

2008 IWA North American Membrane Research Conference*	
Sunday, August 10	Engineering Lab II, Lobby and Auditorium
3:00-6:00	Check into residence halls or hotels
6:00 - 6:30	Registration
	100. Session I – Advances in Membrane Materials and Modeling
6:30 - 9:30	Chairs: Todd Emrick (University of Massachusetts), David Ford (University of Massachusetts) and Benny Freeman (University of Texas at Austin)
	Welcome from host committee
7:00	110. <u>David Ford</u> , <i>Molecular modeling of transport in synthetic membranes: applications in gas- and liquid-phase separations</i>
7:30	102. <u>Seda Keskin</u> and David S. Sholl, <i>Accelerating development of crystalline nanoporous membranes using atomically detailed simulations</i>
8:00	103. Mingyan Zhou, Georges Belfort, Daniel G. Anderson, Robert Langer and <u>James Kilduff</u> , <i>Preparation of Membranes to Control NOM Fouling via High Throughput UV Graft Polymerization</i>
8:30	109. Wenqian Shan, Patrice Bacchin, Pierre Aimar, Merlin L. Bruening, <u>Volodymyr V. Tarabara</u> , <i>Facile control of colloidal fouling in polyelectrolyte multilayer based nanofiltration systems</i>
9:00	101. <u>Douglas L. Gin</u> , Meijuan Zhou, Evan S. Hatakeyama, Timothy J. Kidd, Xiaoyun Lu, Parag R. Nemade, and Richard D. Noble, <i>Polymers with ≤ 1 nm Pore Sizes for Water Nanofiltration and Desalination Based on the Polymerization of Surfactant Liquid Crystals</i>
9:30	Opening Reception Sponsored by Siemens Water Technologies Engineering Laboratory II
Monday, August 11	Gunness Student Center
7:30-9:00	Continental Breakfast
	Engineering Lab II
9:00-12:35	200. Session II - Wastewater Treatment and Reuse
	Chairs: Yoshimasa Watanabe (Hokkaido University) and Slav Hermanowicz (University of California, Berkeley)
9:00	202. <u>T. David Waite</u> , Xiao-mao Wang and Peter Kovalsky, <i>Determination of Fouling Layer Material Properties and Application to Prediction of Constant Pressure and Constant Flux Filtration Behaviour</i>
9:35	217. <u>Z. Huang</u> , S.L. Ong and H.Y. Ng, <i>The effect of HRT and SRT on Performance of Submerged Anaerobic Membrane Bioreactor (SAMBR) for Low-strength Wastewater Treatment</i>
9:55	205. <u>Nancy Oram Vigneault</u> , and Carsten Owerdieck, <i>The Design, Operation and Performance of the New Membrane Bioreactor (MBR) WWTP for the Becket-Chimney Corners YMCA Camps in Western Massachusetts</i>
10:15	206. <u>Tim Constantine</u> , Dan Chauvin, Mark Bainbridge, George Crawford, David Olsen, <i>Pilot test results for 500 MLD tertiary nitrification MBR in Hamilton, Ontario</i>
10:35	201. <u>S.W. Hermanowicz</u> , J. Cho, R.S. Trussell, R.P. Merlo, D. Jenkins, R. Dozzi, <i>Dynamic Aspects of Cake Formation in Membrane Filtration</i>
10:55	Break
11:15	207. <u>Faisal Ibney Hai</u> , Kazuo Yamamoto, Fumiyuki Nakajima and Kensuke Fukushi, <i>Long-term performance of a membrane bioreactor (MBR) with a GAC-packed anaerobic zone for textile wastewater treatment</i>
11:35	211. <u>Chi-Wang Li</u> , Chun-Hao Chiu, Yu-Cheng Lee, Chia-Hao Chang, Yu-Hsun Lee, and Yi-Ming Chen, <i>Integration of ceramic membrane and compressed air-assisted solvent extraction (CAXE) for metal recovery</i>
11:55	219. <u>Marisa Da canal and Lademir Luiz Beal</u> <i>Anaerobic Filter Associated With Microfiltration Membrane (MAF) Treating Sanitary Landfill Leachate</i>
12:15	204. <u>Baikun Li</u> , Yogesh Sharma, Daqian Jiang, Michael D. Curtis, <i>The Production of Hydrogen and Electricity as New Energy in Anaerobic Wastewater Treatment Processes</i>
12:35	Lunch - Gunness Student Center
1:15 - 5:00	Field Trip to GE/Zenon's Camp Becket MBR facility
6:00-7:00	Picnic dinner sponsored by Hazen and Sawyer - Plaza Outside Gunness Student Center
	Engineering Lab II
7:00-9:30	300. Session III – Desalination
	Chairs: Menachem Elimelech (Yale University) and Volodymyr Tarabara, (Michigan State University)
7:00	302. <u>Menachem Elimelech</u> , <i>The ammonia-carbon dioxide forward osmosis desalination process: Laboratory and pilot-scale evaluation.</i>
7:30	303. <u>Lianfa Song</u> , <i>Performance and energy efficiency of full-scale reverse osmosis desalination</i>
8:00	304. <u>Richard L. Stover</u> , <i>Energy Recovery Devices in Desalination Applications</i>
8:30	305. <u>Robert P. Huehmer</u> , <u>James C. Lozier</u> , <i>Characterization of Pretreatment Impacts on SWRO Fouling using Advanced Membrane Autopsy Techniques</i>
9:00	307. <u>Sudipta Sarkar</u> and Arup K. SenGupta, <i>Hybrid ion exchange - nanofiltration (HIX-NF) process for energy efficient desalination of seawater</i>
Monday Evening	Engineering Lab II
9:30 - 10:30	General Poster Session and Reception

Tuesday, August 12	Guinness Student Center	
7:30-9:00	Continental Breakfast	
	Engineering Lab II	
9:00-12:30	400. Session IV - Drinking Water Treatment	
	Chairs: John Tobiason (University of Massachusetts), Doug Owen (Malcolm Pirnie, Inc.) and Isabel Escobar (University of Toledo)	
9:00	402. <u>Frances A. DiGiano</u> , <i>In Pursuit of Innovative Membrane Technology</i>	
9:30	408. <u>Huang, H.</u> , Young, T., Schissler, J., Jacangelo, J.G. and Schwab, K., <i>Technological Sustainability of Small-Scale, Low Pressure Membrane Filtration Systems for Drinking Water Supply in Low-Income Countries</i>	
10:00	403. <u>J. Clement</u> and Gareth Milton, <i>Developments in Ceramic Membranes</i>	
10:30	Break	
11:00	414. <u>Matsui, Y.</u> , Hasegawa, H., Ohno, K., Matsushita, T., Aizawa, T. and Kawase, Y., <i>Combination of ceramic membrane and S-PAC to improve dissolved compound removal and filterability</i>	
11:30	401. C.M Gorey, <u>I. C. Escobar</u> , and C. Gruden, <i>Development Of Nanostructured Temperature Activated Membranes</i>	
12:00	404. <u>Alexander, Kevin</u> <i>Advances in Concentrate Minimization and Disposal</i>	
12:30	Lunch - Guinness Student Center	
1:30- 4:00	Field Trip to UMass/Siemens Wastewater Reclamation Facility	
Tuesday, August 12	Top of the Campus Center	
4:00-5:00	Student Poster Session Judging†	
5:00-6:30	Student Poster Session and Buffet Dinner Sponsored by GE/Zenon	
Tuesday Evening	Engineering Lab II	
7:00-9:30	500. Session V – Gas Transfer Applications	
	Chairs: Michael Semmens and Pierre Cote	
7:00	501. <u>Thomas Buer</u> , Nick Adams and Youngseck Hong, <i>High efficiency oxygen transfer membrane supported biofilm reactor for wastewater treatment</i>	
7:30	502. <u>Eoin Casey</u> , Eoin Syron, John W Shanahan, Michael J Semmens, <i>Comparative economic analysis of full scale MABR configurations</i>	
8:00	503. Leon S. Downing, Kyle J. Bibby, Tom Fascianella, Kathleen Esposito, and <u>Robert Nerenberg</u> , <i>A Hybrid Membrane-Biofilm Process for Concurrent Nitrification and Denitrification of Wastewater: Bench and Pilot-Scale Studies</i>	
8:30	504. <u>Michael Semmens</u> , <i>Gas Transfer with Membranes -The Problems and Potential. An Overview</i>	
9:00	505. <u>Barth Smets</u> , Akihiko Terada and Susanne Lackner, <i>Redox stratification controlled biofilm reactors for completely autotrophic nitrogen removal</i>	
Wed., August 13	Guinness Student Center	
7:30-9:00	Continental Breakfast	
	Engineering Lab II	
9:00-1:00	600. Session VI - Fouling Mechanisms and Control	
	Chairs: Chung-Hak Lee (Seoul National University), Hongde Zhu (University of Guelph) and German Bultron (National University of Mexico)	
9:00	601. <u>Hongde Zhou</u> , Fengshen Fana, Lindsay LaFleura, Jeff Peeters and Hongyuan Liua, <i>Causes and measurement of membrane fouling in MBR systems for wastewater treatment</i>	
9:45	602. D. Celmer, J. Oleszkiewicz, <u>N. Cicek</u> , <i>Strategies for Biofilm Thickness Control and Performance in Membrane Biofilm Reactors (MBfR)</i>	
10:30	Break	
11:00	609. <u>P.R. Bérubé</u> , C.C.V. Chan, <i>Linking Shear Forces at the Surface of Submerged Air Sparged Hollow Fiber Membranes to Fouling Control</i>	
11:30	619. Kyung-Min Yeon, Woo-Nyung Lee, Byung-Kook Hwang, <u>Chung-Hak Lee</u> , <i>Quorum sensing in a membrane bioreactor for wastewater treatment and reuse: From molecular level to engineering system</i>	
12:00-12:30	Closing	
	†Student poster prizes sponsored by GE/Zenon Water and Process Technologies, Koch Membrane Systems, CH2M Hill, Malcolm Pirnie and Siemens Water Technologies	

	General Poster Session	
Monday Evening	Engineering Lab II	
9:30 - 10:30		
	203. <u>Sharon Zelmanowitz</u> , <i>Treatment of Simulated Shipboard Grey Water in a Bench-Scale Membrane Bioreactor</i>	
	208. <u>Georgine Grissop</u> , Terry Price, <i>Startup and O&M support services for the country's largest advanced recycled water project the groundwater replenishment system</i>	
	210. Shu-Fang Hsu, Hsin Shao, Ren-Yang Horng, Teh-Ming Liang, Yen-Jung Hu, Kirk K. Hwang, <u>Chie-Chien Tseng</u> , Min-Chao Chang, <i>The influence of operating conditions on filtration performance of flat type non-woven membrane bioreactor system</i>	
	306. <u>E. You</u> , G. Wetterau, M. Burbano, and L. McGovern, <i>Control of Metal Oxide Fouling in Reverse Osmosis</i>	
	308. B. Liu, A. Day, <u>A. von Gottberg</u> , Rick Lesan, Paul Lambert and Jon Bates, <i>Development of Large Diameter Elements</i>	
	405. Yanxiao Yuan and <u>James E. Kilduff</u> , <i>Predicting the effects of colloid cake formation on salt rejection during crossflow NF and UF using a two-layer transport model</i>	
	406. N. Zhao, D. Redden, <u>M.E. Walsh</u> and G.A. Gagnon, <i>Development of a bench-scale immersed ultrafiltration apparatus for coagulation pretreatment assessments</i>	
	407. <u>M.E. Walsh</u> , G. Hoffman, K. Ronzheimer, H. Daurie, and G.A. Gagnon, <i>Bench-scale evaluation of clarification process options on ultrafiltration performance</i>	
	409. Jaeshin Kim and <u>Mark M. Benjamin</u> , <i>Distribution of NOM Foulants in a Hybrid Adsorbent/Membrane System</i>	
	410. <u>Jungju Lee</u> , Harold W. Walker, <i>Removal of Cyanotoxins from Drinking Water Using Ultrafiltration Membranes</i>	
	415. <u>Durba Chatterjee</u> , Sudip Chakraborty, S. Basu, <i>Studies on Decontamination of river water by Microfiltration (MF)</i>	
	603. <u>R. Malaisamy</u> , Y. Kouwonou, D. Berry, L. Raskin, L. Lepak, M. Spencer and K.L. Jones, <i>Membrane modification to reduce biofouling: influence of monomer on permeation, biofilm growth and flux recovery</i>	
	604. Iván Moreno-Andrade, <u>Germán Buitrón</u> and Alejandro Vargas, <i>Optimization of filtrating conditions in a membrane sequencing batch reactor degrading 4-chlorophenol</i>	
	605. <u>Eugenio Giraldo</u> , <i>The Significance of Mass Flux Rate for Design and Operation of Membrane Bioreactors: Redefining Critical Flux and Design Requirements for MBRs</i>	
	606. <u>Albert Ng</u> and How Yong Ng, <i>Effect of organic constituents on initial fouling in an aerobic membrane bioreactor operated at sub-critical flux condition</i>	
	608. <u>George A. Brown</u> , P.E., Geoff K. Hart, P.E., Rob B. Taylor, P.E., <i>A Comparison of Two Approaches to Achieve Acceptable Nanofiltration Process Feed Waters</i>	
	610. <u>Mark Stone</u> , Dennis Livingston, <i>Improvements in Cleaning Fouled MBR Membranes</i>	
	618. Jon Kim, Simon H.R. Davies, Melissa J. Baumann, Susan J. Masten, <u>Volodymyr V. Tarabara</u> <i>Control of NOM fouling in a hybrid ozonation-ceramic ultrafiltration system: Combined effects of hydrodynamics and solution chemistry</i>	

	Student Poster Session	
Tuesday, August 12	Top of the Campus Center	
5:00-7:00	104. <u>Nicolas Rios</u> , Ingmar Nopens, Matthew W. D. Brannock and Karim Essemiani, <i>Modelling hydrodynamics in MBR systems using Computational Fluid Dynamics</i>	
	106. <u>Guoliang Xu</u> , <u>Yaobo Fan</u> , <i>Study of a sand plate membrane bioreactor and its application for wastewater treatment</i>	
	107. <u>Eun-Sik Kim</u> , Young Jo Kim, Qingsong Yu, Baolin Deng, <i>Preparation and characterization of polyamide thin-film composite (PA-TFC) membrane with plasma-treated polyvinylidene fluoride (PVDF)</i>	
	108. <u>Huyen T. Dang</u> , Roberto M. Narbaitz, Dipak Rana, Takeshi Matsuura, <i>Incorporation of hydrophilic additives – a promising approach for membrane surface modification in water treatment?</i>	
	213. <u>ZaiYan Mi</u> , S.R. Grant and K.S. Singh, <i>Fouling of Flat Sheet Membrane Bioreactor (FSMBR): Impact of Stress Parameters</i>	
	214. <u>Yogesh Sharma</u> , Baikun Li, <i>The correlation of bacterial adhesion and electricity generation in microbial fuel cells (MFC's)</i>	
	215. <u>Le Jin</u> , How Yong Ng, Say Leong Ong, <i>The performance and fouling characteristics of different pore-size submerged ceramic membrane bioreactors (SCMBR)</i>	
	217. <u>Z. Huang</u> , S.L. Ong and H.Y. Ng, <i>The effect of HRT and SRT on Performance of Submerged Anaerobic Membrane Bioreactor (SAMBR) for Low-strength Wastewater Treatment</i>	
	218. <u>Daqian Jiang</u> and Baikun Li, <i>Bacterial adhesions in microbial fuel cells (MFCs) and novel electrode materials to increase power generation</i>	
	220. <u>Daryl Burke</u> , Scott Christian, Shannon Grant and Kripa Singh, Robert Landine, <i>The Anaerobic Membrane Bioreactor (AnMBR) Process for Treatment of Potato Processing Wastewaters</i>	
	309. <u>K. L. Mercer</u> and J. E. Tobiasson, <i>Removal of Arsenic from Simulated High-Pressure Membrane Concentrates</i>	
	413. <u>Teresa Conneely</u> , Ashish K Sahu, Klaus Nüsslein, Sarina J. Ergas, <i>Hydrogenotrophic Reduction of Nitrate and Perchlorate in Ion Exchange Brines Using Batch Hollow Fiber Membrane Bioreactor</i>	
	616. <u>Wei Shi</u> , and Mark M. Benjamin, <i>Fouling of RO membranes in a Vibratory Shear Enhanced Filtration Process (VSEP) System</i>	
	617. <u>Anh Nguyen</u> , John Tobiasson, Soon-Buhm Kwon, <i>Impact of model organic nitrogen compounds on fouling of low pressure hollow fiber membrane systems: First step, validation of fouling indices</i>	
	620. <u>Herrera-Robledo, M.</u> , Calderón, K., Morgan-Sagastume, J.M. and Noyola, A., <i>Characterization of some physical and biological structures in a fouling layer developed in an anaerobic membrane reactor</i>	