



American Chemical Society

Division of Environmental Chemistry Call for Papers 258^a National Meeting & Exposition San Diego, CA – August 25-29, 2019 Abstract Submission Deadline: March 18, 2019

Dear Colleagues,

On behalf of the ACS Division of Environmental Chemistry, it is my pleasure to invite you to share your recent research and results in the Division of Environmental Chemistry of the American Chemical Society at the 258^a ACS National Meeting in San Diego, CA August 25-29, 2019.

Abstract Submission Deadline: **March 18, 2019**. Please submit abstracts to the Division of Environmental Chemistry at http://MAPS.ACS.org. Abstracts will be accepted for oral and/or poster presentation in each symposium unless otherwise noted. Symposium details are available on the ENVR website at: www.acsenvr.com.

Sincerely,

Jellian Joldfar

Jillian Goldfarb, Ph.D. ENVR Fall Program Chair Department of Biological & Environmental Engineering Cornell University Email: goldfarb@cornell.edu

ACS National Meeting Thematic Symposia: Chemistry & Water

Artificial Water Channels for Water Purification & Desalination

Organized by: Baoxia Mi (mib@berkeley.edu), Mihail Barboiu (mihaildumitru.barboiu@umontpellier.fr), Jun Li Hou (houjl@fudan.edu.cn) Artificial Water Channels technology has been quickly gaining popularity in drinking water purification, water reuse, wastewater reclamation, and desalination. Our symposium will focus on biomimetic systems and novel membrane materials and emerging processes designed to desalinate or remove contaminants from water more effectively, efficiently, and sustainably.

Chemistry & Applications of Free Radical-based Technologies for Water Treatment & Purification

Organized by: Daisuke Minakata (dminakat@mtu.edu), Emily Asenath-Smith (Emily.asenathsmith@usace.army.mil), Weihua Song (wsong@fudan.edu.cn), Gianluca Li Puma (g.lipuma@lboro.ac.uk), Kevin O'Shea (osheak@fiu.edu), Dionysios (Dion) Dionysiou (dionysios.d.dionysiou@uc.edu)

Water treatment and purification, free radicals, advanced oxidation processes, hydroxyl radicals, chlorine radicals, sulfate radicals, emerging contaminants, water and wastewater treatment and reuse, catalytic chemical oxidation, removal of pathogens and contaminants, nanotechnology-based water and wastewater treatment, reaction mechanisms and kinetics, UV and visible light based technology, electrochemical technology.

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org by March 18, 2019

Chemistry of Waterless Fracturing Fluids: Improving Produced Water Use, Minimizing the Need for Water Treatment in the Oil & Gas Industry

Organized by: Reza Barati (reza.barati@ku.edu), Sumitra Mukhopadhyay (Sumitra.Mukhopadhyay@superiorenergy.com)

In a water-constrained world, reducing the usage of fresh water for hydraulic fracturing activities is only

possible by designing efficient energized fluids and modifying fluid additives to be compatible with produced water containing divalent ions. The focus of this symposium is on the following areas: Fracturing fluid additives for conventional fluids; Viscoelastic surfactants and additives compatible with CO₂, nitrogen, and hydrocarbon gases; Application of nanoparticles in extreme pH environments.

Chemistry of Water Reuse Processes toward Water Sustainability

Organized by: C. P. Huang (huang@udel.edu); Ruey An Doong (radoong@mx.nthu.edu.tw), Wen-Che Hou (whou@mail.ncku.edu.tw), Zhimin Qiang (qiangz@rcees.ac.cn), Virender K. Sharma (vsharma@sph.tamhsc.edu)

Water sustainability requires water reclamation for reuse with minimal energy consumption and chemical treatment. This symposium will provide a forum for chemists and engineers to exchange recent advances in the separation of water impurities. Of interest are new discoveries in multiple-function materials and catalysts of unusual surface reactivity and selectivity operable by sustainable energy sources and unconventional high-efficiency water reclamation processes.

Current Advances in Water Analysis: From Citizen Scientists to Laboratory Breakthroughs

Organized by: Steven Lingenfelter (sclingen28@gmail.com), Christopher Steary (Christopher.Steary@glwater.org), Jessica Vachon (Jessica.Vachon@glwater.org), Benoy Elias (Benoy.Elias@glwater.org)

Analysis of water is critical for ensuring human and environmental health. This symposium will focus on novel developments in water quality analysis from using citizens to generate water quality data to novel advances in monitoring of surface and ground water. Submissions are encouraged from scientists and engineers from academia, government and industry.

Emerging Contaminants in Wastewater

Organized by: Adeyemi Adeleye (adeyemi.adeleye@uci.edu), Yuxiong Huang (yhuang@bren.ucsb.edu), Pabel Cervantes Avilés (pcervantes@bren.ucsb.edu)

This symposium will focus on emerging contaminants (ECs) in wastewater, including advances in identification, detection and quantification of ECs in wastewater, influence of environmental chemistry on the fate of ECs, aging and transformation of ECs, ecological effects of ECs and their transformation products, impact of ECs on wastewater treatment, existing and emerging technologies for removing ECs, and life-cycle analysis and cost-benefit analysis of treating ECs.

Plastics in Aquatic Environments, Part II: Transport, Fate & Global Impacts

(Note: Part I: Detection of Plastics in Aquatic Environments, is being run through POLY) Organized by: John A. Glaser (glaser.john@epa.gov); Keisuke Ikehata (keisuke.ikehata@yahoo.com), Melissa Pasquinelli (melissa_pasquinelli@ncsu.edu), Sara Orski (sara.orski@nist.gov), Robert Mathers (rtml1@psu.edu)

A significant challenge in addressing plastic pollution across global water systems is the lack of adequate measurements and models to describe the scope, lifetimes, and impacts of material wastes across multiple ecosystems. A more complete understanding of environmental degradation, degradation products, fate and transport, and toxicity is necessary to determine the long-term impacts of plastics in aquatic environments. In terms of length scales, waste plastics expand multiple orders of magnitude, from nanoparticles and anisotropic particulates, to microplastic fragments, to larger macroscale parts. Comprehensive measurements of recovered plastics therefore require both high-throughput measurements for rapid identification in water samples and in-depth analyses to determine the contributions of relevant

physical and chemical properties on degradation. Models and characterization of environmental transport, fate, and biological effects of these degraded products elucidate the global impact of waste plastic accumulation. This interdisciplinary symposium will engage chemists, polymer scientists, engineers, toxicologists, biologists, ecologists, and marine scientists to understand the scope of the problem and to develop integrative, effective and sustainable strategies that will be critical to address and prevent plastic pollution in the world's aquatic environments. In Part 2 of this symposium, we solicit papers concerning the transport, fate and global impacts concerning plastics in aquatic environments.

Safeguarding Water Quality in a Climate of Change

Organized by: Jessica Moerman (Jessica.Moerman@science.doe.gov), Jennifer Saleem-Arrigo (jsaleemarrigo@usgcrp.gov)

This session will explore water quality as an issue critical to national, economic, environmental, and public health security. This session will highlight integrative, innovative water research needed to holistically understand emerging local and regional water quality issues in the face of changing climatic, environmental, and human system dynamics. It will feature talks across the spectrum of science, technology, policy, and management in order to understand emerging issues and develop solutions to challenges to safe, secure, and sustainable water quality, now and in the future.

Sensors & Biosensors for Widespread Environmental Monitoring

Organized by: Paul Schorr (schorr@njit.edu), Tao Li (li.tao@usepa.gov), Maria Romero-Gomez (m.romero-gonzalez@qmul.ac.uk), Vishnu Rajasekharan (vrajasek@hach.com), Wen Zhang (wen.zhang@njit.edu)

This symposium focuses on advances in widespread deployable environmental sensors to detect conventional, priority and emerging chemicals and pathogens for specific potable, wastewater, power generation, industrial, pharmaceutical and agricultural uses as well as techniques to visualize environmental (water, soil and air quality) impacts of extreme weather events on ecological and manmade systems.

Sensors for Water Quality Assessment in Resource Limited Environments

Organized by: Eric Brack (eric.m.brack.civ@mail.mil), Michael Wiederoder (Michael.s.wiederoder.ctr@mail.mil), Eric McLamore (emclamor@ufl.edu), Carmen Gomes (carmen@iastate.edu)

The symposium will highlight innovative studies that demonstrate novel methods to improve portable water quality sensors for resource limited environments. Presentations will highlight technologies to improve sensor development for the detection of chemical and biological contaminants in a resource limited environments.

Stormwater Treatment & Green Infrastructure: from Research to Practice

Organized by: Haizhou Liu (haizhou@engr.ucr.edu), Patricia Holden (holden@bren.ucsb.edu), Stanley Grant (stanleyg@vt.edu), Jennie Jay (jennyayla@gmail.com), Lisa Levin (llevin@ucsd.edu), Richard Ambrose (rambrose@ucla.edu)

This symposium will showcase recent advances in stormwater treatment and green infrastructure, with topics including but not limited to: chemistry, microbiology and hydrology that controls contaminant removal (e.g., nutrients, pathogens, inorganic and organic pollutants) in stormwater infrastructure. Understanding the chemistry of green infrastructure is imperative to the control of water quality and the delivery of reliable water supplies. Knowledge acquired from this symposium will help develop effective water management strategies.

Wastewater-Based Epidemiology – Opportunities, Challenges & Applications to Public Health & Safety

Organized by: Bikram Subedi (bsubedi@murraystate.edu), Daniel A. Burgard (dburgard@pugetsound.edu), Mariana Matus (mariana@biobot.io)

Wastewater-based epidemiology (WBE) utilizes analyte concentration, population served by the treatment facility, and inflow to estimate the semi-real-time community use of or exposure to contaminants. Several opportunities and analytical challenges associated with WBE include use and environmental fate of illicit drugs, flame retardants, plasticizers, and their impacts on environmental health.

Water, Health, & Environmental Justice in Marginalized Communities

Organized by: Josh Kearns (jpkearns@ncsu.edu), Francis de los Reyes (fldelosr@ncsu.edu), Angela Harris (aharris5@ncsu.edu)

This symposium will address water and health challenges faced by poor and marginalized people in the US and abroad in the developing world. It will present investigations of the chemical and biological dimensions of water quality and the development of science and engineering approaches to advancing Environmental Justice and protecting public health in low-resource settings.

Water in the Solid State: Reactions & Interactions with Impurities

Organized by: Emily Asenath-Smith (emily.asenath-smith@usace.army.mil), Wonyong Choi (wchoi@postech.edu), Kitae Kim (ktkim@kopri.re.kr)

Water plays a powerful role in the reactions and transport of impurities in a range of environments. When exposed to freezing temperatures, impurities and contaminants become trapped, but not static within the rigid ice microstructure. This symposium will cover all aspects of impurities in ice: from molecular compounds to polymeric species and their photo-reactions and effect on material properties of ice.

Chemical, Physical and Biological Processes in the Environment

Fundamental Chemical Processes Common to Dissolved Organic Matter & Atmospheric Organic Aerosols

Organized by: Nadine Borduas-Dedekind (nadine.borduas@usys.ethz.ch), Sergey Nizkorodov (nizkorod@uci.edu)

There are numerous fundamental chemical processes common to dissolved organic matter and atmospheric organic aerosols. Both fields have similar goals of characterizing organic matter whether it be in lakes, rivers and oceans or in the atmosphere but rarely come together to share techniques, sampling protocols and chemical insights. This symposium is bringing together environmental and chemical scientists and engineers.

Non-targeted Analysis to Understand Fate & Effects of Pharmaceuticals & Emerging Contaminants in Agriculture & Natural Environments

Organized by: J. Brett Sallach (brett.sallach@york.ac.uk), Diana Aga (dianaaga@buffalo.edu) This symposium features research activities that utilize novel non-targeted analysis techniques to provide insights into the fate of pharmaceuticals in the agricultural and natural environments, and to provide a better understanding of the risks posed by emerging contaminants, including pharmaceutical metabolites and degradants.

Legacy & Emerging Per- & Polyfluoroalkyl Substances: Identification, Fate, Transport, Exposure, & Removal

Organized by: Feng (Frank) Xiao (Feng.Xiao@UND.edu), Kung-Hui (Bella) Chu (kchu@civil.tamu.edu), Jinxia Liu (jinxia.liu@mcgill.ca), Mei Sun (msun8@uncc.edu)

Per- and polyfluoroalkyl substances (PFASs) have become a global concern because of their toxicity and bioaccumulative properties. This symposium invites papers related to the identification, occurrence, fate, transport and remediation of legacy and emerging PFASs in natural and engineered systems. Of particular interest are: 1) occurrence, fate, transport, and removal of emerging PFASs in the water cycle, 2) abiotic and biotic degradation of PFASs, 3) secondary formation of PFOS, PFOA, and other legacy PFASs from precursor compounds, and 4) fate and migration of PFASs in vadose and saturated zones.

Advances in Sustainable Chemistry and Engineering

Biochar & Hydrochar for Energy, Environmental & Agricultural Applications

Organized by: Ajay Shah (Shah.971@osu.edu), Jillian Goldfarb (goldfarb@cornell.edu), Nicole Berge (berge@engr.sc.edu), Roberto Volpe (r.volpe@qmul.ac.uk)

Thermochemical conversions of biomass, including pyrolysis, gasification, hydrothermal carbonization and liquefaction, can produce biochars and hydrochars with a range of compositions, structures and chemical properties. The biomass feedstock and processing conditions dictate the char's properties, which in turn guide potential applications. Biochars are touted as potential replacements to carbon black as electrode materials for energy storage and desalination, as adsorbents for water and flue gas treatment, as vehicles for carbon sequestration, and as soil amendments and slow release fertilizers in a range of agricultural applications. This symposium will examine the processes, products, applications and life cycle behind biomass to biochar conversions.

Catalysis for Environmental & Energy Applications

Organized by: Yin Wang (wang292@uwm.edu), Aditya Savara (savaraa@ornl.gov), Alexandar Orlov (alexander.orlov@stonybrook.edu)

New developments and ongoing research in the creation and investigation of catalysts for environmental applications and also energy applications. Generally, these are geared towards sustainability or towards protecting the environment and human health. This symposium encourages cross-pollination of knowledge, with applications ranging from vehicle emissions to reducing indoor air pollution to mitigating water pollution to CO₂ and biomass conversion.

Green Chemistry and the Environment

Organized by: Sherine Obare (soobare@uncg.edu), Rafael Luque (q62alsor@uco.es)

Chemical processes that utilize 'green' principles are essential toward ensuring a sustainable environment. The field of green chemistry has impacted several areas and has led to advances in chemical design, catalyst fabrication, waste valorization, biomass conversion, homogeneous and heterogeneous catalysis, enzyme-based processes and alternative energy. The symposium will bring together scientists from the academic, industrial and government sectors to discuss emerging green chemical strategies in biotechnology, chemistry, chemical engineering, environmental engineering and toxicology the impact environmental processes. Advances in green chemistry concepts will be enhanced by obtaining a better understanding of the mechanistic pathways involved in various reactions. Thus, the symposium will further focus on theoretical and experimental research by bringing together experts in the field to address the need for best practices for green chemical processes for the environment.

Nanomaterials & Sustainability

Organized by: Satinder (Sut) Ahuja (sutahuja@atmc.net)

The symposium focuses on environmental applications and implications of nanomaterials across environmental media. Nanomaterials offer tremendous promise for a variety of environmental applications, from nano-enabled water treatment systems including photocatalytic and advanced oxidation, membranes and prevention of biofouling, to contaminant remediation, destruction of hazardous air pollutants and myriad other applications. On the other hand, as more products containing nanomaterials enter the marketplace, understanding NMs' ability to reach the environment and the chemical changes they undergo is critical to prevent damage to human health and the ecosystem. The symposium will serve as a platform for dissemination and discussion of current advances, challenges, barriers and environmental implications of nano-enabled technologies from environmental applications to unintentional environmental consequences of consumer products.

Special Topic: Data Visualization

Environmental Data Visualization to Enable Effective Communication Across Audiences

Organized by: Martha J.M. Wells (mjmwells@tntech.edu), Tammy H. Boles (tboles@tntech.edu) Visual representations of environmental data promote improved decision-making and management strategies. Effective images communicate environmental data to professional colleagues and the general public in scientific and non-scientific venues. Share your environmental story, and describe the tools you used to produce and improve visualization of your qualitative and quantitative data via photographs, micrographs, diagrams, charts, statistical graphics, maps, infographic analytics, cartoons, graphical abstracts, and combinations thereof.

ENVR Poster Session

Division of Environmental Chemistry General Poster Session

Organized by: Jillian Goldfarb (goldfarb@cornell.edu)

Abstracts in all areas of Environmental Chemistry and Engineering are welcome in the Division's Poster Session. This is an interactive session design to encourage dialogue among scientists while sharing highlights of new research. *Please note: as we cannot guarantee neighboring poster locations*, <u>only one</u> <u>poster per presenter is allowed</u> in the ENVR Poster Session.

Honorary and Invited Symposia

C. Ellen Gonter Environmental Chemistry Awards

Organized by: Kevin O'Shea (osheak@fiu.edu) and Dion Dionysiou (dionysios.d.dionysiou@uc.edu) This award is presented to graduate students at U.S. and international universities who submit the highest quality research papers. The format to be followed is that of Environmental Science and Technology, except that the paper should be limited to 15 pages total, including figures and references. Award winners are expected to present their papers at the Fall American Chemical Society Meeting, where they receive a \$1,000 cash award at the Environmental Division Reception. The deadline for submission of a single pdf file via email to osheak@fiu.edu is January 8th. These awards represent the highest honor granted by the Division of Environmental Chemistry for students.

Please note: Presentations by Invitation Only

Showcasing Emerging Investigators & Future Perspectives: A Symposium by the RSC Environmental Science Journals

Organized by: Simon Neil (neils@rsc.org), Kristopher McNeill, Paige Novak, Peter Vikesland This invitation-only symposium will feature emerging investigators selected by the Editors of RSC environmental science journals: Environmental Science; Nano, Environmental Science; Processes & Impacts and Environmental Science; Water Research & Technology. The papers presented highlight some of the high-quality, cutting-edge research being done by up-and-coming scientists in the field recently published in these leading journals. Each Emerging Investigator talk will be paired with complementary presentations given by renowned international researchers. *Please note: Presentations by Invitation Only*