# AMERICAN CHEMICAL SOCIETY

## DIVISION OF ENVIRONMENTAL CHEMISTRY

# CALL FOR PAPERS

253rd ACS National Meeting
San Francisco, CA – April 2-6, 2017

Dear Colleagues,
Join us to share your research progress and results in the Division of Environmental Chemistry program at the 253rd ACS National Meeting in San Francisco, CA, April 2-6, 2017.

ENVR Spring Program Chairs:
**Sherine Obare, Ph.D**.; Department of Chemistry, Western Michigan University, Kalamazoo, MI; Tel: 269-387-4321; Email: sherine.obare@wmich.edu
**Souhail Al-Abed, Ph.D**.; U.S. EPA, 26 W. Martin Luther King Dr., Cincinnati, OH 45268; Tel.: 513-569-7849; E-mail: al-abed.souhail@epa.gov

Abstract Submission Deadline: **October 31, 2016**. Submit abstracts to the Division of Environmental Chemistry at http://MAPS.ACS.org. Abstracts accepted for oral poster presentation in each symposium unless otherwise noted. Symposium details available on the ENVR website: www.acsenvr.com.

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*Thematic Symposia: "Advanced Materials, Technologies, Systems & Processes"*

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**Accurate Mass/High Resolution Mass Spectrometry for Environmental Monitoring and Remediation**, *Organizers:* Tom Young, tyoung@ucdavis.edu; Tarun Anumol, tarun.anumol@agilent.com; Ruth Marfil Vega, ruth.marfilvega@amwater.com

**Advances & Applications in Water Sensing Technologies for Drinking Water, Re-use, Agri-tech & Research**, *Organizers:* Paul Schorr, capitolgateway@yahoo.com; Wen Zhang, wzhang81@njit.edu; Maria Romero-Gonzalez, m.e.romero-gonzalez@sheffield.ac.uk; Christian Moldaenke, CMoldaenke@bbe-moldaenke.de

**Advances in Resource Recovery & Conservation in Water Systems**, Organizers: Treavor Boyer, thboyer@asu.edu; Lee Blaney, blaney@umbc.edu

**Bioprocesses for Engineered Nanomaterials in Soil-Plant Systems**, *Organizers:* Yu (Frank) Yang, yuy@unr.edu; Jason White, Jason.White@ct.gov; Baoshan Xing, bx@umass.edu

**Chemical Principles of Environmental, Cellular & Organismal Nanotoxicology** [Cosponsor: COLL], *Organizers:* Benjamin Gilbert, bgilbert@lbl.gov; Sylvia Lehman, sylvia.lehmann@ujf-grenoble.fr; Laurent Charlet, charlet38@gmail.com; Jean-Pierre Simonato, jeanPierre.simonato@cea.fr; Caroline Celle, caroline.celle@cea.fr; Chris Vulpe, cvulpe@ufl.edu

**Chemistry & Application of Advanced Oxidation Processes for Water Detoxification, Treatment & Reuse** [Cosponsor: AEESP], *Organizers:* Gianluca Li Puma, g.lipuma@lboro.ac.uk; Dionysios D. Dionysiou, dionysios.d.dionysiou@uc.edu; Kevin O'Shea, osheak@fiu.edu; Daisuke Minakata, dminakat@mtu.edu; Xie Quan, quanxie@dlut.edu.cn; Xuexiang He, xuexiang.he@lvvwd.com

**Contaminants of Emerging Concern in Natural & Engineered Systems**, *Organizers:* Lee Blaney, blaney@umbc.edu; Arturo Hernandez-Maldonado, arturoj.hernandez@upr.edu; Satinder (Sut) Ahuja, sutahuja@atmc.net

**Environmental Chemistry: Undergraduate & Graduate Classroom, Laboratory, & Local Community Learning Experiences**, *Organizers:* Mark Benvenuto, benvenma@udmercy.edu; Elizabeth Roberts-Kirchhoff, robkires@udmercy.edu

**From the Bench to the Field: Evaluating Innovative Remediation & Detection Technologies**, *Organizers:* Heather Henry, henryh@niehs.nih.gov; Souhail Al-Abed, al-abed.souhail@epa.gov

**Innovative Materials & Technologies for Sustainable Water Purification**, *Organizers:* Ezra Cates, ecates@clemson.edu; Brian Chaplin, chaplin@uic.edu; Jong Kwon Choe, choe.jongkwon@gmail.com; Jinyong Liu, Jinyong.liu@gmail.com; Danmeng Shuai, danmengshuai@gwu.edu; Wen Zhang, wzhang81@njit.edu

**New Challenges in Environmental Chemistry: Marine Ecosystems & Microplastics**, *Organizer:* Alandra Kahl, afk12@psu.edu

**Novel Membrane Materials & Processes for Water Purification**, *Organizers:* David Jassby, djassby@engr.ucr.edu; Baoxia Mi, mib@berkeley.edu

**Pesticides in Surface Water: Monitoring, Modeling, Mitigation, Risk Assessment, & Regulation,** *Organizers:* Kean Goh, kean.goh@cdpr.ca.gov, Jay Gan, jgan@ucr.edu, Dirk Young, young.dirk@epa.gov, Yuzhou Luo, Yuzhou.luo@cdpr.ca.gov

**Pollution of Urban Estuaries: Recent Advances in Monitoring & Interpretation**, *Organizers:* James Meador, james.meador@noaa.gov; Derek Muir, derek.muir@canada.ca; Rebecca Sutton, rebeccas@sfei.org

**Poly- and Per- Fluoroalkyl Substances: Where, What, When, Why, Who, and How,** *Organizers:* Kung-Hui (Bella) Chu, kchu@civil.tamu.edu; Jinxia Liu, jinxia.liu@mcgill.ca; Linda Lee, lslee@purdue.edu; Virginia Yingling, virginia.yingling@state.mn.us

**Processes, Technologies, & Sensors for Food-Energy-Water Nexus Research** [Electric Power Research Institute (EPRI); National Science Foundation (NSF)], *Organizers:* Nalini S. Rao, nrao@epri.com; Sean P. Bushart, sbushart@epri.com; William J Cooper, wjcooper@nsf.org

**Whole Organism Metrology to Support Nanotoxicology Research in the Environment**, *Organizers:* Monique Johnson, monique.johnson@nist.gov; Shannon K. Hanna, shannon.hanna@nist.gov; Christopher M. Sims, christopher.sims@nist.gov; Bryant C. Nelson, bryant.nelson@nist.gov

## *Future Innovations in Environmental Chemistry*

**Applications of Cheminformatics & Computational Chemistry in Environmental Health**, *Organizers:* Antony J. Williams, williams.antony@epa.gov; Chris Grulke, grulke.chris@epa.gov

**Aquatic Photochemistry** [Cosponsors: GEOC, AEESP], *Organizers:* Kristopher McNeill, kristopher.mcneill@env.ethz.ch; William Arnold, arnol032@umn.edu; Vivian Lin, vivian.lin@usys.ethz.ch

**Clay Minerals Selectivity & Its Environmental Applications**, *Organizers:* Mohamed Eid Abdelhamid Elsayed, eid1592003@yahoo.com; Mohamed.Elsayed@sdstate.edu

**Contaminants in Coastal & Estuarine Ecosystems** [AGRO], *Organizers:* Kevin L. Armbrust, armbrust@lsu.edu; Parichehr Sarajampour, psaran1@lsu.edu; george_cobb@baylor.edu

**Green Chemistry Adoption: Progressive Changes by Different Industry Sectors** [Cosponsor: AEESP], *Organizers:* Neelam Vaidya, neelamv@viridischem.com; Sherine Obare, sherine.obare@wmich.edu

**Green Chemistry & the Environment** [Cosponsor: AEESP], *Organizers:* Rafael Luque, q62alsor@uco.es; Alina Balu, z82babaa@uco.es; Sherine Obare, sherine.obare@wmich.edu

**Have Great Lakes Restoration Programs Been Successful? The Case of Legacy & Emerging Pollutants**, *Organizers:* James J Pagano, james.pagano@oswego.edu; Keri C. Hornbuckle, Keri-hornbuckle@uiowa.edu

**Integrated & Sustainable Environmental Remediation**, *Organizers:* Satinder Kaur Brar, Satinder.Brar@ete.inrs.ca; Rosa Galvez, rosa.galvez@gci.ulaval.ca; Maximiliano Clédon, Maximiliano.cledon@ete.inrs.ca; Vinka Oyanedel-Craver, craver@uri.edu

**Nanomaterials in Consumer Products: Formulation, Characterization, & Applications Across the Product Life Cycle,** *Organizer:* Christie Sayes, Christie_sayes@baylor.edu; Saber Hussain, Saber.Hussain@us.af.mil; Alan J. Kennedy, alan.j.kennedy@usace.army.mil

**Science and Perception of Climate Change** [Cosponsor: AEESP]**,** *Organizers:* Elke Schoffers, elke.schoffers@wmich.edu, Sherine Obare@wmich.edu

**Sulfidation of Metal-Based Engineered & Natural Nanomaterials: Implications for Their Fate & Effects in the Environment**, *Organizers:* Yuquiang Bi, yuqiangb@asu.edu; Dimin Fan, fan.dimin@epa.gov; Paul Westerhoff, p.westerhoff@asu.edu; Paul Tratnyek, tratnyek@ohsu.edu

## *Honorary Symposia*

**Chemistry of Water Treatment From Sorption to Taste & Odor: A symposium honoring the contributions of Mel Suffet**, *Organizers:* Joel Pedersen, joelpedersen@wisc.edu; Fernando L. Rosario-Ortiz, fernando.rosario@colorado.edu; Michael McGuire, mike@michaeljmcguire.com

**Oxidation Processes, Nanoparticles, & Membranes in Water & Wastewater Treatment: A symposium in honor of Prof. Jun Ma**, *Organizers:* Virender Sharma, vsharma@sph.tamhsc.edu; Dionysios D. Dionysiou, dionysios.d.dionysiou@uc.edu; Jingyun Fang, fangjy3@mail.sysu.edu.cn

**Tribute to Jerry Schnoor**, *Organizers:* Joel G. Burken, burken@mst.edu; David Cwiertny, david-cwiertny@uiowa.edu; Craig Just, craig.just@uiowa.edu

**Understanding Dissolved Organic Matter Reactivity: Honoring George Aiken, the DOM Whisperer,** *Organizers:* Yu-Ping Chin, chin.15@osu.edu; Diane McKnight, diane.mcknight@colorado.edu

## *General Environmental Chemistry Sessions*

**General Posters**, *Organizers:* Sherine Obare, sherine.obare@wmich.edu; Souhail Al-Abed, al-abed.souhail@epa.gov

## COSPONSORED SYMPOSIA

[GEOC] Mineral - Water Interface Chemistry I — A Tribute to Glenn Waychunas, *Organizers*: Benjamin Gilbert, Chris Kim, and Peggy O'Day

[GEOC] Mineral - Water Interface Chemistry II — General Session, *Organizers*: Jaquelyn Bracco, Steven Higgins, Sang Soo Lee

[GEOC] Biogeochemistry of Unconventional Oil & Gas, *Organizers:* Daniel Alessi, Shannon Flynn

[GEOC] Contaminants Transport, Uptake, & Remediation at Contaminated Sites, *Organizers*: Byong-Hun Jeon, Yong Sik Ok, Daniel Tsang, Mayur Kurade

[GEOC] Advances in Treatment Processes for Metals & Metalloids, *Organizers:* Claire Wildman, Kate Campbell-Hay

[GEOC] Evolving Nanoparticle Reactivity throughout Nucleation, Growth, & Dissolution, *Organizers:* Jennifer Soltis, Michele Conroy, Frances Smith, Lee Penn

[CELL] Chemistry & Physical Chemistry of Thermal Processes for the Circular Carbon Economy, O*rganizer: Christopher J. Pope, canard@alum.mit.edu*

[GTCA-PROF] LGBT Graduate & Postdoctorate Student Chemical Research Symposium, *Organizer*: James S. Nowick, jsnowick@uci.edu

AMERICAN CHEMICAL SOCIETY
DIVISION OF ENVIRONMENTAL CHEMISTRY

CALL FOR PAPERS

# Accurate Mass/High Resolution Mass Spectrometry for Environmental Monitoring and Remediation

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

*Traditionally, analysis of chemical contamination has focused on a set of target compounds, selected based on regulatory criteria, environmental drivers (i.e., occurrence, persistence) or analytical method availability. Using this approach, the vast majority of the tens of thousands of chemicals in global commerce have never been assessed in any environmental media. Toxicological effects of most of these chemicals are similarly unknown, and government agencies struggle to obtain enough relevant information to establish regulations. Recent advances in accurate mass high-resolution mass spectrometry (HR/MS) instruments and software have allowed users to collect information on potentially thousands of compounds in each sample and are driving rapid advances in environmental monitoring and remediation. These instruments allow the flexibility to perform a number of workflows including screening of several hundred contaminants without the need for standards, identification of unknown compounds, and quantification of targets all in one run. This session will focus on the use of high resolution mass spectrometers and their application for analysis of organic contaminants in the environment. Associated issues include optimizing workflows using HR/MS instruments, relevant quality assurance/quality control approaches, data processing and statistical evaluation of results, and others. Papers using HR/MS for identification of organic compounds, screening of emerging contaminants and quantification of target analytes in water, air, dust, soil, sludge and other environmental matrices, and applied case studies (i.e. environmental fate and water treatment) are welcomed.*

Topics to be covered in this session include, but are not limited to:

- Workflows to identify unknown contaminants in water, air and sediment using HR/MS
- Methods to screen for organic contaminants, including environmental transformation products, using HR/MS
- Application of suspect and nontarget methods to analysis of water, air, dust, sludge, soil, or other environmental media.
- Data processing and statistical evaluation of nontarget HR/MS data for environmental samples
- Chemical databases, MS/MS libraries, and in silico fragmentation techniques to assist in unknown chemical identification
- Methods, including bioassays and effects-directed analysis, for prioritizing nontarget features for subsequent analysis.

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:


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CALL FOR PAPERS

# Advances & Applications in Water Sensing Technologies for Drinking Water, Reuse, Agri-tech & Research

DIVISION OF ENVIRONMENTAL CHEMISTRY

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

## San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

*This symposium will present applications and the state of the art of "real time" water quality and quantity sensors. For example applications include sensors to determine which intake/source to use for drinking water, or high purity water in pharmaceutical manufacturing, so that after treatment regulatory standards are met. State of the art sensors could monitor algal blooms, cyanotoxins surrogates, nutrients in rivers, reservoirs, estuaries. Examples of devices that may be both state of the art and for new applications may be developed in response to challenges from NOAA or others. The challenge may be to encourage an economical, accurate device to measure the flux of nutrients from agricultural land or the quality of drinking water. An example of how "real time" sensors can do both can be viewed on the internet, USGS gaging station 01389005 at Two Bridges on the Passaic River in New Jersey. Other papers and a roundtable discussion will explore applications visualization techniques to present data from advanced monitoring systems.*

The topics that would be covered in this session are, but are not limited to:

- Physical and chemical monitoring
- Light scattering, spectroscopy and spectrophotometers
- Research and applications that target water protection and preservation
- Applications for wastewater, drinking water, high purity water and agri-tech industry

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:


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AMERICAN CHEMICAL SOCIETY
DIVISION OF ENVIRONMENTAL CHEMISTRY

CALL FOR PAPERS

# Advances in Resource Recovery and Conservation in Water Systems

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

This symposium focuses on advances in chemistry and technology pertaining to resource recovery and conservation in water systems. For instance, human urine accounts for approximately 1% of domestic wastewater by volume, yet urine contributes the majority of nitrogen, phosphorus, and potassium to wastewater by mass. As such, there are tremendous opportunities to recover nutrients from urine for beneficial use as fertilizer while concurrently conserving potable water by implementing waterless or ultra-low flush fixtures. Examples of other water sources and systems that hold great potential for resource recovery and conservation (e.g., water recycling, improved water use efficiency) include brackish water and seawater desalination, brine and membrane concentrate management, produced and flowback water, and industrial cooling water. An inherent challenge for many water systems is recovering the product of interest in a useable or valuable form, while also considering water use and resource inputs (e.g., energy). This symposium will serve as a forum for new research that advances the paradigm shift of resource recovery and conservation in water systems emphasizing holistic management of water and resources and systems thinking.
The topics that would be covered in this session are, but are not limited to:

- Laboratory and test bed treatment studies, and process modeling;
- Life cycle assessment of resource recovery and water conservation;
- Nutrient recovery from source-separated human urine;
- Desalination and membrane concentrate management that increase water recovery;
- Unintended consequences of resource recovery and conservation.

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:

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AMERICAN CHEMICAL SOCIETY
DIVISION OF ENVIRONMENTAL CHEMISTRY

ACS Division of Environmental Chemistry

CALL FOR PAPERS

# Bioprocesses for Engineered Nanomaterials in Soil-Plant Systems

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

Due to their unique physicochemical properties, engineered nanomaterials have attracted worldwide commercial interests for diverse applications in industry and consumer products. Engineered nanomaterials can be released to the environment at various stages during their life cycle, e.g., during production, transport, and at the end of life through waste water discharge and landfills. Based on model estimations, engineered nanomaterials have accumulated in natural environments with concentrations close to those of legacy pollutants. Because of their potential toxicity, the fate and transport of engineered nanomaterials have been studied for many years. However, less effort has been devoted to investigations on bioprocesses for engineered nanoparticles in soil-plant systems, such as microbial degradation and mineralization, transformation, plant uptake, and rhizosphere processes. This symposium will highlight recent advances in the theoretical and experimental studies focused on microbe- or plant-mediated processes for engineered nanomaterials in soil ecosystems.

The topics that would be covered in this symposium are, but are not limited to:

- Microbial transformation
- Microbial degradation
- Plant uptake
- Speciation and analysis
- Translocation in plants
- Rhizosphere processes
- Trophic transfer/food chain contamination

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:


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AMERICAN CHEMICAL SOCIETY
DIVISION OF ENVIRONMENTAL CHEMISTRY

CALL FOR PAPERS

# Chemical Principles of Environmental, Cellular and Organismal Nanotoxicology

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

Advanced technologies rely increasingly on the fabrication and use of nanoscale materials. It is now well understood that nanomaterial enabled products, like any new technology, can pose risks to humans and the environment during manufacture, distribution and disposal. However, a comprehensive view of the chemical, materials and biological principles for nanomaterial toxicity remains to be established. In this symposium we will highlight fundamental research linking nanomaterial properties with adverse outcomes and holistic studies aimed at minimizing potential risk.

The topics that would be covered in this session are, but are not limited to:

- Paradigms for nanomaterial toxicity
- Risk – benefit analysis for advanced materials
- Chemical methods for mitigating toxicity
- New omics or gentox assays of response
- Cellular internalization pathways
- Novel assays or imaging modalities

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:


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AMERICAN CHEMICAL SOCIETY
DIVISION OF ENVIRONMENTAL CHEMISTRY

CALL FOR PAPERS

# Chemistry & Application of Advanced Oxidation Processes For Water Detoxification, Treatment & Reuse

At 253rd ACS National Meeting & Exposition
San Francisco, California, April 02 – 06, 2017
Abstract Deadline: October 31, 2016

Following the great success of the last symposium in San Diego in Mar 2016 and the current high profile of AOPs research, we would like to invite you to participate to a new symposium on "Chemistry and application of advanced oxidation processes for water detoxification, treatment and reuse".

Advanced oxidation processes, which are based on the generation of highly reactive radical species (e.g., hydroxyl, peroxyl, superoxide, sulfate, singlet oxygen) have shown great potential for the removal of contaminants of emerging concern and for the inactivation of pathogens. Water reuse and water conservation are areas in which AOPs can contribute to break new frontiers. This symposium will focus on the latest advances in the underlying chemistry and on the applications of advanced oxidation processes, alone or coupled with other technologies, for the removal of contaminants and pathogens of emerging concern, for water conservation and water reuse. Examples of such contaminants include endocrine disrupting chemicals, pharmaceuticals, personal care products, cyanotoxins, and disinfection byproducts (DBPs). Contaminants included in the Contaminant Candidate List (CCL3 and draft CCL4) are of particular interest. Papers on the chemistry of free radicals, fate of contaminants, AOP removal efficacy, mechanistic modeling, toxicity of byproducts, engineering design and new application of AOPs are invited.

The topics that may be covered in this session include, but are not limited to:

- Heterogenous catalysis and photocatalysis
- UV, hydrogen peroxide and ozone
- Sonolysis
- Electron beams
- Nanotechnology-based processes
- Combined AOP/physical//biological processes
- Role of AOPs in water-energy-food nexus applications
- Fenton/PhotoFenton and Fenton-like processes
- Catalytic ozonation
- Chemical oxidation
- Peroxymonosulfate, persulfate
- Photo-activated C60
- Other solar-driven processes
- Modeling of AOPs
- Electrocatalytic processes

Please submit your abstracts using the ACS Meeting Abstracts Program System (MAPS) (http://maps.acs.org). Any other inquiries should be directed to:

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AMERICAN CHEMICAL SOCIETY
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CALL FOR PAPERS

# Contaminants of Emerging Concern in Natural and Engineered Systems

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

The landmark paper by Kolpin *et al.* (ES&T 36(6), 2002) describing the presence of pharmaceuticals, hormones, and other contaminants of emerging concern (CECs) in US streams was published fifteen years ago. Since that time, a large body of literature has focused on elucidating the occurrence, fate, transport, and toxicity of CECs in environmental compartments (*e.g.*, water, sediment, biota,) and water, wastewater, and water reuse treatment systems. These CECs include pharmaceuticals, personal care products, endocrine disrupting chemicals, pesticides, and flame retardants, among others. LC-MS/MS techniques are most often employed for quantitation of CECs; however, development of novel, selective analytical techniques are important to extend the availability of CEC measurement to small water systems and other resource-limited stakeholders. While the removal of CECs in water, wastewater, and water reuse scenarios is of most interest, the fate and transport of CECs in downstream (*i.e.*, water distribution) and upstream (*i.e.*, wastewater collection) systems are highly relevant. Due to the potential formation of biologically-active transformation products and metabolites, efforts to identify products and characterize their toxicity are paramount. Finally, we welcome talks that discuss prioritization of CECs through ecological and human health risk assessment. We invite oral and poster presentations from academia, government, and industry.

The topics that will be covered in this session are, but are not limited to:

- New analytical techniques and methods for measurement of CECs in environmental media
- Treatment of CECs in water, wastewater, and water reuse scenarios
- Fate of CECs in wastewater collection systems and drinking water distribution systems
- Identification and residual toxicity of trans-formation and/or metabolic products of CECs
- Impacts of CECs on microbial communities and aquatic organisms
- Prioritization of CECs based on environmental and/or human health toxicity assessment

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:


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AMERICAN CHEMICAL SOCIETY
DIVISION OF ENVIRONMENTAL CHEMISTRY

CALL FOR PAPERS

# Environmental Chemistry: Undergraduate and Graduate Classroom, Laboratory, and Local Community Learning Experiences

253rd American Chemical Society National Meeting & Exposition
*"Advanced Materials, Technologies, Systems & Processes"*
San Francisco, California
April 2- 6, 2017

Abstract Deadline: October 31, 2016

This symposium focuses on the experimental methods and practices in college-level classes, labs, and research areas, all with the theme of chemistry and the environment. We invite submissions for oral and poster presentations describing environmental awareness and/or research in chemistry in teaching environments, in laboratory classes (what is called: Course-based Undergraduate Research Experiences, or C.U.R.E., or project-based laboratories) in undergraduate or graduate research projects, and in any other form as part of the college-level educational experience. We especially encourage submissions that focus on the theme of this ACS meeting: *Advanced Materials, Technologies, Systems & Processes* and applications of these in the college classroom. Some possible topics focusing on this environmental theme might include project-based learning exercises, case studies, laboratory experiments, new courses incorporating an environmental issue, service learning opportunities, water analysis, etc. College level laboratory projects or research experiences could focus on new and innovative environmental applications of instruments such as: IR, NMR, FAAS, GC-MS, LC-MS, ICP, fluorescence spectrometry, UV-VIS spectrometry, and XRF.

The symposium organizers would like to encourage presenters to consider the inclusion of their seminar or poster in an ACS Symposium Series volume, and will be preparing a proposal for such, so that this symposium is disseminated beyond abstracts and titles in the national meeting program booklet.

Possible cosponsors: Division of Chemical Education, Division of Analytical Chemistry

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:

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# From the Bench to the Field: Evaluating Innovative Remediation and Detection Technologies

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

## San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

Given the hundreds of thousands of contaminated sites in the US - together with the growing list of emerging contaminants – it is incumbent upon the environmental science and engineering community to develop innovative solutions. Basic research has benefited from advances in materials science, imaging, analytical, geospatial, and 'omics technologies – driving innovation in contaminant remediation and detection in the environment. Furthermore, efforts to apply these technologies in the field – through technology transfer – provide additional insight for verifying technology strength and limitations. This symposium will feature case studies applying cutting edge approaches and technologies for site management, both in terms of remediation and detection of hazardous substances. Special attention will be given to how to evaluate success of these technologies, such as which parameters should be measured to declare remediation is complete. This symposium will also feature innovative detection and monitoring technologies that aid in the evaluation of remediation effectiveness.

The topics that would be covered in this session are, but are not limited to:

- Case studies applying innovative technologies or approaches in a field setting
  - Innovative *in situ* stabilization of contaminants using biological or chemical treatments
  - Innovative methods to combine biological-chemical remediation approaches
  - Innovative methods for remediation and monitoring of mixed pollutants
  - Field tests of bioremediation/phytoremediation of metals and or recalcitrant contaminants
  - Microbial & molecular tools to support pilot tests of bioremediation
  - Remediation and detection technologies utilizing innovative materials, nanotechnologies, or delivery platforms
  - Effective passive treatment
  - Site dependent optimization of treatment technologies

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:

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# Innovative Materials and Technologies for Sustainable Water Purification

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

*Our current society is facing great challenges in water scarcity and contamination, and conventional water and wastewater treatment shows limited performance for the removal of emerging and persistent contaminants (e.g., oxyanions, endocrine disrupting compounds, pharmaceuticals and personal care products, algal toxins, toxic industrial chemicals or materials, pathogens). To promote water use and reuse with sufficient quantity and high quality, this symposium will address challenges and opportunities of applying novel materials and technologies for sustainable water purification. Original research with a focus on the development and application of novel materials and new technologies are welcome.*

The topics of interest in this session include, but are not limited to:

- Catalytic conversion of recalcitrant contaminants (e.g., advanced oxidation processes, reduction, electrochemical process, enzymatic process)
- Separation of aqueous contaminants (e.g., membrane processes, ion-exchange, adsorption, capacitive deionization)
- Reactive separation processes (e.g., chemically or biologically reactive membranes)
- Water decontamination with utilization of unconventional or renewable energy
- Decentralized water purification
- Small units for point-of-use water treatment (e.g., plasma water treatment, microfluidic deionization)
- Nutrient and chemical recovery

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:


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# New Challenges in Environmental Chemistry: Marine Ecosystems and Microplastics

253nd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems and Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

This symposium will present applications and the state of the art of monitoring of marine ecosystem water quality and microplastic burden. For example, studies of the ways marine ecosystems are affected by microplastics, such as organism, water quality, and water treatment studies. Other areas of interest are the US and European regulatory drinking water and manufacturing standards for microplastics in the environment, and the fate and transport of chemicals on microplastics in the environment. Papers and roundtable discussion will explore the state of the art of microplastics evaluation and their role in the marine ecosystems whether for research or applications noted above.
The topics that would be covered in this session are, but are not limited to:

- Microplastic burden in marine waters
- Treatment of microplastics in contaminated waters
- Regulations governing microplastics in the US and Europe
- Chemical burden with microplastics in the marine environment
- Microplastic weathering and transport
- Innovative measurement techniques for microplastics

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizer:

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# Novel Membrane Materials and Processes for Water Purification

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

Membrane technology has been quickly gaining popularity in drinking water purification, water reuse, wastewater reclamation, and desalination. Our symposium will focus on novel membranes and membrane materials, as well as emerging membrane processes designed to desalinate or remove contaminants from water more effectively, efficiently, and sustainably. These processes include microfiltration (MF), ultrafiltration (UF), nanofiltration (NF), reverse osmosis (RO), forward osmosis (FO), and membrane distillation (MD). The symposium will accept abstracts for oral and poster presentations on the fundamentals and applications of these membrane processes.

The topics that would be covered in this session are, but are not limited to:

- Desalination
- Wastewater reuse
- Advanced membrane materials
- Membrane fouling
- Membrane surface modification
- Emerging membrane processes
- Fundamental understanding of transport phenomena in membrane processes
- Interfacial phenomena in membrane processes
- Mathematical and molecular modeling of membrane processes
- Chemical and physical characterization of membranes
- Sustainability of membrane processes in water purification
- Removal of trace contaminants

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:

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# Pesticides in Surface Water: Monitoring, Modeling, Mitigation, Risk Assessment, & Regulation

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October, 31 2016

*As analytical instrumentation has advanced to detect pesticides in surface water and sediment at ever lower levels and as more relevant and sensitive aquatic macroinvertebrates are included for testing, the scientific communities and regulatory agencies are challenged to interpret the monitoring and toxicity data and to promulgate practicable actions to protect surface water quality. These challenges can be met with a holistic surface water protection program which may include the following components: setting criteria to screen pesticides that may cause adverse impact to the aquatic environment, monitoring to evaluate status of emerging pesticides of concern, assessing the environmental risk, and mitigating pesticide offsite transport. To assist in this effort, statistical and modeling tools are important assets for assessing environmental risk, designing monitoring programs, predicting environmental concentrations, configuring best management practices, and evaluating success of surface water protection efforts. Presentations are invited from disciplines and organizations concerned with pesticides and surface water quality protection.*

The topics that would be covered, but are not limited to, include:

- Pollution prevention, screening criteria & models for pesticide registration
- Sampling strategies and novel technology that increase the efficiency of monitoring program and pesticide analytical methods
- Modeling of pesticide environmental occurrence , mitigation method and effectiveness, & aquatic risk assessment
- Assessment of environmental impacts, aquatic toxicology, benchmarks and standards
- Data analysis to evaluate success of pollution prevention, mitigation & regulatory measures
- Mitigation strategy and technology to ameliorate and prevent pesticide runoff
- Database and online mapping for monitoring data, outreach and regulatory strategies

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:

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# Pollution of Urban Estuaries: Recent Advances in Monitoring and Interpretation

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

*An estuary like San Francisco Bay is a partially enclosed, coastal water body where freshwater from rivers and streams mixes with salt water from the ocean. Freshwater estuaries include portions of the Great Lakes near the mouths of rivers and streams, where these chemically distinct waters mix. Freshwater and brackish estuaries are distinct ecosystems harboring unique plant and animal communities and fostering unique biogeochemical activity. Estuaries located within dense urban settings can exhibit distinct pollution patterns due to anthropogenic inputs; they may also act as sinks for persistent or continuously discharged pollutants, intensifying exposures of and impacts to both humans and wildlife. The dynamic nature of estuarine systems can also present special analytical challenges to characterization of pollutants. Recent advances in estuarine monitoring, from novel analytical field and laboratory techniques to applications of unique spatial and temporal analysis approaches, have yielded noteworthy results. Research and monitoring in estuaries have helped both to track ecosystem recovery following management actions to control key pollutants, and to reveal emerging contaminants and new challenges to ecological health. This session will focus on recent innovations and advances in pollution monitoring and science within urban estuaries worldwide.*

The topics that would be covered in this session are, but are not limited to:

- Emerging contaminants
- Nutrients and harmful algal blooms
- Legacy contaminants
- Contaminant fate and transport
- Contaminant transformation and degradation
- Contaminant availability and effects on organisms
- Spatial and temporal modeling and analysis
- Impacts of management actions

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:

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# Poly- and Per-Fluoroalkyl Substances: Where, What, When, Why, Who, and How

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

Occurrence of poly- and per-fluoroalkyl substances (PFASs) in the environment and biota has gained global attention because PFASs are persistent, bioaccumulative and toxic. Long-chain PFASs, particularly perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS), have been intensively studied over the past few decades, while advances in analytical method development have identified legacy and new long-chain and short-chain PFASs in different natural and engineered environments.

This symposium will focus on recent advances in analytical methods for PFASs; environmental source, fate and transport of legacy and newly identified PFASs; toxicological effects on humans and wildlife; risk management, remediation technologies and strategies for PFASs.

The topics that would be covered in this session are, but are not limited to:

- Novel analytical methods for identifying legacy and new PFASs.
- Novel treatment methods or materials for removing PFASs from water, wastewater, and groundwater.
- Toxicological effects of PFASs
- Risk management of PFASs
- Source, fate and transport of PFASs in the environment and engineered systems.

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:


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# Processes, Technologies, and Sensors for Food-Energy-Water Nexus Research

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

In this joint symposium, the Electric Power Research Institute (EPRI) and the National Science Foundation (NSF) encourage submissions of original research which addresses the Food-Energy-Water Nexus goals of **water use optimization, water treatment, and water conservation**.

Water withdrawal, primarily from freshwater sources, is a growing natural resource management challenge for the many sectors that depend upon water for operations. These sectors include agricultural, municipal, industrial, and electric power. At the same time, energy, water, and food systems are becoming increasingly interconnected, and the development of the integrated distributed energy network provides both opportunities and challenges for water use, treatment, and availability. Advances in water and wastewater treatment will facilitate the development of this integrated energy network, as well as address environmental goals of water conservation. The focus will be on presenting novel, energy efficient technologies or methods for water and wastewater treatment and transport to reduce water demand and conserve electricity. Technologies that simultaneously optimize water and energy use thereby reducing greenhouse gas emissions are of interest. These include both innovations that maximize the use of cheap, available energy, including low grade heat sources at thermal power plants, as well as technologies to enable the use of degraded water for cooling or agricultural purposes. Research on advanced monitoring design, system control, and sensor technologies for water use optimization are also encouraged. Research focusing on the identification and development of alternative water sources also fit into the symposium's goals.

The topics that would be covered in this session are, but are not limited to:

- Breakthroughs in Drinking Water Desalination Technologies
- Technologies to Facilitate the Integration of Water and Energy Systems (e.g. Sensors)
- Water and Energy Use Efficiency
- Power Plant Water Treatment/Reuse
- Operational Strategies to Meet Water and Energy Goals
- Water Use and Treatment in Agriculture or Industry
- Technologies to Facilitate the Use of Alternative Water Sources for Food/Energy/Water Nexus Needs
- Energy Positive Wastewater Treatment Systems
- Use of Electrification to Reduce Greenhouse Gas Emissions from Food Waste and/or Municipal Wastewater Streams

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:

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# Whole Organism Metrology to Support Nanotoxicology Research in the Environment

253rd American Chemical Society National Meeting & Exposition

## San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

The rapid growth of nanotechnology increases the likelihood that engineered nanomaterials (ENMs) and/or nano-enabled products will come into contact with humans and the environment in both the near and far future. Sensitive measurement tools, robust metrology, and tools/metrics for achieving measurement assurance are urgently needed for nanosafety risk assessments and regulatory decision making. There is an evolving movement, spurred by legislation in Europe that is now finding increasing application in the United States for the development of alternative testing models that reduce the use of animals (i.e., rodents) in nanotoxicology research. Alternative model organisms such as *Daphnia magna*, *Danio rerio*, *Caenorhabditis elegans*, *Drosophila melanogaster* and *Arabidopsis thaliana*, etc., are increasingly utilized to study the potential uptake, bioaccumulation, translocation, transformation and toxicity of ENMs in the environment. Thus far, there exist few recognized protocols or standard practices for evaluating the uptake and toxic potential of ENMs in whole organisms. This symposium will thus focus on, but is not limited to, three major subject areas related to the use of whole organisms in nanotoxicology: i) current practices and recent advances in sample preparation techniques and imaging modalities (e.g. FIB-SEM, electron tomography, etc.) for evaluating the uptake and bioaccumulation of ENMs in organisms; ii) development and application of new tools for evaluating the translocation, transformation and toxicity of ENMs in whole organisms; iii) development and application of new tools and software for automated data analysis.

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:


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# Applications of Cheminformatics and Computational Chemistry in Environmental Health

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

Cheminformatics and computational chemistry have had an enormous impact in regards to providing environmental chemists and toxicologists access to data, information and knowledge. With an overwhelming array of online resources and an increasingly rich collection of software tools, the ability to source information continues to expand. Scientists typically seek chemical data in the form of chemical properties, their function and use, as well as information regarding their exposure potential, persistence in the environment and their transformation in environmental and biological systems. Commonly, the most pressing concern regarding chemicals is their potential as environmental toxicants. The increasing rate of production and release of new chemicals into commerce requires **improved** access to historical data and information to assist in hazard and risk assessment. High-throughput *in vitro* and *in silico* analyses increasingly are being brought to bear to rapidly screen chemicals for their potential impacts and interweaving this information with more traditional *in vivo* toxicity data and exposure estimation to provide integrated insight into chemical risk is a burgeoning frontier on the cusp of cheminformatics and environmental sciences.

This symposium will bring together a series of talks to provide an overview of the present state of data, tools, databases and approaches available to environmental chemists. The session will include the various modeling approaches and platforms, will examine the issues of data quality and curation, and intends to provide the attendees with details regarding availability, utility and applications of these systems. We will focus especially on the availability of Open systems, data and code to ensure no limitations to access and reuse.

The topics that would be covered in this session are, but are not limited to:

- Environmental chemistry databases
- Data: Quality, Modeling and Delivery
- Computational hazard and risk assessment
- Prioritizing environmental chemicals using screening and predictive computational tools
- Standards for data exchange and integration in environmental chemistry
- Implementations of Read-across prediction
- Adverse Outcome Pathway data and delivery

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:

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# Aquatic Photochemistry

## 253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

## San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

*Sponsored by the ACS Environmental Chemistry Division and Cosponsored by the ACS Geochemistry Division*

Aquatic photochemical transformations are important in geochemistry and environmental chemistry in diverse contexts, such as natural systems where sunlight is acting on surface waters to engineered systems using UV irradiation. Light may act directly upon target compounds or indirectly through interactions with redox-active species including minerals, dissolved organic matter, and small molecule sensitizers. Understanding the roles of photochemistry in these complex systems will provide important insight into the fate of chemical and biological species in the environment. In this symposium, we invite submissions that explore the direct and indirect roles of light in the photochemical transformation of natural and anthropogenic compounds, as well as interactions of light with organic matter, biomolecules, redox-active minerals, and microorganisms.

The topics that would be covered in this session are, but are not limited to:

- Photochemistry of dissolved organic matter
- Reactive oxygen species
- Photochemistry in water/wastewater treatment
- Ice photochemistry
- Photochemistry and element cycling
- Photochemical transformation of pollutants
- Photochemistry of biomolecules
- Disinfection driven by photochemistry
- Photochemistry in aqueous aerosols
- Field studies

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:


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# Clay Minerals Selectivity & Its Environmental Applications

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016 Submit abstracts to: https://maps@acs.org

The purpose of this session is to provide an overview of clay minerals selectivity and assess the preferential adsorption for aliphatic or aromatic carbon type through humic substances adsorption onto clay. The overall approach of the session is to move in a linear direction within a new approach to extend using clay minerals-humic substances complex on treatment of soil and water from organic and inorganic contaminates and future perspectives for restoration and research opportunities.

Natural organic matter is a key component of both soils and sediments that is likely to be associated with clay. Therefore, understanding the sorption behavior of humic substances especially humic acid onto mineral surfaces is of particular interest, since the fate and transport of many organic and inorganic pollutants are strongly correlated to the presence of humic acid adsorbed onto mineral surfaces. The session will focus on more understanding the mechanism of the interaction between clay minerals and humic acid via determination of clay minerals selectivity. The session includes presentations of research results for isotherm and kinetic studies of humic acid adsorption onto clay. Presenters will address topics related to investigation of clay minerals selectivity for preferentially adsorption of aliphatic or aromatic carbon. Other topics to be discussed include the effect of clay minerals structure and layer sheet on the interaction with natural organic matter.

The session will then shift the focus to the interaction between clay minerals and contaminants. In addition, presentations will focus on discussing the influence of clay minerals selectivity for humic acid fractions on organic and inorganic contaminants. The session will provide a new approach in the interaction between clay-humic complexes with contaminants, as well as with radioactive elements.

The topics that would be covered in this session are, but are not limited to:

- The interactions between minerals and Natural organic matter.
- The effect of clay minerals structure and layer sheet on the interaction with natural organic matter
- Understanding the mechanism of the interaction between minerals and Natural organic matter.
- Kinetics and sorption process characterization.
- Sorption-desorption of contaminants.
- The interaction between clay minerals and contaminants.
- The influence of clay minerals selectivity for humic acid fractions on contaminants.

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# Contaminants in Coastal and Estuarine Ecosystems

253rd American Chemical Society National Meeting & Exposition

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San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

*Coastal and estuarine waterways are the ultimate terminus for chemicals transported in rivers, stormwater runoff, and treated wastewater effluents. Potential sources of these anthropogenic chemicals include uses in agriculture, pharmaceuticals, industrial, urban and suburban settings as well as those present in regulated discharges and recycled water. While legacy chemicals are commonly detected in monitoring programs, of special interest are those that are not routinely measured and are of emerging concern. This symposium intends to explore the sources, occurrence, fate and impact of chemical contaminants in coastal marine and estuarine ecosystems as well as processes unique to marine systems that impact chemical fate and toxicity.*

The topics that would be covered in this session are, but are not limited to:

- Chemical contaminant occurrence in marine or estuarine environments
- Contaminant toxicity to estuarine/marine organisms
- Degradation processes in seawater or marine sediment
- Regulatory processes and chemical fate.
- Seawater/salinity impacts on contaminant distribution/degradation or toxicity
- Modeling contaminant transport and fate in marine and estuarine ecosystems
- Novel monitoring tools and frameworks
- Regulations and policy

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:


| | | |
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# Green Chemistry Adoption:
## Progressive Changes by Different Industry Sectors

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

Since the introduction of Green Chemistry Principles over 15 years ago, understanding of the meaning of green chemistry practices and how to adopt them has evolved. In fact, this evolution and the focus on what needs to be done to accomplish environmentally-friendly research has a different meaning for different industries, and even for different departments participating in product development.

This symposium will allow researchers to tell their unique story about how green chemistry adoption is progressing within their industry, in relation to their responsibilities. It will bring together scientists from the academic, industry and government sectors to discuss what changes are happening, how effective they are in moving towards green chemistry practices, what is working, and what is not, and most importantly, what roadblocks they are facing that need to be addressed. The symposium will also identify the essential resources and tools available to scientists that address green chemistry needs.

At the end of the symposium, a panel discussion will be held to discuss what to expect next in terms of government regulations, education and training, and industry advances.

We will have key presenters from following sectors:

- Pharmaceutical
- Agrochemical
- Cosmetic
- Consumer
- Government - regulatory
- Government – research
- Academia
- Enabling tools and databases

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at http://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:


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# Green Chemistry and the Environment

253rd ACS National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

## San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

Chemical processes that utilize '*green*' principles are essential toward ensuring a sustainable environment. The field of green chemistry has impacted several areas and has lead 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. 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.

The topics that would be covered in this session, but not limited to, are:

- Catalysis
- Alternative energy
- Waste Valorisation
- Green Chemical Synthesis
- Biorenewables
- Safe Industrial practices
- Education in green processes
- Green solvent

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at http://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:

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## LIST OF POTENTIAL SPEAKERS

### KEYNOTES

**Professor James H. Clark,** Director Green Chemistry Centre of Excellence, University of York, UK.
**Professor Christophe Len,** University of Compiègne – UTC, France
**Professor James A. Dumesic**, University of Wisconsin-Madison, Madison, WI, USA

### INVITED ORAL CONTRIBUTIONS

**Professor Carol S.K. Lin**, City University of Hong Kong, Hong Kong
**Professor George W. Huber**, University of Massachusetts-Amherst, Boston, USA
**Professor James C. Liao**, University of California Los Angeles, Los Angeles, CA
**Dr. John Leazer**, U.S. Environmental Protection Agency, Cincinnati, OH, USA
**Dr. Michael J. Krische**, University of Texas at Austin, Austin, Texas
**Dr. John C. Warner**, Warner Babcock Institute, Wilmington, MA. USA
**Professor Robert Maleczka**, Michigan State University, East Lansing, MI, USA
**Dr. Rongchao Jin**, Carnegie Mellon University, Pittsburgh, PA, USA
**Professor Vasile Parvulescu**, Bucharest University, Romania
**Dr. Aaron Sadow**, Iowa State University, Ames, IA, USA
**Dr. Jim Hutchison,** University of Oregon, Portland, OR, USA
**Professor Galen J. Suppes,** University of Missouri at Columbia, Columbia, MO, USA
**Professor Alina Balu,** Avantium Chemicals, Amsterdam, Netherlands.
**Professor Rafael Luque**, Universidad de Cordoba, Spain
**Professor Sherine Obare**, Western Michigan University, MI, USA

AMERICAN CHEMICAL SOCIETY
DIVISION OF ENVIRONMENTAL CHEMISTRY

CALL FOR PAPERS

# Have Great Lakes Restoration Programs Been Successful? The Case of Legacy and Emerging Pollutants

253rd American Chemical Society National Meeting & Exposition

## San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

The Great Lakes region encompasses about 20 percent of the fresh water in the world, and is an increasingly threatened and dynamic resource. Although significant legislative progress has been made, legacy contaminants (PCBs, Hg, pesticides) continue to cycle through the Great Lakes ecosystem and adversely impact humans and wildlife. Chemicals of emerging concern, which include halogenated flame retardants, surfactants, pharmaceuticals and personal care product constituents, have also been detected in the Great Lakes. The symposium will evaluate the current state of knowledge and assess the past and future trends of these contaminants in the Great Lakes ecosystem.

The topics that would be covered in this session are, but are not limited to:

- Clean Air Act, Clean Water Act
- Great Lakes Restoration Initiative
- Great Lakes Water Quality Agreement
- Impacts to fish and wildlife populations
- Legacy organic pollutants
- Emerging – high production chemicals
- Mercury
- Chlorinated/brominated dioxins/furans

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:

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AMERICAN CHEMICAL SOCIETY
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ACS Division of Environmental Chemistry

CALL FOR PAPERS

# Integrated and Sustainable Environmental Remediation

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

Remediation of degraded environments is becoming a dire necessity as fast paced industrial development of novel products pushes natural recovery to unsustainable levels. Now days, it is common that cities are forced to ban access to cars, establish priority ways to public transport and enforce further stringent measures to reduce traffic and consequent air pollution. It is also known that old landfills and mining sites lead to leaching of heavy metals and persistent organic compounds compromising ecological services in urban areas, crop fields and water ways. In the past decades, environmental engineering has evolved in combination with ecology and chemistry creating novel and green approaches for remediation of different affected environmental matrices. However, these advances are affordable only for certain societies with sufficient economic power. Even more, different age groups and social levels can be variably affected by pollution. Such issues could remain unforeseen by the environmental engineers and scientists who require further interaction with social scientists, urban planners, economists, among others.

In this framework, this symposium aims to bring together not only novel research on environmental remediation and restoration but also include social issues that will assist in the understanding and solution of the above problems. Interdisciplinary group comprising engineers, scientists, urban planners, social scientists, health care specialists, epidemiologists will align their views on the common platform for developing tangible solutions for the society and the environment.

The topics that would be covered in this session are, but are not limited to:

- Novel and green treatment
- Low cost technologies, such as phytoremediation, and bacterial degradation
- Ecological sustainability indicators
- Exposure risk from contaminants
- Specific case studies
- Value-added environmental remediation
- Decentralized and on-site treatment

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:

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AMERICAN CHEMICAL SOCIETY
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CALL FOR PAPERS

# Nanomaterials in consumer products: Formulation, characterization, and applications across the product life cycle

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

*Nanoparticles have been widely and successfully employed in multiple consumer products over the past decades to enhance the biological, chemical, and materials properties. The focus of this proposed symposium will be to encourage submissions that present novel research and development activities designed to improve the understanding of key aspects with regard to engineered nanomaterials in consumer products. The below bullet points list several potential research areas that could contribute to this symposium.*

The topics that would be covered in this session are, but are not limited to:

- **Characterization** - life-cycle analysis of products (or analyses of nano-products across the life cycle);
- **Metrology** - instrumentation and measurement advances (e.g. single particle ICP-MS, spectroscopy and microscopy for nanomaterials in complex matrices)
- **Assay development** - standardization of assays and development of reference materials
- **Fate/transport** – conductive and biocide applications; release/leach of nanoparticles from products (i.e. simulating relevant scenarios);
- **Sustainability** - sustainable approaches for nano-enabled products
- **Prediction** - Computational and experimental modeling approaches for predictive behavior of nanomaterials
- **Formulation** – the chemistry and material science principles used in composite applications

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:

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**AMERICAN CHEMICAL SOCIETY**
**DIVISION OF ENVIRONMENTAL CHEMISTRY**

CALL FOR PAPERS

# Science and Perception of Climate Change

253rd ACS National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

A symposium titled '*Science and Perception of Climate Change*' will be held at the 251st Meeting of the American Chemical Society in San Diego, CA. The speakers will focus on global climate change aspects as they impact agriculture and water resources. Specific emphasis will be given toward the science and uncertainty in predictions and future consequences of the great lakes, storm patterns, and tools used for regional and global cities and populations. Such topics will be especially educational to chemists interested in engaging in climate science topics. At the end of the presentations, a panel discussion will be held to consider topics of current and future research interests with an emphasis on how chemists can continue to play a significant role in overcoming challenges associated with climate change.

The purpose of the symposium is to bring together climate change researchers from the field of environmental chemistry and climatology, along with policy makers and social scientists to discuss problems and share solutions related to global climate change impacts. The symposium will also include societal topics on climate change. The presenters include new assistant professors as well as well-established full professors. The topics are selected to target an audience consisting of undergraduate and graduate students, industrial researchers, entrepreneurs, postdoctoral fellows and academic scholars. The presentations will aid in understanding some of the risks and responsibilities as well as the politics and policies that limit changes that can be implemented within the context of current practices and regulations.

A discussion will be held to foster a dialogue about how to address new directions in research, where chemists play an important role, not just as scientific experts but also as citizens. This panel will be an excellent opportunity for students, postdoctoral fellows and faculty who will influence research programs in the country and the region. Furthermore, we aim to introduce the audience to the ACS Climate Science Toolkit The kit will provide an opportunity for all attendees to utilize it in their respective work areas.

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at http://maps.acs.org. General information about the conference can be found at www.acs.org/meetings.

## LIST OF POTENTIAL SPEAKERS

**KEYNOTE SPEAKERS:**

**Andrew J. Hoffman, Ph.D. ,** University of Michigan
**Bassam Shakhashiri, , Ph.D.,** University of Wisconsin
**Nathan J. Moore, Ph.D.,** Michigan State University

**INVITED SPEAKERS**
Christopher J. Poulsen, University of Michigan
Richard Rood, University of Michigan
Maria Carmen Lemos, University of Michigan
LiFeng Luo, Michigan State University
Jiaguo Qi, Michigan State University
Julie Winkler, Michigan State University
Jennifer Tank, University of Notre Dame
David Lodge, University of Notre Dame
Omar Farha, Northwestern University
Ray Pierrehumbert, University of Chicago
Kathryn Docherty, Western Michigan University
Tracey Holloway, University of Wisconsin
Benjamin Zuckerberg, University of Wisconsin

For additional information, please contact the symposium organizers:

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AMERICAN CHEMICAL SOCIETY
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CALL FOR PAPERS

# Sulfidation of Metal-based Engineered and Natural Nanomaterials: Implications for their Fate and Effects in the Environment

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

Metal-based nanomaterials (NMs) become sulfidized under a variety of scenarios ranging from anaerobic wastewater treatment to in situ chemical reduction of groundwater. The resulting compositional and structural changes alter the physicochemical properties of pristine engineered and natural NMs, such as surface charge, solubility, and stability. These changed properties can further influence the transport, reactivity, bioavailability, and ecotoxicity of NMs when they enter the environment. However, the importance of sulfidation to the environmental fate and effects of NMs has only recently begun to receive widespread recognition. Examples include: (i) engineered NMs in natural systems, such as AgNP and ZnO; (ii) engineered NMs in engineered systems, such as nZVI; and (iii) natural NMs in natural systems, such as iron oxides and heavy metal contaminants. The overall objective of this symposium is to advance this field by featuring recent research development on the identification and characterization of NMs sulfidation in engineered and natural environmental systems as well as environmental factors influencing the reaction rates and pathways.

Examples of topics that will be covered in this session are:

- Engineered NMs transformation in water and wastewater treatment systems
- Changes in reaction rates and pathways upon sulfidation of NMs
- Ecotoxicity of sulfidized NMs
- The role of iron sulfides in subsurface applications of ZVI under sulfidic conditions
- Analytical methods for environmental samples, including spectroscopic and microscopic techniques.

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Submit abstracts to https://maps.acs.org.

# Call for Papers

# Chemistry of Water Treatment From Sorption to Taste and Odor: A symposium honoring the contributions of Mel Suffet

Sponsored by the Division of Environmental Chemistry

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems & Processes"*

San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

This symposium is being held in honor of Dr. I.H. (Mel) Suffet, Distinguished Professor of Environmental Science and Engineering at UCLA. Over the past 5 decades, Mel has made significant contributions to several areas of environmental chemistry, including analysis of organic contaminants, sorption processes in natural and engineered systems, characterization of natural organic matter (NOM), and analysis and mitigation of taste and odor compounds. Please join us in celebrating Mel's contributions to environmental chemistry.

We are particularly interested in receiving contributions that address the following topics:

- Characterization of NOM
- Sorption processes in natural and engineered systems
- Organoleptic properties (taste and odor) of drinking water and wastewater
- Development of analytical methods for organic contaminants

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:

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**Joel A. Pedersen**, Departments of Soil Science, Chemistry, and Civil & Environmental Engineering, University of Wisconsin – Madison, 1525 Observatory Drive, Madison, WI, 53706-1299; Phone: (608) 263-4971; email: joelpedersen@wisc.edu

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**AMERICAN CHEMICAL SOCIETY**
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CALL FOR PAPERS

# Oxidation Processes, Nanoparticles, and Membranes in Water and Wastewater Treatment

## *A Symposium in Honor of*

## Professor Jun Ma

253rd American Chemical Society National Meeting & Exposition
April 2-6, 2017

San Francisco, California

The symposium will honor Professor Jun Ma, School of Municipal and Environmental Engineering, Harbin Institute of Technology, Harbin, China, whose research has made seminal contributions and redirected scholarship in the areas of oxidative processes and applications of nanoparticles and membranes in treatment of water and wastewater. Professor Jun Ma's research has pioneered in the development of advanced technologies to efficiently provide access to safe drinking water. Among various accomplishments, his group has studied the fundamentals and environmental applications as well as and implications of nanomaterials. His research has developed innovative use of semi-permeable membranes for water purification, wastewater reclamation, and seawater desalination. This symposium will honor Professor Jun Ma's contributions on the mechanisms of various processes involved in water treatment technology. The symposium will include invited and contributed oral and poster sessions.

The topics that would be covered in this symposium, but not limited to, are:
Permanganate and Ferrate Oxidation
Advanced Oxidation Processes
Application of Nanoparticles in Treatment Processes
Use of Membranes in Water Treatment and Remediation Technology

Please submit your abstracts (150 words or less) using the ACS Abstract Submission System (MAPS) (http://abstracts.acs.org). Abstract deadline: October 31, 2016. Any other inquiries should be directed to the symposium organizer:

Prof. Virender K. Sharma. Department of Environment and Occupation Health, School of Public Health, Texas A&M University, College Station, TX 77843; E-mail: vsharma@sph.tamhsc.edu

Prof. Dionysios (Dion) D. Dionysiou, Environmental Engineering and Science Program, University of Cincinnati, Cincinnati, OH 45221; Email: dionysios.d.dionysiou@uc.edu;

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ACS Division of Environmental Chemistry

CALL FOR PAPERS

# Tribute to Jerry Schnoor

253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems and Processes"*

## San Francisco, California

April 2-6, 2017

Abstract Deadline: October 31, 2016

*Jerry Schnoor has had had a profound impact on our field, through leadership in environmental chemistry and modeling, shaping policy, and impacting our educational approaches to our most pressing environmental and health challenges. Jerry's contributions have been impactful in many areas of our field, including groundwater modeling and remediation, spanning to air pollution issues and climate change.*

The topics that would be covered in this session are, but are not limited to:

- Air modeling: Chemistry and Exposure
- Environmental modeling, pollutant transport
- Phytoremediation: Plant-mediated Chemistry
- Nanoparticle environmental transport and fate

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| | | |
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CALL FOR PAPERS

# Understanding Dissolved Organic Matter Reactivity: Honoring George Aiken, the DOM Whisperer

## 253rd American Chemical Society National Meeting & Exposition

*"Advanced Materials, Technologies, Systems and Processes"*

## San Francisco, California

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Abstract Deadline: October 31, 2016

Dissolved organic matter (DOM) plays a critical role in biogeochemical processes and reactions of environmental importance. Dr. George Aiken has spent the past 35 years investigating the inner workings of DOM's structure and reactivity. He has championed the use of reference humic materials, explored the application of various forms of spectroscopy (from simple light absorbance to nuclear magnetic resonance), and studied the formation of disinfection byproducts, metal speciation, the fate of organic contaminants mediated by DOM, and its role in the global carbon cycle. George has advanced knowledge of these many aspects of DOM through his extensive collaborations and training of students and others to take a chemically rigorous approach. In the opinion of the organizers George's accomplishments and dedication toward understanding the inner workings of this critically important pool of organic matter has earned him the title of "DOM Whisperer".

The topics that would be covered in this session are, but are not limited to:

- Advances in studying the chemical structure of DOM
- New electrochemical methods for studying the redox properties of DOM
- Challenges in understanding DOM-metal speciation
- The role of DOM in photochemical processes
- Understanding DOM-organic contaminant attenuation
- DOM and the carbon cycle
- The chemistry of DOM from extreme environments
- The role of DOM in disinfection by-product formation

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at https://maps.acs.org. General information about the conference can be found at www.acs.org/meetings. Any other inquiries should be directed to the symposium organizers:

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