ENVR

Division of Environmental Chemistry

D. Dionysiou, *Program Chair*

OTHER SYMPOSIA OF INTEREST:

ACS Award in Analytical Chemistry: Symposium in honor of William R. Heineman (*see ANYL, Mon*)

Colloidal & Interfacial Chemistry for Water Treatment & Recycling (*see COLL, Wed, Thu*)

Catalysis in Automotive Emission Control (*see CATL, Tue*)

Elucidating the Molecular-Level Interactions Between Biological Membranes & Engineered Nanomaterials (*see COLL, Tue, Wed, Thu*)

Molecular Modeling of Surface-Mediated Electrochemical & Sorption Reactions at Environmental Interfaces (*see GEOC, Sun*)

Physical Chemistry of Atmospheric Processes (*see PHYS, Sun, Mon, Tue, Wed, Thu*)

ENVR SOCIAL EVENTS:

Reception, 6:00 PM: Tue
Dinner, 7:30 PM: Tue

ENVR BUSINESS MEETINGS:

Program Planning Meeting, 2:00 PM: Sun, Franklin Rm – Loews Philadelphia Hotel

Long Range Planning Meeting, 3:00 PM: Sun, Franklin Rm – Loews Philadelphia Hotel

Business Meeting, 7:00 PM: Sun, Regency Ballroom B- Loews Philadelphia Hotel

Executive Committee Meeting, 7:30 PM: Sun, Regency Ballroom B- Loews Philadelphia Hotel

Committee on Environmental Improvement (CEI) Breakfast/Open Meeting, 7:45 AM: Mon, Lescaze Rm – Loews Philadelphia Hotel

SUNDAY MORNING

Section A

Loews Philadelphia Hotel
Commonwealth Hall C

Aquatic Chemistry: Symposium in honor of Professor Alan T. Stone
Interfaces of Organic, Inorganic & Surface Chemistry in Natural & Engineered Systems

B. Deng, T. J. Strathmann, D. Vasudevan, *Organizers*
C. Huang, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 1. Puzzling redox behavior of arsenic in sulfidic waters. **G.R. Helz**

9:10 2. Chromium fate and transport in estuarine sediments. **E.J. Bouwer**, A. Wadhawan, A. Graham

9:35 3. Bioinorganic chemistry of bacterial manganese oxidation. **B.M. Tebo**

10:00 4. Surface reactivity of biogenic manganese oxides. **O. Duckworth**

10:25 Intermission.

10:40 5. Changing the manganese paradigm: Soluble manganese(III) is ubiquitous in natural waters and sedimentary pore waters. **G.W. Luther**, V.E. Oldham, B.M. Tebo, M.R. Jones, A. Mucci, B. Sundby

11:05 6. Nanoscale investigations of heterogeneous nucleation and growth of manganese (hydr)oxide in aqueous environments. **Y. Jun**, H. Jung

11:25 7. Manganese and iron oxides in mixtures with other metal oxides: Interaction mechanisms and redox reactivity. **H.J. Zhang**, S. Taujale, J. Huang, K. Rasamani

11:45 8. Transformation of benzimidazole anthelmintic agents from reactions with manganese oxide. S. Liou, S. Wu, **W. Chen**

Section B

Loews Philadelphia Hotel
Washington A

Nanotechnology for Sustainable Agriculture & Food Systems

Cosponsored by AGRO and CEI
P. Demokritou, J. C. White, *Organizers*
G. Lowry, N. B. Saleh, *Organizers, Presiding*

8:15 Introductory Remarks.

8:25 9. Power of novel metal oxide-carbon nanotube heterostructures: enabling microwave to disinfect water for aquaculture. **J. Plazas-Tuttle**, D. Das, **N.B. Saleh**

8:50 10. Engineered Water Nanostructures (EWNS): A chemical free, nanotechnology based antimicrobial platform for inactivation of foodborne microorganisms across the farm-to-fork continuum. **P. Demokritou**, G. Pyrgiotakis

9:15 11. FRET-based quantum dot sensor for detection of botulinum neurotoxin serotypes A and B. **Y. Wang**, H.C. Fry, I. Medintz, G.E. Skinner, K.M. Schill, T.V. Duncan

9:40 12. Nanoscale micronutrients suppress plant disease and increase crop yield. **J.C. White**, W. Elmer

10:05 Intermission.

10:20 13. Applications of cerium oxide nanoparticles for plant salt stress enhancement in agriculture. X. Ma, **L. Rossi**

10:45 14. Impact of metal and metal oxide nanoparticle speciation and solubility on their bioavailability to terrestrial and aquatic plants. **G. Lowry**, J. Stegemeier, X. Gao, E. Spielman-Sun, S. Rodrigues

11:10 15. Advanced nanomaterials for catalytic dephosphorylation and phosphorus recovery. M. Manto, **C. Wang**

11:35 16. Starch stabilized silver nanoparticles, synthesis and their adsorption-desorption pattern for dichlorvos insecticide. **N.E. Ihegwuagu**, R. Sha'Ato, T. Tor-Anyiin, L. Nnamonu, B. Sone, O. Omojola, M. Maaza

Section C

Loews Philadelphia Hotel
Commonwealth Hall B

Formation & Transformation of Atmospheric Aerosols: Air Pollution to Climate Change: Symposium in honor of Professor Renyi Zhang

Atmospheric Nucleation & SOA Formation

V. K. Sharma, Y. Wang, *Organizers*
M. Hu, A. Khalizov, *Organizers, Presiding*

8:15 Introductory Remarks.

8:20 17. Laboratory and field studies of secondary organic aerosol formation and oxidative aging using the potential aerosol mass oxidation flow reactor. **C.E. Kolb**, A. Lambe, T.B. Onasch, P. Massoli, J.H. Kroll, L.R. Williams, M.R. Canagaratna, J.T. Jayne, D.R. Worsnop, P. Davidovits, W. Brune

8:45 18. Inferring the stoichiometry and energetics of critical cluster formation from laboratory nucleation measurements. **R. McGraw**

9:05 19. Impact of temperature dependence on the contribution of organics to new particle formation in the atmosphere. **F. Yu**

9:30 20. Withdrawn.

9:50 21. Investigation of nucleation events in an industry zone in Nanjing China. **J. Zheng**, Y. Ma, D. Yang

10:10 Intermission.

10:25 22. Role of sub-2 nm particles in new particle formation. **S. Lee**

10:50 23. New particle formation under the complex air pollution in China. **M. Hu**, Z. Wu, S. Guo, Z. Wang, D. Yue, A. Wiedensohler, M. Boy, D. Collins, R. Zhang

11:15 24. Formation of secondary organic aerosol from chlorine-initiated oxidation of C10 hydrocarbons. **D. Wang**, L. Hildebrandt Ruiz

11:35 25. Anthropogenic control of biogenic SOA: sulfate as a trigger for aqSOA from isoprene. **R. Volkamer**, E. Waxman, N. Kille, J. Elm, T. Kurten, N. Sareen, A. Carlton

Section D

Loews Philadelphia Hotel
Washington B

Innovative Materials & Technologies for Environmental Sustainability

Approaches for Sustainable Metal Recovery & Removal

Cosponsored by CEI
J. C. Crittenden, Q. Li, W. Zhang, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 26. Withdrawn.

8:55 27. Material flow analysis for used and recycled electronic materials. **J.A. Glaser**, E. Sahle-Demessie, T. Richardson, C.W. Lee, S.R. Al-Abed

9:15 28. Stoichiometric hardness removal without use of brine or mineral acid as regenerant: A novel approach to sustainable softening. **J. Li**, A. SenGupta

9:35 29. Interaction of Ferritin with phosphate and arsenate in relation to formation of ultra-small nanoparticles at loading with Fe. **T. Hiemstra**, W. Zhao

9:55 Intermission.

10:15 30. Synergistic oxidation and removal of arsenite from groundwater using an energy-efficient advanced electrocoagulation. Y. Si, G. Li, C. Feng, **F. Zhang**

10:35 31. Fast arsenate adsorption kinetics for iron-impregnated ordered mesoporous carbon: Batch tests and mass transfer assessment. **Z. Wang**, W. Hu, Z. Kang, N. Cai, B. Deng

10:55 32. Synthesis of novel composites–Diatom immobilized with metal oxides for removal of water pollutants. **M. Thakkar**

11:15 33. Hexavalent chromium removal via composite carbon nanotubes electrically conductive ultrafiltration membranes. **W. Duan**, A. Ronen, G. Chen, H. Liu, S.L. Walker, D. Jassby

11:35 Concluding Remarks.

Loews Philadelphia Hotel
Washington C

Poly- & Perfluoroalkyl Substances: Environmental Behavior & Pollution Control

D. Chiang, E. R. McKenzie, D. Woodward, *Organizers*
Q. Huang, L. S. Lee, *Organizers, Presiding*

8:00 Introductory Remarks.

8:10 34. Water quality and co-contaminant effects on PFAA sorption and transport through saturated porous media. **E.R. McKenzie**, R.L. Siegrist, J.E. McCray, C.P. Higgins

8:35 35. How does hydro-oleophobicity of perfluorocarbon chain affect interfacial behavior and mechanism of perfluorooctane sulfonate in oil-water mixture? **P. Meng**, S. Deng

9:00 36. PFOA transport into deep marine water-is the abyss a permanent sink? **L.J. Thibodeaux**

9:25 37. Development of a conceptual site model for PFAS fate and transport incorporating PFAA precursors. J. Burdick, E. Houtz, **I. Ross**

9:50 Intermission.

10:10 38. PFAS best practices for sampling and analysis and future considerations. **M. Aucoin**

10:35 39. Assessment of PFAS in soil and groundwater: New analytical technologies for comprehensive analysis of PFAS including precursors. **I. Ross**, E. Houtz, J. Burdick, A. Horneman

11:00 40. Targeted improvements of analytical method for poly- and perfluoroalkyl substances in water, soil and sediment at PFAS-contaminated sites. **D. Chiang**

11:25 41. Field deployable PFASs sensors for on-site assessments. **L. Chen**, J. Thompson, M. Rossi

Loews Philadelphia Hotel
Congress A

Impacts of Energy Systems on Water Treatment

P. Mouser, D. L. Plata, *Organizers*
K. D. Good, J. M. Vanbriesen, *Organizers, Presiding*

8:30 Introductory Remarks.

8:45 42. Bromide, chloride, and associated brine constituents in waters from coal-bearing rocks in Pennsylvania. **C.A. Cravotta**

9:10 43. Modeling bromide concentration contributions from coal-fired power plants in southwestern Pennsylvania. **K.D. Good**, J.M. Vanbriesen

9:35 44. Effect of bromide discharges on source water bromide levels and disinfection by-product formation in North Carolina. **D. Knappe**, A. Greune, V. Edeback

10:00 45. Five-year review of water quality monitoring of Beaver Run Reservoir in Westmoreland County, PA. **N.R. Mc Elroy**, B. Okey, J. Richburg

10:25 Intermission.

10:40 46. Assessing the risk associated with increasing bromide in drinking water sources in the Monongahela River, Pennsylvania. **Y. Wang**, J.M. Vanbriesen

11:05 47. Electrochemical selective bromide removal from energy wastewater. **M. Sun**, G. Lowry, K.B. Gregory

11:30 48. Impact of slickwater fracturing fluid composition and shale interactions on membrane fouling of flowback water. **B. Xiong**, S. Roman-White, B. Farina, T. Tasker, W.D. Burgos, M. Kumar, A.L. Zydney

11:55 Concluding Remarks.

Section G

Loews Philadelphia Hotel
Congress B

Advances in Understanding PPCP Fate in Wastewater Collection & Treatment Systems

L. A. Rodenburg, *Organizer*
N. Fahrenfeld, *Organizer, Presiding*

8:30 49. Withdrawn.

8:50 50. Identification and measurment of morphine in wastewater by SPE and LC-MS and determination of the morphine structure in solution be NMR and RDC. **F. Mahmoudi**, W. Carroll

9:10 51. Antimicrobial chemicals are prevalent and problematic in dust as well as in wastewater treatment. **E.M. Hartmann**, R. Hickey, T. Hsu, C. Betancourt Román, J. Chen, R. Schwager, J. Kline, G. Brown, R.U. Halden, C. Huttenhower, J. Green

9:35 52. Factors controlling antibiotics levels in biosolids. B. Blackburne, N. Fahrenfeld, **L.A. Rodenburg**

9:55 53. Influence of different wastewater solids treatment methods on concentrations of triclosan, triclocarban, and their transformation products in biosolids. **D. Armstrong**, N. Lozano, C.P. Rice, M. Ramirez, A. Torrents

10:15 Intermission.

10:30 54. Detection of compounds of emerging concern in municipal wastewater treatment facilities in El Paso, TX. **J. Bezares-Cruz**, Y.A. Garcia, M.B. Cox, W. Lee, W. Walker

10:50 55. Emerging contaminants in the Delaware River Watershed. **D. Vilimanovic**, R.E. Hannah, R.P. Suri, G. Andaluri, R. MacGillivary

11:10 56. Impact of wastewater treatment plants on microplastics in freshwater water. **S. Estahbanati**, N. Fahrenfeld

11:30 57. Microplastics in the aqueous environment: Sources, sinks and ecological consequences. **R.Y. Lochhead**, M. Shows, A.G. Marks, K.C. Deniakos, S.E. Morgan

Section H

Loews Philadelphia Hotel
Congress C

Advances in Innovative Designs & Process Cost Estimation Techniques for Advanced Water Purification Technologies

Y. G. Adewuyi, E. Sahle-Demessie, *Organizers, Presiding*

8:15 Introductory Remarks.

8:20 58. Lead and cadmium removal from wastewater using magnetized fast pyrolysis biochar from timber industry waste wood. **A.G. Karunanayake**, O.A. Todd, M. Crowley, R. Anderson, T. Mlsna

8:45 59. Plasma-based water treatment: Targeted application and guidelines for process scale-up. **S. Mededovic**, C. Bellona, T.M. Holsen, G. Stratton, F. Dai

9:10 60. Ibuprofen and ibuprofen-lysinate removal by adsorption and advanced oxidation process (AOPs). **M. Manickavachagam**, G. Andaluri, S. Rominder

9:35 61. Charge and size selective ion sieving through $Ti_3C_2T_x$ MXene membranes. **C. Ren**, K.B. Hatzell, M.H. Alhabeb, Z. Ling, K.A. Mahmoud, Y. Gogotsi

10:00 Intermission.

10:15 62. MOFs-embedded thin film composite membranes for reverse osmosis applications. **M. Kadhom**, W. Hu, B. Deng

10:40 63. Organic fouling in membrane capacitive deionization systems. **L. Southworth**, R.D. Cusick

11:05 64. Biodesalination of brackish water and sea water using halophytic algae. **E. Sahle-Demessie**, A. Aly Hassan, T. Richardson

11:30 65. Advances in the development of cost estimation methodologies for emerging environmental remediation technologies involving advanced oxidation processes. **Y.G. Adewuyi**

Geochemistry of the Subsurface: CO2 Sequestration, Unconventional Oil & Gas Extraction, Geothermal Reservoirs & Radioactive Waste Disposal -- Clay, MD Simulation & Electronic Structure
Sponsored by GEOC, Cosponsored by ENVR

Good Laboratory Practices for the Agrochemical Professional
Sponsored by AGRO, Cosponsored by ANYL and ENVR

USA-China Symposium on Energy
Sponsored by ENFL, Cosponsored by ENVR

Water-Energy Nexus
Sponsored by ENFL, Cosponsored by ENVR and MPPG

Terrestrial Field Dissipation Studies
Current Regulatory Guidance, Study Design & Utility of Data in Exposure & Risk Characterization
Sponsored by AGRO, Cosponsored by ENVR

Innovative Approaches in Designing Agrochemical Metabolism Studies
Sponsored by AGRO, Cosponsored by ENVR

Unconventional Energy on Heavy Oil & Shale Gas
Sponsored by ENFL, Cosponsored by ENVR and MPPG

Degradation of Materials for Energy & Fuel Production
Sponsored by ENFL, Cosponsored by ENVR and MPPG

Solar Fuels: Power to the People
Sponsored by ENFL, Cosponsored by ENVR and MPPG

Biomass
Sponsored by ENFL, Cosponsored by CATL, ENVR and MPPG

SUNDAY AFTERNOON

Section A

Loews Philadelphia Hotel
Commonwealth Hall C

Aquatic Chemistry: Symposium in honor of Professor Alan T. Stone

Interfaces of Organic, Inorganic & Surface Chemistry in Natural & Engineered Systems

B. Deng, C. Huang, T. J. Strathmann, *Organizers*
D. Vasudevan, *Organizer, Presiding*

1:30 Introductory Remarks.

1:35 66. Effects of Mn(II) on the oxidative dissolution of U(IV)- and Cr(III)-containing solid. **D. Giammar**, Z. Wang, C. Pan

2:00 67. Oxalate in soils, plants and water: Role in controlling trace metal solubility. **M.B. Mc Bride**

2:25 68. Iron oxides in reactive systems. **R. Penn**

2:50 69. Effect of crystal habit, surface structure, and aggregation on goethite adsorption capacities. **K. Livi**, M. Villalobos, R. Leary, J. Einsle, J. Barnard, P. Midgley, D.A. Sverjensky, A. Goodridge

3:10 Intermission.

3:30 70. Role of coordination chemistry in mercury transformation. **L. Liang**

3:55 71. Microbial cell surface-mediated mercury reduction, oxidation, and sorption on methylmercury biosynthesis. **B. Gu**, H. Lin, X. Lu, L. Liang

4:20 72. Reductive dissolution of iron (oxyhydr)oxide by 2,6-dimethoxy-1,4-hydroquinone and the generation of hydroxyl radicals. **L. Krumina**, G. Lyngsie, A. Tunlid, P. Persson

4:40 73. Interactions and oxidative reactivity in binary mixtures of goethite and γ-Al_2O_3 or soluble Al ions. **K. Rasamani**, S. Taujale, L. Baratta, H.J. Zhang

Section B

Loews Philadelphia Hotel
Washington A

Next Generation Techniques for Prevention & Precise Growth of Biofilms at the Interface of Nanomaterials & Electrochemistry

S. Aggarwal, A. Badireddy, V. Gadhamshetty, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 74. Biofilm formation and control in water distribution systems. **Y. Seo**

1:55 75. Effects of surface topography and low-frequency electric fields on bioadhesion. **R. Badireddy**

2:15 76. Investigating approaches to mitigate biofilms in drinking water distribution systems. **S. Aggarwal**

2:35 77. Characterizing Sulfate-reducing- G20 biofilm growth on Metal dichalcogenide using electrochemical and spectroscopic techniques. K. Chilkoor Gopala, N. Shrestha, **V. Gadhamshetty**

2:55 Intermission.

3:10 78. Effect of water chemical composition on mechanical and structural properties of simulated drinking water biofilms. **Y. Shen**, R.M. Espinosa-Marzal, W. Liu, P. Huang, G. Monroy, S. Boppart, T.H. Nguyen

3:30 79. Influence of multi-species biofilm formation on corrosion of cast iron. **F. Batmanghelich** , **L. Li**, Y. Seo

3:50 80. Polymeric membranes modified with bioinspired polydopamine and silver nanoparticles for water purification applications. **M. Fleming**, K. Chen

4:10 81. Correlation between electrochemical impedance and biofilm growth rate in the microbial capacitive deionization cell used for flowback water treatment. **N. Shrestha**, **G. Chilkoor**, **V. Gadhamshetty**

4:30 82. Biofilms in a simulated drinking water systems- impact of disinfection and pipe material on biofilm abundance and microbial community. **S. Aggarwal**, Y. Jeon, C.K. Gomez-Smith, T. LaPara, R.M. Hozalski

4:50 Concluding Remarks.

Section C

Loews Philadelphia Hotel
Commonwealth Hall B

Formation & Transformation of Atmospheric Aerosols: Air Pollution to Climate Change: Symposium in honor of Professor Renyi Zhang

Aerosol-Cloud-Climate Interactions

M. Hu, A. Khalizov, V. K. Sharma, *Organizers*
Y. Wang, *Organizer, Presiding*
J. Fan, *Presiding*

1:30 83. How and how much air pollution has contributed to climate changes in China? **Z. Li**

1:55 84. Climate response to anthropogenic aerosol forcing. **C. Wang**

2:20 85. Dominant snow-forming processes in warm and cold mixed-phase orographic clouds: Effects of cloud condensation nuclei and ice nuclei. **J. Fan**, L. Leung, D. Rosenfeld, P.J. DeMott

2:45 86. Secondary inorganic aerosols in China: Contributions from emissions, chemistry, and meteorology. **Y. Wang**

3:10 87. Biomass burning smoke and deep convection during the 2011 midlatitude continental convective clouds experiment (MC3E). **T. Logan**, X. Dong, B. Xi, J. Wang, J. Tian

3:30 Intermission.

3:45 88. How fast do we pollute pristine marine air that flows onshore? **D. Rosenfeld**

4:10 89. Aerosol-cloud-interaction conundrum and buffering mechanisms. **Y. Liu**

4:35 90. Aerosol – cloud – radiation interactions on the North China plain. **C. Zhao**

5:00 91. Aerosol-cloud-climate interactions from a modeling perspective. **Y. Wang**

Loews Philadelphia Hotel
Washington B

Innovative Materials & Technologies for Environmental Sustainability

Approaches for Sustainable Metal Recovery & Removal

Cosponsored by CEI
J. C. Crittenden, Q. Li, W. Zhang, *Organizers, Presiding*
A. Badireddy, *Presiding*

1:30 Introductory Remarks.

1:35 92. Synergistic effect of metal combinations in ferrite nanoparticles for arsenate and arsenite removal. **X. Wei**, N. Cady, A. Mosier

1:55 93. Adsorption of lead ions from aqueous phase on mesoporous silica with P-containing pendant groups. **C. Gunathilake**, M.S. Kadanapitiye, S. Huang, M. Jaroniec

2:15 94. Development of biosorption process using sewage sludge for treating acid mine drainage. **N. Kim**, **J. Seo**, **D. Park**

2:35 95. Synthesis, characterization, and heavy metal metal binding properties of new sugar-based glycolipid surfactants. **S.M. Fathi**, R.M. Maier, J.E. Pemberton

2:55 96. Identification of rare earth elements in electronics waste: Towards advanced-material recycling strategies. **R.M. Coulthard**, M.P. O'Connor, D.L. Plata

3:15 Intermission.

3:35 97. Fixed-bed column adsorption of rare earth elements from geothermal brines. **J.C. Callura**, C.W. Noack, K.M. Perkins, N. Washburn, D.A. Dzombak, A. Karamalidis

3:55 98. Recovery of lithium and cobalt from spent rechargeable batteries by fungal bioleaching. A. Lobos, **J.A. Cunningham**, V.J. Harwood

4:15 99. Efficient uranium extraction from oceans: an economical approach towards up-keeping nuclear reactors in the future. **A.C. Dassanayake**, C. Gunathilake, S. Brown, S. Dai, M. Jaroniec

4:35 100. XAFS investigation of how amidoxime functionalized adsorbents bind uranium for extraction from seawater. **C.W. Abney**

4:55 Concluding Remarks.

Loews Philadelphia Hotel
Washington C

Poly- & Perfluoroalkyl Substances: Environmental Behavior & Pollution Control

Q. Huang, E. R. McKenzie, D. Woodward, *Organizers*
D. Chiang, L. S. Lee, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 101. Environmental pollution and water quality criteria perfluorinated chemicals in China. **Z. Liu**, X. Wang

2:00 102. PFAS in surface water and fish tissue from the Delaware River. **R. MacGillivary**

2:25 103. Branched ultra short chain Fluorosurfactants- A new class of surface active material combining outstanding eco toxicological behavior with superior technical performance. **R. Friedrich**

2:50 104. RNA-seq analysis reveals the hepatotoxicity mechanism of perfluoroalkyl alternatives HFPO2 and HFPO4 exposure in mice. **J. Dai**

3:15 Intermission.

3:30 105. Mechanistic insights into the adsorption of perfluoroalkyl substances on activated carbon. D.J. Van Hoomissen, **S. Vyas**

3:55 106. Enhanced sorption of perfluoro-alkyl substances. **Y. Aly**, **D. McInnis**, M.F. Simcik

4:20 107. Sorption and regeneration of GAC for remediation of perfluoroalkyl contaminants in groundwater. **M. Crimi**, T. Holsen, C. Bellona, E. Dickenson, C. Divine, D. Siriwardena, N. Kunte, B. Nzeribe Nwedo

4:45 108. Electrochemical degradation of PFOA and PFOS by porous Ti_4O_7 anode in batch and filtration modes. **H. Lin**, J. Niu, S. Liang, Q. Luo, Q. Huang

5:10 109. Experimental and theoretical insights into the photochemical decomposition of environmentally persistent perfluorocarboxylic acids. **R. Qu**, J. Liu, C. Li, L. Wang, Z. Wang

Loews Philadelphia Hotel
Congress A

Impacts of Energy Systems on Water Treatment

K. D. Good, J. M. Vanbriesen, *Organizers*
P. Mouser, D. L. Plata, *Organizers, Presiding*

1:30 110. What goes in must come out: Organic compounds in oil sands, their extraction products, and environmental implications. **B. Drollette**, D. Gentner, D.L. Plata

2:00 111. Non-target screening for polar to semi-polar organic compounds in hydraulic fracturing fluids. **M. Nell**, D. Helbling

2:30 112. *In situ* biodegradation of alkyl ethoxylates by halotolerant bacteria in a hydraulically fractured shale well. **M. Volker**, G.J. Getzinger, D.W. Hoyt, D.L. Plata, K. Wrighton, P. Mouser

3:00 113. Hydraulic fracturing fluid reactivity: organic transformations in the shale rock parameter space. **A.J. Sumner**, D.L. Plata

3:25 Intermission.

3:35 114. River-lake sediment record of historical oil and gas wastewater disposal in western Pennsylvania. **N.R. Warner**, W.D. Burgos, P. Drohan, T.J. Geeza, L.E. Castillo Meza

4:05 115. Reactive propping agent to immobilize heavy metals and radionulides in the subsurface during hydraulic fracturing. **V. Prigiobbe**, Z. Ye

4:30 116. Removal of boron from hydraulic fracturing flowback water by aluminum and iron electrocoagulation prior to discharge. **S. Chellam**

4:55 117. Arsenic species in anoxic incubations of Marcellus shale. **A. Keimowitz**

5:20 Concluding Remarks.

Section G

Loews Philadelphia Hotel
Congress B

Advances in Understanding PPCP Fate in Wastewater Collection & Treatment Systems

N. Fahrenfeld, L. A. Rodenburg, *Organizers, Presiding*

1:30 118. Removal of micropollutants in biofilters: Hydrodynamic effects on biotransformation rates. **C.M. Carpenter**, D.E. Helbling

1:50 119. Role of nitrifying bacteria in fate of triclosan. **E. Lauchnor**, K. Bodle

2:10 120. Towards an improved mechanistic understanding of sulfate radical oxidation of PPCPs: A meta-analysis and QSAR modelling study. T. Ye, S. Luo, Z. Yang, **R. Xiao**

2:30 Intermission.

2:45 121. Reaction kinetics and transformation products for ozonation of the oxybenzone, octinoxate, and octocrylene UV-filters. **L.M. Blaney**, Z. Hopkins

3:10 122. Ozonation degradation of an antidepressant fluoxetine in aqueous solution: Byproducts, pathway and toxicity. **Y. Zhao**, S. Chen, S. Zhang, G. Yu

3:30 123. Ozonation of antibiotics in water with a high bromide (Br^-) content. **O. Heegun**, Y. Jung, M. Kwon, J. Kang

3:50 124. Degradation of atrazine by UV/chlorine: Efficiency, influencing factors, and products. **X. Kong**, J. Jiang, J. Ma

4:10 Intermission.

4:25 125. Effect of bicarboate anion on the TiO_2 photocatalytic degradation of methotrexate. **W. Lai**, A.Y. Lin

4:45 126. Phototransformation of meperidine and methadone in aqueous environment. **Y. Lin**, M. Hsieh, A.Y. Lin

5:05 127. Withdrawn.

Section H

Loews Philadelphia Hotel
Congress C

Advancing Teaching & Learning in Environmental Chemistry Courses: Innovative Tools & Techniques

Financially supported by AEESP
N. Dai, A. Shah, J. Sivey, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 128. Environmental success stories: Teaching a positive-message non-science's majors course in environmental chemistry. **F.M. Dunnivant**

1:55 129. Inquiry-based learning in environmental chemistry throughout a liberal arts college chemistry curriculum. **A. Graham**

2:15 130. Comparison of student self-assessment and course performance: Feedback for teaching and learning of aquatic chemistry. **N. Dai**

2:35 Intermission.

2:50 131. Integration of environmental principles in chemical engineering design. **L. Soh**

3:10 132. Enhancing learning of analytical chemistry techniques for environmental applications at the graduate level: Course design, optimization, and challenges. **A. Shah**

3:30 133. Exploration in environmental chemistry laboratory. **J. Zhang**

3:50 Intermission.

4:05 134. Liquid chromatography simulator software as a discovery-based learning tool for environmental and instrumental analysis courses. **J. Sivey**

4:25 135. Incorporating modeling software and overarching problems to promote students learning in aquatic chemistry. **W. Xu**

4:45 136. Free educational software, videos, and etextbooks for environmental chemistry. **F.M. Dunnivant**

5:05 Concluding Remarks.

Advances in Residues Analysis of Bee Relevant Matrices: Analytical Methods & Sampling Techniques
Sponsored by AGRO, Cosponsored by AGFD and ENVR

Geochemistry of the Subsurface: CO2 Sequestration, Unconventional Oil & Gas Extraction, Geothermal Reservoirs & Radioactive Waste Disposal
CO2 sequestration
Sponsored by GEOC, Cosponsored by ENVR

USA-China Symposium on Energy
Sponsored by ENFL, Cosponsored by ENVR

Increasing the Value of Water Monitoring Data for Pesticide Fate & Effects Evaluations
Sponsored by AGRO, Cosponsored by ENVR and TOXI

Novel Nanomaterials
Advanced Electrocatalysts
Sponsored by ENFL, Cosponsored by CATL and ENVR

Extraction Efficiency-Bridging between Metabolism Studies & Residue Analytical Methods
Sponsored by AGRO, Cosponsored by AGFD and ENVR

Unconventional Energy on Heavy Oil & Shale Gas
Sponsored by ENFL, Cosponsored by ENVR and MPPG

Degradation of Materials for Energy & Fuel Production
Sponsored by ENFL, Cosponsored by ENVR and MPPG

Glyphosate: Current Status & Future Prospects
Sponsored by AGRO, Cosponsored by AGFD and ENVR

Solar Fuels: Power to the People
Sponsored by ENFL, Cosponsored by ENVR and MPPG

Novel Materials for Gas Separation, Storage & Utilization
Gas Separation
Sponsored by ENFL, Cosponsored by ENVR and MPPG

Biomass
Sponsored by ENFL, Cosponsored by CATL, ENVR and MPPG

Section A

Loews Philadelphia Hotel
Commonwealth Hall C

Aquatic Chemistry: Symposium in honor of Professor Alan T. Stone

Interfaces of Organic, Inorganic & Surface Chemistry in Natural & Engineered Systems

B. Deng, C. Huang, D. Vasudevan, *Organizers*
T. J. Strathmann, *Organizer, Presiding*

8:00 Introductory Remarks.

8:20 137. Aquatic chemistry in practice. **J. Hering**

8:45 138. Direct ring cleavage of aromatic compounds during oxidative water treatment. C. Prasse, J. Van Buren, **D.L. Sedlak**

9:10 139. Role of halide ions in oxidative water treatment. **U. von Gunten**

9:35 140. From electrochemical reduction of oxyanions to photoelectrochemical degradation of hazardous organic compounds in dilute aqueous solutions and beyond. **C. Huang**, H. Liu, S. Park

10:00 Intermission.

10:15 141. Advances in water treatment with permanganate and intermediate manganese species formed *in situ* for enhanced degradation of organic pollutants and removal of algae and heavy metals. **J. Ma**, J. Jiang, P. Wang, H. Cheng, Y. Gao, L. Wang, J. Zhao, J. Yang, X. Huangfu

10:40 142. Permanganate oxidations: Organic intermediates, products and ambient chemistry effects. **X. Xia**, A.T. Stone

11:00 143. Application of ferrate oxidation for eliminating pharmaceuticals in source-separated human urine. C. Luo, V.K. Sharma, **C. Huang**

11:20 144. Kinetics and mechanisms of Cr(VI) formation via the oxidation of Cr(III) solid phases by chlorine in drinking water. **H. Liu**

11:40 145. Chemical structure impacts on surface enhanced Raman spectroscopic detection of environmental pollutants. **P.J. Vikesland**, H. Wei

Loews Philadelphia Hotel
Washington A

Chemistry of Environmental Sorptive & Oxidative Processes: Symposium in honor of Joseph J. Pignatello

A. MacKay, M. Sander, D. Zhao, *Organizers*
F. Xiao, B. Xing, *Organizers, Presiding*

8:00 Introductory Remarks.

8:15 146. Transport and sorption of persistent organic pollutants on suspended particles in rivers. **P. Grathwohl**

8:45 147. Adsorption and reactions of organic compounds on pyrogenic carbonaceous surfaces: So, what else is new? **J.J. Pignatello**

9:15 148. Reversible resistant model of adsorption desorption as a data analysis tool. **D.M. Ditoro**, H.E. Allen

9:45 Intermission.

10:00 149. Entropy driven sorption and intraparticle diffusion for hydrophobic organic compounds: An underlying process commonality. **A. Sengupta**

10:30 150. Comparison of lead removal by different adsorbents. **X. Meng**, Q. Shi, A. Terracciano, Y. Zhao, C. Wei, J. Ge, H. Su

11:00 151. Interactions of atrazine and lamotrigine with carbon nanotubes: Effects of co-introduction of DOM and solution conditions. **B. Chefetz**, M. Engel

11:30 152. Factors controlling the adsorption of perfluoroalkyl substances by activated carbon. **D. Knappe**, L. Dudley, M. Sun, A. Lindstrom, M. Strynar

Loews Philadelphia Hotel
Regency Ballroom C2

Formation & Transformation of Atmospheric Aerosols: Air Pollution to Climate Change: Symposium in honor of Professor Renyi Zhang

Composition & Properties of Atmospheric Particles

M. Hu, V. K. Sharma, Y. Wang, *Organizers*
A. Khalizov, *Organizer, Presiding*
S. Brooks, *Presiding*

8:00 153. Mass Spectrometry of Atmospheric Aerosol: 1 nanometer to 1 micron. **D.R. Worsnop**

8:25 154. Size dependence of phase transitions in aerosol nanoparticles. Y. Cheng, **H. Su**, T. Koop, E. Mikhailov, U. Pöschl

8:50 155. Viscosity effects on photochemical processes in secondary organic materials. **M. Hinks**, M.V. Brady, H. Lignell, M. Song, J.W. Grayson, A.K. Bertram, P. Lin, A. Laskin, J. Laskin, S.A. Nizkorodov

9:10 156. Synthesis and surface-specific analyses of constituents relevant for secondary organic aerosols. **M.A. Upshur**, H.M. Chase, M.M. Vega, Y. Zhang, L. Fu, H. Wang, S.T. Martin, R.J. Thomson, F. Geiger

9:30 157. Surface-active substances in primary and secondary atmospheric aerosols. **Z. Wu**, Y. Liu, Y. Wang, Y. Bai, M. Hu

9:50 Intermission.

10:05 158. Broadening our conceptual model of organic compounds in atmospheric aerosol: Viscous liquids catalyze ice nucleation. **S. Brooks**

10:30 159. Nanospectroscopic and nanomechanical studies on individual aerosols of urban pollution. L. Wang, Y. Li, **X. Xu**

10:50 160. Markedly enhanced absorption and direct radiative forcing of black carbon under polluted urban environments. **J. Peng**, M. Hu, S. Guo, Z. Du, J. Zheng, D. Shang, M.L. Zamora, L. Zeng, M. Shao, Y. Wu, J. Zheng, Y. Wang, C. Glen, D. Collins, M.J. Molina, R. Zhang

11:10 161. Optical properties of secondary organic aerosols generated by photo-oxidation of aromatic compounds under different environmental conditions. **W. Wang**, K. Li, J. Li, M. Ge

11:30 162. Charge transfer complexes in ambient light-absorbing particulate matter (brown carbon). S. Phillips, **G.D. Smith**

Section D

Loews Philadelphia Hotel
Washington B

Innovative Materials & Technologies for Environmental Sustainability

Approaches for Water Disinfection & Removal of Emerging Contaminants

Cosponsored by CEI
J. C. Crittenden, Q. Li, W. Zhang, *Organizers, Presiding*
M. LI, *Presiding*

8:30 Introductory Remarks.

8:35 163. Engineering electrochemical oxidation processes for the removal of emerging contaminants. **X. Meng**, R. Xie, Y. Chen, J.C. Crittenden

8:55 164. Electro-oxidation of tetracycline by a Magnéli phase Ti_4O_7 anode. **S. Liang**, H. Lin, Q. Huang

9:15 165. Electrochemical-biological synergistic remediation of trichloroethylene. **W. Chen** , **F. Zhang**

9:35 166. Reevaluation of ferrate(VI) decomposition in water with natural organic matters (NOMs). **Y. Deng**, C. Jung

10:00 Intermission.

10:15 167. Composite of hydrophilic polyurethane foams enriched with PAC to enhance adsorption capacity and control rate of contaminants from aqueous solutions. N. Massalha, A. Brenner, C. Sheindorf, Y. Haimov, **I. Sabbah**

10:35 168. Flexible, switchable aerogel composites as reusable sorbents for oil capture and recovery. **O. Karatum**, D.L. Plata

10:55 169. Sol-gel immobilized vault nanoparticles for water treatment applications. **M. Wang**, D. Abad, V. Kickhoefer, L.H. Rome, B. Dunn, S. Mahendra

11:15 170. Renewable enzyme biocatalysis for water reuse: cell surface display fungal laccases for degradation of persistent micropollutants. Y. Chen, M. Kumar, **N. Wei**

11:35 171. High-level quantum calculations of sulfate radical generation for remediation of contaminated groundwater. **B.M. Wong**, H. Liu, E. Garcia

11:55 Concluding Remarks.

Section E

Loews Philadelphia Hotel
Washington C

Poly- & Perfluoroalkyl Substances: Environmental Behavior & Pollution Control

D. Chiang, Q. Huang, L. S. Lee, *Organizers*
E. R. McKenzie, D. Woodward, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 172. Fungal biotransformation of 6:2 fluorotelomer alcohol (6:2 FTOH). N. Merino, M. Wang, R. Ambrocio, K. Mak, A. Gao, E. O'Connor, L. Tseng, **S. Mahendra**

8:30 173. Anaerobic biotransformation of 6:2 fluorotelomer thioether amidosulfonate in aqueous film-forming foam (AFFF). S. Yi, **K. Harding**, E. Houtz, W. Zhuang, M. Hansen, J.A. Field, D.L. Sedlak, L. Alvarez-Cohen

8:55 174. Degradation of perfluoroalkyl acids by enzyme catalyzed oxidative humification reactions. **Q. Luo**, Q. Huang

9:20 175. Fate of the perfluoroalkyl substances and their precursors in pilot- and full-scale direct potable reuse facilities. **C. Glover**, E. Dickenson

9:45 Intermission.

10:00 176. Complete defluorination of perfluorinated compounds by hydrated electrons generated from 3-indole-acetic-acid in organomodified montmorillonite. **C. Gu**

10:25 177. Decomposition of perfluorooctanoic acid by hydrated electrons in the presence of different organomontmorillonite and indole derivatives. **H. Tian**, C. Gu

10:50 178. Remediation of perfluorinated and polyfluorinated organic compounds in complex mixtures with hydrated electrons. **J. Liu**, X. Xiao, C. Schaefer, L. Ferguson, C.P. Higgins, T.J. Strathmann

11:15 179. Decomposition of perfluorinated carboxylic acids with four different acids: Reaction kinetics, pathways and mechanisms. **J. Liu**, R. Qu, Z. Wang

Section F

Loews Philadelphia Hotel
Congress A

Advances & Challenges in Food-Energy-Water Nexus

Cosponsored by AGRO and CEI
S. Ahuja, S. Chae, D. D. Dionysiou, Y. Lin, *Organizers*
I. Chowdhury, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 180. Managing challenges of the food-energy-water nexus. **S. Ahuja**

8:30 181. Techno-economic assessment of desalination technology for application in agriculture. **P. Welle**, J. Medillin Azuara, J. Viers, M.S. Mauter

8:55 182. Integrated energy-water planning in the eastern interconnection. **K. Quinter**, V.C. Tidwell, E. Carraway, D. Ladner

9:20 183. Food, energy water nexus, complicated by global climate and the need for new technology. **J.W. Finley**

9:45 Intermission.

10:00 184. Multi-objective optimization model for minimizing cost and environmental impact in shale gas water and wastewater management. **T.V. Bartholomew**, M.S. Mauter

10:25 185. Engineered natural treatment systems at the food-energy-water nexus: The influence of vegetation on micropollutant fate. **G.H. LeFevre**, A.C. Portmann, R.G. Luthy

10:50 186. Unexpected ion-exchange reactivity of nanometric scheelite: Applications in food, energy, and water sectors. **A.W. Apblett**, C.K. Perkins

11:15 187. Impact of cerium oxide nanoparticles on plant water use efficiency at different environmental conditions. **X. Ma**

11:40 Concluding Remarks.

Loews Philadelphia Hotel
Congress B

Understanding Nanomaterial Behavior: Breakthroughs & Challenges

A. Orlov, *Organizer*
N. Savage, *Organizer, Presiding*

9:00 188. Nanotechnology environmental, health, and safety challenges: A National Nanotechnology Coordination Office perspective. **L. Friedersdorf**

9:20 189. Nanotechnology environmental, health, and safety challenges, research, and opportunities panel. **N. Savage**

9:40 190. Nanotechnology health implications research consortium. **S. Nadadur**

10:00 191. Nanotechnology environmental, health, and safety challenges, research, and opportunities federal panel: NIST perspective. **D. Kaiser**

10:20 192. Withdrawn.

10:40 Intermission.

10:50 Panel Discussion.

11:50 Concluding Remarks.

Loews Philadelphia Hotel
Congress C

Synthetic Biology & Genetically Modified Organisms

Evolution or Revolution? Policy Challenges & Opportunities in the Biotechnology Golden Age

Cosponsored by AGFD, AGRO, CEI‡ and COMSCI
C. W. Avery, *Organizer*
S. H. DeLuca, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 193. Caterpillar cross tolerance/resistance to *Bacillus thuringiensis*: Don't forget our history. **R.M. Roe**, A. Dhammi, J. Zhu, D. Reisig, R.W. Kurtz

8:25 194. Pros and cons of the first 20 years of GMO cotton production. **K. Edmisten**

8:45 195. Local vs. global population editing: A novel and responsible approach to gene drive. C. Noble, A. Chavez, J. Schulak, J. Olejarz, A. Smidler, G. Church, M. Nowak, **K. Esvelt**

9:05 196. Starting a dialog about GMOs with non-majors through three editions of Chemistry in Context. **J.P. Ellis**

9:25 197. Public and policy engagement on synthetic biology. **K. Costa**

9:45 Intermission.

10:15 198. Engineering biology for the U.S. bioeconomy. M. Maxon, **K. Christiansen**

10:35 199. First things first: What is a GMO? **A. Massey**

10:55 200. Legal and regulatory implications of genetic engineering for the chemical community. **L.L. Bergeson**

11:15 201. Genetically engineered governance: Why international governance systems need their DNA engineered to keep pace with genomic technologies. **T. Kuiken**

Geochemistry of the Subsurface: CO2 Sequestration, Unconventional Oil & Gas Extraction, Geothermal Reservoirs & Radioactive Waste Disposal
Water Film & General Shale
Sponsored by GEOC, Cosponsored by ENVR

USA-China Symposium on Energy
Sponsored by ENFL, Cosponsored by ENVR

Novel Nanomaterials
Advanced Nanomaterials & Theoretical Calculation
Sponsored by ENFL, Cosponsored by CATL and ENVR

Increasing the Value of Water Monitoring Data for Pesticide Fate & Effects Evaluations
Sponsored by AGRO, Cosponsored by ENVR and TOXI

Novel Analytical Methods for Analysis of Emerging Contaminants of Concern: Advances & Challenges
Sponsored by AGRO, Cosponsored by ANYL and ENVR

Innovative Chemistry & Materials for Electroenergy Production & Storage
Solid-State Batteries
Sponsored by ENFL, Cosponsored by ENVR and MPPG

Neonicotinoid Insecticides: Use, Fate & Effects
Sponsored by AGRO, Cosponsored by ENVR

Solar Fuels: Power to the People
Sponsored by ENFL, Cosponsored by ENVR and MPPG

Glyphosate: Current Status & Future Prospects
Sponsored by AGRO, Cosponsored by AGFD and ENVR

Novel Materials for Gas Separation, Storage & Utilization
Storage
Sponsored by ENFL, Cosponsored by ENVR and MPPG

Biomass
Sponsored by ENFL, Cosponsored by CATL, ENVR and MPPG

MONDAY AFTERNOON

Section A

Loews Philadelphia Hotel
Commonwealth Hall C

Aquatic Chemistry: Symposium in honor of Professor Alan T. Stone

Interfaces of Organic, Inorganic & Surface Chemistry in Natural & Engineered Systems

C. Huang, T. J. Strathmann, D. Vasudevan, *Organizers*
B. Deng, *Organizer, Presiding*

1:30 Introductory Remarks.

1:35 202. Predicting environmental partitioning via quantum chemistry, Abraham parameters and pp-LFERs. **D.M. Ditoro**, Y. Liang, T. Torralba-Sanchez

2:00 203. Cheminformatics applications and physicochemical property calculators: A powerful combination for the encoding of process science. **E.J. Weber**, C.T. Stevens

2:25 204. Experimental vs. theoretical oxidation potentials of organic reductants. **P.G. Tratnyek**, A.S. Pavitt, E.J. Bylaska

2:50 205. Elucidating electron transfer mechanisms of oxidation of inorganic pollutants by ferrate(VI): Density functional theory computations approach. **V.K. Sharma**, C.A. Huerta-Aguilar, T. Pandiyan

3:15 Intermission.

3:30 206. Environmental fate data as inputs to modeling pesticide concentrations in ground and surface water. **A.C. Barefoot**

3:55 207. Metabolization and degradation kinetics of the urban-use pesticide fipronil by white rot fungi *Trametes versicolo*. **J. Wolfand**, G.H. LeFevre, R.G. Luthy

4:15 208. Variations in the properties of dissolved naural organic matter. **D.L. Macalady**, S. Orsetti, E. Subdiaga, S.B. Haderlein

4:40 209. Revisiting molecular weight and polydispersity measurements by high-pressure size exclusion chromatography: Accounting for changes in analytical standards and isolation techniques. **B. McAdams**, G. Aiken, W. Arnold, Y. Chin

Section B

Loews Philadelphia Hotel
Washington A

Chemistry of Environmental Sorptive & Oxidative Processes: Symposium in honor of Joseph J. Pignatello

A. MacKay, M. Sander, D. Zhao, *Organizers*
F. Xiao, B. Xing, *Organizers, Presiding*

1:30 210. Evolution of environmental sorption processes into mainstream soil/sediment remediation. **U. Ghosh**

2:00 211. Insights into nanoparticle interaction with cell surfaces from model systems. **J.A. Pedersen**

2:30 212. Sorption mechanisms of organic contaminants by carbonaceous nanomaterials. **X. Wang**, X. Shen

3:00 Intermission.

3:15 213. Pore effect on sorption of hydrophobic organic chemicals (HOCs) to synthetic porous materials. **D. Zhu**

3:45 214. Green synthesis of graphene oxide hydrogels with superior mechanical properties and contaminant adsorption capacity. N. Yousefi, K. Wong, A. Angulo, **N. Tufenkji**

4:15 215. Sorption of heavy metals on pyrogenic carbonaceous materials: Roles of carboxyl ligands. **S.M. Uchimiya**

4:45 216. Removal of organic and inorganic contaminants by carbon-based sorbents. **B. Gao**

5:15 Concluding Remarks.

Section C

Loews Philadelphia Hotel
Regency Ballroom C2

Formation & Transformation of Atmospheric Aerosols: Air Pollution to Climate Change: Symposium in honor of Professor Renyi Zhang

Gas-Phase & Gas-Particle Reactions

M. Hu, A. Khalizov, V. K. Sharma, Y. Wang, *Organizers*
C. Qiu, L. Wang, *Presiding*

1:30 217. Determination of atmospheric amines and amides in urban Shanghai, China. L. Yao, M. Wang, **L. Wang**

1:50 218. Heterogeneous reaction mechanism of gaseous HNO_3 with solid NaCl: a density functional theory study. **F. Xu**, N. Zhao, Q. Zhang, W. Wang

2:10 219. Thermochemistry and kinetic modeling for OH addition to trifluoroethene. **J.W. Bozzelli**, S. Yomme

2:30 220. Quantitative structure−activity relationship for hydroxyl radical oxidized polychlorinated biphenyls in the gas phase. **S. Luo**, R. Xiao, T. Ye, Z. Yang

2:50 Intermission.

3:05 221. Particles in the marine atmosphere. **P. Liss**

3:30 222. Thermostability and hygroscopicity of monoethanolammonium carboxylates for evaluating environmental impacts of carbon dioxide sequestration by reversible chemical absorption. X. Zhang, J. Dawson, **C. Qiu**, A. Khalizov

3:50 223. OH-initiated oxidation of *m*-xylene on black carbon aging. **S. Guo**, M. Hu, Y. Lin, M.E. Gomez, M.L. Zamora, D. Collins, R. Zhang

4:10 224. Heterogeneous ozonolysis of trimethylamine on the typical model atmospheric particle. **Y. Liu**, Y. Ge, B. Chu, H. He

4:30 225. Formation, transformation, and impacts of atmospheric aerosols under polluted environments. **R. Zhang**

Section D

Loews Philadelphia Hotel
Washington B

Innovative Materials & Technologies for Environmental Sustainability

Approaches for Water Disinfection & Removal of Emerging Contaminants

Cosponsored by CEI
J. C. Crittenden, Q. Li, W. Zhang, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 226. Multi-functional gel materials for malodor control. **L. Luk**, W. Han, K. Yeung

1:55 227. Identification and quantification of free radicals generated by zerovalent bimetallic Fe/Al in water. **H.L. Lien**, C. Yu

2:15 228. Porous materials for advanced water treatment. **M. Manickavachagam**, S. Rominder , J. Wu, M. Sillanpaa

2:35 229. Surface plasmonic photothermal water disinfection. **S. Loeb**, C. Li, J. Kim

2:55 230. Two approaches to achieve visible light upconversion for environmental application. **J. Kim**

3:20 Intermission.

3:35 231. Role of alkynes in CNT synthesis: Towards improved production quality and environmental sustainability. **M.J. Giannetto**, W. Shi, E.R. Meshot, D.L. Plata

3:55 232. Direct deposition of conductive carbon nanotube-polymer composite thin films on membrane surfaces for filtration performance enhancement. **A.V. Dudchenko**, D. Jassby

4:15 233. Anion recovery from water by cross-linked cationic surfactant nanoparticles across ultrafiltration membranes. **M. Chen**, C.T. Jafvert

4:35 234. Self-healing properties of microcapsule-embedded and hydrogel-composite water filtration membranes. **B. Getachew**, S. Kim, J. Kim

4:55 235. Comparison of energy efficiency and power density in pressure retarded osmosis and reverse electrodialysis. **N. Yip**, M. Elimelech

5:15 Concluding Remarks.

Section E

Loews Philadelphia Hotel
Washington C

Poly- & Perfluoroalkyl Substances: Environmental Behavior & Pollution Control

D. Chiang, Q. Huang, L. S. Lee, D. Woodward, *Organizers*
E. R. McKenzie, *Organizer, Presiding*

1:30 Introductory Remarks.

1:35 236. Destruction of PFOS in groundwater: a new *in situ* remediation technology for per / polyfluorinated alkyl substances. J. Hurst, T. Pancras, J. Burdick, E. Houtz, J. Mcdonough, **A. Mushtaque**, A. Horneman, **I. Ross**

2:00 237. Remediation of perfluoralkyl substances (PFAS) with OxyZone®, a multi-oxidant blend. **A. Moore**

2:25 238. *Ex situ* treatments of Aqueous Film-Forming Foam impacted water. **G.M. Birk**, D.F. Alden, R. Stuart

2:50 239. Treatment of perfluoroalkyl acids by nonthermal plasma processes. **C. Bellona**, S. Mededovic-Thagard, T.M. Holsen, F. Dai, G. Stratton, E. Dickenson

3:15 Intermission.

3:30 240. Evaluation of *ex situ* PFAS treatment technologies. **D. Chiang**

3:55 241. Review of PFOS bioconcentration factors (BCFs) in fish and the implications on the PFAS treatment cost. **D. Bogdan**, U. Vedagiri, G. Hendrix, D. Woodward, K. Davis

4:20 242. PFAS panel: What, when, and why to analyze and remediate PFASs. **D. Woodward**

5:20 Concluding Remarks.

Loews Philadelphia Hotel
Congress A

Advances & Challenges in Food-Energy-Water Nexus

Cosponsored by AGRO and CEI
S. Ahuja, I. Chowdhury, D. D. Dionysiou, Y. Lin, *Organizers*
S. Chae, *Organizer, Presiding*

1:30 Introductory Remarks.

1:35 243. Rotavirus control for safe and sustainable production of leafy greens. **T.H. Nguyen**, J. Shisler, M. Fuwaza, E. Araud, R. Smith, J. Juvik

2:00 244. Advances and challenges in recycling of high strength organic waste and wastewater for clean water and energy. **S. Chae**

2:25 245. Evaluation of Microbial Fuel Cell implementation at the advanced wastewater treatment plant at Blue Plains, Washington DC. B.V. Kjellerup, **E. Bergman**, J. Greaves, M. Daigneault

2:50 246. Identifying data gaps in understanding feasibility of reuse of nanoparticles-containing wastewater in aquaculture. A. Kumar, **P. Gurian**, A. Anandan, D. Singh, B. Sundaram

3:15 Intermission.

3:30 247. Air emission implications of expanded wastewater treatment at coal-fired generators. **D.B. Gingerich**, X. Sun, A.P. Behrer, I. Azevedo, M.S. Mauter

3:55 248. Trace element allocation across air pollution control devices in coal fired power plants. **X. Sun**, D. Gingerich, I. Azevedo, M.S. Mauter

4:20 249. Rice uptake of organic arsenic species: Competition with silicon. **M. Limmer**, A. Seyfferth

4:45 Concluding Remarks.

Loews Philadelphia Hotel
Congress B

Developing International Policies for Nanoparticles in the Environment

R. Luque, S. O. Obare, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 250. Chemical speciation of anthropogenic nanoparticles. **S.O. Obare**

2:00 251. Nanomagnetism in the environment: A review. **P.A. Augusto**, T. Castelo-Grande, A.M. Estevez, D. Barbosa

2:25 252. Influence of environmental factors on the mutagenic effects of iron oxide nanoparticles. **N. Dissanayake**, K.M. Current, S.O. Obare

2:50 253. Bio-nanocomposites based on iron oxides: Preparation and catalytic applications. **A.M. Balu**, D. Padrón, A. Romero, R. Luque

3:15 Intermission.

3:25 254. Adsorption of cerium oxide nanoparticles on silica and kaolinite. **X. Ma**

3:50 255. Influence of chemical composition on the photodegradation and photostability of carbon dots: A sustainable fluorescent nanoparticle. **M.J. Gallagher**, B. Zhi, B. Frank, J. Da, T. Curry, C. Haynes, H. Fairbrother

4:15 256. Benign by design nanomaterials from biomass and waste: Synthesis and applications. **R. Luque**

4:40 257. Metal-hexacyanoferrates functionalized magnetic nanoadsorbents for the removal of radioactive cesium from water. **H. Yang**, K. Hwang, C. Park, K. Lee, B. Seo, J. Moon

5:05 Concluding Remarks.

Section H

Loews Philadelphia Hotel
Congress C

Synthetic Biology & Genetically Modified Organisms

The Debate: What Role Should We Play in the Biotechnology Era?

Cosponsored by AGFD, AGRO, CEI‡ and COMSCI
S. H. DeLuca, *Organizer*
C. W. Avery, *Organizer, Presiding*

1:30 258. Dealing with dual use: Risk governance in synthetic biology. **M.J. Palmer**

1:55 259. Regulating the unregulatable: Policy considerations for the national security threats posed by advances in genetic engineering. **G. Bonheyo**, K.M. Omberg, K. Rodda, G. Hund, S. Frazar

2:20 Concluding Remarks.

2:25 Intermission.

2:35 Introductory Remarks.

2:40 Panel Discussion: What Roles Should We Play in the Biotechnology Era?

3:55 Concluding Remarks.

Geochemistry of the Subsurface: CO2 Sequestration, Unconventional Oil & Gas Extraction, Geothermal Reservoirs & Radioactive Waste Disposal
Contamination & Waste
Sponsored by GEOC, Cosponsored by ENVR

USA-China Symposium on Energy
Sponsored by ENFL, Cosponsored by ENVR

Increasing the Value of Water Monitoring Data for Pesticide Fate & Effects Evaluations
Sponsored by AGRO, Cosponsored by ENVR and TOXI

Novel Nanomaterials
CO2 Conversion & Other Applications
Sponsored by ENFL, Cosponsored by CATL and ENVR

Novel Analytical Methods for Analysis of Emerging Contaminants of Concern: Advances & Challenges
Sponsored by AGRO, Cosponsored by ANYL and ENVR

Neonicotinoid Insecticides: Use, Fate & Effects
Sponsored by AGRO, Cosponsored by ENVR

Innovative Chemistry & Materials for Electroenergy Production & Storage
Supercapacitors
Sponsored by ENFL, Cosponsored by ENVR and MPPG

Glyphosate: Current Status & Future Prospects
Sponsored by AGRO, Cosponsored by AGFD and ENVR

2D Materials: Graphene & Beyond & their Device Applications
Sponsored by ENFL, Cosponsored by ENVR

Undergraduate Research Posters
Environmental Chemistry
Sponsored by CHED, Cosponsored by ENVR and SOCED

Environmental Fate & Modeling of Agriculturally-Related Chemicals
Sponsored by AGRO, Cosponsored by ENVR

Novel Materials for Gas Separation, Storage & Utilization
Utilization
Sponsored by ENFL, Cosponsored by ENVR and MPPG

Pollinators: Agrochemicals, Behavior & Disease
Sponsored by AGRO, Cosponsored by AGFD, ENVR and TOXI

Biomass
Sponsored by ENFL, Cosponsored by CATL, ENVR and MPPG

Advances in Chemistry of Energy & Fuels
Sponsored by ENFL, Cosponsored by ENVR and MPPG

MONDAY EVENING

Section I

Pennsylvania Convention Center
Halls D/E

Sci-Mix

D. D. Dionysiou, *Organizer*

8:00 - 10:00

532-535, **537-538**, **540-542**, **545-549**, **552-553**, **556-557**, **562**, **565-567**, **569-570**, **578**, **581**, **584**, **588-591**, **593-594**, **597**, **617**, **623**, **628**, **635-635**, **639-642**, **644-655**, **657**, **659**, **663**, **665**, **670**, **675**, **677**, **680**, **682**, **684**, **686-688**, **691-697**, **704-705**, **712**, **715-716**, **718-719**, **721-722**, **724**, **726**. See subsequent listings.

TUESDAY MORNING

Section A

Loews Philadelphia Hotel
Washington B

Aquatic Chemistry: Symposium in honor of Professor Alan T. Stone

Interfaces of Organic, Inorganic & Surface Chemistry in Natural & Engineered Systems

B. Deng, C. Huang, T. J. Strathmann, D. Vasudevan, *Organizers*
R. F. Carbonaro, *Presiding*

8:00 Introductory Remarks.

8:05 260. Aquatic chemistry in engineered systems: The reactions of nano-silver during washing. **B. Nowack**

8:30 261. Complexation of III/V ions to industrial nanoparticles used in chemical mechanical polishing (CMP) process. **X. Bi**, P.K. Westerhoff

8:50 262. Transport of oxidized multi-walled carbon nanotubes through silica based porous media: Investigation of removal mechanisms and mathematical modeling. **W.P. Ball**

9:15 263. Light-independent redox reactions of graphene oxide in water. **C.T. Jafvert**, Y. Zhao

9:40 Intermission.

9:55 264. Adsorption of Ca^{2+} on graphene oxide and significant effect on its colloidal stability. **A. Terracciano**, J. Zhang, C. Christodoulatos, F. Wu, X. Meng

10:15 265. Molecular framework for *Anastrepha* pheromone communication results from abiotic environmental hydrolysis of the lipophilic terpenoid, suspensolide. **S.S. Walse**

10:40 266. Formation and implications of bioactive steroid transformation products. **D.M. Cwiertny**, E.P. Kolodziej

11:00 267. Structure-reactivity relationships for cobalt-catalyzed defluorination of perfluorinated organic compounds in water. **J. Liu**, X. Xiao, Y. Fang, L. Ferguson, C.P. Higgins, C. Schaefer, T.J. Strathmann

11:20 268. Poly(vinylene fluoride) (PVDF)/Nitrogen doped TiO2 (N-TiO2) mixed matrix hollow fiber membranes (HFMs) with advanced antifouling properties under visible light irradiation. J. Yin, X. Wang, **B. Deng**

Section B

Loews Philadelphia Hotel
Washington A

Chemistry of Environmental Sorptive & Oxidative Processes: Symposium in honor of Joseph J. Pignatello

A. MacKay, M. Sander, B. Xing, *Organizers*
F. Xiao, D. Zhao, *Organizers, Presiding*

8:00 Introductory Remarks.

8:10 269. Advances in the field of advanced oxidation processes for the treatment of cyanotoxins, pharmaceuticals and other contaminants of emerging concern. **D.D. Dionysiou**

8:40 270. Anodic oxidation of contaminants by surface and solution-phase oxidants. J.M. Barazesh, C. Prasse, **D.L. Sedlak**

9:10 271. Activated permanganate: A new advanced oxidation process? **P.G. Tratnyek**, X. Guan, S. Bo

9:40 Intermission.

9:55 272. Effects of carbonate radicals on photochemical oxidation of mercury in freshwater systems. **B. Gu**, F. He, L. Liang

10:25 273. Novel nanomaterials for environmental pollutant sensing, and destruction, and renewable energy production. **Y. Chen**

10:55 274. Oxidative formation of environmentally persistent free radicals under environmentally relevant conditions. U.G. Nwosu, **R.L. Cook**

11:25 275. Role of reactive species in degradation of emerging contaminants under UV/chlorine and UV/peracetic acid conditions. **C. Huang**, P. Sun, M. Cai

Loews Philadelphia Hotel
Regency Ballroom C2

Formation & Transformation of Atmospheric Aerosols: Air Pollution to Climate Change: Symposium in honor of Professor Renyi Zhang

Atmospheric Observations & Health Impacts

M. Hu, A. Khalizov, V. K. Sharma, Y. Wang, *Organizers*
E. C. Fortner, M. Levy, *Presiding*

8:00 276. Influence of traffic on the black carbon concentration: Investigations in Leipzig, Germany, and La Paz, Bolivia. **A. Wiedensohler**

8:25 277. Space-based observations of the chemical lifetime and emission rate of NO_x: Measuring the role of winds in non-linear chemistry. **R.C. Cohen**

8:50 278. Utilizing positive matrix factorization (PMF) in the identification of specific biomass burning fuel sources measured with a soot particle aerosol mass Spectrometer (SP-AMS) during smoke chamber and wildfire measurements. **E.C. Fortner**, T.B. Onasch, M.R. Canagaratna, J. Shilling, M. Pekour, P. Massoli, L.R. Williams, J.T. Jayne, D.R. Worsnop

9:10 279. Reduction in local ozone levels in urban São Paulo due to a shift from ethanol to gasoline use. **F. Geiger**, A. Salvo

9:35 280. Identifying sources of high $PM_{2.5}$ concentrations in the West Silver Valley of Idaho, USA. **R. Li**, R. Kotchenruther, R. Hardy

9:55 Intermission.

10:10 281. Air pollutants and human health: What have we learned so far? **M. Levy Zamora**, R. Zhang

10:30 282. Maternal exposure to sulfur based particulate matter alters postnatal growth and health in rats. **M.C. Satterfield**, J. Brown, A. Miller, M.L. Zamora, K. Dunlap, R. Burghardt, G. Johnson, F. Bazer, G. Wu, C. Meininger, R. Zhang

10:50 283. Air pollution exposures among pregnant women in a United States-Mexico border town. **K. Koehler**, J.C. Pulczinski, S. Vallamsundar, J. Zietsman, N. Johnson

11:10 284. Biomarkers of prenatal exposure to particulate air pollution in U.S. and Chinese populations. **N.M. Johnson**, J.C. Pulczinski, K. Rychlik, J. Guo, W. Shi, G. Carrillo-Zuniga, J. Zietsman, S. Vallamsundar, K. Koehler, M. Levy, R. Zhang

11:30 285. Health effects of fine particles ($PM_{2.5}$) in ambient air. **T. Zhu**, Y. Han

Loews Philadelphia Hotel
Commonwealth Hall A2

Innovative Materials & Technologies for Environmental Sustainability

Approaches for Renewable Energy & Water Resources

Cosponsored by CEI
J. C. Crittenden, Q. Li, W. Zhang, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 286. Exploitation of chitin as a renewable feedstock for the synthesis of cationic and amphoteric glucosaminoside surfactants and their characterization. **R. Palos Pacheco**, L.L. Kegel, R. Gonzalez, R. Polt, J.E. Pemberton

8:25 287. Functional polymers from wood-based sustainable resources. H. Liu, **H. Chung**

8:45 288. Polyethyleneimine impregnated nano-silica used for CO_2 capture from flue gas. K. Li, J. Jiang, **F. Yan**

9:05 289. Use of absorbent ionomers in partitioning bioreactors. **S. Bacon**, J. Parent, A.J. Daugulis

9:25 Intermission.

9:40 290. Bio-oil recovery & CO_2 recycling by waste stream enhanced microalgal growth & low energy CO_2-assisted extraction. **P. Champagne**

10:05 291. Modeling energy loss in membrane capacitive deionization systems with a high resolution one-dimensional equivalent circuit. **X. Shang**, K.C. Smith, R.D. Cusick

10:25 292. Novel hybrid zirconium oxide nanoparticles for concurrent defluoridation and desalination: Field level demonstration. **M.S. German**, J. Li, A. Sengupta

10:45 293. Composition analysis and low energy consumping treatment method for industrial sucralose wastewater. **H. Wei**, S. Chen, S. Zhang, Q. Zhang, X. Hao

11:05 294. Biologically active filters: An advanced treatment process for removal of pharmaceuticals and personal care products. **S. Zhang**, S. Gitungo, L.B. Axe, R.F. Raczko, J.E. Dyksen

11:25 295. Immobilized anaerobic biomass in PAC-enriched polyurethane for increasing stability and tolerance of bio-systems for high organic loads and pollutant shocks. N. Massalha, A. Brenner, C. Sheindorf, **I. Sabbah**

11:45 Concluding Remarks.

Loews Philadelphia Hotel
Washington C

Chemistry of Biomass Wastes Conversion to Energy & Chemicals

Cosponsored by ENFL
A. Abbas, S. Spatari, *Organizers*
M. Tu, M. Zhao, *Organizers, Presiding*

8:30 296. Hydrothermal carbonization (HTC) of organic fraction of municipal solid waste (OFMSW) pulp and anaerobically treated OFMSW digestate. **M. Reza**, K. Holtman, C. Coronella

8:50 297. Quantitative prediction of microalgae hydrothermal liquefaction. Y. Li, S. Leow, A. Fedders, B. Sharma, J. Guest, T. Dong, N. Nagle, P. Pienkos, **T.J. Strathmann**

9:10 298. Lignin alkylation enhances enzymatic hydrolysis of biomass. **M. Tu**, C. Lai

9:30 299. Anaerobic digestion performance of hydro-thermally pretreated municipal solid wastes and the evolution of acidogens community. **W. Li**, F. Wang, W. Wang

9:50 300. One-pot chemoselective oxidation and C_{α}-C_{β} bond cleavage in lignin β-O-4 model compounds and lignin. **S. Dabral**, J.G. Hernandez, P.C. Kamer, C. Bolm

10:10 Intermission.

10:25 301. Methane fermentation of microalgae with hydrothermal treatment: effect of temperature. **F. Wang**, W. Li, X. Hua, Y. Wang, W. Wang

10:45 302. Cultivation and harvesting of microalgae in photobioreactor for biodiesel production and simultaneous nutrient removal. E. Salama, **M. Eldalatony**, I. Yang, B. Jeon

11:05 303. Repeated-batch fermentation of microalgal biomass for high yield bioethanol employing immobilized *Saccharomyces cerevisiae*. **M. Eldalatony**, S. Saha, S. Chang, B. Jeon

11:25 304. Continuous fermentation for bioethanol production using combined pretreatment of mixed microalgal biomass. **M. Lee**, J. Hwang, B. Jeon

11:45 305. Anaerobic digestion of renewable materials for biogas production: Experimental stage to the field. **O.O. Adetule**

Loews Philadelphia Hotel
Congress A

Elements Old & New: Discoveries, Developments, Challenges & Environmental Implications

Cosponsored by CEI, HIST and NOM
T. C. Williamson, *Organizer*
M. A. Benvenuto, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 306. Lost elements: The periodic table's shadow side. **M. Orna**

9:05 307. History of the element concept. **R. Barth**

9:25 308. Experimenting with the elements. **M.A. Thomson**

9:45 309. Element 118: A chemistry odyssey. **S.C. Burdette**, B.F. Thornton

10:05 310. Noble gases and the periodic table: A study in mutual reinforcement. **C.J. Giunta**

10:25 Intermission.

10:35 311. Next generation elements. **L.H. Kolopajlo**

10:55 312. Periodic table of the elements: A review of the future. **P.J. Karol**

11:15 313. Element 118: Teaching a new element to new students. **G. Nguyen**, **J. Pothoof**, D. Archey, P. Venugopal, M.A. Benvenuto

11:35 314. Periodic table from chemical compounds. **G. Restrepo**

Section G

Loews Philadelphia Hotel
Congress B

Water Purification Systems

Cosponsored by CEI
S. Ahuja, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 315. Solving problems of arsenic contamination of groundwater. **S. Ahuja**

8:30 316. Transforming the global arsenic crisis into an economic enterprise: Role of hybrid anion exchange nanotechnology (HAIX-nano). **M.S. German**, J. Li, A. SenGupta

8:55 317. Reactive ion exchange-assisted high removal capability for trace Cr(VI) removal. S. Sarkar, **R. Verma**, A. SenGupta

9:20 318. Purification of water containing arsenic by amine-rich polymeric absorbent. **T. Jafari**, J. Macharia, E. Moharreri, T. Jiang, S.L. Suib

9:45 Intermission.

10:05 319. Bromine radical species reaction under advanced oxidation process condition. **A. Lechner**, S.P. Mezyk

10:30 320. Chloramine chemistry in treated wastewaters. **L. Twight**, K.D. Couch, S.P. Mezyk

10:55 321. Metal contaminated water: Associated problems and their solutions *via* green and sustainable pathway for waste water purification. **R.K. Sharma**

11:20 322. Cactus goo removes different pollutants to clean water. **N. Alcantar**, A. Buttice, D. Fox, R.G. Toomey, D. Stebbins, T. Peng, F. Guo

Section H

Loews Philadelphia Hotel
Congress C

Combined Biological-Chemical Reactions for Contaminant Transformation

Cosponsored by AGRO
E. J. Bouwer, K. T. Finneran, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 323. Mechanism and applications of black carbon-mediated microbial contaminant transformation. Y. Yu, J.M. Saquing, P.T. Imhoff, **P. Chiu**

8:25 324. Heavy metal remediation via biologically driven calcium carbonate precipitation. **E. Lauchnor**, N. Zambare, R. Gerlach

8:45 325. Microbial response to antimony contamination in severelyantimony-contaminated environments and bioremediation thereof by an onsite field-scale bioreactor. **W. Sun**, V. Krumins, E. Xiao, Y. Dong, T. Xiao

9:05 326. Effect of phospholipid coating on pyrite oxidation and bacterial communities under simulated acid mine drainage (AMD) conditions. **B. Van Aken**, D.R. Strongin, A. Pierre Louis, H. Yu, S. Shumlas, M. Schoonen

9:25 327. Sustainable technologies for mine influenced water treatment in different water chemistry. **S.R. Al-Abed**, P. Pinto, J. McKernan

9:45 Intermission.

10:00 328. Biofilm covered activated carbon particles enhance bioremediation of polychlorinated biphenyl (PCBs) in sediment. B.V. Kjellerup, S.J. Edwards, **A.L. Prieto**

10:20 329. Transformation of carbon tetrachloride and chloroform by tetrachloroethene and trichloroethene respiring anaerobic mixed cultures. K. Vickstrom, M.F. Azizian, **L. Semprini**

10:40 330. Withdrawn

11:00 331. Electrically conductive particles supporting direct interspecies electron transfer in anaerobic microbial communities. **Q. Cheng**, C. Murray, D.F. Call

11:20 332. Microbial reductive dechlorination of selected PCB tracker pair congeners in the Hudson and Grasse River sediment microcosms without nutrients amendment. **Y. Xu**

USA-China Symposium on Energy
Sponsored by ENFL, Cosponsored by ENVR

Chemistry, Safety & Technology of GMO Foods
Sponsored by AGFD, Cosponsored by AGRO, CEI‡, COMSCI and ENVR‡

Novel Nanomaterials
Biorelated
Sponsored by ENFL, Cosponsored by CATL and ENVR

Agrochemicals & Pollinators: Current Science & Risk Assessment Approaches
Sponsored by AGRO, Cosponsored by AGFD, ENVR and TOXI

Innovative Chemistry & Materials for Electroenergy Production & Storage
Flow Batteries & Non-Li Alkali Metal Batteries
Sponsored by ENFL, Cosponsored by ENVR and MPPG

2D Materials: Graphene & Beyond & their Device Applications
Sponsored by ENFL, Cosponsored by ENVR

Advances in Chemistry of Energy & Fuels
Catalysts & Nanoparticles in Energy Conversion
Sponsored by ENFL, Cosponsored by ENVR and MPPG

TUESDAY AFTERNOON

Section A

Loews Philadelphia Hotel
Washington B

Aquatic Chemistry: Symposium in honor of Professor Alan T. Stone

Interfaces of Organic, Inorganic & Surface Chemistry in Natural & Engineered Systems

B. Deng, C. Huang, T. J. Strathmann, D. Vasudevan, *Organizers*
B. Novack, *Presiding*

1:30 Introductory Remarks.

1:35 333. TiO_2 facets determine arsenic adsorption and photo-oxidation. **C. Jing**, L. Yan

1:55 334. Spectroscopic and DFT study on arsenic removal using lanthanum-impregnated activated alumina. **Q. Shi**, C. Jing, X. Meng

2:15 335. Mechanistic study of arsenic and fluoride removal using granular TiO_2-$LaCO_3OH$ adsorbent. **L. Yan**, C. Jing

2:35 336. Aqueous-phase reduction of nitrobenzene by sulfide mediated by varying-sized black carbon fractions. C. Wei, H. Fu, X. Qu, **D. Zhu**

2:55 337. Increased reductive dechlorination of chlorinated hydrocarbons in surface-mediated Fe(II) associated with goethite by adding low concentration of quinine moieties. **R. Maithreepala**, S. Haderlien

3:15 Intermission.

3:35 338. Effect of in-situ CO_2 sparging on chemistry of groundwater impacted by caustic brine discharges. **R.F. Carbonaro**, R.D. Mutch, K.J. Rader, P.K. Gupta, J.J. Morris

3:55 339. Laccase-mimicking activity of manganese oxide nanomaterials for pollutant conversion. **X. Wang**, **Z. Wang**, **Q. Huang**

4:15 340. Aquatic chemistry of cyanobacteria threats- assessment of the release of taste and odor compounds and toxins from cyanobacteria through drinking water treatment oxidants. **C. Moldaenke**, B. Santiago, A. Dahlhaus, S. Kuppers, **P.L. Schorr**

4:35 341. Mechanisms and products of BPA oxidation by Mn(IV) oxide. **M.A. Ginder-Vogel**, S.J. Balgooyen, C.K. Remucal

4:55 342. Phosphorus recovery from anaerobic digester effluents by using dolomite lime. **J. Ge**, Y. Song, X. Liu, X. Meng

5:15 Concluding Remarks.

Section B

Loews Philadelphia Hotel
Washington A

Chemistry of Environmental Sorptive & Oxidative Processes: Symposium in honor of Joseph J. Pignatello

A. MacKay, M. Sander, B. Xing, *Organizers*
F. Xiao, D. Zhao, *Organizers, Presiding*

1:30 343. Photochemical production of reactive species in algal cultivation systems by photo-excitation of algal-excreted extracellular organic matter. R. Tenorio, J. Guest, **T.J. Strathmann**

2:00 344. Degradation of organic contaminants by free radicals in biochars. **B. Pan**, J. Yang, M. Wu, X. Dong, J. Peng, B. Xing

2:30 345. Intricacy of dissolved organic carbon release from biochars and its implications to antibiotics sorption. **W. Zhang**, C. Liu, H. Li, B.J. Teppen, S. Boyd

3:00 Intermission.

3:15 346. Novel high-capacity and photo-regenerable material for efficient removal of polycyclic aromatic hydrocarbons. **D. Zhao**, W. Liu, Z. Cai, S. O'Reilly

3:45 347. Predicting organic cation sorption coefficients: Accounting for affinity and abundance of exchange ions using a probe molecule. W.C. Jolin, R. Goyetche, K. Carter, J. Medina, D. Vasudevan, **A. MacKay**

4:15 348. Interactions of metallic species with thermally air-oxidized black carbon (char) In the presence of soil organic matter. **F. Xiao**, R. Hanson, N. Lindstrom

4:40 349. Heterogeneous Fenton reaction at circumneutral pH: Myths and facts. **A. Pham**

5:05 350. Photochemical processes in estuarine and coastal waters. **K.M. Parker**, W. Mitch

Section C

Loews Philadelphia Hotel
Regency Ballroom C

Nanotechnology for Environmental Solutions & Remediation

M. Cledon, K. D. Hristovski, *Organizers*
D. Barcelo, *Organizer, Presiding*

1:30 351. Nanotechnology for value-addition and decontamination. **S. Brar**

2:00 352. Antibacterial $Ti_3C_2T_X$ MXene nanosheets: Towards advanced wastewater treatment membranes. **K. Rasool**, M. Helal, A. Ali, C. Ren, Y. Gogotsi, K.A. Mahmoud

2:25 353. Natural organic matter effects on bacterial tolerance of silver ion and silver nanoparticles. **A.J. Bertuccio**, R.D. Tilton

2:50 354. Bacterial responses and resilience in environmental and engineered systems challenged with CuO nanoparticles. **J.D. Moore**, A.J. Bertuccio, R.D. Tilton, G. Lowry, K.B. Gregory

3:15 355. Impacts of nanoparticles on population-level behavior in bacteria: Quorum sensing and autolysis. **E. McGivney**, J.M. Vanbriesen, K.B. Gregory

3:40 Intermission.

3:55 356. Withdrawn.

4:20 357. High fluoride removal capacity by hybrid anion exchanger dispersed with hydrated zirconium oxide nanoparticles synthesized through a novel route. S. Naskar, **S. Sarkar**

4:45 358. Simultaneous removal of fluoride and nitrate by ion exchange media impregnated with alumina nanoparticles. J. Markovski, **K.D. Hristovski**, P.K. Westerhoff

5:10 359. Capture of nitrogen in euthrophic fresh water by Nanochar. M. Naghdi, S. Brar, **M. Cledon**

Loews Philadelphia Hotel
Commonwealth Hall A2

Applied Catalysis for Environmental Applications

A. Savara, S. Zhao, *Organizers*
A. Orlov, *Organizer, Presiding*

1:30 Introductory Remarks.

1:35 360. Focusing light into nanostructures for water splitting. S. Bahauddin, H. Robatjazi, C. Doiron, X. Liu, T. Tumkur, W. Wang, B. Jiang, P. Wray, **I. Thomann**

2:05 361. In situ XANES/EXAFS and DRIFTS studies on CO_2 photoreduction with H_2O by Cu/TiO_2 photocatalyst. **Y. Li**, L. Liu, J. Miller

2:35 362. Silver-inserted zinc rhodium oxide and bismuth vanadium oxide for overall water-splitting under red light. **H. Irie**

3:05 363. Hot electrons generated from upconversion process in doped quantum dots for enhanced photocatalysis. **D.H. Son**

3:30 Intermission.

3:55 364. Achieving sustainable water treatment: Graphitic carbon nitride for persistent waterborne contaminant removal with visible light irradiation. **D. Shuai**, Q. Zheng

4:20 365. One-step synthesis of graphene foams attached with TiO_2 sheets for water treatment. **W. Wang**, Z. Wang, J. Liu, Z. Zhang, L. Sun

4:45 366. Triplet-triplet annihilation upconversion for semiconductor photocatalyst sensitization using sub-bandgap photons: Initial successes and applications in environmental remediation. **A.L. Hagstrom**, H. Kim, C. Li, J. Kim

5:05 Concluding Remarks.

Loews Philadelphia Hotel
Washington C

Chemistry of Biomass Wastes Conversion to Energy & Chemicals

Cosponsored by ENFL
A. Abbas, M. Zhao, *Organizers*
S. Spatari, M. Tu, *Organizers, Presiding*

1:30 367. Alkaline thermal treatment of Biomass to produce high purity H_2 with in-situ carbon capture. **H. Zhou**, A.A. Park

1:50 368. Exploration of Na_2ZrO_3 as both CO_2 acceptor and reforming catalyst for hydrogen production from biomass gasification. **M.H. Memon**, H. Zhuo, M. Zhao

2:10 369. Pseudo-component method to predict interaction features of biowaste and plastics. Y. Long, **H. Zhou**, A. Meng, Q. Li, Y. Zhang

2:30 370. Withdrawn

2:50 Intermission.

3:05 371. Behavior of dioxin in biomass waste chemical looping process: Thermodynamic simulation and pilot-scale demonstration. **X. Hua**, W. Wang

3:25 372. Design of co-gasification of dried sludge and woody biomass for synthesis gas production in a fixed bed downdraft gasifier using ASPEN PLUS. **V.S. Sikarwar**, M. Zhao

3:45 373. Exploiting the catalytic activity of clay minerals on *in situ* upgrading of pyrolysis biofuels with simultaneous production of heterogeneous adsorbents for water treatment. G. Dou, **J.L. Goldfarb**

4:05 374. Potential of pyrolytic coconut shell as a sustainable bio-filler for natural rubber. **Y. Fan**, G.D. Fowler, C. Norris

4:25 375. Transformation of nitrogen and phosphorus during (hydro)thermal treatments of biosolids. **R. Huang**, Y. Tang

Section F

Loews Philadelphia Hotel
Congress A

Elements Old & New: Discoveries, Developments, Challenges & Environmental Implications

Cosponsored by CEI, HIST and NOM
T. C. Williamson, *Organizer*
M. A. Benvenuto, *Organizer, Presiding*

1:30 376. Natural history of the periodic table of (available) elements. **B.J. McFarland**

2:00 377. Rare earth elements: Purification, sustainability and recycling. **E.J. Schelter**, B. Cole, P. Carroll

2:20 378. Analytical methodologies for arsenic, selenium and mercury: A historical perspective. **L.H. Kolopajlo**

2:40 379. It's all in the sludge: Elements that are always byproducts. **M.A. Benvenuto**, G. Nguyen, J. Pothoof

3:00 380. Mobility of naturally-occurring radioactive materials (NORM) in bit cuttings from unconventional drilling operations. **E. Eitrheim**, A. Nelson, T. Forbes

3:20 Intermission.

3:30 381. Where do metals come from? Using the context of portable electronics in general chemistry curricula. **B.D. Fahlman**

3:50 382. Polonium-210 accumulates in lake bottom sediments: What are the radioecological implications? **A. Nelson**, T. Forbes, M.K. Schultz

4:10 383. Hydrogen to livermorium: A philatelic history of the periodic table. **D. Rabinovich**

4:30 384. Palladium: The word, the element, and its place in society. **G.W. Ruger**

4:50 Concluding Remarks.

Section G

Loews Philadelphia Hotel
Congress B

Water Purification Systems

Cosponsored by CEI
S. Ahuja, *Organizer, Presiding*

1:30 385. Investigation of radical chlorine species in advanced oxidation processes. **J. Castillo**, S.P. Mezyk

1:55 386. Rate constant determination for alkyl nitrates and oxidizing radicals utilized in advanced oxidative processes. **S. Arciva**, B. Daws, S.P. Mezyk, M.P. Schramm

2:20 387. Investigation of thermal chloramine reaction kinetics occurring in treated wastewaters. **J. Gleason**, S.P. Mezyk, K.P. Ishida

2:45 388. Application of bromine ($HOBr/OBr^-$) for saltwater disinfection. **Y. Jung**, Y. Jung, J. Kang

3:10 Intermission.

3:30 389. Selective silica separations from waste water using ion-exchange media. **K. Sasan**, P. Brady, T.M. Nenoff

3:55 390. Graphene oxide/magnesium(Hydr)oxide nanocomposites as superior sorbents for methylene blue removal from aqueous solutions. **M. Heidarizad**, S.S. Sengor

4:20 391. Assessment of sludge wastes generated from selected water treatment plants for use as soil conditioner and plant fertilizer in Nigeria. **E. Inam**, E. Dan, K. Funtula, J. Essien, K. Semple, A. Odon, S. Kang

4:45 392. Determination of nitrate anion in waste water from nine selected areas of coastal Guyana via a spectrophotometric method. **R.C. Jagessar**

5:10 Concluding Remarks.

Loews Philadelphia Hotel
Congress C

C. Ellen Gonter Graduate Student Awards

T. Anderson, *Organizer, Presiding*

1:30 Introductory Remarks.

1:35 393. Identification and toxicological evaluation of unsubtituted and novel PAH derivatives in pavement sealcoat products. **I. Titaley**, A. Chlebowski, L. Truong, R.L. Tanguay, S.L. Simonich

2:00 394. Development of polymer-iron oxide hybrid nanofiber networks for metal sequestration in point-of-use water treatment applications. **K. Greenstein**, G. Parkin, D.M. Cwiertny

2:25 395. Seasonal and spatial variabilities in the water chemistry of prairie pothole wetlands influence the photoproduction of reactive intermediates. **A.J. McCabe**, W. Arnold

2:50 396. Chlorination revisited: Does Cl^- serve as a catalyst in the chlorination of phenols? **S. Lau**, S. Abraham, A. Roberts

3:15 Intermission.

3:30 397. Halogen radicals as an unrecognized source of marine photo-oxidants in coastal waters. **K.M. Parker**, W. Mitch

3:55 398. Destruction of iodinated pharmaceuticals by UV-254 nm based advanced oxidation processes. **X. Duan**, X. He, S.P. Mezyk, R. Marfil-Vega, D.D. Dionysiou

4:20 399. Sorption of dioctyl sodium sulfosuccinate to coastal Gulf of Mexico sediment. **B.S. Adewale**, B.J. Brownawell

Experimental Studies of the Molecular Scale Processes at Environmental Interfaces
Interface Structure & Oxides
Sponsored by GEOC, Cosponsored by ENVR

Green Chemistry Innovations & Opportunities in Industry for Young Professionals
Sponsored by I&EC, Cosponsored by CATL, CEI, CHAS, ENFL, ENVR, ORGN, POLY, PROF and YCC

USA-China Symposium on Energy
Sponsored by ENFL, Cosponsored by ENVR

Chemistry, Safety & Technology of GMO Foods
Sponsored by AGFD, Cosponsored by AGRO, CEI‡, COMSCI and ENVR‡

Novel Nanomaterials
Porous Materials & Other Nanoparticles
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Agrochemicals & Pollinators: Current Science & Risk Assessment Approaches
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Innovative Chemistry & Materials for Electroenergy Production & Storage
Electrocatalysis
Sponsored by ENFL, Cosponsored by ENVR and MPPG

2D Materials: Graphene & Beyond & their Device Applications
Sponsored by ENFL, Cosponsored by ENVR

Advances in Metabolism, Metabolomics & Mass Spectrometry
Sponsored by AGRO, Cosponsored by ANYL and ENVR

Environmental Risk Assessment of Down-the-Drain Chemicals
Sponsored by AGRO, Cosponsored by ENVR

Environmental Study Design: Current & Emerging Guidelines
Sponsored by AGRO, Cosponsored by ENVR

Glyphosate: Current Status & Future Prospects
Sponsored by AGRO, Cosponsored by AGFD and ENVR

Increasing the Value of Water Monitoring Data for Pesticide Fate & Effects Evaluations
Sponsored by AGRO, Cosponsored by ENVR and TOXI

Advances in Chemistry of Energy & Fuels
Batteries
Sponsored by ENFL, Cosponsored by ENVR and MPPG

WEDNESDAY MORNING

Section A

Loews Philadelphia Hotel
Commonwealth Hall A2

Nanomaterials in the Environment & Biological Systems

Physicochemical & Biological Processes Affecting Their Transformation & Transport

W. H. Lee, P. Yi, *Organizers*
S. Joo, *Organizer, Presiding*

8:30 400. Detection and quantification of engineered nanoparticles from water and wastewater using modified silica microspheres. **X. Wei**, S. Brenner, M. Carpenter

8:55 401. Role of aspect ratio on gold nanomaterial transport through saturated porous media. **D. Das**, A. Hornstra, N. Burrows, C.J. Murphy, P.J. Vikesland, **N.B. Saleh**

9:20 402. Release of carbon nanotubes from polypropylene-carbon nanotube composites by solar-induced weathering. **E. Sahle-Demessie**, C. Han, A. Zhao, H. Grecsek

9:45 403. Development of model systems to explore potential mass transfer from nanotechnology-enabled plastics into foods and the environment. K. Pillai, P. Gray, A. Bajaj, R. Bleher, C. Tien, L. Sung, **T.V. Duncan**

10:10 Intermission.

10:25 404. Influence of surface functional groups on the degradation of graphene nanomaterials in the aquatic environment. **I. Chowdhury**, L.M. Guiney, M. Hersam

10:50 405. Release potential of consumer products containing engineered nanomaterials. **E. Barnes**, J. Brame, D.P. Martin, J.G. Coleman, A.J. Kennedy, M.D. Robert, C. Weiss, A.R. Poda, A.J. Bednar, J.A. Steevens

11:15 406. Investigating interfacial reactions of nano-ZnO particles with contaminants. **S. Joo**, S. Seo, M.R. Knecht, R. Lawrence, C. Su

11:40 407. Monitoring the mass distribution during silver nanoparticle transformations in simulated environmental media. **J.M. Pettibone**

Section B

Loews Philadelphia Hotel
Washington A

Chemistry of Environmental Sorptive & Oxidative Processes: Symposium in honor of Joseph J. Pignatello

A. MacKay, M. Sander, B. Xing, D. Zhao, *Organizers*
F. Xiao, *Organizer, Presiding*

8:00 Introductory Remarks.

8:10 408. Activated carbon-mediated alkaline hydrolysis of alkyl halides (methyl bromide). **H. Hsieh**, J.J. Pignatello

8:35 409. Adsorption and desorption of organic compounds by humic acid-coated carbon nanotubes. **W. Wu**, B. Xing

9:00 410. Nanoparticles of pyrogenic carbonaceous material: Characterization and interactions with engineered nanoparticles. **P. Yi**, J.J. Pignatello

9:25 411. Regulation of morphological wrinkles and folds on activated graphene nanosheets for high-efficient removal of hydrophobic organic contaminants. **J. Wang**, B. Chen, B. Xing

9:50 Intermission.

10:05 412. Enthalpy of oxidation for characterized soils for use in groundwater remediation. **N. Moulton**, S.P. Mezyk, M. Becker

10:30 413. Cation-Pi interaction: An unnegligible interaction for ionizable compounds' sorption on pyrogenic carbonaceous materials. **Q. Zhao**

10:55 414. H/C atomic ratio as a mediate parameter between pyrolysis temperature, aromatic cluster and sorption ability of biochar to naphthalene and phenanthrene. **X. Xiao**, B. Chen

11:20 415. As (V) removal by activated iron powder enhanced by amorphous iron oxides in simulated wastewater. **L. Xu**, Y. Huang

Section C

Loews Philadelphia Hotel
Commonwealth Hall C

Nanotechnology for Environmental Solutions & Remediation

D. Barcelo, M. Cledon, *Organizers*
K. D. Hristovski, *Organizer, Presiding*

8:00 416. Recyclable magnetic Co-ferrite nanoparticles for the removal of 2-phenylbenzimidazole-5-sulfonic acid (PBSA) in water. **A. Al Anazi**, W. Abdelraheem, C. Han, L. Sygellou, M. Arfanis, P. Falaras, D.D. Dionysiou

8:25 417. Adsorption of phenanthrene by superfine powdered activated carbon and electrospun polystyrene nanofiber composites. **O.G. Apul**, N. Hoogesteijn, D. Ladner, P.K. Westerhoff

8:50 418. Designed mesoporous materials/polyvinylidene fluoride hybrid membranes for sequestration of large-sized dissolved organic pollutants. **W. Teng**, J. Fan, W. Zhang, D. Zhao

9:15 419. Methylation of hemoglobin to enhance flocculant performance. **M. Essandoh**, R.A. Garcia, G. Strahan

9:40 Intermission.

9:55 420. Nanoparticle-supported lipid bilayers as an in-situ remediation strategy for persistent organic contaminants in the soil environment. P. Garlapati, S.L. Wunder, **B. Kim**

10:20 421. Phenol oxidation by persulfate catalyzed by core-shell structured nanosized zero-valent iron. **C. Kim**, T.T. Trinh, J. Ahn, I. Hwang

10:45 422. Metabolic responses of *Mytilus galloprovincialis* to fullerene soot in microcosms exposure experiments. **D. Barcelo**, J. Sanchis, M. Farre

11:10 423. Mechanisms of developmental toxicity of metal oxide nanoparticles in marine organisms. **C. Torres**, B. Wu, K. Ramos, C.J. Chang, G.N. Cherr

11:35 424. Nanoparticle effects on plants. **T. Vanek**, P. Landa

Section D

Loews Philadelphia Hotel
Washington B

Applied Catalysis for Environmental Applications

A. Savara, S. Zhao, *Organizers*
A. Orlov, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 425. Mathematical modeling and simulation of a non-isothermal photocatalytic solar CPC reactor: Effect of the temperature on the kinetic of reaction rate. **M. Mueses**, F. Machuca-Martínez, M. Molano-Mendoza

8:25 426. Enhanced photocatalytic treatment of pharmaceuticals using immobilized nanocomposite thin films. **L. Lin**, H. Wang, P. Xu

8:45 427. Nano-sized ruthenium compound as a true catalyst for water oxidation in the reaction of ruthenium red and cerium (IV) ammonium nitrate. **A. Shirazi Amin**, M. Najafpour, B. Sarvi, S. Hosseini, B. Deljoo, A. El-Sawy, M. Aindow, S.L. Suib

9:05 Intermission.

9:25 428. Sustainable treatment of nitrate using a novel three-phase trickle-bed reactor. **C.J. Werth**, A. Bergquist, T.J. Strathmann, G. Gildert

9:55 429. Carbon-based bimetal hybrids for catalytic hydrodehalogenation of trichloroethylene. **J. Jiao**, K. Meduri, O.J. Graham , P.G. Tratnyek

10:25 430. Catalytic hydrodechlorination of triclosan using resin supported palladium. **D. Zhao**, B. Han, J. Wang, J. Li

10:55 431. Catalytic hydrogenation of 4-nitrophenol by palladium-resin composites. **H.J. Zhang**, N. Jadbabaei

11:20 432. Microbial synthesis of Pd/Fe_3O_4, Au/Fe_3O_4 and $PdAu/Fe_3O_4$ nanocomposites for catalytic reduction of nitroaromatic compounds. **T. Ya**

11:40 Concluding Remarks.

Loews Philadelphia Hotel
Washington C

Chemistry of Biomass Wastes Conversion to Energy & Chemicals

Cosponsored by ENFL
A. Abbas, M. Tu, M. Zhao, *Organizers*
S. Spatari, *Organizer, Presiding*

8:30 433. Valorisation of biomass derivatives *via* cross metathesis to PET precursor compounds. **E. Saraci**, L. Wang, K.H. Theopold, R.F. Lobo

8:50 434. Catalytic mechanism of iron salts in CO_2 activation and magnetization of low-grade hydrochar from biomass waste for removal of pharmaceutical and personal care products. F. Qian, X. Zhu, Y. Liu, **S. Zhang**, J. Chen

9:10 435. Turning lignocellulose waste into solvent with lower carbon footprint. **J. Mellentine**, A. DeVierno, L.N. Grice, **J. Whitford**

9:30 436. Co-adsorption behavior of perfluorochemicals(PFCs) and hexavalent chromium anions on aminated wheat straw. **T. Zhao**, X. Yao

9:50 Intermission.

10:05 437. Electrochemical deoxygenation of lignocellulosic pyrolysis oil: process understanding for prospective life cycle assessment. **P.M. Billen**, Y. Sorunmu, D. Santosa, R. Rousseau, V. Glezakou, J. Elwell, J. Hartvigsen, S. Elangovan, M. Karanjikar, S. Spatari

10:25 438. Characterization of a carbon-based biochar from grape seed pyrolysis: Towards industrial waste recycling. **N.F. Adegboyega**, M.A. Kelm, C. Cunningham, W.C. Hockaday

10:45 439. Computational comparison of biomass pretreatments: Cellulose deconstruction under water-cosolvent conditions. **M.D. Smith**, X. Cheng, L. Petridis, B. Mostofian, J.C. Smith

11:05 440. Improvement of the treatment effectiveness of heavy metals with energy sunflower plants with calcium peroxide and phytohormones. **T. Yeh**

11:25 441. Enhanced biodiesel cold flow properties by triacetin production via interesterification. **L. Soh**, M. Senra, R. Elias

Loews Philadelphia Hotel
Congress A

Microbial & Molecular Tools to Determine the Fate & Biotransformation of Emerging Contaminants

Cosponsored by AGRO
U. Tezel, *Organizer*
B. Z. Haznedaroglu, S. G. Pavlostathis, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 442. Combining high throughput omics tools with targeted DNA, RNA and protein quantification techniques to model respiration rates of specific organohalide contaminants by *Dehalococcoides* strains. **R. Richardson**, G.L. Heavner, C. Mansfeldt, A. Rowe, J.J. Werner

8:50 443. Biomarkers for validating 1,4-dioxane biodegradation in contaminated groundwater. **P. Gedalanga**, S. Zhang, Y. Miao, S. Mahendra

9:15 444. Catabolic biomarkers for sensitive and fast quantification of 1,4-dioxane biodegradation activities at impacted aquifers. **M. Li**, Y. Liu, Y. He, Y. Yang, J. Mathieu, P.J. Alvarez

9:40 Intermission.

10:00 445. Understanding the metabolism of 4-OH-2',5'-dichlorobiphenyl by the model plant *Arabidopsis thaliana* using whole-genome expression microarrays. **B. Van Aken**, S. Subramanian

10:25 446. Micropollutant biotransformation in activated sludge: Exploring linkages between observed reaction types and microbial community characteristics. **S. Achermann**, P. Falås, Y. Men, C. Mansfeldt, A. Joss, H. Singer, K. Fenner

10:50 447. Novel oxygenase detoxifies benzalkonium chlorides in the environment. E. Ertekin, **U. Tezel**

11:15 448. Differential sensitivity of wetland-derived nitrogen cycling microorganisms to copper nanoparticles. V.C. Reyes, N. Merino, P. Gedalanga, J. Van Nostrand, S. Keely, S. De Long, J. Zhou, **S. Mahendra**

Section G

Loews Philadelphia Hotel
Congress B

Disinfection By-Products: What Have We Learned about Dissolved Organic Matter Precursors?

Financially supported by AEESP
L. M. Blaney, O. Keen, J. A. Korak, *Organizers*
A. T. Chow, M. Gonsior, H. Liu, *Organizers, Presiding*

8:00 Introductory Remarks.

8:10 449. Effect of chlorination on the algal toxin microcystin: A non-targeted screening for disinfection by-products. **M. Gonsior**, J. Luek, P. Schmit-Kopplin

8:35 450. Dissolved organic matter and disinfection byproduct precursors in Coastal Blackwater River – A case study of South Carolina flooding. **A.T. Chow**, A.M. Ruecker, H. Uzun, T. Karanfil, M.T. Tsui

9:00 451. Withdrawn.

9:25 452. Microbial diversity and DBP formation potential of biofilms harvested from different pipe materials. **H. Tung**, G. Wang

9:50 Intermission.

10:10 453. Algal organic matter as precursors for nitrosamines: The importance of biomolecules. **N. Dai**, W. Tomkiewicz

10:35 454. Comparison of nitrosamine precursors in natural and anthropogenic inputs to drinking water treatment plants. **C. Glover**, T. Zeng, E. Marti, W. Mitch, E. Dickenson

11:00 455. Predicting trihalomethane formation using classification trees. **L. Strahs**, M.J. Small, J. Wilson, J.M. Vanbriesen

11:25 456. Exports of dissolved organic carbon and disinfection byproduct precursors from prescribed burnt forests. W. Zhang, H. Uzun, U. Cerdem, C. Olivares, T.A. Coates, F. Rogers, T. Karanfil, **A.T. Chow**

Section H

Loews Philadelphia Hotel
Congress C

Recent Advances in Remediation Strategies & Technologies for the Cleanup of Hazardous Waste Sites

E. R. McKenzie, *Organizer*
A. Pham, *Organizer, Presiding*

8:00 Introductory Remarks.

8:10 457. Major characteristics and challenges of treatment of high pH, high Si groundwater at a contaminated site in western Washington. **G. Korshin**, M.M. Benjamin

8:30 458. Mechanism for simultaneous removal of ^{99}Tc and Cr by $Fe(OH)_2$ mineral transformation. **S. Salow**, W. Um, D. Kim, M.J. Schweiger, M. Engelhard, M.E. Bowden, A.A. Kruger, W.W. Lukens

8:50 459. Unintended impacts of *in situ* biostimulation on sustained bioremediation: Iron (II) sulfide precipitation and pH reduction. **N. Capiro**, T. Marcet, Y. Yang, S. Gaeth, F. Loeffler, K.D. Pennell

9:10 460. Application of nanoparticulate zerovalent iron coupled with polyphosphate for groundwater remediation: A sequential redox treatment, stablity, and toxicity. **H. Kim**, M. Kim, H. Kim, C. Lee

9:30 461. Utilizing geochemical modeling to assess in situ bio-reduction/immobilization of uranium at an in situ recovery mining site utilizing membrane infused gaseous hydrogen. **L. Haynes**, L.W. Clapp

9:50 Intermission.

10:05 462. Is phytoremediation of asbestos contaminated sites feasible? **C. Gonneau**, S.K. Mohanty, J. Willenbring, B. Casper

10:25 463. Is bioremediation of asbestos fibers feasible? **S.K. Mohanty**, C. Gonneau, A. Salamatipour, B. Casper, J. Willenbring

10:45 464. Comparison of the bioavailability and bioaccessibility of TCDD from candidate in-situ sorbent amendments. **J.B. Sallach**, Y. Zhang, R. Crawford, N.E. Kaminski, H. Li, C.T. Johnston, B.J. Teppen, S.A. Boyd

11:05 465. *In situ* and down-hole diagnostic tools for site characterization and remediation. **E.M. Driver**, I.B. Roll, S.D. Supowit, R.U. Halden

11:25 466. Fouling mechanism and control strategies during microfiltration of inorganic colloids. **R. Malaisamy**, R. Rollock, Y. Fennell, K.L. Jones

Experimental Studies of the Molecular Scale Processes at Environmental Interfaces
Redox
Sponsored by GEOC, Cosponsored by ENVR

USA-China Symposium on Energy
Sponsored by ENFL, Cosponsored by ENVR

Chemistry, Safety & Technology of GMO Foods
Sponsored by AGFD, Cosponsored by AGRO, CEI‡, COMSCI and ENVR‡

Environmental Fate, Transport & Modeling of Agriculturally-Related Chemicals
Sponsored by AGRO, Cosponsored by ENVR

Novel Nanomaterials
Advanced Catalysts for Fuel Production
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Progress in Coal to Liquids & Gases
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Computational Chemistry & Toxicology in Chemical Discovery & Assessment (QSARs)
Sponsored by AGRO, Cosponsored by COMP, ENVR and TOXI

Innovative Chemistry & Materials for Electroenergy Production & Storage
Li-S Batteries
Sponsored by ENFL, Cosponsored by ENVR and MPPG

2D Materials: Graphene & Beyond & their Device Applications
Sponsored by ENFL, Cosponsored by ENVR

Advances in Chemistry of Energy & Fuels
Batteries, CO2 Capture, Pyrolysis Modeling & Others
Sponsored by ENFL, Cosponsored by ENVR and MPPG

WEDNESDAY AFTERNOON

Section A

Loews Philadelphia Hotel
Commonwealth Hall A2

Nanomaterials in the Environment & Biological Systems

Physicochemical & Biological Processes Affecting Their Transformation & Transport

S. Joo, P. Yi, *Organizers*
W. H. Lee, *Organizer, Presiding*

1:30 467. Comparative toxicity effects of carboxylated carbon nanotubes to fresh water and marine algae. **M. Thakkar**

1:55 468. Contrasting effects of graphene materials on microbial reduction of nitrobenzene and ferrihydrite. **G. Liu**, J. Zhou, X. Zhang, N. Wang

2:20 469. Uptake, distribution, and effects of nano alumina in terrestrial plants at the cellular and macro-scale levels. J. Mui, K. Hayes, **B. Kim**

2:45 470. Effect of soil organic content on the absorption of two commercial ZnO nanomaterials and its influence in nutrient composition of red kidney beans (*Phaseolus vulgaris var.* Red Hawk). **I.A. Medina-Velo**, A.C. Barrios, O.E. Dominguez, J.A. Hernandez-Viezcas, J.L. Gardea-Torresdey

3:10 Intermission.

3:25 471. Lipid exchange envelope penetration (LEEP) of nanoparticles for plant engineering: A universal localization mechanism. **M. Wong**, R. Misra, J. Giraldo, S. Kwak, Y. Son, M. Landry, J.W. Swan, D. Blankschtein, M. Strano

3:50 472. Activated sludge microbial community response to variations in gold nanoparticle morphology and surface coating. **J. Metch**, P.J. Vikesland, C.J. Murphy, N. Burrows, A. Pruden

4:15 473. Impacts of silver nanoparticle transformations on *Pseudomonas Aeruginosa GFP* biofilm. **T. Adegboye**, K.L. Jones, P. Ymele-leki, M. Ramamoorthy, Y. Fennell

4:40 474. Electrochemical micro/nano-sensor for *in situ* monitoring of nutrients and chemical compounds in engineered and natural aquatic systems. **W.H. Lee**, X. Ma, J. Church

Section B

Loews Philadelphia Hotel
Washington A

Chemistry of Environmental Sorptive & Oxidative Processes: Symposium in honor of Joseph J. Pignatello

A. MacKay, M. Sander, B. Xing, D. Zhao, *Organizers*
F. Xiao, *Organizer, Presiding*

1:30 475. Biochars as adsorbents for microcystin-LR removal: Effects of pyrolysis temperature and resulting physicochemical properties. Z. Wang, **H. Zheng**, J. Zhao, X. Luo, X. Su, B. Xing

1:55 476. Advanced oxidation process for DNAN using UV/H_2O_2. **S. Hailei**, C. Christodoulatos, B. Smolinski, P. Arienti, X. Meng

2:20 477. Laccase-catalyzed degradation of sulfadimethoxine in the presence of natural mediators. **S. Liang**, Q. Luo, Q. Huang

2:45 478. Enhanced aerobic diclofenac removal with sulfide modified nanoscale zero valent iron (S-nZVI) as substitute of nanoscale sero valent iron (nZVI) in nZVI/O_2 system. **Y. Su**, X. Zhou, Y. Zhang

3:10 Intermission.

3:25 479. Solubility enhancement and QSPR correlations for polycyclic aromatic hydrocarbons complexation with cyclodextrins: A model for dissolved organic matter. **W. Blanford**, H. Gao, E.B. Ledesma

3:50 480. Withdrawn.

4:15 481. Enhancement on Fenton system by N-substituted hydroxylamines. **L. Chen**, Y. Huang, J. Zhang, B. Wu, P. Wang

4:40 482. Selective catalytic reduction of NO with NH_3 over MoFe/Beta catalysts: Effect of Mo loading. **J. Liu**, J. Liu, Z. Zhao

5:05 483. Quantum chemical investigations on oxidation pathways of PPCPs by singlet state oxygen and ozone. **S. Zhang**

Section C

Loews Philadelphia Hotel
Commonwealth Hall C

Nanotechnology for Environmental Solutions & Remediation

D. Barcelo, K. D. Hristovski, *Organizers*
M. Cledon, *Organizer, Presiding*

1:30 484. Fiber optics as a fixed-film substrate for photocatalysis via UV-LED irradiation. **H. Stancl**, L. Ling, J. Kim, P.K. Westerhoff, K.D. Hristovski

1:55 485. Reductive photocatalysis of azo dyes using TiO_2 nano-particles in the presence of some natural anti-oxidants as hole scavengers. **M. Doshi**, U.D. Patel, B. Shah, J. Ruparelia

2:20 486. Facile fabrication of stable monolayer graphene in water for super-high adsorption of aromatic pollutants. **K. Yang**, B. Chen, J. Wang

2:45 487. Size effects of graphene nanosheets on the adsorption capability of three-dimensional graphene-based macrostructures. **Y. Shen**, B. Chen

3:10 Intermission.

3:30 488. From coal fly ash to ordered mesoporous nano-silica: A novel twice-carbonation strategy. **F. Yan**, J. Jiang, M. Zhao, Y. Xu

3:55 489. Membrane gas separation accelerated by hollow nanospheres. **J. Zhang**, S.M. Mahurin, S. Dai

4:20 490. Reprogrammable multiplexed visual detection of mercury and silver ions with picomolar sensitivity. **M. Rana**, M. Balcioglu, M.V. Yigit

4:45 491. Microplasma-assisted rapid synthesis of luminescence nitrogen-doped carbon dots for uranium detection. **Z. Wang**, Y. Lu, J. Chen

Section D

Loews Philadelphia Hotel
Washington B

Applied Catalysis for Environmental Applications

A. Orlov, A. Savara, S. Zhao, *Organizers*
S. Zhao, *Presiding*

1:30 492. Development of a base metal three way catalyst for motorcycle development of a base metal based three-way catalyst for motorcycles. **P. Tran**, Y. Liu, H. Horimura, A. Isawa, K. Ueno

1:55 493. Sodium carbonate optimized dual functional material for CO_2 adsorption and catalytic conversion to methane. **S. Wang**, R.J. Farrauto, D. Eida

2:20 494. Application of Pt@CeO_2 core/shell structures for low temperature oxidation of CO and CH_4. **S.P. Phivilay**, K. Takanabe, P. Fornasiero

2:45 495. Pt-Based nanotube structures without carbon supports for fuel cell catalysts. **S. Kim**, S. Park

3:10 Intermission.

3:25 496. Degradation of methyl parathion using citrate stabilized gold nanoparticles. R. Nita, S. Trammell, G. Ellis, M. Moore, C.M. Soto, D.H. Leary, J. Fontana, S.F. Talebzadeh, **D. Knight**

3:50 497. Waste reduction in a continuous bulk polymerization process with chemistry that matters. **D. Li**, G. Flowers

4:15 498. Solar photocatalytic degradation of emergent contaminants in a pilot-scale CPC reactor. J.A. Colina-Marquez, **M.A. Mueses**

4:40 499. Chitosan/hydroxyapatite/Fe_3O_4 magnetic composite for metal-complex dye AY220 removal: Recyclable metal-promoted fenton-like degradation. **L. Wu**, K. Xu, X. Hou

5:05 Concluding Remarks.

Loews Philadelphia Hotel
Washington C

Creating & Exploiting Salinity Gradients

C. Gorski, B. E. Logan, M. S. Mauter, *Organizers, Presiding*

1:30 Introductory Remarks.

1:40 500. Salinity gradient energy with PRO, RED, and CapMix: Prospects, progress, and challenges. **N. Yip**

2:10 501. Relating charge efficiency and ion removal in electrochemical deionization systems. **S. Shanbhag**, J.F. Whitacre, M.S. Mauter

2:30 502. Modeling convective and diffusive mass transport in capacitive deionization electrodes. **A. Iddya**, M.S. Mauter, S. Shanbhag

2:50 503. Net energy output of salinity gradient power generation with pressure-retarded osmosis: What configurations Are feasible? **A. Straub**, A. Deshmukh, M. Elimelech

3:10 504. Salinity-gradient flow battery for converting salinity differences to electrical power. **T. Kim**, M. Rahimi, B.E. Logan, C. Gorski

3:30 Intermission.

3:50 505. Specific ion effects in charged polymer membranes. **Y. Ji**, G.M. Geise

4:10 506. Electricity generation from natural and engineered salinity gradients using reverse electrodialysis. **D.F. Call**, R. Kingsbury, C. Boggs, S. Zhu, F. Liu, O. Coronell

4:30 507. Ion exchange membrane resistance: Modeling and simulation of membrane characteristics and concentration dependency and its implication in reverse electrodialysis. **B. Zhang**, J.G. Hong, S. Xie, Y. Chen

4:50 508. Osmotic ballasts improve the energy efficiency of closed-loop electrodialytic processes. **R. Kingsbury**, O. Coronell

5:10 509. Application of thermally regenerative battery to remove copper from wastewate. **M. Rahimi**, Z. Schoener, X. Zhu, F. Zhang, C. Gorski, B.E. Logan

Loews Philadelphia Hotel
Congress A

Microbial & Molecular Tools to Determine the Fate & Biotransformation of Emerging Contaminants

Cosponsored by AGRO
B. Z. Haznedaroglu, S. G. Pavlostathis, *Organizers*
U. Tezel, *Organizer, Presiding*

1:30 510. Biotransformation and biodegradation of insensitive munitions compounds in soil. **J. Field**, R. Sierra-Alvarez, M. Krzmarzick, C.L. Madeira, C.I. Olivares, J.D. Chorover, L.M. Abrell

2:15 511. Biotransformation and inhibitory effect of furanic and phenolic compounds in the anode of a microbial electrolysis cell (MEC). X. Zeng, M.A. Collins, A. Borole, **S.G. Pavlostathis**

2:40 512. Microbial transformation of tetracycline and sulfonamide antibiotics. **X. Li**, Y. Leng, R. Levine, Y. Zhang, J. Bao, D.D. Snow, L. Durso

3:05 Intermission.

3:25 513. Aerobic and anaerobic biotransformation of N-ethyl perfluorooctane sulfonamide (N-EtFOSA) in soil from a constructed wetland. **T. Yin**, A. Pal, K.Y. Gin

3:50 514. Effects of residual antibiotics in groundwater on survival and pathogenicity of *Salmonella*. **B.Z. Haznedaroglu**, S.L. Walker

4:15 Concluding Remarks.

Section G

Loews Philadelphia Hotel
Congress B

Disinfection By-Products: What Have We Learned about Dissolved Organic Matter Precursors?

Financially supported by AEESP
A. T. Chow, M. Gonsior, H. Liu, *Organizers*
L. M. Blaney, O. Keen, J. A. Korak, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 515. Interaction between natural organic matter and oxidants: Reactivity, competition, oxidation by-product formation and precursor control. **U. von Gunten**

2:00 516. Ternary model to quantitate the speciation of chlorine, bromine and iodine containing trihalomethanes. **G. Korshin**, M. Yan

2:25 517. Formation of haloacetonitriles, haloacetamides and nitrogenous heterocyclic compounds from chloramination of resorcinol. **M. Nihemaiti**, J. Le Roux, J. Croue

2:50 518. Withdrawn.

3:15 Intermission.

3:35 519. Biases in non-targeted mass spectrometric disinfection by-product research. **J. Luek**, M. Gonsior

4:00 520. Use of an online LED UV fluorescence sensor for high time resolution DOM monitoring and predicting DBPs formation potential during water treatment. **W. Li**, M. Cao, M. Dodd, A. Li, G. Korshin

4:25 521. Application of a new online sensor for monitoring natural organic matter in drinking water treatment. **C. Moldaenke**, A. Dahlhaus, M. Wagner, D. Lohse, P.L. Schorr

4:50 522. Structure-property relationships between fulvic and humic acid sorbates and activated carbon sorbent. **M.J. Wells**, M.Y. Abouleish

5:15 Concluding Remarks.

Section H

Loews Philadelphia Hotel
Congress C

Recent Advances in Remediation Strategies & Technologies for the Cleanup of Hazardous Waste Sites

A. Pham, *Organizer*
E. R. McKenzie, *Organizer, Presiding*

1:30 523. Development of innovative technologies for the remediation of DNAPL source zones throughout their lifecycle. **D.W. Tomlinson**, E. Cox, D. Reynolds, G. Grant, D. Major, C. Ross, N.D. Durant

2:10 524. Kinetics and efficiency of contaminant oxidation by heat-activated persulfate: Implications for *in situ* remediation by EK-TAP technology. **A. Pham**, N. Zrinyi, M. Kondakow

2:30 525. Cometabolism of 1,4-dioxane and chlorinated solvent mixtures by *Rhodococcus rhodochrous* grown on isobutane. S. Thankitkul, S. Rich, M. Azizian, M. Hyman, **L. Semprini**

2:50 526. Headspace GC/PID for on-site screening of soil and water at hazardous waste sites. **J.N. Driscoll**, **J.L. Maclachlan**

3:10 527. Oxidative remediation of per- and polyfluoroalkyl substances. **T. Bruton**, D. Sedlak

3:30 Intermission.

3:50 528. Perfluoroalkyl acid (PFAA) transport in saturated porous media as affected by chemical oxidants and trichloroethylene (TCE). **E.R. McKenzie**, R.L. Siegrist, J.E. McCray, C.P. Higgins

4:10 529. Intramolecular transformations in fluorochemicals probed by chemical computations. **D.J. Van Hoomissen**, S. Vyas

4:30 530. Development of a novel time-release mechanism for water treatment polymer to promote sorption of perfluoroalkyl substances in groundwater environments. **M. McCarty**, M.F. Simcik, W. Arnold

4:50 531. New green remediation technology Ultrasound-assisted supercritical extraction applied to soil remediation. **T. Castelo-Grande**, P.A. Augusto, A.M. Estevez, D. Barbosa

5:10 Concluding Remarks.

USA-China Symposium on Energy
Sponsored by ENFL, Cosponsored by ENVR

Experimental Studies of the Molecular Scale Processes at Environmental Interfaces
Carbonates & Phyllosilicates
Sponsored by GEOC, Cosponsored by ENVR

Chemistry, Safety & Technology of GMO Foods
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Environmental Fate, Transport & Modeling of Agriculturally-Related Chemicals
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Novel Nanomaterials
Rational Design
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Heterogeneous Catalysis for Selective Oxidation & Reduction toward a Green Production
Selective Oxidation
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Computational Chemistry & Toxicology in Chemical Discovery & Assessment (QSARs)
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Innovative Chemistry & Materials for Electroenergy Production & Storage
Li-Ion & Li-O2 Batteries
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2D Materials: Graphene & Beyond & their Device Applications
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Advances in Chemistry of Energy & Fuels
Production, Refinery & Storage of Fuel Compounds
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WEDNESDAY EVENING

Section I

Pennsylvania Convention Center
Hall D

Advances & Challenges in Food-Energy-Water Nexus

Cosponsored by AGRO and CEI
S. Ahuja, S. Chae, I. Chowdhury, D. D. Dionysiou, Y. Lin, *Organizers*

6:00 - 8:00

532. Interaction forces between microalgae cells and membrane surface based on XDLVO theory in algae harvesting using axial vibration membrane. **F. Zhao**, Y. Zhang, H. Chu, X. Zhou

533. Effect of ozonization on biochar and Its organic compounds. A. Pullin, O. Sacko, M. Huff, **J.W. Lee**

534. Nutrient cycling in arid river corridors: Advancing the food-energy-water nexus by closing nutrient loops. **J. Mortensen**, R. González-Pinzón, C. Dahm, J. Wang, L. Zeglin, D. Van Horn

535. Water quality and public health: Role of wastewater. **T. Tongesayi**, S. Tongesayi

536. Analysis of ground turmeric samples with a handheld X-ray fluorescence analyzer. **M.Y. Wu**, S. Baghaie, S. Thomas, **M.A. Benvenuto**, E. Roberts-Kirchhoff

Section I

Pennsylvania Convention Center
Hall D

Advances in Innovative Designs & Process Cost Estimation Techniques for Advanced Water Purification Technologies

Y. G. Adewuyi, E. Sahle-Demessie, *Organizers*

6:00 - 8:00

537. Modification of polysulfone (PSF) hollow fiber membrane (HFM) with zwitterionic or charged polymers for water purification. **P. Wan**, M. Bernards, B. Deng

538. 1,4-Dioxane removal in flow-through water treatment system using combined ozone and ultrasound. **M. Dietrich**, R.C. Smith, **G. Andalari**, R.P. Suri

Section I

Pennsylvania Convention Center
Hall D

Advances in Understanding Antibiotics, Antibiotic Resistance Genes & Antibiotic-Resistant Bacteria in Engineered & Natural Environments

Cosponsored by AGRO
K. Chu, C. Huang, J. McLain, *Organizers*

6:00 - 8:00

539. Photocatalysis of triclosan and triclocarban by tetrapod zinc oxide and nitrogen-doped reduced graphene oxide. **M. Hwangbo**, B.S. Abada, Y. Shao, K. Chu

540. Investigating the photochemical fate of triclosan as a function of water quality parameters. **M. Petrie**, G. Waligroski, A.M. Grannas

541. Environmental influences and fate of triclosan in a Southeastern Pennsylvania watershed: Sources in the East Branch of the Brandywine Creek. **G. Waligroski**, K. Hanley, A.M. Grannas, S. Goldsmith

542. Efficacy of multilevel antimicrobial coating in reducing vancomycin-resistant *Enterococci* in hospital ward. **B. Zhong**, H. Leung, J. Kwan, K. Yeung

543. Photolytic fate of poultry antibiotics in agricultural wastewater. **K. Mangalgiri**, L.M. Blaney

544. Identification of flouroquinolone antibiotics and resistant bacteria in Indian sewage treatment plants. **J. K**, P. Sihag, P. Jaroliya, P. Mandal, S. Sarkar

545. Bioavailability of soil-sorbed tetracycline to *Escherichia coli* bioreporter: Agar diffusion assay and direct microscopic observation. **Z. Chen**, G. Wang, Y. Zhang, Y. Gao, W. Zhang, D. Zhu, S.A. Boyd, H. Li

Section I

Pennsylvania Convention Center
Hall D

Advances in Understanding PPCP Fate in Wastewater Collection & Treatment Systems

N. Fahrenfeld, L. A. Rodenburg, *Organizers*

6:00 - 8:00

546. Withdrawn

547. Adsorption of pharmaceuticals in columns packed with palygorskite-montmorillonite clay particles. **N.D. Danielson**, T. Berhane, M.P. Krekeler, J. Levy

548. Isotope-dilution extraction and analysis of priority contaminants in BNR slurry. **O. Quinones**, B. Vanderford, E. Dickenson

Section I

Pennsylvania Convention Center
Hall D

Advancing Teaching & Learning in Environmental Chemistry Courses: Innovative Tools & Techniques

Financially supported by AEESP
N. Dai, A. Shah, J. Sivey, *Organizers*

6:00 - 8:00

549. Effect of a physical classroom demonstration on understanding of chemical equilibrium. **K. Barrett**

Pennsylvania Convention Center
Hall D

Applied Catalysis for Environmental Applications

A. Orlov, A. Savara, S. Zhao, *Organizers*

6:00 - 8:00

550. Hybrid inorganic–organic composites of layered double hydroxides with g-C3N4 for high-efficiency removal of organic pollutants. **L. Mohapatra**, K. Parida

551. Construction of Fe_3O_4/$BiVO_4$/bentonite composites and their photocatalytic degradation of toxic organic pollutants in wastewater. **H. Zhang**, **Z. Tong**, **Y. Tang**, Y. Wang, N. Chen

552. Novel Diatom-Fe composites as catalyst for photodegradation of Rh-6G in aqueous media. **M. Thakkar**

553. Use of metal chloride additives as Lewis Acids in the liquid phase reaction of furfural and furfuryl alcohol. **S. Ogozaly**, K. Marotta, L.A. Welch

554. Scaling-up solar CPC photocatalytic reactors for phenol removal. J.A. Colina-Marquez, **M.A. Mueses**

555. Degradation of methyl orange using active carbon/Fe as a heterogeneous Fenton-like catalyst. **J. Liang**, **J. Zhang**, J. Li, W. Zhang

556. Self-assembly of various morphological WO_3 and its superior photocatalytic activity. **M. Manickavachagam**, J. Wu, M. Sillanpaa

557. Understanding one-electron transfer mechanisms of oxidation of cyanide by ferrates (FeVI, FeV, and FeIV): Density functional theory calculations. **C.A. Huerta-Aguilar**, V.K. Sharma, P. Thangarasu

558. Transfer hydrogenation on supported palladium catalysts for reduction of aqueous contaminants. **P.G. Tratnyek**, B. Zhang, G. O'brien Johnson, K. Meduri, J. Jiao, C. Xu

559. Ozonation of dimethyl phthalate by Fe-NiO_x in the water. **J. Zhang**, G. Zhang

560. Commercial micro-sized ZnO catalytic ozonation for *p*-chloronitrobenzene degradation in water: Effiecncy and reaction mechanism. **X. Zhenzhen**, Y. Ben, Z. Chen

561. Degradation of lindane and hexachlorobenzene in supercritical carbon dioxide using palladium nanoparticles stabilized in microcellular high-density polyethylene. **K. Chiu**, P. Wu

562. Catalytic oxidation of vinyl chloride and CO over ruthenium oxides supported on heterostructured CoPO-MCF materials. **C. Tian**

563. Catalytic ozonation of phenolic wastewater by ceramic supported metal oxide catalysts. **S. Lee**, L. Chang, S. Chen, K. Yu

564. Phytochemical approach to substitute toxic chemicals in nanotechnology. **B. Kumar**, K. Smita, L.H. Cumbal

565. Photoelectrochemical water splitting with a $SrTiO_3$:Nb / $SrTiO_3$ n^+-n homojunction structure. J. Cen, Q. Wu, J. Tao, D. Yan, K. Kisslinger, **M. Liu**, **A. Orlov**

566. Novel SCRPF path with the three-dimensional ordered macroporous $Ce_{0.9-x}Zr_xFe_{0.1}O_2$ catalysts for the simultaneous removal of PM and NOx from diesel engines. **Y. Cheng**, J. Liu, Z. Zhao

Section I

Pennsylvania Convention Center
Hall D

Aquatic Chemistry: Symposium in honor of Professor Alan T. Stone

Interfaces of Organic, Inorganic & Surface Chemistry in Natural & Engineered Systems

B. Deng, C. Huang, T. J. Strathmann, D. Vasudevan, *Organizers*

6:00 - 8:00

567. Mechanism of Cr(VI) reduction by oxalic acid in the presence of Mn(II). **F. Wang**, B. Deng, C. Lin

568. Removal of methyl orange from aqueous solution using HJ clay-supported nanoscale zero-valent iron. **Y. Zhao**, X. Li, Q. Shi, J. Ge, B. Xi, B. Gong, R. Li

569. Electrochemistry of phenols, anilines, and related shuttle compounds. **A.S. Pavitt**, P.G. Tratnyek

570. Microbial leaching of iron from hematite into seawater mediated via Anthraquinone-2,7-disulfonate as a model of humic substance. **A. Aneksampant**, M. Fukushima

571. Biodegradation of diazinon using a freshwater microalga *Chlorella vulgaris*. M.B. Kurade, **J. Xiong**, B. Jeon

572. Reductive dechlorination of TCE and PCE by magnetite: Is it relevant? **J.D. Culpepper**, M. Scherer, D. Latta

573. Biodegradation of carbamazepine using freshwater microalgae *Chlamydomonas mexicana* and *Scedesmus obliquus* and the determination of its metabolic fate. **J. Xiong**, B. Jeon

574. Effect of pH on the physicochemical properties of δ-MnO_2 in the dark and in the light. **F. Marafatto**, A. Schwartzberg, B. Gilbert, J. Pena

575. Disinfection of *Legionella pneumophila* associated with simulated-drinking-water-biofilm: Cultivability, infectivity, and implication of risk assessment. **Y. Shen**, W. Liu, N. Ashbolt, T.H. Nguyen

Section I

Pennsylvania Convention Center
Hall D

Chemistry of Biomass Wastes Conversion to Energy & Chemicals

Cosponsored by ENFL
C. Huang, J. McLain, M. Tu, M. Zhao, *Organizers*

6:00 - 8:00

576. Efficient hydrogen production from pyrolysis of waste beech wood by applying multi-functional Ni/Co-CaO/SiO_2 powder in TG-MS system. **X. Cui**, X. Zhao, M. Zhao

577. Study on qualitative characterization of bio-liquid from food wastes at various reaction conditions. **S. Park**, S. Lee, S. Bae

578. DRIFTS, ATR and transmission FTIR sampling techniques for quantitative measurements on lignocellulose. **M. Gogna**, R.E. Goacher

579. Isolation of lignin from biomass using biobased flocculants with a co-flocculant and a flocculant aid. **D.J. Piazza**, R.A. Garcia, J.H. Lora

Section I

Pennsylvania Convention Center
Hall D

Chemistry of Environmental Sorptive & Oxidative Processes: Symposium in honor of Joseph J. Pignatello

A. MacKay, M. Sander, F. Xiao, B. Xing, D. Zhao, *Organizers*

6:00 - 8:00

580. Adsorption of nitroaromatic compounds from aqueous solution by surface silylated MCM-41. **Q. Qin**, Y. Xu, J. Ma

581. Water at the ionic liquid vapor interface using ambient pressure X-ray photoelectron spectroscopy. **A. Broderick**, J.T. Newberg, Y. Khalifa

582. Basic study on influence of humic substances and iron and aluminum ions on acetamiprid sorption onto a paddysoil. **H. Murano**, K. Suzuki, S. Kayada, M. Saito, N. Yuge, T. Arishiro, A. Watanabe, T. Isoi

583. Sonolytic and sonocatalytic decomposition of salicylic acid by high frequency ultrasound. B. Savun , A. Ziylan Yavas, **N.H. Ince**

584. Fate and transport of common organic pollutants through water saturated cores of Berea sandstone. **S.P. Labrecque**, W. Blanford

585. Influence of chemical oxidation on adsorption properties of carbonaceous materials with different structures: porous structure vs. dispersible structure. H. Zhang, **D. Zhang**, X. Dong, J. Peng, S. Ghosh, B. Pan

586. Adsorption of 2-naphthalene sulfonic acid on a novel bifunctional weakly basic anion exchanger from aqueous solution. **Y. Sun**

587. Effect of frequency and specific power on sonochemical decolorization of azo-dye. **A. Ziylan Yavas**, Z. Eren, N.H. Ince

588. Sorption of organic and inorganic pollutants on thermally treated sediments with high organic matter content. M. Wu, **D. Zhou**, F. Chen, B. Pan

Pennsylvania Convention Center
Hall D

Combined Biological-Chemical Reactions for Contaminant Transformation

Cosponsored by AGRO
E. J. Bouwer, K. T. Finneran, *Organizers*

6:00 - 8:00

589. Enhanced dechlorinization of highly chlorinated solvents in groundwater through amendment with hydroxypropyl-beta-cyclodextrin. **M.P. Pecoraro**, W. Blanford

590. Effect of surface treatment on GAC as an electron acceptor in microbial transformation reactions. **A.M. Redwan**, K. Millerick

591. Extracellular iron reduction by the Gram-positive fermenter *Clostridium beijerincki*. **J.K. Choi**, N. Yee

592. Analysis of polychlorinated biphenyls in effluent discharged from a wastewater treatment plant during dry and wet weather periods. **B.V. Kjellerup**, **R. Jing**, E. Wilson, S. Fusi, A. Chan

Pennsylvania Convention Center
Hall D

Creating & Exploiting Salinity Gradients

C. Gorski, B. E. Logan, M. S. Mauter, *Organizers*

6:00 - 8:00

593. Enhanced capacitive deionization performance using electrodes with polysaccharide binders. **M. Kim**, R.D. Cusick

594. Fouling resistant nanocomposite cation exchange membrane with enhanced salinity gradient power generation for reverse electrodialysis. **X. Tong**, B. Zhang, Y. Chen

Pennsylvania Convention Center
Hall D

Crystal Defects on Surface Reactivity & Heterogeneous Photocatalysis

D. D. Dionysiou, R. Doong, C. Huang, H. L. Ong, *Organizers*

6:00 - 8:00

595. Competitive deionization of metal ions by carbon aerogel. **C.J. Chin**, M. Lee

596. Development of novel copper removal technology by fluidized-bed homogeneous crystallization(FBHC). **C. Huang**, Y. Shih, Y. Huang

597. Green synthesis of multifunctional mesoporous composites from display panel glasses for selective adsorption of metal ions. **C. Tsai**, R. Doong, H. Hung

598. Fluoride removal by waste oyster shell. **Y. Chang**, J. Liu

599. Synthesis of graphene/carbon nanotube electrode for nonylphenol detection and removal in water: Principles and applications. **Y.D. Dai**, C. Huang, Y.J. Lin, P. Chiang

600. Phosphate recovery by fluidized-bed homogeneous granulation process. **Y. Huang**, P. Caddarao, F. Ballesteros, M. Lu

601. Impaired water desalination using resin wafer electrodeionization: Breakthrough in energy-efficient water reclamation. **P. Tseng**, S. Pan, Y.J. Lin, C. Hsieh, P. Chiang

602. 3D nanoscale imaging and photocatalytic disinfection mechanism of *E. coli* (gram-negative) and *S. aureus* (gram-positive) with modified N-doped and N-Tourmaline-doped TiO_2 composites under visible light radiation. J. Tzeng, C. Weng, Y. Huang, **Y. Lin**

603. Improvement of electrochemical performance of lithium iron phosphate coated with carbon sources using rheological phase method. **C. Hsieh**, C. Chang

604. Withdrawn.

605. Hydrothermal synthesizing Ce-doped TiO_2 photocatalysts for degradation 2-cholorphenol under visible light irradiation. J. Lin, K. Sopajaree, A. Gongglom, **M. Lu**

606. Preparation, characterization and application of a Ti/SnO_2-Sb/PbO_2 electrode exemplified by the anodic degradation of reactive black 5. **S. Li**, Y. Huang, Y. Shih

607. Dispersible nanocomposites of functionalized graphene oxide reinforced polyethylene for packaging application. G. Toh, **H.L. Ong**, K. Bindumadhavan, R. Doong

608. Synthesis and characterization of palladium-carbon-doped TiO_2 particles for adsorption and photo-oxidation of reactive black 5. **C. Weng**, Y. Lin, W. Luo

609. Effect of calcination temperature on structural and magnetic properties of photocatalytic $TiO_2/CoFe_2O_4$ nanocomposites. C. Dong, C. Chen, **C. Hung**

610. Preparation of β-PbO_2-coated graphite electrode for electro-oxidation of ammonia. **Y. Shih**, Y. Huang

611. Photo-electrochemical treatment of organic pollutants in the electro-fenton process. T. Chen, C. Chou , **S. Yen**

612. Withdrawn

613. Withdrawn.

Pennsylvania Convention Center
Hall D

Developing International Policies for Nanoparticles in the Environment

Financially supported by IUPAC
R. Luque, S. O. Obare, *Organizers*

6:00 - 8:00

614. Effects of metal ions on the antimicrobial properties of silver nanoparticles. **C. Bonner**

615. Influence of agricultural pesticides on nanoparticle stability. **N. Dissanayake**, K.M. Current, S.O. Obare

616. Oxidation of thioanizoles by ZnO-Fe_3O_4-Au hybrid composite under visible light. **T. Pandiyan**, A. Itztani Cervantes, C. Huerta Aguilar

617. Environmental usage of poly(2-acrylamido-2-methyl-1-propansulfonic acid sodium salt –co- 3-acrlylamidopropil-trimethyl ammonium chloride)- *Lentinus tigrinus (Bull.) Fr.* composite hydrogel. D. Alpaslan, T. Ersen, **S. Kubilay**, Y. Uzun, A. Savran, N. Aktas

618. Optimization with response surface methodology of toluidine blue biosorption conditions from aqueous solutions by P*olyporus squamosus (Huds.) Fr.* and *Lentinus tigrinus (Bull.) Fr.* fungi as biosorbent. **D. Alpaslan**, T. Ersen, S. Kubilay, Y. Uzun, A. Kul, N. Aktas

Section I

Pennsylvania Convention Center
Hall D

Formation & Transformation of Atmospheric Aerosols: Air Pollution to Climate Change: Symposium in honor of Professor Renyi Zhang

M. Hu, A. Khalizov, V. K. Sharma, Y. Wang, *Organizers*

6:00 - 8:00

619. Withdrawn.

620. Withdrawn.

621. Seasonal Variations of nitrate formation mechanisms in Shanghai. Y. Tao, **X. Ye**

622. Closure study of aerosol optical properties at a regional background mountainous site in Eastern China. **L. Yuan**, Y. Yin, H. Xiao, X. Yu, J. Hao, K. Chen, C. Liu

623. Modeling optical properties of anthropogenic soot with various morphology and mixing states. E.N. Eckl, **J.F. Phillips**, C. Qiu, C.J. Stopera, A. Khalizov

624. Using single-particle scattering depolarization signal to measure ice nuclei with a continuous flow diffusion chamber. **J. Zenker**, S. Brooks

625. Physical and chemical analysis of laboratory and ambient lake spray aerosol. **N. May**, J.L. Axson, A.E. Watson, I.D. Colon-Bernal, A.P. Ault, K.A. Pratt

626. Experimental and theoretical studies of new particle formation. **Y. Li**, **M. Levy**, **R. Zhang**

627. Functionality of organic species on aerosol nucleation and growth. **J. Secrest**, W. Wang, Y. Zhu, R. Zhang

628. Heterogeneous reactions of alkylamines with dicarboxylic acids relevant to secondary organic aerosol formation. **W. Marrero-Ortiz**, B. Turner, M.E. Gomez, A. Khalizov, S. Brooks, R. Zhang

629. Development of an electrostatic collection-desorption electrospray ionization mass spectrometry for chemical analysis of ambient aerosols. **A. Khalizov**, Q. Zhang, D. Lazar

630. Investigation of aerosol-cloud interaction at different altitude over the plateau. **X. Chou**

631. Contributions of regional transport to the summertime air quality in Beijing. **J. Wu**, G. Li

632. Characteristics of cloud systems over the Tibetan Plateau and East China during boreal summer. **J. Chen**, X. Wu, Y. Yin, H. Xiao

633. Global climate models intercomparison of anthropogenic aerosols effects on regional climate over north Pacific. **J. Hu**, R. Zhang, B. Pan, Y. Lin, Y. Wang, Y. Ming

634. Evaluation of NASA GISS Post-CMIP5 single column model simulated cloud and precipitation using the ARM SGP observations. **L. Zhang**, X. Dong, A. Kennedy, B. Xi, Z. Li

635. Response of marine boundary layer cloud properties to aerosol perturbations from the 19-month AMF-Azores campaign. **J. Liu**, Z. Li, M. Cribb

636. Withdrawn.

637. Anthropogenic influence on decadal aerosol trends and aerosol-cloud interactions over the western North Atlantic Ocean. **A. Jongeward**, Z. Li

638. Impacts of Saharan dust on the genesis and evolution of Hurricane Earl (2010). **B. Pan**, R. Zhang, Y. Wang, Y. Lin, J. Hu, J. Hsieh

639. Interactions between precipitation, lightning activity and anthropogenic aerosols over Houston, Texas. **Y. Lin**, Y. Wang, R. Orville, R. Zhang

640. Role of wind shear at different vertical levels: Regulating aerosol impact. **Q. Chen**, J. Fan

641. Effects of atmospheric aerosols on climate and air quality in Eastern US using a source-oriented WRF/Chem model. **H. Zhang**, **F. Han**, H. Guo

642. Physiologic and epigenetic alterations in offspring following prenatal exposure to particulate matter air pollution in two strains of mice. **K. Rychlik**, J.C. Pulczinski, M.L. Zamora, R. Zhang, N.M. Johnson

643. Validation of novel biomarkers of traffic-related ambient air pollution exposure in a susceptible south Texas population. **J.C. Pulczinski**, K. Rychlik, T. Ramani, T. McDonald, G. Carrillo-Zuniga, K. Koehler, J. Zietsman, N.M. Johnson

Section I

Pennsylvania Convention Center
Hall D

General Posters

D. D. Dionysiou, *Organizer*

6:00 - 8:00

644. Potential concentrations of select trace metals from road salt corrosion. **P. Pascucci**

645. Efforts towards understanding the natural occurrence of silver nanoparticles in the environment: How close are we? **N.F. Adegboyega**, A.D. Olaitan, M. Brantley, T. Solouki, W.C. Hockaday, V.K. Sharma

646. Withdrawn

647. Biological transformations and toxicity of PCBs in wastewater treatment. **B.V. Kjellerup**, C. Draghi, S.J. Edwards, N.A. Andrade, **R. Jing**

648. TiO_2 modified with WO_3 applied to waste of Colombian gold mining. **A. Arce-Sarria**, C.L. Caicedo-Rosero, F. Machuca-Martínez, J.A. Colina-Marquez

649. Fabrication of magnetic nanoparticles from red mud for arsenic removal. **Z. Katircioglu**, S. Dursun, M. Yavuz

650. Recent accidents in the universities laboratories: Root causes, lessons learn and prevention. **E.A. Dada**, K. Olanrewaju, O. Anyaegbu, E. Mogbo

651. Best practices to improve laboratory safety: Implementing the CSI concepts. **A. Nandedkar**

652. Distribution and source apportionment of polycyclic aromatic hydrocarbon in human placenta in Kunming, China. **J. Peng**, X. Dong, M. Wu, B. Pan, F. Ai

653. Withdrawn.

654. Evaluation of multiple heavy metals and metalloids in glass beads used in retroreflective road markings. M.B. Rosen, **L. Pokhrel**, B. Dubey

655. EPA online prediction physicochemical prediction platform to support environmental scientists. **A.J. Williams**, K. Mansouri, C. Grulke, J. Edwards, J. Smith, J. Foster, D. Lyons

656. Degradation mechanisms of Microcystin-LR during UV photolysis and UV/H2O2 reactions: By-products and pathways. **K. Zoh**, B. Moon, T. Kim, M. Kim

657. Use of ^{129}I in monitoring nuclear releases to the sediments of Lake Ontario. **U. Rao**, M. Kruge, Y. Muramatsu, C. Blithe, M. Montemarano

658. Water quality assessment and determination of pollution sources in Souss-Masa Basin in Agadir, Morocco. A.E. Madi, **H. Hadjeres**, H. Youssef, S. Boutaleb, B. Husseine , **M. Yatin**

659. Detection of benzene and alkylated benzene derivatives in fuel contaminated environments via cyclodextrin-promoted fluorescence modulation. **D.J. DiScenza**, M. Verderame, M. Levine

660. Impacts of nanoceria in the nutritional quality of tomato fruits (*Solanum Lycopersicum* L.). **A. Barrios**, C.M. Rico, J. Trujillo-Reyes, I.A. Medina-Velo, N. Zuverza-Mena, J.R. Peralta-Videa, J.L. Gardea-Torresdey

661. Characterization of physicochemical and toxicological properties of ceria nanoparticles. **M. Baalousha**

662. Withdrawn.

663. Hazardous byproducts of improperly managed electronic waste. **J. Dietrich**, E. Sahle-Demessie, T. Richardson, J.A. Glaser

664. Global monitoring of chemical contamination derived from plastics surrounding Japan. **M. Okada**, **K. Koizumi**, T. Kusui, H. Katsura, K. Saitoh, D. Takahashi, D.M. Karl, N. Maximenko, **K. Saido**, T. Hiaki

665. Automated extraction and analysis of explosives in soil samples with supercritical fluids. **W. Hedgepeth**, K. Tanaka

666. Application of solvent extraction for lithium recovery from diluted shale gas produced water. **E. Jang**, E. Chung, Y. Jang

667. Fabrication of large-scale graphene oxide thin-film composite membrane and its module for gas separation. **M. Yoo**, J. Shin, S. Lee, J. Seon, H. Lee, H. Park

668. Graphene oxide-based membranes for CO_2 separation. **J. Shin**, M. Yoo, H. Lee, J. Seon, S. Lee, H. Park

669. Photochemical oxidation of selenium and formation of selenate oxyanions. **M. Teli**, P. Larese-Casanova

670. Understanding fluorescence energy transfer for toxicant detection and environmental monitoring efforts. **M. Verderame**, D.J. DiScenza, N. Serio, M. Levine

671. Low-temperature green method for the chemical degradation of tributylphosphate. **D. Kennedy**, C.A. Valdez, R.N. Leif, B.P. Mayer

672. Optimal experimental designs for estimating Henry's law constants via the phase ratio method. **A. Kapelner**, A. Krieger, W. Blanford

673. Comparison of mercury in water analysis using cold vapor AA and gold preconcentration/PID. **J.N. Driscoll**, **J.L. Maclachlan**

674. Low temperature catalyst for VOC abatement. Q. Wang, H. Chen, **L. Luk**, W. Han, K. Yeung

675. Occurrence of methylmercury in rice-base infant cereals and estimation of daily dietary intake of methylmercury for infants. **W. Cui**, G. Liu, Y. Cai

676. Using a high throughout screening method to help discover risky organic contaminants in the environment. **Q. Bu**, W. Zhong, D. Wang, Q. Luo, Y. Xu, Z. Wang

677. Determination of Arsenic (III) using gold nanoparticles-modified screen-printed carbon electrodes immobilized with acetylcholinesterase enzyme. **D. Orefuwa**, B. Workie, E. Sahle-Demessie, T. Li

678. Concentrations and toxic equivalence of polychlorinated dioxins/furans and coplanar PCBs in fillet samples of fish at nearshore locations in Lake Ontario. **J.J. Pagano**, T.M. Holsen, A.J. Garner

679. Role of singlet oxygen in electrochemical disinfection of water contaminated with *E.coli*. **N. Barashkov**, T. Sakhno, V. Krykunova, I. Irgibaeva

680. Leaching behavior of the boron and fluorine in fly ashes recovered from electrostatic precipitators of pulverized coal-fired plants. **N. Tsubouchi**, K. Shibuya, Y. Muto, Y. Ohtsuka

681. TEPA-Loaded Stellate Mesoporous Silica Nanoparticles (Stellate MSN) for CO_2 Capture. **D. Radu**, N. Pizzi, C. Lai

Section I

Pennsylvania Convention Center
Hall D

Impacts of Energy Systems on Water Treatment

K. D. Good, P. Mouser, D. L. Plata, J. M. Vanbriesen, *Organizers*

6:00 - 8:00

682. Tunable anion exchange to treat Marcellus flowback wastewater and recover barium using impaired acid mine drainage (AMD). **J. Li**, A. SenGupta

683. Withdrawn.

Section I

Pennsylvania Convention Center
Hall D

Innovative Materials & Technologies for Environmental Sustainability

Cosponsored by CEI
J. C. Crittenden, Q. Li, W. Zhang, *Organizers*

6:00 - 8:00

684. Graphene-wrapped $Bi_2O_2CO_3$ core-shell structures with enhanced quantum efficiency profit from an ultrafast electron transfer process. **D. Li**, Y. Zhang

685. Low cost ceramic membrane applications in drinking water treatment. **W. Fu**, X. Zhang, X. Fan, H. Noguchi, W. Zhang

686. Flame retardants: New approaches to reduce exposure. **C.P. Zane**, M. Pasquinelli, N.R. Vinueza, Y. Chen, D. Hinks, N. Zhang, E. Yildirim, A. Tonelli

687. Synthesis and application of a cross-linked cationic surfactant micelle for removing anions from water. **M. Chen**, C.T. Jafvert

688. High throughput detection and identification of chemical excursions via GC-MS. **P. Kaur**, C.N. Stedwell, J.D. Debord

689. Solar light-active upconversion nanocrystal embedded mesoporous carbon-TiO_2 hybrid films toward highly efficiency photocatalysis. **H. Kwon**, K. Chung, R. Boppella , S. Kochuveedu, Y. Jang, D. Kim

Section I

Pennsylvania Convention Center
Hall D

Nanomaterials in the Environment & Biological Systems

Physicochemical & Biological Processes Affecting Their Transformation & Transport

S. Joo, W. H. Lee, P. Yi, *Organizers*

6:00 - 8:00

690. Interaction of nano-ZnO sunscreen with marine diatom algae: Safety implication of nanoproducts. S. Joo, **S. Seo**, E. Spisni , C. Su

691. Influence of products-derived nano-TiO_2 on marine environments. **S. Joo**, S. Seo, A. Galletti, C. Su

692. Nanostructured phosphate sensors based on Co-Cu electrodes fabricated with a sacrificial glass fiber paper template. X. Wang, J. Church, **W.H. Lee**, H.J. Cho

693. Organic-nanomaterial-aggregate and dispersion of polyaromatic hydrocarbons in water. E. Sahle-Demessie, **C. Han**, A. Zhao, H. Grecsek, Y. Oh, S. Chae

694. Effects of surface chemistry on the physiological and biochemical interactions between nano-TiO_2 and basil (*Ocimum basilicum*). **W. Tan**, W. Du, A. Barrios, R. Armendariz Jr., N. Zuverza-Mena, Z. Ji, C.H. Chang, J.I. Zink, J. Hernandez-Viezcas, J. Peralta-Videa, J.L. Gardea-Torresdey

695. Insight on the CdSe/ZnS quantum dot dissolution. **P. Paydary**, P. Larese-Casanova

696. Quantitative structure-activity relationships of functionalized carbon nanotubes. **R. Lougee**, **D. Fourches**

697. Modulation of the physiological and biochemical effects of copper nanoparticles in kidney beans (*Phaseolus vulgaris*) treated with kinetin. **S. Apodaca**, J.R. Peralta-Videa, J.L. Gardea-Torresdey

698. Influence of nanoparticles of pyrogenic carbonaceous material on the colloidal stability of cerium oxide nanoparticles. **P. Yi**, J.J. Pignatello

699. Response of anaerobic granular sludge to single-wall carbon nanotube exposure. **L. Li**, Z. Tong

700. Effect of continuous AgNP addition on surface characteristics of activated sludges. A. Geyik, **F. Cecen**

701. Changes in the production of protein-EPS in an activated sludge receiving AgNP. **A. Geyik**, F. Cecen

702. Investigation of environmental quality improvement from application of natural gas. Y. Zhang, **R. Li**, C. Wang, Z. Gu

Section I

Pennsylvania Convention Center
Hall D

Nanotechnology for Environmental Solutions & Remediation

D. Barcelo, M. Cledon, K. D. Hristovski, *Organizers*

6:00 - 8:00

703. Chemical-free removal of aqueous zinc by underwater plasma discharge. **Y.H. Lee**, A.N. Saqib

704. Nanoselenium sponge technology for mercury removal from water. **S. Ahmed**, J. Brockgreitens, A. Abbas

705. Evaluation of cyclodextrin modified zeolites as sorbent for removal of common organic rollutants from water streams. **W. Blanford**, B. Sang, S. Mai

706. Goethite/silica nanocomposite effective at adsorption of arsenic (V) from aqueous solutions. R. Attinti, D. Sarkar, **K. Barrett**, R. Datta

707. Cr(VI) removal by membrane-based zerovalent metallic nanoparticles in wastewater. **L. Chang**, S. Lee, K. Yu, S. Chen

708. Determination of COD using SWCNT/TiO_2/GCE electrodes. **C.J. Chin**, Y. Lu

709. Flow of lipid vesicles and nanoparticles through microfluidic channels. **P. Garlapati**, E.S. Sani, Y. Tang, M. Kiani, B. Kim, S.L. Wunder

Section I

Pennsylvania Convention Center
Hall D

Nanotechnology for Sustainable Agriculture & Food Systems

Cosponsored by AGRO and CEI
P. Demokritou, G. Lowry, N. B. Saleh, J. C. White, *Organizers*

6:00 - 8:00

710. Kinetic studies of ceria nanocrystals for catalytic dephosphorylation. **M. Manto**, C. Wang

Pennsylvania Convention Center
Hall D

Next Generation Techniques for Prevention & Precise Growth of Biofilms at the Interface of Nanomaterials & Electrochemistry

S. Aggarwal, A. Badireddy, V. Gadhamshetty, *Organizers*

6:00 - 8:00

711. Influence of supporting materials on biofilm formation and subsequent cyanotoxin degradation. **Y. Jeon**, Y. Seo

712. Reduction of viable microorganisms and biofilm formation via modification of surfaces with a novel antimicrobial system. **V. Singh**, D. Jofat, G. O'Mullan, W. Blanford, R. Engel

Section I

Pennsylvania Convention Center
Hall D

Occurrence, Behavior & Remediation of Mixed Organic Pollution in Soil & Sediment

Cosponsored by AGRO
X. Li, J. J. Pignatello, B. Xing, L. Zhu, *Organizers*

6:00 - 8:00

713. Levels and distributions of organophosphorus pesticides in agricultural soils from the Yangtze River Delta of China. **J. Sun**, L. Pan, X. Li, L. Zhu

714. Contamination and risk assessment of DDTs in agricultural soils from the Yangtze River Delta of China. **J. Sun**, L. Pan, X. Li, L. Zhu

715. Atrazine contamination in agricultural soils from the Yangtze River Delta of China and associated health risks. **J. Sun**, D. Tsang, L. Pan, L. Zhu, **X. Li**

716. Catalyitc hydrodechlorination of diclofenac on Pd/CeO_2 catalysts. K. Wu, Z. Xu, **S. Zheng**, D. Zhu

717. Occurrence and distribution of pharmaceutical compounds in the vadose zone of a wastewater irrigated field in Northern China. **L. Ma**, G. Li

718. Photochemistry of dissolved black carbon released from biochar. **H. Fu**, X. Qu, D. Zhu

719. Selective sorption removal of phenanthrene by resins from anionic and nonionic surfactant solutions. **K. Yang**, **Y. Zeng**, C. Zhou

Pennsylvania Convention Center
Hall D

Poly- & Perfluoroalkyl Substances: Environmental Behavior & Pollution Control

D. Chiang, Q. Huang, L. S. Lee, E. R. McKenzie, D. Woodward, *Organizers*

6:00 - 8:00

720. Thermochemical properties ($\Delta_f H°_{(298)}$, $S°_{(298)}$, Cp(T)) and bond dissociation energies for fluorinated methanols and fluorinated methyl hydroperoxides: $CH_{3-x}F_xOH$ and $CH_{3-x}F_xOOH$. **J.W. Bozzelli**, H. Wang

721. Helical nature of perflurochemicals and its implications. M.A. Pagenkopf, **D.J. Van Hoomissen**, S. Vyas

Pennsylvania Convention Center
Hall D

Recent Advances in Remediation Strategies & Technologies for the Cleanup of Hazardous Waste Sites

E. R. McKenzie, A. Pham, *Organizers*

6:00 - 8:00

722. Withdrawn.

723. Cometabolic degradation of 1,4-dioxane by an ethane-oxidizing culture. **P.G. Koster Van Groos**, P. Hatzinger, S. Streger, R. Rezes, C. Condee, C. Schaefer

724. Remediation of 1,2-dichloropropane in aqueous environments by reductive dehalogenation. **N. Lapeyrouse**, C.G. Lewis, T.E. Shaw, C.A. Clausen, C. Yestrebsky

725. Rates of reduction for competing ^{99}Tc and Cr removal by $Fe(OH)_2$ in Hanford waste streams. **W. Um**, S. Saslow, D. Kim, M.J. Schweiger, A.A. Kruger

726. Sono-electro-Fenton degradation of 4-chlorophenol in aqueous media. **R. Nazari**, L. Rajić, A. Alshawabkeh

727. Groundwater remediation by pump and treat at an organic contaminated site in Beijing. **Z. Qu**, H. Wang, Z. Sang

728. Oxidation of microcystin-LR by Fe(II)-tetrapolyphosphate in the presence of oxygen: Effect of calcium and magnesium ion. **M. Kim**, H. Kim, C. Lee

Pennsylvania Convention Center
Hall D

Water Purification Systems

Cosponsored by CEI
S. Ahuja, *Organizer*

6:00 - 8:00

729. Preferential degradation of Nonyl Phenol on modified TiO_2 nanotubes. **Z. Fan**

730. Tailoring surface imprinted polymeric particles for removing organic and inorganic toxins from aqueous bodies. **A. Mujahid**, S. Farheen, T. Hussain, H. Raza

Geochemistry of the Subsurface: CO2 Sequestration, Unconventional Oil & Gas Extraction, Geothermal Reservoirs & Radioactive Waste Disposal
Sponsored by GEOC, Cosponsored by ENVR

THURSDAY MORNING

Loews Philadelphia Hotel
Congress A

Nanomaterials in the Environment & Biological Systems

Physicochemical & Biological Processes Affecting Their Transformation & Transport

S. Joo, W. H. Lee, *Organizers*
P. Yi, *Organizer, Presiding*

8:00 731. Transformations and biological impact of emerging energy storage materials. **M.N. Hang**, I. Gunsolus, J. Bozich, H.A. Wayland, E. Melby, J.A. Pedersen, R. Klaper, C.L. Haynes, R.J. Hamers

8:25 732. Adsorption of human serum albumin proteins on graphene oxide. **C. Yan**, X. Liu, K. Chen

8:50 733. Interactions of cerium oxide nanoparticles with model cell membranes: QCM-D measurements and theoretical analysis. **P. Yi**, W. Gu, X. Liu, K. Chen

9:15 734. Integrated methodology for assessing the potential toxicity of engineered nanoparticles in embryonic zebrafish. E. Dumitrescu, X. Liu, D. Karunaratne, K. Wallace, **S. Andreescu**

9:40 Intermission.

9:55 735. Probing the force interactions between silver nanoparticles and protein-modified surfaces using atomic force microscopy. **X. Liu**, K. Livi, K. Chen

10:20 736. Exposure of few layer graphene to *Limnodrilus hoffmeisteri* modifies the graphene and changes its bioaccumulation by other organisms. **L. Mao**

10:45 737. Correlation between nanoparticle attachment to model cell membranes and nanoparticle *in vitro* toxicity. **X. Chang**, W. Henderson, S. Martin, D.C. Bouchard

11:10 738. Microbial degradation of polymer nanocomposites containing carbon nanotubes. **D.G. Goodwin**, D. Phan, Z. Xia, I.S. Boyer, T. Devahif, T. Gordon, L. Kuwama, X. Lu, C. Gao, E.J. Bouwer, H. Fairbrother

11:35 739. Effects of CeO_2 and ZnO nanoparticles on the uptake of essential elements by corn (*Zea mays*) and cucumber (*Cucumis sativus*) plants. **N. Zuverza**, J. Trujillo-Reyes, J. Hong, L. Zhao, A.C. Barrios, J.R. Peralta-Videa, J.L. Gardea-Torresdey

Section B

Loews Philadelphia Hotel
Washington A

Advances in Understanding Antibiotics, Antibiotic Resistance Genes & Antibiotic-Resistant Bacteria in Engineered & Natural Environments

Cosponsored by AGRO
K. Chu, C. Huang, J. McLain, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 740. Metagenomic survey of antibiotic resistance genes in four paired reclaimed and potable water distribution systems. **E. Garner**, J. McLain, M. Edwards, A. Pruden

8:55 741. Antibiotic-resistant bacteria and genes in drinking water. **R. Destiani**, M.R. Templeton

9:15 742. Antibiotics and antibiotic resistance in surface drinking water sources. **K.H. Wammer**, M.A. Andreone, C.J. Heiling, S.W. Beck, H. Cheryl, D.R. Stoll, T. LaPara

9:35 743. Fate, transport, and management of antibiotics and antibiotic resistance genes in the agroecosystem. **X. Li**, S. Bartelt-Hunt, D.D. Snow, J. Gilley

9:55 744. Antibiotic resistance genes in lake sediments in watersheds impacted by agricultural runoff and by treated municipal wastewater. **K. Sandberg**, J.F. Kerrigan, D.R. Engstrom, W. Arnold, T. LaPara

10:15 745. Changes in antibiotic resistance gene abundance during wastewater treatment processes. B.V. Kjellerup, **J. Holt**

10:35 Intermission.

10:50 746. Microbial control with polyvalent phages is significantly enhanced by competitive exclusion by pre-exposed phage-production hosts. **P. Yu**, J. Mathieu, Y. Yang, P.J. Alvarez

11:10 747. Evaluation of various disinfection processes for isolated multidrug resistant bacteria in wastewater treatment plant. **R.B. Mahar**, A. Mohaghegh Motlagh, A. Bhattacharjee, R. Goel

11:30 748. Estrogen-induced antibiotic resistance. **O. Conroy-Ben**

11:50 749. Strategies to improve triclosan biodegradation in nitrifying activated sludge. D. Lee, **K. Chu**

12:10 Concluding Remarks.

Section C

Loews Philadelphia Hotel
Congress B

Crystal Defects on Surface Reactivity & Heterogeneous Photocatalysis

Cosponsored by ENFL
Financially supported by AEESP
D. D. Dionysiou, R. Doong, *Organizers*
C. Huang, H. L. Ong, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 750. Point defects in compounds. **F. Lu**

8:40 751. Investigating the surface reactions and mechanisms during the reduction of manganese and iron oxide and oxyhydroxide phases by sulfide. **G.W. Luther**

9:15 752. Photocatalytic reduction of hexavalent chromium in aqueous solutions by TiO_2/PAN nanofibers. H. Zhou, H.Q. Nguyen, **B. Deng**

9:40 753. Oxygen deficient titanium dioxide: A low cost material for water treatment. **B.P. Chaplin**, Y. Jing, S. Nayak

10:05 Intermission.

10:20 754. Enhanced reactivity of metal/metal oxide-porous carbon nanocomposites for electrochemical and photocatalytic applications. **R. Doong**, C. Lin, K. Bindumadhavan

10:45 755. Green synthesis of TiO_2 for visible light photocatalytic activities. **H. Lee**, S. Muniandy, S. Tan, S. Sasidharan, N. Mohd Kaus

11:10 756. Fabrication of α-MnO_2 nano-particle and nano-rod composite electrodes for capacitive deionization. **Y. Chen**, **Y. Juang**, C. Huang

11:35 757. Development of solar light-activated photocatalysts for the treatment of contaminants of emerging concern in water. **D.D. Dionysiou**

Loews Philadelphia Hotel
Washington B

Occurrence, Behavior & Remediation of Mixed Organic Pollution in Soil & Sediment

Cosponsored by AGRO
X. Li, B. Xing, L. Zhu, *Organizers, Presiding*

8:00 758. Mitigation and remediation of organic contaminated soils. F. Li, C. Wang, J. Sun, L. Pan, **L. Zhu**

8:30 759. Biodegradation of 1,4-dioxane in chlorinated solvent mixtures. S. Zhang, **P. Gedalanga**, S. Mahendra

8:50 760. Black carbon facilitated dechlorination of DDT and its metabolites in the presence of sulfides. **K. Ding**, W. Xu

9:10 761. Enhanced photodegradation of atrazine in the presence of montmorillonite clay and indole-3-acetic acid. **C. Gu**

9:30 762. Oxidation of benzo[*a*]pyrene by laccase of *Trametes versicolor* in soil enhanced bound-residue formation and alleviated disturbance to soil bacterial community. **J. Zeng**, Q. Zhu, Y. Wu, X. Lin

9:50 763. Adhesion of *Shewanella oneidensis* MR-1 to goethite and its impact on the transformation of enrofloxacin. **W. Yan**, C. Jing

10:10 Intermission.

10:20 764. Organic pollutant uptake and distribution in plant cuticle: direct observation and diffusion model. **B. Chen**, Q. Li, Y. Li

10:40 765. Comparison of thermal and microwave remediation for a Nigerian oil polluted soil and implications of phytoremediation for photosynthetic efficiency. E.O. Nwaichi, A. Ogunkeyede, **C.E. Snape**

11:00 766. Impacts of polycyclic aromatic hydrocarbons (PAHs) emitted by coking industry base on cabbages from neighboring vegetable plots in Shanxi province, north of China. G. Xiong, Y. Zhang, Y. Duan, C. Cai, X. Wang, J. Li, S. Tao, **W. Liu**

11:20 767. Hexachlorobutadiene (HCBD) in pumpkin seedlings after hydroponic exposure. X. Hou, **J. Liu**, G. Jiang

11:40 768. Foliar uptake: An important pathway for the accumulation of Hexabromocyclododecanes in plant leaves. **H. Zhu**, H. Sun, Y. Yao, X. Ren, F. Wang

Loews Philadelphia Hotel
Washington C

Bioanalytical Tools for Chemicals of Emerging Concern in the Environment

Cosponsored by AGRO
R. Marfil-Vega, L. A. Weinrich, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 769. Metachromatic interactions of a dye probe and compounds associated with membrane fouling. **X. Xie**, G. Korshin

8:25 770. Detection of sartans, related compounds and TPs in real-world aqueous environmental samples using fragment ion search and HRMS. **D. Barcelo**, B. Zonja, M. Lopez de Alda

8:45 771. Stable isotope probing for active acidophilic methanotrophs capable of degrading trichloroethylene. Y. Shao, P. Hatzinger, S. Streger, **K. Chu**

9:05 Intermission.

9:20 772. In vitro estrogenic activity of endocrine disrupting chemicals mixtures using interaction model. **H. Yu**, D.J. Caldwell, C. Johnson, **R.P. Suri**

9:40 773. Dioxin-like potencies and concentrations of AhR-active compounds in sediments of Meiliang Bay, Tai Lake, China determined by *in vitro* bioassay and instrumental analysis. **Y. Xu**

10:00 774. Evaluation of microbial communities in biologically active filters and their effectiveness in treating pharmaceuticals and personal care products. **S. Zhang**, S. Courtois, S. Gitungo, L.B. Axe, R.F. Raczko, J.E. Dyksen

10:20 Intermission.

10:35 775. Molecular identification of natural organic matter interactions with mercury by ultrahigh resolution mass spectrometry. **H. Chen**, B. Gu

10:55 776. Determination of aqueous film forming foams (AFFFs) in the environment using multivariate statistical analysis of liquid chromatography high resolution mass spectrometry (LC/HRMS) data. **D. Stevens**, L. Mullin, G. Cleland, A. Karmann

11:15 777. Advancements in analysis for emerging organic contaminants in water. **T. Anumol**, S. Mohsin, J. Zweigenbaum

11:35 Concluding Remarks.

Environmental Risk Assessment of Down-the-Drain Chemicals
Sponsored by AGRO, Cosponsored by ENVR

Experimental Studies of the Molecular Scale Processes at Environmental Interfaces Adsorption, Water Purification & Biomolecules
Sponsored by GEOC, Cosponsored by ENVR

Subsurface Fate of Pesticides
Sponsored by AGRO, Cosponsored by ENVR

Novel Nanomaterials
Various
Sponsored by ENFL, Cosponsored by CATL and ENVR

Heterogeneous Catalysis for Selective Oxidation & Reduction toward a Green Production
Selective Oxidation & Reduction
Sponsored by ENFL, Cosponsored by CATL and ENVR

Innovations in Human Health Exposure & Risk Assessment
Sponsored by AGRO, Cosponsored by ENVR and TOXI
Innovative Chemistry & Materials for Electroenergy Production & Storage
Electrocatalysis for Low-Temperature Fuel Cells & CO2 Reduction
Sponsored by ENFL, Cosponsored by ENVR and MPPG

2D Materials: Graphene & Beyond & their Device Applications
Sponsored by ENFL, Cosponsored by ENVR

THURSDAY AFTERNOON

Section A

Loews Philadelphia Hotel
Congress A

Nanomaterials in the Environment & Biological Systems

Physicochemical & Biological Processes Affecting Their Transformation & Transport

S. Joo, W. H. Lee, P. Yi, *Organizers*
J. M. Pettibone, N. B. Saleh, *Presiding*

1:15 778. Probe the existence of oxidation debris on the surface of graphene oxide nanosheet and its effect on adsorption capability. **X. Chen**, B. Chen

1:35 779. Photo-transformation of titanium dioxide- and zinc oxide-multiwalled carbon nanotube heterostructures in aqueous environment. **I.V. Sabaraya**, D. Das, **N.B. Saleh**

1:55 780. Aggregation kinetics of graphene quantum dots in aqueous solutions: Complex pH-dependence of mono-/di-valent electrolytes. **Q. Li**, B. Chen

2:15 781. Platinum group element release from nanomaterials in automobile catalytic converter emissions. **D. Aruguete**, M. Murayama

2:35 Intermission.

2:50 782. Molecular dynamics simulations of small nanoparticles aggregation (D < 5 nm) in aqueous solution. **J. Lu**, **H. Liu**, **F. Cui**

3:10 783. Theoretical predictions of stable $LiCoO_2$ (001) surface and phosphate anion adsorption at the oxide-water interfaces. **X. Huang**, C. Yang, M.N. Hang, R.J. Hamers, S.E. Mason

3:30 784. On the sulfidation kinetics of silver nanoparticles in fulvic acid, an across length scale synchrotron X-ray study. **F. Zhang**, A.J. Allen, J.M. Pettibone, J. Liu

3:50 785. Polymeric capping and the stability of silver nanoparticles: Effects before steric hindrance. **S. Youn**, T. Zhu, D. Lawler

4:10 786. Electroanalytical methods in characterization of metal sulphide nanoparticles in water environment. **I. Ciglenecki**

Section B

Loews Philadelphia Hotel
Washington A

Advances in Understanding Antibiotics, Antibiotic Resistance Genes & Antibiotic-Resistant Bacteria in Engineered & Natural Environments

Cosponsored by AGRO
K. Chu, C. Huang, J. McLain, *Organizers, Presiding*

1:15 Introductory Remarks.

1:20 787. Influence of soil texture and drought stress on antibiotic uptake into produce. **S. Bartelt-Hunt**, B. Sallach, D.D. Snow, X. Li, L. Hodges

1:40 788. Fate and transformation of veterinary antibiotics in soils. **C. Chen**, K. Knowlton, A. Pruden, P. Ray, K. Xia

2:00 789. Bioavailability of geosorbent-sorbed tetracycline to an *Escherichia coli* bioreporter for expression of antibiotic resistance. **Y. Zhang**, W. Zhang, D. Zhu, S.A. Boyd, J. Tiedje, B.J. Teppen, H. Li

2:20 790. Phenolic acids alter selective pressure of tetracycline on an *Escherichia coli* for expression of antibiotic resistance by impairing bacterial efflux pump. Z. Chen, Y. Zhang, Y. Gao, D. Zhu, W. Zhang, S.A. Boyd, **H. Li**

2:40 791. Historical trends and spatial distribution of antibiotics in Minnesota lakes and rivers. **J.F. Kerrigan**, D.R. Engstrom, K.D. Sandberg, T. LaPara, W. Arnold

3:00 Intermission.

3:15 792. Comparing analysis techniques for antibiotic resistance genes (ARG) degradation in UV treatment. **P. Chang**, B. Juhrend, T.M. Olson, K. Wigginton, C. Marrs

3:35 793. Kinetics and mechanism of sulfamethoxazole degradation by UV, UV/H2O2, and UV/persulfate (PDS) and influence of bicarbonate. **Y. Yang**, G. Liu, X. Lu, W. Liu, J. Jiang, J. Ma

3:55 794. Structure-dependent reduction mechanisms of isoxazoles by aqueous Fe^{II}–tiron complex. **Y. Chen**

4:15 795. Copper and silver vanquishing of hospital acquired “superbugs”: An economical solution to a major public health problem. **J.R. Ellis**

4:35 Concluding Remarks.

Section C

Loews Philadelphia Hotel
Congress B

Crystal Defects on Surface Reactivity & Heterogeneous Photocatalysis

Cosponsored by ENFL
Financially supported by AEESP
C. Huang, H. L. Ong, *Organizers*
D. D. Dionysiou, R. Doong, *Organizers, Presiding*

1:15 796. Properties evaluation on biocomposites from palm kernel shell and polypropylene. **H.L. Ong**, G. Toh, W. Owi

1:40 797. Heterogeneous structure of 1-D mixed phase TiO_2 nanorod arrays with enhanced photocatalytic activity. **L. Kao**, L. Ya Hsuan

2:05 798. Development of molybdenum disulphide-graphene quantum dots nanostructure for electrochemical applications. **K. Bindumadhavan**, R.S. Sahu, R. Doong

2:30 799. Solution metal ions functioning as redox shuttles for enhancing photocatalytic performance of hematite electrodes: a potential route for additional energy sequestration during wastewater treatment. **T. Wang**, Y. Cheng, Y. Wu, C. Lin, C. Wang

2:55 Intermission.

3:10 800. Forward osmosis-membrane distillation (FO-MD) hybrid process by utilizing poly(propylene oxide) as a biodegradable draw agent. **S. Chen**, S.S. Ray

3:35 801. Reduced graphene oxide based bimetallic Ni/Fe nanohybrids for rapid dechlorination of trichloroethylene. **R.S. Sahu**, D. Li, R. Doong

4:00 802. Withdrawn.

4:25 803. Sulfate radical-mediated degradation of sulfadiazine by $CuFeO_2$ rhombohedral crystal-catalyzed peroxymonosulfate: Synergistic effects and mechanisms. **Y. Feng**, K. Shih

4:50 804. In situ synthesis of g-C_3N_4 based nanocomposites with enhanced UV- and visible-light photocatalytic activities. **Y. Hu**

Loews Philadelphia Hotel
Washington B

Occurrence, Behavior & Remediation of Mixed Organic Pollution in Soil & Sediment

Cosponsored by AGRO
B. Xing, L. Zhu, *Organizers*
X. Li, *Organizer, Presiding*

1:15 805. Key role played by dissolved black carbon in slow sorption kinetics and sorption hysteresis of hydrophobic organic chemicals to rice-residue-derived biochar. B. Wang, **H. Fu**, X. Qu, H. Li, W. Zhang, D. Zhu

1:35 806. Molecular fractionation of dissolved organic matter induced by adsorption on soil minerals and soil inorganic components. J. Lv, **S. Zhang**, Z. Huang, L. Luo

1:55 807. Dynamic changes in the sorption capacity of biochar-amended soils: A field study. **H. Sun**, X. Ren, X. Yuan, H. Zhu

2:15 808. Facilitated transport of phenanthrene and oxytetracycline by oxidized-multiwalled carbon nanotubes in soil columns. **J. Fang**, M. Wang, B. Shen, **D. Lin**

2:35 809. Adsorption, mobility, and bioaccessibility of PBDEs: Roles of heavy metals, natural organic matter, and fertilizers. X. Zhu, X. Yang, **D. Tsang**

2:55 Intermission.

3:05 810. Polychlorinated biphenyls in agricultural soils from the Yangtze River Delta of China: Contamination characteristics, combined ecological effects, and human health risks. **J. Sun**, L. Pan, D. Tsang, L. Zhu, **X. Li**

3:25 811. Effects of environmental organic matters on the distribution of bisphenol A in soil-water interface. Y. Jhou, **W. Chen**

3:45 812. Phthalate ester contamination in facility agriculture and cumulative health risk assessment. **J. Gao**

4:05 Discussion.

Environmental Risk Assessment of Down-the-Drain Chemicals
Sponsored by AGRO, Cosponsored by ENVR

Environmental Study Design: Current & Emerging Guidelines
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