

## Division of Environmental Chemistry Program

### 259th ACS National Meeting & Exposition Philadelphia, PA • March 22 – 26, 2020

## *Abstract Submission Open Until October 14*

Submit abstracts to Division of Environmental Chemistry at <https://maps.acs.org>.

**Program Chair:** Sherine Obare, [soobare@uncg.edu](mailto:soobare@uncg.edu)

**Program Administrator:** Peney Patton, [division@acsenvr.com](mailto:division@acsenvr.com)

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### *ACS Theme: Macromolecular Chemistry—The Second Century*

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#### **Macromolecule Biosynthesis, Biodegradation, & Applications in Environmental Bioprocesses**

*This symposium will provide a platform for chemists, microbiologists, material scientists, and engineers in the field of environmental science and technology to exchange knowledge and identify opportunities regarding the design and application of bioprocesses in biosynthesis, biodegradation, and applications of macromolecules.*

**Organizers:** Shan Yi, [shan\\_yi@berkeley.edu](mailto:shan_yi@berkeley.edu); Yujie Men, [yumen2@illinois.edu](mailto:yumen2@illinois.edu); Christopher Sales, [chris.sales@drexel.edu](mailto:chris.sales@drexel.edu); Wei-Qin Zhuang, [wq.zhuang@auckland.ac.nz](mailto:wq.zhuang@auckland.ac.nz); Xinwei Mao, [xinwei.mao@stonybrook.edu](mailto:xinwei.mao@stonybrook.edu)

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### *Awards*

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#### **ACS Award for Creative Advances in Environmental Science & Technology**

*This symposium recognizes the 2019 ACS Award winner for Creative Advances in Environmental Science & Technology, **Dr. Kevin C. Jones** of Lancaster University. All papers presented in this symposium will be invited to honor the award winner.*

**Organizers:** Virender Sharma, [vsharma@sph.tamhsc.edu](mailto:vsharma@sph.tamhsc.edu); Sherine Obare, [soobare@uncg.edu](mailto:soobare@uncg.edu)

#### **Great Achievements in ES&T: James J. Morgan Environmental Science & Technology Early Career Award Symposium**

*This is an award symposium that recognizes great achievements in environmental chemistry by an early career award winner. [Invited abstracts only.]*

**Organizers:** David Sedlak, [sedlak@est.acs.org](mailto:sedlak@est.acs.org); William Aumiller, [w\\_aumiller@acs.org](mailto:w_aumiller@acs.org)

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## Aquatic Chemistry

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### Aquatic Photochemistry

*This symposium will cover various aspects of photochemistry occurring in aquatic environments.*

Organizers: Bill Arnold, [arnol032@umn.edu](mailto:arnol032@umn.edu); Kristopher McNeill, [kristopher.mcneill@env.ethz.ch](mailto:kristopher.mcneill@env.ethz.ch); Garrett McKay, [garrettmckay@mines.edu](mailto:garrettmckay@mines.edu)

Cosponsors: CEI

### Current Status of Environmental Research on Water Contaminants

*Papers that focus on the current environmental research on water contaminants are invited.*

Organizers: Satinder Ahuja, [sutahuja@atmc.net](mailto:sutahuja@atmc.net); B. (Logan) Loganathan, [bloganathan@murraystate.edu](mailto:bloganathan@murraystate.edu)

### Performance of Stormwater Treatment Systems Under Changing Environments

*This session welcomes studies from lab to field scale on how different designs of stormwater treatment systems affect contaminant removal under complex conditions expected in nature. Studies examining the effect of changing environments (e.g., temperature fluctuation, precipitation duration, frequency, or intensity, and land uses) on the performance of stormwater treatment systems are particularly invited. Studies on stormwater treatment technologies quantifying contaminant removal processes or capacity at different design scenarios are also welcome.*

Organizers: Sanjay Mohanty, [mohanty@ucla.edu](mailto:mohanty@ucla.edu); Sujith Ravi, [tuf77011@temple.edu](mailto:tuf77011@temple.edu); Timothy Dittrich, [gk2840@wayne.edu](mailto:gk2840@wayne.edu)

Cosponsors: GEOC

### Transformation of Organic Pollutants in Aquatic Systems: A Celebration of the Career of A. Lynn Roberts

*This symposium will honor the contributions of Prof. A. Lynn Roberts. Submissions are invited on the topic of pollutant fate and transformation in natural and engineered aquatic systems. Examples include the transformation of pesticides and chlorinated solvents, aspects of chlorine chemistry in drinking water treatment, detection of contaminants and their degradation products in aquatic systems, applications of computational chemistry to pollutant transformation, and redox reactions mediated by metal and mineral surfaces. While most contributions will be invited, we also welcome unsolicited abstracts.*

Organizers: William Arnold, [arnol032@umn.edu](mailto:arnol032@umn.edu); David Cwiertny, [david-cwiertny@uiowa.edu](mailto:david-cwiertny@uiowa.edu); Yu-Ping Chin, [yochin@udel.edu](mailto:yochin@udel.edu); Tamar Kohn, [tamar.kohn@epfl.ch](mailto:tamar.kohn@epfl.ch); Michelle Hladik, [mhladik@usgs.gov](mailto:mhladik@usgs.gov)

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## Challenges, Innovations & Assessments

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### Innovative & Practical Approaches for the Treatment of Per- & Polyfluoroalkyl Substances (PFASs)

*This symposium centers on opportunities and challenges for developing effective and efficient treatment approaches, such as chemical, photochemical, catalytic, and biological degradation, thermal and non-*

*thermal destruction, as well as adsorption and membrane separation, to remove the emerging and persistent per- and polyfluoroalkyl substances.*

Organizers: Jinyong Liu, jyliu@engr.ucr.edu; Jong Kwon Choe, jkchoe@snu.ac.kr; Yin Wang, wang292@uwm.edu; Shubham Vyas, svyas@mines.edu; Yongju Choi, ychoi81@snu.ac.kr

### **Opioids & Their Impact on the Environment**

*This symposium focuses on chemicals in the environment that are a result of serious prescriptions that cause addiction. Their impact on the environment as well as strategies to detect and remediate them, will be discussed. Furthermore, papers related to policy are invited.*

Organizers: Elke Schoffers, elke.schoffers@wmich.edu; Sherine Obare, soobare@uncg.edu

### **Sensors & Biosensors for Widespread Environmental Monitoring**

*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.*

Organizers: 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

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## ***Chemical, Physical & Biological Processes in the Environment***

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### **Accurate Mass/High Resolution Mass Spectrometry for Environmental Monitoring & Remediation**

*This session focuses on the application of high resolution mass spectrometry for analysis of organic contaminants in the environment. Papers that involve methods to identify known and unknown contaminants in the environment including effects-directed analysis, computational modelling of HR/MS data, studies on treatment process efficiency and identification of transformation products are the major themes of this symposium.*

Organizers: Tarun Anumol, tarun.anumol@agilent.com; Ruth Marfil-Vega, rmmarfilvega@shimadzu.com; Tom Young, tyoung@ucdavis.edu; Christian Zwiener, christian.zwiener@uni-tuebingen.de

Cosponsors: CEI

### **Advancing Chemical Oxidation & Reduction for Addressing Emerging Environmental Issues**

*This symposium focuses on advances in chemical oxidative and reductive processes for addressing challenges of emerging contaminants in drinking water, groundwater/soil, as well as municipal, industrial, and agricultural wastewater.*

Organizers: Yang Deng, dengy@mail.montclair.edu; Xiaohong Guan, guanxh@tongji.edu.cn; Huichun (Judy) Zhang, hjz13@case.edu; Weihua Song, wsong@fudan.edu.cn

## **Biogeochemical Transformation in Underground Environments: Natural Processes & Engineered Implementations for Contaminant Abatement**

*This symposium invites discussion on recent advances in the following topics: a) Electron transfer at bio-carbon or bio-mineral interface; b) Impacts of biogeochemical cycling on the speciation and mobility of trace elements; c) Transformation or attenuation of organic electron donors, including anthropogenic chemicals as well as natural organic matter; d) Production of reactive oxygen species via coupled biological and abiotic processes; e) Methods for laboratory or field characterization of geochemical conditions or indicators of biological processes, and f) Quantifying subsurface reactive capacity and intensity (moles/time) based on instantaneous or short-term behavior at an interface*

Organizers: Weile Yan, Weile.Yan@ttu.edu; Kayleigh Millerick, Kayleigh.Millerick@ttu.edu; John Ferry, ferry@mailbox.sc.edu; Matthew Siebecker, Matthew.Siebecker@ttu.edu

Cosponsors: GEOC, CEI

## **Green Chemistry & the Environment**

*Papers that focus on any aspects of green chemistry processes are invited to submit an abstract to this symposium*

Organizers: Rafael Luque, q62alsor@uco.es; Sherine Obare, soobare@uncg.edu

## **Novel Materials & Processes for Sustainable Water Treatment**

*This symposium welcomes research papers that describe novel approaches and materials for remediation of waste streams including wastewater, groundwater, surface water, and urban stormwater. Examples include new membranes for desalination, purification, and chemical separation; novel electrodes, electrode configuration, or electrochemical processes for water treatment; and hybrid composite and modified low-cost media for contaminant removal.*

Organizers: Jessica Ray, jessray@uw.edu; William Tarpeh, [wtarpeh@stanford.edu](mailto:wtarpeh@stanford.edu)

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## ***Environmental Chemistry in Industry***

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## **Advanced & Additive Manufacturing Materials & Technologies for Environmental Applications**

*This symposium will provide the environmental science and engineering communities with opportunities to exchange knowledge and ideas about the recent innovations and challenges associated with Advanced & Additive Manufacturing for applications that impact the natural and built environment. Also, this symposium will include discussions regarding the environmental, energy, and health sustainability and implications of advanced manufacturing.*

Organizers: Nirupam Aich, nirupama@buffalo.edu; Saifur Rahaman, saifur.rahaman@concordia.ca; William Phillip, william.a.phillip.1@nd.edu

## **Applications of Artificial Intelligence, Machine Learning & Data Analytics in Environmental Science & Engineering**

*This symposium will bring experts and newcomers from a diverse background to explore opportunities in applying AI/ML and data analytics to solving environmental problems, and to identify research priorities our community should focus on in the near future.*

Organizers: Huichun (Judy) Zhang, hjz13@case.edu; Qilin Li, qilin.li@rice.edu; April Z. Gu, aprilgu@cornell.edu; Xingmao "Samul" Ma, xma@civil.tamu.edu; Qi Ying, qying@civil.tamu.edu; Zhen Cheng, chengz88@stju.edu.cn

### **Industrial Applications of Environmental Chemistry**

*The role of industry in using Environmental chemistry to develop practical applications that support manufacturing and commerce is often understated. This symposium will highlight applications of environmental chemistry in industry and their role in everyday-life. The key areas of focus will be water treatment (both drinking water and waste water), advances in analytical instruments, predictive modeling (i.e., pollutants and emissions), petrochemical manufacturing and other applications where environmental chemistry influences daily life. This symposium will mainly feature speakers from industry. However, academic speakers whose work focuses on topics relevant to industry will also be given equal consideration to their industry colleagues. The symposium will conclude with a panel discussion of the selected speakers. The intended audience will be those from industry and to some extent, government.*

Organizers: Nicole Lock, nmlock@shimadzu.com; Steven Lingenfelter, steven.lingenfelter@glwater.org; Tarun Anumol, Tarun.amumol@agilent.com

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## *General Environmental Chemistry*

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### **General Papers in Environmental Chemistry**

*This symposium is open to all papers on environmental chemistry or environmental engineering that may be beyond the focus of the specific topics addressed in other ENVR symposia.*

Organizer: Sherine Obare, soobare@uncg.edu

### **General Posters**

*Poster presentations of research that focuses on environmental chemistry and/or engineering, not covered in other ENVR poster sessions are invited.*

Organizer: Sherine Obare, soobare@uncg.edu

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## *Nanomaterials & Nanotechnology*

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### **Applications & Implications of Nanomaterials in the Environment**

*The symposium solicits recent developments in the applications, implications, medical applications, and toxic effects of nanomaterials.*

Organizers: Sushil R. Kanel, sushil.kanel@wright.edu; Lt. Col. John Stubbs, johnstubbs@afit.edu; Mallikarjuna Nadagouda, Nadagouda.Mallikarjuna@epamail.epa.gov; Tanapon Phenrat, pomphenrat@gmail.com; S.T. Kang, stkang@kaist.ac.kr; Sudip Chakraborty, sudip.chakraborty@unical.it

Cosponsors: AFIT, USA; AFRL, USA; Batelle, USA; Naresuan University, Phitsanulok, Thailand; KAIST, Rep. of Korea; and The Siam Cement Public Company LTD, Thailand

**Impact of Engineered & Natural Nanomaterials on the Environment: A symposium in Honor of Dr. Michael F. Hochella**

Organizers: Virender Sharma, vsharma@sph.tamhsc.edu; Dionysios (Dion) D. Dionysiou, dionysios.d.dionysiou@uc.edu; Peter Vikesland, pvikes@vt.edu; Quan Wan, wanquan@vip.gyig.ac.cn

Cosponsors: GEOC

**Micro- & Nano-Plastics in the Environment: Detection, Characterization, Fate & Impact**

*This symposium invites papers that focus on various environmental aspects on microplastics.*

Organizers: Souhail Al-Abed, al-abad.souhail@epa.gov; Phillip Porter, potter.phillip@epa.gov; Mirander Gallagher, mgallagher@jhu.edu

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## *Regulatory Advances*

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**Governance & Standards in the History of Chemistry: Social & Environmental Impact**

*The symposium hopes to focus on the interplay between chemistry and history of substances such as PFAS, BpA, Americium, kerosene, alcohol, methadone, and any other subjects that might be applicable.*

Organizers: Mark Benvenuto, benvenma@udmercy.edu; Prasad Venugopal, venugoep@udmercy.edu

Cosponsors: HIST

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## *Sustainable Chemistry & Engineering*

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**Chemical & Biotechnological Advances Directed to the Recycling of Plastics**

*This interdisciplinary symposium is designed to engage chemists, polymer scientists, engineers, and biotechnologists to develop an understanding of the problem scope and to advance integrative, effective and sustainable strategies critical to the prevention of plastic pollution through the sustainable reuse of used plastic materials.*

Organizers: John Glaser, glaser.john@epa.gov

Cosponsors: BIOT

**Re-envisioning Chemistry's Role in Environmental Sustainability: Perspectives on Progress & Future Directions**

*The goal of this symposium is to highlight key advances, identify pressing challenges, and propose future directions for chemistry's role in sustainability. Topics will include Green Engineering; the Circular Economy; Industrial Advances; Sustainability Metrics; Law, Policy, and Management; and Critical Education Needs.*

Organizers: Jillian L. Goldfarb, jlg459@cornell.edu; Douglas Kriner, kriner@cornell.edu; Emily Ryan, ryanem@bu.edu