

# ENVR

## DIVISION OF ENVIRONMENTAL CHEMISTRY

Final Program, 234th ACS National Meeting, Boston, MA, August 19-23, 2007

G. Coimbatore, *Program Chair*

### OTHER SYMPOSIA OF INTEREST:

**Analytical Approaches** (see *ANYL*, Thu)

**New Chemical and Biosensing Approaches for Cellular Analysis** (see *ANYL*, Wed)

**Nanoscience and Nanotechnology for Chemical and Biological Defense** (see *COLL*, Sun, Mon, Tue, Wed, Thu)

**Classic Chemistry Books of the Twentieth Century: Spectroscopy** (see *HIST*, Mon)

**Safety in Nanotechnology Research** (see *CHAS*, Mon, Tue)

### SOCIAL EVENTS:

**Dinner:** Tue

**Social Hour:** Tue

### BUSINESS MEETINGS:

**Business Meeting:** Sun

**Executive Committee Meeting:** Sun

## SUNDAY MORNING

Section A

Boston Park Plaza -- Stanbro Rm

### Atmospheric Aerosol Processes

K. T. Valsaraj and R. R. Kommalapati, *Organizers*

**8:30** — Introductory Remarks.

**8:50** —**1.** Photoprocessing of atmospheric targets: Aerosol nucleation and chemistry. **V. Vaida**

**9:10** —**2.** Global modeling of the climatology and optical properties of multicomponent aerosol species. **T. Ayash, C. Q. Jia, S. L. Gong, T. L. Zhao, P. Huang**

**9:30** —3. Interfacial chemistry in aqueous nanodroplet encounters with a reactive gas. **C. D. Vecitis**, S. Enami, M. R. Hoffmann, A. J. Colussi

**9:50** —4. Morphological effects on particle reactivity. **E. R. Garland**, E. P. Rosen, T. Baer

**10:10** — Intermission.

**10:25** —5. Atmospheric deposition of PCBs and the role of soil bioturbation in their fate. **L. Thibodeaux**, M. D. Rodriguez

**10:45** —6. Photochemistry of secondary organic aerosol particles formed in oxidation of monoterpenes by O<sub>3</sub> and NO<sub>3</sub>. **S. Nizkorodov**, A. Bateman, S. Mang, X. Pan, J. Underwood, M. Walser, J. Xing, Y. Dessiaterik, A. Laskin, J. Laskin

**11:05** —7. Pollutant emissions from a biodiesel blend. L. Monti, **M. Lu**, Z. Liu

**11:25** —8. Tropospheric aerosol surface oxidation reactions studied by sum frequency generation. **G. Y. Stokes**, J. M. Gibbs-Davis, A. M. Buchbinder, F. M. Geiger

Section B

Boston Park Plaza -- Beacon Hill Rm

## **Fate of Persistent Organic Pollutants in Urban Systems**

### **Sorption, Bioremediation, NY/NJ Harbor**

D. E. Fennell and L. A. Totten, *Organizers*

**8:30** —9. Strong sorption of phenanthrene by nonhydrolyzable organic matter in soils and sediments. **Y. Ran**, K. Sun, Y. Yang, B. Xing, E. Y. Zeng

**8:50** —10. Interaction mechanism of nonpolar organic contaminants in natural organic matter: Dominating role of adsorption (micropore-filling). **Y. Ran**, K. Sun, B. Xing, L. Zhou

**9:10** —11. Assessing desorption kinetics of native pyrene from contaminated sediment by time-resolved fluorescence spectroscopy. **D. T. F. Kuo**, R. Adams, S. M. Rudnick, R. F. Chen, P. M. Gschwend

**9:30** — Intermission.

**9:50** —12. In situ capping of contaminated sediments: Biogeochemical characterization of sediments and caps and its impact on contaminant fate and transport. **D. W. Himmelheber**, M. Taillefert, J. B. Hughes

**10:10** —13. Bioremediation approaches for PCB- and PCDD/F-contaminated sediments. **D. E. Fennell**, V. Krumins, B. Ravit, L. A. Totten

**10:30** —14. Persistent chlordane concentrations in Long Island Sound sediment: Implications from chlordane, <sup>210</sup>Pb and <sup>137</sup>Cs depth profiles. L. Yang, X. Li, J. Crusius, **U. Jans**, M. E. Melcer, P. Zhang

**10:50 —15.** Chiral signatures as a tool for source apportionment of PCBs in the Hudson River Estuary. **B. J. Asher**, C. S. Wong, L. A. Totten

**11:10 —16.** Modeling atmospheric POP dynamics in urban systems. **L. A. Totten**, G. Stenchikov, S. Du

## SUNDAY AFTERNOON

### Section A

Boston Park Plaza -- Stanbro Rm

### Atmospheric Aerosol Processes

K. T. Valsaraj and R. R. Kommalapati, *Organizers*

**1:30** — Introductory Remarks.

**1:35 —17.** Radiative effects of soil dust and sea-salt aerosols. **T. Ayash**, C. Q. Jia, S. L. Gong

**1:55 —18.** Atmospheric chemistry and fate of perfluorinated compounds at the air-water interface. **N. Rontu**

**2:15 —19.** Effect of highly concentrated inorganic seed aerosols on secondary organic aerosol (SOA) formation. **Z. Lu**, J. Hao, H. Takekawa

**2:35 —20.** Carbonaceous aerosol processing by clouds and fogs. **J. L. Collett Jr.**, L. Rinehart-Mazzoleni, P. Herckes, X. Shen, T. Lee, A. P. Sullivan, S. Raja, R. R. Kommalapati, K. T. Valsaraj

**2:55** — Intermission.

**3:10 —21.** Environmental chemodynamics of sediment pollutants inside homes in New Orleans, Louisiana, following hurricane Katrina. **N. Ashley**, K. T. Valsaraj, L. Thibodeaux

**3:30 —22.** Enhancement of corona discharge for toluene decomposition by Fenton-type reaction. **Y. Kang**, Z. Wu

**3:50 —23.** Fine particle matter (PM<sub>2.5</sub>) in the ambient air of Chiang Mai—Lamphun basin in northern Thailand. **N. Chunram**, U. Vinitketkumnun, R. L. Deming, R. Kamens

**4:10 —24.** Uptake and UV-photo-oxidation of gas phase PAHs on atmospheric water films. **J. Chen**, K. T. Valsaraj

### Section B

Boston Park Plaza -- Beacon Hill Rm

### Fate of Persistent Organic Pollutants in Urban Systems

## Source Apportionment, PCBs, BDEs

D. E. Fennell and L. A. Totten, *Organizers*

**1:30 —25.** Source apportionment of PCBs in the Delaware River and NY/NJ Harbor. **S. Du**, B. Xiao, T. Belton, D. E. Fennell, L. A. Totten

**1:50 —26.** Source apportionment of POPs in the NY/NJ Harbor. **B. Xiao**, S. Du, D. E. Fennell, L. A. Totten

**2:10 —27.** Source apportionment of urban PAH contamination using passive sampling devices and multivariate statistics. **G. J. Sower**, K. A. Anderson

**2:30 —28.** Atmospheric PCB sources to the Delaware River. **A. L. Sandy**, S. Du, D. M. Kaczorowski, L. A. Totten

**2:50 —29.** Discernment of dietary and inhalation exposure to PCBs from congener profiles in blood. **A. K. Norström**, G. Czub, M. S. McLachlan, P. S. Thorne, K. C. Hornbuckle

**3:10** — Intermission.

**3:30 —30.** Brominated diphenyl ethers in the New York/New Jersey Harbor. **L. A. Totten**, A. Zarnadze

**3:50 —31.** Fate assessment of brominated organic compounds including flame retardants based on physico-chemical parameters experimentally measured. **K. Kawamoto**, H. Kuramochi

**4:10 —32.** Photolytic dehalogenation of decabromodiphenyl ether. C -K. Wang, **Y -H. Shih**

## MONDAY MORNING

Section A

Boston Park Plaza -- Stanbro Rm

### Symposium Honoring Dr. Walter Giger

#### Environmental Geochemistry

*Cosponsored by GEOC*

R. P. Eganhouse, J. A. Field, H -P. E. Kohler, and M. J. F. Suter, *Organizers*

**8:30** — Introductory Remarks.

**8:40 —33.** Arsenic in groundwater: From local measurements to regional predictions in southeast Asia. **C. A. Johnson**, M. Berg, S. Hug, K. Abbaspour, M. Amini, L. Winkel, E. Hoehn, H. Yang

**9:05 —34.** Distinguishing natural and anthropogenic sources of aliphatic and aromatic hydrocarbons using natural abundance radiocarbon measurements. **Ö. Gustafsson**, M. Mandalakis, Z. Zencak, C. M. Reddy, J. Klanova, I. Holoubek, E. G. Stephanou

**9:30 —35.** Evidences for wide influences of incomplete combustion products from biomass burning in the East Asia region: A case study of PM<sub>2,5</sub> aerosols at Mt. Halla, Jeju Island, Korea. **H. Kumata**, N. Kaneyasu, C -H. Kang, Y. Goto, M. Tsuzuki, T. Uchida, K. Fujiwara

**9:55 —36.** Biogeochemical assessment of alkenone export depth in the summertime euphotic zone of the Gulf of California. **F. G. Prahl**, B. N. Popp

**10:20** — Intermission.

**10:35 —37.** Long-term studies on a 40-year old oil spill. **C. M. Reddy**

**11:00 —38.** Sources of polar organic matter in petroleum-contaminated groundwater: New insights into biogeochemical processes and fate and transport implications. **R. Haddad**, C. M. Reddy, R. K. Nelson, L. Xu

**11:25 —39.** Walter's surfactants as biogeochemical tracers in U.S. estuarine sediments. **B. J. Brownawell**, **X. Li**

**11:50 —40.** Old pollutants never die-they just fade away: The fate of DDT on the Palos Verdes Shelf. **R. P. Eganhouse**, J. Pontolillo

Section B

Boston Park Plaza -- Beacon Hill Rm

### **Recent Developments in Sensors and Sensor Networks for Contaminants in Environmental Systems**

C. Lee and P. L. Brezonik, *Organizers*

**8:30** — Introductory Remarks.

**8:35 —41.** Inkjet printed biodegradable sensors for environmental monitoring. **P. Takhistov**

**9:00 —42.** Detection and identification of biospores using infrared spectroscopy. **C. V. G. Reddy**, C. P. Tripp

**9:25 —43.** BioMEMS device to track *Mycobacterium* in clinical environments. **D. B. Oerther**, K. Mack, E. Peterson, I. Papautsky, B. Kinkle

**9:50 —44.** Development of fouling resistant water treatment membranes with microbial sensing capabilities. **C. L. Gruden**, I. Escobar, M. R. Coleman, O. Mileyeva-Biebesheimer, C. Gorey

**10:15** — Intermission.

**10:30 —45.** Needle-type sensor array for simultaneous measurement of dissolved oxygen and redox potential in situ. **I. Papautsky**, J -H. Lee, Y. Seo, T -S. Lim, P. L. Bishop

**10:55 —46.** Comparing dissolved oxygen sensors and developing design criteria for mobile platform monitoring of hypoxia. **R. A. Mann**, J. S. Bonner, T. O. Ojo, S. M. Islam

**11:20 —47.** Wireless sensor network for environmental monitoring based on optical technology. **Y. Kostov**, U. Ghosh, G. Rao

## MONDAY AFTERNOON

Section A

Boston Park Plaza -- Stanbro Rm

### Symposium Honoring Dr. Walter Giger

#### Advanced Analytical Methods

*Cosponsored by GEOC*

R. P. Eganhouse, J. A. Field, H -P. E. Kohler, and M. J. F. Suter, *Organizers*

**1:30** — Introductory Remarks.

**1:35 —48.** Novel approaches for mass spectrometric analysis of endocrine-disrupting compounds in the aquatic environment. **P. L. Ferguson**, L. Kimberley, B. Englehart

**2:00 —49.** Application of negligible-depletion solid phase microextraction to quantify the interaction between estrogenic micropollutants and bulk organic matter. **P. A. Neale**, B. I. Escher, A. I. Schäfer

**2:25 —50.** Determination of estrogenic and pharmaceutical chemicals in sewage effluent and receiving river water by spot and passive sampling. Z. Zhang, **J. L. Zhou**

**2:50 —51.** Orbiting around mudPIT reproducibility. **M. J. F. Suter**, K. Cheshenko, V. J. Nesatyy

**3:15** — Intermission.

**3:30 —52.** Comprehensive 2-D gas chromatography (GCxGC) in environmental forensics. **R. B. Gaines**, G. S. Frysinger, C. M. Reddy, R. K. Nelson

**3:55 —53.** Disentangling oil weathering in the environment using GCxGC. **J. S. Arey**, R. K. Nelson, C. M. Reddy

**4:20 —54.** Quantitative determination of fullerenes in combustion by-products and during toxicological assays. **C. W. Isaacson**, C. Usenko, R. Tanguay, J. A. Field

**4:45 —55.** Compound specific  $^{81}\text{Br}/^{79}\text{Br}$  analysis by capillary gas chromatography multicollector inductively coupled plasma mass spectrometry (GC-MC-ICPMS). **S. P. Sylva**, L. Ball, R. K. Nelson, C. M. Reddy

**5:10** — Concluding Remarks.

Section B

Boston Park Plaza -- Beacon Hill Rm

## Recent Developments in Sensors and Sensor Networks for Contaminants in Environmental Systems

C. Lee and P. L. Brezonik, *Organizers*

**1:30 —56.** Microfabricated tuning fork sensors: Chloroform in water. **F. Tsow**, K. Kruger, N. Tao, E. S. Forzani, P. K. Westerhoff

**1:55 —57.** Real-time nitrophenol detection using single-walled carbon nanotube sensors. **Y. Lei**, N. Liu, X. Cai, Q. Zhang, M. Chan

**2:20 —58.** Colorimetric sensor arrays for the detection of toxic industrial chemicals. **K. S. Suslick**

**2:45 —59.** Time resolved impedance spectroscopy of the protein toxins' adsorption to the nanopatterned surfaces. **P. Takhistov**, C -H. Chai

**3:10** — Intermission.

**3:25 —60.** Mass-sensitive microsensor platform for liquid-phase environmental sensing. J. H. Seo, A. Byun, G. T. Dobbs, Y. I. Luzinova, S. Truax, K. S. Demirci, B. Mizaikoff, **O. Brand**

**3:50 —61.** Continuous carbon monoxide monitoring by using a wireless sensor network. **C. Chaiwatpongsakorn**, T. C. Keener, W. Toruksa, M. Lu, D. Wang, D. Agrawal

**4:15 —62.** Detection of peroxyacetyl nitrate by quartz crystal microbalance. **D. Himali**, Y. G. Durant

## Undergraduate Research Poster Session

### Environmental Chemistry

*Sponsored by CHED, Cosponsored by ENVR and SOCED*  
N. Bakowski, *Organizer, Presiding*

**2:30 - 4:30**

**238.** “CDtrodes” vs. traditional gold film electrodes in determination of a soil pollutant. **E. Davila**, C. A. Smith

**239.** Comparing the properties of pyridinium and 4-dimethylaminopyridinium ionic liquids. **J. Hatcher**, M. Thomas, S. I. Lall-Ramnarine, J. F. Wishart

**240.** Evaluation of simple solar cells using plant materials as the electron donor. **D. Huntington**, C. E. MacTaylor

**241.** Gentle capture of an airborne virus for online detection with flow cytometry. **K. M. McElhoney**, E.

Schick, M. Beckert, D. A. Orsini, K. P. Rhoads

**242.** H<sub>2</sub>O cone and beyond: Making a difference one paddle at a time. B. Barfield, J. N. Cross, K. Harper, **L. M. Peaden**, S. Rowland, D. Wilson, C. H. Lisse

**243.** In search of the best biodiesel: Bomb calorimetry and GC-MS of biodiesel made from six different oils. **J. Nyoike**, L. Comeford, C. E. MacTaylor

**244.** Investigating the microwave assisted synthesis of ionic liquids. **K. Kerr**, G. Subramaniam, S. I. Lall-Ramnarine, J. F. Wishart

**245.** Metal uptake by *Raphanus sativus* using hydroponics. R. Armenta, **S. Arteaga**, L. De Santiago, A. Aguirre

**246.** Novel determination of hydrophobic pollutants in surface waters. **B. Vallejo**, C. A. Smith

**247.** Physical properties of phosphate ionic liquids. **K. Urena**, M. Thomas, J. F. Wishart, S. I. Lall-Ramnarine

**248.** Sarcosine, AMPA and glyphosate in montmorillonite clay interlayers: A theoretical molecular level study. **L. Tribe**, A. Slutter, A. Rennig

**249.** Search for a cadmium point source using stripping voltammetry. **L. Zuniga**, C. A. Smith

**250.** Synthesis of ionic liquids for toxicity studies. **X. Li**, J. Hatcher, H. R. Walker, C. McEntee, J. F. Wishart, S. I. Lall-Ramnarine

**251.** Trace metal concentrations in soils on the campus of Southern Connecticut State University. **J. W. Gleason**, G. S. Kowalczyk

**252.** Ultraviolet analysis of the toluene fraction in bitumen from Agbadu (Western Nigeria). **O. K. Theophilus**, O. Rex

**253.** Using a bubble column to measure surface activity for wastewater remediation. **A. Liu**, C. Schnitzer

**254.** "Wood" you use it? **S. Rowland**, B. Barfield, J. H. Owens Jr., D. Wilson, J. K. Metzker

## MONDAY EVENING

Section A

BCEC -- Exhibit Hall - C

### Sci-Mix

G. Coimbatore, *Organizer*

**8:00 - 10:00**

177-178, 181-182, 187-188, 190-191, 194. See subsequent listings.

## TUESDAY MORNING

### Section A

Boston Park Plaza -- Stanbro Rm

### Symposium Honoring Dr. Walter Giger

#### Biotransformation and Effects

*Cosponsored by GEOC*

R. P. Eganhouse, J. A. Field, H -P. E. Kohler, and M. J. F. Suter, *Organizers*

**8:30** — Introductory Remarks.

**8:40 —63.** Combining analytical chemistry and toxicology to trace environmental contaminants: The start of a beautiful friendship. **J. Legler**, J. De Boer

**9:05 —64.** Use of microarray analysis in *Arabidopsis* exposed to RDX as a screening technique for determination of RDX up-regulated genes in *Populus*. S. Tanaka, H -P. Peng, M -C. Shih, B. Van Aken, **J. L. Schnoor**

**9:30 —65.** Emerging pollutants in coastal environment: From chemical analysis to ecological risk assessment. **A. Marcomini**, G. Poiana, C. Micheletti, A. Fantinati, L. Canesi

**9:55 —66.** Aerobic soil biotransformation of fluorotelomer monoesters and triesters. **J. Liu**, L. S. Lee

**10:20** — Intermission.

**10:35 —67.** Microbial metabolism of nonylphenol isomers. F. L. Gabriel, W. Giger, K. Guenther, **H -P. E. Kohler**

**11:00 —68.** Subsurface alkylphenoethoxylate transformation pathways: Who's responsible and how? **M. Reinhard**, J. Montgomery-Brown, S. Behrens, J. A. Campbell, W -H. Ding

**11:25 —69.** In vitro enantioselective biotransformation of chiral polychlorinated biphenyls. **N. A. Warner**, J. W. Martin, C. S. Wong

**11:50 —70.** Elucidating the role of electron transfer mediators in reductive transformations in natural sediments. **H. Zhang**, E. J. Weber

**12:15 —71.** Multicompartment analysis of the behavior and fate of metolachlor in the environment. **P. D. Capel**, R. M. Webb

### Section B

Boston Park Plaza -- Beacon Hill Rm

## Recent Developments in Sensors and Sensor Networks for Contaminants in Environmental Systems

C. Lee and P. L. Brezonik, *Organizers*

**8:30 —72.** Application of microfabrication techniques for the development of a miniaturized Hg-free ASV system. **M. D. Martin**, L. Sztaberek, R. P. Baldwin, T. Roussel, R. Keynton, K. Walsh, J. Naber, B. Vaughn, D. Jackson

**8:55 —73.** Scaleable potentiometric nitrate sensors for soil and aquatic observation applications. **A. A. Ratko**, T. C. Harmon

**9:20 —74.** Chemical sensors and novel database for monitoring marine pollution. **O. A. Sadik**, J. Karasinski, S. Kikandi, M. Ogunlesi, W. Okiei, E. Oyewo

**9:45 —75.** Sensor-based investigation of biogeochemical controls on arsenic mobilization in rural Bangladesh. **N. Ramanathan**, C. Lee, T. Lin, R. Neumann, S. Rothenberg, C. Harvey, T. C. Harmon, E. Kohler, D. Estrin, J. Jay

**10:10 —** Intermission.

**10:25 —76.** NanoLAB, an automatic, field deployable analyzer for nutrient determinations using discrete sample aliquots. **C. J. Patton**, M. B. Rawlinson, P. J. Pappe

**10:50 —77.** Characterization and evaluation of the cobalt-based phosphate microelectrode for use in vivo environmental analysis. **W. H. Lee**, Y. Seo, P. L. Bishop

**11:15 —** Concluding Remarks.

## Fuel Cell Technology: Biofuel Cells, Enzymatic and Microbial

### Microbial Fuel Cells

*Sponsored by FUEL, Cosponsored by ENVR*

P. Atanassov, J. M. Andresen, B. E. Logan, and G. T. R. Palmore, *Organizers*

**8:25 —** Introductory Remarks.

**8:35 —125.** Systems biology and adaptive evolution approaches to understanding and increasing power output of microbial fuel cells. **D. R. Lovley**, K. P. Nevin

**8:55 —126.** Isolation and electrochemical activity evaluation of electricity generated bacteria. H. Lee, X. Wang, Y. Yu, F. Gao, **Y. Feng**

**9:15 —127.** Performance of different strains of the genus *Shewanella* in a microbial fuel cell. A. C. M. Cheung, **O. Bretschger**, F. Mansfeld, K. H. Nealson

**9:35 —128.** Enhancing initial bacterial adhesion to electrode materials in microbial fuel cell (MFC). **D. Jiang, B. Li**

**9:55** — Intermission.

**10:05 —129.** Progress and challenges in scale up of electrogenic reactors such as microbial fuel cells. **B. Logan, S. Cheng, V. Watson**

**10:25 —130.** Enhanced power generation of air cathode microbial fuel cells with cloth electrode assembly. **H. Liu, Y. Fan, H. Hu**

**10:45 —131.** Scalable tubular membrane cathodes for microbial fuel cell applications. **Y. Zuo, S. Cheng, D. F. Call, B. Logan**

**11:05 —132.** Single chamber stackable microbial fuel cell with air cathode. **J -I. Han, B. Wang**

**11:25 —133.** Direct electron transfer in microbial fuel cells via carbon nanotube network. **P. Takhistov**

## **TUESDAY AFTERNOON**

Section A

Boston Park Plaza -- Stanbro Rm

### **Symposium Honoring Dr. Walter Giger**

#### **Emerging Contaminants**

*Cosponsored by GEOC*

R. P. Eganhouse, J. A. Field, H -P. E. Kohler, and M. J. F. Suter, *Organizers*

**1:30** — Introductory Remarks.

**1:35 —78.** Should we be concerned about the presence of pharmaceuticals in the environment? **T. Ternes, D. Löffler**

**2:00 —79.** Utility of crotamiton as a water-soluble persistent molecular marker of pharmaceutical chemicals and sewage. **H. Takada, N. Nakada, K. Kiri, H. Shinohara, T. Tanishima**

**2:25 —80.** Determination of illicit drugs and biomarkers in raw municipal wastewater influent as a tool for drug epidemiology. **A. C. Chiaia, D. L. Sudakin, C. Banta-Green, J. A. Field**

**2:50 —81.** Persistent intermediates from vitamin C production: Analysis, behavior and possible environmental implications. **M. Ahel, S. Terzic**

**3:15** — Intermission.

**3:30 —82.** Occurrence and behavior of the emerging contaminants benzothiazoles and benzotriazoles in wastewater treatment plants. **E. G. Stephanou, S. Kargaki, K. Mylona**

**3:55 —83.** Stability of water-soluble quantum dots under simulated environmental conditions. **K. M. Metz**, A. N. Mangham, R. J. Hamers, J. A. Pedersen

**4:20 —84.** Mass flow analysis of endocrine disruptors in the Glatt River, Switzerland. **N. Jonkers**, H - P. E. Kohler, W. Giger

**4:45 —85.** Mass flow of fluorochemicals in the Glatt River valley. **C. A. Huset**, A. C. Chiaia, D. F. Barofsky, N. Jonkers, H -P. E. Kohler, W. Giger, J. A. Field

**5:05 —86.** Application of ultrasound for the complete destruction of persistent organic pollutants. **M. R. Hoffmann**, C. D. Vecitis, B. Mader

**5:30 —** Concluding Remarks.

Section B

Boston Park Plaza -- Beacon Hill Rm

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

*Cosponsored by YCC*

T. A. Anderson, *Organizer*

**1:30 —** Introductory Remarks.

**1:35 —87.** Atmospheric outflow of anthropogenic semivolatile organic compounds from East Asia in spring 2004. **T. Primbs**, S. L. Simonich, D. Schmedding, G. Wilson, D. Jaffe, A. Takami, S. Kato, S. Hatakeyama, Y. Kajii

**2:05 —88.** Investigation of the photocatalytic degradation pathway of creatinine: The effect of pH. **M. G. Antoniou**, D. D. Dionysiou

**2:35 —89.** Visible light-mediated TiO<sub>2</sub> photocatalysis of fluoroquinolone antibacterial agents. **T. Paul**, P. L. Miller, T. J. Strathmann

**3:05 —90.** Reduction of pentachloronitrobenzene in freshwater sediment porefluids: Role of Fe(II), dissolved organic matter and pH. **J. A. Hakala**, Y -P. Chin

**3:35 —91.** Uptake and depuration behaviors of radioactively labeled single- and multi-walled carbon nanotubes by *Lumbriculus variegatus*. **E. J. Petersen**, Q. Huang, W. J. Weber Jr.

**4:05 —92.** Influence of humic acid on the aggregation kinetics of fullerene nanoparticles in monovalent and divalent electrolyte solutions. **K. L. Chen**, M. Elimelech

### **Fuel Cell Technology: Biofuel Cells, Enzymatic and Microbial**

#### **Microbial Fuel Cells**

*Sponsored by FUEL, Cosponsored by ENVR*

P. Atanassov, J. M. Andresen, B. E. Logan, and G. T. R. Palmore, *Organizers*

**1:25** — Introductory Remarks.

**1:35 —151.** Bioanode kinetics modeling: Effect of anode potential and substrate concentration. **H. Hamelers**

**1:55 —152.** Electrochemical impedance spectroscopy studies on microbial fuel cells. **R. P. Ramasamy**, Z. Ren, M. Mench, J. Regan

**2:15 —153.** Continuous flow microbial fuel cells for sustainable energy from wastewater. **J. M. Andresen**, H. Hu

**2:35 —154.** High hydrogen yield from renewable resources using an improved beamr system. **S. Cheng**, B. E. Logan

**2:55 —155.** Model of microbial fuel cells in which bacteria employ a direct electron transfer strategy. T. Shimotori, D. R. Bond, T. M. LaPara, **R. M. Hozalski**

**3:15 —156.** Electrochemical and molecular-biological analyses of microbial fuel cells operated at different external resistances. **T. Shimotori**, E. Marsili, M. P. Drozdowicz, D. R. Bond, R. M. Hozalski, T. M. LaPara

**3:35** — Intermission.

**3:45 —157.** Toward the naval applications of benthic microbial fuel cells. **P. R. Bandyopadhyay**, D. Thivierge, A. Fredette

**4:05 —158.** Importance of cathode size in microbial benthic fuel cells equipped with manganese anode. **D. Lowy**, L. M. Tender

**4:25 —159.** Power output assessment of cellulose-based microbial fuel cells operating under different external resistances. **H. Rismani-Yazdi**, A. D. Christy, O. H. Tuovinen

**4:45 —160.** Examining the efficiency and biogeochemistry of plankton-fed microbial fuel cells. C. E. Reimers, H. A. Stecher III, **H. K. White**, P. Girguis

**5:05** — Panel Discussion.

**5:20** — Concluding Remarks.

## **WEDNESDAY MORNING**

Section A

Boston Park Plaza -- Stanbro Rm

**Role of Chemical Technologists in the Area of Environmental Science**

*Cosponsored by Committee on Technician Affairs, The Institute of Environmental and Human Health (TIEHH) and TECH*  
 G. Coimbatore, *Organizer*  
 V. Turoski, *Presiding*

**9:00** — Introductory Remarks.

**9:10—93.** The color of success. **J. J. Conlon**

**10:00—94.** Carbonylation in ionic liquid media. **M. K. Moore**, J. R. Zoeller, G. C. Tustin, R. M. Moncier

**10:30—95.** Developing Shut Shoushu Sponge. **J. H. Engelman II**

**11:00—96.** It's a partnership. **V. Turoski**

## **Fuel Cell Technology: Biofuel Cells, Enzymatic and Microbial**

### **Enzymatic Fuel Cells**

*Sponsored by FUEL, Cosponsored by ENVR*  
 P. Atanassov, J. M. Andresen, B. E. Logan, and G. T. R. Palmore, *Organizers*

**8:25** — Introductory Remarks.

**8:35—191.** Biofuel cells based on reconstituted enzymes. **E. Katz**

**9:00—192.** Conversion of a plant chloroplast to a biological fuel cell. **S. P. Walch**, J. D. Komadina, F. B. Prinz

**9:25—193.** Enzymatic biofuel cells for micropower source applications. **P. Atanassov**, C. Apblett

**9:50—194.** Biocatalysis of carbon nanotube-attached enzymes for biofuel cells. **X. Zhao**, H. Jia, J. Kim, P. Wang

**10:15** — Intermission.

**10:25—195.** Biofuel cells fundamentals: Electron transfer mechanism in laccase from *Trametes versicolor*. **P. Atanassov**, D. Ivnitcki

**10:50—196.** A high-power glucose/oxygen biofuel cell. **H. Sakai**, T. Nakagawa, Y. Tokita, T. Hatazawa

**11:15—197.** Redox active molecular sieves as enzyme supports for biofuel cells. **K. J. Balkus Jr.**, M. Macias, R. Huang

**11:40** — Panel Discussion.

**12:00** — Concluding Remarks.

## WEDNESDAY AFTERNOON

### Section A

Boston Park Plaza -- Stanbro Rm

#### Environmental Contaminants: Low-Level and Complex Mixtures

#### Toxicity and Fate and Transport Processes

K. G. Pennell, J. Moffit, E. M. Suuberg, and R. Vanderslice, *Organizers*

**1:30** — Introductory Remarks.

**1:35** —**97.** Sensitization and co-exposure synergy of testicular toxicant exposure. **J. S. Moffit**, B. H. Bryant, S. J. Hall, K. Boekelheide

**1:55** —**98.** Environmental toxicant Aroclor 1254 induces preterm birth by affecting amniotic fluid volume regulation and vascular activity at the maternal-fetal interface. **N. Tewari**, S. Kalkunte, S. Sharma

**2:15** —**99.** Generalized concentration addition model predicts interactions of TCDD with partial agonist AhR ligands. **G. J. Howard**, J. J. Schlezinger, T. F. Webster

**2:35** —**100.** Manganese critical toxic level of sunflower (*Helianthus annuus L.*), tobacco (*Nicotiana tobaccum L.*) and triticale (*X Triticosecale W.*). **M. László**

**2:55** — Intermission.

**3:10** —**101.** Behavior of organic pollutants in Arctic sediments. **J. M. Paul**, A. M. Grannas

**3:30** —**102.** Vapor pressures and thermodynamics of model mixtures of polycyclic aromatic compounds measured via the Knudsen effusion technique. **J. L. Goldfarb**, E. M. Suuberg

**3:50** —**103.** Characterizing vapor intrusion scenarios using a computation fluid dynamics (CFD) model. **O. Bozkurt**, K. G. Pennell, E. M. Suuberg

**4:10** —**104.** Preliminary assessment of water quality in the Rio Grande in the Laredo-Nuevo Laredo region. **G. Buelna**, R. Riffat

**4:30** —**105.** Sensitized photolysis of metolachlor in a temperate eutrophic wetland. **T. D. Trouts**, K. M. Cawley, Y -P. Chin

### Section B

Boston Park Plaza -- Beacon Hill Rm

#### General Topics

G. Coimbatore, *Organizer*

**2:00** — Introductory Remarks.

**2:10** —**106.** Adhesion and attraction heterogeneity introduced by manganese-oxide nanostructures on rhodochrosite. **C. Na**, S. Martin

**2:30** —**107.** Competition of copper binding between polyethyleneimine and other chelating agents in copper removal from Cu-CMP waste streams. **W. K. Maketon**, C. A. Zenner, K. L. Ogden

**2:50** —**108.** Microbiological responses and adaptation to chemical stress. **S. Ray**, C. A. Peters

**3:10** —**109.** SPE procedures for GC-MS(MS) determination of 1,4-dioxane and other nonpurgeable volatile organic compounds in aqueous samples. **M. S. Young**, K. Tran

**3:30** —**110.** Synthesis and characterization of composite styrene acrylonitrile membranes for the separation of chromic acid. **A. Kumar**, S. Sachdeva

**3:50** —**111.** Microbial decontamination of flood water using modified Fenton's reaction. **V. Shah**, J. Pinto, A. Angelov, B. J. Dramou

## WEDNESDAY EVENING

Section A

BCEC -- Exhibit Hall - C

### General Papers

G. Coimbatore, *Organizer*

**6:00 - 8:00**

**112.** Miniflow reactor for long-time aging of aerosols without wall effects. **J. P. Cowin**, X. Yang, M. J. Iedema

**113.** New method for preparing the nanoscaled TiO<sub>2</sub> structure. O. Dong, K. L. Yeung, **W. K. Leung**

**114.** Evaluation of the performance of mesoporous aerogel as a catalytic filter for treatment of airborne pollutants. S. Cao, K. L. Yeung, J. K. C. Kwan, S. C. T. Yu, **W. K. Leung**

**115.** Photocatalytic oxidation for surface disinfection. **W. K. Leung**, K. L. Yeung

**116.** Experimental study of the dissolution rates of a simulated borosilicate waste glass as a function of pH and temperature. **L. J. Calligan**, E. M. Pierce

**117.** Biogeochemical processes controlling arsenic speciation and biotransformation in granular ferric hydroxide-coated sand. **G. Jegadeesan**, P. Pinto, S. R. Al-Abed, C. Impellitteri

- 118.** Bioremediation of oil sludge in Shengli oil field. **J. Dong**, T -L. Wang, Z -L. Gui, J. Zhang
- 119.** Biosorption of Rhodamine B onto dried activated sludge: Equilibrium and kinetic modeling. **C. H. Lee**, D. M. An, J. H. Suh, K. H. Ahn
- 120.** Development of deodorizing apparatus with ozone/Co-catalyst for removing chemically offensive odors. **J. H. Suh**, **W. S. Jeong**, J. D. Park, **C. H. Lee**, K. H. Ahn
- 121.** Coagulation and flocculation conditions on high turbidity water using dissolved air flotation. **C. H. Lee**, D. M. An, K. H. Ahn, S. S. Kim, S. H. Cho
- 122.** Catalytic oxidation of dimethyl sulfide with ozone and the effect of promoter and physico-chemical properties of metal oxide catalysts. **V. Devulapelli**, E. Sahle-Demessie
- 123.** Catalytic reduction of carbon tetrachloride by trimetallic Pd-Fe-Al particles. C -C. Huang, **H -L. Lien**
- 124.** Combination of titanate nanotubes and zero-valent iron for the degradation of mixed contaminants. **C -C. Lee**, I -L. Kao, R -A. Doong
- 125.** Comparison of California methylmercury bioaccumulation factors (BAFs) and translators with proposed national U.S. EPA BAFs and translators for the lotic environment. **J. R. Sanborn**, D. G. Jones, R. K. Brodberg
- 126.** Comparison of organic and inorganic colloidal fouling during ultrafiltration. **M. Zhou**, J. E. Kilduff, G. Belfort
- 127.** Dechlorination of trichloroethylene by Fe(II) associated with hematite/CaO. **W -H. Kang**, I. Hwang, J -Y. Park
- 128.** Decontamination of water using Fenton-like reactions. **V. Shah**, A. Angelov, K. Loos
- 129.** Determination of optimum conditions for removal of bisphenol A by horseradish peroxidase and their application for removal of other derivatives. **K. Yamada**, N. Ikeda, Y. Takano, A. Kashiwada, K. Matsuda, M. Hirata
- 130.** Effectiveness of hydrogen peroxide for hydrogen sulfide control and induction of changes in a sulfate-reducing bacterial community. Y -J. Chang, **Y -T. Chang**, C -H. Hung, C -Y. Lin
- 131.** Effects of peroxone AOP (advanced oxidation process) etching and NOM (natural organic matter) preloading on the adsorption of phenanthrene on single wall carbon nanotubes (SWNTs). **H -N. Lim**, J. E. Kilduff
- 132.** Electricity generation by effective microorganisms in microbial fuel cell. **Y. Guan**, H. Sun, X. Zhang V
- 133.** Evaluation of GAC-based iron-containing adsorbents for selenite removal. **N. Zhang**, L -S. Lin, D. Gang
- 134.** Fabrication of urease-based biosensors for the detection of heavy metals using SiO<sub>2</sub>/Au core-shell

particles. **F -H. Lin, R -A. Doong**

**135.** Formation of organic iodine in soil and sediment by reaction of manganese oxide with iodide. **S. M. Steinberg**, N. R. Birkner

**136.** Speciation of iodine in the salt-impacted Black Butte soil series along the Virgin River, NV. **S. M. Steinberg**, B. Buck, J. Morton, J. Dorman

**137.** High surface area niobia. **A. Hagemeyer**, Z. L. Hogan, C. G. Lugmair, M. Schlichter, A. F. Volpe Jr.

**138.** Homogenization studies for new soil standard reference materials (SRM) by instrumental neutron activation analysis (INAA). **R. Spatz**, R. Zeisler, R. Greenberg

**139.** Hydrodechlorination of chlorobenzene over polymer-stabilized Pt and Pd nanocatalysts under mild conditions. M. Liu, F. Gao, M. Han, **W. W. Yu**

**140.** Investigating potential sources of environmental perchlorate contamination. **C. S. Higgins, P. R. Bowden**

**141.** Chemical reduction of pentachlorophenol by nanoscale zero-valent iron. M -Y. Chen, **Y -H. Shih**

**142.** Linear solvation energy relationship applied to quantify the sorption role of selected volatile organic chemicals on carbon multiwall nanotubes. M -S. Li, **Y -H. Shih**

**143.** Sorption of selected volatile organic contaminants into black carbon in water. P -H. Su, **Y -H. Shih**

**144.** Mechanisms of heavy metal removal from acid mine drainage using chitin. **S. R. Al-Abed**, D. J. Reisman, N. Deshpande, G. Jegadeesan

**145.** MEMS microelectrode sensor for in situ monitoring of phosphate in biological applications. **J -H. Lee**, W. H. Lee, P. L. Bishop, I. Papautsky

**146.** Molecularly imprinted polymer nanospheres for recognition of acetaminophen and acetylsalicylic acid. **S -H. Lee**, R -A. Doong

**147.** Obtaining of chemically proof varnish-paint materials from acetylene-containing wastage. **A. D. Tillyaev**, R. I. Mamajanov

**148.** Study the catching processes of vapor of the organic solvents in fixing and drying to enamel varnish-paint materials. **A. D. Tillyaev**, B. Akhmedov, K. F. Khalilov

**149.** Ozone-activated carbon mixtures to depollute polyphenol wastewater. **F. J. Beltran**, I. Giraldez, J. F. Garcia-Araya, P. M. Alvarez

**150.** Perchlorate removal by zero-valent aluminum. **H -L. Lien**, Y -C. Lee, C. C. Yu

**151.** Performance and mechanism of lead(II) adsorption on orange peel waste. **M. Iqbal**, S. Schiewer

**152.** pH effect on hydrolysis of diazinon and diazoxon in aqueous solution. **J. He**, U. Jans

- 153.** Photocatalytic degradation of volatile organic compounds and NO for indoor air purification using TiO<sub>2</sub> thin films coated glass fiber air filter prepared by the reverse micellar method. **W -K. Ho**, S. C. Lee
- 154.** Photoenhanced HONO production on atmospherically relevant mineral surfaces. **R. J. Gustafsson**, A. Orlov, P. T. Griffiths, R. A. Cox, R. M. Lambert
- 155.** Physical solubility and diffusivity of N<sub>2</sub>O and CO<sub>2</sub> in aqueous 2-amino-2-methyl-1-propanol blended with piperazine solution. W -J. Choi, **S -S. Lee**, J -B. Seo, K -C. Cho, K -J. Oh
- 156.** Polybrominated diphenyl ethers in Lake Ontario salmonid filets and eggs. **J. J. Pagano**
- 157.** PPCPs concentration fluctuations in the WWTP process. **S. M. Theberge**, M. Church
- 158.** Withdrawn.
- 159.** Protecting drinking water: The use of phytoplankton as a biosensor. **J. L. Pinto**, H. H. Patterson, J. M. Peckenham
- 160.** Reactivity of the antibiotic ciprofloxacin with humic substances: Effects of solution chemistry. **L. Aristilde**, G. Sposito
- 161.** Readily applicable method for caffeine detection in surface waters by optimized solid-phase extraction and capillary gas chromatography-mass spectrometry. **H. Wijnja**, N. A. Gomez, O. C. Pancorbo
- 162.** Reclamation of wastewater from the textile industry by nanofiltration. **J -J. Qin**, M. H. Oo, K. A. Kekre
- 163.** Removal of arsenic and selenium in water using thiol-functionalized mesoporous silica material, MCM-41. **P. Pal**, J. Rigoli, D. Chalasani, T. Bitterwolf
- 164.** Spectroscopic correlations involving humic substance photochemical reaction rates. R. Dalrymple, A. Carfagno, **C. M. Sharpless**
- 165.** Studies on the lab-scale expanded granular sludge bed reactor for treating rice wine wastewater. X. Guo, **W. Hu**
- 166.** Study of vertical distributive characters of O<sub>3</sub> in autumn with 255m meteorological tower in Tianjin, China. **S. Han**, A. Liu, H. Bian, M. Sun
- 167.** Study on the influence of process conditions on the biodegradation of petroleum in soil. **D -Q. Shi**, J -M. Sun
- 168.** Synthesizing nanoscale bimetallic Fe/Pd particles by microemulsion for dechlorination of trichloroethylene in water. T. Li, W. Wang, D. Wang, Z. Xiu, Y. Zhang, **Z. Jin**
- 169.** Use of solar light and iron salts to remove contaminants from water. **E. M. Rodriguez**, B. Nuñez, P. M. Alvarez, F. J. Beltran

**170.** Using nanomagnetic extractants for removal of uranium from water via magnetic filtration. **S. M. Alfadul**, A. W. Apblett

Section B

BCEC -- Exhibit Hall - C

### **Fate of Persistent Organic Pollutants in Urban Systems**

D. E. Fennell and L. A. Totten, *Organizers*

**6:00 - 8:00**

**171.** Bayesian modeling of polychlorinated biphenyl (PCB) dechlorination in sediment for remediation decision support. A. S. Hughes, **J. M. VanBriesen**, M. J. Small

**172.** Atmospheric oxidation mechanism of bromopropane. **M. Martínez-Avilés**, C. M. Rosado-Reyes, J. S. Francisco

**173.** Photoactivity of TOPO-capped TiO<sub>2</sub> nanocrystals toward the degradation of endocrine disrupting chemicals. S -M. Chang, **P -H. Lo**, C -Y. Hou

**174.** Proton affinity of methyl nitrite and methyl peroxyxynitrite: Implications for measuring branching ratios of alkyl nitrate and nitrites from RO + NO<sub>2</sub> and RO<sub>2</sub> + NO reactions. **R. M. Ravelo**, J. S. Francisco

**175.** Removal characters of disinfection by-products and formation potential by the bioaugmentation-activated carbon process. **W. Li**, G. Wang, **Y. Gao**, **J. He**

Section C

BCEC -- Exhibit Hall - C

### **Symposium Honoring Dr. Walter Giger**

*Cosponsored by GEOC*

R. P. Eganhouse, J. A. Field, H -P. E. Kohler, and M. J. F. Suter, *Organizers*

G. Coimbatore, *Presiding*

**6:00 - 8:00**

**176.** Halogenated methyl bipyrrroles in the Northwestern Atlantic Ocean. **K. J. Smith**, C. M. Reddy, T. Hofstetter

**177.** Evaluation of the utility of resin acids as molecular markers for tire debris. **H. Kumata**, M. Mori, S. Takamiya, T. Uchida, M. Tsuzuki, K. Fujiwara

**178.** Trans-Pacific and regional atmospheric transport of semivolatile organic compounds to Mt.

Bachelor Observatory, U.S.A. from Spring 2004 to Spring 2006. **T. Primbs**, S. L. Simonich, G. Wilson, D. Jaffe, C. Higginbotham

**179.** In-planta sampling for site characterization. **J. G. Burken**, E. Sheehan, M. Boyd, P. Mayer, U. Karlson, C. Legind

**180.** Molecularly imprinted xerogels for selective extraction of tetracyclines from environmental samples. **D. S. Aga**, F. V. Bright, E. L. Holthoff, S. K. O'Connor

**181.** Assessment of concentrations and human exposure of polybrominated diphenyl ethers in outdoor and indoor air of homes and occupational settings in Greece. **E. G. Stephanou**, M. Mandalakis

**182.** Effect-orientated analysis of endocrine disruptors in diesel exhaust. **D. Wenger**, A. C. Gereckel, N. V. Heeb, M. Zennegg, H. Naegeli, R. Zenobi

**183.** Analysis of organic markers for identifying sources of human exposure to airborne fine particulate matter. **S. R. McDow**, J. Turlington, D. Olson, L. Stockburger, S. Tong-Argao

**184.** Sorption of tetracycline, fluoroquinolone and sulfonamide antibiotics to soils. **R. A. Figueroa**, A. A. MacKay

**185.** Distribution of macrolides, sulfonamides and trimethoprim in tropical and temperate waters: Comparison between Vietnam and Japan. **S. Managaki**, A. Murata, A. Takeshita, H. Takada, C. T. Bui

**186.** Polybrominated diphenyl ethers in soils of Pearl River Delta, China: Concentration levels, compositional profiles and fate. **Y. Ran**, M. Zou, J. Gong, B. Mai, E. Y. Zeng

**187.** Coproducts of carbon nanotube synthesis: Emerging contaminants associated with the nanomaterial revolution. **D. L. Plata**, P. M. Gschwend, C. M. Reddy

Section D

BCEC -- Exhibit Hall - C

### **Recent Developments in Sensors and Sensor Networks for Contaminants in Environmental Systems**

C. Lee and P. L. Brezonik, *Organizers*  
G. Coimbatore, *Presiding*

**6:00 - 8:00**

**188.** Application of disposable microfabricated chip sensors for determination of cadmium, lead and zinc in a biowall system. **A. Jang**, Z. Zou, P.-M. Wu, J. Do, J. Han, C. H. Ahn, P. L. Bishop

**189.** Improvement of an autonomous instrument to measure aqueous  $p\text{CO}_2$ . **S. E. Cullison**, M. D. DeGrandpre, C. M. Beatty

**190.** Investigating the photophysical characteristics of fluorescent conjugated polymer in the solid state.

**S. S. Pinnock**, C. Malele, W. Gui, W. E. Jones Jr.

**191.** Real-time monitoring of free chlorine sensor response to microbial contamination in a model distribution system. **D. E. Helbling**, J. M. VanBriesen

**192.** Segmented-flow tracer-monitored titration for total alkalinity measurements of seawater. **R. Spaulding**, M. D. DeGrandpre, B. Hales, J. Beck

**193.** SLIM spectrometer with a fiber optic sensor: Turbidity determination. **W. Chudyk**

**194.** Sonogel-carbon electrode sensor developed for detection of environmental pollutants such as PBT (persistent, bioaccumulative and toxic) chemicals. **S. K. Lunsford**, M. Richter, A. Yeary, D. D. Dionysiou, H. Choi, M. Palaez

Section E

BCEC -- Exhibit Hall - C

### **Environmental Contaminants: Low-Level and Complex Mixtures**

K. G. Pennell, J. Moffit, E. M. Suuberg, and R. Vanderslice, *Organizers*  
G. Coimbatore, *Presiding*

**6:00 - 8:00**

**195.** Active carbon as emergency treatment of Songhua River polluted by nitrobenzene. **Y. Gao, W. Li, G. Wang, J. He**

**196.** Interspecies approach to the assessment of endocrine disrupting chemicals in low dose or complex mixtures. **N. E. Heger**, K. Boekelheide

### **THURSDAY MORNING**

Section A

Boston Park Plaza -- Stanbro Rm

### **Environmental Contaminants: Low-Level and Complex Mixtures**

#### **Fate and Transport Processes**

K. G. Pennell, J. Moffit, E. M. Suuberg, and R. Vanderslice, *Organizers*

**8:30** — Introductory Remarks.

**8:35** — **197.** Colloid-facilitated transport of pharmaceuticals in wastewater and natural waters. **J. L. Zhou**, K. Maskaoui, A. Hibberd

**8:55 —198.** Anaerobic transformation of trichloroethene and trichlorofluoroethene in a continuous flow column study. **L. Semprini**, M. E. Dolan, M. F. Azizian

**9:15 —199.** Application of a permeable reactive biobarrier for surfactant enhanced soil bioremediation. **Y. Seo**, W. H. Lee, P. L. Bishop

**9:35 —200.** Fate of synthetic musk fragrances in a conventional drinking water treatment plant with lime softening. **W. Wombacher**, K. C. Hornbuckle

**9:55 —** Intermission.

**10:10 —201.** Remediation of PFOS and PFOA: Environmental matrix and cocontaminant effects. **C. D. Vecitis**, H. Park, J. Cheng, Y. Wang, M. R. Hoffmann

**10:30 —202.** Molecular mechanisms of *Listeria monocytogenes'* adherence to soil through surface biopolymers. **N. I. Abu-Lail**, B -J. Park

**10:50 —203.** PCDD/Fs formation onto the fly ash matrix from metal-mediated catalysts. **C. Lin, Y -H. Wang**

**11:10 —204.** Biodegradation of crude oil in seawater by using *Pseudomonas aeruginosa*. B. Yao, H. Zhang, **Q. Meng**

**11:30 —205.** Fluorescence in situ hybridization (FISH) analysis of a bacterial community involved in the biodegradation of polycyclic aromatic hydrocarbons in the presence of nonionic surfactants. **Y -T. Chang**, J -F. Lee, C -H. Lin, W -Y. Yang

## THURSDAY AFTERNOON

Section A

Boston Park Plaza -- Stanbro Rm

### Environmental Contaminants: Low-Level and Complex Mixtures

### Remediation Techniques and Novel Nanomaterials

K. G. Pennell, J. Moffit, E. M. Suuberg, and R. Vanderslice, *Organizers*

**1:30 —** Introductory Remarks.

**1:35 —206.** Nanoscale multi-electron transfer catalysts for organophosphorus pesticide degradation. **W. Guo**, S. O. Obare

**1:55 —207.** Removal of metal mixtures from aqueous solutions with a spouted particulate electrode. **P. Yao**, J. Calo, G. Hradil

**2:15 —208.** Comparison of electrospun and non-electrospun oxidized cellulose and chitosan fibrous mats serving as matrices for adsorption of heavy metal ions. **D. Han**, G. P. Halada, B. Spalding, S. C.

Brooks

**2:35 —209.** Sulfate-reducing bacterial (SRB) formation of nanocrystalline FeS for arsenic ( $\text{As}^{3+}$ ) removal. **R. Vannela**, P. Adriaens, K. F. Hayes

**2:55** — Intermission.

**3:10 —210.** Novel nanomaterial sorbents for vapor-phase mercury capture. S. Manchester, Y. Gao, I. Kulaots, L. Sarin, A. Yan, **R. H. Hurt**

**3:30 —211.** Porous materials for the co-adsorption/electrosorption of arsenic and chromium species from aqueous solutions. **E. Bain**, J. Calo

**3:50 —212.** Trichloroethylene remediation using nanoscale iron/silica aerosol particles. **T. Zheng**, J. Zhan, J. He, G. Piringer, G. McPherson, Y. Lu, V. T. John

**4:10 —213.** Preparation of supported nanoscale Fe-Cu bimetallic particles for dechlorination of trichloroethylene. **L. Han**, Z. Jin, H. Zhang, S. Huang

**4:30 —214.** Preparation of nanoiron/PMMA composite particles with core-shell structure through emulsion polymerization for nitrate removal. W. Wang, T. Li, **Z. Jin**

