

# ENVR

## DIVISION OF ENVIRONMENTAL CHEMISTRY

**Final Program, 231st ACS National Meeting, Atlanta, GA, March 26-30, 2006**

G. Coimbatore, *Program Chair*

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

**Assuring Water Purity** (see *ANYL*, Wed, Thu)

**Mercury in the Environment: Sources, Cycling and Sinks** (see *GEOC*, Tue)

**Advances in Pesticide Environmental Fate and Exposure Assessments** (see *AGRO*, Tue, Wed, Thu)

**Detection of Biological and Chemical Agents in Warfare and Food Safety (Sponsored by Novel Chemistry with Industrial Applications)** (see *IEC*, Sun)

### **SOCIAL EVENTS:**

**Dinner:** Tue

**Social Hour:** Tue, Wed

### **BUSINESS MEETING:**

**Executive Committee Meeting:** Sun

## SUNDAY MORNING

Section A

Unknown Site -- Unknown Room

### **Environmental Occurrence, Fate and Transport of Chemicals and Nanomaterials**

#### **Nanomaterials**

M. J. M. Wells, *Organizer*

**8:30** — Introductory Remarks.

**8:40** — **1.** Kinetics of nanocolloidal silica formation in environmentally relevant aqueous solutions. **C. F. Conrad**, M. Tien, S. L. Brantley, P. J. Heaney

**9:05** —2. Temperature effect on the sorption of chlorinated phenols onto organo-silicate nanocomposites from an aqueous media. **T. M. Abdel-Fattah**, B. Bishop, V. Johansen, S. Han

**9:30** —3. Adsorption and desorption of polycyclic aromatic hydrocarbons onto carbon nano-materials. K. Yang, **B. Xing**

**9:55** —4. Synthesis of carbon-14 labeled multi-walled carbon nanotubes and quantification of their uptake by ecological receptors. **E. J. Petersen**, Q. Huang, W. J. Weber Jr.

**10:20** — Intermission.

**10:35** —5. Aging of carbon nanotubes in the environment. **S. Agnihotri**, M. Rostam-Abadi, M. J. Rood

**11:00** —6. Black carbon sizes, concentrations and mixing status measured in marine and continental boundary layers: Sources, sinks and atmospheric transport of soot particles. **S. -H.Lee**, G. L. Kok, D. Baumgardner, G. Buzorious, H. Jonsson

**11:25** —7. *In situ* emplacement of nano-crystalline titanium dioxide into sand columns. **C. R. Chin Choy**, M. Wazne, X. Meng

**11:50** —8. Effect of groundwater geochemistry on nanoiron transport in saturated porous media. **G. V. Lowry**, N. B. Saleh, K. Sirk, T. Phenrat, B. Dufour, K. Matyjaszewski, R. D. Tilton

**12:15** —9. Photocatalytic oxidation of nondegradable petrochemical wastewater using nanomaterials. **D. Zhao**, G. Liu, X. Yin

Section B

Unknown Site -- Unknown Room

### **Occurrence, Chemistry, Toxicity and Remediation of Arsenic**

G. Coimbatore and R. Seshadri, *Organizers*

**8:00** — Introductory Remarks.

**8:10** —10. Arsenic bioaccessibility, metabolism and excretion following ingestion of traditional Chinese medicine. **K. J. Reimer**, W. R. Cullen, I. Koch, V. -M.Lai, S. Sylvester

**8:30 —11.** Arsenic remediation of drinking water using limestone-based material. **C. Webb**, C. Campbell, A. D. Davis, S. Dawadi, D. Dixon, J. Sorensen

**8:50 —12.** Arsenic removal from groundwater by household sand filters and passive co-precipitation: Field study and model calculations. **M. Berg**, S. Luzi, T. T. K. Pham, V. H. Pham, W. Giger, D. Stüben

**9:10 —13.** Arsenic toxicity and environmental problems. **K -H. Chiu**, S. J. Wang

**9:30** — Intermission.

**9:50 —14.** Arsenic transport and transformation in golf course soils: Field and laboratory experiments. **Y. Cai**, Z. Chen, A. Jaramillo, G. H. Snyder, M. Chen, J. L. Cisar

**10:10 —15.** Assessment, disposal and stabilization of arsenic-bearing solid residuals. **A. E. Sáez**, W. P. Ela, B. J. Zelinski, M. Mukiibi, A. Ghosh, J. Shaw, S. Fathordoobadi

**10:30 —16.** Batch adsorption of arsenic on iron oxides. V. Subramanian, G. Nallani, W. F. Jaynes, A. B. Gentles, G. Coimbatore, **S. S. Ramkumar**

**10:50 —17.** Bladder cancer risk in SW Taiwan clarified with removal of confounding areas. **S. H. Lamm**, A. Engel, C. Penn, M. Feinleib

**11:10** — Concluding Remarks.

**Ionic Liquids: Not Just Solvents Anymore OR Ionic Liquids: Parallel Futures (Sponsored by Green Chemistry and Engineering, Separation Science and Technology and Novel Chemistry with Industrial Applications Sub-Divisions)**

**Why are Ionic Liquids Liquid?**

*Sponsored by I&EC, Cosponsored with INOR, ORGN, ANYL, ENVR, PHYS, and POLY*

**Nanotechnology for Contaminated Soil and Groundwater Remediation**

**Session one**

*Sponsored by GEOC, Cosponsored with ENVR*

**SUNDAY AFTERNOON**

Section A

Unknown Site -- Unknown Room

## **Environmental Occurrence, Fate and Transport of Chemicals and Nanomaterials**

### **Air**

M. J. M. Wells, *Organizer*

**1:30—18.** Fate of chemicals in the indoor environment. J. E. Ham, C. D. Forester, **J. R. Wells**

**1:55—19.** FACS: FLEC automation and control system for investigating indoor environment surface chemistry reactions. **J. E. Ham**, M. M. Flemmer, J. R. Wells

**2:20—20.** Indoor and outdoor concentrations of acrolein and other volatile carbonyls in air using a new, highly sensitive method. **V. Y. Seaman**

**2:45—21.** In-depth characterization of urban aerosols using electron microscopy and energy-dispersive X-ray analysis. **H. A. Khwaja**, P. P. Parekh, A. R. Khan, D. L. Hershey

**3:10—** Intermission.

**3:25—22.** Atmospheric degradation of fluorotelomer alcohols (FTOHs): The answer to an Arctic mystery? **M. P. Sulbaek Andersen**, O. J. Nielsen, T. J. Wallington, M. D. Hurley, S. A. Mabury, D. A. Ellis, J. Martin, J. Xia, D. J. Wuebbles, A. Ito, J. E. Penner, S. Sillman

**3:50—23.** Mercury emission from non-enriched sites: policy implications and its effect on determining the global mercury budget. **T. Kuiken**, H. Zhang, S. E. Lindberg

**4:15—24.** Real-time measurement of DDT fluxes from a historically treated agricultural soil in Canada. **P. B. Kurt-Karakus**, T. F. Bidleman, R. Staebler, K. C. Jones

**4:40—25.** Profiles of particle-associated polycyclic aromatic hydrocarbons of motor vehicles' exhaust in Taiyuan City, China. **J. Wu**, X. Luo, Y. Zhang, X. Zhu, T. Zhu, X. Shi, J. Li, L. Wang, X. Zhang

Section B

Unknown Site -- Unknown Room

## **Occurrence, Chemistry, Toxicity and Remediation of Arsenic**

### **Session 2**

G. Coimbatore and R. Seshadri, *Organizers*

**1:30** — Introductory Remarks.

**1:40 —26.** Characterization of sulfur containing analogs of monomethylarsonic acid in aqueous phase standards and carrot extracts by IC-ICP-MS and IC-ESI-MS/MS. M. Fricke, **S. Conklin**, S. Ketavarapu Yathavakilla, P. Creed, C. Schwegel, J. Creed

**2:00 —27.** Collection and analysis of non-invasive biomarkers of As exposure in humans to simplify field studies of As toxicity. **B. M. Adair**, V. Devesa-Perez, E. E. Hudgens, M. T. Schmitt, M. Styblo, R. L. Calderon, D. J. Thomas

**2:20 —28.** Diffuse layer modeling (DLM) of arsenic adsorption to three commercially available granular media. **S. N. Stokes**, C.-C. Chen, G. E. Speitel Jr., L. E. Katz

**2:40 —29.** Groundwater arsenic contamination and human sufferings in West Bengal, India and Bangladesh: A review. **K. Paul**

**3:00** — Intermission.

**3:20 —30.** Low cost method to remove arsenic from water supplies. **A. J. Gadgil**, C. Galitsky, H. Patel, E. Chukwueke, D. Wang, M. Sippola, A. Blumstein, Y. Pang, L. Gundel

**3:40 —31.** Mackinawite-coated sand for remediation of arsenite contaminated groundwater. **T. J. Gallegos**, K. F. Hayes, L. M. Abriola, K. Baldwin

**4:00 —32.** Mineralogical control on As bioaccessibility in high polluted soils from an old mining-metallurgical site in Mexico. **I. Razo**, J. Téllez, L. Carrizales, J. Castro, F. Díaz-Barriga, M. Monroy

**4:20 —33.** Molecular orbital modeling of As adsorption on HFO and HAO. **J. D. Kubicki**, H. D. Watts

**4:40 —34.** Nanotechnology for removal of arsenic from drinking water. **A. W. Apblett**, S. I. Kuriyavar, A. Bagabas, A. P. Piquette

**5:00** — Concluding Remarks.

**Ionic Liquids: Not Just Solvents Anymore OR Ionic Liquids: Parallel Futures (Sponsored by Green Chemistry and Engineering, Separation Science and Technology and Novel Chemistry with Industrial Applications Sub-Divisions)**

## **Ionic Liquid Structure Activity Relationships and Modeling**

*Sponsored by I&EC, Cosponsored with INOR, ORGN, ANYL, ENVR, PHYS, and POLY*

## **Nanotechnology for Contaminated Soil and Groundwater Remediation**

*Sponsored by GEOC, Cosponsored with ENVR*

## **SUNDAY EVENING**

### **Ionic Liquids: Not Just Solvents Anymore OR Ionic Liquids: Parallel Futures (Sponsored by Green Chemistry and Engineering, Separation Science and Technology and Novel Chemistry with Industrial Applications Sub-Divisions)**

#### **Poster Session**

*Sponsored by I&EC, Cosponsored with INOR, ORGN, ANYL, ENVR, PHYS, and POLY*

## **MONDAY MORNING**

Section A

Unknown Site -- Unknown Room

### **Environmental Occurrence, Fate and Transport of Chemicals and Nanomaterials**

#### **Water**

M. J. M. Wells, *Organizer*

**8:30 —35.** Occurrence of iodo-acid DBPs in U.S. chloraminated drinking waters. **S. D. Richardson**, J. J. Ellington, F. G. Crumley, J. J. Evans, M. J. Plewa, E. D. Wagner

**8:55 —36.** Pseudopolarographic determination of Cd complexation in freshwater. **J. J. Tsang**, T. F. Rozan, H. Hsu-Kim, K. M. Mullaugh, G. W. Luther III

**9:20 —37.** Water chemistry variations of unregulated wells in the southwestern region of the Navajo Reservation. **J. C. Ingram**, T. N. Anderson, S. Salinas, R. Francis, C. Cooley

**9:45 —38.** Coagulation removal of humics from landfill leachate in the Fenton process. **C. Wu**, M. Yang, J. Chen

**10:10** — Intermission.

**10:25 —39.** Estimation of phosphate ester hydrolysis rate constants: Alkaline hydrolysis. **T. S. Whiteside**, S. H. Hilal, L. A. Carreira

**10:50 —40.** Photochemical mechanisms of perchlorate formation from aqueous inorganic oxychlorine precursors. **N. Kang**, P. K. Dasgupta, T. A. Anderson, W. A. Jackson

**11:15 —41.** Preparation of  $\text{Fe}_2\text{O}_3\text{-CeO}_2/\gamma\text{-Al}_2\text{O}_3$  catalysts for catalytic wet oxidation with  $\text{H}_2\text{O}_2$  of azo dyes under room condition. **D. Sun**, Y. Liu

**11:40 —42.** Anaerobic removal of nitric oxide in a rotating drum biofilter. C. Wu, R. Zhu, H. Zhang, **J. Chen**

Section B

Unknown Site -- Unknown Room

## **Occurrence, Chemistry, Toxicity and Remediation of Arsenic**

### **Session 3**

G. Coimbatore and R. Seshadri, *Organizers*

**8:00** — Introductory Remarks.

**8:10 —43.** Oxidative remediation of methylated arsonates: A mechanistic study. **T. Xu**, P. V. Kamat, K. O'Shea

**8:30 —44.** Simultaneous removal of arsenic species from drinking water using Parabond 23. **D. L. Cussen**, M. D. Ramage

**8:50 —45.** Stabilizing arsenic-laden residuals from ion exchange processes. **T. R. Steinwinder**, D. Zhao, M. O. Barnett, B. An

**9:10 —46.** Studies on the effects of temperature and particle size on bioremediation of As(III) from aqueous solution using modified and unmodified coconut fiber. **J. C. Igwe**, B. C. Gbaruko, A. A. Abia

**9:30** — Intermission.

**9:50 —47.** Study of arsenic mobility from arsenopyrite circum-neutral weathering. **R. Cruz**, R. Lara-Castro, M. Monroy

**10:10 —48.** Unique arsenate and arsenite uptake systems in arsenic hyperaccumulator *Pteris vittata*. **W. Zhang**, L. J. Scinto, K. Downum, L. Q. Ma, Y. Cai

**10:30 —49.** Uptake and translocation of arsenate and arsenite in sorghum plants (*Sorghum bicolor*). **N. Haque**, J. L. Gardea-Torresdey, A. Martinez, N. S. Mokgalaka

**10:50 —50.** Use of chelating water insoluble thiols for the removal of arsenic from water. **N. N. Gupta**, E. R. White, D. Atwood

**11:10** — Concluding Remarks.

## **Adsorption of Metals to Geomedia II**

*Sponsored by GEOC, Cosponsored with ENVR*

**Ionic Liquids: Not Just Solvents Anymore OR Ionic Liquids: Parallel Futures (Sponsored by Green Chemistry and Engineering, Separation Science and Technology and Novel Chemistry with Industrial Applications Sub-Divisions)**

**Ionic Liquid Environmental Fate and Toxicity**

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## **MONDAY AFTERNOON**

Section A

Unknown Site -- Unknown Room

**Environmental Occurrence, Fate and Transport of Chemicals and Nanomaterials**

**Water, Soils, and Sediments**

M. J. M. Wells, *Organizer*

**1:30 —51.** Screening GC/MS data files for 900 environmental contaminants in less than three minutes. **P. L. Wylie**, M. J. Szelewski, C -K. Meng

**1:55 —52.** Fate of ciprofloxacin, sulfamethoxazole, tetracycline and trimethoprim in various wastewater treatment systems. **D. S. Aga**, A. Batt, S. Kim

**2:20 —53.** Predicting the influence of operating characteristics on pharmaceutical and personal care products removal in wastewater treatment plants. **J. Yu**, K. J. Bisceglia, M. Coelhan, A. L. Roberts, E. J. Bouwer

**2:45 —54.** Occurrence of selective serotonin reuptake inhibitors in surface water, wastewater and sediment. **J -W. Kwon**, K. L. Armbrust

**3:10** — Intermission.

**3:25 —55.** Aqueous chlorination of chlorpyrifos in the presence of bromide and natural organic matter. **S. E. Duirk**, C. J. Tarr, T. W. Collette

**3:50 —56.** Transformation of 1,1,2,2-tetrachloroethane and trichloroethylene in Fe(II)-based degradative solidification/stabilization. **B. M. Jung**, B. Batchelor

**4:15 —57.** Coupling ultrasound and electrocatalysis for enhanced decomposition of 2-chlorophenol in water. **J. Wang**, X. Chen, Y. Sun, J. Chen

## **Adsorption of Metals to Geomedia II**

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## **Ionic Liquids: Not Just Solvents Anymore OR Ionic Liquids: Parallel Futures (Sponsored by Green Chemistry and Engineering, Separation Science and Technology and Novel Chemistry with Industrial Applications Sub-Divisions)**

### **New Industrial Applications of Ionic Liquids**

*Sponsored by I&EC, Cosponsored with INOR, ORGN, ANYL, ENVR, PHYS, and POLY*

## **Undergraduate Research Poster Session: Environmental Chemistry**

*Sponsored by CHED, Cosponsored with SOCED, ENVR, and PRES*

## **MONDAY EVENING**

Section A

Unknown Site -- Unknown Room

## **Sci-Mix**

G. Coimbatore, *Organizer, Presiding*

**8:00 - 10:00**

**96, 203-204, 206, 210-211, 216-219, 224, 226.** See subsequent listings.

## **Adsorption of Metals to Geomedia II**

### **Posters**

*Sponsored by GEOC, Cosponsored with ENVR*

## **Nanotechnology for Contaminated Soil and Groundwater Remediation**

### **Session Three**

*Sponsored by GEOC, Cosponsored with ENVR*

## **TUESDAY MORNING**

Section A

Unknown Site -- Unknown Room

## **Environmental Occurrence, Fate and Transport of Chemicals and Nanomaterials**

### **Soils, Sediments, and Biota**

M. J. M. Wells, *Organizer*

**8:30 —58.** Concentration and enantiomeric fractions of chlordane in sediments from Long Island Sound. **L. Yang**, Y. Wu, U. Jans, P. Zhang, M. E. Melcer

**8:55 —59.** Quantitative PCR correlates microbial activity and distribution with enhanced contaminant dissolution from a PCE-NAPL source zone. **E. J. Suchomel**, B. K. Amos, F. E. Löffler, K. D. Pennell

**9:20 —60.** Occurrence of organochlorine pesticides, polychlorinated biphenyls (PCBs),

and polybrominated diphenyl ethers (PBDEs) in fish tissue from the Ohio, Lower Missouri, and Upper Mississippi Rivers. **D. R. Tettenhorst**, G. M. Ahlers, P. E. Grimmett, D. F. Bender, J. W. O'Dell

**9:45 —61.** Hydrodynamic and chemical control of by-product release from a metallic surface covered by biotic and abiotic microscopic features. **P. A. Pastén**, G. E. Pizarro, G. R. Calle, M. A. Alsina, I. T. Vargas, R. Segura

**10:10** — Intermission.

**10:25 —62.** Methyl *tert*-butyl ether degradation by a pure bacterium PM<sub>1</sub> in closed systems. **W. Zhong**, J. Chen, Z. Lu, D. Chen, X. Chen

**10:50 —63.** Toxicity of methyl *tert*-butyl ether at high and low concentration to green alga *Chlorella ellipsoidea* during continuous fifteen days. J. Chen, W. Cao, **J. Ma**

**11:15 —64.** Polluted soils: Impact on plants and human exposure. **N. E. Okoronkwo**, E. C. Onwuchekwa, J. O. Echeme

**11:40 —65.** Chemometric study of polycyclic aromatic hydrocarbons in soils of the Chattanooga Creek floodplain. **M. J. M. Wells**, J. C. Tucker, M. Belka

**12:05** — Concluding Remarks.

Section B

Unknown Site -- Unknown Room

**Creative Advances in Environmental Science & Technology (in memory of Joseph J. Breen): In Honor of Rene P. Schwarzenbach**

### Session I

*Cosponsored with Air Products & Chemicals*

R. A. Hathaway, *Organizer*

P. G. Tratnyek, *Presiding*

**8:30** — Introductory Remarks.

**8:35 —66.** Using kinetic isotope effects to assess abiotic reductive transformation of organic contaminants. **T. Hofstetter**, A. Hartenbach, M. Berg, R. Schwarzenbach

**9:05 —67.** Application of nitroaromatic “probe” compounds in hydrogeology. **J. F. Devlin**

**9:35 —68.** Characterization of chemical reductants in natural sediments. **H. Zhang**, E. J.

Weber

**10:05** — Intermission.

**10:20** —**69.** Reactivity of organohalides toward granular iron, Cr(II), and an iron(II) porphyrin: A correlation analysis. **T. Kohn**, W. A. Arnold, A. L. Roberts

**10:50** —**70.** Rapid abiotic reduction of nitroaromatic contaminants by iron(II)-organic complexes. **T. J. Strathmann**, D. Naka, D. Kim

**11:20** —**71.** Role of plants and symbiotic bacteria *Methylobacterium* sp. in the biodegradation of TNT and RDX. **J. L. Schnoor**, B. Van Aken, S. Tanaka, L. B. Brentner

## **Adsorption of Metals to Geomedia II**

*Sponsored by GEOC, Cosponsored with ENVR*

**Ionic Liquids: Not Just Solvents Anymore OR Ionic Liquids: Parallel Futures (Sponsored by Green Chemistry and Engineering, Separation Science and Technology and Novel Chemistry with Industrial Applications Sub-Divisions)**

## **Really New Ionic Liquids**

*Sponsored by I&EC, Cosponsored with INOR, ORGN, ANYL, ENVR, PHYS, and POLY*

## **TUESDAY AFTERNOON**

Section B

Unknown Site -- Unknown Room

**Creative Advances in Environmental Science & Technology (in memory of Joseph J. Breen): In Honor of Rene P. Schwarzenbach**

## **Session II**

*Cosponsored with Air Products & Chemicals*

R. A. Hathaway, *Organizer*

J. C. Westall, *Presiding*

**1:30** — Introductory Remarks.

**1:35 —72.** Influence of organic matter and colloids on the abiotic reduction of pentachloronitrobenzene. J. A. Hakala, T. P. Klupinski, **Y. P. Chin**, E. J. Weber, S. J. Traina

**2:05 —73.** Oxygen activation by iron and its role in the abiotic transformation of organic compounds. **D. L. Sedlak**, C. Keenan

**2:35 —74.** Recent advances in understanding environmental partitioning of organic compounds. **K -U. Goss**

**3:05** — Intermission.

**3:20 —75.** Impact of heavy metals on transformation of chloroethylenes by mackinawite. H. Y. Jeong, **K. F. Hayes**

**3:50 —76.** Graphite-mediated reductive transformation of nitrogenous compounds. **P. C. Chiu**, S -Y. Oh

**4:20 —77.** Adsorption coefficients of organic compounds to activated carbon from water: Can we understand the sorption isotherms and estimate these *via* linear solvation energy relationships? **P. M. Gschwend**, Y -H. Shih

## **Adsorption of Metals to Geomedia II**

*Sponsored by GEOC, Cosponsored with ENVR*

**Ionic Liquids: Not Just Solvents Anymore OR Ionic Liquids: Parallel Futures  
(Sponsored by Green Chemistry and Engineering, Separation Science and  
Technology and Novel Chemistry with Industrial Applications Sub-Divisions)**

## **Ionic Liquids and Education**

*Sponsored by I&EC, Cosponsored with INOR, ORGN, ANYL, ENVR, PHYS, and POLY*

## **Mercury in the Environment: Sources, Cycling and Sinks**

*Sponsored by GEOC, Cosponsored with ENVR*

## WEDNESDAY MORNING

Section A

Unknown Site -- Unknown Room

### Advances in Surface-Mediated Transformation in Environmental Systems

#### Session 1

*Cosponsored with COLL*

C -H. Huang, *Organizer, Presiding*

**8:30 —78.** *In situ* FTIR spectroscopy as a sensitive tool to follow surface reactions at the mineral-water interface under environmental conditions. **S. J. Hug**, P. Borer, A. Voegelin

**9:00 —79.** Calcite surface reconstruction: A polarization force study. **T. A. Kendall**, S. T. Martin

**9:30 —80.** Heterogeneous Fe(II)-Fe(III) electron transfer: Implications for contaminant reduction. **P. Larese-Casanova**, M. M. Scherer

**10:00 —81.** Reactivity and microscopic changes of goethite owing to reductive transformations of organic contaminants. **G. Comellas**, R. L. Penn, W. A. Arnold, C. L. Chun

**10:30 —** Intermission.

**10:40 —82.** Catalytic nitrate and nitrite reduction with Pd-Cu colloids: Composition, structure and reactivity correlations. **K. A. Guy**, H. Xu, J. C. Yang, K. D. Hurley, J. R. Shapley

**11:00 —83.** *In situ* atomic force microscopy observations of surface-mediated precipitation of manganese oxide coatings in aqueous systems. **Y -S. Jun**, S. T. Martin

Section B

Unknown Site -- Unknown Room

### Creative Advances in Environmental Science & Technology (in memory of Joseph J. Breen): In Honor of Rene P. Schwarzenbach

#### Session III

*Cosponsored with Air Products & Chemicals*

R. A. Hathaway, *Organizer*

E. J. Weber, *Presiding*

**8:30** — Introductory Remarks.

**8:35** —**84.** Modeling environmental chemical phenomena. **C. J. Cramer**

**9:05** —**85.** Revisiting the effect of natural organic matter on contaminant reduction by iron. **P. G. Tratnyek**, J. T. Nurmi, B. Bae

**9:35** —**86.** Mechanistic studies on the reduction of TCE by cobalamin. A. D. Follett, **K. McNeill**

**10:05** — Intermission.

**10:20** —**87.** Contaminant reduction by adsorbed Fe(II): A new twist on an old story. **M. M. Scherer**, P. Larese-Casanova

**10:50** —**88.** Reductive degradation of tetrachloromethane (CCl<sub>4</sub>) by iron: Progress and prognosis. **J. E. Amonette**

**11:20** —**89.** Redox properties of natural organic matter. M. Bauer, C. Blodau, **D. L. Macalady**

## **Adsorption of Metals to Geomedia II**

*Sponsored by GEOC, Cosponsored with ENVR*

## **Assuring Water Purity**

### **General Contaminants**

*Sponsored by ANYL, Cosponsored with I&EC, and ENVR*

**Ionic Liquids: Not Just Solvents Anymore OR Ionic Liquids: Parallel Futures  
(Sponsored by Green Chemistry and Engineering, Separation Science and  
Technology and Novel Chemistry with Industrial Applications Sub-Divisions)**

**Ionic Liquids Applications Based on Physical Properties**

*Sponsored by I&EC, Cosponsored with INOR, ORGN, ANYL, ENVR, PHYS, and POLY*

## **WEDNESDAY AFTERNOON**

Section A

Unknown Site -- Unknown Room

### **Advances in Surface-Mediated Transformation in Environmental Systems**

#### **Session 2**

*Cosponsored with COLL*

*C -H. Huang, Organizer, Presiding*

**1:30 —90.** Dissolution of amorphous chromium (hydr)oxide by (amino)carboxylate chelating agents. R. F. Carbonaro, B. N. Gray, **A. T. Stone**

**2:00 —91.** Stabilization of aqueous zinc-sulfide clusters by organic ligands. **H. Hsu-Kim**, G. W. Luther III

**2:20 —92.** Effect of surface and dissolved manganese on the transformation of tetracycline antibiotics. **W -R. Chen, C. H. Huang**

**2:40** — Intermission.

**2:50 —93.** Photocatalytic transformation of antibiotics at TiO<sub>2</sub> surfaces: Ultraviolet and visible light-initiated mechanisms. **T. J. Strathmann**, T. Paul, L. Hu, P. L. Miller

**3:20 —94.** Factors influencing the catalytic activity of biologically-derived 3-D titania nanoparticle assemblies for the hydrolysis of chemical agents. **S. J. Lee**, C. H. Huang, S. Shian, K. H. Sandhage

**3:40 —95.** Inhibition of 2,2-dichloropropane dehydrohalogenation by micropore sorption. **H. Cheng**, M. Reinhard

### **Adsorption of Metals to Geomedia II**

*Sponsored by GEOC, Cosponsored with ENVR*

### **Assuring Water Purity**

## Mechanisms of Arsenic Contamination of Water and Remediation in South Asia

*Sponsored by ANYL, Cosponsored with I&EC, and ENVR*

## Ionic Liquids: Not Just Solvents Anymore OR Ionic Liquids: Parallel Futures (Sponsored by Green Chemistry and Engineering, Separation Science and Technology and Novel Chemistry with Industrial Applications Sub-Divisions)

### Functional Ionic Liquids/Ionic Liquid Materials

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## WEDNESDAY EVENING

Section A

Unknown Site -- Unknown Room

### General Papers

G. Coimbatore, *Organizer*

G. Coimbatore, *Organizer, Presiding*

### 6:00 - 8:00

**96.** Metal adsorption of innovative composite carbon nanotubes in aqueous solution. **J. J. Horng**, S. H. Hsieh, C. K. Tsai

**97.** Approaches to control competitive adsorption of DOM and SOC by activated carbons. **A. Yadav**, Y. Guo, S. A. Dastgheib, T. Karanfil

**98.** Surface chemistry of nitric acid-oxidized activated carbons. **Y. Guo**, S. A. Dastgheib, T. Karanfil

**99.** Study on microkinetics of CuO/Al<sub>2</sub>O<sub>3</sub> desulfurization using nonuniform surface coverage model. **Z. Liu**, Z. Jia, Y. Zhao, J. Yang

**100.** Adsorption disposal of carbon tetrachloride in organic fluorine chemical plant wastewater with activated carbon fiber. Y -F. Meng, **B -H. Guan**

**101.** Alternative perspective on the structural modeling of natural organic matter. G. Chilom, R. B. Pandey, **J. A. Rice**

- 102.** Analysis of acid mine drainage from an abandoned copper mine in West Jefferson, NC. **B. N. Gartman**
- 103.** By pull or squeeze: Isolating dissolved organic carbon from New Orleans' Katrina flood waters. C. Lattao, J. Birdwell, G. R. Aiken, J -F. Koprivnjak, E. M. Perdue, **R. L. Cook**
- 104.** Catalytic reduction of nitrite, chlorate and NDMA with porous nickel catalysts. **A. J. Frierdich**, E. J. Marti, T. Paul, T. J. Strathmann, J. R. Shapley
- 105.** Comparison of solid phase microextraction and purge trap gas chromatography mass spectrometry for the determination of methyl mercury. **X. Zhang**, J. W. Talley, W. E. Davis, D. B. Conn, J. E. George, Y. Li
- 106.** Depolymerization of scrap tire and natural rubber in supercritical toluene. **Z. Pan**, Y. Liu, H. Jin, Y. Chen
- 107.** Determination of sub-ppt level methyl mercury in seawater samples. **X. Zhang**, J. W. Talley
- 108.** Discoloration of non-azo dyes with zero-valent iron. **Y -H. Kim**, W. S. Shin, M -C. Kim, W. T. Lim, J. Kim, S -O. Ko
- 109.** Effect of organic acids on the adsorption of Cu(II) and Ni(II) ions to aluminum oxide. **S. Patel**, K. Richards, T. Echols, R. de la Rosa
- 110.** Effects of AC's pore size distribution on SO<sub>2</sub> removal over V<sub>2</sub>O<sub>5</sub>/AC sorbents. Y. Xiao, Z. Liu, **Z. Huang**, J. Ma, J. Yang
- 111.** Electrochemical analysis of trace metals and dissolved organic matter in Blue Ridge Mountain headwater streams. **R. M. Pace**
- 112.** Electrooxidative decolorization of reactive textile dyes. **R. D. Ko**, O. Braide, J. F. Parker, L. A. Bottomley, S. G. Pavlostathis
- 113.** Elemental mercury emission during thermal decomposition of coals. S. Guo, **J. Yang**, R. Liu, Z. Liu
- 114.** Enhancing lead phytoremediation by *Medicago sativa* using EDTA and IAA: ICP/OES and XAS studies. **M. L. Lopez**, J. Peralta-Videa, T. Benitez, J. L. Gardea-Torresdey
- 115.** Fate of citalopram in irradiated water/sediment systems. **J -W. Kwon**, K. L. Armbrust
- 116.** Fe<sup>III</sup>-TAML-catalyzed green oxidative degradation of Orange II: Kinetic and

mechanistic investigation. **D -L. Popescu**, A. Chanda, D. A. Mitchell, N. Chahbane, K - W. Schramm, D. Lenoir, A. D. Ryabov, T. J. Collins

**117.** Form transformation of arsenic in coal during the pyrolysis process. R. Liu, **J. Yang**, S. Guo, Z. Liu

**118.** Improvement and application of the Grey Clustering Model in the valuation of the synthesis grade. **Q. Zhang**, W. Xu

**119.** Interactions between arsenate and phosphate in *Pteris vittata* in a hydroponic system. **W. Zhang**, Y. Cai, K. Downum, R. Hickey-Vargas, L. Q. Ma, T. Pichler

**120.** Isolation and characterization of new bacterial strains for degrading sulfur heterocyclics. **W. Li**, Y. Cai, P. Zhang, H. Chen, Y. Shi

**121.** Kinetic modeling of hexavalent chromium onto quaternized poly(4-vinylpyridine) coated activated carbon. **D. Gang**, R. K. Kadari, B. Deng

**122.** Mass transfer of SO<sub>2</sub> to alkaline solution accompanied by second-order chemical reaction in venturi scrubber. Z. Duan, **J. Hu**, R. Zong

**123.** Mechanism for cationic red degradation by wet air oxidation under mild conditions. M. Zhou, **Q. Dai**, L. Lei

**124.** Mercury sorption by iron sulfide. **H. Y. Jeong**, K. F. Hayes, B. Klaue, J. Blum

**125.** Methyl red degradation by the Electro-Fenton Process. **Q. Yu**, M. Zhou, L. Lei

**126.** Nitrate removal by three-dimensional bio-electrochemical reactor. M. Zhou, **W. Fu**, L. Lei

**127.** Photochemical oxidation of pyrene in water: Aqueous solutions of oxygenated solvents and micellar solutions. F. Y. Ohene, **A. Reed**, M. Mitchell

**128.** Photodegradation of caffeine, coprostanol and cephalixin by simulated solar radiation: Implications for environmental fate. **J. Shi, P. R. Gardinali**

**129.** Potential application of mixed anionic/nonionic surfactants in soil and subsurface remediation. **K. Yang**, L. Zhu, B. Xing

**130.** Potential Cu limitation of denitrification by inorganic polysulfide clusters. **K. Buettner**, B. S. Twining, S. E. Mylon

**131.** Preparation and property of nanometer-sized magnetic photocatalyst TiO<sub>2</sub>/Fe<sub>3</sub>O<sub>4</sub>. **J. Chen**, G. Zhang

- 132.** Regeneration of SO<sub>2</sub> adsorbed V<sub>2</sub>O<sub>5</sub>/AC catalyst/sorbent in NH<sub>3</sub>. Y. Guo, Z. Liu, **Z. Huang**, Q. Liu, J. Yang
- 133.** Research on anaerobic biological treatment of perchlorate-contaminated water. P. He, M. Zhou, **X -H. Xu**
- 134.** Effects of ZSM-5 and SAPO-11 on activity of Pt/Al<sub>2</sub>O<sub>3</sub> catalyst. H. Fu, **J. Li**, L. Fu
- 135.** Selective catalytic reduction of NO<sub>x</sub> with NH<sub>3</sub> at low temperatures over metal oxide supported on AC-C cellular monoliths. C. Luo, **J. Li**, J. Hao
- 136.** Sorption of phosphate from aqueous solutions using Al-pillared montmorillonite. **X. Li**, M. Zhou, L. Lei
- 137.** Spectroscopic observations of iron oxides precipitated with humic material and the effect on heavy metal adsorption. **A. G. B. Williams**
- 138.** Stimulation and toxicity assessment of *n*-propanol by *Pseudomonas* initial oxygen uptake assay: A hyperbolic mixed-type inhibition model. **D -S. Huang**, C -W. Tseng, C -H. Huang
- 139.** Study on the influence of radiation effects of aerosol on PBL structure. **Y. Zhang**
- 140.** TNT remediation with *Lemna minor*. **R. Feuillebois**, **J. Gum**, K. Woodring, K. M. Carvalho-Knighton
- 141.** Verifying the presence of dioxin introduced in ground beef by NMR spectroscopy. **S. M. Abernathy**, **A. Akinyemi**
- 142.** <sup>1</sup>H-NMR metabolomics analysis of zebrafish (*Danio rerio*) exposed to the environmentally-relevant EDC 17 $\alpha$ -ethinylestradiol (EE<sub>2</sub>). **T. L. Whitehead**, D. R. Ekman, E. J. Durhan, K. M. Jensen, M. D. Kahl, E. A. Makynen, D. L. Villeneuve, G. T. Ankley
- 143.** Abnormal hydrogeochemistry within the Prairie du Chien confined bedrock aquifer, southeastern Minnesota, USA. **T. P. Vorlicek**, D. J. Swart, B. W. Hoppie
- 144.** Activated carbon supported bimetallic catalyst-sorbents for catalytic dry oxidation of phenol. Z. Lei, **Z. Liu**, J. Yang
- 145.** Examination of the distribution of heavy metals in sediment and water in south Texas. C. Boyd, **C. Miles**, F. Billiot, E. J. Billiot
- 146.** Anaerobic degradation of 1,4-dioxane under humic-reducing or Fe(III)-reducing conditions. P. ShanShan, **C. Hong**

- 147.** Aqueous protonation properties of amphoteric nanoparticles. **N. T. Loux**
- 148.** Catalytic destruction of perfluorinated compounds. **C. Hertzler, V. Hui**
- 149.** Characterizations of resuspended dust in six cities of north China. P. Zhao, **Y. Feng**, T. Zhu
- 150.** Combination of non-thermal plasma and activated carbon fibers for decomposition of hydrogen sulfide. J. Yang, **Y. Shi**, W. Li, X. Wang, D -H. Wang
- 151.** Comparison of catalytic activities for SCR of NO by propane over Me/ $\gamma$ -Al<sub>2</sub>O<sub>3</sub> and Me/ZSM-5 in the excess of oxygen. B. Jing, W. Li, **Y. Shi**, H. Fang
- 152.** Composite iron matrix-based arsenic filter for groundwater of Bangladesh: A large scale deployment study. **A. K. M. Munir**, A. Hussam
- 153.** Determination of antibiotics within various wastewater treatment plants and the impact of their discharges on surrounding surface waters. **A. Batt**, S. Kim, I. B. Bruce, D. S. Aga
- 154.** Determination of diethyl phthalate in water by noncompetitive double-antibody sandwich fluorescence immunoassay. **H. Zhuang**, M. Zhang, Y. Li, Q. Wang
- 155.** Development of a rapid, low cost, semiquantitative, ultratrace GC/MS method for endocrine disruptors. **C. Gonzales**, G. Arambide, E. J. Billiot, F. Billiot
- 156.** Effect of discharge parameters and control of spark breakdown in degradation of phenol by pulsed streamer corona discharge. **Y. Shen**, M. Zhou, L. Lei
- 157.** Effect of *E. coli* on the speciation of tributyltin compounds in sediments and clays using Mössbauer spectroscopy. **L. May**, T. B. Chirdon, X. Song, A. Zapata, G. Eng
- 158.** Effect of operation conditions on vacuum membrane distillation performance for epoxy resin wastewater. **L. Zhang**, L. Xie, J. M. Shen, H. L. Chen
- 159.** Effects of a series of triorganotins on the immune function of human natural killer cells. **M. M. Whalen**, F. D. Gomez, L. N. Holloway, P. Apodaca, K. H. Pannell
- 160.** Effects of pHs and sulfate salts on degradation of DDT and methoxychlor by zerovalent iron. **T. Satapanajaru**, P. Anurakpongatorn
- 161.** Evaluation of the mutagenic and genotoxic activities of particulate matters from diesel engine using ethanol-diesel blends as fuel. **C. Song**, R. Huang, W. Zhang, K. Liu, Y. Wang, S. Dai
- 162.** Experimental study on reductive decomposition of SO<sub>2</sub> by activated carbon plus

microwave irradiation. **M. Shuangchen**

**163.** Experimental study on the degradation of *p*-chlorophenol using acclimated sludge. L. Tao, **W. Li**, Y. Shi, L. Lei

**164.** Greener bromination of alkenes in [BMIM]Br ionic liquid. **L. L. Davies**, S. L. West, J. L. Tan

**165.** Heavy metals in surface sediments from Yangtze Estuary and Hangzhou Bay, China. **J. Fang**, K -X. Wang

**166.** Immobilization of biological contaminants in arid environments using dust palliatives. **C. T. Lloyd**, J. H. Wynne, M. K. Santangelo, W. L. Straube

**167.** Kinetic analysis of catalytic reductive dechlorination process of chlorobenzene in aqueous solutions. **H. Zhou**, X -H. Xu, D -H. Wang

**168.** Kinetic studies for dechlorination of chlorophenols with Ni/Fe bimetallic particles. **S -O. Ko**, **Y. H. Kim**, S -C. Shin

**169.** Kinetic study of CO<sub>2</sub> reduction in aqueous KHCO<sub>3</sub> solution on Pb electrode. **Z. He**, S. Song, J. Qiu, J. Chen

**170.** Mechanism of ozonation of fluorobenzene in aqueous solution. **Z. He**, S. Song, L. Xu, J. Chen

**171.** Microbial transformation of mercury in aquatic environment. X. Chen, **J. Chen**

**172.** Natural attenuation of a MTBE plume at an oil-refining site. **K -F. Chen**, C -M. Kao, W -X. Zhang, T -Y. Chen

**173.** Natural attenuation of Cr(VI) to Cr(III) by Fe(II) and Fe(II)-DOM complexes in anoxic wetland porewaters. **S. G. Agrawal**

**174.** NOM-sensitized singlet oxygen production: Correlations with NOM excitation-emission spectral features and molecular size. **J. D. Thoenke**, A. Blom, K. McNeill

**175.** Novel Ru-Co catalysts for combined low temperature CO oxidation and VOC combustion. **A. G. Hagemeyer**, Z. L. Hogan, G. Streukens, H. W. Turner, A. F. Volpe Jr., W. H. Weinberg, K. Yaccato

**176.** Occurrence of nitrite and nitrate in dew, rain, snow and lake waters. **Y. Zuo**, C. Wang, T. Van

**177.** Oxidative degradation pathway for naphthol and sulfonic acid naphthalene in supercritical water. **C. Lin**, H. Zhou, J. Wang, Z. Pan

- 178.** Ozonation of aniline in aqueous solution. **S. Song**, Z. He, J. Chen
- 179.** Reaction mechanism of electrochemical degradation of fluorobenzene in aqueous solution. **S. Song**, L. Xu, Z. He, H. Ying, W. Dong, J. Chen
- 180.** Ozonation of high concentration industrial wastewater in fluidized and fixed activated carbon beds. **L. Gu**, M. Zhou, L. Lei
- 181.** Photocatalysis of copper ion modified Ti-pillared interlayer clay under ultraviolet light irradiation. **P. Na**, H. Zhang, B. Zhao, F. Jin
- 182.** Photodegradation of azo dye by UV radiation. **W. Zhao**, W. Liu, Z. Wu, D. Wang
- 183.** Physico-chemical properties of municipal waste dump soil: Implication for plant growth. **N. E. Okoronkwo**, A. O. Ano, J. O. Echeme
- 184.** Phytomining gold: Soil trials. **E. Rodriguez**, B. Sanchez-Salcido, J. R. Peralta-Videa, J. Romero, G. Cruz-Jimenez, J. L. Gardea-Torresdey
- 185.** Post-treatment of biologically treated chemical plant wastewater by ozone in a batch bubble column reactor. **H. Xu**, X. Xu
- 186.** Preparation and performance of amorphous electromagnetic shielding material. H. Guo, Y. Li, **Q. Wang**
- 187.** Radioactivity of some dried fruits. H. A. Abdurasulov, M. G. Ganieva, **Z. N. Ismailov**
- 188.** Radioiodine from nuclear sources in the sediments of Lake Ontario. **A. Hammons**, I. Eisele, U. Rao, Y. Muramatsu
- 189.** Rainwater quality on the University of Puerto Rico at Mayaguez Campus. **M. Perez-Bosch**, M. De Jesus-Echevarria
- 190.** Removal of methanol from pulp and paper mills using combined activated carbon adsorption and photocatalytic regeneration. **Y. Tao**, C -Y. Wu, D. W. Mazyck
- 191.** Seasonal correlation between a river and adjacent groundwater observation wells in a small watershed in Southern Connecticut. M. E. Sullivan, **E. Alkhatib**
- 192.** Sorption of native polycyclic aromatic hydrocarbons to soots of China. **C. Song**, G. Bao, G. Liu, Y. Wang, T. Zhu, S. Dai
- 193.** Source apportionment of airborne particulate matter in urban areas of Jiaozuo, China: Using a chemical mass balance model. X. Chen, Y. Xue, **Y. Feng**, T. Zhu

**194.** Source identification of polycyclic aromatic hydrocarbons in urban particulate matter of Tangshan, China. **Y. Wang**, G. Shi, T. Zhu, J. Wu, G. Liu, Y. Feng, Y. Xue, S. Dai

**195.** Studies on a new fluorescence immunoassay for determination of 2,4,6-trichlorophenol in the environmental water. **H. Zhuang**, Y. Yu, Q. Wang

**196.** Combination of activated carbon as absorbent with pulsed discharge plasma for removal of 4-chlorophenol in water. **X. Hao**, M. Zhou, L. Lei

**197.** Oxidation of nitroalkanes by 2-nitropropane dioxygenase: Involvement of a flavosemiquinone in catalysis. **K. Francis**, G. Gadda

**198.** Total Suspended Particles at the University of Puerto Rico- Mayagüez Campus Chemistry Department Wet & Dry Season 2004 to 2006. **V. Fernandez-Alos**, M. De Jesus Echevarria

**199.** Traffic density and the correlation with the determination of total suspended particles using a high volume sampler. **J. R. Rivera-Negrón**, M. De Jesús-Echevarría

**200.** Removal of organic contamination in planting wastewater by O<sub>3</sub> and O<sub>3</sub>/H<sub>2</sub>O<sub>2</sub> processes. **Y -P. Yang**, X -H. Xu

**201.** Treatment and recycling of nickel plating wastewater by ion exchange process. **Y -P. Yang**, X -H. Xu

**202.** Uranyl and plutonyl interactions with delta-MnO<sub>2</sub>. **E. Bauer**, S. A. Stout, S. D. Reilly, P. C. Lichtner, M. Neu

**203.** Urinary biomarkers of di-*n*-butyl phthalate. **M. J. Silva**, J. L. Preau Jr, E. Samandar, J. A. Reidy, L. L. Needham, A. M. Calafat

Section B

Unknown Site -- Unknown Room

**Environmental Occurrence, Fate and Transport of Chemicals and Nanomaterials**

**Poster Session**

M. J. M. Wells, *Organizer*

**6:00 - 8:00**

- 204.** Field treatment of complex odorous gases containing reduced sulfur compounds and benzene in a pilot-scale biofilter. **S. Wu**, J. Chen, Y. Wang
- 205.** High-concentration H<sub>2</sub>S treatment by pilot-scale biotrickling filter. **L. Jiang**, J. Chen
- 206.** Comparable evaluation of NO removal in biofilters packed with carbon foam and lava. **J. Chen**, J. Chen, J. Ma
- 207.** Impact of glucose addition on nitric oxide removal in aerobic biofilters. **J. Chen**, R. Zhu, J. Chen
- 208.** Purification of dichloromethane-contained gas in a biotrickling filter. **J. Yu**, J. Chen
- 209.** Degradation of chlorinated aromatic compounds by mackinawite with transition metals. J. Choi, R. B. Lamorena, S. G. Shim, **W. Lee**

Section C

Unknown Site -- Unknown Room

## **Occurrence, Chemistry, Toxicity and Remediation of Arsenic**

### **Poster Session**

G. Coimbatore and R. Seshadri, *Organizers*

**6:00 - 8:00**

- 210.** Field performance of a novel domestic arsenic filter. **P. O. Basu**, K. Misra
- 211.** Arsenic induced health hazard and survival strategies in Bangladesh: What experiences do the arsenicosis patients bear in mind? **M. M. Hassan**
- 212.** ArsenXnp: A hybrid inorganic-organic sorbent for efficient arsenic removal. **T. Moller**, P. Sylvester, T. Moura, O. Boyd
- 213.** Mechanism of Ti-PILC in removal of arsenic from water. **P. Na**, F. Zhang, F. Jin, B. Zhao, J. Liu
- 214.** Removal of aqueous As(V) using amorphous biogenic and abiotic manganese oxides under different pH and ionic strengths: Equilibrium and kinetic studies. **P. A. Pastén**, M. A. Alsina, R. Segura, C. S. Marambio
- 215.** Sorption kinetics and intraparticulate diffusivity of As(III) bioremediation from aqueous solution, using modified and unmodified coconut fiber. **J. C. Igwe**, B. C.

Gbaruko, A. A. Abia

**216.** Studies on the effects of pH and modification of adsorbent on As(V) detoxification from wastewater using sawdust and coconut fiber. **J. C. Igwe**, B. C. Gbaruko, A. A. Abia, N. E. Okoronkwo

Section D

Unknown Site -- Unknown Room

## **Advances in Surface-Mediated Transformation in Environmental Systems**

### **Poster Session**

*Cosponsored with COLL*

*C -H. Huang, Organizer*

*G. Coimbatore, Presiding*

### **6:00 - 8:00**

**217.** Reactivity of ferrous iron associated with nanoparticle iron oxides. **D. M. Cwiertny**, R. M. Handler, H. Ali, V. H. Grassian, M. M. Scherer

**218.** U(VI) reaction with green rusts: Influence of anions. **M. S. Clair**, S. L. Smith, J. O. Harrison, E. J. O'Loughlin, K. M. Kemner, M. I. Boyanov, M. M. Scherer

**219.** Abiotic reduction of chlorinated ethenes in the presence of anaerobic bacteria. T. S. Pasakarnis, **C. A. Gorski**, E. J. O'Loughlin, G. F. Parkin, M. M. Scherer

**220.** Transformation of 1,1,1-trichloroethane in Fe(II)-based degradative solidification/stabilization. **B. M. Jung**, B. Batchelor

**221.** Removal of aqueous organic pollutants with hydrogen peroxide-enhanced iron mediated aeration. **Y. Deng**, J. D. Englehardt

**222.** Affect of pyrite surface condition on adenine degradation *via* Fenton's Reaction. **A. M. Barnett**, J. F. Ranville, M. Schoonen

**223.** Rates and pathways of pentachlorophenol oxidation by MnO<sub>2</sub>. **P. Peng**, L. Zhao, Z. Yu, W. Huang

**224.** Effects of *Bacillus sphaericus* on the transformation of U(VI) oxyhydroxides to U(VI) phosphate solids. **C. G. Shepler**, S. B. Clark, L. C. Hull

**225.** Catalytic transformation of water contaminants using new composite materials: Properties and activity. **I. Dror**, A. Cortis, B. Berkowitz

**226.** Reduction of nitrate to ammonia by zero-valent iron nanoparticles: Mechanisms and kinetics. **T. Li**, H. Liu, Z. Jin

**227.** Surface-mediated abiotic degradation of trichloroethylene at elevated temperatures. **J. Costanza**, K. D. Pennell

## **THURSDAY MORNING**

Section A

Unknown Site -- Unknown Room

### **Advances in Surface-Mediated Transformation in Environmental Systems**

#### **Session 3**

*Cosponsored with COLL*

C -H. Huang, *Organizer, Presiding*

**8:30 —228.** Disinfection by-product reactions with iron pipe corrosion products: Effects of corrosion mineralogy and iron content. **W. A. Arnold**, C. R. Pearson, J -Y. Lee, R. M. Hozalski

**9:00 —229.** Reactivity of nanoscale magnetite with groundwater contaminants. **P. J. Vikesland**, A. Heathcock

**9:30 —230.** Density functional study of chloroethene reactions with iron surfaces. **J. Farrell**, N. Zhang, P. Blowers

**10:00 —231.** Effect of pH and aging on NZVI corrosion rate and reactivity with TCE. **G. V. Lowry**, Y. Liu

**10:30 —** Intermission.

**10:40 —232.** Electrochemical studies of a packed iron powder electrode: Breakdown of passivating oxide films in solutions containing organic oxidants. **J. T. Nurmi**, P. G. Tratnyek

**11:00 —233.** Mechanistic insights into the fouling of Pd-Cu alumina supported catalysts by natural water constituents used for nitrate reduction. **B. P. Chaplin**, J. R. Shapley, C. J. Werth

### **Assuring Water Purity**

## Remediation and Implementation

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## **Ionic Liquids: Not Just Solvents Anymore OR Ionic Liquids: Parallel Futures (Sponsored by Green Chemistry and Engineering, Separation Science and Technology and Novel Chemistry with Industrial Applications Sub-Divisions)**

### **Analytical Applications of Ionic Liquids**

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## **THURSDAY AFTERNOON**

Section A

Unknown Site -- Unknown Room

### **Advances in Surface-Mediated Transformation in Environmental Systems**

#### **Session 4**

*Cosponsored with COLL*

*C -H. Huang, Organizer, Presiding*

**1:30 —234.** Degradation of disinfection by-products in the presence of carbonate green rust. **C. L. Chun**, R. M. Hozalski, W. A. Arnold

**1:50 —235.** Coupling microbial Fe(III) oxide reduction and contaminant transformation. **N. B. Tobler**, T. Hofstetter, D. Fontana, R. Schwarzenbach

**2:10 —236.** Removal and inactivation of viruses with elemental iron. **L. Zhang**, P. C. Chiu, Y. Jin

**2:30 —237.** Reaction kinetics and mechanism of zero-valent iron reductive transformation of the anthraquinone dye Reactive Blue 4. **W. J. Epolito**, L. A. Bottomley, S. G. Pavlostathis

**2:50** — Intermission.

**3:00 —238.** Destruction of perchlorate in fresh and saline water by stabilized zero-valent iron nanoparticles. **Z. Xiong**, D. Zhao

**3:20 —239.** Rapid dechlorination of 1,2,3,4-TCDD in the presence of zero valent zinc.

**W. Huang**, Z. Wang, D. E. Fennell, P. Peng

**3:40 —240.** Catalytic reduction of N-nitrosodimethylamine in water using various metal catalysts and hydrogen gas. **M. G. Davie**, M. Reinhard, J. R. Shapley

### **Assuring Water Purity**

#### **Arsenic Contamination of Water and its Remediation in US**

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**Ionic Liquids: Not Just Solvents Anymore OR Ionic Liquids: Parallel Futures  
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#### **Micro-engineering with Ionic Liquids**

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