

53rd Central Canadian Symposium on Water Quality Research

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Thursday, February 22, 2018 (Agenda)

| Registration and Breakfast (8:00 am – 9:00 am) | | | | |
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| 9:00 am - 9:15 am | Welcome Address | Dr. Ron Hofmann, Conference chair, Dr. Grant Allen, Chair, Department of Chemical Engineering & Applied Chemistry, U of T Mr. Mike Lywood, CAWQ president | | |
| Keynote Speaker 1 (Chestnut Residence and Conference Centre) “Ballroom Centre & West Room” | | | | |
| 9:15 am – 10 am | Wastewater—is it a Problem or a Marketable Resource? Dr. Don Mavinic | | | |
| Break (10:00 am – 10:15 am) | | | | |
| Time | Session (1): Bioenergy “Ballroom Centre & West Room” Chair: Dr. Valeriy Bekmuradov | Session (2): BNR “St. Patrick Room” Chair: Dr. George Nakhla | Session (3): BioELCTORCHEMical “St. David Room” Chair: Dr. Bipro Dhar | Session (4): Wetlands and environmental fate of contaminants “Giovanni room” Chair: Dr. Melisa Hatat-Fraile |
| 10:15 - 10:35 am | On the Path to Sustainable Water Services - Resource Recovery Based Municipal Wastewater Treatment Dr. Yang Liu | Science and Process Development of EBPR and Future Alternatives Dr. Mehran Andalib | New Charge Transfer Model for Exoelectrogenic Current Generation in Bioelectrochemical Systems Dr. Younggy Kim | Wetlands Hydrogeochemical Processes Under Changing Winter Conditions Dr. Fereidoun Rezanezhad |
| 10:35 - 10:50 am | Biodiesel Production Using Oleaginous Micro-Organisms <u>Lalit R. Kumar</u> , Rajeshwar Tyagi | Microsieving Wastewater Using Rotating Belt Filter Technology to Maximize Internal Carbon Utilization for Nitrogen Removal <u>Medhavi Gupta</u> , Dang Ho, Siva Sarathy, Diego Rosso, Damien Batstone, Domenico Santoro, George Nakhla | Improvement of Methane Production from Black Water by Electroactive Microorganisms Enriched on Granular Activated Carbon <u>Anna Patricya Florentino</u> , Ahmed Sharaf, Lei Zhang, Yang Liu | Strontium Fate at the Water-Sediment Interface: A Field Study <u>Antoine Boyer</u> , Melisa Hatat-Fraile, Elodie Passeport, |

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| 10:50 - 11:05 am | <p>Effect of Hydrothermal Pretreatment on Solubilization and Bio-Hydrogen Production of Source Separated Organics and Thickened Waste Activated Sludge</p> <p>Farokh Iqbal Kakar, Amir Abbas Bazzyar Lakeh, Armineh Azizi, Hisham Hafez, Elsayed Elbeshbishy</p> | <p>Nutrient Recovery from Anaerobic Digestion Centrate Using Electrodialysis</p> <p><u>Andrew Alex</u>, Pengyi Yuan, Vladimir Pavlovic, John Barber, Younggy Kim</p> | <p>Lead (Pb) Removal by Bioanodes Enriched in Microbial Electrolysis Cells</p> <p><u>Mahshid Jannati</u>, Younggy Kim</p> | <p>Bioretention Cells for Removal of Benzotriazole from Urban Stormwater Runoff</p> <p><u>Leandra Rhodes-Dicker</u>, Elodie Passeport</p> |
| 11:05 – 11:20 am | <p>Optimization of Methane Hydroxylation Using Waste Activated Sludge Mixed Culture</p> <p><u>Ahmed Alsayed</u>, Ahmed Fergala, Adham Elsharkawy, Ahmed Eldyasti</p> | <p>Occurrence of Residual Biological and Chemical Contaminants in Recovered Struvite-Nutrients from Blackwater</p> <p><u>Yee, R. A.</u>, Ashbolt, N. J., Liu, Y.</p> | <p>Oil Extraction from Scum, Primary, Secondary Wastewater Sludge and Conversion to Biodiesel</p> <p><u>Sravan Kumar Yellapu</u>, Rajeshwar Tyagi</p> | <p>Direct and Indirect Photodegradation of Triclosan in Wetland</p> <p><u>Ka Yee Lam</u>, Sylvie Nelieu, Elodie Passeport</p> |
| 11:20 – 11:35 am | <p>Improvement of Biomethane Production by Anaerobic Digestion of Multi Feedstocks- Influence of Mixing Ratio</p> <p><u>Anahita Rabii</u>, Ahmed Elsayed, Saad Aldin, Yaser Dahman, Elsayed Elbeshbishy</p> | <p>Impacts of Operational Conditions on The Microbial Community Structure of Partial Nitrification Reactors Treating High Strength Digested Sludge Liquor Supernatant</p> <p><u>Yanxi. Shao</u>, Anna P. Florentino, A. Mohammed, Y. Liu</p> | <p>Effect of Antimicrobial Silver Nanoparticles on Electrochemically Active Biofilm</p> <p><u>Basem S. Zakaria</u>, Ahmed Sharaf, Sajib Barua, Yang Liu, Bipro Ranjan Dhar</p> | <p>Assessment of the Global Bioretention Cell Design Guidelines Based on the Climatic and Urban Variations</p> <p><u>Mantas Bacys</u>, Usman Khan, Jit Sharma, Thomas Ruby Bentzen</p> |

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| 11:35 – 11:50 am | Energy positive wastewater treatment plants: can integrate methane mitigation, biofuel production, and nitrogen removal enhancement? Ahmed Alsayed, Ahmed Fergala, <u>Safyat Hosen</u> , Seif Khattab, Adham Elsharkawy, Ahmed Eldyasti | Validation of A Two-Stage Nitrification Model with Substrate and Product Inhibition <u>Xiaoguang Liu</u> , Mingu Kim, George Nakhla | Development of Bioelectrochemical Sensing Device for Monitoring Naphthenic Acids <u>Sajib Barua</u> , Basem S. Zakaria, Bipro Ranjan Dhar | Analyses of the Hydrologic Performance of Bioretention Facilities <u>Seyed Amirali Alinaghian</u> , James Li |
| <i>Lunch (11:50 pm – 1:00 pm)</i> | | | | |
| Keynote Speaker 2 (Chestnut Residence and Conference Centre) “Ballroom Centre & West Room” | | | | |
| 1:00 – 1:45 pm | Do you know where your water comes from? The facts of de facto and planned potable reuse Dr. Kati Bell | | | |
| Time | Session 5: AD “St. Patrick Room” Chair: Dr. Hubert Cabana | Session 6: Wastewater “Giovanni room” Chair: Miss. Medhavi Gupta | Session 7: Cyanobacteria in water treatment “St. David Room” Chair: Dr. Arash Zamyadi | Session 8: SOWC Show Cases “Ballroom Centre & West Room” Chair: Mr. Rahim Kanji |
| 1:50 - 2:10 pm | Accelerate Development and Commercialization of Paradigm-Shift-Enabling Wastewater Treatment Technologies for Energy and Resource Recovery Dr. Ted Mao | Simultaneous Carbon and Nitrogen Removal Using an Inverse Fluidized Bed Bioreactor Dr. George Nakhla | Harmful Algal Blooms During Water Treatment: Challenges and Management Techniques Dr. Arash Zamyadi | Sewer-WWTP Integrated Management for Water Resource Recovery Lisa Guo (Trojan Technologies) |

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| 2:10 - 2:25 pm | <p align="center">Free Nitrous Acid Pretreatment Improves Methane Production in Thickened Waste Activated Sludge</p> <p align="center"><u>Frances Okoye</u>, Elsayed Elbeshbishy</p> | <p align="center">Observing the Photocatalytic Activity of Nanomaterials Under Consistent Testing Parameters</p> <p align="center"><u>Ivana jaciw-zurakowsky</u>, robert liang, Mark. R. Servos, y. Norman zhou</p> | <p align="center">Cyanobacteria Accumulation in DWTPs and the Value of a Fluorescence Probe for Process Control</p> <p align="center"><u>Husein Almuhtaram</u>, Yijing Cui, Arash Zamyadi, Ron Hofmann</p> | <p align="center">Thermophilic Pre-Treatment of Biosolids: A Tool for Process Design and Optimization</p> <p align="center">Jerome Remigio (InCTRL)</p> |
| 2:25 - 2:40 pm | <p align="center">Enhancement of Aerobic Biodegradability of Biosolids by Bacillus Subtilis</p> <p align="center"><u>Vaithyanathan Vasanth Kumar</u>, Hubert Cabana</p> | <p align="center">Analysis of The Bacterial Community of Aerobic Granular Sludge in A Laboratory-Scale Sequencing Batch Reactor Treating High Strength Wastewater</p> <p align="center"><u>Ahmed Sharaf</u>; Anna P. Florentino; Yang Liu</p> | <p align="center">Microcystin-LR Degradation by Acclimatized Bacteria Isolated from Different Units of the Drinking Water Treatment Plant</p> <p align="center"><u>Pratik Kumar</u>, Satinder Kaur Brar, Maximiliano Cledon</p> | <p align="center">Advancing GPS-XTM & SimuWorks™ Modeling and Simulation Platforms for Real Time Plant Optimization</p> <p align="center">Rajeev Goel (Hydromantis)</p> |
| 2:40 - 2:55 pm | <p align="center">New Sludge Characterization Method for Modeling Anaerobic Digestion</p> <p align="center"><u>Yousif Hirmiz</u>, Youngseck Hong, Younggy Kim</p> | <p align="center">Characterization of Extracellular Polymeric Substances (EPS) Produced by Using Glucose and Crude Glycerol and Its Applications for Sludge Settling and Dewaterability</p> <p align="center"><u>Rajwinder Kaur</u>, R. D. Tyagi</p> | <p align="center">Microcystin Degradation by UV-LED/TiO₂ Photocatalysis</p> <p align="center"><u>Olivia Schneider</u>, Robert Liang, Leslie Bragg, Mark Servos, Norman Zhou</p> | <p align="center">Renix: Safe Food, Clean Water, Green Materials</p> <p align="center">Charles Fung (Renix)</p> |

Break (2:55 pm – 3:10 pm)

| Time | <p align="center">Session 9: Bioenergy “St. Patrick Room” Chair: Dr. Ehssan Koupaie</p> | <p align="center">Session 10: Wastewater “Ballroom Centre & West Room” Chair: Dr. Yves Comeau</p> | <p align="center">Session 11: Potable water quality and aquaculture treatment “St. David Room” Chair: Dr. Shelir Ebrahimi</p> | <p align="center">Session 12: Nutrient control in surface waters “Giovanni room” Chair: Dr. Usman Khan</p> |
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| 3:10 - 3:30 pm | <p align="center">Promoting Propionate and Butyrate Degradation in Anaerobic Digester using Carbon Fibers</p> <p align="center"><u>Sajib Barua</u>, Basem S. Zakaria, Bipro Ranjan Dhar</p> | <p align="center">Prevention of Struvite and Polymer Reduction in WWTP Dewatering Processes</p> <p align="center">Mr. Bill Carroll</p> | <p align="center">Extruding Filaments for 3D Printing of Water Treatment Membranes</p> <p align="center"><u>Emad Shahnam</u>, Robert Liang, Ivana Zurakowsky, Mark Servos, Norman Zhou</p> | <p align="center">Hydrology and Phosphorus Model for Agricultural Watershed: SWAT simulation of Discharge and Nutrient Flux in Medway Creek Watershed</p> <p align="center"><u>Omar Abusanina</u></p> |
| 3:30 - 3:45 pm | <p align="center">Selection of Polyhydroxybutyrate Accumulating Methanotrophic Bacteria Culture from Waste Activated Sludge</p> <p align="center"><u>Ahmed Fergala</u>, Ahmed Alsayed, Megan Ramirez, Ahmed Eldyasti</p> | <p align="center">Life Cycle Assessment for Wastewater Disinfection Using Sodium Hypochlorite, Peracetic Acid or Performic Acid</p> <p align="center"><u>Elena Penkarsk-Rodon</u>, Roberta Maffettone, Ronald Gehr</p> | <p align="center">Genetic Algorithms for Quantifying Trade-Offs Between Fire Flow Capacity and Drinking Water Quality in Distribution Systems</p> <p align="center"><u>John Gibson</u>, Yiping Guo, Bryan Karney</p> | <p align="center">Agricultural Nutrient and Groundwater-Surface Water Interactions in a Great Lakes Clay Plain System</p> <p align="center"><u>Sarah Rixon</u>, Jana Levison, Andrew Binns, Elisha Persaud</p> |

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| 3:45 – 4:00 pm | <p>Characterization of the Behavior of Particulate Pollutants in the Combined Sewer</p> <p><u>A. Hafhouf</u>, K. Haboub, P. Lessard, G. Pelletier, P.A. Vanrolleghem</p> | <p>Efficient and High Concentration of EPS Production Using Bacterial Strains Isolated from Wastewater Sludge for Bioflocculation</p> <p><u>Bharti, S.K.</u> Yellapu and R.D. Tyagi</p> | <p>Full-Scale UV/Cl₂ and UV/H₂O₂ Trials to Compare Performance on Degradation of Emerging Contaminants and Formation of Disinfection Byproducts</p> <p><u>Chengjin Wang</u>, Teodor Kochmar, Brian Sahely, Ron Hofmann</p> | <p>Evaluating Reservoir Sediment Contributions to Algal and Cyanobacterial Proliferation</p> <p><u>Amy Yang</u>, Mike Stone, Kirsten Muller, Monica Emelko</p> |
| 4:00 - 4:15 pm | <p>Impact of Substrate and Furfural Inhibition on Biohydrogen Production from Synthetic Lignocellulosic Hydrolysates in Batches</p> <p><u>Basem Mikhaeil</u> Haroun, George Nakhla, Hisham Hafez</p> | <p>Removal of Pharmaceuticals in SMBR at Varying HRT and Dynamics and Diversity of the Bacterial Community</p> <p><u>B. Tiwari</u>, R. Tyagi, P. Drogui, Y. Ouarada, A. Azais, G. Buelna, B. Sellamuthu, R. Dubé</p> | <p>Effect of Low-Frequency Ultrasound and Ultraviolet-C Light for Water Disinfection in Recirculating Aquaculture Systems</p> <p><u>Amir Abbas Baziyar Lakeh</u>, Klaus Knopf, Rainer Jung</p> | <p>Continuous Monitoring is Needed to Quantify Source Loadings and Demonstrate Effectiveness of Remedial Measures</p> <p><u>Yaghoub (Jacob) Norouzi</u>, Tony Van Rossum</p> |
| Poster Exhibition (4:05 - 4:45 pm) “Ballroom Centre & West Room” | | | | |
| Closing Remarks and Student Awards (4:45 - 5:00 pm) “Ballroom Centre & West Room” | | | | |

| Poster Exhibition (4:15 - 4:45 pm) “Ballroom Centre & West Room” | |
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| Phytoremediation of Leachate by Phragmites Australis and Typha Latifolia in Crushed Brick and Steel Slag using Pilot Scale Vertical Flow Constructed Wetland | <u>A. Batool</u> , Z. Sheikh, M. Arshad, S.J. Khan |
| Mechanisms of Pharmaceutical and Personal Care Product Removal in Algae-Based Water Treatment | <u>C. Larsen</u> , E. Passeport |
| Bioretention Cells: Adsorption and Desorption of Naphthalene from Urban Stormwater | <u>C. Akdeniz</u> , E. Passeport |
| Sediment Transport and Migration of Contaminants in Alluvial Rivers | <u>M. Elkurdy</u> , A. Binns |
| Tolerance and Accumulation of Xenobiotic by Phragmites Australis and Arundo donax | <u>B. Khadidja</u> , C.M. Nadjiba |
| The Dynamic Change of Soluble Contents in Hydrolysis and Acidification of Multi Feedstocks | <u>A. Rabii</u> , A. Elsayd, S. Aldin, Y. Dahman, E. Elbeshbishy |
| Kinetics of type i Methanotrophs Mixed Culture Enriched from Waste Activated Sludge | <u>A. Alsayed</u> , A. Fergala, S. Khattab, A. Eldyasti |
| Biopolymers Production from Anaerobic Digestion | <u>A. Fergala</u> , A. Alsayed, S. Khattab, A. Eldyasti |
| Sustainable Nitrogen Recovery from Digestate Centrate using a Microbial Electrolysis Cell | <u>S. Barua</u> , T. Chung, B. Zakaria, T.G. Haile, B. R. Dhar |
| Methanogenesis Control in a Microbial Electrolysis Cell using Ultrasonic Irradiation | <u>B. Zakaria</u> , B. R. Dhar |
| Chemical Removal of Sulfur Compounds from Hospital Waste Water | <u>N. Z. Shiraz</u> , E. Elbeshbishy, E. S. Sharifzadeh, N. P. Bahar |
| Mycotransformation of Furanic Fermentation Inhibitor | <u>R. Shobana</u> , R. Renuka, R. ManuShivani, V. V. Kumar, H. Cabana |
| An Analysis of Total Phosphorus and Total Suspended Solids Loading Trends in the Middle Grand River | <u>T. Chandrakumar</u> , M. Stone, M. Emelko |
| Mycoremediation of Phenolic Compounds in Wastewater Generated by the Valorization of Treated Wood | <u>A. Ariste</u> , V.V. Kumar, R. A. Batista-García, H. Cabana |
| Effects of Temperature on Anaerobic Blackwater Treatment | <u>M. Gao</u> , L. Zhang, A. P. Florentino, Y. Liu |
| Closing Remarks and Student Awards (4:45 - 5:00 pm) | |