ENVR - Division of Environmental Chemistry
239th ACS National Meeting, San Francisco, CA, March 21-25, 2010

Symposium Title	Symposium Organizers
ACS Award for Creative Advances in Environmental Science and Technology (in Memory of Joseph J. Breen) *Cosponsored with Air Products and Chemicals* **ORAL** *Invited papers only*	Ruth A. Hathaway, Hathaway Consulting, 1810 Georgia St, Cape Girardeau, MO 63701-3816, Phone: 573-334-3827, Fax: 573-334-2551, ruthhathaway@msn.com
Analytical Challenges for New Crop Protection Products *Cosponsored with AGRO* **ORAL**	George P. Cobb, Department of Environmental Toxicology, The Institute of Environmental and Human Health, Texas Tech University, PO Box 41163, Lubbock, TX 79409-1163, Phone: 806-885-4567 ext. 226, george.cobb@tiehh.ttu.edu. Kevin L. Armbrust, Office of the State Chemist - Mississippi, P.O. Box CR, Mississippi State, MS 39762, Phone: 662-325-3324, Fax: 662-325-7807, armbrust@mscl.msstate.edu
Antimicrobial Agents and Sustainability **ORAL**	Rolf U. Halden, Center for Environmental Biotechnology, The Biodesign Institute at Arizona State University, 1001 South McAllister Ave., P.O. Box 875701, Tempe, AZ 85287-5701, Phone: 480-727-0893, Fax: 480-727-0889, Halden@asu.edu
Aquatic Redox Chemistry: A Symposium in Honor of Donald L. Macalady *Cosponsored with GEOC‡* **ORAL**	Paul G. Tratnyek, Department of Environmental and Biomolecular Systems, Oregon Health & Science University, 20000 NW Walker Road, Beaverton, OR 97006, Phone: 503-748-1023, tratnyek@ebs.ogi.edu. Timothy J. Grundl, Geosciences Department, University of Wisconsin-Milwaukee, Milwaukee, WI 53201, Phone: 414-229-4765, Fax: 414-229-5452, grundl@uwm.edu. Stefan B. Haderlein, Center for Applied Geosciences (ZAG), Eberhard-Karls University of Tuebingen, Sigwartstrasse 10, 72076 Tuebingen Germany, Phone: +49-7071-297-31 48, Fax: +49-7071-5059, haderlein@uni-tuebingen.de
Assessing and Remediating Unprecedented Environmental Damages to a Fragile Ecosystem: Nearly Two Decades after Occurrence in Kuwait **ORAL**	George P. Cobb, Department of Environmental Toxicology, The Institute of Environmental and Human Health, Texas Tech University, PO Box 41163, Lubbock, TX 79409-1163, Phone: 806-885-4567 ext. 226, george.cobb@tiehh.ttu.edu. Steven M. Presley, The Institute of Environmental and Human Health, Texas Tech University, Box 41163, Lubbock, TX 79409-1163, Phone: 806-885-4567, Fax: 806-885-2132, steve.presley@tiehh.ttu.edu

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Symposium Title	Symposium Organizers
Atmospheric Chemistry of Persistent Organic Pollutants *Cosponsored with AEESP* **ORAL**	Kalliat T. Valsaraj, Cain Department of Chemical Engineering, Louisiana State University, Baton Rouge, LA 70803, Phone: 225-578-1426, valsaraj@lsu.edu. Raghava R. Kommalapati, Department of Civil & Environmental Engineering, Prairie View A&M University, P.O. Box 519 - Mail Stop 2510, Prairie View, TX 77446, Phone: 936-261-1660, Fax: 936-261-1662, rrkommalapati@pvamu.edu
Biochars for Environmental Sustainability: Green Fuels, Carbon Sequestration, and Long-Term Agricultural Production **ORAL**	David A. Laird, USDA-ARS, National Soil Tilth Laboratory, 2110 University Blvd, Ames, IA 50011, Phone: 515-294-1581, Fax: 515-294-8125, david.laird@ars.usda.gov. Mark Chappell, Soil & Sediment Geochemistry, Environmental Laboratory, U.S. Army Corps of Engineers, 3909 Halls Ferry Rd, Vicksburg, MS 39180, Phone: 601-634-2802, Fax: 601-634-3410, Mark.A.Chappell@usace.army.mil
Energy Sustainability of the Water Infrastructure Using Microbial Fuel Cell Based Technologies **ORAL**	Bruce E Logan, Department of Civil and Environmental Engineering, The Pennsylvania State University, 212 Sackett Building, University Park, PA 16802, Phone: 814-863-7908, Fax: 814-863-7304, blogan@psu.edu. Bruce E. Rittmann, Center for Environmental Biotechnology, Biodesign Institute at Arizona State University, 1001 South McAllister Avenue, Tempe, AZ 85287, Phone: (480) 727 0434, Fax: (480) 727 0889, Rittmann@asu.edu. John M. Regan, Department of Civil and Environmental Engineering, The Pennsylvania State University, 215A Sackett Building, University Park, PA 16802, Phone: 814-865-9436, Fax: 814-863-7304, jregan@engr.psu.edu
Fate and Transport of Pollutants in the Built Environment: Atmospheric Chemistry Moves Indoors *Cosponsored with AEESP* **ORAL**	Hugo Destaillats, Indoor Environment Department, Lawrence Berkeley National Laboratory, Cylcrotron Road 1, MS 70-10B, Berkeley, CA 94720, Phone: 510-486-5897, HDestaillats@lbl.gov. Charles J. Weschler, Environmental and Occupational Health Sciences Institute, UMDNJ/Robert Wood Johnson Medical School, Rutgers University, 14 College Farm Road, New Brunswick, NJ 08901, Phone: 732-530-0961, weschlch@umdnj.edu
General Papers **POSTER** (All papers are poster presentations)	Souhail R. Al-Abed, National Risk Management Research Laboratory, U.S. Environmental Protection Agency, 26 W. Martin Luther King Dr, Cincinnati, OH 45268, Phone: 513-569-7849, Fax: 513-569-7879, al-abed.souhail@epa.gov

ENVR - Division of Environmental Chemistry
239th ACS National Meeting, San Francisco, CA, March 21-25, 2010

Symposium Title	Symposium Organizers
Influence of Natural Organic Matter on the Fate and Transport of Metals, Colloids and Nanoparticles in the Aquatic Systems **ORAL**	George Aiken, Water Resources Division, U. S. Geological Survey, 3215 Marine Street, Boulder, CO 80303, Phone: 303-541-3036, Fax: 303-447-2505, graiken@usgs.gov. Heileen Hsu-Kim, Civil and Environmental Engineering, Duke University, Box 90287, 121 Hudson Hall, Durham, NC 27708, Phone: 919-660-5109, Fax: 919-660-5219, hsukim@duke.edu. Joseph N. Ryan, Department of Civil, Environmental, and Architectural Engineering, University of Colorado, Campus Box 428, Boulder, CO 80309, Phone: 303-492-0772, Fax: 801-327-7112, joseph.ryan@colorado.edu
Metrics and Environmental Sustainability **ORAL**	Dianne L. Poster, Chemical and Science Technology Laboratory, National Institute of Standards and Technology, 100 Bureau Drive MS 8300, Gaithersburg, MD 20899-8392, Phone: 301-975-8941, dianne.poster@nist.gov. Nora F. Savage, Office of Research & Development, Environmental Protection Agency, 1200 Pennsylvania Avenue, NW, Mail Code 8722R, Washington, DC 20460, Phone: 202-564-8228, Fax: 202-565-2446, savage.nora@epa.gov
Nanoporous Materials for Environmental Applications **ORAL**	Baolin Deng, Department of Civil and Environmental Engineering, University of Missouri-Columbia, Columbia, MO 65211, Phone: 573-882-0075, Fax: 573-882-4784, dengb@missouri.edu. Richard G. Luthy, Department of Civil and Environmental Engineering, Stanford University, Yang & Yamazaki Environment & Energy Building, Stanford, CA 94305-4020, Phone: 650-723-3921, luthy@stanford.edu
Nanotechnology: Enabling Sustainable Solutions for Potable Water **ORAL**	Dionysios D. Dionysiou, Department of Civil and Environmental Engineering, University of Cincinnati, 765 Baldwin Hall, Cincinnati, OH 45221-0071, Phone: 513-556-0724, Fax: 513-556-2599, dionysios.d.dionysiou@uc.edu. Nora F. Savage, Office of Research & Development, Environmental Protection Agency, 1200 Pennsylvania Avenue, NW, Mail Code 8722R, Washington, DC 20460, Phone: 202-564-8228, Fax: 202-565-2446, savage.nora@epa.gov
New Energy Technologies **ORAL**	Jan Marwan, Research and Development, Dr Marwan Chemie, Rudower Chaussee 29, Berlin 12489 Germany, Phone: 49-30-63922566, Fax: 49-30-63922566, info@marwan-chemie.fta-berlin.de

ENVR - Division of Environmental Chemistry
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Symposium Title	Symposium Organizers
Policies for Promoting Sustainable Chemistry **ORAL**	Rolf U. Halden, Center for Environmental Biotechnology, The Biodesign Institute at Arizona State University, 1001 South McAllister Ave., P.O. Box 875701, Tempe, AZ 85287-5701, Phone: 480-727-0893, Fax: 480-727-0889, Halden@asu.edu
Sustainable Processes for Drinking Water and Wastewater Treatment **ORAL**	Clayton J. Clark II, FAMU-FSU College of Engineering, Florida Agricultural and Mechanical University, 2525 Pottsdamer Street, Tallahassee, FL 32310, Phone: 850-410-6122, clayton.clarkii@famu.edu. Adrienne T. Cooper, Biological and Agricultural Systems Engineering, Florida Agricultural and Mechanical University, 1740 S. Martin Luther King Jr. Blvd., 307 N. Perry-Paige Bldg, Tallahassee, FL 32307, Phone: 850-412-5005, adrienne.cooper@famu.edu. Angela S. Lindner, Environmental Engineering Sciences, University of Florida, P.O. Box 116550, Gainesville, FL 32611-6450, Phone: 352-392-2177 ext. 1026, alind@eng.ufl.edu
Sustainable Waste Management: Issues and Challenges **ORAL**	Souhail Al-Abed, National Risk Management Research Laboratory, U.S. Environmental Protection Agency, 5995 Center Hill Ave, Cincinnati, OH 45224, Phone: 513-569-7849, Fax: 513-569-7879, Al-abed.souhail@epa.gov. Thabet Tolaymat, Office of Research and Development, U.S. Environmental Protection Agency, National Risk Management Research Laboratory, 26 W. Martin Luther King Drive, Cincinnati, OH 45268, Phone: 513-487-2860, Fax: 513-569-7879, tolaymat.thabet@epa.gov
Sustainable Water Production and Waste Treatment: Emerging Technologies for the Treatment and Utilization of Impaired Water Sources **ORAL**	Baikun Li, Civil and Environmental Engineering, University of Connnecticut, 261 Glenbrook Road Unit 2037, Storrs, CT 06269-2037, Phone: 860-486-2339, baikun@engr.uconn.edu

San Francisco Timeline

Below is the timeline for the San Francisco National Meeting:

Dates subject to change according to *C&EN* publication deadlines

Activity	**Date**
OASYS opens for author abstract submission	8/24/2009
OASYS Closes to Authors	10/19/2009
OASYS Closes to Symposium Organizers	11/2/2009
Preliminary program from program chairs to ACS Meetings	11/15/2009
Final technical program from program chairs to ACS Meetings (OASYS closes to program chairs)	11/30/2009
* Preliminary program publishes in *C&EN*	1/25/2010
* Final technical program publishes in *C&EN*	3/1/2010
San Francisco, CA meeting begins	3/21/2010

Analytical Challenges for New Crop Protection Products

Coorganized by: Division of Environmental Chemistry (ENVR)
Division of Agrochemicals (AGRO)

Recent developments in biochemistry and genetics have allowed far superior targeting of crop protection chemicals to control pest species. These improvements allow chemical application rates to be reduced significantly. Furthermore, gene insertion into crops allows plants to produce natural toxins that repel or kill pests. Nevertheless, concerns regarding impacts on non-target must be addressed. Such evaluations require toxicity testing in several species and dissipation studies in several media. Human exposures and allergic responses have emerged with the advent of crops that fall into the category of genetically modified organisms (GMOs).

Analytical challenges are significant when addressing exposure to new crop protection chemicals. Improvements in detection limits and analysis of transformation products are required to adequately quantify new synthetic pesticides. Techniques to isolate and quantify toxins from GMOs also require more efficient and precise methods.

This symposium will address improvements in quantification of newly formulated/incorporated crop protection chemicals that have been afforded by better preparatory processes and instrumental capabilities. In particular, the session will address study designs, specialized SPE sorbents, preparative HPLC, improved mass spectrometer detection, and improved data processing.

Organizers:

George P. Cobb, Texas Tech University,
george.cobb@tiehh.ttu.edu

Kevin Armbrust, Office of State Chemist, Mississippi,
armbrust@mscl.msstate.edu

CALL FOR PAPERS

Symposium on
Antimicrobial Agents and Sustainability

239th ACS National Meeting & Exposition
March 21-25, 2010, San Francisco

Antimicrobial agents are lifesaving products of applied chemistry that frequently are divided into two categories, biocides and antibiotics. Biocides act non-specifically to inhibit or kill microbial contaminants or pests. Antibiotics have distinct mode of actions, which enable them to selectively inhibit the growth and survival of targeted pathogens, while causing no or minimal side effects in the patients or animals treated. Some antimicrobial agents, such as triclosan, combine both biocidal and antibiotic properties and thus blur the distinguishing line between the two groups of chemicals.

A world without effective antimicrobials is difficult to envision. Biocides are used widely in hospitals and other health care settings to prevent or minimize the spread of infectious diseases. If a microbial infection does occur, antibiotics are used in the battle for life or death.

Indiscriminate use of antimicrobials can be risky, however. Over-prescription of antibiotics is known to foster the emergence of multi-drug resistant infections that are difficult to contain and treat. Unwanted exposures to antimicrobials in the general populations have been confirmed via the detection of antimicrobial agents in drinking water, house dust, food, blood and breast milk. Similarly, the widespread use of biocidal agents in household products of daily use is now recognized to cause persistent and widespread environmental contamination of aquatic and terrestrial environments and biota. Little is known about the effects of antimicrobial contaminants on the health and productivity of agricultural soils and other affected environments. The necessity to protect the effectiveness of antibiotics used in human medicine is universally agreed upon, but whether attaining this goal will require restrictions on the use of antimicrobials in agriculture, aquaculture and daily life is the subject of ongoing discussions.

This symposium seeks to define sustainable uses of antimicrobials and to examine potential paths for accomplishing this goal. Platform and poster presentations will provide the latest research findings on the occurrence and effects of antimicrobial agents in the natural and built environment. Contributions from representatives of the chemical industry, agriculture, health care professionals, state and local governments, and academia are solicited to define the state of knowledge of sustainable use of antimicrobials and to identify research and policy needs for protecting human health and natural ecosystems.

Symposium Organizers

Rolf Halden, The Biodesign Institute at Arizona State University, Center for Environmental Biotechnology, P.O. Box 875701, Tempe, AZ 85287-5701 Phone: (840) 727-0893; Fax: (480) 727-0889;
Email: rolf.halden@asu.edu

239th ACS National Meeting & Exposition
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Aquatic Redox Chemistry, in Honor of Donald L. Macalady

This symposium will highlight recent developments in the general area of aquatic redox chemistry. Major areas of interest will include interactions between iron, natural organic matter (NOM), and contaminants. Specific topics of interest include—but are not limited to—the interplay between biotic and abiotic redox processes, speciation and redox reactions of iron, structure and reactivity of NOM as a redox shuttle, and redox reactions that contribute to the fate of organics (e.g., pesticides and nitro aromatic model compounds) and metals (e.g., arsenic). The symposium is timed to celebrate the diversity of contributions that Prof. Macalady has made to many of these topics. Both invited and contributed papers are planned.

Organizers:

Dr. Paul G. Tratnyek, Professor and Associate Division Head
Division of Environmental and Biomolecular Systems
OGI School of Science & Engineering, Mail Code OGI 100
Oregon Health & Science University
20000 NW Walker Road, Beaverton, OR 97006-8921
Office: (503) 748-1023, Lab: 748-1651, Fax: 748-1273
Email: tratnyek@ebs.ogi.edu,
http://www.ebs.ogi.edu/faculty/tratnyek.html
http://www.ebs.ogi.edu/tratnyek/

Timothy J. Grundl
Professor and Chair
Geosciences Department
University of Wisconsin-Milwaukee
Milwaukee, WI 53201
414-229-4765 (office)
414-229-5452 (fax)
http://www4.uwm.edu/letsci/geosciences/faculty/grundl.cfm
http://www.glwi.uwm.edu/profiles/grundl/

Prof. Dr. Stefan Haderlein
Institut für Geowissenschaften (IfG)
Zentrum für angewandte Geowissenschaften
Arbeitsbereich Umweltmineralogie
Eberhard-Karls Universität Tübingen
Hölderlinstr. 16 (Büro)
Sigwartstr. 10 (Post)
D-72076 Tübingen
Tel. +49 7071 2973148
Fax +49 7071 5059
e-mail: haderlein@uni-tuebingen.de
Web: http://www.technologietransfer.uni-tuebingen.de/Haderlein.html
http://www.ifg.uni-tuebingen.de/departments/zag/environmental_mineralogy/ind

Division: ENVR

Co-Organizers: Steven M. Presley, Ph.D.
The Institute of Environmental and Human Health
Texas Tech University

George P. Cobb, Ph.D.
The Institute of Environmental and Human Health
Texas Tech University

Presiding: Steven M. Presley, Ph.D.

Session Title: Assessing and Remediating Unprecedented Environmental Damages to a Fragile Ecosystem Nearly Two Decades after its Occurrence in Kuwait

Summary: Perhaps no other man-caused event in history was as ecologically catastrophic as the environmental damages resulting from the 1st Gulf War, which occurred from 2 August 1990 through 2 March 1992. As a result of the extensive damages the State of Kuwait was granted funding from the United Nations to remediate and restore extensive environmental damages throughout the state. There are currently hundreds of lakes of crude oil throughout Kuwaiti's deserts that resulted from the destruction of petroleum production and processing facilities. Assessment and effective remediation of environmental damages will be arguably the largest, most complex and most significant environmental mitigation project ever attempted in history.
As no practical remedial technology can remove all future risk or perfectly restore Kuwait to its pre-war ecological condition and subsequent level of ecosystem function, some acceptable endpoints must be determined. The speakers for this session will be internationally-recognized scientists that have been directly involved with, and are considered the leading authorities. There will be 6-8 speakers invited to participate in the session, 3-4 of which will be Kuwaiti, and each will address the following issues relative to the short and long-term damages to the environment, the current status of remediation efforts, and what the future may hold for Kuwait:

1. Agriculture, Livestock and Wildlife
2. Terrestrial Ecosystems
3. Groundwater Resources
4. Areas In and Around Wellhead Pits (oil lakes and tarcrete)
5. Marine and Coastal Resources

Proposal to Organize a Session (AEESP co-sponsored) at the 2009 Spring meeting Salt Lake City

Title of Session: Atmospheric Chemistry of Persistent Organic Pollutants.

Organizers:
Dr. Kalliat T. Valsaraj, PhD., Dept. Chair and Charles and Hilda Roddy Distinguished Professor
Cain Department of Chemical Engineering
Louisiana State University
Baton Rouge, LA 70803
Ph: (225) 578 6522
Fax: (225) 578 1476
Email: valsaraj@lsu.edu

and

Dr. Raghava R. Kommalapati, PhD, PE, Associate Professor
Department of Civil & Environmental Engineering
P.O. Box 519 - Mail Stop 2510
Prairie View A&M University
Prairie View, Texas 77446
Ph. (936) 261 1660
Fax: (936) 261 1662
Email: rrkommalapati@pvamu.edu

Description of the Session:
Persistent organic pollutants (POPs) are compounds that are relatively non-reactive and therefore persist in the environment for a long time. They are transported over long distances and tend to appear in remote regions of the world such as the Arctic, Antarctic, mountains, and deep sediments. Fate and transport data are required to properly characterize their stability and long term health effects from exposure to these chemicals. In this session we welcome papers that relate to the atmospheric chemistry of POPs, environmental property data on POPs, environmental monitoring of POPs, and mathematical modeling of global and regional transport mechanisms in the atmosphere.

Proposed symposium for ACS 2010

Biochars for Environmental Sustainability: Green Fuels, Carbon sequestration, and Long-Term Agricultural Production

Processing biomass through a distributed network of fast pyrolyzers may be a sustainable platform for producing renewable energy from biomass. Fast pyrolysis thermally transforms biomass into bio-oil, syngas, and biochar. The syngas can be used to provide the energy needs of the pyrolyzer. Bio-oil is an energy raw material (~17 MJ kg^{-1}) that can be burned to generate heat in existing industrial boilers or refined to produce liquid transportation fuels. Biochar can be burned as a substitute for pulverized coal; however, application of biochar to soils may be key to environmental sustainability. Application of biochar to soils is hypothesized to increase bioavailable water, build soil organic matter, enhance nutrient cycling, lower soil bulk density, act as a liming agent, and reduce leaching of pesticides and nutrients from soils to surface and ground water. The half-life of biochar C in soils is >500 yr, hence, application of biochar to soils is an effective way of sequestering large amounts of C and may have other greenhouse gas reduction benefits such as reducing emission of N_2O and CH_4 from soils, and reducing the amount of fertilizer and lime needed for crop production.

This symposium seeks to bring together scientists and engineers working on biomass pyrolysis, combustion of bio-oil, and refining of bio-oil with soil and environmental scientists investigating the impact of soil biochar applications on soil quality, water quality, and agricultural productivity.

Symposium Organizers:
Dr. David Laird, National Soil Tilth Laboratory, USDA-ARS, Ames, Iowa. Ph. 515-294-1581. Email: david.laird@ars.usda.gov

Dr. Mark Chappell, Environmental Laboratory, US Army ERDC, Vicksburg, MS. Ph. 601-634-2802. Email: mark.a.chappell@usace.army.mil

Proposed Session on Sustainability for 239th ACS Conference, March 21-25, San Francisco, CA

Energy Sustainability of the Water Infrastructure Using Microbial Fuel Cell Based Technologies

The water infrastructure in the USA requires ~3-5% of our annual electricity production, with ~1.5% of the electricity used for wastewater treatment. Microbial fuel cell (MFC) based technologies offer the potential not only for recovery energy from wastewaters, but also to make wastewater treatment plants net energy producers. Bioenergy can be obtained using MFC technologies in several forms, including electricity, hydrogen and methane gases. The purpose of this session will be to explore advances in different types of MFCs, microbial electrolysis cells, and other bioelectrochemical and membrane technologies that show promise for energy recovery from wastewaters, waste biomass such as cellulosic materials, salinity gradients, and waste heat.

Organizers

Bruce E. Logan, Ph.D.
Dept of Civil & Envr Engr, Penn State University, 212 Sackett Bldg, University Park, PA 16802, Phone: 814-863-7908, Fax: 814-863-7304, blogan@psu.edu

Bruce E. Rittmann, Ph.D., NAE, FAAAS
Director, Center for Environmental Biotechnology Biodesign Institute at Arizona State University
1001 South McAllister Avenue, Tempe, AZ 85287-5701, Phone: 480-727-0434, Fax: 1-480-727-0889, Rittmann@asu.edu

John M. Regan, Ph.D.
Dept of Civil & Envr Engr, Penn State University, 212 Sackett Bldg, University Park, PA 16802, Phone: 814-865-9436, Fax: 814-863-7304, jregan@engr.psu.edu

CALL FOR ABSTRACTS

239th ACS National Meeting & Exposition
March 21-25, 2010
San Francisco, CA

Symposium on

Fate and Transport of Pollutants in the Built Environment: Atmospheric Chemistry Moves Indoors.

Indoor air quality is a function of dynamic processes in which chemical reactions play a key role by consuming primary emissions and generating secondary contaminants, including secondary organic aerosols (SOA). While outdoor pollution contributes background levels, the composition of indoor air is strongly determined by indoor sources, including occupant activities such as cooking, smoking or cleaning. In indoor environments, low molecular weight organic compounds and reactive species are found principally in the gas phase, while persistent semivolatile compounds tend to accumulate both in the gas phase and on exposed surfaces, including those of airborne particles and settled dust. To meaningfully alter the composition of indoor air, gas phase reactions must occur at rates that are competitive with air exchange rates. Such constraints do not apply to surface reactions, which are favored by the large surface-to-volume ratios found indoors. Indeed, indoor surfaces may present substrates that favor certain chemical reactions such as base catalyzed hydrolysis. As practices consistent with environmental sustainability and *zero-energy buildings* are incorporated into building construction and operation, new materials with novel emissions and surfaces will be introduced. Characterizing indoor chemistry, with an eye towards mitigation strategies, becomes even more important in such a setting, since its impact on human exposures will be amplified as a consequence of tighter building envelopes and reduced air exchange rates.

We invite contributions of laboratory, field, and modeling investigations related to indoor chemistry. We particularly encourage contributions from members of the **outdoor** atmospheric chemistry community who have not, to date, brought their expertise **indoors**. Participants are encouraged to submit papers in areas including, but not limited to:
- the description of physical-chemical processes taking place indoors (gas phase, fixed surfaces and aerosols), which affect pollutant fate and transport
- oxidation and hydrolysis reactions that may impact indoor environments
- the development of novel air cleaning approaches
- methodologies for the detection of trace-levels of indoor pollutants, especially highly reactive species such as free radicals or secondary ozonides.

Symposium Organizers:

Hugo Destaillats, Indoor Environment Department, Lawrence Berkeley National Laboratory, Berkeley, California; and Dept. of Civil, Environmental and Sustainable Engineering, Arizona State University.
E-mail: HDestaillats@lbl.gov

Charles J. Weschler, Environmental and Occupational Health Sciences Institute, UMDNJ/Robert Wood Johnson Medical School & Rutgers University, New Jersey; and International Centre for Indoor Environment and Energy, Technical University of Denmark.
E-mail: weschlch@umdnj.edu

The Influence of Natural Organic Matter on the Fate and Transport of Metals, Colloids and Nanoparticles in the Aquatic Systems

George Aiken, US Geological Survey, 3215 Marine Street, Boulder, CO 80303
graiken@usgs.gov 303-541-3036

Helen Hsu-Kim, Duke University, Durham, NC hsukim@duke.edu

Joseph Ryan, University of Colorado, Boulder, CO joseph.ryan@colorado.edu

Improved understanding of the geochemistry, fate and transport of metals, colloids and engineered nanoparticles is critical for assessing the ecological and human health impacts associated with these materials. Macromolecular organic matter such as humic substances and small molecular weight organics are ubiquitous in water, soil and sediment environments. Thus, natural organic matter frequently controls metal speciation and surface charge of particles, influences sorption interactions with mineral surfaces and drives important reactions (e.g. redox and photochemical reactions) influencing the behavior of metals, colloids, and nanoparticles in aquatic systems. In this session we will focus on studies addressing the nature of chemical interactions between natural organic matter and metals (mercury, in particular), colloids and nanoparticles (both engineered and natural) and the influences these reactions have on the transport, bioreactivity, and geochemistry of these materials in the environment.

Metrics and Environmental Sustainability

Dr. Dianne L. Poster
Science Advisor
National Institute of Science and Technology
Chemical and Science Technology Laboratory
100 Bureau Drive MS 8300
Gaithersburg, MD 20899-8300
TEL: 301-975-8941
Email: dianne.poster@nist.gov

Nora Savage, Ph.D.
Environnemental Engineer
Office of Research and Développent
US Environmental Protection Agency,
Washington, DC

ABSTRACT

Sustainable products support product innovation in industrial supply chains that can lead to improved global competitiveness for manufacturers. Sustainability combines product environmental, societal, and economic areas. This linkage drives improved performance in these areas and lends to an improved future for the general public, the environment, and industry. Scientific analysis of manufacturing processes and products is necessary to ensure progress toward sustainability. Inputs (energy and material resources and use), outputs (materials in products, wastes) and products (performance of function, reliability, and life of service) are major aspects that require sustainable metrics. Tools to evaluate and measure the sustainability of products are essential. This session seeks to provide a venue for cross-functional system thinking in the area of metrics for sustainability. Papers will be considered that detail efforts on novel metrics that enable access to markets where inappropriate regulations, aimed at achieving sustainability or environmental goals, could act as trade barriers to manufacturers. Descriptions of efforts on models or frameworks that serve to evaluate the sustainability of manufactured products based on the sustainability of the materials and processes used to create the products are especially of interest. Innovative technologies that support sustainability throughout the life cycle of products are also of interest. In addition, papers on the development and validation of information standards, reference materials, or reference data to support sustainability across products and organizations or to demonstrate compliance with sustainability regulations will be considered.

Nanoporous Materials for Environmental Applications

Recent progress in nanotechnology has resulted in many active nano-structured materials and devices with exceptional chemical, physical and biological properties and functions. Notable materials include nanoporous silica, nanoporous carbon, and nano-material enhanced membranes. Many of these materials can be functionalized with reactive moieties for tailored applications important to environmental improvement and sustainability. Examples include sorption of both inorganic and organic contaminants, controlled release of pharmaceuticals with a purpose of reducing environmental contamination, and advanced membrane for desalination and water reuse.

This symposium will bring researchers in this fast advancing, multidisciplinary field together to share the cutting knowledge on environmental application of nanomaterials. A two-day symposium is proposed to accommodate the expected large number of papers.

Organizer:
Baolin Deng
dengb@missouri.edu

239th ACS National Meeting & Exposition
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Symposium on

Nanotechnology: Enabling Sustainable Solutions for Potable Water

CALL FOR PAPERS

Engineered nanomaterials are expected to provide major societal benefits, improving our quality of life. Major areas in which such benefits are expected include medical therapies and diagnoses, environmental restoration and protection, renewable energy production, energy storage and transmission, and increased water quantity and improved water quality. The United Nations has as one of its eight Millennium Goals that of achieving environmental sustainability and one of the targets that should be pursued in attainment of this goal is Target 3: Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation. Improving access to clean, potable water is vital to the development of a sustainable society. Treating saline water sources and remediating contaminated water sources will be required to substantially improve water supplies. Nanotechnology enabled tools and solutions will also positively impact water quality and quantity.

This symposium will feature papers (both invited and contributed) of technological advances, both those in the exploratory research stage as well as those in the later pilot/field demonstration stage, that have the potential to increase the supply of drinking water and water useful for irrigation, sanitation and other critical purposes. The symposium will include (i) mechanistic aspects of the development and evaluation of nanomaterials, nanodevices, active nanosystems, and complete nanotechnology-based processes for sustainable water production, treatment, and purification, (ii) environmental chemistry phenomena that take place in such systems, (iii) current and future applications of promising nanotechnologies that have the potential to sustainably increase water supply and enhance water quality in both industrialized nations and the developing world, and (iv) the use of sustainable energy sources to drive nanotechnologies applied for drinking water production. Providing enough and good quality drinking water and sufficient water for other uses for all people is a challenge but it is one of the ultimate goals and a condition to achieve prosperity and sustainability in the world.

Symposium Organizers:

Dionysios (Dion) D. Dionysiou, Ph.D.
Professor of Environmental Engineering
Center of Sustainable Urban Engineering
University of Cincinnati
Cincinnati, OH
Email : dionysios.d.dionysiou@uc.edu

Nora Savage, Ph.D.
Environmental Engineer
Office of Research and Development
US Environmental Protection Agency,
Washington, DC
Email: Savage.Nora@epamail.epa.gov

Symposium on New Energy Technology

Division of Environmental Chemistry
239th ACS National Meeting & Exposition
March 2010
San Francisco, CA

This symposium is a summary of selected experimental and theoretical research performed over the last 20 years that gives profound and unambiguous evidence for low energy nuclear reaction (LENR), historically known as cold fusion.

In 1989, the subject was announced with great fanfare, to the chagrin of many people in the science community. However, the significant claim of its discoverers, Martin Fleischmann and Stanley Pons, excess heat without harmful neutron emissions or strong gamma radiation, involving electrochemical cells using heavy water and palladium, has held strong.

In recent years, LENR, within the field of condensed matter nuclear science, has begun to attract widespread attention and is regarded as a potential alternative and renewable energy source to confront climate change and energy scarcity. The aim of the research is to collect experimental findings for LENR in order to present reasonable explanations and a conclusive theoretical and practical working model.

The goal of the field is directed toward the fabrication of LENR devices with unique commercial potential demonstrating an alternative energy source that does not produce greenhouse gases, long-lived radiation or strong prompt radiation. The idea of LENR has led to endless discussions about the kinetic impossibility of intense nuclear reactions with high coulomb barrier potential. However, recent theoretical work may soon shed light on this mystery.

Understanding this process is one of the most challenging and perhaps important issues in the scientific world. This symposium includes previously unpublished studies, new and controversial theories to approach LENR with access to new sources and experimental results. The symposium offers insight into this controversial subject and will help the audience re-evaluate their perspective on LENR for a possible alternative energy source and to create appropriate **Energy Sustainability Concepts.**

Symposium Organizer
Jan Marwan

Rudower Chaussee 29
12489 Berlin
Deutschland
Tel: 030 6392 2566
FAX: 030 6392 2566

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Symposium on
Policies for Promoting Sustainable Chemistry

239th ACS National Meeting & Exposition
March 21-25, 2010, San Francisco

The concept of sustainability has penetrated many areas of science and engineering, and chemistry is no exception. Indeed, chemistry is the core discipline that, to a large degree, will determine mankind's ability to provide safe drinking water, nutritious food and renewable energy to a continuously increasing world population. Sustainable chemistry implies the responsible use of raw materials, energy and natural resources, a design that takes into consideration the whole lifecycle of the chemical produced, an emphasis on risk minimization and precaution, and the goal to provide needed chemical services or functions with no or minimal adverse impacts on the environment and human health.

In recent years, driven by developments in green chemistry, green engineering, and earth systems engineering, a number of new principles and strategies have been devised which have the potential to propel society forward on a trajectory toward a more sustainable chemical future.

This symposium aims to define how recent research results can be translated into actionable policies for promoting sustainable chemistry. Platform and poster presentations are invited from representatives from industry, regulatory agencies, academia, as well as from individuals, groups or agencies concerned with sustainability. Contributors are encouraged to include case studies and decision scenarios to illustrate the benefits and limitations of proposed policy actions, to introduce metrics of success, and to define economical, infrastructural and behavioral hurdles that our society may face while progressing along the path to chemical sustainability.

Symposium Organizer

Rolf Halden, The Biodesign Institute at Arizona State University, Center for Environmental Biotechnology, P.O. Box 875701, Tempe, AZ 85287-5701 Phone: (840) 727-0893; Fax: (480) 727-0889;
Email: rolf.halden@asu.edu

Proposed Symposium for 239th Meeting ACS Meeting in San Francisco, CA (March 22-25, 2010)

Title: Sustainable Processes for Drinking Water and Wastewater Treatment

The proposed symposium seeks new and innovative research applications that focus on processes for improving the sustainability of water resources, including those pertaining to providing safe drinking water and treatment of wastewater. Area influenced by research relating to these topics include public health protection, innovations or improvement relating to water infrastructure, water quality and quantity priorities, recycling of "gray water" for optimal usage, and similar sustainability issues both nationally and internationally. In addition, external pressures driving this need improve sustainability include emerging contaminants and pathogens, climate change, watershed encroachment, aging drinking water infrastructures, and population growth.

Appropriate topics in this session include but are not limited to the following: evaluation of the effectiveness and sustainability of drinking water and wastewater treatment technologies (e.g., membrane filtration, ultraviolet radiation, oxidation, carbon adsorption, slow and rapid sand filtration); mechanisms for removal of contaminants and pathogens from water and wastewater and implications on public health; innovative usage and provision of potable water; sustainability indicators for drinking water and wastewater treatment; life cycle assessment of drinking water and wastewater treatment technologies; and novel approaches to evaluate the sustainability of drinking water and wastewater technologies.

Symposium Organizers:

Clayton J. Clark II, Ph.D., Civil and Environmental Engineering Department, Florida Agricultural and Mechanical University; FAMU-FSU College of Engineering, 2525 Pottsdamer Street, Tallahassee, FL 32310; Phone: 850-410-6122, Email: clayton.clarkii@famu.edu.

Adrienne T. Cooper, Ph.D., PE, Associate Professor, Biological and Agricultural Systems Engineering; Florida Agricultural and Mechanical University; 1740 S. Martin Luther King Jr. Blvd.; 307 N. Perry-Paige Bldg.; Tallahassee, FL 32307; Phone: 850-412-5005; E-mail: adrienne.cooper@famu.edu

Angela S. Lindner, Ph.D., Associate Dean, Division of Student Affairs College of Engineering Associate Professor, Environmental Engineering Sciences, University of Florida, P.O. Box 116550, Gainesville, Florida 32611-6550, Phone: 352-392-2177 x1026, Email: alind@eng.ufl.edu.

American Chemical Society

Call for Papers

Sustainable Waste Management: Issues and Challenges

At 239th ACS National Meeting & Exposition

San Francisco, California

March 21-25, 2010

The purpose of this session is to outline various advances in the area of sustainable waste management. The rate of recycling of municipal solid waste (MSW) drastically increased in the past few decades. Nonetheless, landfilling of MSW is still the dominant solid waste management option for the United States as well as many other countries around the world. It is well known that solid waste management policies, as they exist now, are not sustainable in the long term. Thus, MSW management is undergoing drastic change to offer management options that are more sustainable. We look at these options in the hope of offering the solid waste management industry a more economically viable and socially acceptable solution to our current waste management dilemma. These developments range from the implementation of bioreactor landfill technologies to advancement in biofuels generated from solid wastes.

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

- Sustainable Waste Management
- Policy and Regulatory Issues
- Waste Reduction Reuse and Recycling
- Construction and Demolition Waste
- Electronic Waste
- Composting of Solid Waste
- Pharmaceutical Waste Management
- Landfill Site Rehabilitation
- Solid Waste Management in developing countries
- House Hold Hazardous Waste
- Industrial Waste Management
- Waste identification
- Management of Combustion byproducts
- Physical, chemical and biological interactions in solid waste landfills
- Solid Waste to Biofuel
- Methane emissions and climate change
- Carbon Credit

Please send your abstracts and your inquiries should be directed to:

Thabet Tolaymat Ph.D.
U.S. EPA
Office of Research and Development
National Risk Management Research Laboratory
26 W. Martin Luther King Drive
Cincinnati, OH 45268
Tel.: 513-487-2860
Fax: 513-569-7879
e-mail: tolaymat.thabet@epa.gov

Souhail Al-Abed, Ph.D.
U.S. EPA
Office of Research and Development
National Risk Management Research Laboratory
26 W. Martin Luther King Drive
Cincinnati, OH 45268
Tel.: 513-569-7849
Fax: 513-569-7879
e-mail: al-abed.souhail@epa.gov

239th ACS National Meeting & Exposition
March 21-25, 2010
San Francisco, CA

Sustainable Water Production and Waste Treatment: Emerging Technologies for the Treatment and Utilization of Impaired Water Sources

CALL FOR PAPERS

Clean water and abundant energy are essential for our nation's continued economic prosperity. Reduced availability of freshwater sources has forced us to turn to nontraditional source waters such as saline waters and a variety of waste waters. Treating these impaired waters with existing technologies, however, requires prohibitive amounts of energy, further straining our energy supplies. Recently, technologies have been developed which can sustainably treat these impaired waters or even use them to produce fuel and electricity directly. The purpose of this session is to emphasize these new technologies which can produce water and energy sustainably from impaired waters and waste streams. By using these previously ignored or discarded materials as sources of water and energy, we can greatly reduce the environmental impact of our consumption. Examples of valorized waste streams may include agricultural waste, municipal wastewater, and food processing wastewater as they can provide valuable organic material for anaerobic biogas production or, in more recent technologies conceived, hydrogen and electricity. Saline waters can be targeted for water production if they can be treated in a cost effective and sustainable manner. This session will also include investigations on desalination technologies with emphasis on novel processes which can treat a variety of saline waters with minimal energy, cost, and environmental impact.

The topics that would be covered in this session, but not limited to, are:
· Biomass energy production from waste treatment
· Novel material development to improve energy production
· Wastewater reuse
· Emerging pollutants
· Physical/chemical/biological waste minimization processes
· Seawater/brackish water desalination
· Sustainable brine discharge management strategies and treatment technologies
· Novel water/wastewater treatment technologies
· Produced water treatment and management
· Biofouling mechanisms and anti-biofouling approaches
· Energy balances on existing and novel technologies
· Cogeneration of water and energy
· Case studies of energy issues in waste treatment and water purification
· Pilot scale demonstrations and commercialization efforts

Please send your abstracts and your inquiries to:

Baikun Li
Assistant Professor
Department of Civil and Environmental Engineering
University of Connecticut
Storrs, CT 06066
Tel: 860-486-2339
Fax: 860-486-2298
E-mail: baikun@engr.uconn.edu

Jeffrey R. McCutcheon, Ph.D.
Assistant Professor
Department of Chemical, Materials and Biomolecular Engineering
University of Connecticut
Storrs, CT 06269-3222
Phone: (860) 486-4601
Fax: (860) 486-2959
Email: jeff@engr.uconn.edu