahman Daiyan, the University of New South Wales

Professor Chennupati Jagadish, Australian National University

Professor Yan Jiao, University of Adelaide

Emeritus Professor Hua Liu, University of Wollongong

ARC Laureate Professor Yun Liu, Australian National University

Professor Thomas Maschmeyer, University of Sydney

Professor Klaus Regenauer-Lieb, Curtin University

Professor Richard Tilley, the University of New South Wales

Professor Zhenhai Xia, the University of New South Wales

- **Conference Technical secretary:**

Professor Zhenhai Xia, the University of New South Wales

- **Conference secretary:**

Mrs Jane Su, the University of New South Wales

Ms Gabriella Bate, the University of New South Wales





# *ARC Centre of Excellence for Carbon Science and Innovation*



The ARC Centre of Excellence for Carbon Science and Innovation (COE-CSI), a national flagship program, is supported by the Australian Research Council (ARC). Led by Centre Director, Professor Liming Dai, the ARC Centre of Excellence for Carbon Science and Innovation aims to create breakthrough carbon science and game-changing technologies for clean chemical production and renewable energy generation with net-zero-carbon emissions.



## About Us

COE-CSI brings together a multidisciplinary and international coalition of scientists and facilities and is uniquely positioned to deliver solutions for urgent global problems in clean energy, carbon sequestration, and green chemistry. This world-class team comprises 18 discipline leaders as Chief Investigators (CIs) from 7 Australian universities (University of New South Wales, University of Adelaide, University of Sydney, Australian National University, Monash University, Curtin University, and University of Western Australia) alongside experts from industry, Australian government organisations, and abroad.

Our international Partner Investigators and Associate Investigators hail from universities and national laboratories including the Max Planck Institute of Colloids and Interfaces, US Air Force Research Laboratory, University of Cambridge, Rice University, Drexel University, Kent State University and Ulsan National Institute of Science and Technology.

## OUR VISION

Revolutionise carbon science and technology for clean production of energy and chemicals and provide a clean and sustainable future for Australia.

## PLENARY/THEMED SPEAKERS



**Prof Jones Alami** *Mohammed VI Polytechnic University, Morocco*

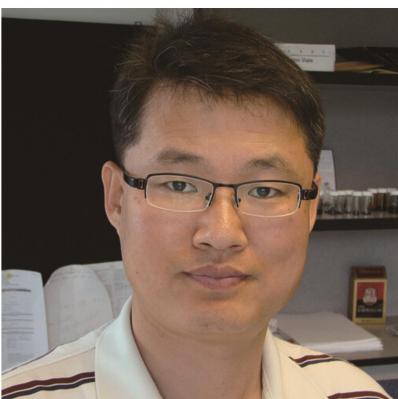
Prof Jones Alami is holder of the sustainable energy chair, and head of the MSN Department at UM6P in Morocco. He is the co-founder and CEO of NGB Materials, an LFP company since December 2023. Jones has a Doctorate in plasma physics (2003) and a PhD in thin film physics (2005) from the University of Linkoping in Sweden. After post-doctoral studies at Aachen University in Germany, he joined industry as a Research Manager and Innovations Manager, before founding INI Coating, a coatings R&D company, and simultaneously occupying the position of Joint Professor for three years at the prestigious SICCAC in China. Dr. Alami has more than 150 peer-reviewed publications and is the author/co-author of over 30 patents and patent applications.



**Dr Khalil Amine** *Argonne National Laboratory, USA*

Dr. Khalil Amine is an Argonne Distinguished Fellow and the leader of the Advanced Battery Technology team at Argonne National Laboratory, where he is responsible for directing the research and development of advanced materials and battery systems for HEV, PHEV, EV, grid, satellite, military, and medical applications. Dr. Amine is also the Co-director of the US-German initiative on interface. He serves as a member of the US National Academy of inventors and fellow of the European academy of sciences and committee member of the U.S. National Research Consul at US Academy of Sciences on battery related technologies. He served until recently as an adjunct professor at Stanford University and held a joint appointment as Professor at the University of Chicago. Among his many awards, Dr. Amine is 2023 recipient of Kuwait prize, 2019 recipient of the mega global energy prize, a 2003 recipient of Scientific America's Top Worldwide 50 Researcher Award, a 2009 recipient of

the US Federal Laboratory Award for Excellence in Technology Transfer, 2013 DOE Vehicle technologies office award and is the six-time recipient of the R&D 100 Award which is considered as the Oscar of technology and innovation.



**Dr Jong-Beom Baek** *Ulsan National Institute of Science and Technology, South Korea*

Dr Jong-Beom Baek is a distinguished professor and director of the Department of Energy and Chemical Engineering/Center for Dimension-Controllable Organic Frameworks, Ulsan National Institute of Science and Technology (UNIST), South Korea. His current research interests include the syntheses of two- and three-dimensional high-performance organic network structures and the chemical modifications of carbon-based materials for multifunctional applications, including energy conversion and storage. He has authored and co-authored over 300 peer-reviewed publications in the areas, with over 37,000 citations and a Google Scholar H-index of 84. Dr. Baek has delivered over 100 plenary, keynote, and invited lectures at prestigious international conferences, sharing his expertise with the broader scientific community. He has also

registered and filed over 70 international and domestic patents. Some of them have been transferred to an industry for commercialization and also started his own company.

## PLENARY/THEMED SPEAKERS

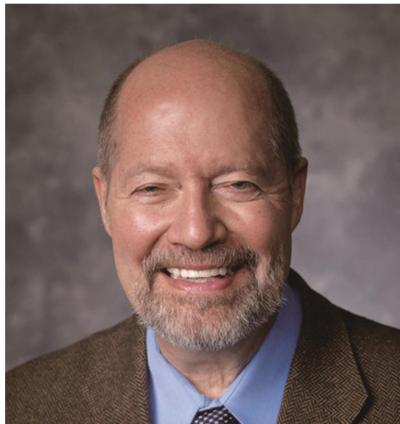
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**Prof Xinhe Bao** University of Science and Technology of China

Professor Xinhe Bao is a full Professor of the Dalian Institute of Chemical Physics of the Chinese Academy of Sciences (DICP, CAS) in China. He held the position of the institute director from 2000 to 2007. He was appointed the Executive Vice President Fudan University in 2015 and the President of University of Science and Technology of China since 2017. Professor Bao is the member of Chinese Academy of Sciences, the member of the Academy of Sciences for the Developing World (TWAS). Bao is Editor-in-chief of Journal of Energy Chemistry (JEC, Elsevier). Bao is dedicated to nanocatalysis for efficient energy conversion processes. Starting from carbon nanotube-confined metal nanoparticles, Bao and his team introduced a new concept of "Nano-Confined Catalysis". Based on that, they have developed a number of nano-confined catalysts and made significant contribution to the development of C1 chemistry, including direct methane conversion, syngas conversion and CO<sub>2</sub>

electrocatalytic conversion to value-added chemicals. Because of his contribution, Professor Bao received a number of national and international scientific awards, including HLHL Award (Hong Kong, 2012), the International Award for Excellence in Natural Gas Conversion (2016) and Alwin Mittasch Prize of the German Catalysis Society (2017) and more recently the First prize of National Natural Science Award of



**Prof Ray H. Baughman** University of Texas at Dallas, USA

Professor Ray Baughman received a B.S. in Physics from Carnegie Mellon University and a Ph.D. in the Materials Science area from Harvard University. Upon graduation he went to Allied Chemical, which later became AlliedSignal and then Honeywell. In August 2001, he became the Robert A. Welch Chair in Chemistry and Director of the Alan G. MacDiarmid NanoTech Institute at the University of Texas in Dallas. He is a member of the National Academy of Engineering; and is on editorial or advisory boards of Science and other journals. His current research focuses on developing new technologies for harvesting and storing waste energy, artificial muscles, carbon nanotube sheets and yarns, sensors, etc. Professor Ray Baughman has over 100 issued US patents and more than 400 refereed publications, with over 90,000 citations and a Google Scholar H-index of 136. He has received numerous national and international awards. He was listed 30th in the Top 100 Material Scientists of the Decade (2000-2010) and the Top 1% Most Cited in Cross-Fields in 2018.



**Prof Hui-Ming Cheng** Shenzhen Institute of Advanced Technology, CAS, China

Prof Hui-Ming Cheng is the founding director of the Institute of Technology for Carbon Neutrality, Shenzhen Institute of Advanced Technology, CAS, and the honorary dean of Faculty of Materials Science and Energy Engineering, Shenzhen University of Advanced Technology. He is concurrently the director of the Advanced Carbon Research Division of Shenyang National Laboratory for Materials Science, Institute of Metal Research, CAS. He is a member of CAS and a fellow of TWAS. His research activities mainly focus on energy materials and devices, carbon nanotubes, graphene, and other 2D materials. He has published over 900 papers with an h-index of 166, and is a Highly Cited Researcher in three fields of materials science, chemistry, and environment and ecology. He has given over 220 plenary/keynote/invited lectures at various conferences, and won quite many domestic and international awards. He is now the founding Editor-in-Chief of

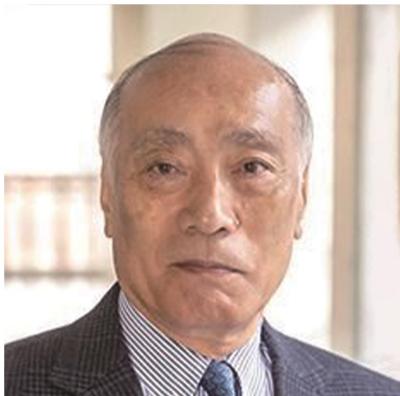
Energy Storage Materials and has spun off several high-tech companies.

## PLENARY/THEMED SPEAKERS



**Professor Yi-Bing Cheng** Foshan Xianhu Laboratory, China

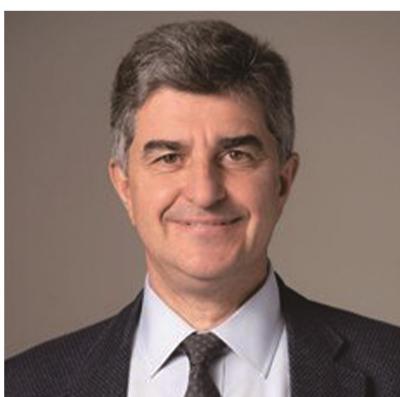
Prof Yi-Bing Cheng is currently a Strategic Scientist at the Foshan Xianhu Laboratory, Guangdong Province and Professor of Wuhan University of Technology, China, and Emeritus Professor of Department of Materials Science and Engineering, Monash University, Australia. He is an elected Fellow of the Australian Academy of Technology and Engineering. He was an academic staff at Monash University between 1991 and 2018. He specialises in materials science and technology. His current work at Foshan Xianhu Lab is to develop carbon-free fuel combustion technologies for high temperature manufacturing industries.



**Prof Morinobu Endo** Shinshu University, Japan

Prof Morinobu Endo studied electrical engineering at Shinshu University in Nagano, Japan, and obtained Ph.D. in Engineering in 1978 from Nagoya University. In his doctor thesis, he developed the synthesis method of carbon nanotubes, and showed a tubular structure of carbon for the first time in 1976. In 1990, he became a professor of the Department of Electrical Engineering, Shinshu University. His present posts are a Distinguished Professor of Shinshu University, the Director of Endo Special Laboratory at The Institute of Carbon Science and Technology and Research Leader for Global Aqua Innovation Centre, Shinshu University. He has published over 500 papers and given numbers of prizes within Japan and overseas, such as Charles E. Pettinos Award from American Carbon Society in 2001, Medal of Achievement in Carbon Science and Technology from American Carbon Society in 2004, Science and Technology Prize for Contribution to Intellectual Cluster from The Ministry of

Education, Culture, Sports, in 2005, Medal with Purple Ribbon from Japanese government in 2008, International Ceramics Prize 2012 from World Academy of Ceramics, NANOSMAT Prize in 2012 and so on. He has done over 70 plenary, keynote and invited lectures overseas and



**Prof Yury Gogotsi** Drexel University, USA

Prof Yury Gogotsi is a Distinguished University Professor and Charles T. and Ruth M. Bach Endowed Chair in the Department of Materials Science and Engineering at Drexel University (Philadelphia, USA). He is the founding Director of the A.J. Drexel Nanomaterials Institute. Together with his students and colleagues, he made principal contributions to the development of materials for electrochemical energy storage and discovered MXenes. He is recognized as a Highly Cited Researcher in Materials Science and Chemistry and a Citations Laureate in Physics by Clarivate Analytics. He has received more than 60 awards for his research and teaching activities, including the Ceramic Prize from the World Academy of Ceramics, the MRS Medal, the Jan Czochralski Award from the European MRS, the ACS Award in the Chemistry of Materials, the Friendship Award from P.R. China, etc. He is a Fellow of the National Academy of Inventors, the World

Academy of Ceramics, the European Academy of Sciences (EurASc), Academia Europaea, and many professional societies. He holds honorary doctorates from several European Universities.

## PLENARY/THEMED SPEAKERS

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**Dr Jinghua Guo** Lawrence Berkeley National Laboratory, USA

Dr Jinghua Guo is a Senior Scientist, Lead of RIXS Program of Photon Science Group at the Advanced Light source, Lawrence Berkeley National Laboratory, adjunct professor in the Department of Chemistry and Biochemistry, University of California, Santa Cruz. He received his PhD in Uppsala University, Sweden in 1995, M.S. in Shanghai Institute of Optics and Fine Mechanics, Chinese Science Academy, China in 1988, B.S. in Zhejiang University, China in 1985, and joined Lawrence Berkeley National Laboratory in 2001. His research focuses on soft X-ray spectroscopy of nanostructured materials, energy storage materials, catalysis, and chemical processes. He has developed novel instrumentation of in-situ/operando soft X-ray spectroscopy for studying energy materials, electrochemical and catalytic reactions in the real-world conditions. He has published over 510 peer-reviewed articles with Google Scholar Citations over 39350 and h-index of 99.



**Prof Zaiping Guo** University of Adelaide, Australia

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



**Prof Lei Jiang** The Technical Institute of Physics and Chemistry, CAS, China

Prof Lei Jiang is a Professor at the Technical Institute of Physics and Chemistry, Chinese Academy of Sciences (TIPC). He is an academician of the Chinese Academy of Sciences, Academy of Sciences for the Developing World, National Academy of Engineering (USA), Australian Academy of Science, Academia Europaea and European Academy of Engineering. Prof. Lei Jiang has discovered and established the basic principle of the interfacial material systems with superwettability and extended them to successful innovative applications. His work has been followed by more than 1,400 research institutions in 100 countries around the world. He is the most original and influential scientist in the field of material science in China.

## PLENARY/THEMED SPEAKERS



**Dr Esther Levy** *Co Editor-in-Chief, Advanced Materials*

Dr Esther Levy completed her Ph.D. in supramolecular chemistry at Cambridge University (UK) in 1997. She then joined the Advanced Materials editorial team (Wiley-VCH, Germany) where she was appointed Editor-in-Chief in 2002. In 2007, Esther relocated to Sydney to take up the position of Senior Commissioning Editor for Wiley's physical sciences book, journal and society publishing program in the Asia-Pacific region. She returned to the Advanced family of journals in 2011, where she is currently Editor-in-Chief of Advanced Materials Technologies as well as Consulting Editor for Wiley's flagship journals Advanced Materials and Small, the premium open-access general science journal Advanced Science and the new open-access journal Advanced Intelligent Systems.



**Prof Yuliang Li** *Institute of Chemistry, CAS, China*

Prof Yuliang Li is a Professor at the Institute of Chemistry, Chinese Academy of Sciences Professor, University of Chinese Academy of Sciences, Academician of the Chinese Academy of Sciences. Won the second prize of National Natural Science for three times in 2002, 2005 and 2014 respectively. Twice won the first prize of Beijing Science and Technology Award (Natural Science) and the second prize of Natural Science of Chinese Academy of Sciences. Won the first National Innovation Award in 2017, He Li Science and Technology Progress Award in 2017. Won the Outstanding Scientific and Technological Achievement Award of the Chinese Academy of Sciences in 2021. His research interests lie in the fields on chemistry of carbon and rich carbon, design and synthesis of low dimension and large size molecular aggregated structures based carbon and rich carbon materials with particular focus on the catalysis, energy, intelligent information and device integration.



**Prof Chang Ming Li** *Suzhou University of Science and Technology, China*

Professor Chang Ming Li, Member of the European Academy of Sciences, Fellow of the American Institute for Medical and Biological Engineering, National high-level specially appointed experts, and a renowned overseas teacher recognized by the Ministry of Education. He is currently the Dean of the School of Materials Science and Engineering at Suzhou University of Science and Technology. He served as the founding Chair of the Materials and Energy Department at Southwest University and the first Director of the Chongqing Key Laboratory of Clean Energy Materials and Technology. He also served as a tenured full professor and head of the Department of Bioengineering at Nanyang Technological University in Singapore, as well as a member of the Science Advisory Committee and Chief Scientist at Motorola Inc. in the United States. Professor Li has made a series of pioneering works in the fields of advanced functional materials, biosensors and

chips, green energy, especially power/energy storage batteries. He has over 300 patents from the United States, Singapore, and China, and has commercialized over 50 patents in China.

## PLENARY/THEMED SPEAKERS

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**Prof Yun Liu**   *The Australian National University, Australia*

Prof Yun Liu is the Australian National University (ANU) Distinguished Professor and Australian Research Council (ARC) Georgina Sweet Australian Laureate Fellow, leading the Functional Materials Research group at the Research School of Chemistry (RSC), at the ANU. Yun graduated from the Xian Jiaotong University, China with her BSc, MSc and PhD. She has since held five National Fellowship positions, including AIST and STA (now JSPS) Fellow at the National Institute of Advanced Industrial Science and Technology (AIST), Japan, and the ARC Queen Elisabeth II, Future Fellow and Georgina Sweet Australian Laureate Fellow in Australia. Her pioneering research focuses on defect chemistry, local structure and functional properties of condensed matters. She is internationally recognized for her application of complex materials chemistry to achieve novel functional properties for use in electronical technology, energy and environment. She is the CI and program co-leader in the ARC Centre of Excellence for Carbon Science and Innovation.



**Prof Junji Nakamura**   *Kyushu University, Japan*

Prof Junji Nakamura received his doctoral degree from Hokkaido University in 1988. After postdoctoral work at Indiana University and University of Washington, he joined University of Tsukuba as a Lecturer in 1990 and was promoted to Associate Professor and Professor in 2006. In 2022, he moved to Kyushu University. Professor Nakamura is a distinguished professor at Kyushu University and has performed surface science studies combined with heterogeneous catalysis for over 40 years. With over 200 peer-reviewed publications and an h-index of 59, Dr. Nakamura has made significant contributions to advancing understanding in these fields. Professor Nakamura is a sought-after speaker, having delivered more than 100 plenary, keynote, and invited lectures at major international conferences, where he shares insights from his latest research findings. His exceptional contributions have been recognized through numerous awards, solidifying his position as a leading figure in surface chemistry and materials science.



**Dr Ajit Roy**   *Air Force Research Laboratory, USA*

Dr. Ajit K Roy is a Principal Materials Research Engineer at the Nanoelectronic Materials Branch, the Materials and Manufacturing Directorate of the US Air Force Research Laboratory (AFRL), and group leader of a multiscale materials modeling group on innovative materials morphology design. In 2017, he became an AFRL Fellow – the AFRL's most prestigious accolade for research leadership and scholarly excellence. His current research interests include three-dimensional nanostructure design and fabrication, functional and reliability in nanoelectronic materials, responsive and high energy-density thermal storage concepts, and thermal interface design. He is a Fellow of ASME, American Society for Composites, Assoc-Fellow of AIAA. His contributions have earned him numerous awards, recognizing his groundbreaking research and dedication to advancing defense materials. He has published over 500 papers with an h-index of 77.

Dr. Roy has delivered over 100 plenary, keynote, and invited lectures at prestigious international conferences, sharing his expertise with the broader scientific community. Dr. Roy works closely with academic, industry, and government partners, and his innovations continue to influence the development of defense and aerospace materials technology.

## PLENARY/THEMED SPEAKERS



**Prof Paolo Samori** Université de Strasbourg, France

Prof Paolo Samori is Distinguished Professor at the University of Strasbourg and Emeritus Director of the Institut de Science et d'Ingénierie Supramoléculaires (ISIS). He is Member of the Académie des technologies, Member of ACATECH, Foreign Member of the Royal Flemish Academy of Belgium for Science and the Arts (KVAB), Fellow of the Royal Society of Chemistry (FRSC), Fellow of the European Academy of Sciences (EURASC), Member of the Academia Europaea, Fellow of the Materials Research Society (MRS) and Senior Member of the Institut Universitaire de France (IUF). He published 460+ papers on nanochemistry, supramolecular sciences and materials chemistry with a specific focus on two-dimensional materials and functional organic/polymeric nanomaterials for optoelectronics, energy storage and sensing.



**Prof Magda Titirici** Imperial College London, UK

Prof Magda Titirici is a Chair in Sustainable Energy Materials at Imperial College London. Prior she has worked at Queen Mary University of London and the Max-Planck Institute of Colloids and Interfaces. She is well recognised for her research in sustainable carbon materials for energy storage and conversion applications particularly batteries beyond Li ion, biomass electrolysis to H<sub>2</sub> and high value chemicals as well as developing Pt free catalysts for the Oxydation Reduction Reaction in fuel cells. She is on the list of Clarivate Highly Cited Researchers since 2018 , only 13 years past her PhD. She has won numerous awards and recognition for her research from Royal Society, Royal Society of Chemistry, Royal Academy of Engineering, Institute for Materials and Mines, latest being the Imperial College President Award for Excellence in Research. Magda leads a diverse and multidisciplinary team of about 40 people in the Department of Chemical Engineering at Imperial.



**Prof Shun Wang** Wenzhou University, China

Prof Shun Wang, second-level professor of the state, Ph.D supervisor, he is now the vice president of Wenzhou University, State-Council Allowance Obtained Expert, National Young and Middle-aged Experts with Outstanding Contribution, and the editor-in-chief of a Wiley's journal Carbon Energy with an impact factor (IF) of 21.556. He is a Fellow of the Royal Society of Chemistry (FRSC), head of National Talent Introduction Demonstration Base, director of chemistry doctoral program, director of Zhejiang International Science and Technology Cooperation Base for Micro/Nano Structured Carbon Materials Technology, director of Zhejiang Engineering Research Center of Electrochemical Energy Materials and Device, dean of the Institute of New Materials and Industrial Technologies, and member of Zhejiang Talents Association for Science and Technology.

His research efforts have been dedicated to the novel design, preparation, and multi-dimensional assembly of carbon energy materials, fluoro-materials and engineering, from the fundamental research aspects of structure-activity relationship to the applicable exploration of their efficient energy storage and functional polymers.

## PLENARY/THEMED SPEAKERS

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**Emily Young** *Journal Manager, Frontiers in Materials*

Emily Young is the Journal Manager for *Frontiers in Materials* and *Frontiers in Sensors*. She completed a Bachelor's with Honors in History with a Year Abroad at the University of Birmingham, UK, in July 2016. She spent a year at Wilfrid Laurier University, Canada studying various aspects of US, Canadian and Asian history. She joined *Frontiers* February 2017 as a founding member of the Journal Launch Team. From May 2018 to January 2020 she worked as a Journal Specialist supporting the strategic development of *Frontiers in Chemistry* and *Frontiers in Materials*. In February 2020 she took over leadership of *Frontiers in Materials*, with *Frontiers in Sensors* joining her portfolio in June 2020.



**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.

# PROGRAM

Venue	Day 1	Monday, 11 November 2024	Registration and Reception	Sunday, 10 November 2024	Plenary/Themed (30 min)	Keynote (20 mins)	Invited ('15 mins)	Oral (10 mins)
16:00-18:00	8:00-9:00							
9:00-9:20			Conference Opening (Chair: Prof. Liming Dai; Venue: Whiteley)					
9:20-9:50	PLENARY LECTURES 1-1 Chair: Prof. Rose Amal Venue: Whiteley	Plenary: Actuation, mechanical energy harvesting, and refrigeration using coiled or plied polymer or carbon nanotube yarns <b>Prof. Ray H. Baughman</b> , University of Texas at Dallas, USA						
9:50-10:20		Plenary: Efficient catalytic conversion of carbon-based energy for carbon neutrality <b>Prof. Xinhe Bao</b> , University of Science and Technology of China, China						
10:20-10:50		Plenary: Sustainable Batteries and Electrocatalytic Processes <b>Prof. Magda Titirici</b> , Imperial College London, UK						
10:50-11:20			Morning Tea break (Foyer)					
Venue	Whiteley 1	Whiteley 2	Boyd	Session 3-1 Carbon for energy Chair: Prof. Yongsheng Chen	Session 4-1 Carbon for environment Chair: Prof. Hui Tong Chua	Lindsay		Hart Room (Level 1)
Sessions	Session 1-1 Carbon materials, characterisation and modeling Chair: Prof. Apparao Rao	Session 2-1 Carbon for catalysis Chair: Prof. Qiang Zhang					Session 5-1 Carbon for Biomedicine Chair: Prof. Megan Lord	
11:20-11:40	Keynote: Graphene oxide membranes <b>AI Prof. Rakesh Joshi</b> , University of New South Wales, Australia	Keynote: Green carbocatalysis for energy and chemical conversion <b>Prof. Shaobin Wang</b> , The University of Adelaide, Australia		Keynote: Nanofluidic energy storage <b>Prof. Da-Wei Wang</b> , Shenzhen University of Advanced Technology, China	Keynote: 2D materials for electronic waste management <b>AI Prof. Daria V. Andreeva</b> , National University of Singapore, Singapore		Keynote: Photoluminescent properties of carbon materials; applications in photovoltaics and MRI Imaging <b>Prof. Conchi O. Ania</b> , Université d'Orléans, France	
11:40-12:00	Keynote: 3D printing of liquid metal nanoparticle/polymer Composites <b>Dr. Ruirui Qiao</b> , The University of Queensland, Australia	Keynote: Heterogeneous molecular catalysts with carbon nanotube substrates <b>Prof. Yuan Chen</b> , The University of Sydney, Australia		Keynote: 2D metal oxide nanostructures for green hydrogen production <b>Prof. Ziqi Sun</b> , Queensland University of Technology, Australia	Keynote: Carbon photocatalysts for H <sub>2</sub> production and environmental remediation <b>Prof. Adam F. Lee</b> , Griffith University, Australia		Keynote: Plasma bio-engineering; advancing biomimetic devices, biofabrication, and nanomedicine <b>Dr. Behnam Akhavan</b> , University of Newcastle, Australia	

# PROGRAM

<p><b>12:00-12:15</b></p> <p><b>Invited:</b> Sustainable synthesis of carbon materials using molten salt electrolysis <b>Dr. Jessica Allen,</b> University of Newcastle, Australia</p>	<p><b>Invited:</b> Atomically dispersed electrocatalysts for highly efficient energy conversion <b>Dr. Yufei Zhao,</b> University of Technology Sydney, Australia</p>	<p><b>Invited:</b> Engineered carbon catalysts for green hydrogen peroxide production and environmental application <b>Dr. Xiangkang Zeng,</b> The University of Queensland, Australia</p>	<p><b>Invited:</b> Carbon nanohybrids for catalytic water purification <b>A/Prof. Xiaoguang Duan,</b> University of Adelaide, Australia</p>	<p><b>Invited:</b> Mapping atomic scale electronic structures of carbon materials for energy and quantum sensing applications <b>A/Prof. Sheny L. Y. Chang,</b> University of New South Wales, Australia</p>
<p><b>12:15-12:25</b></p> <p><b>Oral:</b> Improved graphene oxide reduction using bimetallic core-shell Ag-Pt nanoparticles <b>Mani Mani,</b> University of New South Wales, Australia</p>	<p><b>Oral:</b> Synthesis and application research on conjugated poly(orthothiocyanine - based electrocatalytic materials <b>Yajing Di,</b> Beijing University of Chemical Technology, China</p>	<p><b>Oral:</b> An interface-enhanced continuous 2D-carbon network enabling high-performance Si anodes for Li-ion batteries <b>Jiaying Peng,</b> Beijing University of Chemical Technology, China</p>	<p><b>Oral:</b> Strategies for achieving carbon neutrality in the chemical industry <b>Dr. Ladan Malehmirchegini,</b> Kyushu University, Japan</p>	<p><b>Oral:</b> Pentagon-hid caged carbon catalyst for the oxygen reduction reaction <b>Guoping Chen,</b> Kyushu University, Japan</p>
<b>12:25-13:30</b>				
<p><b>13:30-14:00</b></p> <p><b>THEMED LECTURES 1-2</b> Chair: Prof. Zaiping Guo Venue: Whiteley</p>	<p><b>Themed:</b> Development of advanced Li-ion batteries and beyond to reduce cost and ensure sustainability for electric vehicles <b>Dr. Khalil Amine,</b> Argonne National Laboratory, USA</p>	<p><b>Themed:</b> Advanced porous carbon electrodes for Li/Na-S batteries and beyond <b>Prof. Changming Li,</b> Suzhou University of Science and Technology, China</p>	<p><b>Themed:</b> Exploring the potential of stipea tenacissima and other biomass resources for hard carbon production in Na-ion batteries <b>Prof. Jones Alami,</b> Mohammed VI Polytechnic University, Morocco</p>	<p><b>Themed:</b> Multiphysical coupled microdesign for sustainable zinc-based batteries <b>Prof. Shun Wang,</b> Wenzhou University, China</p>
<b>15:30-16:00</b>				
<p><b>Venue</b></p>	<p><b>Whiteley 1</b></p>	<p><b>Whiteley 2</b></p>	<p><b>Boyd</b></p>	<p><b>Lindsay</b></p>
<p><b>Session</b></p>	<p><b>Session 1-2</b> Carbon materials, characterisation and modelling Chair: A/Prof. Ulf Garbe</p>	<p><b>Session 2-2</b> Carbon for Catalysis Chair: Dr. Wenxian Li</p>	<p><b>Session 3-2</b> Carbon for Energy Chair: Dr. Paolo Giusto</p>	<p><b>Hart Room (Level 1)</b></p>
<p><b>16:00-16:20</b></p>	<p><b>Keynote:</b> Revolutionizing multifunctional subaqueous apparatus via advanced structural engineering of nanocarbon materials <b>Prof. Ming Xu,</b> Huazhong University of Science and Technology, China</p>	<p><b>Keynote:</b> Pyrolysis-free covalent organic polymers directly for oxygen electrocatalysis <b>Prof. Zhonghua Xiang,</b> Beijing University of Chemical Technology, China</p>	<p><b>Keynote:</b> Our advances in rational design of perovskite materials for energy storage and conversion <b>Prof. Zongping Shao,</b> Curtin University, Australia</p>	<p><b>Keynote:</b> Bio-inspired Nanoionic Materials for Energy Harvesting Devices <b>Prof. Apparao M. Rao,</b> Clemson University, USA</p>
<p><b>16:20-16:40</b></p>	<p><b>Keynote:</b> Wiring proton gradients for energy conversion using light-switchable molecular switches <b>Dr. Dong Jun Kim,</b> University of New South Wales, Australia</p>	<p><b>Keynote:</b> Carbon dot-based hybrid quantum materials for photocatalysis <b>Prof. Qin Li,</b> Griffith University, Australia</p>	<p><b>Keynote:</b> 2D Bi-based nanomaterials for clean energy and catalytic applications <b>Dr. Liang Jason Wang,</b> Griffith University, Australia</p>	<p><b>Keynote:</b> Micro- and nanoengineering of semiconductor materials for biosensing <b>A/Prof. Toan Dinh,</b> University of Southern Queensland, Australia</p>

# PROGRAM

<p><b>Keynote:</b> Graphitic materials for energy applications <b>Prof. Ji-Hyun Jang,</b> Ulsan National Institute of Science and Technology, South Korea</p> <p><b>Invited:</b> Revolutionizing activation technology for advanced hierarchically porous carbon materials <b>Dr. Quanxiang Li,</b> Deakin University, Australia</p> <p><b>Invited:</b> Exploring photofunctional materials at the nanoscale <b>Dr. Teng Lu,</b> Australian National University, Australia</p>	<p><b>Keynote:</b> Design of microtubular gas diffusion electrodes for gas-phase electrolysis <b>A/Prof. Lei Ge,</b> University of Southern Queensland, Australia</p> <p><b>Invited:</b> Phthalocyanine-based materials for electrocatalysis <b>Prof. Zhengping Zhang,</b> Beijing University of Chemical Technology, China</p> <p><b>Invited:</b> Stable anode for efficient zinc metal batteries <b>Dr. Zengxia Pei,</b> The University of Sydney, Australia</p>	<p><b>Keynote:</b> Carbon-based materials for metal-air batteries <b>Dr. Bing Sun,</b> University of Technology Sydney, Australia</p> <p><b>Invited:</b> Refining structures of electrochemical catalysts for energy storage and conversion <b>Dr. Jinjiang Zhang,</b> University of Technology Sydney, Australia</p> <p><b>Invited:</b> Sustainable energy storage within octahedral molecule sieves <b>Prof. Yifei Yuan,</b> Wenzhou University, China</p>	<p><b>Keynote:</b> Carbon nitride-based materials for light-assisted energy and environmental applications <b>Prof. Hongqi Sun,</b> The University of Western Australia, Australia</p> <p><b>Invited:</b> Nanoengineered electroactive polymers: a new materials paradigm for neuromodulation <b>A/Prof. Matthew J. Griffith,</b> University of South Australia, Australia</p> <p><b>Invited:</b> Transforming undesired corrosion products into a nanoflake-array functional layer: a gelatin-assistant modification strategy for high performance zn battery anodes <b>Bing Wu,</b> Beijing University of Chemical Technology, China</p>	<p><b>Keynote:</b> Temporal, spatial and thermal dynamics of intracellular organelles revealed by biophysical nanotools and advanced imaging <b>Dr. Qian Peter Su,</b> University of Technology Sydney, Australia</p> <p><b>Invited:</b> Toward improved drug delivery via the bloodstream via tuning biomaterial affinity for the blood vessel wall <b>Prof. Megan Lord,</b> The University of New South Wales, Australia</p> <p><b>Invited:</b> Nano-structured porous carbon materials for enabling ultrafast gas hydrate formation for energy storage and carbon sequestration <b>Dr. Ngoc N. Nguyen,</b> The University of Queensland, Australia</p> <p><b>Oral:</b> Electrolysing CO<sub>2</sub> capture solution to CO on flame spray pyrolysis deposited silver <b>Dr. Yuming Wu,</b> Macquarie University, Australia</p>	<p><b>Keynote:</b> H<sub>2</sub>O<sub>2</sub> generation from carbon catalysts for biomedical applications <b>Quanbin Dai,</b> University of New South Wales, Australia</p>
<p><b>16:40-17:00</b></p>	<p><b>17:00-17:15</b></p>	<p><b>17:15-17:30</b></p>	<p><b>17:30-17:50</b></p>	<p><b>17:30-17:40</b></p>	

# PROGRAM

Day 2		Tuesday, 12 November, 2024					
8:30-9:00		Arrival tea and coffee (Foyer)					
9:00-9:30		Plenary: Graphene oxide: from preparation to applications Prof. Hui-Ming Cheng, Chinese Academy of Sciences, China					
9:30-10:00		Plenary: Mechanism and active sites of oxygen reduction reaction on nitrogen-doped carbon catalysts Prof. Junji Nakamura, Kyushu University, Japan					
10:00-10:30	PLENARY LECTURES 1-3 Chair: Prof. Shizhang Qiao Venue: Whiteley	Plenary: Green electrochemical transformation of carbon dioxide: challenges and solutions Prof. Huijun Zhao, Griffith University, Australia					
10:30-11:00		Plenary: MXenes from discovery to the modern day and beyond Prof. Yury Gogotsi, Drexel University, USA					
11:00-11:30		Morning Tea break (Foyer)					
Venue	Whiteley 1	Whiteley 2	Boyd	Lindsay	Hart Room (Level 1)		
Sessions	Session 1-3: Carbon materials, characterisation and modelling Chair: Prof. Zhemhai Xia	Session 2-3: Carbon for catalysis Chair: Prof. Yao Zheng	Session 3-3: Carbon for energy Chair: Prof. Chun Wang	Session 4-3: Carbon for environment Chair: Prof. Zhonghua Xian	Session 5-3: Carbon for biomedicine Chair: A/Prof. Kang Liang		
11:30-11:50	<b>Keynote:</b> Molecular modelling of electrocatalyst materials for clean energy conversion Prof. Yan Jiao, University of Adelaide, Australia	<b>Keynote:</b> Defective carbon-based materials for electrocatalysis Prof. Jun Chen, University of Wollongong, Australia	<b>Keynote:</b> The Promotion of emerging carbon energy materials for next-generation batteries through lithium bond chemistry Prof. Qiang Zhang, Tsinghua University, China	<b>Keynote:</b> Structural design of carbon-based electrodes and catalytic reduction mechanism of carbon dioxide Prof. Yang Hou, Zhejiang University, China	<b>Keynote:</b> Intelligent wearable resistive skins for monitoring human and organoids Prof. Wenlong Cheng, The University of Sydney, Australia		
11:50-12:10	<b>Keynote:</b> Computational design of sustainable 2d semiconductors, interfaces and devices Asst/Prof. Yee Sin Ang, Singapore University of Technology and Design, Singapore	<b>Keynote:</b> Metal organic framework derived carbon materials for carbon dioxide reduction reactions Prof. Akshat Tanksale, Monash University, Australia	<b>Keynote:</b> Boron-based materials: energy conversation and storage Prof. Zhenguo Huang, University of Technology Sydney, Australia	<b>Keynote:</b> Efficient magnetic capture and valorization of micro(nano)plastics from water systems Prof. Bing-Jie Ni, University of New South Wales, Australia	<b>Keynote:</b> Practical graphene oxide membranes for molecular separations Prof. Mainak Majumder, Monash University, Australia		
12:10-12:25	<b>Invited:</b> Multiscale design of carbon-based catalysts: a maximum entropy production approach using reaction-diffusion dynamics Prof. Klaus Regenauer-Lieb, Curtin University, Australia	<b>Invited:</b> Atomically thin 2D organic semiconductors Prof. Yuerui Lu, Australian National University, Australia	<b>Invited:</b> Neutron imaging applications in carbon fiber, battery and cement research A/Prof. Ulf Garbe, ANSTO, Australia	<b>Invited:</b> Machine learning big dataset analysis-driven C2 catalysis Asst/Prof. Haobo Li, Nanyang Technological University, Singapore	<b>Invited:</b> Defect-engineered nanomaterials as in situ quantum sensors Dr. Jean-Philippe Tetienne, RMIT University, Australia		
12:25-12:40	<b>Invited:</b> Exploring direct electrochemical Fischer-Tropsch synthesis of C1-C7 Hydrocarbons via perimeter engineering of Au-SrTiO <sub>3</sub> catalyst Prof. Chang Woo Myung, Sungkyunkwan University, South Korea	<b>Invited:</b> The application of silicon anode materials in energy storage systems Dr. Lei Zhang, Griffith University, Australia	<b>Invited:</b> White graphene: thickness-related properties and applications Dr. Qiran Cai, Deakin University, Australia	<b>Invited:</b> Efficient ion separation by metal-organic framework Dr. Jun Lu, Monash University, Australia			

# PROGRAM

<p><b>12:40-13:30</b></p> <p style="text-align: center;"><b>Lunch break (Croft Restaurant, Amora Hotel Level 1) and Poster session (Whiteley 1)</b></p>	<p><b>13:30-14:00</b></p> <p><b>THEMED LECTURES 1-4</b></p> <p><b>Chair:</b> Prof. Yun Liu <b>Venue:</b> Whiteley</p>	<p><b>Themed:</b> Quantum ionics: ultra-low energy consumption of energy conversion/information transmission in biologic system <b>Prof.</b> <b>Lei Jiang</b>, Chinese Academy of Sciences, China</p>
<p><b>14:00-14:30</b></p>	<p><b>THEMED LECTURES 1-4</b></p> <p><b>Chair:</b> Prof. Yun Liu <b>Venue:</b> Whiteley</p>	<p><b>Themed:</b> Bottom-up hybrid materials design for multifunctionality <b>Dr.</b> <b>Alit K. Roy</b>, Air Force Research Laboratory, USA</p>
<p><b>14:30-15:00</b></p>	<p><b>THEMED LECTURES 1-4</b></p> <p><b>Chair:</b> Prof. Yun Liu <b>Venue:</b> Whiteley</p>	<p><b>Themed:</b> Electrocatalysis design for high energy metal-carbon dioxide batteries <b>Prof.</b> <b>Zaiping Guo</b>, University of Adelaide, Australia</p>
<p><b>15:00-15:30</b></p>	<p><b>THEMED LECTURES 1-4</b></p> <p><b>Chair:</b> Prof. Yun Liu <b>Venue:</b> Whiteley</p>	<p><b>Themed:</b> Carbon-free ammonia combustion technologies for decarbonisation in high temperature manufacturing industries <b>Prof.</b> <b>Yi-Bing Cheng</b>, Foshan Xianhu Laboratory, and Wuhan University of Technology, China</p>
<p><b>15:30-16:00</b></p>		<p style="text-align: center;"><b>Afternoon Tea break (Foyer)</b></p>
<p><b>Venue</b></p>	<p><b>Whiteley 1</b></p>	<p><b>Hart Room (Level 1)</b></p>
<p><b>Sessions</b></p>	<p><b>Session 1-4:</b> carbon materials, characterisation and modelling <b>Chair:</b> Prof. Klaus Regenauer-Lieb</p>	<p><b>Session 2-4:</b> Carbon for catalysis <b>Chair:</b> Prof. Richard Tilley</p>
<p><b>16:00-16:20</b></p>	<p><b>Keynote:</b> Computational design of new materials for electronics, energy and environmental applications <b>Prof.</b> <b>Aijun Du</b>, Queensland University of Technology, Australia</p>	<p><b>Keynote:</b> Challenges and opportunities for single-atom electrocatalysis: from lab-scale research to potential industry-level applications <b>Prof.</b> <b>Chuan Zhao</b>, The University of New South Wales, Australia</p>
<p><b>16:20-16:40</b></p>	<p><b>Keynote:</b> High-quality atomically thin superconductors <b>Dr.</b> <b>Zhi Li</b>, University of New South Wales, Australia</p>	<p><b>Keynote:</b> Hierarchical nanostructures for high performance electrocatalysis <b>Dr.</b> <b>Lucy Gao</b>, Australian National University, Australia</p>
		<p><b>Keynote:</b> fully roll-to-roll fabricated high-efficiency thin film solar cells <b>Dr.</b> <b>Mei Gao</b>, CSIRO, Australia</p>
		<p><b>Keynote:</b> Catalyst design for optimal urea electrosynthesis <b>AI Prof.</b> <b>Liangzhi Kou</b>, Queensland University of Technology, Australia</p>

# PROGRAM

<p><b>16:40-16:55</b></p> <p><b>Invited:</b> Design and optimization of a black plasmonic-<i>au</i> paper based solar water-evaporation system with enhanced efficiency and stability <b>A/Prof. Ilsun Yoon,</b> Chungnam National University, South Korea</p>	<p><b>Invited:</b> Atomic-level regulation on photocatalyst for energy-related reaction <b>Dr. Jingrun Ran,</b> the University of Adelaide, Australia</p>	<p><b>Invited:</b> Heterogeneous molecular catalysis for electrochemical CO<sub>2</sub> reduction <b>Prof. Yijiao Jiang,</b> Macquarie University, Australia</p>	<p><b>Invited:</b> Electrochemical Fischer-Tropsch chemistry for future sustainable fuels? <b>Prof. Youngku Sohn,</b> Chungnam National University, South Korea</p>
<p><b>16:55-17:10</b></p> <p><b>Invited:</b> Correlative approach for analyzing porosity in nuclear graphite <b>Dr. Bernd Schulz,</b> ZEISS Group, Australia</p>	<p><b>Invited:</b> Effects of substrate materials on the electrochemical properties of boron-doped diamond electrodes <b>Prof. Atsushi Otake,</b> Keio University, Japan</p>	<p><b>Invited:</b> A platform to make and un-make polymers: a step toward a circular carbon economy <b>Prof. Justin Chalker,</b> Flinders University, Australia</p>	<p><b>Invited:</b> EPR applied to materials science <b>Prof. Nick Cox,</b> Australian National University, Australia</p>
<p><b>17:10-17:20</b></p> <p><b>Oral:</b> Nucleation rate of carbon black nanoparticles via molecular dynamics simulations <b>Arash Fakharnezhad,</b> University of Melbourne, Australia</p>	<p><b>Oral:</b> Carbon catalysts for urea synthesis <b>Vandana Verma,</b> University of New South Wales, Australia</p>	<p><b>Oral:</b> Mechanistic insights into small molecule electrocatalytic conversion and rational catalyst design <b>Dr. Xin Mao,</b> University of Adelaide, Australia</p>	<p><b>Oral:</b> Chiral catalyst effect of twisted nanowire bundles for photoelectrochemical water splitting <b>Prof. Jaeboom Lee,</b> Chungnam National University, South Korea</p>
<p><b>17:20-17:30</b></p> <p><b>Oral:</b> Carbon-based hybrid energy materials <b>Prof. Zhihong Tian,</b> Henan University, China</p>	<p><b>Oral:</b> The interface design of graphdiyne for electrochemical energy storage <b>Prof. Changshui Huang,</b> Chinese Academy of Sciences, China</p>	<p><b>Oral:</b> Tailored production of bio-based hard carbon from agricultural biomass for sodium-ion battery anode application <b>Nethmi Kulaniaka Dayaratne,</b> Queensland University of Technology, Australia</p>	<p><b>Oral:</b> Sustainable, highly porous carbon microspheres and their hydrogen storage performance <b>Dr. Ana Fernández-Lera González,</b> Institute of Carbon Science and Technology (INCAR-CSIC), Spain</p>
<p><b>18:30-21:30</b></p>	<p><b>Conference cruise dinner</b></p>	<p>18:30 embarking for a strict 19:00 departure 21:30 return</p>	<p><b>Starship Sydney</b></p> <p><i>Departure and return from: No 4, King Street Wharf, Darling Harbour</i></p>
<p><b>Venue</b></p>			

# PROGRAM

Day 3		Wednesday, 13 November, 2024					
8:30-9:00		Arrival tea and coffee (Foyer)					
9:00-9:30	PLENARY LECTURES 1-5 Chair: Prof. Liming Dai Venue: Whiteley	<b>Plenary:</b> Nanocarbon's Innovation toward Carbon Circular Economy <b>Prof. Morinobu Endo,</b> Shinshu University, Japan	<b>Plenary:</b> Controllable synthesis, aggregation structure and application of Graphdiyne <b>Prof. Yuliang Li,</b> Chinese Academy of Science, China	<b>Plenary:</b> Mechanochemistry for materials synthesis <b>Prof. Jong-Beom Baek,</b> Ulsan National Institute of Science and Technology, South Korea	<b>Plenary:</b> Chemical and physical sensing with low-dimensional nanostructures: the disruptive power of supramolecular chemistry <b>Prof. Paolo Samori,</b> University of Strasbourg & CNRS, France		
9:30-10:00							
10:00-10:30							
10:30-11:00							
11:00-11:30							
Venue	Whiteley 1	Whiteley 2	Boyd	Lindsay	Hart Room (Level 1)		
Session	<b>Session 1-5:</b> Carbon materials, characterisation and modelling Chair: Prof. Ming Xu	<b>Session 2-5:</b> Carbon for catalysis Chair: Prof. Yang Hou	<b>Session 3-5:</b> Carbon for energy Chair: Prof. Akshat Tanksale	<b>Session 4-5</b> Carbon for environment Chair: Dr. Emma Lovell	<b>Session 5-5;</b> Carbon for biomedicine Chair: Dr. Simon Corrie		
11:30-11:50	<b>Keynote:</b> Carbon fibre-based structural battery with dual-phase solid electrolytes <b>Prof. Chun H. Wang,</b> University of New South Wales, Australia	<b>Keynote:</b> Carbon-based electrodes for alternative battery chemistries <b>Prof. Ashok Kumar Nanjundan,</b> University of Southern Queensland, Australia	<b>Keynote:</b> Microdesign of heteroatom-doped carbon-based energy storage <b>Prof. Huile Jin,</b> Wenzhou University, China	<b>Keynote:</b> Basic research on key technology and materials of off-grid produced green hydrogen <b>Prof. Chunxian Guo,</b> Suzhou University of Science and Technology, China	<b>Keynote:</b> Engineering nanobiophbrids for environmental sustainability <b>A/Prof. Kang Liang,</b> The University of New South Wales, Australia		
11:50-12:10	<b>Keynote:</b> Improving the thermal stability and oxidation resistance of high temperature carbon fibre composites <b>A/Prof. Jin Zhang,</b> University of New South Wales, Australia	<b>Keynote:</b> Dipole moment tuning in semiconductor photoelectrodes <b>Dr. Zhiliang Wang,</b> University of Queensland, Australia	<b>Keynote:</b> Covalent thin films for energy applications and beyond <b>Dr. Paolo Giusto,</b> Max Planck Institute of Colloids and Interfaces, Germany	<b>Keynote:</b> Strategies for hydrogen production <b>Prof. Jiaobao Yi,</b> University of Newcastle, Australia	<b>Keynote:</b> Biorefining of agricultural biomass into sustainable functional materials <b>Prof. Zhanming Zhang,</b> Queensland University of Technology, Australia		
12:10-12:25	<b>Invited:</b> True surface SEM imaging of carbon materials at ultra-low acceleration voltages below 1 kV <b>Dr. Kashmira Raghuram,</b> ZEISS Group, Australia	<b>Invited:</b> Regulation of electrochemical active sites via carbon microstructure <b>Dr. Linjie Zhao,</b> Beijing University of Chemical Technology, China	<b>Invited:</b> The role of electrocatalytic materials in metal sulfur batteries <b>Dr. Chao Ye,</b> The University of Adelaide, Australia	<b>Invited:</b> Phase stabilization strategies for efficient perovskite solar cells, <b>Dr. Peng Chen,</b> The University of Newcastle, Australia	<b>Invited:</b> Metal-free carbon catalysts for catalytic cancer therapy <b>A/Prof. Sophia Gu,</b> University of New South Wales, Australia		
12:25-12:40	<b>Invited:</b> Methylammonium-free inks for upscaleable fabrication of perovskite thin films and solar cells <b>Dr. Meng Zhang,</b> University of New South Wales, Australia	<b>Invited:</b> Advanced design of vanadium-based cathode materials for high-performance aqueous zinc-ion batteries <b>Prof. Jun Li,</b> Wenzhou University, China	<b>Invited:</b> Cross-scale modelling for dynamic ionic systems in graphene membrane energy storage devices <b>Prof. Zhe Liu,</b> The University of Melbourne, Australia	<b>Invited:</b> Anomalous ion transport in electrified graphene membranes <b>Dr. Wen-Jie Jiang,</b> The University of Melbourne, Australia	<b>Invited:</b> catalytic revaluation of carbon-based molecules <b>Prof. Zongyou Yin,</b> Australian National University, Australia		
12:40-12:50	<b>Oral:</b> Metallated graphynes: synthesis, characterization, and optical and catalytic	<b>Oral:</b> Scalable Ni-based electrocatalysts for hydrogen electrolyser	<b>Oral:</b> Multilayered graphene membrane for ammonium-ion storage	<b>Oral:</b> Data-driven design of carbon-based single-atom catalysts for electrochemical scales for H2O2 synthesis			

# PROGRAM

					<b>Lunch break (Croft Restaurant, Amora Hotel Level 1)</b>
12:50-13:40	Venue	<b>Whiteley 1</b>	<b>Whiteley 2</b>	<b>Boyd</b>	<b>Lindsay</b>
Sessions	<b>Session 1-6:</b> Carbon materials, characterisation and modelling Chair: Prof. Guan Yeeh	<b>Session 2-6:</b> Carbon for catalysis Chair: Prof. Shaobin Wang	<b>Session 3-6</b> Carbon for Energy Chair: Prof. Huile Jin	<b>Session 4-6</b> Carbon for Environment Chair: Prof. Ji-Hyun Jang	
13:40-14:00	<b>Keynote:</b> Advancing carbon-neutral and negative construction materials through nanotechnology and carbon sequestration <b>A/Prof. Wengui Li</b> , University of New South Wales, Australia	<b>Keynote:</b> Enhanced carbon dioxide conversion using graphene-based catalysts <b>A/Prof. Zhaojun Han</b> , Queensland University of Technology, Australia	<b>Keynote:</b> Nanocarbon and polymeric materials for green energy conversion and storage <b>Prof. Yongsheng Chen</b> , Nankai University, China	<b>Keynote:</b> Carbon capture for improving sustainability of urban water management <b>A/Prof. Min Zheng</b> , University of New South Wales, Australia	
14:00-14:20	<b>Keynote:</b> Computational insight into ionic liquids electrolytes for lithium and sodium metal batteries <b>Dr. Fangfang Chen</b> , Deakin University, Australia	<b>Keynote:</b> Atomically dispersed electrocatalysts for low temperature fuel cells, water electrolysis and Li-S battery <b>Prof. Jinwoo Lee</b> , KAIST, South Korea	<b>Keynote:</b> Carbon based functional materials for multivalent metal batteries <b>Bin Luo</b> , The University of Queensland, Australia.	<b>Keynote:</b> Designing and probing metal based electrocatalysts for energy conversion applications <b>A/Prof. Poran Liu</b> , Griffith University, Australia	
14:20-14:35	<b>Invited:</b> Organic multi exciton generation augmented silicon (OMEGA) <b>Dr. Michael P. Nielsen</b> , University of New South Wales, Australia	<b>Invited:</b> Illuminating Gold(II): The Thermal and photochemical reactivity of bridged gold(II) dimers <b>Dr. Benjamin Noble</b> , RMIT University, Australia	<b>Invited:</b> Mayenite electride: A conductive cements' application in future renewable energy <b>Dr. Karim Khan</b> , University of Technology Sydney, Australia	<b>Invited:</b> Understanding and designing additives for durable aqueous zinc batteries <b>Dr. Priyank Kumar</b> , The University of New South Wales, Australia	
14:35-14:45	<b>Oral:</b> Electroanalytic mechanism exploration of chirality-tuned cluster-encapsulated carbon nanotubes <b>Yuanhong Shan</b> , University of New South Wales, Australia	<b>Oral:</b> Dual-carbon battery with nonflammable solventless electrolyte: A safe, low-cost, eco-environmental energy storage <b>Dr. Minh Canh Vu</b> , University of Newcastle, Australia	<b>Oral:</b> Synthesis of polymer/GO nanocomposite foams via miniemulsion polymerization and freeze-casting techniques <b>Siti Humairah Harun</b> , The University of New South Wales, Australia	<b>Oral:</b> Unveiling catalyst engineering strategies in steering urea electrooxidation selectivity <b>Dr. Yuwei Yang</b> , University of New South Wales, Australia	
14:45-15:15				<b>Afternoon Tea break (Foyer)</b>	
15:15-15:45	<b>THEMED LECTURES 1-6</b> Chair: Prof. Lianzhou Wang Venue: Whiteley			<b>Themed:</b> Defect formation, characterisation and design in functional materials <b>Prof. Yun Liu</b> , Australian National University, Australia	
15:45-16:15				<b>Themed:</b> Carbon structure, chemical bonding, and reaction processes probed by soft X-ray spectroscopy <b>Dr. Jinghua Guo</b> , Lawrence Berkeley National Laboratory, USA	
16:15-16:45				<b>Presentation of Awards</b> (Prof. Shizhang Qiao, Venue: Whiteley)	<b>Closing Remarks</b> (Prof. Rose Amal, Venue: Whiteley)
16:45 – 17:00					

## Conference Attendees' list

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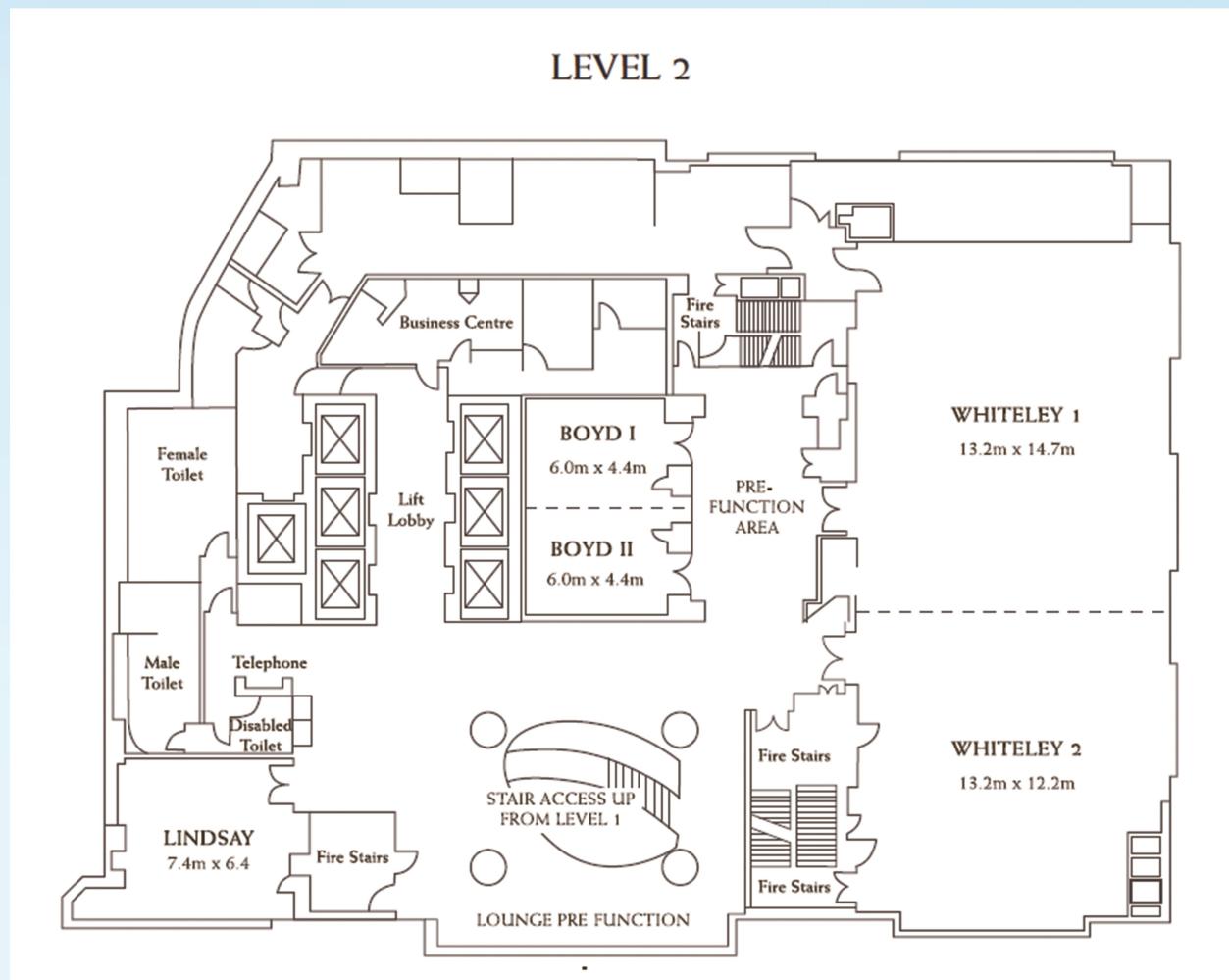


# General In

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# information

## Conference Cruise Dinner 12 November 2024

On Tuesday 12 November, all conference attendees are warmly invited to a dinner cruise around beautiful Sydney Harbour, hosted by Starship Cruises. Enjoy a buffet-style dinner complemented by a selection of drinks.

Please arrive at King Street Wharf no later than 6:30pm for a strict 7:00pm departure. The Wharf is a short 9-minute walk from the Amora Hotel. You can use Google Maps and search King Street Wharf!

We look forward to celebrating ICACSI with you on the cruise!





# NOTES



# NOTES





# NOTES



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