



MEMBRANE
SOCIETY
OF AUSTRALASIA

MSA Annual Meeting and Conference 2024

9-11 December 2024

Conference venue: Aerial Function Centre, UTS Building 10, Level 7, 235 Jones St, Ultimo, NSW 2007
University of Technology Sydney, Australia

Day 1 (Monday): 09 December 2024

17:00-17:30	Registration (Aerial Function Centre Foyer)
17:30-20:00	Welcome drinks/networking event (UTS Aerial Function Centre foyer and bar) Chair: Gayathri Naidu

Day 2 (Tuesday): 10 December 2024

8:00-9:15	Registration (Aerial foyer)
9:15-9:45	Conference Opening Ceremony Opening remarks: Vicki Chen Chair: Leonard Tijning Room A (Broadway), B (Jones) and C (Harris)
9:45-10:30	Plenary Session 1 Prof. David Waite (University of New South Wales) Membrane-related Insights from a Career in Water Science and Technology: From Fractals to Membrane Synthesis and Deep Learning Chair: Chi Cheng and Leonard Tijning Room A (Broadway), B (Jones) and C (Harris)
10:30-11:00	Morning Tea (Aerial foyer)
11:00-11:45	Plenary Session 2 Dr. Alice Makardij (George Weston Foods) Emerging Trends in Membrane Clean-in-Place Systems for Food Applications Chair: George Chen and Li Gao Room A (Broadway), B (Jones) and C (Harris)
12:00-13:00	Lunch & Poster (Aerial foyer)

13:00-15:00	Session 1A: Membrane Materials Room A: Broadway Chairs: Ranil Wickramasinghe and Shuaifei Zhao	Session 1B: Water Reuse and Desalination Room B: Jones Chairs: Saravanamuthu Vigneswaran and Qiang Fu	Session 1C: Membrane Applications Room C: Harris Chairs: Xiwang Zhang and George Chen
	Ranil Wickramasinghe (Keynote) University of Arkansas Membranes for challenges in bioseparations	Saravanamuthu Vigneswaran (Keynote) University of Technology Sydney Adsorption hybrid system as a sustainable pretreatment system in water reuse and desalination applications	Xiwang Zhang (Keynote) University of Queensland Precision ion selective membranes and processes
	Shuaifei Zhao (Invited) Deakin University Dual 2D nanosheets enables high- performance self-cleaning membranes	Qiang Fu (Invited) University of Technology Sydney Energy-efficient water production	George Chen (Invited) The University of Melbourne The integration of filtration, ion exchange, and electro dialytic processes for sustainable dairy resource management
	Chen Wang Curtin University Inkjet printing technique for nanofiltration membrane fabrication	Sidi Zhu National University of Singapore Interfacial polymerization of exfoliated LDH nanosheets in reverse osmosis membranes for boron removal from brackish water	Mohammad Shahnawaz Khan National University of Singapore Functionalized layered double hydroxides with β -cyclodextrin: A novel approach for improving boron removal in reverse osmosis systems
	Bohan Hao University of New South Wales Molecular-scale mechanisms of energy barrier governing ion-ion separation across sub-nanometre pores	John Origomisan Ogbe University of New South Wales Assessing the operating conditions for insitu uplifting of End-of-life reverse osmosis membranes	Rebecca Esposito King Abdullah University of Science and Technology Carboxyl-functionalized polyimide for polar/non-polar organic solvent separation by pervaporation
	Mohammad Mahbub Kabir University of Technology Sydney Fabrication and characterization of a novel anion exchange membrane for water electrolysis	Shudi Mao University of Technology Sydney Polymeric hydrogel membranes for solar vapor generator based seawater desalination	Hamidreza Mahdavi Monash University Enhancing glycolysis plastic recycling efficiency through solution processable mixed matrix membranes Integration
15:00-15:30	Afternoon Tea (Aerial foyer)		
15:00-15:30	Registration (Aerial foyer)		
15:30-17:30	Session 2A: Membrane Materials Room A: Broadway	Session 2B: Water/Wastewater Treatment Room B: Jones	Session 2C: Membrane Applications Room C: Harris

	Chairs: Matthew Hill and Masoumeh Zargar	Chairs: Zongli Xie and Mufid Noufal	Chairs: Jing Guan and Volkan Filiz
	Matthew Hill (Keynote Speaker) Monash University Ion Specific Separators and Their Role within Energy Storage Devices	Zongli Xie (Keynote) CSIRO Manufacturing Advancing forward osmosis technologies for enhanced water recovery and wastewater treatment	Jing Guan (Keynote) Originwater International Membrane Technology Development for biomedical applications and resource recovery
	Masoumeh Zargar (Invited) Edith Cowan University Innovating advanced materials and membranes to enhance microplastic/nanoplastic filtration and synergistic fouling resistance	Mufid Noufal (Invited) City of Sydney Innovating for water treatment: Navigating the path from concept to market success	Volkan Filiz (Invited) Helmholtz-Zentrum Hereon, Institute of Membrane Research Thermally and chemically stable isoporous block copolymer membranes
	Yuxi Ma RMIT Smart surface structures for advanced water and energy harvesting	Kevin Liang DuPont MEMCOR (Australia) Pty Ltd Membrane wastewater treatment performance on different relaxation modes in peak operations	Andrea Merenda University of Technology Sydney Valorization of liquid anaerobic digestate into N-P-K fertilizers by biological nitrification
	Usman Syed King Abdullah University of Science and Technology Thymol: Nature's solvent for sustainable hollow fibre membrane fabrication	Welldone Moyo University of South Africa Adsorptive asymmetric ceramic membrane functionalized with in situ phytogenic nanoscale zero valent iron for effective removal of natural organic matter fractions: Performance and Fenton cleaning strategy	Banan Alhazmi King Abdullah University of Science and Technology Ultrasensitive macrocycle membranes: Complexation-enhanced pharmaceutical separations in organic solvents
	Agnes Maria Mani Bhabha Atomic Research Centre Interface engineering by molecular layer deposition on polymer membrane for selective ion transport	Mahsa Golmohammadi Edith Cowan University Design of a triad electrochemical-membrane assisted system for simultaneous wastewater treatment and resource recovery	Weonjung Sohn University of Technology Sydney Effect of hydraulic retention time on urine nitrification in pilot-scale activated carbon incorporated membrane bioreactor and application on hydroponics
17:30-19:00	Poster Session (Aerial foyer) Chair: Youngwoo Choo and Fanmengjing Wang		
19:00-21:00	Conference Gala Dinner/MSA Awards (Aerial Function Centre) Chair: Andrea Merenda and Leonard Tijng		

Day 3 (Wednesday): 11 December 2024

8:00-9:00	Registration (Aerial foyer)		
9:00-9:45	Plenary Session 3 Prof Seungkwan Hong (Korea University) Achieving Carbon Neutralization and Enhancing Climate Resilience by Advancing Technologies for Seawater Desalination and Industrial Wastewater Reuse Chair: Gayathri Naidu and Hokyong Shon Room A (Broadway), B (Jones) and C (Harris)		
9:45:10:15	Morning Tea (Aerial foyer)		
10:15-12:15	Session 3A: Membrane Materials Room A: Broadway Chairs: Tao He and Huacheng Zhang	Session 3B: Resource Recovery Room B: Jones Chairs: Hokyong Shon and Kecheng Guan	Session 3C: Wastewater Treatment Room C: Harris Chairs: Mikel Duke and Biplob Pramanik
	Tao He (Keynote) Chinese Academy of Sciences Layer-by-layer nanofiltration membranes for ions and micropollutants removal	Hokyong Shon (Keynote) University of Technology Sydney Resource recovery from wastewater and seawater using membrane technology	Mikel C Duke (Keynote) Victoria University Resolving limitations of photocatalytic membrane reactors for sustainable wastewater decontamination
	Huacheng Zhang (Invited) RMIT Metal-organic framework-based nanofluidic membranes for efficient ion separation and organic pollutant removal	Kecheng Guan (Invited) Kobe University Stability of two-dimensional graphene oxide membrane nanochannels	Biplob Pramanik (Invited) RMIT Fabrication of dual-charged MIL-101(Cr)-based composite ultrafiltration membrane for enhanced removal of charged nanoplastics from wastewater
	Wangxi Fang Chinese Academy of Sciences Coordination crosslinked microporous polyimides for membrane-based crude oil fractionation	Qian Chen University of Technology Sydney Generating sustainable cement material from seawater with low-cost ultrafiltration (UF) membrane electrolysis	Bhavana Kanwar Indian Institute of Technology Bombay Membrane bioreactor and advanced oxidation processes for treatment of synthetic wastewater containing emerging contaminants
	Vikrant Yadav University of Yamanashi Poly(fluorene)-Based Anion Exchange Membranes: How Do Pendent	Hanwei Yu University of Technology Sydney Highly Selective Lithium Recovery from Seawater Desalination Brine via Membrane	Oranso Themba Mahlangu University of South Africa A facile synthesis approach for GO-ZnO/PES ultrafiltration mixed matrix

	Ammonium Groups Structure Affect Membrane Properties?	Capacitive Deionization Using LTO-doped Membrane Electrodes	photocatalytic membranes for dye removal in water: Leveraging the synergy between photocatalysis and membrane filtration
	Gabriela Costa Martins University of Technology Sydney Europium recovery using selective metal-organic framework incorporated mixed-matrix membrane	Maryam Gonbadi Edith Cowan University Eco-innovative approach to membrane technology: A second life for recycled plastic waste particles	Casey Onggowarsito University of Technology Sydney A green approach to future water harvesting
12:15-13:15	Lunch and MSA Annual Meeting (Aerial Function Centre)		
13:15-16:00	Session 4A: Water and Resource Recovery Room A: Broadway Chairs: Amir Razmjou and Noel Jacob Kaleekakal	Session 4B: Gas Separation Room B: Jones Chairs: Colin Scholes and Andrea Merenda	Session 4C: Modelling and Processes Room C: Harris Chairs: Sherub Phuntsho and Nawshad Akther
	Amir Razmjou (Keynote) Edith Cowan University Membrane technology for Direct Lithium Extraction (DLE)	Colin A. Scholes (Keynote) The University of Melbourne Methanol and dimethyl ether produced by membrane reactors based on CO ₂ hydrogenation	Sherub Phuntsho (Invited) University of Technology Sydney Bromide recovery from seawater using bromide selective membrane capacitive deionisation
	Noel Jacob Kaleekkal (Invited) National Institute of Technology Calicut Membrane distillation a promising strategy for resource and water recovery	Alan Jin CSIRO Manufacturing Advancing hydrogen separation technologies: Optimisation of BTESE-derived silica membranes	Inci Boztepe Deakin University Protein and surface interactions: Simulation of adsorption on ion-exchange nanofibers with a focus on optimizing membrane and protein properties
	Zhikao Li Monash University Sustainable extraction of lithium from salt lakes and co-production of nano-structured MgOH ₂	Seungju Kim The University of Melbourne Catalytic CO ₂ separation using nanofibrous membrane contactors	Melike Altay Geren The University of Melbourne The impact of ion solubility on ion permeability in graphene oxide membranes
	Yasaman Boroumand Edith Cowan University Lithium recovery by titanium-based mixed matrix membranes	Yutao Liu Monash University Rigid-flexible modulation of MOF membranes for efficient gas separation	Seongeom Jeong Pusan National University Enhancing membrane-based water treatment: Overcoming scaling challenges with carbon nanotube spacers using 3D

			printing and computational fluid dynamic techniques
	<p>Sharaniya Roobavannan University of Technology Sydney Selective lithium extraction using membrane capacitive deionization with fabricated zeolitic imidazolate framework encapsulated manganese oxide membrane electrode</p>	<p>Andrea Shane Torres Bataan Peninsula State University Performance evaluation of 3D-printed solar evaporators for solar-driven interfacial evaporation</p>	<p>Abdul Fahim Arangadi University of Technology Sydney Enhancing Industrial RO Efficiency: A MATLAB-Powered Scaling Prediction Application</p>
	<p>Zhe Yang University of Queensland Membrane-based energy-efficient resource recovery from wastewaters</p>	<p>Hoseong Han CSIRO Innovative fabrication strategies for superior-performance ultrathin composite membranes</p>	
16:00-16:30	Afternoon Tea (Aerial foyer)		
16:30-17:30	Closing and Award Ceremony Chair: Chi David Cheng		

POSTER PRESENTATION – Tuesday, 10 December 2024; 17:30 – 19:00, UTS Aerial Function Centre Foyer

	Presenter	Affiliation	Presentation Title
P01	Oranso Themba Mahlangu	University of South Africa Florida Science Campus	Hydrophilic fouling-resistant nanoengineered GO-ZnO/PES membranes for wastewater reclamation
P02	Pravin Chhaganlal Bolne	The University of Melbourne	Catalytic Membrane Reactors for energy efficient solvent regeneration in solar-powered Direct Air Capture systems
P03	Shakila Akter	The University of Sydney	Enhancing CO ₂ absorption capacity using Phosphonium Amino Acid Functionalized Ionic Liquids (PAA-ILs) for membrane CO ₂ capture applications
P04	Rokhsare Kardani	University of Technology Sydney	Hydrogel Membranes for Water Purification
P05	Rockson Kwesi Tonnah	Macquarie University	Amphoteric Double Layered Zirconium-based Metal-Organic Framework Membrane for Blue Energy Harvesting
P06	Vikrant Sharma	Indian Institute of Technology Ropar	Natural Organic Matter Induced Fouling Analysis of Electrospun Nanofibrous Membranes
P08	Yeshi Choden	University of Technology Sydney	Optimization of Bromide selective composite electrode in membrane capacitive deionization
P09	Jonnalagedda Aditya	Birla Institute of Technology and Science	Enhanced gas separation performance of mixed matrix membranes (MMMs) using Zeolite imidazolate frameworks (ZIF) as fillers
P10	Amirhossein Shafaghat	University of Technology Sydney	Sustainable Nutrient Recovery: Employing Membrane-Aerated Bioreactors for Effective Nitrification
P11	Mohsen Askari	University of Technology Sydney	A Novel HMO@MXene Composite Membrane Electrode for High-Efficiency Lithium/Magnesium Ion Separation

P17	Wanglin Zhou	Nanjing Tech University	Cold sintering of perovskite-based mixed conducting membrane for oxygen separation
P18	Yaxin Zhang	Nanjing Tech University	Fabrication of MOF-802 membrane and its application for hydrogen purification
P19	Fayaz Ahmad Doobi	National Institute of Technology Srinagar	Hydrophilic Modification of PES Ultrafiltration Membrane Using PEGMA: Impact on Flux, Hydrophilicity, and BSA Rejection
P21	Ze-Xian Low	Nanjing Tech University	Crown Ether-Like Acyl Chloride Functionalized Thin Film Composite Membrane for Li ⁺ /Mg ²⁺ Separation
P22	Lingping Zeng	Monash University	Hyperbranched Interpenetrating Hydrogen Bond Network (HIHBN) Proton exchange Membrane for Fuel Cell above 220 °C

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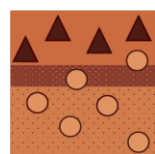
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