

# 255<sup>th</sup> ACS National Meeting

## March 18-22, 2018

### New Orleans, Louisiana USA

## ENVR

### Division of Environmental Chemistry

S. Obare, *Program Chair*

ENVR SOCIAL EVENTS: Reception, 6:00-8:00 p.m., B.B. King's Blues Club, 1104 Decatur Street.  
Ticket Required: \$20

#### ENVR BUSINESS MEETINGS:

Program Planning Meeting, 2:00-3:00 p.m., Sunday, Room 215 (Ernest N. Morial Convention Center)

Long Range Planning Meeting, 3:00-5:00 p.m., Sunday, Room 215 (Ernest N. Morial Convention Center)

Executive Committee Meeting, 7:00-10:00 p.m., Sunday, Room 215 (Ernest N. Morial Convention Center)

CEI - Environmental Improvement Breakfast/Open Meeting, 7:45-9:00 p.m., Monday, Room 215 (Ernest N. Morial Convention Center)

### TECHNICAL SESSIONS

#### SUNDAY MORNING

Section A

Ernest N. Morial Convention Center  
Room 346

#### **Physics & Chemistry of Water Treatment: Symposium in honor of Professor Desmond F. Lawler** **Membrane & Filtration Processes in Water Treatment**

J. Darby, H. Garcia, J. A. Nason, *Organizers*  
L. E. Katz, N. B. Saleh, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 1.** Membrane-based processes at the water-energy nexus. **M. Elimelech**

**8:45 2.** Point-of-use drinking water treatment with membrane filtration and desalination: A tale of two cities. **W. Walker, I. Santiago**

**9:05 3.** Ion exchange membrane applications for nutrient separation in wastewater treatment. A. Alex, P. Yuan, V. Pavlovic, J. Barber, **Y. Kim**

**9:25 4.** Trace organic rejection by reverse osmosis for potable reuse applications. **K. Howe**, D. Minakata, L.N. Breitner, M. Zhang

**9:45** Intermission.

**10:00 5.** Des Lawler: The early years. **P.C. Singer**

**10:40 6.** Advancing filtration theory: Concurrent contributions of media surface roughness and ionic strength on particle deposition. **M. Emelko**, C. Jin, S. Normani

**11:00 7.** Encountering the heterogeneous and evolving surfaces in the transport and transformation of aquatic nanoparticles. **B. Lau**

**11:20 8.** Drinking water from the source to the tap: Ordering our priorities. **J.L. Schnoor**

Section B

Ernest N. Morial Convention Center  
Room 347

### **Antibiotics & Antimicrobial Resistance: Developing Solutions to Address the Connectivity Between Air, Food, Water & Soil**

Financially supported by AEESP  
D. S. Aga, X. Li, A. Pruden, *Organizers*  
P. J. Vikesland, *Organizer, Presiding*

**9:00** Introductory Remarks.

**9:05 9.** Metagenomic and ARG shifts during composting of antibiotic treated beef and dairy cattle manure. **I. Keenum**, R. Williams, E. Garner, P. Ray, K. Knowlton, A. Pruden

**9:25 10.** Dissemination and propagation of ARGs mediated by conjugative multi-resistant plasmids. **Y. Luo**

**9:45 11.** International comparison of the antibiotic “resistome” of raw sewage. **M.V. Prieto Riquelme**, J. Metch, E. Garner, A. Maile-Moskowitz, L. Angeles, D.S. Aga, I. Nambi, J. Larsson, H. Burgmann, T. Zhang, P.J. Vikesland, A. Pruden

**10:05** Intermission.

**10:20 12.** Differentiating ARG in non-viable sources towards improved understanding of hazard. **A. Eramo**, M. Yam, W. Morales Medina, N. Fahrenfeld

**10:40 13.** Airborne bacteria and antibiotic resistance genes in PM<sub>2.5</sub> of Nanjing, China: Spatial-temporal variability and human inhalation risk. J. Xie, L. Jin, X. Luo, **X. Li**

**11:00 14.** Dynamics of antibiotic resistance in sewers and sewer sediments. **A. Eramo**, S. Blanc, N. Fahrenfeld

**11:20 15.** Spatial trends of antibiotics, metals, and antibiotic resistance genes in sediments. J.F. Kerrigan, K. Sandberg, D.R. Engstrom, T. LaPara, **W. Arnold**

**11:40 16.** Environmental fate of antibiotics - impact of manure land application methods. **H.T. Le**, P. Ray, K. Knowlton, R.O. Maguire, K. Xia

## Section C

Ernest N. Morial Convention Center  
Room 348

### **Advances in the Transformations, Implications & Metrology of Carbonaceous Nanomaterials in the Environment**

A. S. Adeleye, D. Goodwin, *Organizers, Presiding*

**8:15** Introductory Remarks.

**8:20 17.** Photoenhanced oxidation of graphene oxide in the presence of free chlorine. **S. An**, J. Wu, J. Fortner

**8:50 18.** (Photo)chlorination-induced transformation of graphene oxide: mechanism and environmental fate. **Y. Li**

**9:15 19.** Colloidal stability and reduction of graphene oxide in marine waters. **A.S. Adeleye**, R.M. Burgess, K. Ho

**9:40 20.** Nanoparticle interaction with isolated Gram-positive bacterial cell walls. **E.R. Caudill**, J. O'Rourke, K.P. Johnson, R. Tapia Hernandez, L. Zhu, A. Vartanian, C.J. Murphy, V. Feng, J.A. Pedersen

**10:05** Intermission.

**10:15 21.** Quantifying ROS reactivity of graphene oxide in aqueous media. **H. Hsieh, R.G. Zepp**

**10:40 22.** Treatment of nitroaromatic explosives-contaminated water in aqueous phase by nano-sized carbon nanotube yarn. **S.R. Kanel**, I.E. Pavel Sizemore, D.M. Kempisty, M.N. Goltz

**11:05 23.** Chemistry of Nano-CarboScavengers allows dual method rehabilitation of petroleum contaminated water. **S.K. Misra**, E. Daza, J. Scott, I. Tripathi, C.M. Promisel, B. Sharma, J. Topczewski, S. Chaudhuri, D. Pan

**11:30 24.** Silanization of nanocellulose and its influence on biodegradation and dispersion characteristics. **B. Frank**, D.P. Durkin, E.R. Caudill, D. White, M.L. Curry, J.A. Pedersen, H. Fairbrother

**11:55** Concluding Remarks.

## Section D

Ernest N. Morial Convention Center  
Room 349

### **Chemistry of Drinking Water Distribution Systems & Infrastructure**

D. Giammar, Y. Hu, H. Liu, *Organizers, Presiding*

**8:15** Introductory Remarks.

**8:20 25.** Roles of corrosion inhibitors on simulated drinking water biofilm physical structures and responses to microplasma jet array treatment. P. Sun, G. Monroy, C. Huang, W. Chen, Y. Wang, Y. Wang, S. Boppart, **T.H. Nguyen**, J. Eden

**8:50 26.** Heterogeneous lead phosphate nucleation at organic-water interfaces: Implications for lead immobilization. **Y. Hu**, C. Dai, J. Zhao, D. Giammar, J. Pasteris, X. Zuo

**9:10 27.** Rates and pathways of controlling lead concentrations in lead pipes by orthophosphate addition. **Y. Bae**, L. Schattner, A. Ivarson, J. Pasteris, D. Giammar

**9:30 28.** Effects of ortho- and polyphosphates on lead speciation in drinking water. **B. Trueman**, W. Krkosek, G.A. Gagnon

**9:50 29.** Aggregation of lead phosphate nanoparticles: Implication for lead immobilization in pipe systems. **J. Zhao**, C. Dai, D. Giammar, J. Pasteris, Y. Hu

**10:10** Intermission.

**10:25 30.** Withdrawn.

**10:55 31.** Mineral characterizations of lead service line corrosion scale from Flint, Michigan. M. Wax, B. Ellis, **T.M. Olson**

**11:15 32.** Lead levels in copper and lead service lines in Flint, Michigan. **S.J. Masten**, S. Davies, C.R. McPherson, S.W. Haider

**11:35 33.** Geochemical drivers of lead exposure in Flint's drinking water distribution system. **S.P. McElmurry**, M. Dardona, M. Runho, J. Birbeck

Section E

Ernest N. Morial Convention Center  
Room 350

## **Agro-Environmental & Energy Applications of Biochar/Hydrochar**

### **Carbonization Processes & Modifications**

N. D. Berge, C. Jeong, K. Ro, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 34.** Selective extraction of value-added chemicals from hydrothermal carbonization bio-liquids. **S. Bae**, M. Choi, S. Lee, S. Park, Y. Hwang

**8:30 35.** Sustainable water treatment materials via hydrothermal carbonization, secondary biofuel extraction, and activation of prickly pear cactus. L. Gao, M. Volpe, L. Fiori, **J.L. Goldfarb**

**8:50 36.** Understanding the influence of feedstock properties and process conditions on products resulting from the hydrothermal carbonization of organics. L. Li, J. Flora, K. Ro, **N.D. Berge**

**9:10 37.** Transformation of phosphorus during (hydro)thermal treatments of solid biowastes: Reaction mechanisms and implications for phosphorus reclamation and recycling. **R. Huang**, C. Fang, B. Zhang, Y. Tang

**9:30 38.** Quantification of chemical states, dissociation constants, and oxygen functional groups on hydrochar. N. Saha, S. Mazumder, A. Saba, **M. Reza**

9:50 Intermission.

10:10 39. Effects of ball milling on the physicochemical and adsorption properties of biochar. **B. Gao**, H. Lyu

10:30 40. Production of magnetic hydrochars via hydrothermal carbonization (HTC) of metallic residues and wood. **B. Wirth**, M. Seiffert

10:50 41. Turning un-hydrolyzed cellulosic lignin residue into surface-oxygenated biochar through hydrothermal carbonization and wet ozonization. O. Sacko, C. Li, G. Kharel, S. Abate, A. Sika, S. Kumar, **J.W. Lee**

11:10 42. Ultrasound activation followed by amine functionalization: An efficient strategy for CO<sub>2</sub> capture by biochar. **R. Chatterjee**, B. Sajjadi, D.L. Mattern, W.W. Chen, N. Egiebor, Y. Liu

11:30 43. Augmented photodegradation of methylene blue by titanium dioxide/biochar nanoparticles hybrid. **S. SafariMohsenabad**, K. von Gunten, M. Alam, M. Hubmann, D. Alessi

Section F

Ernest N. Morial Convention Center  
Room 351

### Aquatic Photochemistry

K. P. McNeill, *Organizer*  
W. Arnold, S. G. Pati, *Organizers, Presiding*

8:15 Introductory Remarks.

8:20 44. Singlet oxygen quantum yields in different natural waters by various methods. **K.P. McNeill**

8:40 45. Production of hydroxylating species from DOM model sensitizers. **K.D. Couch**, G. McKay, F.L. Rosario

9:00 46. Kinetics studies and mechanistic considerations on the reactions of superoxide radical ions with dissolved organic matter. J. Ma, H. Zhou, S. Yan, **W. Song**

9:20 47. <sup>1</sup>O<sub>2</sub> phosphorescence as a probe for <sup>3</sup>DOM<sup>•</sup>: Assessing triplet reactivity with sorbic acid. **K.J. Moor**, P.R. Erickson, K.P. McNeill

9:40 48. Development of quantitative structure-activity relationships for triplet-sensitized aquatic photochemistry. **M. Taggart**, **S. Herring**, D.E. Latch, M. O'Connor, W. Arnold

10:00 Intermission.

10:10 49. Effect of pH and wavelength on reactive oxidant production during chlorine photolysis. **C.K. Remucal**, D.M. Bulman

10:30 50. Characterization of changes in dissolved organic matter properties and disinfection byproduct formation during solar photolysis of aqueous free chlorine. **T. Young**, W. Li, A. Guo, G. Korshin, S. Canonica, U. von Gunten, M.C. Dodd

10:50 51. Critical analysis of reactive halogen species (RHS)-mediated photochemistry in halide-containing aquatic systems. **K. Parker**, A. Mishra

**11:10 52.** Withdrawn.

**11:30 53.** Mechanism of ferric oxalate photolysis from ultrafast infrared spectroscopy. **B. Gilbert**, D.M. Mangiante, R.D. Schaller, P. Zarzycki, J. Banfield

Section G

Ernest N. Morial Convention Center  
Room 342

## **Novel Membrane-Based Technology for Water Purification & Desalination**

### **New Membrane Materials**

D. Jassby, B. Mi, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:10 54.** Artificial water channels. **M. Barboiu**

**8:30 55.** Novel graphene-based additive for membrane surface modification. **X. Zhu**, L. Zhang, B. Chen

**8:50 56.** GO mediated surface modification of polyamide membrane with zwitterionic polymer brush and peptide to control the biofouling via “bacteria- defending and -attacking” strategies. **W. Ma**, S. Nanni, T. Chen, A. Tirafferri, M. Rahaman

**9:10 57.** Electrospraying ultrathin reduced graphene oxide (rGO) membrane for water desalination. **Q. Huang**, S. Zheng, Z. Wang, L. Lin, X. Zhang, B. Mi

**9:30 58.** Demonstration of *in situ* membrane surface cleaning and reformation with modification of crumpled graphene oxide – magnetite composites. **Q. Zeng**

**9:50** Intermission.

**10:00 59.** Applications of graphene oxide membranes. **R. Joshi**, B. Lian, Y. You, V. Sahajwalla, G. Leslie, V. Chen, H. Bustamante

**10:30 60.** Development of graphene frameworks membranes for separation of immiscible liquids. **C.M. Mai Van**

**10:50 61.** Heterostructure membranes made from stacked-two-dimensional nanomaterials: Tuning the interlayer-spacing for aqueous phase separation. **S. Zheng**, Q. Tu, B. Mi

**11:10 62.** Two-dimensional metal carbides (MXenes): New frontiers for water treatment applications. **K.A. Mahmoud**, K. Rasool, R. Pandey

**11:30 63.** Size-dependent antimicrobial activities of chemically exfoliated MoS<sub>2</sub> nanosheets coated membrane surfaces. **Y. Zhao**, X. Zhang, S. Hermanowicz, B. Mi

## **Water, Water Everywhere But Not a Drop to Drink: Preserving, Protecting & Delivering Clean Water**

Sponsored by PRES, Cosponsored by AGFD, BMGT, CATL, CEI, CELL, CHAS, CHED, COLL, CTA, ENVR, GEOC, I&EC, INOR, MPPG, SCHB and YCC

## **Elucidation of Mechanisms & Kinetics on Surfaces**

### **Mechanisms & Selectivity**

Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS

## **Fluid-Solid Interfacial Phenomena at the Nexus of Energy & Geochemistry Research: A Symposium in Honor of David J. Wesolowski**

Sponsored by GEOC, Cosponsored by COLL, ENFL, ENVR and INOR

## **LGBTQ+ Graduate Student & Postdoctoral Scholar Research Symposium**

### **Emerging Applications of Organic & Biochemistry: Soil Science, Biomaterials & Synthesis**

Sponsored by PROF, Cosponsored by ANYL<sup>‡</sup>, BIOL<sup>‡</sup>, BIOT, CHED, CMA, COLL, COMP<sup>‡</sup>, CWD, ENVR, INOR<sup>‡</sup>, MEDI<sup>‡</sup>, ORGN, PHYS<sup>‡</sup>, PMSE<sup>‡</sup>, POLY<sup>‡</sup>, PRES<sup>‡</sup>, WCC and YCC

## **Multiscale Biogeochemical Processes in Soil Ecosystems: Critical Reactions & Resilience to Climate Changes**

Sponsored by GEOC, Cosponsored by AGRO and ENVR

## **Biomining & Bio-Compatible Minerals**

Sponsored by GEOC, Cosponsored by BIOL and ENVR

## **Wood-Based Materials for Energy & Water**

### **Nanocellulose-Based Technologies**

Sponsored by CELL, Cosponsored by ENFL, ENVR and MPPG

## **Challenge & Opportunity in Lignin Valorization**

Sponsored by CATL, Cosponsored by ENFL, ENVR, INOR and PHYS

## **SUNDAY AFTERNOON**

Section A

Ernest N. Morial Convention Center  
Room 346

## **Physics & Chemistry of Water Treatment: Symposium in honor of Professor Desmond F. Lawler**

### **Alternative Water Sources & Treatment Applications**

L. E. Katz, J. A. Nason, N. B. Saleh, *Organizers*

J. Darby, H. Garcia, *Organizers, Presiding*

**1:30 64.** Harvesting urban stormwater runoff for water supply. **R.G. Luthy**, S. Spahr, N. Ashoori, M. Teixido Planes, D.L. Sedlak

**2:10 65.** From drinking water to stormwater: The role of a spore's electrical double layer in surface interactions. **A. Mikelonis**, S. Youn, K. Ratliff

**2:30 66.** Accurate estimation of DBP precursors using short-term and thermally accelerated protocols. **D.A. Reckhow**, C. Dozier

**2:50 67.** Sustaining water availability in rural communities: Expanding use of poor quality waters. **D.D. Reible**, C. Na

**3:10** Intermission.

**3:30 68.** Rainwater for drinking: Science, technology, practice and case studies. **M. Han**

**4:10 69.** Potential for disinfecting rainwater with nanosilver-enabled ceramic filters. **M. Kirisits**, T. Kim, L.S. Rowles III, D.F. Lawler, N.B. Saleh

**4:30 70.** Investigating key indicators impacting plate health, aluminum generation, and fluoride treatment in electrocoagulation defluoridation treatment systems. **K.A. Alfredo**, M. Jain, P. Nagarnaik, P. Labhasetwar

**4:50 71.** Boron removal from hydraulic fracturing flowback water by chemical and electrocoagulation: Mechanisms and limitations. **S. Chellam**

**5:10 72.** Application of physical/chemical treatment processes to agricultural waste: Recovering nutrient-laden particles from poultry litter. U. Shashvatt, C. Portner, S. Musa, H. Aris, **L.M. Blaney**

Section B

Ernest N. Morial Convention Center  
Room 347

## **Antibiotics & Antimicrobial Resistance: Developing Solutions to Address the Connectivity Between Air, Food, Water & Soil**

### **Impacts of Treatment**

Financially supported by AEESP  
D. S. Aga, A. Pruden, P. J. Vikesland, *Organizers*  
X. Li, *Organizer, Presiding*

**1:30 73.** Nucleic acid reactivity and functional fate in drinking water and wastewater treatment processes. **K. Wigginton**

**2:00 74.** Development and application of predictive models for antibiotic resistance gene degradation and deactivation kinetics during bench-scale and full-scale disinfection processes. **H. He**, P. Zhou, K. Shimabuku, X. Fang, A. Anderson, M.C. Dodd

**2:20 75.** Effects of metals on the relative abundance of antibiotic resistant bacteria in drinking water. **A. Kappell**, K. Harrison, P.J. McNamara

**2:40 76.** Antibiotic resistance in anaerobic membrane bioreactors treating synthetic domestic wastewater and a blend of real domestic wastewater and manure. **E. Rice**

**3:00** Intermission.

**3:15 77.** Evaluation of integrated algae-wastewater treatment systems to remove antibiotics and reduce downstream antibiotic resistance. **K. Grimes**, L.M. Colosi

**3:35 78.** Polyvalent bacteriophage therapy to suppress antibiotic-resistant bacteria in environmental systems. **P. Yu**, P.J. Alvarez



**3:55 79.** Silver nanoparticles induce antibiotic resistance in *Pseudomonas aeruginosa*. **B.A. Chambers**, S.K. Smith, M.J. Kirisits

**4:15 80.** Physiological response of *Shewanella oneidensis MR-1* to spatial gradients of ciprofloxacin concentration. **R.E. Alcalde**, L. Zhou, J. Deng, R. Sanford, B. Fouke, C.J. Werth

**4:35 81.** Comparison of virus concentration methods from various water matrices for detecting the viral resistome. **K. Langenfeld**, R. Cable, M. Duhaime, K. Wigginton

**4:55 82.** Role of motility in *Escherichia coli* response to antibiotic gradients in microfluidics. **L. Zhou**, J. Deng, Y. Dong, R.E. Alcalde, R. Sanford, B. Fouke, C.J. Werth

**5:15** Concluding Remarks.

Section C

Ernest N. Morial Convention Center  
Room 348

### **Advances in the Transformations, Implications & Metrology of Carbonaceous Nanomaterials in the Environment**

A. S. Adeleye, D. Goodwin, *Organizers, Presiding*

**1:30** Introductory Remarks.

**1:35 83.** Microbial transformation and plant uptake of multi-walled carbon nanotubes. **Y. Yang**, Y. You, K.K. Das, J. Chan, F. Barrios-Masias, P. Verburg, S. Poulson, X. Wang, B. Xing

**2:05 84.** Quantification of multiwall carbon nanotubes in plant tissues using digestion-coupled programmed thermal analysis. **K.K. Das**, Y. Yang, B. Xing, X. Wang, J. Chow, L. Bancroft

**2:30 85.** Single and combined effects of carbon nanotubes and surfactant on bioaccumulation and translocation of pyrene and 1-methylpyrene in maize seedlings: Multicompound exposure scenarios. **H. Zhang**, Y. Liu, X. Shen, M. Zhang, Y. Yang, S. Tao, X. Wang

**2:55 86.** Microplastic exposure assessment from the perspective of nanoparticle research. **T. Hueffer**, A. Praetorius, S. Wagner, F. Von Der Kammer, T. Hofmann

**3:20** Intermission.

**3:30 87.** Assessment of graphene oxide/polymer nanocomposite degradation from different metrology approaches. **D.G. Goodwin**, T. Lai, A. Campos, V. Reipa, J.M. Gorham, T. Nguyen, L. Sung

**3:55 88.** Characterization of engineered nanomaterial release from nanoenabled products following accelerated and natural weathering. **R. Lankone**, J. Wang, K. Challis, Y. Bi, D. Hanigan, Y. Wang, M. Garland, R. Reed, T. Zaikova, P.K. Westerhoff, L.M. Gilbertson, J.F. Ranville, H. Fairbrother

**4:20 89.** Degradation of solid state C<sub>60</sub> fullerene by UV irradiation under environmentally relevant conditions. A. Carboni, R. Helmus, P. de Voogt, K. Kalbitz, **J. Parsons**

**4:40 90.** Reactions of hematite in the presence of carbon nanoparticles. **A.M. Johansen**, H. Casique, A. Reddy, J. Rodriguez, J. Rodriguez, S. Bradford

**5:00 91.** Surface oxidation and iron speciation on carbon nanoparticles for precise air pollution models. **A. Pattammattel**, V. Leppert, H.J. Forman, P.A. O'Day

**5:20** Concluding Remarks.

Section D

Ernest N. Morial Convention Center  
Room 349

### **Chemistry of Drinking Water Distribution Systems & Infrastructure**

D. Giammar, Y. Hu, H. Liu, *Organizers, Presiding*

**1:30** Introductory Remarks.

**1:35 92.** Crucial chemistry at water-arsenopyrite interfaces during managed aquifer recharge. **Y. Jun**, C. Neil, J. Yang, D. Schupp

**2:05 93.** Multiscale modeling of dead-ends of drinking water distribution systems: Disinfectant transport to DBP formation to lead release. A.A. Abokifa, **P. Biswas**

**2:35 94.** Factoring physics into local and global assessments of nitrogen pollution. **S. Grant**

**3:05 95.** Recent developments for chromium(VI) removal from groundwaters. **I. Katsogiannis**, A. Zouboulis, M. Mitrakas

**3:25** Intermission.

**3:40 96.** Building plumbing safety: Right sizing tomorrow's water systems for efficiency, sustainability, and public health. **A.J. Whelton**, M. Salehi, J. Mitchell, J. Rose, A. Nejadhashemi, J. Beecher, E. Dreelin, A. Shah, T. Gim Aw, M. Syal

**4:10 97.** Lead release resulting from galvanic corrosion in a three-metal system consisting of lead, copper and stainless steel in drinking water. J. Lin, D. Ng, **Y. Lin**

**4:30 98.** Investigating the relationship between discolored water from galvanized iron corrosion and source water conditions. **M. Tang**, V. Nystrom, K. Pieper, J. Parks, M. Edwards

Section E

Ernest N. Morial Convention Center  
Room 350

### **Agro-Environmental & Energy Applications of Biochar/Hydrochar**

#### **Agricultural & Energy Applications**

N. D. Berge, C. Jeong, K. Ro, *Organizers, Presiding*

**1:30** Introductory Remarks.

- 1:35 99.** Matching hydrochar characteristics with application requirements to improve agricultural nutrient use efficiency. **J. Libra**, J. Kern
- 2:00 100.** Impact of biochar and biochar-compost mixture application on cotton yield and nutrient runoff losses in four consecutive planting seasons. **C. Jeong**, H. Ku, K.S. Ro
- 2:20 101.** Influence of biochar addition on the soil microbial community responses in poultry manure applied soybean crop systems. **J. Ham**, R. Calderon, C. Jeong, K. Ro
- 2:40 102.** Biochar application effects on water quality in two different textured soils. **N.D. Tafti**, J.J. Wang, J. Park, M. Wang
- 3:00 103.** Effect of biochar on soil water content, nutrient release, greenhouse gas and ammonia emissions, and crop growth. **S. Dodla**
- 3:20** Intermission.
- 3:40 104.** New perspectives for biochar utilization under food-water-energy nexus. **M. Urgan-Demirtas**
- 4:00 105.** Effects of manure-derived biochar on solid state anaerobic digestions of manure. **H. Jang**, Y. Choi, E. Kan
- 4:20 106.** Effects of feedstock, pyrolysis conditions, and activation on removal of odorous compounds. **K. Ro**, O. Hwang, S. Lee, D. Han, S. Cho, M. Spiehs, B. Woodbury
- 4:40 107.** Biochar surface oxygenation through ozonization for enhanced cation exchange capacity. M. Huff, S. Marshall, H. Saeed, **J.W. Lee**
- 5:00 108.** Hydrochar application to adsorption of contaminant and gas and energy storage. X. Zhu, **S. Zhang**, J. Chen

Section F

Ernest N. Morial Convention Center  
Room 351

### **Aquatic Photochemistry**

W. Arnold, *Organizer*  
K. P. McNeill, S. G. Pati, *Organizers, Presiding*

**1:30** Introductory Remarks.

- 1:35 109.** Effects of ozone on the photophysical and photochemical properties of dissolved organic matter. **F. Leresche**, T. Kurtz, G. McKay, S. Canonica, U. von Gunten, F.L. Rosario
- 1:55 110.** Dissolved organic matter (DOM) characterization and enhanced photoreactivity in constructed wetlands for wastewater treatment. **A. Sardana**, B. Cottrell, T.N. Aziz
- 2:15 111.** Impact of dissolved organic matter composition on the production of photochemically-produced reactive intermediates in the St. Louis River. **S. Berg**, K.H. Wammer, C.K. Remucal
- 2:35 112.** Impact of dissolved organic matter composition variability on indirect photolysis of contaminants in the St. Louis River. **K.H. Wammer**, Q.T. Whiting, J.A. Herrli, S. Berg, C.K. Remucal

**2:55 113.** Critical evaluation of models for chromophoric dissolved organic matter optical properties and photochemistry. **G. McKay**, F.L. Rosario, J.A. Korak

**3:15** Intermission.

**3:25 114.** Photochemistry of natural organic matter (NOM) in natural waters: Implications to reactive oxygen species generation and redox cycling of iron. **S. Garg**, D. Waite

**3:45 115.** Singlet oxygenation of Domoic acid: Mechanisms and biological significance. **M. Jaramillo**, K.E. O'Shea

**4:05 116.** Our dusty future: Singlet oxygen production by illuminated road sediment and winter traction material. **S.A. Styler**, P.D. Milner, J.R. Kwasny, A. Duarte de Marins Costa, L. Gan, S.R. Schneider

**4:25 117.** Evaluating the magnitude of partial photo-oxidation of organic carbon in sunlit surface waters. **C.P. Ward**, C. Reddy, R.M. Cory

**4:45 118.** Temperature dependence of the fluorescence of dissolved organic matter: Implications for DOM photophysics. **G. McKay**, J.A. Korak, F.L. Rosario

Section G

Ernest N. Morial Convention Center  
Room 342

## **Novel Membrane-Based Technology for Water Purification & Desalination**

### **Membrane Fouling & Surface Modification**

D. Jassby, B. Mi, *Organizers, Presiding*

**1:30** Introductory Remarks.

**1:40 119.** Improvement of N-nitrosodimethylamine (NDMA) removal by thin film composite polyamide reverse osmosis membranes via surface modification with carbonaceous nanomaterials. H. Croll, A. Soroush, **S. Romero-Vargas Castrillon**

**2:00 120.** Optimizing layer by layer approach via ultrasonic spray technique: A case study of depositing anatase titanium dioxide and polydopamine to reduce fouling while enhancing water flux. **A.J. DeStefano**, D. Li

**2:20 121.** Facile deposition of photo-mobile materials on polymeric membranes achieving self-cleaning properties. **H. Lin**, S. Ramanan, N. Shahkaramipour, T. Tran

**2:40 122.** Mitigation of humic acid fouling on ultrafiltration membranes in a photocatalytic system. **R. Zhu**, A. Diaz, Y. Sun, S. Solares, D. Shuai

**3:00** Intermission.

**3:10 123.** Membrane treatment of oil and gas wastewater: 7 years of research experience. **T.Y. Cath**

**3:40 124.** Zwitterion-modified forward osmosis membrane used for shale oil produced water treatment. **R.R. Kommalapati**, **H. Du**, S. Potluri, V. Botlaguduru

**4:00 125.** Comparison and characterization of biofilm removal by different chemical cleaning solutions for water treatment applications. **C. Kim**, S.L. Walker, D. Jassby

**4:20 126.** Backwashing of hollow fiber membranes during constant flux microfiltration of secondary wastewater effluent: Modeling and mechanisms of physically irreversible fouling. **K. Gupta**, S. Chellam

**4:40 127.** Tuning the microstructure of functional layer for improved wastewater treatment performance of polymeric composite membrane. **J. Meng**

**5:00 128.** Probing nanoscale hydrophobicity and chemical distribution of surface modified polyethersulfone (PES) membranes. **W. Fu**, W. Zhang

#### **LGBTQ+ Graduate Student & Postdoctoral Scholar Research Symposium**

##### **Experimental & Computational Frontiers in Inorganic & Materials Chemistry**

Sponsored by PROF, Cosponsored by ANYL<sup>‡</sup>, BIOL<sup>‡</sup>, BIOT, CHED, CMA, COLL, COMP<sup>‡</sup>, CWD, ENVR, INOR<sup>‡</sup>, MEDI<sup>‡</sup>, ORGN, PHYS<sup>‡</sup>, PMSE<sup>‡</sup>, POLY<sup>‡</sup>, PRES<sup>‡</sup>, WCC and YCC

#### **Fluid-Solid Interfacial Phenomena at the Nexus of Energy & Geochemistry Research: A Symposium in Honor of David J. Wesolowski**

Sponsored by GEOC, Cosponsored by COLL, ENFL, ENVR and INOR

#### **Science Cafes & Engaging the Public: Techniques for Hosting Successful Events**

Sponsored by PRES, Cosponsored by CATL, CELL, CHAS, CHED, COLL, CPRC, CTA, ENVR, I&EC, INOR, MPPG, SCHB and YCC

#### **Elucidation of Mechanisms & Kinetics on Surfaces**

##### **Mechanisms at the Atomic Scale**

Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS

#### **Multiscale Biogeochemical Processes in Soil Ecosystems: Critical Reactions & Resilience to Climate Changes**

Sponsored by GEOC, Cosponsored by AGRO and ENVR

#### **Biom mineralization & Bio-Compatible Minerals**

Sponsored by GEOC, Cosponsored by BIOL and ENVR

#### **Wood-Based Materials for Energy & Water**

##### **Wood-Fiber & Wood-Scaffold Based Technologies**

Sponsored by CELL, Cosponsored by ENFL, ENVR and MPPG

#### **Challenge & Opportunity in Lignin Valorization**

Sponsored by CATL, Cosponsored by ENFL, ENVR, INOR and PHYS

# MONDAY MORNING

Section A

Ernest N. Morial Convention Center  
Room 346

## Physics & Chemistry of Water Treatment: Symposium in honor of Professor Desmond F. Lawler

### Particles & Advanced Oxidation

H. Garcia, L. E. Katz, N. B. Saleh, *Organizers*  
J. Darby, J. A. Nason, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 129.** Injection of particulates for groundwater remediation: A reverse filtration challenge. **M.C. Kavanaugh**, D.W. Elliott, M. Zhang, J. Chambon, C. Wildman, B. Marvin

**8:45 130.** Manganese and iron control: the critical role of particles and surfaces. **J.E. Tobiason**

**9:05 131.** Overcoming barriers limiting widespread adoption of catalytic destruction of nitrate in drinking water. **C.J. Werth**, A. Bergquist, M. Bertoch, S. Seraj, P. Kunal, S.M. Humphrey

**9:25 132.** Utilizing organophosphates to control particle properties: From antiscalants in desalination to iron-mediated persulfate oxidation. **L.F. Greenlee**

**9:45** Intermission.

**10:00 133.** Unexpected and potentially toxic products of advanced oxidation processes. **D.L. Sedlak**, C. Prasse, J. Van Buren

**10:40 134.** Enzymatic treatment to remove pharmaceutical and personal care products (PPCPs) from municipal wastewater effluents. **K.A. Kinney**, H. Garcia, D.F. Lawler, C.P. Whitman, W.H. Johnson, O. Haugland

**11:00 135.** Advancing catalysts and catalytic processes for treating oxyanion water pollutants – moving beyond palladium and developing hybrid reactor systems. **T.J. Strathmann**, X. Huo, J. Liu, Y. Wang

**11:20 136.** Kinetic models for advanced oxidation-reduction processes. **B. Batchelor**

**11:40 137.** Electron donating capacity as a novel tool to assess oxidation processes  
. **U. von Gunten**, L. Oennby, K. Chon, E. Salhi

Ernest N. Morial Convention Center  
Room 347

**Shaping Activity through Structural Modification: From Small Molecules to Nanoparticles: A Symposium in honor of Professor Bing Yan**

D. D. Dionysiou, V. K. Sharma, H. Zhou, *Organizers*  
J. Chen, J. Liu, *Presiding*

**8:00** Introductory Remarks.

**8:15 138.** Toxicity of black phosphorus nanosheets (BPs). G. Qu, **G. Jiang**

**8:40 139.** Multi-pollutants emissions and health exposure assessment from the burning of major agricultural straws in China. **J. Chen**, J. Li, Q. Li

**9:05 140.** Controlled synthesis of atomically dispersed alloy shell of Au@PdAg nanoparticles by manipulating growth kinetics. Y. Lai, R. Liu, X. Zhou, **J. Liu**

**9:30 141.** Simulating and predicting adsorption of organic pollutants on carbon nanomaterials. **J. Chen**, Y. Wang

**9:55** Intermission.

**10:15 142.** Clay mineral-based polymeric nanocomposites for heavy metal removal. **C. Wang**

**10:40 143.** Mass spectrometry-based techniques for the investigation on toxicological mechanisms of bisphenol F in breast cancer xenografts. **Z. Cai**

**11:05 144.** Transfer of antibiotic-resistance genes between different bacteria under light irradiation and at the interface of mineral. X. Chen, H. Yin, G. Li, **T. An**

**11:30 145.** Chemical characterization of highly oxidized molecules (HOMs) in Linzhi, Tibet. L. Yao, **L. Wang**

## Section C

Ernest N. Morial Convention Center  
Room 348

**Innovative Chemical & Material Approaches for Sustainable Water Purification**

**Adsorption**

Cosponsored by CEI  
J. Choe, J. Liu, D. Shuai, Y. Wang, *Organizers, Presiding*

**8:30** Introductory Remarks.

**8:35 146.** Effective adsorbents for toxic metal ions in water body based on macroporous polyvinyl alcohol-formaldehyde sponges. Y. Pan, K. Shi, Z. Liu, **X. Ji**

**8:55 147.** Tailored cyclodextrins for environmental remediation of emerging perfluoroalkyl substances. **M.J. Weiss-Errico**, I. Ghiviriga, K.E. O'Shea

**9:15 148.** Recovery of nitrogen and phosphorus nutrients via metal-exchanged zeolites. **M.J. Manto**, M.A. Keller, T. Pu, W. Liano, P. Xie, C. Wang

**9:35 149.** Removal of nitrate and fluoride anions from aqueous solution using  $\alpha$ -FeOOH and  $\gamma$ -Fe<sub>2</sub>O<sub>3</sub> modified biochar with fast adsorption kinetics . **N.W. Bombuwala Dewage**, A.S. Liyanage, C.U. Pittman, T. Mlsna

**9:55** Intermission.

**10:15 150.** New type of material derived from concrete sludge and its applications to pollution prevention processes: PAdeCS®. **A. Yamasaki**, A. Iizuka, T. Sasaki, H. Yoshida

**10:35 151.** Novel carbon based smart filters for remediation of pharmaceutical contaminants. S.K. Misra, **I. Tripathi**, L. Dodgen, F. Ostadhossein, J. Scott, B. Sharma, W. Zheng, D. Pan

**10:55 152.** Electrospun polymeric nanocomposite fibers for water purification. **N. Hoogesteijn von Reitzenstein**, O. Apul, K.D. Hristovski, P.K. Westerhoff

**11:15 153.** Composite of functionalized carbon nanotube and carbon nanofiber for improving water treatment. **Y. Han**, R. Li, C. Bruckner, J.R. McCutcheon, T.M. Vadas

**11:35 154.** Polymeric functionalized clay composites for adsorption of trace contaminants in urban stormwater infiltration systems. **J. Ray**, M. Teixido, I. Shabtai, Y. Mishael, D.L. Sedlak

**11:55** Concluding Remarks.

Section D

Ernest N. Morial Convention Center  
Room 349

### **Environmental Chemistry Undergraduate Education in the Classroom, Laboratory & Beyond**

Cosponsored by CHED  
M. Berger, L. A. Welch, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:10 155.** Establishing a long-term monitoring program of a local contaminated hotspot using a senior analytical environmental laboratory class. **S. Joudan**, A.O. De Silva, S.R. de Solla, J.C. D'eon

**8:30 156.** Citizen science and college student partnership to assess stream health in the Charles River Watershed, Boston, MA. **L. Lobel**, E. Cianciola, M. Berger

**8:50 157.** Semester-long course-based undergraduate research experience (CURE) in snow chemistry in the general chemistry laboratory. **N. May**, S. McNamara, J.P. Wolfe, J. Vernon, D. Goldberg, S. Wang, K. Kolesar, K.A. Pratt

**9:10 158.** Multi-project development with focus on water quality in a four year undergraduate college. **G. Geme**

**9:30 159.** Integration of environmental research into the freshman chemistry laboratory. **M. Karod**, B. Boschetti, E. Robinson, J.L. Goldfarb, M. Berger



**9:50** Intermission.

**10:05 160.** Multifunctional magnetic nanoparticles and electrochemical membrane filtration for sustainable biomass harvesting and water purification: A case study on incorporating research and sustainability concepts into classroom and laboratory teaching. **W. Zhang**

**10:25 161.** CURE for climate change: Engaging the next generation with scientific computing and climate change data analysis. **A.K. Sharma**

**10:45 162.** Undergraduate inorganic/materials research at UVa-Wise: Evaluating the roles of functional groups in zirconium-based metal-organic frameworks on stability, structural defects, and trace heavy metal capture. **T.A. Makal**

**11:05 163.** Undergraduate international research at the food-energy-water nexus: Influence on research skills, research confidence, and cultural enrichment. B. Casad, **N. Mladenov**, M. Palomo, B. Pietruschka, C. Buckley

**11:25 164.** Synthesis of fuel range chemicals from biomass using catalytic pathways. S. Ogozaly, A. Childs, **L.A. Welch**

**11:45** Concluding Remarks.

Section E

Ernest N. Morial Convention Center  
Room 350

## **Agro-Environmental & Energy Applications of Biochar/Hydrochar**

### **Biochar/Hydrochar as Environmental Sorbents**

N. D. Berge, C. Jeong, K. Ro, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 165.** Biochar and its functionalization for agricultural and environmental applications. **J.J. Wang**

**8:30 166.** Enhanced removal of nutrients and trace organic contaminants from urban runoff using biochar and manganese oxide-coated sand geomedia in capture, treatment, and recharge systems. **M. Teixido**, J. Charbonnet, N. Ashoori, R.G. Luthy, D.L. Sedlak

**8:50 167.** Adsorption of pharmaceutical active compounds using activated carbons synthesized from herbaceous biomass. O. Oginni, **K. Singh**, L. McDonald

**9:10 168.** Development of sustainable biochars for the aqueous remediation of organic and inorganic contaminants. **D. Mohan**, M. Patel, P. Singh, R. Kumar

**9:30 169.** Biochar effect on the sorption-desorption and dissipation of 17  $\alpha$ -ethinylestradiol (ee2) in sandy and clay soils. **Z. Wei**

**9:50** Intermission.

**10:10 170.** Effect of feed source and pyrolysis conditions on properties and metal sorption by sugarcane biochar. **I.M. Lima**

**10:35 171.** Properties of animal manure-derived hydrochars and pyrochars and their sorption of antimony (III) and cadmium (II). **L. Han**, K. Sun, B. Xing

**10:55 172.** Coconut shell derived hierarchical carbon adsorbent for fluoride removal from aqueous solution: Synthesis, equilibrium, kinetics and thermodynamics studies. **R. Araga**, S. Kali, C. Sharma

**11:15 173.** Adsorption of methylene blue onto activated carbon prepared from KOH-treated jamun (*Syzygium cumini*) seed: Equilibrium, kinetic and thermodynamic studies. **R. Araga**, P. P., C. Sharma

**11:35 174.** Oxyanion sorption onto treated biochar surfaces. **S. Bakshi**, J.J. Pignatello

**11:55** Concluding Remarks.

Section F

Ernest N. Morial Convention Center  
Room 351

### **Aquatic Photochemistry**

K. P. McNeill, *Organizer*

W. Arnold, S. G. Pati, *Organizers, Presiding*

**8:15** Introductory Remarks.

**8:20 175.** Photochemical degradation of halogenated estrogens. R. Milstead, K. Nance, K. Tarnas, K. Egelhofer, **D.R. Griffith**

**8:40 176.** Experimental and theoretical investigation of the UV/Vis absorption spectra of brominated 17 $\alpha$ -ethynylestradiol and the implications for environmental photodegradation. **S.N. Eustis**, P. Brown

**9:00 177.** Transformation rates and product formation of reactions of ionic liquid cations with photochemically produced radicals in natural and technical aquatic environments. **S.G. Pati**, W. Arnold

**9:20 178.** Probing defluorination mechanisms for perfluorocarboxylic acids by a UV-mediated reduction system. **M.J. Bentel**, T. Brantner, R. Chavarria-Vivar, V. Coria, J. Liu

**9:40 179.** Destruction of per- and polyfluoroalkyl substances (PFASs) in water sources impacted by aqueous film-forming foam (AFFF) using a photoreductive UV/sulfite process. **R. Tenorio**, J. Liu, X. Xiao, A. Maydanov, A. Maizel, C. Schaefer, C.P. Higgins, T.J. Strathmann

**10:00 180.** Photolysis of 3-nitro-1,2,4-triazol-5-one (NTO): Mechanisms, products, and toxicity. **H. Schroer**, C.L. Just

**10:20** Intermission.

**10:30 181.** Excited triplet state of antibiotic norfloxacin interactions with dissolved natural organic matter: A laser spectroscopic study. **X. Niu**, E. Moore, J. Croue

**10:50 182.** Photochemical transformation of pharmaceuticals in simulated aqueous environmental matrices using a high resolution mass spectrometric approach. **S. Wang**, T. Zeng

**11:10 183.** Predicting transformation products from the direct photolysis of organic compounds in aquatic systems. **C. Yuan**, C. Tebes-Stevens, E.J. Weber

**11:30 184.** Assessing the role of nitrate and nitrite in the transformation of wastewater-derived organic contaminants in sunlit waters. **R. Scholes**, C. Prasse, D.L. Sedlak

Section G

Ernest N. Morial Convention Center  
Room 342

## **Novel Membrane-Based Technology for Water Purification & Desalination**

### **Novel Thermal or Electro Membrane Processes**

D. Jassby, B. Mi, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:10 185.** Photothermal water purification membranes containing optically-tuned polydopamine particles embedded in bacterial nanocellulose. **Y. Jun**, Q. Jiang, H.G. Derami, D. Ghim, S. Cao, S. Singamaneni

**8:30 186.** Waste heat driven membrane distillation for cost-effective produced water treatment in Pennsylvania. **O.R. Lokare**, S. Tavakkoli, G. Rodriguez, V. Khanna, R.D. Vidic

**8:50 187.** Withdrawn.

**9:10 188.** Withdrawn.

**9:30 189.** Process modeling and economic optimization of a solar driven membrane distillation system for desalination. **S.E. Moore**, S.D. Mirchandani, V. Karanikola, T.M. Nenoff, R. Arnold, A.E. Saez

**9:50** Intermission.

**10:00 190.** Stable superhydrophobic desalination membranes using carbon nanotube networks. **Y. Dong**

**10:30 191.** Combined catalytic/electrocatalytic nitrate reduction in a reactive electrochemical membrane. **B.P. Chaplin**, P. Gayen, J. Spataro, J.M. Cerrato, S. Avasara, A. Ali

**10:50 192.** Comparison of Faradaic reactions in capacitive deionization (CDI) and membrane capacitive deionization (MCDI) water treatment processes. **D. He**, W. Tang, D. Waite

**11:10 193.** Application of electro-membrane bioreactor (eMBR) for the removal of pharmaceuticals from wastewater. **B.B. Ensano**, V. Naddeo, L. Borea, M.G. de Luna, V. Belgiorno

**11:30 194.** Novel membrane-electrode hybrid for advanced treatment of industrial wastewater effluents: Decontamination, disinfection, and anti-fouling performances. **K. Choo**, N. Mamede, H. Park, H. Park

## **Elucidation of Mechanisms & Kinetics on Surfaces**

### **Theory**

Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS

**Fluid-Solid Interfacial Phenomena at the Nexus of Energy & Geochemistry Research: A Symposium in Honor of David J. Wesolowski**

Sponsored by GEOC, Cosponsored by COLL, ENFL, ENVR and INOR

**2018 ACS Sustainable Chemistry & Engineering Lectureship Awards: Symposium in honor of Rafael Luque**

Sponsored by CELL, Cosponsored by ENVR and I&EC

**Challenge & Opportunity in Lignin Valorization**

Sponsored by CATL, Cosponsored by ENFL, ENVR, INOR and PHYS

**ACS-CEI Award for Incorporating Sustainability into Chemical Education**

Sponsored by CHED, Cosponsored by CEI and ENVR

**Mineral-Water Interface Geochemistry & Modeling at the Laboratory- & Field-Scales: Symposium in Honor of James A Davis**

Sponsored by GEOC, Cosponsored by ENVR

**Contaminated Site Remediation through Microbial, Geological & Chemical Processes**

Sponsored by GEOC, Cosponsored by ENVR

**Wood-Based Materials for Energy & Water**

**Wood-Based & Related Materials**

Sponsored by CELL, Cosponsored by ENFL, ENVR and MPPG

**MONDAY AFTERNOON**

Section A

Ernest N. Morial Convention Center  
Room 346

**Physics & Chemistry of Water Treatment: Symposium in honor of Professor Desmond F. Lawler**

**Water Treatment: From Small Systems to Broad Ideas**

J. Darby, H. Garcia, J. A. Nason, *Organizers*

L. E. Katz, N. B. Saleh, *Organizers, Presiding*

**1:30 195.** Development and verification of a new model for competitive adsorption on multiple adsorbents. **M.M. Benjamin**, S. Modarresi

**2:10 196.** Selecting the column configuration with the lowest replacement cost: Process analysis for small systems. **B. Dvorak**

**2:30 197.** Pilot-scale evaluation of bicarbonate-form anion exchange for small water systems. **T.H. Boyer**, A. Ness

**2:50 198.** Physics and chemistry of carbon dioxide as the driver for low-energy desalination and decontamination of impaired wastewater. **A.K. Sengupta**

**3:10** Intermission.

**3:30 199.** From water treatment to trophic transfer: Elements of particle aggregation modeling. **M. Wiesner**

**4:10 200.** Looking back: Musing from an undergrad. **D. Niemeier**

**4:30 201.**

No particle shall remain uncounted: Insights from the application of Coulter counter measurements to precipitative coagulation processes. **J.A. Nason**, L.E. Katz

**4:50 202.** Raw water to reuse: Reflections and renewal. **D.F. Lawler**

Section B

Ernest N. Morial Convention Center  
Room 347

**Shaping Activity through Structural Modification: From Small Molecules to Nanoparticles: A Symposium in honor of Professor Bing Yan**

H. Zhou, *Organizer*

D. D. Dionysiou, V. K. Sharma, *Organizers, Presiding*

**1:30 203.** Sustainable applications of magnetic nanocatalysts and N-enriched carbonaceous materials. **R.S. Varma**

**1:55 204.** Exposed facets determine surface reactivity of metal-based nanomaterials towards environmental and biological receptors. **W. Chen**, T. Zhang, L. Liu, P.J. Alvarez

**2:20 205.** Formation, fate and toxicity of natural silver nanoparticles in the environment. **V.K. Sharma**

**2:45 206.** Impact of advanced materials on the formation and toxicity of disinfection byproducts during drinking water chlorination. **C.M. Sayes**, V.K. Sharma

**3:10** Intermission.

**3:30 207.** Base modification of Bi<sub>2</sub>WO<sub>6</sub> for enhanced photocatalytic activity under visible light. B. Ren, M. Nadagouda, **D.D. Dionysiou**

**3:55 208.** Engineered Nano-TiO<sub>2</sub> in natural aquatic environment and effects on transformation of organic pollutants. **L. Zhu**, W. Wu

**4:20 209.** Enhanced disinfection application of Ag-modified g-C<sub>3</sub>N<sub>4</sub> composite under visible light. **S. Zhan**

**4:45 210.** Surface modification regulates bioactivities of metallic nanoparticles. **Q. Zhou**, Y. Long, X. Zhao, G. Jiang

Ernest N. Morial Convention Center  
Room 348

## **Innovative Chemical & Material Approaches for Sustainable Water Purification**

### **Electrochemistry & Membrane Technology**

Cosponsored by CEI  
J. Choe, J. Liu, D. Shuai, Y. Wang, *Organizers, Presiding*

**1:30** Introductory Remarks.

**1:35 211.** Electrochemical activation of nitrate: Simultaneous removal of nitrate and organic pollutants. **K. Lee**, H. Lee, M. Kim, C. Lee

**1:55 212.** Simultaneous coagulation and inactivation during iron electrochemical treatment for virus control. **K. Kim**, S. Chellam

**2:15 213.** Electrochemically mediated regeneration of ionic liquids (EMRIL) for heavy metal removal and water disinfection. **S. Voskian**, P. Brown, C. De La Fuente-Nunez, T. Hatton

**2:35 214.** Redox-responsive gels in asymmetric Faradaic systems for electrochemically mediated separations organic pollutants from water. **Y. Ren**, T. Hatton

**2:55** Intermission.

**3:15 215.** Electrochemical reactions and processes in membrane-based water treatment: Challenges and opportunities. **D. Jassby**

**4:15 216.** Enhancing counter-ion adsorption efficiency in capacitive deionization with charged polysaccharide binders. **M. del Cerro**, M. Kim, S. Hand, R.D. Cusick

**4:35 217.** Development of a novel separation and recycle process of boron in waste water with bipolar membrane electrodialysis. **A. Yamasaki**, M. Noguchi, Y. Nakamura, T. Shoji

**4:55** Concluding Remarks.

## Section D

Ernest N. Morial Convention Center  
Room 349

## **Redox & Interfacial Dynamics Among Coupled Biogeochemical Cycles of Fe, S, Minerals & Organic Matter: Implications to Multiscale Behaviors of Contaminants, Carbon & Nutrients**

Cosponsored by GEOC  
Y. Hu, T. Zeng, *Organizers*  
J. M. Cerrato, Z. Wang, *Organizer, Presiding*

**1:30** Introductory Remarks.

**1:35 218.** Electron transfer between microorganisms and Fe(III) minerals mediated by redox-active biochar and natural organic matter. **A. Kappler**, Z. Yang, Y. Bai, R. Kretzschmar, T. Borch

**2:10 219.** Mechanistic characterization of iron-organic matter interactions. **T. Borch**, E. Daugherty, B. Gilbert, C. Pallud, R. Young, G. Lobo, P.S. Nico, A. Kappler

**2:45 220.** Effect of sulfide on the structure and stability of NOM-Fe(III) colloids under anoxic conditions. **P. Liao**, S. Yuan, C. Liu

**3:05 221.** Nature and magnitude of strong oxidant formation during oxygen-mediated iron(II) monosulfide oxidation. **C.J. Miller**, J. He, Y. Chen, R. Collins, D. Waite

**3:25** Intermission.

**3:40 222.** Redox dynamic iron mineralogy and its effect on uranium transformations. **K.M. Kemner**, M. Boyanov, D. Latta, B. Mishra, E.J. O'Loughlin, M. Scherer, S. Yan

**4:15 223.** Metastable sulphur species at iron mineral surfaces. **S. Peiffer**, C. McCammon, M. Wan, C. Schroeder

**4:50 224.** Sequestration of phosphate by Fe(II)-Fe(III) green rust in anoxic sediments: Implication for eutrophication control. **L. Fang**

**5:10 225.** Arsenate sequestration during the transformation of ferrihydrite to hematite. **S. Hu**, Y. Lu, Z. Shi

Section E

Ernest N. Morial Convention Center  
Room 350

### **Ongoing Challenges in the Treatment of Contaminants of Emerging Concern**

Cosponsored by ANYL and CEI

Y. Men, *Organizer*

L. M. Blaney, A. J. Hernandez, A. Heyden, *Organizers, Presiding*

**1:30** Introductory Remarks.

**1:35 226.** Developing pre-concentration methods to address the challenge of treating CECs at extremely low concentration: Using synthetic estrogen 17 $\alpha$ -ethinylestradiol as an example. C. Ng, L. Lu, R. Wang, **B. Cao**

**1:55 227.** Quantification and comparison of free, conjugated, and halogenated estrogens in effluent from several wastewater treatment plants in northwestern Oregon. **C.P. Hutchinson**, L. Vine, L. Olson, D.R. Griffith

**2:15 228.** Occurrence and distribution of a wide range of hormones and UV-filters in water, sediment, and coral (*Porites* spp.) from Hawaii. **K. He**, E. Hain, C. Mitchelmore, A. Heyes, M. Gonsior, L.M. Blaney

**2:35 229.** Using high resolution mass spectrometry for identification and treatment assessment of novel organic contaminants in urban stormwater runoff. **E.P. Kolodziej**, K. Peter, C. Wu

**3:05** Intermission.

**3:25 230.** Analytical advances for the quantification and identification of emerging per- and polyfluoroalkyl substances in water: Looking beyond EPA 537. **T. Anumol**, R. Hindle, B. Clarke

**3:45 231.** Detection and treatment of per- and polyfluorinated compounds in Cape Fear River Basin, North Carolina surface water. **Z. Hopkins**, M.J. Weiss-Errico, K.E. O'Shea, J. McCord, M. Strynar, A. Lindstrom, D. Knappe

**4:05 232.** Spatial analysis of contaminants of emerging concern in Chesapeake Bay water, sediment, and oysters. K. He, E. Hain, A. Timm, E. Woytowicz, M. Tarnowski, **L.M. Blaney**

**4:25 233.** Picolinic acid attenuation and microbial community effects in Alaskan soils, biotic/abiotic treatment, and insights into plant mobility. **P.L. Tomco**, K. Duddleston, S. Seefeldt

## Section F

Ernest N. Morial Convention Center  
Room 351

### Aquatic Photochemistry

W. Arnold, *Organizer*

K. P. McNeill, S. G. Pati, *Organizers, Presiding*

**1:30** Introductory Remarks.

**1:35 234.** When ROS are not ROS: The effect of salts on the degradation of protein. W. Mitch, Y. Komaki, **J. Choe**

**1:55 235.** Impact of higher order nucleic acid structure on reactivity with UV<sub>254</sub>. **Z. Qiao**, P. Chang, K. Wigginton

**2:15 236.** Food dye photosensitizers for solar disinfection and safety indication of drinking water. **E. Ryberg**, C. Chu, J. Kim

**2:35 237.** Organic matter fluorescence as a proxy for UV exposure dose in drinking water treatment. **M. Heibati**, C. Stedmon, O. Bergstedt, K. Murphy

**2:55 238.** Differentiating the inhibitory effects of natural organic matter constituents on photocatalytic treatment processes. **S. Snow**, M. Maghsoodi, C. Jacquin, V. Tarabara, G. Lesage, M. Heran

**3:15** Intermission.

**3:25 239.** Phototoxicity of dicloran to marine and freshwater organisms. **E.N. Vebrosky**, W. Xu, L.M. Basirico, C. Lutz, K.L. Armbrust

**3:45 240.** Night and day: Chemicals interactions between photoactive nanomaterials enhance bacterial stress under irradiation. **C. Wilke**, J. Gaillard, K.A. Gray

**4:05 241.** Quantum dots dissolution in the aqueous environment. **P. Paydary**, P. Larese-Casanova

**4:25 242.** Release and toxicity of fragments generated during the photodegradation of quantum dot polymer composites. **M.J. Gallagher**, J.T. Buchman, T.A. Qiu, B. Zhi, T. Curry, Z. Rosenzweig, C.L. Haynes, H. Fairbrother

**4:45 243.** Surface property changes of cerium oxide nanoparticles in the presence of UV/H<sub>2</sub>O<sub>2</sub> and natural organic matter. **X. Wu**, C. Neil, D. Kim, H. Jung, Y. Jun



Ernest N. Morial Convention Center  
Room 342

## **Novel Membrane-Based Technology for Water Purification & Desalination**

### **Novel Membrane & Processes**

D. Jassby, B. Mi, *Organizers, Presiding*

**1:30** Introductory Remarks.

**1:40 244.** Comparison of liquid membranes for selectivity of rare earth elements from coal ash leachates. R. Smith, **H. Hsu-Kim**, M.R. Wiesner

**2:00 245.** Novel thin-film composite nanofiltration membranes with covalent organic framework active layer. **G. Levato**, A.R. Corcos, W. Dichtel, A. Livingston, B.J. Marinas

**2:20 246.** Novel polyimide membranes derived from  $\beta$ -cyclodextrin for environmental remediation applications. **E. Leonhardt**, K. Gupta, T. Williams, K.L. Wooley

**2:40 247.** Enhanced degradation of unregulated organic micropollutants via heterogeneous photo-Fenton reactions and hybridization with ceramic membrane filtration. **W. Zhang**, G. Zhang, S. Sun, H. Yao

**3:00** Intermission.

**3:10 248.** Self-sustaining polymer nanofilm on a buckypaper scaffold for chemical separations. **H. Park**

**3:40 249.** Potential of ceramic and polymeric nanofiltration membranes in the reuse of abandoned coal mine drainage. **S. Wadekar**, R.D. Vidic

**4:00 250.** Using ion exchange membranes to recover phosphorus from wastewater. **U. Shashvatt**, H. Aris, S. Musa, C. Portner, L.M. Blaney

**4:20 251.** Predicting RO removal of toxicologically relevant unique organics. **D. Minakata**, M. Zhang, L. Breitner, K. Howe

**4:40 252.** IR fluorescent probe for water-based agricultural nutrients. **M. Mohammadizadeh**, H.A. Stretz, R. Mu

### **Microbially-Driven Geochemical Reactions: Kinetics & Communities**

Sponsored by GEOC, Cosponsored by BIOL and ENVR

### **Elucidation of Mechanisms & Kinetics on Surfaces**

#### **Surface Science**

Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS

### **LGBTQ+ Graduate Student & Postdoctoral Scholar Research Symposium**

Sponsored by PROF, Cosponsored by ANYL, BIOL, BIOT, CHED, CMA, COLL, COMP, CWD, ENVR, INOR, MEDI, ORGN, PHYS, PMSE, POLY, WCC and YCC

### **Lignin: From Fundamentals to New Materials & Applications**

#### **Fundamental Understanding of Lignin**

Sponsored by CELL, Cosponsored by ENVR and POLY

### **Mineral-Water Interface Geochemistry & Modeling at the Laboratory- & Field-Scales: Symposium in Honor of James A Davis**

Sponsored by GEOC, Cosponsored by ENVR

### **Nexus of Food, Energy, & Water: Adapting to Future Challenges**

Sponsored by MPPG, Cosponsored by AGFD<sup>‡</sup>, ENFL<sup>‡</sup> and ENVR<sup>‡</sup>

### **Contaminated Site Remediation through Microbial, Geological & Chemical Processes**

Sponsored by GEOC, Cosponsored by ENVR

### **Sustainable Production & Processing of Agricultural Crops: The Food, Energy, Water Nexus**

#### **Value Added from Agricultural Crops**

Sponsored by CELL, Cosponsored by AGFD, ENFL, ENVR and MPPG

### **Undergraduate Research Posters**

#### **Environmental Chemistry**

Sponsored by CHED, Cosponsored by ENVR and SOCED

## **MONDAY EVENING**

Section A

Ernest N. Morial Convention Center  
Halls D/E

### **Sci-Mix**

S. O. Obare, *Organizer*

**8:00 - 10:00**

**506-507, 511-515, 519-520, 522, 524, 526, 528, 533, 536-541, 543, 546-547, 552-554, 556-561, 563-567, 572, 574, 579, 581-583, 595-597, 603, 607, 612, 614, 623, 627, 637-639, 643-645, 648-649, 651, 654, 658, 660-661, 664-665, 669-670, 672-675.** See subsequent listings.

## TUESDAY MORNING

Section A

Ernest N. Morial Convention Center  
Room 346

### Physics & Chemistry of Water Treatment: Symposium in honor of Professor Desmond F. Lawler

#### Innovative Treatment Applications

L. E. Katz, J. A. Nason, N. B. Saleh, *Organizers*  
J. Darby, H. Garcia, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 253.** UV photolysis of chloramines for potable water reuse. S. Patton, K.P. Ishida, **H. Liu**

**8:25 254.** Tailored graphitic carbon nitride: Smart design of visible-light-responsive photocatalyst to achieve sustainable water treatment. **D. Shuai**

**8:45 255.** Enveloped virus inactivation by UV and chlorine disinfection. **Y. Ye**, K. Wigginton

**9:05 256.** Assessing the impact of wildfires on source water quality and treatment. **F.L. Rosario**

**9:25 257.** Effective removal of trace Tl from drinking water by conventional processes enhanced by  $\text{nMnO}_2$ . **X. Huangfu**, L. Sun, J. Song, C. Ma, R. Huang, Y. Xu, H. Wang

**9:45** Intermission.

**10:00 258.** Redox activity alteration of transformed  $\text{CeO}_2$  NPs upon adsorption of ionic arsenic. **X. Bi**, P.K. Westerhoff

**10:20 259.** Permanganate as a treatment strategy for algal toxins. **J.R. Laszakovits**, A. Mackay

**10:40 260.** Technical feasibility of inland desalination using zero discharge desalination. **M. Cappelle**, W. Walker, T. Davis

**11:00 261.** Hydrolysis of the Zika pesticide naled: Kinetics and mechanistic investigation. **A. Abdullah**, K.E. O'Shea

**11:20 262.** Mapping the reactions in a single zero-valent iron nanoparticle. **L. Ling**, W. Zhang

**11:40 263.** Refining the parameterization of engineered nanomaterial heteroaggregation within aquatic environments: The relative influence of surface coating functionality. **M.C. Surette**, J.A. Nason

Ernest N. Morial Convention Center  
Room 347

**Shaping Activity through Structural Modification: From Small Molecules to Nanoparticles: A Symposium in honor of Professor Bing Yan**

D. D. Dionysiou, V. K. Sharma, *Organizers*  
H. Zhou, *Organizer, Presiding*  
W. Zhang, *Presiding*

**8:15 264.** Pot-economic synthesis and asymmetric organocatalysis. **W. Zhang**

**8:40 265.** Application of combinatorial approach for developing new methodologies in hetero-cyclic compound synthesis. X. Liu, **Y. Han**

**9:05 266.** Bi- and tri-orthogonal linkers for bioconjugation. **F. Albericio**, B. de la Torre

**9:30 267.** Reaction-based smart ionic liquids. **Y. Chang**, Y. Chu

**9:55** Intermission.

**10:15 268.** NF- $\kappa$ B-regulated microRNA-574-5p underlies synaptic and cognitive impairment in response to atmospheric PM<sub>2.5</sub> aspiration. **N. Sang**

**10:35 269.** Correlating the nanoparticles' biological effects with their physicochemical properties. X. Bai, **H. Zhou**, B. Yan

**10:55 270.** Tuning cell autophagy by diversifying carbon nanotubes' surface chemistry. **L. Wu**, B. Yan, Y. Zhang

**11:15 271.** Susceptibility of overweight mice to Ag NPs or ZNPs/Pb<sup>2+</sup> exposures. **J. Jia**, B. Yan

**11:35 272.** Polyvinylidene fluoride micropore membranes as solid phase extraction disc for preconcentration of nanoparticulate silver in environmental waters. **X. Zhou**

## Section C

Ernest N. Morial Convention Center  
Room 348

**Innovative Chemical & Material Approaches for Sustainable Water Purification**

**Photocatalysis**

Cosponsored by CEI  
J. Choe, J. Liu, D. Shuai, Y. Wang, *Organizers, Presiding*

**8:45** Introductory Remarks.

**8:50 273.** UV photocatalysis of recalcitrant organics in a fluidized-bed tubular reactor. **G.J. Rincon**

**9:10 274.** Study of the photochemical and adsorptive properties of NOM grafted iron oxide nanoparticles for the potential remediation of toxic arsenic from water. **M. Rashid**, K.E. O'Shea

**9:30 275.** Enhanced visible light-induced photocatalytic activity of surface-modified CeO<sub>2</sub> with metal particles. **L. Wang**, Y. Wang

**9:50 276.** Discrete buoyant photocatalysts for interfacial pollutants. **M.J. Nee**, B.R. John, K.A. Steward

**10:10** Intermission.

**10:30 277.** Visible-light-responsive photocatalytic graphitic carbon nitride for antimicrobial applications. **D. Shuai**

**10:50 278.** Growth of UiO-66 metal-organic framework onto a cotton fabric and its use as a functional micropollutant filter. **M. Schelling**, E. Ota, J.P. Hinestroza

**11:10 279.** Photocatalytic degradation of PFAS by BiPO<sub>4</sub> microparticles. **E.L. Cates**, S. Sahu

**11:30 280.** PEI functionalized graphene oxide for enhanced sorption and rapid photoreduction of chromium (VI). **C. Kim**, S. An, J. Fortner

**11:50** Concluding Remarks.

Section D

Ernest N. Morial Convention Center  
Room 349

### **Redox & Interfacial Dynamics Among Coupled Biogeochemical Cycles of Fe, S, Minerals & Organic Matter: Implications to Multiscale Behaviors of Contaminants, Carbon & Nutrients**

Cosponsored by GEOC  
J. M. Cerrato, Z. Wang, *Organizers*  
Y. Hu, T. Zeng, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 281.** Quantification of mercury biomethylation potential in sediments. **H. Hsu-Kim**, U. Ndu, G.A. Christensen, D. Elias

**8:40 282.** Chemodiversity of dissolved organic matter in anaerobic sediments with a special focus on non-volatile dissolved organic sulfur. **M. Gonsior**, J. Luek, A. Heyes, L. Lapham, L. Powers, P. Schmitt-Kopplin

**9:15 283.** Sulfur and iron cycling at the sediment-root interface of freshwater wetland plants: Life-cycle controlled redox transitions. S. Lafond-Hudson, **N.W. Johnson**, J. Pastor, B. Dewey

**9:35 284.** Effect of reducing and re-oxidizing conditions on metal mobility in sediments from the Animas River. **L. Rodriguez Freire**, A. Overbey, C.M. Saup, A. Ali, M.J. Wilkins, J.M. Cerrato

**9:55** Intermission.

**10:10 285.** Reactions of nanoscale zero-valent iron (nZVI) with heavy metals: 3D visualization. **W. Zhang**, L. Ling

**10:45 286.** Aqueous-phase reduction of nitroaromatic compounds (NACs) by sulfide mediated by carbonaceous materials. C. Wei, H. Fu, X. Qu, **D. Zhu**

**11:20 287.** Sulfidation of iron-based materials for contaminant removal: The diverse effects of processes and operational variables. **D. Fan**, P.G. Tratnyek, Y. Lan, C. Xu

**11:40 288.** Sulfide removal by iron-bearing minerals in mining waste streams. **J. Voelz**, J. Daire, C. Chun, N.W. Johnson, R. Penn

Section E

Ernest N. Morial Convention Center  
Room 350

### **Ongoing Challenges in the Treatment of Contaminants of Emerging Concern**

Cosponsored by CEI

Y. Men, *Organizer*

L. M. Blaney, A. J. Hernandez, A. Heyden, *Organizers, Presiding*

**8:30** Introductory Remarks.

**8:35 289.**

Determining the kinetics of oxidative radical reactions with organophosphate/brominated flame-retardants under advanced oxidation process conditions. **M. Chin**, S.P. Mezyk

**8:55 290.** Advanced oxidation process removal of oxidized nitrosamines (nitramines) from treated wastewaters. **R.N. Tran**, J.J. Kiddle, S.P. Mezyk

**9:15 291.** Radical-induced degradation of estrogenic steroids in treated wastewaters. **J. Gleason**, A. Lechner, E. Holland, S.P. Mezyk

**9:35 292.** Can hydrogen peroxide enhance 1,4-dioxane oxidation by ozone in surface water and lower bromate formation? **N. Kotlarz**, Z. Hopkins, D. Knappe

**9:55 293.** Challenges of advanced wastewater treatment to abate CECs. **C. McArdell**, M. Boehler, M. Bourgin, J. Fleiner, A. Joss, A. Meier, H. Siegrist, U. von Gunten

**10:25** Intermission.

**10:40 294.** Bromamine species reactions under advanced oxidation process conditions. **M.V. Luong**, A. Lechner, S.P. Mezyk

**11:00 295.** Improving activity and stability of perchlorate reduction catalyst with rational ligand design for the rhenium complex reaction site. **C. Ren**, J. Liu

**11:20 296.** Ferrate(VI) oxidation of pharmaceuticals in hydrolyzed urine: Enhancement effects from ammonia, bicarbonate, and creatinine. **C. Luo**, V.K. Sharma, C. Huang

**11:40 297.** N-TiO<sub>2</sub>/CdS nano-composite: Synthesis, characterization, and photocatalytic degradation of textile dye wastes. H. Hiluf, T. Abi, **S.M. Abegaz**

Ernest N. Morial Convention Center  
Room 351

### **From Sewage to Sustainable Energy: Potential Pollution Issues from Production & Application Pathways**

Financially supported by EuCheMS

S. Chae, W. Giger, R. Kallenborn, A. Torrents, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:10 298.** Withdrawn.

**8:30 299.** Biopolymers from organic wastes: Advances and challenges. **S. Chae**

**8:50 300.** Simultaneous reduction of ammonia toxicity and recovery of nutrients in mixed liquor of anaerobic digester. **H. Kim**, T. Antukh, D. Lee, J. Baek

**9:10 301.** Impact of solids stabilization processes on energy production and polybrominated diphenyl ethers content. **N.A. Andrade**, A. Torrents, M. Ramirez

**9:30 302.** Influence of anaerobic digestion with and without thermal hydrolysis pretreatment on concentrations of endocrine disrupting compounds and their transformation products in wastewater sludge. **D.L. Armstrong**, S.J. Fischer, R.M. Lupitsky, C.P. Rice, M. Ramirez, A. Torrents

**9:50** Intermission.

**10:00 303.** European Association of Chemical and Molecular Sciences (EuCheMS) and its Division of Chemistry and the Environment. **W. Giger**

**10:20 304.** Identification of novel chlorinated and hydrogenated polyfluoroalkyl ether sulfonates in sewage sludge by high-resolution mass spectrometry. **T. Ruan**, G. Jiang

**10:40 305.** Occurrence and fate of neonicotinoid pesticides (NEOs) in wastewater treatment plants in China. **T. Zhang**

**11:00 306.** Not just what but when: Stage-specific effects of emerging contaminants in the early development of marine organisms. **C. Torres**, K. Ramos-Torres, R. Rahimoff, G.N. Cherr

**11:20 307.** Engineered nanomaterials (ENMs) from consumer products in municipal sewage sludge: Implications for environmental risk assessment. **N. Voulvoulis**

**11:40 308.** Transformation of heavy metals during (hydro)thermal treatments of sewage sludges: Implications for resource recovery. **R. Huang**, B. Zhang, E. Saad, E.D. Ingall, Y. Tang

Ernest N. Morial Convention Center  
Room 342

## **Great Achievements in Environmental Science & Technology**

Financially supported by Environmental Science & Technology and Environmental Science & Technology Letters  
N. Barsamian, B. E. Logan, D. L. Sedlak, *Organizers*  
D. Sedlak, *Presiding*

**8:30** Introductory Remarks.

**8:35 309.** Engineered nanoparticles and dissolved organic matter: Are we missing the forest for the trees? **M. Scheringer**

**9:00 310.** Desalinated drinking water: What chemicals are we drinking and how safe is it? **S.D. Richardson**, A.A. Cuthbertson, H.K. Liberatore, D. Westerman, M.J. Plewa, M. Gonsior, C. Mitchelmore, A. Heyes, J. Croue, W. El-Shorbagy

**9:25 311.** Materials for next generation desalination and water purification membranes. **M. Elimelech**

**9:50 312.** Stuck in the muck: Historical insights into emerging contaminants from sediment cores. **W. Arnold**

**10:15** Intermission.

**10:35 313.** Halogen radicals promote the photodegradation of microcystins in estuarine systems. W. Mitch, **K.M. Parker**, A. Ghadouani, E. Reichwaldt

**11:00 314.** Update on occurrence and control of legacy and emerging perfluoroalkyl substances in North Carolina. **M. Sun**, E. Arevalo, M. Strynar, A. Lindstrom, D. Knappe

**11:25 315.** Science on Ice: Shedding light on arctic halogen photochemistry. **K.A. Pratt**

**11:50** Concluding Remarks.

## **Elucidation of Mechanisms & Kinetics on Surfaces**

### **Surface Mechanisms**

Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS

### **GSSPC: Finding Our Place at the Bottom**

#### **Symposium in honor of Richard Feynman**

Sponsored by CHED, Cosponsored by ANYL<sup>‡</sup>, COLL<sup>‡</sup>, ENVR<sup>‡</sup>, INOR, PMSE<sup>‡</sup> and PRES<sup>‡</sup>

### **Water Supply Safety**

Sponsored by CHAS, Cosponsored by CCS, CTA and ENVR

### **Microbially-Driven Geochemical Reactions: Kinetics & Communities**

Sponsored by GEOC, Cosponsored by BIOL and ENVR

### **Lignin: From Fundamentals to New Materials & Applications**



**Advances in Lignin Characterization**

Sponsored by CELL, Cosponsored by ENVR and POLY

**Cheminformatics Resources & Software Tools Supporting Environmental Chemistry**

Sponsored by CINF, Cosponsored by COMP and ENVR

**Mineral-Water Interface Geochemistry & Modeling at the Laboratory- & Field-Scales: Symposium in Honor of James A Davis**

Sponsored by GEOC, Cosponsored by ENVR

**2018 ACS Sustainable Chemistry & Engineering Lectureship Awards: Symposium in honor of Ning Yan**

Sponsored by CELL, Cosponsored by ENVR and I&EC

**Catalytic Conversion of Biomass Derived Molecules to Chemicals & Fuels**

Sponsored by CATL, Cosponsored by ENFL, ENVR and INOR

**Impacts of Mining & Hydraulic Fracturing On Crop & Livestock Production**

Sponsored by GEOC, Cosponsored by AGFD, AGRO and ENVR

**Biobased Water Purification System Approaches**

Sponsored by CELL, Cosponsored by AGFD, CHAS and ENVR

**Sustainable Production & Processing of Agricultural Crops: The Food, Energy, Water Nexus****Food, Water & Energy from Sustainable Crops**

Sponsored by CELL, Cosponsored by AGFD, ENFL, ENVR and MPPG

**Catalytic & Photocatalytic Degradation of Pollutants & Chemical Threat Agents: New Developments in Materials & in In-situ & Operando Methods****Enabling Fundamental Advances in Catalysis & Surface Science**

Sponsored by CATL, Cosponsored by ENVR, INOR and PHYS

**TUESDAY AFTERNOON**

Section A

Ernest N. Morial Convention Center  
Room 346

**Science & its Perception: Climate Change, Nicotine, Pollution & Other Emerging Topics in the Crosshair**

Cosponsored by CEI<sup>‡</sup>

S. O. Obare, E. Schoffers, *Organizers, Presiding*

**1:30** Introductory Remarks.

**1:35 316.** Withdrawn

**2:00 317.** Climate disruption has created a new world: Discuss. **J.A. Bell**

**2:25 318.** eCLEAR, climate science literacy tools for all. **G.P. Foy**, K.E. Peterman

**2:50 319.** Lost in translation: How mass media influence climate change (in)action and why we should care about science communication. **E. Schoffers**

**3:15** Intermission.

**3:25 320.** The real crisis with Flint's water: It was preventable and can happen to you! **M.R. Wilhelm**

**3:45 321.** How an interdisciplinary, environmental narrative of natural history promotes communication of controversial topics: Evolution, origin of life, and climate history. **B.J. McFarland**

**4:05 322.** Understanding the rationale of climate-change denial. **G.M. Bodner**

**4:30 323.** Global warming is unequivocal: We must learn how to communicate the science of climate change to ourselves and also to non-science audiences. **B.Z. Shakhashiri**

**4:55** Panel Discussion .

Section B

Ernest N. Morial Convention Center  
Room 347

**Shaping Activity through Structural Modification: From Small Molecules to Nanoparticles: A Symposium in honor of Professor Bing Yan**

D. D. Dionysiou, V. K. Sharma, H. Zhou, *Organizers*  
S. Liu, H. Zhu, *Presiding*

**1:30 324.** Knocking on placenta's door: Engineered nanoparticles at the human placental barrier. **P. Wick**, T. Buerki-Thurnherr

**1:55 325.** Low-dose exposure of graphene oxide compromises cellular priming state that predisposes macrophages to metal toxicity. **S. Liu**

**2:20 326.** Virtual nanostructure simulation (VINAS): A toolbox to quantify nanomaterial structures for intelligent modeling and rational material design. W. Wang, A. Sedykh, X. Yan, B. Yan, **H. Zhu**

**2:45 327.** Photochlorinated fullerene increase cytotoxicity towards macrophage J774 via acting as SOD and electron-transfer mediator. **C. Zhang**, Q. Zhang

**3:10** Intermission.

**3:25 328.** Toxicity of rare earth nanomaterials in macrophages. J. Gao, **G. Qu**

**3:50 329.** Graphene oxide nanosheets elicit neurotoxicity. **X. Hu**

**4:15 330.** Effects of titanium dioxide and zinc oxide nanoparticles on disinfection byproduct formation in synthetic freshwater. **C. Gray**, **V.K. Sharma**, L.H. Cizmas

**4:40 331.** Systematic exploration of nano-bio interactions for water safety and human health. **B. Yan**

**5:05** Concluding Remarks.

Ernest N. Morial Convention Center  
Room 348

## **Innovative Chemical & Material Approaches for Sustainable Water Purification**

### **Oxidation & Sensor**

Cosponsored by CEI  
J. Choe, J. Liu, D. Shuai, Y. Wang, *Organizers, Presiding*

**1:30** Introductory Remarks.

**1:35 332.** Effect of organic ligands on oxidative degradation of chlorophenolic compounds (CP) with modified-Fenton process using pyrite as the catalyst. **C. Kantar**, O. Oral, N.A. Oz

**1:55 333.** Selectively degradation of organic pollutants in the homogeneous or heterogeneous non-radical reactions. **M. Long**, P. Hu, H. Su

**2:15 334.** Decomposition of perfluorinated chemicals by nanoscale zerovalent iron conjugated with common oxidants. **A. Parenky**, N. Souza, H. Choi

**2:35 335.** Impact of chitosan and polyacrylamide on formation of carbonaceous and nitrogenous disinfection by-products. **Z. Li**, T. Chen, Y. Xie, W. Xu

**2:55** Intermission.

**3:15 336.** Nanocellulose based nanocomposites for environmental sensing. **P.J. Vikesland**

**3:55 337.** Reactivity of trichloramine with organic species under AOP conditions. **L. Watts**, S.P. Mezyk

**4:15 338.** Structure modification of nature organic matter after microwave, ferrate and their combination processes. **X. Zhang**, V. Sharma

**4:35 339.** Removal of perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) using two dimensional transition metal dichalcogenides. Y. Tian, **I. Chowdhury**

**4:55** Concluding Remarks.

## Section D

Ernest N. Morial Convention Center  
Room 349

## **Redox & Interfacial Dynamics Among Coupled Biogeochemical Cycles of Fe, S, Minerals & Organic Matter: Implications to Multiscale Behaviors of Contaminants, Carbon & Nutrients**

Cosponsored by GEOC  
Y. Hu, Z. Wang, T. Zeng, *Organizers*  
J. M. Cerrato, *Organizer, Presiding*  
Z. Wang, *Presiding*

**1:30** Introductory Remarks.

**1:35 340.** Intimate and complex coupling of carbon and iron cycles within terrestrial systems. **S.E. Fendorf**, M. Keiluweit, M.V. Schaefer, Y. Masue-Slowey, O. Chadwick

**2:10 341.** Metabolomics-resolved nutrient-dependent carbon fluxes in a soil bacterium: Cellular insights on coupled iron and carbon cycles. **L. Aristilde**

**2:45 342.** Formation and reactivity of ferrihydrite-organic carbon-calcium co-precipitate complexes. **D. Adhikari**, T.D. Sowers, J. Stuckey, D.L. Sparks, Y. Yang

**3:05 343.** Robust spatial analysis of sequestered metals in an arid Southern California bioswale: Relating sequestration efficiency to preferential metal binding in soil. **Z. Evans**, H. Van Ryswyk, M. Los Huertos, T. Srebotnjak

**3:25** Intermission.

**3:40 344.** Multiscale investigation of microbial oxidation of soil organic carbon and effective integration of pore-scale mechanisms into macroscopic models. **C. Liu**

**4:15 345.** Nitrate-reducing As(III) oxidizers and nitrate-reducing Fe(II) oxidizers in flooded paddy soil revealed by metagenomic binning. **F. Li**, X. Li, S. Li, M. Hu, T. Liu

**4:50 346.** Enhanced biological sulfate reduction coupled to iron electrolysis in a flow-through bioelectrochemical reactor. **T. Deen**, **D.C. Takaki**, D.S. Jones, C. Chun

**5:10 347.** Chemical regeneration of Mn-oxide coated sand for oxidation of organic stormwater contaminants. **J. Charbonnet**, D.L. Sedlak

Section E

Ernest N. Morial Convention Center  
Room 350

### **Ongoing Challenges in the Treatment of Contaminants of Emerging Concern**

Cosponsored by CEI

Y. Men, *Organizer*

L. M. Blaney, A. J. Hernandez, A. Heyden, *Organizers, Presiding*

**1:30** Introductory Remarks.

**1:35 348.** Maize root culture based model system for studying biotransformation of contaminants of emerging concerns. **M. Gautam**, M. Elhiti, I.S. Fomsgaard

**1:55 349.** Adaptation of microbial communities to emerging pollutants in chemostat systems. B. Poursat, M. Braster, R. Helmus, R. van Spanning, P. de Voogt, **J. Parsons**

**2:15 350.** Do the microbial communities growing on microplastics present another hazard? K. Parrish, **N. Fahrenfeld**

**2:35 351.** Advanced transition metal based hierarchical porous materials for the equilibrium and dynamic adsorption of contaminants of emerging concern including metabolites. **A.J. Hernandez**, K. Ortiz-Martinez, B. Fernandez-Reyes, J.C. Muñoz-Senmache

**2:55** Intermission.

**3:15 352.** Investigating the metabolic fate of 1H-perfluoroalkanes. **S. Joudan**, S.A. Mabury

**3:35 353.** Occurrence and fate of emerging organic contaminants in wastewater treatment processes with an enhanced nitrification step. **Y. Xing**, Y. Yu, Y. Men

**3:55 354.** Challenges and solutions for the removal of pharmaceuticals from wastewater: The use of fungal treatment and integrated membrane systems. **D. Barcelo**, D. Lucas, M. Llorca, M. Villagrasa, **A. Jaen**, M. Stefani, J. Mamo, H. Monclus, Q. Comas, I. Rodriguez-Roda, M. Garcia-Galán, D. Dolar, G. Caminal, M. Sarra, M. Badia, F. Castellet, J. Mir Tutusaus, T. Vicent, S. Rodriguez-Mozaz

**4:15 355.** Long-term development of bacterial resistance against disinfectants: Hypochlorite vs. ferrate. **S. Daer**, K. Ikuma, J. Goodwill, H. Truong

Section F

Ernest N. Morial Convention Center  
Room 351

### **Evolving Chemical Hazard Evaluation Strategies to Address Compliance under the New Toxic Substances Control Act (TSCA)**

Cosponsored by CHAL and CHAS  
T. Lewandowski, J. Rice, *Organizers, Presiding*

**1:30 356.** Chemical safety evaluation challenges of the Lautenberg Chemical Safety Act. **T. Lewandowski**, J. Rice

**1:50 357.** Strategies for incorporating in silico and in vitro approaches into the safety evaluation of existing and new products. **P. Spencer**

**2:10 358.** Fish liver microtissues for aquatic toxicology: Integrating morphological and molecular responses for *in vitro* assessment of environmental pollutants. **A. Rodd**, A. Kane

**2:30 359.** Development of a tool for systematic integration of traditional and new approach methods for prioritizing chemical lists. **A.J. Williams**, R. Judson, C. Grulke, R. Thomas

**2:50 360.** Applying chemical space analysis to select compounds for targeted *in vitro* methods. **C.I. Nicolas**, K. Mansouri, S. Haider, M. Yoon, P.D. McMullen, K. Phillips, J. Wambaugh, A. Tropsha, R. Clewell, H. Clewell

**3:10** Intermission.

**3:30 361.** Generalised read-across GenRA, research, implementation and practical application. **G. Patlewicz**, G. Helman, I. Shah

**3:50 362.** Does one size fit all? Tailoring read-across methodology based on endpoint-specific criteria. **J. Rice**, J.M. Cohen, T. Lewandowski

**4:10 363.** In silico modeling as a tool to aid design safer preservatives for consumer products. **D. Faulkner**, H.L. Buckley, W.M. Hart-Cooper, J.H. Kim, L. Cheng, K.L. Chan, C.D. Vulpe, W.J. Orts, S. Amrose, M.J. Mulvihill

**4:30 364.** Tiered risk-based safety evaluation for a 21<sup>st</sup> century TSCA. **R.A. Becker**

**4:50 365.** Use of alternative methods to assess health and environmental hazards. **A. Tveit**

**5:10** Discussion.

Section G

Ernest N. Morial Convention Center  
Room 342

### **ACS Award Symposium for Creative Advances in Environmental Science & Technology**

Cosponsored by WCC  
Financially supported by AEESP  
S. O. Obare, *Organizer*  
V. F. McNeill, *Organizer, Presiding*

**1:30** Introductory Remarks.

**1:35 366.** Aqueous atmospheric chemistry: From clouds to aerosol particles. **V.F. McNeill**

**2:05 367.** Climate impact of secondary organic aerosols on cirrus clouds. **J. Penner**, C. Zhou

**2:35 368.** Chemistry of atmospheric brown carbon. **A. Laskin**

**3:05** Intermission.

**3:20 369.** Direct measurements of aerosol acidity: Spectroscopic and colorimetric methods. **A.P. Ault**

**3:50 370. Award Address** (ACS Award for Creative Advances in Environmental Science and Technology sponsored by the ACS Division of Environmental Chemistry and the ACS Publications journals Environmental Science & Technology and Environmental Science & Technology Letters). Liquid water and secondary organic aerosol formation: Insights from diverse environments. **B. Turpin**

### **Microbially-Driven Geochemical Reactions: Kinetics & Communities**

Sponsored by GEOC, Cosponsored by BIOL and ENVR

### **Elucidation of Mechanisms & Kinetics on Surfaces**

#### **Surface Mechanisms**

Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS

### **Lignin: From Fundamentals to New Materials & Applications**

#### **Lignin Valorization in Biorefineries**

Sponsored by CELL, Cosponsored by ENVR and POLY

### **Cheminformatics Resources & Software Tools Supporting Environmental Chemistry**

Sponsored by CINF, Cosponsored by COMP and ENVR

### **Molecular Processes at Mineral-Water Interfaces: Linking Theory & Experiments**

#### **Silica/Alumina Surfaces & the Electrical Double Layer**

Sponsored by GEOC, Cosponsored by ENVR and INOR

**Catalytic Conversion of Biomass Derived Molecules to Chemicals & Fuels**

Sponsored by CATL, Cosponsored by ENFL, ENVR and INOR

**Impacts of Mining & Hydraulic Fracturing On Crop & Livestock Production**

Sponsored by GEOC, Cosponsored by AGFD, AGRO and ENVR

**Valorization of Renewable Resources & Residuals into New Materials & Multiphase Systems**

Sponsored by CELL, Cosponsored by ENVR and POLY

**Sustainable Production & Processing of Agricultural Crops: The Food, Energy, Water Nexus  
Biomaterials Processing**

Sponsored by CELL, Cosponsored by AGFD, ENFL, ENVR and MPPG

**R&D in the Chemical Catalysis for Bioenergy Consortium**

Sponsored by CATL, Cosponsored by ENFL, ENVR and INOR

**Catalytic & Photocatalytic Degradation of Pollutants & Chemical Threat Agents: New Developments in  
Materials & in In-situ & Operando Methods**

**Enabling Fundamental Advances in Catalysis & Surface Science**

Sponsored by CATL, Cosponsored by ENVR, INOR and PHYS

## WEDNESDAY MORNING

Section A

Ernest N. Morial Convention Center  
Room 346

### Novel Concepts in the Role of Chemistry in the Food, Energy & Water Nexus

Cosponsored by MPPG

S. Ahuja, S. Chae, *Organizers*

I. Chowdhury, D. D. Dionysiou, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 371.** Role of chemistry in food-energy-water nexus research. **B.L. Schottel**

**8:35 372.** Unmet challenges in developing energy efficient processes for reuse of municipal wastewater in large metropolis. **A.K. Sengupta**

**9:05 373.** Resource recovery from agriculture wastewater through electrically conductive membranes. **A. Ronen, K.M. Kekre**

**9:25 374.** Electrochemical reactivity of carbonaceous materials for water treatment and energy recovery. **R. Doong, P. Chang, C. Hsu**

**9:45 375.** Withdrawn.

**10:05** Intermission.

**10:20 376.** Evaluating the potential of phosphorous recovery from corn-ethanol plants using chemical precipitation and enzymatic transformation. **N. Sharma, V. Singh, R.D. Cusick**

**10:40 377.** *In situ* binding recognition of phospholipid-guanidinium interactions at the air/water interface. **J.F. Neal, W. Zhao, A. Grooms, A.H. Flood, H.C. Allen**

**11:00 378.** Urea functionalization of biochar activated by ultrasound: An efficient strategy for heavy metal adsorption. **B. Sajjadi, J. Broome, W.W. Chen**

**11:20 379.** Developing quantitative modeling framework for better understanding interconnected food-energy-water systems. **Y. Yao, R. Huang**

**11:40 380.** Harmattan and the food,energy and water nexus. **C. Unegbu**



Ernest N. Morial Convention Center  
Room 347

### Current State of Environmental Contamination Research: Theory & Experiment

Cosponsored by CEI  
G. Jenness, H. McAlexander, *Organizers*  
S. Ahuja, M. K. Shukla, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 381.** Three dimensional structures of human nicotinic acetylcholine receptor  $\alpha 4\beta 2$  constructed through homology modelling and molecular dynamics simulation. **H. Hong**

**8:30 382.** Development of chitosan wrapped CNT based 3D nanoporus membrane for separation and inactivation of *Rotavirus* and *Shigella* waterborne pathogens. **P.C. Ray**

**8:55 383.** Historical trends of polychlorinated biphenyls in Chesapeake Bay fish and the influence of ongoing sources. **T. Needham**, U. Ghosh

**9:20** Intermission.

**9:35 384.** Degradation of short chain chlorinated paraffins (SCCPs) mediated by intact pumpkin and soybean seedlings. **Y. Li**, J. Liu, J.L. Schnoor, G. Jiang

**10:00 385.** Can  $\beta$ -cyclodextrin attenuate the negative health effects of perfluorooctanoic acid? **M.J. Weiss-Errico**, J. Miksovska, K.E. O'Shea

**10:25 386.** Characterization of nine haloacetaldehyde formation during chlorination of bromide-containing water. **M. Yuqin**, H. Yang, Y. Xie

**10:50** Intermission.

**11:05 387.** Formation of dioxins from 2-chlorophenol over fly ash: Role of  $\text{Fe}_2\text{O}_3$ . **X. Guan**, S.M. Lomnicki

**11:30 388.** Kinetic of monochloramine reactions with nitrogenous compounds in aqueous solutions. **J. Wewers**, J. Gleason, K.P. Ishida, S.P. Mezyk

### Section C

Ernest N. Morial Convention Center  
Room 348

### Innovative Chemical & Material Approaches for Sustainable Water Purification Catalysis

Cosponsored by CEI; J. Choe, J. Liu, D. Shuai, Y. Wang, *Organizers, Presiding*

**8:30** Introductory Remarks.

**8:35 389.** Sustainable treatment of toxic 4,4'-thiodianiline in water using an enzyme. **D. Mukherjee**, K.E. Taylor, N. Biswas

**8:55 390.** Advancing biocatalytic applications in drinking water: Column treatment of the disinfection byproduct chlorite. **J.M. Hutchison**, I. Kamalanathan, C.J. Werth, J. Zilles

**9:15 391.** Expanding the catalyst toolbox – low-cost ruthenium catalysts for reduction of water contaminants. **X. Huo**, J. Liu, T.J. Strathmann

**9:35 392.** Nitrogen-doped graphene supported Pd-based catalysts for water decontamination. **T. Ye**, D.P. Durkin, N. Banek, M.J. Wagner, D. Shuai

**9:55** Intermission.

**10:15 393.** Defluorination of branched per- and polyfluoroalkyl substances with cobalt complex catalysts. **J. Liu**, D. Van Hoomissen, X. Huo, X. Xiao, Y. Fang, C.P. Higgins, S. Vyas, T.J. Strathmann

**10:35 394.** Cobalt catalyzed reduction of perfluoroalkyl substances: Reactions and mechanisms. **D.J. Van Hoomissen**, J. Liu, T.J. Strathmann, S. Vyas

**10:55 395.** Catalytic destruction of oxyanions by bimetallic noble metal-based materials. **X. Min**, Y. Wang

**11:15 396.** Biocatalytic membranes prepared by inkjet printing functionalized yeast cells onto microfiltration substrates. Y. Chen, P. Gao, M. Summe, W.A. Phillip, **N. Wei**

**11:35 397.** Investigation of nanostructured MoS<sub>2</sub> as an earth abundant catalyst for nitrite hydrogenation. **R. Marks**, K. Doudrick

**11:55** Concluding Remarks.

Section D

Ernest N. Morial Convention Center  
Room 349

### **Advances & Applications in Water Sensing Technologies for Drinking Water & Agri-Tech Research**

M. E. Romero-Gonzalez, P. L. Schorr, W. Zhang, *Organizers, Presiding*

**8:15** Introductory Remarks.

**8:20 398.** Could advances in water sensing technologies with 'near real time' monitors highlight chemical, biological and physical kinetics of complex river systems? **P.L. Schorr**, W. Zhang

**8:40 399.** Development of autonomous sensing platform for in-situ nutrient analysis in marine and fresh waters. **M. McCaul**, D. Diamond

**9:00 400.** Array sensing for trace detection of metal cations using optical spectroscopic techniques. **M. Ihde**, J. Tropp, A. Mallet, J.D. Azoulay, K.J. Wallace, M. Bonizzoni

**9:20 401.** Assessing spatial or temporal variability in pCO<sub>2</sub> dynamics of estuarine and freshwater ecosystems: Case studies from North Carolina and China demonstrate trade-offs. **B.R. Van Dam**, J. Crosswell, H. Paerl

**9:40 402.** Hourly changes in factors affecting algal blooms in an urban river with wastewater reuse and drinking water intakes can be evaluated using a neural network. **P.L. Schorr**, K. Li

**10:00** Intermission.

**10:15 403.** Detection of polycyclic aromatic hydrocarbons by chemical fingerprinting. N. White, J. Tropp, J.D. Azoulay, **M. Bonizzoni**

**10:35 404.** Detection of nanoparticles on plant tissues using sp-ICP-MS. **Y. Huang**

**10:55 405.** Charge-assembled fluorescent gold microcapsules with enhanced chromium(VI) sensitivity. **Y. Yin**, C. Coonrod, K. Heck, M.S. Wong

**11:15 406.** Highly Sensitive electrically-receptive thermally-responsive analytical biosensor chip for rapid detection of *Bacterial cells*. **S.K. Misra**, M.S. Khan, Z. Wang, K. Dighe, A.S. Schwartz-Duval, D. Pan

**11:35 407.** Withdrawn

## Section E

Ernest N. Morial Convention Center  
Room 350

### Accurate Mass/High Resolution Mass Spectrometry for Environmental Monitoring & Remediation

T. Anumol, R. Marfil-Vega, T. M. Young, C. Zwiener, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 408.** Quantification and suspect-screening of hydrophobic and hydrophilic quaternary ammonium compounds in water samples by LC-HRAM-MS/MS. **S.G. Pati**, X. Ming, W. Arnold

**8:30 409.** Identification of sources, occurrence and fate of the fungicide carbendazim in water. S. Merel, S. Benzing, J. Yanez Heras, **C. Zwiener**

**8:55 410.** High resolution-MS uncovers new chemicals of concern in drinking water: Impacts of hydraulic fracturing and wastewater reuse. **S.D. Richardson**, H.K. Liberatore, K.H. Cochran, C. Montagner, D. Westerman, M.J. Plewa, L.H. Cizmas, J.M. Vanbriesen, D.D. Dionysiou, D. Schlenk, K. Loftin, T. Anumol

**9:20 411.** Workflows utilizing SWATH and MRMHR acquisitions for microcystins in drinking water. **K. Hyland**

**9:45** Intermission.

**10:10 412.** High resolution mass spectrometry screening of urban stormwater for identification of novel contaminants and their sources. **E.P. Kolodziej**, K. Peter, B. Du, C. Wu

**10:35 413.** Withdrawn.

**11:00 414.** Withdrawn.

**11:25 415.** Broad-scope LC and GC-HRMS screening for organic contaminants in wastewater at the sub-sewershed scale. M. Hattaway, J. Teerlink, C. Alaimo, T. Anmol, **T.M. Young**

**11:50** Discussion.

## Section F

## Approaches to Fill Data Gaps for Chemical Sources of Risk

C. I. Nicolas, *Organizer*

K. Philips, *Organizer, Presiding*

C. I. Nicolas, *Presiding*

**8:00** Introductory Remarks.

**8:05 416.** US EPA CompTox Chemistry Dashboard as a source of data to fill data gaps for chemical sources of risk. **A.J. Williams**, C. Grulke, K. Mansouri, K. Dionisio, K. Phillips, G. Patlewicz, I. Shah, K. Isaacs, J. Wambaugh, A. Richard, R. Judson

**8:30 417.** Implementation of a web-based workflow for evaluation of chemical risks in the Superfund program. **A. Frame**, A.J. Williams, R. Judson, R. Sams, C. Grulke, I. Shah, G. Patlewicz, J. Lambert, S. Wesselkamper, S. Foster, K. Raffaele

**8:50 418.** NICEATM's ICE Tool: An integrated chemical environment to support novel toxicological approaches. **N. Kleinstreuer**, S. Bell, J. Phillips, X. Chang, Q. Zang, D. Allen, W. Casey

**9:10 419.** Rapid and accurate quantum chemical physicochemical property computational estimates for under-characterized compounds. **W.A. Alexander**

**9:30 420.** Chemical toxicity prediction for major classes of industrial chemicals: Is it possible to develop universal models covering cosmetics, drugs, and pesticides? V.M. Alves, **E. Muratov**, A. Zakharov, N. Muratov, C.H. Andrade, A. Tropsha

**9:50** Intermission.

**10:05 421.** Case studies in characterising metabolic similarity in read-across through the use of *In vitro*, *In silico* and analytical data. **G. Patlewicz**, L. Lizarraga, E. Owens, J. Lambert, S. Wesselkamper, Q.J. Zhao, B. Hawkins, J. Dean, A.J. Williams, I. Shah, K.A. Favela, A. Yau, J. Bonzo, L.R. Moody, R. Thomas, J. Wambaugh

**10:30 422.** Virtual screening of chemicals for endocrine disrupting activity: Case studies of the estrogen and androgen receptors. **K. Mansouri**, N. Kleinstreuer, C. Grulke, A. Richard, I. Shah, A.J. Williams, R. Judson

**10:50 423.** Application of multiple *in silico* methods for evaluating potential liver toxicity of phytochemicals. **Y. Liu**

**11:10 424.** Computational approaches to evaluate mode of action interactions and uncertainties: Thiocyanate as case study. **M. Willemin**, L. Jung, A. Lumen

**11:30 425.** Rapid speciation and determination of vanadium compounds by ion-pair reversed-phase ultra-high-performance liquid chromatography inductively coupled plasma-sector field mass spectrometry: *In vitro* speciation models. **J.M. Harrington**, L.G. Haines, A.S. Essader, K.E. Levine, R.A. Fernando, V.G. Robinson, S. Waidyanatha

**11:50** Concluding Remarks.

## **Advances in Understanding of Sorptive & Reactive Properties of Pyrogenic Carbonaceous Matter (PCM) in the Environment**

W. Mitch, W. Xu, *Organizers*  
J. J. Pignatello, *Organizer, Presiding*

**8:15** Introductory Remarks.

**8:20 426.** Factors controlling the adsorption of ionizable compounds to activated carbon. **D. Knappe**, L. Dudley, A. Rossner, M. Sun

**8:55 427.** Thermodynamics of attachment: Enthalpy and free energy of adsorption of neutral and ionic micropollutants on biosolids-derived biochar. **Y. Tong**, P.J. McNamara, S.L. Singer, B. Mayer

**9:15 428.** Elimination of a potentially hazardous, flame retardant chemical consisting of an organophosphorus moiety from water using biochar as an adsorbent. **A. Saha**, S.R. Akech

**9:35 429.** Development of improved biochars through alkaline pretreatment and metal catalysis for the removal of organic micropollutants in source water protection scenarios. **M. Bentley**, R.S. Summers

**9:55 430.** Sorption of hydrophobic organic compounds to dissolved black carbon and impact of its release on sorption properties of bulk black carbon. H. Fu, B. Wang, X. Qu, H. Li, W. Zhang, **D. Zhu**

**10:15** Intermission.

**10:30 431.** High temperature co-pyrolysis/thermal air activation modifies biochar porosity and enhances capacity for uptake of herbicides from surface water. **J. Kearns**, K. Shimabuku, D. Knappe, R.S. Summers

**10:50 432.** Biomass-converted graphene-like material for the ultra-high adsorption of organic pollutants. **X. Xiao**, B. Chen, L. Zhu, J.L. Schnoor

**11:10 433.** Evaluating biochar in sustainable stormwater treatment of heavy metals. **S. Burch**, J.A. Nason

**11:30 434.** Selective recovery of thorium by wrinkled mesoporous carbon. Z. Wang, **K.J. Balkus**

### **Elucidation of Mechanisms & Kinetics on Surfaces**

#### **Surface Kinetics**

Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS

#### **Manganese Oxides: Their Formation, Structure, Reactivity & Applications**

Sponsored by GEOC, Cosponsored by ENVR

#### **Lignin: From Fundamentals to New Materials & Applications**

##### **Nanoscaled Materials from Lignin**

Sponsored by CELL, Cosponsored by ENVR and POLY

#### **Molecular Processes at Mineral-Water Interfaces: Linking Theory & Experiments**

##### **Confinement: Clay Mineral Geochemistry**

Sponsored by GEOC, Cosponsored by ENVR and INOR

### **Catalytic Conversion of Biomass Derived Molecules to Chemicals & Fuels**

Sponsored by CATL, Cosponsored by ENFL, ENVR and INOR

### **Valorization of Renewable Resources & Residuals into New Materials & Multiphase Systems**

Sponsored by CELL, Cosponsored by ENVR and POLY

### **R&D in the Chemical Catalysis for Bioenergy Consortium**

Sponsored by CATL, Cosponsored by ENFL, ENVR and INOR

### **Catalytic & Photocatalytic Degradation of Pollutants & Chemical Threat Agents: New Developments in Materials & in In-situ & Operando Methods**

#### **Catalysis & Surface Science Science Applied to the Destruction of Threat Agents**

Sponsored by CATL, Cosponsored by ENVR, INOR and PHYS

## **WEDNESDAY AFTERNOON**

Section A

Ernest N. Morial Convention Center  
Room 346

### **Novel Concepts in the Role of Chemistry in the Food, Energy & Water Nexus**

Cosponsored by MPPG

S. Ahuja, D. D. Dionysiou, *Organizers*

S. Chae, I. Chowdhury, *Organizers, Presiding*

**1:30** Introductory Remarks.

**1:35 435.** Chlorotyrosines versus volatile byproducts from disinfection during washing of lettuce and spinach. **W. Mitch**, Y. Komaki, A. Simpson

**2:05 436.** Attachment of foodborne microbes to spinach leaf surfaces: The role of solution chemistry and growth conditions. **H. Mayton**, I. Marcus, S.L. Walker

**2:25 437.** Assessing risks from pharmaceuticals and transformation products in urine-derived fertilizers. **W. Tarpeh**, D.S. Aga, K. Wigginton, N. Love

**2:45 438.** Role of ferrate technology in the food, energy, and water nexus. **V.K. Sharma**

**3:05 439.** Educating the community on the interconnectedness of energy, food and water sustainability as we seek to reduce exposure to environmental toxics. **R.C. Wingfield**, K. Jackson, V. Watson

**3:25** Intermission.

**3:40 440.** Elucidating nanoparticle-plant leaf interactions, uptake, and mobility for designing highly efficient foliar-applied agrochemicals. **A. Avellan**, J. Yun, E. Spielman-Sun, G. Lowry

**4:00 441.** Toward improving agrochemical efficiency: Impact of Cu-based nanoparticle solubility on metal uptake, speciation, translocation, and distribution in *Triticum aestivum* (wheat). **E. Spielman-Sun**, E. Lombi, E. Donner, B. Etschmann, D. Howard, G. Lowry

**4:20 442.** Reduction of excess biological sludge in tannery effluent treatment. **V. Sodhi**, A. Bansal, **M.K. Jha**

**4:40 443.** Alberta oil sands extraction and tailings ponds emissions: Predicting the fate of thousands of oil hydrocarbon compounds simultaneously. B. Drollette, **D.L. Plata**

Section B

Ernest N. Morial Convention Center  
Room 347

### **Current State of Environmental Contamination Research: Theory & Experiment**

Cosponsored by CEI

S. Ahuja, G. Jenness, *Organizers*

H. McAlexander, M. K. Shukla, *Organizers, Presiding*

**1:30** Introductory Remarks.

**1:35 444.** Energetics and vibrational signatures of argyrophilic interactions involving high energy density materials. **G.S. Tschumper**

**2:00 445.** Kinetic Monte Carlo models to study nucleation and evolution of metal/metal oxide nanoparticles grown via aerosol route. **D. Mukherjee**

**2:25 446.** Adsorption of some munitions compounds on silica surfaces: A density functional theory investigation. **R.K. Chouhan**, G. Subramanian, M.K. Shukla

**2:50** Intermission.

**3:05 447.** Trajectory-based models and remote sensing for biomass burning assessment in Bangladesh. **F. Emami**, P. Hopke, A. Ommi

**3:30 448.** Development of accurate force-fields for water clusters with acidic defects. **R. Kumar**, C. Bresnahan

**3:55 449.** Synergy between palladium and indium during heterogeneously catalyzed nitrate degradation. S. Kasiraju, S. Guo, K. Heck, H. Qian, Z. Zhao, J.T. Miller, M.S. Wong, **L. Grabow**

**4:20** Intermission.

**4:35 450.** Theoretical investigation of ground and excited electronic states of the water splitting catalytic cycle facilitated by  $\text{MoO}^+$ . **E. Miliordos**

**5:00 451.** Mathematical modeling tools for characterizing vapor intrusion: Challenges for gaining acceptance. **E. Suuberg**, J. Ström, A. Oliveira

Ernest N. Morial Convention Center  
Room 348

### **Emerging Environmental Biotechnologies for Energy-Efficient Pollutant Control, Remediation & Resource Recovery**

Cosponsored by CEI

X. Mao, Y. Men, W. Zhuang, *Organizers*

C. M. Sales, S. Yi, *Organizers, Presiding*

**1:30** Introductory Remarks.

**1:35 452.** Examining nutrient uptake and transformation within photosynthetic microbial communities using a high density bioreactor. **J. Price**, C.M. Sales

**1:55 453.** Integrated meta-omics approach reveals synergistic interactions in a bisphenol- A-degrading microbial community. **K. Yu**, S. Yi, B. Li, L. Alvarez-Cohen, T. Zhang

**2:15 454.** Reconstruction of cellulose-to-methane trophic chain from metagenomics and metatranscriptomics. Y. Jia, **P.K. Lee**

**2:45 455.** Global wastewater microbiome: Diversity and biogeography. **J. Zhou**, X. Wen, T. Curtis, Q. He, D. Ning, Y. Yang, L. Wu, B. Zhang, F. Ling

**3:15** Intermission.

**3:30 456.** Genome-resolved metagenomics to assess the long-term impact of disinfection on the drinking water microbiome. **A.J. Pinto**

**4:00 457.** Characterization of the microbial community driving on-site wastewater treatment in nitrogen removing biofilters (NRBs). **K. Langlois**, J.L. Collier, N. Volkenborn, M. Graffam

**4:20 458.** Impact of material electrical conductivity on the microbial community structure in anaerobic digesters. **Q. Cheng**, F.L. de los Reyes, D.F. Call

**4:40 459.** Microbial community structure and electrochemical activity during the formation of successful versus failed electroactive biofilms. **J. Ortiz Medina**, D.F. Call

### Section D

Ernest N. Morial Convention Center  
Room 349

### **Water Use Optimization: Water Quality, Reuse & Treatment**

#### **Water Reuse & Water Quality**

S. Bushart, Y. Jun, K. Pagilla, N. Rao, Y. Yang, *Organizers, Presiding*

**1:30 460.** Connecting recycled water to spreading basins for combined operation and greater water supply resiliency. J. Bradshaw, N. Ashoori, M. Osorio Gonzalez, T. Schmitt, **R.G. Luthy**



- 2:00 461.** Water reuse project at University of Nevada-Reno: Addressing human health impacts from emerging contaminants in reclaimed water to enhance its use for urban and peri-urban agriculture. **K. Pagilla**, P. Verburg, D. Hanigan, Y. Yang
- 2:20 462.** Effects of oxyanions on arsenic mobilization from arsenopyrite during managed aquifer recharge. **X. Wu**, S. Burnell, C. Neil, D. Kim, H. Jung, Y. Jun
- 2:40 463.** Disinfection byproducts removal during water reuse using natural solar photo-fenton process. **I. Abusallout**, G. Hua
- 3:00 464.** Optimized pilot-scale recovery of abandoned mine drainage for reuse in hydraulic fracturing using nanofiltration membranes. **S. Wadekar**, T. Hayes, D. Mittal, R.D. Vidic
- 3:20 465.** Xenon tracer tests at managed aquifer recharge operations. **A. Visser**, M.J. Singleton, J. Moran, B. Esser
- 3:40** Intermission.
- 3:50 466.** Electrodialysis metathesis for desalination of geothermal waters and recovery of rare earth elements: Role of pH and solubility. L.M. Camacho, **M. Shafiq**
- 4:10 467.** Experimental investigations for efficient removal of ultrafine coal particles from effluent streams: Bench and pilot-scale studies. A. Bhagavatula, V. Rajagopalan, **B. Duncan**, P. Vimalchand, M. Nelson
- 4:30 468.** Sensitivity of watershed delineation and modeled hydrology and water quality to topographic characteristics of watersheds. **Z. Duan**, J. Diaz-Ramirez, J. Martin, S. Xie, Z. Chen, J. Wang
- 4:50 469.** Determination of perchlorate by US EPA Method 332.0 using a compact ion chromatography system coupled with mass spectrometry (IC-MS). **B. Huang**, J. Rohrer
- 5:10 470.** Development of a U.S. EPA method for the analysis of nonylphenol in drinking water by solid phase extraction and LC/MS/MS. **D.R. Tettenhorst**, J.A. Shoemaker

Section E

Ernest N. Morial Convention Center  
Room 350

### **Accurate Mass/High Resolution Mass Spectrometry for Environmental Monitoring & Remediation**

T. Anumol, R. Marfil-Vega, T. M. Young, C. Zwiener, *Organizers, Presiding*

**1:30** Introductory Remarks.

**1:35 471.** Quality control, validation and strategies for statistical analysis in chemometric approaches using high-resolution MS in environmental and waste waters. **D. Cuthbertson**

**2:00 472.** Improving confidence in environmental contaminant identification with highly curated databases and accurate mass MS/MS libraries. **R. Garnica**, E.E. Rennie, T. Anmol, S. Xu, J. Zweigenbaum, M. Miladi

**2:25 473.** Tracing the biotransformation of PAHs in contaminated soil using stable isotope-assisted metabolomics. **Z. Tian**, J. Vila, M. Yu, W. Bodnar, M. Aitken

**2:50 474.** Target, suspect and non-target screening of dioxin-like compounds in environmental samples using a sensitive high-resolution time-of-flight mass spectrometer. **P. Haglund**, N. Eno, S. Nieto

**3:15** Intermission.

**3:40 475.** Molecular-level insights into environmental organic contaminants by high resolution fourier transform ion cyclotron resonance (FT-ICR) mass spectrometry. **R.P. Rodgers**, S. Rowland, H. Chen, A.M. McKenna, P. Zito, Y. Corilo

**4:05 476.** Characterization of naphthenic acids and other dissolved organics in natural water from the Athabasca Oil Sands Regions, Canada by using ultra-high resolution Orbitrap mass spectrometry. **C. Sun**, J. Martin, W. Shotyk

**4:30 477.** Analysis of halogenated combustion byproducts in soot on firefighter protection equipment and skin after structural fires. **C. Hoppe-Jones**, S. Beitel, L. Flahr, S.A. Snyder

**4:55 478.** Transformation of dissolved organic matter in engineered ultraviolet (UV) photolysis and UV-based advanced oxidation processes. **D. Minakata**, L. Varanasi, M. Khaksari, L.R. Mazzoleni

**5:20** Concluding Remarks.

Section F

Ernest N. Morial Convention Center  
Room 351

### **Contaminants in Water Sources Impacted by FEW Systems: Emerging Challenges & Opportunities**

D. M. Cwiertny, *Organizer*

C. L. Just, G. H. LeFevre, *Organizers, Presiding*

**1:30** Introductory Remarks.

**1:35 479.** Environmental photochemistry of dichloroacetamide herbicide safeners. A.E. Kral, M.E. McFadden, G.H. LeFevre, J.D. Sivey, **D.M. Cwiertny**

**1:55 480.** Adsorption of double-stranded RNA (dsRNA) at solid-water interfaces: Implications for the environmental fate of dsRNA biopesticides from RNA interference (RNAi) agricultural biotechnology. **K. Parker**, M. Sander

**2:15 481.** Impact on surface water quality due to the enhanced solubility of organochlorine pesticides following an ethanol-blend fuel spill. **M. Otero-Diaz**, B. Woo, N. Bhattacharyya, L. Ma, A. Demond

**2:35 482.** Dichloramine reactivity with amino acids in wastewater. **E. Walker**, K.P. Ishida, S.P. Mezyk

**2:55 483.** Transformation of neonicotinoid insecticides during disinfection under defacto water reuse. **G.H. LeFevre**, K. Klarich, D.M. Cwiertny

**3:15** Intermission.

**3:25 484.** Halogenation of agrochemicals and related compounds in waters disinfected with free chlorine: Competition between rates of chlorination and bromination. **J.D. Sivey**, M.A. Broadwater, T.L. Swanson, R.P. Dias, A.L. Roberts

**3:45 485.** Sorption of neonicotinoid insecticides to granular activated carbon during drinking water treatment. **D. Webb**, K.L. Klarich, G.H. LeFevre, D.M. Cwiertny

**4:05 486.** Combining HRMS-based suspect screening and statistical analysis to assess contaminants of emerging concern in a wastewater-impacted urban lake. **S. Wang**, T. Zeng

**4:25 487.** Influence of climate change on subsurface atrazine degradation and transport. **S. Bartelt-Hunt**, R. Barrios, O. Gaonkar, X. Li, D.D. Snow, Y. Li

**4:45 488.** Water quality as an additional factor for the energy-water nexus: Distribution of contaminants in water impacted by fossil fuels activities. **A. Vengosh**

**5:05 489.** Effect of dissolved organic matter on the photochemical transformation of trace organic contaminants in wastewater: The role of singlet oxygen. **L. Ma**, H. Thi Hong Vo, R. Arnold, A.E. Saez

**5:25** Concluding Remarks.

Section G

Ernest N. Morial Convention Center  
Room 342

### **Advances in Understanding of Sorptive & Reactive Properties of Pyrogenic Carbonaceous Matter (PCM) in the Environment**

J. J. Pignatello, W. Xu, *Organizers*  
W. Mitch, *Organizer, Presiding*

**1:30** Introductory Remarks.

**1:35 490.** Surface-promoted hydrolysis of 2,4,6-trinitrotoluene and 2,4-dinitroanisole on pyrogenic carbonaceous matter. **K. Ding**, C. Byrnes, A.M. Grannas, W. Xu

**1:55 491.** Inherent reactivity of chars from model feedstocks, lignin and cellulose: Persistent free radicals, reactive oxygen species, and non-radical direct reacting sites. **J.J. Pignatello**, J. Yang, B. Pan, B. Xing

**2:30 492.** Redox properties of water-extractable dissolved organic matter (DOM) from plant biomass – derived black carbon (biochar). **W. Xu**, N. Walpen, M. Keiluweit, M. Kleber, M. Sander

**2:50 493.** Photoactivity of dissolved black carbon in natural aquatic systems. H. Fu, **X. Qu**, D. Zhu

**3:10** Intermission.

**3:25 494.** Capture and dehalogenation of fipronil using a semi-passive black carbon-based electrode. **W. Mitch**, Y. Li

**3:45 495.** Desalination with capacitive deionization under various operating conditions and electrode configuration using Carbon fiber/paper electrodes. **M. Ahmed**, S. Tewari

**4:05 496.** Abiotic reduction of nitrobenzene with sulfide catalyzed by carbon nanotubes in aqueous solutions: Effect of surface modification and parameter optimization. **H. Zhao**

**4:25 497.** Probe the surface reactivity of pyrogenic carbonaceous materials using conjugated microporous polymers. **Z. Li**, J. Mao, W. Xu

### **Unconventional Catalysis Targeting Stable Molecules**

Sponsored by CATL, Cosponsored by ENFL, ENVR, INOR and PHYS

### **Manganese Oxides: Their Formation, Structure, Reactivity & Applications**

Sponsored by GEOC, Cosponsored by ENVR

### **Lignin: From Fundamentals to New Materials & Applications**

#### **Carbon Fibers & Chemicals from Lignin**

Sponsored by CELL, Cosponsored by ENVR and POLY

### **Molecular Processes at Mineral-Water Interfaces: Linking Theory & Experiments**

#### **Carbonates, Phosphates & Rare Earth Elements**

Sponsored by GEOC, Cosponsored by ENVR and INOR

### **Forensic Geochemistry**

Sponsored by GEOC, Cosponsored by ENVR

### **Catalytic Conversion of Biomass Derived Molecules to Chemicals & Fuels**

Sponsored by CATL, Cosponsored by ENFL, ENVR and INOR

### **Valorization of Renewable Resources & Residuals into New Materials & Multiphase Systems**

Sponsored by CELL, Cosponsored by ENVR and POLY

### **R&D in the Chemical Catalysis for Bioenergy Consortium**

Sponsored by CATL, Cosponsored by ENFL, ENVR and INOR

### **Catalytic & Photocatalytic Degradation of Pollutants & Chemical Threat Agents: New Developments in Materials & in In-situ & Operando Methods**

#### **Photocatalytic Approaches**

Sponsored by CATL, Cosponsored by ENVR, INOR and PHYS

## **WEDNESDAY EVENING**

Section A

Ernest N. Morial Convention Center  
Hall D

### **Accurate Mass/High Resolution Mass Spectrometry for Environmental Monitoring & Remediation**

T. Anumol, R. Marfil-Vega, T. M. Young, C. Zwiener, *Organizers*

**6:00 - 8:00**

**498.** High resolution mass spectrometry analysis of biomass burning organic aerosol composition from different wood fuels and combustion conditions. **K. Nguyen**, H. Bayat, M. Hengel, T.B. Nguyen

Ernest N. Morial Convention Center  
Hall D

### **Advances in Understanding of Sorptive & Reactive Properties of Pyrogenic Carbonaceous Matter (PCM) in the Environment**

W. Mitch, J. J. Pignatello, W. Xu, *Organizers*

**6:00 - 8:00**

**499.** Adsorption characteristics of benzalkonium chloride (BAC) by activated carbon. **W. Choi**, T. Kim, K. Zoh

**500.** Characterization of biochars structure and the applications as a sorbent. **X. Xiao**, B. Chen

**501.** Highly effective catalytic peroxymonosulfate activation on mesoporous carbon nitride for o-phenylphenol degradation. J. Hou, **S. Zheng**, D. Zhu

Ernest N. Morial Convention Center  
Hall D

### **Agro-Environmental & Energy Applications of Biochar/Hydrochar**

N. D. Berge, C. Jeong, K. Ro, *Organizers*

**6:00 - 8:00**

**502.** Chromium ion removal from aqueous media by aluminum and magnesium impregnated biochar. **A. Herath**, C. Layne, G. Burk, T. Mlsna

**503.** Graphene coated pine wood biochar from slow pyrolysis to decontaminate copper from aqueous solutions. **H. Samaraweera**, T. Mlsna

**504.** Pine wood biochar to decontaminate Cu(II) from aqueous solutions. **A. Hanson**, H. Samaraweera, T. Mlsna

**505.** Removal of lead from aqueous systems by potassium hydroxide activated biochar. **C. Layne**, A. Herath, T. Mlsna

**506.** Recycling phosphate with MgO decorated magnetic biochar composite and its potential use as fertilizer. **B. Zhou**, R. Li, J.J. Wang

**507.** Nitrogen sorption by biochars derived from different feedstocks and at different pyrolysis temperatures: Affecting factors and mechanisms. **S. Li**, V. Barreto, R. Li, G. Chen, Y.P. Hsieh

**508.** Preparation and re-activation of nitrogen-doped magnetic biochar by molten salt method: Relevant performance for organic pesticides removal. **S. Dai**, Y. Zhao

**509.** Adsorption mechanism of Cu(II) on crop-residue char. **S. Wang**, I. Liao, R. Chang

**510.** Effects of poultry-manure biochars on the soil phosphorus availability to rice plant. M. Soesanto, Y. Hashimoto, M. Cheng, **S. Wang**

Ernest N. Morial Convention Center  
Hall D

### **Antibiotics & Antimicrobial Resistance: Developing Solutions to Address the Connectivity Between Air, Food, Water & Soil**

D. S. Aga, X. Li, A. Pruden, P. J. Vikesland, *Organizers*

**6:00 - 8:00**

**511.** Tylosin sorption to diatomaceous earth: Investigation of physical processes of tylosin in natural systems and development of mitigation methods. **B. Stromer**, B. Woodbury, C. Williams

**512.** Antimicrobial susceptibility, stress responses, and hormesis in *Pseudomonas fluorescens* as metrics for assessing impacts of antibiotics in the environment. **E.R. Hain**, H. Adejumo, L.M. Blaney

**513.** Superspreader phage-mediated dissemination of antibiotic resistance gene-containing plasmids in wastewater disinfection processes. **M. Gnegy**, A. Pruden, P.J. Vikesland, K. Wigginton

**514.** Detection and evaluation of antibiotics in seven wastewater treatment plants in Southwest Illinois. **Q. Zhang**, C. Donald, J. Rhomberg, K. Tucker

**515.** Large-scale modeling of the antibiotic resistance: A hydrological perspective. **M. Thilakarathne**, V. Sridhar

**516.** Lessons learned on the fate of ARG in end-of-pipe treatment systems for combined sewer overflows. A. Eramo, H. Delos Reyes, W. Morales Medina, **N. Fahrenfeld**

Section A

Ernest N. Morial Convention Center  
Hall D

### **Approaches to Fill Data Gaps for Chemical Sources of Risk**

C. I. Nicolas, K. Philips, *Organizers*

**6:00 - 8:00**

**517.** Effect of toxicity, distribution and metabolism for co-occurring exposure to microplastics and the chiral antidepressant venlafaxine in loach (*M. anguillicaudatus*). **H. Qu**, R. Ma, B. Wang

**518.** OpenRiskNet, an open e-infrastructure to support data sharing, knowledge integration, *in silico* analysis and modelling in risk assessment. **N. Oki**, T. Exner, S. Kramer, C. Notredame, D. Jennen, G. Gkoutos, H. Sarimveis, M. Jacobs, O. Spjuth, T. Dudgeon, F. Bois, P. Jennings, B. Hardy

Ernest N. Morial Convention Center  
Hall D

### Aquatic Photochemistry

W. Arnold, K. P. McNeill, S. G. Pati, *Organizers*

**6:00 - 8:00**

**519.** Photochemistry of atmospheric carbonyl reaction products. **M.M. Galloway**, J.M. Ackendorf, M.B. Sebold, D.N. Grace, R. Holappa

**520.** Photochemical oxidation reduces the efficacy of aerial dispersants applied in response to oil spills. C.P. Ward, **C.J. Armstrong**, C. Reddy

**521.** Withdrawn.

**522.** Apparent quantum yields of singlet oxygen and photochemical oxygen consumption for crude oils. **C.P. Ward**, C. Reddy, **C.M. Sharpless**

**523.** Photodegradation of sulfathiazole: Kinetics, photo-induced structural rearrangement, and photoproducts antimicrobial activities. **X. Niu**, J. Croue, J. Gladys-Croue

**524.** Comparative study of the photochemical fate of ebselen and its carbon analog during direct and indirect photolysis. **M. Hopanna**, S. Steinly, L.M. Blaney

**525.** Photodegradation of o-phthalic acid and the effects of nitrite and nitrate. **X. Lu**, Y. Zuo

**526.** Analysis of the characterization and toxicity of ultraviolet filter chemical (UVFC) octyl dimethyl para-aminobenzoic acid (OD-PABA) photoproducts. **L. O'Connor**, J. Maung, L. MacManus-Spencer, M.G. Paulick

**527.** Photolysis and cellular toxicity of the organic ultraviolet filter chemical 2-ethylhexyl-4-(dimethylamino)benzoate (OD-PABA) and its photoproducts. **J. Maung**, L. O'Connor, M.G. Paulick, L. MacManus-Spencer

**528.** Effects of natural water matrix on the aquatic photodegradation of 17 $\alpha$ -ethynylestradiol (EE2). **Y. Zuo**, F. Albalawi

**529.** Effects of halide ions on photodegradation of sulfonamide antibiotics: Formation of halogenated intermediates. **X. Qiao**

**530.** Photodegradation of methylparaben in aquatic environment: Kinetics and reaction mechanisms. **Y. Deng**

**531.** Sorption of model micropollutant to polyethylene film after UV exposure. **F.E. Murphy**, M.A. Maurer-Jones

**532.** Effects of precursors on the photocatalytic activities of graphitic carbon nitride in hexavalent chromium reduction and rhodamine B degradation under visible light irradiation. **C. Chuaicham**, K. Sasaki

**533.** Characterizing the effects of sethoxydim on the photosynthetic activity and biochemical composition of *Chlorella vulgaris*. **A. Smythers**, A. Garmany, N. Perry, P.E. Adkins, E. Higginbotham, D. Kolling

**534.** Inactivation kinetics of *E. coli* and MS2 coliphage by photogenerated singlet oxygen. **T. Kim**, H. Kim, H. Kim, J. Seo, J. Lee, C. Lee

Section A

Ernest N. Morial Convention Center  
Hall D

### **Chemistry of Drinking Water Distribution Systems & Infrastructure**

D. Giammar, Y. Hu, H. Liu, *Organizers*

**6:00 - 8:00**

**535.** Montebello water filtration plant-I in Baltimore: Chemistry's contribution to public health. **B. Salazar, P.J. Smith, R. Nuss**

**536.** Snapshot of lead and copper in Iowa drinking water. **A. Grant**, D. Latta, S. Dai, D.M. Cwierny, M. Scherer

Section A

Ernest N. Morial Convention Center  
Hall D

### **Contaminants in Water Sources Impacted by FEW Systems: Emerging Challenges & Opportunities**

D. M. Cwierny, C. L. Just, G. H. LeFevre, *Organizers*

**6:00 - 8:00**

**537.** Accumulation of copper in sediments of lakes treated with copper-based pesticides. **M. Albalawi**, M.J. Beazley

**538.** Bioaugmentation and phytoremediation of 1,4-dioxane in simulated groundwater. **R. Simmer**, J.L. Schnoor

**539.** Role of abiotic and biotic denitrification in agricultural soils. **O.B. Felber**, D. Latta, M. Scherer, C.L. Just

**540.** Degradation comparison of pentachlorophenol (PCP) versus pentachloroanisole (PCA) using zero-valent magnesium/graphite (ZVMg/C) in an acidified ethanol. **A. Garbou**, C. Clausen, C. Yestrebsky

**541.** Meta-analysis of nanoparticle toxicity: Determining effect of units and identifying future directions. **R.M. Wheeler**, S. Lower

**542.** Removal of perchlorate from water: Environmental chemistry. **A. Plank**, A. Mueller

**543.** Community usage of illicit drugs in Western Kentucky, USA. **K.S. Foppe**, B. Subedi

**544.** Suppression mechanism of anionic pollutants released from fly ash by Ca additives. S. Nakama, Q. Tian, B. Guo, N. Pahlevi, Z. Hu, **K. Sasaki**

**545.** Determination of chemicals of emerging concern in plant tissues using isotope-dilution microwave-assisted extraction and LCMSMS. **O. Quinones**, B. Vanderford, E. Dickenson



- 546.** Transformation of pharmaceuticals during dielectric barrier discharge plasma jet treatment in synthetic urine. **E. Rodriguez**, W. Tarpeh, H. Clack, K. Wigginton, N. Love
- 547.** Occurrence, fate, and composition of N-nitrosamines and their precursors in wastewater. **C. Pu**, T. Zeng
- 548.** Reductive dechlorination of 1,2-dichloropropane by ZVI with vitamin B12. **N. Lapeyrouse**, G.J. Booth, C. Yestrebsky
- 549.** Levels and ecological risks of selected endocrine disrupting compounds (EDCs) in the urban surface water of New Calabar River, Port Harcourt City, Nigeria. **E. Inam**, **N.O. Offiong**, E.D. Essien, I. Nwoke

Section A

Ernest N. Morial Convention Center  
Hall D

### **Current State of Environmental Contamination Research: Theory & Experiment**

S. Ahuja, G. Jenness, H. McAlexander, M. K. Shukla, *Organizers*

**6:00 - 8:00**

- 550.** N,N-Dimethyl-p-nitrosoaniline and potassium linoleate hydroperoxide as spin traps in process of hydroxyl radicals formation during chloride-free electrolysis of contaminated water. **N. Barashkov**, T. Sakhno, I. Irgibayeva, A. Aldongarov, A. Mantel
- 551.** Investigation of the presence of heavy metals in water and fish from bon accord dam in northern Tshwane, South Africa. **O.O. Oyewole**
- 552.** Adsorption of amlodipine and carbamazepine at the air-aqueous interface and onto colloidal surfaces mimicking natural organic matter. **T.A. Williams**, M. Subir
- 553.** Irradiation of aqueous solutions of NTO, NQ and DNAN at UV wavelengths. **J. Becher**, S. Beal, S. Taylor
- 554.** Evaluating moss as biomonitors of atmospheric heavy metals in Oregon. **A.J. Miller**, A.E. Shiel, B. McCune, S. Jovan, S. Kiel, T. Rosenstiel, J.L. Fry
- 555.** Inhalation bioaccessibility of trace metals in PM<sub>2.5</sub> from three megacities of China: Assessments by simulated lung fluid (SLF) and diffusive gradients in thin films (DGT). Z. Zhao, L. Jin, **X. Luo**, J. Luo, J. Xie, Y. Chen, H. Li, X. Li
- 556.** Optimization of free and protein bound microcystin detection in sediments and aquatic organisms. **M. Bolotaolo**, I. Gennity, Y. Bong, B. Puschner, S. Lesmeister, S. Teh
- 557.** Aquatic photochemical reaction of divalent mercury with 3-mercaptopropionic acid and its environmental implications. **L. Si**, P.A. Ariya
- 558.** Computational investigation on electronic structures and properties of 4,6-bis(nitroimino)-1,3,5-triazinan-2-one: An insensitive munition compound. **K. Pittman**, G.S. Tschumper, M.K. Shukla, H. McAlexander
- 559.** Developing a yeast biosensor for measuring phosphate in natural waters. **J. Praner**

Ernest N. Morial Convention Center  
Hall D

### **Emerging Environmental Biotechnologies for Energy-Efficient Pollutant Control, Remediation & Resource Recovery**

X. Mao, Y. Men, C. M. Sales, S. Yi, W. Zhuang, *Organizers*

**6:00 - 8:00**

**560.** Nitrogen flows in an anaerobic ammonium oxidation (anammox) reactor. **J. Lawrence**, L. Zhou, R. Keren, J. Banfield, C. Yu, L. Alvarez-Cohen

**561.** Characterizing the potential of waste aerobic granular sludge as an ion-selective seed material for phosphorus recovery from nutrient rich wastewater. **D.B. Kitt**, R.D. Cusick

**562.** Effects of transient hydrologic regimes upon nitrous oxide reduction in denitrifying bioreactors. **P.M. McGuire**, L. Falk, M.C. Reid

**563.** Impact of legacy nitrogen in conventional septic system on nitrogen removal for onsite wastewater treatment. **Z. Maleki Shahraki**, X. Mao, S. Waugh, H. Walker

**564.** Fabrication of cationic cellulose from natural bioresources for waste activated sludge dewatering treatment. **X. Huang**, P. Hadi, B.S. Hsiao

Ernest N. Morial Convention Center  
Hall D

### **Environmental Chemistry Undergraduate Education in the Classroom, Laboratory & Beyond**

M. Berger, L. A. Welch, *Organizers*

**6:00 - 8:00**

**565.** Impact of ocean acidification on the composition of marine shells. **M. Lopez**, **M. Flores**, P.R. Calvo, J. Del Pilar

**566.** Introducing environmental chemistry topics into a first-year science writing course using narratives from geochemistry and evolutionary biology. **B.J. McFarland**

**567.** Environmentalist in film. **F.M. Dunnivant**

Ernest N. Morial Convention Center  
Hall D

**From Sewage to Sustainable Energy: Potential Pollution Issues from Production & Application Pathways**

S. Chae, W. Giger, R. Kallenborn, A. Torrents, *Organizers*

**6:00 - 8:00**

**568.** Withdrawn.

**569.** Towards a Canadian national biosolids research agenda. **J.E. Loyo-Rosales**, L.H. McCarthy

Ernest N. Morial Convention Center  
Hall D

**General Posters**

S. O. Obare, *Organizer*

**6:00 - 8:00**

**570.** Sustainable municipal wastewater treatment: Review of requirements and the urgency. **S. Chitikela**

**571.** Measurement of nicotine emission rate in thirdhand smoke (THS). **M. Noguchi**, A. Yamasaki

**572.** Naturally occurring radioactive materials in coals and coal ash in China. N. Lauer, **A. Vengosh**, S. Dai

**573.** Determination of adsorbable organic halogen (AOX) in wastewater using combustion ion chromatography. **J. Hu**, J. Rohrer

**574.** Quantifying rates of biological production to better understand the carbon cycle in the Canada basin. **B.Y. Ji**, R. Stanley

**575.** Soil organic matter in native prairies and prairie restorations I: Organic carbon content. L.R. Morgan, B.M. Mullins, **J.S. McConnell**

**576.** Soil organic matter in native prairies and prairie restorations II: Humic and fulvic acid fractions. S. Bomma, K. Pallemapati, N. Voleti, **J.S. McConnell**

**577.** Transformation of silver nanoparticles in surface waters. **C. Gagnon**, P. Turcotte, M. Pilote, F. Gagné, S. Smyth

**578.** Withdrawn.

**579.** Innovative materials management in open pit coal mines to reduce leachate conductivity. **S.R. Al-Abed**, P. Pinto, J. McKernan

**580.** Potential role of dissolved molybdenum, iron, and vanadium in harmful algal blooms in Ohio lakes. **S.J. Israel**, S.A. Welch, W. Lyons

- 581.** Biological toxicity and FT-ICR MS characterization for photochemically degraded oil/water accommodated fractions as a function of wavelength exposure. **P.L. Bann**, S. Bilfulco, C. Brannon, L. Reid, B. Farran, W. Jeffrey, A.M. McKenna, C. Davis, **P.P. Benz**
- 582.** Biological toxicity of wavelength specific photochemically degraded water accommodated fractions. **C. Brannon**, L. Reid, P.L. Bann, W. Jeffrey, **P.P. Benz**
- 583.** Effects of burning and photochemical degradation of surrogate oil as a function of chemical characterization (determined by FT-ICR MS) and biological toxicity. **E. Post**, M. Seivert, W. Jeffrey, **P.P. Benz**
- 584.** Heavy metal remediation from aqueous solutions by new SIT materials. **E. Rush**, A.F. Callender, E.C. Lisic
- 585.** Radionuclides speciation in seawater. **C. Moulin**, C. Den auwer, M. Monfort, M. Beccia, B. Reeves, M. Maloubier
- 586.** Comparative approach to the understanding of Lake Trout contaminant dynamics in the Great Lakes. **J.J. Pagano**, A.J. Garner, T.M. Holsen
- 587.** Impact of energy in environmental pollution. **T. Akinmusire**
- 588.** Preparation of super-hydrophobic and super-oleophilic porous alumina ceramics for oil/water separation. **X. Lv**, **T. Wang**
- 589.** Evidence for products of cross-reactions in organic films formed on sulfuric acid solutions at upper troposphere/lower stratosphere aerosol acidities. **T.E. Nelson**, J.H. Bui, E. Li, S. Perez-Montano, A.L. Van Wyngarden
- 590.** Styrene oligomer contamination surround Japan in water and sand. **K. Koizumi**, Y. Kodera, T. Komoriya, K. Amemiya, K. Takatama, D.M. Karl, B. Kwon, S. Chung, **K. Saïdo**, T. Hiaki
- 591.** Distribution of soil phosphorus and nitrate in the Spring Lake watershed region of western Illinois. S. Nicioli, K.E. Ribordy, J. Boeckler, J.S. McConnell, **A.L. Hagen**
- 592.** Adsorption of BSA onto sodium saturated montmorillonite in the presence of monovalent, divalent, and trivalent cations. **A.L. Hagen**, M. Cash, J.S. McConnell
- 593.** Analysis of endocrine disrupting chemicals (EDCs) accumulation in Brown Planaria and its effects on regeneration. **R. AminiTabrizi**, R. Davis, B. Potter, K. Tucker
- 594.** Ionic/molecular sponge behavior of graphene oxide laminates. **Y. You**, X. Jin, R. Joshi
- 595.** Effects of exposure to light emitting diode (LED) using the model organism *Caenorhabditis elegans*. **F.H. Abdel-Rhman**, A. Aldawsari, K. Anthony, M.A. Saleh
- 596.** Oxidation of 3,5,6-trichloro-2-pyridinol by zero valent iron (ZVI) activated persulfate. **R.T. Mogharbel**, C. Yestrebsky
- 597.** Surfactant control of heterogeneous oxidation of atmospheric organic aerosol. **J. Faust**, J.P. Abbatt
- 598.** Sorption dynamics of cadmium and chromium (II) onto montmorillonite from mixed solvent systems. **M. Cash**, A.L. Hagen, J.S. McConnell
- 599.** Soil organic matter in native prairies and prairie restorations III: Structural studies of humic acids with carbon-13 NMR spectroscopy. A. Poladi, J.S. McConnell, **M. Cash**

- 600.** Removal of heavy metals in metal plating wastewater by powdered activated carbon (PAC) and sodium diethyldithiocarbamate-modified PAC. **T. Kim**, T. Kim, M. Kim, K. Zoh
- 601.** Lead and copper ion levels in drinking water: Tap versus bottled. **C. Celani**, P.A. Brletic
- 602.** Improving pollution mapping with autonomous and semi-autonomous vehicles. **J.R. Casar**, G. Quiroz, C.M. Clark, L. Hawkins
- 603.** Comparison of effective optical properties of internally mixed aerosols computed using various mixing rules. **K.S. Dooley**, J. DeYoung
- 604.** Aerobic granulation for wastewater treatment: Performance evaluation at elevated temperature using real wastewater. **M. Bob**, H. Ab Halim, A. Nor-Anuar, Z. Ujang
- 605.** Dechlorination of octachlorodibenzofuran by zero-valent magnesium with and without activated carbon using different solvent systems. **A.T. Mogharbel**, C. Yestrebky
- 606.** Adsorption mechanism of thallium(I) by smectite. **L. Guo**, H. Lin, **S. Wang**
- 607.** *In situ* remediation of poly-chlorinated biphenyl contaminated concrete using non-metal and activated metal treatment systems. **A.M. Almutairi**, C.G. Lewis, C. Clausen, C. Yestrebky
- 608.** Selective removal of radioactive cesium from nuclear waste by zeolites: On the origin of cesium selectivity revealed by systematic crystallographic studies. H. Lee, H. Kim, H. Jeong, M. Park, D. Chung, K. Lee, E. Lee, Y. Kim, J. Kim, **W. Lim**
- 609.** Mineralogical studies of precipitates and geochemistry of passive treatment system in Gapjeong Coal Mine, Korea. **J. Kim**, J. Seo, C. Lee, Y. Kim, J. Kim, J. Hyeon
- 610.** Study on characterization of magnetized zeolitic materials and recovery from aqueous phase by magnetic separation. H. Kwon, T. Shin, W. Lim, J. Kim, **Y. Kim**
- 611.** Epoxides as agents for chemical weapon decontamination and solidification. **D.J. McGarvey**, W.R. Creasy
- 612.** Development of engineered surrogate soils. **G. Abdalla**, A. Pandey, B.J. Haywood, S.P. Smith, B. Subramanian, D. Spivak, R.L. Cook
- 613.** Synthesis and characterization of organically modified montmorillonite for sequestration of perfluoroalkyl acids in contaminated water. **K. Cooley**, L. MacManus-Spencer, M.E. Hagerman
- 614.** Synthesis and characterization of organically modified hectorites for sequestration of perfluoroalkyl acids from drinking water. **A. Pagano**, K. Cooley, L. MacManus-Spencer, M.E. Hagerman
- 615.** Evolved gas analysis of the preignition stage of invasive plants of East Texas. **A.D. Trevino**, A.S. Frantzen, M. Tiller, B.P. Oswald
- 616.** Application of dispersive pipette extraction in analysis of organic contaminants in water. **H. Guan**, X. Li, W. Huang, Q. Cai
- 617.** Concentration exposure effects on the integrative capability of polar organic chemical integrative samplers. **R. Taylor**, V. Toteu Djomte, S.M. Chen, K. Chambliss

- 618.** Organic matter size and source in urban systems controls Cu biouptake by *Selenastrum capricornutum*. H. Luan, **T.M. Vadas**, K. Turpin-Nagel
- 619.** Monitoring of crop protection chemicals in water: Effects of changing environmental conditions on POCIS sampling rates. **V. Toteu Djomte**, R. Taylor, S.M. Chen, K. Chambliss
- 620.** Selective catalytic reduction of NO over Ce<sub>0.3</sub>TiO<sub>x</sub> supported metal oxide catalysts. **Z. Duan**, J. Liu, Z. Zhao
- 621.** Synthesis MnCo<sub>2</sub>O<sub>4</sub> spinel-type catalyst doped with alkaline earth metal for the catalytic combustion of soot. **K. Zhao**, Z. Zhao, Y. Wei, Y. Li, R. Li
- 622.** Novel SCRPF path with the three-dimensionally ordered macroporous La<sub>1-x</sub>K<sub>x</sub>MnO<sub>3</sub> perovskite-type mixed metal Oxides catalysts for the simultaneous removal of PM and NO<sub>x</sub> from diesel engine. **R. Li**, Z. Zhao
- 623.** Removal and recovery of phosphate from wastewater using novel reusable renewable resource-based nanocomposites. **A. Nakarmi**, T. Viswanathan
- 624.** Comparative studies of the treatment of rubber processing effluent with *Moringa oleifera* seed powder and *Jatropha carcus* seed powder as coagulants. **O. Ize-Iyamu**, E. Egbon, D. Ehiwe, O. Ize-Iyamu
- 625.** Application of factorial analysis to optimize preparation of activated carbons from renewable and low-cost precursors including olive pits, date pits, acorn shells, corn husks and coconut shells. **A. Algahamdi**, Z. Al-Khayat, A. Almalki, A. Alrashdi, T. Assiri, E. Alkhatib, P.A. Snetsinger

Section A

Ernest N. Morial Convention Center  
Hall D

### Green Chemistry & the Environment

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

**6:00 - 8:00**

- 626.** 2D material-based membranes for ionic liquid recycling. **J. Yin**, S. Tan, I. Hammontree, D. Li
- 627.** Beyond palm oil: Anticipatory environmental and techno-economic modelling for a bio-refinery process producing future food, fuels and high-value chemicals using green chemistry techniques. **S. Parsons**, M. McManus, C. Chuck
- 628.** Absorption of lactic acid from fermentation broth using a cost-effective adsorbent. **K. Chutivasanaskun**, T. Chaisuwan, S. Wongkasemjit
- 629.** Ecological friendly fabrication of polymer composites employing solution blending assisted with protic ionic liquid. **R.L. Perez**, J.S. Van Buskirk, P.K. Chhotaray, I.M. Warner
- 630.** Impacts of energy on environment. **T. Komolafe**
- 631.** Novel discharge-based technology for converting tar compounds into fuel gas. **J. Sun**
- 632.** Carbon-based layered manganese oxide nanohybrid catalysts for the fast oxidation of gaseous formaldehyde at room temperature. **F. Liu**

**633.** Using enzymatic combinations to treat asphaltene aggregation. **J. Abolafia, J. Cowan, A. Harrison, J. Hensley, T. Kim, W. Ko, M. Le, H. Manivannan, L. Rivera, P. Sarker, R. Tyagi**

Section A

Ernest N. Morial Convention Center  
Hall D

### **Innovative Chemical & Material Approaches for Sustainable Water Purification**

J. Choe, J. Liu, D. Shuai, Y. Wang, *Organizers*

**6:00 - 8:00**

**634.** Mechanistic study on the decomposition of perfluorooctanesulfonic acid by advanced oxidation combined with reductive defluorination. **N. Souza**, A. Parenky, H. Choi

**635.** Functionalized chitosan-Ti<sub>3</sub>C<sub>2</sub>T<sub>x</sub> (MXene) nanofiber composite for water filtration. **E. Mayerberger**, A. Toth, M. Barsoum, C.L. Schauer

**636.** Effects of citrate and tartrate on 2,4-dichlorophenol and 2,4,6-trichlorophenol removal in pyrite-packed columns under continuous flow conditions using heterogeneous Fenton reaction. O. Oral, **C. Kantar**, N.A. Oz

**637.** Development of functional plastics containing long-chain aliphatic podands for the remediation of water. **J. Pothoof**, M. Bhagwagar, C. Baker, M.A. Benvenuto

**638.** Air cathode iron-electrocoagulation (ACE) for removing emerging contaminants of concern in wastewater. **S. Bandaru**, A. Gadgil

**639.** Utilization of polyisobutylene bound magnetic nanoparticles for the extraction of crude from aqueous environment conditions. **P.K. Manyam**

**640.** Faceted TiO<sub>2</sub>/Fe<sub>2</sub>O<sub>3</sub> nanoparticles with carbon-based supports for water treatment applications. **A. Yurum**, Z. Gohari, Y. Yurum

**641.** Adsorption technique for organic pollutants using different carbon materials. **A. Mahmoud**, A. Stolle, M. Stelter, P. Braeutigam

**642.** Hybrid porous materials for the removal of dye-contaminated wastewater. **M. Chin**, F. Tian

**643.** Adsorption of lead onto activated carbon derived from *Garcinia cambogia*. **A. Liyanage**, M. Edussuriya, T. Mlsna

**644.** Withdrawn.

**645.** Innovative chemical & material approaches for sustainable water purification. **S. Goodman**, K. Song, A. Dichiara

Section A

Ernest N. Morial Convention Center  
Hall D

## Novel Concepts in the Role of Chemistry in the Food, Energy & Water Nexus

S. Ahuja, S. Chae, I. Chowdhury, D. D. Dionysiou, *Organizers*

**6:00 - 8:00**

**646.** Discovery of design principles for phosphate recognition at water interfaces. **W. Zhao**, J.F. Neal, H.C. Allen, A.H. Flood

**647.** Extraction and quantification of environmental inositol phosphates using solid phase extraction and inductively coupled plasma mass spectroscopy. **A. Altomare**, M.J. Beazley

**648.** Diurnal variability in organic matter constituents in an anaerobic baffled reactor treating domestic wastewater for agricultural water reuse applications. Z. Orandle, B. Pietruschka, M. Palomo, C. Buckley, S. Mncumbe, C. Pascua, L. Steinberg, **N. Mladenov**

Section A

Ernest N. Morial Convention Center  
Hall D

## Novel Membrane-Based Technology for Water Purification & Desalination

D. Jassby, B. Mi, *Organizers*

**6:00 - 8:00**

**649.** Removal of natural organic matter with nano-filtration after electrodialysis pretreatment. **S. Kum**, D.F. Lawler, L.E. Katz

**650.** Mitigation of toxic industrial chemicals and materials in water for emergency individual hydration. **E. Brack**, W. Zukas, T. Tiano, M. Mcpartlin

**651.** Effect of the surface zeta potential on the fouling reduction of nanocellulose coated ultrafiltration membranes. **M. Yang**, B.S. Hsiao, P. Hadi

**652.** Analysis of organic compound permeability in relation to ultrafiltration membrane fouling. **A.A. Sanchez**, N. Mladenov



Ernest N. Morial Convention Center  
Hall D

### Ongoing Challenges in the Treatment of Contaminants of Emerging Concern

L. M. Blaney, A. J. Hernandez, A. Heyden, Y. Men, *Organizers*

**6:00 - 8:00**

**653.** Effect of iron activator types on the persulfate oxidation of pharmaceuticals (diclofenac, salicylic acid and ibuprofen). **J. Choi**, W. Sik Shin

**654.** Role of morphology and corresponding properties in nanotoxicity of nanoscale battery material  $\text{Li}_x\text{Ni}_y\text{Mn}_z\text{Co}_{1-y-z}\text{O}_2$ . **N.V. Hudson-Smith**, M. Hang, P. Clement, R.J. Hamers, C.L. Haynes

**655.** Exploring the role of lipopolysaccharides in bacterial interactions with nanoparticles. J.T. Buchman, A. Rahnamoun, **K.M. Landy**, X. Zhang, A. Vartanian, L.M. Jacob, C.J. Murphy, R. Hernandez, C.L. Haynes

### Section A

Ernest N. Morial Convention Center  
Hall D

### Physics & Chemistry of Water Treatment: Symposium in honor of Professor Desmond F. Lawler

J. Darby, L. E. Katz, J. A. Nason, N. B. Saleh, *Organizers*

**6:00 - 8:00**

**656.** Quantifying copper speciation in pulp and paper wastewater effluent and implications for the biotic ligand model. **J. Mitzel**

**657.** Examining the role of  $\text{TiO}_2$  surface transformations on nanoparticle properties and treatment efficacy. **A. Deline**, J.A. Nason

**658.** Fundamental studies of ultrasound induced degradation of a popular antihistamine, cetirizine. **D. Cui**, A. Tarifa, A. De Caprio, K.E. O'Shea

**659.** Predicting performance and nutrient management feasibility of struvite recovery systems. **A. Furneaux**, R.D. Cusick

**660.** Impact of water quality characteristics on the mitigation of estrogenic contaminants from drinking water via electrocoagulation and electrooxidation. **K.N. O'Malley**, E. Maher, P. McNamara

**661.** Aqueous chloride concentrations and ionic strength control silver nanoparticle toxicity in *Pseudomonas aeruginosa* thereby increasing stress response and antibiotic resistance. **B.A. Chambers**, S.K. Smith, N.B. Saleh, M.J. Kirisits

**662.** Forward osmosis on seawater and wastewater effluent from a steel industry. J. Jung, **J. Kweon**, J. Ryu

- 663.** Modeling the performance of a pulp mill wastewater treatment plant located in Uruguay, South America. S. Bentancur, C. Lopez-Vazquez, **H. Garcia**, M. Duarte, D. Brdjanovic
- 664.** Biosolids-derived biochar for adsorption of organic micropollutants: The impact of temperature and pore size. **Y. Tong**, B. Mayer, S.L. Singer, P.J. McNamara
- 665.** Physicochemical relationships between metal-based ( $\text{Fe}^{3+}$ ,  $\text{Al}^{3+}$ ) precipitates and inorganic/organic contaminants. **S. Yeo**, T. Stewart, S. Yoon, D.F. Lawler, L.E. Katz
- 666.** Influence of coagulant characteristics on the removal of DOM and low levels of Hg from surface water in alum and ferric-coagulation systems. **F. Diaz**, L.E. Katz, D.F. Lawler
- 667.** Effect of sludge retention time on the filtration performance of anaerobic membrane bioreactors treating synthetic dairy wastewater with high lipid content. **A. Szabo**, S. Pacheco-Ruiz, D. Miguez, C. Hooijmans, H. Garcia, D. Brdjanovic, J. van Lier
- 668.** Evaluation of the Speece cone oxygen transfer performance in clean water and mixed liquor in a pilot-scale membrane bioreactor. M. Barreto, I. Ochoa, **H. Garcia**, C. Hooijmans, D. Brdjanovic
- 669.** Predicting electro conductivity based on ionic composition for multi component aqueous solutions. **S. Jafarzade Ghadimi**, W. Walker
- 670.** Achieving high water recovery in real brackish water treatment by membrane capacitive deionization (MCDI) desalination systems. **O. Owoseni**
- 671.** Relative importance of sweep coagulation and inactivation for virus control at different pH values during iron electrocoagulation. **K. Kim**, S. Chellam
- 672.** Constant flux microfiltration of secondary wastewater effluent: Fouling mechanisms with and without backwashing. **K. Gupta**, S. Chellam
- 673.** Performance deterioration and chemical cleaning of 7-year old reverse osmosis membranes from a full-scale water reuse facility. **B. Abada**, S. Chellam
- 674.** Transformation and aggregation of indium tin oxide (ITO) nanoparticles: Influence of surface chemistry on environmental fate of globally important engineered nanomaterial. **J. Grundy**, A. Suresh, N.B. Saleh, L.E. Katz, C.A. Saez Cabezas, M.J. Kirisits, D.J. Milliron
- 675.** Ultrasonic degradation of the Zika pesticide naled in aqueous solution: Kinetics and mechanistic investigation. **A. Abdullah**, K.E. O'Shea

Section A

Ernest N. Morial Convention Center  
Hall D

**Redox & Interfacial Dynamics Among Coupled Biogeochemical Cycles of Fe, S, Minerals & Organic Matter: Implications to Multiscale Behaviors of Contaminants, Carbon & Nutrients**

J. M. Cerrato, Y. Hu, Z. Wang, T. Zeng, *Organizers*

**6:00 - 8:00**

- 676.** Dynamic interaction between As, Fe, and S controlling arsenic mobility. **T. Jiarong**, C. Liu, L. Peng

**677.** Interaction between reduced colloidal humic substances with chromium and its effect on chromim transformation and transport. **B. Li**, C. Liu, P. Liao

**678.** Dechlorination reactivity of biologically derived iron sulfide and sulfidated zero-valent iron particles. **A.W. Murray**, S. Islam, W. Yan, K. Millerick

**679.** Preparation of magnetic chitosan honeycomb beads composed of chitosan and sodium citrate: an effective and recyclable adsorbent for the removal of heavy metal ions from aqueous solutions. **S. Pu**, H. Ma, **W. Chu**

**680.** NO<sub>x</sub> and SO<sub>x</sub> formation, reaction, and dispersion in complex urban areas: Modeling and comparison to field data. **S. Wuerz**

Section A

Ernest N. Morial Convention Center  
Hall D

**Shaping Activity through Structural Modification: From Small Molecules to Nanoparticles: A Symposium in honor of Professor Bing Yan**

D. D. Dionysiou, V. K. Sharma, H. Zhou, *Organizers*

**6:00 - 8:00**

**681.** Breakdown of TCDD using a visible light-powered hybrid photocatalyst (FePWC<sub>3</sub>N<sub>4</sub>): Detection with residual toxicity to zebrafish embryos. A. Wang, Z. Wang, W. Dong, J. Dong, J. Liu, D.E. Hinton, M. Chernick, **W. Dong**

**682.** GD2-targeting nanoconstruct as CT imaging and NK cell-mediated cancer cell killing agent. **P. Jiao**

**683.** Amidoximes as histone deacetylase inhibitors. **Q. Geng**

**684.** Two of the seven nanoparticle properties induce oxidative stress through distinct pathways. H. Sun, **H. Zhou**, B. Yan

**685.** Airborne particulate matter causes the activation of plasma kallikrein-kinin system. **Q.S. Liu**, X. Jin, F. Hao, Q. Zhou, G. Jiang

**686.** Formation of environmentally persistent free radicals (EPFRs) on polycyclic aromatic hydrocarbons (PAHs) contaminated ion metals modified-smectite clays. **H. Jia**

**687.** Protein corona formation ameliorate amorphous silica nanoparticle-induced cardiovascular inflammation. **Y. Song**

Section A

Ernest N. Morial Convention Center  
Hall D

**Water Use Optimization: Water Quality, Reuse & Treatment**

S. Bushart, Y. Jun, K. Pagilla, N. Rao, Y. Yang, *Organizers*

**6:00 - 8:00**

**688.** Withdrawn.

**689.** Trace metal quantification in unregulated water sources on the Navajo Reservation. **J. Torkelson**, J. Credo, J.C. Ingram

**690.** Removal of bisphenol-S (BPS) by O<sub>3</sub> and H<sub>2</sub>O<sub>2</sub> advanced oxidation processes in water. **C. Weeks**, P.A. Ruiz-Haas

**691.** Polymeric membrane reactor for ozone treatment of endocrine disrupting compounds in water. Y. Li, **J. Song**, K. Yeung

**692.** Microwave - induced catalytic oxidation of two - component (phenol, p - nitrophenol) phenolic wastewater. R. Liu, W. Wang, C. Shi, **C. Ma**

#### **Biom mineralization & Bio-Compatible Minerals**

Sponsored by GEOC, Cosponsored by BIOL and ENVR

#### **Contaminated Site Remediation through Microbial, Geological & Chemical Processes**

Sponsored by GEOC, Cosponsored by ENVR

#### **Fluid-Solid Interfacial Phenomena at the Nexus of Energy & Geochemistry Research: A Symposium in Honor of David J. Wesolowski**

Sponsored by GEOC, Cosponsored by COLL, ENFL, ENVR and INOR

#### **Forensic Geochemistry**

Sponsored by GEOC, Cosponsored by ENVR

#### **Manganese Oxides: Their Formation, Structure, Reactivity & Applications**

Sponsored by GEOC, Cosponsored by ENVR

#### **Microbially-Driven Geochemical Reactions: Kinetics & Communities**

Sponsored by GEOC, Cosponsored by BIOL and ENVR

#### **Mineral-Water Interface Geochemistry & Modeling at the Laboratory- & Field-Scales: Symposium in Honor of James A Davis**

Sponsored by GEOC, Cosponsored by ENVR

#### **Molecular Processes at Mineral-Water Interfaces: Linking Theory & Experiments**

Sponsored by GEOC, Cosponsored by ENVR and INOR

#### **Multiscale Biogeochemical Processes in Soil Ecosystems: Critical Reactions & Resilience to Climate Changes**

Sponsored by GEOC, Cosponsored by AGRO and ENVR

#### **Theoretical & Experimental Studies of Supercritical Fluids in the Subsurface**

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Ernest N. Morial Convention Center  
Room 346

**Green Chemistry & the Environment**

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Financially supported by AEESP  
A. Balu, S. O. Obare, *Organizers*  
R. Luque, *Organizer, Presiding*

**8:30** Introductory Remarks.

**8:35 693.** Recovery of rare earth elements (REEs) from coal fly ash: Coupling hydrothermal extraction and ligand-associated hydrophobic glass media sorption. **T.M. Dittrich**, S.K. Mohanty

**9:05 694.** Voided polymer imaging technology for thermal printing. **B. Einsla**

**9:35 695.** Alternative solvents in organic synthesis: Supporting the incorporation of sustainability into the chemical industry. **K.L. Wilson**, A.J. Watson

**10:05 696.** Chemical innovation: A GAO report on sustainability. **K. Howard**

**10:25** Intermission.

**10:35 697.** Dual optimization of microporosity in carbon spheres for superior CO<sub>2</sub> adsorption at ambient conditions. **A.C. Dassanayake**, M. Jaroniec

**10:55 698.** Adsorption of bisphenol-A in aqueous solution using silica nanoparticles obtained from sugarcane waste ash. **S. Rovani**, J.J. Santos, P. Corio, D.A. Fungaro

**11:15 699.** Reduction of Pb and Cr metal contents in laboratory wastewater using electrocoagulation and chelation of citric acid from *Averrhoa bilimbi*. Linn. **C. Safitri**, Y. Yusbarina

**11:35 700.** Microwave-induced organic synthesis and mass spectral characterization of curcumin and 2-aminoguanidine adduct: A potentially useful inhibitor for advanced glycation end products in diabetes and other chronic diseases associate with oxidative stress. **B. Dayal**, M.A. Lea

**11:55 701.** Environmentally persistent free radicals in total particulate matter of tobacco smoke and e-cigarettes. **F. Hasan**, L. Khachatryan, S.M. Lomnicki

**12:15** Concluding Remarks.

Ernest N. Morial Convention Center  
Room 347

### **Current State of Environmental Contamination Research: Theory & Experiment**

Cosponsored by CEI

S. Ahuja, M. K. Shukla, *Organizers*

G. Jenness, H. McAlexander, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 702.** Environmental organic chemistry: Photooxidation and fate transport. **W. Nelson**

**8:30 703.** Photocatalytic nylon: Chitosan membrane blends. **J.P. Buchanan**, C.A. Weiss, J.A. Jefcoat, H.R. Peel, R.K. Buchanan, A.D. Netchaev, J.D. Klein, S.G. Patel, R.D. Brown, J.M. Montijo

**8:55 704.** Biodegradation of environmental microplastics generated from laundering of fabrics. **J. Pawlak**, R.A. Venditti, J. Daystar, M. Ankeny, J. Cheng

**9:20** Intermission.

**9:35 705.** Degradation kinetics of tetracycline antibiotics in agricultural manure during anaerobic digestion. **J. Kasumba**, B. Couch, J.H. Loughrin, E.D. Conte

**10:00 706.** Predicting thermophysical properties of environmental contaminants via first principles and classical molecular simulation approaches. **N. Rai**, H. Goel, S. Venkatesan

**10:25 707.** Nature of contaminants in arid soil: A computational study on the adsorption of munition compounds and arsenic species on the (0001) surface of  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> and  $\alpha$ -Al<sub>2</sub>O<sub>3</sub>. **G.R. Jenness**, J. Seiter, M.K. Shukla

**10:50** Intermission.

**11:05 708.** Mechanistic insights into the aerobic oxidation of alcohols on Pd(111). **J.R. Schmidt**

**11:30 709.** Quantum chemical calculation on photodegradation of some insensitive munitions compounds. **M.K. Shukla**

### Section C

Ernest N. Morial Convention Center  
Room 348

### **Emerging Environmental Biotechnologies for Energy-Efficient Pollutant Control, Remediation & Resource Recovery**

Cosponsored by CEI

Y. Men, C. M. Sales, *Organizers*

X. Mao, S. Yi, W. Zhuang, *Organizers, Presiding*

**8:00** Introductory Remarks.

- 8:05 710.** Locally enriched cultures can cometabolize 1,4-dioxane at drinking water relevant concentrations. **A. McElroy**, D. Knappe, M. Hyman
- 8:25 711.** Cometabolic degradation of antibiotic using microalgae. **J. Xiong**, M. Kurade, G. Ha, J. Kim, B. Jeon
- 8:45 712.** Ammonia-monooxygenase-mediated cometabolic biotransformation and abiotic transformation of micropollutants. **Y. Yu**, P. Han, L. Zhou, M. Wagner, Y. Men
- 9:05 713.** Biotransformation of 6:2 fluorotelomer thioether amido sulfonate under different redox conditions. **S. Yi**, K. Harding-Marjanovic, E. Houtz, J.A. Field, W. Zhuang, D.L. Sedlak, L. Alvarez-Cohen
- 9:25 714.** Microbial community variation in organohalide antibiotics containing waterbodies. **J. He**
- 9:55** Intermission.
- 10:10 715.** Biocatalytic degradation of 1,2,3-trichloropropane for achieving extremely low regulatory limits. **A. Razavi**, F. Shirazi
- 10:30 716.** Surface display enzyme biocatalysts for treating emerging contaminants. **N. Wei**, Y. Chen, B. Zhu
- 10:50 717.** Identification and enzymatic characterization of a novel NADH dependent azoreductase, encoded by *AzoK* in *Klebsiella pneumoniae*. **S. Dixit**, S. Garg
- 11:10 718.** Polycyclic aromatic hydrocarbon degradation by *Cycloclasticus*, as measured by a novel immunoassay, correlates with increased cell proliferation. S. Zhang, M. Omarova, L. Swientoniewski, A. Panchal, T. Yu, V.T. John, Y. Lvov, D. Zhang, **D.A. Blake**
- 11:30 719.** From bioavailability science to soil remediation: Sustainable stimulation of biological networks for enhanced pollutant carbon turnover. **J. Ortega-Calvo**, R. Posada-Baquero, J. Vila, J. Garcia, M. Cantos

## Section D

Ernest N. Morial Convention Center  
Room 349

### Water Use Optimization: Water Quality, Reuse & Treatment

#### Water treatment: Processes

S. Bushart, Y. Jun, K. Pagilla, N. Rao, Y. Yang, *Organizers, Presiding*

**8:00 720.** Impact of CeO<sub>2</sub> nanoparticles and sodium chloride (NaCl) on soil water potential and distribution. B.L. Hallmark, X. Ma, A. Assi, P. Schwab, **R. Mohtar**

**8:30 721.** Source water quality impacts on drinking water treatment plant performance and disinfection byproduct formation during a storm event. **C.W. Neil**, Y. Zhao, A. Zhao, J. Neal, J. Yang

**8:50 722.** Investigation of radical chlorine species in advanced oxidation processes. **J. Castillo**, S. Mezyk

**9:10 723.** Treatability of dissolved organic nitrogen in an advanced tertiary wastewater treatment plant. **K. Ahmadi**, A. Mayorga, Y. Yang, E. Marchand

**9:30 724.** Formation of bromated halonitromethanes from organic amines during ozonation. **J. Fu**, H. Yang, X. Wang, J. Tan, W. Yuan, Z. Yuan, L. Feng, Y. Xie

**9:50** Intermission.

**10:00 725.** Withdrawn

**10:20 726.** Evolutionary trajectories of urban water demand and the journey towards the water sensitive city. **M. Rippy**

**10:40 727.** Impact of operating conditions in membrane-based separation processes on the characteristics of inorganic scales on membrane surface. **O.R. Lokare**, S. Wadekar, R.D. Vidic

**11:00 728.** pH-dependence of chloramine photolytic quantum yields under advanced oxidation process conditions. **L. Twight**, K.P. Ishida, S.P. Mezyk

**11:20 729.** Radical-based degradation of contaminant alkyl nitrates in advanced oxidation process treated wastewaters. **S. Arciva**, B. Daws, S.P. Mezyk

**11:40 730.** Investigation of the reaction of the hypochlorite radical with nitrosamines in aqueous solution. **A. Lechner**, S.P. Mezyk

Section E

Ernest N. Morial Convention Center  
Room 350

### **Accurate Mass/High Resolution Mass Spectrometry for Environmental Monitoring & Remediation**

T. Anumol, R. Marfil-Vega, T. M. Young, C. Zwiener, *Organizers, Presiding*

**8:00** Introductory Remarks.

**8:05 731.** Structure identification by mass spectrometry non-targeted analysis using the US EPA's CompTox Chemistry Dashboard. **A.J. Williams**, A. McEachran, C. Grulke, S. Newton, K. Isaacs, K. Philips, N. Baker, J. Sobus

**8:30 732.** Quality control/quality assurance for qualitative analysis of environmental samples by LC/HRAM MS. **J. Zweigenbaum**

**8:55 733.** Exploring the exposome with non-targeted analysis of house dust. **E.M. Ulrich**, D. Mills, J. Sobus, J. McCord, K. Hibbert, N. Tulve

**9:20 734.** Comprehensive targeted and non-targeted analysis of indoor dust using LC-HRMS with ion mobility. **D. Stevens**, L. Mullin, K. Jobst, E. Reiner, A. Ladak, R. Plumb

**9:45** Intermission.

**10:10 735.** Developing and improving accurate mass tools for the analysis of unknowns in surface and groundwater samples. **E.M. Thurman**, I. Ferrer, J. Zweigenbaum

**10:35 736.**  
Kendrick mass defect as an additional tool to process high resolution mass spectrometry data and identify transformation products. **C. Zwiener**, S. Merel



**11:00 737.** Identifying universally present consumer product constituents in California sewage sludge by high resolution LC-ESI-qTOF-MS. **G. Pecora**

**11:25 738.** Hydrogen deuterium exchange of environmental samples to improve non-target elucidation. **E. Schymanski**, C. Ruttkies, J. Hollender, S. Neumann, M. Krauss

**11:50** Discussion.

Section F

Ernest N. Morial Convention Center  
Room 351

### **Nutrient Management & Water/Wastewater Treatment through Biomass Production in Aquatic & Terrestrial Ecosystems**

W. Grieco, A. McQuilling, *Organizers, Presiding*

**9:00** Introductory Remarks.

**9:05 739.** Efficacy of submerged attached growth reactors for small community wastewater ammonia removal. **R.R. Mattson**, M. Wildman, C.L. Just

**9:25 740.** Integrating anammox with autotrophic denitrification process by electrochemistry technology. **S. Qiao**, X. Yin, J. Zhou

**9:45 741.** Electrocatalytic oxidation degradation of ammonia nitrogen wastewater. **Z. Yang**, G. Yan, S. Guo

**10:05 742.** Comparative assessment of suspended and benthic microalgae cultivation strategies for water treatment and production of biobased commodities. **R.W. Davis**, A. Siccardi, J. Quinn, R.C. Pate

**10:25** Intermission.

**10:40 743.** Modeling nitrogen use efficiency in multi-trophic aquaculture production. **A. McQuilling**, D. Blersch, D. Wells

**11:00 744.** Conversion of concentrated thin stillage from corn-ethanol production to beneficial biomass products. **C. Lin**, P. K C, K. Gurung, S. Shatu, T. Mccawley, R.G. Jones, B. Corace, E. Corace, C. Lin

**11:20 745.** Optimized combination of fillers in constructed wetlands for eutrophication control. **Z. Duan**, Q. Liu, J. Liu, G. Wang, Y. Zhou, H. Liu, N. Li

**11:40 746.** Resource recovery from wastewater as single-cell protein. **H.R. Molitor**, J.L. Schnoor

Ernest N. Morial Convention Center  
Room 342

## **Advances in Understanding of Sorptive & Reactive Properties of Pyrogenic Carbonaceous Matter (PCM) in the Environment**

W. Mitch, J. J. Pignatello, *Organizers*  
W. Xu, *Organizer, Presiding*

**8:30** Introductory Remarks.

**8:35 747.** Pyrogenic carbonaceous matter interactions with inorganic and organic carbon and nitrogen. **J. Lehmann**, R. Hestrin, L. Krounbi, S. DeCiucies, T. Whitman

**9:10 748.** Biochars change the sorption and degradation of thiacloprid (THI) in soil: Insights into chemical and biological mechanisms. **H. Sun**, P. Zhang

**9:30 749.** Carbon dioxide-mediated ammonia loading onto pyrogenic waste biomass. **L. Krounbi**

**9:50** Intermission.

**10:05 750.** Pyrogenic organic matter alters the efficiency of soil microbial communication. **C.A. Masiello**, X. Gao, H. Cheng, V. I. Del, J.J. Silberg

**10:40 751.** Influence of black carbon on anaerobic microbial dechlorination rates of PCBs. **T. Needham**, U. Ghosh, K.R. Sowers

**11:00 752.** Biochar-facilitated microbial reduction of hematite. S. Xu, D. Adhikari, R. Huang, Y. Tang, E.E. Roden, **Y. Yang**

**11:20** Panel Discussion.

**11:40** Concluding Remarks.

## **Manganese Oxides: Their Formation, Structure, Reactivity & Applications**

Sponsored by GEOC, Cosponsored by ENVR

## **Elucidation of Mechanisms & Kinetics on Surfaces**

Sponsored by CATL, Cosponsored by COLL, ENVR and PHYS

## **Lignin: From Fundamentals to New Materials & Applications**

### **Polymers & Resins from Lignin**

Sponsored by CELL, Cosponsored by ENVR and POLY

## **Molecular Processes at Mineral-Water Interfaces: Linking Theory & Experiments**

### **Iron Oxyhydr-Oxides: Redox Processes**

Sponsored by GEOC, Cosponsored by ENVR and INOR

## **Unconventional Catalysis Targeting Stable Molecules**

Sponsored by CATL, Cosponsored by ENFL, ENVR, INOR and PHYS

## **Theoretical & Experimental Studies of Supercritical Fluids in the Subsurface**

Sponsored by GEOC, Cosponsored by ENVR and INOR

## **Catalytic Conversion of Biomass Derived Molecules to Chemicals & Fuels**

Sponsored by CATL, Cosponsored by ENFL, ENVR and INOR

## **Valorization of Renewable Resources & Residuals into New Materials & Multiphase Systems**

Sponsored by CELL, Cosponsored by ENVR and POLY

# **THURSDAY AFTERNOON**

Section B

Ernest N. Morial Convention Center

Room 347

## **Current State of Environmental Contamination Research: Theory & Experiment**

Cosponsored by CEI

S. Ahuja, G. Jenness, *Organizers*

H. McAlexander, M. K. Shukla, *Organizers, Presiding*

**1:00** Introductory Remarks.

**1:05 753.** City-specific *in vitro* exposure-toxicity relationships of PM<sub>2.5</sub> in China. **L. Jin**, J. Xie, C.K. Wong, R. Zimmermann, X. Li

**1:30 754.** Assessing the impacts of changes in sources on air pollution in Rochester, NY from 2008 to 2013. **F. Emami**, P. Hopke

**1:55 755.** Environmental remediation of chlorinated hydrocarbons using biopolymer stabilized iron loaded halloysite nanotubes. **Y. Su**

**2:20** Intermission.

**2:35 756.** Synthesis and evaluation of novel low viscosity amine-based acid gas capture solvents. **J. Page**, D. Malhotra, P.K. Koech, M. Nguyen, R. Zheng, V. Glezakou, R. Rousseau, D.J. Heldebrant

**3:00 757.** Intra-day pollution characteristics and load investigation of antibiotics in major wastewater treatment plants of Beijing based on a more reliable sampling approach. **Y. Zhang**, B. Wang, G. Yu

**3:25 758.** Biogeochemical model for gas ebullition in the presence of NAPLs in sediments. **M. Khazraee Zamanpour**, **K. Rockne**

**3:50** Intermission.

**4:05 759.** Toward quantitative H<sub>2</sub>PO<sub>4</sub><sup>-</sup> sensing: Simultaneous determination of all species concentrations in multi-equilibria of aqueous solutions containing dihydrogen phosphate. **J. Schell**, E. Zars, C. Chicone, R. Glaser

**4:30 760.** Source identification of fluorescent dissolved organic matters in MX river by PARAFAC and HPSEC. **B. Liu, J. Wu, C. Cheng, J. Tang, Y. Chai, M. Khan**

**4:55** Concluding Remarks.

Section C

Ernest N. Morial Convention Center  
Room 348

### **Emerging Environmental Biotechnologies for Energy-Efficient Pollutant Control, Remediation & Resource Recovery**

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Y. Men, S. Yi, *Organizers*

X. Mao, C. M. Sales, W. Zhuang, *Organizers, Presiding*

**1:00** Introductory Remarks.

**1:05 761.** Green oxidation via bioelectrochemically derived hydrogen peroxide. **J. Griffin**, E. Taw, A.A. Gosavi, N. Thornburg, K.A. Gray, J.M. Notestein, G. Wells

**1:25 762.** Combining bioremediation and in situ chemical oxidation for treatment of aqueous film forming foams (AFFFs) in groundwater. **E.K. Cook**, Y. Sun, **C.I. Olivares**, S. Yi, D.L. Sedlak, L. Alvarez-Cohen

**1:45 763.** Bioelectrochemical treatment of mixed 1,4-dioxane and chlorinated solvent contaminations. **N. Pica**, N. Johnson, Y. Miao, S. Mahendra, J. Blotevogel

**2:05 764.** Lab-scale continuous ozonation combined with biofiltration to understand the fate of trace contaminants during slow sand filtration and soil aquifer treatment. **J. Wenk**, G. Zoumpouli, B. Kasprzyk-Hordern, O. Happel

**2:25 765.** Deciphering microbial phenotypes via isotopically nonstationary metabolic flux analysis. **Y. Tang**

**2:55** Intermission.

**3:05 766.** Mass balance for N transformations in a nitrogen removing biofilters for onsite residential wastewater treatment. **S. Waugh**, X. Mao, C.J. Gobler, H. Walker

**3:35 767.** Biofilm biology-informed biofilm engineering for environmental applications: From understanding biofilm lifestyle to building a better biofilm. Y. Wu, M. Mukherjee, **B. Cao**

**3:55 768.** Recovery of resources and energy from waste-derived biogas methane. **J. Myung**

**4:15 769.** Integrated system for thin stillage remediation coupled with microalgae cultivation for carbohydrate production. F. Sayedin, **A. Kermanshahi Pour**, Q. He

**4:35 770.** Electrochemical filters for the selective recovery of rare earth and specialty metals. **D.L. Plata**, M.P. O'Connor

Ernest N. Morial Convention Center  
Room 349

### **Water Use Optimization: Water Quality, Reuse & Treatment**

#### **Water treatment: Method development**

S. Bushart, Y. Jun, K. Pagilla, N. Rao, Y. Yang, *Organizers, Presiding*

**1:00 771.** Multi-scale systems analysis for engineering optimization in water supply infrastructure systems. **Y. Yang**, C. Neil, N. Chang, Y. Jun, **B. Bierwagen**, T. Speth

**1:30 772.** High frequency and near real-time monitoring of N-nitrosodimethylamine using a novel extraction-free chemiluminescence-based method. **S. Roback**, M.H. Plumlee, K.P. Ishida, T. Fujioka, H. Kodamatani

**1:50 773.** Evaluation of the formation of chlorinated by-products during surface water treatment by an electro-peroxone process. **W. Yao**, J. Fu, G. Yu, Y. Wang

**2:10 774.** Establishing cost and performance goals for electrochemical deionization: A techno-economic analysis of faradaic and capacitive materials in CDI systems. **S. Hand**, X. Shang, K. Smith, R.D. Cusick

**2:30 775.** Slow-release persulfate candle assisted electrochemical oxidation of PAHs in groundwater. **A. Sarmanik**, W. Sik Shin

**2:50** Intermission.

**3:05 776.** Photocatalytic degradation of disinfection byproducts using natural sunlight and TiO<sub>2</sub>. **I. Abusallout**, G. Hua

**3:25 777.** Peanut shell based activated carbon and its use for heavy metal removal. **D. Pitre**, M. Edussuriya, T. Mlsna

**3:45 778.** Competitive association of scale-forming cations with different water-soluble anionic polyelectrolytes (PSS and PAA) during membrane separation. **M. Chen**, K. Shafer-Peltier, S. Randtke, E.F. Peltier

**4:05 779.** Adsorption kinetics of 4-n-nonylphenol on hematite and goethite. **K. Watson**

### Section E

Ernest N. Morial Convention Center  
Room 350

### **Accurate Mass/High Resolution Mass Spectrometry for Environmental Monitoring & Remediation**

T. Anumol, R. Marfil-Vega, T. M. Young, C. Zwiener, *Organizers, Presiding*

**1:00** Introductory Remarks.

**1:05 780.** Fall Creek monitoring station: An automated workflow to identify emerging contaminants using highly resolved temporal sampling. **C. Carpenter**, D.E. Helbling

**1:30 781.** Identification of micropollutants in surface water by using suspect screening strategies based on regulatory databases. **P. Gago-Ferrero**, A. Krettek, L. Ahrens, K. Wiberg

**1:55 782.** Tracking large numbers of CECs via non-target screening. **K.S. Jewell**, C. Dietrich, U. Kunkel, M. Schluesener, U.R. Thorenz, F. Thron, T. Ternes

**2:20 783.** Emerging micropollutants in environment: Analysis of water samples by high resolution mass spectrometry. **M. Chachignon**, E. Cocardon, M. Denieul, V. Ingrand, G. Leroy, G. Meheut, C. Tondelier

**2:45** Intermission.

**3:10 784.** Detecting polar micropollutants in a river-riverbank filtrate using non-target screening. **V. Albergamo**, J. Schollee, E. Schymanski, R. Helmus, J. Hollender, P. de Voogt

**3:35 785.** Suspect screening of halogenated micropollutants in surface waters affected by wastewater discharges using passive samplers. **F. Menger**, K. Wiberg, L. Ahrens, P. Gago-Ferrero

**4:00 786.** Targeted and untargeted analysis of per- and polyfluoroalkyl substances in Australian wastewater treatment plants. T. Coggan, T. Anumol, J. Shimeta, N. Crosbie, C. Milner, **B. Clarke**

**4:25 787.** Newly identified hydrocarbon surfactants in AFFFs and AFFF-impacted groundwater. **R.A. Garcia**, A.C. Chiaia Hernandez, P. Lara-Martín, M. Loos, J. Hollender, J.A. Field

**4:50** Concluding Remarks.

#### **Elucidation of Mechanisms & Kinetics on Surfaces**

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#### **Manganese Oxides: Their Formation, Structure, Reactivity & Applications**

Sponsored by GEOC, Cosponsored by ENVR

#### **Lignin: From Fundamentals to New Materials & Applications**

##### **Biochemical Modification of Lignin**

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#### **Molecular Processes at Mineral-Water Interfaces: Linking Theory & Experiments**

##### **Uranium Incorporation: Sulfate Mineral Geochemistry**

Sponsored by GEOC, Cosponsored by ENVR and INOR

#### **Catalytic Conversion of Biomass Derived Molecules to Chemicals & Fuels**

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#### **Theoretical & Experimental Studies of Supercritical Fluids in the Subsurface**

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#### **Valorization of Renewable Resources & Residuals into New Materials & Multiphase Systems**

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