

# ENVR

## DIVISION OF ENVIRONMENTAL CHEMISTRY

**Final Program, 238th ACS National Meeting, Washington, DC, August 16-20, 2009**

D. D. Dionysiou, *Program Chair*

### **OTHER SYMPOSIA OF INTEREST:**

**Alternative Energy Sources: Perspectives and Opportunities** (see *COMSCI*, Mon)

### **SOCIAL EVENTS:**

**Reception:** Tue

**Social Hour:** Tue

### **BUSINESS MEETINGS:**

**Annual Business & Executive Committee Meeting:** Sun

**Long Range Planning Committee Meeting:** Sun

**Program Planning Committee Meeting:** Sun

## SUNDAY MORNING

Section A

Unknown Site -- Unknown Room

### **Advances in Analytical Chemistry for Environmental Applications**

T. Jones-Lepp, *Organizer*

D. Alvarez, *Organizer, Presiding*

**8:30** — Introductory Remarks.

**8:45** —**1.** Analytical methods for contaminants of emerging concern. **B. C. Englert**

**9:20** —**2.** Innovative sampling techniques to determine contaminant flux in Las Vegas Bay. **D. Alvarez**, M. Rosen

**9:40** —**3.** Chromatographic considerations for analysis of glucuronide and sulfate metabolites of pharmaceuticals in environmental samples. **M. J. M. Wells**, M. Sunkara

**10:00** — Intermission.

**10:20** —4. Development of a comprehensive LC/MS/MS method for the detection of cocaine and other illicit drugs in municipal wastewater. **K. J. Bisceglia**, A. L. Roberts, K. A. Lippa

**10:40** —5. Exploring the non-target analyte screening capabilities of high resolution mass spectrometry for natural water samples. **H. P. Singer**, P. Longree, S. Kern, K. Fenner, J. Hollender

**11:00** —6. API and ESI LC-MS: The enabling technology for determination of emerging contaminants in environmental samples. **M. S. Young**, J. C. Shia, D. M. Diehl

**11:20** —7. Characterizing the influence of environmental variables on the use of passive polar organic chemical integrative samplers (POCIS) for monitoring applications in the Great Lakes. H. Li, **P. Helm**, C. D. Metcalfe

## **New Applications of Solid Phase Adsorbents**

### **Sorbent Design**

*Sponsored by I&EC, Cosponsored by ENVR<sup>†</sup>*

## **SUNDAY AFTERNOON**

Section A

Unknown Site -- Unknown Room

### **Advances in Analytical Chemistry for Environmental Applications**

T. Jones-Lepp and D. A. Alvarez, *Organizers*

C. E. Rostad and M. M. Schultz, *Presiding*

**1:30** — Introductory Remarks.

**1:35** —8. Polar organic compounds in surface waters collected near lead-zinc mine and milling operations. **C. E. Rostad**, C. J. Schmitt, J. G. Schumacher

**1:55** —9. Capillary liquid chromatography coupled to ESI-MS/MS for analysis of environmental estrogens in the environment. **J. Tso**, D. S. Aga

**2:15** —10. Use of stir bar sorptive extraction-liquid desorption for determination of triclocarban and other PPCPs in wastewater. D. R. Klein, D. F. Flannelly, **M. M. Schultz**

2:35 — Intermission.

2:55 —11. Determination of bisphenol-A in water samples using enzyme-linked immunosorbent assay. S. Vemu, **B. G. Loganathan**

3:15 —12. Molecular imprinting xerogels for tetracyclines. **E. R. E. Mojica**, J. Autschbach, F. V. Bright, D. S. Aga

3:35 —13. Comparison of automated and manual methods for solid phase extraction of endocrine disrupting chemicals. **K. E. Studer**, D. A. Reckhow

3:55 —14. Advances in the analysis of halogenated flame retardants in environmental matrices. L. Shen, S. Zhou, N. Riddell, P. Crozier, F. Dorman, T. Kolic, K. MacPherson, I. Brindle, C. Marvin, **P. Helm**, E. Reiner

## New Applications of Solid Phase Adsorbents

### New Applications

*Sponsored by I&EC, Cosponsored by ENV<sup>R</sup>*

## MONDAY MORNING

Section A

Unknown Site -- Unknown Room

### Advances in Analytical Chemistry for Environmental Applications

T. Jones-Lepp, *Organizer*

D. D. Dionysiou, *Presiding*

D. A. Alvarez, *Organizer, Presiding*

8:30 — Introductory Remarks.

8:40 —15. Characterization of nanoparticle size and concentration for ecotoxicological studies. **D. Griffiths**, P. Hole, R. Carr, J. Smith, A. Malloy

9:00 —16. Gold nanoparticle based colorimetric assay for the detection of TNT. **S. Dasary**, D. Senapati, A. Singh, P. C. Ray, H. Yu, Y. Anjaneyulu, R. Venkatraman

9:20 —17. Carbon nanotubes as sorbents for micro-concentration devices. C. M. Hussain, **C. Saridara**, S. Mitra

**9:40 —18.** Source characterization for emission inventories: HRTEM and XPS analyses. **R. Vander Wal**, V. M. Bryg, M. D. Hays

**10:00** — Intermission.

**10:20 —19.** Molecular composition of dissolved pyrogenic carbon using ultra-high resolution Fourier-transform ion cyclotron resonance mass spectrometry and its relationship to bioavailability. **D. C. Podgorski**, A. Mukherjee, A. R. Zimmerman, W. T. Cooper

**10:40 —20.** Fast evaluation of arsenic sorption dynamics on iron-based sorbents by continuous flow hydride generation atomic fluorescence spectrometry (CFHG-AFS). **A. Hussam**, S. Ahamed

**11:00 —21.** Monitoring of arsenic and bacteriological contamination in drinking water of Mardan, Pakistan. **I. Ullah**, A. Khan, M. Ahmad, A. R. Khan, Q. Mahmood, I. Hussain Balouch, R. Farooq, J. Khan, M. Haseeb, M. Amjad Sabir, N. Ghani

**11:20 —22.** Analysis of iron(II) and iron(III) polyaminocarboxylate complex speciation using capillary electrophoresis. J. M. Wilson, **R. F. Carbonaro**

Section B

Unknown Site -- Unknown Room

### **Environmental Science and Technology: A Tribute to William “Bill” Glaze**

J. L. Gardea-Torresdey, *Organizer, Presiding*

**8:30** — Introductory remarks by Dr. Joseph Sulfito.

**8:40** — Tribute by Dr. Michael D. Aitken.

**9:00 —23.** Bill Glaze: A legend, a teacher, and a gentleman. **S. D. Richardson**

**9:25 —24.** Catalytic production of HO during Fe(II)/Fe(III) redox cycling in aqueous systems: A combinatorial strategy for evaluating scavengers and promoters. **J. L. Ferry**, J. M. Burns, P. S. Craig, T. J. Shaw

**9:50** — Intermission.

**10:05 —25.** Growing role for economics in environmental research. **G. W. Characklis**

**10:30 —26.** Impact of open air/ambient desorption ionization mass spectrometry on environmental chemistry. **O. D. Sparkman**, P. R. Jones, M. Curtis

**10:55 —27.** SATURN collaboratory: Closing disciplinary gaps in coastal-margin observations and simulations. **A. M. Baptista**

**11:20 —28.** Green chemistry and engineering enabled by new concepts in fluoropolymers. **J. M. DeSimone**

### **Interacting with the U.S. National Science Foundation**

*Sponsored by INOR, Cosponsored by ANYL, BIOL, CATL, CHED, COMP, ENVR, FLUO, FUEL, GEOC, ORGN, and YCC*

### **New Applications of Solid Phase Adsorbents**

#### **Arsenic Remediation**

*Sponsored by I&EC, Cosponsored by ENVR<sup>†</sup>*

## **MONDAY AFTERNOON**

Section A

Unknown Site -- Unknown Room

### **Advances in Analytical Chemistry for Environmental Applications**

D. A. Alvarez, *Organizer*

B. G. Loganathan, *Presiding*

T. Jones-Lepp, *Organizer, Presiding*

**1:30** — Introductory Remarks.

**1:35 —29.** Simple scheme for broad-spectrum molecular characterization of dissolved organic contaminants in wastewaters and ambient waters. **M. Ahel**, S. Terzic, I. Mikac, I. Senta

**1:55 —30.** Determination of polybrominated biphenyl in the environment by fluorescent quantitative immune-PCR. **H. Zhuang**, H. Chen

**2:15 —31.** Determination of cyanobacterial cyclic peptide hepatotoxins in drinking water using capillary electrophoresis. **S. F. Y. Li**

**2:35 —32.** Fabrication of novel Cu/TiO<sub>2</sub>-based imprinted polymers for detection of phosphine. **S -M. Chang, Y -Y. Hsu, S -I. Yen, S -N. Li**

**2:55** — Intermission.

**3:15 —33.** Nuclear magnetic resonance spectroscopy studies of the binding of Prussian blue to cesium in the presence of decontamination agent. **W. Kuang, G. Facey, C. Detellier, K. Li, K. Volchek**

**3:35 —34.** Effect of temperature on pressurized fluid extraction of PAHs in particulate matter. **E. A. McGaw, M. M. Schantz**

**3:55 —35.** Interlaboratory comparison study of the measurement of polychlorinated biphenyl (PCB) congeners from sediment samples with high resolution (HRMS) and low resolution mass spectrometry (LRMS). **A. Wroble, J. Pietari, J. O'Keefe, P. P. Hamlett, G. Santacroce, T. Oliveira, S. Wilding, D. Revell, W. Whipple**

**4:15** — Concluding Remarks.

Section B

Unknown Site -- Unknown Room

### **Environmental Science and Technology: A Tribute to William “Bill” Glaze**

J. L. Gardea-Torresdey, *Organizer, Presiding*

**1:30 —36.** Legacy chemicals' legacy. **D. L. Swackhamer**

**1:55 —37.** Kinetics, mechanisms and stereoselective metabolism of 1,2,4-triazole fungicides in hepatic microsomes and implications for human health and ecological risk assessment. **J. F. Kenneke, C. S. Mazur, W. M. Henderson, A. W. Garrison, S. E. Ritger, R. D. Miller, T. J. Sack, C. C. Brown, J. K. Avants**

**2:20 —38.** History of the drinking water mutagen MX. **L. Kronberg, B. Holmbom**

**2:45** — Intermission.

**3:00 —39.** Application of an improved pseudo-deterministic receptor model to apportion ambient PM constituents to sources in Tampa, FL. **G. M. Beachley, J. M. Ondov**

**3:25 —40.** Treatment of truck-wash water using electrocoagulation. **J. A. Gomes, K. Das, M. S. Rahman, S. Arslan, D. L. Cocke**

**3:50 —41.** Destruction of cyanotoxins by hydroxyl radicals and sulfate radicals: Reaction intermediates and pathways. **M. G. Antoniou, J. A. Shoemaker, A. A. de la Cruz, D. D. Dionysiou**

**Lawrence A. Burns Memorial Symposium on Advances in Environmental Modeling of Pesticides**

*Sponsored by AGRO, Cosponsored by ENVR<sup>‡</sup>, Financially supported by AGRO & ENVR*

**New Applications of Solid Phase Adsorbents**

**Other Applications**

*Sponsored by I&EC, Cosponsored by ENVR<sup>‡</sup>*

**Undergraduate Research Poster Session: Environmental Chemistry**

*Sponsored by CHED, Cosponsored by ENVR and SOCED*

**MONDAY EVENING**

Section A

Unknown Site -- Unknown Room

**Sci-Mix**

D. D. Dionysiou, *Organizer, Presiding*

**8:00 - 10:00**

**99-100, 102, 109, 115, 120-121, 124-131, 134-135, 141-143, 151, 161-162, 171, 175-177.** See subsequent listings.

## TUESDAY MORNING

Section A

Unknown Site -- Unknown Room

### Biological Detection and Surface Sampling for Biodefense

*Cosponsored by AEESP and ANYL<sup>‡</sup>*

M. G. Davenport, J. A. Rosati, and J. B. Morrow, *Organizers, Presiding*

**8:30** — Introductory Remarks.

**8:35** —**42.** New technology integration: Benefits of interlaboratory testing in DNA forensics. **P. M. Vallone**

**9:05** —**43.** Antimicrobial peptides for detection of bacterial pathogens. **J. W. Soares**, S. H. North, L. A. Doherty, M. Slutsky, C. R. Taitt, C. M. Mello

**9:25** —**44.** Effect of polyelectrolyte encapsulation on responsiveness of recombinant bacteria. **V. K. K. Upadhyayula**, D. M. Eby, S. Balkundi, Y. M. Lvov, G. R. Johnson

**9:45** —**45.** Lanthanum-based concentration and microrespirometric detection of microbes in water. **Y. Zhang**, Z. Hu

**10:05** — Intermission.

**10:20** —**46.** Bioterrorism detection: Broad perspectives on sampling and detection. **S. R. Shah**

**10:50** —**47.** Factors that determine the efficacy of different biological surface sampling methods. **J. W. Thornburg**

**11:10** —**48.** Surface and bulk sampling to characterize the fate of *Bacillus thuringiensis* var. kurstaki (Btk) in urban environments. **K. M. Omberg**, S. Van Cuyk, A. Deshpande, A. Hollander, L. Ticknor, P. S. White

**11:30** —**49.** Ambient aerosol characterization for improved understanding of bioaerosol diversity and fluctuation. **J. L. Santarpia**, D. J. Cunningham, J. U. Gilberry, S. Kim, E. E. Seay, S. A. Ratnesar-Shumate, J. J. Quizon

**11:50** —**50.** Bioaerosol dispersion in a room: An experimental and computational study. J. Redrow, **J. A. Posada**, W. G. Lindsley, T. Pearce, I. Celik

Unknown Site -- Unknown Room

**International Environmental Issues: Perspectives and Concerns**

*Cosponsored by CEI*

G. P. Cobb, B. Jovancicevic, J. H. Exner, I. Popovic, and B. Jovancicevic, *Organizers*  
J. H. Exner and I. Popovic, *Organizers, Presiding*

**8:30 —51.** The long road to sustainability: Recycling trends in Serbia. **I. Popovic**

**8:55 —52.** Advanced air quality indexing in a transition economy city: The Belgrade example. **B. Radak**, A. Zuic, L. Ignjatovic

**9:20 —53.** Megacity air quality. **C. E. Kolb**

**9:45 —54.** Investigation of bioremediation potential of bacteria and fungi for petroleum degradation in soil . **B. Jovancicevic**, M. Vrvic, M. Antic, T. Solevic, M. Ilic, M. Novakovich

**10:10 —** Intermission.

**10:20 —55.** Pesticide use and environmental problems in Central America. **L. E. Castillo**

**10:45 —56.** Legacy and new contaminants in arctic air. **T. F. Bidleman**, L. M. Jantunen, F. Wong, G. A. Stern

**11:10 —57.** Occurrence of perchlorate across the world and the implication for human health impact. **A. Jackson**, G. J. Orris

**11:35 —58.** Environmental challenges in transition economies. **M. Mozur**

**Biogeochemical Processes of Mercury in Natural and Contaminated Environments**

*Sponsored by GEOC, Cosponsored by ENVR*

## TUESDAY AFTERNOON

### Section A

Unknown Site -- Unknown Room

#### **Emerging Environmental Technologies towards a Cleaner and Sustainable Society**

P. Bishop, *Organizer*

V. Shah, *Organizer, Presiding*

**1:30** — Introductory Remarks.

**1:35** —**59.** Emerging environmental technologies: An NSF perspective. **P. Bishop**

**2:05** —**60.** Using green nanotechnology for a cleaner and more sustainable. **B. Karn**

**2:35** — Discussion.

**2:50** — Intermission.

**3:00** —**61.** *In situ* formation of nanoparticles as an effective biocatalyst for environmental remediation. **D. Chidambaram**, J. P. Fitts, T. Hennebel, N. Boon, W. Verstraete, D. Van der Lelie

**3:20** —**62.** Aqueous ethanol modified nanoscale zero-valent iron in bromate reduction: Synthesis, characterization, and reactivity. **Q. Wang**, S. A. Snyder, H. Choi

**3:40** —**63.** Dithionite as a regenerant for the reducing capacity of nanoscale zero-valent iron *in situ* treatment zones. **D. M. Cwiertny**, Y. Xie

### Section B

Unknown Site -- Unknown Room

#### **The C. Ellen Gonter Awards**

*Cosponsored by YCC*

T. A. Anderson, *Organizer, Presiding*

**1:30** — Introductory Remarks.

**2:00** —**64.** New conceptual model for interpreting the redox behavior of magnetite in anoxic environments. **C. A. Gorski**, M. M. Scherer

**2:30** —**65.** Sorption of selenium(*IV*) and selenium(*VI*) to synthetic pyrite (FeS<sub>2</sub>) and stabilization *via* surface reactions. **D. Han**, B. Batchelor

**3:00** —**66.** Precipitation of mercuric sulfide nanoparticles in NOM-containing water: Implications for the natural environment. **A. Deonarine**, H. Hsu-Kim

**3:30** — Intermission.

**3:45** —**67.** Interactions of Pb(II)/Pb(IV) solids with chlorine and their effects on lead release. **H. Liu**, G. V. Korshin, J. Ferguson

**4:15** —**68.** *In situ* characterization of nitrifying biofilm: Minimizing biomass loss and preserving perspective. **R. Delatolla**, N. Tufenkji, Y. Comeau, D. Lamarre, A. Gadbois, D. Berk

**4:45** —**69.** Photochemical fate of sulfadimethoxine in aquaculture waters. **J. Guerard**, Y. P. Chin, H. E. Mash

### **Biogeochemical Processes of Mercury in Natural and Contaminated Environments**

*Sponsored by GEOC, Cosponsored by ENVR*

## **TUESDAY EVENING**

### **Biogeochemical Processes of Mercury in Natural and Contaminated Environments**

*Sponsored by GEOC, Cosponsored by ENVR*

## **WEDNESDAY MORNING**

Section A

Unknown Site -- Unknown Room

### **Emerging Environmental Technologies towards a Cleaner and Sustainable Society**

V. Shah and P. Bishop, *Organizers*

V. K. Sharma, *Presiding*

**8:30** — Introductory Remarks.

**8:35 —70.** Aging study on the structure of Fe<sup>0</sup>-nanoparticles stabilized using inert gases: Characterization and reactivity. **Q. Wang, H. Choi**

**8:55 —71.** Role of ferrate(VI) technology in a cleaner and sustainable society. **V. K. Sharma, R. Yngard, G. Anquandah, E. Casbeer, Y. Fanfan, T. Hilton, L. Chambre, A. Al-Abduly, M. Sohn, D. A. Knight**

**9:15 —72.** Arsenic removal using titanium dioxide nanoparticles: Macroscopic and spectroscopic evaluation. **S. R. Al-Abed, G. Jegadeesan, H. Choi, D. D. Dionysiou**

**9:35 —73.** Effect of nanosized metal oxides on oxidation of aromatic compounds by iron oxides. **H. Zhang, F. J. Murillo, S. Taujale, P. Bick**

**9:55 —** Intermission.

**10:05 —74.** Impact of nanoscale zero-valent iron treatment on the geochemistry and microbial diversity of trichloroethylene contaminated aquifers. **T. L. Kirschling, E. G. Minkley Jr., G. V. Lowry, R. D. Tilton**

**10:25 —75.** Nanoparticles and nanostructures for environmental catalysis and photocatalysis. **A. Orlov**

**10:45 —76.** Visible light photocatalytic activity by NMP solvent treatment of polymorphic titania. **S. Kaewgun, D. Mckinney, J. White, A. Smith, M. Tinker, J. Ziska, B. I. Lee**

Section B

Unknown Site -- Unknown Room

### **Emerging Contaminants, Pharmaceuticals and Personal Care Products, and Organohalogenes in Wastewater and Municipal Biosolids**

A. Sapkota, *Organizer*

R. U. Halden, *Organizer, Presiding*

**8:30 —** Introductory Remarks.

**8:35 —77.** Occurrence and fate of pharmaceuticals and EDCs in U.S. drinking water. **S. A. Snyder, M. J. Benotti, B. Vanderford**

**9:10 —78.** Occurrence of emerging contaminants in sewage sludge. **R. Stevens**

**9:45 —79.** Analysis of PPCPs in biosolids originating from the 2001 EPA National Sewage Sludge Survey. **K. McClellan, R. U. Halden**

**10:15 —** Intermission.

**10:30 —80.** Quaternary ammonium compounds in biosolids: High level persistent contaminants in need of much greater attention. **B. J. Brownawell**, X. Li, D. McHugh, J. Ruggieri, P. A. Lara-Martin, D. W. Bemis, C. Kinney

**11:00 —81.** Characterizing poorly understood sources of organic wastewater compounds. **P. J. Phillips**, D. W. Kolpin

**11:30 —82.** Biosolids and earthworms: Bioaccumulation, toxicity, and removal of anthropogenic organic contaminants. **C. Kinney**, E. T. Furlong, D. W. Kolpin, D. W. Bemis, C. Kelly, A. Hay, S. D. Zaugg

**12:00 —83.** Occurrence and bioavailability of brominated flame retardants (BFRs) in land applied municipal biosolids. **R. C. Hale**, M. J. La Guardia, L. Hundal

## WEDNESDAY AFTERNOON

Section A

Unknown Site -- Unknown Room

### Emerging Environmental Technologies towards a Cleaner and Sustainable Society

P. Bishop, *Organizer*

V. Shah, *Organizer, Presiding*

**1:30** — Introductory Remarks.

**1:35 —84.** Black carbon-catalyzed reductive degradation of energetic compounds. **S -Y. Oh**, P. C. Chiu

**1:55 —85.** Converting waste gases from pulp mills into value-added chemicals. **E. Sahle-Demessie**, C. B. Almquist

**2:15 —86.** Emission products of petroleum-based candles. R. Massoudi, **A. Hamidi**

**2:35** — Intermission.

**2:45 —87.** Enhanced biodecolorization of reactive dyes by immobilized phanerochaete chrysosporium. **H. Liang**, D. Gao

**3:05 —88.** New method for recycling EDTA *via* formation of EDTA iron(III) sodium salt. **L. Wang**

**3:25 —89.** Photodegradation of methyl orange with the use of tantalum pentoxide under UV light. **E. Sosnov, S. Prakash**

**3:45 —90.** Sonochemical remediation of phthalates: A mechanistic analysis using LC-MS. **D. VandenBurg, G. J. Price**

Section B

Unknown Site -- Unknown Room

### **Emerging Contaminants, Pharmaceuticals and Personal Care Products, and Organohalogenes in Wastewater and Municipal Biosolids**

A. Sapkota, *Organizer*

R. U. Halden, *Organizer, Presiding*

**1:30 —91.** Wastewater treatment plants as chemical observatories of persistent and potentially problematic contaminants in the environment. **R. U. Halden**

**1:55 —92.** Removal of polar pharmaceuticals from wastewater by activated sludge systems, membrane bioreactor, and by granular activated carbon. **D. S. Aga, M. D. Celiz, S. Y. Baik**

**2:20 —93.** Persistent organic pollutants in Australian biosolids. **B. O. Clarke, N. Porter, J. Blackbeard, R. Symons, P. Marriot**

**2:45 —94.** Removal of two antibacterial compounds (triclocarban and triclosan) in a wastewater treatment plant. **A. Torrents, N. Lozano, C. P. Rice, M. Ramirez**

**3:10 —** Intermission.

**3:25 —95.** Environmental risk assessment of endogenously-produced and exogenously-consumed pharmaceutically active compounds: A Canadian perspective. **U. Khan, J. Nicell**

**3:50 —96.** Environmental fate and hazards of the pharmaceutical diclofenac. **L. Kronberg, J. Svanfelt, J.-M. Kallio**

**4:15 —97.** Issues, implications, and possible remedies regarding pharmaceutical contaminants in Maryland's environment. **E. W. Berg**

**4:40 —98.** PBDEs: Persistence in agricultural soils after biosolids application. **N. A. Andrade, L. L. McConnell, A. Torrents, M. Ramirez**

## WEDNESDAY EVENING

Section A

Unknown Site -- Unknown Room

### General Papers

D. D. Dionysiou, *Organizer, Presiding*

**6:00 - 8:00**

Environmental Chemistry Division and Education.

**99.** The Division of Environmental Chemistry. **R. A. Hathaway**

**100.** Certification for environmental chemists and technicians through NRCC. **R. A. Hathaway**

Advanced Oxidation, Catalytic, Electrocatalytic, and Photochemical Processes-Applications and Mechanistic Aspects.

**101.** Catalytic wet oxidation of phenol with metal ion-doped cryptomelane-type manganese oxides. **B. Hu**, C. Chen, L. Jin, S. Frueh, S. L. Suib

**102.** Experiment and model of diclofenac degradation in an advanced ozone membrane reactor. M. S. Islam, A. Blondy, K. L. Yeung, A. Julbe, A. Ayrat, J. C. Schrotter, **X. Chen**

**103.** Mechanism and kinetics of parathion degradation by ultrasonic irradiation. **J. Yao**, N. Gao, C. Li, H. Guo

**104.** Photodegradation of 4-chlorophenol wastewater using dye sensitized C-TiO<sub>2</sub> photocatalysts under the visible light irradiation. **Y. Shen**, J. Shi, P. Zhu, Y. Zhang

**105.** Photoirradiation of polycyclic aromatic hydrocarbon diones by UVA light leading to lipid peroxidation. **Y. Zhao**, Q. Xia, J. J. Yin, H. Yu, P. P. Fu

**106.** Cavity ring-down spectroscopic study of gas-phase absorption cross sections of 2-nitrobenzaldehyde and benzaldehyde in the 285-400 nm region, and photolysis of 2-nitrobenzaldehyde vapor at 308 nm and 351 nm. **C. Zhu**, B. Xiang, L. Zhu

**107.** Chlorine-free disinfection of water contaminated with *Salmonella typhimurium* by treatment with an alternating current: Role of hydrogen peroxide formation. **N. N. Barashkov**, D. Eisenberg, S. Eisenberg, I. S. Irgibaeva, G. S. Shegebaeva, T. V. Sakhno, T. S. Novikova

**108.** Inhibition of nZVI reactivity by magnetite on reductive degradation of 1,1,1-trichloroethane. **S. Bae**, W. Lee

**109.** Polymerization of Triclosan catalyzed by Fe(III)-saturated montmorillonite. C. Liyanapatirana, S. R. Gwaltney, **K. Xia**

**110.** Reductive dechlorination of vinyl chloride by cement/Fe(II) system. **H -M. Park**, S -J. Kang, J. Im, J -Y. Park

**111.** Removal of trichloroethylene by using FeO/Fe(II) system. **S -J. Kang**, H -M. Park, J. Im, J -Y. Park

**112.** Hydrodechlorination of DDT catalyzed by hydroxyapatite-supported Pd nanoparticles. **N. Hashimoto**, T. Yagi, T. Mitsudome, T. Mizugaki, K. Jitsukawa, K. Kaneda

**113.** Mechanism research on HCN removal through MgO at high temperature. H. Tan, **X. Wang**, C. Wang, T. Xu

Bioremediation and Biological Processes.

**114.** Biodegradation of volatile organic compounds using VOC-tolerant bacterial strains from activated sludge. V. Ibeanusi, M. LaFrance, S. Mohamed, E. Adeyemi, **Y. Jeilani**

**115.** Artificial neural network optimization tool for modeling environmental bioremediation processes. V. Ibeanusi, G. Menezes, J. Coffen, E. Jackson, I. Ajayi, **Y. Jeilani**

Solid Waste, Sewage, Physical Chemical Processes for Water Treatment.

**116.** Experimental study on the municipal solid wastes pre-treatment system. T. Min, S. Roh, W. Kim, **J. Yun**, H. Jang, S. Park

**117.** Pyrolysis and gasification of sawdust, sewage sludge and pre-treated RDF in thermobalance reactor. **S. Roh**, J. Yun, T. Min, W. Kim, S. Keel

**118.** Flocculation behavior in hexagonal grid system dealing with high turbidity water. **H. Wang**, X. Li, Q. Wang

Disinfection, Disinfection Byproducts, Corrosion.

**119.** Formation of haloacetamides during chlorination of dissolved organic nitrogen aspartic acid. W. Chu, **N. Gao**, Y. Deng

**120.** Nitrite formation during ultraviolet photolysis of nitrate. N. Lu, **N -Y. Gao**, Y. Deng

- 121.** Speciation of brominated disinfection by-products in drinking water: Influence of naturally occurring bromide and chlorine dose. **J. M. Wilson**, J. M. VanBriesen
- 122.** Characteristics and disinfection byproducts formation potential of *Microcystic aeruginosa* intracellular and extracellular organic components. **H. Ou**, N. Gao, L. Li, K. Zhang
- 123.** Reactivity and antimicrobial properties of nanostructured titanium dioxide. K. L. Yeung, W. K. Leung, N. Yao, S. Cao, **X. Chen**
- 124.** Effect of pH and orthophosphate levels of drinking water during the initial stages of copper corrosion investigated with atomic force microscopy. **S. L. Daniels**, B. R. Lewandowski, D. A. Lytle, J. C. Garno
- 125.** Free fatty acid profile of the maternal organs and fetal brain from pregnant rats treated with sodium arsenite. **I. A. Ross**, C. S. Kim, W. D. Johnson, R. L. Sprando, M. W. O'Donnell, D. Ruggles, T. Boyle
- Adsorption, Sorption, Interaction, Distribution, Fate, and Transport of Pollutants (Metal, Inorganic, Organic) and Nanoparticles in Natural Systems.
- 126.** Distribution of PAHs in sediments along a rural-urban gradient in central Pennsylvania: Assessing input sources and transport pathways using compositional analysis, GIS, and multivariate methods. **A. Witter**, S. Baidar, P. Sak
- 127.** Investigating the tidal influence of PCB and PAH phase distribution in the estuarine turbidity maximum zone. **K. J. Housman**, G. D. Foster
- 128.** Sorption rate of phenanthrene into polyoxymethene-implication for application of equilibrium passive sampler. **Y. Ma**, W. Huang
- 129.** Vertical profile of polychlorinated biphenyls buried in sediments of the Coastal Plain Potomac River, Washington, D.C. **G. K. Bharat**, G. D. Foster
- 130.** Effect of dissolved organic matter composition on pyrethroids runoff. **L. I. Delgado-Moreno**, L. Wu, J. Gan
- 131.** Sources and input pathways of glyphosate into surface waters. **I. Hanke**, S. Bischofberger, I. Wittmer, H. P. Singer, C. Stamm
- 132.** Chemical properties of humic substances and sorption characteristics for pharmaceuticals. **H. Mori**, N. Fujitake
- 133.** Occurrence, phase distribution and biological effects of chemicals derived from wastewater discharge in tributaries of the Coastal Plain Potomac River, Virginia. **K. J. Dove II**, G. D. Foster

- 134.** Stability and transport of commercial metal oxide nanoparticles in aquatic systems. **Z. Li**, G. A. Sorial, E. Sahle-Demessie
- 135.** Transport properties of lead phosphate aggregates formed on shooting ranges. **M. A. Butkus**, M. Johnson, P. Dacunto, J. Lynch
- 136.** Facilitated transport of toxic metals by liquid membranes containing different carriers. **F. Hassaine-sadi**, M. Graiche, H. Bouchabou
- 137.** Interaction between lower generation poly(amidoamine) dendrimers and cadmium-contaminated soils. **H. U. Lee**, J. W. Jang, J. W. Park
- 138.** Removal of cadmium (II) in ppb level from aqueous medium. A. S. Lyons, P. A. Amoyaw, M. Williams, **X. R. Bu**
- 139.** Reduction of cadmium and lead uptake of carrots with calcium, zinc, and manganese. **K. Fieselmann**, J. Halfmann, A. Fillinger
- 140.** Sorption of mercury(II) onto iron sulfides (FeS and FeS<sub>2</sub>): Reaction mechanism and stability. **D. Han**, B. Batchelor
- 141.** Comparative study of natural and synthetic iron oxides and their effectiveness for remediation of arsenic in groundwater. **M. D. Johnson**, N. J. McMillan, M. Eberhart, J. D. Kegel
- 142.** Mesoporous hydrous zirconium oxide for arsenic removal from drinking water. **A. Bortun**, M. Bortun, J. Pardini, S. Khainakov, J. R. García
- 143.** Removal of chloroform and MTBE from water by adsorption onto granular zeolites. **L. Abu-Lail**, J. A. Bergendahl, R. W. Thompson
- 144.** Mitigation of anthropogenic organic contaminants using vermiculture. **D. W. Bemis**, C. Kinney, B. J. Brownawell, C. Kelly, E. T. Furlong, D. W. Kolpin, S. D. Zaugg
- 145.** Certification of three soil Standard Reference Materials® for inorganic environmental measurements. **E. A. Mackey**, S. J. Christopher, R. D. Day, S. E. Long, A. Marlow, J. L. Molloy, K. Murphy, R. L. Paul, R. S. Popelka-Filcoff, S. A. Rabb, J. R. Sieber, R. Oflaz Spatz, B. E. Tomlin, L. Wood, L. L. Yu, R. Zeisler, S. A. Wilson, C. Jones, J. Nebelsick
- Atmospheric Chemistry, Air Pollution, and Combustion.
- 146.** Review of polychlorinated naphthalenes in polar environments. **T. F. Bidleman**, P. Helm, B. Braune, G. W. Gabrielsen
- 147.** Atmospheric concentrations and gas/particle partitioning of polycyclic aromatic hydrocarbons (PAHs) at background, rural village and urban sites in the North China

Plain. **W. Wang**, S. L. Simonich, J. Zhao, M. Xue, W. Wang, S. Tao

**148.** Atmospheric particulate matter pollution during The 2008 Beijing Olympics. **W. Wang**, T. Primbs, S. Tao, T. Zhu, S. L. Simonich

**149.** Comparison of acid aerosols between hot spring and urban areas in Taipei. **C -H. Lin**, I -F. Mao, P -H. Tsai, Y -J. Chen, M -L. Chen

**150.** Decoupling secondary organic aerosol formation and aging processes. C. D. Hauser, **R. M. Jenkins, J. Godinho**

**151.** Marine boundary layer O<sub>3</sub> and CO distribution during AEROSE III. **J. Escalera**, V. Morris

**152.** Studies on the city green patterns based on the atmosphere environment quality control. **H. Zhuang**, Y. Jia

**153.** Characteristic of metallic elements on ultrafine/fine/coarse particles in the stack gas of a municipal waste incinerator. L -Y. Hsu, **Y -J. Huang**, I -F. Hung

**154.** Evolution of H<sub>2</sub>S and SO<sub>2</sub> during the pyrolysis of three types of Chinese coal. Q. Zhao, **X. Wang**, Q. Qi, H. Tan

**155.** Experimental study on high temperature in-furnace deSO<sub>x</sub> in Oxy-PC power plants. **J. Yun**, S. Keel, S. Roh

**156.** Emissions from the combustion of fuels in a gas turbine engine. **M. Ortega**, M. Ghadiri, D. Guillaume, T. Pham, S. Esparza, C. Khachikian

**157.** Fundamental study of environmental control in Oxy-PC combustion system. **J. Yun**, S. Keel, T. Min

**158.** Role of silica-supported iron oxide nanoparticles in pollutant formation in combustion processes. **E. Mitran**, B. Dellinger, R. L. McCarley

**159.** Self-retention of SO<sub>2</sub> by ash during fluidized bed combustion of biomass. **K. Zhao**, Q. G. Lu

**160.** Size and composition distribution of nanoparticulate emitted from four-stroke motorcycle. **C. Shu-Mei**, H. Yuh-Jeen, C. Kuan-Yi

Environmental Analytical Methods.

**161.** Electrochemical analysis of roxarsone, 3-nitro-4-hydroxyphenylarsonic, using palladium, gold and platinum electrodes. **T. Tongesayi**, E. J. Byam, A. Grafton

**162.** Method development for nitric oxide radical determination in natural water. **E. F. Olasehinde**, K. Takeda, H. Sakugawa

**163.** Rapid lab-scale extraction and analysis of anthropogenic organic contaminants in sediments. T. J. Brown, **C. Kinney**

**164.** Speciation analysis of rare earth elements in soil of China. **X. Qi**

**165.** Steroid hormone determination in water using an polymer magnetic nanoparticle extraction technique. **Q. L. Li**

**166.** Trace determination of synthetic polycyclic musks in water by microwave-assisted headspace solid-phase microextraction and GC/MS. **W -H. Ding**

Emerging Pollutants.

**167.** Control of genotoxic and carcinogenic impurities in an active pharmaceutical ingredient (API). **Y. Shi**, B. He, M. L. Kubin, H. Fyfe, B. Kleintop

**168.** Fate of steroid hormones in sewage sludge and poultry litter prior to land application. **C. Bevacqua**, C. P. Rice, A. Torrents, M. Ramirez

**169.** New contamination derived from marine debris plastics. **K. Saido**, T. Itagaki, H. Sato, Y. Kodera, O. Abe, N. Ogawa, S -Y. Chung, K. Miyashita

**170.** Uptake of human pharmaceuticals in plants grown under hydroponic conditions. P. Gurung, P. Herklotz, B. Vanden Heuvel, **C. Kinney**

Properties of Chemicals and Materials of Environmental Concern.

**171.** Determining the vapor pressure of mineral oil lubricants as a function of temperature. S. Abernathy, **A. Jackson**

**172.** Direct online solubility analysis of CO<sub>2</sub> under hydrate forming conditions for CO<sub>2</sub>. **R. B. Lamorena**, W. Lee

**173.** Effects of CO addition on the ignition temperature and burn off temperature of methane. **K. Zhao**, Q. G. Lu

**174.** Rate constants for the direct reaction of ozone with four selected pharmaceuticals. **F. J. Real**, F. J. Benitez, J. L. Acero, G. Roldan

Green Chemistry and Emerging Technologies.

**175.** Evaluating waste charcoal as potential rubber composite filler. **S. C. Peterson**, A. Boateng

**176.** Imprinted polymers for the removal of hydrophilic metal complexes from water. **S. A. Ashraf**, A. Mueller

**177.** Latex-CNT composites with entrapped microbes as anodes in microbial fuel cells. B. Logan, **R. C. Wagner**

**178.** Adsorption of metal ions using titanate nanotubes synthesized by hydrothermal methods. **C -W. Tsai**, R -A. Doong

**179.** Using an iron ball packed bipolar cell for groundwater contaminated by nitrate. J. H. Park, J. Im, **J -Y. Park**

Toxicity and Nanotoxicology.

**180.** Toxicity and developmental defects of nickel nanoparticles in zebrafish. **C. R. Ispas**, D. Andreescu, K. N. Wallace, S. Andreescu

Section B

Unknown Site -- Unknown Room

### **Advances in Analytical Chemistry for Environmental Applications**

T. Jones-Lepp, *Organizer*

D. D. Dionysiou, *Presiding*

**6:00 - 8:00**

**181.** *In situ* groundwater arsenic removal using iron-oxide coated sand. **H. Yu**, Y. H. Huang

**182.** Inexpensive detection method for petrodiesel levels in contaminated soil. **B. B. Kreutzer**, W. S. Teel, J. P. Cabaniss, J. A. Edwards, S. L. Evans, M. O. Portegies-Zwart

**183.** Assessment of seasonal variations in surface water quality of Chitral River, Pakistan. **J. Khan**, S. A. Baig, A. Hussain, Q. Mahmood, M. Nafees, A. R. Khan, R. Farooq

**184.** Chemically enhanced treatment of carwash industry wastewater. Z. A. Bhatti, **Q. Mahmood**, I. A. Raja

**185.** Developing the system of ferrous cement paste and slag as viable media of PRB for the removal of TCE. **J. Im**, W -H. Choi, J -Y. Park

**186.** Enhanced fenton reaction by ferrous ion chelated with cross-linked chitosan. **Y. Lee**, W. Lee

**187.** Geochemical conditions affecting electrode-based removal of uranium. **J. Peng**, K. B. Gregory

**188.** New flow injection chemiluminescence system for the determination of 2,4-dichlorophenol. **Q. Wang**, H. Zhuang

**189.** Novel arsenic filters based on composite iron matrix: Fundamental studies, production and large scale deployment. **S. Ahamed**, A. K. M. Munir, A. Hussam

**190.** Novel method to improve the mercury adsorption capacity of carbonaceous materials. **J. Luo**, J. Luo

**191.** Study on the determination of polybrominated biphenyls by ELISA. **Q. Wang**, L. Yang, H. Zhuang, H. Chen

Section C

Unknown Site -- Unknown Room

### **Environmental Science and Technology: A Tribute to William “Bill” Glaze**

J. L. Gardea-Torresdey, *Organizer*

D. D. Dionysiou, *Presiding*

**6:00 - 8:00**

**192.** Effect of oxides to enhance the reactivity of persulfate solution for degradation of diesel-contaminated sand. Y. Kwon, **S -H. Do**, S -H. Kong, K -M. Park

**193.** Effect of two non-ionic surfactants on PAHs biodegradation in marine sediment under denitrification condition. **X. Lu**, T. Zhang, H. H. P. Fang

**194.** Efficient degradation of azo dye wastewater with electro-Fenton using the boron modified carbon nanotube cathodes. **Y. Shen**, J. Shi, Y. Zhang, P. Zhu

**195.** Fenton-like reaction in wastewater. **Y. Lee**

**196.** Nitrobenzene oxidation by persulfate with magnetite nano particle (MNP). **H -K. Lee**, Y -H. Jo, S -H. Do, S -H. Kong, H -D. Park

**197.** Photocatalytic behavior of salicylic acid modified TiO<sub>2</sub> for degradation of Bisphenol A. S -M. Chang, **C -T. Chang**

**198.** Surface molecule-controllable magnetic-dendrimer for environmental applications. **J. W. Jang**, J. W. Park

Unknown Site -- Unknown Room

**Emerging Environmental Technologies towards a Cleaner and Sustainable Society**

P. Bishop, *Organizer*

V. Shah, *Organizer, Presiding*

**6:00 - 8:00**

**199.** Removal of viruses and organic matter from water and wastewater using zero-valent iron. **C. Shi**, J. Wei, Y. Jin, K. E. Kniel, P. C. Chiu

Unknown Site -- Unknown Room

**Emerging Contaminants, Pharmaceuticals and Personal Care Products, and Organohalogenes in Wastewater and Municipal Biosolids**

A. Sapkota, *Organizer*

R. U. Halden, *Organizer, Presiding*

**6:00 - 8:00**

**200.** Analysis of perfluorinated chemicals and their fluorinated precursors in sludge: Method development and initial results. **H. Yoo**, J. J. Ellington, J. W. Washington, T. M. Jenkins, L. E. Libelo

**201.** Fate of pharmaceuticals and personal care products in agricultural soils amended with biosolids. **E. Walters**, K. McClellan, R. U. Halden

**202.** Development of a model to estimate prescription pharmaceutical influent concentrations and loadings to wastewater treatment plants in Virginia. **K. J. Ottmar**, E. S. Houle, E. C. Kurland, D. E. Sanchez, S. B. Schlesinger, L. M. Colosi, J. A. Smith

**203.** Empirical model for predicting concentrations of refractory hydrophobic organic compounds in digested sludges from municipal wastewater treatment plants. **R. P. Deo**, R. U. Halden

**204.** *In silico* screening for unmonitored high production volume (HPV) chemicals prone to accumulate in biosolids. **R. P. Deo**, R. U. Halden

**205.** Refined predicted no-effect-concentration (PNEC) for triclocarban in freshwater environment. **F. Ayala-Fierro**, L. Jeram, O. Kretschik

**206.** Applicability of passive sampling modules for the determination of contaminants of emerging interest in digested municipal sewage sludge (biosolids). **A. D. Fox**, R. U. Halden

## THURSDAY MORNING

Section A

Unknown Site -- Unknown Room

### Emerging Environmental Technologies towards a Cleaner and Sustainable Society

P. Bishop, *Organizer*

V. Shah, *Organizer, Presiding*

**8:30** — Introductory Remarks.

**8:35** —**207.** *In situ* controlled-release systems (CRS) for lower-cost, target-specific, and 'greener' treatment of pollutants in water resources. **E. S. Lee**, G. Liu, F. W. Schwartz, Y. Kim

**8:55** —**208.** Development of a sustainable catalytic treatment process for perchlorate-contaminated water. **T. J. Strathmann**, J. K. Choe, J. Liu, Y. Zhang, C. J. Werth, J. R. Shapley

**9:15** —**209.** Dual isotope fractionation ( $^{15}\text{N}$ ,  $^{18}\text{O}$ ) in catalytic nitrate reduction. **J. R. Shapley**, K. A. Guy

**9:35** — Intermission.

**9:45** —**210.** Dual-mode detection of *E. coli* and total coliforms. **L. Su**, K. Venkitanarayanan, Y. Lei

**10:05** —**211.** Electrode-based reactive capping of contaminated sediments for *in situ* redox control. **M. Sun**, F. Yan, D. D. Reible, G. V. Lowry, K. B. Gregory

**10:25** —**212.** Nucleation statistics of carbon dioxide hydrate: Enhancement of the underwater sequestration safety. **K. Lee**, W. Lee, S -H. Lee

**10:45** —**213.** Quantum chemistry applications for environmental science: Evaluation of military produced contaminants. **Y. Kholod**, L. Gorb, F. Hill, J. Leszczynski

Unknown Site -- Unknown Room

**Emerging Contaminants, Pharmaceuticals and Personal Care Products, and Organohalogenes in Wastewater and Municipal Biosolids**

R. U. Halden, *Organizer*

A. Sapkota, *Organizer, Presiding*

**8:30 —214.** Assessment of estrogenicity and estrogenicity drivers in a WWTP mixing zone. **S. A. Pagsuyoin**, R. J. Classon, W. Hedgepeth, W -S. Lung, L. M. Colosi

**8:50 —215.** Removing steroids from contaminated waters using radical reactions. **S. P. Mezyk**, E. Abud, K. L. Swancutt, D. D. Dionysiou

**9:10 —216.** Nitrosamine and chloropicrin formation from strong base anion-exchange resins. **J. M. Kemper III**

**9:30 —217.** Removing contaminant *beta*-lactam antibiotics from waters using radical reactions. **M. K. Dail**, S. P. Mezyk, J. R. Peller

**9:50 —218.** Dispersability behavior of diagnostic gold nanoparticles in the presence of humic substances. **V. L. Pallem**, H. A. Stretz, M. J. M. Wells

**10:10 —** Intermission.

**10:30 —219.** Oxidative transformation of lincosamide antibiotics by manganese oxide. **W -R. Chen**, Y. Ding, C. T. Johnston, B. J. Teppen, S. A. Boyd, H. Li

**10:50 —220.** Radical chemistry of mixed aliphatic-aromatic nitrosamines in water. **E. Abud**, S. P. Mezyk, K. L. Swancutt, T. Foust, J. J. Kiddle

**11:10 —221.** Sonochemical degradation of pharmaceuticals and personal care products using continuous and pulsed ultrasound in aqueous solution. **R. Xiao**, L. Weavers

**11:30 —222.** Sulfate radical remediation of contaminant antibiotics in water. **K. Rickman**, S. P. Mezyk

**11:50 —223.** Transformation of tetracycline antibiotics promoted by aluminum oxide surfaces. **W -R. Chen**, C -H. Huang

**12:10 —224.** Absolute kinetics and efficiencies of oxidizing and reducing radical reactions with sulfa antibiotics in water. **T. Neubauer**, S. P. Mezyk, J. R. Peller

## THURSDAY AFTERNOON

Section A

Unknown Site -- Unknown Room

### Emerging Environmental Technologies towards a Cleaner and Sustainable Society

P. Bishop, *Organizer*

V. Shah, *Organizer, Presiding*

**1:30** — Introductory Remarks.

**1:35 —225.** Influence of acetate on the removal of phenanthrene from contaminated soil by Fenton reaction. **W -H. Choi**, J. Seong, J. Im, J -Y. Park

**1:55 —226.** Vitamin B<sub>12</sub>-catalyzed dechlorination of dichloromethane with bimetallic Cu/Al particles. C -C. Huang, **H -L. Lien**

**2:15 —227.** Electrochemical destruction of reverse osmosis brines: A sustainable technology to enhance water reuse. **B. P. Chaplin**, C. Duncan, G. Schrader, J. Farrell

**2:35** — Intermission.

**2:45 —228.** Development of gasification and catalytic reforming technology for effective energy recovery. **K. Kawamoto**, J. Kobayashi

**3:05 —229.** New polymeric cathode binders for microbial fuel cells. **T. Saito**, V. Watson, M. D. Merrill, M. A. Hickner, B. E. Logan

**3:25 —230.** Perchlorate reduction catalysts derived by ligand-induced adsorption of perrhenate onto Pd/C. **Y. Zhang**, J. R. Shapley

**3:45 —231.** Impact of trona addition on ash leaching characteristics. **T. Su**