

Draft Final Program

247th ACS National Meeting (March 16-20, 2014), Dallas, TX

ENVR – DIVISION OF ENVIRONMENTAL CHEMISTRY

S. Al-Abed, *Program Chair*

SUNDAY MORNING

Section A

Marriott Dallas City Center
Plaza Blrm B

Nanotechnology for Sustainable Resources and Environmental Science

Nanotechnology for Solar Fuel Production

Cosponsored by AGFD and CEI

D. Britt, A. Muller, B. Xing, M. Antonietti, S. Holdcroft, Y. Chen, A. Proust, F. Von Der Kammer, H. de Groot, J. Mi, J. Hu, L. Wang, *Organizers*

J. Song, *Organizer, Presiding*

H. Garcia, *Presiding*

8:00 Introductory Remarks.

8:05 1. Bioinspired nanocatalysts for water-splitting. **V. Artero**

8:35 2. Metal-organic frameworks for solar energy utilization: Oxidation and hydrogen production. **F.**

Kapteijn, M. Nasalevich, J. Gascon

9:05 3. Artificial photosynthesis with carbon nitride: Effective photon-to-chemical conversion schemes. **M. Antonietti**

9:25 4. Nanowire-based structure integration for artificial photosynthesis. **C. Liu**, N. P. Dasgupta, J. Tang, P. Yang

9:45 Intermission.

10:00 5. Superstructure of TiO₂ crystalline nanoparticles with effective charge transfer pathways. **T.**

Majima

10:30 6. Electrocatalytic conversion of CO₂ to multicarbon oxygenates. **M. Kanan**

10:50 7. Solar energy conversion by overall water splitting using powder-form heterogeneous photocatalysts. **K. Takanabe**

11:10 8. ZnO based heterojunctions and their photocatalysis and photoelectrochemistry. C. Li, T. Ahmed, T. Edvinsson, **J. Zhu**

11:30 Concluding Remarks.

Section B

Marriott Dallas City Center
Somerset

Pollutant Transport and Transformation at Mineral-Water Interfaces

Centennial Symposium Series

H. Cheng, K. Shih, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 9. Interactions of Al(III), Sc(III), and La(III) at the muscovite-water interface studied by second harmonic generation and XPS. **S. A. Saslow Gomez**, F. M. Geiger

8:25 10. Adsorption study of cesium, strontium, and cobalt on iron(III) and manganese oxides under various biogeochemical conditions. **R. Dong**, L. S. Lawson, F. Han, H. Yu, C. Rogers

8:45 11. In-situ reductive immobilization of uranium in soil using stabilized iron nanoparticles. **W. Xie**, X. Zhao, D. Zhao

9:05 12. Arsenic removal efficiency by iron impregnated activated carbon for drinking water quality control. **T. Raychoudhury**, F. Schiperski, T. Scheytt

9:25 13. Aqueous vanadium removal using iron oxide nanoparticles. **H. Bayo**, E. M. Moses, A. N. Quicksall

9:45 14. Distribution and transformation of Cs, Co, and Sr in the soils of south US coastal ecosystem. L. Lawson, **F. X. Han**, R. Dong, C. Rogers, H. Yu

10:05 Intermission.

10:20 15. Effects of varied NO₂⁻ and NO₃⁻ concentrations on Pb release from Fe and Mn rich soils in the Kutupalong Refugee Camp, Bangladesh. **K. E. Grant**, D. M. Aleto, L. S. Dietrich, A. N. Quicksall

10:40 16. Leaching behavior and stabilization mechanisms of nickel and copper in ceramic matrix. **Y. Tang**, K. Shih

11:00 17. Bactericidal activity of silver nanoparticles in environmentally relevant freshwater matrices: Influences of organic matter and chelating agent. **X. Liu**, X. Jin, B. Cao, C. Y. Tang

- 11:20 18.** Aggregation of biogenic U(IV) nanoparticles: Impact of different environmental conditions. **S. S. Sengor**, G. Singh, A. Dohnalkova, N. Spycher, T. R. Ginn, B. Peyton, R. K. Sani
11:40 19. Nano-FeS control of UO₂ reoxidation in simulated groundwater. **Y. Bi**, K. F. Hayes

Section C

Marriott Dallas City Center
 Bordeaux

Innovative Materials for Waste Recycling and Environmental Applications

Centennial Symposium Series

Cosponsored by CEI

S. Al-Abed, *Organizer*

K. Kawamoto, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 20. Leachability of metals from FGD gypsum used in agricultural purpose. **N. H. Koralegedara**, S. Al-Abed, D. D. Dionysiou

8:55 21. Gasification and gas conversion process using a novel catalyst to recover CO and CH₄ from waste biomass. **K. Kawamoto**, B. Lu

9:15 22. Sorption of radionuclides using nanometric calcium tungstate. **C. K. Perkins**, A. W. Apblett

9:35 23. Preparation of the municipal solid waste based carbon materials and its application in the sulfur dioxide adsorption. C. Wu, B. Jin, M. Tang, J. Xu, **M. Song**, Y. Huang, Z. Zhong

9:55 24. Comparative study of the aqueous-phase adsorption of sulfamethazine onto commercially available and laboratory developed activated carbon. **K. R. Malwade**, J. Tabor, D. Ramirez, S. Kurwadkar

10:15 Intermission.

10:30 25. Algae as a sustainable biocathode in microbial desalination cells. **V. Gude**, B. G. Kokabian

10:50 26. Innovative graphene electrodes for treatment of organic wastes at room temperature. **V. Gadhamshetty**, **A. Krishnamurthy**, N. Koratkar

11:10 27. Soil remediation system for heavy metals-contaminated soils by washing and recycling of water. **W. Kang**, K. Kim, J. Cheong

11:30 28. Removal of natural organic matter by adsorption onto granular mesoporous carbon: Adsorption and modeling study. **Y. Kim**, H. Park, H. Choi

Section D

Marriott Dallas City Center
 Plaza Blrm A

Service Learning Focused on Chemistry and the Environment

Centennial Symposium Series

Cosponsored by CHED and YCC

M. Benvenuto, M. Mio, E. Roberts-Kirchhoff, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 29. Environmental justice as a service learning theme for a freshman seminar course. **M. R. Adams**

9:00 30. Service-learning project for students in a General, Organic and Biological Chemistry course focused on the theme of National Chemistry Week: "Energy Now and Forever". **E. S. Roberts-Kirchhoff**

9:25 31. Molecule Magic: An exciting new collaboration between The College of New Jersey and the Liberty Science Center that combines service learning with community engagement. J. F. McCollum, **A. R. O'Connor**, **D. A. Laviska**

9:50 32. XRF soil screening laboratory benefiting the students and the community. **S. J. Bachofer**

10:15 Intermission.

10:30 33. Connections between service learning, public outreach, environmental awareness and the Boy Scout chemistry merit badge. **M. A. Benvenuto**, M. J. Mio

10:55 34. Lessons of environmental stewardship. **V. A. Jouraeva**, M. Sirin

11:20 35. Yucca Mountain: Health and safety risks and relevant federal acts and regulations. **J. D. Paz**, P. K. Bhowmik

11:45 Concluding Remarks.

Advanced Materials for Hydrogen Energy

Hydrogen Storage

Sponsored by ENFL, Cosponsored by ENVR

Energy and Fuels from Biomass

Catalytic Processes

Sponsored by ENFL, Cosponsored by CEI and ENVR

SUNDAY AFTERNOON

Section A

Marriott Dallas City Center
Plaza Blrm B

Nanotechnology for Sustainable Resources and Environmental Science

Nanostructured Electrodes for Energy Storage Applications

Cosponsored by AGFD and CEI

J. Song, J. Mi, A. Muller, A. Proust, B. Xing, D. Britt, F. Von Der Kammer, H. de Groot, J. Hu, L. Wang, M. Antonietti, Y. Chen, S. Holdcroft, *Organizers*
S. Lee, *Presiding*

1:30 Introductory Remarks.

1:35 36. Nanostructured carbon electrodes for electrochemical capacitors. **Y. Gogotsi**

2:05 37. Nanolayer assembly of structured electrodes for electrochemical energy applications. **P. T. Hammond**

2:35 38. Self-charging power unit based on the hybridization of nanogenerator and Li-ion battery. **S. Wang, Z. Wang**

2:55 39. Carbon-based nanostructured electrodes for electrochemical energy storage devices. **S. Lee**

3:15 Intermission.

3:30 40. 3D mesostructured electrodes for high energy and power density primary and secondary batteries. **P. Braun**

4:00 41. Electrochemical characteristics of quinone-grafted carbon nanotube for lithium ion battery: Density functional theory approach. **S. Jang, S. Lee**

4:20 42. Nanostructured electrode materials for Li-ion chemistry and beyond. **J. Liu**

Section B

Marriott Dallas City Center
Somerset

Pollutant Transport and Transformation at Mineral-Water Interfaces

Centennial Symposium Series

H. Cheng, *Organizer, Presiding*
K. Shih, *Presiding*

1:30 43. Adsorption behavior and fate of perfluorochemicals (PFCs) discharged from wastewater sludge. **K. Shih, F. Wang**

1:50 44. Influence of pore size and surface chemistry on atrazine sorption in mineral nanopores. **H. Cheng, E. Hu**

2:10 45. Nonlinearity of cationic aromatic amine sorption to aluminosilicates and soils: Role of intermolecular cation- π interactions. **D. Vasudevan, T. A. Arey, D. R. Dickstein**

2:30 46. Physicochemical properties of herb-residue biochar and its sorption to ionizable antibiotic sulfamethoxazole. **F. Lian, B. Sun, B. Xing**

2:50 47. Isolation and characterization of different organic matter fractions from a same soil source and their phenanthrene sorption. **K. Sun, J. Jin, Z. Wang, M. Kang, B. Gao, B. Xing**

3:10 Intermission.

3:25 48. Degradation of ronidazole by chlorine and UV/chlorine advanced oxidation process. **B. XU, Y. Chen**

3:45 49. Degradation of p-arsanilic acid on the surface of δ -MnO₂. **W. Lingling, C. Hefa**

4:05 50. Catalytic effect of Cu²⁺ and Fe³⁺ in microwave-induced degradation of atrazine in mineral micropores. **E. Hu, H. Cheng**

4:25 51. Microbe and mineral mediated transformation of heavy metals, radionuclides, and organic contaminants. **R. Gerlach**

4:45 Discussion.

Section C

Marriott Dallas City Center
Bordeaux

Emerging Micro-Pollutants in the Environment

Centennial Symposium Series

Cosponsored by CEI

S. Kurwadkar, F. Mitchell, *Organizers*
D. Ramirez, X. Zhang, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 52. Emerging micro-pollutants in the environment: Source, occurrence, risk and control. **C. Adams**

2:15 53. Properties of various natural organic matter samples that control gold nanoparticle aggregation. **S. M. Louie, E. Spielman-Sun, R. D. Tilton, G. V. Lowry**

- 2:35 54.** Mechanism of formation of silver nanoparticles in aquatic environment. **N. F. Adegboyega**, V. K. Sharma, K. Siskova, R. Zbořil, B. J. Schultz, S. Banerjee
- 2:55 55.** Dispersion of functionalized multiwalled carbon nanotubes by small polar aromatic organic molecules. **Q. Zhao, B. Xing**
- 3:15 56.** Toxicity of long single-walled carbon nanotubes to the activated sludge process: Examination of extracellular polymeric substances. **J. Zhang**, H. Thakor
- 3:35** Intermission.
- 3:50 57.** Adsorption of amino acids on functionalized carbon nanotubes. **P. Du**, B. Xing
- 4:10 58.** Using nanomaterials to remove emerging micro-pollutants from water. **A. Morrissey**, K. Nolan, Z. Gholamvand, D. Keane, R. O'Dwyer
- 4:30 59.** New detection methods for emerging environmental pollutants using LC-MS/MS and differential mobility separation. **A. Schreiber**, L. Campbell
- 4:50 60.** Aqueous photolysis of the common ultraviolet filter chemical octyldimethyl para-aminobenzoic acid (Padimate O). **L. MacManus-Spencer**, S. Bercovici, S. Suhag
- 5:10 61.** Steroidal estrogen sources and fate in a sewage-impacted coastal ocean, Massachusetts Bay, USA. **D. Griffith**, M. Kido Soule, H. Matsufuji, T. Eglinton, E. Kujawinski, P. Gschwend

Section D

Marriott Dallas City Center
Plaza Blrm A

Hydrothermal Carbonization of Municipal, Industrial and Agricultural Wastes and Innovative Applications of the Process Byproducts

Centennial Symposium Series

Cosponsored by CEI

K. Ro, S. Bae, *Organizers*

N. Berge, *Organizer, Presiding*

- 1:30 62.** HTC treatment of agricultural residues and other biomass. **S. Hoekman**, A. Broch, U. Jena, C. Robbins, L. Felix
- 1:55 63.** Role of process conditions and feedstock properties on product formation from the hydrothermal carbonization of organics. **N. D. Berge**, J. Caicedo, L. Li, J. R. Flora
- 2:20 64.** Novel integrated process for producing oil and biochar from oilseeds. **S. Popov**, S. Kumar
- 2:45 65.** Reaction kinetics of 5-HMF, 2-furfural, and phenol in HTC. **T. Reza**, M. Werner, B. Wirth, J. Mumme
- 3:10** Intermission.
- 3:40 66.** Anaerobic treatment of HTC waste water at different temperatures. **B. Wirth**, J. Mumme
- 4:05 67.** Soil application of various biochars produced from both dry and wet pyrolysis. **K. S. Ro**, N. Berge
- 4:30 68.** Biochar as a bioretention medium for treating urban stormwater. **M. Guo**, P. Xiao
- 4:55 69.** Hydrochar produced by hydrothermal carbonization reaction of food wastes. **S. Bae**, M. Choi, J. Choi

Advanced Materials for Hydrogen Energy

Hydrogen Storage and Utilization

Sponsored by ENFL, Cosponsored by ENVR

Energy and Fuels from Biomass

Fuel Cells

Sponsored by ENFL, Cosponsored by CEI and ENVR

Nanostructured Materials for Solar Energy Conversion and Storage

Advances in Photoinduced Water Splitting

Sponsored by ENFL, Cosponsored by CEI and ENVR

MONDAY MORNING

Section A

Marriott Dallas City Center
Plaza Blrm B

Nanotechnology for Sustainable Resources and Environmental Science**Responsive Matrices For Artificial Photosynthesis**

Cosponsored by AGFD and CEI

J. Mi, J. Song, A. Muller, A. Proust, B. Xing, D. Britt, F. Von Der Kammer, J. Hu, L. Wang, M. Antonietti, S. Holdcroft, Y. Chen, *Organizers*

H. de Groot, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 70. From antennae to reaction centers and back: The key role of the protein as a responsive matrix in controlling excited state reactions. **A. Holzwarth**

8:25 71. Photoelectrochemical approaches to solar fuel production. **G. W. Brudvig**, V. S. Batista, R. H. Crabtree, C. A. Schmuttenmaer

8:45 72. New concepts in water splitting: Towards modular systems. **L. Cronin**

9:05 73. Protein design for artificial photosynthesis. **J. W. Murray**

9:25 74. Water oxidation by amorphous transition metal oxides: A new type of quasi-molecular material resembling the biological catalyst of photosynthesis. I. Zaharieva, M. Risch, D. Gonzales, J. Heidkamp, P. Chernev, **H. Dau**

9:45 Intermission.

10:00 75. Interrogating the photogenerated Ir(IV) state of a water oxidation catalyst using ultrafast optical and X-ray absorption spectroscopy. **M. R. Wasielewski**

10:20 76. Responsive matrices for solar to fuel conversion: Trading time for efficiency. **H. J. de Groot**

10:40 77. Dye-sensitized NiO as p-type photocathode for photovoltaic and solar fuels devices. **L. Hammarström**, A. Brown, L. Zhang, L. d'Amario, J. Föhlinger, S. Maji, S. Pullen, S. Ott

11:00 78. Dissecting how purple bacterial light harvesting polypeptides modulate the photochemical properties of the light harvesting pigments. **R. J. Cogdell**

11:20 79. Bio-inspired photoelectrochemical cells for water splitting. **A. L. Moore**, T. A. Moore, D. Moore

11:40 Concluding Remarks.

Section B

Marriott Dallas City Center
Somerset

Water Quality Stewardship in Pursuit of Unconventional Oil and Natural Gas Reservoirs**Centennial Symposium Series**

Cosponsored by ENFL

K. Hayes, B. Ellis, *Organizers, Presiding*

8:30 Introductory Remarks.

8:40 80. Water quality challenges associated with energy resource extraction from Marcellus Shale. **R. Vidic**, S. Brantley, J. Abad, J. Vastine, D. Yoxtheimer, C. Wilderman, J. Pollak

9:10 81. Without a "fracking" compass: Navigating the complex legal territory of unconventional hydrocarbon extraction. **T. J. Barber**, Q. Hu

9:30 82. Effects of oil and gas produced water management on surface drinking water sources in Pennsylvania. **J. M. Wilson**, J. M. VanBriesen

9:50 83. Time-Lapsed study of groundwater in areas of hydraulic fracturing and natural gas extraction. **D. D. Carlton**, Z. L. Hildenbrand, B. E. Fontenot, K. A. Schug

10:10 Intermission.

10:30 84. Organic chemical components of hydraulic fracturing fluid: Evaluating their fate and toxicity in groundwater. **K. E. Murray**

10:50 85. Experimental investigations of trace metal and radionuclide leaching from shales in contact with hydraulic fracturing fluids. **W. Fan**, T. Zhang, J. Carpenter, K. F. Hayes, B. R. Ellis

11:10 86. Degradation of the biocide glutaraldehyde under down-hole conditions. **J. Blotevogel**, G. Kahrilas, E. R. Corrin, C. F. Landry, T. Borch

11:30 87. Trace element mobilization from shales as a function of fluid properties. **L. Wang**, D. E. Giammar, J. D. Fortner

Section C

Marriott Dallas City Center
Bordeaux

Emerging Micro-Pollutants in the Environment

Centennial Symposium Series

Cosponsored by CEI

D. Ramirez, X. Zhang, *Organizers*

S. Kurwadkar, F. Mitchell, *Organizers, Presiding*

8:30 88. Emerging micropollutants in Puget Sound: A comparison of spatial and temporal levels and occurrence. **J. P. Miller-Schulze**, A. Gipe, D. Overman, J. E. Baker

8:50 89. Role of class I integrons in the dissemination of sulfonamide resistance genes in a coastal environment. B. Chen, X. Liang, **X. Li**

9:10 90. Impacts of triclosan on methanogenic community structure, function, and antimicrobial resistance. **P. J. McNamara**, T. M. LaPara, P. J. Novake

9:30 91. Interfacial ozone oxidation of squalene and its potential health impact. **Y. Liu**, D. Fu

9:50 92. Modeling photo-degradation kinetics of three systemic neonicotinoid insecticides in aqueous and soil environment. **S. T. Kurwadkar**, D. DeWinne, P. White, F. Mitchell

10:10 Intermission.

10:25 93. Development of surrogates to predict photochemical fate of PPCs in effluents. S. Yan, **W. Song**

10:45 94. Photolysis of organoarsenicals in agricultural waste. **K. Mangalgi**, J. Lee, L. Blaney

11:05 95. Sulfate radical remediation of penicillin-G antibiotics in DOM-containing wastewaters. **T.**

Reutershan, S. P. Mezyk

11:25 96. Effects of dissolved organic matter and alkalinity on deactivation of antibiotics via AOP driven oxidations in water. **S. C. Otto**, K. D. Zimmerman, S. P. Mezyk

11:45 Concluding Remarks.

Section D

Marriott Dallas City Center
Plaza Blrm A

Chemistry of the Lower Atmosphere

Centennial Symposium Series

M. Chalbot, *Organizer*

I. Kavouras, *Organizer, Presiding*

R. Zhang, *Presiding*

8:00 Introductory Remarks.

8:05 97. Interaction dynamics of organic aerosols under atmospheric conditions. **N. M. Donahue**, E. S. Robinson, R. Saleh, E. R. Trump

8:35 98. Kinetics and product yields of the acetyl peroxy + HO₂ radical reaction studied by photoionization mass spectrometry. **L. G. Dodson**, L. Shen, J. D. Savee, N. C. Eddingsaas, O. Welz, C. A. Taatjes, D. L. Osborn, S. P. Sander, M. Okumura

8:55 99. Ammonium salt hygroscopic growth factors, hygroscopicity, and cloud condensation nuclei activity. **M. E. Gomez Hernandez**, C. Spencer, N. F. Taylor, D. R. Collins, R. Zhang

9:15 100. Atmospheric oxidation of benzene: Effect of pH and ionic strength at the air-water interface. **A.**

A. Heath, L. Cormier, C. Leger, K. T. Valsaraj

9:35 Intermission.

9:50 101. ¹H-NMR characterization of water soluble compounds in size-segregated aerosols in an urban area. **M. G. Chalbot**, J. Brown, P. Chitranshi, G. Gamboa da Costa, I. G. Kavouras

10:10 102. Characterization of Arctic elemental carbon in Barrow, AK using radiocarbon source apportionment. **T. E. Barrett**, S. Usenko, E. M. Robinson, R. J. Sheesley

10:30 103. EPFRs yields of PM_{2.5} and soot dosed with phenol. **C. Ren**, M. Herring, L. Khachatryan, B. Dellinger

10:50 104. Evolution of carbonaceous aerosol mixed with inorganic salts emitted from wheat straw residue burning: A smog chamber study. **C. Li**, J. Chen, X. Ye

Advanced Materials for Hydrogen Energy

Hydrogen Production and Utilization

Sponsored by ENFL, Cosponsored by ENVR

Benefits of Chemistry in our Lives

Sponsored by PRES, Cosponsored by AGFD, AGRO, CHAS, CINF, CPRC, ENFL, ENVR, HIST, I&EC, MEDI, PMSE, and POLY

Energy and Fuels from Biomass

Novel Biomass Conversion

Sponsored by ENFL, Cosponsored by CEI and ENVR

Nanostructured Materials for Solar Energy Conversion and Storage

Quantum Dots Solar Cells and Advanced Materials

Sponsored by ENFL, Cosponsored by CEI and ENVR

MONDAY AFTERNOON

Section A

Marriott Dallas City Center
Plaza Blrm B

Nanotechnology for Sustainable Resources and Environmental Science

Environmental Processes and Implications of Nanomaterials

Cosponsored by AGFD and CEI

J. Song, A. Muller, A. Proust, D. Britt, F. Von Der Kammer, H. de Groot, J. Hu, L. Wang, M. Antonietti, S. Holdcroft, Y. Chen, *Organizers*

B. Xing, J. Mi, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 105. Importance of bacteria when assessing manufactured nanomaterial environmental hazards and fates. **P. A. Holden**, J. P. Schimel, H. A. Godwin

1:55 106. Potential artifacts when evaluating ecotoxicological effects of nanomaterials. **E. J. Petersen**, T. B. Henry, J. Zhao, R. MacCuspie, T. Kirschling, B. Xing, M. Dobrovolskaia, V. Hackley, J. C. White

2:15 107. Dispersion and increased adsorption of multi-walled carbon nanotubes by dissolved humic acid. D. Zhang, B. Pan, **B. Xing**

2:35 108. High CO₂ adsorption on nut shell-derived activated carbons: The effective micropore ranges. **S. Deng**, H. Wei, G. Yu

2:55 109. Behavior and ecotoxicity of manufactured nanomaterials in marine environment. **X. Zhu**, S. Tian, C. Wang, L. Zhao, Z. Cai

3:15 110. Utilizing metal-organic frameworks in decontamination. **O. K. Farha**, J. E. Mondloch, M. J. Katz, J. T. Hupp

3:35 Intermission.

3:50 111. Engineered nanomaterials and agricultural crops: Co-contaminant interactions and trophic transfer. **J. C. White**, B. Xing, L. A. Newman, X. Ma

4:10 112. Interaction of nanoparticles with bacterial lipopolysaccharides. **J. A. Pedersen**, K. H. Jacobson, I. Gunsolus, J. Troiano, S. Lohse, G. Orr, C. L. Haynes, C. J. Murphy, F. M. Geiger, R. J. Hamers

4:30 113. Synthesis and characterization of carbonaceous nanomaterial-multimetallic hybrids for simultaneous removal of radioactive and organic contaminants: A case study on Navajo Nation. **N. B. Saleh**, L. S. Rowels, N. Aich

4:50 114. Adsorption and desorption of organic compounds on/from carbon nanotubes in water: Influence of surface oxidation of carbon nanotubes and chemical functional groups. **K. Yang**, W. Wu, D. Lin

5:10 115. Cell membrane damages caused by engineered oxide nanoparticles. **W. Jiang**, X. Wei, J. Yu, B. Xing

5:30 Concluding Remarks.

Section B

Marriott Dallas City Center
Somerset

Water Quality Stewardship in Pursuit of Unconventional Oil and Natural Gas Reservoirs

Centennial Symposium Series

Cosponsored by ENFL

K. Hayes, B. Ellis, *Organizers, Presiding*

1:30 116. Treating fracturing flowback by biological and advanced oxidation processes. **Y. Lester**, T. Yacob, I. Morrissey, K. Linden

1:50 117. Removal of organic solutes from flow back water. **P. L. Edmiston**

2:10 Intermission.

- 2:25 118.** Particle filtration in propped hydraulically fractured injection wells and its impact on water injector performance. **J. Hwang**, M. M. Sharma
2:45 119. Microfluidic surface tensiometer for compositional analysis. **J. A. Levinson**, M. A. Jouny, S. Chen
3:05 120. Ecological changes in bacterial communities in water from hydraulic fracturing and production phases of natural gas development from the Marcellus play. **K. B. Gregory**, A. Murali Mohan, K. Bibby
3:25 Concluding Remarks.

Section C

Marriott Dallas City Center
 Bordeaux

Water Reuse in Texas: Integrative Assessment and Management

Centennial Symposium Series

Cosponsored by CEI

B. Brooks, *Organizer, Presiding*

- 1:30 121.** Perspectives on water reuse: Integrated environmental assessment and management. **B. W. Brooks**
1:40 122. Overview of the Bureau of Reclamation's involvement in Texas. **C. K. Balcombe**
2:10 123. Potable reuse in Texas: A glimpse into the new water frontier. **E. McDonald**
2:30 124. Innovative wastewater treatment wetland design: Incorporating physicochemical principles to optimize removal of pharmaceuticals, hormones, and other organic wastewater contaminants. **L. Barber**, S. H. Keefe, K. C. Fitzgerald, J. S. Daniels, J. F. Pattie, K. Dahm
2:50 125. Waco Metropolitan Area Regional Sewage System (WMARSS) demonstration wetland project. **K. Dahm**, C. Balcombe, A. Hoag
3:10 126. Microbiological testing of wastewater treatment plant effluent using EPA UCMR3 testing methods. **P. Pearce**
3:30 Intermission.
3:45 127. Ferrate technology: An environmental friendly approach in water reuse. **V. K. Sharma**
4:05 128. Energy conservation and water desalination in power plants using thermal energy storage. **V. Gadhamshetty, V. Gude**
4:25 129. East Fork raw water supply project. **M. Rickman**
4:45 130. Environmental education and research in the heart of the East Fork Raw Water Reuse Project. **J. DeFillipo**
5:05 131. Constructed wetlands as an educational tool to encourage water reuse. **C. J. Wynveen**, S. M. Nesmith, W. C. Hockaday, C. W. Matson, B. W. Brooks

Section D

Marriott Dallas City Center
 Plaza Blrm A

Chemistry of the Lower Atmosphere

Centennial Symposium Series

I. Kavouras, *Organizer*

M. Chalbot, *Organizer, Presiding*

R. Sheesley, *Presiding*

- 1:30** Introductory Remarks.
1:35 132. Photochemical and dark aging of secondary organic aerosols. P. K. Aiona, S. L. Blair, S. A. Epstein, M. L. Hinks, A. Laskin, J. Laskin, H. Lee, H. Lignell, **S. A. Nizkorodov**, D. E. Romonosky
2:05 133. Investigation on the roles of organics in atmospheric new particle formation. **M. Levy**, W. Xu, J. Secrest, R. Zhang
2:25 134. Theoretical simulations of UV/Vis spectra of pollutants in atmospheric organic aerosol. **M. Caricato**
2:45 Intermission.
3:00 135. Effects of simulated solar irradiation on environmentally persistent free radicals (EPFRs) in PM_{2.5}. **W. M. Gehling, Jr.**, S. Igwe, L. Khachatryan, B. Dellinger
3:20 136. Background corrected NO₂ measurements in ambient air. **T. A. McKarns**, M. F. Kutter
3:40 137. Haze in Jinan, China in the winter of 2013. **L. Wen**

Energy and Fuels from Biomass

Pyrolysis

Sponsored by ENFL, Cosponsored by CEI and ENVR

Two-Dimensional Materials for Energy and Fuel

Chemistry and Physics

Sponsored by ENFL, Cosponsored by ENVR

Undergraduate Research Posters

Environmental Chemistry

Sponsored by CHED, Cosponsored by ENVR and SOCED

MONDAY EVENING

Section A

Dallas Convention Center

Hall F

Sci-Mix

S. Al-Abed, *Organizer*

8:00 - 10:00

269, 270, 272, 273, 277, 281, 283, 285, 286, 287, 289, 296, 298, 300, 303, 311, 312, 313, 316, 318, 319, 320, 321, 324, 325, 326, 331, 333, 335, 336, 338, 341, 342, 343, 344, 346, 347, 350, 352, 353, 354, 356, 357, 358, 359, 360, 362, 363, 364, 365, 367, 368, 370, 371, 372, 375, 378, 379, 380, 382, 384, 385, 386, 387, 388, 389, 394, 395, 396, 398, 399, 400, 404, 406, 412, 414, 416, 418, 419, 421. See subsequent listings.

TUESDAY MORNING

Section A

Marriott Dallas City Center

Plaza Blrm B

Nanotechnology for Sustainable Resources and Environmental Science

Application and Implication of Functional Nanoparticles

Cosponsored by AGFD and CEI

A. Muller, A. Proust, B. Xing, D. Britt, F. Von Der Kammer, H. de Groot, J. Hu, L. Wang, M. Antonietti, S. Holdcroft, Y. Chen, *Organizers*

J. Song, J. Mi, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 138. Novel class of Pd-Pt bimetallic nanocrystals as the next-generation catalysts. **Y. Xia**, Y. Xia

8:35 139. Photosynthesis in the Anthropocene: Combining technology with biology to optimize a limited resource. **T. A. Moore**, A. L. Moore, D. Gust

9:05 140. Synthesis of high performance thin film forward osmosis membrane by addition of oxidized multi-walled carbon nanotubes into polymer. **Y. Li**, X. Zhang, J. Crittenden, **Y. Chen**, H. Cao

9:25 141. Using light to probe and tune and the properties of synthetic carbon allotropes. **D. M. Guldi**

9:45 142. Nanosize non-noble metal catalysts immobilized on graphene for the hydrogen evolution reaction. W. Chen, K. Sasaki, C. Wang, J. Schneider, J. T. Muckerman, **E. Fujita**

10:05 Intermission.

10:15 143. Characterization and quantification of airborne nanoparticles by aerosol mass spectrometry. **C. E. Kolb**, T. B. Onasch, J. T. Jayne, D. R. Worsnop

10:45 144. Fate of di- and mono-thiolate stabilized noble metal nanoclusters in cell environment related to their redox activities. **G. Wang**, J. Jiang, J. W. Padelford, C. V. Conroy, T. Wang, T. Ahuja

11:05 145. Impact of titania nanoparticles (nTiO₂) on the bioaccumulation of persistent organic pollutants, Phe and PBDEs, to bivalve (*Scaphara subcrenata*). **S. Tian**, Y. Zhang, X. Zhu

11:25 146. Crinkly CNT coating layer for interacting exoelectrogens in bioelectrochemical systems. **X. Xie**

11:45 147. Detection of carbon nanotubes released from polymer nanocomposites using single particle inductively coupled plasma mass spectrometry. **H. Fairbrother**, J. Ranville, D. Goodwin, R. Reed, K. Marsh, R. Lankone, J. Wang

Section B

Marriott Dallas City Center
Normandy A

Advances in Materials for Water and Energy

Centennial Symposium Series

Cosponsored by CEI

D. Cwiertny, J. Baltrusaitis, T. Strathmann, *Organizers*

J. Kim, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 148. Facile fabrication of highly porous matrix membrane (PMM) using metal-organic framework as green template for water treatment. **J. Lee**

8:55 149. Electrochemically mediated seawater desalination. **K. N. Knust**, D. Hlushkou, R. K. Anand, U. Tallarek, R. M. Crooks

9:15 150. Withdrawn.

9:35 Intermission.

9:50 151. Nanomaterial assemblies with energy and environmental implications. **P. V. Kamat**

10:30 152. Influences of colloidal and photo-stability on photocatalytic H₂ generation of visible-light-driven water splitting system. **W. Zhang**, G. Zhang, D. Minakata, Y. Chen, J. Crittenden

10:50 153. Is nanoporous graphene strong enough for water desalination by reverse osmosis?: Insights from molecular dynamics. **D. Cohen-Tanugi**, J. C. Grossman

11:10 154. Electro- and magneto-induced modulation of the ion trans-membrane transport through graphene oxide membranes. **P. Sun**, H. Zhu

Section C

Marriott Dallas City Center
Bordeaux

Fundamental and Applied Chemistry for Pollution Control and Climate Protection

Atmospheric Pollution, Catalytic Off-Gas Cleaning and CO₂ Capture

Cosponsored by CEI

A. Riisager, *Organizer*

R. Fehrmann, *Organizer, Presiding*

8:00 155. VOC and CVOC abatement over novel Pt fiberglass catalyst. A. P. Suknev, Y. K. Gulyaeva, E. V. Kovalyov, V. I. Zaikovskii, **B. S. Bal'zhinimaev**

8:30 156. EPR studies of copper substituted zeolites: *In situ* generation of active sites for NH₃-SCR deNO_x catalysts by dehydration. **S. Mossin**, A. Godiksen, F. N. Stappen

8:50 157. Superior DeNO_x activity of V₂O₅-WO₃/TiO₂ catalysts prepared by deposition-precipitation method. **S. Putluru**, L. Schill, A. Jensen, R. Fehrmann

9:10 Intermission.

9:20 158. Effect of Fe doping on low temperature deNO_x activity of high performance vanadia-anatase nanoparticles. **L. Schill**, S. Putluru, R. Fehrmann, A. Jensen

9:40 159. Molecular structure of titania-supported V₂O₅ DeNO_x catalysts: An *in situ* Raman spectroscopic study. A. Tribalis, S. Buus Kristensen, S. Boghosian, **R. Fehrmann**

10:00 160. Reductive dechlorination of tetrachloroethylene by bimetallic Pd-Ni/hematite catalysts in the presence of hydrogen gas. **K. Choi**, W. Lee

10:20 Intermission.

10:30 161. CO₂ uptake in supported ionic liquids phase materials. **H. Kolding**, A. Riisager, R. Fehrmann

10:50 162. Molecular simulation study on carbon dioxide capture of amorphous silica. **K. Kim**, J. Choi, K. Abu-Hakmeh, S. Kwon, H. Kwon, H. Lee, S. Jang

11:10 163. Absorption and oxidation of NO in 1-butyl-3-methylimidazolium based ionic liquids - mechanism of reaction. A. J. Kunov-Kruse, P. Thomassen, S. L. Mossin, A. Riisager, **R. Fehrmann**

11:30 164. Using hourly measurements to illustrate the distinct role of secondary inorganic aerosol in PM_{2.5} during haze and fog. **R. C. Jansen**, Y. Shi, J. Chen, W. Hu, C. Xu, S. Hong, J. Li, M. Zhang

Marriott Dallas City Center
Plaza Blrm A

ACS Award for Creative Advances in Environmental Science and Technology: Symposium in Honor of Harold B. Dellinger

Financially supported by Environmental Science & Technology (ACS Journal)

R. Hathaway, *Organizer*

S. Lomnicki, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 165. Superfund Research Program: An interdisciplinary model for improving human health and the environment. **W. A. Suk**

9:00 166. Development of S,S-tetrazine phototriggers to initiate ultrafast conformational changes in peptides. **A. B. Smith**

9:25 167. Emissions from thermal recycling/combustion of halogenated and non-halogenated circuit boards. **S. S. Sidhujinder**, A. Morgan, M. Kahandawala, K. Muddasani

9:50 168. Interfacial pollutants and a new class of surface/adsorbate system. **E. M. Poliakoff**

10:15 Intermission.

10:30 169. Complex role of halogenated hydrocarbons in combustion. **D. Lucas**, C. P. Koshland

10:55 170. Metal-oxide nanoparticles: The role of composition on the production of pollutants. **R. L. McCarley**, N. Balapitiya, E. Mitran

11:20 171. Environmentally persistent free radicals: Occurrence, formation, persistence, and implications. **E. P. Vejerano**, L. Katchatryan, S. Lomnicki, H. B. Dellinger

Energy and Fuels from Biomass

Pyrolysis of Model Compounds

Sponsored by ENFL, Cosponsored by CEI and ENVR

Nanostructured Materials for Solar Energy Conversion and Storage

Dye Sensitized Solar Cells

Sponsored by ENFL, Cosponsored by CEI and ENVR

Two-Dimensional Materials for Energy and Fuel

Energy Storage

Sponsored by ENFL, Cosponsored by ENVR

TUESDAY AFTERNOON

Marriott Dallas City Center
Plaza Blrm B

Nanotechnology for Sustainable Resources and Environmental Science

Life Cycle Assessment of Nanomaterials and Nano-Products

Cosponsored by AGFD and CEI

J. Mi, J. Song, A. Muller, A. Proust, B. Xing, D. Britt, H. de Groot, J. Hu, L. Wang, S. Holdcroft, Y. Chen, F. Von Der Kammer, M. Antonietti, *Organizers*

B. Nowack, *Presiding*

1:30 Introductory Remarks.

1:35 172. Life cycle assessment of nanotechnology-based applications. **M. Steinfeldt**

1:55 173. Constructive technology assessment (CTA) for nano-enabled technologies. **M. Weil**, H. Dura, S. Ziemann, M. Baumann, B. Zimmermann, B. Simon, G. R. Garcia, M. Decker

2:15 174. Life cycle impact assessment modelling: Damage to human health from particles released to the air including nanoparticles. **D. A. Notter**

2:35 175. Investigation of the impacts of selected nanotechnology products regarding their demand for raw materials and energy. **M. Diesner**, M. Möller, A. Manhart, P. Küppers, A. Spieth-Achtnich, C. Pistner

2:55 176. Life cycle assessment of nanoTiO₂ functionalized porcelainized stoneware tiles. A. Ferrari, **M. Pini**, P. Neri, R. Montecchi

3:15 177. Keeping track of nanotechnology in the real world: The Nanotechnology Consumer Products Inventory 2.0. **M. E. Quadros**, T. Kuiken, S. P. McGinnis, M. S. Hull, M. F. Hochella

3:35 Intermission.

3:50 178. Improving the environmental performance of cellulose nanowhiskers through life cycle assessment. **M. B. Figueirêdo**, D. M. Nascimento, A. F. Dia, M. S. Matsuura, M. F. Rosa

- 4:10 179.** Is graphene a "wonder material" also from an environmental life cycle perspective? **R. Arvidsson**, D. Kushnir, B. A. Sandén, S. Molander
- 4:30 180.** Environmental impacts of multiwalled carbon nanotubes (MWCNT) and platinum in fuel cell technology. **D. A. Notter**, K. Kouravelou, N. T. Haberland
- 4:50 181.** Sustainable chemical production of cellulose nanofibers. **F. Piccinno**, R. Hischier, S. Seeger, C. Som
- 5:10 182.** Sustainable nanotechnology: Incorporating life cycle thinking into green synthesis of nanomaterials. **P. Pati**, P. J. Vikesland, S. McGinnis
- 5:30** Concluding Remarks.

Section B

Marriott Dallas City Center
Normandy A

Advances in Materials for Water and Energy

Centennial Symposium Series

Cosponsored by CEI

D. Cwiertny, J. Kim, J. Baltrusaitis, *Organizers*

T. Strathmann, *Organizer, Presiding*

- 1:30 183.** Water and energy impacts: A comparison of urban growth scenarios and the implementation of decentralized water and energy alternatives. **J. Crittenden**
- 2:10 184.** Improving activated carbon based air-cathode performance for microbial fuel cell by blending carbon black. **X. Zhang**, X. Xia, I. Ivanov, X. Huang, **B. E. Logan**
- 2:30 185.** Wastewater treatment and energy production under extreme salinities in microbial fuel cells. **O. Monzon**, Y. Yang, A. Heldenbrand, P. Alvarez, Q. Li
- 2:50 186.** Microbial battery for energy recovery from wastewater. **X. Xie**
- 3:10 187.** Light and growth medium effect on *Chlorella vulgaris* biomass production. **V. Gude**, M. F. Blair, B. G. Kokabian
- 3:30** Intermission.
- 3:45 188.** Effects of oxidative surface aging on aqueous behavior of engineered superparamagnetic iron oxide nanocrystals. **W. Li**, C. H. Hinton, S. Lee, J. Wu, P. F. Colletti, J. D. Fortner
- 4:05 189.** Metal oxide incorporated microcapsules for arsenic removal. **D. Setyono**, S. Valiyaveetil
- 4:25 190.** Magnetic nanoparticles decorated activated carbon nanocomposites for purification of water. **C. Puri**, M. Arora, P. Saini
- 4:45 191.** Fabrication of bio-based activated carbons for removal of aqueous pharmaceuticals. **C. Hintz, J. L. Goldfarb**
- 5:05 192.** Synthesis of superparamagnetic magnesium ferrite nanoadsorbent and its effective arsenic (III, V) removal performance and easy magnetic separation. W. Tang, Y. Su, **Q. Li**, S. Gao, J. K. Shang

Section C

Marriott Dallas City Center
Bordeaux

Fundamental and Applied Chemistry for Pollution Control and Climate Protection

Drinking Water Quality and Waste Water Cleaning

A. Riisager, R. Fehrmann, *Organizers, Presiding*

- 1:30 193.** Characterization of products and reaction efficiencies of Advanced Oxidation Process treatment of beta-lactam antibiotics. **A. G. Gilmore**, S. P. Mezyk
- 1:55 194.** Sulfate-radical based removal of antibiotics from waters. **D. K. Asamoto**, S. P. Mezyk
- 2:20 195.** Bioremediation of selenite with bioelectrochemical systems. **P. Chellamuthu**, K. Nealson
- 2:45** Intermission.
- 2:55 196.** Low-temperature precursors for zinc oxide nanomaterials for arsenic remediation. **E. Rukundo**, A. Apblett
- 3:20 197.** Haloacetamide and haloacetone nitrile formation from the reaction of monochloramine and aldehydes in water. **S. Y. Kimura**, T. N. Vu, Y. Komaki, M. J. Plewa, B. J. Mariñas
- 3:45 198.** Kinetics of chloramine reactions in wastewater. **B. L. Sjelín**, S. P. Mezyk
- 4:10** Intermission.
- 4:20 199.** Comparative adsorption of highly porous and raw adsorbents for the elimination of copper (II) ions from wastewaters. **T. Kim**
- 4:40 200.** Contribution of ultraviolet radiation and reactive oxygen species to the degradation of sulfonamide pharmaceutical in aqueous solution. **A. S. Batista**, F. C. Pires, A. S. Teixeira
- 5:00 201.** Stability of Fe-C micro-electrolysis and biological process on treatment of ultra-high concentration organic chemical wastewater. **Q. Zhu, J. Chen**, L. Zhao, X. Jiao, S. Guo

Marriott Dallas City Center
Plaza Blrm A

ACS Award for Creative Advances in Environmental Science and Technology: Symposium in Honor of Harold B. Dellinger

Financially supported by Environmental Science & Technology (ACS Journal)

R. Hathaway, *Organizer*

S. Lomnicki, *Organizer, Presiding*

1:00 202. Critical role of research universities and the role of the faculty scholar. **C. Koshland**

1:25 203. Organic based optoelectronic and acoustic wave sensors for volatile organic pollutants. **I. M. Warner**, B. Regmi, I. Galpothdeniya, N. Speller

1:50 204. Use of modeling to evaluate incineration of building decontamination waste from homeland security incidents. **P. A. Lemieux**

2:15 205. Maternal exposure to EPFR-containing PM predisposes to enhanced allergic asthma in offspring. **S. Cormier**, P. Wang, D. You, J. Soravia

2:40 Intermission.

2:55 Introductory Remarks.

3:00 206. Award Address (ACS Award for Creative Advances in Environmental Science and Technology sponsored by the ACS Division of Environmental Chemistry and ACS Publications journal Environmental Science & Technology). Dioxins – a long research journey but are we there yet? **B. Dellinger**

Energy and Fuels from Biomass

Algae and Microbes

Sponsored by ENFL, Cosponsored by CEI and ENVR

Geochemistry of Nuclear Waste Storage and Disposition

Spent Fuel Dissolution and Radionuclide Migration

Sponsored by GEOC, Cosponsored by CEI and ENVR

Nanostructured Materials for Solar Energy Conversion and Storage

Advances in Photovoltaics and Organic Photovoltaics

Sponsored by ENFL, Cosponsored by CEI and ENVR

Two-Dimensional Materials for Energy and Fuel

Theoretical Studies on Energy Applications

Sponsored by ENFL, Cosponsored by ENVR

TUESDAY EVENING

Poster Session

Sponsored by COMP, Cosponsored by BIOL, CINP, COLL, ENFL, ENVR, FLUO, GEOC, HIST, I&EC, INOR, MEDI, ORGN, PHYS, PMSE, POLY, TOXI, and YCC

WEDNESDAY MORNING

Marriott Dallas City Center
Plaza Blrm B

Nanotechnology for Sustainable Resources and Environmental Science

Advances in Photoelectrochemical Energy Conversion

Cosponsored by AGFD and CEI

J. Song, A. Muller, A. Proust, F. Von Der Kammer, *Organizers*

J. Mi, *Organizer, Presiding*

L. Wang, *Presiding*

8:00 Introductory Remarks.

8:05 207. Systems for sustainable fuels and chemicals. **E. McFarland**

8:35 208. Metal oxides nanoparticles as water oxidation electro-catalysts. **L. Spiccia**

8:55 209. Carbon nitrides and N-doped carbons as sustainable and effective photo(electro)catalysts. **M. Antonietti**

9:15 210. Specifically adsorbed ions control energetics and activity of nanocrystal water splitting photocatalysts. R. E. Chamousis, **F. E. Osterloh**

9:35 Intermission.

9:50 211. Nanoengineered materials for dye-sensitized solar cells. **Z. Lin**, X. Xin, M. Ye, C. Lin

10:10 212. Effect of SrTiO₃:ZnO as cathodic buffer layer for inverted polymer solar cells. **G. Cao**, J. Lan

10:30 213. Light-induced charge storage and the on-demand release in nanostructured oxide thin films. **Y. Ng**, R. Amal

10:50 214. TiO₂ nanomaterials as an efficient adsorbent and photocatalyst for environmental aqueous pollution removal. **X. Chen**

11:10 215. Role of nanostructuring in sustainable solar energy conversion. H. Dunn, J. Feckl, B. Mandlmeier, K. Fominykh, A. Müller, D. Fattakhova-Rohlfing, L. Peter, C. Scheu, **T. Bein**

Section B

Marriott Dallas City Center
Somerset

Advances in Materials for Water and Energy

Centennial Symposium Series

Cosponsored by CEI

J. Kim, J. Baltrusaitis, T. Strathmann, *Organizers*

D. Cwiertny, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 216. Porous TiO₂-based materials for photocatalytic water treatment under visible light. **X. Wang**, D. R. Mitchell, N. Webster, P. Hartley, R. A. Caruso

8:55 217. Visible light-activated S, N and C co-doped polymorphic TiO₂ for the treatment of microcystin-LR. G. Zhang, Y. Zhang, M. N. Nadagouda, C. Han, K. O'Shea, S. M. El-Sheikh, A. A. Ismail, **D. D. Dionysiou**

9:15 218. Photocatalyst/upconversion hybrid materials for visible light-activated water disinfection. **S. L. Cates**, C. Li, E. L. Cates, J. Kim

9:35 Intermission.

9:50 219. Developing metal-on-metal catalysts for nitrate, nitrite and nitrophenol catalytic reduction. **M. S. Wong**, H. Qian, Z. Zhao, L. Pretzer

10:30 220. Core-shell structured metal hydrogenation catalysts: Preparation, characterization, and activity. Y. Wang, J. Liu, P. Wang, C. J. Werth, **T. J. Strathmann**

10:50 221. Microwave-assisted synthesis of graphene-supported platinum nickel nanoalloy for catalytic water treatment. **C. Na**, H. Ma, H. Wang

11:10 222. Delocalization of charge separation and pH dependence in the photocatalysis of the oxygen reduction reaction at an Ag/AgI cathode. M. Santander, J. Kang, L. Sztaberek, **J. J. McMahon**

Section C

Marriott Dallas City Center
Bordeaux

Air Monitoring: Overcoming Real-Time Air Toxics Monitoring Challenges

Centennial Symposium Series

Financially supported by PID Analyzers, LLC

J. Driscoll, *Organizer*

J. Maclachlan, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 223. How Texas uses air monitoring data and the air pollutant watch list to protect public health. **T. Capobianco**

9:05 224. Texas air quality matters. **E. Craft**

9:25 225. Difficulties in modifying the procedure for EPA Method 18. **D. Ramold, J. N. Driscoll**

9:45 Intermission.

9:55 226. VOC hazard mapping using chemical exposure method with indoor positioning (CEMWIP): A new direct reading method. **K. K. Brown**, K. R. Mead, P. B. Shaw, R. J. Kovein, T. S. Scott, R. T. Voorhees, A. R. Brandes

10:15 227. Real time air monitoring system for personnel protection at a trichloroethane cleanup site. **J. Driscoll**, F. Parc

10:35 228. Real time monitoring of byproducts during α -pinene ozonolysis under coexisting NO. **M. Noguchi**, S. Komatsu, H. Osawa, S. Yasuzawa, A. Yamasaki

10:55 Panel Discussion.

11:35 Concluding Remarks.

Marriott Dallas City Center
Plaza Blrm A

Changing Atmospheric Chemistry: Environmental Implications of Land-Air Interactions

Centennial Symposium Series

Cosponsored by CEI, COMSCI, and GEOC

B. Shakhshiri, J. Bell, W. Shortle, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 229. Climate change challenges: Responsibilities of chemists and the ACS. **B. Z. Shakhshiri**

8:55 230. ACS climate science toolkit. **J. A. Bell**

9:15 231. Organic emissions from terrestrial ecosystems: Their role in the Climate System and interactions with emissions from human activities. **A. B. Guenther**

9:45 232. Disruption of forest-atmosphere interactions related to changing atmospheric chemistry. **W. C. Shortle**

10:15 Intermission.

10:25 233. Adaptation of higher plants to changes in atmospheric carbon dioxide concentration. **J. A. Bunce**

10:55 234. Non-enzymatic decomposition of lignocellulose by brown rot fungi and the role it plays in carbon sequestration and cycling. **B. Goodell**, V. Arantes, J. Jellison, C. Howell

11:25 Panel Discussion.

Energy and Fuels from Biomass

Biodiesel

Sponsored by ENFL, Cosponsored by CEI and ENVR

Geochemistry of Nuclear Waste Storage and Disposition

Radionuclide Incorporation into Waste Forms

Sponsored by GEOC, Cosponsored by CEI and ENVR

Nanostructured Materials for Solar Energy Conversion and Storage

Theoretical/Computational Studies and Advanced Nanocomposites

Sponsored by ENFL, Cosponsored by CEI and ENVR

Two-Dimensional Materials for Energy and Fuel

Energy Conversion

Sponsored by ENFL, Cosponsored by ENVR

WEDNESDAY AFTERNOON

Marriott Dallas City Center
Plaza Blrm B

Nanotechnology for Sustainable Resources and Environmental Science

Porous Nanomaterials for Photo- and Electrocatalysis: Water Splitting and New Green Chemistry

Cosponsored by AGFD and CEI

J. Mi, A. Muller, A. Proust, B. Xing, D. Britt, F. Von Der Kammer, H. de Groot, J. Hu, L. Wang, S. Holdcroft, Y. Chen, *Organizers*

J. Song, M. Antonietti, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 235. Application of nanostructured metal-free bifunctional catalysis: In case of lithium-oxygen batteries. **K. Sakaushi**, F. Schipper, T. -. Fellerger, M. Antonietti

1:55 236. Novel porous materials for gas separations. **C. J. Doonan**

2:15 237. Modification of graphitic carbon nitride semiconductor for heterogeneous photocatalysis. **X. Wang**

2:35 238. Modified titanium dioxide photocatalysts for solar fuels generation. **H. Garcia**, S. Neatu, J. Macia-Agullo

2:55 Intermission.

3:10 239. Integration of cobalt oxide with molecular and polymeric photocatalysts for efficient storage of solar energy in chemical bonds. **M. Grzelczak**, J. Zhang, M. Antonietti, X. Wang

3:30 240. Non-precious metal electrocatalysts for the oxygen reduction reaction. **T. Fellerger**, K. Elumeeva, N. Fechner, S. Wohlgemuth, M. Antonietti

- 3:50 241.** Direct electrochemical growth of carbon nanotube/semiconductor constructs for enhanced electron transfer. **M. D. Lay**, P. Vichchulada
4:10 242. Near infrared emitting nanosheets derived from metal silicate materials. **T. T. Salguero**, D. Johnson-McDaniel, I. Norris
4:30 243. Rational design of transparent conductors for use in low-cost, thin-film solar cells. M. Stoica, A. Faghaninia, X. Sun, **C. S. Lo**

Section B

Marriott Dallas City Center
Somerset

Advances in Materials for Water and Energy**Centennial Symposium Series**

D. Cwiertny, J. Kim, T. Strathmann, *Organizers*

J. Baltrusaitis, *Organizer, Presiding*

- 1:30 244.** Silver nanoparticle-based water treatment technologies: How do they work and do they have a future? **D. Waite**, C. Miller, D. He, H. Yu
2:10 245. Achieving sustainable water-energy: Waste-energy-driven advanced oxidation processes for antimicrobial applications. **D. Shuai**, K. E. Greenstein, D. M. Cwiertny
2:30 246. Simple preparation of fullerene supported materials: Visible light activated photocatalysts. **K. J. Moor**, J. Kim
2:50 247. Microbial inhibition through singlet oxygen photosensitization by silicon nanocrystals under visible and IR radiation. **E. L. Cates**, J. Kim
3:10 248. Silicon alkoxide cross-linked silica nanoparticle gels for encapsulation of bacterial biocatalysts. **B. R. Mutlu**, S. Yeom, H. Tong, L. P. Wackett, A. Aksan
3:30 Intermission.
3:45 249. Mechanistic investigation of p-substituted phenol removal on substoichiometric titanium dioxide reactive electrochemical membranes. **B. P. Chaplin**, A. Zaky, Y. Jing
4:05 250. How we enhance the photocatalytic decomposition of target water contaminants?: A simple size exclusion of natural organic matter. **A. Zakersalehi**, **H. Choi**
4:25 251. Red-to-VIS upconversion microcapsules with aqueous- and dry-phase color tuning and separation properties. **J. Kim**, J. Kim
4:45 252. Electrolytic degradation of 1,4-dioxane catalyzed by titanium dioxide pellets in the absence of light. **J. Blotevogel**, J. R. Jasmann, T. C. Sale, T. Borch
5:05 253. Photocatalytic decontamination of water is modeled when a methylene blue target is rapidly destroyed by UV illumination of a TiO₂ surface coated onto a titanium metal foil: The concomitant generation of iodine radicals enhances photocatalytic destruction. **J. Barreto**, P. D. Barreto

Section C

Marriott Dallas City Center
Bordeaux

Real-Time Water Monitoring of Surface Waters for Drinking Water Supplies**Centennial Symposium Series**

R. Lippincott, H. Pang, R. Gullick, J. Gibs, *Organizers*

P. Schorr, *Organizer, Presiding*

K. Thompson, *Presiding*

- 1:30** Introductory Remarks.
1:35 254. Increased use of real-time monitoring by water systems. **A. Roberson**
2:00 255. Water quality monitoring and treatment in the Passaic River Basin (New Jersey). **R. W. Gullick**, P. Schorr
2:20 256. Robotic monitoring of New York City's water supply. **C. R. Cutietta-Olson**, L. Emery, A. Bader
2:40 Intermission.
2:55 257. Real-time monitoring for water treatment operational control: City of Houston, Texas. **Y. W. Forrest**, **A. M. Molly**, **L. Bodkin**, **P. Walker**
3:25 258. Nutrient loads and sources delivered to the northwestern Gulf of Mexico from the south-central United States. **P. Ging**, R. Rebich
3:55 259. Central Northern Marianna Islands: Lots of groundwater, but does it meet federal standards? **K. A. Thompson**
4:25 Panel Discussion.

Marriott Dallas City Center
Plaza Blrm A

Green Chemistry and the Environment

Centennial Symposium Series

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

1:30 260. Novel bio-derived building blocks and their application in polymer chemistry. M. Dusselier, F. De Clippel, P. Van Wouwe, P. Van Puyvelde, F. E. Du Prez, **B. F. Sels**

2:15 261. Chemical feedstocks from biomass: An integrated conversion scheme. **D. Esposito**, V. Molinari, C. Giordano, M. Antonietti

2:40 262. Insights in technical and economical aspects for sustainable production of methyl levulinate (ML) towards its commercialization. **A. M. Balu**, N. van der Puij, N. Kemeling, J. C. van der Waal, E. De Jong

3:05 263. Value-added products from biofuels byproducts: Zein protein extraction from distillers' grains using green solvents. **J. Gupta**, P. V. Vadlani

3:30 Intermission.

3:40 264. Hydrothermal biomass conversion strategies for renewable hydrocarbon fuels. **T. J. Strathmann**, D. R. Vardon, S. Leow, M. Han, J. S. Guest, B. K. Sharma, G. T. Beckham

4:20 265. Ultrasonic transesterification of waste cooking oil: A kinetic study. G. E. Grant, **V. Gude**

4:45 266. Hybrid polymer electrolytes for lithium/sodium ion batteries: Solving energy storage problems with non-flammable, environmentally friendly materials. M. Wirey, A. T. Joenathan, J. A. Ayivi, R. Purvis, W. E. Mahmoud, A. A. Al-Ghamdi, J. P. Carini, M. Hunt, **L. M. Bronstein**

5:10 267. TiO₂ photocatalysis for energy and environmental application: Enhancing interface and surface charge transfer. **J. Zou**, L. Pan, Z. Huang, L. Wang, X. Zhang

Nanostructured Materials for Solar Energy Conversion and Storage

Photoelectrochemistry and Photocatalysis

Sponsored by ENFL, Cosponsored by CEI and ENVR

Two-Dimensional Materials for Energy and Fuel

Energy Storage

Sponsored by ENFL, Cosponsored by ENVR

WEDNESDAY EVENING

Dallas Convention Center
Hall F

Advances in Materials for Water and Energy

Centennial Symposium Series

Cosponsored by CEI

T. Strathmann, J. Kim, D. Cwiertny, J. Baltrusaitis, *Organizers, Presiding*

6:00 - 8:00

268. Kinetics of the oxidation of iodide by ferrate(VI). **S. Tolan**, V. K. Sharma

269. Effect of coating polymer and aggregation of magnetite nanoparticles on arsenic removal from water. **M. F. Andrade**, N. I. Gonzalez-Pech, S. S. Lee, V. L. Colvin

270. Synthesis of thermo-sensitive magnetic-cored dendrimers for microbial growth enhancement with thermo-control. **H. Kim**, J. Jang, J. Park

271. Improvement of the photoactivity of nitrogen-doped TiO₂ supported on phosphors for the removal of atrazine. O. Sacco, V. Vaiano, C. Han, D. Sannino, **D. Dionysiou**

272. Uptake kinetics of heavy metals from water using a high surface area supported inorganic metal oxide. **W. T. Honeycutt**, H. Hamby, A. Apblett, N. F. Materer

273. Rational designed MOFs for methane storage. **K. Wang**

274. Facile preparation and characterization of graphene-modified carbon-doped TiO₂ nanoparticles for a highly visible light responsive photocatalyst. **S. Yu**, Y. Kim, E. H. Kim, S. Lee, **J. Yi**

275. Supporting palladium metal on gold nanoparticles improves its catalysis for nitrite reduction. **H. Qian**, Z. Zhao, J. C. Velazquez, K. N. Heck, M. S. Wong

276. Primary study of synthesis and photocatalytic activity of ZnO/nickel-zinc ferrite magnetic photocatalyst. **K. Zheng**, **Z. Jiang**, Q. Xie

277. Chlorine-free method of disinfection of water contaminated with *E. coli*. **S. Yergeshbayeva**, **A. Akylbekov**, **E. Koshman**

- 278.** Visible light-active nanostructured TiO₂ photocatalysts for water treatment. C. Han, V. Likodimos, J. A. Khan, M. N. Nadagouda, J. Andersen, P. Falaras, P. Rosales-Lombardi, **D. D. Dionysiou**
- 279.** Effect of pendant group polarity on metal-organic frameworks for methane storage. **J. Park**, D. Feng, H. Zhou
- 280.** Synthesis of a series of highly multi-dentate podand ligands as potential water remediation agents. **C. Kashat**, M. A. Benvenuto
- 281.** Heavy metal ion removal from wastewater by PES membranes - ranging from microfiltration to nanofiltration. **F. Okyay Öner**, Y. Yürüm
- 282.** Oxidation of microcystin-LR by ferrate(VI): Intermediates, degradation pathways, and toxicity assessments. W. Jiang, L. Zhu, V. K. Sharma, S. Batchu, P. R. Gardinali, D. D. Dionysiou, **K. E. O'Shea**

Section A

Dallas Convention Center
Hall F

Chemistry of the Lower Atmosphere

Centennial Symposium Series

M. Chalbot, I. Kavouras, *Organizers, Presiding*

6:00 - 8:00

- 283.** Quantitative analysis of atmospheric carbonyl compounds by HPLC-TOF/MS. **D. A. Bronshteyn**, J. E. Boulter
- 284.** Heterogeneous uptake of alkylamines on succinic acid relevant to secondary organic aerosol (SOA) formation. **B. Turner**, A. Khalizov, M. Gomez-Hernandez, R. Zhang
- 285.** Pressurized liquid extraction technique for the analysis of PAHs, hopanes, pesticides, PCBs and PBDEs from air filter samples. **A. E. Clark**, T. Barrett, P. dev Nallathamby, R. J. Sheesley, S. Usenko
- 286.** Bias of CMAQ model forecast O₃ output over Lake Michigan by comparison with routine ferry-based O₃ observations. **P. Cleary**, N. Fuhrman, J. Schafer, J. Fillingham, H. Bootsma, E. Williams, T. Langel, S. Brown

Section A

Dallas Convention Center
Hall F

Emerging Micro-Pollutants in the Environment

Centennial Symposium Series

Cosponsored by CEI

D. Ramirez, X. Zhang, S. Kurwadkar, F. Mitchell, *Organizers, Presiding*

6:00 - 8:00

- 287.** Synthetic microplastics in the Great Lakes: Are fish eating them? **L. M. Rios Mendoza**, C. Evans, J. Ripley, S. Putthayangkul
- 288.** Investigation of 17- β estradiol degradation rates via direct UV and indirect photo-fenton photolysis. **M. Grim**, K. Keyes, J. Wallace, G. C. Klein
- 289.** Simultaneous detection and quantification of select nitromusks, antimicrobial agent, and antihistamine in fish of grocery stores by gas chromatography-mass spectrometry. J. Foltz, **M. Mottaleb**, **M. J. Meziani**, R. Islam
- 290.** Method improvements to single-particle inductively coupled plasma-mass spectrometry analysis for routine monitoring of engineered nanoparticles in wastewater. **O. Quiñones**, D. M. Mitrano, B. J. Vanderford, C. P. Higgins, J. F. Ranville, E. R. Dickenson
- 291.** Screening and quantitation of targeted and non-targeted environmental pollutants in water samples. A. Schreiber, C. Borton, **B. Barrett**
- 292.** PFOA decomposition by persulfate with modified diatomite. **C. K. Silva**, M. M. Vianna, C. A. do Nascimento, H. Choi
- 293.** Nutrient inputs from rural septic systems to a eutrophic watershed. **J. M. Berry**, C. E. Spiese, L. M. Streacker
- 294.** Correlations of common inorganic compounds present in water with attenuation effects of selected trace organics following groundwater recharge. **A. Kahl**, B. Arnold, K. Ogden
- 295.** Wastewater effluent disinfection in the presence of engineered iron oxide nanoparticles. **K. Pagan**, P. Perez, S. Hwang
- 296.** Development of a novel SPE-LC-ESI-MS/MS method for analysis of organoarsenicals in water. K. Mangalgiri, **J. Lee**, L. Blaney
- 297.** Hydroxyl radical remediation of alkyl nitrate contaminated waters. **L. M. Olson**, M. P. Schramm, S. P. Mezyk
- 298.** Influence of environmental conditions on hormones' sorption and desorption of soil particles of five different size fractions. **Y. Qi**, T. Zhang
- 299.** WITHDRAWN

- 300.** Transformation and fate of toxic organic chemicals released from contaminated infrastructure materials. **W. Kuang**, K. Volchek, G. Thouin, C. E. Brown
- 301.** Degradation of selected pharmaceuticals in Suwannee River water matrices . **H. Santoke**
- 302.** Assessment of anthropogenic contribution to perchlorate in the environment using ice core perchlorate record. **J. Cole-Dai**, D. L. Brandis, K. Peterson, E. Manandhar
- 303.** Variations of tetracycline resistance genes in anaerobic SBRs: Effect of trace tetracycline. **M. Huang**, B. Xiao, L. Chen
- 304.** Assessing sources of total nitrosamine precursors in drinking water and wastewater systems. **D. Meints**, W. Zhang, J. Fahey
- 305.** Experimental and sensitivity analysis on the mobility of aluminium oxide nanoparticles. **H. J. Shipley**, T. Rahman, J. George
- 306.** Sorptive removal of salicylic acid and ibuprofen from aqueous solution using activated carbon. **M. Essandoh**, C. U. Pittman, P. H. Steele, T. Mlsna
- 307.** Importance of a thorough elemental analysis of carbon nanotube soot. **E. I. Braun**, P. Pantano
- 308.** Lab scale assessment of biological filtration for removal of microconstituents in drinking water. **M. A. Bayan**, K. M. Hamilton, A. N. Quicksall
- 309.** Ferrate(VI) oxidation of selected aliphatic amino acids. **L. Chen**, V. K. Sharma
- 310.** Sulfamethazine adsorption isotherms and kinetics with hypercrosslinked polymer mn250 in acid and alkaline environments. **M. Grimmett**, D. Corwin

Section A

Dallas Convention Center
Hall F

Fundamental and Applied Chemistry for Pollution Control and Climate Protection

Centennial Symposium Series

Cosponsored by CEI

A. Riisager, R. Fehrmann, *Organizers, Presiding*

6:00 - 8:00

- 311.** Synergistic reductive transformation of p-CINB by ZVI and anaerobic sludge. **L. Zhu**, H. Lin, K. Gao, X. Xu
- 312.** Degradation and mineralization of 2-phenylbenzimidazole sulphonic acid (sunscreen agent) using UV-254 nm/H₂O₂. **W. H. Abdelraheem**, X. He, D. D. Dionysiou
- 313.** New insights on carbon dioxide reactions with N, N'-dimethylethylenediamine (mmen). **N. Magee**, N. Planas, A. Dzubak, A. McManus, L. Gagliardi
- 314.** Application of iron and zinc oxyhydroxides in arsenic remediation. **T. Reed**, A. Apblett
- 315.** Solubilization of polybrominated diphenyl ethers by single and mixed Gemini/conventional surfactants. **D. Ye**, Q. Xie, R. Zhao
- 316.** Catalytic reduction of nitrate in drinking water. **N. Zahrtmann**, A. Riisager
- 317.** Optimization of the affinity of basic iron fumarate for arsenic sorption. **D. Corter**, A. Apblett
- 318.** Influences of nitrate on heavy metals removal performance by nanoscale zerovalent iron. **Y. Su**, Y. Zhang, A. Keller
- 319.** Kinetic study of bromide removal through controllable electrochemical oxidation. **X. Cui**, B. D. Manderscheid, A. Amason, A. B. Wright, A. N. Quicksall
- 320.** Kinetics of electrochemically generated free chlorine for iron removal and disinfection of drinking water. **A. M. Fernandez**, A. N. Quicksall, M. E. Wilson
- 321.** Degradation of 2,4,6-trinitrotoluene (TNT) using iron nanoparticles embedded in polymer electrospun fibers. **N. Granda-Paz**, V. Pantojas, C. Ortiz, W. Otaño
- 322.** NO absorption and oxidation in supported ionic liquid phase materials. **P. Thomassen**, A. T. Madsen, S. L. Mossin, A. Riisager, R. Fehrmann

Section A

Dallas Convention Center
Hall F

General Posters

S. Al-Abed, *Organizer, Presiding*

6:00 - 8:00

- 323.** Photochemical disinfection of water contaminated with *Campylobacter jejuni*: Role of singlet oxygen formation. **N. Barashkov**, D. Eisenberg, L. Lam, I. Irgibayeva, T. Novikova, **N. A. Rudenko**
- 324.** Covalent organic polymers cage for high efficiency CO₂ capture. H. Patel, C. T. Yavuz, **M. Atilhan**
- 325.** Investigation of binding interactions of perfluoroalkyl acids with human serum albumin using an improved approach to equilibrium dialysis. **M. A. Morris**, L. A. MacManus-Spencer
- 326.** Modeling the mercury exposure of Rhode Island recreational anglers and their families. **P. R. Williamson**, D. L. Taylor

- 327.** Oxalate based remediation of arsenic bound to amorphous Fe oxide in soil. **K. Baek**, J. Lee, E. Kim, J. Yoo
- 328.** Mechanisms on electrokinetic transport of sulfate in soil. **K. Baek**, S. Jo, **Y. Shin**, S. Shin
- 329.** Combined process of chemical oxidation and extraction for remediation of mixed contaminated soil with petroleum and heavy metals. **C. Lee**, J. Yoo, S. Lee, K. Baek
- 330.** Comparison of activation methods for persulfate applied in-situ chemical oxidation. **Y. Kim**, H. Kwon, J. Kim, Y. Luo
- 331.** Identifying needs for novel water treatment technologies for flowback water from natural gas extraction. **M. P. O'Connor**, D. L. Plata, N. R. Warner, A. Vengosh, M. A. Deshusses, K. Schreglmann, M. Elsner
- 332.** Determination of total nitrogen and phosphorus in environmental waters by using alkaline persulfate digestion and ion chromatography with suppressed conductivity detection. **B. De Borba**, J. Rohrer, R. Jack
- 333.** Aqueous photodegradation and hydrolysis of imazosulfuron under simulated California rice paddy conditions. **C. C. Rering**, R. S. Tjeerdema
- 334.** Progress and challenges of biogeochemical modeling in the Pacific Arctic region. **C. Deal**, N. Steiner
- 335.** Low temperature catalysis for cold-start emission abatement. **R. A. Khanke**, G. Kalapala, N. Wang, X. Deng, P. K. Fu
- 336.** Assessment of radioisotopic transfer factor (TF) in selected vegetation samples. **J. Billa**, F. X. Han, S. Didla, i. Tsorxe, O. Brempong, H. Yu
- 337.** Fish-bone in bioremediation of lead contaminated water. **L. Williams**
- 338.** On techno-economic evaluation of production of biodiesel using consecutive-competitive transesterification reactions. **K. R. Sharma**
- 339.** Effect of salt concentration on protocell formation. **K. Provenzano**
- 340.** Correlation of dissolved trace metals and bloodworm toxicity in a Colorado mountain stream. **M. Spedale**
- 341.** Photochemically induced production of reactive oxygen species (ROS) from effluents of wastewater treatment plants. **D. Zhang**, S. Yan, W. Song
- 342.** Effect of 5-Fluorouracil and Cadmium on cabbage. **T. M. Hatch**, M. W. Gilmore, Y. Zhang
- 343.** Investigating oxygen storage capacity (OSC) of CuO_x/PrO_x and CuO_x/PrO_x-TiO₂ catalytic systems for exhaust gas emission control. **G. Kalapala**, R. A. Khanke, N. Wang, X. Deng, P. K. Fu
- 344.** Mercury and transition metal accumulation in caudal scutes of American crocodiles (*Crocodylus acutus*) from Belize. **D. R. Newberger**, T. R. Rainwater, V. Rose, F. J. Mazzotti, C. Chenot-Rose, G. P. Cobb
- 345.** Rare earth metals complexes as possible white light emitters for energy efficient lighting. **F. White**, L. Pham, K. Xiang, R. Sykora
- 346.** Hydraulic fracturing flowback water analysis using in-line conductivity, automated dilution, and ion chromatography. **C. A. Fisher**, L. Lopez
- 347.** Bioaccumulation of cadmium in *Procambarus ssp*: A suitable bioindicator of environmental toxicology. **J. R. McCauley**, K. Garrison
- 348.** Measurement of monocyclic aromatic amines in an urban air. **I. Han**
- 349.** Exploration of a novel non-subversive extraction technique for the removal of heavy metal contaminants from bulk water supplies. **K. A. Mies**, A. Bragg, K. Sheetz
- 350.** Reductive detoxification of 2, 4, 6-trinitrotoluene (TNT) by Fe nanoparticles. **J. Garcia**, S. N. Mahapatro
- 351.** Determination of heavy metals in surface water, sediment and *Najas marina* aquatic plant samples from the Caño Tiburones wetland. **L. Pérez Pérez**, **W. Lopez Atilés**
- 352.** Palm inflorescence as adsorbent for the removal of some heavy metals (Pb, Co, Ni, and Cd) ions from aqueous system. **P. O. Okolo**, E. N. Dibia
- 353.** New pathways of photodegradation of anthracene and benzo[a]anthracene in polar and apolar media. **G. De Guidi**, A. Catalfo, M. Pappalardo, Z. Minniti, V. Librando
- 354.** *In situ* remediation of arsenic- and copper-contaminated soil by *Hevea brasillensis*. **E. O. Nwaichi**, F. O. Owuala, P. Nwoha
- 355.** Thermal decomposition of carbon nanotube polymer composites. **C. J. Akinyi**, M. Lu, E. M. Birch

Section A

Dallas Convention Center
Hall F

Green Chemistry and the Environment

Centennial Symposium Series

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

6:00 - 8:00

356. Green pathways toward the degradation of toxic agricultural pollutants. **S. R. Santoz-Diaz**, S. O. Obare

357. Green synthetic pathways for well-defined nanomaterials and their interactions with bacterial cells. **S. O. Obare**, S. Tahmasebi Nick, C. P. Adams

- 358.** Efficient preparation of catalytically active bifunctional nanomaterials. **A. M. Balu**, A. Roibu, M. Al-Naji, W. D. Eineke, R. Luque, R. Glaser
- 359.** Novel mechanochemical synthesis of magnetically functionalized catalytically active nanocomposites. **R. Luque**, M. Ojeda, A. M. Balu, V. Barron, A. Pineda, A. Romero
- 360.** Isolation of flavonoids in alfalfa extract and the formation of gold nanoparticles. **A. Villalobos**, M. O. Montes
- 361.** Automated derivatization, SPE cleanup and LC-MS/MS determination of glyphosate and others polar pesticides. **A. Schreiber**, O. Cabrices
- 362.** Airborne submicron particulate (PM₁) pollution in Shanghai, China: Chemical variability, formation/dissociation of associated semi-volatile components and the impacts on visibility. **Y. Shi, J. Chen**
- 363.** Research on the kinetics of calcination/carbonation reaction of Ca-based sorbents in simulated suspension state. L. Zhang, H. Li, W. Yang, B. Meng, J. Li, **Y. Min**
- 364.** Heavy metals analysis in superficial water and sediments at Caño Tiburones wetland. **A. A. Arce-Cruz, L. E. Candelaria-Figueroa, A. R. Rosario-Martin**, M. Ramos-Fontan
- 365.** Starch based biocomposite films reinforced with cellulose nanocrystals from garlic stalks and rice straw. **B. Ahmmad**, M. Agustin, F. Hirose
- 366.** Synthesis of biodiesel derived from microalgae using green chemistry techniques. **R. E. Borg**
- 367.** Atactic-polypropylene, a new catalyst support towards green chemistry. **B. Lin**, C. E. Hobbs, D. Lawler, G. McGovern, C. Bradley

Section A

Dallas Convention Center
Hall F

Hydrothermal Carbonization of Municipal, Industrial and Agricultural Wastes and Innovative Applications of the Process Byproducts

Centennial Symposium Series

Cosponsored by CEI

K. Ro, S. Kim, *Organizers*

N. Berge, *Organizer, Presiding*

6:00 - 8:00

- 368.** Production of solid biofuel from organic waste using catalytic HTC process. **B. Joo**, H. Yeon, S. Lee, S. Ahn, K. Lee, E. Jang, J. Won
- 369.** Application of solid and liquid byproduct from citrus fruit using HTC. **S. Ahn**, H. Yeon, B. Joo, K. Lee, E. Jang, E. Jeon
- 370.** Analysis of bio-oil from hydrothermal carbonization reaction of food wastes. **S. Bae**, M. Choi, Y. Bang, H. Kim, J. Lee, S. Park

Section A

Dallas Convention Center
Hall F

Innovative Materials for Waste Recycling and Environmental Applications

Centennial Symposium Series

Cosponsored by CEI

S. Al-Abed, *Organizer*

K. Kawamoto, *Organizer, Presiding*

6:00 - 8:00

- 371.** Enhanced dechlorination of trichloroethylene by PEG coated silicon and zerovalent nickel metal. **C. Lee**, S. Wang, R. Doong
- 372.** Cross-linked cyclofructans: An innovative material for heavy metal waste recycling. **C. Parpia**, D. W. Armstrong
- 373.** Decontamination efficiency and energy consumption analysis of light magnetic coupling reactor. **Z. Jiang, K. Zheng**, Q. Xie
- 374.** Applications of iron-zinc layered double hydroxides used in arsenic remediation. **Z. Brown**, A. Apblett
- 375.** Application of mesophilic anaerobic treatment technology to brewery sludge. **I. O. Asia**, A. -. Odia

Dallas Convention Center
Hall F

Nanotechnology for Sustainable Resources and Environmental Science

Centennial Symposium Series

Cosponsored by CEI

A. Muller, B. Xing, M. Antonietti, S. Holdcroft, Y. Chen, A. Proust, F. Von Der Kammer, H. de Groot, J. Mi, J. Hu, L. Wang, *Organizers*

D. Britt, J. Song, *Organizers, Presiding*

A. Lee, *Presiding*

6:00 - 8:00

- 376.** Parameterizing a surface water model for multiwalled carbon nanotubes. **D. Bouchard**, X. Chang, C. Knightes, I. Chowdhury
- 377.** Tolerance of biological wastewater treatment system to silver nanoparticles. **Z. Yuan**, X. Yang, A. Hu, C. Yu
- 378.** Optimizing nanoporous materials for methane storage. **C. M. Simon**, J. Kim, L. Lin, R. L. Martin, M. Haranczyk, B. Smit
- 379.** Characteristics and implications of aerosol mass size distributions in typical cities and mountain in China. **X. Wang**, W. Wang, X. Gao, W. Nie, Y. Yu, L. Yang, J. Chen
- 380.** Porous carbon materials from waste hydrochar for tetracycline adsorption. X. Zhu, Y. Liu, F. Qian, C. Zhou, **S. Zhang, J. Chem**
- 381.** Transformations of silver nanoparticles relevant to product use: Exposure to disinfectants and washing. **D. M. Mitrano**, B. Nowack
- 382.** Cerium oxide and laponite filtration membranes for water purification. **T. R. Kim**, L. A. MacManus-Spencer, M. E. Hagerman
- 383.** Infrared microspectroscopy of root xylem of rice, wheat and barley seedlings exposed to CeO₂ nanoparticles. **C. M. Rico**, J. R. Peralta-Videa, J. L. Gardea-Torresdey
- 384.** Photocatalytic and antimicrobial activity of CuO/β-Bi₂O₃ composite nanoparticles. **C. H. Gerrish**, J. R. Weese, E. S. Harbin, J. H. Thurston
- 385.** Photocatalytic and antimicrobial activity studies of graphitic carbon nitride (g-C₃N₄). **N. M. Hunter**, J. H. Thurston
- 386.** Studies on "distantly" and "closely" positioned bisphenothiazine-BF₂ chelated azadipyrromethene-fullerene tetrads. **V. Bandi**, H. Gobeze, V. N. Nesterov, F. D'souza
- 387.** Effects of preparation methods on the properties and environmental behaviors of multiwalled carbon nanotubes suspended in aqueous solutions. **X. Chang**, M. Henderson, D. Bouchard
- 388.** Carbon dioxide reforming of methane to syngas over a highly stable Ni catalyst. H. Liu, Y. Li, H. Wu, **D. He**
- 389.** Mechanistic studies of the selective oxidation of crotyl alcohol to crotonaldehyde on bare and oxidised gold nanoparticles. **C. D. Zeinalipour-Yazdi**, D. J. Willock, K. Wilson, A. Machado, A. F. Lee
- 390.** Plant mediated green synthesized of nanocomposite materials to treat industrial effluent. **P. D. Saha**, M. Satpathy
- 391.** Nanostructured inorganic solids for artificial photosynthesis. **K. Maeda**
- 392.** Ag-Fe₃O₄ /chitin magnetic microspheres with highly efficient catalytic activity. **B. Duan**, L. Zhang
- 393.** Palladium nanocatalysts for the aqueous phase hydrogenation of phenol. **A. L. Marsh**, J. M. Shay, J. E. Kauffman, N. D. Muench
- 394.** Monolithic honeycombs constructed by hierarchical nanowire arrays as a green catalyst with high materials utilization efficiency and tunable catalytic performance. **Z. Ren**, Y. Guo, P. Gao
- 395.** Assessment on the toxicological effect of silver nanoparticle synthesized using bioreduction process. P. Das, **P. Banerjee**, A. Mukhopadhyay
- 396.** Deposition and release kinetics of metallic and semiconducting single-walled carbon nanotubes. **J. Plazas-Tuttle**, N. B. Saleh
- 397.** Effects of gold nanorods' aspect ratio on their transport behavior. **A. Afrooz**, C. J. Murphy, P. Vikesland, N. B. Saleh
- 398.** Luminescent concentration with semiconductor quantum rods and transfer-printed micro-silicon solar cells. **N. D. Bronstein**, L. Li, Y. Yao, L. Xu, A. Alivisatos, R. G. Nuzzo
- 399.** Sunlight enhanced, oxidative transformation of hydrogenated fullerene (fullerane) in water. **J. Wu**, K. Peter, J. Fortner
- 400.** Impacts of differing diamond and gold nanomaterial surface chemistries on toxicity to *Daphnia magna*: Defining trends in nanomaterial toxicity. **J. Bozich**, M. Torelli, S. Lohse, R. Hamers, C. Murphy, R. Klaper
- 401.** Interactions of carbon nanotube polymer nanocomposites with microorganisms. **D. Goodwin**, K. Marsh, H. Fairbrother, E. Bouwer
- 402.** Quantum dot surface modifications for anodic photocorrosion protection during artificial photosynthesis. **D. Grauer**, A. Alivisatos

- 403.** Hybridization with titania change aggregation kinetics of carbon nanotubes. **N. Aich**, W. Rigdon, X. Huang, N. B. Saleh
- 404.** Study of photoinduced electron transfer of tris(phenothiazine) subphthalocyanine-fullerene pentad for light energy harvesting system. **C. B. KC**, G. N. Lim, M. E. Zandler, F. D'Souza
- 405.** Silica/Silicone coated Fe/Fe₃O₄ magnetic nanoparticles (MNP) for multiple applications. **A. S. Yapa**, H. Wang, A. Perera, S. Wendel, H. Alshetaiwi, A. Bosch, J. D. Dorsey, H. Prock, D. Wang, D. L. Troyer, S. H. Bossmann
- 406.** AFM to study Nano/DNA interactions. **K. Li**, S. Du, Y. Chen
- 407.** Influence of tin doping on environmental interactions of nano indium oxides in aqueous systems. **N. B. Saleh**, N. Aich, B. A. Chambers, A. Afrooz, M. Kirisits
- 408.** CeO₂ nanoparticles affect the productivity and nutritional value of rice. **C. M. Rico**, J. Hong, A. C. Barrios, J. R. Peralta-Videa, J. L. Gardea-Torresdey
- 409.** 3D visualization and quantification of gold nanomaterial deposition and aggregation in porous media via Raman spectroscopy. **M. Y. Chan**, W. Leng, P. J. Vikesland
- 410.** Surface coating dependent aggregation kinetics of graphene suspensions. **D. Das**, N. Aich, F. Irin, L. Boateng, J. Flora, M. J. Green, N. B. Saleh
- 411.** Integrated decomposition of perfluorooctanoic acid by palladium doped nanoscale zerovalent iron and common oxidants. **W. A. Lawal**, H. A. Choi
- 412.** Life cycle assessment of graphene coatings for corrosion applications. **V. Gadhamshetty, V. K. Upadhyayula**, N. Koratkar
- 413.** Photocatalytic BTEX degradation by 1D TiO₂ nanomaterials under visible light. H. Nguyen, **B. Deng**
- 414.** Electrocatalytic CO₂ and H₂O reduction by nickel-containing polyoxometalates. **H. Lv**, J. M. Sumliner, W. Guo, Y. V. Geletii, D. G. Musaev, C. L. Hill*
- 415.** Water insoluble polyoxometalates as electrochemical water oxidation catalysts. **J. M. Sumliner**, H. Lv, Y. V. Geletii, C. L. Hill
- 416.** Novel molecular semi-conductor for efficient solar driven water splitting. **J. Mi**, J. Song, Y. Ding
- 417.** Development of characterization factors for nanoparticle life cycle assessment of TiO₂ with USEtox. **T. Cruz**, A. Picado, P. Partidário, R. Heijungs

Section A

Dallas Convention Center
Hall F

Pollutant Transport and Transformation at Mineral-Water Interfaces

Centennial Symposium Series

H. Cheng, K. Shih, *Organizers, Presiding*

6:00 - 8:00

- 418.** Removal of arsenic from aqueous solution by a novel electrospun chitosan/iron oxide hybrid nanofiber membrane. L. Min, Z. Yuan, R. Wu, L. Zhong, **Y. Zheng**
- 419.** Improving oxoanionic metalloid and cationic metal remediation of hydroxyapatite via surface modification. **D. M. Aleto**, B. D. Fisher, H. Bayo, A. N. Quicksall
- 420.** Effective alleviation of phytotoxicity of abandoned mine soil by biochar derived from Giant Miscanthus. **Y. Kim**, J. Kim, W. Hwang, S. Hyun, J. Jung, C. Ryu
- 421.** Identification of oxidative damage in bamboo plants exposed to chromium. **M. Rudolph**
- 422.** Transformations of an herbicide's active (isoxaflutole) and "inert" (cyprosulfamide) ingredients under simulated environmental conditions: Reactions at the solid-water interface. **M. A. Burton**, J. D. Sivey

Section A

Dallas Convention Center
Hall F

Real-Time Water Monitoring of Surface Waters for Drinking Water Supplies

Centennial Symposium Series

H. Pang, J. Gibs, R. Gullick, R. Lippincott, *Organizers*

P. Schorr, *Organizer, Presiding*

6:00 - 8:00

- 423.** *In situ* monitoring of microcystins for the evaluation of harmful algal blooms. **H. Zamankhan Malayeri**, S. Jung, H. Choi
- 424.** Real time water quality and quantity monitoring for regulatory and non regulatory comprehensive water resources management. L. Lippincott, H. Pang, M. Alebus, **P. Schorr**

Section A

Dallas Convention Center
Hall F

Water Reuse in Texas: Integrative Assessment and Management

Centennial Symposium Series

Cosponsored by CEI

B. Brooks, *Organizer, Presiding*

6:00 - 8:00

425. Temporal and spatial distribution of inorganic constituents in the John Bunker Sands wetland. **A. Acharya**, P. S. Watkins, G. P. Cobb

THURSDAY MORNING

Section A

Marriott Dallas City Center
Plaza Blrm B

Nanotechnology for Sustainable Resources and Environmental Science

Catalysts for Solar Fuels

Cosponsored by CEI

J. Mi, J. Song, *Organizers*

A. Proust, C. Hill, *Presiding*

8:00 Introductory Remarks.

8:05 426. Inorganic cells/nanocapsules: Unusual properties like the option to remove toxic materials from water. **A. Müller**

8:35 427. Sensitized p-type photoelectrochemical devices for solar cell and solar fuel production. **F. Odobel**, F. Legalite, Y. Pellegrin, E. Blart, M. Gennari, J. Fortage, M. Collomb, A. Deronzier

8:55 428. Photoactive hybrid polyoxometalates for charge photoaccumulation and hydrogen photocatalytic evolution. **G. Izzet**, B. Matt, V. Artero, A. Proust

9:15 429. Stability of catalytic systems based on polyoxometalates for water oxidation. **Y. V. Geletii**, J. M. Sumliner, H. Lv, J. W. Vickers, G. Zhu, D. G. Musaev, C. L. Hill

9:35 Intermission.

9:50 430. In situ catalysis studies using synchrotron scattering, diffraction, and spectroscopy. **T. Li**, R. E. Winans, B. Lee, S. E. Karwal, B. O'Neill, J. A. Dumesic, J. W. Elam

10:10 431. Implementing bio-inspired nickel-based nanocatalysts for hydrogen uptake in a PEMFC. N. Huan, R. Jane, P. Tran, **V. Artero**, A. Morozan, F. Valentino, **P. Chenevier**, B. Jousset, S. Archambault, P. Jacques, A. Martinet, J. Heidkamp, H. Dau

10:30 432. Electrocatalytic and photocatalytic water oxidation by Prussian blue based coordination polymers. **J. Galan-Mascaros**, W. Y. Hernández, S. Pintado, B. Rodríguez-García, S. Goberna-Ferrón

10:50 Concluding Remarks.

Section B

Marriott Dallas City Center
Somerset

Green Chemistry and the Environment

Centennial Symposium Series

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

8:00 433. Lignocellulosic biomass as potential substrate for white biotechnology. **J. Venus**

8:30 434. Biorefinery development based on sunflower-based biodiesel industry by-products for the production of microbial oil and value-added products. D. Leiva-Candia, S. Tsakona, N. Kopsahelis, I. Lopez Garcia, S. Papanikolaou, M. P. Dorado, **A. Koutinas**

8:55 435. Simultaneous adsorption of lead (II) and methylene blue from aqueous solution by activated carbon prepared from plaintain peels. **E. Inam**, E. Akpabio, U. Etim

9:20 436. Pretreatment of pulp and paper industry by-product stream for the production of liginosulphonates and succinic acid. **C. Pateraki**, A. Koutinas, M. Alexandri, D. Ladakis, H. Papapostolou, A. Vlysidis, S. Papanikolaou

9:45 Intermission.

9:55 437. Cleaner, faster and more efficient synthesis using solid-state chemistry and mechanochemistry. **T. Friscic**

10:25 438. Green C-alkylation of N-heterocycles with direct C-H activation in continuous flow. **R. Jones**, M. Fekete, T. Sipócz, L. Kocsis, G. Dormán, F. Darvas

10:50 439. Adding value to food waste: From chemicals to materials and fuels via green chemical methods. **R. Luque**

11:15 440. Low voltage pulsed electric field device for drinking water disinfection. **K. Lam**, P. Hung, O. Lee, S. Kwan, J. Kwan, K. Yeung

11:40 441. Ultrasonic-chitosan enhanced flocculation of algal turbid waters. S. Fast, **V. Gude**

Section C

Marriott Dallas City Center
Bordeaux

Real-Time Water Monitoring of Surface Waters for Drinking Water Supplies

Centennial Symposium Series

H. Pang, J. Gibs, P. Schorr, R. Lippincott, *Organizers*

R. Gullick, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 442. In situ monitoring of nitrate from agricultural fields to estuaries. **C. Koch**

9:00 443. On-line water quality monitors challenges and progress in producing useful data. **J. S. Rosen**

9:25 444. Temporally dynamic representation of continuous monitor data through animated graphing. **P. Schorr**, J. Yagecic

9:50 Intermission.

10:05 445. Analytical equipment used for real time monitoring, installation, calibration and data transmission. J. Gibs, P. Schorr, **L. Bodkin**

10:30 446. Real time equipment. **C. Koch**

10:55 447. Permitting, financing, design and operation of multiparameter multipoint "real time" water quality and quantity observing stations in Louisiana and New Jersey. **P. Schorr**

11:20 448. Water footprint assessment of Sabanci University. **A. Yurdusen**, Y. Yurum

11:45 Panel Discussion.

12:00 Concluding Remarks.

Nanostructured Materials for Solar Energy Conversion and Storage

Recent Advances in Solar Energy Conversion

Sponsored by ENFL, Cosponsored by CEI and ENVR

Two-Dimensional Materials for Energy and Fuel

Chemistry and Physics

Sponsored by ENFL, Cosponsored by ENVR

THURSDAY AFTERNOON

Section A

Marriott Dallas City Center
Plaza Blrm B

Nanotechnology for Sustainable Resources and Environmental Science

Nanostructured Thin Films for Solar Energy Conversions

Cosponsored by CEI

J. Mi, *Organizer*

J. Song, *Organizer, Presiding*

D. Guldi, Y. Chen, *Presiding*

1:30 Introductory Remarks.

1:35 449. Photo-assisted catalyst growth and water splitting at the metal oxide/molecule interface. **F. N. Castellano**

2:05 450. Welding of titanium dioxide on carbon nanotubes for photocatalytic hydrogen production. **C. Na**, G. Krylova, M. Li

2:35 451. Bioinspired electrets for solar-energy conversion. **V. I. Vullev**, J. M. Larsen, F. Botero, M. Wurch

2:55 452. Triboelectric nanogenerator for self-powered systems and active sensor networks. **L. Lin**, S. Wang, Z. L. Wang

3:15 Intermission.

3:30 453. Reconstruction of adsorption potential in polanyi-based models and application to various adsorbents. B. Pan, **H. Zhang**

3:50 454. Light harvesting supramolecular porphyrin-nanocarbon donor-acceptor hybrids. **F. D'Souza**

4:10 455. Single-walled carbon nanotube liquid crystals and fibers from carbon nanotube polyelectrolyte solutions. **A. A. Martí**, C. Jiang

4:30 456. Effects of electronic structures of metallic nanoparticles on photogeneration of reactive oxygen species and antibacterial activity. **W. Zhang**, Y. Li, J. Niu, Y. Chen

4:50 457. Optimization of reverse electrodialysis for salinity gradient power generation: Development of process-based model and synthesis of novel nanocomposite ion-exchange membranes. **J. Hong**, W. Zhang, J. Luo, Y. Chen

5:10 Concluding Remarks.