



6:30-8:00 Breakfast — Commons Dining Hall
8:00-9:00 Plenary lecture by John Crittenden — Woolsey Hall

Technical sessions William L. Harkness Hall (WLH)

	MICROBIAL ECOLOGY AT THE NEXUS OF WATER AND HEALTH	MEETING THE CHALLENGES OF FOSSIL CARBON: COAL	PLANNING FOR CLIMATE RESILIENCE: WATER AND LAND	REDEFINING WASTE: ENERGY RECOVERY	LAND OF CHEMICALS	EDUCATION: AT THE NEXUS
Room	WLH 201	WLH 119	WLH 208	WLH 116	WLH 117	WLH 120
Moderator	Patrick McNamara	Ning Dai	Joseph Kasprzyk	Meagan Mauter	Ryan Holzem	Brooke Mayer
9:15-9:35	Elucidating the relationship between wastewater treatment plant microbial diversity and pharmaceutical fate Stadler, L.; Vela, J. D.; Love, N. University of Michigan	Deep decarbonization pathways in cities: The case of Philadelphia Foti, R.; Dilworth, R.; Ellis, E.; Hunold, C.; Spataro, S.; Hatzopoulou, M.; Wen, J.; Patwa, A.; Alam, A.; Pisani, S.; Zolltor, R.; Hurd, E.; Dye, C.; Gurian, P. L. Drexel University	The water footprints: From consumption perspective to consumer empowerment Wang, R.; Zimmerman, J. Yale University	Electricity production from low-grade thermal energy Logan, B. E.; Zhang, F.; LaBarge, N.; Yang, W.; Liu, J. The Pennsylvania State University	Plastic input into the ocean: Can we come together to address this global problem? Jambeck, J. R.; Perryman, M. University of Georgia	Green infrastructure as a vehicle for engaging college freshmen into STEM research Yerk, W.; Montalto, F. A. Drexel University
9:35-9:55	Isolating the impact of triclocarban on antibiotic resistance in anaerobic digestion Carey, D. E.; Zitomer, D. H.; McNamara, P. J. Marquette University	Technology trajectories to achieve emission reduction Supekar, S. D.; Daskin, M. S.; Skerlos, S. J. University of Michigan	Demonstration of integrated urban water management (IUWM) in a coastal city on Gulf of Mexico Hernandez, P.; Stanek, P.; Yeh, D. University of South Florida	Evaluating the techno-economic potential for waste-heat driven forward osmosis treatment at electric power generation facilities Mauter, M. S.; Gingerich, D. Carnegie Mellon University	A metagenomic view of biofilm community in response to landfill leachate Zhang, H.; Chen, X. Virginia Tech	CLICS: Using cyber-infrastructure to bring data from campus sustainability efforts into the classroom Powers, S. E.; DeWaters, J. E.; Grimberg, S. J.; Hou, D. Clarkson University
9:55-10:15	Antibiotic resistance and opportunistic pathogen gene markers in reclaimed vs. potable water distribution systems Gartner, E.; McLain, J.; Edwards, M.; Pruden, A. Virginia Tech	Limitations and critical issues of renewable energy in an industrial economy Gattie, D. University of Georgia	Green infrastructure design and modeling based on local land use practices toward the development of a community-based, cohesive strategy for stormwater reduction in Toledo, OH Gruden, C.; Dietrich, A.; Yarlagadda, R.; Rousseau, K.; Empey, M.; Greene, M. University of Toledo	Working fluid selection for the closed loop osmotic heat engine: An experimental and modeling approach Hickenbottom, K. L.; Vanneste, J.; Cath, T. Y. Colorado School of Mines	Rethinking how we complete ecotoxicological studies of biosolids-derived emerging organic contaminants: A case study with triclosan Holzem, R. M.; Gusch, C. K. University of Wisconsin - Green Bay	Rapid permeation of environmental engineering and science discoveries into public policy decisions through social media platforms Whelton, A. J.; Haas, C. N. Purdue University
10:15-10:35	How to sustainably engineer the bacterial community of aerobic-anaerobic ammonium oxidation processes in a systems microbiology framework? Weissbrodt, D. G.; Wells, G. F.; Goel, R. K.; Morgenroth, E. Delft University of Technology / Aalborg University	Carbonation of wollastonite in a shale matrix Tao, Z.; Fitts, J. P.; Clarens, A. F. University of Virginia	Beyond adaptability and resilience –Transformability and antifragility in societal systems Herstein, L. M.; Filion, Y. R.; Adams, B. J. University of Toronto	Power generation from salinity gradients by pressure retarded osmosis: How much energy can we extract? Straub, A.; Lin, S.; Elimelech, M. Yale University	Factors influencing the uptake of engineered nanomaterials by terrestrial and aquatic plants Lowry, G. V.; Stegemeier, J. Carnegie Mellon University	An innovation system: Integrating research, education, and service to solve grand challenges Weber-Shirk, M. Cornell University
<i>Break</i>						
11:00-11:20	A methodological framework for linking bioreactor function to microbial communities and environmental conditions de los Reyes III, F. L.; Weaver, J. E.; Wang, L. North Carolina State University	Multi-barrier approach to safe CO ₂ capture: Limiting nitrosamine emissions from amine-based post-combustion capture systems Dai, N.; Mitch, W. A. University at Buffalo	Coupling between hydrologic processes and water quality to enhance resilience of potable water systems under extreme events Kasprzyk, J.; Pence, R.; Livneh, B.; Rosario-Ortiz, F. University of Colorado Boulder	Novel membrane for blue energy generation using salinity gradient Chen, Y.; Hong, J. G.; Zhang, B.; Gao, H. Georgia Institute of Technology	Rapid plant metabolism of benzotriazole micropollutants generates novel synthetic hormone mimics LeFevre, G. H.; Müller, C. E.; Li, R. J.; Luthy, R. G.; Sattely, E. S. Stanford University	Development of hands-on in-class activities for environmental engineering Mayer, B. K. Marquette University
11:20-11:40	Hybridizing oxygen and soil-aquifer treatments to treat wastewater secondary effluent for reuse – Redesigning the bacterial process Friedman, L.; Avisar, D.; Mamane, H.; Chikurel, C.; Taher, E.; Chandran, K. Columbia University	Assessing risk to aquatic species from thermoelectric power plant effluent: A novel approach Logan, L. H.; Barker, Z. A.; Stillwell, A. S. University of Illinois at Urbana-Champaign	Effects of soil conditions on the behavior of human pathogens in the soil-plant ecosystem following wastewater irrigation Zhang, Y.; Bartelt-Hunt, S.; Snow, D.; Hodges, L.; Li, X. University of Nebraska	Performance of a composite bioactive membrane for enhanced BioH ₂ production from wastewater Prieto, A.; Arnold, W.; Novak, P. University of Minnesota	Phytoscreening for inorganic contaminants: Perchlorate Limmer, M.; West, D.; Mu, R.; Shi, H.; Burken, J.; Whitlock, K. Missouri University of Science and Technology	Mentoring styles in a summer Research Experience for Undergraduates program Ergas, S. J.; Wyatt, G.; Feldman, A.; Trotz, M. University of South Florida
11:40-12:00	Methane as electron donor for denitrification for energy saving and smaller carbon footprint Bhattacharjee, A.; Goel, R. University of Utah	Can wastewater become a carbon sink for CO ₂ capture and utilization? Ren, Z.; Lu, L.; Huang, Z. University of Colorado Boulder	Influence of soil texture on the uptake of antibiotics by lettuce from irrigation water Sallach, J. B.; Hodges, L.; Snow, D.; Li, X.; Bartelt-Hunt, S. University of Nebraska-Lincoln	A techno-economic analysis of anaerobic co-digestion of grease interceptor waste Aziz, T. N.; Long, J. H.; Levis, J.; Ducoste, J. North Carolina State University	Advances in phytoremediation: Calculating the rooting volume of trees Limmer, M.; Wilson, J.; Burken, J. Missouri University of Science and Technology	Faculty hiring network in environmental engineering and science Chen, W.; Xie, Y. Yale University

12:00-2:00 Lunch | Plenary lecture by Barton Seaver — Commons Dining Hall



Technical sessions		William L. Harkness Hall (WLH)					
	MICROBES AND MICROPOLLUTANTS AT THE NEXUS OF WATER AND HEALTH	MEETING THE CHALLENGES OF FOSSIL CARBON: GAS	PLANNING FOR CLIMATE RESILIENCE: WATER AND LAND (A SESSION IN HONOR OF JERRY SCHNOOR)	REDEFINING WASTE: MATERIAL RECOVERY	THE UNKNOWN UNKNOWN: NOVEL ANALYTICAL TECHNIQUES	EDUCATION: CONTEXT GIVES MEANING	
Room	WLH 201	WLH 119	WLH 208	WLH 116	WLH 117	WLH 120	
Moderator	Tyler Radniecki	Drew Gentner	Jonathan Mellor	Daniel Yeh	Damian Helbling	Treavor Boyer	
2:00-2:20	The implications of a virus pandemic on wastewater and drinking water treatment Wigginton, K. University of Michigan	Informing responsible shale resource extraction: Tools from engineering and public policy Mauter, M. S. Carnegie Mellon University	Effects of climate change on water quality in a major agricultural basin Le, L.; Schnoor, J. University of Iowa	Urine source separation and treatment: Opportunities and challenges Boyer, T. University of Florida	In-situ spatiotemporal chemical reactions at water-solid interfacial processes using micro-electrode techniques: From biofilm to metal corrosion Lee, W. H.; Ma, X.; Church, J.; Wahman, D. G.; Pressman, J. G. University of Central Florida	An interdisciplinary approach to embedding a renewable energy, water and sustainability concentration in engineering curriculum Shipley, H. J.; Castillo, K.; Giacomini, M.; Chen, F. University of Texas at San Antonio	
2:20-2:40	Microbial risk assessment for sewer collection workers in vicinity of hospitals treating Ebola patients Haas, C. N.; Bibby, K.; Casson, L. Drexel University	A systems approach to evaluating unconventional natural gas extraction and exports: Life cycle climate, air emissions and road impacts Samaras, C. Carnegie Mellon University	Exploring the influence of climate variability on transit times in a small temperate watershed at Plynlimon, Wales, from 1983-2008 Wilusz, D. C.; Harman, C. J.; Ball, W. P. Johns Hopkins University	Algae membrane photobioreactor (AgMPBR) for the recovery and removal of nutrients in domestic wastewater Ozcan, O.; Jean, H.; Bair, R.; Prieto, A.; Yeh, D. University of South Florida	A novel approach for detecting Cryptosporidium contamination in surface water supplies Jellison, K.; Cannistraci, D.; Fortunato, J. Lehigh University	"New Orleans in 12 Movements:" True interdisciplinarity in sustainability education Gilmore, K. Bucknell University	
2:40-3:00	Processes structuring the microbiome of drinking water systems and implications for opportunistic pathogen control Bibby, K. University of Pittsburgh	Statistical analysis of compliance violations for natural gas wells in Pennsylvania Abuafaraj, N.; Olson, M. S.; Gurian, P. L.; De Roos, A. Drexel University	How a climate-induced phenomenon can threaten our water supply: Bark beetle-induced tree mortality alters carbon biogeochemistry Mikkelsen, K.; McCray, J.; Lozupone, C.; Sharp, J. Colorado School of Mines	Phosphorus recovery from poultry litter using a two-stage treatment process Mangalgiri, K. P.; Shashvatt, U.; Blaney, L. University of Maryland Baltimore County	Apply next-generation sequencing (NGS) technologies in studying fecal pollution of coastal water environment: A microcosm study Zhang, Q.; He, X.; Yan, T. University of Hawaii	Watershed scale community engagement: An approach to self-sustaining K-12 green infrastructure applications Locicero, R. C.; Trotz, M. A. University of South Florida	
3:00-3:20	Performance and fate of pathogens in small-scale tubular anaerobic digesters in the Monteverde region of Costa Rica Kinyua, M. N.; Zhang, J.; Camacho-Céspedes, F.; Tejada-Martinez, A.; Ergas, S. J. University of South Florida	Hydrophobic organic compounds in hydraulic fracturing flowback water Plata, D. Yale University	Impact of sea-level rise on seawater intrusion and formation of brominated disinfection byproducts during chlorination Boyer, T.; Ged, E.; Vincent, D.; Motz, L.; Chadik, P.; Duranceau, S. University of Florida	Long-term trends of nutrients and sediment from the non-tidal Chesapeake Watershed: An assessment of progress by river and season Zhang, Q.; Brady, D. C.; Boynton, W. R.; Ball, W. P. Johns Hopkins University	Using environmental DNA to track marine species: eDNA shedding and decay rates for anchovies and sardines Sassoubre, L.; Boehm, A. Stanford University	Teaching science literacy with environmental pollutants Rubinfeld, S. A. Carthage College	
Break							
3:40-4:00	Removal and transformation of pharmaceuticals and personal care products by onsite wastewater treatment systems Ikuma, K.; Kim, S.; Reckhow, D. A.; Butler, C. S. University of Massachusetts Amherst	Effects of fossil fuel extraction and utilization wastewaters on drinking water treatment processes VanBriesen, J. M.; Wilson, J. M.; Wang, Y.; Good, K. D. Carnegie Mellon University	Household climate resilience in the Pacific: The role of multiple water sources MacDonald, M.; Elliott, M.; Hadwen, W.; Powell, B.; Chan, T. University of Alabama	Valorizing waste organic carbon streams through integrated biological-catalytic conversion to chemicals and fuels Strathmann, T. J.; Vardon, D.; Leow, S.; Beckham, G. Colorado School of Mines	Quantitative measurement of prions recovered from environmental samples Yuan, Q.; Bartz, J. C.; Bartelt-Hunt, S. L. Creighton University	UTBiome: Where environment, science, engineering and education meet Maestre, J. P.; Sangireddy, H.; Passalacqua, P.; Kinney, K. A. University of Texas at Austin	
4:00-4:20	Characterization of TBBPA biodegradation pathway and microbial community responsible in wastewater sludge anaerobic digesters Lefevre, E.; Petersen, G.; Gunsch, C. K. Duke University	Forecasting contaminant mobilization from shale into gas production wastewaters Fitts, J. P.; Hunter, H.; Spokas, K.; Peters, C. A. Princeton University	A mechanistic systems approach to water and diarrhea under climate change Mellor, J.; Zimmerman, J. University of Connecticut	Effect of different conditions on the removal of cadmium and chromium from wastewater using microbial electrolysis cells Colantonio, N.; Kim, Y. McMaster University	Development of two independent methods for improved use of detection limits in microbial risk modeling and analysis Weir, M. H.; Pope, J. M. Temple University	Integrated approach to educate the dynamics in water distribution systems: Design, implement and learning assessment Seo, Y. University of Toledo	
4:20-4:40	Daily bioaugmentation and persistence of <i>Sphingobium</i> sp. BiD32 in lab scale activated sludge reactors enhances BPA removal Zhou, N. A.; Johanning, E. M.; Callender, C.; Gough, H. L. University of Washington	Chemical characterization of a hydraulic fracturing wastewater over time Rosenblum, J.; Linden, K.; Sitterley, K.; Thurman, M.; Ferrer, I.; Korak, J. University of Colorado, Boulder	Is flushing toilets with harvested rainwater a viable climate change adaptation and mitigation measure? Apul, D.; Davis, K.; Devkota, J.; Phillips, R.; Martin, D. University of Toledo	Mining critical metals and elements from seawater: Opportunities and challenges Diallo, M. Korea Advanced Institute of Science and Technology	Metabolomics of environmental exposures: A dual-platform approach to assess toxicant exposure and metabolic response Pennell, K.; Walker, D.; Jones, D. Tufts University	How concepts of stormwater and nutrient management can build non-traditional workforce capacity in an urban community Lopez, E. V.; Locicero, R.; Ergas, S. J.; Lynn, T. J.; Barton, F.; Mihelcic, J. P.; Trotz, M. A. University of South Florida	
4:40-5:00	UV/H ₂ O ₂ and UV/PDS treatment of SMX and TMP in synthetic human urine: Transformation products and toxicity Zhang, R.; Yang, Y.; Zhao, L. Tianjin University	Water use in hydraulic fracturing – Looking to the future Zodrow, K. R.; Alvarez, P. J. J.; Medlock III, K. B.; Li, Q. Rice University	Climate-water-energy nexus: Influence of climate change on the embodied energy of water supply Mo, W.; Jacobs, J. University of New Hampshire	Measurement and recovery of rare earth elements from hypersaline brines Noack, C. W.; Perkins, K.; Washburn, N.; Dzombak, D. A.; Karamalidis, A. K. Carnegie Mellon University	Target and suspect screening for organic micropollutants within natural and engineered components of a closed urban water cycle Pochodylo, A.; Helbling, D. E. Cornell University	Transforming freshman chemistry using mini-projects that incorporate environmental engineering context Boyer, T.; Wu, C. Y.; de Torres, T.; Brucaat, P.; Korolev, M.; Crippen, K. Tufts University	

5:30-9:00 Poster session and dinner reception — Commons Dining Hall

9:00-10:00 Graduate student and postdoc gathering — Gryphon's Pub

6:30-8:00 Breakfast — Commons Dining Hall
8:00-9:00 Plenary lecture by Arjen Hoekstra — Woolsey Hall

Technical sessions William L. Harkness Hall (WLH)

	FATE AND CONTROL OF CONTAMINANTS IN NATURAL AND IMPACTED ENVIRONMENTS	MEMBRANES: WATER TREATMENT	LCA AT THE TECHNOLOGY NEXUS: EVALUATING TRADEOFFS	AIR, CLIMATE, AND ENERGY	THE FUTURE OF ENERGY: ALTERNATIVE FUELS	RESPONDING TO CATASTROPHE: CRISIS SCIENCE, COMMUNICATION, AND ETHICS
Room	WLH 201	WLH 119	WLH 208	WLH 116	WLH 117	WLH 120
Moderator	Mark Krzmarzick	Shihong Lin	Leanne Gilbertson	Drew Gentner	Chongzheng Na	Andrew Whelton
9:15-9:35	A fresh look at niche differentiation of organohalide-respirers <i>Lim, M. L.; Boothé, M. A.; Krzmarzick, M. J.</i> Oklahoma State University	Designing polymer-matrix nanocomposite membranes for water treatment and reuse <i>Yin, J.; Wan, P.; Deng, B.</i> University of Missouri	Development of a pre-screening tool to quantify impact and benefit tradeoffs of emerging technologies <i>Gilbertson, L. M.; Busnaina, A. A.; Isaacs, J. A.; Zimmerman, J. B.; Eckelman, M. J.</i> Yale University	Bringing the kitchen to the lab: Improved laboratory testing of biomass cookstoves <i>Grieshop, A. P.; Repoff, R. L.</i> North Carolina State University	Substrate preference and breakdown in microbial electrolysis cells <i>Huang, W.; Kim, Y.</i> McMaster University	Reporters, Congress, lawsuits, FOIA, scientific misconduct, whistleblowing and cowardice: Lessons learned (to date) from the 2001-2004 D.C. lead in drinking water crisis <i>Edwards, M.</i> Virginia Tech
9:35-9:55	Chemostat kinetics of multiple TCE-dehalogenating anaerobic consortia with excess and limited electron donor addition <i>Semprini, L.; Azizian, M.; Green, J.; Mayer-Blackwell, K.; Spormann, A.</i> Oregon State University	Polymeric membranes modified with bioinspired polydopamine and silver nanoparticles formed in situ to mitigate biofouling <i>Chen, K. L.; Tang, L.; Livi, K.</i> Johns Hopkins University	A comparison of life cycle costs and environmental emissions from disinfection technologies for small drinking water systems <i>Shilling, E.; Linden, K.; Cook, S.</i> University of Colorado Boulder	Elemental characterization of PM2.5 and PM10 emitted from light duty vehicles in the Washburn Tunnel of Houston, Texas: Release of rhodium, palladium, and platinum <i>Chellam, S.; Bozlake, A.</i> University of Houston	Sustainable hydrogen production with simultaneous wastewater treatment in a microbial electrolysis cell biased by osmotic energy <i>Yuan, H.; He, Z.</i> Virginia Polytechnic Institute and State University	Open access for peer-review articles: Lead, follow or get out of the way <i>McGuire, M. J.</i> University of California, Los Angeles
9:55-10:15	Role of reactive halogen species in algal toxin photodegradation in coastal and marine environments <i>Parker, K. M.; Ghadouani, A.; Mitch, W. A.</i> Stanford University	Multifunctional graphene oxide membranes for water purification <i>Mi, B.; Hu, M.; Zheng, S.; Oh, Y.</i> University of Maryland	Using scenario models to estimate the environmental impacts of new technology <i>Miller, S. A.</i> University of Michigan	Trade-offs between fuel consumption and ultrafine particle emissions during hybrid-electric vehicle passenger car driving <i>Holmen, B.; Conger, M.; Sentoff, K.</i> University of Vermont	Photovoltaic-powered wastewater electrolysis cell for on-site treatment of human waste coupled with molecular H ₂ production <i>Cho, K.; Hoffmann, M. R.</i> Korea Institute of Science and Technology	Incorporating ethics into undergraduate environmental engineering course increases students' 'conscious incompetence' and awareness of ethics issues <i>Pati, P.; Masters, S.; Vikesland, P.</i> Virginia Tech
10:15-10:35	Bioelectrochemically enhanced remediation of hydrocarbon in soil and groundwater <i>Ren, Z.; Lu, L.; Jin, S.; Fallgren, P.</i> University of Colorado Boulder	Spin- and spray-assisted layer-by-layer assembly as a highly effective method for incorporating biocidal nanoparticles onto TFC polyamide membrane <i>Ma, W.; Soroush, A.; Luong, T. V. A.; Brennan, G.; Rahaman, M. S.</i> Concordia University	Parameter variation and scenario analysis for incorporating uncertainty in impact assessments of emerging energy technologies <i>Breunig, H.</i> University of California Berkeley	Impacts of climate change and policy on U.S. air quality and health: An uncertainty analysis <i>Garcia-Menendez, F.; Saari, R. K.; Monier, E.; Selin, N. E.</i> Massachusetts Institute of Technology	The thermal switch of nanoparticle reactivity in metal-catalyzed ammonia borane hydrolysis <i>Ma, H.; Na, C.</i> Texas Tech University	Integrating social and environmental assessments in engineering practice <i>MacKay, A. A.; Hertel, S.</i> University of Connecticut
Break						
11:00-11:20	Anammox organisms are supported by sulfide-induced dissimilatory nitrate reduction to ammonium in an open water unit process wetland <i>Jones, Z. L.; Jasper, J. T.; Beardsley, S. E.; Sedlak, D. L.; Sharp, J. O.</i> Colorado School of Mines	Block copolymer functionalized thin-film composite membranes for anti-fouling and anti-microbial properties <i>Ye, G.; Lee, J. H.; Perreault, F.; Elimelech, M.</i> Yale University	Green feedstocks versus green energy in U.S. plastics production <i>Posen, I. D.; Jaramillo, P.; Griffin, W. M.</i> Carnegie Mellon University	Decadal simulations of air quality, climate, and their interactions using the community earth system model over globe and WRF/Chem over continental U.S. <i>Zhang, Y.; Yahya, K.; Wang, K.; He, J.; Glotfelty, T.; Campbell, P.</i> North Carolina State University	Nitrogen doped carbon aerogels as highly effective oxygen reduction catalysts for air-cathodes in microbial fuel cells <i>Zhang, X.; Huang, X.; Fellingner, T. P.</i> Tsinghua University	Lessons offered from the 2014 freedom industries chemical spill, West Virginia USA: Research and education <i>Whelton, A. J.</i> Purdue University
11:20-11:40	Adsorption of nitrous oxide on biochar: Implications for reducing emissions from soil <i>Xiao, F.; Pignatello, J. J.</i> Connecticut Agricultural Experiment Station	Artificial water channels – Can they reach biological channel-like performance for membrane <i>Shen, Y. X.; Erbakan, M.; Hou, J.; Kumar, M.</i> The Pennsylvania State University	Sustainable nanotechnology: Life cycle considerations in green synthesis of nano-materials and precious metal recovery from nanomaterial waste streams <i>Pati, P.; McGinnis, S.; Vikesland, P.</i> Virginia Tech	The power-water-air nexus: Developing powerful analytical tools to quantify trade-offs in a dynamic world <i>Sanders, K.</i> University of Southern California	Impact of brush electrode configuration on hydraulic retention time and continuous domestic wastewater treatment efficiency using microbial fuel cells <i>Kim, K. Y.; Yang, W.; Logan, B. E.</i> The Pennsylvania State University	The Elk River chemical spill and beyond: Progress in developing quick and accurate computational models for on-demand physicochemical properties of emerging environmental contaminants <i>Alexander, W. A.; Charbonnet, K. A.; DeYonker, N. J.</i> The University of Memphis
11:40-12:00	Enhanced pervious concrete as a heavy metals permeable reactive barrier <i>Hart, M.; Holmes, R.; Kevern, J.</i> University of Missouri Kansas City	Self-healing composite membranes <i>Getachew, B. A.; Kim, S. R.; Kim, J. H.</i> Yale University	Potential environmental impacts of electric vehicle adoption in southeast Michigan <i>Lee, S. J.</i> University of Michigan-Flint	Power system optimization to determine air emissions impacts of renewable portfolio standards <i>Johnson, J.; Novacheck, J.</i> University of Michigan	Transforming ocean sediment to stable power supply for subsea sensor networks: Pilot-scale distributed benthic microbial fuel cells <i>Liu, B.; Weinstein, A.; Kolln, M.; Garrett, C.; Wang, L.; Bagtzoglou, A.; Li, Y.; Li, B.</i> University of Connecticut	Toward biocompatible oil spill dispersants through dendritic polymers <i>Ladner, D. A.; Tu, Y.; Wang, B.; Carpenter, K.; Geitner, N. K.; Powers, S.; Whelton, A. J.; Ding, F.</i> Clemson University

12:00-2:00 Lunch — Commons Dining Hall

Technical sessions		William L. Harkness Hall (WLH)				
	DRINKING WATER QUALITY	MEMBRANES: PROCESSES	NANO: NOVEL MATERIALS FOR WATER TREATMENT AND RECOVERY	LCA AT THE ENERGY NEXUS	EM RADIATION IN TREATMENT AND TRANSFORMATION	NEED TO BREATHE: AIR AND PUBLIC HEALTH
Room	WLH 201	WLH 119	WLH 208	WLH 116	WLH 117	WLH 120
Moderator	Timothy Strathmann	Shihong Lin	Jeffrey McCutcheon	Leanne Gilbertson	Ezra Cates	Karen Dannemiller
2:00-2:20	How consumers shape the microbial world in hot water plumbing systems: A metagenomic perspective Dai, D. ; Rhoads, W.; Edward, M. A.; Pruden, A. J. Virginia Tech	Reactive electrochemical membranes for water treatment applications Chaplin, B. P. ; Jing, Y.; Guo, L.; Santos, M.; Elabd, Y. University of Illinois at Chicago	Nanotechnology versus biotechnology: Which one is better for heavy metal removal? Rodrigues, D.F. ; Mejias, I.C. University of Houston	The future of energy in sustainable design Schramski, J. R. ; Brown, J. H. University of Georgia	Solar/visible light-induced TiO ₂ photocatalysis for the treatment of cyanotoxins Dionysiou, D. D. ; Han, C.; Nadagouda, M. N. University of Cincinnati	Microbial aerosol characteristics in highly polluted and pristine environments featuring different climatic conditions in China Wei, K. ; Zheng, Y.; Li, J.; Shen, F.; Zou, Z.; Fan, H.; Wu, C. Y.; Yao, M. Peking University
2:20-2:40	Fifty pounds of 1,4-dioxane a day – enough to contaminate North Carolina’s largest watershed Knapp, D. ; Sun, M.; Lopez, C.; Hopkins, Z.; McElroy, A. North Carolina State University	Effect of strong acid functional groups on electrode rise potential in capacitive mixing by double layer expansion Hatzell, M. ; Raju, M.; Watson, V. J.; Stack, A. G.; van Duin, A. C. T.; Logan, B. E. Georgia Institute of Technology	Lab and field-scale validation of TiO ₂ -NP based technology (“LilyPads”) to treat stormwater Lopez, D. M. ; Radniecki, T. S. Oregon State University	A system dynamics model to link water and energy for resources management Zhang, Q. ; Zhuang, Y. University of South Florida	Heterogeneous photocatalytic degradation kinetics of contaminants of emerging concern in a bench-scale reactor Alvarez-Corena, J. R. ; Bergendahl, J.; Hart, F.; Emerick, R. Worcester Polytechnic Institute	Urban air pollution and indoor air quality in mega million cities Rao, S. ; Rim, D. Pennsylvania State University
2:40-3:00	PEX and PP plumbing pipe impacts on tap water quality Salehi, M. ; Whelton, A.; Connell, M.; Kelley, K.; Stenson, A. Purdue University	Improving forward osmosis performance with the implementation of mixed draw solutions Holloway, R. W. ; Maltos, R.; Vanneste, J.; Cath, T. Y. Colorado School of Mines	Engineered crumpled graphene oxide nanocomposite membrane assemblies for advanced water treatment processes Jiang, Y. ; Biswas, P.; Fortner, J. D. Washington University in St. Louis	Water reuse in energy production: Systems analysis of closed loop systems Plummer, J. D. ; Ferrari, R. F.; Kerollis, R. E.; Snyder, A. Worcester Polytechnic Institute	Achieving sustainable water treatment: Graphitic carbon nitride for persistent water-borne contaminant removal with visible light irradiation Zheng, Q. ; Shuai, D. The George Washington University	Outreach intervention program with Saint Regis Mohawk Tribe to improve indoor air quality Ferro, A. R. ; Kumar, S.; Grassi, H.; Qian, J.; Jacobs, J.; Benedict, A. Clarksons University
3:00-3:20	Rational design and preparation of biomimetic complex-nanoparticle hybrid catalysts for perchlorate treatment in water Liu, J. ; Han, M.; Chen, X.; Shapley, J. R.; Werth, C. J.; Strathmann, T. J. University of Illinois at Urbana-Champaign	Self-supplied NH ₄ -CO ₂ draw solute for achieving wastewater treatment and recovery in a microbial electrolysis cell-forward osmosis system Qin, M. ; He, Z. Virginia Polytechnic Institute and State University	Green synthesis of an ultra-strong graphene-oxide hydrogel for water purification of complex matrices Wong, K. K. W. ; Yousefi, N.; El-Ghazal, N.; Clarkson, P.; Tufenkji, N. McGill University	Techno-economic and life cycle assessment of a closed loop osmotic heat engine for renewable energy generation and storage Hickenbottom, K. L. ; Vanneste, J.; Miller-Robbie, L.; Heeley, M. B.; Cath, T. Y. Colorado School of Mines	Triplet-triplet annihilation upconversion-enhanced dye sensitized solar cells and semiconductor photocatalysis Li, C. ; Koenigsman, C.; Deng, F.; Hagstrom, A. L.; Schmuttenmaer, C.; Kim, J. H. Yale University	How exposure to indoor fungal communities influences the development and severity of childhood asthma Dannemiller, K. C. ; Peccia, J. Yale University
Break						
3:40-4:00	Covalent organic frameworks for water purification applications Valentino, L. ; Mariñas, B. University of Illinois at Urbana-Champaign	Impaired performance of pressure retarded osmosis due to irreversible biofouling Bar-Zeev, E. ; Perreault, F.; Straub, A.; Elimelech, M. Yale University	nm-Thin membranes via assembly of reduced graphene oxide at the air-water interface Silverberg, G. J. ; Amadei, C.; Pearce, P.; Vecitis, C. D. Harvard University	Multistage torrefaction for biofuel production: A life cycle inspired assessment of the climate-energy nexus Zaimes, G. G. ; Vora, N.; Resasco, D. E.; Crossley, S. P.; Khanna, V. University of Pittsburgh	Exploring the use of X-ray excited radiocatalysts and radioluminescent materials in environmental technologies Cates, E. Clemson University	Aerosol emissions from desktop 3D printers Vance, M. E. ; Pegues, V.; Page, J.; Prussin, A. J.; Marr, L. C. Virginia Tech
4:00-4:20	Development of biocatalysts for water treatment: Perchlorate model system Hutchison, J. M. ; Zilles, J. L. University of Illinois at Urbana-Champaign	Can river-to-sea PRO be a viable part of the global renewable energy portfolio Achilli, A. ; O’Toole, G. Humboldt State University	Transport, reactivity, and bioactivity of heterogeneous carbon nanoparticles in water Chae, S. ; Wiesner, M. R. University of Cincinnati	Assessing the food-energy-climate nexus of traditional and improved shea butter processes across sub-Saharan Africa Naughton, C. C. ; Zhang, Q.; Mihelcic, J. R. University of South Florida	Photocatalysis by polyoxometalates in water treatment: A detailed study of catalyst regeneration and reactive oxygen species formation from bulk oxidants Pignatello, J. J. ; Yang, B.; Qu, D.; Xing, B. Connecticut Agricultural Experiment Station	Breath-borne bioaerosol particle shielding efficiencies of respiratory masks Xu, C. ; Wu, C. Y.; Yao, M. Peking University
4:20-4:40	Influence of often-overlooked brominating agents on sequential bromination rates of anisole Sivey, J. D. ; Bickley, M. A.; Victor, D. A.; Race, N. A. Towson University	Removing silica at pH < 10 for preventing RO membrane fouling Howe, K. J. ; Sims, M. A. University of New Mexico	Improvement of electrochemical wastewater treatment with carbon nanotube filters coupled with in situ generated H ₂ O ₂ Liu, Y. ; Xia, Q.; Kong, Y.; Xie, J.; Ong, C. N.; Vecitis, C. D.; Jame, S. A.; Wu, T.; Zhou, Z. Purdue University	Life cycle comparison of anaerobic baffled reactor and fixed film aerobic treatment Sills, D. ; Wade, V. Bucknell University	Balancing the use of pesticides with protecting commercial fisheries: The role of photolysis in the fate of lampricides in the Great Lakes Remucal, C. K. ; McConville, M. University of Wisconsin Madison	A novel personal sampler design for measuring inorganic acid mist and gases Chien, C. H. ; Shou, L.; Theodore, A.; Wu, C. Y. ; Hsu, Y. M.; Birky, B. University of Florida
4:40-5:00	Evaluation of a hybrid ion exchange-catalyst treatment technology for nitrate removal from drinking water Bergquist, A. M. ; Choe, J. K.; Strathmann, T. J.; Werth, C. J. University of Illinois at Urbana-Champaign	Integrating tunable anion exchange with reverse osmosis for enhanced recovery during inland brackish water desalination Smith, R. C. ; SenGupta, A. K. Lehigh University	Nanofiber materials for water treatment and reuse McCutcheon, J. ; Bui, N. N.; Huang, L.; Manickam, S.; Waisi, B.; Han, Y.; Vadas, T. University of Connecticut	Exploring algae-mediated tertiary treatment for improved water quality and energy performance during wastewater treatment Grimes, K. ; Zhang, Y.; Colosi, L. M. University of Virginia	Probing the mechanism of the photochemical production of reactive intermediates from dissolved organic matter McKay, G. ; Rosario-Ortiz, F. L. University of Colorado, Boulder	Nitrate source apportionment for urban storm water in a corn belt watershed Baral, D. ; Dvorak, B.; Snow, D.; Admiraal, D. University of Nebraska-Lincoln