



THE UNIVERSITY OF  
**SYDNEY**



Australian Circular  
Economy Conference

# Australian Circular Economy Conference (ACEC 2018)

*Unlocking value from waste resources through  
collaboration and technology*

**19-20 November 2018**

**MERCURE KOOINDAH WATERS  
CENTRAL COAST**

The inaugural 'Australian Circular Economy Conference' (ACEC)

is organised by

The [Waste Transformation Research Hub](#) – A research hub at the School of Chemical and Biomolecular Engineering, The University of Sydney



This event is supported by the Office of the NSW Chief Scientist & Engineer, within the NSW Department of Industry.



Department  
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CHEMICAL  
ENGINEERING  
WORLDWIDE



# Australian Circular Economy Conference 2018

## Monday November 19, 2018

8:45 am – 9:00 am	<p style="text-align: center;"><b>Welcome and Introductions</b></p> <p style="text-align: center;"><i>Welcome to Country and opening of the Conference</i> Professor Dianne Wiley Head of School of Chemical &amp; Biomolecular Engineering The University of Sydney</p> <p style="text-align: center;"><i>Welcome from</i> Associate Professor Ali Abbas Conference Chair and Director Waste Transformation Research Hub The University of Sydney</p>
9:00 am – 9:45 am	<p style="text-align: center;"><b>Plenaries</b></p> <p style="text-align: center;">Antonia Gawel Head, Circular Economy Initiative, World Economic Forum Switzerland (<i>via video link</i>) <i>Systems leadership and the fourth industrial revolution for a circular economy</i></p> <p style="text-align: center;">Mr Justin Koek Director, Waste Strategy and Innovation, Waste and Resource Recovery Branch, NSW Environment Protection Authority <i>Too Good To Waste – A Circular Economy Approach for NSW</i></p>

<b>S e s s i o n 1</b>	<p style="text-align: center;"><b>Circular technologies: Australian local solutions for a global challenge</b> Chair: Dr Alejandro Montoya</p>
9:45 am – 11:00 am	<p style="text-align: center;">Professor Thomas Maschmeyer, Licella (Co-Founder and Technology Consultant) / University of Sydney (Professor of Chemistry) <i>Chemically recycling waste plastic with the Cat-HTR platform</i></p> <p style="text-align: center;">Dr Han Zhang, Sustainability and Advocacy Leader, Asia Pacific The Dow Chemical Company, Singapore <i>Plastics in South East Asia</i></p> <p style="text-align: center;">Mr Danny Gallagher, Managing Director, iQ Renew, Australia <i>Intelligent Australian recycling – a compete circular solution to resource recovery</i></p> <p style="text-align: center;">Mr Jim Appleby, General Manager – Reconomy, Downer Group, Australia <i>Enabling the Circular Economy by pulling products not pushing waste</i></p> <p style="text-align: center;">-----</p> <p style="text-align: center;"><b>Contract exchange ceremony</b> Delta Electricity &amp; The University of Sydney for project on <i>Upcycling of power plant fly ash into low-carbon engineered eco-pavements</i></p>

11:00am – 11:20am	Networking Break
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# Australian Circular Economy Conference 2018

<b>S e s s i o n 2</b>	<b>Digital Circular Economy</b> Chair: Associate Professor Ali Abbas
11:20am – 12:20pm	<p style="text-align: center;">Professor Sangwon Suh, University of California, Santa Barbara USA (<i>via video link</i>) <i>Chemical life cycle informatics: CLICC Initiative</i></p> <p style="text-align: center;">Ms Blaise Porter, Sustainability Manager, Australia &amp; New Zealand Fujitsu Australia <i>Getting smart with eWaste</i></p> <p style="text-align: center;">Mr Enrique Arquiaga, Business Development Director, Environment Broadspectrum <i>Development of a real-time monitoring system for waste flow</i></p> <p style="text-align: center;">Ms Esther Bailey, Sustainability Engagement Leader, City of Sydney <i>Enabling the Circular Economy – Showing by doing</i></p>

12:20pm – 12:30pm	<b>Conference group photo</b>
12:30pm – 1:30pm	Lunch
	<b>Closed business meeting</b> (invitation only): <i>Cooperation development on circular technologies</i>

1:30pm – 2:00pm	<b>Plenary</b>  Professor Yong Geng Dean of School of Environmental Science and Engineering, Shanghai Jiao Tong University, People's Republic of China <i>An overview on China's Circular Economy</i>
<b>S e s s i o n 3</b>	<b>Transitions to a circular economy: Perspectives from China</b> Chair: Dr Ron Wainberg
2:00pm – 3:00pm	<p style="text-align: center;">Sha Song, Senior Research Analyst World Economic Forum, People's Republic of China <i>China's perspective: The role for a multi-stakeholder action agenda on Circular Economy</i></p> <p style="text-align: center;">Associate Professor Ming Zhao, School of Environmental, Tsinghua University / Basel Convention Regional Centre, People's Republic of China <i>Basel Convention and its implementation in China</i></p> <p style="text-align: center;">Professor Hongtao Wang, Head Department of Environmental Engineering School of Environment, Tsinghua University, People's Republic of China <i>Sustainable solid waste management in China: Problems and considerations</i></p>

3:00pm – 3:30pm	Networking Break
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<b>S e s s i o n 4</b>	<b>Panel: Future Directions for the Circular Economy in Australia</b> Chairs: Dr Nick Florin & Dr Monique Retamal
3:30pm – 4:30pm	<p>Mr Justin Koek Director, Waste Strategy and Innovation, Waste and Resource Recovery Branch, NSW Environment Protection Authority</p> <p>Dr Ron Wainberg Technical Director – MRA Consulting Group</p> <p>Mr Emmanuel Vivant Executive Director – Development, Procurement &amp; Innovation SUEZ Australia &amp; New Zealand</p> <p>Professor Simon Ringer Director, Core Research Facilities / Professor of Materials Science &amp; Engineering The University of Sydney</p>
4:30pm – 5:00pm	<b>Chemical Engineering Circular Economy Leaders Forum</b> (Invitation only) Chair: Associate Professor Ali Abbas
5:00pm – 7:00pm	Group social activity – Footgolf
7:30pm – 10:00pm	Conference Dinner

## Joint SJTU-USYD Workshop on Circular Economy

### Tuesday November 20, 2018

<b>Session 5</b>	Chair: Dr Qianhong She
9:00am – 10:00am	<p>Professor Tim Langrish, The University of Sydney <i>Advanced drying technologies for the bio-resource circular economy</i></p> <p>Professor Ziyang Lou, Shanghai Jiao Tong University <i>The environment impact for municipal solid waste disposal and the pollution control process in China</i></p> <p>Dr Behnam Akhavan, The University of Sydney <i>Plasma Technologies for waste water treatment</i></p>

10:00am – 10:30am	Networking Break
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<b>Session 6</b>	Chair: Dr Ziyang Lou
10:30am – 11:30pm	<p>Assistant Professor Lina Chi, Shanghai Jiao Tong University Biologically derived materials and their application in decontamination and recycling of polluted water</p> <p>Dr Alejandro Montoya, The University of Sydney <i>Electro-oxidation of waste</i></p> <p>Associate Professor Marjorie Valix, The University of Sydney <i>Bioleaching of E-wastes</i></p>
11:30am – 12:00pm	<p><b>SJTU-USYD Roundtable closed meeting</b> (Invitation only) Chair: Professor Dianne Wiley</p>

12:00pm – 1:00pm	<p>Lunch</p> <p><b>Conference summary and finish</b></p>
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## ACEC 2018 Speakers/Panelists/Session chairs

**Professor Dianne Wiley**, Head of School, School of Chemical and Biomolecular Engineering, University of Sydney



**Affiliation:**

- Fellow, Engineers Australia
- Fellow, Institution of Chemical Engineers (Chartered Engineer)
- Fellow, Royal Australian Chemical Institute (Chartered Chemist)
- Member, Institute of Public Administration Australia

**Biography:** Professor Dianne Wiley is recognised as a world-leader in the development of membrane systems for wastewater treatment and other applications, and in the assessment of carbon capture and storage technologies. As Head of the School of Chemical and Biomolecular Engineering, her current role focuses on guiding the school's overall research program and helping to communicate its results to the research community, industry and the broader public. Her own research falls into two areas. The first is helping industry and governments to understand how we as a global community can make it possible for affordable, reliable carbon capture and storage technologies to take their proper place in mitigating the huge negative impacts of climate change. The second is helping industry to understand at a fundamental level how to design and operate the next generation of membrane systems for different applications, including wastewater treatment, dairy processing and minerals recovery.

Dianne will conduct the Welcome to Country and the Opening of the Conference.

**Associate Professor Ali Abbas**, Conference Chair and Director Waste Transformation Research Hub



**Affiliation:** The University of Sydney

**Biography:** Ali is Associate Professor and SOAR Fellow at the University of Sydney in the School of Chemical and Biomolecular Engineering and is the Director of the Waste Transformation Research Hub. Professor Abbas received both his Bachelors and PhD in Chemical Engineering from University of Sydney, Australia. He has held previous academic appointments at NTU (Singapore) and UNSW Asia (Singapore) and visiting professor positions at several institutions including Harvard Medical School, AUB and KAUST. He is a leading international researcher in the area of Process Systems Engineering field with more than 100 publications in application areas spanning Clean Energy, Waste and Biotechnology systems. Ali is the recipient of multiple awards including the Australia-Harvard Fellowship as well as the Academy of Technological Sciences and Engineering (ATSE) Fellowship. Ali provides consultations to industry and Government and is currently acting as Founding Director of a new tech start-up – Automated Process Synthesis Co. Pty Ltd.

**Antonia Gawel**, Head, Circular Economy Initiative



**Affiliation:** World Economic Forum Switzerland

**Biography:** Antonia Gawel is an expert on clean energy, environment and sustainability policy. Currently heading the World Economic Forum's Circular Economic Initiative, she has worked in Bhutan as an advisor on environment and clean energy programmes and at the International Energy Agency (IEA). She was responsible for IEA's work on monitoring and evaluating clean energy policy and deployment progress as input to the Clean Energy Ministerial and G-20 processes and was a lead author of IEA's flagship energy technology publication, Energy Technology Perspectives 2012. She was formerly Deputy Director, Energy and Climate, at the World Business Council for Sustainable Development in Geneva and has worked in energy and sustainability policy in the private and NGO sectors, including with Sustainability and the International Institute for Sustainable Development.

**Talk title:** Systems leadership and the fourth industrial revolution for a circular economy.



**Justin Koek**, Director, Waste Strategy and Innovation, Waste and Resource Recovery Branch

**Affiliation:** NSW Environment Protection Authority

**Biography:** Recent roles:

- Director, China National Sword at NSW Environment Protection Authority (EPA)
- Principal Policy Officer, Department of Premier and Cabinet (NSW)
- Director Strategy, Tourism & Transport Forum

**Talk title:** Too Good to Waste – A Circular Economy Approach for NSW



**Dr Alejandro Montoya**

**Affiliation:** The University of Sydney

**Biography:** Dr Alejandro Montoya (PhD in Chemical Science) is a tenured Senior Lecturer in the School of Chemical Engineering at the University of Sydney. He is an expert in experimental and computational catalysis, spectroscopy and microscopy with emphasis on reactive materials for studies of catalytic process intensification. Current research interest of Dr Montoya is focused on atomic scale characterisation of oxide nanostructured materials for guiding catalytic reactions of environmental interest, with applications in biofuels production, carbon dioxide sequestration, waste valorisation, and technologies of lithium extraction from minerals. He was a plenary/key-note speaker at numerous national and international conferences on heterogeneous catalysis, materials science and Computation. He has published over 60 original reviewed papers and conference proceedings.

**Talk title:** Electro-oxidation treatment of wastewater



**Professor Thomas Maschmeyer, FAA FTSE FRACI FRSN**, Licella (Co-Founder and Technology Consultant) / University of Sydney (Professor of Chemistry)

**Biography:** Thomas is an inventor of the Cat-HTR technology and is Co-Founder and Technology Consultant of Licella. He is Professor of Chemistry at the University of Sydney and served as Founding Director of the \$150m Australian Institute of Nanoscale Science and Technology. In 2011 he was elected youngest Foreign Member of the Academia Europea as well as Fellow of the Australian Academy of Sciences, the Australian Academy of Technological Sciences and Engineering, the Royal Australian Chemical Institute (RACI) and, in 2014, of the Royal Society of NSW.

He was one of the founding Professors of Avantium (2001), a Dutch High-tech company, and is Founding Chairman of Gelion Technologies (2015). He authored 310+ publications, cited 9100+ times, including 26 patents. He serves on the editorial/advisory boards of ten international journals and received many awards, including the Le Fèvre Prize of the Australian Academy of Sciences (2007), the RACI Applied Research Award (2011), the RACI Weickhardt Medal for Economic Contributions (2012) and, most recently, the RACI R. K. Murphy Medal for Industrial Chemistry (2018) and the Eureka Prize for Leadership in Innovation and Science (2018) – Australia's principle Science Prize.

**Talk title:** Chemically Recycling Waste Plastic with the Cat-HTR Platform



**Dr Han Zhang**, Sustainability and Advocacy Leader, Asia Pacific

**Affiliation:** The Dow Chemical Company

**Biography:** Han Zhang, is the Sustainability and Advocacy Leader for Dow Packaging & Specialty Plastics Asia Pacific. Han is responsible for driving Dow's 2025 Sustainability Goals for P&SP and developing strategies to grow business value by leveraging Dow's sustainability expertise. Han will establish the agenda and key programs addressing critical business issues such as marine debris, recycling and driving a circular economy, together with various value

chain partners and industry associations throughout Asia. Prior to joining Dow, Zhang held various positions at ConocoPhillips and ExxonMobil as life cycle assessment analyst and engineer.

Zhang earned his doctorate degree in the School of Natural Resources and the Environment from the University of Michigan in 2009. He received his bachelor's and master's degrees in Thermal Engineering from Tsinghua University.

**Talk title:** Plastics in South East Asia

**Danny Gallagher**, Managing Director

**Affiliation:** iQ Renew

**Biography:** Danial started his career in the Heavy Plant industry and rapidly became the project manager for Komatsu in South East Asia. On his return to Australia, he provided contract management services to many major players in the waste industry including Collex, Veolia, Brandown, WSN and Glenfield. Over the years he has also consulted to the construction, mining and demolition industries. Danial is the founder and developer of the software Binwatch.

Danial is an accomplished project and client relationship manager, change agent and business analyst, with over a decade of experience in the commercial, industrial and design sectors.

He is passionate about identifying, developing and delivering benchmark commercial and infrastructure solutions, that support triple bottom line commitments and provide a sustainable platform for business growth.

Danial has delivered successful projects in the renewable energy, carbon reduction, waste management and resource recovery, continuous improvement and end-to-end supply chain development.

**Talk title:** Intelligent Australian Recycling – a complete circular solution to resource recovery.

**Mr Jim Appleby**, General Manager - Reconomy

**Affiliation:** Downer

**Biography:** Jim is currently General Manager – Reconomy for Downer. Reconomy is focused on opportunities within the Circular Economy, namely Repurposing, Landfill Diversion and Waste Reduction. Jim joined Downer Infrastructure in 2011. He has a passion for people and a vision of achieving Zero Harm to people and the environment by promoting behavioural change and walking the walk rather than talking the talk. Jim has strong expertise in the areas of strategic business management, team leadership and complex contract delivery and is kept honest by his 8 & 10-year-old girls who set high expectations to protect their future.

**Talk title:** Enabling the Circular Economy by Pulling Products not Pushing Waste



**Professor Sangwon Suh**

**Affiliation:** Bren School of Environmental Science and Management, University of California, Santa Barbara, USA

**Biography:** Professor Sangwon Suh is the Director and the Lead-PI of the CLiCC Program. His research focuses on the sustainability of human-nature complexity through understanding the interactions between technology and its environment. Dr. Suh has contributed to the mathematical foundations and analytical approaches to Life Cycle Assessment (LCA). He led several science-policy interface works as a member of the International Resource Panel (IRP) of the United Nations Environmental Programme (UNEP) and as a Coordinating Lead Author of the Intergovernmental Panel on Climate Change (IPCC). Dr. Suh has authored or co-authored three books and over hundred peer-reviewed journal articles in his field. He received numerous awards including the McKnight Land-Grant Professorship from the University of Minnesota's Board of Regents, Leontief Memorial Prize and the Richard Stone Prize from the International Input-Output Association (IIOA), the Robert A. Laudise Medal from the International Society for Industrial Ecology (ISIE), and Distinguished Teaching Award from the Bren school.

**Talk title:** Chemical Life Cycle Informatics: CLiCC Initiative





**Blaise Porter**, Sustainability Manager

**Affiliation:** Fujitsu Australia & New Zealand

**Biography:** Blaise is the Sustainability Manager for the Oceania region at Fujitsu. Her current role draws on a decade of IT experience to help businesses address their ICT sustainability challenges.

As Sustainability Manager she also operates Fujitsu's wide-ranging EMS that includes office, warehouse and data centre operations; including the recycling of over 380,000kg of eWaste and the consumption of nearly 2 million mWh of energy annually.

**Talk title:** Getting smart with eWaste



**Enrique Arquiaga**, Business Development Director | Environment

**Affiliation:** Broadspectrum

**Biography:** Enrique Arquiaga is an internationally recognised leader in waste management and environmental services. He has more than 25 years of experience improving the performance and sustainability outcomes of waste facilities, with most of his career spent with one of the world's largest infrastructure and municipal services companies, Ferrovial. Enrique is committed to working with government, industry and the community to implement circular economy initiatives, reducing waste to landfill and increasing sustainability outcomes as head of Broadspectrum's waste division.

**Talk title:** Development of a Real-Time Monitoring System for Waste Flow



**Esther Bailey**, Sustainability Engagement Leader

**Affiliation:** City of Sydney

**Biography:** Esther's business programmes find new models of collaboration and innovation to tackle the market barriers and systemic challenges to improving business sustainability. She enables the circular economy through evidence building, collective action and sharing learnings. Esther uses practical exemplar projects to demonstrate the value that can be added for investors, supply chains and the economy by thoughtful business practice

**Talk title:** Enabling the circular economy - showing by doing



**Professor Yong Geng**, Dean of School of Environmental Science and Engineering

**Affiliation:** Shanghai Jiao Tong University

**Biography:** Professor Yong Geng is a distinguished Professor on Circular Economy and Industrial Ecology and also dean at the School of Environmental Science and Engineering, Shanghai Jiao Tong University, China. His main research field covers industrial ecology, environment management, climate change, carbon emission accounting and sustainable development. He has published over 240 peer-reviewed papers in international journals such as Science, Nature, Environmental Science & Technology, etc. In 2013, he received the National Science Fund for Distinguished Young Scholars from the Natural Science Foundation of China (NSFC). He is a Cheung Kong Scholar Chair Professor of Ministry of Education. He is also serving in various organizations and scientific communities, such as a Leading Author in IPCC AR-5 and AR-6, reviewers for many international journals, experts in UN organizations (UNEP, UNIDO, UNU, UNCRD), and consultants for Chinese local governments.

**Talk title:** An overview on China's circular economy



**Dr Ron Wainberg**, Technical Director

**Affiliation:** MRA Consulting Group

**Biography:** Ron Wainberg has developed key skills in the field of solid waste management and has over 30 years' experience in both project and contract management gained in Europe, Asia and Australia. He is a consultant with a particular interest in resource recovery from waste materials, the development of practical waste management strategies, and how processing technology can be successfully applied to recover resources from wastes.

Ron is Technical Director at MRA Consulting where he leads a number of projects as well as providing technical support and quality reviews for others. He has previously served as the Waste Advisory Team Leader and subsequently Technical Director for Waste at Hyder Consulting in Sydney where he was involved in a significant number of studies in the waste sector. From 2009 until 2013, Ron served as the National President of the Waste Management Association of Australia.

Ron's experience in Solid Waste Management is built on the strong foundation of experience gained in engineering design, project management and business development in the process control, petrochemical and other industries.



**Sha Song**, Senior Research Analyst

**Affiliation:** World Economic Forum, People's Republic of China

**Biography:** Song Sha is a Senior Research Analyst, Centre for Global Public Goods at the Beijing Representative Office of the World Economic Forum. Prior to that she worked as a program assistant at SWITCH-Asia Network Facility in Wuppertal, Germany. Previous work experience includes the China Clean Development Mechanism (CDM) Fund Management Centre, The 2nd Germany - China Forum on Climate and Renewable Energy at the university of Cologne and the International Human Dimensions Program on Global Environmental Change at the United Nations University. Sha completed her Master's degree in Environmental Sciences at the University of Cologne and holds a BA in Environment Engineering from the Beijing University of Technology.

**Talk title:** China's perspective: The role for a multi-stakeholder action agenda on circular economy



**Associate Professor Ming Zhao**

**Affiliation:** School of Environmental, Tsinghua University / Basel Convention Regional Centre, People's Republic of China

**Biography:** Dr. Ming Zhao is an Associate Professor and Assistant Dean for Education of School of Environment, Tsinghua University. He is the founder of LBC Group (Lab for Bio-resource & Carbon-mitigation Technologies). He obtained his PhD in Chemical Engineering from the University of Sydney in 2010. He was elected into China's Recruitment Program of Global Youth Experts after the completion of his work at Imperial College London in 2014. Dr Zhao and his group possess the expertise in thermo-chemical conversion of biomass (wastes) into clean energy and value-added chemicals, and CO<sub>2</sub> capture & utilization (CCU) technologies. LBC group has been funded by a variety of national grants and also keeps close collaborations with globally-renowned research groups such as ICL, Cambridge, USYD, UQ, etc. LBC Group has published 60+ peer-reviewed articles in recently years. Dr. Zhao also maintains linkage to industry and is the Deputy Secretary-General of Solid Waste Division of CAEPI (China Association of Environmental Protection Industry). He is also leading a technology incubation team for solid waste conversion and circular economy in RIET (Research Institute for Environmental Innovation (Suzhou), Tsinghua).

**Talk title:** Basel Convention and Its Implementation in China



**Professor Hongtao Wang**, Professor of Environmental Science and Engineering; Head of Environmental Engineering Department; Expert of National High Technology Research and Development Program of China (863 program); Vice Director of Training Department, Asia-Pacific Regional Centre for Hazardous Waste Management Training and Technology Transfer (Basel Convention Regional Centre in China); Associate Editor of Waste Management.

**Affiliation:** Tsinghua University

**Biography/ Areas of Research Interests/ Research Projects:**

Landfilling disposal of solid waste; Composting/ bio-treatment of solid waste; Biomass to energy; Groundwater flow and contaminant transport modelling and pollution remediation.

Research Status:

1. Security assessment of solid waste disposal fertilities, Public Welfare Project of Environmental Protection, funded by the Ministry of Environmental Protection of China
2. Treatment of chloric organic pollutants and demonstration, The National Hi-Tech R&D Project (863 Project) of China, Key Program, funded by Ministry of Science and Technology (MOST)
3. Remediation of soil polluted by hydrophobic organics by flushing cooped TiO<sub>2</sub> photo-catalysis, funded by National Natural Science foundation of China
4. Co-composting of sewage sludge and green waste- Integrated reduction of contaminants in the urban area of Kunming, funded by State Key Science and Technology Research Program- Water Pollution Control.
5. Sludge sound disposal and recycling- Comprehensive improvement of water environment in cities with intensive industries, funded by State Key Science and Technology Research Program- Water Pollution Control.

**Talk title:** Sustainable Solid Waste Management in China: Problems and Considerations



**Dr Nick Florin**, Research Director

**Affiliation:** Institute for Sustainable Futures, UTS

**Biography:** Dr Nick Florin is Research Director at the Institute for Sustainable Futures (ISF), an independent research centre based at the University of Technology Sydney. He leads the Resource Futures research area that undertakes applied research to develop and embed innovative processes and practices to close resource loops and maximise resource-use efficiency. ISF led the Wealth from Waste Cluster, a 3-year collaboration partnered with researchers at The University of Queensland, Monash, Swinburne and Yale, that identified pathways for creating wealth from metal-bearing waste, including e-waste. Recently he has

advised the NSW Government on Circular Economy and was commissioned by the Australian Packaging Covenant Organisation to evaluate strategies towards 100% recyclable, reusable or compostable packaging.



**Dr Monique Retamal**, Research Principal

**Affiliation:** Institute for Sustainable Futures, UTS

**Biography:** Dr. Monique Retamal is a Research Principal at ISF, with a background in environmental engineering and social research. Monique's current research focuses on circular economy business models and policy approaches. She recently supported the NSW EPA with a review of international best practice in circular economy policies and public procurement practices.

During her PhD, Monique investigated business models for sustainable consumption in Southeast Asia, focusing on the sustainability of product-service systems and policy interventions to support more sustainable business models. Monique also worked on the multi-year "Wealth from Waste" research cluster for CSIRO, researching business models and strategies for a circular economy for metals and policy options for product longevity.

**Emmanuel Vivant**, Executive Director – Development, Procurement & Innovation



**Affiliation:** SUEZ Australia & New Zealand

**Biography:** Emmanuel is Executive Director - Development, Procurement & Innovation at SUEZ in Australia & New Zealand. Emmanuel has more than 22 years of international experience in resource recovery and waste treatment and has held a number of senior leadership roles within SUEZ. Emmanuel currently leads the business development of major projects and the procurement and technical departments for SUEZ's business activities across Australia & New Zealand. Prior to this role and since 2001, Emmanuel was Executive Director of Infrastructure for SUEZ's Recycling & Recovery division with responsibility for all aspects of

processing activities across Australia including Advanced Resource Recovery Technologies, organics facilities, material recycling and landfills. Prior to this, Emmanuel was Operations Manager for Landfills at Swire SITA in Hong Kong from 1997 to 2001. His role included running two of the largest landfills in the world - the North East New Territories (NENT) and West New Territories (WENT) landfills as well as a series of closed landfills in aftercare operations. Prior to this, Emmanuel was Technical Director of Dechets in France, a subsidiary of SUEZ specialised in landfills development and operation. Prior to joining SUEZ in 1994 Emmanuel held a number of project manager and project director roles in France for the design and delivery of large infrastructure projects in the transport and industrial sectors. Emmanuel holds a Master Degree of Science in Civil Engineering from Ecole Supérieure des Travaux Public (ESTP), France.



**Professor Simon P. Ringer**, Director, Core Research Facilities / Professor of Materials Science & Engineering

**Affiliations:** The University of Sydney

**Biography:** Professor Ringer's personal research is in atomic-scale materials design. He uses a materials science and engineering approach to learn how small groups of atoms in special architectures—atomic clusters—can create materials with remarkable properties. Applications include semiconductors, catalyst nanoparticles, and new ultra-strong lightweight alloys. He has lived and worked in Sweden, Japan, the USA and Australia, holds patents in the design of materials, and has published extensively. Professor Ringer works as the University of Sydney's Director of Core Research Facilities where he provides University-wide leadership of major research infrastructure strategy, planning and operations. Sydney's Core Research Facilities presently cover biomedical imaging, mass spectrometry, microscopy, informatics, nanofabrication, cytometry and high-performance analytical capabilities. Sydney is building an enterprise of world-class research facilities that will support our researchers to tackle the frontier questions of their fields.

**Dr Qianhong She**



**Affiliation:** University of Sydney

**Biography:** Dr. Qianhong She joined the University of Sydney in March 2017. He has been researching the development of advanced membrane separation technologies for various applications related to water, resources, environment, food and energy for more than 10 years. He obtained a B.Eng in 2006 from Sichuan University, dual M.Eng in 2009 from Shanghai Jiao Tong University and Nanyang Technological University, and a PhD in 2014 from Nanyang Technological University. From 2009 to 2010, he worked as an engineer at PowerChina Huadong Engineering Corporation, a leading global engineering company, and served as a technical consultant for a World Bank financed environment project. From 2010 to early 2017, he worked as a research associate then research fellow in the Singapore Membrane Technology Centre (SMTTC) at Nanyang Technological University. Dr She's research is recognized internationally and has been published in leading journals in membrane, water and environment areas with approximately 2000 citations. He has received several prestigious international awards for his academic and research achievements, including the 2016 Green Talents Award from the German Federal Ministry of Education and Research and the 2017 North American Membrane Society (NAMS) Young Membrane Scientist Award.



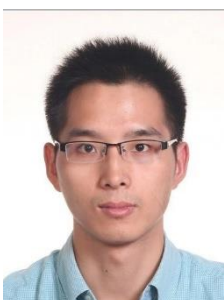
## Professor Tim Langrish

**Affiliation:** School of Chemical and Biomolecular Engineering, The University of Sydney

**Biography:** Tim Langrish is a Professor of Chemical and Biomolecular Engineering at the University of Sydney, where his research interests are in the areas of process technology, particularly drying technology, food process engineering and particle processing and production. He is one of the world's leading spray drying researchers, and he co-edited the drying chapter for Perry and Green's Handbook of Chemical Engineering.

He has done research in the application of Computational Fluid Dynamics to drying problems involving spray drying and timber processing, and he has also produced optimized drying schedules for softwood and hardwood timber, in collaboration with timber processing companies and organizations. He graduated with honours in Chemical and Process Engineering from the University of Canterbury in 1985 and with a D.Phil. from Balliol College, Oxford, in 1989.

**Talk title:** Advanced Drying Technologies for the Bio-Resource Circular Economy



## Professor Ziyang Lou

**Affiliation:** School of Environmental Science and Engineering, Shanghai Jiaotong University

**Biography:** Prof. Lou Ziyang, He obtained his Ph. D in Tongji Univ. on Mar. 2007, and got his Bachelor degree from the Department of Chemical Engineering, Dalian University of Technology (DLUT) in 2001 (Dalian, Liaoning Province). He has work in Technical University of Denmark (DTU) on LCA in waste management as a visiting scholar in 2007 and a Humboldt Fellow of Dresden Technical University, Germany in 2010-2011, respectively.

His current research focuses on GHG accounting and abatement from waste sector, hazardous waste assessment and disposal, Renewable landfill technology with low emission, sewage sludge treatment and resources reuse. He has obtained funds from Humboldt Foundation, Germany, National Natural Science Foundation of China, Natural Science Foundation of Shanghai and Key project of Science and Technology Commission of Shanghai Municipality in series. He is the author of 102 publications published, including 58 international papers (SCI). Simultaneously, he has also finished the book of Pollution Control and Resource Recovery, Municipal Solid Wastes at Landfill (Elsevier, 2016), and Source Separation and Recycling - Implementation and Benefits for a Circular Economy (Springer press, 2017).

**Talk title:** The environment impact for Municipal solid waste disposal and the pollution control process in China



## Dr Behnam Akhavan

**Affiliation:** University of Sydney

**Biography:** Dr Behnam Akhavan received his PhD in Advanced Manufacturing from the School of Engineering at the University of South Australia in 2015. Behnam's PhD research focused on the application of plasma technologies for the fabrication of a new class of adsorbents for water purification. He presented his PhD research in 15 national and international conferences and submitted his thesis by publication which included 7 first-author articles published in high-ranked journals. In recognition of the excellence of his PhD research, Behnam was selected as one of UniSA's Enterprising Faces in 2015. His current interdisciplinary research projects investigate the engineering of surfaces for various applications, ranging from bone-implantable devices to artificial blood vessels and water purifying agents. In surface and interface science, he is working on a variety of problems in the areas of thin film deposition, plasma polymerization, plasma ion implantation, and magnetron sputtering. Prior to his current appointment at the University of Sydney, Behnam worked as a Researcher at the Max Planck Institute for Polymer Research and Fraunhofer Institute of Microtechnology in Germany.

**Talk title:** Plasma Technologies for Waste Water Treatment



**Dr Lina Chi**, Assistant Professor

**Affiliation:** Shanghai Jiao Tong University

**Biography:** Lina Chi (Shanghai Jiao Tong University) obtained her BSc (1997) and MSc (2000) in Tianjin Polytechnic University and her Environmental Engineering PhD (2005) from Dong Hua University, China. She was a visiting scholar in Stanford University (2013) and University of Southampton, UK (2014-2015); and She was recipient of Newton Research Collaboration Award granted by Royal Academy of Engineering, UK (2015-2016). Her

research interests focus on: i) fabrication, functionalisation and optimization of phase inversion ultrafiltration membranes aiming to enhance filtration performances via tuning surface properties and membrane morphologies. ii) development of novel hydrophilic and antifouling membrane materials for Micro-filtration, Ultra-filtration and Nano-filtration via surface engineering of polymeric membranes, synthesis of metal-oxide/polymer hybrid membranes, metal-organic framework/polymer hybrid membranes, enzymatic membranes, etc. iii) various polymer surface modification methodologies established by her and her group, such as dip-coating, spray coating, CVD and plasma induced interfacial polymerisation combined with metal-oxide surface self-assembling. iv) integration of ultrafiltration membranes with bioreactors to clean up dyeing wastewater, purification of oil-polluted water, wastewater discharged from Synthetic-Natural-Gas (SNG) process and lightly polluted lake water. v) synthesis of novel and efficient visible-light-responding metal-oxide photocatalysts, and their application in water pollution control.

**Talk title:** Biologically derived materials and their application in decontamination and recycle of polluted water



**Associate Professor Marjorie Valix**

**Affiliation:** The University of Sydney, School of Chemical and Biomolecular Engineering

**Biography:** Associate Professor Valix has led leading research for over 17 years in mineral and materials processing with a particular focus on mineral activation, biohydrometallurgy and in re-processing of wastes. Her research has contributed substantially to the emergence of new tools and technology – the use of *in-situ* synchrotron-based analysis of mineral reactions and harnessing the remarkable abilities of organisms in degrading minerals and wastes. These are currently being implemented in several industrially supported projects and in particular a

CRCP to develop the corrosion abatement technologies to protect water and wastewater infra-structure.

**Talk title:** Bioleaching of E-waste



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