

**AMERICAN CHEMICAL SOCIETY**  
**DIVISION OF ENVIRONMENTAL CHEMISTRY**  
**CALL FOR PAPERS**

249TH ACS NATIONAL MEETING  
Denver, CO, March 22-26, 2015

Dear Colleagues,

I invite you to join us and share your research results and progress in your research in the Division of Environmental Chemistry program at the 249th ACS National Meeting in Denver, CO, March 22-26, 2015.

**ENVR Program Chair:** Souhail Al-Abed, Ph.D., U.S. EPA, 26 W. Martin Luther King Drive, 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 20, 2014. Submit abstracts to the Division of Environmental Chemistry at [www.acs.org/denver2015](http://www.acs.org/denver2015).

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Advances in Analytical Chemistry for Discovering Emerging Contaminants in the Natural Environment, *Organizers:* Tammy Jones-Lepp, [jones-lepp.tammy@epa.gov](mailto:jones-lepp.tammy@epa.gov); David Alvarez, [dalvarez@usgs.gov](mailto:dalvarez@usgs.gov)

Assessing Toxicity of Environmental Contaminants, *Organizers:* Xiaoping Pan, [panx@ecu.edu](mailto:panx@ecu.edu); Sophie Minori Uchimiya, [sophie.uchimiya@ars.usda.gov](mailto:sophie.uchimiya@ars.usda.gov); Jiafan Wang, [jiafan.wang@basf.com](mailto:jiafan.wang@basf.com); Baohong Zhang, [Zhangb@ecu.edu](mailto:Zhangb@ecu.edu)

Bioavailability and Biogeochemical Interactions Affecting Remediation of Hazardous Substances in the Environment, *Organizers:* James Ranville, [jranvill@mines.edu](mailto:jranvill@mines.edu); Heather Henry, [henryh@niehs.nih.gov](mailto:henryh@niehs.nih.gov)

Biogenically Enhanced Recovery and Bioremediation in Fossil Fuel Reservoirs, *Organizers:* Michael Urynowicz, [murynowi@uwyo.edu](mailto:murynowi@uwyo.edu); Donna Drogos, [ddrogos@uwyo.edu](mailto:ddrogos@uwyo.edu)

Chemical Processes at Environmental Interfaces, Cosponsor: COLL, *Organizers:* Hind A. Al-Abadleh, [halabadleh@wlu.ca](mailto:halabadleh@wlu.ca); Hashim Ali, [hali@astate.edu](mailto:hali@astate.edu); Ryan Hinrichs, [rhinrich@drew.edu](mailto:rhinrich@drew.edu); Nadine Kabengi, [kabengi@gsu.edu](mailto:kabengi@gsu.edu)

Chemistry in the Marine Boundary Layer, *Organizers:* Barbara D-Anna, [barbara.danna@ircelyon.univ-lyon1.fr](mailto:barbara.danna@ircelyon.univ-lyon1.fr); James Donaldson, [jdonalds@chem.utoronto.ca](mailto:jdonalds@chem.utoronto.ca)

Conservation of Natural Resources through Sustainable Materials Management, *Organizers:* Thabet Tolaymat, [tolaymat.thabet@epa.gov](mailto:tolaymat.thabet@epa.gov); Souhail Al-Abed, [al-abad.souhail@epa.gov](mailto:al-abad.souhail@epa.gov); Katsuya Kawamoto, [kkawamoto@okayama-u.ac.jp](mailto:kkawamoto@okayama-u.ac.jp)

Dispersion of Nanoparticles and its Implication for Interfacial, Biological and Environmental Processes, *Organizers:* Bo Pan, [panbocai@gmail.com](mailto:panbocai@gmail.com); Navid Saleh, [navid.saleh@austin.utexas.edu](mailto:navid.saleh@austin.utexas.edu); Peter Vikesland, [pvikes@vt.edu](mailto:pvikes@vt.edu); Baoshan Xing, [bx@umass.edu](mailto:bx@umass.edu)

Enantioselective Biotransformation of Chiral Pollutants in Soils and Water, *Organizers:* James M. Schmidt, [schmidtj@abclabs.com](mailto:schmidtj@abclabs.com); Izabela Kania-Korwel, [izabela-korwel@uiowa.edu](mailto:izabela-korwel@uiowa.edu)

Environmental Applications of Hydrogels, *Organizers*: Thomas A. Duster, thomas.duster@nist.gov; Jason Holm, jason.holm@nist.gov; Indira Sriram, indirasriram@gmail.com

Environmental Chemistry and Health Impacts of Fine and Ultrafine Particulate Matter, *Organizer*: Slawo Lomnicki, slomni1@lsu.edu

Environmental Chemistry of Natural Resources at Animal Production Sites, *Organizers*: Rolf Halden, rolf.halden@asu.edu; Hansa Done, hansa.done@asu.edu

Environmental Chemistry: Pedagogical Models and Practices, *Organizers*: Elizabeth S. Roberts-Kirchhoff, robkires@udmercy.edu; Katherine C. Lanigan, lanigakc@udmercy.edu

Environmental Implications of Nano: Release from Consumer Products and Advances in Nanometrology, *Organizers*: Robert Reed, rob.reed@asu.edu; Frank von der Kammer, frank.von.der.kammer@univie.ac.at; Jim Ranville, jranvill@mines.edu; Chris Higgins, chiggins@mines.edu

Environmental Reactivity of Organic Micropollutants and Their Transformation Products in Receiving Waters, *Organizers*: William Arnold, arno1032@umn.edu; Yu-Ping Chin, chin.15@osu.edu; Kristine Wammer, khwammer@stthomas.edu

ENVR 101: Fundamentals for the Next Century of Environmental Chemistry, *Organizer*: George Cobb, George\_cobb@baylor.edu

General Posters, *Organizers*: Souhail Al-Abed, al-abad.souhail@epa.gov

Green Chemistry and the Environment, *Organizers*: Rafael Luque, q62alsor@uco.es; Alina Balu, Alina.balu@avantium.com; Sherine Obare, sherine.obare@wmich.edu

Hydraulic Fracturing Impacts on Water, Soil and Air Quality, *Organizers*: Thomas Borch, thomas.borch@colostate.edu; Jens Blotevogel, jens.blotevogel@colostate.edu; Radisav Vidic, vidic@pitt.edu; Rob Jackson, rob.jackson@stanford.edu

Microalgae: A Renewable Energy Source and a Sustainable Solution for the Environment, *Organizers*: Wen Zhang, wzhang81@njit.edu; Brian Chaplin, bpchaplin@gmail.com; Danmeng Shuai, danmengshuai@gwu.edu

Modern Analytical Approaches for the Characterization of Natural Organic Matter in the Environment, *Organizers*: Julie A. Korak, julie.korak@colorado.edu; Kaelin Cawley, kaelin.cawley@colorado.edu; Fernando L. Rosario-Ortiz, fernando.rosario@colorado.edu; George Aiken, graiken@usgs.gov

Solutions to Metals Contamination of Water, *Organizers*: Satinder Ahuja, sutahuja@atmc.net; John W. Finley, jfinley@agcenter.lsu.edu; James N. Seiber, Jnseiber@ucdavis.edu

Surface Physicochemical Processes in Engineered and Natural Systems, *Organizers*: Haizhou Liu, haizhou@engr.ucr.edu; Jose M. Cerrato, jcerrato@unm.edu; Huichun (Judy) Zhang, hjzhang@temple.edu

Synergism between Microbiology and Chemistry for Environmental Sustainability, *Organizers*: Ramesh Goel, ram.goel@utah.edu; Shaily Mahendra, mahendra@seas.ucla.edu

Trace Materials in Air, Soil, and Water, *Organizers*: Mark E Benvenuto, benvenma@udmercy.edu; Kendra R Evans, evanskr@udmercy.edu; Alexa Rihana-Abdallah, rihanaa@udmercy.edu

Water Recycling in Domestic Use, Energy Extraction, and Agricultural Use, *Organizers*: Jamie Hestekin, jhesteki@uark.edu; Isabel Escobar, isabel.escobar@utoledo.edu

Water Sustainability in Oil and Gas Exploration: Treatment Issues, *Organizers*: Karl Linden, karl.linden@colorado.edu; Tzahi Cath, tcath@mines.edu

**Cosponsored Symposia:**

**AGFD** - Water: Our Most Critical Resource

**COLL** - Elucidation of Mechanisms & Kinetics on Surfaces (Aditya Savara, organizer), <http://www.acs.org/content/acs/en/meetings/abstract-submissions/coll.html>

**CALL FOR PAPERS**

# **Advances in Analytical Chemistry for Discovering Emerging Contaminants in the Natural Environment**

At 249th ACS National Meeting & Exposition

**Denver, Colorado**

**March 22 – 26, 2015**

Abstract Deadline: **October 20, 2014**

With this symposium we hope to foster the continued advancement of analytical chemistry techniques for measuring emerging contaminants in the natural environment. New or adaptations to existing analytical techniques are fundamental to advancing our understanding of the sources, transport, and fate of chemical stressors and of biological exposure and effects. This symposium will present new research covering various aspects of the collection, processing, and analysis of environmental samples for emerging contaminants.

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

- Emerging contaminants
- Sampling Techniques
- Extraction techniques
- Cleanup and fractionation methods
- Mass Spectrometry
- Sample introduction methods
- Improvements in sensitivity
- Identification of non-target chemicals

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/denver2015](http://www.acs.org/denver2015). Any other inquiries should be directed to the symposium organizers:

Tammy Jones-Lepp, MSc  
Research Chemist  
US Environmental Protection Agency  
Office of Research and Development  
National Exposure Research Laboratory  
Environmental Sciences Division  
Las Vegas, NV 89119  
[jones-lepp.tammy@epa.gov](mailto:jones-lepp.tammy@epa.gov)

David Alvarez, PhD  
Chief, Environmental Chemistry Branch  
US Geological Survey  
Columbia Environmental Research Center  
Columbia, MO 65201  
[dalvarez@usgs.gov](mailto:dalvarez@usgs.gov)



**CALL FOR PAPERS**

# **Assessing Toxicity of Environmental Contaminants**

At 249th ACS National Meeting & Exposition

**Denver, Colorado**

March 22 – 26, 2015

Abstract Deadline: **October 20, 2014**

Chemical and physical properties of environmental contaminants are important factors with regard to their potential toxicity and risks to ecological and human health. This symposium aims to create a multidisciplinary platform to communicate recent experimental or theoretical research work related to impacts of natural and synthetic chemicals in the environment including extreme environments. Chemicals targeted in this symposium include but not limited to persistent organic pollutants (POPs), hormone-disrupting compounds, oil and dispersants, nanomaterials, pesticides, metals and metalloids, biotoxins, and military practice related chemicals. Presentations that link chemical/physical properties to their interaction with living organisms and mechanisms of toxicity are especially encouraged and will be given high priority for oral presentation. We invite oral and poster presentations addressing issues of environmental contaminations. Specific topics include but are not limited to:

- Environmental concentration relevant exposure and toxic effects
- Biological mechanisms and mode of action related to chemical/physical properties
- High throughput monitoring tools
- Novel biomarkers and sentinel organisms
- Computational modeling/prediction of toxicity

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**Organizers:**

Xiaoping Pan, Assistant Professor, Department of Biology, Greenville, North Carolina  
[Panx@ecu.edu](mailto:Panx@ecu.edu)

Sophie Minori Uchimiya, Research Chemist, USDA-ARS, New Orleans  
[sophie.uchimiya@ars.usda.gov](mailto:sophie.uchimiya@ars.usda.gov)

Jiafan Wang, Ecotoxicologist, BASF Corporation, Research Triangle Park, North Carolina  
[jjafan.wang@basf.com](mailto:jjafan.wang@basf.com)

Baohong Zhang, Associate Professor, Department of Biology, Greenville, North Carolina  
[Zhangb@ecu.edu](mailto:Zhangb@ecu.edu)



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# **Bioavailability and the Biogeochemical Interactions Affecting Remediation of Hazardous Substances in the Environment**

At 249th ACS National Meeting & Exposition

Denver, Colorado

March 22 – 26, 2015

Abstract Deadline: **October 20, 2014**

Hazardous substances released into the environment are affected by complex biological, geochemical and physical processes that have implications for exposure risk by living systems. By understanding the mechanisms and kinetics of these complex interactions, we are better equipped to establish science-based decision making for site management, priority-setting, and remedy selection. Research advances have unlocked the mechanisms of these interactions, thanks, in part, to innovative technologies that utilize imaging, advanced analytical techniques, improved computational methods, or molecular approaches. Furthermore, efforts to apply these findings to field situations – through technology transfer – provide additional insight for model verification and establishing technology limitations.

This symposium will feature advanced imaging technologies, computer models, analytical methodologies, and empirical evidence of the biological, geological, and chemical processes that alter the availability and or toxicity of environmental contaminants to living systems. The session will explore environmental media such as soil, groundwater and sediments. The topics that would be covered in this session are, but are not limited to:

- advancements in methodology, particularly when applied to field settings
- bioremediation of metals
- bioremediation of recalcitrant contaminants
- *in situ* stabilization of contaminants using biological or chemical treatments
- case studies applying mechanistic biogeochemical findings in a field setting
- long-term monitoring efforts tracking effectiveness of remediation through time

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Heather Henry, PhD  
Superfund Research Program, National Institute of Environmental Health Sciences  
Contact Information: [henryh@niehs.nih.gov](mailto:henryh@niehs.nih.gov), 919-541-5330

James F Ranville, PhD  
Department of Chemistry and Geochemistry, Colorado School of Mines  
Contact Information: [jranvill@mines.edu](mailto:jranvill@mines.edu), 303-273-3004

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# Biogenically Enhanced Recovery and Bioremediation in Fossil Fuel Reservoirs

At 249th ACS National Meeting & Exposition

Denver, Colorado

March 22 – 26, 2015

Abstract Deadline: **October 20, 2014**

Generally accepted theories have suggested that hydrocarbon methanogenesis responsible for heavy oil generation occurs only over geological time. However, recent scientific discoveries suggest that natural gas recovered from fossil fuel reservoirs is biogenic in origin. This discovery creates the exciting possibility that microbial methanogenesis can be exploited to extend the productive life of oil and gas wells as well as depleted coal and shale deposits. In addition to allowing recovery of residual oil as methane, in situ methanogenic biodegradation of oil could stimulate current reservoir production by reducing the viscosity of the oil and re-pressurizing the reservoir. Biogenic enhanced recovery is also envisioned as a closed-loop fossil fuel system where geologic storage of CO<sub>2</sub> in depleted hydrocarbon-based fuel reservoirs, and microbial conversion of the CO<sub>2</sub> to methane, provides a sustainable methane energy source with zero CO<sub>2</sub> emissions. The biological processes identified include methanogenesis and hydrogenogenesis, however a synergy with geochemical processes and reservoir geology is also recognized. The *in situ* techniques of enhanced methanogenic biodegradation of fossil fuels can also be utilized to develop environmentally sound processes to treat the waste products including both produced fluids and solid wastes.

This symposium will include the latest information on biogenically enhanced recovery and bioremediation in fossil fuel reservoirs including the technical challenges, environmental effects, and political and regulatory climate. Presentations on novel approaches and existing research on biogenic enhanced recovery, microbial hydrocarbon formation, and bioremediation as well as all related topics are welcome.

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

- Biogenically enhanced recovery in coal, petroleum, shale and natural gas reservoirs
- In situ stimulation of methanogenic biodegradation of oil
- Stimulating microbial methane production in coals
- Bioremediation of produced fluids from unconventional reservoirs
- Bioremediation of solid waste produced from oilfields and oil and tar sands
- CO<sub>2</sub> storage/conversion to CH<sub>4</sub> in depleted petroleum reservoirs
- Microbial life in petroleum reservoirs and coal seams

- Kinetics of microbial conversions in fossil fuel reservoirs
- Geochemical factors influencing microbial activity
- Microbial hydrocarbon formation
- Novel or enhanced enzyme pathways
- Laboratory methods
- Identification of metabolic pathways and mechanisms
- Identification of the microbial consortia
- Increased bioavailability of coal and shale to naturally occurring microbial communities
- Regulatory issues and perspectives

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/denver2015](http://www.acs.org/denver2015). Any other inquiries should be directed to the symposium organizers:

Michael Urynowicz Ph.D.  
University of Wyoming  
Department of Civil & Architectural Engineering  
[murynowi@uwyo.edu](mailto:murynowi@uwyo.edu)

Donna L. Drogos, P.E.  
University of Wyoming  
Department of Civil & Architectural Engineering  
[ddrogos@uwyo.edu](mailto:ddrogos@uwyo.edu)





**CALL FOR PAPERS**

# **Chemical Processes at Environmental Interfaces**

Cosponsored by ENVR and COLL (Division of Colloid & Surface Chemistry)

At 249th ACS National Meeting & Exposition

**Denver, Colorado**

**March 22 – 26, 2015**

Abstract Deadline: **October 20, 2014**

Most environmentally-relevant processes are controlled by the chemistry occurring at the interface between the different phases present in these highly complex systems. For example, current interfacial research interests include the chemistry occurring on the surfaces of particulate matter in the atmosphere, the role of soil particles in controlling the transport properties of pollutants in geochemical environments, and aging of engineered nanomaterials upon release into the air or water. Consequently, research in these interdisciplinary areas of environmental surface chemistry provides the answer to a very important question, which is: what can we learn from experimental and theoretical studies of environmental processes to help us sustain our environment and improve quality of life? Answering this question demands the use of surface-specific analytical and imaging techniques that operate under ambient conditions for studying, *in situ and in real time*, gas/solid, gas/liquid and liquid/solid interfaces.

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

- Heterogeneous chemistry of aerosols and their mimics
- Aging of organic aerosols and their mimics
- Phase transformations in aerosol systems
- Environmental fate of nanomaterials
- Environmental fate of oxyanions and metals in the environment
- Application of fluorescence, vibrational and x-ray spectroscopy to studying environmental interfaces
- Application of nonlinear laser spectroscopy to studying environmental interfaces
- Application of environmental electron microscopy to studying environmental interfaces

Please submit your abstracts to the Division of Environmental Chemistry (ENVR) 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/denver2015](http://www.acs.org/denver2015). Any other inquiries should be directed to the symposium organizers:

Hind A. Al-Abadleh, Ph.D.  
Chemistry Department  
Wilfrid Laurier University  
Waterloo, Ontario  
CANADA  
Email: [halabadleh@wlu.ca](mailto:halabadleh@wlu.ca)

Hashim Ali, Ph.D.  
Department of Chemistry  
and Physics  
Arkansas State University,  
Jonesboro  
Jonesboro, AR  
USA  
Email: [hali@astate.edu](mailto:hali@astate.edu)

Ryan Hinrichs, Ph.D.  
Department of Chemistry  
Drew University  
Madison, NJ  
USA  
Email: [rhinrich@drew.edu](mailto:rhinrich@drew.edu)

Nadine Kabengi, Ph.D.  
Depts. of Geosciences &  
Chemistry  
Georgia State University  
Atlanta, GA  
USA  
Email: [kabengi@gsu.edu](mailto:kabengi@gsu.edu)

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# Chemistry in the Marine Boundary Layer

At 249th ACS National Meeting & Exposition

Denver, Colorado

March 22 – 26, 2015

Abstract Deadline: **October 20, 2014**

The marine atmospheric boundary layer (MABL) is that part of the atmosphere that has a direct contact and, hence is directly influenced by the ocean. The ocean covers a large extent of the Earth's surface and exchanges of heat, moisture, as well as a large variety of trace gases and particulate matter occur at the air–sea interface. These exchanges exert a substantial and complex influence on the climate system, as well as having more local effects on oxidative capacity, regional air quality, and marine biological productivity. As a consequence, the emission and deposition of trace species as well as emission of sea spray aerosol at the air–sea interface is receiving growing attention.

Recently, several studies has been focused on physical and chemical processes occurring at the ocean-atmosphere interface, on the primary sea-spray aerosol as well as on in the thin interfacial zone called the sea-surface microlayer (SSM). Current results reveal the ubiquitous presence of organic material at the upper levels of the sea surface, nevertheless the role of organic material as well as its dependence on biological activity and chemical processing is not well understood.

This session aims to present novel work focused on processing occurring at the marine boundary layer in order to shed new insights into the chemistry of this complex system and understand its impact at a local and global scale.

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS) at <http://maps.acs.org> or [www.acs.org/denver2015](http://www.acs.org/denver2015). Any other inquiries should be directed to the symposium organizers:

Dr. Barbara D'Anna  
IRCELYON, Institut de Recherches sur la  
Catalyse et l'Environnement de Lyon

[barbara.danna@ircelyon.univ-lyon1.fr](mailto:barbara.danna@ircelyon.univ-lyon1.fr)

Prof. D. James Donaldson  
University of Toronto

[jdonalds@chem.utoronto.ca](mailto:jdonalds@chem.utoronto.ca)

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# Conservation of Natural Resources through Sustainable Materials Management

At 249th ACS National Meeting & Exposition

Denver, Colorado

March 22 – 26, 2015

Abstract Deadline: **October 20, 2014**

Sustainable materials management (SMM) encourages the minimization and extraction of raw materials, reducing pressure on the use of non-renewable materials, recycling materials for beneficial reuse, substituting more benign materials into commerce, and maximizing quality of life and prosperity. There has been a shift in the United States and other countries from an end-of-life thinking (*waste* management) towards a more integrated life-cycle approach (*materials* management) by developing and demonstrating life cycle assessment paradigms and material, product, and process design strategies that lead to reduced environmental impacts while preserving natural capital. Thus materials management systems integrate Life Cycle Assessment (LCA) with approaches for the design of sustainable alternatives that can be applied to the development of materials management strategies for materials, including industrial, construction/demolition, and municipal materials.

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

- Life Cycle Analysis of Materials
- Integrated Environmental Materials management
- Environmental Implication of Construction and Demolition Debris
- Energy from Waste
- Beneficial Use of Materials
- Landfill Fires
- Biochar Application
- Sustainable Landfills
- Resource Conservation through Organics Management
- Anaerobic Digestion of Organics
- Green House Gas Emissions from Materials Management
- Ground Water Contamination from Materials Management
- Deconstruction and Recycling

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/denver2015](http://www.acs.org/denver2015). Any other inquiries should be directed to the symposium organizers:

Thabet Tolaymat Ph.D.  
National Risk Management  
Research Laboratory  
US Environmental Protection  
Agency  
Office of Research and  
Development  
Cincinnati, Ohio  
Phone: 513-487-2860

Souhail Al-Abed, Ph.D.  
National Risk Management Research  
Laboratory  
Office of Research and Development  
US Environmental Protection Agency  
Cincinnati, Ohio 45268  
Phone: 513-569-7849  
Email: [al-abad.souhail@epa.gov](mailto:al-abad.souhail@epa.gov)

Katsuya Kawamoto, Ph. D.  
Okayama University  
Environmental Management Center  
Tsushima-naka, Okayama, 700-8530  
Japan  
Phone: +81-86-251-8842  
Email: [kkawamoto@okayama-u.ac.jp](mailto:kkawamoto@okayama-u.ac.jp)

Email: [tolaymat.thabet@epa.gov](mailto:tolaymat.thabet@epa.gov)

## CALL FOR PAPERS

# DISPERSION OF NANOPARTICLES AND ITS IMPLICATION FOR INTERFACIAL, BIOLOGICAL AND ENVIRONMENTAL PROCESSES

249<sup>th</sup> American Chemical Society (ACS) National Meeting  
March 22-26, 2015, Denver, Colorado

The environmental risks of engineered nanoparticles (ENPs) have attracted a great deal of research attention. Dispersed ENPs play a key role in their biological and environmental impacts. ENP dispersions are influenced by both system and inherent material properties and their modifications. Upon exposure to the biological and environmental systems, ENPs undergo transformation via surface interaction with existing bio- and geo-macromolecules. Such interactions alter ENP aggregation state substantially. However, systematic research relating ENP aggregation status with their environmental processes and implications is limited.

This symposium will provide a timely forum for presenting cutting-edge research on ENP dispersion and its implications for their sorption properties, interfacial processes, uptake by organisms, toxicity as well as transport in environmental matrix. Systematic evaluation of aggregation state in complex biofluids as well as environmental systems is one of the key foci. Participants are welcome to present novel techniques in characterizing dispersed ENPs in relation to their behavior and bioavailability. Discussions on the transport of dispersed ENPs through various interfaces are also encouraged.

Presenters are required to submit their abstracts to the Division of Environmental Chemistry by October 20, 2014, 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/denver2015](http://www.acs.org/denver2015). Any other inquiries should be directed to the symposium organizers.

### Symposium Organizers:

Dr. Bo Pan  
Kunming University of Science & Technology  
Kunming, China, 650500  
Email: [panbocai@gmail.com](mailto:panbocai@gmail.com)

Dr. Navid Saleh  
University of Texas at Austin  
Austin, TX 78712  
Email: [navid.saleh@austin.utexas.edu](mailto:navid.saleh@austin.utexas.edu)

Dr. Peter Vikesland  
Virginia Polytechnique Institute  
Blacksburg, VA  
Email: [pvikes@vt.edu](mailto:pvikes@vt.edu)

Dr. Baoshan Xing  
University of Massachusetts  
Amherst, MA 01003  
Email: [bx@umass.edu](mailto:bx@umass.edu)

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# **Enantioselective Biotransformation of Chiral Pollutants in Soils and Water**

At 249th ACS National Meeting & Exposition

**Denver, Colorado**

March 22 – 26, 2015

Abstract Deadline: **October 20, 2014**

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

- Case Studies of Enantioselective Biotransformation of Agrochemicals in Soil and/or Water
- Case Studies of Enantioselective Biotransformation of Pharmaceuticals in Soil and/or Water
- Advances in Bio-Analytical Chemistry of Chiral Pollutants in Soil and/or Water
- Importance of Chemical Microenvironments (pH, etc.) in Enantioselective Biotransformation of Pollutants
- Importance of Biological Microenvironments (Microbial Populations, etc.) in Enantioselective Biotransformation of Pollutants
- Regulatory, Intellectual Property, and Other Business Considerations in Development of Chiral Products

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James M. Schmidt  
Sr Scientific Advisor  
Environmental Fate, Metabolism, and Product  
Chemistry  
ABC Laboratories, Inc.  
Columbia, MO USA  
[schmidtj@abclabs.com](mailto:schmidtj@abclabs.com)  
Phone 573-777-6412 (office)

Izabela Kania-Korwel, PhD  
Assistant Research Scientist  
Environmental Health Sciences Research Center  
University of Iowa  
Iowa City, IA USA  
[izabela-korwel@uiowa.edu](mailto:izabela-korwel@uiowa.edu)  
Phone: (319) 335-4220

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# Environmental Applications of Hydrogels

At 249th ACS National Meeting & Exposition

Denver, Colorado

March 22 – 26, 2015

Abstract Deadline: **October 20, 2014**

Hydrogels exhibit a significant capacity to sorb water and hazardous compounds, making them prime candidates for use in a variety of environmental applications, including water/wastewater treatment, *in situ* or *ex situ* contaminant remediation, agricultural amendment, sensing, and chemical capture/recycling. The sorption behavior of hydrogels can be partly explained by the presence of hydrophilic reactive functional groups attached to the network components within the hydrogel matrix and their affinity for target compounds. However, in order to optimize the performance of hydrogels, numerous research questions remain including those that focus on the relationship between hydrogel structure and the appropriate performance metrics for a given environmental application. Hence, this session will explore recent advances in the characterization and optimization of chemical and/or physical hydrogel properties to support their use in various environmental settings. Related topics may include performance of novel hydrogel composites, development of unique fabrication procedures, and/or determination of sorption capacities.

The hydrogel-related topics that would be covered in this session are:

- Fabrication procedures
- Characterization tools
- Structure/function relationships
- Sorption extents
- Environmental applications
- Water/wastewater treatment
- Environmental sensing
- Agricultural amendments
- Remediation of contaminated land/water
- Chemical capture/recycling

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/denver2015](http://www.acs.org/denver2015). Any other inquiries should be directed to the symposium organizers:

Thomas Duster, Ph.D.  
[thomas.duster@nist.gov](mailto:thomas.duster@nist.gov)  
(303) 497-3486

Indira Sriram, Ph.D.  
[indira.sriram@nist.gov](mailto:indira.sriram@nist.gov)  
(303) 497-4450

Jason Holm, Ph.D.  
[jason.holm@nist.gov](mailto:jason.holm@nist.gov)  
(303) 497-4335

**CALL FOR PAPERS**

# **Environmental Chemistry and Health Impacts of Fine and Ultrafine Particulate Matter**

At 249th ACS National Meeting & Exposition

**Denver, Colorado**

March 22 – 26, 2015

Abstract Deadline: **October 20, 2014**

The emission of particulate matter to the environment creates potentially hazardous conditions for plants animals and humans. Of special concern are particles within the size range of <2.5 microns (FP-fine particulates) and <0.1 microns (UFP-ultrafine particulates). FP are known to be transported to long distances from the source point while UFP transport is govern by diffusion processes. Thus once released, both FP and UFP cannot be controlled and are subject to environmental processes and reactions. The environmental systems are complex mixtures of variety of chemicals, both of natural and man made sources and the surface reactions and interactions on both FP and UFP may lead to new species and phenomena. With increasing amount of nanomaterials used in the consumer products, one can anticipate that such materials will eventually enter the environment and will be introduced into the air, soil and water systems, next to already present FP and UFP. With the decreasing size of the particles, their surface properties are changing and they may become more active compared to bulk material. It is thus imperative to understand the potential chemical interaction of FP and UFP within the environment and the consequences resulting from such.

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

- Chemical Interaction of Ambient Air Particulates with other pollutants
- Fate and Transport of Consumer product Nanomaterials at the product end-of-life
- Re-suspension of Nanomaterials in Ambient air
- Formation of new Species catalyzed by FP and UFP and their environmental impact
- Soil and Water: Deposition, Transport and Chemical reactivity of Particulate Matter

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/denver2015](http://www.acs.org/denver2015). Any other inquiries should be directed to the symposium organizers:

Slawo Lomnicki, Ph.D.  
[slomni1@lsu.edu](mailto:slomni1@lsu.edu)



**CALL FOR PAPERS**

# **Environmental Chemistry of Natural Resources at Animal Production Sites**

At 249<sup>th</sup> ACS National Meeting & Exposition

**Denver, Colorado**

March 22 – 26, 2015

Abstract Deadline: **October 20, 2014**

The need to feed growing populations in the U.S. and around the world is exerting considerable pressure on natural resources, particularly at high-volume animal production sites, such as concentrated animal feeding operations (CAFOs) and industrial aquaculture facilities. To meet the nutritional demands of current and future human populations in a responsible fashion, management of natural resources requires a balancing between resource exploitation and conservation. Environmental media relevant to an assessment of sustainable natural resource management and human exposure assessment include air, water, soil and food.

This symposium will focus on state-of-the-art environmental chemistry approaches for assessing the impact on natural resources of industrial animal protein production sites that feed human populations around the world. Relevant symposium contributions include analytical and modeling tools as well as new datasets furthering our understanding of the impact of animal protein production on natural resources and the path to sustainable management strategies in agriculture and aquaculture. As in the past, the organizers particularly encourage submission of innovative approaches meriting inclusion in a special topic, high-impact journal or in a peer-reviewed book format.

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

- Chemistry of air, water, soil and food at animal protein production sites
- Monitoring strategies for CAFOs and aquaculture, including innovative chemical and molecular biological detection methods
- Nutrient management & recycling strategies in CAFOs and aquaculture facilities
- Antibiotic use and drug resistance management
- Life-cycle assessment of animal protein production
- CAFOs, aquaculture and sustainability
- Regulations and policies for natural resource conservation and human health protection relating to CAFOs and aquaculture

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/denver2015](http://www.acs.org/denver2015). Any other inquiries should be directed to the symposium organizers:

**Rolf Halden**

The Biodesign Institute at Arizona State University  
Center for Environmental Security  
P.O. Box 875904  
Tempe, AZ 85287-5904  
Phone: (480) 727-0893  
Fax: (480) 965-6603  
Email: [rolf.halden@asu.edu](mailto:rolf.halden@asu.edu)

**Hansa Done**

The Biodesign Institute at Arizona State University  
Center for Environmental Security  
P.O. Box 875904  
Tempe, AZ 85287-5904  
Phone: (480) 727-0698  
Fax: (480) 965-6603  
Email: [hansa.done@asu.edu](mailto:hansa.done@asu.edu)



**AMERICAN CHEMICAL SOCIETY**  
DIVISION OF ENVIRONMENTAL CHEMISTRY

CALL FOR PAPERS

# Environmental Chemistry: Pedagogical Models and Practices

At 249th ACS National Meeting & Exposition

Denver, Colorado

March 22 – 26, 2015

Abstract Deadline: **October 20, 2014**

This symposium focuses on the pedagogical models and practices in college-level classes with the theme of chemistry and the environment. We invite submissions for oral and poster presentations describing your advances in assignment, course and/or curriculum development with an environmental chemistry theme. We especially encourage submissions that focus on the theme of this ACS meeting – *Chemistry of Natural Resources* – and applications of this in general chemistry, environmental chemistry, organic chemistry, analytical chemistry, instrumental analysis, inorganic chemistry, or biochemistry courses.

The topics with the environmental chemistry theme that would be covered in this session are, but are not limited to:

- project-based learning exercises
- case studies
- innovative environmental applications of IR, NMR, FAAS, GC-MS, LC-MS, ICP, fluorescence spectroscopy, UV-VIS spectroscopy, and XRF
- service learning opportunities
- applications of instrumentation in the field
- new lecture and laboratory courses with an environmental theme

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/denver2015](http://www.acs.org/denver2015). Any other inquiries should be directed to the symposium organizers:

Elizabeth S. Roberts-Kirchhoff, Ph.D.  
[robkires@udmercy.edu](mailto:robkires@udmercy.edu)

Katherine C. Lanigan, Ph.D.  
[lanigakc@udmercy.edu](mailto:lanigakc@udmercy.edu)

CALL FOR PAPERS

# Environmental Implications of Nano: Release from Consumer Products and Advances in Nanometrology

At 249th ACS National Meeting & Exposition

Denver, Colorado

March 22 – 26, 2015

Abstract Deadline: **October 20, 2014**

The recent rapid increase in the number and variety of consumer products incorporating nanomaterials (NMs) has led to concern regarding potential environmental impact. Data are needed that quantify the extent of release from a variety of nano-enabled products under realistic use conditions, in order to inform life cycle models on this emerging technology. Central to the assessment of release and biological impact is nanometrology: Laboratory and field studies of environmental fate, transport, and biological interactions of NMs rely on advanced analytical methods. Challenges to be overcome for accurate characterization and quantification of NMs in environmental samples include low expected NM concentrations, differentiation from natural particles, and general matrix complexity. This symposium will be a forum for presentation of the most recent work on the environmental implications of NM use, including both quantification and qualitative characterization of NMs released in environmental media such as air, water, soil/sediment, and biota.

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

- Nanometrology advances
- Environmental implications of NMs
- Release of NMs from products
- NMs fate and transport in the environment

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/denver2015](http://www.acs.org/denver2015). Any other inquiries should be directed to the symposium organizers:

Robert Reed  
Arizona State  
University  
+1(360) 434-1017  
rob.reed@asu.edu

Frank von der Kammer  
University of Vienna  
+43-1-4277-53380  
frank.von.der.kammer@univie.ac.at

Jim Ranville  
Colorado School of  
Mines  
+1(303) 273-3004  
jranvill@mines.edu

Chris Higgins  
Colorado School of Mines  
+1(303) 384-2002  
chiggins@mines.edu

**CALL FOR PAPERS**

# **Environmental Reactivity of Organic Micropollutants and Their Transformation Products in Receiving Waters**

At 249th ACS National Meeting & Exposition

**Denver, Colorado**

March 22 – 26, 2015

Abstract Deadline: **October 20, 2014**

A significant body of literature exists on the various processes (e.g., sorption, photolysis, biodegradation) that attenuate organic micropollutants in the aqueous environment. With the ubiquity of state-of-the-art chromatography coupled to high-resolution tandem mass spectrometry, increasing numbers of micropollutant transformation products are being detected and identified. Little is known, however, about the environmental fate, reactivity, and biological activity of these substances. In this symposium we invite submissions that identify transformation products of micropollutants (e.g., pesticides, pharmaceuticals) and examine their chemical and biological reactivity and biological effects in sediments, surface, and subsurface waters.

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

- New methods of mass spectrometry and spectroscopy for identifying transformation products
- Photochemical fate of transformation products
- Toxicity of transformation products
- Biodegradation of transformation products
- Abiotic chemical reaction pathways
- Sorption of chemical transformation products

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/denver2015](http://www.acs.org/denver2015). Any other inquiries should be directed to the symposium organizers:

William Arnold, Ph.D.  
University of Minnesota  
[arnol032@umn.edu](mailto:arnol032@umn.edu)

Yu-Ping Chin, Ph.D.  
Ohio State University  
[chin.15@osu.edu](mailto:chin.15@osu.edu)

Kristine Wammer, Ph.D.  
University of St. Thomas  
[khwammer@stthomas.edu](mailto:khwammer@stthomas.edu)

**CALL FOR PAPERS**

# **Green Chemistry and the Environment**

At 249th ACS National Meeting & Exposition

**Denver, Colorado**

March 22 – 26, 2015

Abstract Deadline: **October 20, 2014**

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

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

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

Please submit your abstracts using (<http://abstracts.acs.org>). Any other inquiries should be directed to:

**Prof. Rafael Luque**  
Dept. Química Orgánica  
Universidad de Córdoba  
Edificio Marie Curie  
Ctra Nnal IV-A  
Córdoba (Spain) E-14014  
E-mail: [g62alsor@uco.es](mailto:g62alsor@uco.es)

**Dr. Alina Balu**  
IEF-Marie Curie Fellow  
Department of Catalysis  
Avantium Chemicals BV  
Zekeringstraat 29, 1014 BV  
Amsterdam, The Netherlands  
Email: [alina.balu@avantium.com](mailto:alina.balu@avantium.com)

**Prof. Sherine Obare**  
Department of Chemistry  
Western Michigan University  
Kalamazoo, MI 49008-5413, USA  
Email: [sherine.obare@wmich.edu](mailto:sherine.obare@wmich.edu)

**CALL FOR PAPERS**

# **Hydraulic Fracturing Impacts on Water, Soil, and Air Quality**

At 249th ACS National Meeting & Exposition

**Denver, Colorado**

March 22 – 26, 2015

Abstract Deadline: **October 27, 2014**

Recent advancements in hydraulic fracturing and horizontal drilling technologies have led to a resurgence of oil and natural gas extraction within the United States, with over 100,000 new wells drilled over the past decade. The frequent proximity to communities and agricultural lands in combination with the industry's exemption from several major federal environmental laws has raised significant concerns about the impacts of hydraulic fracturing operations on surface water, shallow groundwater, and soil quality. These concerns are based on a variety of aspects, such as inadvertent releases of hydraulic fracturing chemicals, upward migration of natural gas and fracturing fluids, management of flowback and produced waters, and appropriate monitoring and regulatory strategies. This symposium will cover the latest insights on the environmental impacts of hydraulic fracturing, including effects on water, soil, and air quality, technical challenges and advancements, as well as regulatory and political perspectives.

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

- Impact of unconventional gas extraction on water, soil, and air quality
- Fate and transport of hydraulic fracturing fluids and chemicals in the environment and downhole
- Upward migration of hydraulic fracturing fluids and natural gas
- Impact of methane leakage on shallow groundwater quality
- Impact of methane leakage on global climate
- Produced water management
- Naturally occurring radioactive materials (NORMs) in produced water
- Chemical and microbial characterization of flowback and produced water
- New and emerging chemical additives in hydraulic fracturing fluids
- Biogeochemical impacts
- Groundwater monitoring around hydraulic fracturing operations
- Effect of hydraulic fracturing-impacted runoff and irrigation water on plant health and food safety
- Regulatory aspects and perspectives

Please submit your abstracts using (<http://maps.acs.org>). Any other inquiries should be directed to:

Thomas Borch, Colorado State University, Department of Soil and Crop Sciences and Department of Chemistry, Phone: (970) 491-6235, Email: [thomas.borch@colostate.edu](mailto:thomas.borch@colostate.edu)

Jens Blotevogel, Colorado State University, Department of Civil and Environmental Engineering, Phone: (970) 491-8880, Email: [jens.blotevogel@colostate.edu](mailto:jens.blotevogel@colostate.edu)

Radisav Vidic, University of Pittsburgh, Department of Civil and Environmental Engineering, Phone: (412) 624-9870, Email: [vidic@pitt.edu](mailto:vidic@pitt.edu)

Rob Jackson, Stanford University, Environmental Earth System Science. [rob.jackson@stanford.edu](mailto:rob.jackson@stanford.edu)

CALL FOR PAPERS

# Microalgae: A Renewable Energy Source and a Sustainable Solution for the Environment

At 249th ACS National Meeting & Exposition

Denver, Colorado

March 22 – 26, 2015

Abstract Deadline: **October 20, 2014**

The growing potential of algal biotechnology as a resource could be used to tackle many global challenges in energy and the environment. Microalgal biomass is one of the promising feedstocks for fertilizers, animal food sources, and other valuable substances such as antioxidants, antibiotics and polyunsaturated fatty acids (PUFAs). Recently, microalgae are considered as good candidates for biofuel production and have gained enormous research interests. Microalgae can be used for the removal of nutrients (e.g., nitrate ( $\text{NO}_3^-$ ), nitrite ( $\text{NO}_2^-$ ) and phosphate ( $\text{PO}_4^{3-}$ ) from impaired water and the sequestration of  $\text{CO}_2$ , a greenhouse gas resulting in global climate change. Thus, microalgae cultivation, separation from growth media, post-treatment, and biofuel production are all critical to address the challenges in renewable energy generation and sustainable development of the environment. In this symposium, invited experts and researchers will discuss the state-of-the-art knowledge on current challenges and opportunities of microalgae in the environment. This symposium accepts theoretical and experimental research that delivers recent advances on the environmental applications of microalgae.

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

*1. Applications and implications of green microalgae for energy and the environment*

- Nutrient removal from waters using algal bioreactors
- Biofuel production or extraction
- Engineered processes for high lipid algal production (e.g., innovative cultivation methods and photobioreactors)
- Toxicity and negative impacts on water quality and water treatment processes

*2. Algal harvesting or separation technologies*

- Coagulation (e.g., chemical coagulation, biocoagulation, electro-coagulation and magnetic coagulation)
- Membrane filtration
- Air flotation
- Interfacial physical and chemical processes involved in algal biomass harvesting

Please submit your abstracts using the ACS Meeting Abstracts Programming System (MAPS): <http://maps.acs.org>. General information about the meeting is available at [www.acs.org/denver2015](http://www.acs.org/denver2015). Any other inquiries should be directed to the symposium organizers:

<p><b>Wen Zhang, Ph.D., P.E.</b> Assistant Professor John A. Reif, Jr. Department of Civil and Environmental Engineering Director, The Environmental Engineering Teaching Laboratory New Jersey Institute of Technology 323 Martin Luther King Blvd. Newark, NJ 07102 Office Phone: (973) 596-5520 Email: wzhang81@njit.edu</p>	<p><b>Brian P. Chaplin, Ph.D.</b> Assistant Professor University of Illinois at Chicago Dept. of Chemical Engineering 221 Chemical Engineering Building 810 S. Clinton St. Chicago, IL 60607 Office: 312-996-0288 Cell: 217-369-5529 Email: chaplin@uic.edu</p>	<p><b>Danmeng Shuai, Ph.D.</b> Assistant Professor Department of Civil and Environmental Engineering The George Washington University 639 Phillips Hall, 801 22nd Street NW, Washington, DC 20052 Tel: 202-994-0506 Email: danmengshuai@gwu.edu</p>
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**CALL FOR PAPERS**

**Modern Analytical Approaches for the Characterization of  
Natural Organic Matter in the Environment**

At 249th ACS National Meeting & Exposition

**Denver, CO**

March 22-26, 2015

Abstract Deadline: **October 20, 2014**

Since first recognizing the importance of “yellow organic acids” more than eight decades ago, the characterization of the physicochemical properties of organic matter (OM) has been of interest to researchers in many different fields. Over the years, different approaches have been developed and used to characterize OM, including chemical and physical fractionation, mass spectrometry and spectroscopic techniques. There is considerable interest in the application of analytical techniques for the characterization of OM to better understand processes in natural and engineered systems. Characterization methods include direct analytical measurements of OM chemical characteristics as well as indirect methods, such as the propensity of OM to form reactive intermediates or disinfection byproducts (DBPs). This session focuses on the analytical methods used to characterize OM composition and reactivity with the goal of featuring new advances in the field.

Examples of characteristic techniques include:

- Mass spectrometry
- Optical properties
- Reactive intermediate formation
- DBP formation potential
- Infrared spectroscopy
- Titration
- Nuclear magnetic resonance
- Molecular weight characterization
- Resin fractionation
- Degradation (i.e., oxidation, reduction, thermal) techniques

Please submit your abstracts to the Division of Environmental Chemistry (ENVR) 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/denver2015](http://www.acs.org/denver2015). Any other inquiries should be directed to the symposium organizers:

**Julie A. Korak**, Department of Civil, Environmental and Architectural Engineering, University of Colorado at Boulder, 428 UCB, Boulder, CO 80309-0428; phone: (847) 909-3876; e-mail: [Julie.Korak@colorado.edu](mailto:Julie.Korak@colorado.edu)

**Kaelin Cawley**, Department of Civil, Environmental and Architectural Engineering, University of Colorado at Boulder, 428 UCB, Boulder, CO 80309-0428; phone: (303) 735-2495; e-mail: [kaelin.cawley@colorado.edu](mailto:kaelin.cawley@colorado.edu)

**Fernando L. Rosario-Ortiz**, Department of Civil, Environmental and Architectural Engineering, University of Colorado at Boulder, 428 UCB, Boulder, CO 80309-0428; phone: (303) 492-7607; e-mail: [Fernando.Rosario@colorado.edu](mailto:Fernando.Rosario@colorado.edu)

**George Aiken**, U.S. Geological Survey, 3215 Marine Street, Boulder, CO, 80303; phone: (303) 541-3036; e-mail: [graiken@usgs.gov](mailto:graiken@usgs.gov)





**CALL FOR PAPERS**

**Solutions to Metals Contamination of Water**

At 249th ACS National Meeting & Exposition

**Denver, Colorado**

**March 22 – 26, 2015**

Abstract Deadline: **October 20, 2014**

Over one billion people drink unclean water today from various sources. These sources are exposed to various metal contaminants such as arsenic, chromium, mercury, lead, etc. This contamination can lead to significant health issues if effective remediation solutions are not found. For example, arsenic contamination of groundwater has been reported as the worst disaster relating to metal contamination. Arsenicosis, resulting from drinking arsenic-contaminated water, affects around 200 million people worldwide including USA; it can lead to a slow and painful death. Papers are invited which will focus on how groundwater or surface is contaminated with various metals, ultratrace methods used for monitoring them, and the best options for remediation. Solutions that offer significant improvements in water purification technologies, at reasonable costs, should be highlighted. Lectures are invited to cover the following topics:

- (1) characterization of sites polluted with metal contaminants
- (2) generation and release of metal contaminants into groundwater or surface water
- (3) risk assessment and management strategies of these contaminants
- (4) environmental implications of these contaminants
- (5) remediation methods

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/denver2015](http://www.acs.org/denver2015). Any other inquiries should be directed to the symposium organizers:

Satinder (Sut) Ahuja PhD  
President, Ahuja Consulting  
1061 Rutledge Court  
Calabash, NC 28467  
Sutahuja@atmc.net  
Tel: 910 287 7565  
Email: [sutahuja@atmc.net](mailto:sutahuja@atmc.net)

John W. Finley  
School of Nutrition and Food Sciences  
Louisiana State University  
Baton Rouge, LA

James N. Seiber  
Dept of Environmental  
Toxicology  
University of California, Davis  
Davis, CA 95616

**CALL FOR PAPERS**

# Surface Physicochemical Processes in Engineered and Natural Systems

At 249th ACS National Meeting & Exposition

Denver, Colorado

March 22 – 26, 2015

Abstract Deadline: **October 20, 2014**

Surface physicochemical processes are closely associated with migration of pollutants and water quality in both engineered and natural systems. Key examples of such processes include but are not limited to redox reactions occurring at mineral surfaces, remedial processes in contaminated aquifer and sediments, oxyanion removal and release in water treatment and distribution systems, advanced oxidation and reduction processes by heterogeneous catalysis, and applications of electrochemical processes. This symposium will cover recent advances in our understanding and application of these interfacial processes in engineered systems of water purification, reuse and remediation, as well as those that impact water quality in natural aquatic systems. Groups of compounds of particular interest would include but are not limited to metal(loid)s, pesticides, flame retardants, pharmaceuticals and personal care products, nuclear energy by-products, hydrofracking-related contaminants, and various biogenic compounds.

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

Haizhou Liu  
Assistant Professor  
Department of Chemical and  
Environmental Engineering  
A239 Bourns Hall  
University of California  
Riverside, CA 92521  
Phone: (951) 827-2076  
Fax: (951) 827-5697  
E-mail: [haizhou@engr.ucr.edu](mailto:haizhou@engr.ucr.edu)

José M. Cerrato, Ph.D.  
Assistant Professor  
Department of Civil  
Engineering  
3036 CENT  
University of New Mexico  
Albuquerque, NM 87106  
Phone: (505) 277-0870  
E-mail: [jcerrato@unm.edu](mailto:jcerrato@unm.edu)

Huichun (Judy) Zhang  
Assistant Professor  
Department of Civil and  
Environmental Engineering  
Temple University  
Philadelphia, Pennsylvania  
Phone: (215) 204-4807  
E-mail: [hjzhang@temple.edu](mailto:hjzhang@temple.edu)

**Invited speakers include:**

Timothy Strathmann  
Professor  
Department of Civil and  
Environmental Engineering  
University of Illinois at Urbana-  
Champaign, IL

Joseph Pignatello  
Chef Scientist  
Department of Environmental  
Sciences  
The Connecticut Agricultural  
Experiment Station  
New Haven, CT

**CALL FOR PAPERS**

# Trace Materials in Air, Soil, and Water

At 249th ACS National Meeting & Exposition

**Denver, Colorado**

March 22 – 26, 2015

Abstract Deadline: **October 20, 2014**

In accordance with the theme of the 249<sup>th</sup> ACS National Meeting, *Chemistry of Natural Resources*, this symposium focuses on the detection, identification, and quantitation of trace materials in air, water, or soil. We invite submissions for oral or poster presentations on your research in this area.

The topics for the air, soil or water analyses that would be covered in this session are, but are not limited to:

- urban farming
- air quality in urban and industrial environments
- urban brownfields before and after remediation
- pesticides in soil or water
- applications of phytoremediation
- trace substances in surface or ground water
- ecological remediation
- pharmaceutical compounds or industrial waste products in effluents from wastewater treatment plants
- trace substances in drinking water from municipal water sources or bottled water

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/denver2015](http://www.acs.org/denver2015). Any other inquiries should be directed to the symposium organizers:

Mark A. Benvenuto, Ph.D. <a href="mailto:benvenma@udmercy.edu">benvenma@udmercy.edu</a>	Kendra R. Evans, Ph.D. <a href="mailto:evanskr@udmercy.edu">evanskr@udmercy.edu</a>	Alexa Rihana Abdallah, Ph.D. <a href="mailto:rihanaa@udmercy.edu">rihanaa@udmercy.edu</a>
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CALL FOR PAPERS

## Water Recycling in Domestic Use, Energy Extraction, and Agricultural Use

At 249th ACS National Meeting & Exposition

### Denver, Colorado

March 22 – 26, 2015

Abstract Deadline: **October 20, 2014**

The average person in the United States uses 2,842 m<sup>3</sup>/y water, where this number is about 1,000 m<sup>3</sup>/y in India and China (Hoekstra and Mekonnen, PNAS, 2012). Of this water, over 90% is contributed to agricultural production. With the growth in popularity of hydraulic fracturing, the demands on freshwater in the United States continues to grow. Thus, papers in this session will look at new methods for water recycling in hydraulic fracturing, agricultural use, and domestic use.

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

- Water recycling in hydraulic fracturing.
- Limiting water in agricultural use.
- Small scale systems for domestic use.

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/denver2015](http://www.acs.org/denver2015). Any other inquiries should be directed to the symposium organizers:

Jamie Hestekin  
University of Arkansas  
3202 Bell Engineering Center  
Fayetteville, AR 72703  
[jhesteki@uark.edu](mailto:jhesteki@uark.edu)  
479-575-3492

Isabel Escobar  
University of Toledo  
2801 West Bancroft Street, MS 305  
Toledo, OH 43606  
[Isabel.escobar@utoledo.edu](mailto:Isabel.escobar@utoledo.edu)  
419-530-8267

**CALL FOR PAPERS**

# **Water Sustainability in Oil and Gas Exploration: Treatment Issues**

At 249th ACS National Meeting & Exposition

**Denver, Colorado**

March 22 – 26, 2015

Abstract Deadline: **October 20, 2014**

Energy development is a reality of any industrialized society, and the explosion and development of unconventional gas resources in the United States can be stressful on water resources. The need for large volumes of water, often in arid and remote regions, and the disposal of wastewater is an essential element for the sustainability of this growing industry. This symposium will examine key issues in water sustainability and reuse of wastewaters from practices such as hydraulic fracturing, with a goal of identifying issues and solutions toward more sustainable development.

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

- Treatment technologies for reuse of oil and gas exploration and production wastewaters
- Desalination of hypersaline brines
- Water quality of flowback and produced waters related to treatability
- Water quality goals for beneficial reuse of wastewaters
- Wastewater disposal issues
- Deep well injection

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/denver2015](http://www.acs.org/denver2015). Any other inquiries should be directed to the symposium organizers:

Karl G. Linden, Ph.D.  
Croft Professor  
Environmental Engineering  
University of Colorado Boulder  
[karl.linden@colorado.edu](mailto:karl.linden@colorado.edu)

Tzahi Cath, Ph.D.  
Associate Professor  
Civil and Environmental Engineering  
Colorado School of Mines  
[tcath@mines.edu](mailto:tcath@mines.edu)



**249th ACS National Meeting & Exposition**  
**March 22-16, 2015,**  
**Denver, Colorado**  
**Division of Colloid and Surface Chemistry (COLL)**  
**Joint Symposium with ENVR and CATL on**  
**Elucidation of Mechanisms and Kinetics on Surfaces (Oral)**

A variety of surface chemistry research involves elucidation of mechanisms and kinetics of reactions on surfaces. Applications range from understanding geological processes to catalytic processes to corrosion prevention. Such research projects often involve understanding reaction mechanisms by spectroscopic identification of intermediates and/or kinetic modeling.

New methodologies for elucidating mechanisms and kinetics, and the transferability of knowledge gained from various examples can have impacts broader than the specific field or type of chemistry. This symposium enables cross-pollination among the various specializations for knowledge involved in elucidating mechanisms and kinetics at surfaces. Some examples of possible reactions are nitrogen oxide reduction, hydrogenation on metal surfaces, aqueous oxidative dehydrogenation, etc.

Appropriate topics include, but are not limited to:

- DeNO<sub>x</sub> catalysis
- sorption kinetics
- hydrogenation of organic hydrocarbons or oxygenates
- deoxygenation of organic oxygenates
- activation of CH bonds
- understanding structure sensitivity
- kinetic descriptors (e.g., BEP relations) for specific reactions
- kinetic Monte Carlo, microkinetic modeling
- Spectroscopic characterization of intermediates on surfaces
- density functional theory calculations of energy landscapes for kinetics

Organizer:

Aditya (Ashi) Savara, Bldg 4100, MS 6201, RM A205, Chemical Sciences Division, Oak Ridge National Lab, 1 Bethel Valley Road, Oak Ridge, TN 37831 USA; 865-576-6311; [savaraa@ornl.gov](mailto:savaraa@ornl.gov);