

11TH WESTERN CANADIAN SYMPOSIUM ON WATER QUALITY RESEARCH

MAY 10, 2019

Lister Conference Centre, University of Alberta, Edmonton.

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Canadian Association on Water Quality (CAWQ)

Department of Civil and Environmental Engineering, University of Alberta



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8:15 AM-8:45 AM	Room#1 (Wild Rose Room) Breakfast and registration	
8:45 AM-9:00 AM	Room#1 (Wild Rose Room) <u>Welcome address</u> Dr. Bipro Dhar (Conference Chair) Dr. Yang Liu (Conference Co-Chair) Dr. Simaan Abourizk (Chair, Department of Civil and Environmental Engineering, University of Alberta) Dr. Elsayed Elbeshbishy (Vice-President, Central Canada, Canadian Association on Water Quality)	
9:00 AM-9:40 AM	Room#1 (Wild Rose Room) <u>Keynote Speech: Planning for the Impact of Climate Change on the Edmonton Drinking Water Supply</u> Dr. Stephen Craik Director, Quality Assurance and Environment, EPCOR Water Canada	
9:40AM-9:50 AM	Break	
9:50 AM-11:15 AM	Room#1 (Wild Rose Room) <u>Session#1: Processes for Waste and Wastewater</u> (Session Chair: Dr. Elsayed Elbeshbishy) 9:50-10:10 AM: <u>Invited Talk:</u> Tracer Test Analysis For Process Modifications: A case Study/Speaker: Julian Xheko , Stantec 10:10-10:30 AM: <u>Invited Talk:</u> Membrane distillation for water reclamation and reuse: Opportunities and challenges/Speaker: Dr. Saifur Rahaman , Concordia University 10:30-10:50 AM: <u>Invited Talk:</u> Moving Conventional Wastewater Treatment Plants (WWTPs) into Water Resources Recovery Facilities (WRRFs)/Speaker: Dr. Ahmed ElDyasti , York University) 10:50-11:10 AM: <u>Invited Talk:</u> Who is doing what in our anaerobic digesters? Linking structure to function with stable isotope informed metagenomics/ Speaker: Dr. Ryan Ziels , University of British Columbia	Room#2 (Aurora Room) <u>Session#2: Water Quality Management (Session Chair: Dr. Mohtada Sadrzadeh)</u> 9:50-10:10 AM: <u>Invited Talk:</u> Analysis and Management of Risks in Watershed Environmental Systems/Speaker: Dr. Gordon Huang , University of Regina 10:10-10:30 AM: <u>Invited Talk:</u> Advances in the remediation of sulfolane contaminated sites: State of the art/Speaker: Dr. Gopal Achari , University of Calgary 10:30-10:50 AM: <u>Invited Talk:</u> Large-Scale Laboratory Investigation of Material Attachment and Detachment on the Wall of Drinking Water Pipes in a Cold Climate Environment/Speaker: Dr. Yves Filion , Queen's University 10:50-11:10 AM: <u>Invited Talk:</u> Detection of enteric bacteria and antibiotic resistance genes in source and drinking water from Manitoba First Nation communities/Speaker: Dr. Ayush Kumar , University of Manitoba

11:20 AM-12:00 PM	Room#1 (Wild Rose Room) <u>Keynote Speech:</u> Nutrient removal by aerobic granular sludge Dr. Joo-Hwa Tay Professor, Civil Engineering, University of Calgary Tier I Canada Research Chair, Wastewater Engineering NSERC/City of Calgary Senior Industrial Research Chair, Advanced Technologies for Wastewater Treatment		
12:00 PM-1:00 PM	Lunch		
1:00 PM-2:10 PM	Room#1 (Wild Rose Room) <u>Session#3:</u> Anaerobic Digestion (Session Chair: Dr. Ahmed ElDyasti) 1:00-1:15 PM: Temperature-dependent (20-55°C) differences in ethanol/propionate degradation by methanogenic communities grown on conductive carbon fibers/Speaker: Dr. Long Lin, University of Alberta 1:15-1:30 PM: Increased spatial resolution and RNA-based analysis revealed microbial enrichment by granular activated carbon in anaerobic digesters/Speaker: Dr. Bing Guo, University of Alberta 1:30-1:45 PM: Evaluation of Biomethane Recovery from Co-digestion of Source Separated Organic Waste and Thickened Waste Activated/Speaker: <u>Anahita Rabii, Ryerson University</u>	Room#2 (Aurora Room) <u>Session#4:</u> Municipal Water/Wastewater Treatment (Session Chair: Mr. Abdul Mohammed) 1:00-1:15 PM: Removal of THMs Precursors from High DOC and TDS Water by IBROM Process/Speaker: <u>Zahra Vojdani, University of Manitoba</u> 1:15-1:30 PM: Nitrification-anammox Processes for Ammonium Rich Sludge Thickening Lagoon Supernatant Treatment/Speaker: <u>Sen Yang, University of Alberta</u> 1:30-1:45 PM: Effective method for enhancing primary treatment of wastewater during wet weather flow using ferrate and peracetic acid/Speaker: <u>Abdulrahim Alumairi, University of Alberta</u>	Room#3 (Prairie Room) <u>Session#5:</u> Applied Electrochemistry for Wastewater Industry (Session Co-Chairs: Dr. Shengnan Xu and Dr. Mohamed Meshref) 1:00-1:15 PM: Bioelectrochemical anaerobic treatment of blackwater at different organic loading rates/Speaker: <u>Qi Huang, University of Alberta</u> 1:15-1:30 PM: Combining electro-oxidation and aerobic biodegradation as treatment for Oil Sands Process Water (OSPW)/Speaker: <u>Abdallatif Abdalrhman, University of Alberta</u> 1:30-1:45 PM: Development of microbial electrochemical cell as a rapid biosensor for the detection of naphthenic acids/Speaker: <u>Tae Chung, University of Alberta</u> 1:45-2:00 PM: Assessment of Bio-H ₂ production potential of sludge liquors from acidogenic fermentation and thermal

	1:45-2:00 PM: Enhanced Co-digestion of Food Waste and FOG with Conductive Additives/Speaker: <u>Bappi Chowdhury, University of Alberta</u>	1:45-2:00 PM: Unsaturated/saturated granular activated carbon biofilter for greywater treatment/Speaker: <u>Ahmed Sharaf, University of Alberta</u>	hydrolysis processes/ <u>Basem S. Zakaria, University of Alberta</u>
2:00 PM-2:20 PM	Break		
2:20 PM-3:35 PM	<p>Room#1 (Wild Rose Room)</p> <p><u>Session#6: Bioenergy and Resources Recovery from Waste/Wastewater (Session Co-Chairs: Dr. Long Lin and Dr. Bing Guo)</u></p> <p>2:20-2:35 PM: UASB treatment of blackwater from different toilet flushing systems/Speaker: <u>Mengjiao Gao, University of Alberta</u></p> <p>2:35-2:50 PM: Thermal Pretreatment Impact on the acidification of Source Separated Organics and Municipal Sludges/Speaker: <u>Farokh Iqbal Kakar, Ryerson University</u></p> <p>2:50-3:05 PM: Carbon and Volatile Fatty Acids Recovery in a Reactive Primary Clarifier: A Pilot Case Study/Speaker: <u>Michele Ponzelli, Ryerson University</u></p> <p>3:05-3:20 PM: Enhancement of blackwater methane production by enriching hydrogenotrophic methanogens through hydrogen</p>	<p>Room#2 (Aurora Room)</p> <p><u>Session#7: Oil Sands Process Water Management (Session Co-Chairs: Dr. Tesfa Haile and Dr. Feng Lin)</u></p> <p>2:20-2:35 PM: The removal of organic contaminants from OSPW in the Kearn Treatment Wetland/Speaker: <u>Alex Cancelli, Simon Fraser University</u></p> <p>2:35-2:50 PM: Photodegradation of naphthenic acids induced by the inorganics present in oil sands process water/Speaker: <u>Rui Qin, University of Alberta</u></p> <p>2:50-3:05 PM: Persulfate oxidation coupled with biodegradation by Pseudomonas Fluorescens for Oil Sands Naphthenic Acid Remediation/Speaker: <u>Amy-lynn Balaberda, University of Alberta</u></p> <p>3:05-3:20 PM: Feasibility of Lime to Mitigate Chemical Flux in Oil Sands</p>	<p>Room#3 (Prairie Room)</p> <p><u>Session#8: Materials and Membrane Technologies for Water Management (Session Chair: Dr. Saifur Rahaman)</u></p> <p>2:20-2:35 PM: Probing fouling mechanism of naphthenic acids on forward osmosis polymer membranes in oil sands process water treatment/Speaker: <u>Li Xiang, University of Alberta</u></p> <p>2:35-2:50 PM: High-temperature Water Treatment using Novel Thin Film Composite Membranes/Speaker: <u>Pooria Karami, University of Alberta</u></p> <p>2:50-3:05 PM: Buoyant convection in porous media: Multiple layers separated by an inclined permeability jump/Spekaer: <u>Bharath S. Kattamalalawadi, University of Alberat</u></p> <p>3:05-3:20 PM: Development of novel ultrafiltration membranes for oily wastewater treatment/Speaker: <u>Nusrat Helali, University of Alberta</u></p>

	<p>supplementation/Speaker: <u>Dr. Shengnan Xu, University of Alberta</u></p> <p>3:20-3:35 PM: Chemical pretreatment of thickened waste activated sludge using free nitrous acid and hydrogen peroxide/Speaker: <u>Salomeh Chegini, Ryerson University</u></p>	<p>End Pit Lakes/Speaker: <u>Nesma Allam, University of Alberta</u></p> <p>3:20-3:35 PM: Catalytic ozone-based treatment of oil sands process water by heteroatom doped Fe/GAC/Speaker: <u>Hande Demir-Duz, Universitat Rovira i Virgili, Spain</u></p>	<p>3:20-3:35 PM: Preparation and Characterization of Biochar from Sewage Sludge for Organic Matters Removal in Oil Sands Process Water/Speaker: Dr. Selamawit Ashagre Messele, University of Alberta</p>
<p>3:35 PM-4:30 PM</p>	<p>Room#1 (Wild Rose Room)</p> <p><u>Networking and Poster Session</u></p> <ol style="list-style-type: none"> 1. Simultaneous denitrification and anammox processes for the treatment of anaerobic digested blackwater/Dr. Yun Zhou, University of Alberta 2. Effects of microaeration on anaerobic greywater treatment/Dr. Lei Zhang, University of Alberta 3. Life cycle assessment of decentralized greywater treatment systems with reuse at different scales in a cold region/Dr. Yumi Kobayashi, University of Alberta 4. Co-digestion of blackwater and kitchen organic waste in anaerobic sequencing batch reactors/Dr. Qianyi Zhang, University of Alberta 5. Anaerobic digestion and methane production in municipal sewage at low temperature using a granular activated carbon-amended UASB reactor/<u>Yingdi Zhang, University of Alberta</u> 6. Spatial variation of total and dissolved trace element concentrations along the Athabasca River/<u>Marjan Ghotbizadeh, University of Alberta</u> 7. Perfectly Subcritical Gravity Currents: Experiments and Shallow Water Theory/<u>Mitchel S. Baker, University of Alberta</u> 8. An Amphiphobic Graphene-Based Hydrogel as Oil-Water Separator and Oil Fence Material/<u>Wenjiahao Hu, University of Alberta</u> 9. Enhancement of Volatile Fatty Acids production from fermentation of three types of waste streams by thermal pretreatment/<u>Farokh laqa Kakar, Ryerson University</u> 10. Systematic Development of a Methanotroph Chassis for transforming wastewater methane emissions to value added products: Predictive modelling and genetic engineering of <i>Methylobacterium album</i> BG8/<u>Phillip Sun, University of Alberta</u> 		

	<p>11. Evaluation of Hydrolysis rate in Anaerobic Co-digestion of Multi Feedstocks for Biomethane Recovery/<u>Anahita Rabii, Ryerson University</u></p> <p>12. Recovery of Volatile Fatty Acids Using Vacuum System/<u>Frances Okoye, Ryerson University</u></p> <p>13. Enhanced biomethane recovery from source separated organics using hydrothermal pre-treatment/<u>Ahmad Shabir Razavi, Ryerson University</u></p> <p>14. Organics and nutrients (nitrogen and phosphorus) removal in a submerged aerobic granular sludge membrane bioreactor (AGMBR)/<u>Oliver Iorhemen, University of Calgary</u></p> <p>15. Treatment of high-strength organic wastewater using aerobic granular sludge/<u>Dr. Rania Hamza, University of Calgary</u></p> <p>16. Impact of on GAC addition on mesophilic and thermophilic anaerobic digestion of food waste/<u>John Ryue, University of Alberta</u></p>
4:30 PM-4:45 PM	<p>Room#1 (Aurora Room) Announcement of awards and closing remark</p>

Note: Speakers/Poster presenters underlined will be evaluated for awards.