

1st Annual IWI Student Symposium

June 3, 2022, Bahen (BA) 1170, 9 am – 4:45 pm

[RSVP at this link](#) (By June 1, 2022 for food headcount. Can still come without RSVP)

Contact jay.werber@utoronto.ca with questions

Student Committee: Jiahao Zhu, Mennatallah Alnahas, Shamsunnahar Suchana, Runlin Yuan

Overall Schedule

8:45 – 9:00 am	Check-In and Name-tags
9:00 – 10:00 am	Keynote Speaker Ted Mao, Ph.D., P.Eng. CTO, Evercloak; Former VP of Research and CTO of Trojan Technologies; Advisory Board of IWI
10:00 – 10:30 am	Coffee Break
10:30 – 12:00 pm	Session 1: Biological Processes
12:00 – 1:00 pm	Pizza Lunch
1:00 – 2:30 pm	Session 2: Characterization and Water Treatment
2:30 – 3:00 pm	Coffee Break
3:00 – 4:15 pm	Session 3: Urban Water Systems
4:15 – 4:45 pm	Award Session for Top Presenters

Keynote: Ted Mao, CTO of Evercloak

Accelerating Water Technology Innovation – Lab to Market



Municipalities are facing significant challenges related to wastewater treatment, including aging infrastructure, increasingly more stringent discharge requirements, climate change and extreme weather events, constrained plant space, municipal budget stress, etc. Paradigm shifts in changing wastewater treatment plants into resource, energy and value recovery facilities are needed to turn these challenges to opportunities. Game-changing technologies are being developed to realize this vision with low energy, small footprint and cost effectiveness. However, significant barriers to development and commercialization of these technologies still exist. Some key challenges include: multi-disciplinary nature of the subject matter, scale-up from lab to pilot to full-scale, validation, risk/reward, technology adoption, regulation, etc. Case studies will be presented to explore solutions in overcoming these barriers, particularly on ecosystem building, and open innovation models between academic and industry partners, between start-ups and multi-national companies (MNCs).

STUDENT PRESENTATION SCHEDULE

	Presenter	Dept	Title
Session 1: Biological Processes			
10:30 – 10:45 am	Yunyun Yan	Civil & Mineral	Sulfur mass balance and speciation in the water cap during early-stage development in the first pilot pit lake in the Alberta Oil Sands
10:45 – 11:00 am	Sadafnaz Kashi Kalhour	Chemical	Characterization of Biosludge Floccs from Pulp and Paper Mills
11:00 – 11:15 am	Felicia Liu	Civil & Mineral	Elucidating microbiomes and their geochemical interplay in circum-neutral Canadian mining wastewater systems
11:15 – 11:30 am	Mitchell Zak	Chemical	Recovery and separation of rare earth elements via adsorption and selective desorption onto algal biofilms
11:30 – 11:45 am	Jennifer (Jay) Gordon	Civil & Mineral	Sulphur cycling pathway expression varies with conditions in mine wastewater
11:45 am – 12:00 pm	James Arrey	Civil & Mineral	Investigating sulfur cycling microbes in an oil sands end pit lake
Session 2: Characterization and Water Treatment			
1:00 – 1:15 pm	Hooman Chamani	Chemical	Insight into membrane morphology and properties using two-dimensional SEM micrographs
1:15 – 1:30 pm	Noel Devaere	Chemical	Forward Osmosis for water recovery from mining and metals effluents
1:30 – 1:45 pm	Danmei Chen	Chemical	Analytical analysis of RED bias in UVAOP
1:45 – 2:00 pm	Runlin Yuan	Chemical	Water Separation and Recovery via Continuous Layer Freeze Concentration
2:00 – 2:15 pm	Rohit Pal	Chemical	Using waste to treat waste - characterization and removal of PAHs and their NSO heterocyclic derivatives in industrial wastewater by metallurgical waste
2:15 – 2:30 pm	Claudio Adrian Ruiz-Torres	Chemical	Nanoporous multilayer graphene membrane for precise and stable forward osmosis desalination
Session 3: Urban Water Systems			
3:00 – 3:15 pm	Giuliana Frizzi	Civil & Mineral	Winter water quality monitoring for extensive green roof systems
3:15 – 3:30 pm	Hamidreza Mohabbat	Civil & Mineral	Household behavior and energy loss in intermittent water supply networks
3:30 – 3:45 pm	Gabrielle M. Marega	Civil & Mineral	Robust sanitary sewer infrastructure amidst uncertain urbanization and climate change
3:45 – 4:00 pm	Hafsa Momin	Civil & Mineral	Influence of stormwater management ponds on chloride transport to headwater streams
4:00 – 4:15 pm	Wenxi Liao	Forestry and Conservation	Biochar granulation, particle size, and vegetation effects on leachate water quality from a green roof substrate