

# 51<sup>st</sup> Central Canadian Symposium on Water Quality Research

## AGENDA

*February 23 and 24, 2016*

Alumni Lounge (4102), 4<sup>th</sup> floor  
Mattamy Athletic Centre,  
50 Carlton Street, Toronto,  
Ontario M5B1J2

### Notes

Registration on site will open at 8:30 am with a welcome address/opening remarks starting promptly at 9:00 am. Please arrive early enough to collect your name badge, get breakfast and seat yourself.

## Tuesday, February 23, 2016

<i>Registration and Breakfast (8:30 am – 9:00 am)</i>	
9:00 am - 9:15 am	Welcome Address
<b>Session 1: Future of Wastewater treatment plants</b> (Alumni Lounge, MAC 4102) Chair: Dr. Elsayed Elbeshbishy	
9:15 am - 9:40 am	Biological nutrient removal using the circulating fluidized bed bioreactor  George Nakhla, Western University
9:40 am - 10:05 am	Accelerate Development and Commercialization of Paradigm-Shift-Enabling Wastewater Treatment Technologies for Energy and Resource Recovery  Ted Mao, Dr. Domenico Santoro
10:05 am - 10:30 am	The Future is Now! Moving from “Treatment Plant” to “Resource Recovery Facility”  Tim Constantine, CH2M
<i>Break (10:30 am – 10:45 am)</i>	
<b>Session 2: Bioenergy and biofuel production</b> (Alumni Lounge, MAC 4102) Chair: Dr. George Nakhla	
10:45 am - 11:10 am	A unified theory of electron transfer from dissolved electron donor to conductive solids  Hyung-Sool Lee, Waterloo University
11:10 am - 11:35 am	A Novel Application of Two-Stage Anaerobic Digestion Process for H <sub>2</sub> & CH <sub>4</sub> Production in the Ethanol Industry  Hisham Hafez, GreenField Specialty Alcohols
11:35 am - 12:00 pm	Production of Biofuel from Municipal Source-Separated Organic Waste  Grace Luk, Ryerson University
<i>Lunch (12:00 pm – 1:15 pm)</i>	

	<b>Session 3: Bioenergy</b> (Alumni Lounge, MAC 4102) Chair: Dr. Hisham Hafez	<b>Session 4: Wastewater treatment</b> (Blue and Gold room, MAC 3310) Chair: Yaldah Azimi
1:15 pm - 1:30 pm	Influence of furfural on biohydrogen production in continuous-flow systems  <u>B. M. Haroun</u> , G. Nakhla, H. Hafez, F.A. Nasr	Optimization of biogas production and removal organics and nutrients from slaughterhouse wastewater treatment by combined anaerobic-aerobic processes  <u>C. F. Bustillo-Lecompte</u> , M. Mehrvar, E. Quiñones-Bolaños
1:30 pm - 1:45 pm	Biohydrogen Production: Clostridium thermocellum Microbial Kinetics on Cellobiose and Glucose  <u>N. Nasra</u> , H. Hafez, M. H. E. Naggara, G. Nakhla	Development of Nitrogen Shunt process in a Sequential Batch Reactor (SBR) using Ammonium Oxidizing Bacteria (AOB) controlled by mixing regime  <u>M. Soliman</u> , A. Eldyasti
1:45 pm - 2:00 pm	Biological Hydrogen Production from Synthetic Lignocellulosic Hydrolysate using Mesophilic and Thermophilic Anaerobic Digester Sludge: Impact of Furfural  <u>C. Akobi</u> , H. Hafez, G. Nakhla	Real Time Microbial Community analysis of Activated Sludge at various operational conditions of fermentation  <u>S. K. Ram</u> , L. Kumar, M. Kuttiraja, R. D. Tyagi
2:00 pm - 2:15 pm	RBF Technology to Optimize Biological Nutrient Removal and Anaerobic Digestion  <u>M. Gupta</u> , S. Sarathy, G. Nakhla	Dilute wastewater treatment using fermentation and membrane filtration  <u>B.K. Kim</u> , B. R. Dhar, A. R. Carreón, A. Hussain, H. Lee
2:15 pm - 2:30 pm	Optimization of Anaerobic BioCORD Bioreactors to Enhance the Biomethane Production from Industrial Waste Stream  <u>P. Izadi</u> , A. Eldyasti, R. Hawkes	Particle Separation, Thickening and Dewatering with Rotating Belt Filters (RBFs): Case Studies and Applications  <u>F. Daynouri-Pancino</u> , S. Mao, W. Sun, M. H. Jobehdar, D. Ho, D. Santoro
<b>Break (2:30 pm – 2:45 pm)</b>		
	<b>Session 5: MEC</b> (Alumni Lounge, MAC 4102) Chair: Dr. Hyung-Sool Lee	<b>Session 6: Wastewater treatment II</b> (Blue and Gold room, MAC 3310) Chair: Dr. Ahmed Eldyasti
2:45 pm - 3:00 pm	Arrangements of multiple anodes affect the electron transfer kinetics and microbial community structure in microbial electrochemical cell (MXC)  <u>B. R. Dhar</u> , J. An, E. Elbeshbishy, H. Ryu, H. Lee	Advanced Process Control During Wastewater Disinfection by Peracetic Acid (PAA): From Theory to Practice  <u>A. Murray</u> , S. Sarathy, A. Canali, Y. Wen, D. Santoro

3:00 pm - 3:15 pm	Modeling of exocellular electron transfer in bioelectrochemical systems  W. Huang, Y. Kim	Treatment of emerging substances of concern using aerobic granular sludge  J. H. Tay, J. Kent, R. A. Hamza, O. T. Iorhemen
3:15 pm - 3:30 pm	Microbial Electrochemical Technologies (METs) as an Online Monitoring Tool for Biochemical Oxygen Demand (BOD)  J. Sim, H. Lee	Development of Titanium Dioxide Photocatalyst for Degradation of Dyes and Effect of Calcination Temperature on Photocatalytic Efficiency  M. Nasirian, M. Mehrvar
3:30 pm - 3:45 pm	Phosphorus and Nitrogen Recovery in Microbial Electrolysis Cells through Struvite Precipitation from Dewatering Centrate  P. Yuan, Y. Kim	Mathematical Modeling of Aerobic Granulation Process for Wastewater Treatment  M. S. Zaghoul, R. A. Hamza, J. H. Tay

### **Poster Exhibition**

3:45 pm - 4:30 pm	<p>Investigation of Ammonia Oxidizing Microorganisms in Municipal Wastewater Treatment Systems R.D.Tyagi, G. Islam, K. Gilbride</p> <p>The Characterization and Proliferation of Tetracycline Resistance Genes in Three Urban Wastewater Treatment Plants A. Tehrani, K. Gilbride</p> <p>Evaluation of Nanofiltration for Organic and Inorganic Pollutants Removal from Lead Octoate Drier Wastewater A. Rabii, G. N. Bidhendi, E. Elbeshbishy</p> <p>Detergent Assisted Lipid Extraction from Wet Yeast Biomass for Biodiesel: A Response Surface Methodology Approach S. K. Yellapu, B. Jyothi, R.D. Tyagi</p> <p>Evaluation the Effect of Free Nitrous Acid Pretreatment on Anaerobic Digestability of Thickened Waste Activated Sludge F. Okoye, D. Ho, S. Sarathy, E. Elbeshbishy, W. Parker</p> <p>Effects of Urban Contaminants Ibuprofen and Tetracycline on Extracellular Polymer Substances in Wastewater Sludge B. Hanna, K. Gilbride</p>
4:30 pm - 4:45 pm	Closing Remarks of the first day and students awards

## Wednesday, February 24, 2016

<i>Registration and Breakfast (8:30 am – 9:00 am)</i>	
<b>Session 1: Drinking water</b> (Alumni Lounge, MAC 4102) Chair: Dr. Darko Joksimovic	
9:00 am - 9:25 am	Regulatory Framework for Drinking Water Systems in Ontario A. Ahmed
9:25 am - 9:40 am	The relationship of E. coli and total coliform culture to the quantitative molecular detection of various fecal indicators, sources and pathogens in private drinking water wells S. Felleiter, K. McDermott, A. Majury
9:40 am - 9:55 am	Membrane fouling innovative solutions in ultrafiltration of Contaminated Water and Wastewater A. Abdelrasoul, H. Doan, A. Lohi
9:55 am - 10:10 am	Vacuum membrane distillation for small-scale potable water production from low-quality feed water M. Blain, C. Feng, R. Farnood
10:10 am - 10:25 am	Development of a low-cost, paper-based colorimetric sensor for trace arsenic detection in drinking water N. Yogarajah, S. Tsai
10:25 am - 10:40 am	Electrochemical copper disinfection as an alternative water treatment method for underprivileged societies J. Parr, Y. Kim
<i>Break (10:40 am – 10:55 am)</i>	
<b>Session 2: Infrastructure and Special Issues</b> (Alumni Lounge, MAC 4102) Chair: Aziz Ahmed	
10:55 am - 11:20 am	The NRC Arctic Program and water and sewage in Canada's North A. Colombo
11:20 am - 11:35 am	Examining the Evolving Environmental Protection Policy Convergence in the Ontario Municipal Water, Wastewater and Stormwater Sectors E. Tovilla, K. Webb
11:35 am - 12:50 pm	Aerobic Granulation for the Treatment of Alberta Oil Sands Process-Affected Water S. Tiwari, J. H. Tay
11:50 am - 12:05 pm	An Innovative Treatment Technology for Storm Water Retention Ponds, Improving Sediment and Water Quality and Reducing Sediment Volume A. Laursen
12:05 am - 12:20pm	Invasive mussels and drinking water infrastructure: impacts of a change from zebra to quagga mussels B. Ginn, A. Cranmer, L. Meteer
<i>Lunch (12:20 pm – 1:30 pm)</i>	

<p align="center"><b>Session 3: Watersheds</b>            (Alumni Lounge, MAC 4102)            Chair: Andrew Colombo</p>	
1:30 pm - 1:55 pm	<p>Alternative Thinking to Improve Hydrologic Flood Routing Models</p> <p>Dr. S. Easa</p>
1:55 pm - 2:10 pm	<p>Receiving Water Assessments for re-rating Sewage Treatment Plants, Approaches, Challenges and Lessons Learned</p> <p>D. Sinclair, P. Wilson, J. Matthews</p>
2:10 pm - 2:25 pm	<p>Real-time Water Quality Monitoring: Bridging the traditional in-stream monitoring gaps</p> <p>L. Murison, A. Singh</p>
2:25 pm - 2:40 pm	<p>SWAT modeling of hydrology, sediment and nutrients loading from the Grand River into Lake Erie</p> <p><u>A. Hanief</u>, A. Laursen</p>
2:40 pm - 2:55 pm	<p>Effectively Using Measurement Quality Objectives in Validating Alberta Environment and Park's Surface Water Chemistry Data: Learning to "Play" the Horwitz Trumpet</p> <p>T. Roumeliotis, D. Köster</p>
<p><b>Break (2:55 pm – 3:10 pm)</b></p>	
<p align="center"><b>Session 4: Lakes</b>            (Alumni Lounge, MAC 4102)            Chair: Dr. Said Easa</p>	
3:10 pm - 3:25 pm	<p>Reported Algal Blooms in Ontario Lakes 1994 to 2015</p> <p>C. Holeton, J. Winter, M. Palmer, K. Utsumi</p>
3:25 pm - 3:40 pm	<p>An Examination of Sediment Contamination in Lake St. Clair Utilizing Geospatial Interpolation and 3D Bathymetry</p> <p>K.W. Forsythe, C. H. Marvin, D. E. Mitchell, C. J. Valancius, J. P. Watt, J. M. Aversa, S. J. Swales, R. R. Shaker, D. J. Jakubek</p>
3:40 pm - 3:55 pm	<p>Emergent Trends in Water Quality Protection Governance: Microbeads Pollution in the Great Lakes</p> <p><u>M. Martin</u>, K. Webb</p>
3:55 pm - 4:10 pm	<p>Predicting aquatic invasion in Adirondack lakes: A spatial analysis of lake and landscape conditions</p> <p>R. Shaker, V. Bowler, Y. Artur, E. Vennie-Vollrath</p>

**Poster Exhibition**

4:10 pm - 4:40 pm	<p>Assessment of Microbial Populations in Recreational Waters of Southeastern Ontario: Implications for Human Health T. Baldeh, K. McDermott, A. Majury</p> <p>Effect of Freeze Thaw Cycles on Nutrient Removal in Stormwater Bioretention Cells X. R. Ding, F. Rezanezhad, P.V. Cappellen, E. Passeport</p> <p>Seasonal changes in nutrient concentration in River Isiukhu watershed, Western Kenya, East Africa Z. Onyando, C. Kigen, W. Shivoga, H. Lung'ayia</p> <p>Impact of Environmental Factors on Water Quality of a Lake Ontario Recreational Area L. Khani, R. Chung, C. Ong</p> <p>Surveillance of Cryptosporidium Oocysts Entrapped in Aquatic Biofilms from Agricultural Watersheds A. Morris</p>
4:40 pm - 4:50 pm	Closing Remarks and students awards