ENVR

DIVISION OF ENVIRONMENTAL CHEMISTRY

J. Goldfarb, *Program Chair*

SUNDAY MORNING

Section A

Renaissance Washington, DC Downtown
Meeting Room 3

Ecological & Human Health Impacts of Emerging Environmental Contaminants

Cosponsored by AGRO and CHAL
X. Pan, M. I. Selim, B. Zhang, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 1. Emerging environmental contaminants in the oceans: An overview of SOST priorities and US NSF investments. **L. Clough**

9:20 2. Applications of the web-based CompTox Chemistry Dashboard to support emerging contaminants in the Superfund Program. **A. Frame**, A.J. Williams, R. Judson, A. Mageid, G. Patlewicz, I. Shah, J. Smith, C. Grulke, J. Edwards

9:45 3. Changes in iodine speciation in surface waters receiving wastewater effluent. **K.E. Studer**, H. Weinberg

10:10 4. Effects of zinc oxide nanoparticles on the neurological behavior and pharyngeal pumping of C. *elegans*. **L. Lish**

10:35 Intermission.

10:50 5. Uptake of hormones and pharmaceutical and personal care products by quagga mussels (*Dreissena bugensis*) in an aquatic ecosystem. **X. Bai**, K. Acharya

11:15 6. Impact of nanoparticles on plant growth and development and the microRNA-mediated regulation. **B. Zhang**

11:40 7. Do humic acids alleviate the ecotoxicity of graphene oxide on crustacean *Daphnia Magna*?. **Y. Zhang**

12:05 8. Ecocultural factors of carbon emission, ecological footprints and implication for chemical safety in the environment. **K.O. Oloruntegbe**

Section B

Renaissance Washington, DC Downtown
Meeting Rooms 8/9

Electrochemical Technologies for Water Purification

Cosponsored by CATL and CEI
J. Barazesh, J. Jasper, E. Roberts, *Organizers*
B. P. Chaplin, A. Pham, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 9. Journey to enhance the stability of blue and black TiO2 nanotube array elelctrodes for water treatment. **Y. Yang**, M.R. Hoffmann

8:55 10. Degradation of carbon nanomaterials using electrochemical oxidation on BDD electrodes. **V. Reipa**, A. Urbas, L. Sander, J. Elliott, J.M. Conny, E. Petersen, S. Hanna

9:15 11. Fluorination of boron-doped diamond film electrodes for minimization of perchlorate formation. **P. Gayen**, B.P. Chaplin

9:35 12. Localized study of the surface passivation and re-reduction on a substoichiometric TiO_2 material using scanning electrochemical microscopy. **Y. Jing**, B.P. Chaplin

9:55 13. Electrochemical perchlorate reduction over bimetallic Ru-Cu catalysts supported on stainless-steel electrode in dilute aqueous solution. **C. Chen**, C. Huang

10:15 Intermission.

10:30 14. Formation of hydroxyapatite during toilet wastewater treatment by electrolysis. **C. Cid**, J. Jasper, M.R. Hoffmann

10:50 15. Negative electron affinity diamond surfaces for photoelectrochemical reduction of perfluoroalkyl substances. **N.T. Plymale**, B.B. Pate

11:10 16. Withdrawn

11:30 17. Degradation and mineralization of common pharmaceuticals using nitrogen-doped carbon monolith 3D electrode with 3D printed electrochemical reactor. **K. Liu**, M. Yu, J. Jasper, M.R. Hoffmann

11:50 18. Factors that affect cathodic hydrogen peroxide production for water and wastewater treatment applications. **S. Popat**, M. Young, D. Ki, A. Xie, B.E. Rittmann, C. Torres

Section C

Renaissance Washington, DC Downtown
Meeting Rooms 10/11

Surface Chemistry of Biochar & Its Applications in Environmental & Related Systems
M. Fan, J. L. Goldfarb, J. R. Leszczynski, *Organizers*
W. W. Chen, R. Doong, C. Huang, *Organizers, Presiding*
P. Chiu, *Presiding*

8:00 Introductory Remarks.

8:05 19. Redox and catalytic properties of zero-valent iron-included biochar for removal of nitro explosives and halogenated phenols. **S. Oh**, Y. Seo, K. Ryu

8:30 20. Mechanisms for redox transformation mediated by biochar and other black carbon. **P. Chiu**

8:55 21. Activation of biochar for energy and environmental applications. **W.W. Chen**, N.O. Egiebor, D.L. Mattern

9:20 22. Reactivity of carbonaceous nanocomposites for water purification and recovery applications. **R. Doong**

9:45 23. Nickel foam-supported activated carbon fabricated from vegetable sponge for electrosorptive removal of ammonium ion. **Y. Shih**, Y. Huang, C. Huang

10:05 Intermission.

10:20 24. Elemental and stable isotopes (C, N) analysis of thermochemically treated biomass-derived chars. **M. Reza**, C. Coronella, S.R. Poulson

10:40 25. Adsorptive removal of mercury by biochar modified with plasma. **T. Wang**, J. Liu, Y. Zhang, W. Pan, W.W. Chen

11:00 26. Functionalized activated carbons for enhancing fluoride removal capacity from water. **C. Chen**, S. Park, C. Huang

11:20 27. Withdrawn.

11:40 28. Synthesis and performance of a novel nitrogen and phosphorus dual-doped mesoporous biochar derived from algae. **B. Gao**, Q. Yue , X. Zhu, Y. Gao

Section D

Renaissance Washington, DC Downtown
Meeting Room 5

Iron & Manganese Oxides: Their Formation, Structure, Reactivity & Applications

Y. Hu, D. Waite, H. Zhang, *Organizers*
J. Fortner, M. Zhu, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 29. Schwertmannite growth by nanoparticle aggregation: Real-time scattering measurements using custom mixed flow reactors. **F. Michel**, K. Kletetschka

9:10 30. Density functional theory calculations on model ferrihydrite nanoparticles. **J.D. Kubicki**

9:30 31. Heterogeneous nucleation and growth of Ni/Cd-bearing ferrihydrite on quartz and corundum. **Y. Hu**, C. Dai, X. Zuo, R. Tang, J. Liu

9:50 32. Impurity-Bearing ferrihydrite nucleation and growth on quartz and corundum: Impurity ion hydrolysis, substitution, and adsorption. **Y. Hu**, C. Dai, J. Liu

10:10 Intermission.

10:25 33. ^{54}Mn radiotracer studies of the transformation and recrystallization of phyllomanganates in reducing environments. **E. Elzinga**

11:00 34. Magnetic Fe_3O_4 nanocubes and nanospheres: Synthesis, properties, and sensing capabilities. A. Kolhatkar, Y. Chen, I. Nekrashevich, I. Rusakova, D. Litvinov, S. Xu, R.C. Willson, **T. Lee**

11:35 35. Fabrication of hierarchical MnO_2 hollow sphere for efficient catalytic ozonation in removal of endocrine-disrupting compound. **C. He**, Y. Huang, W. Xu, J. Zeng

11:55 36. Enhanced biofilm penetration for microbial control by polyvalent phages conjugated with magnetic nanoparticles. **P. Yu**, L. Li, P.J. Alvarez

Section E

Renaissance Washington, DC Downtown
Meeting Room 4

Environmental, Social & Economic Impacts of Aged/Transformed Nanomaterial-Enabled Consumer Products

E. Sahle-Demessie, N. Savage, H. Shi, *Organizers*
S. Chae, *Organizer, Presiding*

8:30 37. Fate of cerium dioxide nanoparticles in soil monitored by single particle ICP-MS. W. Liu, **H. Shi**, K. Liu, J. Liu, C. Stephan

8:55 38. Development of validated materials and methods to characterize silver nanomaterial loaded textiles during their lifecycle. **J.M. Gorham**, S.J. Underwood, D.E. Gorka

9:20 39. Nano-composite degradation and the release of nanoparticles from consumer products during accelerated weathering. **C. Han**, E. Sahle-Demessie, H. Shi, J. Wang

9:45 40. Release of QDs from consumer electronics for sustainability evaluation of competing QD-enabled displays. **Y. Bi**, S. Chopra, J. Schoepf, F. Brown, K.D. Hristovski, T.L. Theis, P.K. Westerhoff

10:10 Intermission.

10:25 41. Factors affecting the antibacterial effects of industrial and sunscreen derived ZnO nanoparticles and their toxicity mechanisms. **S. Joo**, S. Baek, N. Kumar, M. Toborek

10:50 42. Potential environmental implications of select copper-based fungicide/bactericide employed in world markets. **A. Tegenaw**, G. Sorial, E. Sahle-Demessie

11:15 43. Carbon nanomaterials differentially impact phenanthrene bioaccumulation and elimination kinetics by earthworms. **H. Zhang**, W. Chen, X. Shen, M. Zhang, Y. Yang, J.C. White, S. Tao, X. Wang

11:40 44. Microbial transformation of carbon nanomaterials in water. **S. Chae**

12:05 45. Impact of engineered nanomaterials (ENMs) from wastewater treatment plants to biological activities in micro-ecosystems. **J. Liu**, P. Williams, C. Geisler-Lee, D. Chen, M. Peiravi, M. Fakharifar, L. Zheng, D. Lightfoot

Recent Advances towards the Bioeconomy
Sponsored by CELL, Cosponsored by AGFD, CARB, ENFL and ENVR

Advances in Residue Analytical Methods: Innovation, Current Status & Future Prospects
Sponsored by AGRO, Cosponsored by ENVR

SUNDAY AFTERNOON

Section A

Renaissance Washington, DC Downtown
Meeting Room 3

Ecological & Human Health Impacts of Emerging Environmental Contaminants

Cosponsored by AGRO and CHAL
X. Pan, M. I. Selim, B. Zhang, *Organizers, Presiding*

1:30 46. Identification of novel polyfluorinated compounds in the Tennessee River downstream of manufacturing facilities near Decatur, Alabama, USA. **S. Newton**, R.L. McMahen, J. McCord, J. Stoeckel, M. Chislock, A. Lindstrom, M. Strynar

1:50 47. Heavy metals in subtidal sediments from coastal ecosystems in Niger Delta: Distribution, source apportionment and contamination assessment. **N. Benson**, J.P. Essien, A. Olajire

2:10 48. RNA-mediated technology for pest management – environmental benefits and risks. **X. Pan**

2:30 49. Effect of earthworm activity on the fate of antibiotics and abundance of antibiotic-resistant bacteria and resistance genes in a compost amended silt loam soil. **C. Chen**, K. Xia

2:50 50. Withdrawn.

3:10 Intermission.

3:25 51. Investigating effects of benzoic acid on the fat storage and gene expressions in the insulin- signaling and fatty acid synthesis pathways using the *Caenorhabditis elegans* model. **L. Lewis**

3:45 52. Alkaline fermentation effectively enhances the recovery of carbon source and removal of antibiotic resistance genes from waste sludge. **H. Huang**, X. Zheng, Y. Chen, L. Hui

4:05 53. Cloning and expression of protocatechuate dioxygenase gene from *Klebsiella pneumoniae:* Application for degradation of sulphonated aromatic amines. **S. Dixit**, S. Garg

4:25 54. Antibiotics and antibiotic-resistant genes in bulk and rhizosphere soils: A greenhouse study of vegetables grown in soils amended with antibiotic-containing manure. **C. Chen**, G.K. Guron, K. Xia, A. Pruden, M. Ponder, P. Du

4:45 55. Presence of antibiotic resistance genes in treated wastewater and biosolids used for land application. C. Bodenreider, J. Holt, S.J. Fischer, **B.V. Kjellerup**

Section B

Renaissance Washington, DC Downtown
Meeting Rooms 8/9

Electrochemical Technologies for Water Purification

Cosponsored by CATL and CEI
J. Barazesh, J. Jasper, E. Roberts, *Organizers*
B. P. Chaplin, A. Pham, *Organizers, Presiding*

1:30 56. Salt removal from brackish waters by redox-active flow-electrode capacitive deionization (FCDI). **T. Waite**, J. Ma, D. He, W. Tang, P. Kovalsky, C. He, C. Zhang

2:10 57. Withdrawn.

2:30 58. Capacitive heat engines for brackish water deionization. **M. Hatzell**, J. Zhang, K. Hatzell

2:50 59. Withdrawn.

3:10 60. Removal and recovery of boric acid from waste water with bipolar membrane electrodialysis. **A. Yamasaki**, Y. Nakamura, M. Itabashi, T. Shoji, M. Noguchi

3:30 Intermission.

3:45 61. Application of external voltage for the prevention of organic foulants deposited on graphene oxide and molybdenum disulfide. **I. Alam**, L. Guiney, M. Hersam, I. Chowdhury

4:05 62. Effect of sulfide on the removal of hardness and silica from oil sands in-situ produced water by Fe-Electrocoagulation. **A. Pham**, H. Chow

4:25 63. Withdrawn

4:45 64. Coupling catalytic ozonation with electrocoagulation for NOM removal in water treatment. W. Yang, **T. Wu**

5:05 65. Electro-Fenton process: From stirred tank reactor to autonomous solar pre-pilot plant. **S. Segura**, E. Brillas

5:25 Concluding Remarks.

Section C

Renaissance Washington, DC Downtown
Meeting Rooms 10/11

Surface Chemistry of Biochar & Its Applications in Environmental & Related Systems
R. Doong, M. Fan, J. L. Goldfarb, C. Huang, J. R. Leszczynski, *Organizers*
W. W. Chen, *Organizer, Presiding*

1:30 66. Biofilms on activated carbon is a mediator for enhanced bioremediation of polychlorinated biphenyl (PCBs). S.J. Edwards, **B.V. Kjellerup**

1:50 67. Withdrawn.

2:10 68. Biochar and surface modified biochar for mitigation of urban and agricultural stormwater pollutants. **Y. Deng**

2:30 69. Effect of coated fulvic acid on interaction of biochars and ionizable organic pollutants. **Y. Wu**, B. Chen

2:50 70. CO_2 capture by ultrasonicated amine-functionalized graphene oxide as a model for biochar. **R. Chatterjee**, D.L. Mattern, W.W. Chen, N.O. Egiebor, Y. Liu, A. Adeniyi

3:10 Intermission.

3:25 71. Synergistic processes in early-etage acoustic treatment of biochar in CO_2 and water. **A.R. Adeniyi**, W.W. Chen, N.O. Egiebor, D.L. Mattern, J. Mobley, C. Church, R. Chatterjee

3:45 72. Development of magnetic biochar for water purification. **P.C. Ray**, S.J. Jones, A. Pramanik, R. Chatterjee, W.W. Chen

4:05 73. Withdrawn.

4:25 74. Withdrawn.

4:45 75. Enhanced desalination performance of carbon-based electrodes via pseudocapacitance using manganese dioxide in capacitive deionization. **N. Liu**, Y. Liu, T. Yu, C. Hou

5:05 76. MnO_2 structure induced surface charge effect on the performance of capacitive deionization in different pH. S. Xu, **T. Wang**, Y. Wu, C. Wang

5:25 Concluding Remarks.

Section D

Renaissance Washington, DC Downtown
Meeting Room 5

Iron & Manganese Oxides: Their Formation, Structure, Reactivity & Applications

J. Fortner, D. Waite, M. Zhu, *Organizers*
Y. Hu, H. Zhang, *Organizers, Presiding*

1:30 Interductory Remarks.

1:35 77. Redox chemistry of As(III) and Cr(VI) on iron and manganese oxide. **D.R. Strongin**, S.L. Shumlas, E.B. Cerkez, R.J. Reeder

2:10 78. Generation of hydroxyl radicals by hydroquinones and iron oxide nanoparticles. **P. Persson**

2:45 79. Withdrawn.

3:05 80. Reduction kinetics and mechanisms of nitrogen-oxygen compounds (NOCs) by Fe(II) associate with goethite versus by soluble Fe(II)-iron complex. **X. Li**, Y. Chen, H. Zhang

3:25 Intermission.

3:40 81. Transformation of nanoparticulate zero-valent iron to iron oxides and effect on reactive oxygen species generation and contaminant degradation. **T. Waite**, D. He, R. Collins, J. Ma

4:15 82. Electron mobility and trapping in iron and manganese redox cycling. **B. Gilbert**

4:50 83. Effect of MnO_2 phase structure on its oxidation performance in contaminant removal. **J.J. Huang**, S. Zhong, H. Zhang

5:10 84. Impacts of iron oxide-induced corrosion of lead on drinking water quality. **B. Trueman**, G.A. Gagnon

Section E

Renaissance Washington, DC Downtown
Meeting Room 4

Environmental Applications of Liquid Phase Catalysis for Green Chemical Processes of Renewable Materials

Cosponsored by CATL and ENFL
J. Bond, N. A. Deskins, *Organizers*
M. T. Timko, *Organizer, Presiding*

1:30 Introductory Remarks.

1:35 85. Hydrothermal carbonization of digestate in presence of zeolite. **M. Reza**, J. Mumme, M. Titirici, O. Masek, A. Pfeiffer

1:55 86. Characterization and quantification of acid sites on zeolites in the presence of solvents. **B. Xu**, N. Gould

2:15 87. Use of solid-state NMR for condensed phase catalyst applications: Hydrothermal stability and solid liquid interfaces. **R.L. Johnson**, J. Anderson, M.P. Hanrahan, M. Mellmer, J.A. Dumesic, A.J. Rossini, K. Schmidt-Rohr, B.H. Shanks

2:35 88. Quantitative kinetic descriptions of aqueous-phase sugar isomerization in hydrophobic and hydrophilic Lewis acid zeolites. M. Cordon, M. Gupta, J.W. Harris, D. Hibbitts, **R. Gounder**

2:55 89. Engineered solvent system for hydrolysis of lignocellulosic biomass using biomass derived γ-valerolactone. **A. Motagamwala**, J.A. Dumesic, W. Won, C. Maravelias

3:15 Intermission.

3:25 90. Hydrothermal catalysis to valorize renewable biomass feedstocks. **P.E. Savage**, N. Mo, J.N. Jocz, J. Jiang

4:05 91. Liquid acids on silica for dehydra-decyclization of renewable tetrahydrofuran. **P.J. Dauenhauer**

4:25 92. Structural insights into cellulase-mimicry of polystyrene-based solid acids for cellulose hydrolysis. M.V. Tyufekchiev, M.T. Timko, S. Granados Focil, K. Schmidt-Rohr, P. Duan, **M. Emmert**

4:45 93. Hydrothermal liquefaction of food waste and remediation of aqueous byproducts. **A. Paulsen**, M.T. Timko, A. Maag, P. Yelvington, T. Amundsen

5:05 94. Understanding solvent effects in the thermal and electrochemical hydrogenation of organic compounds. D. Cantu, R. Weber, Y. Wang, M. Lee, M. Nguyen, S. Akhade, A. Padmaperuma, M. Lilga, V. Glezakou, **R. Rousseau**

Recent Advances towards the Bioeconomy
Sponsored by CELL, Cosponsored by AGFD, CARB, ENFL and ENVR

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

Agrochemical Formulations
Sponsored by AGRO, Cosponsored by ENVR‡

MONDAY MORNING

Section A

Renaissance Washington, DC Downtown
Meeting Room 3

Ecological & Human Health Impacts of Emerging Environmental Contaminants

Cosponsored by AGRO and CHAL
X. Pan, M. I. Selim, B. Zhang, *Organizers, Presiding*

8:00 95. PAH compounds identified in crude oil utilizing GCMS induce germ cell apoptosis in *Caenorhabditis elegans*. **X. Pan**, J. Polli, B.R. Rushing, M.I. Selim, B. Zhang

8:20 96. Analysis of time change of environmental risks: A case study of time change of risks caused by the emission of VOSs from polymeric materials used for commercial products. M. Noguchi, **A. Yamasaki**

8:40 97. Potential environmental pollution via released leachates and microparticules from dental resin-based composite. **S. Mulligan**, G. Kakonyi, S. Thornton, J.J. Ojeda, M. Ogden, K. Moharamzadeh, A. Fairburn, N. Martin

9:00 98. Withdrawn.

9:20 99. Transformation and fate of neonicotinoid insecticides during drinking water treatment. **K. Klarich**, D.M. Cwiertny, G.H. LeFevre

9:40 Intermission.

9:55 100. Chlorination disinfection by-products in drinking and swimming pool water. **W.U. Anake**, N.U. Benson, A. Williams, O.H. Fred-Ahmadu, O.B. Enamuotor

10:15 101. Withdrawn.

10:35 102. Predicting solvent-water partitioning of charged organic species using quantum-chemically estimated Abraham pp-LFER solute parameters. **C.W. Davis**, D.M. Ditoro

10:55 103. Photoreactivity of metal-organic frameworks in aqueous solutions: Metal dependence of reactive oxygen species production. **Y. Gao**, G. Yu

Section B

Renaissance Washington, DC Downtown
Meeting Rooms 8/9

Advances in Chemical Oxidation for Water & Wastewater Treatment Systems

Financially supported by Shimadzu; Assoc. of Environmental & Engineering Science Professors (AEESP)
Y. Deng, W. Song, *Organizers, Presiding*

8:15 Introductory Remarks.

8:20 104. Studies in advanced oxidation: Understanding the details of free radical chemistry. **W.J. Cooper**

8:55 105. Photochemical oxidation of effluent organic matters: HRMS Characterization. **W. Song**, L. Lian

9:20 106. Activation of peroxymonosulfate for rhodamine B degradation by a morphology derived $CuBi_2O_4$: Intersurface reaction and degradation mechanism. **Y. Wang**, F. Qi

9:45 107. Degradation of triclosan in the presence of p-aminobenzoic acid under simulated sunlight irradiation. P. Zhai, **H. Li**

10:10 Intermission.

10:25 108. Exploring the elimination mechanism of halogenated emerging contaminants in water environments: Contribution of adsorption, photocatalysis and biological degradation. **T. An**, G. Li, J. Xiong

11:00 109. Sulfate radical oxidation of aromatic contaminants: A detailed assessment of density functional theory and high-level quantum chemical methods. C. Xiao, S. Pari, I.A. Wang, H. Liu, **B.M. Wong**

11:25 110. Withdrawn

11:50 111. Rapid degradation of theophilline drug in pharmaceutical effluents using UV/PS in an advanced oxidation persulfate system. **A. Ghauch**, **A. Baalbaki**, **N. Zeineddine**, **S. Jaber**, **S. Al Hakim**

Section C

Renaissance Washington, DC Downtown
Meeting Rooms 10/11

Measurements & Methods in Environmental Nanotechnology

Cosponsored by AGRO and ANYL
S. Hanna, M. Johnson, A. R. Montoro, B. C. Nelson, C. M. Sims, *Organizers*
E. Petersen, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 112. Detecting and verifying chemical transformations of silver nanomaterials in textiles. **D. Gorka**, J.M. Gorham

8:30 113. Measurements of transformations of silver dietary supplements in simulated gastrointestinal fluids. K.E. Marchionda, N. Patel, **R.I. Maccuspie**

8:55 114. Optical nano-tracker for capture, sequestration and detection of metal oxide nanoparticles. A. Othman, D. Andreescu, **E. Andreescu**

9:20 115. Advances in the metrology for characterizing the uptake, translocation and genotoxicity of engineered nanomaterials in terrestrial plants. **B.C. Nelson**

9:45 Intermission.

10:05 116. Separation and quantification of dissolved and nanoparticulate metals with SEC-ICP-MS. **P. Paydary**

10:30 117. Effect of environmental and biological matrices on single particle ICP-MS nanoparticle sizing and counting capabilities. **A.R. Montoro**, K. Murphy, M. Winchester

10:55 118. Separation, sizing, and quantitation of gold nanoparticles in *Caenorhabditis elegans* using mass spectrometry and imaging techniques. **M. Johnson**, S. Hanna, N. Sharp, J. Bennett, A.R. Montoro, K. Murphy, B.C. Nelson

11:20 Concluding Remarks.

Section D

Renaissance Washington, DC Downtown
Meeting Room 5

Iron & Manganese Oxides: Their Formation, Structure, Reactivity & Applications

J. Fortner, H. Zhang, M. Zhu, *Organizers*
Y. Hu, D. Waite, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 119. Capturing the variable reactivity of goethites in adsorption models for metal cations. **L.E. Katz**

8:40 120. Oxygen atom release during selenium oxyanion sorption on goethite and hematite. **P. Yue**, N. Chen, D. Peak, A. Onnis-Hayden, P. Larese-Casanova

9:00 121. Adsorptive fractionation of dissolved organic matter by iron-containing mineral soil: Macroscale approach and molecular insight. **T. Polubesova**, S. Avneri-Katz, R. Young, A.M. McKenna, H. Chen, Y. Corilo, T. Borch, B. Chefetz

9:20 122. Synthesis of green high magnetic nanoparticles and evaluation of their potential in adsorption heavy metals. **W. Marimon Bolivar**, E. Gonzalez Jimenez

9:40 Intermission.

9:55 123. Green rust formation induced by reaction between aqueous Fe(II) and smectite clay minerals. A. Jones, C. Murphy, D. Waite, **R. Collins**

10:30 124. Mechanisms of Mn(II) catalytic oxidation on ferrihydrite surface and the formation of manganese (oxyhydr)oxides. **X. Feng**, S. Lan, X. Wang, H. Yin, W. Tan, F. Liu

11:05 125. Identifying redox transition zones in the subsurface. **X. Yin**, H. Hua, L. Axe

11:25 126. Characterizing reactive iron mineral coatings in redox transition zones. **H. Hua**, X. Yin, L.B. Axe

11:45 Concluding Remarks.

Renaissance Washington, DC Downtown
Meeting Room 4

Environmental Applications of Liquid Phase Catalysis for Green Chemical Processes of Renewable Materials

Cosponsored by CATL and ENFL
J. Bond, M. T. Timko, *Organizers*
N. A. Deskins, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 127. Influence of water on furfural ring rearrangement reactions. L.V. Herrera, N. Briggs, B. Wang, **S. Crossley**

8:25 128. Hydrothermal stability of zeolites under relevant carbohydrate conversion conditions. D.W. Gardner, J. Huo, T.C. Hoff, R.L. Johnson, B.H. Shanks, **J. Tessonnier**

8:45 129. Stability and activity of zeolite in hot liquid water. **M.T. Timko**

9:05 130. Molecular-level insights into the influence of the structure of liquid water on aqueous phase heterogeneously catalyzed sugar alcohol conversions. C. Bodenschatz, T. Xie, X. Zhang, T. Sewell, **R. Getman**

9:25 131. Renewable p-xylene from 2,5-dimethylfuran and ethylene using phosphorus-containing zeolite catalysts. H. Cho, L. Ren, V. Vattipalli, Y. Yeh, N. Gould, B. Xu, R.J. Gorte, R.F. Lobo, P.J. Dauenhauer, M. Tsapatsis, **W. Fan**

9:45 Intermission.

10:00 132. Mesoporous Nb/W-silicates as propylene epoxidation catalysts. S.K. Maiti, A. Ramanathan, **B. Subramaniam**

10:40 133. Reductive conversion of lignin with copper-doped catalysts. **M.B. Foston**

11:00 134. Assessing implicit solvation models for describing surface chemistry at aqueous/Pt(111) interfaces. **S. Iyemperumal**, N.A. Deskins

11:20 135. Functionalization of 5-hydroxymethylfurfural by selective etherification. M. Allen, W. Gramlich, **T.J. Schwartz**

11:40 136. First-principles methods for modeling electrochemical processes. **R. Sundararaman**

Sustaining Water Resources: Environmental & Economic Impact
Sponsored by MPPG, Cosponsored by COMSCI‡, ENVR, GEOC, I&EC and PRES

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

Biomass to Fuels & Chemicals: Research, Innovation & Commercialization

Current State & Future Path
Sponsored by ENFL, Cosponsored by BMGT‡, CEI‡, ENVR, MPPG, PRES, PROF‡, SCHB and WCC

MONDAY AFTERNOON

Section A

Renaissance Washington, DC Downtown
Meeting Room 3

Advances & Challenges in Separation & Mixing of Salts for the Sustainable Production of Food, Energy & Water

D. Jassby, C. Kim, J. R. Landon, S. Lin, *Organizers*
S. Chae, J. Park, N. Y. Yip, *Organizers, Presiding*

1:30 137. Reverse electrodialysis as a new power source for small devices. S. Kwon, S. Baek, **T.D. Chung**

2:00 138. Development of reverse electrodialysis salinity gradient power. **C. Kim**, K. Hwang, J. Han, H. Kim, N. Jeong, Y. Choi, S. Hong

2:20 139. Fouling control of ion-exchange membranes in reverse electrodialysis. D. Kim, S. Chae, C. Kim, N. Jeong, **J. Park**

2:40 140. Effects of divalent cations on electrical resistance of ion exchange membranes for energy production using reverse electrodialysis. Y. Oh, C. Kim, N. Jeong, J. Park, **S. Chae**

3:00 141. Energy efficiency of reverse-electrodialysis cell according to hydrodynamic energy losses. **H. Kim**, J. Nam, K. Hwang, J. Han, N. Jeong, C. Kim

3:20 Intermission.

3:40 142. Structure-property analysis of conductivity-permselectivity tradeoff in ion-exchange membranes. **N. Yip**

4:10 143. Theoretical and experimental investigation of hydrogen production from the mixing of sea and river water. **M. Hatzell**, M. Nazemi, A. Agles

4:30 144. Withdrawn.

4:50 145. Forward osmosis using sulfur containing air pollutants as draw solution for water-energy-food nexus technology. V.H. Tran, **D. Han**, H. Park, A. Abdel-Wahab, H. Shon

5:10 146. Water-solute permselectivity limits of biomimetic desalination membranes. **J. Werber**, M. Elimelech

Section B

Renaissance Washington, DC Downtown
Meeting Rooms 8/9

Advances in Chemical Oxidation for Water & Wastewater Treatment Systems

Financially supported by Shimadzu; Assoc. of Environmental & Engineering Science Professors (AEESP)
Y. Deng, W. Song, *Organizers, Presiding*

1:30 147. Advances in the field of advanced oxidation processes for the treatment of cyanotoxins. **D.D. Dionysiou**

2:05 148. Ferrate(VI) reactions with phosphate in water. **Y. Deng**, S.C. Myneni

2:30 149. Treatment of several drinking water contaminants with ferrate via oxidation and precipitation mechanisms. **J. Goodwill**, J. Cunningham, X. Mai, Y. Jiang, K. Ikuma, D. Reckhow, J.E. Tobiason

2:55 150. Synergistic effect of nickel-iron-foam and tetrapolyphosphate enables the electro-Fenton process at *circum*-neutral pH. **F. Deng**, H. Olvera-Vargas, O. Garcia-Rodriguez, S. Qiu, J. Yang, **O. Lefebvre**

3:20 Intermission.

3:35 151. Comparative study in treating stripped off mixtures of trihalomethanes (THMs) in biotrickling filters (BTFs). **B. Mezgebe**, G. Sorial, E. Sahle-Demessie, D. Wendell

4:00 152. Roles of ozone oxidation, adsorption and biodegradation in the removal of disinfection by-product precursors and emerging contaminants in pilot-scale ozone BAC contactors applied for potable reuse. **Y. Sun**, Z. Wang, B. Angelotti, M. Brooks, B. Dowbiggin, P. Evans, B. Devins

4:25 153. Iron(III)-based metal organic frameworks as heterogeneous Fenton-like catalysts for organic pollutant degradation. **X. Quan**, C. Gao

4:50 154. Effect of seawater natural organic matter on oxidation process: A case study seawater Republic of Korea. **H. Kye**, K. Kim, Y. Jung, Y. Ahn, Y.W. Abrha, S. Nam, I. Choi, J. Kang

5:15 Concluding Remarks.

Section C

Renaissance Washington, DC Downtown
Meeting Rooms 10/11

Measurements & Methods in Environmental Nanotechnology

Cosponsored by AGRO and ANYL
S. Hanna, M. Johnson, A. R. Montoro, B. C. Nelson, C. M. Sims, *Organizers*
E. Petersen, *Organizer, Presiding*

1:30 Introductory Remarks.

1:35 155. Degradation of single-layered g-C_3N_4 nanomaterial via Fenton reaction. **Y. Feng**, Z. Xie, G. Liu

2:00 156. Probing interactions between graphene oxide and human serum albumin protein: Measurements, mechanisms, and implications for nanoparticle-cell membrane interactions. **X. Liu**, C. Yan, K. Chen

2:25 157. Radiochemical studies on the fate of C_{60} in soils. **D. Navarro**, R.S. Kookana, M. McLaughlin, J. Kirby

2:50 Intermission.

3:10 158. Surface functionalized cellulose nanomaterials with fluorogenic probes. **J.W. Woodcock**, D. Fox, J. Gilman, S. Stranick, B. Natarajan

3:35 159. Development of a microwave induced heating method for the detection of carbon nanotubes in environmental matrices. **S.R. Al-Abed**, D.D. Dionysiou, Y. He

4:00 160. Methods to assess the environmental degradation of carbon nanotube/polymer nanocomposites. **D.G. Goodwin**, J.M. Gorham, K.C. Scott, L. Sung

4:25 161. Agglomeration of *Escherichia coli* with positively charged nanoparticles can lead to artifacts in a standard *Caenorhabditis elegans* toxicity assay. S. Hanna, A.R. Montoro, A. Peterson, V. Reipa, L. Scanlan, S. Hosbas Coskun, T. Cho, M. Johnson, V.A. Hackley, B.C. Nelson, M. Winchester, J. Elliott, **E. Petersen**

4:50 Concluding Remarks.

Section D

Renaissance Washington, DC Downtown
Meeting Room 5

Nano-Enabled Water Treatment Technologies: Applications & Implications

Cosponsored by CATL
K. D. Hristovski, M. S. Wong, *Organizers*
N. Hoogesteijn von Reitzenstein, A. Mulchandani, C. Powell, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 162. Effect of pH and ionic strength on self-healing hydrogel pore-filled water filtration membranes. **B. Getchew**, S. Kim, J. Kim

1:55 163. Treatment performance of secondary effluents by nanofiber composite forward osmosis membrane. C. Zhang, T. Cai, **M. Huang**

2:15 164. Interfacial transport in cellulose nanocrystal based thin film nanocomposite membranes for reverse osmosis water desalination. E.D. Smith, **S. Martin**

2:35 165. Withdrawn.

2:55 Intermission.

3:10 166. Engineering high-effective antifouling polyether sulfone membrane with novel amphiphilic copolymer and organic-inorganic composite modifier. **J. Jiang**, Q. Zhang, X. Zhan, D. Cheng, F. Chen

3:30 167. Development of nanoscale zirconium molybdate embedded anion exchange resin for selective removal of phosphate. **T.H. Bui**, S. Hong, J. Yoon

3:50 168. Withdrawn.

4:10 169. Withdrawn.

4:30 Concluding Remarks.

Renaissance Washington, DC Downtown
Meeting Room 4

Heterogeneous Catalysis for Environmental & Energy Applications

Cosponsored by CATL
A. Orlov, A. Savara, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 170. Withdrawn

1:55 171. Withdrawn

2:15 172. Oxidative dehydrogenation of but-1-ene with copper oxide catalyst. **T. Kiyokawa**, K. Fuku, N. Ikenaga

2:35 173. Design of composite catalysts introduced tungstate and inorganic anions on calcined LDH for controlling oxidative reaction property using hydrogen peroxide. **K. Fuku**, S. Fujimoto, N. Ikenaga

2:55 174. Oriented microwave energy conversion based on metal-triggered discharges and its application in VOCs/Tar destruction. **J. Sun**, W. Wang, Z. Song, X. Zhao, Y. Mao

3:15 Intermission.

3:30 175. Enhanced environmental remediation using triplet–triplet annihilation upconversion: Broadening the sub-band light absorption of semiconductor photocatalysts. **A.L. Hagstrom**, S. Weon, H. Kim, W. Choi, J. Kim

3:50 176. Photoreduction, adsorption and aggregation of graphene oxide-Fe(III) complexes for the efficient removal of Cr(VI) under visible-light irradiation. **L. Renlan**, X. Zhu, B. Chen

4:10 177. Microkinetic modeling and molecular origin of the selectivity differences between palladium and gold–palladium in benzyl alcohol oxidation. **A. Savara**

4:30 178. Can heterogenous suspensions provide micro-environments protected from radical scavengers during ozonation?. **B. Solomon**, J.L. Ferry

4:50 179. Efficient catalytic ozonation over fluorine-doped carbon nanotubes for oxalic acid degradation. **J. Wang**, X. Quan

5:10 180. Dramatically stable birnessite-type MnO_2 for gaseous ozone decomposition in humid stream at room temperature: Effects of post nitric acid treatment. **P. Zhang**, Y. Liu

Atmospheric Fate & Transport of Agricultural Emissions
Sponsored by AGRO, Cosponsored by ENVR‡

Biomass to Fuels & Chemicals: Research, Innovation & Commercialization

Challenges & Opportunities
Sponsored by ENFL, Cosponsored by BMGT‡, CEI‡, ENVR, MPPG, PRES, PROF‡, SCHB and WCC

2,4-D Human Exposure Data: Lessons from Decades of Study
Sponsored by AGRO, Cosponsored by ENVR

Undergraduate Research Posters

Environmental Chemistry
Sponsored by CHED, Cosponsored by ENVR and SOCED

MONDAY EVENING

Section A

Walter E. Washington Convention Center
Halls D/E

Sci-Mix

J. L. Goldfarb, *Organizer*

8:00 - 10:00

17, **79**, **120**. See Previous Listings.

367, **368**, **369**, **380**, **385**, **386**, **390**, **393**, **395**, **405**, **406**, **428**, **439**, **442**, **454**, **459**, **460**, **461**, **462**, **468**, **469**, **474**, **476**, **479**, **481**, **487**, **488**, **489**, **492**, **502**, **506**, **512**, **515**, **517**. See Subsequent Listings.

TUESDAY MORNING

Section A

Renaissance Washington, DC Downtown
Meeting Room 3

Science & Perception of Climate Change

Cosponsored by CEI
Financially supported by Western Michigan University Department of Chemistry
S. O. Obare, E. Schoffers, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 181. Engaging diverse audiences with climate change: Message strategies for global warming's six Americas. **J. Kotcher**

8:35 182. 4th National Climate Assessment and Beyond: Informing decisions across sectors and scales. **C.W. Avery**, D. Reidmiller, K. Reeves

8:55 183. Climate science literacy, educational tools for the lifelong learner. **G.P. Foy**, K.E. Peterman, R.L. Foy, L. Clements

9:15 184. Why do students respond favorably to attempts to teach climate change?. **G.M. Bodner**

9:40 Intermission.

9:50 185. Response to a warming world. If not us, who?. **J.A. Bell**

10:10 186. Global warming is unequivocal: From Arrhenius to Keeling…facts are not enough to influence public sentiment. **B.Z. Shakhashiri**

10:30 187. Can science be translated to the public? How popular media and other stakeholders frame the climate change debate. **E. Schoffers**

10:50 188. How culture shapes the climate change debate. **A.J. Hoffman**

11:30 Panel Discussion.

Section B

Renaissance Washington, DC Downtown
Meeting Rooms 8/9

Multi-Phase Environmental Chemistry of Aerosols
Aerosol Chemistry of Biomass Burning

A. Laskin, S. A. Nizkorodov, *Organizers*
S. W. Hunt, *Organizer, Presiding*
A. P. Ault, D. O. Dehaan, *Presiding*

8:00 Opening Remarks.

8:05 189. Laboratory and field studies of the multiphase chemistry of isoprene-derived epoxides and hydroperoxides leading to secondary organic aerosol formation. **J. Surratt**, Y. Lin, M. Riva, W. Rattanavaraha, S. Budisulistiorini, Y. Chen, Y. Zhang, Z. Zhang, A. Gold, M. Arashiro, R. Fry, S. Martin, S. de Sa, I. Ribeiro, E. Oliveira, C. Machado, R. de Souza, E. Gomes, S. Duvoisin, J.T. Jayne, D.R. Worsnop, A. Lambe, P. Croteau, M. Canagaratna, H. Pye, V.F. McNeill, J.A. Thornton

8:40 190. Gas-phase kinetics modifies the CCN activity of biogenic SOA. A.E. Vizenor, **A. Asa-Awuku**

9:05 191. Photodegradation and photosensitization reactions of secondary organic aerosols on environmental surfaces. **K.T. Malecha**, S.A. Nizkorodov, J. Smith, C.L. Faiola, A. Ylisirniö, A. Virtanen, J. Holopainen, S. Schobesberger

9:25 192. Inorganic seed surface area dependence of secondary organic aerosol formation from dark a-pinene ozonolysis in a continuous flow environmental chamber. **Y. Han**, Z. Gong, P. Liu, S. de Sa, K.A. McKinney, S. Martin

9:45 Intermission.

10:05 193. Formation and aging of biomass organic aerosols in wildfire emissions in the Western U.S.. **Q. Zhang**, S. Zhou, S. Collier, T.B. Onasch, D. Jaffe, A. Sedlacek, L. Kleinman

10:40 194. Molecular characterization of atmospheric brown carbon. **A. Laskin**, J. Laskin, S.A. Nizkorodov, P. Lin

11:05 195. Reactive uptake of ammonia by biogenic and anthropogenic organic aerosols. **S.A. Nizkorodov**, J. Montoya, M. Hinks, P. Aiona, V. Perraud, J. Horne, S. Zhu, D. Dabdub, A. Laskin, J. Laskin, P. Lin

11:30 196. Measured absorption spectra of aerosolized carbonaceous species and their influence on climate forcing. **C. Zangmeister**

Section C

Renaissance Washington, DC Downtown
Meeting Rooms 10/11

Trace Organic Contaminants (TrOCs) in Aquatic Systems: Advancements in Monitoring & Remediation

Cosponsored by ANYL and BIOL
M. Shreve, *Organizer*
R. Brennan, *Organizer, Presiding*

8:00 Introductory Remarks.

8:10 197. Comprehensive quantification and screening of emerging per/polyfluoroalkyl substances (PFAS) in an aquatic ecosystem. **T. Anumol**, T. Coggan, R. Hindle, K. Hunt, B. Clarke

8:30 198. Development of a nanotechnology enabled passive sampling device for legacy and emerging organic pollutants. **J. Qian**, D.M. Cwiertny, A. Martinez

8:50 199. Fate of imidazolium, pyridinium, pyrrolidinium, and piperidinium ionic liquid cations in natural and technical aquatic systems. **S.G. Pati**, W. Arnold

9:10 200. Dual-biofilm reactive barrier for *in situ* remediation of chlorobenzenes at anaerobic-aerobic interfaces in contaminated groundwater. **S.J. Chow**, M. Lorah, A. Wadhawan, N.D. Durant, E.J. Bouwer

9:30 201. Effects of temperature and filtration rate on removal of contaminants of emerging concern (CECs) in biologically-active GAC filters. **B. Ma**, R.M. Hozalski, W. Arnold, T. LaPara

9:50 Intermission.

10:05 202. Characterization and quantification of pharmaceutical and personal care product (PPCP) interactions with biosolids-derived dissolved organic matter. **S.J. Fischer**, M. Ramirez, A. Torrents

10:25 203. Optimization studies of a vertical flow filtration column system for endocrine activity removal in wastewater. **B.E. Holmes**, K.J. McDermott, H. Weinberg

10:45 204. Removal of trace organic contaminants and estrogenic activity in six full-scale integrated fixed-film activated sludge (IFAS) wastewater treatment plants. **M. Shreve**, R. Brennan

11:05 205. Source apportionment of polychlorinated biphenyls in District of Columbia wastewater. **S.L. Capozzi**, R. Jing, L.A. Rodenburg, B.V. Kjellerup, E.K. Wilson

11:25 206. Screening of a large number of trace organic compounds in drinking water using point-of-use filters and suspect screening analysis. **S. Newton**, R.L. McMahen, J.R. Sobus, A.J. Williams, A.D. McEachran, M. Strynar

11:45 Discussion.

Section D

Renaissance Washington, DC Downtown
Meeting Room 5

Advances & Challenges at the Food-Energy-Water Nexus

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

8:00 207. Nutrient-energy-water (NEW) recovery by osmotic bioelectrochemical systems towards sustainable wastewater treatment. M. Qin, **Z. He**

8:30 208. Recovery of major and micronutrients (N,P,S,Cu,Zn) from solid and liquid industrial waste and reuse in enhanced efficiency fertilizer production. **G. Sarapajevaite**, C. Navizaga, J. Boecker, K. Baltakys, J. Baltrusaitis

8:50 209. Using hydrothermal carbonization to beneficially recover nutrients from food wastes. **N.D. Berge**, J.R. Flora, I. Idowu, L. Li, K. Ro

9:10 210. Aerated fluidized bed treatment for phosphate recovery from dairy and swine wastewater. **A. Rabinovich**, A. Rouff

9:30 211. Resource recovery from high strength wastewater: Evaluating the resilience of multilayer composite-encapsulated bacterial cultures. **C.W. Davis**, K. Zhu, P. Novak, W. Arnold

9:50 Intermission.

10:10 212. NEWAGE: A system with enhanced energy recovery and value-added products from wastewater and wastewater biosolids for agriculture and green environment. **Z. Liu**, D. Zitomer, P. McNamara, B. Mayer, A. Parolari, W. McDonald

10:40 213. Withdrawn.

11:00 214. Low cost nutrient monitoring for fertilizer production from source-separated urine on an urban farm. **R. Sui**, J. Lorencen, Z.E. Wilton, E.K. Drake, O.R. Sinutko, R. Lahr

11:20 215. Treated laterite as potential adsorbent for removal of heavy metals from drinking water. **S. Chatterjee**, S. De

11:40 216. Bio-inspired membranes from block polymer precursors for remediation of heavy metal contaminated water sources. **J.L. Weidman**, R.A. Mulvenna, B.W. Boudouris, W.A. Phillip

Section E

Renaissance Washington, DC Downtown
Meeting Room 4

Nano-Enabled Water Treatment Technologies: Applications & Implications

Cosponsored by CATL
K. D. Hristovski, M. S. Wong, *Organizers*
N. Hoogesteijn von Reitzenstein, A. Mulchandani, C. Powell, *Organizers, Presiding*

8:15 Introductory Remarks.

8:20 217. Mechanistic understanding of function and impact of hematite nanoparticle (na-Fe_2O_3) size and shape on sustainable aqueous inorganic remediation. **A.W. Lounsbury**, D. Peak, J.B. Zimmerman

8:40 218. Withdrawn.

9:00 219. Fast and efficient heavy metal removal from contaminated water using metal-organic frameworks. D.T. Sun, L. Peng, S. Chaurd, W.S. Reeder, E. Oveisi, **W.L. Queen**

9:20 220. Adsorption of organic aromatic molecules from aqueous environments by electronically sorted SWCNTs. **J.R. Rocha**, R.E. Rogers, A.B. Dichiara, R.C. Capasse

9:40 221. As (III) and As (V) adsorption by nanocomposite of hydrated zirconium oxide coated carbon nanotubes. **D. Liu**, S. Deng, G. Yu

10:00 Intermission.

10:15 222. Functionalized aluminum oxide hydroxide nanowhiskers for heavy metal removal. **Z. Xia**, L.M. Baird, N. Zimmerman

10:35 223. Improving arsenic sorption capacity by doping metal (hydr)oxide nano-enabled hybrid media with more electronegative transition metal. J. Markovski, T. Custudio, **K.D. Hristovski**

10:55 224. Recovery of inorganic phosphorus using copper-substituted ZSM-5. **M. Manto**, P. Xie, M. Keller, W. Liano, T. Pu, C. Wang

11:15 225. Biomimetic biomineralization-inspired hybrid electrospun-silk-nanofiber@metal-organic-framework membranes for universal water purification. **L. Zhishang**, G. Zhou, Q. Zhang, H. Dai, Y. Fu, Y. Li

11:35 Concluding Remarks.

Atmospheric Fate & Transport of Agricultural Emissions
Sponsored by AGRO, Cosponsored by ENVR‡

Application of Spatial Technologies to Advance Exposure Modeling & Risk Assessments
Sponsored by AGRO, Cosponsored by ENVR

Biomass to Fuels & Chemicals: Research, Innovation & Commercialization

From Research to Scale-Up
Sponsored by ENFL, Cosponsored by BMGT‡, CEI‡, ENVR, MPPG, PRES, PROF‡, SCHB and WCC

Journey to Mars: Materials, Energy & Life Sciences
Sponsored by POLY, Cosponsored by ANYL‡, BMGT‡, COLL‡, ENVR‡, FLUO‡, PMSE‡, PRES, SCHB‡ and YCC‡

TUESDAY AFTERNOON

Section A

Renaissance Washington, DC Downtown
Meeting Room 3

Fate, Transport & Remediation of Radionuclides in the Environment

P. Paviet, *Organizer*
V. Anagnostopoulos, S. Saslow, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 226. Principles that guide fate and transport of actinides in the environment: Example application to the WIPP safety case. **D.T. Reed**

2:05 227. Stability and persistence of plutonium colloids in nature. **A. Kersting**, J. Begg, E. Balboni, T. Parsons-Moss, J. Shusterman, P. Zhao, M. Zavarin

2:25 228. Plant responses to nutrient stress could co-facilitate radionuclide mobilization from soils. **N. Edayilam**, B. Ferguson, D. Montgomery, B.A. Powell, N. Tharayil

2:45 229. Comparison of Eu and Np sorption to aluminum (hydr)oxide minerals. T. Baumer, P. Kay, **A.E. Hixon**

3:15 Intermission.

3:25 230. Aquatic chemistry and thermodynamics of technetium: Redox processes, solubility and complexation. **X. Gaona**, E. Yalcintas, A. Baumann, R. Polly, M. Altmaier, H. Geckeis

3:55 231. Mechanisms for simultaneous Tc and Cr removal by $Fe(OH)_2$ in Hanford waste streams. **S. Saslow**, W. Um, G. Wang, D. Kim, M. Schweiger, A.A. Kruger

4:15 232. Use of titanium dioxide as a platform for the photoreduction of Technetium-99. **C. Brent**, L.C. Francesconi, B.P. Burton-Pye, I. Radivojevic

4:35 233. Chemometric determination of the localized chemistry of Tc-99 in simulated nuclear waste glasses. **J.L. Weaver**

5:05 234. Department of Energy's efforts on the back end of the nuclear fuel cycle and connection to environmental clean-up efforts. **P. Paviet**

5:25 Concluding Remarks.

Section B

Renaissance Washington, DC Downtown
Meeting Rooms 8/9

Multi-Phase Environmental Chemistry of Aerosols

Aqueous Chemistry in the Atmosphere

S. W. Hunt, S. A. Nizkorodov, *Organizers*
A. Laskin, *Organizer, Presiding*
J. Surratt, Q. Zhang, *Presiding*

1:30 235. Tropospheric aerosol particle organic mass formation: HOMs uptake and cloud processing. **H. Herrmann**

2:05 236. Aqueous phase photo-oxidation of nitrophenol brown carbon compounds. **R.F. Hems**, J.P. Abbatt

2:25 237. Integrating direct measurements of aerosol pH to improve understanding of acidity in the atmosphere. **A.P. Ault**, R.L. Craig, A. Bondy, J.L. Axson

2:50 238. Aqueous and dry aerosol processing of dicarbonyls: Uptake coefficients, SOA production, and radiative forcing. **D.O. Dehaan**

3:15 Intermission.

3:35 239. Exploring spatial differences in satellite aerosol optical thickness as a function speciated organic particle mass. **A. Carlton**

4:10 240. Contrasting multi-phase chemistry in urban and rural environments. **C. Hennigan**, S. Douglas, M. Battaglia

4:35 241. Modelling atmospheric mineral aerosol chemistry to predict heterogeneous photocatalytic oxidation of SO_2 and NO_x. **M. Jang**, Z. Yu, J. Park

5:00 242. Aerosol interactions with fog in urban and suburban sites in northeastern France: Applications of carbon isotopic analysis. **D.C. Napolitano**, O. Delhomme, M. Millet, P. Herckes

Section C

Renaissance Washington, DC Downtown
Meeting Rooms 10/11

Monitoring Water Quality & Infrastructure to Prevent Future Flints

Cosponsored by CEI and MPPG
B. G. Loganathan, *Organizer*
S. Ahuja, *Organizer, Presiding*
B. Loganathan, *Presiding*

1:30 Introductory Remarks.

1:35 243. Origins of the Flint water crisis. **M. Edwards**

2:15 244. Global climate change. **N.B. Jackson**

2:35 245. Learning from horror stories of water contamination. **S. Ahuja**

2:55 246. Investigating the missing link: Effects of noncompliance and aging private infrastructure on water quality monitoring. **A. Cooper**, S. Ahuja

3:15 247. Impacts of infrastructure deficiencies on potable water quality in the Republic of Serbia. J. Markovski, M. Markovski, **K.D. Hristovski**, L. Olson

3:35 Intermission.

3:45 248. Harmful algal blooms: Their effects are global and massive and we need to mitigate them. **X. Duan**, D.D. Dionysiou

4:05 249. Methods for characterization of chemical and biological groundwater interactions with close-proximity oil and gas extraction activity. **K. Schug**, D.D. Carlton, I.C. Santos, Z.L. Hildenbrand, M. Martin, M. Reyes, D. Reyes

4:25 250. Developing a sensitive biosensor for monitoring arsenic in drinking water supplies. **J. Berberich**, T. Li, E. Sahle-Demessie, S. Zeh, S. Minderlein

4:45 251. Low-cost tap water monitoring via the coffee-ring effect. **R. Lahr**, X. Li, S. Allen, A.R. Sanderson

5:05 252. Integrating microplastics data into water quality monitoring protocol. **J.R. Peller**, L. Eberhardt, R. Alam, T. Janesheski, A. Kubalewski

5:25 Concluding Remarks.

Section D

Renaissance Washington, DC Downtown
Meeting Room 5

Advances & Challenges at the Food-Energy-Water Nexus

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

1:30 253. Algae-based sustainable urban-wastewater reclamation ecosystem (aSURE): An integrated approach to sustaining food-energy-water supply. **Y. Zhang**

2:00 254. Mold–yeast consortia convert food waste to alcohol for vapor-fed bio-hybrid fuel cells. **H.M. LeFors**, J. Jahnke, M. Benyamin, D.M. Mackie

2:20 255. Withdrawn.

2:40 256. Biogeochemical effects of silicon-rich amendments in rice paddies. **M. Limmer**, J. Mann, D. Amaral, A. Seyfferth

3:00 257. Model systems to study plant accumulation of ionizable organic contaminants. **S.L. Nason**, E.L. Miller, K. Karthikeyan, J.A. Pedersen

3:20 Intermission.

3:40 258. Produced water reuse options in Kansas: A case study at the food-energy-water nexus. **E.F. Peltier**, S.J. Randtke, K. Shafer-Peltier, R. Barati, O. Dollar, S. Thompson

4:10 259. Water quality challenges in creating a sustainable water reuse framework in Abu Dhabi, UAE. **F. Ahmad**

4:30 260. Assessment of cost-effective and sustainable irrigation water management practices in agricultural watershed. **M. Paul**, M. Negahban-Azar

4:50 261. Reduction of excess biological sludge in tannery effluent treatment. **V. Sodhi**, A. Bansal, M.K. Jha

Section E

Renaissance Washington, DC Downtown
Meeting Room 4

Nano-Enabled Water Treatment Technologies: Applications & Implications

Cosponsored by CATL
K. D. Hristovski, M. S. Wong, *Organizers*
N. Hoogesteijn von Reitzenstein, A. Mulchandani, C. Powell, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 262. In-situ growth of TiO_2 on TiN nanoparticles for non-noble-metal plasmonic photocatalysis. C. Li, W. Yang, L. Liu, W. Sun, **Q. Li**

1:55 263. Influence of functional groups on the indirect photolysis of graphene. **M. Shams**, L. Guiney, M. Hersam, **I. Chowdhury**

2:15 264. Adsorption-photocatalysis composite nanomaterials for water treatment. **M. Suh**, C. Li, H. Jing, C.K. Chan, J. Kim

2:35 265. Solar-photothermal nanomaterials: Fundamentals and application for the inactivation of virus and bacteria in drinking water. **S. Loeb**, C. Li, J. Kim

2:55 Intermission.

3:10 266. Design of novel nano-enabled photothermal desiccants to improve energy efficiency of atmospheric water capture. **A. Mulchandani**, P.K. Westerhoff

3:30 267. Development of a powder assay kit to fast detect gold nanoparticles in aquatic media. **X. Bi**, P.K. Westerhoff

3:50 268. Edible science: Food dye sensitized water disinfection and safety indication. **E. Ryberg**, J. Kim

4:10 269. Fabrication of graphene oxide/poly(ethyleneimine) aerogel with controlled surface charge for both anionic and cationic dyes removal. **Q. Zhao**, **X. Zhu**, **B. Chen**

4:30 Concluding Remarks.

Section F

Renaissance Washington, DC Downtown
Meeting Room 12

C. Ellen Gonter Environmental Graduate Student Award

T. Anderson, *Organizer, Presiding*

1:30 Introductory Remarks.

1:35 270. Measurement of the pH of individual aerosol droplets by surface-enhanced Raman spectroscopy. **H. Wei**, L.C. Marr, P.J. Vikesland

1:55 271. Simple method to quantify the carboxyl group areal density in the active layer of polyamide thin-film composite membranes. **J.R. Werber**, D. Chen, M. Elimelech

2:15 272. Probing interaction and penetration forces between a silver nanoparticle and supported lipid bilayers using atomic force microscopy. **X. Liu**, K. Chen

2:35 273. Ultra-strong three-dimensional graphene oxide sponges reinforced by cellulose nanocrystals. **N. Yousefi**, K. Wong, Z. Hosseinidoust, A. Angulo, N. Tufenkji

2:55 Intermission.

3:10 274. Quantifying historical levels of antibiotics in freshwater lake sediment cores. **J.F. Kerrigan**, D. Engstrom, K. Sandberg, T. LaPara, W. Arnold

3:30 275. Dissolved organophosphate ester flame retardants in the North Atlantic and Arctic Oceans. **C.A. McDonough**, C. Sun, D. Adelman, T. Soltwedel, E. Bauerfeind, D. Muir, R. Lohmann

Vehicle Emission Control Catalysis: New Era, New Challenges & New Solutions
Sponsored by CATL, Cosponsored by ENFL and ENVR

Atmospheric Fate & Transport of Agricultural Emissions
Sponsored by AGRO, Cosponsored by ENVR‡

Biomass to Fuels & Chemicals: Research, Innovation & Commercialization
Innovating in Biomass Conversion: Factors for Success
Sponsored by ENFL, Cosponsored by BMGT‡, CEI‡, ENVR, MPPG, PRES, PROF‡, SCHB and WCC

Advances in Carbon Dioxide Utilization
Sponsored by CATL, Cosponsored by ENFL and ENVR

Journey to Mars: Materials, Energy & Life Sciences
Sponsored by POLY, Cosponsored by ANYL‡, BMGT‡, COLL‡, ENVR‡, FLUO‡, PMSE‡, PRES, SCHB‡ and YCC‡

TUESDAY EVENING

Journey to Mars: Materials, Energy & Life Sciences

Sponsored by POLY, Cosponsored by ANYL‡, BMGT‡, COLL‡, ENVR‡, FLUO‡, PMSE‡, PRES, SCHB‡ and YCC‡

WEDNESDAY MORNING

Section A

Renaissance Washington, DC Downtown
Meeting Room 3

Economic Impact of Environmental Health Research: A Case Study of the NIEHS Superfund Research Program

Cosponsored by MPPG
H. Henry, K. G. Pennell, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 276. Economic impact of environmental health research: A case study of the NIH/NIEHS superfund research program. **H. Henry**, D.J. Carlin, M. Heacock, B. Trottier, W.A. Suk

8:25 277. New advances reduces remediation costs for legacy pollutants in sediments. **U. Ghosh**

8:45 278. Application of monoclonal antibody-based biosensor analysis for rapid assessment of PAH distribution, fate and toxicity at contaminated sediment sites. **M. Unger**, A. Beck, G. Vadas, M. Vogelbein, M. Cochran, S. Hartzell, L. Yonkos, J. Rieger

9:05 279. Diffusive flux of PAHs across sediment-water and water-air interfaces at urban superfund sites. **J. Minick**, K.A. Anderson

9:25 280. Laboratory and computational technologies to reduce the cost and improve the quality of congener-specific measurement of PCB congeners in air, water, sediments, and biological matrices. **K.C. Hornbuckle**, R.F. Marek, A. Awad, N. Herkert, A. Martinez, P. Saktrakulkla

9:45 Intermission.

10:05 281. Use of reactive mats for cost-effective clean-up of contaminated aquatic sediments. D. Meric, A. Alshawabkeh, J.M. Shine, **T. Sheahan**

10:25 282. Metal functionalized nanostructured membrane technology for water remediation. **D. Bhattacharyya**, S. Hernandez, A. Saad, H. Wan, M.S. Islam, A. Aher, L. Ormsbee

10:45 283. Optimization of Fe/Pd nanoparticles immobilized membrane systems for PCB degradation. **H. Wan**, N. Briot, L. Ormsbee, D. Bhattacharyya

11:05 284. Optimization of magnetite based arsenic immobilization strategies: Role of coupled iron oxidation and reduction in magnetite formation. **B.C. Bostick**, J. Jamieson, A.A. Nghiem, J. Sun, B.J. Mailloux, A. Yusov, H. Prommer, O. Duckworth, S.N. Chillrud

11:25 285. Effect of manganese on in-situ magnetite formation and field implementation of groundwater remediation technologies. **A.A. Nghiem**, B.J. Mailloux, S.N. Chillrud, J. Sun, H. Prommer, B.C. Bostick

Section B

Renaissance Washington, DC Downtown
Meeting Rooms 8/9

Multi-Phase Environmental Chemistry of Aerosols

Chemistry at Interfaces

S. W. Hunt, A. Laskin, *Organizers*
S. A. Nizkorodov, *Organizer, Presiding*
Y. Rudich, R. Weber, *Presiding*

8:00 Introductory Remarks.

8:05 286. Interfacial chemistry of free radicals and the oxidation of organic aerosol. **K.R. Wilson**

8:40 287. Reactions of Criegee intermediates at the gas-liquid interface. **S. Enami**

9:05 288. Contributions from water-air interfaces in the multiphase environmental chemistry of a-ketoacids. **V. Vaida**, A. Reed Harris, R. Rapf, R. Perkins

9:30 289. Processing of unsaturated carboxylic acids by ozone at the air-water interface: Implications for aerosol aging. **L. Li**, A.J. Colussi, S. Enami, M.R. Hoffmann

9:50 Intermission.

10:10 290. Location, location: Chemical morphology and reactivity at environmental interfaces. **D. Donaldson**

10:45 291. Multiphase chemistry of nitrogen oxides on soil surfaces. M.A. Donaldson, R.F. Hansen, **J.D. Raff**

11:20 292. Novel aerosol suspension chamber for exploring atmospheric interfacial reactions. **C. Smith**, A. Ziegler, M. Brown, E.M. Durke, S. Dhaniyala, J.R. Morris

11:40 293. Halogen activation: Decomposing surface and bulk processes. **J. Edebeli**, M. Ammann, A. Gilgen, A. Eichler, M. Schneebeli, T. Bartels-Rausch

Section C

Renaissance Washington, DC Downtown
Meeting Rooms 10/11

Impact of Materials, Surface Chemistry & Modifications on Biofilm Formation in Environmental Remediation & Engineering Applications

Cosponsored by BIOL
Financially supported by AEESP
N. J. Lin, *Organizer*
B. V. Kjellerup, *Organizer, Presiding*

8:15 Introductory Remarks.

8:20 294. Biofilms: Slime at the surface. **M.E. Shirtliff**, J.M. Harro

9:05 295. Can we design a passive surface that predictably alters the activity of attached bacteria?. **D. Brown**, L. Albert, H. Zhu

9:25 296. Physiological responses of microcystins from *Microcystis aeruginosa* PCC7806 by chemical treatments. **G. Lamas Samanamud**, T.E. Reeves, M.W. Tidwell, J.A. Bohmann, K.J. Lange, H.J. Shipley

9:45 297. Beta-1, 4-glycosyl hydrolase of *Francisella tularensis*- a negative regulator of biofilm production in a bacterial biothreat agent. **M.L. van Hoek**

10:05 Intermission.

10:20 298. Measuring biofilms and their interactions with materials. **N.J. Lin**

10:40 299. Characterizing microbial adhesion strength with centrifuge force microscopy. **T. LeFevre**, J.N. Wilking

11:00 300. Experimental and theoretical analysis of biofilm formation and growth on cylindrical surfaces with impedimetric sensors. **R. Huiszoon**, S. Preza, P. Rajasekaran, T. Winkler, W.E. Bentley, R. Ghodssi

11:20 301. Internal polarity of individual *G. sulfurreducens* bacterial cells attached to inorganic substrates. **N. Lebedev**, M.D. Yates, S.M. Strycharz-Glaven, L. Tender

11:40 302. Withdrawn

Section D

Renaissance Washington, DC Downtown
Meeting Room 5

Changes in Chemical Risk Assessment under Amended TSCA: Approaches & Implementation

Cosponsored by CEI and CHAL
M. Card, T. R. Henry, L. Libelo, *Organizers*
E. Wong, *Organizer, Presiding*

8:15 303. EPA rules under amended TSCA: Prioritization rule and risk evaluation rule. **A. Babcock**, T.R. Henry

8:50 304. Risk assessment under TSCA: Perspectives from the chemical industry. **K. Schmidt**

9:15 305. Qualitative assessment of risk strategies within the US EPA New Chemical Programs under the Toxic Substances Control Act (TSCA). **W. Irwin**, L. Scarano, R. Daiss, D.T. Chang, S. Surapureddi

9:40 306. Pre & post-amended TSCA: Changes in framework on the use of chemical fate & transport in environmental risk assessment. **E.M. Wong**, L. Libelo

10:05 Intermission.

10:20 307. Data gathering for existing chemicals risk evaluation under the amended TSCA. **F. Branch**, I. Camacho, B. Amy, M. Cawley, C. Henning, H. Hubbard

10:45 308. Modifications in chemicals' degradation testing guidelines for EPA new chemicals' evaluation under TSCA. **N. Orentas**, L. Libelo, D. Lynch

11:10 309. Adverse outcome pathways: A mechanistic approach for future risk assessments. **S. Surapureddi**, W. Irwin, D.T. Chang, L. Scarano

Section E

Renaissance Washington, DC Downtown
Meeting Room 4

Green Chemistry & the Environment

Cosponsored by CATL and CEI
A. M. Balu, R. Luque, S. O. Obare, *Organizers*
S. DeVito, *Organizer, Presiding*

8:30 Introductory Remarks.

8:40 310. Quantifying the success of green chemistry and other pollution prevention practices in the pharmaceutical and automotive manufacturing industries. A. Stoeckle, S. Gaona, **C. Keenan**

9:00 311. Analysis of toxics release inventory green chemistry reporting. **S. Gaona**, **M. Sumner**

9:20 312. Characterizing the environmental impact of sustainability practices using sector profiles: An application to the automotive manufacturing sector. **C. Keenan**

9:40 313. Highlighting pollution prevention achievements in the 2015 Toxics Release Inventory National Analysis. **C. Briere**

10:00 Intermission.

10:15 314. Using alternatives assessment approaches to inform the ranking of TRI-listed solvent chemicals. **L. Brown**, H. Forth, L. Reichle, A. Casner, A. McFadden

10:35 315. Visualizing industrial source reduction achievements: Demonstration of the Qlik food app. **S. Gaona**

10:55 316. Challenges to implementation of pollution prevention as evidenced by barriers reported to EPA's toxics release program. **S. Gaona**, **C. Keenan**

11:15 317. Role of Pollutant Release and Transfer Registers (PRTRs) in achieving the United Nations sustainable development goals. **C. Briere**, **S. Gaona**

11:45 Concluding Remarks.

Renaissance Washington, DC Downtown
Meeting Room 12

Environmental Justice: The Role & Impact of Diversity on Environmental Stewardship

Cosponsored by CEI and CMA
J. L. Sarquis, *Organizer*
A. M. Rivera Figueroa, M. Santiago, *Organizers, Presiding*

8:15 Introductory Remarks.

8:20 318. Withdrawn

8:40 319. Environmental justice in Indian Country: Tradition and science inform Native American quest to recover threatened land, resources, and cultures. **M. Ondrechen**

9:00 320. Safe access to traditional foods and medicines: Camas and the Portland Native American Community. **C.S. Greene**

9:20 321. Confronting mine waste contamination in Navajo communities with tradition and chemistry. **R.L. Tsosie**

9:40 Intermission.

9:55 322. Health and wellbeing impact of contamination on the Navajo reservation. **J.C. Ingram**, T. Rock, A. Lister

10:15 323. Characterizing the extent of uranium contamination in sheep grazing near abandon uranium mines on the Navajo reservation. J.C. Ingram, **A. Lister**

10:35 324. Adverse effects of traffic-related air pollutants in Puerto Rican children. **L. Méndez**

10:55 325. Drinking water infrastructure inequality: New insight into system corrosion and the lead-pathogen nexus. **A. Katner**, K. Pieper, Y. Lambrinidou, K. Brown, W. Subra, M. Edwards

11:15 Panel Discussion.

Green Chemistry: Theory & Practice
Sponsored by CHED, Cosponsored by CEI and ENVR‡

Vehicle Emission Control Catalysis: New Era, New Challenges & New Solutions
Sponsored by CATL, Cosponsored by ENFL and ENVR

Developing Pesticide Environmental Risk Assessment Approaches
Sponsored by AGRO, Cosponsored by ENVR

Advances in Carbon Dioxide Utilization
Sponsored by CATL, Cosponsored by ENFL and ENVR

Journey to Mars: Materials, Energy & Life Sciences
Sponsored by POLY, Cosponsored by ANYL‡, BMGT‡, COLL‡, ENVR‡, FLUO‡, PMSE‡, PRES, SCHB‡ and YCC‡

WEDNESDAY AFTERNOON

Section A

Renaissance Washington, DC Downtown
Meeting Room 3

Economic Impact of Environmental Health Research: A Case Study of the NIEHS Superfund Research Program

Cosponsored by MPPG
H. Henry, K. G. Pennell, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 326. From bench experiments to full scale application: development of three commercially successful technologies for reducing the time and cost for remediating contaminated industrial sites. **N.D. Durant**, D. Major, E. Cox, J. Wang, S. Dworatzek, E.A. Edwards, G. Grant, J. Gerhard, D. O'Carroll, D. Gent

1:55 327. RemRx^{TM} CRP: Controlled release polymeric systems for in situ chemical oxidation of contaminated waters. **A. Carpenter**

2:15 328. Cost-analysis of *in situ* electrochemically-induced systems for groundwater remediation. **L. Rajic**, A. Ciblak, Y. Zhao, W. Zhou, R. Nazari, K. Hetrick, A. Alshawabkeh

2:35 329. Systems biology approaches: A pathway to precision bioremediation. **F. Loeffler**

2:55 Intermission.

3:15 330. Towards risk-based environmental monitoring and technology assessment via toxicogenomics technology and data science. **A. Gu**, N. Gou, J. Lan, S. Rahman, Y. Lin

3:35 331. Extractive tea bag for water sampling and cleanup. **R. Giese**

3:55 332. Economic impact of accurately assessing vapor intrusion exposure risks at hazardous waste sites. **K.G. Pennell**, M. Roghani, E.J. Willett, E. Shirazi

4:15 333. From lab bench to across the valley of death: How does one build the bridge from one side? And how large can the impact be?. **E.M. Suuberg**, R. Hurt

4:35 Discussion.

Section B

Renaissance Washington, DC Downtown
Meeting Rooms 8/9

Multi-Phase Environmental Chemistry of Aerosols
Health Effects, Particle Formation & Growth

A. Laskin, S. A. Nizkorodov, *Organizers*

S. W. Hunt, *Organizer, Presiding*
J. D. Raff, K. R. Wilson, *Presiding*

1:30 Introductory Remarks by **Sherri Hunt**.

1:40 334. Can reactions between ozone and organic constituents of ambient particles influence PM-induced adverse cardiovascular health effects?. **M.T. Kleinman**, A. Keebaugh, D. Herman, L.M. Wingen, N. Staimer

2:15 335. Aerosol oxidative potential size distributions: A contrast between water-soluble and insoluble components. **R. Weber**, T. Fang, V. Verma, H. Guo, A. Nenes

2:50 336. Oxidative properties of ambient particulate matter: An assessment of the relative contributions from various aerosol components and their emission sources. **V. Verma**, C. Sioutas, R. Weber

3:25 Intermission.

3:40 337. On the health effects of transported and resuspended dusts. **Y. Rudich**, M. Pardo, D. Gat

4:15 338. Kinetics, thermodynamics, HULIS, metal solubility and the interplay of superoxide, hydroxyl radical and hydrogen peroxide. D. Gonzalez-Martinez, X.M. Kuang, J.A. Scott, **S. Paulson**

4:40 339. Impact of particle phase chemistry on nanoparticle composition and growth rate. **M.V. Johnston**, P. Tu, Y. Wu, M.J. Apsokardu, C. Stangl, J. Krasmonowitz

5:05 340. Influence of ammonia on particle formation from methanesulfonic acid and amines: Combined experimental and theoretical studies. **V. Perraud**, K.D. Arquero, J. Xu, R.B. Gerber, B.J. Finlayson Pitts

Section C

Renaissance Washington, DC Downtown
Meeting Rooms 10/11

Impact of Materials, Surface Chemistry & Modifications on Biofilm Formation in Environmental Remediation & Engineering Applications

Cosponsored by BIOL
Financially supported by AEESP
B. V. Kjellerup, *Organizer*
N. J. Lin, *Organizer, Presiding*

1:30 341. Hindering biofilm formation using colloidal-crystal topographic films. **W.A. Ducker**, M. Kargar, H. Mon, Y. Chang, K. Lagree, A. Mitchell, A. Pruden

1:50 342. Effect of surface topography on bacterial surface motility. **Y. Chang**, E.R. Weeks, W.A. Ducker

2:10 343. Copper-functionalized membranes versus silver nanoparticle membranes for control of biofouling. C. Sprick, S. Asapu, **I.C. Escobar**

2:30 344. Effects of modifying low pressure membranes with bioinspired polydopamine and silver nanoparticles on biofilm formation. **M. Fleming**, E.J. Bouwer, K. Chen

2:50 Intermission.

3:05 345. Bactericidal activity and mechanism of high intensity narrow wavelength blue light LED. **N. Zhan**, Q. Chang, K. Yeung

3:25 346. Microbially-induced corrosion: The formation of biofilms. **M. Al-Sheikhly**, P. Rostron, N. Hassan, A. Farzaneh, G. Pertmer, D. Poster, M. Postek

3:45 347. Biofilm dispersing agents reduce the pathogenicity of *Pseudomonas aeruginosa* biofilm infections in the *Caenorhabditis elegans* host model. A. Yan, C. Melander, **B.V. Kjellerup**

4:05 348. Withdrawn.

4:25 Discussion.

Section D

Renaissance Washington, DC Downtown
Meeting Room 5

Changes in Chemical Risk Assessment under Amended TSCA: Approaches & Implementation

Cosponsored by CEI and CHAL
T. R. Henry, L. Libelo, E. Wong, *Organizers*
M. Card, *Organizer, Presiding*

1:30 349. Withdrawn.

1:55 350. Case study applications of the RAIDAR model for chemical risk assessment. **J. Arnot**, L. Toose, J. Armitage, A. Falls, T. Gouin, M. Bonnell

2:20 351. Models, guidelines and references for wastewater removal rate assessments in the U.S. EPA TSCA New Chemicals Program. **W. Lee**, D. Lynch, M. Card

2:45 352. QSAR and calculators for Freundlich adsorption coefficient (Kf) based on 18 agricultural soils. **W.P. Eckel**

3:10 Intermission.

3:30 353. Integrated analytical and computational tools for assessing the risks of emerging contaminants and their bioactive transformation products. **D.M. Cwiertny**, E.P. Kolodziej, J.B. Gloer, R. Abagyan, E.V. Patterson

3:55 354. Identifying strategies that will provide greater confidence in estimating the degradation rates of organic chemicals in soil. **Y. Wang**, D. Helbling

4:20 355. EPA CompTox Chemistry Dashboard and underpinning software architecture. **A.J. Williams**, C. Grulke, D.T. Chang, K. Markey, J. Edwards

4:45 Panel discussion.

Renaissance Washington, DC Downtown
Meeting Room 4

Green Chemistry & the Environment

Cosponsored by CATL and CEI
A. M. Balu, S. DeVito, R. Luque, *Organizers*
S. O. Obare, *Organizer, Presiding*

1:30 Introductory Remarks.

1:35 356. Challenges and opportunities in developing green chemistry research programs at academic institutions. **S.O. Obare**

2:00 357. Assessing interesterification for sustainable biodiesel production. **L. Soh**, Y. Tian, C. Verni, R. Elias, P. Leggieri, S. McCartney, M. Senra

2:25 358. Green active and selective nanoscale catalysts for tandem hydrogenation and acetalization of carbonyls. **H.A. Al-Zubaidi**, S.O. Obare

2:50 359. Cocktail effects of chemical mixtures on health and environment. **N. Vaidya**, N.A. Vaidya

3:15 Intermission.

3:25 360. Anaerobic digestion of renewable materials for biogas production: Experimental stage to the field. **O.O. Adetule**

3:45 361. Bioremediation of municipal wastewater with a naturally collected freshwater macroalgae *Spirogyra* sp.: Preliminary laboratory-scale process study. S. Ge, **P. Champagne**

4:05 362. Mechanisms governing algal remediation of atmospheric CO_2 in shallow saline lakes of the Chilean Altiplano region. **A.L. Prieto**, A. de la Fuente

4:25 363. Supported ionic liquids for air purification. **V. Castillo Ramos**, W. Han, K. Yeung, J. Kwan

4:45 364. Withdrawn

5:05 Concluding Remarks.

Vehicle Emission Control Catalysis: New Era, New Challenges & New Solutions
Sponsored by CATL, Cosponsored by ENFL and ENVR

Advances in Carbon Dioxide Utilization
Sponsored by CATL, Cosponsored by ENFL and ENVR

Developing Pesticide Environmental Risk Assessment Approaches
Sponsored by AGRO, Cosponsored by ENVR

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

Journey to Mars: Materials, Energy & Life Sciences
Sponsored by POLY, Cosponsored by ANYL‡, BMGT‡, COLL‡, ENVR‡, FLUO‡, PMSE‡, PRES, SCHB‡ and YCC‡

WEDNESDAY EVENING

Section A

Walter E. Washington Convention Center
Hall D

Advances & Challenges at the Food-Energy-Water Nexus

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

6:00 - 8:00

365. Low-temperature heat utilization with vapor pressure-driven (VPD) membrane technology: Impact of membrane chemistry and structure. **X. Chen**, N.Y. Yip

366. Withdrawn

367. Encapsulation of anaerobic microbial consortia: Cell growth and leakage. **K. Zhu**, C. Davis, J. Sakkos, J. Preciado, A. Aksan, W. Arnold, P. Novak

368. Synthesis of a series of long-chain aliphatic podand ligands for complexation and water remediation. **J. Pothoof**, G. Nguyen, M. Bhagwagar, S. Makki, M.A. Benvenuto

369. CO_2 foam: Stability improving in high salinity produced water. **R. Barati**, N. Nazari, J. Tsau, E.F. Peltier

Section A

Walter E. Washington Convention Center
Hall D

Advances & Challenges in Separation & Mixing of Salts for the Sustainable Production of Food, Energy & Water

S. Chae, D. Jassby, C. Kim, J. R. Landon, S. Lin, J. Park, N. Y. Yip, *Organizers*

6:00 - 8:00

370. Rational design of a bi-layered reduced graphene oxide film on polystyrene foam for solar-driven interfacial water evaporation. **L. Shi**, Y. Wang, L. Zhang, P. Wang

371. Withdrawn.

372. Application of dimensionally stable electrode: Effect of surface roughness. J. Choi, **J. Park**

373. Acetylated biomass as a raw material for desalination membranes. **J.M. Estrada Ortiz**, L. Ballinas-Casarrubias, L.A. Soto Salcido, N.I. Cruz Ochoa, K. Ruíz Cuilty, G. González Sánchez

Section A

Walter E. Washington Convention Center
Hall D

Advances in Chemical Oxidation for Water & Wastewater Treatment Systems

Y. Deng, W. Song, *Organizers*

6:00 - 8:00

374. Effect of pretreatment on biomethanation of rice straw in anaerobic degradation. **M. Kim**, B. Kim, Y. Choi, K. Nam

375. Oxidative and coagulative mechanisms of ferrate(Vi) for simultaneous removal of algal cells and toxins in water. Y. Deng, **M. Wu**

376. Photo-assisted electrochemical oxidation of imidacloprid synthetic wastewater in the presence of chloride ions. **Y. Liao**, Y. Shih, Y. Huang

377. Electrodeposition of manganese dioxide on Ti-DSA electrode (MnO_2@IrO_2/Ti) for direct electro-oxidation of carboxylic acids. **Y. Chan**, S. Ma, Y. Shih

378. Comparison of Fenton's reagent and ozonation for chemical oxidation of UV-quenching substances (UVQS) in municipal landfill leachate. **R. Zhao**, Y. Deng, C. Jung, K. Torrens

379. Advanced oxidation processes (AOPs) of biologically stabilized landfill leachate for COD removal. **Q. Xu**, Q. Yuan

380. Insights into the triplet photochemistry of effluent organic matter: The role of chemical constituents. **H. Zhou**, L. Lian, J. Ma, S. Yan, W. Song

381. Metals modified diatomite, zeolite and carbon xerogel as catalysts for catalytic wet air oxidation of phenol: Characterization, oxidation efficiency and reaction pathway. **S.A. Maicaneanu**, R. Plesa Chicinas, E. Gal, H. Bedelean, M. Darabantu

382. Perfluorooctanoic acid degradation by UV/persulfate: Modeling of degradation kinetics and chlorate formation under changed pH conditions. **Y. Qian**, X. Zhou, J.C. Crittenden, J. Chen

383. Degradation of methyl paraben in aqueous phase using UV-activated persulfate method. S. Dhaka, **M.B. Kurade**, J. Jang, B. Jeon

384. Degradation of 17-ethinylestradiol by UV-activated persulfate oxidation. **C. Rackov**, A. Camara, T.A. Ferreira, L. Aguiar, H. Maia de Oliveira, C. Oller do Nascimento, O. Chiavone-Filho

Section A

Walter E. Washington Convention Center
Hall D

Advances in Environmental Analytical Methods for EPA Compliance Reporting & Exposure Risk Assessment

Cosponsored by AGRO and CHAL
Financially supported by Shimadzu
W. Lipps, B. Prakash, *Organizers*

6:00 - 8:00

385. Effect of hormesis of polymyxin B sulfate enhanced by weak magnetic field on *Vibrio qinghaiensis* sp.-Q67. **K. Li**

386. 76% increase in throughput for determination of semi-volatiles using narrow-bore GC columns and rapid data acquisition with a highly sensitive quadrupole GCMS system. **B. Prakash**, T. Ogura, W. Lipps

Section A

Walter E. Washington Convention Center
Hall D

Changes in Chemical Risk Assessment under Amended TSCA: Approaches & Implementation

Cosponsored by AGRO, CEI and CHAL
M. Card, T. R. Henry, L. Libelo, E. Wong, *Organizers*

6:00 - 8:00

387. Public access to environmental chemistry data via the EPA CompTox Chemistry Dashboard. **A.J. Williams**, C. Grulke, J. Smith, R. Jolley, J. Dunne, E. Edmiston, J. Edwards

388. Quantitative structure-activity relationships predictions of toxicokinetic parameters for risk-based prioritization. **B.L. Ingle**, B. Veber, J. Wambaugh, J. Nichols, R. Tornero-Velez

Section A

Walter E. Washington Convention Center
Hall D

Ecological & Human Health Impacts of Emerging Environmental Contaminants

Cosponsored by AGRO and CHAL
X. Pan, M. I. Selim, B. Zhang, *Organizers*

6:00 - 8:00

389. Pharmaceutical chemicals, steroids and xenoestrogens in fish and sediments from the tidal freshwater Potomac River. **G. Arya**, K. De Mutsert, C. Jones, T.B. Huff, G.D. Foster

390. Biocomposite alginate-chitosan beads coated magnetic nanoparticles for removal of oxybenzone in seawater systems: Application to inhibit coral reef photo-bleaching. A.G. Zapata, F.M. Alvarez, **G. Cruet**, V. Fernandez-Alos, F.R. Roman

391. Untargeted screening and apportionment of brominated compounds in house dust. **B. Dhungana**, H. Peng, B. Subedi, P.D. Jones, J.P. Giesy, G.P. Cobb

392. Withdrawn.

393. Protective toxicokinetic and toxicodynamic changes associated with aflatoxin B_1 detoxification. **B.R. Rushing**, M.I. Selim

394. Occurrence of polycyclic aromatic hydrocarbons in mantises. **H. Shimazu**

395. Phthalate and non-phthalate plasticizers in indoor dust from childcare facilities, salons, and homes across the USA. **B. Subedi**, K. Sullivan, B. Dhungana

396. Preliminary investigation of seasonal changes in pesticides and PPCPs in surface water in eastern North Carolina. B.R. Rushing, **A.R. Wooten**, M.I. Selim

397. Occurrence and concentrations of polybrominated diphenyl ethers in soils from an e-waste recycling area in north China. **Z. Wu**

398. Withdrawn.

Section A

Walter E. Washington Convention Center
Hall D

Economic Impact of Environmental Health Research: A Case Study of the NIEHS Superfund Research Program

Cosponsored by MPPG
H. Henry, K. G. Pennell, *Organizers*

6:00 - 8:00

399. Evaluation of new and rapid antibody-based PAH measurement techniques for determining the distribution and flux of PAH at contaminated sediment sites. **K. Prossner**, G. Vadas, M. Unger

Section A

Walter E. Washington Convention Center
Hall D

Electrochemical Technologies for Water Purification

Cosponsored by CATL and CEI
J. Barazesh, B. P. Chaplin, J. Jasper, A. Pham, E. Roberts, *Organizers*

6:00 - 8:00

400. Fenton reaction as a step of electrochemical disinfection of water contaminated with *E. coli*: Role of hydroxyl radicals and their scavengers. **N. Barashkov**, **T. Sakhno**, I. Irgibaeva

401. Protic salt-derived porous carbon for efficient capacitive deionization. Y. Li, J. Qi, **J. Li**, L. Wang

402. Influences on electrochemical oxidation efficiency: Degradation of *p*-chlorobenzoic acid with boron-doped diamond anodes. **M. Lanzarini-Lopes**, S. Garcia-Segura, P.K. Westerhoff

403. Bimetallic catalysts for electrochemical nitrate reduction toward high nitrogen selectivity. **J. Su**, C. Huang

404. Electronic properties of 3D-bifunctional carbon nanotube sponge for bioelectrical system applications. **D. Han**, S. Yoon, C. Yu, A. Abdel-Wahab, A. Han

Section A

Walter E. Washington Convention Center
Hall D

Environmental, Social & Economic Impacts of Aged/Transformed Nanomaterial-Enabled Consumer Products

S. Chae, E. Sahle-Demessie, N. Savage, H. Shi, *Organizers*

6:00 - 8:00

408. Effect of organic coating materials on antibacterial properties of titanium dioxide nanoparticles. S. Baek, **S. Joo**

409. Quantitative evaluation of nanomaterial release from multi-walled carbon nanotubes epoxy composite after weathering treatment. **Y. Zhao**, G. Ramakrishnan, J. Cen, Q. Wu, A. Orlov

410. Withdrawn

411. Approaches to evaluating weathering effects on release of engineered nanomaterials from solid matrices. **R.G. Zepp**, W. Wohlleben, E. Sahle-Demessie, C. Kingston, D.C. Bouchard, B. Acrey, H. Hsieh, A. Commodore, O. Okungbowa, A.L. Andrady, J.J. Locklin

Section A

Walter E. Washington Convention Center
Hall D

Environmental Applications of Liquid Phase Catalysis for Green Chemical Processes of Renewable Materials

Cosponsored by CATL and ENFL
J. Bond, N. A. Deskins, M. T. Timko, *Organizers*

6:00 - 8:00

405. Multifunctional nanoreactors for oxidative catalysis and product isolation by spontaneous phase separation. **A. Harrison**, T. Vuong , M. Nguyen, C. Tang

406. Withdrawn.

407. Catalytic dephosphorylation using ceria nanocrystals: Effects of surface oxygen vacancies. **M. Manto**, P. Xie, C. Wang

Walter E. Washington Convention Center
Hall D

Fate, Transport & Remediation of Radionuclides in the Environment

V. Anagnostopoulos, P. Paviet, S. Saslow, *Organizers*

6:00 - 8:00

412. Impact of carbonate on the solubility of An(IV) under alkaline to hyperalkaline pH conditions. **X. Gaona**, J. Schepperle, E. Yalcintas, D. Fellhauer, N. Cevirim, M. Altmaier, H. Geckeis

413. Autunite dissolution in the presence of *Shewanella oneidensis* in different bicarbonate concentrations under anaerobic conditions. **V. Anagnostopoulos**, Y. Katsenovich, B. Lee

414. Effect of salinity and temperature on pH-dependent transport of heavy metals and radionuclides in reactive porous media. **Z. Ye**, V. Prigiobbe

415. Role of ionic strength on sorption of neodymium on dolomite. **H.P. Palmer Emerson**, F. Zengotita, T.M. Dittrich, Y. Katsenovich, D.T. Reed

416. Mechanism of nanoparticle-stabilized foam generation in the presence of a brine. **Q. Li**, V. Prigiobbe

417. Use of titanium dioxide/graphene oxide nanocomposites as a platform for the reduction of Technetium-99. **C. Brent**, S.L. Groveman, M. Vittadello, L.C. Francesconi

418. Fast pH-dependent transport of heavy metals and radionuclides due to longitudinal and transverse dispersion. **T. Liu**, J. Qian, V. Prigiobbe

Section A

Walter E. Washington Convention Center
Hall D

General Posters

J. L. Goldfarb, *Organizer*

6:00 - 8:00

419. Estimating exposure to pollutants from concentrated animal feeding operations using AERMOD. **M. Citra**, H. Pohl, H. Abadin, E. Murray, L. Ingerman, I. Szadkowska-Stanczyk, A. Kozajda, A. Nguyen

420. Best practices for addressing human health and environmental data gaps in an alternatives assessment context. **J. Young Tanir**

421. Withdrawn.

422. Carnauba wax based passive sampler to characterization of air particulate matter. P.E. Plana-Junior, M.A. Stoco, **M. Piacenti-Silva**

423. Passive sampler to assessment of metal content in settleable dust in urban, industrial and rural areas in Brazil: A spatial and temporal study. M.A. Stoco, P.E. Plana-Junior, C.N. Iwabe, **M. Piacenti-Silva**

424. Feasibility of mapping diurnal and seasonal variations of carbon dioxide, methane, and carbon monoxide in highland rim using cavity ring down spectroscopy. **L.P. Gamage**, W.K. Gichuhi

425. Field calibration of XAD-based passive air sampler on the Tibetan Plateau: Wind influence and configuration improvement. **P. Gong**

426. Long-term toxicity and uptake of silver nanomaterials to agriculturally relevant plant species. **K. Marsh**, W. Leng, D. Gorka, P.J. Vikesland, J. Liu

427. Cyclodextrin-promoted detection of aromatic toxicants and toxicant metabolites in human breast milk. **D.J. DiScenza**, M. Levine

428. Withdrawn.

429. Debris polystyrene as sources of styrene oligomer in ocean water and sand areas surroundings Japan. M. Okada, **K. Koizumi**, B. Kwon, S. Chung, N. Ogawa, T. Kusui, N. Maximenko, **K. Saido**, T. Hiaki

430. Luminescent lanthanide-organic framework sensor as a platform for detection of aqueous pesticides. **K. Liu**, L. Gao, H. Wang, C. Wu, M.R. Hoffmann

431. Optimization of preparation parameters for Co-Fe layered double hydroxides for hydrogen sulfide removal. **S. Lee**, D. Kim

432. Single-crystal structures of fully dehydrated Cd^{2+}-exchanged zeolite Y and of its benzene sorption complex. D. Moon, **Y. Kim**, J. Kim, **W. Lim**

433. Assessment of heavy metal contamination in sediment of a lake in the Nakdong-river affected from mine waste of upstream. T. Shin, J. Kim, S. Lee, S. Woo, **Y. Kim**

434. Extraction of caffeine from coffee waste and oxidative degradation of the extracted caffeine. M. Shin, H. Kwon, H. Kim, **Y. Kim**

435. Studies on adsorption characteristics of heavy metals using precipitates from mine water in Dalseong metal mine. **J. Kim**, **J. Kim**, Y. Kim, S. Woo, J. Hyeon

436. Characteristics of adsorption of heavy metal by synthesized Fe-oxide/hydroxide. **J. Kim**, J. Hwang, **J. Kim**, J. Seo, Y. Kim, C. Lee

437. Analysis of trace metal contaminants in Manadas Creek. **A.K. Addo-Mensah**, V. Lozano, V. Rodriguez

438. Chlorination of swimming pool water: Kinetics of chloroform formation using indicator compounds. **T. Schlosser**, L. Erdinger

439. Porous carbon beads with controllable pore structure for elimation of volatile organic compounds. **J. Qi**, Y. Li, J. Li, L. Wang

440. Influence of interlayer chemistry on uptake of aromatic contaminants to HDTMA-modified montmorillonite. **M. Costanza-Robinson**, E. Payne, K. Fink, R. Morris

441. Investigation of sources of eutrophication, sedimentation, and nutrient pollution in an urban watershed. **J. Abbatangelo**, A. Byrne, J. Butler, J. Wilson

442. Chemical oxidation of selenite to selenate by reactive oxygen species. **P. Paydary**, M. Teli, A.E. Schellenger, D. Jaisi, A. Onnis-Hayden, P. Larese-Casanova

443. Quantifying the production of reactive oxygen species by the autooxidation of aqueous organic carbon. **M. Smith**, J.L. Ferry

444. Generation of reactive halogen species from autoxidation of Fe(II) in seawater. **F. Wang**, J.L. Ferry

Section A

Walter E. Washington Convention Center
Hall D

Green Chemistry & the Environment

Cosponsored by CATL and CEI
A. M. Balu, S. DeVito, R. Luque, S. O. Obare, *Organizers*

6:00 - 8:00

445. Reclamation of copper from solution as the copper carbonate pellet by a fluidized-bed homogeneous crystallization (FBHC) process. **S. Huang**, C. Huang, Y. Shih

446. Chemical oxo-precipitation (COP) of boron solution using calcium chloride as the precipitant. **Y. Song**, Y. Shih

447. Effect of different filters on the amount of microbeads that enter waterways. **R. Jamal**, A. Jadhav

448. Phosphate sequestration via copper-exchanged ZSM-5. M. Manto, P. Xie, **M. Keller**, W. Liano, T. Pu, C. Wang

449. Bioremediation in exploitation of oil and green chemistry. **M.M. Vrvic**, S. Miletic, J. Avdalovic, M. Ilic, J. Milic, V.P. Beskoski, G. Gojgic-Cvijovic

450. Using antiscalant in membrane fouling (MD). **M.S. Humoud**

451. Quantification of ammonia gas uptake by heat-treated struvite decomposition products using simultaneous thermal analysis – pulse thermal analysis. **M.V. Ramlogan**, A. Rouff

452. Treatment of ion exchange resins by modified Fenton process. **M. Tsai**, Y. Shih, Y. Huang, C. Huang

453. Using constructed wetlands-treated water for crop irrigation and examining possible emerging contaminant uptake. **E. Tully**, **H. Weinberg**

454. Reduction of organohalide compounds mediated by flavin mononucleotide at colloidal titanium dioxide interfaces. **T.S. Saeed**, S.O. Obare

455. Zn-Fe2O4-Au NPs for the oxidation of Congo red dye under visible light. A.A. Ramírez , C.A. Huerta-Aguilar, **T. Pandiyan**

456. Design a bactericidal system with high-intensity narrow-wavelength (Hi-NW) LED to eliminate the environmental pathogen and biosafety studies of the system. **N. Zhan**, Q. Chang, N. Wong, K. Yeung

457. Solubility products of barium perborates in aqueous solution at 25°C for predicting residual boron levels in effluents of chemical oxo-precipitation. **J. Lin**, Y. Song, Y. Shih, Y. Huang

458. Improvement of the urease activity of *Sporosarcina pasteurii* culture by controlling urea concentration and its application for preventing soil loss by microbially induced calcite precipitation. **H. Chung**, I. Jeon, B. Jeong, S. Kim, K. Nam

Section A

Walter E. Washington Convention Center
Hall D

Heterogeneous Catalysis for Environmental & Energy Applications

Cosponsored by CATL
A. Orlov, A. Savara, *Organizers*

6:00 - 8:00

459. Withdrawn

460. Facile fabrication of carbon quantum dots (CQDs) loaded $BiVO_4$ with up-conversion ability for efficient photocatalytic performance. **X. Zhang**, W. Zhang, X. Dong, H. Ma, C. Ma

461. Towards understanding the photocatalytic activity enhancement of Bi_2MoO_6 based photocatalyst via elemental erbium (Er) incorporation. **X. Dong**, X. Zhang, X. Wang, H. Ma

462. Fluorine-doped hierarchically porous carbon in situ generation of H_2O_2 for efficient electro-fenton degradation of organic compounds. **K. Zhao**, X. Quan

463. Applying dimethyl sulfoxide and methanol as hydroxyl radical probes in heterogeneous photocatalytic reactions. **C. Hung**, C. Yuan

464. Ceria-titania rich mesoporous silica materials and its UV-visible photocatalytic activity of organic dye. N. Pal, S. Chatterjee, **E. Cho**

465. Liquid phase hydrogenation of furfural and furfuryl alcohol assisted by metal chlorides. **S. Ogozaly**, L.A. Welch

466. Performance of vacuum ultraviolet photocatalytic oxidation air purifier with nanoporous TiO_2 film for VOCs removal in indoor air. **H. Zheng**, **T. Xu**, **P. Zhang**

467. Novel heterogeneous catalytic system under visible light combined with padding wet scrubber for simultaneous elimination of gaseous NO and SO_2. **J. Zeng**, Y. Huang, W. Xu, C. He

Section A

Walter E. Washington Convention Center
Hall D

Impact of Materials, Surface Chemistry & Modifications on Biofilm Formation in Environmental Remediation & Engineering Applications

B. V. Kjellerup, N. J. Lin, *Organizers*

6:00 - 8:00

468. Mechanistic insights for the interactions of engineered nanoparticles with bacterial cells and biofilms. **S. Aggarwal**, S. Joo

469. Biofilm covered activated carbon particles: Application as a microbial inoculum delivery system. **S.L. Capozzi**, S. Saffari Ghandehari, C. Bodenreider, R. Jing, B.V. Kjellerup

470. Fluorescence lifetime imaging of membrane potential probes for distinguishing microbial phenotypes. **J. Dunkers**, B. Jones, S. Stranick

471. Withdrawn.

472. Withdrawn.

473. Bioremediation of PCE-contaminated groundwater using mixed organohalide-respiring biofilms. **S. Saffari Ghandehari**, S.L. Capozzi, C. Bodenreider, M. Flores, B.V. Kjellerup

474. Potential of bacteria for simultaneous treatment of polychlorinated biphenyls (PCBs) and chromium in tannery wastewater. **M.W. Yasir**, B.V. Kjellerup, S. Mahmood, A. Khalid, L. Riaz, M.B. Siddique

475. New insight on FeS-coated nanoscale zerovalent iron (S-nZVI) for sequestration of molybdate from water samples. **Y. Zhang**, Y. Su, Y. Zhang

Section A

Walter E. Washington Convention Center
Hall D

Iron & Manganese Oxides: Their Formation, Structure, Reactivity & Applications

J. Fortner, Y. Hu, D. Waite, H. Zhang, M. Zhu, *Organizers*

6:00 - 8:00

476. 3D printed mixed flow reactors: *In situ* characterization of ferric oxyhydroxides nanoparticles. **K. Kletetschka**, A. Gerig, F. Michel

477. Effect of dissolved trace metal cations on iron atom exchange during aqueous Fe(II) - promoted iron oxide recrystallization. **P. Yue**, C. Gorski, P. Larese-Casanova

Section A

Walter E. Washington Convention Center
Hall D

Measurements & Methods in Environmental Nanotechnology

Cosponsored by AGRO and ANYL
S. Hanna, M. Johnson, A. R. Montoro, B. C. Nelson, E. Petersen, C. M. Sims, *Organizers*

6:00 - 8:00

478. Microplate based colorimetric assays for characterization of redox reactivity of nano materials for water treatment. **Y. Hwang**, P. Mines, M. Jakobsen, H. Andersen

479. Glutathione functionalized gold nanoparticle-dynamic light scattering tandem for rapid and selective detection of cadmium. **I. Terry**, J. Wiley, A.K. Singh, S.S. Dasary

480. Withdrawn.

Section A

Walter E. Washington Convention Center
Hall D

Monitoring Water Quality & Infrastructure to Prevent Future Flints

Cosponsored by CEI and MPPG
S. Ahuja, B. G. Loganathan, *Organizers*

6:00 - 8:00

481. Occurrence of glyphosate and triazine residues in drainage and river waters from western Kentucky, USA. T. Polanco, P. Yerneni, S.S. Kenneth, **B.G. Loganathan**

482. Impacts of Deepwater Horizon oil and dispersants on various life stages of oysters *Crassostrea virginica*. A. Volety, J. Vignier, J. Roberts, **A. Loh**, M. Boulais, B.E. Woodall, P. Soudant, F. Chu, J.M. Morris, C. Lay, M. Krasnec

Section A

Walter E. Washington Convention Center
Hall D

Multi-Phase Environmental Chemistry of Aerosols

S. W. Hunt, A. Laskin, S. A. Nizkorodov, *Organizers*

6:00 - 8:00

483. Electrospray aerosol synthesis of crude oil simulant to mimic the behavior of oil droplets in water. **S. Rodrigo**, R. Conmy, G. Sorial, A. Zimmer

484. Detailed characterization of a mist chamber for the measurement of water soluble organic gases. **M.M. El-Sayed**, C. Hennigan

485. Dithiothreitol activity by particulate oxidizers in atmospheric organic aerosol. **M. Jang**, H. Jiang, Z. Yu

486. Influence of multiphase oxidation on SOA chemistry and volatility properties determined using Aerosol-CIMS. **M. Link**, D. Farmer

487. How quantitative are black carbon filter-based instruments?. **C. Grimes**, J. Radney, R. Dickerson, J.M. Conny, C. Zangmeister

488. Aerosol formation from OH oxidation of the volatile cyclic methyl siloxane (cVMS) decamethylcyclopentasiloxane. **Y. Wu**, M.V. Johnston

489. Heterogenous reaction between pyruvic acid and mineral dust aerosol particles: SiO_2, Al_2O_3 and TiO_2. **Y. Fang**, V. Vaida, V.H. Grassian

490. Formation of hydrogen peroxide and hydroxyl radicals by ambient particles in acidic aqueous solutions. X.M. Kuang, D. Gonzalez-Martinez, J.A. Scott, **S. Paulson**

491. Withdrawn.

Section A

Walter E. Washington Convention Center
Hall D

Nano-Enabled Water Treatment Technologies: Applications & Implications

Cosponsored by CATL
N. Hoogesteijn von Reitzenstein, K. D. Hristovski, A. Mulchandani, C. Powell, M. S. Wong, *Organizers*

6:00 - 8:00

492. Adsorptive removal of p-nitrophenol from water by porous organic polymers. **W. Lu**, F. McNair, L. Stewart

493. Controlled evaluation of interactions between environmental macromolecules and photoreactive nanomaterials. **S. Shakiba**, S. De La Fuente, S.M. Louie

494. In-situ hypercrosslinking of macrofibers with hierarchical porous structures. **Y. Sheng**, J. Zhang, S.M. Mahurin, H. Liu, S. Dai

Section A

Walter E. Washington Convention Center
Hall D

Science & Perception of Climate Change

Cosponsored by CEI
S. O. Obare, E. Schoffers, *Organizers*

6:00 - 8:00

495. New software for calculating pH value of coastal seawater: Considering the effects of low molecular weight organic acids. **L. Lyu**, D. Lu, C. Sun, H. Ding, G. Yang

496. Long-term investigations of organic matter content in the Adriatic Sea as an indication of global changes. J. Dautović, V. Vojvodić, N. Tepić, B. Ćosović, **I. Ciglenecki**

497. Regional changes in daily extremes of temperature and precipitation over the Southwestern Nigeria, 1975 – 2008. **N. Benson**, A. Adedapo, W.U. Anake, A. Onu, C. Nwokedi, C. Nwokike

498. Metals concentrations and mobility in Philadelphia's urban watersheds as influenced by salinity. M. Kilmer, G. Makler, K. Kramer, **E.R. McKenzie**

Section A

Walter E. Washington Convention Center
Hall D

Surface Chemistry of Biochar & Its Applications in Environmental & Related Systems

W. W. Chen, R. Doong, M. Fan, J. L. Goldfarb, C. Huang, J. R. Leszczynski, *Organizers*

6:00 - 8:00

499. Preparation and application of biochar for the removal of H_2O_2 from semiconductor wastewater. **H. Cheng**, C. Huang, C. Guo, C. Huang

500. Synthesis of lithium iron phosphate/biochar composite using co-precipitation method. Y. Wang, Y. Tsai, **C. Hsieh**

501. Reduction of hydrogen peroxide over biochar surface in acidic solution. C. Guo, R. Fan, H. Cheng, J. Tzeng, **C. Huang**, **C. Huang**

502. Effects of in-situ biochar incorporation on microbial community in a highly weathered soil. C. Liao, Y. Wu, **S. Jien**

503. Mesocosm study for enrichment of natural PCB-dechlorinating bacteria in wastewater samples using activated carbon particles for enhanced dechlorination of Aroclor 1248. **R. Jing**, B.V. Kjellerup

504. Lignocellulose and lignin pyrolysis and preparation for carbon-coated silicon composites as negative electrodes of lithium batteries. C. Chou, J. Kuo, **S. Yen**

505. Is biochar toxic to aquatic organisms: Role of environmental persistent free radicals. **Y. Zhang**

506. Sustainable biomass-based treatments for local water pollution. **M. Karod**, M. Berger, C. Johnson, J.L. Goldfarb

507. Phosphate adsorption on the hierarchical porous adsorbent of α-Fe_2O_3/Fe_3O_4/C with bamboo bio-template. **Z. Zhu**, Y. Zhu, C. Huang, W. Wei, H. Qin

508. Surface complex formation between heavy metal ions and sludge particulates. **C. Huang**, J. Wang, H. Kim

Section A

Walter E. Washington Convention Center
Hall D

Trace Organic Contaminants (TrOCs) in Aquatic Systems: Advancements in Monitoring & Remediation

Cosponsored by ANYL and BIOL
R. Brennan, M. Shreve, *Organizers*

6:00 - 8:00

509. Superhigh adsorption of perfluorooctane sulfonate on aminated polyacrylonitrile fibers with the assistance of air bubbles. **P. Meng**, S. Deng

510. Steric effect in nitroaromatic compound adsorption on smectite clays. **L. Li**, G. Sheng

511. Transformation of β-lactam antibiotics induced by Fe(III) and Mn(II) ions: The overlooked hydrolysis. **J. Chen**, Y. Qian, T. Huang

512. Development of a protocol for measuring the biodegradation of crude oil components in sea water by two-dimensional GC. **A. Bleich**, D. Letinski, M. Connelly, R. Nelson

513. Preparation of a solid-phase material for PFAS-impacted water measurements. **B.J. Place**, J. Murray, J. Reiner

514. Withdrawn.

515. Micropollutant biotransformation by a nitrifying community enriched from biofilm of a nitrification trickling tower. **K. Zhang**, Y. Men

516. Biodegradation and metabolic fate of levofloxacin via a freshwater green alga, *Scenedesmus obliquus* in synthetic saline wastewater. **J. Xiong**, M. Kurade, S. Chang, B. Jeon

517. Pharmaceutical trace organic pollutants in surface water from the tidal freshwater Potomac River: Tandem strong-anion and strong-cation exchange cartridge extractions. **T.B. Huff**, Z. Kassahun, T. King, J. Raisigel, C. Jones, G.D. Foster

THURSDAY MORNING

Section A

Renaissance Washington, DC Downtown
Meeting Room 3

Advances in Environmental Analytical Methods for EPA Compliance Reporting & Exposure Risk Assessment

Cosponsored by AGRO and CHAL
Financially supported by Shimadzu
H. Chen, M. Li, W. Lipps, B. Prakash, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 518. Pipeline leak environmental forensic tools: A case study still used today for training purposes. **R. Bost**

8:25 519. Analysis of perfluorinated compounds in water by LCMSMS. **W. Lipps**

8:45 520. Polychlorinated biphenyls in effluent discharged from a wastewater treatment plant. **R. Jing**, E.K. Wilson, B.V. Kjellerup

9:05 521. Microwave assisted synthesis of aminopyridines Schiff bases and characterization as selective cyanide colorimetric sensor. **Y.M. Hijji**, R. Rajan

9:25 522. Characterization of acrylamide-induced cardiotoxicity during cardiac progenitor commitment and atrioventricular canal differentiation in zebrafish. **M. Huang**, **J. Jiao**, **Y. Zhang**

9:45 Intermission.

10:00 523. Reexamining weighted factors contributing to the rates of structural and chemical transformations of metallic nanoparticles. **J.M. Pettibone**, J. Liu, F. Zhang, A. Allen, A. Johnston-Peck

10:20 524. Evaluation of toxic metals in filler tobacco and filter samples of cigarette brands and related human health implications. **N. Benson**, W.U. Anake, A. Adedapo, **O.H. Fred-Ahmadu**, O. Odubogun

10:40 525. Occurrence and health risk assessment of hazardous contaminants in herbal medicines. **W.U. Anake**, N.U. Benson, A. Williams, O.H. Fred-Ahmadu, T.A. Kasali

11:00 526. Chemical speciation and contamination associated risks of trace metals in *Camellia sinensis*. N. Benson, **O.H. Fred-Ahmadu**, W.U. Anake, A. Adedapo

11:20 Concluding Remarks.

Section B

Renaissance Washington, DC Downtown
Meeting Room 8

Multi-Phase Environmental Chemistry of Aerosols

Sea Spray Aerosols

S. W. Hunt, A. Laskin, *Organizers*
S. A. Nizkorodov, *Organizer, Presiding*
D. Knopf, M. Shiraiwa, *Presiding*

8:00 527. Single particle studies of sea spray aerosol: Formation, water uptake, surface tension and multiphase chemistry. **V.H. Grassian**

8:35 528. Impact of calcium enrichment on the stability of model sea surface films. **B.A. Wellen**, A.S. Vidalis, H.C. Allen

8:55 529. From sea spray aerosol to clouds: Surface tension from sub- to super-saturated regimes of individual submicrometer particles. **A.V. Tivanski**

9:20 530. Correlating 3D morphology and mechanical properties of individual substrate-deposited particles. **K.K. Ray**, M. Gutierrez, H.D. Lee, H.S. Morris, F.J. Chang, A.V. Tivanski

9:40 Intermission.

10:00 531. OCEANFILMS: A mechanistic approach for connecting ocean biology and aerosol chemistry. **S.M. Burrows**

10:35 532. Marine ice nucleating particles: Resolving their sources, characteristics, emissions and atmospheric longevity. **T. Hill**, F. Malfatti, C. McCluskey, G. Schill, M. Santander, H. Al-Mashat, G. Cornwell, E. Levin, K. Suski, D. Farmer, B. Friedman, M. Shrestha, V.H. Grassian, W. Biddle, J.D. Fisk, K.A. Prather, P.J. DeMott

11:00 533. Effect of particle phase and morphology on cloud condensation nucleus activity. **M. Freedman**

11:25 534. Phase diagrams of internally mixed aqueous nanoscale organic aerosols. **N. Rothfuss**, S. Petters, A. Marsh, J. Reid, M. Petters

Section C

Renaissance Washington, DC Downtown
Meeting Room 9

Impact of Materials, Surface Chemistry & Modifications on Biofilm Formation in Environmental Remediation & Engineering Applications

Cosponsored by BIOL
Financially supported by AEESP
B. V. Kjellerup, *Organizer*
N. J. Lin, *Organizer, Presiding*

8:15 Introductory Remarks.

8:20 535. Electrical interactions between biofilms and surfaces. **S. Glaven**, L.M. Tender, B. Eddie, M.D. Yates, N. Kotloski, N. Lebedev, L. Bird

9:05 536. Analyzing biofilm architecture and bacterial metagenomics at PAH-contaminated estuarine sites. **S. Volkoff**, C.K. Gunsch, L. Redfern

9:25 537. Microbial transcriptomic analysis of cariogenic bacterial species at enamel surfaces in a pediatric population. **K.C. Hsu**, M.E. Shirtliff, J. Freiberg, L. Hittle, A. Scott, E. Mongodin

9:45 538. Acetate production by anaerobic, autotrophic bacteria in a H_2-based membrane biofilm reactor. **D. Calvo**, A. Ontiveros-Valencia, J. Maldonado-Ortiz, R. Krajmalnik-Brown, C. Torres, B.E. Rittmann

10:05 Intermission.

10:20 539. Occurrence of polychlorinated biphenyls (PCBs) in stormwater sediments and their dechlorination by soil biofilms. **S. Cao**, A. Chan, S.L. Capozzi, A.P. Davis, B.V. Kjellerup

10:40 540. Implementing a biowall to induce microbial reductive dehalogenation of volatile organics in groundwater. **D. Kindig**

11:00 541. Removal of pentachlorophenol from water by a hydrogen-based membrane biofilm reactor. **M. Long**, C. Zhou, S. Xia

11:20 542. Biological nitrogen removal potential of stormwater. **Y. Sun**, Z. Wang

11:40 543. Treating refinery waste with a novel mobile biofilm process. **F. Sabba**, **J. Calhoun**

Section D

Renaissance Washington, DC Downtown
Meeting Room 5

Changes in Chemical Risk Assessment under Amended TSCA: Approaches & Implementation

Cosponsored by CEI and CHAL
M. Card, T. R. Henry, E. Wong, *Organizers*
L. Libelo, *Organizer, Presiding*

8:00 544. Changes in TSCA drive new strategies for eye irritation hazard assessments. **H. Raabe**

8:25 545. Advanced *in vitro* test systems provide human-relevant results to support regulatory decision-making. **H. Behrsing**

8:50 546. Tiered approach for integrating exposure and dosimetry with in vitro dose-response data in the modern risk assessment paradigm. **J. Leonard**, D.T. Chang, H. El-Masri, S. Edwards, C. Stevens, K. Mansouri, P. Egeghy, C. Tan

9:15 547. *In vitro* methods available for chemical risk assessment under amended TSCA for skin sensitization evaluation. **T. Ruwona**, E. Hill

9:40 Intermission.

10:00 548. Integrating non-targeted analysis research with high-throughput chemical screening programs at the US EPA. **J.R. Sobus**, J. Wambaugh, K. Isaacs, A.J. Williams, A.D. McEachran, A. Richard, C. Grulke, E.M. Ulrich, J. Rager, M. Strynar, S. Newton

10:25 549. *In vitro* metabolomics as alternative testing strategy for predicting adverse outcome pathways of the exposome. **S. Surapureddi**

10:50 Panel Discussion.

Nanoscale Sensing in Foods & Other Complex Media

Sponsored by AGFD, Cosponsored by AGRO, ANYL, COLL, ENVR and INOR

THURSDAY AFTERNOON

Section B

Renaissance Washington, DC Downtown
Meeting Room 8

Multi-Phase Environmental Chemistry of Aerosols

Particle Phase & Morphology

S. W. Hunt, S. A. Nizkorodov, *Organizers*
A. Laskin, *Organizer, Presiding*
M. Freedman, A. V. Tivanski, *Presiding*

1:00 550. What is the role of the organic phase state in multiphase chemical kinetics, particle hygroscopicity, and ice nucleation?. **D.A. Knopf**, J.H. Slade, J.C. Charnawskas, P.A. Alpert, A. Lambe, T. Berkemeier, A. Arangio, M. Shiraiwa, J. Wang, H. Su, P. Massoli, R.E. O'Brien, U. Pöschl, T.B. Onasch, R.C. Moffet, M.K. Gilles, P. Davidovits, D.R. Worsnop

1:35 551. Molecular corridors and particle phase state in atmospheric secondary organic aerosols. **M. Shiraiwa**

2:10 552. Diffusion measurements in high viscosity aerosol particles. **T. Preston**

2:35 553. Condensed phase diffusivity and evaporation of volatile organics in levitated viscous aerosol particles. **S. Bastelberger**, U.K. Krieger, B. Luo, T. Peter

2:55 Intermission.

3:15 554. Single particle measurements of the physicochemical properties of secondary organic aerosol surrogates. **J. Reid**, G. Rovelli, Y. Song, A. Haddrell, K. Pereira, J. Hamilton, D. Topping

3:50 555. Glass forming properties of secondary organic aerosol tracers and surrogates examined by thin film dielectric relaxation spectroscopy. **Y. Zhang**, A. Lambe, T.B. Onasch, S. Katira, L. Nichman, W. Xu, Z. Zhang, M. Canagaratna, A. Freedman, A. Gold, J.T. Jayne, D.R. Worsnop, J. Surratt, P. Davidovits, D. Chandler, C.E. Kolb

4:10 556. Feedbacks between microphysics and photochemical aging in viscous aerosols. **J. Dou**, B. Luo, P.C. Arroyo, P.A. Alpert, M. Ammann, T. Peter, U.K. Krieger

4:30 557. Bridging the gap between solid to liquid states of single particle sucrose: Young’s modulus and surface tension using AFM. **H.D. Lee**, K.K. Ray, A.V. Tivanski

Section C

Renaissance Washington, DC Downtown
Meeting Room 9

Impact of Materials, Surface Chemistry & Modifications on Biofilm Formation in Environmental Remediation & Engineering Applications

Cosponsored by BIOL
Financially supported by AEESP

N. J. Lin, *Organizer*
B. V. Kjellerup, *Organizer, Presiding*

1:00 558. H_2-utilizing biofilm embedded with palladium nanoparticles (PdNP-biofilm): Assembly, characterization, and application in enhancing denitrification. **C. Zhou**, M. Long, B.E. Rittmann

1:20 559. Rhamnolipid enhanced *Pseudomonas putida* biofilm formation on hydrophilic surfaces. H. Katz, **R. Cahan**

1:40 560. Statistical exploration of the cause of bacterial regrowth in filtered drinking water. **J. Lin**, J. Edwards-Brandt, Z. Wang

2:00 561. Microbial electrochemical energy storage and recovery in a combined electroautotrophic and electrogenic biofilm. **M.D. Yates**, Q. Zhang, B. Eddie, A. Malanoski, S.M. Strycharz-Glaven, S.R. Yates, L.M. Tender

2:20 Intermission.

2:35 562. Bench-scale comparison of a new mobile biofilm process and traditional IFAS technology. **F. Sabba**, **J. Calhoun**

2:55 563. Pilot-scale investigation of ozone-enhanced biofiltration using spent and regenerated granular activated carbon media for potable reuse. **Y. Sun**, B. Angelotti, P. Evans, M. Brooks, Z. Wang

3:15 564. Nitrogen removal using a biofilm attached to chabazite in a sequencing batch reactor. **V. Aponte**, S. Ergas

3:35 565. Bacterially-induced changes in the sorption and bioavailability of ionizable substrates during adhesion due to the charge-regulation effect. **D. Brown**, H. Zhu, L. Albert

3:55 Concluding Remarks.

Nanoscale Sensing in Foods & Other Complex Media

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