

8th MSA Early Career Researcher (ECR)

MEMBRANE SYMPOSIUM PROGRAM

November 25, 2021

9:00am – 9:15am	Welcome: Professor Xiwang Zhang, Monash. (Conference Chair: Andrea Merenda)	
9:15am – 10:00am	Keynote: Dr Gayathri Naidu, Snr Lecturer & ARC DECRA Fellow, UTS <i>'Application of membrane and nanomaterials for brine treatment and resource recovery'</i> .	
10:00am – 11:00am	ECR Presentations Session 1 (Chair: Ashley Ansari)	
10:00am – 10:15am	Stephanie Rogers, Veolia Australia and New Zealand: <i>'Novel Clean-in-Place Trial for Microfiltration Membranes at Castlemaine Water Treatment Plant'</i> .	
10:15am – 10:30am	Jia Ding, The University of Sydney, Australia: <i>'Designing Cobalt Silica Catalytic Membrane Reactors for Fenton-like Reaction'</i> .	
10:30am – 10:45am	Bosirul Hoque, The University of Melbourne, Australia: <i>'Recovery of heavy and Precious E-waste using Polymer Inclusion Membrane for the Sustainable Development'</i> .	
10:45am – 11:00am	Seungju Kim, The University of Melbourne, Australia: <i>'Developing Nanofibrous Structures of PVDF-HFP Membranes for CO₂ Stripping by Membrane Contactor'</i> .	
11:00am – 12:00pm	PhD Student Flash Presentations	
	Breakout Room A (Chair: Yuan Kang) Water Treatment	Breakout Room B (Chair: Rujing Hou) Membrane Fabrication
	Charith Fonseka, UTS Mohamed Aslam, UOA Piumie Rajapaksha, RMIT Mahdi Shahrooz, VU Zulqarnain Fida, UOW Maedeh Nadimi, VU	Shankar Dutt, ANU Beenish Imtiaz, UM Yidi Lei, UM Zhuyuan Wang, Monash Siti Nurehan Abd Jalil, UQ Ehsan Ghasemiastahbanati, Monash
12:00pm – 1:30pm	Lunch Break and MSA AGM 2021 (separate zoom link provided)	
1:30pm – 2:15pm	Keynote: Dr Jingwei Hou, ARC DECRA fellow and ARC Future Fellow, UQ <i>'An ECR's perspective on membrane engineering – how new opportunities emerge from the interface of interdisciplinary researches'</i> .	
2:15pm – 3:30pm	ECR Presentations Session 2 (Chair: Seungju Kim)	
2:15pm – 2:30pm	Jonathan Jo, Veolia Australia and New Zealand: <i>'RO Membranes and the waste generation globally at end-of-life'</i> .	
2:30pm – 2:45pm	Muhammad Bilal Asif, Tsinghua University, China: <i>'Next generation nanofluidic membranes for confined-catalysis of organic pollutants'</i> .	
2:45pm – 3:00pm	Milton Chai, University of Queensland, Australia: <i>'MOF protected multi-enzyme thin film for the cascade reduction of CO₂ to formic acid'</i> .	
3:00pm – 3:15pm	Nurshaun Sreedhar, Khalifa University, United Arab Emirates: <i>'Synthesis of β-FeOOH nanorods coating on 3D printed feed spacers and its application as efficient photocatalysts in membrane systems'</i> .	
3:15pm – 3:30pm	Gergo Ignacz, King Abdullah University of Science and Technology, Saudi Arabia: <i>'Why Is Rejection So Hard To Predict?'</i> .	
3:30pm – 3:45pm	Afternoon Break	
3:45pm – 4:40pm	PhD Student Flash Presentations	
	Breakout Room C (Chair: Xing Wu) Membranes for energy and environment	Breakout Room D (Chair: Rijia Lin) Gas separation & other
	Yiquan Deng, UQ Youwei Jia, UM Priyanka Kumari, Deakin Roqaya A. Ismail, Khalifa University Yu Jie Lim, NTU	Moataz Ali El-Okazy, UM Gholamreza Vahedi Sarrigani, USyd Balaguru Sasikumar, NIT, India Jiahui Hu, KAUST, Saudi Arabia Xiao Xu, UCLouvain, Belgium
4:40pm – 5:20pm	Networking Session: Dr Federico Volpin (Chair: Nawshad Chowdhury)	
5:20pm – 5:30pm	Closing/Awards Ceremony: Professor Ho Kyong Shon, UTS.	
6:00 pm	Post Event Drinks/Networking Session	



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Keynote Speakers



Dr Gayathri Naidu
Senior Lecturer and ARC DECRA Fellow
University of Technology Sydney

Keynote Presentation by Dr Gayathri Naidu:
Application of membrane and nanomaterials for brine treatment and resource recovery.

Brine treatment is technically challenging and energy intensive, which contributes towards significant carbon emissions. Maximizing water production and minimizing environmental discharge (near zero liquid discharge) is favourable. Nevertheless, it is not so straightforward for this concept to be practically achieved. This talk will cover my research journey and field projects that I carried out on small scale off-grid membrane treatment processes for water production and brine treatment, advantages and limitations of membrane technology, my current projects on remediation and valuable resource recovery for lithium, rubidium and rare earth elements, and a discussion on strategic research direction for early career researchers in Australia



Dr Jingwei Hou
ARC DECRA fellow and ARC Future Fellow
University of Queensland

Keynote Presentation by Dr Jingwei Hou:
An ECR's perspective on membrane engineering – how new opportunities emerge from the interface of interdisciplinary researches.

Abstract: The synthesis of metal–organic frameworks (MOFs) has, to date, largely been in the form of crystalline powders. However, interest in different physical morphologies of this class of materials is growing. In this presentation, I will provide an overview of the attempts we made to engineer MOF devices for the application of membrane separation and beyond. In particular, based on my previous ECR's perspective, I will aim to offer some insights how did I navigate through the complex scientific landscape, generating exciting research ideas, nucleate collaborations and solving real problems.

Acknowledgement

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PhD Student Flash Presentations

Morning Session: PhD Student Flash Presentations	
Breakout Room A Water Treatment	Breakout Room B Membrane Fabrication
Charith Fonseka University of Technology Sydney <i>'Recovery of water and valuable metals by low pressure Nano Filtration and sequential adsorption from Acid Mine Drainage (AMD).'</i>	Shankar Dutt Australian National University <i>'Quantifying the shape of nanopores in track-etched polycarbonate membranes.'</i>
Mohamed Aslam The University of Auckland <i>'Fouling mitigation with water hammer: effect of TMP and feed concentration.'</i>	Beenish Imtiaz The University of Melbourne <i>'Non-templated Fabrication of Profiled Fluoropolymer Membranes via Direct Ink Writing.'</i>
Piumie Rajapaksha RMIT University <i>'Nanofunctionalised Graphene Oxide Hybridised Cross-linked Polyvinyl Alcohol Electrospun Membranes for Removing Waterborne Pathogens and Chemical Contaminants from Synthetic Wastewater.'</i>	Yidi Lei The University of Melbourne <i>'Retrofitting pipelines by in situ coating.'</i>
Mahdi Shahrooz Victoria University <i>'Effect of surface interactions on colloidal fouling in membrane distillation: a progress update'</i>	Zhuyuan Wang Monash University <i>'Manipulating Interfacial Polymerization for Polymeric Nanofilms of Composite Separation Membranes.'</i>
Zulqarnain Fida University of Wollongong <i>'The role of microbial community in reduction of excess sludge during wastewater treatment by a membrane bioreactor (MBR) integrated with side-stream anoxic reactors.'</i>	Siti Nurehan Abd Jalil The University of Queensland <i>'Saccharide-based Carbon Membranes in Percrystallisation of NaCl.'</i>
Maedeh Nadimi Victoria University <i>'Reactive membrane distillation for treatment of challenging organics in wastewaters.'</i>	Ehsan Ghasemiastahbanati, Monash University <i>'Charge Carrier Molecular Sieve (CCMS) Membranes for Vanadium Redox Flow Batteries.'</i>
Afternoon Session: PhD Student Flash Presentations	
Breakout Room C Membranes for energy and environment	Breakout Room D Gas separation & other
Yiquan Deng University of Queensland <i>'Membrane percrystallization in cathode active material synthesis.'</i>	Moataz Ali El-Okazy The University of Melbourne <i>'The impact of impurities on the gas separation performance of Perfluoropolymeric membranes.'</i>
Youwei Jia University of Melbourne <i>'Power from salt: a model study of reverse electrodialysis.'</i>	Gholamreza Vahedi Sarrigani The University of Sydney <i>'Layer-by-Layer Assembly of Interfacially Confined Polyetherimide Membranes for CO₂ and N₂ Separation.'</i>
Priyanka Kumari Deakin University <i>'Schottky-like photo-electrocatalytic membranes for the remediation of persistent organic pollutants.'</i>	Balaguru Sasikumar National Institute of Technology, India <i>'Construction of high-performance gas separation polymeric membranes by incorporating nanocage tuned ZIF-67 nanofillers.'</i>
Roqaya A. Ismail Khalifa University, UAE <i>'Quaternized Polydopamine Mediated Antibacterial and Antifouling Poly (Ether Sulfone) Hybrid UF Membranes for Enhanced Removal of Protein, Dye and Salts.'</i>	Jiahui Hu King Abdullah University of Science and Technology (KAUST), Saudi Arabia <i>'Solvent-resistant polymer membranes via ionic crosslinking.'</i>
Yu Jie Lim Nanyang Technological University, Singapore <i>'Unraveling the role of support membrane chemistry and pore properties on the formation of thin-film composite polyamide membranes.'</i>	Xiao Xu UCLouvain, Belgium <i>'Selection and characterization of ionic liquids for the potential recovery of dimethyl carbonate from methanol/dimethyl carbonate by pervaporation.'</i>

