

ENVR

DIVISION OF ENVIRONMENTAL CHEMISTRY

Souhail Al-Abed, *Program Chair*

SUNDAY MORNING

Section A

Colorado Convention Center
Room 703

Green Chemistry and the Environment

Cosponsored by CEI and MPPG

S. O. Obare, *Organizer*

A. M. Balu, R. Luque, *Organizers, Presiding*

8:30 Opening Remarks.

8:35 1. Aqueous chemistry in organic synthesis.**C. Len**

9:10 2. Deoxygenation and hydroisomerization of algae oils to hydrocarbon fuels.**J.S. Kruger**, E.D. Christensen, R.L. McCormick, P.T. Pienkos

9:30 3. Adipic acid production from lignin.**D.R. Vardon**, M. Franden, C. Johnson, E. Karp, M. Guarnieri, J. Linger, M. Salm, T.J. Strathmann, G. Beckham, G.A. Ferguson

9:50 4. Mechanism of lignin pyrolysis – from model compound to actual lignin.**V. Custodis**, P. Hemberger, J.A. Van Bokhoven

10:10 Intermission.

10:25 5. Use of green chemistry of chalcones synthesis.**E. Alarcón**, N. Romero, H. Aguilar, J.L. Terán, **A. Gómez Rivera**, L.F. Roa, **C. Lobato**, A. Escobar

10:45 6. Photochemical transformation of aliphatic-aromatic polyesters and its impacts to degradability.**M.A. Maurer-Jones**, M. Zumstein, M. Sander, K.P. Mc Neill

11:05 7. Transesterification of waste vegetable oil under simultaneous microwave and ultrasound Irradiations.**V. Gude, E. Martinez-Guerra**

11:25 8. Modified heterogeneous nickel catalysts for the production of chemicals and fuels from bioderived light olefins.**M. Menart**, J. Hensley, R.M. Richards

11:45 9. Overcoming production limitations of biosynthesis and tailoring rhamnolipid biosurfactant properties through chemical synthesis.**J.E. Pemberton**, R. Palos Pacheco, C. Coss, R. Polt

Section B

Colorado Convention Center
Room 705

Assessing Toxicity of Environmental Contaminants

Cosponsored by AGRO, CEI and MPPG[‡]
S. M. Uchimiya, B. Zhang, *Organizers*
X. Pan, J. Wang, *Organizers, Presiding*

8:00 Introductory Comments.

8:05 10. Measurement and evaluation of the rate of emission of semivolatile organic compounds from poly (vinyl chloride) sheets.**M. Noguchi, A. Yamasaki**

8:30 11. Environmental and human health risk assessment of amine emissions from post combustion power plants.**S. Manzoor**, A. Korre, S. Durucan, A. Simperler

8:55 12. Biological risk assessment of EDCs degradation by ozone.**L. Li, K. YEUNG**

9:20 13. Assessing the uptake and effects of polycyclic aromatic hydrocarbons and their oxygenated derivatives on zebrafish using a metabolomics approach.**M.R. Elie**, R.L. Tanguay

9:45 14. Kinetic toxicity profile of haloacetonitriles, haloacetamides, and haloacetic acids.**Y. Yu**, D. Reckhow

10:10 Intermission.

10:25 15. Toxicity of silica nanomaterials: Effects of porosity and surface chemistry, and correlations with in vitro and in vivo results.**S.E. Lehman**, A. Wongrakpanich, A. Morris, A. Dodd, A.K. Salem, P.S. Thorne, V.H. Grassian, S.C. Larsen

10:50 16. Inhibition of thyroid hormone sulfotransferase activity by brominated flame retardants in a human choriocarcinoma cell line, BeWo.**C. Leonetti**, T. Neufeld, C. Butt, H.M. Stapleton

11:15 17. Identifying disinfection by-products (DBPs) capable of endocrine disruption through binding to the androgen receptor.**B.E. Holmes**, L. Smeester, R.C. Fry, H. Weinberg

11:40 18. Resistance measurements for Ar/O₂ and H₂O plasma modified SnO₂ nanomaterials for enhanced gas sensing.**E.P. Stuckert**, E.R. Fisher

Section C

Colorado Convention Center
Room 707

Chemical Processes at Environmental Interfaces

Chemistry and Imaging at Air/Liquid(Solid) Interfaces of Atmospheric Systems

Cosponsored by COLL

H. M. Ali, N. Kabengi, *Organizers*

H. A. Al - Abadleh, R. Z. Hinrichs, *Organizers, Presiding*

8:00 Introductory Remarks.

8:10 19. Role(s) of adsorbed water in the surface chemistry of oxide nanoparticles with atmospherically relevant molecules.**V.H. Grassian**

8:40 20. Effects of particle size, relative humidity, and sulfur dioxide on iron solubility in atmospheric particulate matter.**B.T. Cartledge**, A.R. Marcotte, A.D. Anbar, P. Herckes, B. Majestic

9:00 21. Complexation and dark degradation of catechol by iron(III): Bulk vs. surface chemistry.**H.A. Al - Abadleh**

9:20 22. Chemical imaging of atmospheric particles.**A. Laskin**

9:50 Intermission.

10:10 23. Ozone initiated heterogeneous oxidation of atmospheric organics.**Y. Liu, C. Leng**

10:40 24. Reactive uptake of biogenic volatile organic compounds on mineral aerosol substrates and their subsequent heterogeneous ozonolysis.**R.Z. Hinrichs**

11:00 25. Cascade oxidation of atmospheric aerosol dicarboxylic acids by gas-phase OH-radicals.**S. Enami, M.R. Hoffmann, A.J. Colussi**

11:30 26. Atmospheric oxidation of benzene: Effect of temperature, pH, ionic strength, and oxygen content at the air-water interface.**A.A. Heath, L.C. Cormier, C.A. Leger, K.T. Valsaraj**

11:50 27. Elucidating the mechanisms of HONO formation from nitrate photochemistry on environmental surfaces
J.D. Raff

Section D

Colorado Convention Center
Room 709

Environmental Reactivity of Organic Micropollutants and Their Transformation Products in Receiving Waters

Cosponsored by AGRO and MPPG[‡]
W. Arnold, Y. Chin, K. H. Wammer, *Organizers, Presiding*

8:30 Introductory Remarks.

8:30 28. Environmental photochemistry of altrenogest.**K.H. Wammer, K.C. Anderson, P.R. Erickson, S. Kliegman, K. McNeill, D. Martinovic-Weigelt, D.M. Cwiertny, E.P. Kolodziej**

8:50 29. Characterizing lampricide photoproduct formation under laboratory based and field based conditions.**M. McConville, C.K. Remucal**

9:10 30. Comparative triplet photochemistry of natural and treated effluent organic matter: Wavelength dependence of quantum yields for singlet oxygen and oxidizing triplets.**C.M. Sharpless**, J. Laszakovitz

9:30 31. Environmental photochemistry of bacitracin.**R. Lundeen**, C. Chu, M. Sander, **K. McNeill**

9:50 Intermission.

10:05 32. Matrix effects in the photodegradation of 2,4,6-trinitrotoluene.**K.A. Thorn**

10:25 33. Does debromination dominate BDE-47 photodegradation in natural environments?.**M.L. Wei-Haas**, Y. Chin

10:45 34. Insights into photochemical transformation pathways of triclosan and 2'-HO-BDE-28.**Y. Zhang**, J. Chen, Q. Xie

11:05 35. Distinct photolytic mechanisms and products for different dissociation and metal complexation species of ciprofloxacin.**X. Wei**, **J. Chen**

Section E

Colorado Convention Center
Room 711

Biogenically Enhanced Recovery and Bioremediation in Fossil Fuel Reservoirs

Cosponsored by MPPG[‡]

D. L. Drogos, M. Urynowicz, *Organizers, Presiding*

8:00 Introductory Remarks.

8:10 36. Enhancing production of coalbed biogenic natural gas: History, status, and perspectives.**S. Jin**, R.M. Flores

8:30 37. Biogenic methane potential of Bowen Basin, Queensland coal preparation plant rejects.**S.K. Lane**, H. Zheng, V. Rudolph, S. Golding, P.C. Gilcrease

8:50 38. Impacts of natural gas developments on methanogenesis in deep aquifers in natural gas field.**T. Katayama**, H. Yoshioka, S. Sakata, Y. Muramoto, J. Usami

9:10 Intermission.

9:30 39. Decarbonization of shallow unconventional biogenic gas: Bridging the gap between fossil fuels and renewable energy.**M. Urynowicz**

9:50 40. Subsurface bio-electrochemical conversion of carbon dioxide into methane by using indigenous microorganisms.**H. Maeda**, M. Ikarashi, H. Kobayashi, N. Fukushima, K. Sato

10:10 41. Impact of CO₂ injection into depleted oil field on the methanogenic activity and pathway

.H. Maeda, **T. Wakayama**, M. Ikarashi, D. Mayumi, S. Sakata, H. Tamaki, Y. Kamagata

10:30 42. Stimulating effect of protein-rich matter on the biogenic recycling of CO₂ to CH₄.**J. Vilcaez**

10:50 Panel Discussion.

SUNDAY AFTERNOON

Section A

Colorado Convention Center
Room 703

Green Chemistry and the Environment

Cosponsored by CEI and MPPG

R. Luque, *Organizer*

A. M. Balu, S. O. Obare, *Organizers, Presiding*

1:30 Opening Remarks.

1:35 43. Green photoelectrochemical solar cell based on water redox.H. Zhang, H. Xu, H. Wang, **J. Xuan**

2:05 44. Pd- reduced-graphene oxides with oxygen annealing for advanced direct formic acid fuel cells.**D. Li**, D. Leung, H. Xu, H. Wang, **J. Xuan**

2:25 45. Simultaneous energy generation and organics removal from real pharmaceutical wastewater by packed bed-microbial fuel cell.**Z.Z. Ismail**, A.A. Habeeb

2:45 46. Withdrawn

3:05 Intermission.

3:20 47. Binary hierarchical systems for green chemistry processes.**R.R. Ozer**, H.A. Al-Zubaidi, S.O. Obare

3:40 48. Upcycling of packing-peanuts into carbon electrodes for electrochemical energy storage.**V. Etacheri**, C. Hong, V. Pol

4:00 49. Facile microwave-induced rapid synthesis of triazepinone: An adduct of metformin and methylglyoxal.**B. Dayal**, R. Gohil, B. Garsondiya, S. Nirujogi, M.A. Lea

4:20 50. Tyrosinase-catalyzed immobilization of catalase onto regenerated silk fibroins.**P. Wang**, G. Tang, L. Cui, **Q. Wang**, X. Fan

4:40 51. Multipurpose application of Sacha inchi *Plukenetia volubilis* L plant: Panacea from the Andean region.**B. Kumar**, L. Cumbal, A. Debut

Section B

Colorado Convention Center
Room 705

Assessing Toxicity of Environmental Contaminants

Cosponsored by AGRO, CEI and MPPG[‡]
S. M. Uchimiya, B. Zhang, *Organizers*
X. Pan, J. Wang, *Organizers, Presiding*

1:30 52. Utilizing high-throughput bioassays associated with US EPA ToxCast Program to assess biological activity of environmental contaminants: A case study of chemical mixtures.**B. Blackwell**, A. Schroeder, G. Ankley, M. Lee, K. Jensen, K. Houck, R. Judson, D. Villeneuve

1:55 53. Uptake and reproductive toxicity of the metal oxide nanoparticle ZnO in *Caenorhabditis elegans*.**L.A. Bush**

2:20 54. Sublethal impacts of engineered and biogenic nanomaterials on social behavior of environmental bacteria.**A. Mohanty**, B. Cao

2:45 55. New measuring method of nicotine in tobacco smoke to estimate personal exposure of secondhand smoke.**M. Noguchi**, A. Yamasaki

3:10 56. Impacts of nanomaterials on bacterial growth, biofilm Formation, and microbial community function.**y. Liu**, P. Ymele-Leki, M. Ramamoorthy

3:35 Intermission.

3:50 57. Toxicity of binary and ternary mixtures of nickel, copper, zinc and cadmium to *Daphnia magna*.**E. Traudt**, J.F. Ranville, S. Smith, K. Ebeling, J. Meyer

4:15 58. Simulated sunlight induces oxygen loss and decreases nanosheet size for graphene oxide in aqueous suspensions demonstrating zebrafish toxicity.**J.N. Wheeler**, M. Kim, W. Heideman, R.E. Peterson, J.A. Pedersen, R.J. Hamers

4:40 59. Effect of *Daphnia magna* age on the variability of cadmium toxicity.**S. Smith**

5:05 60. Metabolic pathways of polychlorinated biphenyls (PCBs) mediated by the active center of cytochrome P450s: A computational study with PCB-52 and PCB-77.**Z. Fu**, Y. Wang, Z. Wang, J. Chen

5:30 Concluding Remarks.

Section C

Colorado Convention Center
Room 707

Chemical Processes at Environmental Interfaces

Chemistry and Imaging at Air/Liquid(Solid) Interfaces of Atmospheric Systems

Cosponsored by COLL

H. A. Al - Abadleh, R. Z. Hinrichs, N. Kabengi, *Organizers*

H. M. Ali, *Organizer, Presiding*

1:30 61. Photolysis of secondary organic aerosol material as a source of small oxygenated volatile organic compounds.**K. Malecha**, S.A. Nizkorodov

1:50 62. Sunlight-driven synthesis and self-assembly of a model amphiphile at the air-water interface.**R. Rapf**, E. Griffith, V. Vaida

2:10 63. Effects of solutes on pollutant photolysis kinetics at ice surfaces. **T.F. Kahan**, P. Malley, J. Grossman

2:40 64. Attenuated total reflection spectroscopy of frozen aqueous salt solutions and vapor-deposited ice

R.R. Michelsen, H. Marrocco, K. Searles, R. Walker

3:00 Intermission.

3:20 65. Effects of air pollution and climate change on allergenic protein containing aerosols in the anthropocene. **C.J. Kampf**, F. Liu, K. Reinmuth-Selzle, M. Shiraiwa, U. Pöschl

3:40 66. In situ probing of environmental liquid surfaces and interfaces by time-of-flight secondary ion mass spectrometry. **X. Yu**

4:00 Discussion.

4:05 67. Adsorption and self-assembly of alkylammonium surfactants at silica/water interfaces studied by interface-specific vibrational spectroscopy: Investigating pH and ionic strength conditions relevant to hydraulic fracturing. **P. Hayes**, L.L. Torres

4:35 68. Characterization of quantum dot suspensions with SEC-ICP-MS. **P. Larese-Casanova**, P. Paydary

Section D

Colorado Convention Center
Room 709

Environmental Reactivity of Organic Micropollutants and Their Transformation Products in Receiving Waters

Cosponsored by AGRO and MPPG[‡]

W. Arnold, Y. Chin, K. H. Wammer, *Organizers, Presiding*

1:30 69. Insights into the (bio)transformation processes of benzotriazoles from compound-specific isotope analysis and transformation product identification. **B. Rani**, S. Spahr, S. Emma, J. Hollender, **T.B. Hofstetter**

1:50 70. Establishing predictive relationships between specific bacterial 16S rRNA sequences and micropollutant biotransformation rates.**D.E. Helbling**, D. Johnson, T. Lee, A. Scheidegger, K. Fenner

2:10 71. Experimental and computational evidence for reduction mechanisms of N-oxides by soluble Fe^{II} species.**Y. Chen**, H. Zhang

2:30 72. Fate of urban micropollutants and their transformation products in black carbon amended stormwater bioinfiltration systems.**B.A. Ulrich**, E. Im, D. Werner, C.P. Higgins

2:50 Intermission.

3:05 73. Properties of non-dispersed soil particles in runoff and leachate and their contribution on the transport of testosterone in soils.**Y. Qi**, T. Zhang

3:25 74. Ozone degradation of cylindrospermopsin (cyanotoxin): Degradation mechanisms and toxicity assessments.**S. Yan**, A. Jia, S. Merel, S.A. Snyder, W. Song

3:45 75. Doxycycline transformation during water disinfection with chlorine.**N. Kennedy**, O. Keen

4:05 76. Electroperoxone treatment of the anti-inflammatory drug ibuprofen: operation parameters and degradation mechanism.**X. Li**, Y. Wang, G. Yu

Section E

Colorado Convention Center
Room 711

Biogenically Enhanced Recovery and Bioremediation in Fossil Fuel Reservoirs

Cosponsored by MPPG[‡]

D. L. Drogos, M. Urynowicz, *Organizers, Presiding*

1:30 77. Relationship between coal biodegradation, microbial methane generation, and redox conditions in coalbeds indicated by coupled water, gas, and microbial analyses.**D. Ritter**, E. Barnhart, H. Schweitzer, D. Vinson, J.C. McIntosh, M. Fields

1:50 78. Molybdate, cobalt, and copper affect microorganisms associated with deep on subsurface coal by enhancing methane production and shifting the methanogenic community structure.**B. Unal**, M. Sanderson, V. Ryan Perry, K. Chin, K. Nusslein

2:10 79. Enhanced production of biogenic coalbed methane from coals following chemical oxidation.**Z. Huang**, M.A. Urynowicz

2:30 80. Use of a kinetic model to identify rate-limitations for biological methane production from coal.**S.L. Papendick**, S. Golding, V. Rudolph, P.C. Gilcrease

2:50 Intermission.

3:10 81. Characterization of microbial communities of methanogenically productive and unproductive coals.**L. Gallagher**, A.W. Glossner, L.L. Landkamer, L.A. Figueroa, K.W. Mandernack

3:30 82. Biodegradation pathways and organic intermediates in the conversion of coal geopolymers to methane.**W.H. Orem**, D.M. Akob, E. Barnhart, A. Clark, A. Cunningham, D. Dunlap, M. Fields, J.C. McIntosh, L. Ruppert, M. Varonka

3:50 83. Molecular characterization of microbes and metagenome of an Indian coal bed for biotransformation of coal into methane and other valued products.**D.N. Singh**, A. Kumar, M.P. Sarbhai, A. Gupta, A.K. Tripathi

4:10 Panel Discussion.

4:10 Concluding Remarks.

4:15 84. Evolution of acetate metabolism in methanogenic *Archaea*.**E. Barnhart**, M. McClure, K. Johnson, S. Cleveland, K. Hunt, M. Fields

MONDAY MORNING

Section A

Colorado Convention Center
Room 703

Green Chemistry and the Environment

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

8:30 Introductory Remarks.

8:35 85. Sonochemical water treatment of dyeing waste water on carpet workshop.**S. Sedaghat**

8:55 86. Morphology-dependent of alpha-MnO₂ for catalytic decomposition of ozone.**J. Jia**, P. Zhang

9:15 87. Effect of initial pH on iron-oxidizing bacteria assisted pyrite oxidation system for mine tailings treatment.**W. Ju**, E. Jho, K. Nam

9:35 88. Biotic and abiotic treatment methods for alkaline leachates from steel slags.**S. Kim**, K. Nam, E.G. Jho

9:55 89. Environmental application of PEI based hydrogels in different morphology and sizes: Bulk, microgel, and cryogel.**N. Sahiner**, S. Demirci, M. Sahiner, H.A. Al-Lohedan, **N. Aktas**

10:15 Intermission.

10:30 90. Effect of two-phase pretreatment of rice straw on polyhydroxyalkanoates (PHAs) synthesis by *Cupriavidus necator*.**J. Ahn**, E.G. Jho, K. Nam

10:50 91. Insights on the solubility of CO₂ in 1-Ethyl-3-methylimidazolium bis(trifluoromethylsulfonyl)imide from the microscopic point of view.**L.T. Costa**, T. Lourenço, D. Van Der Spoel

11:10 92. Novel vapor-phase hydrolysis approach for preparing of nanosilica: Recycling of silicon tetrachloride.**F. Yan**, **J. Jiang**, M. Zhao

11:30 93. Nitrous oxide emission from de-ammonification process.**P.L. Noophan**

11:50 94. [Bmim]Cl ionic liquid as a novel solvent and reaction medium for the preparation of keratin biodegradable thermoplastic.**J. Yuan**, Y. Yu, P. Wang, X. Fan, Q. Wang

12:10 95. Metal occurrence in and potential recovery from municipal biosolids.**K.S. Smith**, P.L. Hageman, G.S. Plumlee, J.G. Crock, T.J. Yager, R.B. Brobst, S.C. Gebhard

Section B

Colorado Convention Center
Room 705

Environmental Chemistry and Health Impacts of Fine and Ultrafine Particulate Matter

Cosponsored by MPPG
S. M. Lomnicki, *Organizer, Presiding*

8:00 96. Exposure to combustion-derived particulate matter: an unrecognized risk factor in severity of respiratory viral infection in infants.**S. Cormier**, G. Lee, J. Saravia, D. You, B. Shrestha, S. Jaligama, V. Hebert, T.R. Dugas

8:30 97. Withdrawn

8:50 98. Temporal-spatial variations, sources, and transport of PM_{2.5} and associated trace metals in the Yangtze River Delta (YRD), China.**L. Ming**, J. Li, G. Zhang, **X. Li**

9:10 99. Spatial variation of rainwater chemistry in Ile-Ife, Osun State, Nigeria.**A.A. Okoya**

9:30 100. Chemical speciated components of atmospheric organic aerosol in the St. Louis Region, U.S.**Y. Zhang**, B. Williams, R. Martinez, D. Mitroo, M. Walker, C. Oxford, X. Zuo, D. Hagan, J. Turner, L. Du, D. Millet, M. Baasandorj, L. Hu, R. Weber, L. King

9:50 Intermission.

10:05 101. Oxidant production from source-oriented particulate matter: hydrogen peroxide and hydroxyl radical.**N.K. Richards-Henderson**, J.G. Charrier, K.J. Bein, A.S. Wexler, C. Anastasio

10:25 102. Formation of biologically persistent free radicals (BPFR) via reaction of nano metal oxide with a selected component of broncho-alveolar lavage fluid (BALF).**A.N. Dela Cruz**, S.M. Lomnicki

10:45 103. Effect of black carbon nanoparticles on epithelial cell proliferation.**N. Beebe**, A.M. Johansen

11:05 104. Main contributors to the diesel exhaust and wood smoke particles toxicity. Do we know them? **A. Kubátová**, R. Cochran, K. Ondrušová, J. Rousová, A.I. Totlandsdal, J. Øvrevik, P.E. Schwarze, M. Låg

11:25 105. Determination of atmospheric organosulfates using HILIC chromatography with MS detection.**E.A. Stone**, A. Hettiyadura, S. Kundu, Z. Baker, E. Geddes, K. Richards, T. Humphry

11:45 106. Particulate matter containing environmentally persistent free radicals induce aryl hydrocarbon receptor-dependent cytokine production in human bronchial epithelial cells.**V. Hebert**, S. Cormier, R. Reed, W. Backes, **T.R. Dugas**

Section C

Colorado Convention Center
Room 707

Chemical Processes at Environmental Interfaces

Chemistry at Aqueous/Mineral(Solid) Interfaces

Cosponsored by COLL

H. A. Al - Abadleh, H. M. Ali, R. Z. Hinrichs, *Organizers*

N. Kabengi, *Organizer, Presiding*

8:00 Introductory Remarks.

8:10 107. Structure, dynamics, and reactivity of the interface between aqueous solutions and mineral surfaces.**D. Wesolowski**, A.G. Stack, H. Wang

8:40 108. Integrated approach to study surface reactions using spectroscopy and calorimetry.**M. Chrysochoou**, N. Kabengi

9:10 109. Speciation dynamics of metal at biochar-soil interface: Effects of biochar and soil properties.**R. Huang**, Y. Tang

9:30 110. Zinc interaction with struvite during and after mineralization from phosphorus-rich sources.**A. Rouff**, K. Juarez

9:50 Intermission.

10:10 111. Adsorption of Cr(VI), Cd(II), and Pb(II) on nanomaghemite and maghemite-coated silica.**C. Koretsky**, M. Komarek, D. Alessi, K. Stephen, A. Troy

10:40 112. DFT calculations in support of XANES and NMR studies of Cd and Pb on gibbsite and kaolinite.**J.D. Kubicki**, H. Watts, E. Poweleit, K.T. Mueller, N. Govind, P. ODay, M. Small

11:10 113. Development of DFT methods to aid in NMR data interpretation for Cd(II) adsorbed to clay minerals.**H.D. Watts**, E.T. Poweleit, K.T. Mueller, J.D. Kubicki

11:30 114. Exploring nano shape effects on reactivity in Keggin-type aluminum hydroxide clusters through DFT studies.**K.W. Corum**, S.E. Mason

11:50 115. Surface chemistry enhanced microbial electrodes: Biofilm modeling and characterization.**J.A. Cornejo**, K. Artyushkova, C. Santoro, S. Babanova, L.K. Ista, A.J. Schuler, P.B. Atanassov

Section D

Colorado Convention Center
Room 709

Hydraulic Fracturing Impacts on Water, Soil and Air Quality

Groundwater Impacts

Cosponsored by MPPG[‡]

R. Jackson, R. D. Vidic, *Organizers*

J. Blotevogel, T. Borch, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 116. Approaches for groundwater monitoring for shale gas impacts: Concepts and field examples.**B. Parker**, J. Cherry, **A. Cahill**

8:35 117. Controls on methane occurrences in aquifers in the footprint of Texas shale plays.**J. Nicot**, P. Mickler, T.E. Larson, M. Castro, Z. Hildenbrand, R. Darvari, K. Uhlman, R.C. Smyth, L. Bouvier, B.R. Scanlon

9:00 118. Simulating mobility and degradation of chemical contaminants from unconventional gas development.**C. Kanno**, D. Edlin, T. Borrillo-Hutter, J.E. McCray

9:25 119. Fate of hydraulic fracturing chemicals in agricultural topsoil.**M. McLaughlin**, T. Borch, J. Blotevogel

9:50 Intermission.

10:05 120. Trace levels of diesel range organic compounds in shallow groundwater wells in northeastern Pennsylvania elevated near Marcellus shale gas wells.**B.**

Drollette, K. Schreglmann, N. Warner, T.H. Darrah, M.P. O'Connor, O. Karatum, R. Nelson, M. Elsner, C.M. Reddy, A. Vengosh, R. Jackson, D.L. Plata

10:30 121. Toxicity and fate of the chemicals of matrix acidization, an unconventional oil stimulation technique.**K. Abdullah, J. Taylor, I. Suffet**

10:55 122. Fate and transport of four organic compounds frequently used in hydraulic fracturing fluids in laboratory columns containing aquifer sediments.**J.D. Rogers**, S.G. Osborn, J.N. Ryan

11:20 123. WII4HF: A conceptual model for computing water impact index for hydraulic fracturing.**R. Kandiah**, K. Nedunuri, X. Wei, N. Zhang, M.G. Smith

Section E

Colorado Convention Center
Room 711

Modern Analytical Approaches for the Characterization of Natural Organic Matter in the Environment

Use of Mass Spectrometry and Other Methods to Characterize NOM in Diverse Environments

Cosponsored by ANYL and MPPG

G. Aiken, K. Cawley, *Organizers*

J. A. Korak, F. L. Rosario, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 124. From molecular analyses to remote sensing: Characterization of dissolved organic matter in the Gulf of Maine.**G. Aiken**, X. Cao, J. Mao, K. Schmidt-Rohr, R. Spencer, S. Belanger, W. Balch, T. Huntington

8:35 125. Ultrahigh resolution mass spectrometry study of sea spray aerosol water soluble and water insoluble organic matter composition.**A.S. Wozniak**, A.S. Willoughby, S.D. McElhenie, P.K. Quinn, D.J. Coffman, P. Hatcher

9:00 126. Using Fourier transform ion cyclotron resonance mass spectrometry to identify potential disinfection byproduct precursors in leaf litter leachate. **G. McKee**, C.C. Rhoades, T. Borch

9:25 127. Meta-metabolomics as a systems-level tool for examining shifts in organic matter composition driven by environmental change. **C.M. Boot**

9:50 128. Halogenated moieties incorporated into humic acid as a result of oxidation of tetrahalobisphenol A and their characterization using a TMAH-pyrolysis-GC/MS. **R. Kodama**, T. Miyamoto, Q. Zhu, M. Igarashi, **M. Fukushima**

10:15 Intermission.

10:30 129. Antarctic ice-locked reservoirs of organic matter: Probing the bulk and molecular level chemical nature of organic matter by fluorescence spectroscopy and mass spectrometry. **J. D'Andrilli**, C.M. Foreman, H.J. Smith

10:55 130. Transformations in autochthonous DOM: An Antarctic supraglacial case study. **H.J. Smith**, M.L. Wei-Haas, M. SanClements, J. D'Andrilli, C.M. Foreman, Y. Chin, D. McKnight

11:20 131. Patterns in DOC absorbance with photodegradation and microbial processing in tundra watersheds in the Kolyma River Basin. **M. Behnke**, J. Schade, K. Whittinghill, N. Zimov

11:45 132. DOC variability and characteristics in alpine watersheds. **K. Dee**, J.F. Ranville, K. Walton-Day, K.S. Smith

MONDAY AFTERNOON

Section A

Colorado Convention Center
Room 703

Dispersion of Nanoparticles and its Implication for Interfacial, Biological and Environmental Processes

Interface and Transport

N. B. Saleh, B. Xing, *Organizers*

B. Pan, P. J. Vikesland, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 133. Interaction between graphene oxide and minerals in aqueous phase. J. Zhao, Z. Wang, **B. Xing**

2:10 134. Natural organic matter's influence on pollutant toxicity: An interface point of view. R.D. Williams, C.L. Schneider, L.M. Ojwang', **R.L. Cook**

2:45 135. Effect of extracellular polymeric substances on the fate and transformation of engineered nanomaterials. **A.S. Adeleye**, A.A. Keller

3:05 136. Measuring iron particle formation in seawater through advances in spICP-MS. B.T. Cartledge, E.K. Cutler, K.E. Whitworth, **B. Majestic**

3:25 Intermission.

3:45 137. Heteroaggregation of carboxylated multiwalled carbon nanotubes (COOH-MWCNTs) and kaolinite in aquatic systems and their cotransport behavior in porous media. **T. Wang, P. Coogan, Q. Li**

4:05 138. Promoted dispersion of cerium oxide nanoparticles from Fe²⁺-induced redox reactions at the nanoparticle surface. **Y. Jun**, J.R. Ray, X. Liu, C.W. Neil, Q. Li

4:25 139. Elucidating critical roles of light and electron acceptors during aqueous colloidal C₆₀ (nC₆₀) formation. **J. Wu**, A. Montoya, W. Li, J. Fortner

4:45 140. Controlled evaluation of copper-based nanomaterial dissolution kinetics. **R.D. Kent**, P.J. Vikesland

Section B

Colorado Convention Center
Room 705

Chemistry in the Marine Boundary Layer

Cosponsored by MPPG
J. Donaldson, *Organizer*
B. DAnna, *Organizer, Presiding*

1:30 141. Ocean-atmosphere interaction and marine multiphase chemistry.**H. Herrmann**, M. van Pinxteren, D. van Pinxteren, K. Müller, W. Fomba, P. Bräuer

1:55 142. Impact of biological activity in the sea surface microlayer on sea spray aerosol and cold cloud formation.**J.Y. Aller**, P. Alpert, W.P. Kilhau, D. Bothe, T.W. Wilson, B. Murray, **D.A. Knopf**

2:15 143. Sea spray organic matter and virus-induced plankton dynamic.**M. Facchini**, C.D. O'Dowd, R. Danovaro

2:35 144. Surface-atmosphere exchange of ammonia in the summertime Canadian Arctic marine boundary layer.**G. Wentworth**, J. Murphy, J. Tremblay, J. Gagnon, J. Côté, I. Courchesne

2:55 Intermission.

3:05 145. Bringing the ocean into the laboratory for detailed studies on sea spray aerosols
.K.A. Prather

3:30 146. Impact of air-sea exchanges on the Mediterranean marine boundary layer composition.**N. Marchand**, J. Pey, H.L. Dewitt, B. Temime-Roussel, S. Hellebust, A. Mème, B. Rmili, B. Charrière, R. Sempéré, S. Mas, D. Parin, J. Cerro, N. Perez, C. Rose, A. Schwier, M. Elser, S. Szidat, A.S. Prévôt, K. Sellegri, B. D'Anna

3:50 147. Size-resolved sea spray aerosol particles studied by vibrational sum frequency generation.**F. Geiger**

4:10 Intermission.

4:20 148. Sunlight-driven photochemical halogenation of dissolved organic matter in seawater: A natural abiotic source of organobromine and organoiodine.**J.J. Pignatello**, J. Méndez-Díaz, K. Shimabuku, J. Ma, Z.O. Enumah, W. Mitch, M.C. Dodd

4:45 149. Simulation of the photochemical heterogeneous activation of halogens (Cl and Br) from salt pans and salt aerosol in chamber experiments.**C. Zetzsch**

5:05 150. On the reaction of CH_3O_2 radicals with OH radicals and its impact on the MBL.**C. Fittschen**

5:25 151. Impact of organosulfur compounds at the marine/urban interface in a decreasing SO₂ world. **V. Perraud**, S. Meinardi, D.R. Blake, J. Horne, M. Dawson, A. Martinez, D. Dabdub, J. Kalinowski, R.B. Gerber, B.J. Finlayson Pitts

Section C

Colorado Convention Center
Room 707

Solutions to Metals Contamination of Water

Cosponsored by MPPG[‡]

S. Ahuja, J. W. Finley, J. N. Seiber, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 152. Notable solutions to water contamination. **S. Ahuja**

2:00 153. Arsenic removal technology for drinking water for developing countries. **S. Chaudhari**, T. Banerji

2:25 154. Quantification of arsenic and uranium in unregulated water sources on the Navajo and Hopi reservations. **J. Credo**, E.R. Peaches, T. Rock, S.B. Garcia, J.C. Ingram

2:50 155. Feasibility study of iron oxide nanoparticles prepared by different synthetic methods for arsenic removal. **N.I. Gonzalez Pech**, C. Avendano, G. Escalera, A. Bohloul, V.L. Colvin

3:15 Intermission.

3:30 156. Influence of acid-base properties of zinc oxide nanomaterials on their arsenic uptake capacity. **E. Rukundo**, A. Apblett

3:55 157. Extraction, recovery, and identification of Inorganic contaminants from water. **R.E. Del Sesto**, A. Newsham, M. Jones, B.H. Barton, A.T. Koppisch, D. Fox

4:20 158. Optimizing the treatment performance of graphene oxide-based hydrogels. **T.A. Duster**, L.F. Greenlee

4:45 159. Removal of heavy metals with steel furnace slag. B. Mercado-Borrayo, R. Contreras, A. Sánchez, X. Font, R. Schouwenaars, **R. Ramírez-Zamora**

Colorado Convention Center
Room 709

Hydraulic Fracturing Impacts on Water, Soil and Air Quality

Surface Water Impacts/Fluid Chemistry

Cosponsored by MPPG[‡]

J. Blotevogel, T. Borch, *Organizers*

R. Jackson, R. D. Vidic, *Organizers, Presiding*

1:30 160. Water quality challenges associated with energy resource extraction from Marcellus Shale.**R.D. Vidic**

2:00 161. Appropriation of fresh water for shale gas development in Pennsylvania's Marcellus Shale.**J. Saiers**, E. Barth-Naftilan

2:25 162. Transformation kinetics and pathways of hydraulic fracturing biocides under downhole conditions: Focus on glutaraldehyde.**G. Kahrilas**, J. Blotevogel, T. Borch

2:50 163. Exploring the potential for rare earth elements as geochemical fingerprints of salinity sources.**A. Karamalidis**, C.W. Noack, D.A. Dzombak

3:15 Intermission.

3:25 164. Analysis of hydraulic fracturing flowback and produced waters using accurate mass: Identification of ethoxylated surfactants.**E. Thurman**, I. Ferrer, J. Blotevogel, T. Borch

3:55 165. Endocrine disrupting activity of hydraulic fracturing chemicals and health outcomes following prenatal exposure in mice.**C. Kassotis**, C. Lin, D.E. Tillitt, S.C. Nagel

4:20 166. Contaminant mobilization via reactions between Marcellus shale and synthetic fracturing fluids.**W.D. Burgos**, T. Tasket

4:45 167. Ultrahigh resolution mass spectrometry of hydraulic fracturing produced waters.**L. Jenna**, M. Gonsior, P. Schmitt-Kopplin, J. Batista

5:10 168. Molecular-level characterization of water-soluble organic species from eagle ford shale oil by ultrahigh resolution ft-icr mass spectrometry.**A.M. McKenna**, D.C. Podgorski, H. Chen, L.C. Krajewski, Y. Corilo

Section E

Colorado Convention Center
Room 711

Modern Analytical Approaches for the Characterization of Natural Organic Matter in the Environment

Extraction Techniques to Isolate NOM and Characterization of Pyrogenic Organic Matter (Biomass Burning)

Cosponsored by ANYL and MPPG
J. A. Korak, F. L. Rosario, *Organizers*
G. Aiken, K. Cawley, *Organizers, Presiding*

1:30 169. Solid phase extraction of organic matter, past to present: A review of isolation mechanisms from XAD to today's sorbents.**E.M. Thurman**, I. Ferrer

2:00 170. Characterization of soil organic matter (SOM) using online supercritical fluid extraction (SCFE) techniques coupled with liquid chromatography-ultrahigh resolution mass spectrometry (LC-UHR MS).**K.M. Roscioli**, Y. Shen, R. Zhao, T. Fillmore, N. Tolic, M. Tfaily, B. Anderson, N.J. Hess, L. Paša-Tolić, E.W. Robinson

2:25 171. New solvent methods for molecular characterization of SOM by high resolution spectrometry.**M.M. Tfaily**, R. Chu, N. Tolic, K.M. Roscioli, L. Paša-Tolić, E.W. Robinson, N.J. Hess

2:50 172. Effects of chemical treatments on soil organic matter composition identified by DRIFT, NMR and py-MBMS characterization.**F.J. Calderón**, **A.J. Margenot**, K.A. Magrini, R.J. Evans

3:15 Intermission.

3:30 173. Structural interrogation of dissolved organic matter and pyrogenic black carbon and molecular characterization by ultrahigh resolution FT-ICR mass spectrometry.**A.M. McKenna**, D.C. Podgorski, Y. Corilo, W.T. Cooper, D.F. Smith, N.K. Kaiser

3:55 174. Speciation of organics in aged atmospheric particles from a biomass burning event: Relationship to light absorption and comparison to humic acids.**R.A. Di Lorenzo**, K.J. Jobst, X. Ortiz, C.J. Young

4:20 175. Comparative analysis of wood stove smoke.**V.M. Porden**

4:45 176. Characterization and concentration of water soluble organic matter (WSOM) and inorganic constituents from wildfire impacted stream bank material.**K. Cawley**, A.K. Hohner, P. Omur-Ozbek, R. Summers, F.L. Rosario

Undergraduate Research Posters

Environmental Chemistry

Sponsored by CHED, Cosponsored by ENVR and SOCED

MONDAY EVENING

Section A

Colorado Convention Center
Hall C

Sci-Mix

S. R. Al-Abed, *Organizer*

8:00 - 10:00

177. Profile of metal bioaccumulation in selected invertebrates from the eastern and western shores of the Susquehanna River near Hummels Wharf Pennsylvania.**A. Pritzlaff**, C.P. Hallen, C. Venn

178. Organic matter and nitrogen removal within field-scale constructed wetlands:reduction performance and microbial identification studies.**T. Yeh**

203, 210, 336, 351, 360, 362, 363, 366, 370, 371, 374, 377, 379, 381, 383, 386, 388, 389, 394, 396, 400, 401, 403, 407, 414, 415, 417, 419, 422, 430, 431, 438, 443, 446, 447, 450, 451, 454, 460. See Subsequent Listings.

TUESDAY MORNING

Section A

Colorado Convention Center
Mile High Ballroom, 4D

Dispersion of Nanoparticles and its Implication for Interfacial, Biological and Environmental Processes

Sorption and Dispersion

B. Pan, N. B. Saleh, P. J. Vikesland, *Organizers*

B. Xing, *Organizer, Presiding*

R. L. Cook, *Presiding*

8:00 179. Toward a mechanistic understanding of the effect of natural organic matter coatings on nanoparticle aggregation. **G.V. Lowry**, S. Louie, E.R. Spielman-Sun, R.D. Tilton

8:35 180. Coadsorption, desorption hysteresis, and sorption thermodynamics of sulfamethoxazole and carbamazepine on graphene oxide and graphite. **B. Pan**, C. Wang, H. Li, B. Xing

9:10 181. Arsenic adsorption in highly dispersed conductive TiO₂-CNT nanosystems: Enhanced sorption behavior due to mass transport, electrosorption, and adsorbent dispersion. **H. Liu**, K. Zuo, C.D. Vecitis

9:30 182. Role of air bubbles overlooked in the adsorption of perfluorooctane sulfonate on carbon nanotubes. **S. Deng**, P. Meng, B. Xing

9:50 Intermission.

10:10 183. Influence of humic acid on the dispersion and transport of nTiO₂ particles in water-saturated porous media.**Y. WU**, T. Cheng

10:30 184. Surface engineering magnetic nanoparticles for aqueous applications: Design and characterization of tailored organic bilayer.**W. Li**, C.H. Hinton, S. Lee, J. Wu, Y. Jiang, J.D. Fortner

10:50 185. Disruption of quorum sensing by adsorption of acyl-homoserine lactone to engineered nanomaterials.**K.B. Gregory**, J.M. Vanbriesen, E. McGivney

11:10 186. Synthesis and characterization of anion exchange resin coated SWCNTs for dissolved organic content removal.**J.C. Poler**, B. Johnson, Y.J. Baik, R. Furst

Section B

Colorado Convention Center
Room 705

Advances in Analytical Chemistry for Discovering Emerging Contaminants in the Natural Environment

Cosponsored by AGRO, ANYL and MPPG
D. Alvarez, *Organizer*
T. L. Jones-Lepp, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 187. New environmental monitoring framework for contaminants of emerging concern (CECs).**K.A. Maruya**, N.G. Dodder, A.C. Mehinto

8:55 188. Microplastics emerging contaminants: a new source of toxic compounds.**L.M. Rios Mendoza**, E. Soto

9:15 189. Naphthenic acid analysis using differential mobility spectrometry coupled with accurate mass time of flight mass spectrometry.**P. Winkler**, L. Campbell, T. Sakuma, A. Schreiber, K. Peru, j. Headley

9:35 190. Quantification and risk assessment of emerging organic contaminants in Ikpa River basin, Niger Delta, Nigeria.**N.O. Offiong**, **E. Inam**, J. Essien, S. Kang, G. Udofia, B. Antia, S. Kang, P. Yang

9:55 Intermission.

10:15 191. Using a novel photo-micro-reactor to remove benzoylecgonine in wastewater treatment: Uncovering phototransformation products and the reaction pathways with advanced mass spectrometry tools.**S.D. Richardson**, K.H. Cochran, M. Vaccaro, D. Russo, D. Spasiano, R. Marotta, R. Andreozzi, N.M. Reis, G. Li Puma

10:35 192. Novel methods for sampling perfluorinated acids in the atmosphere.**J.J. MacInnis**, T.C. Vandenboer, **C. Young**

10:55 193. Adsorption and disposition of pharmaceuticals by bluegill exposed at constant concentrations in a flow-through aquatic exposure system. . **Zhao, E.T. Furlong**, D.W. Kolpin, E.A. Schwab, D.J. Feifarek, K.L. Bird, H. Schoenfuss, G. Ying

11:15 194. Presence of UV filters (sunscreens) in marine surface waters of bays within the Virgin Islands National Park.**D. Alvarez**, T. Bargar

11:35 195. Using 5-hydroxyindoleacetic acid as an anthropogenic population biomarker in wastewater treatment plant influent.**D.A. Burgard**, H. Fryhle, M.C. Pellman

Section C

Colorado Convention Center
Room 707

Solutions to Metals Contamination of Water

Cosponsored by MPPG[‡]

S. Ahuja, J. W. Finley, J. N. Seiber, *Organizers, Presiding*

8:30 196. Immobilization of mercury by stabilized iron sulfide nanoparticles: Reaction mechanisms and effects of stabilizer.**D. Zhao**, Y. Gong, Y. Liu, Z. Xiong

8:55 197. Solar UV photooxidation as pretreatment for stripping voltammetric trace metal analysis in river water.**G. Flechsig**, G. Woldemichael

9:20 198. Lignin-coated magnetic nanoparticles for mercury adsorption.**L. Peña**, N. Robitaille Brown

9:45 199. Mercury uptake by oysters in the New York Harbor indicates early success of novel approach to water restoration.**E. Park**

10:10 Intermission.

10:25 200. Binding of inorganic mercury in surface water to DOM and alum flocs: How much removal can we get?.**F.A. Diaz**, L.E. Katz, D.F. Lawler

10:50 201. Utilization of fruit juice with high vitamin C content for the remediation of wastewater contaminated with chromium (VI).Y.S. Mendoza, **J.R. Pinzón**

11:15 202. Efficient and robust removal of chromium using engineered metal-reducing biofilms.**Y. Ding**, B. Cao

11:40 203. Adsorption of Cs, Sr, and Co by mesoporous materials.**K. Guo**, F.X. Han, Z. Arslan, H. Yu

Section D

Colorado Convention Center
Room 709

Hydraulic Fracturing Impacts on Water, Soil and Air Quality

Air & Water Quality

Cosponsored by MPPG[‡]

R. Jackson, R. D. Vidic, *Organizers*

J. Blotevogel, T. Borch, *Organizers, Presiding*

8:00 204. Characterizing air quality impacts of oil and gas development in the Bakken formation region.**J.L. Collett**, A. Evanoski-Cole, A. Prenni, D. Day, A. Sullivan, Y. Li, B.C. Sive, Y. Zhou, J. Hand, K. Gebhart, M. Schurman, B. Schichtel

8:30 205. Observations of acyl peroxy nitrates (PANs) during the Front Range Air Pollution and Photochemistry Experiment (FRAPPÉ) field campaign.**J. Zaragoza**, E.V. Fischer, E.E. McDuffie, W.P. Dubé, S.S. Brown, D.K. Farmer, F.M. Flocke

8:55 206. Locating, quantifying, and attributing methane emissions from fossil-fuel extraction.**E. Kort**, M. Smith, A. Gvakharia, C. Sweeney, A. Karion, J. Peischl, T.B. Ryerson, C. Frankenberg, M. Dubey

9:20 Intermission.

9:35 207. Influence of salinity, concentration, and redox on the biodegradability of organic additives in hydraulic fracturing fluids.**P. Mouser**

10:05 208. Disinfection by-products formed during the treatment of produced waters at wastewater treatment plants.**M.L. Hladik**, M. Focazio

10:30 209. Produced water exposure from hydraulic fracturing alters bacterial response to biocides.A. Vikram, D. Lipus, **K. Bibby**

10:55 210. Anaerobic biodegradation of polypropylene glycols within hydraulic fracturing fluid.**K.M. Heyob**, J. Blotevogel, T. Borch, P.J. Mouser

11:20 211. Feasibility of reusing barite recovered from the produced for drilling mud formulation.**N. Cely**

Section E

Colorado Convention Center
Room 711

Modern Analytical Approaches for the Characterization of Natural Organic Matter in the Environment

NMR and Photochemical Analysis of NOM

Cosponsored by ANYL and MPPG

J. A. Korak, F. L. Rosario, *Organizers*

G. Aiken, K. Cawley, *Organizers, Presiding*

8:00 212. Combined mass spectrometry - NMR spectroscopy approach for characterizing organic phosphorus in treatment of wetlands.**W.T. Cooper**, L. Skiba, C. Stulz, S. Newman

8:30 213. New forms of dissolved organic nitrogen Identified by multibond 2D NMR spectroscopy.X. Cao, M.R. Mulholland, P.W. Bernhardt, J. Helms, **J. Mao**, K. Schmidt-Rohr, Z. Zhou

8:55 214. Composition and structure of natural organic matter isolated by reverse osmosis and ultrafiltration.**Y. Ran**, W. Huang, X. Cao, J. Mao

9:20 Intermission.

9:35 215. Further insights on the chemical structure of humic substances (HS) and chromophoric dissolved organic matter (CDOM) in relation to their optical/chemical properties.**R. Del Vecchio**, T. Schendorf, N.V. Blough

10:00 216. pH effects on DOM photodegradation using semi-continuous fluorescence excitation emission matrices.**S. Timko**, M. Gonsior, W.J. Cooper

10:25 217. Temperature dependence of the photochemical formation of hydroxyl radical from dissolved organic matter.**G. McKay**, F.L. Rosario

10:50 218. Comparing triplet reaction mechanisms for DOM characterization.**A. Maizel**, W. Kamp, C.K. Remucal

11:15 219. Dynamic light scattering and zeta potential investigation of fulvic and humic acid reversible self-assembly in low electrolytic conductivity solutions.**M.J. Wells**, M.R. Esfahani, H.A. Stretz

11:40 220. Assessment of novel natural organic matter characterization tools: Application to the drinking water industry.**Y. Park**, A. Stoddart, M. Brophy, W. Krkosek, G.A. Gagnon

GSSPC: Designed by Nature, Developed by Science: Interdisciplinary Perspectives on Biocatalysis

Sponsored by CHED, Cosponsored by ANYL, BIOL, CATL, ENVR, I&EC, MEDI, ORGN and PRES

TUESDAY AFTERNOON

Section A

Colorado Convention Center
Room 703

Dispersion of Nanoparticles and its Implication for Interfacial, Biological and Environmental Processes

Benefit and Risk

B. Pan, P. J. Vikesland, B. Xing, *Organizers*
N. B. Saleh, *Organizer, Presiding*
Z. Zhang, *Presiding*

1:30 221. Interactions between plants and rare earth oxide nanoparticles.**Z. Zhang**, Y. Ma, P. Zhang, X. He, Y. Zhao

2:05 222. Bioaccumulation of ionic silver and silver nanoparticles within freshwater crayfish using inductively coupled plasma optical emission spectroscopy.**S.W. Brittle**, D.P. Foose, M.T. Ruis, M.T. Amato, S.A. Paluri, N.H. Lam, B. Buttigieg, Z.E. Gagnon, I.E. Pavel Sizemore

2:25 223. Bioavailability of fullerene in the presence of environmentally relevant matrices: Effects of humic acid and fetal bovine serum (FBS) on the lipid accumulation and cellular uptake.**Y. Ha**, H. Liljestrand, L.E. Katz, J. Maynard

2:45 224. Interaction strength of supported lipid bilayers with the underlying substrate influences the disruptive effect of engineered nanoparticles.**N. Yousefi**, A. Wargenau, **N. Tufenkji**

3:05 Intermission.

3:25 225. Application of carbon nanotube yarn as a filter media to treat nitroaromatic-contaminated water.**S.R. Kanel**, B. Doane, H. Misak, S. Mall, S.W. Brittle, I.E. Pavel Sizemore, T. Ebrahimian, D. Kempisty, M.N. Goltz

3:45 226. Engineered carbon nanoparticle tracers: Groundwater transport and implications for the migration of environmental nanoparticles.**C.N. King**, W.E. Sanford, Y.V. Li

4:05 227. Probing photosensitization by functionalized carbon nanotubes in aquatic environments.**C. Chen**, R.G. Zepp

4:25 228. Modification of zero-valent iron nanoparticles and its application for the decoloration of malachite green.**X. Wang**, J. He, L. Le

4:45 Concluding Remarks.

Colorado Convention Center
Room 705

Advances in Analytical Chemistry for Discovering Emerging Contaminants in the Natural Environment

Cosponsored by AGRO, ANYL and MPPG

T. L. Jones-Lepp, *Organizer*

D. Alvarez, *Organizer, Presiding*

1:30 229. Spatial and temporal variability of excitation emission matrix (EEM) fluorescence spectra in a wastewater effluent impacted river. **M.J. Wells**, G.A. Mullins, K.Y. Bell, A.K. Da Silva, E.M. Navarrete

1:50 230. Application of field portable PLOT-cryoadsorption headspace sampling apparatus for detection of diesel fuel in soil. **S. Bukovsky-Reyes**, T. Bruno, M. Harries

2:10 231. Analysis of complex environmental samples by 2D-GC combined with high-resolution mass spectrometry. **A. Dane**, M. Ubukata, R.B. Cody

2:30 232. Detection, quantification, and partitioning property estimation of bioaccumulative pollutants in aquatic environments using GCxGC-ENCI-TOFMS and GCxGC-ECD. **J.S. Arey**, S. Samanipour, P. Dimitriou-Christidis, D. Nabi, J. Gros

2:50 Intermission.

3:10 233. Determination of perchlorate in polar ice cores down to sub-ng L⁻¹ level using ion chromatography-tandem mass spectrometry. **K.M. Peterson**, J. Cole-Dai, D. Brandis, T. Cox, S. Splett

3:30 234. Periodic table of elements for the water heavy metal monitoring on paper. **M. Li**, R. Cao, A. Nilghaz, L. Guan, W. Shen

3:50 235. Hydroxyl radical generation on graphite and modified graphite surfaces for AOP's: An EPR investigation. **M.A. Morsy**, A.M. Kawde, M.A. Daous, T.A. Saleh

4:10 236. Identifying trace environmental contaminant in CO₂ capture solvents from coal-fired power plants using ICP-MS and high resolution time-of-flight mass spectrometry (TOF-MS). **J.G. Thompson**, Q. Huang, K. Liu

4:30 Concluding Remarks.

Colorado Convention Center
Room 707

Solutions to Metals Contamination of Water

Cosponsored by MPPG[‡]

S. Ahuja, J. W. Finley, J. N. Seiber, *Organizers, Presiding*

1:30 237. Efficient and versatile carbon-based nanocomposite for the adsorption of heavy metal ions from aqueous environments. A.B. Dichiara, M.R. Webber, **R.E. Rogers**

1:55 238. Effects of the presence of oxyanions during birnessite synthesis on birnessite particle sizes and application for removal of lead. **Q. Wang**, X. Liao, M. Zhu

2:20 239. Engineered superparamagnetic iron oxide nanoparticles for uranyl separation in water. **W. Li**, S. Lee, C.H. Hinton, J. Wu, J.D. Fortner

2:45 240. Cr(VI) removal using magnetite-non oxidative graphene composite as a new sorbent: A comparative study with magnetite-graphene oxide and magnetite-reduced graphene oxide. **M. Zheng**, Y. Yoon, W. Park, W. Yang, J. Kang

3:10 Intermission.

3:25 241. Double-stranded DNA encased single-walled carbon nanotubes for optical sensing of cupric ions. **B. Ergul**, W. Zhao

3:50 242. Speciation behavior of transition and rare earth metal binding by monorhamnolipids. **R. Eismin**, R.M. Maier, J.E. Pemberton

4:15 243. Water purification through graphene oxide-insoluble salt composite membranes. **D. Wang**, W. Zhao

4:40 Concluding Remarks.

Colorado Convention Center
Room 709

Hydraulic Fracturing Impacts on Water, Soil and Air Quality

Treatment and Regulations

Cosponsored by MPPG[‡]

J. Blotevogel, T. Borch, *Organizers*

R. Jackson, R. D. Vidic, *Organizers, Presiding*

1:30 244. Origin of radioactivity in Marcellus Shale flowback water and potential concerns with radioactivity in wastes generated by unconventional gas industry. **T. Zhang**, R.D. Vidic

1:55 245. Advanced treatment for water-recycling: Characterization and pretreatment of the particulate foulants for microfiltration in flowback and produced water from Marcellus shale gas play. **B. Xiong**, M. Kumar, A.L. Zydney

2:20 246. Composition and associated hazards of well stimulation fluids used in California (USA). **W. Stringfellow**, T. McKone, W. Sandelin, R. Maddalena, M. Heberger, C. Varadharajan, P. Jordan, J. Domen, H. Cooley, M. Reagan, R. Tinnacher, M. Camarillo, J. Houseworth, J. Birkholzer

2:50 247. Identifying gaps in hydraulic fracturing wastewater management practices across four North American basins. **D.S. Alessi**, C.A. Notte, D. Thompson, S. Kletke, J. Brisbois, D.M. Allen, J. Gehman, G.G. Goss

3:15 248. Characterization and analysis of liquid waste from Marcellus Shale gas development. J. Shih, J. Saiers, S.C. Anisfeld, J. Chu, L. Mueclenbachs, S. Olmstead, **A. Krupnick**

3:40 Intermission.

3:55 249. Perspectives on hydraulic fracturing in Atlantic Canada: Overview of recent regulatory activities and social license to operate with an environmental context. G.A. Gagnon, **W. Krkosek**, B. Trueman, L. Anderson

4:20 250. Examining memorandums of understanding as a policy solution for hydraulic fracturing in Colorado. **S. Zilliox**, A. Shaffer, J.S. Rolston

4:45 251. Managing the risks of shale gas development using innovative legal and regulatory approaches. **S. Olmstead**, N. Richardson

5:10 Closing Remarks.

GSSPC: Designed by Nature, Developed by Science: Interdisciplinary Perspectives on Biocatalysis

Sponsored by CHED, Cosponsored by ANYL, BIOL, CATL, ENVR, I&EC, MEDI, ORGN and PRES

WEDNESDAY MORNING

Section A

Colorado Convention Center
Room 703

Water Sustainability in Oil and Gas Exploration: Treatment Issues

Cosponsored by CEI and MPPG[‡]
T. Y. Cath, K. Linden, *Organizers, Presiding*

8:00 Opening Remarks.

8:05 252. Chemicals used for matrix acidization, an unconventional oil stimulation technique.**K. Abdullah**, M. Stenstrom, I. Suffet

8:30 253. Water supply and unconventional energy development in the Denver-Julesburg basin: A case study in the South Platte watershed.**E. Walker**, A. Anderson, C. Barry, T.S. Hogue

8:55 254. Feasibility of thermal technologies for reuse of oil and gas exploration and production wastewaters.**V. Gadhamshetty**, V. Gude

9:20 255. Mechanically strong aerogel fabrics for oil capture and recovery.**O. Karatum**, S.A. Steiner III, D.L. Plata

9:45 256. Application of AMD for produced water reuse: Equilibrium and kinetics of solid precipitation and solid waste management.**C. He**, R.D. Vidic

10:10 Intermission.

10:10 257. Comparing electrocoagulation, dissolved air flotation, and traditional coagulation/flocculation as pretreatment for hydraulic fracturing wastewater.**K. Sitterley**, J. Rosenblum, K. Linden

10:35 258. Removal mechanisms of boron during aluminum electrocoagulation of hydraulic fracturing flowback water.**S. Chellam**, M. Sari

11:00 259. Coupling magnetic Pickering emulsions to membrane filtration for nonfouling oil/water separations.**D. Jassby**

11:25 260. Engineered osmosis technology for desalination of oil and gas exploration wastewaters: Progressive assessment of membrane performance and process sustainability.**B.D. Coday**, T.Y. Cath

Section B

Colorado Convention Center
Room 705

Surface Physicochemical Processes in Engineered and Natural Systems

Cosponsored by AGRO and MPPG[‡]

H. J. Zhang, *Organizer*

J. M. Cerrato, H. Liu, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 261. Multifunctional nanostructured composite materials for highly active reductive catalysis water treatment applications.J. Liu, X. Chen, Y. Wang, P. Wang, C.J. Werth, **T.J. Strathmann**

9:15 262. Photocatalytic reductive treatment of hexavalent chromium using barium doped TiO₂.M. Chen, W. Wang, Y. Yin, **H. Liu**

9:35 263. Transformation of hexavalent chromium via redox pathways in drinking water: Implications on Cr(VI) control and treatment.**H. Liu**, M. Chebeir, H. Sohn

9:55 264. Hexavalent chromium removal by electrocoagulation in drinking water system.**C. Pan**, D. Giammar, M. Marni, J.G. Catalano

10:15 265. Effects of water hardness and humic substances on Cr(VI) removal from aqueous systems using pyrite as the reducing agent.**C. Kantar**, M.S. Bulbul

10:35 Intermission.

10:50 266. Impact of hematite nanoparticle (α -Fe₂O₃) morphology and size on photocatalytic potential as exemplified by reduction of chromate. **A.W. Lounsbury**, J. Yamani, N. Billmyer, J.B. Zimmerman

11:10 267. Functionalization of boron-doped diamond electrodes for the minimization of perchlorate formation during electrochemical advanced oxidation processes. **B.P. Chaplin**, W. Jawando, P. Gayen

11:30 268. One-pot electrospinning/Fabrication of Pd-carbon nanofiber catalysts for contaminant hydrogenation. **T. Ye**, D. Shuai

11:50 269. Visible-light-responsive graphitic carbon nitride for photocatalytic degradation of persistent waterborne contaminants. **Q. Zheng**, D. Shuai, N. Bensalah

Section C

Colorado Convention Center
Room 707

Microalgae: A Renewable Energy Source and a Sustainable Solution for the Environment

Cosponsored by AGRO
D. Shuai, *Organizer*
B. P. Chaplin, W. Zhang, *Organizers, Presiding*

8:30 Introductory Remarks.

8:40 270. Green algae cultivation and engineering of its fatty acid synthase. **M.D. Burkart**

9:20 271. Using a pH-stat to understand how the N source affects the concentration of inorganic carbon in microalgae culture. **B. Nguyen**, B.E. Rittmann

9:40 272. Using carbon dioxide to maintain the abundance of the oleaginous microalgae *Scenedesmus dimorphus* in mixed-culture growth reactors. **M.J. Giannetto**, A. Retotar, H. Rismani Yazdi, J. Peccia

10:00 Intermission.

10:20 273. Energy efficient urban wastewater treatment using *Galdieria sulphuraria*. **T. Selvaratnam**, N. Nagamany, L. Peter

10:40 274. Novel shortcut nitrogen removal process by algal-bacterial consortia in a sequencing batch photobioreactor (SBPR). **M. Wang**, H. Yang, **S. Ergas**, P. van der Steen

11:00 275. Role of filamentous cyanobacteria in granular biofilms containing microalgae and bacteria. **K. Stauch-White**, C. Kuo-Dahab, K. Milferstedt, C. Park, C. Butler

11:20 276. Light and COD effects on the performance of photosynthetic microbial desalination cells. **B. Kokabian**, **V. Gude**

11:40 277. Passive membrane photobioreactor for the isolated cultivation of algal resource utilizing selectivity (ICARUS) using wastewater as a feed stock. **I. Drexler**, M. Pickett, M. Heintz, D. Yeh

Section D

Colorado Convention Center
Room 709

Trace Materials in Air, Soil, and Water

Cosponsored by MPPG[‡]

A. Rihana, *Organizer*

M. A. Benvenuto, K. R. Evans, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 278. Flame retardants in Chicago's atmosphere and sediment of the Chicago Sanitary and Ship Canal. **A. Peverly**, M. Venier, Y. Ma, Z. Rodenburg, K.C. Hornbuckle, R.A. Hites

8:55 279. Are pink salt, blue salt, and other "healthy" salts worth their price? Their analysis by energy dispersive X-ray fluorescence spectrometry. **S. Maurice**, C. Roberts, C. Kashat, M.A. Benvenuto, E. Roberts-Kirchhoff

9:15 280. New insights into mercury speciation in freshwaters using mercury-thiourea complex ion chromatography with ICP-MS detection. **T.H. Huang**, O.A. Todd, R.J. Hudson

9:35 281. Single extraction methodology for amino sugars as biomarkers in environmental matrices.**T.C. Vandenboer**, R. Hems, R. Di Lorenzo, S. Ziegler, C. Young

9:55 Intermission.

10:10 282. Molecular sensing at graphene grain boundaries.**P. Kral**

10:30 283. Iron analysis in aging water pipes using cloud point extraction method.**Z. Li**, A. Rihana, K.C. Lanigan

10:50 284. Analyzing the correlation of volatile organic compounds with ozone formation in the Houston-Galveston-Brazoria area Using CAMx.**M. Shahriar**, A. Kadiyala, **R.R. Kommalapati**, Z. Huque

11:10 285. Fate of oxyhalide disinfection by-products in hypochlorite solution storage tanks.**A. Breytus**, S. Prabakar, A.P. Kruzic

11:30 Concluding Remarks.

Section E

Colorado Convention Center
Room 711

Environmental Implications of Nano: Release from Consumer Products and Advances in Nanometrology

C. P. Higgins, J. F. Ranville, *Organizers*
R. B. Reed, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 286. Tracking nanomaterials through the laundry wash cycle: Release, dissolution, and complexation.**D. Mitrano**, B. Nowack

8:25 287. Prospecting silicon dioxide in foods: Occurrence, characterization, and toxicity.**Y. Yang**, J. Faust, J. Schoepf, K. Hristovski, R.L. Tanguay, D.G. Capco, P. Herckes, **P.K. Westerhoff**

8:45 288. Characterization of nanosilica release from a weathered nanosilica/polyurethane coating.**L. Sung**, S. Huang, Y. Cheng, D. Stanley, S. Rabb, P. Krommenhoek, L. Yu, T. Nguyen

9:05 289. Evaluation of nanoparticle release from polymer nanocomposites loaded with fluorescent quantum dots.**K. Pillai**, P. Gray, C. Tien, R. Bleher, L. Sung, T.V. Duncan

9:25 290. Influence of loading on the degradation and release of carbon nanotubes from polymer nanocomposites.**H. Fairbrother**, R. Lankone, D.G. Goodwin, E.J. Bouwer, J.F. Ranville, J. Wang

9:45 291. Evaluation of silver nanoparticle – impregnated fabrics across their life cycle.**R.B. Reed**, J.F. Ranville, R.L. Tanguay, J.E. Hutchison, P.K. Westerhoff, T. Zaikova

10:05 Intermission.

10:20 292. Engineered nanoparticles in the environment: From theory to practice.**A.P. Gondikas**, **F. Von Der Kammer**, R.B. Reed, R. Kaegi, T. Hofmann

10:40 293. Single particle ICP-MS (SP-ICP-MS) for the detection of metal-based nanoparticles in environmental matrices.**C. Stephan**

11:00 294. Development of novel methodology to quantify silver release from polymer nanocomposites.**A. Barber**, R. Lankone, J. Wang, H. Fairbrother, P.K. Westerhoff, J.F. Ranville

11:20 295. Improvements in the detection and characterization of silica nanomaterials using spICP-MS.**M.D. Montano**, B. Majestic, J.F. Ranville

11:40 296. Measuring nanocarbon fluxes by tracing stable isotope labelled nanomaterials.**T.D. Berry**, T.R. Filley

Elucidation of Mechanisms & Kinetics on Surfaces

Sponsored by COLL, Cosponsored by CATL and ENVR

WEDNESDAY AFTERNOON

Colorado Convention Center
Room 703

Water Sustainability in Oil and Gas Exploration: Treatment Issues

Cosponsored by CEI and MPPG[‡]

T. Y. Cath, K. Linden, *Organizers, Presiding*

1:30 297. Removal of radium from shale gas wastewater using cation exchange resin.**Y. Bi**, H. Zhang, K.F. Hayes, B. Ellis

1:55 298. Fate of radium in wastewater produced during unconventional gas extraction during carbonate precipitation reactions.**Y. Li**, R.D. Vidic

2:20 299. Fate of NORM in flowback water and waste management strategies during water reuse for hydraulic fracturing in Marcellus Shale.**T. Zhang**, R.D. Vidic

2:45 300. Biological treatment of flowback water from a hydraulically fractured well.**J. Rosenblum**, K. Sitterley, I. Morrissey, K. Linden

3:10 Intermission.

3:30 301. Anammox biocathode for sustainable microbial desalination of brackish waters.**B. Kokabian**, **V. Gude**

3:55 302. Microbial mats as a biological treatment approach for produced water from hydraulic fracturing.**B. Akyon**, E. Stachler, N. Wei, **K. Bibby**

4:20 303. Microbial capacitive desalination for organic and salt removal and energy production from unconventional natural gas produced water .**C. Forrestal**, A. Haeger, L. Dankovich, **Z. Ren**

4:45 304. Biological active filtration treatment of O&G flowback and produced waters.**T.Y. Cath**, D.E. Freedman, S.M. Riley

5:10 Concluding Remarks.

Colorado Convention Center
Room 705

Surface Physicochemical Processes in Engineered and Natural Systems

Cosponsored by AGRO and MPPG[‡]

H. J. Zhang, *Organizer*

J. M. Cerrato, H. Liu, *Organizers, Presiding*

1:30 305. Interactions and reactions of organic compounds at interfaces between water and pyrogenic carbonaceous materials

.J.J. Pignatello

2:10 306. Oxidative reactivity of MnO₂ in mixtures with Fe^{III} oxides and/or natural organic matter (NOM). **H. Zhang**, S. Taujale

2:30 307. Oxidative degradation of trinitrotoluene by mixed metal oxide nanoparticles in water. **G.S. Harbison**, Y. Kye, M.A. Langell, M. Kumbier

2:50 308. Adsorption and photocatalysis of ciprofloxacin using alumina-titania particles synthesized via sol-gel process. **C. Dozier**, L.E. Katz, H. Liljestrand

3:10 309. Mechanistic comparison of isomeric oxorhenium(V) complexes coordinated with a oxazoline-phenolate ligand for highly active perchlorate reduction in water. **J. Liu**, D. Wu, S.Y. Kimura, J.R. Shapley, M.M. Abu-Omar, C.J. Werth, T.J. Strathmann

3:30 Intermission.

3:45 310. Post-pyrolysis air oxidation of biochars: A simple and effective method for enhancing adsorption of ionizable organic compounds. **F. Xiao**, J.J. Pignatello

4:05 311. Photoenhanced chlorination of hydroxylated fullerene (fullerol) in water. **J. Wu**, L. Alemany, D.N. Benoit, W. Li, J. Fortner

4:25 312. Insight into anti-scaling mechanisms of phosphonates and organic polymers for the control of barium sulfate scales. **C. He**, R.D. Vidic

4:45 313. Mesoporous silica supported bimetallic Pd/Fe nanocomposites for enhanced reductive dechlorination of tetrachloroethylene. **R. Doong**, C. Lee

Colorado Convention Center
Room 707

Microalgae: A Renewable Energy Source and a Sustainable Solution for the Environment

Cosponsored by AGRO
B. P. Chaplin, *Organizer*
D. Shuai, W. Zhang, *Organizers, Presiding*

1:30 Introductory Remarks.

1:40 314. Applications of polymer-coated magnetic nanoparticles for algal biomass harvesting. **W. Zhang**, S. Ge, M. Agbakpe

2:00 315. Fluorescein induced spectral conversion for the growth of *Chlorella vulgaris*. **Y. Orduz, J.R. Pinzón**

2:20 316. Direct visualization of nutrient consumption within microbial communities using NanoSIMS. **C.R. Anderton**, J.K. Cole, J.J. Moran, J.M. Mobberley, M. Hess, S.R. Lindemann, L. Paša-Tolić

2:40 317. Photogeneration of reactive oxygen species (ROS) by extracellular organic matter (EOM) in *Chlamydomonas reinhardtii* photobioreactor cultures. **R. Tenorio**, J. Guest, T.J. Strathmann

3:00 Intermission.

3:20 318. Predicting microalgae hydrothermal liquefaction biocrude oil yield and properties from microalgae biochemical composition. **S. Leow**, J.R. Witter, D.R. Vardon, B.K. Sharma, J.S. Guest, T.J. Strathmann

3:40 319. Coupling fluid dynamics with kinetic modeling to quantify the effects of photosynthetic bioreactor design and operation on yield performance. **R. Manavi**, S. Yamamoto, J.W. Levis, J. Ducoste, F. De Los Reyes, R. Ranjithan

4:00 320. Life cycle-optimization framework for photosynthetic biorefineries. **R. Manavi**, A. Karam, C. McMillan, J.W. Levis, F. De Los Reyes, J. Ducoste, R. Ranjithan

4:20 321. Environmental and economic performance analysis of three techniques for breaking microalgae cell wall in the biodiesel production process. **M. Collotta, R. Lee, A. Ramos, P. Champagne, P.G. Jessop, W. Mabee**

Section D

Colorado Convention Center
Room 709

Trace Materials in Air, Soil, and Water

Cosponsored by MPPG[‡]

K. R. Evans, Organizer

M. A. Benvenuto, A. Rihana, Organizers, Presiding

1:30 Introductory Remarks.

1:35 322. Elemental characterization of PM_{2.5} and PM₁₀ emitted from light duty vehicles in the Washburn Tunnel of Houston, Texas: Release of rhodium, palladium, and platinum. **S. Chellam, A. Bozlaker, N. Spada, M. Fraser**

1:55 323. Synthesis of a series of highly multi-dentate podand ligands as possible water remediation agents. **C. Kashat, M.A. Benvenuto**

2:15 324. Metal concentrations and soluble iron speciation in fine particulate matter from light rail activity in the Denver-Metropolitan area. **B.T. Cartledge, B. Majestic**

2:35 325. Nontoxic, air stable quantum dots for low level metal detection in water. **H. Meylemans, L. Cambrea**

2:55 Intermission.

3:10 326. Stable isotopes of lead and strontium as tracers of sources of airborne particulate matter in Kyrgyzstan. **N. Dewan, B.J. Majestic, M.E. Ketterer, J.P. Miller-Schulze, M.M. Shafer, J.J. Schauer, P.A. Solomon, M. Artamonova, B.B. Chen, S.A. Imashev, G.R. Carmichael**

3:30 327. Monitoring metal contamination from artisanal and small-scale gold mining (ASGM) communities in Ecuador Part I: Mercury emissions to air. **A.M. Kiefer, C.S. Seney**

3:50 328. Monitoring metal contamination from artisanal and small-scale gold mining (ASGM) communities in Ecuador Part II: Analysis of water, soil, and tailings. **C.S. Seney**, A.M. Kiefer, J.D. Mimbs

4:10 329. New diffusive gradients in a thin film technique for measuring nitrate using ion exchange resin. **j. huang**, W. Bennett, P. Teasdale, D. Welsh

4:30 330. Modeling TCE concentration in groundwater using MATLAB. A. Rihana, **Y. Pang**, Y. Gao

4:50 Concluding Remarks.

Elucidation of Mechanisms & Kinetics on Surfaces

Sponsored by COLL, Cosponsored by CATL and ENVR

WEDNESDAY EVENING

Section A

Colorado Convention Center
Hall C

Advances in Analytical Chemistry for Discovering Emerging Contaminants in the Natural Environment

Cosponsored by MPPG
D. Alvarez, T. L. Jones-Lepp, *Organizers, Presiding*

6:00 - 8:00

331. Quantitation and identification of PPCP in environmental samples using accurate mass MS/MS technology. **C. Borton**, R. Kern, A. Schreiber

332. Contaminants of emerging concern in effluent dominated coastal waterways in southern California. **K.A. Maruya**, N.G. Dodder, T. Anumol, S. Shane, W. Lao, A. Sengupta, J. Drewes

Section A

Colorado Convention Center
Hall C

Assessing Toxicity of Environmental Contaminants

Cosponsored by MPPG[‡]

S. M. Uchimiya, J. Wang, *Organizers*

X. Pan, B. Zhang, *Organizers, Presiding*

6:00 - 8:00

333. Influences of environmental conditions on the aquatic toxicity of silver nanoparticles to *Daphnia magna*. **R.M. Sofield**, A. Nieman, M. Abernathy, A. Gibson

334. Hydrogen peroxide production in the presence of soot and biological electron donors. D. Hinz, **J. Barnes**, A.M. Johansen

Section A

Colorado Convention Center
Hall C

Bioavailability and Biogeochemical Interactions Affecting Remediation of Hazardous Substances in the Environment

Cosponsored by MPPG[‡]

M. F. Benedetti, *Organizer*

H. Henry, J. F. Ranville, *Organizers, Presiding*

6:00 - 8:00

335. Remediation of soil polluted area in Ondo State, Nigeria. **A.E. Folorunso**

336. Phytoremediation on heavy metal contaminants in sewage river sediment. **X. Mao**, F.X. Han, K. Guo

337. Relative impact of temperature, groundwater chemistry, and groundwater hydrology on inorganic nitrogen processing and nitrogen cycle functional genes in sediments of a groundwater flow-through lake. **D.L. Stoliker**, D.A. Repert, R.L. Smith, B. Song, C.H. Conaway, D.R. LeBlanc, T.D. McCobb, S. Hyun, D. Koh, H. Moon, K. Ha, D.B. Kent

Section A

Colorado Convention Center
Hall C

Biogenically Enhanced Recovery and Bioremediation in Fossil Fuel Reservoirs

Cosponsored by MPPG[‡]

D. L. Drogos, M. Urynowicz, *Organizers, Presiding*

6:00 - 8:00

338. Impacts of microbial community diversity on the occurrence and quantity of crude oil biodegradation and microbial methanogenesis. **J. Shelton**, D.M. Akob, J.C. McIntosh, J.E. McCray

Section A

Colorado Convention Center
Hall C

Chemical Processes at Environmental Interfaces

H. A. Al - Abadleh, H. M. Ali, R. Z. Hinrichs, N. Kabengi, *Organizers, Presiding*

6:00 - 8:00

339. Adsorptive removal of taste and odor compounds onto granular mesoporous carbon (GMC). **S. Kim**, Y. Kim, H. Choi

340. Au nanostar-enabled multifunctional reverse osmosis membranes for reduced mineral scaling, organic-, and bio-fouling. **J. Ray**, S. Tadepalli, S.Z. Nergiz, K. Liu, L. You, Y. Tang, S. Singamaneni, Y. Jun

Section A

Colorado Convention Center
Hall C

Chemistry in the Marine Boundary Layer

Cosponsored by MPPG
B. D'Anna, J. Donaldson, *Organizers, Presiding*

6:00 - 8:00

341. Ocean organics vs. inorganics: The contributions to suppressed ClNO₂ yield from the ocean surface following N₂O₅ uptake. **O.S. Ryder**, N. Campbell, T.H. Bertram

342. On the role of dimethyl sulfide and marine biogenic volatile organic compounds in sea spray aerosol growth post production. **N.R. Campbell**, M.J. Kim, M. Zoerb, T.H. Bertram

Section A

Colorado Convention Center
Hall C

Environmental Chemistry: Pedagogical Models and Practices

Cosponsored by CHED, MPPG[‡] and YCC
K. C. Lanigan, E. Roberts-Kirchhoff, *Organizers, Presiding*

6:00 - 8:00

345. Paper spectrometers: The intersection of environmental chemistry and engineering. **A. Kahl**

Section A

Colorado Convention Center
Hall C

Environmental Chemistry and Health Impacts of Fine and Ultrafine Particulate Matter

Cosponsored by MPPG
S. M. Lomnicki, *Organizer, Presiding*

6:00 - 8:00

343. Using the chemical mass balance for the changes of source apportionment at the heating time of three period in Tianjin, China. **W. Hong, X. Bi, Y. Feng, J. Wu, k. chen**

344. Comparative study of PM_{2.5} vertical characteristics between heavy pollution weather and clean weather in Tianjin, China. **W. Hong, s. han, Y. Zhang, J. Wang, Y. Feng**

Section A

Colorado Convention Center
Hall C

Environmental Implications of Nano: Release from Consumer Products and Advances in Nanometrology

C. P. Higgins, J. F. Ranville, R. B. Reed, *Organizers, Presiding*

6:00 - 8:00

346. Role of CO₂ in the equimolar C₂H₂-CO₂ reaction to synthesize carbon nanotubes: environmental and mechanistic implications. **W. Shi, Y. Peng, D.L. Plata**

347. Detection of single walled carbon nanotubes using microsecond single particle ICP-MS. **J. Wang, R. Lankone, H. Fairbrother, C.P. Higgins, J.F. Ranville**

348. Aggregation and stabilization of multiwalled carbon nanotubes in aquatic system: Influence of carboxymethyl cellulose, starch, and humic acid. **W. Liu, X. Zhao, D. Zhao**

349. Theoretical and experimental studying of sedimentation of TiO₂ nanoparticles in aqueous solutions. **J. Lu, D. Liu, H. Liu, X. Yang, F. Cui**

350. Dissolved organic matter adsorption to titanium dioxide nanoparticles: Effect of molecular weight fractions and the interaction mechanisms. **X. Yang, T. Jiang, F. Cui**

351. Comparative study of Fe(II)-GAC for bromate or perchlorate removal. **h. xu**

352. Challenges in the differentiation of nanoparticles when analyzing complex sample matrices using spICP-MS. **E. Gray, J.F. Ranville, A. Bednar, C.P. Higgins**

353. Titanium dioxide nanoparticles induces mitochondrial dysregulation and loss of liver functions. V. Natarajan, C. Wilson, S.L. Hayward, **S. Kidambi**

354. Isotopically-labeled core-shell-shell Ag₁₀₇@Au@Ag₁₀₉) nanoparticles to ion and particle bioavailability. **R.C. Merrifield**, J. Lead

355. Asymmetric flow field flow fractionation online with Single particle – inductively coupled plasma mass spectrometry: Detection and quantification of silver nanoparticles in aqueous samples. **K. Huynh**, E. Siska, E. Heithmar

Section A

Colorado Convention Center
Hall C

Environmental Reactivity of Organic Micropollutants and Their Transformation Products in Receiving Waters

Cosponsored by AGRO and MPPG[‡]

W. Arnold, Y. Chin, K. H. Wammer, *Organizers, Presiding*

6:00 - 8:00

356. Polychromatic method to determine the wavelength dependence of singlet oxygen quantum yields for natural and effluent organic matter. **J.R. Laszakovits**

Section A

Colorado Convention Center
Hall C

General Posters

S. R. Al-Abed, *Organizer, Presiding*

6:00 - 8:00

357. Electrolytic disinfection of water contaminated with *E. coli* by treatment with an alternating current using stainless steel and copper electrodes: Role of hydroxyl radicals and hydrogen peroxide formation. **N. Barashkov, T. Sakhno, I. Irgibayeva**

- 358.** Hydroooligomerization of acetylene from electrocracking gas over Ni/CNFs catalyst.**A.S. Ismail**
- 359.** Removal of micropollutants from surface water and groundwater by portable water filtering system designed for rural communities in underdeveloped countries.**S. Jeong, K. Koo, Y. Jeong**
- 360.** Functional forms of the unburned carbon present in coal fly ashes: Role of surface oxygen species in the formation of organic fluorine forms on the carbon surface.**N. Tsubouchi, Y. Ohtsuka**
- 361.** Development of a sheathless particle classifier with an electrometer to measure the particles from automobile.**H. Yamada, H. Okuda**
- 362.** Behavior of mercury in coal combustion residue contaminated sediments.**T.R. Gofstein, A. Heyes**
- 363.** Compared fluorescence characterization of salt marsh pore water using PARAFAC analysis.**J. Bowen, W.J. De Bruyn, C.D. Clark**
- 364.** Analysis of diazepam, diphenhydramine, carbamazepine and metabolites drugs in fish from grocery markets by gas chromatography – mass spectrometry (GC-MS) using SIM mode.**M. Arafat, C. Stowe, D. Johnson, M.J. Meziani, M. Mottaleb**
- 365.** Withdrawn
- 366.** Trace metals in trout species collected from high altitude Colorado lakes.**M. Spedale**
- 367.** Study on the adsorption of ammonia Nitrogen on zeolite modified by ultrasonic and sodium.**W. Qun, Y. Zhichao, G. Mingkun, C. Bin, X. He, C. Shuang**
- 368.** GCMS identification and quantification of the lipids produced via esterification to FAMES in *Neochloris minuta* (UTEX 776) algae induced by nitrogen deprivation.**D.G. Giarikos, R. Razeghifard, M. Margupuram, C. Chiafair**
- 369.** Enhanced reductive degradation of *p*-chloronitrobenzene in a coupled bioelectrode-UASB system.**L. Zhu, X. Xu, K. Gao, J. Jin**
- 370.** Race for the gold metal: A novel approach for reclaiming specialty metals from industrial waste and processing streams.**M.P. O'Connor, D.L. Plata**

371. Spectroscopic and microscopic investigation of soil mineral and natural organic matter-treated silver nanoparticles.**S.R. Kanel**, B.A. Manning, S.W. Brittle, I.E. Pavel Sizemore, D. Felker, D. Kempisty, M.N. Goltz

372. Assessment of clay minerals selectivity for adsorption of humic acid fraction.**M.E. ElSayed**, M.M. Khalaf , J.A. Rice

373. Quantitative analysis of single-particle mass spectra acquired in Northfield, MN.**A. Janes**, D.S. Gross

374. Airborne metal concentrations during and after pollution restrictions in Shenzhen

.N. Dewan, B. Majestic, Y. Wang, Z. Yuan-Xun

375. Photoluminescence quenching of graphene oxide by enzymatic reaction for optical sensing of pesticides.**T. kang**, S. Jeon, H. Kim, J. Kim

376. Combining Fenton's oxidation and biodegradation to degrade decabromodiphenyl ether in soil
.C. Lin, C. Yang, **Y. Chang**

377. Assessment and spatial variation analysis of water quality in Grand Bay national estuarine research reserve.**J. McComb**, C.C. Thomas, Z. Arslan, F.X. Han

378. Groundwork for the development of a model for determining atmospheric mercury in the arid West using leaves.D.W. Lehmpuhl, **L.M. Bartolo**, K.A. Wager

- 379.** Photochemical inactivation of *E. faecalis* in the presence of organic matter.**S. Mostafa**, M. Rubinato, F.L. Rosario, K. Linden
- 380.** Disinfection by-products as endocrine active substances.**B.E. Holmes**, L. Smeester, R.C. Fry, H. Weinberg
- 381.** Dissolved organic carbon (DOC) release following drought: influence of DOC source and drought severity on drinking water treatment.**J. Ritson**, N. Graham, M. Templeton, J. Clark, C. Freeman
- 382.** Synthesis and characterization of nanocomposites of Au@Ag@rGO and their use in degradation of organic dyes.E. Mejía-Ospino, R. Cabanzo, **S.E. Castellanos**
- 383.** Enhanced air-cathode microbial fuel cell (MFC) performance with oxygen supply from an externally connected algal bioreactor (ABR).**R. Kakarla**, B. Min
- 384.** Microbial electrosynthesis of high-value products from volatile fatty acids present in anaerobic digestion effluent.S. Kondaveeti, **B. Min**
- 385.** Reduced polyoxometalates initiate HO formation from aqueous ozone.**B. Solomon**, J. Ferry
- 386.** Quantitative analysis of atmospheric aerosol with atomic force microscopy.**W. Kong**, L. Hawkins
- 387.** Halide ions as tracers for human wastewater inputs to an agricultural watershed.**A. Thayer**, C. Spiese
- 388.** Reductive remediation of trichloroethylene (TCE) solution by granulated nano zero-valent iron (nZVI).Y. Shih, C. Su, C. Chen, C. Chen, **C. Dong**
- 389.** Photolysis and UV/H₂O₂ advanced oxidation processes of bisphenol-s in water.**M. Mbewe**, R. Beil, J. Jin, P.A. Ruiz-Haas
- 390.** Exploring the relevant parameter space in shale rock geochemistry: Organic transformations at temperature and pressure.**A. Sumner**, B. Drollette, D.L. Plata
- 391.** Silver nanoparticle adsorption to corundum surfaces as a function of solution pH and time.**J. Purvis**, K. O'Neil, S.W. Brittle, I.E. Pavel Sizemore, S.R. Higgins
- 392.** Toxic effects of multiwall carbon nanotubes to *Pseudomonas aeruginosa* and its predator *Tetrahymena thermophila*.**M. Mortimer**, E. Orias, E. Petersen, B.A. Buchholz, P. Holden

- 393.** Photolysis and toxicity of the organic UV filter chemical octylmethoxycinnamate and its photoproducts.**C.A. Berg**, L. MacManus-Spencer, M.G. Paulick
- 394.** Heterogeneous photochemistry of nitrate chemisorbed on TiO₂ as a function of relative humidity.**D.M. Lesko**, H.D. Swomley, J.G. Navea
- 395.** Improvement of antisintering of Ca-based sorbents by thermally treated vermiculite.**J. Meng**, H. Li, B. Meng, J. Li, L. Shan, Y. Yu, Y. Min, D. Xu
- 396.** Experiment on CO₂ capturing capacity of attapulgite modified CaO-based sorbent in calcination/carbonation cycle.**L. Shan**, H. Li, J. Meng, B. Meng, J. Li, Y. Yu, Y. Min, D. Xu
- 397.** Metal oxide modified limestone for CO₂ adsorption.**J. Li**, H. Li, B. Meng, Y. Yu, Y. Min, D. Xu
- 398.** Enhancement of CO₂ sequestration of limestone with carbon additives.**B. Meng**, H. Li, W. Yang, J. Li, Y. Yu, Y. Min, D. Xu
- 399.** Virucidal activity of a multilevel antimicrobial air filter.W. Han, Q. Chang, Y. Lai, **Y. LI**, Y. YANG, C. WU, K.L. Yeung, C. CHAO, Z. YANG
- 400.** Design, synthesis, and characterization of isoprene hydroperoxides.**E. Lozano**, V. Kumar, A. Abdelhamid, A. Hasson, S. Maitra
- 401.** Exploring the environmental controls on the degradation of oil by marine fungi.**C.M. Poutasse**, R. Simister, H.K. White
- 402.** Exposure to engineered nanomaterials in various consumer products.**B. Lee**, G. Yu, M. Kim, H. Kim
- 403.** Reactivity of an epoxy coating with free and combined chlorine in drinking water service lines.**E.F. Peltier**, Z.A. Breault, R.F. Lane, S.J. Randtke, R.E. Carter, C.D. Adams
- 404.** Oxidation of surface-adsorbed anthracene on a quartz fiber substrate.**J. Bilek**, R. Cochran, H. Jeong, E.I. Kozliak, A. Kubatova
- 405.** Effect of relative humidity on HCl formation from the reaction of H₂SO₄, HNO₃ and with NaCl.**K. Newhouse**, B. Fong, H.M. Ali
- 406.** Resistance of synthetic organic aerosol chromophores to photobleaching under oxidative conditions.**A. Lemire**, L. Hawkins

- 407.** Degradation of diclofenac in water with TAML activators and hydrogen peroxide.**M.R. Mills**, A.V. Cheng, A.D. Ryabov, T.J. Collins
- 408.** Limonene reactivity on mineral surfaces and the impact of relative humidity and adsorbed nitric acid.**A. Staniec**, R.Z. Hinrichs
- 409.** Quantifying the solar energy absorbed by nitrophenols adsorbed on atmospheric aerosol substrates.**J. Trivedi**, R.Z. Hinrichs
- 410.** Investigating the reversibility of self-assembled humic acid structures.**G. Chilom**, M.M. Khalaf, J.A. Rice
- 411.** Ensuring environmental health by assessing and monitoring water quality at the Georgia Southern University campus.**J. Ahweyevu**, S. Cox, M. Pfister, S.K. Saha, A. Saha
- 412.** Use of chlorate, nitrate, and perchlorate to promote crude oil mineralization in salt marsh sediments.**M. Brundrett**, J. Horita, T.A. Anderson, D. Reible, J. Pardue, A. Jackson
- 413.** Influence of stabilizer size and chelation strength on iron nanoparticle oxidation.**N. Rentz**, L.F. Greenlee
- 414.** Online monitoring of ambient fungal spore concentrations in the harbour region of Cork, Ireland.**D.J. O'Connor**, D.A. Healy, J.R. Sodeau
- 415.** Quantum mechanical calculations of nitric acid chemisorbed on several crystalline structures of TiO₂ anatase.**M.J. Lueckheide**, J.G. Navea
- 416.** Simultaneous removal of SO₂ and NO_x from combustion flue gas in a discharge plasma reactor.**L. Qi**, Y. Zhang
- 417.** Array-based detection of carcinogens and carcinogen metabolites in urine.**L. Gareau**, N. Serio, L. Prignano, M. Levine
- 418.** Arsenic release mechanism in the shallow and deep aquifer in Chiayi County, Taiwan.**C. Lee**, Y. Lin, S. Wang
- 419.** Effect of photochemical weathering on the composition and spectroscopic properties of crude oil.**O.C. Stewart**, C.M. Sharpless, C.M. Reddy, B. Swarthout, C. Aeppli

- 420.** Use of LIBS to detect CO₂ leaks from geological storage based on mineral carbonate interactions in groundwater.**J. Jain**, H. Edenborn, C. Goueguel, C. Carson, D. McIntyre
- 421.** Examining the desorption of oil from persistent surface residual oil balls (SRBs).**S.L. Lyons**, H.K. White
- 422.** Comparative evaluation of the dissolution of fly ash from different source regions under atmospherically relevant conditions.**J.R. Borgatta**, **A. Paskavitz**, J.G. Navea
- 423.** Colorimetric evaluation of the cation exchange of aluminum with iron in humic acids.**J.R. Borgatta**, J.G. Navea
- 424.** Electrochemical dechlorination of TCE in the presence of natural organic matter, metal ions and nitrates in a simulated karst aquifer.**N. Fallahpour**, x. mao, L. Rajic, A. Alshwabkeh, S. Yuan
- 425.** Electrochemical degradation of chlorobenzene in groundwater using Pd- catalytic electro-Fenton's reaction.**r. Nazari**, A. Ciblak
- 426.** New spectroscopic method for characterizing the nutritional quality of fruit resources available to wildlife in a Western New York habitat.**S.B. Smith**, M. Bida, S. Schroeder, G. Wink, T.E. Pagano
- 427.** Extraction and separation of contaminants in water systems.**M. Jones**, B. Caldwell, A. Newsham, B.H. Barton, R.E. Del Sesto, A.T. Koppisch, S. Iyer
- 428.** Measuring the emission efficiency and nicotine delivery of electronic cigarette.**G. Wink**, R.J. Robinson, A.G. DeFrancesco, S.B. Smith, T.E. Pagano
- 429.** Microbe-metal interactions along a produced water impacted stream system.**J. Klinges**, D.M. Akob
- 430.** Airborne antibiotic resistant genes upwind and downwind of poultry concentrated animal feeding operation.**H.M. Sanchez**, J.A. Jay
- 431.** Nanocellulose-zero valent iron composites for use in environmental remediation.**A.W. Carpenter**, C.F. de Lannoy, M.R. Wiesner
- 432.** Direct synthesis of V₂O₅-WO₃-TiO₂ nanoparticles with enhanced low-temperature activity for NH₃-SCR.**K. Cheng**, **Z. Zhao**, **J. Liu**

- 433.** Enantioselective disposition of 2,2',3,5',6-hexachlorobiphenyl (PCB 95) and its metabolites in mouse dams dosed during pregnancy.**I. Korwel**, C. Barnhart, K. Truong, P. Lein, H.J. Lehmler
- 434.** Differences in the atropselective disposition of 2,2',3,5',6-pentachlorobiphenyl (PCB95) and 2,2',3,3',6,6' -hexachlorobiphenyl (PCB136) in pups from PCB-exposed dams.**I. Korwel**, P. Lein, H.J. Lehmler
- 435.** Use of flue gas desulfurization (FGD) gypsum as a heavy metal stabilizer in contaminated soils.**N.H. Koralegedara**, S.R. Al-Abed, D.D. Dionysiou
- 436.** Trace metal emissions from the combustion of fecal char briquettes and a comparison to other solid fuels.**M.J. Price**, W.M. Champion, B.J. Ward, B.T. Cartledge, B. Majestic, L.D. Montoya
- 437.** Hexadecyl trimethyl ammonium bromide dispersed nano zero-valent iron for discoloration of methyl orange.**X. Wang**, P. Wang, L. Le
- 438.** Wireless glucose sensor utilizing magnetic nanoparticles embedded hydrogel.**J. Park**, C. Zhang, P.V. Braun, R.A. Siegel, **B. Ziaie**
- 439.** Fecal and urinary elimination kinetics of cephalosporin and lincosamide antibiotics in dairy cows following intramammary infusion: Application of SPE clean-up and UPLC-MS/MS quantification approach.**P. Ray**, K.F. Knowlton, C. Shang, K. Xia
- 440.** New insights into the function of potassium carbonate species and the superiority of base metals to noble metals in the polytitanate nanobelt supported LNT catalysts .**Y. Zhang**, M. Meng
- 441.** Effects of filtration on the detection, quantification, and characterization of engineered nanoparticles in water samples using single particle inductively coupled plasma mass spectrometry.**E. Siska**, K. Huynh, E.M. Heithmar
- 442.** Analysis of water and soil of La Encantada fall in Anasco, Puerto Rico.**K. Matias**
- 443.** Effects of speciation on mercury co-selection for antibiotic resistance genes in fresh and brackish water microcosms.**C.M. Echeverria Palencia**, S. Hafeznezami, C. Marambio Jones, A. Zimmer-Faust, V. Thulsiraj, S. Mahendra, J.A. Jay
- 444.** Withdrawn

445. Developing tailored bioreactive silica-gels for pollutant removal and biodegradation.**J.K. Sakkos**, A. Ish Am Radian, B.R. Mutlu, L.P. Wackett, A. Aksan

Section A

Colorado Convention Center
Hall C

Green Chemistry and the Environment

A. M. Balu, R. Luque, S. O. Obare, *Organizers*

6:00 - 8:00

446. Multi-electron transfer process for the degradation of toxic organophosphorus contaminants.**S. Santos**, S.O. Obare

447. Superoxide radical as a green reagent and an ultimate solution of environmental problems.**U. Stoin**, Y. Sasson

448. Development of low density solvent DLLME-GC/MS method for quantitation of tetrabromobisphenol-A from dust.**J.E. Owens**, C. Barrett, D.A. Orban, S.E. Seebeck, L. Lowe

449. Glow in the dark: Luminescent metal organic frameworks (MOFs) grown from cotton fibers.**R.R. Ozer**, J.P. Hinestroza

Section A

Colorado Convention Center
Hall C

Modern Analytical Approaches for the Characterization of Natural Organic Matter in the Environment

Cosponsored by ANYL and MPPG
G. Aiken, K. Cawley, J. A. Korak, F. L. Rosario, *Organizers, Presiding*

6:00 - 8:00

450. Evaluating the treatability and reactivity of wildfire-impacted DOM using leachates from burned sediments.**A.K. Hohner**, K. Cawley, P. Omur-Ozbek, R. Summers, F.L. Rosario-Ortiz

451. Photochemical processing of wastewater impacted streams.**C. Glover**, F.L. Rosario

452. Development of a novel microscope spectrofluorometer for individual bioparticle characterization.**B.E. Swanson**, J.A. Huffman, D.R. Huffman

453. Evaluation of total petroleum hydrocarbon analysis specificity.**D.A. Gratson**

Section A

Colorado Convention Center
Hall C

Solutions to Metals Contamination of Water

Cosponsored by MPPG[‡]
S. Ahuja, J. W. Finley, J. N. Seiber, *Organizers*

6:00 - 8:00

454. Novel method for measuring arsenic in water using nanostructured surface.N. Mosquera, **W. Marimon Bolivar**, L. Yate, E. Coy, E. Gonzalez

455. Biosurfactants as a tool for metal removal from waste effluents.**D. Hogan**, J.E. Pemberton, R.M. Maier

456. Chitosan-grafted carbon for the sequestration of heavy metals in aqueous solution
A.A. Okoya

Section A

Colorado Convention Center
Hall C

Water Recycling in Domestic Use, Energy Extraction, and Agricultural Use

Cosponsored by AGRO and MPPG[‡]
I. C. Escobar, J. Hestekin, *Organizers*

6:00 - 8:00

457. Pilot-scale study on the removal of nutritional elements in agricultural runoff by iron-modified biochar. **T. Chi**, J. Zuo, F. Liu

458. Kinetics of hydroxyl radical reactions with chloramines in support of recycling wastewater. K. Couch, **S.P. Mezyk**, K.P. Ishida

459. Sulfate radical remediation of pharmaceuticals in DOM containing wastewaters. **T. Reutershan**, S. Mezyk

Section A

Colorado Convention Center
Hall C

Water Sustainability in Oil and Gas Exploration: Treatment Issues

Cosponsored by CEI and MPPG[‡]
T. Y. Cath, K. Linden, *Organizers*

6:00 - 8:00

460. Evaluation of forward osmosis membranes in long-term oil and gas wastewater treatment stud. **L. Bell**, T.Y. Cath, B.D. Coday

THURSDAY MORNING

Section A

Colorado Convention Center
Room 703

Bioavailability and Biogeochemical Interactions Affecting Remediation of Hazardous Substances in the Environment

Cosponsored by MPPG[‡]
M. F. Benedetti, *Organizer*
H. Henry, J. F. Ranville, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 461. Toxicity implications of sulfate radical based oxidative treatment for groundwater remediation. W. Li, D.L. Sedlak, D. Schlenk, **H. Liu**

8:25 462. Methods for simulating the restoration and recovery of acid mine drainage-impacted stream sediment. **J. Williamson**, J.F. Ranville, M.R. Pastorinho, J. Meyer, W.H. Clements

8:45 463. Diffusive gradient in thin film (DGT) passive samplers for monitoring metals in contaminated sediments: Contribution of metal sulfide nanoparticles. **A. Pham**, D. Manley, C. Johnson, H. Hsu-Kim

9:05 464. Biogeochemical processes controlling trace elements in the Grand Bay National Estuarine Reserve in the northern Gulf of Mexico. J. McComb, **F.X. Han**, C. Rogers, C.C. Thomas, Z. Arslan, A. Ardeshir, P. Tchounwou

9:25 465. Stable oxygen isotope enrichment during biotic and abiotic reduction of selenate. **A. Schellenger**, L. Xia, D. Jaisi, P. Larese-Casanova

9:45 466. In situ immobilization of uranium in Hanford sediments with the amendment of phosphate. **Z. Pan**, D. Giammar, V. Mehta, L. Troyer, J.G. Catalano, Z. Wang

10:05 Intermission.

10:20 467. D. Magna metal toxicity in a mining impacted stream: Comparing results in simulated and field-collected waters. **K. Ebeling**

10:40 468. Comparing the partition and sorption behavior to agricultural soils of Bisphenol A (BPA) and BPA alternatives: BPS and BPAF. **Y. Choi**, L.S. Lee

11:00 469. Perfluoroalkyl acids inhibit TCE dechlorination by repressing *Dehalococcoides* growth. **T.S. Weathers**, K. Harding, L. Alvarez-Cohen, C.P. Higgins, J.O. Sharp

11:20 470. Enantioselective biotransformation of chiral PCBs in aquatic to riparian food webs. **C.M. Lee**, V.D. Dang, D. Delach, K. Mitra

11:40 471. Compound specific isotope analysis of aromatics and chlorinated aromatics at a fine vertical resolution across the groundwater – surface water sediment interface. **E. Passeport**, R. Landis, K. Chu, G. Lacrampe-Couloume, E. Lutz, E.E. Mack, B. Sherwood Lollar, K. West

Section B

Colorado Convention Center
Room 705

Surface Physicochemical Processes in Engineered and Natural Systems

Cosponsored by AGRO and MPPG[‡]

H. J. Zhang, *Organizer*

J. M. Cerrato, H. Liu, *Organizers, Presiding*

8:30 472. Fe(II)-catalyzed recrystallization of hematite and goethite revisited. **M. Scherer**, A.J. Frierdich, R.M. Handler, M. Helgeson, K. Rosso, C. Johnson

9:10 473. Interfacial processes affecting the mobility of metals from abandoned uranium mine wastes. **S. Avasarala**, J. Blake, K. Artyushkova, M. Ali, A. Brearly, C. Shuey, P. Robinson, E. Escheverria, F. Escheverria, C. Hirani, J.M. Cerrato

9:30 474. Identification of Mackinawite surface products formed upon reaction with carbon tetrachloride. **Y. Lan**, E.C. Butler

9:50 475. Acoustically enhanced sediment remediation: Characterization of cavitation and pore flow in porous media. **Z. Wei**, J.J. Lenhart, L. Weavers

10:10 476. Characterizing the reactivity of naturally occurring reducing materials with agarose-bound powder disk electrodes. **M.J. Bradley**, R. Meuwesen, P.G. Tratnyek

10:30 Intermission.

10:45 477. Mechanisms of fluoride removal: Adsorption and co-precipitation with aluminum hydroxide in the presence and absence of NOM. L.E. Katz, D.F. Lawler, K. Alfredo, **M. Stehouwer**, C. Ernst

11:05 478. Heterogeneous nature of permanganate oxidation reactions. **X. Xia**, A.T. Stone

11:25 479. Efficacy of CaCO₃ and CaSO₄ scaling resistance of polyethylene glycol hydrophilically-modified reverse osmosis membranes in the presence of humic acid.**J. Ray, W. Wong, Y. Jun**

11:45 480. Radioluminescent/photocatalytic composite materials for pursuing fixed-bed heterogeneous advanced oxidation using X-rays.**F. Li, E.L. Cates**

12:05 Concluding Remarks.

Section C

Colorado Convention Center
Room 707

Environmental Chemistry: Pedagogical Models and Practices

Cosponsored by CHED, MPPG[‡] and YCC
K. C. Lanigan, E. Roberts-Kirchhoff, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 481. Environmentally-themed chemistry activities and experiments focused on water quality for a range of instructional levels.**K.C. Lanigan, E. Roberts-Kirchhoff**

8:25 482. Engaging undergraduates: Investigating local environmental issues at the intersection of science and society.**S.L. Scribner, J. Hammang-Buhl**

8:45 483. Using environmental chemistry to teach analytical chemistry.**K.H. Weaver, D.J. Eves**

9:05 484. Integrating environmental and sustainability challenges into a capstone chemistry course.**K. Miller, B. Murugaverl**

9:25 485. Chemistry lab water quality analysis in an integrated thematic learning community.**W.J. Donovan, E.R. Wheland, A. Bilia, G.A. Smith, T.A. Wagler**

9:45 Intermission.

10:00 486. Using climate change context to engage students in general chemistry.**D.B. King, J.E. Lewis, K. Anderson, D.E. Latch, S. Sutheimer, G.H. Webster, C.H. Middlecamp, R.S. Moog**

10:20 487. Using models of growth in the Amazon to bring an environmental chemistry topic into the general chemistry class

.M.A. Benvenuto, D. Archey

10:40 488. Teaching environmental toxicology by cooperative learning methods: Capstone travel course on the environment of Thailand.**L.J. Berliner**

11:00 489. Benefits of working in an environmental water-testing laboratory: How applying what you learn prepares you for the real world.**D.J. Eves**, J.T. Redd, K.H. Weaver, N.S. Werner, M. Valentine, S. Potter, D. Callison

11:20 490. Southern Utah University internship: A working model of peer mentorship.**J.T. Redd**, K.H. Weaver

11:40 Concluding Remarks.

Section D

Colorado Convention Center
Room 709

Water Recycling in Domestic Use, Energy Extraction, and Agricultural Use

Cosponsored by AGRO and MPPG[‡]

I. C. Escobar, J. Hestekin, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 491. Recycling wastewater: Quantitative removal of antibiotic activity in waters using advanced oxidation processes.**S.P. Mezyk**, S.C. Otto

8:30 492. A few options for energy and water autarky in water-power systems.**V. Gude**

8:55 493. Water reuse: Right technology for you.**V. Frenkel**

9:20 Intermission.

9:35 494. Reactivity of chlorine atoms with antibiotics under wastewater treatment conditions.**C.A. Rice**, S.P. Mezyk

10:00 495. Feasibility of integrated bioelectrochemical/membrane technologies for wastewater reuse in power plants. **V. Gadhamshetty, N. Shrestha**

10:25 496. Smart event detection system for online water quality monitoring and wastewater source control. **T. Li, S. Zhang, H. Zhao**

10:50 497. Adsorption mechanism of phosphorus removal in agricultural runoff by iron-modified biochar. **T. Chi, J. Zuo, F. Liu**

11:15 498. Phosphorus speciation in anaerobic digestion of biosolids for efficient phosphorous recovery. **C.F. Gutierrez, K. Kinney, L.E. Katz**