

# AMERICAN CHEMICAL SOCIETY

## DIVISION OF ENVIRONMENTAL CHEMISTRY

### CALL FOR PAPERS

251st ACS National Meeting  
San Diego, CA – March 13-17, 2016

Dear Colleagues,

Join us and share your research progress and results in the Division of Environmental Chemistry program at the 251<sup>st</sup> ACS National Meeting in San Diego, CA, March 13-17, 2016.

**ENVR Spring Program Chair:** Souhail Al-Abed, Ph.D.; U.S. EPA, 26 W. Martin Luther King Dr., Cincinnati, OH 45268; Tel.: 513-569-7849, Fax: 513-569-7879; E-mail: [al-abad.souhail@epa.gov](mailto:al-abad.souhail@epa.gov)

**Abstract Submission Deadline: October 12, 2015.** Submit abstracts to the Division of Environmental Chemistry at <http://MAPS.ACS.org>.

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#### Oral Symposia:

Advances and Applications in Water Sensing Technologies for Drinking Water, Reuse, Agri-tech and Research, Organizers: Maria Romero-Gonzalez, [m.e.romero-gonzalez@sheffield.ac.uk](mailto:m.e.romero-gonzalez@sheffield.ac.uk); Paul Schorr, [paul.schorr@dep.nj.gov](mailto:paul.schorr@dep.nj.gov); Mario Tamburri, [tamburri@umces.edu](mailto:tamburri@umces.edu)

Advances in *In situ* Pollutant Destruction by Nanoscale Zero Valent Iron and Other Engineered Nanoparticles, Organizers: Sushil R. Kanel, [sushil.kanel.ctr@afit.edu](mailto:sushil.kanel.ctr@afit.edu); Abinash Agrawal, [abinash.agrawal@wright.edu](mailto:abinash.agrawal@wright.edu); Bruce Manning, [bmanning@sfsu.edu](mailto:bmanning@sfsu.edu)

Aquatic Photochemistry, Organizers: Kristopher McNeill, [kristopher.mcneill@env.ethz.ch](mailto:kristopher.mcneill@env.ethz.ch); Vivian Lin, [vivian.lin@usys.ethz.ch](mailto:vivian.lin@usys.ethz.ch)

Carbonate and Sulfate Minerals: Nucleation, Growth and Control of Scale Formation, Organizers: Yandi Hu, [yhu12@Central.UH.EDU](mailto:yhu12@Central.UH.EDU); H. Henry Teng, [hteng@gwu.edu](mailto:hteng@gwu.edu)

Characterization and Toxicity of Airborne Particulate Matters (PMs) in East Asia, Organizers: Shu Tao, [taos@pku.edu.cn](mailto:taos@pku.edu.cn); Staci Simonich, [Staci.Simonich@oregonstate.edu](mailto:Staci.Simonich@oregonstate.edu); Xiang-dong Li, [cexdli@polyu.edu.hk](mailto:cexdli@polyu.edu.hk)

Chemistry and Application of Advanced Oxidation Processes for Water Purification, Treatment and Reuse, Organizers: Gianluca Li Puma, [g.lipuma@lboro.ac.uk](mailto:g.lipuma@lboro.ac.uk); Dionysios D. Dionysiou, [dionysios.d.dionysiou@uc.edu](mailto:dionysios.d.dionysiou@uc.edu); Kevin O'Shea, [osheak@fiu.edu](mailto:osheak@fiu.edu); Daisuke Minakata, [dminakat@mtu.edu](mailto:dminakat@mtu.edu); Xie Quan, [quanxie@dlut.edu.cn](mailto:quanxie@dlut.edu.cn)

Chemistry of Materials Management: Mitigation and Reuse for Sustainable Environment, Organizers: Souhail Al-Abed, [al-abad.souhail@epa.gov](mailto:al-abad.souhail@epa.gov); Jonas Baltrusaitis, [Job314@lehigh.edu](mailto:Job314@lehigh.edu); Katsuya Kawamoto, [kkawamoto@okayama-u.ac.jp](mailto:kkawamoto@okayama-u.ac.jp)

Detection of Engineered Nanomaterials in Environmentally Relevant Media, Organizers: Christopher M. Sims, [christopher.sims@nist.gov](mailto:christopher.sims@nist.gov); Bryant C. Nelson, [bryant.nelson@nist.gov](mailto:bryant.nelson@nist.gov)

Environmental Aspects of Unconventional Oil and Gas Production and Hydraulic Fracturing, Organizers: Donna L. Drogos, [ddrogos@uwyo.edu](mailto:ddrogos@uwyo.edu); Robert L. Kleinberg, [kleinberg@slb.com](mailto:kleinberg@slb.com); William T. Stringfellow, [wstringfellow@lbl.gov](mailto:wstringfellow@lbl.gov); William Orem, [borem@usgs.gov](mailto:borem@usgs.gov)

Flue Gas Cleaning and Climate Control, Organizers: Rasmus Fehrmann, [rf@kemi.dtu.dk](mailto:rf@kemi.dtu.dk); Anders Riisager, [ar@kemi.dtu.dk](mailto:ar@kemi.dtu.dk)

Green Chemistry and the Environment, Organizers: Rafael Luque, [q62alsor@uco.es](mailto:q62alsor@uco.es); Alina Balu, [z82babaa@uco.es](mailto:z82babaa@uco.es); Sherine Obare, [sherine.obare@wmich.edu](mailto:sherine.obare@wmich.edu)

Have Great Lakes Restoration Programs Been Successful? The Case of Legacy and Emerging Pollutants, Organizers: James J. Pagano, [james.pagano@oswego.edu](mailto:james.pagano@oswego.edu); Elizabeth Murphy, [murphy.elizabeth@epa.gov](mailto:murphy.elizabeth@epa.gov); Thomas M. Holsen, [holsen@clarkson.edu](mailto:holsen@clarkson.edu)

Identifying and Managing Underwater Munitions, Organizers: Nancy B. Jackson, [nbjacks@sandia.gov](mailto:nbjacks@sandia.gov); George Cobb, [george\\_cobb@baylor.edu](mailto:george_cobb@baylor.edu)

Innovative Materials and Technologies for Water Purification, Cosponsored by AEESP, Organizers: Danmeng Shuai, [danmengshuai@gwu.edu](mailto:danmengshuai@gwu.edu); Wen Zhang, [wzhang81@njit.edu](mailto:wzhang81@njit.edu); Brian P. Chaplin, [chaplin@uic.edu](mailto:chaplin@uic.edu); Ezra L. Cates, [ecates@clemson.edu](mailto:ecates@clemson.edu); Jong Kwon Choe, [jchoe@clarkson.edu](mailto:jchoe@clarkson.edu)

Membrane Technology for Water-Energy Sustainability, Organizers: Baoxia Mi, [bmi@umd.edu](mailto:bmi@umd.edu); David Jassby, [djassby@engr.ucr.edu](mailto:djassby@engr.ucr.edu)

New Challenges on Metals and Metalloids: Chemistry, Treatment and Impacts on Water Quality, Organizers: Haizhou Liu, [haizhou@engr.ucr.edu](mailto:haizhou@engr.ucr.edu); Dan Giammar, [giammar@wustl.edu](mailto:giammar@wustl.edu)

Opportunities and Progress in Computational Prediction of Contaminant Toxicity, Fate and Transport Properties, Organizers: William Andrew Alexander, [wlxnder2@memphis.edu](mailto:wlxnder2@memphis.edu)

Per- and Polyfluoroalkyl Substances Associated with Aqueous Film Forming Foams (AFFF): Chemistry, Remediation, and Regulatory Issues, Organizers: Jennifer Field, [jennifer.field@oregonstate.edu](mailto:jennifer.field@oregonstate.edu); Walter Giger, [giger@giger-research.ch](mailto:giger@giger-research.ch); Laurence Libelo, [libelo.laurence2epa.gov](mailto:libelo.laurence2epa.gov); Alfredo Alder, [alfredo.alder@eawag.ch](mailto:alfredo.alder@eawag.ch); Chris Higgins, [chiggins@mines.edu](mailto:chiggins@mines.edu)

Science and Perception of Climate Change, Organizers: Sherine Obare, [sherine.obare@wmich.edu](mailto:sherine.obare@wmich.edu); Elke Schoffers, [Elke.Schoffers@wmich.edu](mailto:Elke.Schoffers@wmich.edu)

Sources, Fate and Transport of Perfluorinated Alkyl Substances in the Environment: Theory, Practice, and Innovation, Organizers: David Kempisty, [David.Kempisty@afit.edu](mailto:David.Kempisty@afit.edu); Sudarshan Kurwadkar, [skurwadkar@fullerton.edu](mailto:skurwadkar@fullerton.edu)

Treatment of Contaminants of Emerging Concern and their Transformation Products, Organizers: Lee Blaney, [blaney@umbc.edu](mailto:blaney@umbc.edu); Arturo Hernandez, [arturoj.hernandez@upr.edu](mailto:arturoj.hernandez@upr.edu)

Water Treatment Technologies to Support "Food-Energy-Water Nexus" Water Conservation Needs, Organizers: Sean P. Bushart, [sbushart@epri.com](mailto:sbushart@epri.com); William J. Cooper, [wjcooper@nsf.gov](mailto:wjcooper@nsf.gov); Nalini Rao, [nrao@epri.com](mailto:nrao@epri.com)

Poster Sessions:

General Posters, Organizers: Souhail Al-Abed, [al-abad.souhail@epa.gov](mailto:al-abad.souhail@epa.gov)

**COSPONSORED SYMPOSIA:**

[CATL] Elucidation of Mechanisms and Kinetics on Surfaces, Organizers: Aditya (Ashi) Savara, [savaraa@ornl.gov](mailto:savaraa@ornl.gov); Susannah Scott, [sscott@engineering.ucsb.edu](mailto:sscott@engineering.ucsb.edu); Carsten Sievers, [Carsten.sievers@chbe.gatech.edu](mailto:Carsten.sievers@chbe.gatech.edu)

[GEOC] Adsorption of Metals by Geomedia III, *Organizers:* Yu (Frank) Yang, [yuy@unr.edu](mailto:yuy@unr.edu); Jeremy Fein, [fein@nd.edu](mailto:fein@nd.edu)

[GEOC] Analytical and Computational Isotope Geochemistry, *Organizers:* Alex Sessions, [als@gps.caltech.edu](mailto:als@gps.caltech.edu); James Kubicki, [jdkubicki@utep.edu](mailto:jdkubicki@utep.edu)

**CALL FOR PAPERS**

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

251<sup>st</sup> American Chemical Society National Meeting & Exposition

*"Computers in Chemistry"*

**San Diego, California**

**March 13-17, 2016**

Abstract Deadline: **October 12, 2015**

This symposium will present applications and the state of the art of "real time" water quality and quantity sensors. For example, sensors could determine which intake/source to use for drinking water, high purity water in manufacturing or water reuse so that after treatment, US and European regulatory drinking/manufacturing standards are met. Sensors could monitor the flux of chemicals onto agricultural products or of nutrients from agricultural land into receiving waters. One example of a "real time" drinking water application is the USGS gaging station #01389005 at Two Bridges on the Passaic River below the confluence with the Pompton River in New Jersey USA that simultaneously provides data for wastewater, drinking water and pumping station operators. Papers and roundtable discussion will explore the state of the art of remote sensing equipment whether for research or applications noted above.

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

- Physical and chemical monitoring sensors (i.e. light scattering & uv spectrophotometers)
- Research and off the shelf technologies
- Visualization & big data processing
- Applications for wastewater, drinking water and agri-tech industry
- Research applications targeting water protection and preservation

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](http://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

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ACS Division of Environmental Chemistry

CALL FOR PAPERS

**Advances in *In situ* Pollutant Destruction by Nanoscale Zero Valent Iron  
and Other Engineered Nanoparticles**

251<sup>st</sup> American Chemical Society National Meeting & Exposition

*"Computers in Chemistry"*

San Diego, California

March 13-17, 2016

Abstract Deadline: October 12, 2015

Among various engineered nanoparticles, nanoscale zero-valent iron (nZVI) has received considerable attention in recent years due to its potential for *in situ* treatment of contaminated aquifers. Numerous laboratory studies have shown that nZVI has high reactivity towards removal of various organic and inorganic contaminants. However, nZVI reactivity can decrease over time due to the formation of oxide layer on nanoparticle surface. The nZVI reactivity is also affected due to nanoparticle agglomeration that can increase its effective particle size thus negatively impacting its mobility in porous media upon injection. More recently, studies have examined modified nZVI that is supported on micron-size particles of clays, activated carbon particles, and other composites for reducing agglomeration and reactivity loss that may also improve its transport in the porous media. Various other engineered nanoparticles, such as powdered activated carbon, clays, etc. with and without modification are also being investigated for their potential application for *in situ* destruction/sequestration of specific pollutants. The topics that would be suitable for this symposium are bench- and field-scale studies broadly as follows:

- Modifications to nZVI for its improved transport and more effective treatment of pollutants
- Other nanoparticles for targeting specific pollutants, such as Arsenic and fluorinated compounds
- Transport behavior, fate and toxicity aspects of various engineered nanoparticles considered for *in situ* treatment of inorganic and organic pollutants in groundwater plumes

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](http://www.acs.org/meetings). Any other inquiries should be directed to the symposium organizers:

*Organizers' names and contact information*

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## CALL FOR PAPERS

**Aquatic Photochemistry**251<sup>st</sup> American Chemical Society National Meeting & Exposition*"Computers in Chemistry"***San Diego, California**

March 13-17, 2016

Abstract Deadline: **October 12, 2015***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 light in these complex systems will provide important insight into the fate of different chemical 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, and redox-active minerals.

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

- Photochemistry of dissolved organic matter
- Photochemical transformation of pollutants
- Reactive oxygen species
- Photochemistry of biomolecules
- Ice photochemistry
- Photochemistry in aqueous aerosols
- Field studies
- Photochemistry and element cycling

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](http://www.acs.org/meetings). Any other inquiries should be directed to the symposium organizers:

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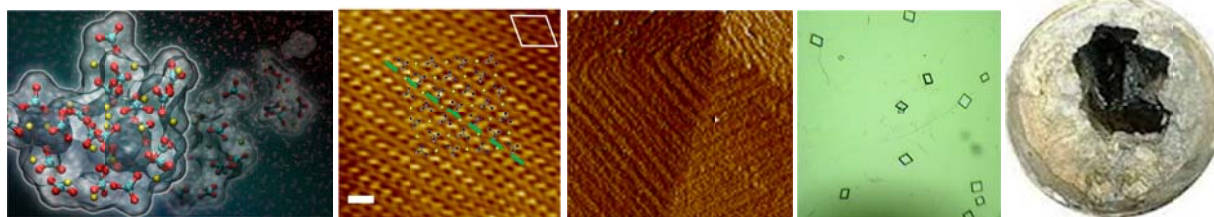
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Environmental Chemistry/Geochemistry Division Symposia

The 251th American Chemical Society National Meeting

San Diego, CA, March 13-17, 2016



**Carbonate and Sulfate Mineral: Nucleation, Growth and Control of Scale Formation**

**Abstract Submission Deadline: October 12, 2015** (<http://abstracts.acs.org/>)

**Symposium Organizers:**

Yandi Hu ([yhu11@uh.edu](mailto:yhu11@uh.edu)), University of Houston

Henry Teng ([hteng@gwu.edu](mailto:hteng@gwu.edu)), The George Washington University

**Symposium Themes:**

Carbonate and sulfate minerals, such as calcite, dolomite, gypsum, and barite, are abundant in both natural and engineered systems. Predicting and controlling their mineralization can affect many important natural processes and engineered operations. For example, calcium carbonate nucleation and growth play essential roles during geologic carbon sequestration, and barium sulfate precipitation controls the removal of radioactive Ra from water produced during hydraulic fracturing. Also, carbonate and sulfate scale formation affects the efficiency of subsurface oil production and water treatment membranes. Therefore, it is essential to investigate the mechanisms and kinetics of carbonate and sulfate mineral nucleation and growth to better predict and control their mineralization.

This symposium seeks contributions that advance the understanding of the nucleation, growth and scale formation of carbonate and sulfate minerals in natural and engineered environments. We welcome contributions based on both experimental and modeling studies across multiple spatial and temporal scales. **The topics** that will be covered in this session are, but are not limited to: 1) **molecular simulation** on the mechanisms and kinetics of carbonate and sulfate nucleation and growth, 2) **microscopic measurements** of carbonate and sulfate nucleation and growth, 3) **control of carbonate and sulfate scale formation** on membranes and in reservoirs, and 4) **reactive transport modeling** of carbonate and sulfate formation in porous media.

**Confirmed invited speakers:**

- Adam Wallace (University of Delaware)
- Alejandro Fernandez-Martinez (The French National Centre for Scientific Research)
- Andrew Stack (Oak Ridge National Laboratory)
- Carl I. Steefel (Lawrence Berkeley National Laboratory)
- Charles J. Werth (The University of Texas at Austin)
- James J. De Yoreo (Pacific Northwest National Laboratory/University of Washington)
- Jennifer Roberts (the University of Kansas)
- Julian Gale (Curtin University)
- Jun Kawano (Hokkaido University)
- Mason B. Tomson (Rice University)



## CALL FOR PAPERS

# Characterization and Toxicity of Airborne Particulate Matters (PMs) in East Asia

251<sup>st</sup> American Chemical Society National Meeting & Exposition*"Computers in Chemistry"*

San Diego, California

March 13-17, 2016

Abstract Deadline: **October 12, 2015**

Atmospheric particle pollution is a serious environmental issue in East Asia (especially China), and it poses significant health risk for human through inhalation. Airborne particulate matters (PMs) and associated pollutants are the key environmental stressors. However, current ambient air quality standards are mainly based on the PM mass levels (PM<sub>2.5</sub>, PM<sub>10</sub>; µg/m<sup>3</sup>) without considering differences in the toxicity of the various constituents. As a complex and heterogeneous mixture, both the size distribution and chemical compositions of ambient PMs can vary substantially in time and location, and thereby induce a diverse range of toxicity and health effects through the main inhalation pathway. Understanding the size fractions and chemical composition of ambient air PMs is of vital importance to devising effective pollution abatement strategies in the fast-developing Asian region.

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

- Physico-chemical characterization of PMs
- Morphological and mineralogical features of PMs
- Exposure in haze days in China
- Inhalation toxicity of PMs
- Long range transport of key pollutants
- Potential sources of PMs in urban areas
- Household and ambient exposure to PMs

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](http://www.acs.org/meetings). Any other inquiries should be directed to the symposium organizers:

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**CALL FOR PAPERS**

# Chemistry and application of advanced oxidation processes for water purification, treatment and reuse

At 251th ACS National Meeting &amp; Exposition

San Diego, California

March 13 – 17, 2016

Abstract Deadline: **October 12, 2015**

Following the great success of the last symposium in Boston in Aug 2015 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 purification, treatment and reuse”.

Advanced oxidation processes, which are based on the generation of highly reactive radical species (e.g., hydroxyl, peroxy, 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 3 (CCL3) 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,:

- Heterogeneous catalysis and photocatalysis
- UV, hydrogen peroxide and ozone
- Sonolysis
- Electron beams
- Nanotechnology-based processes
- Combined AOP/physical/biological processes
- Fenton/PhotoFenton and Fenton-like processes
- Catalytic ozonation
- Chemical oxidation
- Peroxymonosulfate, persulfate
- Photo-activated C60
- Other solar-driven processes

Please submit your abstracts the Division of Environmental Chemistry using the ACS Meeting Abstracts Programming System (MAPS) (<http://maps.acs.org>). Any other inquiries should be directed to:

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**CALL FOR PAPERS**

# **Chemistry of Materials Management: Mitigation and Reuse for Sustainable Environment**

251<sup>st</sup> American Chemical Society National Meeting & Exposition

*"Computers in Chemistry"*

**San Diego, California**

**March 13-17, 2016**

Abstract Deadline: **October 12, 2015**

The world's energy consumption has been expanding due to the increase of world population and the amount of waste materials generated and processed for disposal. These facts suggest that both solid and liquid waste recycling in combination with sustainable material production are strongly needed to minimize/recover energy consumption. Of a variety of technical means, chemical transformation and catalytic technology, among others, have a great ability to decompose hazardous materials and to recover useful matters. In this symposium, we welcome your contributions related to three categories: The first is the material development for the application of environmental purification and waste recycling. They can be obtained both from raw materials and recovered ones from waste processing. The second subject is the application processes of the materials to the purification of the contaminated media and to the recovery of energy and materials. The third category is the assessment of the environmental processes to which the materials are applied from the viewpoint of life cycle assessment.

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

- Contaminant Release in Materials Management
- Life Cycle Analysis of Materials
- Environmental Implication of Construction and Demolition Debris
- Energy from Waste
- Beneficial Use of Materials
- Landfill Fires
- Biochar Application
- Energy and Material Recovery from Used Tires
- Sustainable Macro- and Micronutrients
- Sustainable Landfills
- Resource Conservation through Organics Management
- Ground Water Contamination from Materials Management
- Aerobic and Anaerobic Digestion of Organic Waste
- Greenhouse Gas Emissions and Abatement Thereof via Sustainable Materials Management

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**CALL FOR PAPERS**

# Detection of Engineered Nanomaterials in Environmentally Relevant Media

251<sup>st</sup> American Chemical Society National Meeting & Exposition

*"Computers in Chemistry"*

San Diego, California

March 13-17, 2016

Abstract Deadline: **October 12, 2015**

The remarkable properties of engineered nanomaterials has resulted in their rapid and ongoing integration into our society, with their use in consumer products expected to dramatically increase well into the future. This increased use will inevitably result in the exposure of these nanomaterials to the environment, where their overall fate and adverse effects are still not fully known. To properly understand these crucial environmental outcomes, robust analytical methods and techniques are required to accurately detect, identify, and quantify the presence of engineered nanomaterials in the environment. The goal of this symposium is to highlight advances in method development for the qualitative and quantitative detection of nanomaterials in environmentally relevant media, keeping researchers informed of the current research progress in our field. This symposium will focus on, but is not limited to, three major subject areas related to the detection of nanomaterials in the environment: i) advances in imaging techniques for the observation of nanomaterials in environmentally relevant biotic or abiotic media; ii) development of new methods and techniques for correctly identifying nanomaterials within environmental media; iii) improvements in analytical methods and experimental protocols for enhanced quantification of nanomaterials in the environment.

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**CALL FOR PAPERS**

# **Environmental Aspects of Unconventional Oil and Gas Production and Hydraulic Fracturing**

251<sup>st</sup> American Chemical Society National Meeting & Exposition

*“Computers in Chemistry”*

**San Diego, California**

**March 13-17, 2016**

Abstract Deadline: **October 12, 2015**

Unconventional production using hydraulic fracturing of hydrocarbon-bearing shale deposits has transformed the oil and gas industry. The United States is now the biggest oil and natural gas producer in the world, having surpassed Russia in June 2015. Hydraulic fracturing operations in North Dakota's Bakken Shale, in the Marcellus formation of Pennsylvania, Ohio and West Virginia, and in the Eagle Ford and Barnett Shales in Texas, as well as reports of environmental impacts in Pavillion, WY, Bainbridge OH, and Dimock and Dunkard Creek, PA are the subject of increased media, public, and regulatory attention. New potential shale plays across the U.S. are also being examined, including the Monterey shale formation in California. In California, the fourth largest oil producing state, hydraulic fracturing in reservoirs of migrated-oil is a significant environmental issue, prompting recently enacted laws governing hydraulic fracturing. The laws mandated scientific studies to determine the status and impact of hydraulic fracturing in California and the development of new regulations and monitoring programs. Heightened interest in hydraulic fracturing is also found worldwide, particularly in the United Kingdom, France, and Poland where development of natural gas from unconventional sources are seen as a path to energy independence. More than half of the world's shale oil resources are located in Russia, China, and Argentina, where shale hydrocarbon development is just beginning. This advancing revolution in fossil fuel production presents unique challenges for sustainable environmental management.

Although unconventional oil and gas production has greatly benefitted the U.S. economy, concerns about potential environmental impacts have been raised, especially concerning hydraulic fracturing. The injection of millions of gallons of drilling fluids with chemical additives, and associated activities, has led to reports (often unsupported by strong datasets) of contaminated water supplies, releases of chemically contaminated flowback fluids, air pollution, increased greenhouse gas emissions, and induced earthquakes. Other well stimulation techniques, including matrix acidizing and acid fracturing have similar concerns for potential impact to the environment. The recent USEPA report determined that, based on existing data, hydraulic fracturing has not led to widespread impacts to drinking water resources. However, the USEPA noted specific instances could lead to contamination such as wells with inadequate casing and cement, improperly handled or treated flowback and production fluids, and stimulation in formations containing both oil and gas and drinking water resources. Other potential issues related to unconventional oil and gas production and hydraulic fracturing, such as air quality concerns, have not been systematically studied. In California concerns have been raised about release of well stimulation chemicals into the environment during co-disposal with produced water. Many environmental aspects of unconventional oil and gas development are only now beginning to be understood.

This symposium will focus on the latest studies of the environmental aspects of unconventional oil and gas production and hydraulic fracturing, including technical challenges, environmental effects, and the political and regulatory climate. It will be an opportunity to explore the results of ongoing research and consider multidisciplinary approaches needed to meet the challenges posed by this technology. Presentations on current and potential shale plays in the U.S. and worldwide as well as all related topics are welcome and some suggestions include:

- Impact of hydraulic fracturing and associated activities on groundwater, surface water, and air quality
- Fate and transport of hydraulic fracturing fluids in the environment (groundwater, surface water)
- Geochemical impacts and microbial interactions
- Chemical and microbial characterization of flowback and production waters
- Flowback and production fluid management and treatment
- Naturally occurring radioactive materials and other compounds in flowback fluids
- Compounds of concern and compounds in development for use in hydraulic fracturing fluids
- Application of green chemistry to well stimulation fluids
- Water Usage
- Lessons learned from hydraulic fracturing challenges in existing shale plays in the U.S. and worldwide
- Challenges of unconventional oil and gas development in California
- Groundwater monitoring and testing considerations during hydraulic fracturing
- Analytical Methods
- Regulatory issues and perspectives
- Public's and scientist's concerns regarding hydraulic fracturing

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](http://www.acs.org/meetings). Any other inquiries should be directed to the symposium organizers:

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**CALL FOR PAPERS****Flue Gas Cleaning and Climate Control**

251<sup>st</sup> American Chemical Society National Meeting & Exposition

*"Computers in Chemistry"*

**San Diego, California**

**March 13-17, 2016**

Abstract Deadline: **October 12, 2015**

The world is facing increasing needs of technologies for removal of pollutants in industrial flue gases emitted to the atmosphere in order to avoid environmental hazards as acid rain and smog with severe consequences for the nature, human health and man-made constructions. In addition the issue of climate changes due to the large amount of carbon dioxide also emitted industrially to and accumulated in the atmosphere is now more than ever recognized as a global concern which needs a global solution. The large industries—with a need for pollution control—that will be addressed in this session includes power, cement, glass manufacture and waste incineration plants as well as sea transport units.

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

- Sulfur removal from flue gases by scrubbing or catalytic conversion
- Selective catalytic or non-catalytic reduction of NO<sub>x</sub> in flue gases from stationary sources
- Flue gas cleaning on board ships
- Flue gas cleaning in biomass fired or fossil fuel co-fired plants
- CO<sub>2</sub> capture and disposal in fossil fired plants
- Upgrade of biogas and natural gas by CO<sub>2</sub> removal
- Reversible gas absorption by ionic liquids

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](http://www.acs.org/meetings). Any other inquiries should be directed to the symposium organizers:

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**CALL FOR PAPERS****Green Chemistry and the Environment**At 251<sup>st</sup> ACS National Meeting & Exposition**San Diego, California****March 13-17, 2016**Abstract Deadline: **October 12, 2015**

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](http://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

**CALL FOR PAPERS**

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

251<sup>st</sup> American Chemical Society National Meeting & Exposition

*"Computers in Chemistry"*

**San Diego, California**

**March 13-17, 2016**

Abstract Deadline: **October 12, 2015**

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](http://www.acs.org/meetings). Any other inquiries should be directed to the symposium organizers:

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CALL FOR PAPERS

ACS DIVISION OF ENVIRONMENTAL CHEMISTRY

## ***Identifying and Managing Underwater Munitions***

251<sup>st</sup> American Chemical Society National Meeting & Exposition

*"Computers in Chemistry"*

San Diego, California, March 13-17, 2016

Abstract Deadline: **October 12, 2015**

Organizers: Nancy B. Jackson, Sandia National Laboratory  
and George P. Cobb, Baylor University

The U.S. Department of Defense has trained with or discarded munitions in the ocean from the early 1900's to 1970. These munitions include lead bullets, practice bombs, chemical weapon in barrels and more. Other governments have also released/deposited munitions in the sea, and the Baltic Sea is a place where submerged munitions are a growing problem. These munitions may pose risks to estuarine, coastal and marine environments, especially as the lead leaches from the bullets and chemical weapons begin to leak from corroding barrels. Questions about these munitions and the risks that they pose are beginning to reach a level of global concern. This symposium will bring awareness of this issue and present some possible remedies to this problem. This symposium will address techniques for identifying munitions, evaluating environmental fate, determining biological effects, management, and clean-up of underwater munitions.

Invited speakers include representatives from the International Dialogue on Underwater Munitions (IDUM) organization, U.S. Department of State, and the U.S. Army Corps of Engineers. Contributed abstracts may be submitted 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](http://www.acs.org/meetings). Any other inquiries should be directed to Nancy B. Jackson, [nbjacks@sandia.gov](mailto:nbjacks@sandia.gov).

CALL FOR PAPERS

# Innovative Materials and Technologies for Water Purification

251<sup>st</sup> American Chemical Society National Meeting & Exposition

“Computers in Chemistry”

San Diego, California

March 13-17, 2016

Abstract Deadline: **October 12, 2015**

Cosponsored by the Association of Environmental Engineering and Science Professors [AEESP]

*Our society is facing grand challenges related to water shortage and contamination. Many conventional water and wastewater treatment processes are not only inadequate with respect to energy efficiency but also in the removal of persistent or emerging contaminants (e.g., oxyanions, endocrine disrupting compounds, pharmaceutical and personal care products, toxic industrial chemicals or materials). This symposium will address some of the challenges and opportunities we face while securing a safe water supply and promoting the applications of novel materials and technologies. Original high risk/high reward research with focuses on the interfaces of innovative **materials** and **technologies** for energy harvesting and water treatment are welcome. Please **INDICATE** your selection of **Material** or **Technology** when submitting the abstract, with an emphasis on either novel material development for an existing water treatment process or new technological approaches for water decontamination.*

Suggested topics for this symposium are, but are not limited to:

- New materials for catalytic conversion of recalcitrant contaminants (e.g., advanced oxidation processes, reduction, electrochemical process, enzymatic process)
- Separation of aqueous contaminants via novel membrane processes, ion-exchange, adsorption, or capacitive deionization
- Reactive separation processes (e.g., photocatalytic, electrochemically, or biologically reactive membranes)
- Emerging radiation in water and wastewater treatment (e.g., solar, UV/Vis/IR, X-ray radiation)
- Water decontamination with unconventional or renewable energy
- Techniques for decentralized water purification or recycling
- Small units for point-of-use water treatment (e.g., plasma water treatment, microfluidic deionization)
- New strategies for 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](http://www.acs.org/meetings). Any other inquiries should be directed to the symposium organizers:

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**CALL FOR PAPERS**

# Membrane Technology for Water-Energy Sustainability

251<sup>st</sup> American Chemical Society National Meeting & Exposition

*"Computers in Chemistry"*

San Diego, California

March 13-17, 2016

Abstract Deadline: **October 12, 2015**

*Membrane technology has great potential in revolutionizing the urban water infrastructure by systematically addressing the water-energy sustainability. Evidences include their gaining popularity in drinking water purification, water reuse, wastewater reclamation, desalination, and energy recovery from brine. Our symposium will focus on novel membrane synthesis, nanotechnology enhanced materials, and emerging membrane processes designed to address urban water-energy sustainability more effectively, energy-efficiently, and environmental friendly. Example processes include but are not limited to microfiltration (MF), ultrafiltration (UF), nanofiltration (NF), reverse osmosis (RO), forward osmosis (FO), pressure-retarded osmosis (PRO), 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:

- Membranes used for urban water-energy sustainability (desalination, wastewater reuse, storm water reclamation)
- Membrane fouling (membrane surface modification, fouling control strategy)
- Emerging processes (FO, PRO, MD)
- Membrane removal of small trace contaminants
- Novel membrane materials (nanotechnology, carbon-based membranes, biomimetic materials, multifunctional membranes)
- Fundamental understanding of membrane processes (interfacial phenomena, transport mechanism, separation capability)
- Membrane characterization and simulation

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](http://www.acs.org/meetings). Any other inquiries should be directed to the symposium organizers:

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**CALL FOR PAPERS**

# **New Challenges on Metals and Metalloids: Chemistry, Treatment and the Impacts on Water Quality**

251<sup>st</sup> American Chemical Society National Meeting & Exposition

*"Computers in Chemistry"*

**San Diego, California**

**March 13-17, 2016**

Abstract Deadline: **October 12, 2015**

Metals and metalloids represent a large group of chemicals of concerns in the environment. Natural weathering, anthropogenic improper discharge, reuse of reclaimed wastewater effluent and recent shale gas exploration pose new challenges on the control of these chemicals in our drinking water. Migration of these chemicals and water quality are closely associated with aquatic redox chemistry and surface interfacial processes. Regulatory agencies are also considering revision of rules regarding their presences in drinking water supplies. This symposium will cover recent advances in our understanding of chemistry that controls the fate and transformation of metals and metalloids in aquatic system, new analytical and computational tools to understand the fundamental processes, and the development of new treatment and remediation technologies. Key examples of compounds of particular interest would include but are not limited to chromium, arsenic, uranium, selenium, alkaline earth metals, nuclear energy by-products and fracking-related contaminants.

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## CALL FOR PAPERS

# Opportunities and Progress in Computational Prediction of Contaminant Toxicity, Fate, and Transport Properties

251<sup>st</sup> American Chemical Society National Meeting & Exposition*"Computers in Chemistry"*

San Diego, California

March 13-17, 2016

Abstract Deadline: **October 12, 2015**

*New and exotic compounds and engineering processes have the potential to brew up new "chemical solutions" in the case of unintended (or intentional) releases into the water supply or environment. What do you do in the case of such an event? For these truly novel compounds, it is possible that no experimental data exists to inform your answer to this question...*

The environmental community has placed increasing attention in the recent past to study the effects and treatment of "contaminants of emerging concern" such as flame retardants, endocrine disrupting chemicals, and personal care products, in our drinking water supplies. The concern with these generally very well-characterized compounds usually focuses on chronic, long-term exposure effects in aquatic and human populations. However, with over 84,000 compounds in the TSCA Chemical Substance Inventory, many of which are poorly characterized, the occurrence of acute exposure events to "novel" emergent compounds in our drinking water supplies is a very real threat and concern to public health and safety. Recent incidents such as the Jan. 2014 Elk River Chemical Spill in West Virginia highlight the need for methods to provide rapid and accurate physicochemical property data in case of a chemical spill, when emergency responders do not have time to get experimental data. Beyond filling the urgent need for data as a disaster unfolds, rapid and accurate computational predictions of chemical behavior are becoming increasingly in demand. Computational models, for instance, are being considered as viable alternative toxicological methods to animal studies by federal agencies. In keeping with the "Computers in Chemistry" focus of the meeting, it is noted that as computing power and algorithmic efficiency continues to increase, the ability to predict physicochemical properties of exacting accuracy using computational methods increases in kind. One ultimate goal and challenge for the community going forward into the 21<sup>st</sup> century is to use these computing resources to the greatest advantage to develop computational methods for acute emergent contaminant property prediction, which will result in enhanced protection of the public well being.

Presentations are invited from within and outside of the ENVR community, with stakeholders in industry and governmental agencies particularly encouraged to participate.

Topics that would be covered in this symposium include, but are not limited to:

- *ab initio* quantum chemical calculation of physicochemical properties
- Quantitative structure-property relationships
- Interfacial binding property predictions
- Phase behavior and partitioning coefficients
- Improved approaches for rapid and accurate contaminant property prediction
- *in silico* approaches to acute toxicity
- Compound prioritization strategies
- Exposure assessment tools
- Fate and transport modeling
- Property prediction on the disaster response time-scale

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](http://www.acs.org/meetings). Any other inquiries should be directed to the symposium organizers:

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**CALL FOR PAPERS**

**Per- and Polyfluoroalkyl Substances Associated with Aqueous  
Film Forming Foams (AFFF): Chemistry, Remediation, and  
Regulatory Issues**

251<sup>st</sup> American Chemical Society National Meeting & Exposition  
“Computers in Chemistry”  
San Diego, California  
March 13-17, 2016

Abstract Deadline: **October 12, 2015**

*Aqueous film forming foams (AFFF) are used to extinguish hydrocarbon-based fuel fires in military, municipal, and industrial settings. This session is designed to inform the audience on the history and spectrum of AFFF uses; the chemical composition of AFFFs; the occurrence, fate, and transport of AFFF components in the environment and impacts on drinking water sources; efforts to treat AFFF stockpiles and to design in-situ and ex-situ treatments for AFFF-contaminated groundwater, sediment, and soil; regulatory status of PFASs associated with AFFFs.*

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

- History of use/MilSpec
- Chemical characterization of AFFF and analysis of components in environmental systems
- Historical AFFF uses and practices at military bases, industrial (refineries), municipal airports/fire training area
- Occurrence, biodegradation, and transport of PFASs associated with AFFF and impacts on sources of drinking water
- Disposal/treatment of AFFF stockpiles
- Environmental remediation of AFFF-contaminated groundwater, sediment, and soil
- Regulation/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](http://www.acs.org/meetings). Any other inquiries should be directed to the symposium organizers:

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# **Science and Perception of Climate Change**

251<sup>st</sup> ACS National Meeting & Exposition

**San Diego, California**

**March 13-17, 2016**

Abstract Deadline: **October 12, 2015**

A symposium titled '*Science and Perception of Climate Change*' will be held at the 251<sup>st</sup> 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](http://www.acs.org/meetings).

For additional information, please contact the symposium organizers:

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**Dr. Sherine O. Obare**

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## 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

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Maria Carmen Lemos, University of Michigan

LiFeng Luo, Michigan State University

Jiaguo Qi, Michigan State University

Julie Winkler, Michigan State University

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Omar Farha, Northwestern University

Ray Pierrehumbert, University of Chicago

Kathryn Docherty, Western Michigan University

Tracey Holloway, University of Wisconsin

Benjamin Zuckerberg, University of Wisconsin

CALL FOR PAPERS

# Sources, Fate and Transport of Perfluorinated Alkyl Substances in the Environment

Theory - Practice - Innovation

251<sup>st</sup> American Chemical Society National Meeting & Exposition

San Diego, California

March 13-17, 2016

Abstract Deadline: **October 12, 2015**

In recent years, there has been growing concern regarding the occurrence of perfluorinated alkyl substances (PFAS) in the environment. A PFAS is an alkyl comprised of a carbon backbone with the original hydrogen atoms replaced by fluorine atoms. The electronegativity of the fluorine creates one of the strongest bonds in organic chemistry, producing a molecule with unique thermal stability properties, both hydrophobic and oleophobic characteristics, and surface tension reducing capabilities. These characteristics have found variety of applications in industrial, household and consumer products. Yet, the same properties that make PFAS so versatile, also provide challenges when trying to remove PFAS from the environment. For example, PFAS are, persistent (resistant to biodegradation) and bio-accumulative and pass through the food chain. In fact according to the USEPA, majority of the population in the industrialized world has been exposed to PFAS throughout their life. It is not surprising that concentrations of PFAS have been detected in large number of blood serum samples. Environmental persistence of PFAS may have adverse human health and ecological consequences. PFAS are being increasingly detected in variety of environmental matrices at very low concentrations, yet the complete toxicological profile is not fully understood. PFAS are currently regulated to a limited extent and regulatory attention is increasing.

Due to the persistent, bio-accumulative nature of PFAS and current toxicological studies, it is reasonable to anticipate that exposure to PFAS can result in adverse human health and ecological effects. Although some PFAS have or are planned to be phased out, emerging PFAS such as fluoro telomer alcohols and shorter chain poly- and PFAS need to be evaluated for their potential toxicity to human health and the environment. The purpose of this symposium is to bring together leading multidisciplinary researchers from across the world and provide them a platform for broader dissemination of their latest findings on occurrence, fate, distribution, effect and risks due exposure

to PFAS. Emerging regulatory framework and innovative treatment technologies and evolving analytical capabilities will be covered.

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

- Sources, occurrence and distribution of PFAS in variety of environmental matrices
- Fate and effect of PFAS in the environment
- Human health and ecological implications due to exposure to PFAS
- Development of analytical protocols for detecting PFAS in a variety of environmental samples
- Emerging trends in regulatory policy framework to better manage environmental occurrence of PFAS
- Mitigation of PFAS risk through product substitution such as fluoro telomer alcohols and the shorter chain poly- and PFAS and their toxicological implications

**NOTE:** *Papers on Aqueous Film Forming Foams (AFFFs) should be submitted to the ENVR symposium “Per- and Polyfluoroalkyl Substances Associated with Aqueous Film Forming Foams (AFFFs): Chemistry, Remediation, and Regulatory Issues.”*

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](http://www.acs.org/meetings). Any other inquiries should be directed to the symposium organizers:

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**CALL FOR PAPERS**

# Treatment of Contaminants of Emerging Concern and their Transformation Products

251<sup>st</sup> American Chemical Society National Meeting & Exposition

*"Computers in Chemistry"*

San Diego, California

March 13-17, 2016

Abstract Deadline: **October 12, 2015**

During the last decade, an increasing focus has been placed on the occurrence of contaminants of emerging concern (CECs) in water, wastewater, and water reuse scenarios. These CECs include pharmaceuticals, personal care products, endocrine disrupting chemicals, pesticides, and flame retardants, among others. With the ubiquitous detection of CECs in surface water and wastewater effluent around the world, a greater focus on the fate of these contaminants in treatment processes and remediation efforts is merited. Of particular concern is the identification and characterization of transformation products formed prior to and during treatment processes. Simultaneous removal of CECs and their transformation products from water and wastewater is also of great interest. The complex nature of CECs requires interdisciplinary research efforts that tackle the analytical, treatment, and toxicological challenges associated with these unique contaminants. This symposium will gather experts from around the world with the aim of describing ongoing research efforts and identifying future challenges related to treatment strategies for CECs and their transformation products. We invite oral and poster presentations from academia, government, and industry.

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

- Occurrence and treatment of CECs in water, wastewater, and water reuse scenarios
- Analytical methods for detection of transformation products generated during treatment of CECs
- Identification and fate of metabolic products of CECs formed during biological treatment
- Identification and fate of transformation products of CECs formed during oxidation processes
- Characterization of the residual toxicity of treated solutions containing CECs
- Prioritization of CECs based on environmental/human health toxicity assessment

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**CALL FOR PAPERS****Water treatment technologies to support “Food-Energy-Water Nexus” water conservation needs**

251<sup>st</sup> American Chemical Society National Meeting & Exposition

*“Computers in Chemistry”*

**San Diego, California**

**March 13-17, 2016**

Abstract Deadline: **October 12, 2015**

Advanced water treatment technologies are fundamental to meeting water use optimization needs related to the “Food-Energy-Water Nexus.” These three interconnected resources represent a key research growth area, in part because they are scarce, and in part because they are affected by both human and environmental pressures. Energy systems use a large amount of water, for processes such as cooling and groundwater pumping. Water systems use a large amount of energy for treatment and transportation. Food production relies on both energy and water, and creates organic products which themselves contain both energy and water. This session will include current and planned collaborative technology development by the Electric Power Research Institute (EPRI) and the National Science Foundation (NSF) on these important issues. Relevant abstracts from other institutions and technology development organizations are also invited.

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

- Water treatment technologies which focus on developing alternative water sources and optimizing water use in power plants for water conservation purposes;
- Novel, energy efficient water treatment technologies to reduce water demand and conserve electricity;
- Water treatment technologies that simultaneously optimize water and energy efficiency and thereby reduce greenhouse gas emissions; and
- Water treatment innovations which maximize the use of cheap, available energy and water inputs by enabling system integration at the local (distributed) level

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# CALL FOR PAPERS

## Division of Catalysis Science and Technology American Chemical Society

### 251<sup>st</sup> ACS National Meeting & Exposition: *Computers in Chemistry, March 13-17, 2016*

### Symposium “Elucidation of Mechanisms and Kinetics on Surfaces”

Evaluation of kinetics and mechanisms of individual reactions or reaction networks on surfaces lies at the heart of heterogeneous catalysis. While research is often driven by a desire to discover new catalytic reactions or to optimize them for specific applications, the methodologies to elucidate surface kinetics and mechanisms are broad. This symposium will foster cross-pollination of knowledge used for discovering and studying dynamic phenomena and mechanisms in catalysis.

Topics include but are not limited to:

- 1) Spectroscopic characterization of reaction intermediates on surfaces
- 2) Computational calculation of activation barriers and rates
- 3) Kinetic modeling of experimental reaction rates on surfaces
- 4) Experimental measurements of reaction rates/activities/selectivities

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## CALL FOR PAPERS

ACS Division of Geochemistry

Cosponsored with ACS Division of Environmental Chemistry

# Adsorption of Metals by Geomedia III

251<sup>st</sup> American Chemical Society National Meeting & Exposition  
San Diego, California – March 13-17, 2016

Abstract Deadline: **October 12, 2015**

In 1996 ACS Spring meeting, there was a symposium on “Adsorption of Metals by Geomedia,” which led to an outstanding peer-reviewed volume “Adsorption of Metals by Geomedia: Variables, Mechanisms, and Model Applications.” In 2006, researchers from five continents gathered again in the follow-up symposium “Adsorption of Metals by Geomedia II”, during the ACS Spring meeting in Atlanta (Georgia, USA). During the past ten years, there has been tremendous development in our understanding of mineral-water interfacial reactions. We propose to call this **20-year anniversary symposium** to highlight the major advances in this vital area, from nano-scale spectroscopic studies to the novel interfacial reactions.

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

- Spectroscopic studies on the geomedia-metal interactions
- Reactions between colloidal material and metals
- Novel mineral-water interfacial reactions
- New method for modeling metal-geomedia association
- Fate of organic matter-metal complexes

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at <https://maps.acs.org>.

### Symposium Organizers:

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# Analytical and Computational Isotope Geochemistry

251<sup>st</sup> American Chemical Society National Meeting & Exposition  
San Diego, California, March 13-17, 2016

**Deadline: October 12, 2015**

Cosponsored by: ACS Division of Environmental Chemistry

This symposium seeks to bring together scientists interested in isotopic analytical methodology, application of isotopes to geochemical problems, and computational studies of isotopic equilibria and kinetic fractionations. Specific topics may include, but are not limited to:

- New analytical techniques to measure isotopes
- Experimental determination of thermodynamics and kinetics of isotope fractionation
- Clumped isotope studies
- Position-specific isotope studies
- Geochemical and biogeochemical applications of isotope analysis
- Modeling of isotopic fractionation

**Invited keynote speakers include:**

**Jon Eiler – Caltech**

**Edwin Schauble – UCLA**

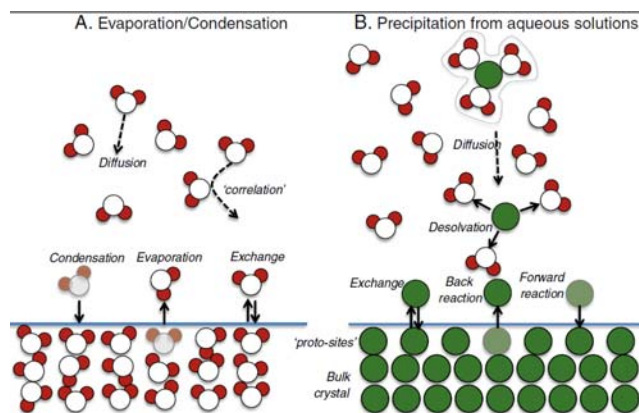


Figure courtesy of Eiler et al. (2014) *Chemical Geology* 372 (2014) 119–143

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