Division of Environmental Chemistry

Non-Technical Events and Technical Program

258th ACS National Meeting
San Diego, California
August 25-29, 2019
ENVR Non-Technical Sponsored Events

Program Planning Meeting
  **Location:** Room 11B, San Diego Convention Center  
  **Date & Time:** Sunday, Aug 25 2:00 PM

Long Range Planning Meeting
  **Location:** Room 11B, San Diego Convention Center  
  **Date & Time:** Sunday, Aug 25 3:00 PM

Members’ Business Meeting
  **Location:** Room 11B, San Diego Convention Center  
  **Date & Time:** Sunday, Aug 25 7:00 PM

Workshop: Taking the Lead in Your Career Planning [GPSO]
  **Location:** Manchester Grand Hyatt San Diego: Regatta A/B  
  **Date & Time:** Sun, 8/25/2019, 6:00 PM - 7:30 PM  
  This workshop will provide you with tools and resources to take the lead in your career planning. Additionally, you will be able to learn about different career paths by joining a panel discussion with professionals from different job sectors (academia, industry and non-profit).

Executive Committee Meeting
  **Location:** Room 11B, San Diego Convention Center  
  **Date & Time:** Sunday, Aug 25 7:30 PM

Film Competition Showcase: Environmental chemistry through the transformative power of film [MPPG, CEI, ENVR]
  **Location:** Room 30D, San Diego Convention Center  
  **Date & Time:** Tuesday, Aug 27 1:00 PM  
  Enjoy popcorn and the showcase! Four winning films will be screened, followed by a panel with the filmmakers.

Social & Awards Reception -- **Ticket required**
  **Location:** Side Bar, 536 Market Street  
  **Date & Time:** Tuesday, Aug 27 7:00 PM
ENVR
DIVISION OF ENVIRONMENTAL CHEMISTRY

J.L. Goldfarb, Program Chair

SUNDAY MORNING

San Diego Convention Center
Room 28A

Catalysis for Environmental & Energy Applications
Treatment of Gas & Water Pollutants

Cosponsored by CATL
A. Orlov, A. Savara, Y. Wang, Organizers, Presiding

8:10 Introductory Remarks.

8:15 1. Revisiting effects of alkali and alkaline earth co-cation additives to Cu/SSZ-13 standard selective catalytic reduction catalysts. F. Gao, Y. Cui, Y. Wang, E.D. Walter, D. Mei, J. Szanyi, Y. Wang

8:35 2. Proof of concept study in experimental data-based combinatorial kinetic simulations for predictions of synergistic catalyst mixtures. A. Savara, H. Vuong, J.E. Sutton, A.J. Binder, T. Toops

8:55 3. Heterogeneous UV/Fenton for efficient VOCs oxidation over Fe/ZSM-5 catalyst in wet scrubber process. R. Xie, Y. Gao

9:15 4. Efficient photocatalytic oxidation of gaseous toluene in a bubbling reactor of water. B. Liu, Y. Zhan, H. Huang

9:35 5. Sonochemical and sonocatalytic degradation of PPCPs: Case study with methylparaben and salicylic acid. N.H. Ince, B. Savun-Hekimoğlu

9:55 Intermission.


11:35 10. Fabrication of fungal biochar supported silver nanoparticles for catalytic reduction of 4-nitrophenol. Y. Zhang, B. Chen

11:55 Concluding Remarks.

San Diego Convention Center
Room 28B

Emerging Contaminants in Wastewater

Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
A. S. Adeleye, P. Cervantes, Y. Huang, Organizers, Presiding

8:30 Introductory Remarks.

8:35 11. Fate of pharmaceuticals in wastewater: Roles of environmental factors and toxicological implications. G. Rubasinghege


9:35 13. Deleterious effects of urban watersheds on HT29 colon cells. D.A. Abdullah-Smoot


10:15 Intermission.


11:15 17. Nitrosamines analysis in drinking water using GC/MS/MS for performance equivalent to EPA Method 521. D. Wong, R. Honnold, T. Anumol


11:55 Concluding Remarks.
San Diego Convention Center
Room 28C

**Water in the Solid State: Reactions & Interactions with Impurities**

**Nucleation & Growth**

Cosponsored by PHYS‡
Financially supported by Korean Polar Research Institute (KOPRI)
W. Choi, K. Kim, *Organizers*
E. Asenath Smith, *Organizer, Presiding*
V. Molinero, *Presiding*

8:00 Introductory Remarks.


8:35 20. Understanding heterogeneous ice nucleation through synergistic simulations and experimental studies. **S. Sarupria**

9:05 21. Surface features that promote heterogeneous ice nucleation. **M. Freedman**

9:35 22. Modeling elementary heterogeneous atmospheric (photo)chemical processes on ice and their dynamics using amorphous solid water. **P. Ayotte**


10:15 Intermission.


11:55 Closing Remarks.
San Diego Convention Center
Room 28D

Chemistry of Water Reuse Processes Toward Water Sustainability

Cosponsored by AGRO and PRES‡
Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
R. Doong, W. Hou, C. Huang, Z. Qiang, V. K. Sharma, Organizers
H. Kim, T. Lin, T. Wang, Presiding

8:25 Introductory Remarks.

8:30 28. Sustainable bimetallic catalyst supported by red mud for enhanced nitrate reduction. S. Hamid, S. Bae, E. Ramazanova, W. Lee

9:00 29. Elucidation of phosphodiesterase Type V (PDE-5) inhibitors ozonation: Degradation pathway and kinetics. I. Lee, Y. Hong, S. Pan, L. Valentino, H. Kim

9:20 30. Degradation of ketoprofen, ibuprofen, and atrazine by catalytic ozonation with graphene oxides (GOs): Determination of GOs kinetic behaviors and simulations of pollutant removal. K. Chen, Y. Lin

9:40 31. Recovery of sulfuric acid from piranha solution over a dimensionally stable anode (DSA) Ti-RuO₂ electrode and beyond. D. Sanchez Carretero, C. Huang, C. Huang

10:00 Intermission.


10:55 34. Performance of ferrate as a disinfectant under varying conditions of water reclamation: Physiological and chemical assessments. S. Daer, K. Ikuma

11:15 35. Leaching of lithium and cobalt from spent lithium-ion batteries using subcritical water. J. Liu, J. lie, S. Tanda

11:35 36. Withdrawn

11:55 Concluding Remarks.
San Diego Convention Center  
Room 28E

Water, Health, & Environmental Justice in Marginalized Communities

(A) Toxic Chemicals in Water; & (B) Sanitation & Wastewater Resource Recovery Technologies

Cosponsored by CMA and PRES ²  
F. de los Reyes, A. Harris, Organizers  
J. Kearns, Organizer, Presiding

8:00 Introductory Remarks.

8:10 37. Is it time to move beyond the trihalomethane paradigm in developing countries? Lessons learned from wastewater-impacted drinking waters in South Asia. K. Furst, R. Coyte, D. Smith, J. Davis, A. Vengosh, W. Mitch

8:35 38. Meta-analysis of nationwide loadings of pharmaceuticals to Indian aquatic and terrestrial environments from human excreta. V. Kelkar, J. Steele, R.U. Halden

9:00 39. Field testing and deploying a low-cost groundwater defluoridation technology using locally sourced bauxite in resource-constrained regions. K. Cherukumilli


9:50 Intermission.

10:05 41. On-site sanitation, energy, and food nexus for climate justice. B. Hunter, M. Deshusses

10:30 42. Going viral: Emerging opportunities for phage-based bacterial control in water treatment and reuse. P. Yu, J. Mathieu, P. Zuo, P.J. Alvarez


11:45 Discussion.

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² CMA = California Mining Association  
PRES = Pennsylvania Regional Section of the ACS
San Diego Convention Center
Room 29A

Showcasing emerging investigators & future perspectives: A symposium by the RSC Environmental Science Journals

Financially supported by Royal Society of Chemistry; Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
D. M. Cwiertny, Organizer
K. P. McNeill, S. Neil, P. Novak, P. J. Vikesland, Organizers, Presiding

8:15 Introductory Remarks.

8:20 45. Interactions of nanomaterials with the cell plasma membrane: Can model membranes predict nanoparticle-induced membrane damage in cells?. A. Farnoud

8:45 46. Quantitative analysis for the environmental fate of carbon nanotubes in soil-plant systems for their environmental implication and application. Y. Yang

9:10 47. Designing sustainably at the nanoscale. L.M. Gilbertson

9:35 48. Promoted heterogeneous reaction of SO₂ in atmosphere by CO₂ and flue gas SO₂ utilization. L. Zhang

10:00 Intermission.

10:15 49. Sunlight photolysis of anthropogenic chemicals on simulated environmental surfaces. N. Dai, L. Su

10:40 50. Using aerosol optical tweezers to learn and predict the chemical evolution of the composition, pH, and phase separated morphology of complex atmospheric particles. R.C. Sullivan, H. Boyer, K. Gorkowski, N.M. Donahue, L. Jahl, L. Monroe

11:05 51. Exploring the surface properties of aqueous organic aerosol. S. Li, S. Cheng, L. Du

11:30 52. Disentangling the contributions of metabolism, light, and flocculation to removing dissolved organic carbon from vertically stratified aquatic environments. R.M. Couture, J. Guerrero, T. Moore, H.A. DeWit, E. Jennings, D. Pierson

11:55 Concluding Remarks.

Novel Polymeric Materials & Polymer-Based Processes for Energy-Efficient Treatment of Water & Resource Recovery--Membrane Formation
Sponsored by PMSE, Cosponsored by ENVR
Geogenic & Anthropogenic Sources of Trace Elements within Surface & Groundwater Systems & their Effects on Water Quality
Sponsored by GEOC, Cosponsored by ENVR

Chemists Without Borders: Celebrating 15 Years of Scientific/Humanitarian Collaboration
Sponsored by MPPG, Cosponsored by CEI and ENVR

Future Insights into Syngas Conversion Catalysis: Symposium in honor of Burtron H. Davis
Sponsored by CATL, Cosponsored by ENFL, ENVR, INOR and PHYS

Advances in Catalysis with Ceria & Other Reducible Oxides -- Model Ceria Catalyst
Sponsored by CATL, Cosponsored by ENFL, ENVR, INOR and PHYS

Characterization of Plastics in Aquatic Environments
Sponsored by POLY, Cosponsored by ANYL, BIOL, CEI, ENVR, I&EC, PMSE and PRES

Creative Thinking in Designing Efate Studies & Data Analysis to Meet Agrochemical Regulatory Challenges
Sponsored by AGRO, Cosponsored by ENVR
SUNDAY AFTERNOON

San Diego Convention Center
Room 28A

Catalysis for Environmental & Energy Applications

Oxidative Process for Water Treatment

Cosponsored by CATL
A. Orlov, A. Savara, Y. Wang, Organizers, Presiding

1:30 Introductory Remarks.

1:35 53. Rapid photocatalytic degradation of glyphosate by palladium-decorated $m$-BiVO$_4$/BiOBr nanosheets. E.M. Zahran, N. Ensinger


2:15 55. Enhanced performance for catalytic ozonation of methyl mercaptan on single-atom Ag deposited mesoporous MnO$_2$. C. He, L. Hu, Y. Huang

2:35 56. Synthesis and photocatalytic degradation of pollutants using dual metal ferrite (Zn$_{0.5}$Mn$_{0.5}$Fe$_2$O$_4$) and its graphene oxide composite. M. Zahid, R. Asif, N. Nadeem, I.A. Bhatti, H.N. Bhatti

2:55 57. Activation of peroxymonosulfate by $\alpha$-Fe$_2$O$_3$ for oxidation of organic compounds through nonradical mechanism. H. Kang, H. Kim, K. Lee, J. Seong, S. Kim, C. Lee

3:15 Intermission.

3:35 58. Electro-catalytic degradation of antibiotic tetracycline in aqueous system by a novel CNTs/AG/ITO electrode. H. Liu, J. Qu, Y. Zhang

3:55 59. Electrocatalytic generation of reactive chlorine species and simultaneous conversion of CO$_2$ into formate. W. Choi, H. Park

4:15 60. Solar hydrogen peroxide production and As(III) oxidation using carbon nanotubes wired to titania nanorods arrays. S. Choi, H. Park

4:35 61. Electodesalination-driven electrocatalytic water treatment and CO$_2$ conversion. B. Kim, H. Park

4:55 Concluding Remarks.
Emerging Contaminants in Wastewater

Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
A. S. Adeleye, P. Cervantes, Y. Huang, Organizers, Presiding

1:30 Introductory Remarks.

V. Phonsiri, L. Sanchez


2:45 64. Fate of pharmaceuticals and personal care products in wastewater treatment plants. V. Desgens-Martin, A.A. Keller

3:10 65. Fate and transport of extracellular DNA found in wastewater discharge and its role in antibiotic resistance propagation in rivers. M. Legg, K. Ikuma, C. Rehmann

3:35 Intermission.


4:10 67. Extraction of dyes from water using an amino acid-based hydrophobic ionic liquid. D. Bwambok, S. Smith, V. Marta, M. Angon

4:30 68. Electrochemically-mediated redox-systems for the controlled remediation of emerging contaminants. X. Su

4:50 69. Ampicillin (AMP) degradation and AMP resistant E.coli and its gene removal by UV-LED/chlorine process. K. Zoh, T. Kim

5:10 Concluding Remarks.
San Diego Convention Center
Room 28C

**Water in the Solid State: Reactions & Interactions with Impurities**

**Microstructural & Mechanical Aspects of Ice**

Cosponsored by PHYS‡
Financially supported by Korean Polar Research Institute (KOPRI)
E. Asenath Smith, W. Choi, K. Kim, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 70. Ion exclusion at the ice water interface: Surprising results and insight. **P. Wilson**, T. Haymet


2:25 72. Distributions and structures of ions in polycrystalline and monocrystalline ice. **T. Okada**, M. Harada, Y. Okada

2:55 Intermission.

3:15 73. Microstructures and mechanical response of ice mixtures, with application to terrestrial glaciers and icy satellites. **C. McCarthy**

3:45 74. How sulfuric acid affects the mechanical behavior and microstructural properties of polycrystalline ice. **K. Hammonds**, C. Donahue, I. Baker


4:35 Discussion.

4:50 Closing Remarks.

San Diego Convention Center
Room 28D

**Chemistry of Water Reuse Processes toward Water Sustainability**

Cosponsored by AGRO and PRES‡
Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
R. Doong, W. Hou, C. Huang, Z. Qiang, *Organizers*
1:30 Introductory Remarks.

1:35 76. Inactivation of *E. tarda* and *V. harveyi* by free chlorine. **J. CHO**, T. Kim, C. Lee

1:55 77. Strengths of correlations between concentrations of chlorination disinfection byproducts and aquatic descriptors: What is important? **B. Manivannan**

2:15 78. Reactivity of free chlorine with organic matter under wastewater treatment conditions. R.N. Tran, **S.P. Mezyk**


2:55 80. Interplay between manganese oxide and microporous carbonaceous support in capacitive deionization. S. Li, S. Xu, **T. Wang**, C. Wang

3:15 Intermission.


3:50 82. Polarization alleviation in flow-electrode CDI enables extremely high water recovery rate in desalination and reclamation. **J. Ma**, J. Ma, C. Zhang, R. Collins, D. Waite

4:10 83. Fit-for purpose water technology of selective desalination. **Y.J. Lin**

4:30 84. Removal of scale-forming constituents from desalination concentrate via photochemical oxidation of phosphonate-containing antiscalants. **T. Jain**, H. Liu

5:10 Concluding Remarks.

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San Diego Convention Center
Room 28E

**Water, Health, & Environmental Justice in Marginalized Communities**

**Socio-Cultural & Economic Dimensions of Water & Health**

Cosponsored by CMA and PRES‡
F. de los Reyes, J. Kearns, **Organizers**
A. Harris, **Organizer, Presiding**

1:30 Introductory Remarks.

2:00 86. Wastewater management issues in the rural Alabama Black Belt and a proposed path forward. **K. White**, M. Elliott, M.O. Barnett


3:15 Intermission.


3:55 90. Elemental contamination of Navajo unregulated water sources. J.M. Credo, L.M. Jones, **J.C. Ingram**

4:20 91. Water, health, and environmental justice in California’s Central Valley: Geospatial analysis of water contamination and health disparities. **C. Naughton**

4:45 92. Baseline study evaluating water quality and microbial ecology in seven Alaskan native communities. **N.B. Saleh**, L. Rowles, M. Kirisits

5:10 Discussion.

5:25 Closing Remarks.

Section F

San Diego Convention Center
Room 29A

**Showcasing emerging investigators & future perspectives: A symposium by the RSC Environmental Science Journals**

Financially supported by Royal Society of Chemistry; Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)

D. M. Cwiertny, **Organizer**
K. P. McNeill, S. Neil, P. Novak, P. J. Vikesland, **Organizers, Presiding**

1:30 Introductory Remarks.


2:00 94. Biomimetic and bioinspired membranes: Challenges and opportunities. **M. Kumar**
2:25 95. Next generation graphene-based membranes for water treatment: Evolving from 2D to 3D materials. J. Fortner


3:15 Intermission.


3:55 98. Nucleic acid reactivity with UV radiation and HOCl and the impact of virus capsids. K. Wigginton, Z. Qiao

4:20 99. Development of low-cost colorimetric sensor for the detection of aqueous nitrite ion. L. Philip

4:45 100. Achieving low levels of lead at the tap through a multi-faceted corrosion control program. B. Trueman, G. Gagnon

5:10 Concluding Remarks.

Novel Polymeric Materials & Polymer-Based Processes for Energy-Efficient Treatment of Water & Resource Recovery -- Membrane Processes
Sponsored by PMSE, Cosponsored by ENVR

Future Insights into Syngas Conversion Catalysis: Symposium in honor of Burtrton H. Davis
Sponsored by CATL, Cosponsored by ENFL, ENVR, INOR and PHYS

Chemistry & Water: Opening Session
Sponsored by MPPG, Cosponsored by CEI‡, ENVR and PRES

Advances in Catalysis with Ceria & Other Reducible Oxides -- Theory of Ceria Catalysts
Sponsored by CATL, Cosponsored by ENFL, ENVR, INOR and PHYS

Characterization of Plastics in Aquatic Environments
Sponsored by POLY, Cosponsored by ANYL, BIOL, CEI, ENVR, I&EC, PMSE‡ and PRES
SUNDAY EVENING

Surfaces & Interfaces in the Environment: Symposium in Honor of Vicki Grassian -- Posters
Sponsored by COLL, Cosponsored by ENVR‡
MONDAY MORNING

Section A

San Diego Convention Center
Room 28A

Current Advances in Water Analysis: From Citizen Scientists to Laboratory Breakthroughs

Cosponsored by AGRO and CEI
J. L. Goldfarb, Organizer
M. E. Verbyla, Organizer, Presiding

8:15 Introductory Remarks.

8:20 101. Optimum condition for formation of monochloramines during reagent addition to a pipeline for water disinfection. F. Samadi

8:45 102. Citizen science and water analysis. S. Simoliunas

9:35 103. Monitoring water quality in arctic rivers: Citizen science approach. C. Gueguen

10:00 Intermission.


10:40 105. Imaging the coffee ring effect for tap water fingerprinting. R. Lahr, X. Li

11:05 106. Drinking water and citizen science: Between perceived concerns and actual microbiological quality. X. Li, T. Yan


11:55 Closing Remarks.

Section B

San Diego Convention Center
Room 28B

Emerging Contaminants in Wastewater

Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
A. S. Adeleye, P. Cervantes, Y. Huang, Organizers, Presiding

8:15 Introductory Remarks.
8:20 108. Effects of man-made nanoparticles on aerobic denitrification by strain Pseudomonas stutzeri PCN-1. Q. Chen

8:45 109. Transformation of N-methylamine stimulant drugs to (halo)nitromethanes during wastewater reuse. D. McCurry, J. Shi

9:05 110. Assessment of the biodegradability of trace organic contaminants during biological treatment in water resource recovery facilities. W. Khunjar


9:45 Intermission.

10:00 112. Withdrawn


11:05 114. Multi-technique approach to study the stability of silver nanoparticles at environmental realistic concentrations in aqueous media. P. Cervantes, Y. Huang, A.A. Keller


11:55 Concluding Remarks.

San Diego Convention Center
Room 28C

Water in the Solid State: Reactions & Interactions with Impurities

Ice in Earth & Environmental Systems

Cosponsored by PHYS†
Financially supported by Korean Polar Research Institute (KOPRI)
E. Asenath Smith, W. Choi, K. Kim, Organizers, Presiding

8:00 Introductory Remarks.

8:05 116. Raman mapping of ice surface with organic constituents. S. Chakraborty, T. Kahan

8:35 117. Natural organic matter in snow and ice: Chemistry and characterization. A.M. Grannas, V. Boschi, R. Tiu, M. Barr

9:05 118. Interactions of acetone with ice monitored with IR spectroscopy and mass spectrometry. R.R. Michelsen, J. Charney

9:45 Intermission.

10:05 120. Freezing-enhanced redox chemical reactions and their application for water treatment. J. Kim, K. Kim, J. Ju, Y. Choi

10:35 121. Application of biochar for removal of hexavalent chromium during freezing process. T. Han, K. Kim


11:55 Concluding Remarks.

San Diego Convention Center
Room 28D

Chemistry of Water Reuse Processes Toward Water Sustainability

Cosponsored by AGRO and PRES‡
Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
R. Doong, C. Huang, Z. Qiang, V. K. Sharma, Organizers
W. Hou, Organizer, Presiding
W. Lee, Y. Peng, Presiding

8:00 Introductory Remarks.

8:05 125. Mesoporous carbon nitride as a green multifunctional material for water purification. T. Nguyen, L. Paragas, M.G. de Luna, R. Doong


8:55 127. Heterogeneous activation of peroxymonosulfate by CoO-doped ordered mesoporous carbon nitride for removal of sulfamethoxazole from aqueous solution. T. Nguyen, C. Chen, C. Dong


9:35 129. Synergy of graphene oxide-iron oxide composite and hydrogen peroxide for adsorption and degradation of diclofenac and chlorphenamine in water. W. Chen, Y. Huang, J. Huang, S. Lin, C. Li
9:55 Intermission.

10:10 130. Advanced oxidation of recycled water with UV/H\textsubscript{2}O\textsubscript{2}: Comparison of treatment efficiencies with UVC-LED and LPUV. H. Chen, D. Leong, T. Ou, G. Wang

10:35 131. Impact of physical and chemical pretreatment to RO fouling during the water reuse. H. Kim, D. Park, A. Jang, S. Kang


11:15 133. Membrane bioreactor/reverse osmosis system for gray water treatment and reuse. C.S. Griggs


11:55 Concluding Remarks.

Section E

San Diego Convention Center
Room 28E

**Wastewater-Based Epidemiology: Opportunities, Challenges & Applications to Public Health & Safety**

Financially supported by Biobot Analytics; Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)

D. A. Burgard, M. Matus, B. Subedi, *Organizers, Presiding*

8:00 Introductory Remarks.


8:50 136. Biobot analytics: Novel platform to estimate opioid consumption in cities by analyzing opioid urinary metabolites in wastewater. M. Matus


10:05 Intermission.


11:10 141. Is 24-hour composite sampling enough?. R.A. Huffines, J.E. Mauk, B. Nelson, T.L. Croft, B. Subedi

11:35 142. Wastewater sampling as input to national statistics on recreational drug use: Results of a Canadian pilot study and future directions. T. Werschle, S. McLean

Section F

San Diego Convention Center
Room 29A

Showcasing emerging investigators & future perspectives: A symposium by the RSC Environmental Science Journals

Financially supported by Royal Society of Chemistry; Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)

D. M. Cwiertny, Organizer
K. P. McNeill, S. Neil, P. Novak, P. J. Vikesland, Organizers, Presiding

8:20 Introductory Remarks.


8:55 144. Putting the “bio” in bioretention: Microbial, plant, and fungal transformation processes in green stormwater infrastructure for sustained removal of emerging contaminants. G.H. LeFevre


9:55 Intermission.


10:40 147. Transformation-determined nanotoxicity. S. Liu


11:40 Discussion.

11:55 Concluding Remarks.
Sponsored by PMSE, Cosponsored by ENVR

Analytical Methodologies for Process Chemistry & Formulation Research
Sponsored by AGRO, Cosponsored by ENVR

Ocean Science: Research Reflections at the Marina
Sponsored by SOCED, Cosponsored by ENVR

Surfaces & Interfaces in the Environment: Symposium in Honor of Vicki Grassian -- Catalysis, Surfaces & Minerals
Sponsored by COLL, Cosponsored by ENVR‡ and WCC

Agrochemicals & Water: Advances in Prevention, Monitoring, & Treatment
Sponsored by AGRO, Cosponsored by ENVR‡

Agrochemicals & Water: Advances in Prevention, Monitoring, & Treatment
Sponsored by AGRO, Cosponsored by ENVR‡

Advances in Catalysis with Ceria & Other Reducible Oxides -- Reactions of Ceria Catalysts
Sponsored by CATL, Cosponsored by ENFL, ENVR, INOR and PHYS

Future of Biomacromolecules at a Crossroads of Polymer Science & Biology -- Synthetic Cells
Sponsored by POLY, Cosponsored by BIOL, CARB, CELL, COLL, ENVR, MEDI, PHYS and PMSE‡

Off-Target Transport of Field Applied Agricultural Chemicals: Study Designs, Monitoring, Modelling, & Risk Assessment
Sponsored by AGRO, Cosponsored by ENVR
MONDAY AFTERNOON

San Diego Convention Center
Room 28A

Sensors & Biosensors for Widespread Environmental Monitoring

Cosponsored by AGRO
T. Li, V. V. Rajasekharan, W. Zhang, Organizers
M. Romero-Gomez, P. L. Schorr, Organizers, Presiding

1:00 Introductory Remarks.

1:05 149. Biological and ecological strategy for biomimicry and its application. J. Kim, E. Lee, H. Bae, Y. Lee, E. Park

1:25 150. Simple yet sophisticated environmental sensors for citizen science and widespread use. J. Hofstetter


2:05 152. Rapid and simple assay to detect the presence of biocides that inhibit nitrification. P. Morkus, D. Montpetit, C. Filipe, D.R. Latulippe


2:45 154. Withdrawn

3:05 Intermission.


3:35 156. Uranium isolation and concentration using reactive membranes for quantitative analysis. A.W. Darge, T.A. Devol, S.M. Husson


4:35 159. Can spectroscopy with 'real time' monitors provide data to suggest horizontal gene transfer during an algal bloom?. P.L. Schorr

4:55 Concluding Remarks.
San Diego Convention Center
Room 28B

Emerging Contaminants in Wastewater

A. S. Adeleye, P. Cervantes, Y. Huang, Organizers, Presiding

1:00 Introductory Remarks.

1:05 160. Pharmaceuticals in wastewater treatment plants: Presence, abundance, and fate. Y. Sun, Z. Han, J. Xue, Y. Zhu, A.S. Adeleye

1:30 161. Direct electron transfer based peroxymonosulfate activation by iron doped manganese oxide (Mn₃O₄): New approach for water treatment. K. Huang, H. Zhang

1:55 162. Pollen solutions: Novel and green approach to water treatment. A. Meichanetzoglou, A. Boa

2:20 163. Carbon metal–organic framework composite (CMOF) for the adsorption of contaminants of emerging concern from water. J. Munoz, S. Kim, Y. Yoon, A.J. Hernandez

2:45 Intermission.

3:00 164. Evaluation of contaminant of emerging concern removal in wastewater by a hybrid forward osmosis-reverse osmosis system. A. Szczuka, W. Mitch

3:25 165. Removal of multidrug-resistant Salmonella, antibiotics and antibiotics resistance genes in water by electrochemical oxidation. B. Wang, H. Shi, Q. Huang

3:50 166. Removal of meropenem from environmental matrices by electrochemical oxidation. A. Ahmadi, T. Wu

4:15 167. Degradation of selected hormones and antibiotics in subcritical water. N. Saha, M. Reza

4:40 Concluding Remarks.

San Diego Convention Center
Room 28C

Nanomaterials & Sustainability

Cosponsored by CEI
S. Ahuja, Organizer

1:00 168. Nanomaterials: Friends or foes. S. Ahuja

1:40 170. Reduction of nitrate by nanoscale palladized zero-valent iron@graphene composite: Synthesis, characterization, kinetics, and reduction mechanism. F. Zhang, X. Huang, S. Li

2:00 171. Simultaneous removal and inactivation of Legionella pneumophila using electrically heatable carbon nanotube interfaces. Y. Oh, R. Noga, V. Shanov, H. Ryu, J. Yadav, S. Chae


2:40 Intermission.


3:15 174. Water treatment sludge as reactive sorbent for sulfate removal. N. Pimpha, K. Sitthisuwannakul


4:35 178. Efficient removal of hazardous fluoride from drinking water by using bionanomaterial derived from nitro-oxidized carboxynanocellulose. S. Sharma, P. Sharma, B.S. Hsiao

Section D

San Diego Convention Center
Room 28D

Chemistry of Water Reuse Processes Toward Water Sustainability

Cosponsored by AGRO and PRES‡
Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
W. Hou, C. Huang, Z. Qiang, V. K. Sharma, Organizers
R. Doong, Organizer, Presiding
C. Dong, G. Wang, Presiding

1:00 Introductory Remarks.


2:35 Intermission.


3:30 185. Morphological effect of electroless copper substrate on catalytic efficiency of CuPd, CuSn, CuSnPd electrodes in electrochemical reduction of nitrate ion. Y. Shih, C. Huang


4:30 Closing Remarks.

San Diego Convention Center
Room 28E

Wastewater-Based Epidemiology: Opportunities, Challenges & Applications to Public Health & Safety

Financially supported by Biobot Analytics; Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
D. A. Burgard, M. Matus, B. Subedi, Organizers, Presiding

1:00 Introductory Remarks.

1:05 187. Wastewater-based epidemiology (WBE) toolkit platform: Could WBE be a Spotify, Netflix or Twitter like-platform for population health?. J. Baz Lomba, K. Thomas, M. Reid


2:45 Intermission.

3:00 191. Determining diversity of community salmonellosis cases using municipal wastewater surveillance. **S. Diemert**, T. Yan


4:15 194. Four-year illicit stimulant use trends in Seattle, WA USA. **D.A. Burgard**, R. Rushing

4:40 Closing Remarks.

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San Diego Convention Center
Room 29A

**Green Chemistry & the Environment**

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

1:00 Introductory Remarks.


1:45 197. Environmental issues associated with herbicidal ionic liquids: From synthesis to advanced field studies. **L. Chrzanowski**, L. Lawniczak, T. Praczyk, J. Pernak


2:25 199. Detoxification of waste water of Pb^{2+} and Cd^{2+} using agricultural waste of boiled groundnut (*Arachis hypogaea*) shells. **T.A. Abii**

2:45 Intermission.

3:15 201. Medical waste management in the Republic of Serbia. L.B. Stojkovic

3:35 202. Distribution, sources and carcinogenic potentials of polycyclic aromatic hydrocarbons in farmland soils and crops around the vicinity of tobacco processing local industry, Oke-Aran, Igboho, Nigeria. T.A. Adedosu, J.O. Ajibade, H.O. Adedosu

3:55 203. Tetracycline sorption by a tailor-made adsorbent in aqueous system. A.O. Ruth

4:15 204. Sustainable production of polyhydroxybutyrate (PHB) by Zobellella denitrificans ZD1 grown with non-sterile salty waste streams. F. Asiri, C. Chen, M. Hwangbo, Y. Shao, K. Chu

4:35 205. Bi-functionalized ionic liquid immobilized on MIL-53(Al) for efficient carbon dioxide capture and conversion. L. Sun, S. Tang

4:55 Closing Remarks.
3:35 211. Municipal sewage sludge as a source of microplastics in the environment. **C. Rolsky, V. Kelkar, R.U. Halden**


4:15 213. Adsorption behavior of antibiotics by micro-plastics in water. **F. Yu, G. Huang, Y. Li, J. Ma**

4:35 Concluding Remarks.

Sponsored by PMSE, Cosponsored by ENVR

**Surfaces & Interfaces in the Environment: Symposium in Honor of Vicki Grassian -- Aqueous Surfaces to Ocean & Organic-Surface Interactions**
Sponsored by COLL, Cosponsored by ENVR‡ and WCC

**Water Scarcity: Challenges for Agriculture**
Sponsored by AGRO, Cosponsored by ENVR and PRES‡

**Advances in Catalysis with Ceria & Other Reducible Oxides -- Reactions and Other Metal Oxides**
Sponsored by CATL, Cosponsored by ENFL, ENVR, INOR and PHYS

**Future of Biomacromolecules at a Crossroads of Polymer Science & Biology -- Tissue Engineering**
Sponsored by POLY, Cosponsored by BIOL, CARB, CELL, COLL, ENVR, MEDI, PHYS and PMSE‡

**Off-Target Transport of Field Applied Agricultural Chemicals: Study Designs, Monitoring, Modelling, & Risk Assessment**
Sponsored by AGRO, Cosponsored by ENVR
MONDAY EVENING

San Diego Convention Center
Exhibit Hall B

Sci-Mix

J. L. Goldfarb, Organizer

8:00 - 10:00


TUESDAY MORNING

San Diego Convention Center
Room 28A

Chemistry & Applications of Free Radical-based Technologies for Water Treatment & Purification

UV-Based Free Radicals-Based Technologies & Application

Cosponsored by AGRO
Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
D. Minakata, K. E. O'Shea, W. Song, Organizers
D. D. Dionysiou, G. Li Puma, Organizers, Presiding
A. Pisarenko, Presiding

8:00 214. Degradation of some insensitive munitions compounds in water through computational chemistry approach. M.K. Shukla

8:25 215. Toward predicting potentially hazardous transformation products in aqueous-phase advanced oxidation processes: Where are we standing by and where are we heading. D. Minakata

8:50 216. Aldehydes and organosulfates: Advanced oxidation byproducts of direct radical addition to aromatic contaminants. J. Van Buren, C. Prasse, E. Marron, D.L. Sedlak

9:15 217. Innovative groundwater treatment of 1,4-Dioxane and VOCs in Los Angeles. N. Blute, C. Cotton, J. Collins, K. Wells, T. Rother, A. Siyahian


10:05 Intermission.

10:20 219. Predicting the contribution of chloramines to contaminant decay during UV/hydrogen peroxide advanced oxidation process (AOP) treatment for potable reuse. Z. Zhang, W. Mitch


Legacy & Emerging Per- & Polyfluoroalkyl Substances: Identification, Fate, Transport, Exposure, & Removal

Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
K. Chu, J. Liu, M. Sun, Organizers
F. Xiao, Organizer, Presiding

8:05 Introductory Remarks.

8:10 223. Defluorination of PFAS by Acidimicrobiaceae sp. A6 during Feammox incubations. P.R. Jaffe

8:40 224. Removing PFOA and PFOS from water by reductive processes. S.P. Mezyk, L. Twight

9:05 225. Degradation of PFAS in AFFF-contaminated water by oxidative BOHP/UV and reductive BiPO₄/UV photocatalytic processes within a commercial pilot-scale slurry reactor. D. Wang, M. Qanbarzadeh, E.L. Cates

9:30 226. UV assisted electrochemical oxidation of PFAS by degenerate semiconductor electrodes. Y. Yang, S. Yang

9:55 Intermission.


11:05 229. PFAS binding affinity with liver fatty acid binding protein, intestinal fatty acid binding protein, and peroxisome proliferator-activated receptors alpha, delta, and gamma. M. Khazaei, E. Christie, M. Michalsen, J.A. Field, C. Ng

11:30 230. Screening of PFAS in aqueous film forming foam for binding to human serum albumin and characterization of mechanisms. W. Li, T.M. Young, H. Bischel

11:55 Concluding Remarks.
San Diego Convention Center  
Room 28C

**Nanomaterials & Sustainability**

Cosponsored by CEI  
S. Ahuja, *Organizer*

**8:00** Introductory Remarks.


**8:25 232.** Effect of the presence of iron oxide nanoparticles on the transport of zinc oxide nanoparticles through water-saturated porous media under different condition. **D. Kumari**, T. Raychoudhury

**8:45 233.** Lithium extraction from hydraulic fracturing flowback water. **A. Seip**, S. SafariMohsenabad, D.S. Alessi

**9:05 234.** Inhibited dinitrogen fixation in soybeans grown with carbonaceous nanomaterials is compensated by enhanced soil nitrogen assimilation. **Y. Wang**, J.P. Schimel, R.M. Nisbet, J.L. Gardea-Torresdey, P. Holden

**9:25 235.** Radiation grafted microfibrous and nanofibrous amine-containing adsorbents for carbon dioxide capture. N. Mohamed, A. Abbasi, E. Abouzari, A. Ahmad, **M.M. Nasef**

**9:45** Intermission.

**10:00 236.** Characterization of nanoparticle suspensions with microdeposition and microscopy. **L.C. Elliott**, R. Verkouteren, A. Pintar, S.M. Stavis


**10:40 238.** Inactivation of *Legionella pneumophila* harbored by amoebae using a nano-enabled alternative technology. **N.B. Saleh**, **C. Ayres**, M. Kirisits

**11:00 239.** Passive sampling of pesticides in air and water using electrospun nanofiber mats. **M. Nagorzanski**, J. Qian, A. Martinez, R.F. Marek, D.M. Cwiertny


**11:40 241.** Nanocellulose scaffold for water purification. **P. Sharma**, S.K. Sharma, B.S. Hsiao
San Diego Convention Center  
Room 28D

**Chemistry of Water Reuse Processes Toward Water Sustainability**

Cosponsored by AGRO and PRES‡  
Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)  
R. Doong, W. Hou, C. Huang, Z. Qiang, V. K. Sharma, Organizers

8:15 Introductory Remarks.

8:20 242. Treatment and reuse of tunnel construction wastewater by coagulation-flocculation process. **J. Liu**


9:00 244. Development of energy-efficient electrokinetic separation for water reuse in agriculture. **S. Pan**, C. Fan, H. Kim, S.W. Snyder


10:00 Intermission.


10:35 248. Overcoming the yuk factor: How public understanding, politics, and framing mediate support for recycled water policies. **D.L. Kriner, J.L. Goldfarb**

10:55 249. Morphology and adsorption removal of $^{110}$mAg in the radioactive waste liquid of the pressurized water reactor nuclear power plant. **Q. Zhao**

11:15 250. Fenton-like degradation of RB-5 dye using the magnetite recovered from iron-containing wastewater treated by fluidized-bed homogeneous crystallization (FBHC) process. **Y. Huang**, N.N. Mahasti, **Y. Shih**

11:35 251. Efficient, energy-saving, and energy-recovering fuel cell type wastewater treatment system with activated carbon in anode and catalytic cathode. **L. Liu**

11:55 Concluding Remarks.
Section E

San Diego Convention Center
Room 28E

Non-targeted Analysis to Understand Fate & Effects of Pharmaceuticals & Emerging Contaminants in Agriculture & Natural Environments

Cosponsored by AGRO
Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
D. S. Aga, J. B. Sallach, Organizers, Presiding

8:00 Introductory Remarks.

8:05 252. Global reconnaissance of antimicrobials and other emerging contaminants in surface water by target and non-target LC/MS/MS analysis. D.S. Aga, L. Angeles

8:35 253. Integrated cell culture-mass spectrometry method for monitoring infectious human viruses in environmental samples. K. Wigginton, Y. Ye


10:00 Intermission.

10:15 256. Structure/reaction directed analysis for environmental metabolites. M. Yu, G. Dolios, L. Petrick


11:55 Concluding Remarks.
San Diego Convention Center  
Room 29A

Sensors for Water Quality Assessment in Resource Limited Environments

Cosponsored by AGRO  
E. Brack, C. Gomes, Organizers  
E. McLamore, M. S. Wiederoder, Organizers, Presiding

8:20 Introductory Remarks.

8:25 260. SENSEE: Open source portfolio tool for sensor comparative studies and technology transfer. E.S. McLamore

8:45 261. Rapid, label-free detection of *Escherichia coli* spp for on-farm water quality assessment based on temperature-sensitive nanobrush actuation. C. Giacobassi, D. Oliveira, C. Pola, N. Cavallaro, E. McLamore, C.L. Gomes


9:25 263. Simple impedance spectroscopy system for biofilm detection and monitoring. P. Takhistov

9:45 264. Capillary flow dynamics-based sensing modality for direct environmental pathogen monitoring. K.E. Klug, K.A. Reynolds, J. Yoon

10:05 Intermission.


10:45 266. Disposable voltammetric sensors for onsite detection of arsenic, selenium, and cadmium. C. Sullivan, D. Lu, E. Brack, C. Drew, P. Kurup

11:05 267. Inexpensive 2D and 3D printed sensors for rapid instrument-free detection of emerging contaminants in water. K. Kirk, A. Finny, E. Andreescu


11:45 269. Printed and laser induced graphene electrochemical sensors for in-field pesticide and fertilizer ion monitoring. J. Hondred, N. Garland, I. Kucherenko, R. Hjort, C.L. Gomes, J. Claussen

12:05 Concluding Remarks.
Advances in Analytical Technologies Supporting Environmental Fate, Metabolism, & Residue Analysis  
Sponsored by AGRO, Cosponsored by ENVR

Novel Polymeric Materials & Polymer-Based Processes for Energy-Efficient Treatment of Water & 
Resource Recovery -- Energy-Efficient Water Purification & Resource Recovery  
Sponsored by PMSE, Cosponsored by ENVR

Future Insights into Syngas Conversion Catalysis: Symposium in honor of Burtron H. Davis  
Sponsored by CATL, Cosponsored by ENFL, ENVR, INOR and PHYS

Advances in Catalysis with Ceria & Other Reducible Oxides -- Reactions and Other Metal Oxides  
Sponsored by CATL, Cosponsored by ENFL, ENVR, INOR and PHYS
TUESDAY AFTERNOON

San Diego Convention Center
Room 28A

Chemistry & Applications of Free Radical-based Technologies for Water Treatment & Purification

Various Free Radicals-Based Technologies

Cosponsored by AGRO
Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)

D. D. Dionysiou, G. Li Puma, D. Minakata, K. E. O'Shea, Organizers
W. Song, Organizer, Presiding
N. Blute, D. Minakata, Presiding

1:00 Introductory Remarks.

1:05 270. Performance of UV/free chlorine AOP for removal of 1,4-dioxane in potable reuse applications. A.N. Pisarenko, Y. Qu, E. Chen, D. Hokanson, R.R. Trussell, R.S. Trussell, J. Quicho


2:10 272. Using advanced oxidation processes as treatment barrier to eliminate cyanotoxins from drinking water. M. Kong, X. Duan, D.D. Dionysiou

2:35 273. Algal toxins in drinking water: UV/Cl₂ and UV/H₂O₂ advanced oxidation processes as treatment method. F. Barancheshme, O. Keen

3:00 Intermission.

3:15 274. Novel advanced oxidation process by peracetic acid and Fe(II). J. Kim, T. Zhang, C. Huang

3:40 275. Pesticides and metal chelates in reverse osmosis concentrate: Removal by radicals formed during ozonation in a pilot-scale ozone-wetland system. J. King, W. Mitch

4:05 276. Photo-assisted catalytic ozonation for the treatment of ozone-resistant water pollutants. W. Yang, X. Chen, M. Bunian, Y. Lei, T. Wu

4:30 277. Efficient Fenton oxidation of atrazine at circumneutral pH mediated by a complexing agent, picolinic acid. Z. Yang, J.J. Pignatello, B. Pan

4:55 Closing Remarks.
San Diego Convention Center
Room 28B

Legacy & Emerging Per- & Polyfluoroalkyl Substances: Identification, Fate, Transport, Exposure, & Removal

Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
K. Chu, M. Sun, F. Xiao, Organizers
J. Liu, Organizer, Presiding

1:00 278. Adsorption behavior and mechanism of emerging perfluoro-2-propoxypropanoic acid (GenX) on activated carbons and resins. S. Deng, W. Wang, A. Maimaiti


2:40 282. Sorption and desorption mechanisms of cationic and zwitterionic per- and polyfluoroalkyl substances in natural soils. F. Xiao, B. Jin, S. Golovko, M. Golovko, B. Xing

3:05 Intermission.

3:20 283. Quantitative measurements of emerging perfluorooether carboxylic acids in surface water using UHPLC-MS/MS. Y. Pan, J. Yao, J. Dai

3:45 284. Ultrahigh-resolution Fourier-transform ion cyclotron resonance mass spectrometry for identification of per- and polyfluoroalkyl substances (PFASs). A.M. McKenna, N. Pica, H. Chen, J. Blotevogel

4:10 285. Detection of PFOA by sensitive ToF-SIMS. J. Yao, C. Yang, X. Yu

San Diego Convention Center
Room 28C

Nanomaterials & Sustainability

Cosponsored by CEI
S. Ahuja, Organizer

1:00 Introductory Remarks.

1:05 287. Effect of rhamnolipid on aggregation and deposition of surface stabilized magnetite nanoparticles in environment. A. Ghosh, K. Parker, J. Fortner

1:25 288. Solar thermal water purification enabled by photothermal conversion using the 1T/2H phases of MoS2. D. Ghim, Q. Jiang, S. Cao, S. Singamaneni, Y. Jun

1:45 289. SERS for characterizing nanosilver in textiles. M.B. Hillyer, S. Nam, B.D. Condon


2:45 Intermission.


3:15 293. Molecular insight into the effects of Cu(II) on sulfamethoxazole and 17β-estradiol adsorption by carbon nanotubes/CoFe2O4 composites. W. Sun, S. Li, F. Wang

3:35 294. Polymer-nano composite degradation, release, detection, and toxicity of nanomaterials during accelerated aging. E. Sahle Demessie, C. Han, E. Varughese


4:35 296. Multifunctionalized superparamagnetic nanoparticles as an efficient material for removal of rhodamine B from wastewater by adsorption. M.O. Ojemaye, A. Okoh

4:55 Closing Remarks.
San Diego Convention Center
Room 28D

Biochar & Hydrochar for Energy, Environmental & Agricultural Applications

Cosponsored by AGRO
Financially supported by Frontiers in Energy Research; Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
N. D. Berge, J. L. Goldfarb, A. Shah, Organizers
R. Volpe, Organizer, Presiding

1:00 Introductory Remarks.

1:05 297. Effect of pyrolysis temperature on various acidic and basic functional groups on hydrochar. N. Saha, D. Xin, P. Chiu, M. Reza

1:30 298. Biochar as a nanosilver support medium for water disinfection. D. Xin, S. Lobo, P. Chiu

1:55 299. Study of char morphology during biomass pyrolysis and gasification via micro-computed tomography. M. Barr, Y. Zhang, R. Jervis, R. Volpe

2:20 Intermission.


3:00 301. Effects of air-oxidation induced changes in biomass chars on their adsorption of contaminants. Y. Yang, J.J. Pignatello

3:25 302. Molecular design approach to understand the reactivity of pyrogenic carbonaceous materials using conjugated microporous polymers. Z. Li, J. Mao, W. Chu, W. Xu

3:50 303. Production of catalytically active activated biochar and the application to environment. A.G. Karunanayake, R. Anderson

4:15 Closing Remarks.

Section E

San Diego Convention Center
Room 28E

Fundamental Chemical Processes Common to Dissolved Organic Matter & Atmospheric Organic Aerosols

N. Borduas, S. A. Nizkorodov, Organizers, Presiding

1:00 Introductory Remarks.
1:05 304. Chemical aging of brown carbon aerosol material. **J.P. Abbatt**, R. Hems, E. Schnitzler, A. Trofimova, R. Zhao

1:35 305. Insights on photochemical degradation of dissolved organic matter from electrospray ionization Fourier transform ion cyclotron resonance mass spectrometry. **C. Gueguen**, S. Islam


2:45 Intermission.

3:00 308. Aqueous aerosol chemistry and impacts: Sulfur oxidation, formation of organosulfur compounds and titration of aerosol pH. **V.H. Grassian**


4:00 310. Interfacial characterization of polysaccharide enrichment in sea surface microlayer proxy films. **K.A. Carter-Fenk**, M.E. Fiamingo, H.C. Allen


Section F

San Diego Convention Center
Room 29A

**C. Ellen Gonter Environmental Graduate Student Award Symposium**

D. D. Dionysiou, *Organizer*
K. E. O'Shea, *Organizer, Presiding*

1:00 Introductory Remarks.


1:30 314. Defluorination of per- and polyfluoroalkyl substances (PFASs) with hydrated electrons: Structural dependence and implications to PFAS remediation and management. **M.J. Bentel**, Y. Yu, L. Xu, Z. Li, B.M. Wong, Y. Men, J. Liu
1:55 315. Reductive defluorination of per- and polyfluoroalky substances by a dechlorinating microbial community. Y. Yu, K. Zhang, Z. Li, C. Ren, J. Liu, Y. Men

2:20 Intermission.

2:35 316. Iodinating agents of dimethenamid in chloraminated water. M. Rose, A. Roberts


3:25 318. Electrochemical cell lysis of gram-positive and gram-negative bacteria: DNA extraction from environmental water samples. S. Wang, Y. Zhu, Y. Yang, J. Li, M.R. Hoffmann

3:50 Closing Remarks.

Sponsored by PMSE, Cosponsored by ENVR

Simulating Fumigant Transport & Emissions: The Evolving Role of Modeling in California Regulations
Sponsored by AGRO, Cosponsored by ENVR

Future Insights into Syngas Conversion Catalysis: Symposium in honor of Burtron H. Davis
Sponsored by CATL, Cosponsored by ENFL, ENVR, INOR and PHYS

Environmental Chemistry through the Transformative Power of Film: A Showcase of CEI-ENVR Environmental Film Competition Awardees
Sponsored by MPPG, Cosponsored by CEI and ENVR

Next Generation Watershed Modeling of Agrochemicals
Sponsored by AGRO, Cosponsored by ENVR
TUESDAY EVENING

San Diego Convention Center
Exhibit Hall B

Artificial Water Channels for Water Purification & Desalination

Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)

M. Barboiu, J. Hou, B. Mi, Organizers

5:00 - 7:00


320. Insight into the importance of ionic strength and membrane type on biofouling of BSA and hemoglobin binary solutions. N.T. Kilmer, Y. Zhang, E.M. Stennett

San Diego Convention Center
Exhibit Hall B

Biochar & Hydrochar for Energy, Environmental & Agricultural Applications

Cosponsored by AGRO

N. D. Berge, J. L. Goldfarb, A. Shah, R. Volpe, Organizers

5:00 - 7:00

321. Contaminant removal potential of charred and iron-oxide-charred composites produced from coffee waste. M. Chehbouni, A. Lam, O. Harvey

322. Heterogeneous adsorbents from clay-biomass pyrolysis and CO₂ activation for treatment of heavy metal contaminated water. F. Wang, A. Hubble, L. Gao, J.L. Goldfarb

323. Functionalization of sewage sludge-derived biochar with humus sediment slurry and its use for treatment of crude-oil derived hydrocarbons in a simulated soil. N.O. Offiong, E. Inam

324. Preparation of high carbon content of hydrochar from biomass via hydrothermal carbonization. S. Sattasathuchana, B. Kitiyanan, P. Rangsunvigit, P. Khemthong, S. Youngian, K. Faungnawakij

325. Removal of pyrene by biochar immobilized cells of fusant bacterial strain F14. J. Lu, B. Hou

326. Adsorptive removal of pharmaceuticals from contaminated water by magnetized biochar. S.D. Canaday, A.S. Liyanage, T. Mlsna
327. Adsorption of malachite green dye from aqueous solution using carbonized Gliricidia sepium leaves. A.A. Giwa, D.O. Aderibigbe, M.O. Adesina

San Diego Convention Center
Exhibit Hall B

Catalysis for Environmental & Energy Applications

Cosponsored by CATL
A. Orlov, A. Savara, Y. Wang, Organizers

5:00 - 7:00

328. Promoting effect of K⁺ ions on HCHO degradation over MnO₂ catalysts studied with in situ DRIFTS. L. Ye, H. Huang, R. Fang

329. Facile synthesis of amorphous mesoporous manganese oxides for efficient catalytic decomposition of ozone. H. Huang, J. Ji, S. Liu, Y. Yu, L. Ye

330. Deep insights into the relationship between Fe-MOFs' coordination environment and catalytic ozonation performances. D. Yu


332. Electrocatalytic sulfur oxidation in anaerobic wastewater effluents. X. Shao, W. Tarpeh

333. Benzimidazole based ionic liquids coupled with ZnO nanoparticles for the capture of CO₂. l.m. garcia, C.A. Huerta-Aguilar, T. Pandiyan


337. Bioinspired catalyst for perchlorate reduction in water and brine. E. Bi, C. Ren, J. Liu
Chemistry & Applications of Free Radical-based Technologies for Water Treatment & Purification

Cosponsored by AGRO
D. S. Aga, D. D. Dionysiou, G. Li Puma, D. Minakata, K. E. O'Shea, W. Song, Organizers

5:00 - 7:00


339. Multiple pathways for sulfate radical production during electrolysis at boron-doped diamond electrode. Y. Shin, J. Lee

340. Carbonate radical mediated degradation of bisphenol A in UV/sodium percarbonate system. J. Gao, X. Duan, D.D. Dionysiou


342. Rapid removal of tetrabromobisphenol A by $\alpha$-Fe$_2$O$_{3-x}$ @Graphene@montmorillonite catalyst with oxygen vacancies in peroxymonosulfate-based systems: Role of halogen and alcohol radicals. S. Yang, P. Wu, D.D. Dionysiou

343. Adsorption of molybdenum(VI) on solids derived from sludge of water treatment processes. J. Lian, B. Chen, M. Yang, F. Zhou

344. Withdrawn

345. Structure of iron oxides generated in air-cathode assisted iron-electrocoagulation for water treatment. A. Kumar, S. Bandaru, C. van Genuchten, M. Nahata, D. Hernandez, A. Gadgil


347. Pulsed power plasma induced degradation of chloroform and chlorobenzene in aqueous solution and an insight into their degradation mechanism. L. Philip

348. Formation of nitrophenolic by-products in sulfate radical based oxidation processes in the presence of NOM and nitrite. J. Lu, P. Yang

349. Wet scrubbing process coupled with UV/PMS: Novel and efficient gaseous VOCs degradation method. R. Xie

350. In situ activation of peroxymonosulfate by natural ore for the remediation of acetaminophen-contaminated groundwater. X. Fan, H. Zhang
351. Use of MOFs for the elimination and degradation of Naproxen in persulfate activated systems: Application to highly concentrated effluents. A. Ghauch, R. El Asmar, A. Baalbaki

352. *In situ* EPR observation of radical electrogeneration, transformation at boron-doped diamond and sustainable degradation of plasticizer. J. Cai, G. Zhao

353. Unveiling the important roles of coexisting contaminants on photochemical transformations of pharmaceuticals: Fibrate drugs as a case study. Y. Zhang

354. Effect of chloride on the degradation efficiencies and products of bezafibrate and carbamazepine in UV/persulfate processes. Y. Liu, Y. Wu, L. Zhang, L. Feng


356. Activation of permanganate by UV irradiation for enhanced oxidation of micropollutants. K. Guo, J. Fang

San Diego Convention Center
Exhibit Hall B

**Chemistry of Water Reuse Processes Toward Water Sustainability**

Cosponsored by AGRO and PRES‡
R. Doong, W. Hou, C. Huang, Z. Qiang, V. K. Sharma, Organizers

5:00 - 7:00

357. Study on COD degradation of high salt content radioactive wastewater. Z. Shi, H. Zhang, L. Jiang, S. Li, H. Huang

358. Biological treatment of copper-containing NMF/MDG organic wastewater from the TFT-LCD industry. T. Pien, L. Whang, P. Liu


360. Reductive degradation of aqueous doxycycline by nZVI. A. Malikova, D. Kondratyuk, M. Babaa, W. Lee

361. Preparation and characterization of hollow porous carbon nanofibers. Y. Chiang, S. Lee, Y. Chen

362. Development of an ammonium-selective adsorbent for energy-efficient wastewater nutrient recovery. B.D. Clark, W. Tarpeh

363. Novel disinfection system using recyclable magnetic nanoparticles. Q. Gao, A.A. Keller

365. Capacitive deionization and disinfection of salt water effected by (Cu-Ag)@C electrodes. **H.P. Wang**

San Diego Convention Center
Exhibit Hall B

**Emerging Contaminants in Wastewater**

A. S. Adeleye, P. Cervantes, Y. Huang, **Organizers**

5:00 - 7:00


367. Determination of benzotriazole and analog compounds by liquid chromatography-mass spectrometry in surface runoff water samples from Wilmington Air Park. **J. Wiese**, T. Luncan, A. McGowin

368. Accumulation of N-nitrosodiethanolamine in spinach. **D.I. Nielsen-Franco**, D. Sanchez, J.A. Pedersen

369. Fate of antibiotic resistance genes and intI1 in soil and fertilizer microcosms at varying levels of copper. C. Echeverria-Palencia, **M. Hernandez-Cira**, I. Callejas, K. Jimenez, R. Herrera, **J.A. Jay**

370. Distributions and degradation of brominated flame retardants (PBDEs) in limed and THP-AD treated wastewater biosolids. **T. Motley**, **S. Fischer**, N.A. Andrade, B.V. Kjellerup, A. Torrents


**Fundamental Chemical Processes Common to Dissolved Organic Matter & Atmospheric Organic Aerosols**

N. Borduas, S. A. Nizkorodov, **Organizers**

5:00 - 7:00

372. Carbon isotopic characterization of biological influences on sea spray aerosol chemical speciation. **D.R. Crocker**

373. Natural organic matter characterization of composition and reactivity from permafrost soils in the sub-Arctic. **K. Gagne**, J.J. Guerard


378. Kinetics for the aqueous oxidation of atmospheric phenols with an organic triplet excited state. **L. Ma**, C. Guzman, C. Anastasio

379. Effects of transition metal ions on the formation of aqueous organosulfur compounds from methacrolein and methyl vinyl ketone. **L. Huang**, E. Coddens, V.H. Grassian


382. Assimilating the effects of natural water compositions, ions, and humic acid on fate and transport of insensitive munition compounds. **T. Schutt**, M.K. Shukla


385. Development of an incoherent broadband cavity enhanced absorption spectrometer (IBBCEAS) designed for the study of marine produced HONO. **S.L. Mora Garcia**, M.N. Sullivan, M. Alves, V.H. Grassian

Section A

San Diego Convention Center
Exhibit Hall B

General Poster Session

J. L. Goldfarb, Organizer

5:00 - 7:00

386. Geochemical profile of residential indoor dust from an industrial city. **I.N. Doyi**
387. How to write a great paper and get it accepted by a good environmental journal like Science of the Total Environment (Elsevier): Guide and recommendations. D. Barcelo

388. Sustainable land management enabled by ecosystem services mapping: Case study on agricultural water use in California’s Central Valley. E. Matios, J. Burney

389. Communicating water quality data using the grammar of graphics. B. Trueman, D. Dunnington, G.A. Gagnon

390. Isolation of ligninolytic yeasts from sugar cane luggage for lignin degradation. A. Bautista Guerrero

391. Improvement velocity of sedimentation by biogranules in an aerobic batch reactor. M. Gómez Gallegos, J. Sanchez-Salas


393. Evaluation and extrapolation of the solubility of CH₄ in CO₂ + H₂O using molecular simulation: CO₂ EOR and sequestration. H. Lee, M. Ostadhassan

394. Disinfection of water in swimming pools by combined action of UV-light and ozone. A. Semenov, T. Sakhno, I. Korotkova, N. Barashkov

395. Hydrothermal synthesis of fine stabilized superparamagnetic nano-particles manganese ferrite and their application in photocatalytic degradation of methylene blue. S. Ata, I. Mirza


397. Influence of ultrasonic treatment on hydroxyl radicals formation during chloride-free electrolysis of water contaminated with E.coli. N. Barashkov, I. Irgibayeva, A. Mantel, T. Sakhno, A. Aldongarov

398. Increased conductive of PEDOT:PSS by ionic additive for direct-printable piezoresistive sensors on textile substrate. I. Jin, J. Jung

399. Release behavior of mercury during iron ore sintering process. N. Tsubouchi, J. Bud, Y. Mochizuki

400. Enhanced efficiency of green solvent-processed non-fullerene organic solar cells via morphology optimization. S. Park, J. Jung, I. Jin, K. Kim, Y. Noh

401. Additive engineering of low bandgap perovskite from hot-casting process for high efficiency perovskite solar cells. Y. Noh, J. Jung


404. Effect of absorption liquid types on CO₂ capture efficiency of silane coated PP membrane contactor. S. Kim, Y. Seo

405. Identification of acid-lasting particles in sediment of the Yangjae stream flowing through the Seoul metropolitan, South Korea. Y. Kim, E. Chung, N.C. Woo

406. CO₂-phılıc surfactants for high salinity reservoir applications towards efficient CO₂ sequestration. A. Gizzatov, G. Jian, K. Mohammed, A.I. Abdel-Fattah, S.D. Allen

407. Diethyl(bromodifluoromethyl) phosphonate as a versatile reagent for the difluoromethylation of bisphenols for their detection and identification by gas chromatography-mass spectrometry. C.A. Valdez, R.N. Leif, S. Hok, K.E. Mason

408. Phosphorous chemistry affecting nutrient runoff in agriculture. S.D. Fleischman, S.M. Barrowcliff, L. Magana


410. Physico-chemical assessment of ground and surface water within the vicinity of Atenda Abattoir Ogbomoso, Nigeria. O.O. Onawumi, P.I. Egwuatu, F.A. Amoo, A.O. Ibrahim

411. Organic–inorganic electron transport layer for enhancing efficiency and stability of 2-dimensional ruddlesden-popper perovskite solar cells. K. Kim, J. Jung, Y. Noh, S. Park, I. Jin

412. Functionalized three-dimensionally ordered macroporous silica: Aldehyde compounds sensing material. P. Seesuwan, T. Leepasert, S. Achiwawanich

413. New technology for controlling biofilm formation in water distribution system. Y. Li, O.V. Ezeh, W. Han, Q. Wu, K. Kwan, K. Yeung

414. Analysis of chemical composition and odor of model thirdhand smoke (THS). A. Yamasaki, M. Noguchi

415. Improvement of water quality based on nanotechnology methods. T. Chhetri, G. Cunningham, R. Kannan, A. Upendran, Z. Afrasiabi


417. Monitoring enzymatic activities of agricultural soil after exposure to silver nanoparticles of different sizes and coatings. Y. Xue, P. Mishra, M. Fukada, F. Eivazi, Z. Afrasiabi

418. Application of anaerobic fluidized bed membrane bioreactor (AFMBR) to enrich nitrite/nitrate dependent anaerobic methane oxidation (N-DAMO) microorganism for simultaneous nitrogen and carbon removal. Y. Wu, Y. Chen, L. Whang

419. Implication of nutrient concentrations related to a harmful algae bloom (HAB) and microcystin formation in Caesar Creek Lake, Wilmington, Ohio. B.J. Foskuhl, T. Luncan, R. Schaffer, A. McGowin
420. Use of EPI Suite™ fugacity model in assessing environmental fate. **E. Wong**, M. Citra, M. Kawa, C. Coley


422. Measuring sediment black carbon contents using phenanthrene sorption. **Z. Lu**


424. Inhibition of microbially induced carbonate precipitation by soil solution Cu and its effect on the stabilization of soil Cu. **H. Chung**, S. Kim, K. Nam


426. Electrochemical studies of perfluoroacids (PFAs) and perfluorooctane sulfonate (PFOS). **B. Kenney**, **B. Workie**, E. Sahle-Demessie


428. Identification of water soluble oil photodegradation products containing N and O atoms. **S.L. Patil**, P.A. Zito, M.A. Tarr


430. Synthesis and characterization of imines and Schiff bases as organic sensors for the detection of cyanide and aluminum ions. **C.A. Arro**, Y.M. Hijji


439. LC-MS/MS analysis of UV-filter and paraben micropollutants in Potomac River sediments. **T. Haji**, T.B. Huff, G.D. Foster


Section A

San Diego Convention Center
Exhibit Hall B

**Green Chemistry & the Environment**

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

5:00 - 7:00


444. Microbially induced carbonate precipitation assisted by poly-L-lysine: Ecofriendly approach inspired by nature. **T.H. Nawaratna**, K. Nakashima, S. Kawasaki


446. Evaluation of indoor air quality of residential rooms in Beijing. **F. Liu**


448. Ubiquitous rapid biodegradation of polystyrene by dark (*Tenebrio obscurus*) and yellow (*Tenebrio molitor*) mealworms (Coleoptera: Tenebrionidae). **B. Peng**, Z. Chen, W. Wu, Y. Zhang

449. Electrochemical regeneration of oxidized Fe(II) thiochelate based nitric oxide absorbent. **S. Cheon**, J. Han, H. Yoon, S. Kim
450. Valorization of food waste and waste activated sludge to high value-added optical pure L-lactic acid stimulated by electron control. X. Li


452. Field study of control-released hydrogel for H2S suppression in Hong Kong drainage system. S. Wong

453. Study on the competitive reactions during SO3 removal by NaHSO3/ Na2SO3. K. He, Q. Song, Z. Yan, Q. Yao

454. High fluorescence carbon dots from kappa-carrageenan for environmental sensing and bioimaging. M.A. Sinoy

455. Investigation on weak magnetic field-enhanced adsorption mechanism of pollutants on magnetic biopolymer/graphene composite gel. J. Ma, F. Yu


457. Study on the reduction of acidic gases generated from solid refuse fuel (SRF) use plant. S. Park, J. Han, W. Eom, Y. Park, H. Kim

458. Enantioselective behavior of epoxiconazole fungicide in soil and water mediums and its enantiomeric bioactivity against the targeted pathogens. A.E. Esmat

459. Approach of electrochemical synthesis of ammonia from water and nitrogen using iron under ambient conditions. S. Jeon, K. Kim, J. Kim, H. Yoon, J. Han

460. Functional group-directed self-installing doors in porous graphene. Y. Li, C. Wu

461. 1T'-MoS2, a promising candidate for sensing NOx. Y. Linghu, C. Wu

462. Design and automatic screening of tetra-branched structures for multiple-site acid gas capture. C. Li, D. Lu, C. Wu

San Diego Convention Center
Exhibit Hall B

Legacy & Emerging Per- & Polyfluoroalkyl Substances: Identification, Fate, Transport, Exposure, & Removal

K. Chu, J. Liu, M. Sun, F. Xiao, Organizers

5:00 - 7:00


468. Influence of multi-process retention on the transport of perfluorooctanesulfonic acid (PFOS) in the presence of non-aqueous phase liquids (NAPLs). S. Van Glubt, N. Yan, Y. Wang, M. Brusseau


470. Effect of composting operating parameters on the degradation of PFAS in biodegradable food service products. F. Hussain, J. Hazard, J. Velazquez

471. Comprehensive retention model for PFAS transport in subsurface systems. M.L. Brusseau

472. Perfluorinated compounds in agricultural soils following years of biosolids applications. G.R. Johnson


474. Extraction of per- and polyfluoroalkyl pollutants from water using paramagnetic ionic liquids. D. Bwambok, J. Doney, M. Peralta, J. Woodtle

475. Delivering an integrated data hub for per- and polyfluoroalkyl (PFAS) chemicals via the US EPA CompTox Chemicals Dashboard. A.J. Williams, C. Grulke, K. Mansouri, G. Patlewicz, A. Richard

476. Effects of chloride on electrochemical oxidation of perfluorooctane sulfonate. L. Wang, Y. Wang, J. Lu, Q. Huang

478. Removal and recovery of perfluoroalkyl substances in water by electrocoagulation. H. Shi, R.D. Pierce, Q. Huang

479. Novel LC-MS/MS procedure for determination of legacy and emerging polyfluoroalkyl substances in environmental water samples. S.A. Oehrle, K. Organtini, K.J. Rosnack, M.S. Young

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San Diego Convention Center  
Exhibit Hall B  

**Nanomaterials & Sustainability**

Cosponsored by CEI  
S. Ahuja, Organizer

5:00 - 7:00


481. Physiological and photochemical effects of TiO₂ nanoparticles on tomato plants under different irradiance. J. Ko, Y. Hwang

482. Lead adsorption by electrospun PVA/PAA nanofiber membranes in a fixed-bed column. S. Zhang


484. Fast synthesis of reduced graphene oxide/carbon nanotubes/iron/silver composites with high catalytic activity for 4-nitrophenol reduction. X. Tran, M. Hussain, H. Kim

485. Prussian blue incorporated polyacrylonitrile nanofibers for rapid removal of radioactive ¹³⁷Cs. S. Kim, H. Kim, M. Kim

486. Long-term fate of zinc oxide nanoparticles in the presence of nano-iron oxide through the natural sediment under different solution chemistry. D. Kumari, A. Kumar, P. Joshi, T. Raychoudhury

487. Time resolved characterization of metal ion-induced nanocellulose gelation by small angle X-ray scattering. H. He, T. Rosén, C. Zhan, R. Wang, S. Chodankar, L. Yang, B.S. Hsiao

488. Engineered *Escherichia coli* cell capable of specific binding to metal surface. K. Nakashima, Y. Iwata, S. Kawasaki

489. Surface chemistry and phase transformation of nanoscale zero-valent (nZVI) iron in aquatic media. A. Liu
490. Characterization and permeation properties of graphene oxide membrane fabricated by various methods for desalination. **S. Lee**, J. Kim, J. Woo, C. Han


492. Investigation of the main mineral properties driving MnO$_x$ photoreduction. **S. Benkaddour**, A. Schwartzberg, B. Gilbert, J. Pena

Section A

San Diego Convention Center
Exhibit Hall B

**Non-targeted Analysis to Understand Fate & Effects of Pharmaceuticals & Emerging Contaminants in Agriculture & Natural Environments**

Cosponsored by AGRO
D. S. Aga, J. B. Sallach, Organizers

5:00 - 7:00


494. Simultaneous separation and determination of the chiral fungicide cyproconazole enantiomers by high-performance liquid chromatography. **H. Zongzhe**

495. Microbial degradation of malachite green in milkfish pond sediments. **B. Chang**, C. Yang, W. Chao, C. Hsieh

496. Occurrence of emerging contaminants in an urban river of Buenos Aires, Argentina. G. Fitó Friedrichs, **E.P. Beiguel**, A. Zalts, J. Montserrat

Section A

San Diego Convention Center
Exhibit Hall B

**Plastics in Aquatic Environments, Part II: Transport, Fate & Global Impacts**

Cosponsored by POLY†
J. A. Glaser, K. Ikehata, R. T. Mathers, S. V. Orski, M. A. Pasquinelli, Organizers

5:00 - 7:00


Toxicity and pollution generated from decomposed plastic in the ocean. **K. Koizumi**, H. Kimukai, K. Kim, S. Chung, K. Metori, T. Hiaki, M. Nishimura, T. Kusui, **K. Saido**

Polymers and anthropogenic particles extracted from oceanic water, beach sediments, and fish stomach: Raman microspectroscopy study. **S. Ghosal**

Organic leaching from micro plastics, potential effects on microbial growth on the aquifer. **S. Choi**

Recycling helps reduce the plastics being dumped in our oceans, plastics in our oceans endanger marine life, environmental engineering is a way to address this problem. **T.V. Clardy**


San Diego Convention Center
Exhibit Hall B

**Safeguarding Water Quality in a Climate of Change**

Cosponsored by CEI
J. Arrigo, J. W. Moerman, *Organizers*

5:00 - 7:00


Isolation and characterization of microcystin-degrading bacteria from Iowa recreational lakes. **X. Liang**, K. Ikuma
510. Effects of chlorine on hexavalent chromium occurrence in drinking water via oxidation of iron corrosion scales. C. Tan, S. Avasarala, H. Liu


San Diego Convention Center
Exhibit Hall B

Sensors & Biosensors for Widespread Environmental Monitoring

Cosponsored by AGRO
T. Li, V. V. Rajasekharan, M. Romero-Gomez, P. L. Schorr, W. Zhang, Organizers

5:00 - 7:00

512. Phylogenetic diversity, virulence genes, and antibiotic resistance of Vibrio parahaemolyticus in a tropical urban marine estuary in Hawaii. P. Saingam, T. Yan


514. Development of flexible electrochromic oxygen sensor operating at room temperature. H. Son, S. Hong, Y. Choi

515. Alpha-(2-hydroxy-5-methylphenylimino)-o-cresol as nano-chemosensor for simultaneous recognition of Al\(^{3+}\) and Zn\(^{2+}\): Electrochemical and cell-imaging studies. E. Tecuapa Flores, C.A. Huerta-Aguilar, T. Pandiyan


San Diego Convention Center
Exhibit Hall B

Sensors for Water Quality Assessment in Resource Limited Environments

Cosponsored by AGRO
E. Brack, C. Gomes, E. McLamore, M. S. Wiederoder, Organizers

5:00 - 7:00

517. Rapid cell-free protein synthesis based biosensing system for the detection of cadmium. K. Turner, S. Walper

519. Modification of the SPADNS method to develop a sensor as a dye sensitized strip in assessing fluoride levels in drinking water. V.S. Samarasiri, U.R. Kumarasinghe, A. Cooray

520. TLF sensor prototypes: Low-cost sensors for detecting biological contaminants in water. T. Purvis, R. Wallace, J. Brown

521. Laser scribed graphene sensors for point of use detection of Listeria monocytogenes. N. Cavallaro, C.L. Gomes, E.S. McLamore

522. Graphene-anchored cuprous oxide nanoparticles from waste electric cables for electrochemical sensing. V. Morgan, D. Vanegas, E.S. McLamore, I. Velez-Torrez

San Diego Convention Center
Exhibit Hall B

Stormwater Treatment & Green Infrastructure: From Research to Practice

R. Ambrose, S. Grant, P. Holden, J. Jay, L. Levin, H. Liu, Organizers

5:00 - 7:00

523. Distribution of heavy metals and nutrients in soil, plant, and effluent water in a rain garden. K. Sung, C. Kim

524. Reducing storm water pollution with increased green space planning as part of a community driven neighborhood revitalization project. E. Kippenhan, B.W. Miringu, A.M. Smith

525. Natural treatment systems for urban stormwater runoff: Relationships between soil microbial communities, environmental conditions, accumulated pollutants, and nitrogen cycling. M. Feraud, P. Holden


527. Practice versus promise: An assessment of design and maintenance guidance relative to goals for stormwater natural treatment systems. P. Holden, M. Feraud, M. Rippy

528. Perceived services and disservices of natural treatment systems for urban stormwater. M. Rippy, S. Grant

529. Classic urban land management hastens decomposition in Southern California. J. Kurylo, R. Ambrose
San Diego Convention Center
Exhibit Hall B

Wastewater-Based Epidemiology: Opportunities, Challenges & Applications to Public Health & Safety

D. A. Burgard, M. Matus, B. Subedi, Organizers

5:00 - 7:00

530. Integration of antimicrobial resistant bacterial isolate libraries and metagenomics sequencing for quantitative antimicrobial resistance (amr) risk assessment in cattle manure. B. Li


533. Uncertainties treatment for wastewater-based epidemiological estimation of the consumption of illicit and prescribed neuropsychiatric drugs in two urban communities in Kentucky using ammonium normalized population and monte carlo simulation. T.L. Croft, R.A. Huffines, M. Pathak, B. Subedi

534. Biobot analytics: Novel sampling and analytical method to quantify opioids and their urinary metabolites in wastewater. K. Foppe, N. Endo, M. Matus

San Diego Convention Center
Exhibit Hall B

Water, Health, & Environmental Justice in Marginalized Communities

Cosponsored by CMA and PRES‡
F. de los Reyes, A. Harris, J. Kearns, Organizers

5:00 - 7:00

546. Inner city faith communities as educational hubs via urban water management. M. Berry DuFour, E. Kippenhan, B.W. Miringu


549. Rapid small-scale column test development for fluoride control using bone-char sorbents. **M. Thompson**, J. Kearns


551. Predicting per/polyfluoroalkyl substance (PFAS) breakthrough in biochar water treatment using fluorescence and UV absorbance as surrogates. **M.T. Aung**, J. Kearns

552. Nanosensors and decision support models paired on a mobile device for establishing a participatory monitoring program on mercury exposure in rural Colombia. **V. Morgan, D. Vanegas**, K. McCourt, J. Crews, E. Kuo, L. Casso-Hartmann, I. Velez-Torre, G. Kiker, E.S. McLamore


Section A

San Diego Convention Center
Exhibit Hall B

**Water in the Solid State: Reactions & Interactions with Impurities**

Cosponsored by PHYS†
E. Asenath Smith, W. Choi, K. Kim, *Organizers*

5:00 - 7:00

535. Enhanced dissociation of weak acids in cryogenic ice: Configurational entropy of mobile proton is the driving force. **H. Kang**, Y. Park, S. Shin


537. Redox chemical reaction between chromate and iodide in frozen solution: Mechanism, kinetics, and environmental implications. **H. CHUNG**, J. Kim, K. Kim

538. *In-situ* chemical characterization of impurities in ice using cryo-raman spectroscopy. **B. Kim**, K. Kim

539. Enhanced redox transformation of inorganic iodine species in ice. **K. Kim**


543. Computational study of adhesive properties of bi-material interfaces formed with freshwater ice. **V. Gisladottir**, E. Asenath Smith, G.R. Hoch, M.W. Parker, D.T. O’Connor, R. Haehnel

544. Fe(II) oxidation in aqueous solution under freezing conditions. **S. Choi**, W. Choi, G. Lee

545. Effects of pH and Mn(II) concentration on Mn(II) oxidation under freezing condition. **J. Lee**, Y. Won, W. Choi, G. Lee

**Future of Biomacromolecules at a Crossroads of Polymer Science & Biology**
Sponsored by POLY, Cosponsored by BIOL, CARB, CELL, COLL, ENVR, MEDI, PHYS and PMSE
Chemistry & Applications of Free Radical-based Technologies for Water Treatment & Purification

Sulfate Radicals- & Electrochemical Production of Radicals-Based Technologies

Cosponsored by AGRO
Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
D. D. Dionysiou, D. Minakata, K. E. O'Shea, W. Song, Organizers
G. Li Puma, Organizer, Presiding
K. Doudrick, D. Minakata, Presiding

8:00 554. Comparative evaluation of nitroguanidine removal by UV and oxidants: Hydrogen peroxide, persulfate, and peroxymonosulfate. A. Terracciano, C. Christodoulatos, X. Meng, B. Smolinski, P. Arrienti

8:25 555. Comparative study for the degradation of theophylline in a pharmaceutical factory effluent using chemically and thermally persulfate activated systems. A. Ghauch, S. Al Hakim, A. Baalbaki, O.N. Tantawi


9:15 557. Sulfate radical generation and its application for degradation of acetanilide herbicide as a green technology. W. Chu


10:05 Intermission.


11:10 561. Withdrawn

Section B

San Diego Convention Center
Room 28B

Legacy & Emerging Per- & Polyfluoroalkyl Substances: Identification, Fate, Transport, Exposure, & Removal

Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
K. Chu, J. Liu, M. Sun, Organizers
F. Xiao, Organizer, Presiding

8:00 Introductory Remarks.

8:05 563. Enhancing photochemical defluorination of per- and polyfluoroalkyl substances (PFASs). Z. Liu, M.J. Bentel, Y. Yu, Y. Men, J. Liu

8:30 564. Breakdown products from perfluorinated alkyl substances (PFAS) degradation in a plasma-based water treatment process. R. Singh, S. Fernando, S. Baygi, N. Multari, S. Thagard, T.M. Holsen


9:20 566. Electrochemical oxidation of perfluorooctanesulfonate (PFOS) on different porous Magnéli phase titanium suboxides anodes. Y. Wang, H. Shi, R.D. Pierce, Q. Huang


10:10 Intermission.

10:20 568. Electrochemical mineralization of perfluorooctanoic acid and perfluoroctane sulfonic acid. V.F. Pulikkal, M. Sun

10:45 569. Leaching of poly- and perfluoroalkyl substances from soil subjected to dry-wet and freeze-thaw cycles. A. Borthakur, J. Blotevogel, S. Mahendra, S.K. Mohanty

11:10 570. Molecular mechanism of per- and polyfluoroalkyl substances on a modified clay. B. Yan, G. Munoz, S. Sauve, J. Liu


63 | ENVR Program, 258th ACS National Meeting
San Diego Convention Center
Room 28C

Safeguarding Water Quality in a Climate of Change

Cosponsored by CEI
Financially supported by US Global Change Research Program; Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
J. Arrigo, J. W. Moerman, Organizers, Presiding

8:00 Introductory Remarks.

8:05 572. Water cycle research and the US global change research program. J. Kaye, J. Arrigo, J.W. Moerman, J.K. Entin, C. Avery

8:35 573. NASA water quality monitoring within the current era of the Cyanobacteria Assessment Network (CyAN) and the future era of the Plankton, Aerosol, Clouds, ocean Ecosystem (PACE) mission. B. Seegers, J. Werdell

8:55 574. U.S. Geological Survey’s next-generation water observing system. L. Sprague


9:55 Intermission.

10:15 577. Influence of redox interfaces on metal(loid) contaminant mobility in shallow alluvial groundwater aquifers. K. Boye, N. Kumar, V. Noël, J.R. Bargar, S.E. Fendorf


10:55 579. Exploration of climatic impacts on watershed water quality as a control on harmful algal blooms and water sustainability. M.E. Newcomer, Y. Cheng


11:35 581. Sensitivity analysis of existing water models to effects of climate change. J. Thomas, N. Rao
11:55 Closing Remarks.

San Diego Convention Center
Room 28D

Biochar & Hydrochar for Energy, Environmental & Agricultural Applications

Cosponsored by AGRO
Financially supported by Frontiers in Energy Research; Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
N. D. Berge, J. L. Goldfarb, R. Volpe, Organizers
A. Shah, Organizer, Presiding

8:15 Introductory Remarks.

8:20 582. Agro-energy-environmental applications of biochar/hydrochar. K. Ro

8:45 583. Environmental assessment of pyrolysis and hydrothermal carbonization of anaerobic digestion effluent. J. Vasco Correa, A. Shah

9:10 584. Techno-economic analysis of a combined anaerobic digestion and hydrothermal carbonization system from sewage sludge. L. Huezo, A. Shah


10:00 Intermission.

10:15 586. Assessing the reversibility of electron storage capacity of biochar by chemical methods. D. Xin, M. Xian, P. Chiu

10:40 587. Real-time microbial sensors to characterize saturated and unsaturated environments. S.R. Burge, K.D. Hristovski


11:30 589. Environmental oil recovery using engineered douglas fir biochar. C. Navarathna, N. Wickramasighe, T. Mlsna

11:55 Closing Remarks.
Fundamental Chemical Processes Common to Dissolved Organic Matter & Atmospheric Organic Aerosols

N. Borduas, S. A. Nizkorodov, *Organizers, Presiding*

8:00 Introductory Remarks.


8:35 591. Exploring the relationship between the conformation of NOM and fluorescence changes caused by the presence of metals. **L.T. Stirchak**, D.J. Donaldson


9:15 593. Insights onto the complex iron oxide-organic-water interface from *in situ* studies using ATR-FTIR, flow microcalorimetry, and surface complexation modeling. **H.A. Al-Abadleh**

9:45 Intermission.


10:30 595. Challenges with traditional fluorescence quantitation metrics for anthropogenic DOM: Case for re-examining approaches and definitions on unique pools of leachable biosolids organic matter. **S. Fischer**, M. Gonsior, L. Powers, A. Hamilton, J.D. Chorover, M. Ramirez, A. Torrents


Artificial Water Channels for Water Purification & Desalination

Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
J. Hou, B. Mi, Organizers
M. Barboiu, Organizer, Presiding
M. Kumar, Presiding

8:00 599. Artificial water channel membranes: Design ideas from biological and biomimetic membrane research. M. Kumar, W. Song, C. Lang, R. Hickey

8:30 600. Construction of artificial water channels from organic tubular structures. J. Hou

9:00 601. Highly permeable and selective reverse osmosis membranes incorporating artificial water channels. M. Di Vincenzo, A. Tiraferri, M. Barboiu

9:20 602. Cluster formation of artificial water channels enable high water/salt permselectivity. W. Song, H. Joshi, R. Chowdhury, Y. Shen, J. Hou, A. Aksimentiev, M. Kumar

9:40 Intermission.

9:50 603. Water transport through carbon nanotube porins in lipid membranes. Y. Li, A. Noy

10:10 604. Probing ion solvation in single-digit nanopores with first-principles simulations. T. Pham, C. Zhan, E. Schwegler

10:30 605. Hydroxilic pathways for water permeation: New mechanisms for water purification. L. Huang, M. Barboiu


Novel Polymeric Materials & Polymer-Based Processes for Energy-Efficient Treatment of Water & Resource Recovery -- Nanomaterials for Separations
Sponsored by PMSE, Cosponsored by ENVR

From Antibody-Based to Mass Spectrometry-Based Analysis of Emerging Contaminants in Water: Advances & Future Trends
Sponsored by ANYL, Cosponsored by ENVR

Future Insights into Syngas Conversion Catalysis: Symposium in honor of Burtron H. Davis
Sponsored by CATL, Cosponsored by ENFL, ENVR, INOR and PHYS

Pollinators in Agroecosystems: Current Science Issues & Risk Assessment Approaches
Sponsored by AGRO, Cosponsored by ENVR

Surfaces & Interfaces in the Environment: Symposium in Honor of Vicki Grassian -- Organic-Surface interactions & Organic Aerosols
Sponsored by COLL, Cosponsored by ENVR‡ and WCC

Geochemistry of the Urban & Lived Environment
Sponsored by GEOC, Cosponsored by ENVR

Future of Biomacromolecules at a Crossroads of Polymer Science & Biology -- Delivery Systems
Sponsored by POLY, Cosponsored by BIOL, CARB, CELL, COLL, ENVR, MEDI, PHYS and PMSE‡

Advances in Analytical Technologies Supporting Environmental Fate, Metabolism, & Residue Analysis
Sponsored by AGRO, Cosponsored by ENVR

Ecological Considerations of Crop Protection
Sponsored by AGRO, Cosponsored by ENVR

Off-Target Transport of Field Applied Agricultural Chemicals: Study Designs, Monitoring, Modelling, & Risk Assessment
Sponsored by AGRO, Cosponsored by ENVR

Pollinators in Agroecosystems: Current Science Issues & Risk Assessment Approaches
Sponsored by AGRO, Cosponsored by ENVR
WEDNESDAY AFTERNOON

San Diego Convention Center
Room 28A

Chemistry & Applications of Free Radical-based Technologies for Water Treatment & Purification

Novel Materials Application for Free Radicals-Based Technologies

Cosponsored by AGRO
Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
G. Li Puma, D. Minakata, W. Song, Organizers
D. D. Dionysiou, K. E. O'Shea, Organizers, Presiding

1:30 609. Catalytic hydrogel membrane reactor for treating aqueous contaminants. K. Doudrick, R. Marks


2:20 611. Spontaneous oxidative degradation of aromatic compounds on iron oxide nanorods/CNF sheet in dark condition. Y. Park, C. Kim, S. Kim, W. Choi

2:45 612. Laser-induced graphene (LIG) membranes for advanced water and wastewater treatment. C. Thamaraiselvan, C. Arnusch


3:35 Intermission.

3:50 614. Unraveling electrochemical chlorination of ammoniacal water. K. Cho, S. Hong


4:40 616. Modulations of Bi2MoO6 for photocatalytic performance enhancement under visible light illumination. Q. Li

5:05 617. Degradation of 2,4-dichlorophenol by CNT-activated peroxydisulfate: Radical vs. non-radical mechanisms. C. Chen, Y. Lin

San Diego Convention Center
Room 28B

Section B
Catalysis for Environmental & Energy Applications

Catalysis for Energy Application

Cosponsored by CATL
A. Orlov, A. Savara, Y. Wang, Organizers, Presiding

1:30 Introductory Remarks.


1:55 619. Zero valent iron enhances bioelectrochemical biogas upgrading and hydrogen sulfide removal. C. Dykstra


2:35 621. Efficient head-tail coconversion process for high quality gasoline production via catalytic cracking route. R. Wang, Y. Li, G. Jiang, Y. Zhang, A. Duan, Z. Zhao, C. Xu, Y. Wang


3:15 Intermission.


4:35 626. Quantitative determination of intermolecular attraction between amines and graphene using AFM force spectroscopy. Y. Zhang, B. Chen

4:55 Concluding Remarks.

Section C

San Diego Convention Center
Room 28C

Safeguarding Water Quality in a Climate of Change

Cosponsored by CEI
Financially supported by US Global Change Research Program; Nominally supported by Association of

2:00 628. Energy efficient potable reuse: Lowering organic RO membrane fouling and DBP formation when treating anaerobic secondary effluent. A. Szczuka, W. Mitch

2:20 629. Impacts of climate change on drinking water treatment process: Story of unusual high haloacetic acid concentrations in Massachusetts drinking waters. X. Ma, P. Wittbold, Y. Sun, G. Moriarty, J.E. Tobiason, D.A. Reckhow

2:40 630. Effects of changing water chemistry on lead minerals: Implications on lead control in drinking water distribution systems. J. Orta, S. Avasarala, H. Liu

3:00 631. Oil & gas class II wells: Proximities to schools and water contamination. H. Barravecchia, J. Buonocore, D. Michanowicz

3:20 Intermission.

3:40 632. Impact of climatic events on water quality and related health outcomes. J. Jagai, E. Hilborn, T. Wade

4:00 633. Protecting groundwater quality from geogenic and emerging contaminants in actively managed aquifers. S. Fakhreddine, A. Sherris, A.M. Lopez, A. Wells, R. Holmes, P.S. Nico, C. Babbitt, S.E. Fendorf


4:40 635. Microbial risk from wildfire residues. R.L. Valenca, S.K. Mohanty


5:20 Discussion.

Section D

San Diego Convention Center
Room 28D

Biochar & Hydrochar for Energy, Environmental & Agricultural Applications

Cosponsored by AGRO
Financially supported by Frontiers in Energy Research; Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
N. D. Berge, J. L. Goldfarb, A. Shah, Organizers
R. Volpe, Organizer, Presiding
1:30 Introductory Remarks.


2:05 638. Black carbon-enhanced transformation of chloroacetamide herbicides and safeners by sulfide. X. Xu, J. Sivey, W. Xu


2:55 640. Preparation and use of CuOₓ and CeO₂- modified rice straw chars for gaseous elemental mercury (Hg₀) removal in the presence and absence of ultrasound. W. Xu, Y.G. Adewuyi, Y. Liu, Y. Wang

3:20 Intermission.

3:35 641. Ion-selective biochar electrodes for asymmetrical capacitive deionization. H. Stephanie, D. Wipf, T. Mlsna

4:00 642. Biochar combined with polyvalent phage therapy to mitigate antibiotic resistance pathogenic bacteria vertical transfer risk in an undisturbed soil column system. S. Mingming, M. Ye, F. Hu


4:50 Closing Remarks.
3:15 Intermission.


4:00 649. Photochemical processing of organics at the ocean-atmosphere interface. S. Blair, K. Kappes, A. Reed Harris, R. Rapf, E. Pangu, M. Cazaunau, J. Dousson, A. Monod, V. Vaida

4:20 650. Chemical reactions involving triplet excited states and other reactive species in secondary organic aerosol produced by photooxidation of naphthalene. V. Baboomian, R. Gemayel, C. George, D. Fishman, S.A. Nizkorodov


5:00 652. Photochemical production and reactions of halogen oxidants in organic matter-rich saline waters. K. Zhang, K. Parker

Section F

San Diego Convention Center
Room 29A

Stormwater Treatment & Green Infrastructure: From Research to Practice

R. Ambrose, S. Grant, P. Holden, J. Jay, L. Levin, H. Liu, Organizers, Presiding

1:30 Introductory Remarks.

1:35 653. Urban stormwater to enhance water supply. R.G. Luthy

2:05 654. Fighting drought with stormwater: From research to practice. S. Grant


2:55 Intermission.


3:30 657. Biochar-based bioinfiltration for enhanced and prolonged removal of pesticides from stormwater. A.C. Portmann, R. Hankawa, S. Fox, C.P. Higgins


4:30 Concluding Remarks.

Section G

San Diego Convention Center
Room 31C

Artificial Water Channels for Water Purification & Desalination

Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
M. Barboiu, Organizer
J. Hou, B. Mi, Organizers, Presiding

1:30 660. Artificial water channels: Deconvolution of natural aquaporins through synthetic design. M. Barboiu

2:00 661. Biomimetic carbon nanotube water treatment systems utilizing electro-dynamic interfaces. B. Hinds

2:30 662. Functional and scalable carbon nanomembranes (CNMs) are efficient nanoconduits for water purification. A. Goelzhaeuser

3:00 663. Effective removal of emerging cyanotoxins from water using hybrid photocatalytic channels. T. Noeiaghaei, Y. Oh, J. Park, S. Chae

3:20 664. Combining water flux studies with fluorescence techniques to help elucidate the mechanism of membrane biofouling. C. George, E.M. Stennett

3:40 Intermission.


4:30 667. Water vapor permeation of inorganic membranes. K.J. Lawrence, P.R. Beaumont, J. Velten

4:50 668. TiO$_2$@MoS$_2$ composite for highly efficient water evaporation and water purification by interfacial solar heating. R. Chen, M. Ye, C. Huang

5:10 669. Molecular insights into seawater desalination through functionalized nanoporous graphene membranes. L. Qin, J.E. Tobiason, H. Huang
Novel Polymeric Materials & Polymer-Based Processes for Energy-Efficient Treatment of Water & Resource Recovery -- Nanomaterials for Separations
Sponsored by PMSE, Cosponsored by ENVR

Sorption & Redox at Mineral-Water Interfaces & the Impact on the Biogeochemical Cycling of Trace & Major Elements
Sponsored by GEOC, Cosponsored by ENVR

Innovative Approaches to Managing the Interface between Pesticide Use & Non-Target Species Habitat Protection
Sponsored by AGRO, Cosponsored by ENVR

Sponsored by COLL, Cosponsored by ENVR‡ and WCC

Future of Biomacromolecules at a Crossroads of Polymer Science & Biology -- Biomaterials
Sponsored by POLY, Cosponsored by BIOL, CARB, CELL, COLL, ENVR, MEDI, PHYS and PMSE‡
THURSDAY MORNING

San Diego Convention Center
Room 28C

Safeguarding Water Quality in a Climate of Change

Cosponsored by CEI
Financially supported by US Global Change Research Program; Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
J. Arrigo, J. W. Moerman, Organizers, Presiding

8:00 Introductory Remarks.

8:05 670. Increasing interagency coordination in river monitoring and data access in the United States. L. Sprague

8:35 671. Exploring the effects of streamflow trends and watershed management on changing water quality: National perspective. J. Murphy, L. Sprague

8:55 672. Long-term research assessing water quality and quantity in agricultural landscapes within the Lower Mississippi River Basin. M.A. Locke, A. Adviento-Borbe, R. Bingner, R. Lizotte, J. Massey, M. Moore, m. reba, J. Rigby, J. Taylor, P. White, L. Yasarer


9:35 674. Atmospheric rivers and public health: Observed links between extreme precipitation events and California’s coastal water quality. R. Aguilera, A. Gershunov, T. Benmarhnia

9:55 Intermission.

10:10 675. Coastal acidification: Moving from a global problem to a coastal water-quality issue. L. Wickes

10:30 676. Cistern health post hurricanes Irma and Maria in the US Virgins Islands. C. Chanes, D. Morris, S. Latesky


11:10 678. Quality data matters: Challenges in effective resource management and how DWR is working to address this issue on a statewide scale. R. Pisor, J. Saraceno

11:30 679. Safeguarding water quality through local decision making: Lessons from the Resilience Dialogues. N. Bennett

11:50 Discussion.
Fundamental Chemical Processes Common to Dissolved Organic Matter & Atmospheric Organic Aerosols

Nominally supported by Association of Environmental Engineering & Science Professors (AEESP)
N. Borduas, S. A. Nizkorodov, Organizers, Presiding

8:00 Introductory Remarks.

8:05 680. Ionic strength effects on the reactive uptake of ozone on organic compounds: Implications for air-sea ozone deposition. S. Gligorovski, M. Mekic, M. Brigante, D. Vione

8:35 681. Relationship between the physicochemical properties of an aerosol particle and the exchange of semi-volatile organic molecules. Y. Qin, J. Wang, Y. Lei, J. Ye, S.T. Martin


9:15 683. Exploring surface population of organic molecules of aerosol directly by nonlinear light scattering. Y. Qian, G. Deng, Y. Rao

9:45 Intermission.

10:00 684. Cloudy and clear sky particulate matter chemical composition. A. Carlton, A. Christiansen, B. Henderson

10:30 685. Organic solvents facilitate the cloud droplet activation of water-insoluble organic aerosol. F. Barati, A. Asa-Awuku


11:30 688. In situ quantification of pH in aerosol droplets. P.J. Vikesland, L.C. Marr, Q. Huang, H. Wei, H. Guo
Stormwater Treatment & Green Infrastructure: From Research to Practice
R. Ambrose, S. Grant, P. Holden, J. Jay, L. Levin, H. Liu, Organizers, Presiding

8:30 Introductory Remarks.

8:35 689. Fate of pathogens during managed aquifer recharge. S. Bradford, S. Sasidharan, J. Simunek, S. Torkzaban


9:25 691. Competing mechanisms affecting transport of copper, zinc, and lead in urban stormwater runoff: Column experiments. S. Avasarala

9:45 Intermission.


10:40 694. Impact of biofouling on the retention of stormwater colloidal contaminants in engineered infiltration system (EIS). Y. Zhang, S. Wu, S. Preheim


11:20 696. Iron enhanced sand filters for removing stormwater phosphate: Results from laboratory, urban, and agricultural studies. A. Erickson, J.S. Gulliver, P. Weiss

11:40 Concluding Remarks.

Novel Polymeric Materials & Polymer-Based Processes for Energy-Efficient Treatment of Water & Resource Recovery -- Gas Separation Membranes
Sponsored by PMSE, Cosponsored by ENVR
Advances in Spray Drift Deposition Characterization & Measurement
Sponsored by AGRO, Cosponsored by ENVR

Chemometric Analysis for Aqueous Sample
Sponsored by ANYL, Cosponsored by COMP and ENVR
THURSDAY AFTERNOON  

San Diego Convention Center  
Room 28E  

Fundamental Chemical Processes Common to Dissolved Organic Matter & Atmospheric Organic Aerosols  

N. Borduas, S. A. Nizkorodov, Organizers, Presiding  

1:00 Introductory Remarks.  

1:05 697. Towards identifying the reactive sites responsible for nitrous acid formation on soil surfaces. R.B. Abney, J.D. Raff  

1:35 698. Ozonolysis of various VOCs in the presence of NO and/or OH radicals. M. Noguchi, A. Yamasaki  


2:45 Intermission.  

3:00 701. Modulation of aerosol water content of indoor aerosols and impact on partitioning of water soluble species. P.F. DeCarlo, A. Avery, E.F. Katz, L. Ampollini, M.S. Waring  

3:30 702. Withdrawn  

3:50 703. Surface activity and interfacial structure of caryophyllene-derived ozonolysis products. F. Geiger, A. Be, A. Bellcross, D. Liu  

4:10 704. Toward a comprehensive picture of heterogeneous chemistry at atmospheric aerosols: Solvation and hydrolysis of glyoxal and methylglyoxal at the liquid water aerosols interface. I. Gladich, C. Zhu, J.S. Francisco  

San Diego Convention Center  
Room 29A  

Stormwater Treatment & Green Infrastructure: From Research to Practice

R. Ambrose, S. Grant, P. Holden, J. Jay, L. Levin, H. Liu, Organizers, Presiding

1:00 Introductory Remarks.

1:05 706. Biochar-augmented biofilters (BIOCHARge) to improve pollutant removal from stormwater: Can they improve receiving water quality?  

1:35 707. IoT enabled data exchange for stormwater systems. P. Venkateswaran, N. Venkatasubramanian

1:55 708. From the laboratory to the field: Study of a modified denitrifying bioretention system. Innovative green stormwater infrastructure for nitrogen removal.  
E.V. Lopez-Ponnada, T.J. Lynn, S.J. Ergas, J.R. Mihelcic

J.T. Le, A. Mehring, L. Levin

2:35 Intermission.


3:10 711. Enhancing green infrastructure with smart stormwater technology.  
E.A. Parker, S. Grant, A. Sahin, J. Vrugt

S. Cao, S.L. Cappozi, B.V. Kjellerup, A.P. Davis

4:10 Concluding Remarks.

Unmanned Aerial Vehicles (aka Drones): Pesticide Spraying & other Agricultural Applications  
Sponsored by AGRO, Cosponsored by ENVR