

# Draft Final Program, 245<sup>th</sup> ACS National Meeting New Orleans, LA -- April 7-11, 2013

## ENVR

### DIVISION OF ENVIRONMENTAL CHEMISTRY

S. Al-Abed, *Program Chair*

#### SUNDAY MORNING

Section A

New Orleans Downtown Marriott at the Convention Center  
River Bend 2

#### **Chemistry and Applications of Advanced Oxidation Processes for Removal of Contaminants of Emerging Concern** **Oxidative Transformations and the Removal of Contaminants of Emerging Concern**

S. Canonica, K. O Shea, *Organizers*  
D. Dionysiou, G. Li Puma, *Organizers, Presiding*  
W. Cooper, *Presiding*

**8:30** Introductory Remarks.

**8:35 1.** Quantitative structure-activity relationships (QSARs) for the assessment of oxidative transformation of micropollutants: Options and limitations. **U. von Gunten**, Y. Lee

**9:05 2.** Benzotriazoles: Reactivity toward UV-C light and the hydroxyl radical, and removal by the UV/H<sub>2</sub>O<sub>2</sub> process. **S. Canonica**, S. Bahn Müller, C. Loi, C. A. Joll, K. L. Linge, U. von Gunten

**9:25 3.** Mechanistic insights in peroxy radical formation and degradation and associated reaction rate constants prediction in aqueous phase advanced oxidation processes. **D. Minakata**, S. P. Mezyk, J. Jones, J. C. Crittenden

**9:45 4.** Computer assisted pathway generation for atrazine degradation in advanced oxidation processes. **F. Zeng, K. Li**, X. Li

**10:05 5.** Electron density-driven reactions underpin the oxidative coupling of 17 $\beta$ -estradiol. **W. F. Harper**, W. Barr, W. Cheng

**10:25** Intermission.

**10:40 6.** UV-visible photocatalytic degradation of 17 $\beta$ -estradiol and estrogenic activity assessment. V. Maroga-Mboula, **V. Hequet**, Y. Andres, Y. Gru, R. Colin, J. Dona Rodriguez, L. Pastrana Martinez, A. Silva, P. Falaras

**11:00 7.** Photodegradation of natural and synthetic estrogens: Estrone (E1), 17 $\beta$ -estradiol (E2), 17 $\alpha$ -ethynylestradiol (EE2) and estriol (E3) by advanced oxidation processes. N. B. Parilti, **G. Li Puma**

**11:20 8.** Kinetic and mechanical aspects of the destruction of cyanobacterial toxin cylindrospermopsin by UV-254 nm-mediated advanced oxidation processes. X. He, A. A. de la Cruz, **D. D. Dionysiou**

**11:40 9.** Green tide inactivation with layered-structure cuboids of Ag/CaTiO<sub>3</sub> under UV light. L. Lozano-Sánchez, S. Lee, **V. Rodríguez-González**

Section B

New Orleans Downtown Marriott at the Convention Center  
Mississippi Queen

#### **Nexus of Food, Energy and Water**

Cosponsored by AGFD and CEI

Financially supported by Global Innovation Imperatives

S. Ahuja, *Organizer, Presiding*

**8:00 10.** Nexus of water, food, and energy. **S. Ahuja**

**8:20 11.** Materials for dye-sensitized solar cells. **Y. H. Hu**

**8:50 12.** One century of water quality monitoring and assessment for sustainable development. **D. N. Myers**

**9:10 13.** Destroying pharmaceutical activity in water: How much energy is enough? **S. P. Mezyk**

**9:30 14.** Chemistry at the interface: Chemical transformations at the air-water interface. F. S. Ehrenhauser, A. A. Heath, T. P. Liyana-Arachchi, M. J. Wornat, F. R. Hung, P. R. Herckes, **K. T. Valsaraj**

**9:50** Intermission.

- 10:00 15.** Development of the data utility in 2025: Water, energy, and all community data services under one utility. **D. Bromley**
- 10:20 16.** Food-water nexus: Irrigation water quality, risks to food safety, and the need for a systems-based approach. **R. Gelting**, M. Baloch
- 10:40 17.** Impact of coal combustion residues on water quality. **L. S. Ruhl**, A. Vengosh, G. S. Dwyer, H. Hsu-Kim, G. E. Schwartz
- 11:00 18.** Water management for hydraulic fracturing: An analysis of the key water chemistry considerations. **N. Mehta**, F. O. Sullivan
- 11:20 19.** Sustainability in foods and food production cycles: Role of peer-reviewed science. **J. N. Seiber**, L. Kleinschmidt
- 11:40 20.** Beyond the brink. **J. Thebaut**, S. Ahuja

## Section C

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern F

### **Carbon Dynamics and the Biogeochemical Cycling of Major and Minor Elements**

Cosponsored by GEOC

E. J. O'Loughlin, M. McCormick, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 21.** Increased sedimentation and altered nutrient cycling in the aftermath of the Macondo oil well blowout. **S. B. Joye**, M. Crespo-Medina, K. Hunter, V. Asper, A. Diercks, U. Passow, J. Montoya, C. Benitez-Nelson, W. Moore, A. Demopoulos, R. Highsmith

**8:25 22.** Biogeochemistry of carbon, heavy metals, and trace elements in the Grand Bay National Estuarine Research Reserve. J. McComb, **F. X. Han**, P. B. Tchounwou

**8:45 23.** Non-resonant inelastic X-ray scattering to analyze carbon chemistry in unaltered samples. B. Mishra, E. J. O'Loughlin, J. Jastrow, M. Balasubramanian, **K. M. Kemner**

**9:05 24.** Chlorine and sulfur cycling in permafrost profiles. **R. L. Sanders**, S. B. Hodgkins, T. C. Onstott, L. G. Whyte, J. P. Chanton, S. C. Myneni

**9:25 25.** Coupled biogeochemical cycles. **W. H. Schlesinger**

**10:05** Intermission.

**10:25 26.** Mineralogical constraints on iron cycling and microbial activity at the mineral-water interface. **C. M. Hansel**, C. J. Lentini, Y. Tang

**10:45 27.** Dissimilatory reduction and transformation of ferrihydrite-natural organic matter co-precipitates. **T. Borch**, M. Shimizu, J. Zhou, M. Obst, C. Schröder, M. Zhu, A. Kappler

**11:05 28.** Hard X-ray fluorescence microscopy techniques for investigations of aquatic systems of soil colloids. **S. C. Gleber**, B. Weinhausen, J. D. Ward, S. Köster, S. Vogt

**11:25 29.** Geochemical explanation for the prevalence of sulfur reduction among nominally iron-reducing bacteria. **T. M. Flynn**, E. J. O'Loughlin, K. M. Kemner

**11:45 30.** Composition and spatial distribution of organic matter in soil: Analysis with FTIR-microscopy. **M. C. Hernandez-Soriano**, B. Kerre, E. Smolders

**12:05** Concluding Remarks.

## Section D

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern E

### **Sorption Reversibility of Organic and Inorganic Pollutants in Natural Solids: The Elephant in the Room?**

#### **Gaining a Mechanistic Understanding of Desorption Resistance and Quasi-Reversibility**

Cosponsored by COLL and GEOC

J. Pignatello, *Organizer*

S. Uchimiya, *Organizer, Presiding*

**8:00** Introductory Remarks.

**8:05 31.** Sorption reversibility: Introduction and perspective. **J. J. Pignatello**

**8:40 32.** Chemical nature of adsorption reversibility: Impact to thermodynamic theories and new adsorption phenomena. **G. Pan**

**9:15 33.** Surface precipitation mechanisms and their role in metal sequestration in natural environments. **D. L. Sparks**

**9:50** Intermission.

**10:10 34.** Sorption-desorption of organic contaminants on carbon nanomaterials. **B. Xing**

- 10:45 35.** Reversibility of particle retention with transients in solution chemistry. **S. A. Bradford**, S. Torkzaban
- 11:20 36.** Detection of plasticization and swelling by advanced solid-state NMR spectroscopy. **X. Cao**, C. Latta, J. Mao, J. Pignatello, K. Schmidt-Rohr
- 11:40 37.** Sorption reversibility of organic acids by kaolinite and gamma alumina. **D. M. Bailey**, M. J. Kelley

Section E

New Orleans Downtown Marriott at the Convention Center  
Delta Queen

### **Food and Its Environment: What Is In What We Eat?**

Cosponsored by AGFD and CEI

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

**8:30** Introductory Remarks.

**8:35 38.** Trends of persistent organic and emerging pollutants in Great Lakes fish. **J. J. Pagano**, B. S. Crimmins, X. Xia, P. K. Hopke, M. S. Milligan, T. M. Holsen

**9:00 39.** Manganese and zinc in rice: Unconscious intake of essential elements through non-dietary food sources. **T. Tongesayi**, C. Brock, P. Fedick, L. Lechner, C. Bray

**9:25 40.** Analysis of various edible clay supplements and protein powders via energy dispersive X-ray fluorescence spectrometry. **N. H. Stroeters**, **J. L. LaBond**, E. S. Roberts-Kirchhoff, M. A. Benvenuto

**9:50 41.** US Food and Drug Administration regulation of color additives in food. **J. N. Barrows**

**10:15** Intermission.

**10:30 42.** Food packaging: Strategies for rapid phthalate screening in real time by ambient ionization tandem mass spectrometry. **E. Crawford**, J. Horner, C. Crone

**10:55 43.** Energy dispersive X-ray fluorescence and NMR studies of the composition of patent medicines and nostrums archived at the Henry Ford Museum. **A. Diefenbach**, D. M. Garshott, E. MacDonald, T. Sanday, M. Fahey, **M. A. Benvenuto**

**11:20 44.** Inadvertent exposure of chemical toxicants to humans through food: A case for cadmium and lead in rice. **T. Tongesayi**

**11:45** Concluding Remarks.

### **Applied Nanotechnology for Food and Agriculture**

Sponsored by AGFD, Cosponsored by ENVR

### **Approaching the Surface: Interrogating Chemical Interactions at the Mineral-Water Interface**

Sponsored by GEOC, Cosponsored by COLL and ENVR

### **Chemical Pictures of Environmental Interfaces: Advances in Molecular-Level Understanding and**

### **Quantitative Analysis of Species**

Sponsored by COLL, Cosponsored by ENVR

## **SUNDAY AFTERNOON**

Section A

New Orleans Downtown Marriott at the Convention Center  
River Bend 2

### **Chemistry and Applications of Advanced Oxidation Processes for Removal of Contaminants of Emerging Concern**

### **Mechanisms of Molecular Free Radicals Attack on Emerging Contaminants and Viruses**

G. Li Puma, K. Oshea, S. Canonica, *Organizers*

D. Dionysiou, *Organizer, Presiding*

V. HEQUET, *Presiding*

**1:30 45.** Advances in our understanding of the free radical chemistry of diclofenac and trimethoprim. **W. J. Cooper**, W. Song

**2:00 46.** Singlet oxygen-mediated photodegradation of dissolved combined amino acids (DCAAs). **R. A. Lundeen**, K. McNeill

**2:20 47.** Advanced oxidation of cylindrospermopsin (cyanobacterial toxin): Mechanistic and practical considerations. **K. O'Shea**, C. Zhao, D. D. Dionysiou, M. Pelaez, W. Song, J. A. Byrne, S. C. Pillai

- 2:40 48.** Water purification from organic pollutants and off-odor compounds using UV-vis light in the presence of polyoxometalates. T. E. Fotiou, T. M. Triantis, T. S. Kaloudis, E. Papaconstantinou, **A. E. Hiskia**
- 3:00 49.** Polyoxometalate-catalyzed oxidation of organic compounds using different oxidants. **B. Yang**, J. J. Pignatello, D. Qu
- 3:20** Intermission.
- 3:35 50.** Inactivation of human adenovirus by UV and singlet oxygen as examined by quantitative protein mass spectrometry. F. Bosshard, F. Armand, R. Hamelin, **T. Kohn**
- 4:05 51.** Sunlight-induced inactivation of human and porcine rotavirus in the presence of different sensitizers. O. Romero-Maraccini<sup>1</sup>, N. J. Sadik, C. R. Pugh, X. Niu, J. Croue, **T. H. Nguyen**
- 4:25 52.** Photocatalytic oxidation for inactivation of human adenovirus: Impact of ROS type and mechanism of inactivation. **M. V. Liga**, Y. J. Tao, P. J. Alvarez, Q. Li
- 4:45 53.** Transformation of  $\beta$ -blockers by photosensitized hydroxyl radical, singlet oxygen, and triplet states dissolved organic matter in NOM enriched solutions. **X. Niu**, C. Liu, T. H. Nguyen, J. Croue
- 5:05 54.** Persistence of *Bacteroides ovatus* under simulated sunlight in the presence of algal natural organic matters: A molecular-based approach. **S. Dong**, P. Hong, T. Nguyen

Section B

New Orleans Downtown Marriott at the Convention Center  
Mississippi Queen

### Energy Recovery from Waste: Technological and Environmental Issues

Cosponsored by CEI

K. Fenlon, *Organizer*

S. Al-Abed, K. Kawamoto, *Organizers, Presiding*

K. Fenlon, *Presiding*

**1:30** Introductory Remarks.

**1:35 55.** Energy recovery from waste: Technological and environmental issues. **K. Kawamoto**

**1:55 56.** Use of spent agricultural plastic to produce biochar from animal manures. **K. S. Ro**, P. G. Hunt, K. B. Cantrell, S. R. Yates, M. Jackson, D. Compton

**2:15 57.** Conversion of food waste to valuable energy sources via hydrothermal carbonization. **L. Li**, J. R. Flora, N. D. Berge

**2:35 58.** Multiple byproduct pathways for olive mill waste mitigation: Pyrolysis and combustion of supercritical CO<sub>2</sub> extracted biomass. **J. L. Goldfarb**, L. Buessing

**2:55 59.** Comparing the biogas yield of different biodegradable materials: Nigerian experience. **O. O.**

**Adetule**

**3:15** Intermission.

**3:30 60.** Development of a grease-to-fuel technology for producing an alternative to low-sulfur fuel oil. **H. Kuramochi**, T. Kobayashi, K. Fukui, K. Maeda, M. Osako

**3:50 61.** Energy recovery from organic waste via low voltage electrooxidation. **J. Baltusaitis**, W. Cheng, N. Singh, J. Maciá-Agulló, G. D. Stucky, E. McFarland

**4:10 62.** Extracting electron from food waste for drinking water treatment. **D. Belanger**, K. Fischbach, **C. R. Azevedo**, **S. Sarsembayeva**, **J. Kilduff**, **V. Gadhamshetty**

**4:30 63.** Beneficial reuse of coal combustion products: Environmental benefits and determining risk. **K. A. Fenlon**, N. Koralegedara, S. Al-Abed

**4:50 64.** Bioremediation of organic contaminants for energy production. **V. Gadhamshetty**, **W. Willner**, M. Nyman, A. P. Hynes

**5:10 65.** Environmental friendly conditions for a versatile conversion of biomass-derived wastewater compounds under supported TiO<sub>2</sub> photocatalysts. **J. Colmenares Quintero**, A. Magdziarz

**5:30** Concluding Remarks.

Section C

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern F

### Nanotoxicity and Human Health Risk: Relevance to Environmental Chemistry and Fate

S. Hussain, A. Allen, *Organizers, Presiding*

**1:30** Introductory Remarks.

**1:35 66.** Fulvic acid mitigated CuO nanoparticle-induced bacteria toxicity. **J. Zhao**, Z. Wang, B. Xing

**1:55 67.** Adsorption of bovine serum albumin on functionalized carbon nanotubes. **P. Du**, J. Zhao, B. Xing

**2:15 68.** Dynamic aggregation and fractal structure determination of gold nanoparticles in biological media conditions. **N. B. Saleh**, S. M. Hussain, A. Afrooz

- 2:35 69.** Life cycle approach for understanding risk of nanoscale materials in advanced technologies. **J. Steevens**, M. Bates, A. Bednar, M. Chappell, A. Kennedy, R. Moser, A. Poda, C. Weiss  
**2:55** Intermission.
- 3:15 70.** Evaluating the toxicity of titanium dioxide nanotubes and nanorods in human nasal cells: Microfluidic dispersion. **L. L. Kerr**, T. Tilly, H. Jiang, L. Braydich-Stolle, S. Hussain
- 3:35 71.** Effect of washing on antimicrobial properties of textiles containing nanosilver particles. **J. Virkutyte**, S. R. Al-Abed, M. Turner, D. Meyer
- 3:55 72.** Bioavailability of silver nanoparticles in artificial physiological fluids: Coating and pH impact on degree of ionic dissociation. **L. K. Braydich-Stolle**, E. Breitner, E. Maurer, B. Stacy, S. Hussain
- 4:15 73.** Separation and characterization of nanostructures in feminine hygiene products. **J. Lim**, P. C. Howard, S. W. Linder
- 4:35 74.** Modeling of lipid bilayers using first principles method. **C. Liu**, R. Pandey, S. Carna, S. Hussain
- 4:55** Concluding Remarks.

Section D

New Orleans Downtown Marriott at the Convention Center  
 Blaine Kern E

### **Sorption Reversibility of Organic and Inorganic Pollutants in Natural Solids: The Elephant in the Room?**

#### **Modeling Resistant/Reversible Fractionation and the Sorption Process Itself**

Cosponsored by COLL and GEOC

S. Uchimiya, *Organizer*

J. Pignatello, *Organizer, Presiding*

- 1:30 75.** Application of analytical microscopy techniques for the elucidation of modes of sorption. **T. Gocht**, M. A. Wahl, M. Obst
- 2:05 76.** Partitioning of munitions constituents to soil. R. Gonzalez, A. Miglino, D. M. Di Toro, **H. E. Allen**
- 2:25 77.** Site transformation model of adsorption-desorption hysteresis. **D. M. Di Toro**
- 3:00 78.** Phenanthrene sorption with different organic matter fractions from a same soil: Role of structure and conformation. **K. Sun**, J. Jin, M. Kang, D. Xu, B. Gao
- 3:20** Intermission.
- 3:35 79.** Effects of exogenous DOM on binding reversibility of polar organic pollutants. **B. Chefetz**, A. Oren, H. Haham, R. Navon
- 4:10 80.** Characterization of pesticide sorption reversibility in soil. **W. C. Koskinen**
- 4:45 81.** Herbicide sorption/desorption by biochars produced from traditional kiln and low-cost gasifier systems: Applications in sustainable decentralized water treatment for developing communities. **J. Kearns**, K. Shimabuku, R. Noikaew, S. Niamjan, N. Reents, E. Mansfield, D. Rutherford, H. McLaughlin, D. Knappe, R. S. Summers
- 5:05 82.** Poly-parameter linear free energy relationships and predictive models for the adsorption of aromatic compounds onto solid adsorbents based on phase-conversion analysis: Polymeric adsorbents as a case study. B. Pan, **H. Zhang**
- 5:25 83.** Biosorption characterization of sunflower seed hull for decolonization of Azure A chloride dye contaminated solutions. **G. B. Oguntimein**

#### **Applied Nanotechnology for Food and Agriculture**

Sponsored by AGFD, Cosponsored by ENVR

#### **Chemical Pictures of Environmental Interfaces: Advances in Molecular-Level Understanding and Quantitative Analysis of Species**

Sponsored by COLL, Cosponsored by ENVR

#### **Redox Processes at Mineral-Water Interfaces and their Impacts on Metal Biogeochemical Cycling and Contaminant Remediation**

Sponsored by GEOC, Cosponsored by ENVR

New Orleans Downtown Marriott at the Convention Center  
River Bend 2

### Chemistry and Applications of Advanced Oxidation Processes for Removal of Contaminants of Emerging Concern

#### Technological Applications of AOPs for Removal of Emerging Contaminants

G. Li Puma, D. Dionysiou, S. Canonica, *Organizers*  
K. Oshea, *Organizer, Presiding*  
D. Sannino, *Presiding*

- 8:30 84.** Advanced treatments (solar AOPs and nanofiltration) for elimination of micropollutants in municipal wastewater treatment plant effluents. **S. Malato**, I. Oller, A. Agüera, L. Prieto, S. Miralles
- 9:00 85.** Removal of emerging micropollutants during UV-C and UV-A/TiO<sub>2</sub> disinfection. **J. Marugán**, R. van Grieken, C. Pablos
- 9:20 86.** Urban wastewater disinfection by heterogeneous photocatalysis: Effect of different light sources and TiO<sub>2</sub> loadings on a multi drug resistant *Escherichia coli* strain. **L. Rizzo**, A. Della Sala, A. Fiorentino, G. Li Puma
- 9:40 87.** Engineering aspects of solar water detoxification systems for the removal of estrogens, antibiotics, and other contaminants of emerging concern. **G. Li Puma**, I. Oller, J. Colina Marquez, M. A. Mueses, A. Agüera, F. Machuca-Martínez, S. Malato
- 10:00 88.** Evaluation of organic micropollutants in water regeneration processes. **A. Agüera**, M. Gómez, M. Martínez Bueno
- 10:20** Intermission.
- 10:35 89.** Development of a continuous flow arsenic removal system using solar oxidation. **L. W. Gill**, C. O'Farrell
- 10:55 90.** Advanced oxidation processes for the degradation of CCL<sub>3</sub> compounds: Assessment of the toxicity of transformation products. **H. Mestankova**, N. Bramaz, K. Schirmer, S. Canonica, U. von Gunten, K. G. Linden
- 11:15 91.** Highly efficient bismuth-based photocatalyst for the degradation of pharmaceuticals under solar light irradiation. **Y. Lester**, H. Mamane, D. Avisar
- 11:35 92.** Assessment of UV/H<sub>2</sub>O<sub>2</sub> advanced oxidation process on degradation of veterinary ionophore antibiotics. **P. Sun**, H. Yao, D. Minakata, J. Crittenden, C. Huang

New Orleans Downtown Marriott at the Convention Center  
River Bend 1

### Occurrence, Detection, Fate and Removal of Pharmaceutical and Personal Care Products in Potable Water Sources

Cosponsored by CEI  
A. Hernandez, L. Blaney, *Organizers, Presiding*

- 8:00** Introductory Remarks.
- 8:05 93.** High resolution mass spectrometry (LC/Q-TOF-MS) for the detection of pharmaceuticals in water. **I. Ferrer**, M. Thurman
- 8:30 94.** Occurrence and removal of emerging contaminants in drinking water in California. **G. Loraine**
- 8:50 95.** Trends in attention deficit hyperactivity disorder (ADHD) drug use on a college campus as evidenced through wastewater analysis. **D. A. Burgard**, R. Fuller, B. Becker, R. Ferrell, M. J. Dinglasan-Panlilio
- 9:10 96.** Regional and seasonal profiling of selected pharmaceuticals, stimulatory drugs, pesticides, and their metabolites in local water bodies by SPE-HPLC-QqQ and UPLC-QTOF analysis. **S. Madireddy**, V. Bodeddula, M. J. Wells, J. O. Boles
- 9:30 97.** Detection of 17 $\beta$ -estradiol in drinking water sources using DNA aptamer-based electrochemical detection. **X. Xu**, S. Akki, S. Silverman, C. J. Werth
- 9:50** Intermission.
- 10:05 98.** Evaluation of temporal influence on bioaccumulation of contaminants of emerging concern in aquatic organisms in estuaries along the Gulf of Mexico. **B. Du**, K. A. Connors, W. C. Scott, L. A. Kristofco, C. Breed, B. Byars, C. K. Chambliss, B. W. Brooks

- 10:25 99.** So many PPCPs, which to study? A systematic approach to select representative compounds for water treatment studies. X. Jin, **S. Peldszus**
- 10:50 100.** Quantitative structure-property relationships (QSPR) to predict removal of EDCs/PPCPs in water treatment processes. **A. R. Kennicutt**, L. Morkowchuk, J. E. Kilduff, C. M. Breneman
- 11:10 101.** On-line SPE coupled to LC MS/MS for rapid, sensitive, and simultaneous analysis of multiple PPCPs in water. **T. Anumol**, S. Merel, S. A. Snyder
- 11:30 102.** Detection and quantification of antidepressants in aqueous matrices. **K. J. Chodara**, J. McIntosh, M. Gettle, D. G. Sykes

Section C

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern F

## **Transformative Nanotechnologies: Energy and Environment, Solutions and Challenges**

### **Water Treatment**

D. Plata, J. Fortner, B. Lafferty, *Organizers, Presiding*

- 8:00** Introductory Remarks.
- 8:05 103.** Iron redox in a carbon nanotube electrochemical filter. **C. D. Vecitis**, M. H. Schnoor
- 8:35 104.** Effect of competing anions on arsenic removal via magnetite nanoparticles. **B. B. Karakocak**, A. Terenyi, A. Martahus, J. D. Fortner, O. Yenigun
- 8:55 105.** Nanoporous graphene as a water desalination membrane: How would it work in practice? **D. Cohen-Tanugi**, J. C. Grossman
- 9:15 106.** Influence of nanoporous thin-film coatings of SiO<sub>2</sub> or Al<sub>2</sub>O<sub>3</sub> on carbon electrodes for electrosorption in capacitive deionization. **J. J. Wouters**, J. J. Lado, I. Tejedor-Tejedor, M. A. Anderson
- 9:35** Intermission.
- 9:50 107.** Conducting polymer nanodispersion (CPND) as the next generation anti-corrosion pigment. **S. Wang**, J. Wang
- 10:10 108.** Integration of stable carbon nanotube mats on the inner surface of hollow fiber membranes for enhanced water purification. **M. Lahr**, B. Teychene, H. Huang, K. Schwab, H. Fairbrother
- 10:30 109.** Self-supporting carbon nanotube particulates for contaminant sorption. **H. Wang**, H. Ma, C. Na
- 10:50 110.** Evaluating the capacity of conventional water treatment for removal of TiO<sub>2</sub> nanoparticles. **R. J. Honda**, S. L. Walker

Section D

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern E

## **Sorption Reversibility of Organic and Inorganic Pollutants in Natural Solids: The Elephant in the Room?**

### **Implications of Quasi-Reversibility on Partitioning and Bioavailability in the Field**

Cosponsored by COLL and GEOC

S. Uchimiya, J. Pignatello, *Organizers, Presiding*

- 8:00 111.** Non-equilibrium sorption of flutriafol and its effect on predicted environmental concentrations. **Q. Ma**, R. Reiss, P. Whatling
- 8:20 112.** Using passive samplers to assess porewater-sediment equilibration of PCBs at a site with surface water infiltration. **J. N. Apell**, J. MacFarlane, P. M. Gschwend
- 8:40 113.** Adsorption of sulfamethoxazole on biochar and its impact on reclaimed water irrigation. **Y. Yao**, B. Gao, H. Chen
- 9:00 114.** Sorption and desorption of glyphosate on Australian soils cultivated with genetically modified canola. K. Nahar, **R. Niven**, S. Pearson, K. Badek, H. Riesen, A. Mokhlesur Rahman
- 9:20 115.** Sorption and desorption of testosterone on different soil particle fractions. **Y. QI, T. Zhang**
- 9:40 116.** Trace element sorption reversibility and bioavailability during earthworm and plant bioassays. **N. T. Basta**
- 10:00** Intermission.
- 10:15 117.** Rate of fixation by frayed-edge site controls transfer of radiocesium from soil-to-rice plant. **N. Yamaguchi**, H. Tsukada, A. Takeda
- 10:35 118.** Biochar-attenuated desorption of heavy metals in small arms range soils. **S. M. Uchimiya**, D. I. Bannon
- 10:55 119.** Adsorption, desorption, and diffusion of heavy metals across a regenerated cellulose membrane. T. Zhang, J. Stansbury, M. Moussavi, D. Richter-Egger, **M. Klein**

**11:15 120.** Recapture and reuse of methyl bromide on activated carbon. **W. A. Hall, 4th**, S. Walse  
**11:35 121.** PCB sorption-mediated bed sediment-to-water flux estimations by congener, space, and time. **N. L. Howell**, H. S. Rifai  
**11:55 122.** Water column partition modeling: Distinctions between PCDD/Fs and PCBs using different natural organic matter and black carbon sorbents. **N. L. Howell**, H. S. R  
**12:15** Concluding Remarks.

Section E

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern B

### **Sustainable Energy, Food Risk and Emerging Pollutants: Expect the Unexpected**

Cosponsored by AGFD and CEI

E. Lichtfouse, J. Schwarzbauer, A. Cheronet, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 123.** Chemical policy in the 21st century: Sustainability and risk. **K. Matus**

**8:25 124.** Fate of radiolabelled <sup>14</sup>C-microcystin-LR in irrigated terrestrial model ecosystem. **S. Corbel**, N. Bouaicha, C. Mougin

**8:45 125.** Fate of chemical warfare agents in municipal wastewater treatment systems. **L. Racz**, S. Willison, M. Magnuson, S. J. Schuldt, E. Walters, A. Janeczko

**9:05 126.** Chemical speciation of organotin compounds in seawater from Cape Town Harbour, South Africa: Seasonal variations and their toxicity effects. **O. S. Fatoki**, H. K. Okoro, F. A. Adekola, B. J. Ximba, R. G. Snyman

**9:25 127.** Organic contaminant burden in water and sediment from Jakarta Bay, Indonesia, and its implication for seafood consumption. **L. Dsikowitzky, J. Schwarzbauer**, D. Dwiyoitno

**9:45** Intermission.

**10:00 128.** Toxicity of cyanobacterial microcystins on biological activity of soil and growth of the tomato *Solanum lycopersicum* var. MicroTom. **S. Corbel**, N. Bouaicha, C. Mougin

**10:20 129.** Uptake and translocation of engineered nanoparticles in plants. **B. Xing**

**10:40 130.** Novel cellular screening system for nanoparticle safety testing. **D. W. Bahnemann**, F. Sambale, F. Stahl, T. Scheper

**11:00 131.** High impact articles in *Environmental Chemistry Letters* and *Agronomy for Sustainable Development*. **E. Lichtfouse**, D. Millot, M. Hamelin

**11:20** Concluding Remarks.

### **Analytical Chemistry of the Deep-Water Horizon Spill**

Sponsored by ANYL, Cosponsored by ENVR

### **Applied Nanotechnology for Food and Agriculture**

Sponsored by AGFD, Cosponsored by ENVR

### **Chemical Pictures of Environmental Interfaces: Advances in Molecular-Level Understanding and**

### **Quantitative Analysis of Species**

Sponsored by COLL, Cosponsored by ENVR

## **MONDAY AFTERNOON**

Section A

New Orleans Downtown Marriott at the Convention Center  
River Bend 2

### **Chemistry and Applications of Advanced Oxidation Processes for Removal of Contaminants of Emerging Concern**

### **Photocatalysis and Applications**

G. Li Puma, D. Dionysiou, K. Oshea, *Organizers*

S. Canonica, *Organizer, Presiding*

L. Rizzo, s. MALATO, *Presiding*

**1:30 132.** On the mechanism of the photoactivity under visible light of N-doped titanium dioxide (TiO<sub>2</sub>). S. Livraghi, M. Paganini, **E. Giamello**

**2:00 133.** Visible light activated (VLA) TiO<sub>2</sub> photocatalysis of 6-hydroxymethyl uracil as a model compound for the cylindrospermopsin. **C. Zhao**, M. Pelaez, D. D. Dionysiou, S. C. Pillai, J. A. Byrne, K. O'Shea



**2:20 134.** Rapid solar photocatalytic disinfection of water using graphene-titania composites. **P. Fernandez-Ibanez**, M. I. Polo-López, S. Wadhwa, J. W. Hamilton, R. D'Sa, M. Pelaez, J. A. Byrne, K. O'Shea, D. D. Dionysiou  
**2:40 135.** Photocatalytic removal of spiramycin from wastewater with visible active photocatalysts. **D. Sannino**, O. Sacco, V. Vaiano, P. Ciambelli  
**3:00 136.** Degradation of the organic pollutants (dyes and drugs) in an aqueous system using TiO<sub>2</sub> nanomaterials and UV-simulated sunlight: An extended kinetic study. **E. F. Pino**, M. V. Encinas  
**3:20** Intermission.  
**3:35 137.** Solar photocatalysis of domestic greywater using TiO<sub>2</sub>-coated textile fibers: Hair colorants issue. **I. Grčić**, D. Vrsaljko, S. Papić, N. Koprivanac  
**3:55 138.** Biologically inspired synthesis of a photocatalytically active membranes for water treatment. **N. Kinsinger**, A. Dudchenko, K. Nelson, C. Alcaraz, N. Dakak, D. Li, D. Kisailus  
**4:15 139.** Role of platinum oxide TiO<sub>2</sub> for the degradation of phenol under simulated solar light irradiation. **H. S. Kibombo**, C. Wu, R. Peng, J. Baltrusaitis, R. T. Koodali  
**4:35 140.** TiO<sub>2</sub> photocatalytic oxidation of indoor VOCs at ppb levels in a multi-pass dynamic reactor: Influence of VOCs mixture on reaction intermediates concentrations. O. Debono, **C. Raillard**, V. Héquet, F. Thévenet, N. Locoge, L. Le Coq

Section B

New Orleans Downtown Marriott at the Convention Center  
River Bend 1

### **Occurrence, Detection, Fate and Removal of Pharmaceutical and Personal Care Products in Potable Water Sources**

Cosponsored by CEI

A. Hernandez, L. Blaney, *Organizers, Presiding*

**1:30 141.** Modelling fate and transport of pharmaceuticals and personal care products in the Santa Cruz River in Tucson, Arizona. **A. Kahl**, B. Arnold, L. Abrell, S. Snyder  
**1:50 142.** Behavior of anticancer drugs during water chlorination. **B. Roig**, B. Marquet, I. Delpla, V. Bessonneau, J. Weiss, R. Bolek, M. Scheider, A. Toolaram, M. Lamoree, O. Thomas, K. Kummerer  
**2:15 143.** Formation of iodinated disinfection by-products as a function of iodinated pharmaceuticals, chlorinated oxidants, and natural organic matter. **D. R. Bridenstine**, P. Kumkum, M. J. Plewa, T. A. Ternes, S. D. Richardson, S. E. Duirk  
**2:35 144.** Analysis of humic acid interference on estrogenic activity using an estrogen-sensitive yeast assay. **M. Bedard**, K. Sienerth, V. Del Gaizo Moore  
**2:55 145.** Antibiotics and antibiotic resistant genes (ARGs) in water and sediments of the Pearl River Estuary, South China. B. Chen, X. Liang, X. Huang, T. Zhang, **X. Li**  
**3:15** Intermission.  
**3:30 146.** Photocatalytic degradation of cortisone acetate in water. **J. Baltrusaitis**, J. Romao, G. Mul  
**3:50 147.** Removal of pharmaceutical and personal care products from water using transition metal modified and partially calcined inorganic-organic pillared clays. **A. J. Hernandez-Maldonado**, W. A. Cabrera-Lafaurie, F. R. Roman  
**4:10 148.** Ozonation of tetracycline antibiotics: Modeling the apparent second order rate constant using pI. **L. Blaney**, Z. Hopkins  
**4:30 149.** Surface adsorption of veterinary organoarsenicals roxarsone and arsanilic acid on iron and aluminum oxides. **W. Chen**, C. Huang  
**4:50** Concluding Remarks.

Section C

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern F

### **Transformative Nanotechnologies: Energy and Environment, Solutions and Challenges Remediation Applications**

D. Plata, J. Fortner, B. Lafferty, *Organizers, Presiding*

**1:30** Introductory Remarks.  
**1:35 150.** Nutrient-doped silica nanoparticle Pickering emulsions for enhanced oil biodegradation. **G. D. Bothun**, H. Zhang, S. Fields, A. Gupta, V. Oyanedel-Craver  
**2:05 151.** Novel biodegradable soybean oil and ethylene glycol-based amphiphilic copolymers for the treatment of zerovalent iron nanoparticles. **H. Kalita**, B. J. Chisholm, A. Bezbaruah

**2:25 152.** Environmental remediation of dense non-aqueous phase liquids using adsorptive-reactive nanoparticulate systems. **B. Sunkara**, V. T. John, Y. Wang, G. L. McPherson, J. He  
**2:45 153.** Magnetically responsive carbon nanotubes for oil-water separation. **C. Na**, H. Wang, K. Lin, B. Jin, T. Wu, P. McGinn, Y. Zhu  
**3:05** Intermission.  
**3:20 154.** Nanotechnology based smart surfaces with switchable superoleophilicity and superoleophobicity in aqueous media: Toward controllable oil/water separation. L. Zhang, **P. Wang**  
**3:40 155.** Cationic inorganic materials for trapping of anionic pollutants. **S. R. Oliver**  
**4:00 156.** Optimizing photocatalytic performance of electrospun TiO<sub>2</sub> nanofibers for removal of emerging organic contaminants. **D. Shuai**, M. Nalbandian, Y. Choa, N. V. Myung, D. M. Cwiertny  
**4:20 157.** In situ immobilization of selenite in soil and groundwater using stabilized Fe-Mn nanoparticles. W. Xie, Q. Liang, **D. Zhao**

Section D

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern E

### **Environmental Fate of Petroleum Oils and Dispersants in the Marine Environment**

Cosponsored by ANYL and GEOC

R. Conmy, *Organizer, Presiding*

**1:30** Introductory Remarks.

**1:35 158.** Deepwater Horizon oil spill: A systems biology approach to an ecological disaster. **T. C. Hazen**

**1:55 159.** Corexit 9500® substantially increases the biodegradation of otherwise undispersed oil. **R. C. Prince**, J. D. Butler

**2:15 160.** Biodegradation of crude oil in the Louisiana salt marshes following the BP Deepwater Horizon oil spill. **G. N. Kasozi**, A. R. Zimmerman, B. R. Silliman

**2:35 161.** Effects of oil dispersants on sorption capacity and hysteresis of polycyclic aromatic hydrocarbons with Gulf Coast marine sediments. Y. Gong, X. Zhao, S. O'Reilly, **D. Zhao**

**2:55 162.** Indigenous arctic micro-organisms degrade oil in Arctic seawater. **K. McFarlin**, M. Leigh  
**3:15** Intermission.

**3:30 163.** Industry-sponsored subsea dispersant injection research. **T. Nedwed**, T. Coolbaugh

**3:50 164.** Selectively wetting surfaces: A new approach to oil spill remediation. **D. P. Prendergast**, D. Deng, R. Bagatin, F. Stellacci, P. M. Gschwend

**4:10 165.** Iron oxide nanoparticles stabilized by p-amino benzoic acid terminated carbon black particles for oil spill remediation. **P. Venkataraman**, E. Frenkel, O. Owoseni, V. T. John, A. Bose

**4:30 166.** Enhanced dispersed oil droplet stability using modified natural biopolymer. **J. Tang**, P. Venkataraman, E. Frenkel, G. L. McPherson, J. He, S. R. Raghavan, V. Kolesnichenko, V. T. John

**4:50 167.** Gulf of Mexico oil spill ketone transformation products revealed by increased acid/analyte concentration positive ion ESI FT-ICR MS. **B. M. Ruddy**, C. L. Hendrickson, V. V. Lobodin, M. Huettel, J. E. Kostka, C. M. Reddy, R. P. Rodgers, A. G. Marshall

**5:10 168.** Molecular dynamics simulations of oil hydrocarbons and surfactants at atmospheric air/salt water interfaces. **T. P. Liyana-Arachchi**, K. T. Valsaraj, F. R. Hung

**5:30** Concluding Remarks.

### **Analytical Chemistry of the Deep-Water Horizon Spill**

Sponsored by ANYL, Cosponsored by ENVR

### **Chemical Pictures of Environmental Interfaces: Advances in Molecular-Level Understanding and Quantitative Analysis of Species**

Sponsored by COLL, Cosponsored by ENVR

### **Safety of Nanomaterials Used in Food and Food Packaging**

Sponsored by AGFD, Cosponsored by ENVR

### **Sustainability in the Chemical Sciences: Models and Case Studies for Education**

Sponsored by CEI, Cosponsored by CHED, ENVR, and SCHB

### **Undergraduate Research Posters**

#### **Environmental Chemistry**

Sponsored by CHED, Cosponsored by ENVR and SOCED

## MONDAY EVENING

Section A

Morial Convention Center  
Hall D

### Sci-Mix

S. Al-Abed, *Organizer*

#### 8:00 - 10:00

65. See previous listings.

**316, 317, 319, 320, 321, 325, 331, 332, 333, 335, 340, 341, 342, 346, 348, 350, 354, 356, 357, 358, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 371, 372, 373, 376, 377, 379, 380, 381, 382, 383, 384, 385, 391, 392, 393, 394, 396, 402, 403, 404, 406, 409, 411, 413, 415, 416, 419, 421, 422, 423, 425, 426, 427, 430, 432, 433, 434, 435, 436, 437, 438, 439, 440, 442, 443, 444, 445, 450, 452, 455, 457, 458, 460, 462, 463, 464.** See subsequent listings.

### Chemical Pictures of Environmental Interfaces: Advances in Molecular-Level Understanding and Quantitative Analysis of Species

#### Poster Session

Sponsored by COLL, Cosponsored by ENVR

## TUESDAY MORNING

Section A

New Orleans Downtown Marriott at the Convention Center  
River Bend 2

### Chemistry and Applications of Advanced Oxidation Processes for Removal of Contaminants of Emerging Concern

#### Advances on Photocatalytic Materials for Contaminants Oxidation

G. Li Puma, K. Oshea, S. Canonica, *Organizers*

D. Dionysiou, *Organizer, Presiding*

E. Giamello, *Presiding*

**8:30 169.** Kinetics of the photocatalytic oxidation of nitrogen(II) oxide at the surface of TiO<sub>2</sub>. **D. W.**

**Bahnemann**, A. Engel, J. Große, R. Dillert

**9:00 170.** UV-vis light-activated, Ag-decorated monodisperse TiO<sub>2</sub> for treatment of antibiotics in water. C.

Han, M. N. Nadagouda, J. A. Khan, P. Falaras, P. Rosales-Lombardi, **D. D. Dionysiou**

**9:20 171.** Optimization of photocatalytic performance of TiO<sub>2</sub> glass photospheres by using response surface methodology and the application for degradation of dimethyl phthalate. **W. Jiang**, J. Joens, D. Dionysiou, K. O'Shea

**9:40 172.** Size exclusion of different natural organic matter (NOM) fractions for enhancing the oxidation of target contaminants on engineered TiO<sub>2</sub>. A. Zakersalehi, **H. Choi**

**10:00 173.** Synthesis and characterization of WO<sub>3</sub>/CNT nanocomposite: Enhanced photocatalytic activity. **T. A. Saleh**

**10:20** Intermission.

**10:35 174.** Evaluation of integrated photocatalytic adsorbents in water treatment. **A. Morrissey**, K. Nolan, Z. Gholamvande, D. Keane, R. O'Dwyer

**10:55 175.** TEMPO-oxidized cellulose nanofibers as template for ceramic aerogels: Synthesis, characterization, and photocatalytic properties. **L. Melone**, L. Altomare, L. De Nardo, I. Alfieri, A. Lorenzi, **C. Punta**

**11:15 176.** Preparation of a new coral reef stone material and TiO<sub>2</sub> to prevent biodeterioration of ancient building heritage in marine areas. **A. Barbosa**, D. Tatis

**11:35 177.** Synthesis of co-doped Pd<sup>-</sup>TiO<sub>2</sub>-SO<sub>4</sub><sup>2-</sup> and its synergetic effect on the solar photodegradation of Trypan Blue dye. **M. Swaminathan**

New Orleans Downtown Marriott at the Convention Center  
River Bend 1

**Physicochemical Characterization of Organic Matter: Past, Present, Future, and Role in the Environment**  
**Characterization of Organic Matter**

F. Rosario, E. Thurman, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 178.** Dissolved organic matter optical properties and the reactivity of aquatic humic substances. **G. R. Aiken**

**8:35 179.** Low molecular weight components in an aquatic humic substance as characterized by membrane dialysis and Orbitrap mass spectrometry. **C. K. Remucal**, R. M. Cory, M. Sander, K. McNeill

**9:00 180.** Novel application of HPLC with online charged aerosol detection for the structural characterization of dissolved organic matter. **G. C. Woods**, A. N. Pisarenko, D. Mawhinney, E. R. Dickenson

**9:25 181.** Framework for using fluorescence spectroscopy to evaluate changes in organic matter. **J. A. Korak**, F. Rosario-Ortiz, R. Summers

**9:50 182.** Characterization of algal material during growth: A case study of four marine algae. **L. Dramas**, T. Merle, C. Aubry, J. Croue

**10:15** Intermission.

**10:30 183.** Characterization of organic matter fouling of anion exchange by HPSEC. **C. A. Rokicki**, T. H. Boyer, J. Morran, M. Drikas

**10:55 184.** Impact of secondary organic aerosol formation on soot properties. **C. Qiu**, A. F. Khalizov, R. Zhang

**11:20 185.** Aquatic humic substances: A short history through the lens of the Hirsch factor. **E. Thurman**

**11:45** Panel Discussion.

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern F

**Transformative Nanotechnologies: Energy and Environment, Solutions and Challenges**  
**Materials Development and Analyses**

D. Plata, J. Fortner, B. Lafferty, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 186.** Nanoparticle formation during geologic CO<sub>2</sub> sequestration. **Y. Jun**, Y. Hu, H. Shao, J. R. Ray

**8:35 187.** Development of traceable metal oxide nanoparticles for environmental fate and transport studies. **B. Rowbotham**, J. A. Nason

**8:55 188.** Size tuned aqueous nC<sub>60</sub>s and nC<sub>70</sub>s stabilized with biocompatible surface coatings. **N. Aich**, L. Boateng, J. R. Flora, N. B. Saleh

**9:15 189.** Fractal electrode enhanced organic photovoltaic cells. **R. L. Chamousis**, F. E. Osterloh, S. E. Shaheen, R. P. Taylor, B. Ilan, A. J. Moule

**9:35** Intermission.

**9:50 190.** How to realize oleophobicity without relying on perfluorinated chemicals. **A. Hozumi**, C. Urata, D. F. Cheng, B. Masheder

**10:10 191.** Application of hyperspectral microscopy in study on the aggregation of single walled carbon nanotubes. **X. Liu**, G. Chen, B. A. Scott, C. Su

**10:30 192.** Ceramic and composite systems for furthering applicability of upconversion materials to antimicrobial technologies. **S. L. Chinnapongse**, E. L. Cates, J. Kim

**10:50 193.** New host crystal systems for improved antimicrobial visible-to-UVC upconversion phosphors. **E. L. Cates**, J. Kim

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern E

### **Green Chemistry Fostered Advances for Chemicals and Fuel Production**

#### **Biomass and Waste Valorization**

Cosponsored by CEI

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

**8:00** Introductory Remarks.

**8:05 194.** Chemicals and fuel production: Examples from the Presidential Green Chemistry Challenge Awards. **M. M. Kirchhoff**

**8:50 195.** Starbucks biorefinery development: Valorisation of bakery waste from Starbucks Hong Kong for the production of biodegradable plastics. W. Han, L. C. Cheung, M. W. Lee, H. M. Lei, K. Y. Lo, W. Y. Ng, **C. S. Lin**

**9:20 196.** Valorization of rice bran and other agro-industry wastes by extraction of oil and esterification over solid catalysts. **N. Ravasio**, F. Zaccheria, M. Mariani, R. Psaro

**9:40 197.** Cr-modified nanosized TiO<sub>2</sub> photocatalyst in organic wastes valorization and water decontamination. **J. Colmenares Quintero**, A. Magdziarz

**10:00** Intermission.

**10:15 198.** Mixed food waste as source for nutrients for microalgae cultivation. **D. Pleissner**, W. Lam, M. Li, Z. Sun, C. Lin

**10:35 199.** Conversion of lignocellulosic biomass to fuels and chemicals by combined hydrothermal – catalytic process using solid acid catalysts. **K. Triantafyllidis**, F. Pileidis, K. Avramidou, C. Nitsos

**10:55 200.** Sonochemical techniques to increase the efficiency of methyl esters production from non-food oils. **D. C. Boffito**, C. Pirola, C. L. Bianchi, G. S. Patience

**11:15 201.** Renewable feedstocks from the oceans: Transformations of aminocarbohydrates. **F. M. Kerton**

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern B

### **ACS National Award for Creative Advances in Environmental Science and Technology: Symposium in Honor of Donald R. Blake**

R. Hathaway, B. Finlayson Pitts, *Organizers*

S. Nizkorodov, *Presiding*

**8:30** Introductory Remarks.

**8:40 202.** Decade record of the mass independent isotopic composition of carbon dioxide and application to understanding the global carbon cycle. **M. H. Thiemens**, S. Chakraborty

**9:05 203.** Observations of atmospheric halogens by chemical ionization mass spectrometry. **G. Huey**

**9:30 204.** Impact of increasing westerly winds on dimethyl sulfide flux and reflectivity over the Southern Ocean and Antarctica: Possible climate feedback. **O. W. Wingenter**, O. O. Ogunro, S. Nance, S. M. Elliott, N. J. Blake

**9:55** Intermission.

**10:15 205.** Roles of HFCs and N<sub>2</sub>O in Earth's environment: Science behind the issues. **A. R. Ravishankara**

**10:40 206.** Spatial and temporal variations in the isotopic composition of atmospheric nitrous oxide. **K. A. Boering**

**11:05 207.** Fundamental studies of the chemistry of interfaces relevant to the troposphere. **J. C. Hemminger**

### **Chemical Pictures of Environmental Interfaces: Advances in Molecular-Level Understanding and Quantitative Analysis of Species**

Sponsored by COLL, Cosponsored by ENVR

#### **Natural Hydrocarbon Seeps: Toward Understanding a Complex Natural System**

Sponsored by GEOC, Cosponsored by ENVR

#### **Redox Processes at Mineral-Water Interfaces and their Impacts on Metal Biogeochemical Cycling and Contaminant Remediation**

Sponsored by GEOC, Cosponsored by ENVR

New Orleans Downtown Marriott at the Convention Center  
River Bend 2

### Chemistry and Applications of Advanced Oxidation Processes for Removal of Contaminants of Emerging Concern

#### Chemical Oxidation and Free Radicals

G. Li Puma, D. Dionysiou, S. Canonica, *Organizers*  
K. O Shea, *Organizer, Presiding*  
V. Sharma, *Presiding*

- 1:30 208.** Efficient decomposition of perfluorooctane sulfonate mediated by Fe<sup>3+</sup>/UV. **P. Zhang**  
**2:00 209.** Advances of catalytic permanganate oxidation and catalytic ozonation for selective and nonselective degradation of organic micropollutants. **J. Ma**, J. Jiang, S. Pang, Y. Liu  
**2:30 210.** Enhanced *N*-nitrosamine formation in pool water by UV irradiation of chlorinated secondary amines in presence of monochloramine. **U. von Gunten**, F. Soltermann, M. Lee, S. Canonica  
**2:50 211.** Roles of hydroxyl radicals (HO·) and chlorine atoms (Cl·) on micropollutant degradation in the UV/chlorine system. **Y. Fu**, J. Fang, C. Shang  
**3:10 212.** Oxidation of groundwater contaminants by metal oxide activation of persulfate: Radical chain mechanisms and product formation. **H. Liu**, T. Bruton, F. Doyle, D. Sedlak  
**3:30** Intermission.  
**3:45 213.** UV photolysis of lampricides in the presence and absence of dissolved organic matter. M. McConville, **C. K. Remucal**  
**4:05 214.** Investigation into bimetallic and trimetallic iron-based systems for the activation of sodium persulfate toward water treatment and sustainability: Application to sulfamethoxazole antibiotic. **A. GHAUCH**  
**4:25 215.** Activation energy for utilizing peroxy-acid for PAH treatment. **E. F. Tentori**, M. C. Nyman  
**4:45 216.** Sulfate radical generation from peroxymonosulfate induced by a magnetically separable CuFe<sub>2</sub>O<sub>4</sub> spinel in water: The efficiency, stability, and mechanism. **T. Zhang**, H. Zhu, J. Croue  
**5:05 217.** Sulfate radical (SO<sub>4</sub><sup>-</sup>) oxidation kinetics of organic contaminants in aquatic media. **Y. Kim**, P. G. Tratnyek

New Orleans Downtown Marriott at the Convention Center  
River Bend 1

### Physicochemical Characterization of Organic Matter: Past, Present, Future, and Role in the Environment

#### Optical and Redox Properties of Organic Matter

F. Rosario, E. Thurman, *Organizers, Presiding*

- 1:30 218.** Investigating the structural basis of the optical and photochemical properties of humic substances and CDOM. **N. V. Blough**, R. Del Vecchio  
**2:00 219.** Halide quenching of reactive oxygen species photoproducts from organic matter. **C. Glover**, F. Rosario-Ortiz  
**2:25 220.** Effects of borohydride reduction on the structure and composition of humic substances as observed by ESI FT-ICR mass spectrometry. **D. R. Baluha**, N. V. Blough  
**2:50 221.** Photochemical formation of singlet oxygen from wastewater derived organic matter. **S. Mostafa**, F. Rosario-Ortiz  
**3:15** Intermission.  
**3:30 222.** Identifying the factors that influence the reactivity of effluent organic matter with hydroxyl radicals. **O. Keen**, K. Linden, F. Rosario-Ortiz  
**3:55 223.** Oxidation of green leaf volatiles in fog water: Part 1 – SOA formation. **A. K. Hansel**, F. S. Ehrenhauser, R. Kaur, C. Anastasio, K. T. Valsaraj  
**4:20 224.** Oxidation of green leaf volatiles in fog water, part 2: Reaction kinetics. **N. K. Richards**, C. Anastasio  
**4:45** Panel Discussion.

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern F

### **Transformative Nanotechnologies: Energy and Environment, Solutions and Challenges Nano-Bio Interactions**

D. Plata, J. Fortner, B. Lafferty, *Organizers, Presiding*

**1:30** Introductory Remarks.

**1:35 225.** Bacterial biofilm interaction with engineered nanoparticles. **H. Jing**, B. Mezgebe, **A. A. Hassan**, E. Sahle-Demessie, G. Sorial, C. Bennett-Stamper

**2:05 226.** Stimulatory effect on poplar by low (sub-lethal) concentrations of silver nanoparticles (AgNPs). **J. Wang**, A. Alexander, Y. Koo, Y. Yang, H. L. Puppala, Q. Zhang, V. L. Colvin, J. L. Schnoor, J. Braam, P. J. Alvarez

**2:25 227.** Time-dependent nanotoxicity mechanisms in *Escherichia coli* revealed by a genome-wide investigation. **V. C. Reyes**, M. Li, E. M. Hoek, S. Mahendra, R. D. Damoiseaux

**2:45** Intermission.

**3:00 228.** Interactions and fate of carbon nanotube polymer composites in the presence of aerobic bacteria. **D. Goodwin**, K. Marsh, H. Fairbrother, E. Bouwer

**3:20 229.** Electrically conducting nanocomposite polymer thin film reverse osmosis membranes for biofilm prevention. **D. Jassby**, C. de Lannoy, K. Glow, A. Gordon, M. Wiesner

**3:40 230.** Ceramic water purifier with metallic nanopatches for water disinfection. **J. A. Smith**, B. Ehdiaie, C. Krause

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern E

### **Green Chemistry Fostered Advances for Chemicals and Fuel Production**

#### **Green Catalytic Protocols**

Cosponsored by CEI

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

**1:30** Introductory Remarks.

**1:35 231.** Hierarchical nanostructured catalysts for sustainable chemical synthesis. **A. F. Lee**

**2:05 232.** Reaction mechanism of glycerol dehydration into acrolein in gas phase over a solid catalyst. **I. Martinuzzi**, Y. Azizi, H. Poirot, O. Zahraa, J. LeClerc

**2:25 233.** Deep eutectic solvents (DES) as new green and bio-renewable solvents for metal-mediated homogeneous catalysis. **J. Garcia-Alvarez**, C. Vidal

**2:45** Intermission.

**3:00 234.** Reducing the need for petroleum based solvents through mechanochemistry. **J. Mack**, W. C. Shearouse, D. C. Waddell, T. L. Cook

**3:20 235.** Carbon-magnetite nanoparticle hybrids: Toward advanced heterogeneous catalysts. **M. Ojeda**, **A. M. Balu**, O. Ershova, H. Sixta, R. Luque, A. A. Romero

**3:40 236.** Tin-containing zeolite nanosheets are active catalysts for the Baeyer-Villiger oxidation of bulky cyclic ketones. H. Y. Luo, L. Bui, W. R. Gunther, E. Min, **Y. Roman-Leshkov**

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern B

### **ACS National Award for Creative Advances in Environmental Science and Technology: Symposium in Honor of Donald R. Blake**

B. Finlayson Pitts, R. Hathaway, *Organizers*

J. C. Hemminger, *Presiding*

**1:00 237.** Re-examining the role of volatile organic compounds in atmospheric oxidation chemistry. **W. H. Brune**, X. Ren, J. Mao, L. Zhang, P. Feiner, D. Miller

**1:25 238.** Hydrocarbon emissions associated with hydraulic fracturing in northeastern Colorado and southwestern Pennsylvania: A lot of fracking gas. **B. C. Sive**, R. Swarthout, B. Miller, B. Mitchell, E. Horsman, R. Russo, Y. Zhou

**1:50 239.** Alkyl nitrate distributions and seasonal variation of trace gases observed over the Pacific Ocean during the HIPPO mission. **E. L. Atlas**, K. Smith, X. Zhu, L. Pope, R. Lueb, R. Hendershot, F. Moore, B. Miller, S. Montzka, J. Elkins, S. Wofsy

**2:15** Intermission.

**2:30 240.** Photochemical aging of atmospheric organics in ambient particles and aqueous droplets. **S. A. Nizkorodov**

**2:55 241. Award Address** (ACS Award for Creative Advances in Environmental Science and Technology sponsored by ACS Division of Environmental Chemistry and ACS Publications Divisions). Long-term trends in global concentrations of atmospheric methane and ethane. **D. R. Blake**, I. J. Simpson, S. J. Meinardi, M. J. Sulbaek Andersen, L. Bruhwiler

**3:40** Concluding Remarks.

### **Approaching the Surface: Interrogating Chemical Interactions at the Mineral-Water Interface**

Sponsored by GEOC, Cosponsored by COLL and ENVR

## **WEDNESDAY MORNING**

Section A

New Orleans Downtown Marriott at the Convention Center  
River Bend 2

### **Chemistry and Applications of Advanced Oxidation Processes for Removal of Contaminants of Emerging Concern**

#### **Degradation of Emerging Contaminants by Ozonation and Plasma Processes**

G. Li Puma, D. Dionysiou, K. Oshea, *Organizers*

S. Canonica, *Organizer, Presiding*

U. von Gunten, *Presiding*

**8:30 242.** Pre-ozonation applied to a water treatment plant in Campinas (SP), Brazil: Efficiency in removal of emerging contaminants. C. C. Montagner, **W. F. Jardim**, S. L. Siqueira

**9:00 243.** New N-nitrosodimethylamine (NDMA) precursors that react with ozone: Evaluation of NDMA yields and implications to the application of ozone in water reuse. **E. Marti**, A. Pisarenko, E. Dickenson

**9:20 244.** Formation of oxidation byproducts—nitrosamines and perfluoroalkyl acids during ozonation and advanced oxidation for water reuse: Role of molecular ozone and hydroxyl radical. **A. N. Pisarenko**, E. Marti, D. Gerrity, J. R. Peller, E. Dickenson

**9:40 245.** Evaluating the toxicity of CCL3 contaminants post UV and ozone based AOP treatment. E. Spangler, **A. M. Parker**, U. von Gunten, K. G. Linden

**10:00 246.** Diverging toxicity alteration by tertiary wastewater treatments: Ozonation vs. activated carbon treatment. **A. Magdeburg**, D. Stalter, J. Oehlmann

**10:20** Intermission.

**10:35 247.** Polybrominated diphenyl ethers degradation in sewage sludge by ozonation treatment. **G. Mascolo**, V. Locaputo

**10:55 248.** Plasmacatalytic and plasmaphotocatalytic destruction of airborne VOCs. **A. V. Vorontsov**, M. N. Lyulyukin, A. S. Besov

**11:15 249.** Impurities in catalysts and their role in catalytic ozonation. **J. Nawrocki**, L. Fiołek

**11:35 250.** Role and transformation of Ag<sup>+</sup> in the TiO<sub>2</sub> catalyzed photo-ozonation of phenol and oxalic acid. **Y. Xie**, Y. Chen, **H. Cao**

Section B

New Orleans Downtown Marriott at the Convention Center  
River Bend 1

### **Physicochemical Characterization of Organic Matter: Past, Present, Future, and Role in the Environment**

#### **Organic Matter as a Substrate in Environmental Processes**

F. Rosario, E. Thurman, *Organizers, Presiding*

**8:00 251.** Understanding the interaction of hydrophobic organic pollutants and dissolved organic matter in the aquatic environment. **M. Suffet**, M. Hsu



**8:30 252.** Rotavirus interaction with different natural organic matter (NOM). **L. Gutierrez**, R. Lu, J. Croue, T. H. Nguyen  
**8:55 253.** Impact of NOM on nanoparticle aggregation depends on NOM molecular weight distribution. **S. M. Louie**, R. D. Tilton, G. V. Lowry  
**9:20 254.** Natural organic matter (NOM) adhesion behavior on mica. **C. Aubry**, L. Gutierrez, H. Nguyen, J. Croue  
**9:45 255.** Engineered noble metal nanoparticles meeting biomolecules. **K. Siskova**, H. Kubickova, P. Cieslarova, R. Zboril  
**10:10** Intermission.  
**10:25 256.** Interrelationship of polycyclic aromatic hydrocarbons in sediment cores from sub-tropical region with algae-derived organic matter and global change. **D. Duan, Y. Ran**  
**10:50 257.** Vertical and temporal variability of carbonaceous aerosol and contributions from organic matter: Preliminary results from aerosol samples collected at the Boulder Atmospheric Observatory tower in Erie, CO. **T. R. Duhl**, E. Lee, M. Hannigan, F. Rosario-Ortiz, N. Clements, L. Blackwell  
**11:15 258.** Investigating interfacial chemistry of indoor organic and its potential health impact. **Y. Liu**, G. Zeng, D. Fu, S. Holladay  
**11:40 259.** Effect of riboflavin on the reductive degradation of carbon tetrachloride by nanoscale zerovalent iron. **S. Bae**, W. Lee  
**12:05** Panel Discussion.

Section C

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern F

### **Transformative Nanotechnologies: Energy and Environment, Solutions and Challenges**

#### **Fate of Nanomaterials**

D. Plata, J. Fortner, B. Lafferty, *Organizers, Presiding*

**8:00** Introductory Remarks.  
**8:05 260.** Light-driven formation and transformation of silver nanoparticles in the presence of natural organic matter. **W. Hou**, R. G. Zepp  
**8:35 261.** Heteroaggregation of capped gold nanoparticles and natural colloids under relevant environmental conditions. **B. Smith**, J. A. Nason  
**8:55 262.** Transport of aluminum oxide nanoparticle in porous media: Effects of size, ionic strength, and flow rate. **T. Rahman**, J. George, H. J. Shipley  
**9:15 263.** Effects of surface chemistries and environmental aging on the aggregation and deposition behaviors of engineered magnetite nanocrystals in aquatic systems. **W. Li**, J. Wu, J. D. Fortner  
**9:35 264.** Mechanistic hetero-aggregation of gold nanoparticles in presence of nonionic polymer modified single-walled carbon nanotubes. **A. Afrooz**, I. A. Khan, S. M. Hussain, N. B. Saleh  
**9:55** Intermission.  
**10:10 265.** Chlorination of hydroxylated C<sub>60</sub> (Fullerenol) and C<sub>60</sub> aggregates (nC<sub>60</sub>) in water: Reaction kinetics and product characterization. **J. Wu**, K. Peter, W. Li, J. Fortner  
**10:30 266.** Photochemistry of aqueous fullerene aggregates as a function of size fractionation and surface functionalization. **S. D. Snow**, K. Moore, J. Lee, J. Kim  
**10:50 267.** Effects of solution chemistry on the stability and transport of graphene oxide nanoparticles in saturated porous media. **J. D. Lanphere**, S. L. Walker  
**11:10 268.** Photochemical transformation of carboxylated multiwalled carbon nanotubes (COOH-MWNTs) under sunlight. **X. Qu**, P. J. Alvarez, Q. Li  
**11:30** Concluding Remarks.

Section D

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern E

### **Green Chemistry Fostered Advances for Chemicals and Fuel Production**

#### **Alternative/Renewable Energy**

Cosponsored by CEI  
R. Luque, S. Obare, *Organizers, Presiding*

**8:00** Introductory Remarks.  
**8:05 269.** Novel routes for synthesis of hydrogen-bonded "green" organic semiconductors. **M. Irimia-Vladu**, E. D. Glowacki, G. Voss, B. Stadlober, N. S. Sariciftci

**8:35 270.** Biomimetic approach for solar fuel production. **N. Nuraje**, Y. Lei, A. Belcher  
**8:55** Intermission.  
**9:10 271.** Regenerative microfluidic fuel cell for high efficient H<sub>2</sub> production and utilization. **J. Xuan**, H. Wang, H. Xu, M. K. Leung, L. Zhang, D. Y. Leung  
**9:30 272.** Green algae *Chlorella* for food and energy: Products, metabolism, and novel function. **Z. Sun**  
**9:50 273.** Miniature hydrogen generator based on aluminum-water reaction for micro fuel cells. **H. Wang**, D. Y. Leung, J. Xuan

Section E

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern B

### **Advanced Nanoscale and Membrane Technologies in Energy and Food Production**

Cosponsored by AGFD and CEI

B. Van der Bruggen, P. Luis, A. Sotto, J. Kim, *Organizers, Presiding*

**8:30** Introductory Remarks.

**8:35 274.** Binary metal oxides for nanocomposite ultrafiltration membranes. **A. Sotto**, J. Kim, B. Van der Bruggen, P. Luis, J. Arsuaga

**8:55 275.** Boosting TiO<sub>2</sub> nanotube array based photocatalysis efficiency for energy conversion. Z. Zhang, **P. Wang**

**9:15 276.** Regenerable antimicrobial activity in thin film composite membranes for sustainable control of membrane biofouling. **J. Wu**, Q. Li

**9:35 277.** ZnO-graphene hybrid nanostructure for energy harvesting using photon and sound. K. Vijayarangamuthu, **K. Jeon**

**9:55** Intermission.

**10:10 278.** High flux ethanol dehydration using multilayered graphene oxide membranes. **T. Yeh**, D. Mahajan, B. S. Hsiao, B. Chu

**10:30 279.** Fundamentals of selective ion transport through polyelectrolyte multilayer films. **C. Cheng**, A. Yaroshchuk, M. Bruening

**10:50 280.** Superhydrophobic polypropylene coatings for fouling reduction in membrane distillation. **S. R. Hogg**, V. V. Tarabara, M. L. Bruening

**11:10 281.** Effect of operational parameters on biogas production in the pilot-scale thermophilic two-stage anaerobic digester coupled with UF membrane system utilizing food waste leachate. **Y. Kim**, D. Jun, J. Bae, J. Kim

**11:30** Concluding Remarks.

### **Arsenic Contamination of Food and Water**

Sponsored by AGFD, Cosponsored by AGRO, ENVR, and SCHB

### **Beyond Using n-alkanes and PAHs: What Else Have We Learned About Environmental**

### **Geochemistry since Deepwater Horizon?**

Sponsored by GEOC, Cosponsored by ENVR

## **WEDNESDAY AFTERNOON**

Section A

New Orleans Downtown Marriott at the Convention Center  
River Bend 2

### **Chemistry and Applications of Advanced Oxidation Processes for Removal of Contaminants of Emerging Concern**

### **Photoelectrochemical and Sonolytic Processes**

G. Li Puma, D. Dionysiou, K. Oshea, S. Canonica, *Organizers*

G. Mascolo, J. Byrne, *Presiding*

**1:30 282.** Photoelectrochemistry: 170+ years and counting.. **M. A. Anderson**

**2:00 283.** Probing the mechanism of visible light photocatalytic activity using photoelectrochemistry. **J. A. Byrne**, J. W. Hamilton, P. S. Dunlop, M. Pelaez, S. C. Pillai, K. O'Shea, D. D. Dionysiou

**2:20 284.** Chlortetracycline degradation using nanostructured photoanode electrodes in an electrolytic cell. R. Daghrir, **P. Drogui**, M. A. El Khakani

- 2:40 285.** Elimination of organic pollutants in industrial wastewater using ozonation coupled with boron doped diamond (BDD) electrode electrooxidation. **C. E. Barrera-Diaz**, G. Roa-Morales, M. Garcia, B. Bilyeu
- 3:00 286.** Photoelectrocatalytic hydrogen production and phenol degradation by using nitrogen-doped titania-graphene composite films on stainless steel as photoanodes. M. I. Carreño-Lizcano, **J. A. Pedraza-Avella**, V. Rodríguez-González, M. E. Niño-Gómez
- 3:20** Intermission.
- 3:35 287.** Membrane with electrochemical functions for enhanced removal of chemical pollutants from water. X. Fan, **H. Yu, X. Quan**
- 3:55 288.** Kinetics of the electrochemical oxidation of phenol and intermediates in the presence of chloride under different reaction conditions. **L. Chen**, M. J. Kupferle
- 4:15 289.** Oxidation of pharmaceuticals and personal care products in water using hydrodynamic cavitation. **G. Loraine**, G. Chahine
- 4:35 290.** Mechanistic study on the degradation of gasoline oxygenates by sonolysis. **D. K. Kim**, K. E. O'Shea, W. J. Cooper
- 4:55 291.** Characterizing a novel ultrasonic horn design for use as an advanced oxidation process. **Z. Wei**, R. Xiao, M. Cai, L. K. Weavers

Section B

New Orleans Downtown Marriott at the Convention Center  
River Bend 1

### **Physicochemical Characterization of Organic Matter: Past, Present, Future, and Role in the Environment**

#### **Impact of Organic Matter on Water and Wastewater Treatment**

F. Rosario, E. Thurman, *Organizers, Presiding*

- 1:30 292.** Properties of natural organic matter (NOM) related to membrane fouling. **M. M. Benjamin**, J. Liu, B. Malczewska, N. Lee
- 2:00 293.** Improving disinfection byproduct precursor characterizations and removal using asymmetric flow-field flow fractionation. **J. Fairey**, C. Mash, T. Do
- 2:25 294.** Studying the character of natural organic matter (NOM) and its reactivity toward the disinfection by-product (DBP) formation based on a fluorescence-parallel factor analysis (PARAFAC) approach. **N. P. Sanchez**, A. T. Skeriotis, C. M. Miller
- 2:50 295.** Soluble microbial product improves bacteriophage MS2 removal by fouling ultrafiltration membrane. **R. Lu**, D. Goodwin, H. Fairbrother, T. H. Nguyen
- 3:15** Intermission.
- 3:30 296.** Activated carbon adsorption and trihalomethane formation potential of aquatic and terrestrial fulvic and humic acids. M. Y. Abouleish, **M. J. Wells**
- 3:55 297.** Analysis of  $k_{\text{NOM-OH}}$  for NOM isolates and drinking water samples with rapid background scavenging technique. **J. H. Donham**, E. Rosenfeldt, K. R. Wigginton
- 4:20 298.** Identification of OM components that compete with target sorbates to powdered activated carbon (PAC). **K. Shimabuku**, E. Townsend, R. Summers, F. Rosario-Ortiz
- 4:45 299.** Characterization of aquatic phase natural organic matter by self-assisted laser desorption/ionization mass spectrometry. **R. Wang**

Section C

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern F

### **Biofuels: Current Issues and Environmental Implications**

#### **Biofuels Production, Chemical Composition and Stability**

Cosponsored by AGFD, CEI, and ENFL

D. Grosjean, *Organizer*

J. De Andrade, *Organizer, Presiding*

**1:30** Introductory Remarks.

**1:35 300.** Brazilian clay-based catalysts for biodiesel production. **P. A. Suarez**, **A. C. Pinto**, M. J. Rezende, M. S. Pereira, G. F. Santos, G. O. Aroeira, T. C. Albuquerque

**2:00 301.** Co-production of lipids for biofuels, pigment, and protein in mixed microalgal/cyanobacterial cultures. **M. T. Gutierrez-Wing**, M. Mohtashamian, A. Prudente, K. A. Rusch

**2:25 302.** Fuel properties of biodiesel from alternative feedstocks. **B. R. Moser**

- 2:50 303.** Molecular composition and oxidative stability of biodiesels from non-edible plants relevant to the economic development of Brazil's northeastern states. V. R. Neto, A. L. de Carvalho, L. S. Texeira, **D. M. Grosjean**
- 3:15** Intermission.
- 3:30 304.** Additives to extend oxidative stability of biodiesel. **A. S. Mangrich**, P. B. Ferrari, C. I. Yamamoto, V. F. Ferreira, A. K. Jordao
- 3:55 305.** Ion chromatography study of the reaction products of soy biodiesel in the EN14112 (Rancimat) oxidative stability test. A. L. de Carvalho, E. A. Cardoso, G. Olimpia Rocha, L. S. Texeira, I. M. Pepe, **D. M. Grosjean**
- 4:20 306.** N-heptane as a fuel surrogate for n-alkane components of diesel and biodiesel fuels. H. Lai, C. Depcik, **E. Peltier**, M. Mangus, C. Ragone
- 4:45** Panel Discussion: Biofuels vs. Food.

Section D

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern E

### **Green Chemistry Fostered Advances for Chemicals and Fuel Production**

#### **Nanoscale Science and Biorenewables**

Cosponsored by CEI

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

**1:30** Introductory Remarks.

**1:35 307.** Adsorption and reaction of aromatic oxygenates on Pd(111): Unique reaction pathways for multifunctional reagents. **J. Medlin**, S. Pang

**2:05 308.** Some impacts of nanotechnology on catalysis by precious metal nanoparticles. **R. Jin**

**2:25 309.** Nanocatalytic approach to the conversion of biorenewables. **R. Y. Ofoli**, X. Ma, R. Lin, S. O. Obare

**2:45 310.** Biodegradable and biocompatible functional nanomaterials. **R. R. Ozer**

**3:05** Intermission.

**3:20 311.** Sustainable organic synthesis in continuous flow environments. **C. Kappe**

**4:05 312.** Use of renewable raw materials for biocatalytic continuous flow process. **R. O. de Souza**, I. I. Itabaiana, L. S. Miranda, F. K. Sutili, H. S. Ruela, I. C. Leal

**4:25 313.** Isosorbide *tert*-butyl ethers (ITBE): Continuous production and reaction kinetics. **M. S. Rose**, R. Pfützenreuter, R. Palkovits

**4:45 314.** Continuous flow transformations of platform molecules to valuable chemicals and biofuel precursors. **R. Luque**, J. M. Campelo, A. A. Romero, A. Pineda, M. Ojeda, A. Yopez, C. M. Lastres, A. Franco

**5:05 315.** Towards the use of lipases under continuous flow conditions. **R. O. de Souza**, I. Itabaiana, L. S. Miranda, F. K. Sutili, H. S. Ruela, I. C. Leal

**5:25** Concluding Remarks.

#### **Arsenic Contamination of Food and Water**

Sponsored by AGFD, Cosponsored by AGRO, ENVR, and SCHB

#### **Nanostructured Photocatalysts for Direct CO<sub>2</sub> Reduction**

##### **Nanostructured Photocatalysts**

Sponsored by COLL, Cosponsored by ENVR

### **WEDNESDAY EVENING**

Section A

Morial Convention Center  
Hall D

#### **Air Monitoring**

Cosponsored by ANYL

J. Maclachlan, *Organizer*

**6:00 - 8:00**

**316.** Peroxide measurements in the Deep Convective Clouds and Chemistry campaign using multi-reagent ion chemical ionization mass spectrometry and ab initio calculations. D. W. O'Sullivan, I. K. Silwal, **A. S. McNeill**, V. A. Treadaway, B. G. Heikes

- 317.** NO<sub>x</sub> effects on nighttime secondary organic aerosol (SOA) formation. **D. C. Draper**, D. K. Farmer, J. L. Fry
- 318.** Modeling hydroxyl, hydroperoxy, and alkylperoxy radicals in an upper Midwest forest boundary layer. G. D. Edwards, **P. R. Stratton**
- 319.** Decrease in acid rain over 23-year study at Paradise, Mt. Rainier National Park. **J. Agren**, C. Johnson, R. Lofgren, B. Samora, A. M. Johansen
- 320.** Fluorescence detection of nitric oxide in methanol solution by Cu<sup>2+</sup> complex of tridentate ligand. **M. A. Fayissa**, V. R. Morris, Y. Gultneh
- 321.** Values of stable isotope ratios delta 15N/14N in nitrogen oxide substances within the aerosol samples were clearly correlated with declination in Singapore. **H. Katsura**
- 322.** Radical reactions with terpenes in the atmosphere. **H. Pan**, S. P. Mezyk
- 323.** Vapor pressure measurement techniques for ultra low volatility materials. **A. L. Jenkins**, L. C. Buettner, M. W. Elzy, E. J. Bruni

Section A

Morial Convention Center  
Hall D

### **Biofuels: Current Issues and Environmental Implications**

Cosponsored by AGFD, CEI, and ENFL  
D. Grosjean, J. De Andrade, *Organizers*

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

- 324.** Biodiesel production from fatty acids esterification using Brazilian clay-based catalyst. **M. J. Rezende**, **A. C. Pinto**
- 325.** Investigation of biodiesel potential of oleaginous algae and yeast biomass by NMR spectroscopic techniques. **A. S. Sarpal**, **P. R. Silva**, V. F. Silva, **V. S. Cunha**, **R. J. Daroda**, J. L. Martins, R. F. Pinto, J. J. Amaral, W. Souza

Section A

Morial Convention Center  
Hall D

### **Carbon Dynamics and the Biogeochemical Cycling of Major and Minor Elements**

Cosponsored by GEOC  
E. J. O'Loughlin, M. McCormick, *Organizers*

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

- 326.** Humic acid and fulvic acid fractions extracted from prairie restoration soils and control soils in Illinois. **N. Voleti**, S. Bomma, M. Bertels, L. Buffington, M. Davis, S. Wailand, L. Zeman, **J. McConnell**
- 327.** Humic acid and fulvic acid fractions extracted from native prairie soils and control soils in Illinois. **S. Bomma**, N. Voleti, M. Bertels, L. Buffington, D. Davis, S. Wailand, L. Zeman, **J. McConnell**
- 328.** Biogeochemical cycling of organic carbon, uranium, and sulfur in an alluvial aquifer. **N. Janot**, J. S. Lezama-Pacheco, D. Q. Pham, D. Hausladen, M. E. Jones, S. Fendorf, J. M. Cerrato, D. E. Giammar, K. H. Williams, P. E. Long, C. Cismasu, P. S. Nico, G. E. Brown, J. R. Bargar
- 329.** Impact of ice-shelf loss on geochemical profiles and microbial community composition in marine sediments of the Larsen A embayment, Antarctic Peninsula. **M. L. McCormick**, A. D. Seraichick, E. M. Bucceri, E. J. Huebner, M. Shimizu, D. A. Antonopoulos, J. C. Koval, M. Cape, M. Vernet, L. Grange, C. R. Smith, E. Domack, A. Leventer
- 330.** Effects of electron donor on the biogeochemical dynamics of Fe, S, and C under sulfate- and iron-reducing conditions. M. Kwon, M. I. Boyanov, D. A. Antonopoulos, J. M. Brulc, E. Johnston, K. M. Kemner, **E. J. O'Loughlin**

Section A

Morial Convention Center  
Hall D

### **Chemistry and Applications of Advanced Oxidation Processes for Removal of Contaminants of Emerging Concern**

G. Li Puma, D. Dionysiou, S. Canonica, K. Oshea, *Organizers*

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

- 331.** Degradation of sulfamethoxazole in sonicated and silent Fe<sup>0</sup>/H<sub>2</sub>O<sub>2</sub> systems: Micrometric vs. nanometric Fe<sup>0</sup> activator. **A. Ghauch**, H. Baydoun, P. Dermesropian

- 332.** Advanced ozone membrane reactor for treatment of endocrine disrupting compounds in water. J. Jouët, W. Chan, **H. Chen**, K. Yeung
- 333.** Fenton treatment of wastewater containing sulfa drugs and influence of various experimental parameters. **S. Hussain**, S. Gul, D. W. Miwa, A. J. Motheo
- 334.** Electrochemical treatment of wastewater containing antibiotic tetracycline. **S. Gul**, S. Hussain, D. W. Miwa, A. J. Motheo
- 335.** Study of irradiance and Fe concentration effect for removal of contaminants at  $\mu\text{g/L}$  scale by solar photo-Fenton at natural pH. **J. Sánchez Pérez**, I. Carra, E. Ortega Gómez, B. Esteban, J. Casas López, S. Malato
- 336.** Aqueous photocatalytic oxidation of prednisolone. **D. Klauson**, J. Pilnik-Sudareva, O. Budarnaja, M. Krichevskaya, Y. Kulyasova, A. Käkinen, K. Juganson, S. Preis
- 337.** Aqueous photocatalytic oxidation of doxycycline. **M. Krichevskaya**, D. Klauson, N. Pronina, A. Poljakova, S. Preis
- 338.** Influence of size, composition, and shape of noble metal nanoparticles on photocatalytic oxidation reactions. **S. Zhao**, G. Ramakrishnan, D. Su, X. Tong, Y. Li, A. Orlov
- 339.** Application of advanced oxidation processes in treatment of high salinity organic wastewater: Kinetics and AOX formation. R. Yuan, Z. Wang, **J. Liu**
- 340.** Solar photocatalytic removal of pharmaceutical contaminants by enhanced materials: Phtalocyanine and nanotubular  $\text{TiO}_2$  catalysts. **F. Méndez-Arriaga**, G. Herrera, J. Sosa Sánchez, A. Toledo, R. Salgado
- 341.** Adsorption and photocatalysis of poultry process wastewater using chicken by-products and UV-light. **A. F. Lopez Vasquez**, A. F. Suarez Escobar, G. Carlos
- 342.** Sunlight-mediated wastewater treatment processes for micropollutant removal and pathogen inactivation. **J. Wenk**, K. L. Nelson, D. L. Sedlak
- 343.** Photocatalytic degradation of commercial acetaminophen by using a solar falling-film photoreactor with supported and slurry titania. **J. A. Colina-Marquez**, M. A. Mueses, F. Machuca-Martinez
- 344.** Visible light sensitized N-S co-doped polymorphic  $\text{TiO}_2$  for photocatalytic destruction of microcystin-LR. **G. Zhang**, M. Nadagou, C. Han, K. O'Shea, S. M. El-Sheikh, D. D. Dionysiou
- 345.** Zerovalent iron degradation of pharmaceuticals present in sewage treatment plant effluent. **R. F. Pupo Nogueira**, J. A. Perini
- 346.** Photoelectrocatalytic degradation of phenol by using Bi-Nb-M (M = Al, Fe, Ga, In) mixed oxide films on stainless steel as photoanodes. J. L. Roper-Vega, **J. A. Pedraza-Avella**, R. J. Candal, M. E. Niño-Gómez
- 347.** Greywater treatment for reuse: Study of pathogenic microorganisms and phage survival using photolysis and photocatalysis treatments. R. Khalaphallah, V. MAROGA MBOULA, **V. Hequet**, Y. Andres, M. Pelaez, D. D. Dionysiou
- 348.** Sulfathiazole oxidation mediated by photo-Fenton reaction. M. Velásquez, O. Rozas, D. Contreras, M. Pérez-Moya, **H. D. Mansilla**
- 349.** Ozonation catalyzed by Fe-PILCS. **C. E. Barrera-Diaz**, M. Bernal, R. Natividad, G. Roa, R. Romero
- 350.** Cerium and nitrogen doping studies on the photocatalytic performance of  $\text{Ti}_{1-x}\text{Ce}_x\text{O}_2\text{-N}$  compounds. **R. Rangel**, P. Bartolo-Perez, R. Trejo-Itzab, P. Quintana, I. Espita, J. Garcia-Espinoza
- 351.** Effect of gelatin-grenetine in biocomposites of chitosan,  $\text{TiO}_2$ , and iron films for cyanide oxidation to cyanate. **A. Barbosa**, L. Mesino
- 352.** Peroxidation with ultraviolet radiation for inactivation of total coliforms, *Escherichia coli*, and *Clostridium perfringens*. R. Guadagnini, L. U. dos Santos, R. Cantusio-Neto, R. B. Franco, **J. Guimarães**
- 353.** Radical based removal of iodinated carboxylic acids from wastewater. **L. M. Olson**, S. P. Mezyk, M. P. Schramm, J. A. LaVerne, K. A. Rickman
- 354.** Kinetics of chloramine speciation in real-world wastewaters. **B. L. Sjin**, S. P. Mezyk
- 355.** Comparison of energy requirements for removal of organic micropollutants by ozone,  $\text{O}_3/\text{H}_2\text{O}_2$ , UV, UV/ $\text{H}_2\text{O}_2$  and boron-doped diamond (BDD) electrodes. **G. Matafonova**, S. Zimmermann, P. Dimitriou-Christidis, S. Arey, U. von Gunten
- 356.** Kinetic modeling of gas-phase mercury oxidation by halides (Cl and Br) in combustion effluents: The importance of  $\text{NO}_x$  and  $\text{SO}_x$ . **I. Auzmendi-Murua**, J. W. Bozzelli
- 357.** Mercury oxidation via chlorine and bromine under atmospheric conditions: Thermochemistry and kinetics. I. Auzmendi-Murua, **J. W. Bozzelli**
- 358.** Visible light induced degradation of humic acid using nitrogen doped  $\text{TiO}_2$ . **M. Bekbolet**, C. Birben, C. Uyguner-Demirel
- 359.** Removing antibiotic activity from waters using sulfate radicals. **D. K. Asamoto**, S. P. Mezyk

Morial Convention Center  
Hall D

### Energy Recovery from Waste: Technological and Environmental Issues

Cosponsored by CEI

K. Kawamoto, S. Al-Abed, K. Fenlon, *Organizers*

#### 6:00 - 8:00

**360.** Kinetic studies of wastewater treatment from brewery using snail shell. **E. O. Jatto**, I. O. Asia, F. Egharevba

**361.** Fenton's oxidation pretreatment of landfill leachate for biogas production. **J. Nie**, D. D. Gang, S. Dufreche, R. Subramaniam, R. Bajpai, M. Zappi

**362.** Promotion of coal combustion kinetics by blended biomass ash. **Z. Liu**, Y. Cao, K. Zhang, W. Pan

**363.** Light-assisted biomass fuel cell for renewable electricity generation from wastewater. **F. E. Osterloh**, R. L. Chamousis

**364.** Bioelectrochemical reactor for energy production from food wastes. **V. Gadhamshetty**, **D. Belanger**, K. Fischbach, **J. E. Kilduff**, S. Sarsembayeva

Morial Convention Center  
Hall D

### Environmental Fate of Petroleum Oils and Dispersants in the Marine Environment

Cosponsored by ANYL and GEOC

R. Conmy, *Organizer*

#### 6:00 - 8:00

**365.** Photochemical degradation and bacterial growth response crude oil. **G. Daniel**, N. Harris, R. Atkinson, R. Pichulo, D. Brankle, J. Trindell, W. Jeffrey, P. Vaughan

**366.** Photodegradation and salinity effects on crude oil PAH partitioning kinetics. **R. Pichulo**, R. Atkinson, D. Brankle, **P. Vaughan**

**367.** Organic matter in ocean water as a proxy for indirect photochemical degradation of the dispersants used in the Deepwater Horizon oil spill. **C. M. Glover**, A. M. Parker, K. G. Linden, F. L. Rosario-Ortiz

**368.** Effects of oil dispersants and sediment sorption on photodegradation and ozonation of persistent oil compounds in the Gulf Coast ecosystems. **Y. Gong**, X. Zhao, S. O'Reilly, D. Zhao

Morial Convention Center  
Hall D

### Food and Its Environment: What Is In What We Eat?

Cosponsored by AGFD and CEI

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

#### 6:00 - 8:00

**369.** Levels lead in rice food products imported into the United States of America. **T. Tongesayi**, **C. Bray**, **C. Brock**, **P. W. Fedick**, **L. S. Lechner**

**370.** Atomic absorption spectrometry in the measurement of zinc uptake by grass shrimp. **N. A. Baghiae**, N. Mehrabi, J. Laming, K. C. Lanigan

Morial Convention Center  
Hall D

### General Posters

S. Al-Abed, *Organizer*

#### 6:00 - 8:00

**371.** Thermodynamic studies of wastewater treatment from rubber processing factory using snail shell. **I. O. Asia**, E. O. Jatto

**372.** Correlational studies of some effluent parameters in a petroleum industry in Nigeria. **I. O. Asia**, A. A. Bisong

- 373.** Kinetic studies of wastewater treatment from rubber processing factory using snail shell. **E. O. Jatto**, I. O. Asia, F. Egharevba
- 374.** Chlorine-free disinfection of water contaminated with *Campylobacter jejuni* by treatment with an alternating current: Role of hydrogen peroxide formation. **N. Barashkov**, D. Eisenberg, L. Lam, I. Irgibaeva, T. Novikova
- 375.** Acid mine drainage (AMD) production characteristics depending on environmental conditions. **Y. Kim**, J. Kim, J. Kim, M. Kim
- 376.** City of Milwaukee Childhood Lead Poisoning Prevention Program. **J. L. McCann**
- 377.**  $^{40}\text{K}$ ,  $^{238}\text{U}$  and  $^{232}\text{Th}$  activity in soil and water samples from some rural communities in Akwa Ibom State, Nigeria. **E. Inam**, K. Ite, E. Udosen, P. Tchokossa
- 378.** Environmental characterization of leachate and tailing in Yonghwa Mine, Korea. **J. Kim**, Y. Kim, H. Jeong, J. Yun
- 379.** Uptake of As(V) and Cr(VI) from aqueous environment by cationic poly(Acrylonitril-co-3-Acrylamidopropyl)trimethylammonium chloride) hydrogels. **T. Ersen**, D. Alpaslan, T. Sahan, N. Aktas, N. Sahiner
- 380.** Removal of As(V), Cr(III) and Cr(VI) from aqueous environment by modifiable hydrogels. **D. Alpaslan**, T. Ersen, S. Kubilay, **N. Aktas**, **N. Sahiner**
- 381.** Distribution and ecotoxicological risk of organochlorine residues in surface sediments from Lake Qarun, a protected area in Egypt. **A. O. Barakat**, M. A. Khairy, I. A. Aukaily
- 382.** Enhanced transformation and dechlorination of p-Chloronitrobenzene in the combined ZVI-anaerobic sludge system. **L. Zhu**, X. Xu, H. Lin, J. Qi
- 383.** Virucidal activity of a multilevel antimicrobial coating based of encapsulated chlorine dioxide. **Q. CHANG**, Y. LUI, Y. LI, J. KWAN, K. YEUNG
- 384.** Plastics are invading not only the ocean but also the Great Lakes. **L. M. Rios Mendoza**, **C. Evans**
- 385.** Protecting our families, homes, and the environment from cytotoxic chemotherapy drugs. **J. T. Mullowney**, T. O'Keefe
- 386.** Detection of polycyclic aromatic hydrocarbons in environmental sediment samples. **A. L. Gomez**, B. L. Macaulay, K. L. Foster
- 387.** Flame retardants in household dust after introduction of new furniture. **N. Strunsky**, K. Wovkulich, A. Keimowitz
- 388.** Impact of a particle concentrator on physical and chemical properties. **G. A. Montoya**, L. M. Wingen, L. Mendez, A. Keebaugh, M. T. Kleinman, B. J. Finlayson-Pitts
- 389.** Capacitive deionization for water desalination: Influence of operational mode on kinetics, charge efficiency and energy consumption. **L. M. Ruotolo**, M. A. Anderson
- 390.** Sensitivity of a particle concentrator output to operating conditions. **L. M. Wingen**, G. A. Montoya, L. Mendez, A. Keebaugh, M. T. Kleinman, B. J. Finlayson-Pitts
- 391.** Investigating the mechanism of photosensitized phenol degradation by humic substances. **K. S. Golanoski**, N. V. Blough, R. DelVecchio
- 392.** Feasibility study on the use of *Pseudomonas putida* and *Pseudomonas fluorescens* for the biodegradation of oxygenated polyaromatic hydrocarbons. **R. E. Williamson**, C. L. Yestrebky
- 393.** Photoproduced reactive species in natural waters: Influence of chromophoric dissolved organic matter properties. **K. Malecha**, J. Thoemke
- 394.** Cr(VI) adsorption and reduction by humic acid coated magnetite: Surface structure. **W. Jiang**, Q. Cai, W. Xu, D. Dionysiou, K. O'Shea
- 395.** Removal of arsenic by electrocoagulation in reactor with separated anode and cathode. **J. Chen**, Y. Wang, C. Wu
- 396.** Spatial variation of organic volatile compounds associated with gas production operations in southwestern Pennsylvania. **B. L. Mitchell**, B. Miller, R. Swarthout, Y. Zhou, B. C. Sive
- 397.** Evaluation of Apatite II™ for removal of copper and zinc from highway stormwater runoff. **J. Provolt**, J. A. Nason
- 398.** Green solvents for aerospace components. **K. Bookstaver**, P. Maloney, C. Yestrebky, C. A. Clausen III
- 399.** Simultaneous sorption of cationic and anionic dyes by chitosan/cellulose beads for water purification. **A. L. Vega-Negrón**, L. A. Alamo-Nole, O. Perales-Perez, F. R. Roman, A. Gonzalez
- 400.** Chemical recycling of poly(ethylene terephthalate) waste using ethylenediamine. **A. alabdulrahman**, F. Alsewailem, H. Al-Megren, K. Fukushima, H. Horn, J. Rice, J. Hedrick
- 401.** Atmospheric oxidation of benzene: Biphenyl formation in the bulk aqueous phase vs. the air-water interface. **A. A. Heath**, F. S. Ehrenhauser, K. T. Valsaraj
- 402.** Fate of Lipitor: What happens in a living machine? **S. Yap**, M. C. Nyman
- 403.** Potential treatment of hypergolic fuel waste streams. **C. Franco**, C. A. Clausen, C. L. Yestrebky
- 404.** Phototransformation of the herbicide acetochlor: Effects of surface water composition. **M. Clafflin**, J. D. Thoemke



- 405.** Simulated solar light photocatalysis of amitrole and atrazine in combination with external oxidants. **J. Andersen**, M. Pelaez, L. Guay, Z. Zhong, D. D. Dionysiou
- 406.** Towards greener soil washing: A two-step process for extraction and dechlorination of polychlorinated biphenyls. **S. E. Novaes-Card**, C. L. Yestrebky, C. A. Clausen
- 407.** Raman and FTIR spectroscopy as process control techniques for sorbent manufacturing. **J. E. Tomaszewski**, B. J. Winters
- 408.** Bio-renewable carbon substrates as mercury sorbents. **C. Slinger**, B. J. Winters
- 409.** Preparation of cellulose nanofibers from rice hull. **F. A. Rodrigues**, R. A. Campos
- 410.** Synthesis, purification, characterization, and gas phase studies of atmospherically relevant and model hydroxy nitrate esters. **T. D. Le**, M. A. Leon, E. L. Cardenas, D. L. Ward, M. P. Stephenson, N. M. Vizenor, A. K. Scruggs, A. S. Hasson, S. Maitra
- 411.** Reconstruction of pesticide, polychlorinated biphenyls, polybrominated diphenyl ethers, and mercury profiles in gray and blue whale earplugs. **E. Robinson**, S. Trumble, B. Subedi, S. Usenko
- 412.** Mass loadings and source apportionment of quinones in fine particulate matter air pollution. **K. T. Vu**, C. Olea, A. Lolinco, N. Tello, A. Clark, A. Hasson
- 413.** Indoor aldehyde analysis within apartments retrofitted for energy efficiency. **S. E. Frey**, H. Destailats, P. Herckes, M. P. Fraser
- 414.** Conversion of the explosive RDX into biomass using photosynthetic *Rhodobacter sphaeroides*. **K. Millerick**, K. Finneran
- 415.** Photochemical studies of current use bisphenols: BPA replacements BPS and BPF. **A. J. Hiranaka**, **K. T. Tran**, D. E. Latch
- 416.** Pyrethroid pesticides in the Duwamish River Superfund site: Development and optimization of analysis methods. **J. C. Berude**, W. L. Whitlow, D. E. Latch
- 417.** Degradation of RDX by bio-reduced lepidocrocite and soil. **C. Cho**, S. Bae, W. Lee
- 418.** San Jacinto River waste pits, Texas: Analysis of polychlorinated dibenzo-p-dioxins, furans, and biphenyls in surficial river sediment. **L. Aguilar**, B. Subedi, E. S. Williams, J. P. Berninger, B. W. Brooks, S. Usenko
- 419.** New method to evaluate backwash performance of rapid filter in water treatment facility. **H. Tsai**, **C. Wu**, M. Wan, C. Kan
- 420.** DDT dechlorination with magnesium and acidified alcohol. **V. Hernandez**, C. A. Clausen, C. L. Yestrebky
- 421.** Isolation of an electron transport system in cyanobacteria. **N. G. Charles**, H. Nørgaard, M. Bollinger Jr.
- 422.** Transport of TiO<sub>2</sub> nanoparticles and nanostructured particles through a porous media. **S. Al-Abed**, J. Virkutyte, H. Choi, C. Isaac, C. Bennett-Stamper
- 423.** Synthesis of greener vinyl ester resin. **Y. Lee**, W. Collins, U. Shin, L. Renna, L. Keogh, R. F. Kovar
- 424.** Assessing the feasibility of soils for edible vegetation at a university campus. **J. K. Williams**, R. A. Richards
- 425.** Immobilization of ammonium salt of heteropoly acid on mesoporous silica for the removal of cesium ion. **Y. Park**, W. Shin, S. Choi
- 426.** Effects of nutrient additions on benthic metabolism in the Southern Everglades. **M. S. Noguera**
- 427.** Does ozonolysis of surface adsorbed methoxyphenols produce ring-cleaved products? **E. M. O'Neill**, A. Z. Kawam, R. Z. Hinrichs
- 428.** Synthesis of organoaminated-cubic mesoporous silicas for adsorption of Cu(II) ions from wastewater. **S. Manickam**
- 429.** Single-solute and bi-solute sorption of phenanthrene and dibutyl phthalate (DBP) onto biochars. **J. JIN**, **K. SUN**, M. KANG

Section A

Morial Convention Center  
Hall D

### **Green Chemistry Fostered Advances for Chemicals and Fuel Production**

Cosponsored by CEI

R. Luque, S. Obare, *Organizers*

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

- 430.** Developing green nanofillers via in situ methods of process monitoring and optimization. **R. Tejerina-Anton**, G. Ramakrishnan, J. Ging, Q. Wu, C. Korach, A. Orlov
- 431.** Utilizing demolished concrete as efficient NO<sub>2</sub> adsorbent and beneficial concrete admixture. **G. Ramakrishnan**, S. Peethamparan, A. Orlov
- 432.** Production of materials, chemicals, and biofuels from waste valorisation. **R. Luque**, J. M. Campelo, A. A. Romero, A. Pineda, M. Ojeda, A. Yepez, C. M. Lastres, A. Franco

- 433.** Valorization of lignocellulosic biomass towards sustainable chemicals, materials and fuels. **A. M. Balu**, O. Ershova, H. Sixta
- 434.** Metal and metal oxide nanoparticles for biorenewable conversion via hydrogenation and photocatalytic reactions. **L. Ariyadasa**, R. Wadwa, S. Obare
- 435.** Synthesis, catalytic properties, and immobilization of monodisperse bimetallic alloy nickel-based nanoparticles. **S. Tahmasebi Nick**, S. O. Obare
- 436.** In situ upgrading of biomass fast pyrolysis vapors using acidic, basic, and metal-acid bifunctional catalysts. **K. S. Triantafyllidis**, S. Stefanidis, A. A. Lappos, S. Karakoulia, P. Lazaridis
- 437.** Ultrasound and microwave assisted preparation of high Fe loaded supported catalysts for biosyngas Fischer–Tropsch conversion. C. Pirola, C. L. Bianchi, A. Di Fronzo, **D. C. Boffito**, A. Di Michele, G. S. Patience
- 438.** Solid catalysts for terpenes valorisation. **N. Ravasio**, F. Zaccheria, R. Psaro

Section A

Morial Convention Center  
Hall D

### Identification of Environmental Abiotic and Biotic Reactions Using Computational Chemistry

Cosponsored by COMP

S. Jang, W. Lee, H. Kim, *Organizers*

#### 6:00 - 8:00

- 439.** Enhancement of RNIP reactivity and longevity with organic ligands for the transformation of persistent nitro explosives. **D. Kim**, S. Song
- 440.** Effects of electrolytes on CH<sub>4</sub>-CO<sub>2</sub> hydrate swapping process: Molecular dynamic simulation and experimental validation. **N. Lee**, D. Kyung, W. Lee
- 441.** Molecular-scale investigation of interaction mechanism between U(VI) and nZVI. **Y. Sihm**, W. Lee
- 442.** Molecular dynamic simulation of dual polyelectrolyte coagulation for removal of natural organic matters in aqueous system. H. Lee, Y. Choi, S. Park, J. Choi, **S. Jang**

Section A

Morial Convention Center  
Hall D

### Nanotoxicity and Human Health Risk: Relevance to Environmental Chemistry and Fate

S. Hussain, A. Allen, *Organizers*

#### 6:00 - 8:00

- 443.** Glutathione as an assay for determining the oxidative ability of ultrafine particles. **J. Peters**, S. McNall, A. M. Johansen
- 444.** Carbonaceous nanoparticle toxicity as a function of ferrous iron content. **D. Hinz**, H. Teng, H. Ting, A. M. Johansen

Section A

Morial Convention Center  
Hall D

### Occurrence, Detection, Fate and Removal of Pharmaceutical and Personal Care Products in

#### Potable Water Sources

Cosponsored by CEI

A. Hernandez, L. Blaney, *Organizers*

#### 6:00 - 8:00

- 445.** Comparison between sulfate radicals and hydroxyl radicals for the decomposition of pharmaceuticals and personal care products. P. Nfodzo, **H. Choi**
- 446.** Removal of extensive use trace organic contaminants from Bio-Bio River (Chile) water by activated carbon. **C. Baeza**, C. Carvajal, N. Moreno, D. Contreras, J. Freer
- 447.** Detection of NDMA in potable water by a novel GC-MS-MS method. **A. Kahl**, S. Snyder
- 448.** Adsorptive removal of carbamazepine and salicylic acid from water using a zeolite modified with extra framework transition metal cations and a surfactant. **W. A. Cabrera-Lafaurie**, F. R. Roman, A. J. Hernandez-Maldonado
- 449.** Occurrence and removal mechanisms of selected micropollutants in water treatment plant. **K. Zoh**, S. Nam

- 450.** Iodinated pharmaceuticals as precursors to total organic halogen formation in the presence of chlorinated oxidants and natural organic matter. P. Kumkum, D. R. Bridenstine, N. B. Ackerson, T. A. Ternes, M. J. Plewa, S. D. Richardson, **S. E. Duirk**
- 451.** In situ degradation of aqueous and soil-sorbed estradiol by stabilized manganese dioxide nanoparticles. **B. Han**, D. Zhao, Y. Feng
- 452.** Transport of pharmaceuticals from soil to plant following wastewater land application. **B. Hosseini Amoli**, C. Fedler

Section A

Morial Convention Center  
Hall D

### **Physicochemical Characterization of Organic Matter: Past, Present, Future, and Role in the Environment**

F. Rosario, E. Thurman, *Organizers*

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

- 453.** Mechanisms of hydrogen peroxide photoproduction by humic substances. **Y. Zhang**, N. V. Bough, R. Del Vecchio
- 454.** Studies of phosphorus sequestration and carbon humification in wetland soils by LC-MS, <sup>31</sup>P and <sup>13</sup>C NMR. **A. Invittaya**, R. Hamdan, S. Newman, W. T. Cooper
- 455.** Correlating the spectroscopic properties of organic matter to the photochemical formation of hydroxyl radical in natural waters. **E. B. Townsend**, C. M. Glover, F. L. Rosario-Ortiz
- 456.** Characterization of the physicochemical properties of organic matter in aerosols. **E. Lee**, T. Duhi, N. Clements, M. Hannigan, F. L. Rosario-Ortiz
- 457.** Unfolding the optical and chemical properties of humic substances (HS). **A. A. Andrew**, R. Del Vecchio, M. Sander, M. Aeschbacher, N. V. Blough
- 458.** Investigation of humic acid aggregation by zeta potential and dynamic light scattering. **M. R. Esfahani**, H. A. Stretz, M. J. Wells
- 459.** In situ spectroscopic studies of aqueous Cu(II)-organic complexes. **C. L. Phillips**, D. Peak
- 460.** Characterizing algal organic matter and its transformations during oxidation using fluorescence spectroscopy. **J. A. Korak**, E. Wert, M. Dong, F. Rosario-Ortiz

Section A

Morial Convention Center  
Hall D

### **Transformative Nanotechnologies: Energy and Environment, Solutions and Challenges**

D. Plata, J. Fortner, B. Lafferty, *Organizers*

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

- 461.** Hydrophilic stability and dispersion from ligand exchange. **M. D. Reyna**, R. Knutson, L. Penn
- 462.** Photocatalytic activity of hydrogen evolution over Rh doped SrTiO<sub>3</sub> prepared by polymerized complex method. **P. Shen**, J. C. Lofaro Jr, W. Worner, M. G. White
- 463.** Arsenic removal under high silica concentrations using magnetic nanoparticles. **N. I. Gonzalez Pech**, C. Avendano, S. Lee, V. L. Colvin
- 464.** Catalytic hydrodechlorination of trichloroethylene in water using a new class of Pd catalysts supported on polymeric ion exchange resins. **J. Li**, D. Zhao
- 465.** TiO<sub>2</sub> nanowire membranes for wastewater treatment: Microfiltration and photocatalytic degradation of humic acid. **Q. Zhang**, Y. Li, J. Rogers

New Orleans Downtown Marriott at the Convention Center  
River Bend 2

### Chemistry and Applications of Advanced Oxidation Processes for Removal of Contaminants of Emerging Concern

#### Fenton, Photo-Fenton and UV-H<sub>2</sub>O<sub>2</sub> Advanced Oxidation

K. O'Shea, S. Canonica, *Organizers*  
D. Dionysiou, G. Li Puma, *Organizers, Presiding*

**8:00 466.** Oxidative transformation of microcystin-LR by ferrate. A. Rakha, **V. K. Sharma**, D. D. Dionysiou, K. E. O'Shea, J. Westrick

**8:30 467.** Identification of biorecalcitrant micropollutants in food industry: Removal alternatives and characterization of generated transformation products. **J. Sánchez Pérez**, B. Esteban, A. Cabrera Reina, I. Carra, C. Sirtori, A. Agüera

**8:50 468.** Heterogeneous photo-Fenton oxidation MTBE on structured catalysts. **D. Sannino**, V. Vaiano, L. A. Isupova, P. Ciambelli

**9:10 469.** Photodegradation of paracetamol by photo-Fenton process. E. Yamal-Turbay, E. Ortega, M. Graells, H. D. Mansilla, O. M. Alfano, **M. Pérez-Moya**

**9:30 470.** Design of a new manganese-based Fenton-type catalyst for WHPCO. **N. Novak Tusar**

**9:50** Intermission.

**10:05 471.** Highly-efficient photochemical procedure for water decontamination. **J. Jirkovský**, H. Lipšová, V. Sváta

**10:25 472.** Re-engineering an artificial sweetener: Transforming sucralose residuals in water *via* advanced oxidation. **O. Keen**, K. Linden

**10:45 473.** UV and UV-H<sub>2</sub>O<sub>2</sub> treatment of fluoroquinolone and tetracycline antibiotics. **L. Blaney**, R. K. Burton, S. Snowberger

**11:05 474.** Advanced oxidation processes for flumequine degradation: Evaluation of antimicrobial activity and byproducts formed. C. Rodrigues-Silva, M. G. Maniero, S. Rath, **J. Guimaráes**

**11:25 475.** Antibiotic removal efficiencies for advanced oxidation process (AOP) radical reactions. **S. Otto**, S. P. Mezyk

**11:45** Concluding Remarks.

New Orleans Downtown Marriott at the Convention Center  
River Bend 1

### Physicochemical Characterization of Organic Matter: Past, Present, Future, and Role in the Environment

#### Optical and Redox Properties of Organic Matter

F. Rosario, E. Thurman, *Organizers, Presiding*

**8:00 476.** Redox reactivity of humic substances in aquatic ecosystems: Multiple lines of evidence and the potential for understanding natural systems using fluorescence spectroscopy. **D. M. McKnight**

**8:30 477.** Reduction and oxidation of humic substances (HS): Linking optical and electrochemical properties to chemical structure. **R. Del Vecchio**, A. Andrew, M. Sander, M. Aeschbacher, N. V. Blough

**8:55 478.** Treatment of EfOM with UV light and subsequent copper binding. **A. Dotson**, C. Rodriguez

**9:20 479.** Dissolved organic matter as a photosensitizer and an inhibitor of triplet-induced transformation of water contaminants. **S. Canonica**, J. Wenk, S. Bahnmüller, U. von Gunten

**9:45 480.** Photo-driven cycling of model organic aerosol matter. **M. I. Guzman**, S. Xia, E. Pillar, R. Zhou

**10:10** Intermission.

**10:25 481.** Oxidation of dissolved organic matter with ozone, chlorine, and chlorine dioxide: Effects on optical and antioxidant properties. **J. Wenk**, M. Aeschbacher, E. Salhi, U. von Gunten, M. Sander, S. Canonica

**10:50 482.** Modeling DOM reactivity with the hydroxyl radical using polymers. **G. McKay**, **S. P. Mezyk**

**11:15 483.** Reactivity of the hydroxyl radical with natural organic matter: Molecular size vs. chemical composition. **G. McKay**, S. P. Mezyk

**11:40 484.** Photochemical formation of hydroxyl radical from wastewater derived organic matter. **E. Lee**, F. L. Rosario-Ortiz

**12:00** Panel Discussion.

## Section C

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern F

### **Biofuels: Current Issues and Environmental Implications**

#### **Vehicle Emissions and Environmental Impacts**

Cosponsored by AGFD, CEI, and ENFL

J. De Andrade, *Organizer*

D. Grosjean, *Organizer, Presiding*

**8:00** Introductory Remarks.

**8:05 485.** Evaluation of the impact of low blend level biodiesels on criteria emissions. **M. Hajbabaei**, G. Karavalakis, K. Johnson, A. Mitchell, J. Guthrie, T. Durbin

**8:30 486.** NO<sub>x</sub> and particulate matter emissions from a diesel engine burning Jatropha biodiesel-ULSD fuel blends. J. Nuhn, **E. Peltier**, C. Depcik, M. Mangus, S. M. Stagg-Williams

**8:55 487.** Composition of particulate matter emissions from gasoline vehicles with different ethanol and butanol fuel blends. D. Short, D. Vu, T. Durbin, G. Karavalakis, **A. Asa-Awuku**

**9:20 488.** Particle mass and particle number size distribution from a site impacted by heavy-duty diesel vehicles using diesel/biodiesel blend. L. L. Guarieiro, **J. B. de Andrade**, A. Guarieiro, G. O. da Rocha, J. P. Anjos, J. S. Santos

**9:45** Intermission.

**10:00 489.** Carbon-14 evidence of significant biomass burning in the southeastern United States: Links to black carbon and biofuel agricultural practices. **N. A. Marley**, A. Marchany-Rivera, J. S. Gaffney

**10:25 490.** Ethene from biofuels and biomass burning: Potential air quality and ecosystem consequences. **J. S. Gaffney**, N. A. Marley

**10:50 491.** Biodiesel produced wastewater treatment combined with desalination in bioelectrochemical systems. B. Kokabian, **V. Gude**

**11:15** Panel Discussion: Biofuels vs. Food.

## Section D

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern E

### **Identification of Environmental Abiotic and Biotic Reactions Using Computational Chemistry**

Cosponsored by COMP

S. Jang, *Organizer*

W. Lee, H. Kim, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 492.** Development of MOFs for environmental applications: Computational screening and scale up of production. **D. S. Sholl**, K. Walton

**8:25 493.** Improved design of metal organic frameworks for CO<sub>2</sub> capture by ab initio-based simulations. **S. Han**, Y. Jung

**8:45 494.** First-principles study on interaction of C<sub>60</sub> with water. **J. Choi**, **S. Jang**

**9:05 495.** Molecular dynamics simulation of cationic polyelectrolytes with natural organic matters. **S. Park**, J. Choi, S. Jang

**9:25 496.** Molecular dynamics simulations of green leaf volatiles and OH radicals on atmospheric air/water interfaces. **T. P. Liyana-Arachchi**, K. T. Valsaraj, F. R. Hung

**9:45** Intermission.

**10:00 497.** First principles based theory complemented with electrospray ionization mass spectrometry to address environmental abiotic and biotic reactions. **W. A. Goddard, III**, H. Mishra, A. J. Colussi, T. A. Pascal, R. J. Nielsen

**10:20 498.** Effect of soil minerals and organic matter on CO<sub>2</sub> hydrate formation kinetics. **D. Kyung**, H. Kim, W. Lee

**10:40 499.** Calculation of redox potentials of environmental organic contaminants in aquatic systems. **J. Guerard**, P. Tentscher, J. Arey

**11:00 500.** Oxidation of sulfonamide antibiotics: Aromatic nucleophilic substitution of an aniline radical cation. **P. R. Tentscher**, S. Eustis, K. McNeill, J. Arey

**11:20 501.** Quantum chemical studies of drinking water treatment: Investigation of reaction pathways and development of predictive models for detoxification and formation of disinfection by-products. **T. T. Sanan**, M. L. Magnuson, M. Heath  
**11:40 502.** As(V), As(III) and PO<sub>4</sub> removal by an iron impregnated activated carbon in a single, binary, and tertiary adsorbate system: Surface complexation modeling approach. **T. Ngantcha-Kwimi**, B. E. Reed  
**12:00** Concluding Remarks.

Section E

New Orleans Downtown Marriott at the Convention Center  
Blaine Kern B

#### **Air Monitoring**

Cosponsored by ANYL

Financially supported by PID Analyzers, LLC

J. Maclachlan, *Organizer, Presiding*

**8:30** Introductory Remarks.

**8:35 503.** HRTEM and XPS applied to jet engine PM running conventional (JP-8) and synthetic (HRJ & FT) fuels. **R. L. Vander Wal**, C. Huang

**8:55 504.** Rapid analysis of chemical agents in the atmosphere using gas chromatography-mass spectrometry (GC-MS). **P. A. Smith**

**9:15 505.** Denuder based real-time air monitoring methods. **A. L. Jenkins**, L. C. Buettner, M. W. Ellzy, E. J. Bruni

**9:35 506.** Fabrication of multiwalled carbon nanotube multilayers-coated electrospun fibers for DMMP detection. **K. Saetia**, J. M. Schnorr, M. M. Mannarino

**9:55 507.** Sources of organic aerosol in eastern Iowa. **E. A. Stone**, C. Rathnayake, T. Jayarathne, J. Downard

**10:15** Intermission.

**10:30 508.** Monitoring ppb levels of ambient air pollutants via hyphenated techniques: HRGC/ in-series selective detection. **J. N. Driscoll**, J. L. Maclachlan

**10:50 509.** Analysis of surface ozone concentrations within the Saharan air layer during AERosols and Ocean Science Expeditions (AEROSE). **E. D. Roper**, E. Joseph, N. R. Nalli, V. R. Morris

**11:10 510.** Thirty-five year study of trace metal deposition from the Navajo Generating Station, a 2,250 MW coal-fired power plant located in northeastern Arizona. **R. D. Foust, Jr.**, K. J. Kaur, J. Moore

**11:30** Panel Discussion.

**11:50** Concluding Remarks.

#### **Approaching the Surface: Interrogating Chemical Interactions at the Mineral-Water Interface**

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#### **Arsenic Contamination of Food and Water**

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#### **Nanostructured Photocatalysts for Direct CO<sub>2</sub> Reduction**

#### **Single-Site Photocatalysts**

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### **THURSDAY AFTERNOON**

#### **Arsenic Contamination of Food and Water**

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#### **Nanostructured Photocatalysts for Direct CO<sub>2</sub> Reduction**

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