ENVR

DIVISION OF ENVIRONMENTAL CHEMISTRY

S. Obare and S. Al-Abed, *Program Chairs*

SUNDAY MORNING

Section A

San Francisco Marriott Marquis
Salons 10/11

Tribute to Jerry Schnoor

J. G. Burken, D. M. Cwiertny, C. L. Just, *Organizers, Presiding*

8:30 1. Climate change adaptation for infrastructure: A grand challenge for civil and environmental engineering. **D.A. Dzombak**, C. Samaras

9:00 2. Mechanisms governing algal mitigation of atmospheric CO_2 in shallow saline lakes of the Chilean Altiplano region. **A.L. Prieto**, A. de la Fuente

9:20 3. Substrate specificity of kinetic isotope effects associated with the dioxygenation of (nitro)aromatic contaminants is due to uncoupling of O_2 activation. **S.G. Pati**, H.E. Kohler, A. Pabis, P. Paneth, R.E. Parales, T.B. Hofstetter

9:40 4. Carbon and nitrogen isotope fractionation reveals the biodegradation of 2,4-dinitroanisole. **T.B. Hofstetter**, J. Bolotin, M. Palatucci, J.C. Spain

10:00 Intermission.

10:15 5. From phytoremediation to nanotechnology: A tribute to Jerald Schnoor. **J.L. Gardea-Torresdey**

10:45 6. Nanoparticle surface affinity as a predictor of trophic transfer. **N. Geitner**, S. Marinakos, C. Guo, N. O'Brien, M. Wiesner

11:05 7. Impact of cerium oxide nanoparticles on the uptake and accumulation of cadmium in soybean (*Glycine max* L.). **X. Ma**, L. Rossi, P. Schwab

Section B

San Francisco Marriott Marquis
Salons 12/13

Oxidation Processes, Nanoparticles & Membranes in Water & Wastewater Treatment: A Symposium in honor of Prof. Jun Ma/Oxidation Processes

Financially supported by Sciex China
D. D. Dionysiou, J. Fang, *Organizers*
V. K. Sharma, *Organizer, Presiding*
A. T. Stone, *Presiding*

8:30 Introductory Remarks.

8:40 8. Bi_2WO_6-graphene nanocomposites with laminar structure for environmental remediation. B. Ren, M. Nadagouda, **D.D. Dionysiou**

9:05 9. Photocatalytic inactivation mechanisms of bacteria as well as the decomposition of Antibiotic-Resistance Genes (ARG). **G. Li**, H. Yin, Q. Jiang, **T. An**

9:30 10. Activation of peroxides by phosphate ion for water purification. **Y. Yang**, J. Kim, J.J. Pignatello

9:50 11. Degradation of the typical macrolide antibiotic roxithromycin by UV/H_2O_2: Reaction kinetics and degradation byproducts. **W. Li**, X. Xu, Y. Tang, Y. Zhang

10:10 Intermission.

10:25 12. Overlooked oxidation states of chemical elements in treatment plants and the environment: Interconnections between speciation and reactivity. **A.T. Stone**, X. Xia, W. Liao

10:50 13. Catalytic ozonation processes not relying on hydroxyl radical oxidation. **T. Zhang**

11:15 14. Role of the propagation reactions on the hydroxyl radical formation in the ozonation and catalytic ozonation of real waters. **Y. Liu**, J. Ma, J. Jiang, L. Zhang

11:35 15. Reaction kinetics and degradation pathway of antipyrine during chlorine dioxide disinfection process. **X. Jia**, L. Zhang, L. Feng, Y. Liu

Section C

San Francisco Marriott Marquis
Salons 14/15

Chemistry of Water Treatment from Sorption to Taste & Odor: Symposium honoring the Contributions of Mel Suffet

Cosponsored by CHED
Financially supported by AEESP
M. J. McGuire, F. L. Rosario, *Organizers*
J. A. Pedersen, *Organizer, Presiding*

8:00 Introductory Remarks.

8:10 16. Three decades of research at CIRSEE Suez on taste and odor in drinking water, under the umbrella of Prof. I.H. Mel Suffet. **A.L. Bruchet**

8:35 17. Estimates of threshold, recognition and objection concentrations for crude 4-methylcyclohexanol and methyl t-butyl ether in water. **M.J. McGuire**, I.H. Suffet

9:00 18. Chemical spill of crude MCHM into the Elk River. **J. Rosen**

9:25 19. From Philly to smell A - tracking, measuring, and controlling non-H2S odor nuisances. **J. Witherspoon**, S. Cowden, I.H. Suffet

9:50 20. Importance of sensory analysis and odor activity values in the determination of odorants causing nuisance in the wastewater treatment process. **T. Vitko**, Y. Zhou, I.H. Suffet

10:15 Intermission.

10:30 21. Determination of the primary odor nuisances from wastewater treatment plants. Y. Zhou, T. Vitko, **I.H. Suffet**

10:55 22. Occurrence and fate of sensory compounds in water reuse. **S.W. Krasner**, A. Jia, C. Lee, T.R. Slifko

11:20 23. Two phase interactions: A lynchpin of environmental chemistry. **I.H. Suffet**

Section D

San Francisco Marriott Marquis
Golden Gate C1

Understanding Dissolved Organic Matter Reactivity: Honoring George Aiken, the DOM Whisperer

Y. Chin, *Organizer*
D. M. McKnight, *Organizer, Presiding*

8:00 Introductory Remarks.

8:10 24. In defense of DOM molecular models. **J. Leenheer**

8:45 25. Investigation of the effect of solvent polarity and temperature on the optical properties of dissolved organic matter. **J.A. Korak**, G. McKay, P.R. Erickson, D.E. Latch, K.P. McNeill, G. Aiken, F.L. Rosario

9:10 26. Carbon tracing: Environmental applications of wet oxidation total organic carbon cavity ring-down spectroscopy. **C. Conaway**

9:35 27. High resolution mass spectrometry of leachate from soils subject to simulated wildfire heating. **J. Webster**, R. Young, T. Borch , F.L. Rosario

10:00 Intermission.

10:10 28. Using the reverse osmosis/electrodialysis method to isolate natural organic matter from rivers and estuaries in coastal Georgia. **E.M. Perdue**, S. Driver

10:45 29. Isolation of Dissolved Organic Matter (DOM) with XAD resins: Early studies. **E.M. Thurman**

11:10 30. Classification analysis of humic substances fractionated using size exclusion chromatography based on numerical descriptors generated from the data of Fourier transform mass spectrometry. **I.V. Perminova**, A.V. Kudryavtsev, M. Kazachkov, A. Konstantinov, E. Belyaeva, A. Gaspar, P. Schmitt-Kopplin, G. Abbt-Braun, F. Frimmel

11:35 31. Dependence of reduced sulfur in Everglades dissolved organic matter on sulfate enrichment. **B. Poulin**, J.N. Ryan, K.L. Nagy, T. Dittmar, A. Stubbins, W. Orem, D.P. Krabbenhoft, G. Aiken

Section E

San Francisco Marriott Marquis
Sierra C

Chemistry & Application of Advanced Oxidation Processes for Water Detoxification, Treatment & Reuse

Financially supported by AEESP
D. D. Dionysiou, X. He, K. E. O'Shea, X. Quan, *Organizers*
G. Li Puma, D. Minakata, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 32. Molecular modeling of aqueous radical chemistry: Estimating chemical properties and elucidating reaction pathways. **J. Arey**, P. Tentscher, J.J. Guerard, D. Trogolo

8:40 33. Linking treatment to toxicology – Screening for toxic transformation products formed during oxidative treatment of organic contaminants. **C. Prasse**, B. Drew-Ford, D. Nomura, D.L. Sedlak

9:05 34. Effect of solution conditions on reactive oxidant production during chlorine photolysis. **D. Manley**, C.K. Remucal

9:30 35. Enhancing photocatalytic degradation of the cyanotoxins microcystin-LR and nodularin with the addition of sulfate-radical producing oxidants. **M.G. Antoniou**, I. Boraei, D.K. Pantelide, M. Abhishek , C. Edwards, L. Lawton

9:55 Intermission.

10:10 36. Mechanistic insight into reactivity of chlorinated radicals in UV/chlorine advanced oxidation system. **D. Minakata**, D. Kamath, S. Maetzold, D. Perram

10:45 37. Ag/AgCl @ chiral TiO_2 nanofibers plasmonic photocatalyst for removal of contaminants of emerging concern in simulated and urban wastewater. **G. Li Puma**, D. Wang, Y. Li

11:10 38. Impact of halides on the degradation of amino acid residues in biomolecules. **Y. Komaki**, J. Choe, W. Mitch

11:35 39. Investigation of radical chloramine reaction kinetics and thermodynamics under advanced oxidation processes. **J. Gleason**, S.P. Mezyk, K.P. Ishida

Section F

San Francisco Marriott Marquis
Sierra A

Contaminants of Emerging Concern in Natural & Engineered Systems

Cosponsored by AGRO, ANYL and CEI
L. M. Blaney, A. J. Hernandez, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 40. Mineral-catalyzed hydrolysis of organophosphorus flame retardants – a potential major fate-controlling sink in soil and aquatic environments. **Y. Fang**, E. Kim, T.J. Strathmann

8:55 41. Drug co-binding at mineral surfaces. **J. Xu** , R. Marsac, D. Costa, J. Boily, F. Wu, K. Hanna

9:15 42. Discrete molecular dynamics to screen for co-contaminant risk potential of nanomaterials in agriculture. **N. Geitner**, M. Wiesner

9:35 43. Molecular dynamics simulation and experimental study of the adsorption of phthalate esters on clay surfaces. **J. Willemsen**, I.C. Bourg

9:55 Intermission.

10:15 44. Fixed-bed adsorption of contaminants of emerging concern from water using Cu^{2+} amino grafted SBA-15. **K. Ortiz-Martinez**, F. Roman, A.J. Hernandez

10:35 45. Development of pH-responsive block copolymers membranes reinforced with nanocellulose for the adsorption of emerging contaminants. **J. Herrera**, L. Rivera, E.O. Ortiz Quiles, E. Nicolau

10:55 46. Detoxification of Halobenzoquiones (HBQs) by binding with organic nitrogen compounds: Mechanism and toxicity evaluation. **p. Du**, H. Zhao, C. Huang, H. Cao

11:15 47. Environmental chemistry of roxarsone in soil and its plant responses. **Q. Fu**, L.M. Blaney, D. Zhou

11:35 48. Simultaneous removal of multiple contaminants of emerging concern via biofiltration. **K. Greenstein**, J. Lew, E. Dickenson, E. Wert

11:55 Concluding Remarks.

Section G

San Francisco Marriott Marquis
Sierra B

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

Cosponsored by ANYL
T. Anumol, R. Marfil-Vega, T. M. Young, *Organizers, Presiding*

8:00 49. Identification of known, suspected, and unknown contaminants by nontarget analysis of Polar Organic Chemical Integrating Sampler (POCIS) extracts. **E.T. Furlong**, L.K. Kanagy, W.T. Foreman, D.A. Alvarez

8:25 50. Broad-scope screening for organic contaminants in wastewater at the sub-sewershed scale to identify source contributions. **J. Teerlink**, C. Alaimo, T.M. Young

8:50 51. Organic contaminants monitoring during water treatments by UHPLC-HRAM: From influent to effluents. **D.D. Yang**, T. Anumol

9:15 52. When does a GAC filter become a biofilter for removing seasonal trace organics? Application of LC/QTOF analysis to evaluate (bio-)filter performance. **R. Marfil-Vega**, M. Surmeier, O. Schneider, E. Dickenson

9:40 53. Non-targeted analysis reveals a novel bacterial metabolite of pyrene implicated in genotoxicity of bioremediated soil. **Z. Tian**, A. Gold, J. Nakamura, Z. Zhang, J. Vila, D. Singleton, L. Collins, M. Aitken

10:05 Intermission.

10:20 54. LC/Q-TOF-MS for the identification of environmental metabolites and degradation products. **I. Ferrer**, E.M. Thurman, J. Zweigenbaum

10:45 55. Identifying Poly- and Perfluoroalkyl Substances (PFAS) transformation products in a wastewater treatment plant. E. Houtz, **M. Wang**, W. Duong, J. Park

11:10 56. Quantitative comparison of perfluorinated organic compounds in drinking water between tandem triple quadrupole MS/MS and high resolution mass spectrometry using orbitrap technology-knowns and unknowns. **E. George**

11:35 57. Comprehensive targeted and untargeted analysis of Per- and Polyfluoroalkyl Substances (PFASs) in Australian Wastewater and recycled water. **T. Coggan**, T. Anumol, B. Clarke

San Francisco Marriott Marquis
Sierra J

Green Chemistry & the Environment

Cosponsored by CEI
Financially supported by AEESP
A. M. Balu, R. Luque, *Organizers*
S. O. Obare, *Organizer*, *Presiding*
T. Dittrich, D. Vardon, *Presiding*

8:00 Introductory Remarks.

8:05 58. Orientation of organic synthesis in water. **C. Len**

8:40 59. Purification of environmental contaminants from post combustion carbon capture solvents. **S. Bhatnagar**, J. Thompson, F. Onneweer, M. Combs, K. Abad, H. Nikolic, K. Liu

9:00 60. Bio-based γ-valerolactone and furfuryl alcohol as novel reaction media. L. Vaccaro, **S. Santoro**

9:20 61. Bimetallic Ru-Sn/AC for the aqueous phase catalytic conversion of microbial acids to alcohols. **D. Vardon**, A. Settle, T. Eaton, V. Vorotnikov, G. Beckham

9:40 Intermission.

9:55 62. Measurement of heterocyclic aromatic amines as tracers of anthropogenic contributions to fine particulate matter. **D. Thai**, J. Miller-Schulze, A. Lai, M.R. Olson, J.J. Schauer

10:15 63. Microwave-induced target orientd synthesis of curcumin-pyrazole derivatives: Potentially important for neuroprotective properties in Alzheimer's disease. **B. Dayal**, B. Patel

10:35 64. Inorganic-organic microcapsule emulsion for surface and air disinfections. **W. Han**, Y. LAI, Q. CHANG, H. LEUNG, Y. LI, Y. YANG, C. WU, K. Yeung, J. KWAN, C. CHAO, Z. YANG

10:55 65. Fe-assisted hydrothermal liquefaction of oil palm empty fruit bunch to bio-oil. **Y. Miyata**, K. Sagata, M. Hirose, Y. Yamazaki, A. Nishimura, N. Okuda, Y. Arita, Y. Hirano, Y. Kita

11:15 66. Kinetic study on the adsorption of humic acid fractions onto clay minerals. **M. ElSayed**, M. Khalaf, J. Rice

11:35 67. Formation of metal-humate complexes in sediments and environmental impact of heavy metal adsorption in the presence of humic acids. **J. HIZAL YÜCESOY**, R. Apak

San Francisco Marriott Marquis
Sierra K

Have Great Lakes Restoration Programs Been Successful? The Case of Legacy & Emerging Pollutants

J. J. Pagano, *Organizer*
K. C. Hornbuckle, *Organizer, Presiding*

8:00 68. Trends of legacy and emerging contaminants in the Great Lakes based on passive sampling of air and water. **R. Lohmann**, C. McDonough, Y. Liu, M. Khairy, P.A. Helm, D.C. Muir

8:30 69. Organophosphate flame retardants in the lower Great Lakes: Spatial distribution and air-water exchange. **C.A. McDonough**, P.A. Helm, D. Muir, R. Lohmann

8:50 70. Spatial and temporal trends of particle phase organophosphate ester concentrations in the atmosphere of the Great Lakes. **A. Salamova**, A. Peverly, M. Venier, R.A. Hites

9:10 71. Pharmaceuticals and personal care product chemicals in waters and fish in a Great Lakes urban wetland. **D.C. Muir**, X. Wang, D. Simmons, J. Sherry

9:30 72. GLFMSP Legacy and emerging chemical trends. B.S. Crimmins, **S. Fernando**, C. Zhou, H. Zhou, S. Fakouri Baygi, B. Parvizian , P.K. Hopke, T. Holsen, J.J. Pagano, M. Milligan

9:50 Intermission.

10:00 73. How do we reduce chemicals of concern in the Great Lakes after picking the low hanging fruit?. **M.L. Diamond**, P.A. Helm, L. Jantunen, D. McGoldrick, J. Truong, A. Soehl

10:20 74. Concentration trends and elimination rates for polychlorinated dioxins/furans, and dioxin-like polychlorinated biphenyls in Lake Ontario salmonid eggs: 2004-2015. **A.J. Garner**, J.J. Pagano

10:40 75. Airborne PCBs and OH-PCBs inside and outside rural schools and urban schools near Lake Michigan. R.F. Marek, A. Awad, N. Herkert, P.S. Thorne, **K.C. Hornbuckle**

11:00 76. Impact of waves on contaminant fate in Great Lakes beach environments. **D.M. O'Carroll**, C. Robinson, S. Malott

11:20 77. Biomonitoring legacy and emerging Great Lakes contaminants in susceptible Great Lakes populations. **Z. Li**, W. Wattigney, S. Naik, E. Irvin-Barnwell, A. Ragin-Wilson

11:40 78. GLRI success: Educating government and business towards reducing PBDEs and other chemicals of concern in the Great Lakes and beyond. **A. Blum**, M.L. Diamond, G. Peaslee, A. Soehl

Mineral-Water Interface Chemistry/Tribute to Glenn Waychunas
Sponsored by GEOC, Cosponsored by COLL and ENVR

LGBT Graduate & Postdoctoral Student Chemistry Research Symposium

Emerging Applications in Inorganic Chemistry: Energy, Materials, Catalysis & Spectroscopy
Sponsored by PROF, Cosponsored by ANYL‡, BIOL‡, CHED, CMA, COLL, COMP, CWD, ENVR, INOR‡, MEDI, MPPG, ORGN, PHYS, PMSE‡, POLY, PRES‡ and WCC

Elucidation of Mechanisms & Kinetics on Surfaces/Theory
Sponsored by CATL, Cosponsored by COLL and ENVR

SUNDAY AFTERNOON

Section A

San Francisco Marriott Marquis
Salons 10/11

Tribute to Jerry Schnoor

J. G. Burken, D. M. Cwiertny, C. L. Just, *Organizers, Presiding*

1:30 79. My academic journey with electron transfer on Fe minerals and my U. Iowa colleague, Jerry Schnoor. **M. Scherer**, L.N. Andrade, Z. Zhou, J.D. Culpepper, D. Latta

2:00 80. Modeling adsorption of copper on goethite in natural water systems: Effect of solution chemistry. J. Han, S.M. Nomaan, **L.E. Katz**

2:20 81. Adsorption, aggregation, and morphological transformation of graphene and graphene oxide with binding pollutants in water. **B. Chen**, K. Yang, W. Jun, X. Zhu

2:40 82. Advancing materials and reactor design for catalytic technologies for treatment of nitrate-contaminated water. **T.J. Strathmann**, C.J. Werth, A. Bergquist, X. Huo

3:00 Intermission.

3:15 83. Environmental applications of nanoparticle-enabled sensing. **P.J. Vikesland**, H. Wei, W. Leng, V.R. Breazeal, M. Willner

3:45 84. Formation and properties of iron(III)-precipitates and their effects on the distribution and fate of phosphorous and arsenic in rice fields and in water treatment. **S.J. Hug**, A.C. Senn, R. Kaegi, A. Voegelin

4:05 85. Comparison of trace compound migration through a natural aquifer sand. **P. Behra**

Section B

San Francisco Marriott Marquis
Salons 12/13

Oxidation Processes, Nanoparticles & Membranes in Water & Wastewater Treatment: A Symposium in honor of Prof. Jun Ma/Iron & Manganese Chemistry

Financially supported by Sciex China
D. D. Dionysiou, J. Fang, V. K. Sharma, *Organizers*
D. A. Reckhow, T. Zhang, *Presiding*

1:30 Introductory Remarks.

1:35 86. Iron(III)-based metal organic frameworks as heterogeneous Fenton-like catalysts for organic pollutant degradation. C. Gao, **X. Quan**

2:00 87. Activation of manganese oxidants with bisulfite for enhanced oxidation of organic contaminants: The involvement of Mn(III). **X. Guan**

2:25 88. Role of dissolved Mn(III) in transformation of organic contaminants: Non-oxidative versus oxidative mechanisms. E. Hu, **F. He**

2:45 89. Cd(II) removal by manganese dioxide formed in situ from permanganate by thiosulfate: Influence of permanganate: Thiosulfate molar ratio. **P. Wang**, J. Jiang, J. Ma, H. Cheng, Z. Huang, B. Jia

3:05 Intermission.

3:20 90. Implementation of ferrate for drinking water treatment. **J.E. Tobiason**, D.A. Reckhow, J. Goodwill, Y. Jiang, J. Cunningham, X. Mai

3:45 91. Synergetic effect of the oxidation of fluoroquionolone antibiotics by a combined use of ferrate(VI) and peroxymonosulfate. M. Feng, Z. Wang, **V.K. Sharma**

4:10 92. Ferrate(VI) interactions with Natural Organic Matter (NOM) in drinking water treatment. **Y. Deng**, Y. Liang, C. Li, T. Waite

4:35 93. Withdrawn

Section C

San Francisco Marriott Marquis
Salons 14/15

Chemistry of Water Treatment from Sorption to Taste & Odor: Symposium honoring the Contributions of Mel Suffet/ Physical & Chemical Processes

Cosponsored by CHED
Financially supported by AEESP
M. J. McGuire, J. A. Pedersen, *Organizers*
F. L. Rosario, *Organizer, Presiding*

1:30 94. Granular activated carbon adsorption of specific organic compounds: A forty year retrospective of the 1979 National Academy of Science report. **R.S. Summers**

1:55 95. Fate of contaminants of emerging concern and geosmin in GAC biofilters: The roles of sorption and biodegradation. **R.M. Hozalski**, B. Ma, W. Arnold

2:20 96. Prediction of the adsorption capacities of organic pollutants on activated carbons in natural waters: Model development and validations. **T. Lin**, W. Bunmahotama, W. Hung

2:45 97. Predicting adsorption isotherms from adsorbent and adsorbate properties. **D. Knappe**, I. Mezzari, T. Speth

3:10 Intermission.

3:25 98. Can GAC be used to control priority unregulated DBPs in drinking water?. **S.D. Richardson**, A.A. Cuthbertson, S.Y. Kimura, H.K. Liberatore, C. Joseph, D. Knappe, B.D. Stanford, R.S. Summers, E. Dickenson

3:50 99. Mn(II) oxidation in Fenton and Fenton-type systems: Identification of reaction efficiency and reaction products. **J. Pena**, C.M. Van Genuchten

4:15 100. Sequential manganese desorption–Adsorption in anthracite coal and silica sand filter media. **C.J. Gabelich**, F. Gerringer, C. Chou

4:40 101. Treating ion-exchange waste brines with a reduction-coagulation-filtration process using ferrous chloride. **N. Homan**, P.G. Green, **T.M. Young**

5:05 102. Ozone-derived NDMA in water reuse: Formation and mitigation. **E. Marti**, J.R. Batista, E. Dickenson

Section D

San Francisco Marriott Marquis
Golden Gate C1

Understanding Dissolved Organic Matter Reactivity: Honoring George Aiken, the DOM Whisperer

Y. Chin, D. M. McKnight, *Organizers*
K. Cawley, *Presiding*

1:30 103. X-ray Raman spectroscopy: An alternative approach for characterizing the carbon chemistry of organic matter. **E.J. O'Loughlin**, B. Mishra, W.T. Cooper, M. Tfaily, J. Jastrow, R.A. Gordon, M. Balasubramanian, K.M. Kemner

2:05 104. Forces holding organic matter molecules together: Involvement of exceptionally strong hydrogen bonds. **J.J. Pignatello**, J. Ni

2:30 105. Petroleum as a surrogate to unlock the compositional and structural continuum of dissolved organic matter. **D.C. Podgorski**, P. Zito, M.A. Tarr, R.G. Spencer

2:55 106. Electrochemical characterization of natural organic matter and its role as an electron transfer mediator in biogeochemical process. **P.G. Tratnyek**, A.S. Pavitt, J.T. Nurmi

3:20 Intermission.

3:30 107. Reactivity of natural organic matter determined by electrospray ionization coupled to Fourier transform ion cyclotron resonance mass spectrometry. **P.G. Hatcher**

4:05 108. Withdrawn

4:30 109. PARAFAC analysis of irradiation- and oxidation-induced changes in fluorescent dissolved organic matter extracted from poultry litter. **K. Mangalgiri**, S. Timko, M. Gonsior, L.M. Blaney

4:55 110. Characterization of organic matter in wastewater from unconventional oil and gas production. **W.H. Orem**, M. Varonka, A. Bates, T. Schell, M. Engle

5:20 Concluding Remarks.

Section E

San Francisco Marriott Marquis
Sierra C

Chemistry & Application of Advanced Oxidation Processes for Water Detoxification, Treatment & Reuse

Financially supported by AEESP
D. D. Dionysiou, G. Li Puma, D. Minakata, K. E. O'Shea, *Organizers*
X. He, X. Quan, *Organizers, Presiding*

1:30 111. Ozone regeneration of GAC for prolonged adsorption of brominated THMs. **X. He**, M. Elkouz, M. Inyang, E. Dickenson, E. Wert

2:05 112. Development of a computer-based prediction platform for transformation products during ozonation of micropollutants: Kinetics and mechanisms. **M. Lee**, L. Blum, E. Schmid, K. Fenner, U. von Gunten

2:30 113. Ozonation of substituted phenolic model compounds: Yields and toxicology of *p*-benzoquinones and polyphenols. **P.R. Tentscher**, B. Escher, N. Bramaz, K. Schirmer, M. Bourgin, U. von Gunten

2:55 114. Synergy during the oxidative degradation of organics using ozone combined a carbon nanotube electrochemical filter. **B.M. Chaves**, M.W. Dezotti, C.D. Vecitis

3:20 Intermission.

3:35 115. Mineralization as a mechanism for TOC removal: Study of ozone/ozone-peroxide oxidation using FT-IR. **S.A. Carr**

4:00 116. Comparison of the kinetics of the UV/chlorine and the UV/H_2O_2 processes in the degradation of PPCPs in simulated water and real water. **K. Guo**, Z. Wu, B. Yao, W. Song, C. Shang, J. Fang

4:25 117. Chloramine chemistry in AOP treated wastewaters. **L. Twight**, S.P. Mezyk, K.P. Ishida

4:50 118. Impact of the UV photolysis of monochloramine on 1,4-dioxane removal: New insights into potable water reuse. **S.D. Patton**, W. Li, K.D. Couch, S.P. Mezyk, H. Liu

Section F

San Francisco Marriott Marquis
Sierra A

Contaminants of Emerging Concern in Natural & Engineered Systems

Cosponsored by AGRO, ANYL and CEI
L. M. Blaney, A. J. Hernandez, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 119. Using fluorescent dissolved organic matter and contaminants of emerging concern to identify leaking wastewater collection systems. K. He, N. Rogers, **L.M. Blaney**

1:55 120. Transport and transformation of pharmaceuticals and other contaminants of emerging concern from wastewater discharge through surface water to drinking water intake and treatment. **E.T. Furlong**, S.T. Glassmeyer, D.W. Kolpin, M. Mills, M. Zimmerman, T. Jones-Lepp, m. waldron

2:15 121. Contaminants of emerging concern in Portuguese rivers. **A.R. Ribeiro**, J. Sousa, M. Barbosa, M.R. Pereira, A.M. Silva

2:35 122. Estimating the Seattle, WA legal recreational cannabis market share using wastewater-based epidemiology. **D.A. Burgard**, J.R. Williams, C.J. Banta-Green

2:55 123. Use of chemical fate & transport research in environmental risk assessment. **E.M. Wong**, E.L. Libelo, M. Titcombe Lee

3:15 Intermission.

3:35 124. Bioaccumulation and estrogenicity of hormones and UV-filters in *Procambarus clarkii*. **K. He**, A. Timm, L.M. Blaney

3:55 125. Mixtures of contaminants of emerging concern commonly detected in Great Lakes tributaries reduce reproductive potential in wild and laboratory exposed fishes. **H.L. Schoenfuss**, L.C. Wang, Z.G. Jorgenson, S.J. Choy, J. Banda, D.J. Gefell, M. Annis, W. Tucker, S.M. Elliott, M.E. Brigham

4:15 126. Spatio-temporal occurrence, bioaccumulation, and trophic transfer of select contaminants of emerging concern in a semi-arid river influenced by snowmelt. **S. Haddad**, C. Scott, B. Burket, S. James, G. Saari, L. Kristofco, K. Chambliss, M. Luers, C. Rogers, B.W. Brooks

4:35 127. Evaluating the impacts of metformin and mixtures of other dominant contaminants of emerging concern in Milwaukee Estuary and Lake Michigan. **R. Klaper**, J. Crago, N. Niemuth

4:55 128. Application of water cooling towers for monitoring environmental releases of tritium. **R. Brigmon**, D. Kaplan, C. Milliken, T. Jannik, H.A. Brant, B. Viner

5:15 Concluding Remarks.

Section G

San Francisco Marriott Marquis
Sierra B

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

Cosponsored by ANYL
T. Anumol, R. Marfil-Vega, T. M. Young, *Organizers, Presiding*

1:30 129. Unknown microcystin screening using LC-MS/MS, triggered information dependent acquisition, and confirmation by Q-TOF analysis with Personal Compound Database and Library. **R.A. Trenholm**, B. Vanderford

1:55 130. Expanding targets of UPLC-ToF-MS metabolomics and ^{15}N labeling in Cyanobacterial Harmful Algal Bloom (CHAB) research: Microcystins and beyond. **W.K. Strangman**, A. Stewart, J.L. Wright

2:45 131. Method development of a 2D LC HRMS extraction and detection method for organophosphors flame retardants in environmental water samples. **L. Mullin**, M. Mella, C. Mallet, D. Stevens, I. Ericston Jogsten, G. Cleland

3:10 132. Identification of emerging contaminants from the waste water influenced Tioga River using high resolution accurate mass LC/MS and statistical analysis. **J. Zweigenbaum**, T. Anumol, L. Kennedy

3:35 Intermission.

3:50 133. Comprehensive workflow for micropollutant identification and prioritization using HR/AM tandem mass spectrometry and cheminformatics. **L. Ferguson**, G.J. Getzinger

4:15 134. Smart target method development for detection of antiviral compounds in aqueous environmental samples based on suspect screening and HRMS. **D. Barcelo**, B. Zonja, J. Guillen, M. Lopez de Alda

4:40 135. LC-HRMS data combined with cluster analysis to compare wastewater treatment efficiency. **J.E. Schollée**, M. Bourgin, C.S. McArdell, J. Hollender

5:05 136. Using the US EPA's CompTox Dashboard to support identification and screening of emerging organic contaminants in the environment. **A. McEachran**, J. Sobus, S. Newton, M. Strynar, A.J. Williams

San Francisco Marriott Marquis
Sierra J

Green Chemistry & the Environment

Cosponsored by CEI
Financially supported by AEESP
A. M. Balu, R. Luque, *Organizers*
S. O. Obare, *Organizer*, *Presiding*
T. Dittrich, D. Vardon, *Presiding*

1:30 137. Sustainable materials management and green chemistry: Fate of bioplastics in landfills. **M. Krause**, T. Tolaymat

1:50 138. Aluminum-cycle ion exchange process for hardness removal: A new approach for sustainable softening. **M. German**, J. Li, A.K. Sengupta

2:10 139. Chlorate formation in on-site hypochlorite generators: Dependence on pH-level, temperature and storage time. **L. Kriem**, R.N. Biagioni

2:30 140. Alpha-pinene isomerization over silica supported heteropolyacids. **L. Frattini**, M. Isaacs, C.M. Parlett, K. Wilson, G. Kyriakou, A.F. Lee

2:50 141. Bandgap engineering of $Bi_2Ti_2O_7$ through foreign ion incorporation via solution combustion synthesis. **G.F. Samu**, K. Rajeshwar, C. Janaky

3:10 Intermission.

3:25 142. Mesoporous manganese oxide catalyzed aerobic oxidative coupling of anilines to aromatic azo compounds. **B. Dutta**, S.L. Suib

3:45 143. Effect of elevated atmospheric CO_2 on arsenic uptake in different ecotypes of *Arabidopsis thaliana:* Implications for phytoremediation efficacy. **V. Fernandez-Alos**, J. Barnaby, M. Tomecek, E. Codling, L. Ziska

4:05 144. Electrochemical generation of H_2O_2: Development of a reactor with carbon catalysts for portable low-cost water purification. **Z. Chen**, S. Chen, S. Siahrostami, P. Chakthranont, C. Hahn, D. Nordlund, D. Sokaras, J.K. Norskov, Z. Bao, T.F. Jaramillo

4:25 145. Biopolymers as treatment agents for crude oil-contaminated seawater. **T. Ameh**, R. Srinivasan, C. Thompson, B. Bellows, M. Murphy

4:45 146. Bio-inspired doped calcium carbonate particles for effluent removal from waste water. **H. Ramesh**, K. Radhakrishnan, s. kumar nadar, A. Raichur

5:05 147. Waste shell biorefinery: Dream or reality?. **N. Yan**

San Francisco Marriott Marquis
Sierra K

Integrated & Sustainable Environmental Remediation

Cosponsored by CEI
S. K. Brar, R. Galvez, *Organizers*
M. Cledon, *Organizer, Presiding*

1:30 Introductory Remarks.

1:35 148. Effect of synergistic interaction between Ce and Mn on the CO_2 capture of calcium-based sorbent: Textural properties, ability of donating electrons, and generation of oxygen vacancy. **H. Guo**, J. Feng, Y. Zhao, X. Ma, **S. Wang**

1:55 149. Chemical and adsorptive characterization of solids to capture greenhouse gases under standard conditions of temperature and pressure. **B. Delgado**, A. Avalos Ramirez, R. Lagacé, A. Giroir-Fendler, S. Godbout

2:15 150. Biodegradation of hexabromocyclododecane by *Rhodopseudomonas palustris* sp. **R. Wang**, T. Chang, Y. Peng, Y. Shih

2:35 151. Withdrawn

2:55 152. Assessment of changes in ecotoxicity of dredged marine sediment by sediment treatments for TPH removal. **K. Kim**, G. Joo, B. Jeong, K. Nam, Y. Choi

3:15 Intermission.

3:30 153. Sediment contaminant accumulation in stormwater catchment basins: New implications for management guidelines. **V. Craver**, L. Schifman, V. Kasaraneni, T. Boving

3:50 154. Advanced study of unconventional oil behaviour in regard to surface water oil spills. **R. Galvez**

4:10 155. Integrated municipal solid waste management: Renewable energy and activated carbons for leachate treatment. **J.L. Goldfarb**, **C. Gopu**

4:30 156. Removal of chlortetracycline from water using immobilized laccase onto adsorptive membrane. **M. Taheran**, M. Naghdi, S.K. Brar, e.J. knystautas, M. Verma, R.Y. Surampalli, J.R. Valero

4:50 157. Electrochemical deposition for the recovery and separation of metals: A novel approach for reclaiming rare earth and specialty elements from industrial waste and processing streams. M. O'Connor, R. Coulthard, **D. Plata**

5:10 158. Withdrawn

Holy Grails in Chemistry: Celebrating the 50th Anniversary of Accounts of Chemical Research Journal
Sponsored by PRES, Cosponsored by BIOL, BMGT, CARB, CATL, CELL, COLL, ENVR, HIST, I&EC, MEDI, MPPG‡, ORGN and PROF

LGBT Graduate & Postdoctoral Student Chemistry Research Symposium

Novel Reactions, Methodologies & Syntheses in Organic Chemistry
Sponsored by PROF, Cosponsored by ANYL‡, BIOL‡, CHED, CMA, COLL, COMP, CWD, ENVR, INOR‡, MEDI, MPPG, ORGN, PHYS, PMSE‡, POLY, PRES‡ and WCC

Mineral-Water Interface Chemistry/A Tribute to Glenn Waychunas
Sponsored by GEOC, Cosponsored by COLL and ENVR

Elucidation of Mechanisms & Kinetics on Surfaces/Surface Science
Sponsored by CATL, Cosponsored by COLL and ENVR

SUNDAY EVENING

Holy Grails in Chemistry: Celebrating the 50th Anniversary of Accounts of Chemical Research Journal
Sponsored by PRES, Cosponsored by BIOL, BMGT, CARB, CATL, CELL, COLL, ENVR, HIST, I&EC, MEDI, ORGN and PROF

MONDAY MORNING

Section A

San Francisco Marriott Marquis
Salons 10/11

Tribute to Jerry Schnoor

J. G. Burken, D. M. Cwiertny, C. L. Just, *Organizers, Presiding*

8:00 159. Nanoparticle surface affinity as a predictor of nanoparticle fate, biouptake and trophic transfer. **M. Wiesner**, N. Geitner, A. Turner, N. O'Brian

8:30 160. Analytical and toxicological studies of emerging water disinfection byproducts halobenzoquinones. **X. Li**, W. Wang, J. Li, G. Huang, L. Blackstock-Jmaiff, I. Vander Meulen, J. Zhang

8:50 161. DLVO energy of interaction of macromolecule-coated silver nanoparticles. **T. Zhu**, D. Lawler

9:10 162. Waste acid as the energy source for desalination, softening and mechanical work. **A.K. Sengupta**, M. German

9:30 Intermission.

9:45 163. Phytoforensic methods from the air: Hyperspectral Image (HSI) comparison of plant responses to energetics exposure and drought stress. P. Manley, A. Ghulam, Z. Yin, M.Y. Berezin, C.E. Johnson, **J.G. Burken**

10:15 164. Differential response of *Arabidopsis thaliana* to Polychlorinated Biphenyls (PCBs) and their hydroxylated metabolites (OH-PCBs). **B. VanAken**, S. Subramanian, J.L. Schnoor

10:35 165. Photolysis of 2,4-dinitroanisole and its metabolites in *Arabidopsis* leaves. **H. Schroer**, C.L. Just

10:55 166. Innovations in passive sampling for bioavailable contaminants in sediments. **D.D. Reible**, X. Shen, M. Rakowska, S. Yan

San Francisco Marriott Marquis
Salons 12/13

Oxidation Processes, Nanoparticles & Membranes in Water & Wastewater Treatment: A Symposium in honor of Prof. Jun Ma

Advanced Oxidation Processes

Financially supported by Sciex China
D. D. Dionysiou, J. Fang, V. K. Sharma, *Organizers*
Y. Lee, W. Mitch, *Presiding*

8:00 Introductory Remarks.

8:05 167. Understanding chloramine-driven photochemistry for water reuse applications. **H. Liu**

8:30 168. Transformation of benzophenone-4 by chlorine, chloramine, and UV/chlorine. **J. Lu**, Y. Ji

8:50 169. Comparison of UV/free chlorine, UV/monochloramine, and UV/hydrogen peroxide advanced oxidation processes for contaminant degradation under scenarios relevant to potable reuse. **Y. Chuang**, W. Mitch

9:10 170. Investigation of the iopamidol degradation by UV/chlorine. **X. Kong**, J. Jiang, J. Ma, J. Fang

9:30 171. Reactive chlorine species significantly contributes to the degradation of trimethoprim in the UV/chlorine process. **Z. Wu**, K. Guo, C. Shang, J. Fang

9:50 Intermission.

10:05 172. Radical chemistry of the UV/chlorine process on the degradation of micropollutants in water treatment. **J. Fang**, K. Guo, Z. Wu, M. Pan, Z. Ren, C. Shang

10:30 173. Formation and conversion of sulfate radical and hydroxyl radical in UV/peroxymonosulfate system. **Y. Guan**, J. Ma

10:55 174. Degradation of chlorophenol by hydroxylamine and peroxymonosulfate. **L. Chen**, J. Zhang, P. Wang, Y. Huang, B. Wu

11:15 175. Kinetic study of hydroxyl and sulfate radical-mediated oxidation of pharmaceuticals in wastewater effluents. **L. Lushi**, B. Yao, S. Hou, J. Fang, s. yan, W. Song

11:35 176. Denitration and renitration processes in sulfate radical-based oxidation of nitroaromatic compounds. **Y. Ji**

San Francisco Marriott Marquis
Salons 14/15

Chemistry of Water Treatment from Sorption to Taste & Odor: Symposium honoring the Contributions of Mel Suffet/ Physical & Chemical Processes

Cosponsored by CHED
Financially supported by AEESP
J. A. Pedersen, F. L. Rosario, *Organizers*
M. J. McGuire, *Organizer, Presiding*

8:00 177. Efficient anaerobic membrane bioreactor treatment of municipal wastewater for energy and biosolids reduction. **P. McCarty**, J. Kim, C. Shin, J. Bae

8:25 178. Optimization of urban groundwater recharge systems that infiltrate combined stormwater and recycled water through surface spreading basins. J.L. Bradshaw, **R.G. Luthy**

8:50 179. Thermal air oxidation during biomass char formation and its effects on adsorption of organic compounds. **J.J. Pignatello**

9:15 180. Modeling organic contaminant sorption by biochar and activated carbon: Insights into concentration independent removal and isotherm curvature. **K. Shimabuku**, J. Paige, M. Luna Aguero, R.S. Summers

9:40 181. Advanced oxidation-driven transformation of Contaminant Candidate List (CCL_3) compounds in drinking water. **K. Linden**, U. von Gunten, H. Mestankova, A.M. Parker, S. Canonica, K. Schirmer

10:05 Intermission.

10:20 182. Toxicity profiles and metastable disinfection byproducts. **D.A. Reckhow**, Y. Yu

10:45 183. Regeneration of strong base ion exchange resin for hexavalent chromium removal. **J.A. Korak**, M. Arias-Paic

11:10 184. Options for hydrogen sulfide remediation in complex water matrices. **L.E. Schweitzer**

11:35 185. Water disinfection: From laboratory bench to full scale. Where we are and where we need to go. **C.N. Haas**, B. Farouk, W. Wei

Section D

San Francisco Marriott Marquis
Golden Gate C1

Understanding Dissolved Organic Matter Reactivity: Honoring George Aiken, the DOM Whisperer

Y. Chin, D. M. McKnight, *Organizers*
R. M. Cory, *Presiding*

8:00 Introductory Remarks.

8:10 186. What can simple measurements of DOM tell us when made in new ways?. **B. Bergamaschi**

8:45 187. Characterization of dissolved organic matter during municipal wastewater treatment. **C.K. Remucal**, A. Maizel, S. Berg

9:10 188. Characterization of fluorescent DOM in textile dyeing wastewater. **C. Cheng**, J. Wu, B. Liu, J. Tang, K.M. Saleem

9:35 189. Reactivity towards N-Nitrosamines of bulk and trace organics of wastewater origin. **P.K. Westerhoff**, J. Rice, D. Hanigan, A. Dotson

10:00 Intermission.

10:10 190. National Ecological Observatory Network (NEON): Dissolved organic matter quantity and quality. **K. Cawley**

10:45 191. Relationships between microbial activity, nutrients, and organic matter chemistry in urban-impacted rivers. **R.S. Gabor**, R. Smith, J.F. Shah, P.D. Brooks

11:10 192. Concentration-discharge relationships during the recession of an extreme flood in the Boulder Creek Watershed: Patterns of lithologic solute concentrations contrast with decreases in concentration and changes in chemical quality of dissolved organic material. **G. Rue**, D.M. McKnight, N. Rock, R.S. Gabor, M. Tfaily

11:35 193. Pb and Hg mobilization by dissolved organic matter in an ombrotrophic peatland. **J. Jeremiason**, S.D. Sebestyen, E. Baumann, E. Seelen, A. Agather

Section E

San Francisco Marriott Marquis
Sierra C

Chemistry & Application of Advanced Oxidation Processes for Water Detoxification, Treatment & Reuse

Financially supported by AEESP
D. D. Dionysiou, X. He, G. Li Puma, D. Minakata, X. Quan, *Organizers*
K. E. O'Shea, *Organizer, Presiding*
A. Pintar, *Presiding*

8:00 194. Improved electron-hole separation/migration in anatase TiO_2 nanotube/reduced graphene oxide composites for efficient photocatalytic degradation of bisphenol A. G. Zerjav, S. Arshad, P. Djinovic, I. Junkar, J. Kovac, J. Zavasnik, **A. Pintar**

8:35 195. Nitrogen doped porous carbon with peroxymonosulfate activation capability for effective water treatment. **G. Wang**, X. Quan, S. Chen, H. Yu

9:00 196. Post-illumination activity of SnO_2 nanoparticle-decorated Cu_2O nanocubes by H_2O_2 production in dark from photocatalytic memory. L. Liu, W. Sun, W. Yang, **Q. Li**, J. Shang

9:25 197. Photocatalytic removal of triclosan and triclocarban by zinc oxide and nitrogen-doped reduced graphene oxide. **M. Hwangbo**, T. Alivio, Y. Shi, S. Banerjee, K. Chu

9:50 Intermission.

10:05 198. Efficient contaminant degradation by hydrogen peroxide activated graphite-supported Fe-TAML catalyst. **Y. Chang**, C. Miller, D. Waite

10:30 199. Evaluations of biotrickling filters for the removal of mixtures of trihalomethanes under two environmental conditions. **B. Mezgebe**, G. Sorial, E. Sahle-Demessie

10:55 200. Reactivity of trichloramine (NCl_3) with amino acids prior to advanced oxidation process treatment. **L. Watts**, J. Gleason, S.P. Mezyk, K.P. Ishida

11:20 201. Photocatalytic activity enhancement of ZnO thin films under visible light using Bi_2O_3 dots. **J.C. Medina**, N.S. Portillo-Veléz, M. Bizarro, A. Hernández-Gordillo , S.E. Rodil

Section F

San Francisco Marriott Marquis
Sierra A

Contaminants of Emerging Concern in Natural & Engineered Systems

Cosponsored by AGRO, ANYL and CEI
L. M. Blaney, A. J. Hernandez, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 202. Role of Mn-oxide controlling the pathways of glyphosate degradation. **H. Li**, D. Jaisi

8:55 203. Kinetic study of thermal monochloramine reactions with nitrogenous compounds. **J. Gleason**, S.P. Mezyk, K.P. Ishida

9:15 204. Impact of sulfate ions on electrochemical oxidation of recalcitrant organic compounds using boron-doped diamond anodes. **A. FARHAT**

9:35 205. Effect of chlorination and chloramination on the removal of micropollutants in wastewater treatment plants. N. Bilgin Saritas, E. Aydin, **E. Pehlivanoglu Mantas**

9:55 Intermission.

10:15 206. Investigation of radical chlorine species reactions in advanced oxidation processes. S.P. Mezyk, **J. Castillo**, J. Gleason, K.P. Ishida

10:35 207. Coupled titanium dioxide photocatalysis and filtration to mitigate organic matter and estrogens. C. Johnson, P.J. McNamara, **B. Mayer**

10:55 208. Kinetic study of organophosphate flame retardant reactions with hydroxyl radicals. **S.P. Mezyk**

11:15 209. Regulated and unregulated halogenated disinfection byproduct formation from chlorination of high salinity groundwaters. **A. Szczuka**, W. Mitch

11:35 Concluding Remarks.

Section G

San Francisco Marriott Marquis
Sierra B

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

Cosponsored by ANYL
T. Anumol, R. Marfil-Vega, T. M. Young, *Organizers, Presiding*

8:00 210. Characterization of nitro-substituted polycyclic aromatic hydrocarbons from standard diesel particulate matter using liquid chromatography orbitrap mass spectrometry. **M.S. Bataineh**

8:25 211. Identifying trace environmental contaminants in CO_2 capture solvents from coal-fired power plants using high resolution Time-of-Flight Mass Spectrometry (TOF-MS). **J.G. Thompson**, S. Bhatnagar, K. Liu

8:50 212. Utilization of soft and hard ionization techniques with 2-dimensional gas chromatography and high-resolution mass spectrometry for unknown identification in hydraulic fracturing fluid, flowback and produced water samples. **J. Rosenblum**, K. Linden, A.J. Dane, E. Thurman, I. Ferrer

9:15 213. Nontarget analysis of hydraulic fracturing flowback waters throughout the fracturing process using LC-QToF-MS. **K. Oetjen**, P.C. Winkler, T.Y. Cath, J. Blotevogel, T. Borch, R. Young, C.P. Higgins

9:40 214. Identifying endocrine disrupting compounds in treated sewage sludge using non-targeted LC/MS/MS and CALUX cell-based bioassays. **G. Pecora**, T.M. Young, T. Anumol

10:05 Intermission.

10:20 215. Exploring the great unknown: Role of NTA in ensuring water safety. **S.A. Snyder**

10:45 216. Resolving masses and bottlenecks for long-term LC-MS monitoring with the enviMass workflow version 3.2. **M.J. Loos**, S. Ruppe, J. Mazacek, H. Singer

11:10 217. Suspect and non-target screening of organic contaminants In stormwater runoff and exposed fish. **E.P. Kolodziej**, B. Du, J. Lofton, J. McIntyre, N. Scholz, J. Davis, J.E. Baker

11:35 Discussion.

11:55 Concluding Remarks.

Section H

San Francisco Marriott Marquis
Sierra J

Sulfidation of Metal-Based Engineered & Natural Nanomaterials: Implications for Their Fate & Effects in the Environment

Y. Bi, P. K. Westerhoff, *Organizers*
D. Fan, P. G. Tratnyek, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 218. Rates, mechanisms, and impacts of sulfidation of metal and metal oxide nanoparticles on their fate and effects in wastewater treatment plants and freshwater wetland mesocosms. **G. Lowry**, J.P. Stegemeier

8:35 219. Formation and oxidative stability of metal sulfide nanoparticles and 2D nanosheets. Z. Wang, Y. Zhang, E. Gray, A. Peterson, **R. Hurt**

9:05 220. Dissolution behavior of silver nanoparticles and formation of secondary sulfidated silver nanoparticles in municipal wastewater by single particle ICP-MS. **S. Ghoshal**, M.M. Azodi

9:25 221. Silver nanoparticles fate at the solution/biofilm/mineral interface. **M. Desmau**, G. Alexandre, C. Levard, G. Ona-Nguema, V. Vidal, M. Auffan, P.J. Eng, M.F. Benedetti

9:45 222. Electroanalytical methods in characterization of metal sulphide nanoparticles in water environment. M. Marguš, I. Coha, M. Lovrić, **I. Ciglenecki**

10:05 Intermission.

10:20 223. Spectroscopic investigation of the mechanism and kinetics of the sulfidation of Fe^{III}-(oxyhydr)oxide nanoparticles. **N. Kumar**, V. Noël, J. Pacheco, K. Maher, G.E. Brown

10:50 224. Oxidation of synthetic iron(II) monosulfide at circumneutral pH when exposed to aerobic conditions: Fe-mineral transformations and oxidizing capacity of the system. **C. Miller**, R. Collins, D. Waite

11:10 225. Reductive immobilization of hexavalent chromium by polysulfide-reduced iron (hydro)oxides. **M. Shi**, J. Li, J.S. Zheng

11:30 226. Trichloroethene dechlorination by mechanochemically sulfidated zero valent iron: Reaction pathway, kinetics and electron efficiency. Y. Gu, **F. He**

San Francisco Marriott Marquis
Sierra K

Advances & Applications in Water Sensing Technologies for Drinking Water, Re-Use, Agri-Tech & Research

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

8:00 227. Advances in sensing technologies for water monitoring. **M.E. Romero-Gonzalez**

8:20 228. Fluorescence spectroscopy: A tool to monitor presence of contaminants in water reuse systems. **J. Wasswa**, N. Mladenov

8:40 229. Highly stable SERS nanoprobes for pH detection in confined water environment. **H. Wei**, M. Willner, L.C. Marr, P.J. Vikesland

9:00 230. Ultra-trace electrochemical sensing of heavy metals using nanostructured bismuth doped carbon complex: Real time on site environmental application. **K.M. Zeinu**

9:20 231. Optimization of coagulation process for the removal of Natural Organic Matter (NOM) characterized by Excitation-Emission Fluorescence Matrix (EEM) via 2-level Full Factorial Design (FFD) methodology. **R.C. Go**, C. Kan, M.G. de Luna

9:40 232. Validation and optimization of an alternative method for NDMA analysis requiring less time, cost, and sample volume. **S. Roback**, M.H. Plumlee, H. Kodamatani, T. Fujioka

10:00 Intermission.

10:15 233. Development of NanoAptamer assay and portable analyzer for the detection of bisphenol A. **H. Lim**, E. Lee, S. Lee, B. Chua, A. Son

10:35 234. Conjugated molecule based resistive sensor for microbial detection in water with *E. coli* as a case study. **A.N. Mallya**, D.C. Ramamurthy

10:55 235. Molecular imprinted composite sol-gel layers for conductometric sensing of environmental toxins. **A. Mujahid**, **T. Hussain**, H. Munir

11:15 236. Fluorometer using the pigment phycocyanin as an early warning system for the appearance of difficult to treat cyanobacterial T&O compounds and cyanotoxins in comparison to UV-EEM online parameters as amino acids. **C. Moldaenke**, H. Dahlhaus, W. Schmidt, M. Wagner, S. Kueppers, **P.L. Schorr**

11:35 237. Withdrawn

Mineral-Water Interface Chemistry/A Tribute to Glenn Waychunas
Sponsored by GEOC, Cosponsored by COLL and ENVR

Science for a Sustainable Energy Future/Energy Storage
Sponsored by PRES, Cosponsored by BIOL, BIOT, BMGT, CARB, CATL, CEI, CELL, COLL, ENFL, ENVR, GEOC, I&EC, MEDI, MPPG‡, ORGN and PROF

LGBT Graduate & Postdoctoral Student Chemistry Research Symposium/Frontiers in Analytical & Physical Chemistry: From Atmospheric to Atomic Discoveries
Sponsored by PROF, Cosponsored by ANYL‡, BIOL‡, CHED, CMA, COLL, COMP, CWD, ENVR, INOR‡, MEDI, MPPG, ORGN, PHYS, PMSE‡, POLY, PRES‡ and WCC

Teaching, Researching & Community Building in the Global Chemical Enterprise
Sponsored by IAC, Cosponsored by BMGT, ENVR, I&EC, PRES and PROF

Advances in Treatment Processes for Metals & Metalloids
Sponsored by GEOC, Cosponsored by ENVR

Chemistry & Physical Chemistry of Thermal Processes for the Circular Carbon Economy
Sponsored by CELL, Cosponsored by ENFL and ENVR

Elucidation of Mechanisms & Kinetics on Surfaces

Surface Science
Sponsored by CATL, Cosponsored by COLL and ENVR

MONDAY AFTERNOON

Section A

San Francisco Marriott Marquis
Salons 10/11

Tribute to Jerry Schnoor

J. G. Burken, D. M. Cwiertny, C. L. Just, *Organizers, Presiding*

1:00 238. Withdrawn

1:30 239. Phytoforensic methods to affirm impacts of endophytoc degradation in field phytoremediation process. S.L. Doty, M.J. Blaylock, J. Freeman, C. Cohu, **J.G. Burken**, A. Simon, J. Isebrands

1:55 240. Health risk for residents via inhalation exposure to particle-bound hydrophobic organic compounds and heavy metals in a typical e-waste recycling zone. P. Luo, C. Huang, L. Bao, S. Li, **E. Zeng**

2:20 241. Withdrawn

2:45 Intermission.

3:00 242. Trees as indicators of vapor intrusion risk. **J.L. Wilson**, M. Limmer, V. Samaranayake, J. Schumacher, J.G. Burken

3:25 243. Use of environmental fate models in U.S. EPA TSCA new chemicals assessments. **M. Card**, E.L. Libelo, K. Mayo-Bean, D. Lynch

3:50 244. Arsenic in geogenic soil from Hong Kong: Speciation, mobilization, and bioaccessibility. J. Cui, Y. Zhao, J. Li, D. Tsang, C. Poon, T. Chan, W. Wang, **X. Li**

4:15 245. Modeling ion exchange equilibria in cross-linked cationic surfactant nanoparticle solutions. **M. Chen**, C.T. Jafvert

4:40 Panel Discussion.

San Francisco Marriott Marquis
Salons 12/13

Oxidation Processes, Nanoparticles & Membranes in Water & Wastewater Treatment: A Symposium in honor of Prof. Jun Ma/Heterogeneous Catalytic Oxidation Processes in Water & Wastewater Treatment

Financially supported by Sciex China
J. Fang, V. K. Sharma, *Organizers*
D. D. Dionysiou, *Organizer, Presiding*
T. An, *Presiding*

1:00 Introductory remarks.

1:05 246. Three-dimensional MnO_2 porous hollow microspheres for enhanced activity as ozonation catalysts in water treatment. **C. He**, Y. Huang, w. xu, x. tan

1:30 247. Enhanced degradation of organic micropollutants via heterogeneous photo-Fenton reactions on α-FeOOH. **W. Zhang**, G. Zhang, P. Wang

1:55 248. Comparison of catalytic ozonation by $LaFeO_3$ and $LaCoO_3$: Benzotriazole degradation, elimination of bromate andreaction mechanism. **Y. Zhang**, Y. Xia, Q. Li, b. xu, F. Qi

2:15 249. Visible light activated nano-sized bismuth titanates for photocatalytic degradation of bisphenol A. **M.K. Patil**, B. Ren, M. Nadagouda, D.D. Dionysiou

2:35 Intermission.

2:50 250. Enhanced visible-light-responsive photocatalytic degradation of emerging pollutants by $ZnFe_2O_4/TiO_2$ heterostructures. **R. Doong**

3:15 251. $LaFeO_3$ perovskite as a nanocatalyst for diclofenac degradation by heterogeneous activation of oxone process: Efficiency and mechanism. **Y. Rao**

3:40 252. Efficient degradation of carbamazepine in aqueous solution by bismuth oxybromide-activated peroxide oxidation. X. Liu, **J. Li**, T. Zhang

4:00 253. BiOI microspheres for pre-treatment of winery wastewater. **A. Mera**

4:20 254. Degradation of dimethyl phthalate by peroxomonosulfate activated with Zn-NiOx. **G. Zhang**, J. Zhang, **P. Zhou**, Y. Zhang

San Francisco Marriott Marquis
Salons 14/15

Chemistry of Water Treatment from Sorption to Taste & Odor: Symposium honoring the Contributions of Mel Suffet/ Characterization of Natural Organic Matter

Cosponsored by CHED
Financially supported by AEESP
M. J. McGuire, F. L. Rosario, *Organizers*
J. A. Pedersen, *Organizer, Presiding*

1:00 255. Abbreviated review of photochemistry of natural organic matter then (1989) and now (2017). **W.J. Cooper**, B.A. Cottrell

1:25 256. Environmental photochemistry of organic matter. **F.L. Rosario**

1:50 257. Assessing dissolved organic matter photo-reactivity in a subtropical wetland ecosystem: Correlations between optical properties, antioxidant capacity, and the photochemical formation of reactive intermediates. **G. McKay**, W. Huang, C. Romera-Castillo, F.L. Rosario, R. Jaffe

2:15 258. Post treatment challenges at advanced potable reuse plants: Corrosion, metals mobilization and the reappearance of disinfection byproducts. **S. Roback**, K.P. Ishida, M.H. Plumlee, J. Dadakis, W. Mitch, S.E. Fendorf, D. Hokanson

2:40 Intermission.

2:55 259. Isolation and characterization of natural organic matter from Pony Lake, Antarctica. **E.M. Perdue**, S. Driver

3:20 260. NOM: From unfiltered supplies to water boil orders. **W.C. Becker**

3:45 261. Impact of pre-oxidation on the removal of regulated and emerging disinfection byproducts by activated carbon. **E.M. Verdugo**, M. Gifford, S.D. Richardson, R.S. Summers, B.D. Stanford, E. Dickenson

4:10 262. Characterization and monitoring of dissolved organic matter at drinking water treatment plants: Methods and application. **M. Philibert**, C. Cazin, F. Zraick

Section D

San Francisco Marriott Marquis
Golden Gate C1

Understanding Dissolved Organic Matter Reactivity: Honoring George Aiken, the DOM Whisperer

D. M. McKnight, *Organizer*
Y. Chin, *Organizer, Presiding*

1:00 263. Watershed tea in arctic lakes: Comparing carbon chemistry and cycling in red zinger vs. chamomile waters. **R.M. Cory**, C.P. Ward, J. Bowen, A. Trusiak, L. Treibergs

1:35 264. Permafrost dissolved organic matter leachability and reactivity in the presence of various solutions from an Alaskan Sub-Arctic watershed. **K.R. Gagne**, J.J. Guerard

2:00 265. Relating the reactivity of triplet excited states of dissolved natural organic matter to organic matter quality and land cover in mixed-use watersheds. A.J. McCabe, **W. Arnold**

2:25 266. Cross-scale advances in CDOM biogeochemistry: From molecular to ecoregional perspectives. **P.L. Brezonik**, C.G. Griffin, J.C. Finlay, L.G. Olmanson, R.M. Hozalski, B.J. Allen, W. Arnold, M.E. Bauer

2:50 Intermission.

3:00 267. From the Antarctic to the Arctic: An expeditionary approach to the environmental chemistry and reactivity of dissolved organic matter. **D.M. McKnight**

3:35 268. Location matters: Groundwater flow direction (recharge vs. discharge) controls DOM and DIN gradients and cycling in the bed sediments of a groundwater flow-through lake. **R.L. Smith**, D.B. Kent, D.R. LeBlanc, J. Bohlke, D.A. Repert, D. Stoliker, R. Hull, T.D. McCobb, J. Underwood, C. Conaway, A.P. Reed

4:00 269. Evidence for conservative transport of dissolved organic carbon in major river basins in Maine. **T. Huntington**, C. Roesler, G. Aiken

4:25 270. Is disturbance mobilizing or creating the aged carbon exported in streams?. **R.T. Barnes**, D. Butman, P. Raymond, H. Wilson

4:50 Concluding Remarks.

Section E

San Francisco Marriott Marquis
Sierra C

Chemistry & Application of Advanced Oxidation Processes for Water Detoxification, Treatment & Reuse

Financially supported by AEESP
D. D. Dionysiou, G. Li Puma, D. Minakata, K. E. O'Shea, X. Quan, *Organizers*
X. He, *Organizer, Presiding*
T. An, R. Pupo Nogueira, *Presiding*

1:00 271. Application of photo-fenton process for the degradation of antibiotics and disinfection of anaerobic pre-treatmed hospital effluent. J.A. Perini, A.L. Tonetti, **R. Pupo Nogueira**

1:35 272. Analogies and differences between bacterial and viral inactivation during photo-Fenton treatment of wastewater. **S. Giannakis**, C. Pulgarin

2:00 273. Effect of porous structure on the heterogeneous Fenton oxidation regeneration of magnetic carbon. **Y. Xiao**, J.M. Hill

2:25 274. Coupling photocatalysts and ferrate oxidation: Towards an innovative solution for wastewater treatment. **T. PIGOT**

2:50 Intermission.

3:05 275. Photochemical and photocatalytic transformation mechanism and risk assessment of typical synthetic musks in water: Theoretical study. g. yanpeng, G. Li, **T. An**

3:40 276. Theoretical study of the reaction of OH radicals with benzoic acid in the gas and aqueous phase. **C. Wu**, A. De Visscher, I. Gates

4:05 277. Activation of Fe-tpena by hydrogen peroxide to form an unselective strong oxidant at circumneutral pH. **C. Miller**, Y. Chang, D.P. de Sousa, C.J. McKenzie, D. Waite

4:30 278. Degradation mechanisms of algal odorants of β-cyclocitral and β-ionone during UV photolysis and UV/chlorination reactions. T. Kim, T. Kim, M. Kim, **K. Zoh**

Section F

San Francisco Marriott Marquis
Sierra A

Contaminants of Emerging Concern in Natural & Engineered Systems

Cosponsored by AGRO, ANYL and CEI
L. M. Blaney, A. J. Hernandez, *Organizers, Presiding*

1:00 Introductory Remarks.

1:05 279. Novel method for the quantification of the total *N*-nitrosamines concentration (TONO) in water. **f. breider**, U. von Gunten

1:25 280. Formation of vegetable-derived disinfection byproducts. **Y. Komaki**, J. Choe , W. Mitch

1:45 281. NDMA precursor transformation and identification during reverse osmosis and UV/peroxide water treatment for indirect potable reuse. **D. Hanigan**, I. Ferrer, E. Thurman, S. Roback, K.P. Ishida, M.H. Plumlee, P.K. Westerhoff

2:05 282. Study of N-Nitrosodimethhyleamine (NDMA) formation in the untreated surface water using preformed chloramines. **S. Prabakar**, F. Samadi, A. Kruzic

2:25 Intermission.

2:45 283. Fate of micropollutants in high-capacity wastewater treatment plants in Istanbul metropolitan area. S.C. Tuzun, **E. Aydin**, E. Pehlivanoglu Mantas

3:05 284. Biotransformation of trace oganic compounds in aerobic, anaerobic and anoxic conditions. **N. LM**, B. Vanderford, E. Dickenson, D. McAvoy

3:25 285. Prevalence and elimination of extracellular antibiotic resistance genes in five full-scale membrane reactors. **S. Zhou**, Y. Wang

3:45 286. Roles played by ammonia oxidizers of a nitrifying activated sludge community in micropollutant biotransformation. **Y. Men**, P. Han, S. Archermann, Y. Yu, D.E. Helbling, D.R. Johnson, M. Wagner, K. Fenner

4:05 287. Inhibition of the cometabolic transformation of 1,4-dioxane by *Rhodococcus rhodochrous* 21198 grown on isobutane. **M.F. Azizian**

4:25 Concluding Remarks.

Section G

San Francisco Marriott Marquis
Sierra B

Environmental Chemistry: Undergraduate & Graduate Classroom, Laboratory & Local Community Learning Experiences

Cosponsored by ANYL and CHED
Financially supported by AEESP
M. A. Benvenuto, E. Roberts-Kirchhoff, *Organizers, Presiding*

1:00 Introductory Remarks.

1:05 288. First-year, course-based chemistry research experience: Development and implementation of a research methods course for chemistry and biochemistry majors. **K.R. Evans**, M.J. Mio, E. Roberts-Kirchhoff

1:25 289. First-year, course-based chemistry research experience: Implementation of a research-based chemistry laboratory course for chemistry and biochemistry students as part of a research coordination network. **K.C. Lanigan**, A. Matti, D. Tomco, K.R. Evans

1:45 290. Introductory campus and distance-delivered course to engage first year undergraduates in envrionmental chemistry. **J.J. Guerard**, S.M. Hayes

2:05 291. Community based undergraduate research: Measurement of hazardous air pollutants with regard to environmental justice. **K. Zimmermann**, L. Young

2:25 292. Environmental toxicology experiments in the general chemistry laboratory curriculumat UC-Berkeley. **M.C. Douskey**, A.M. Baranger, M. Robak, L.B. Armstrong, G. Kerstiens, C.W. Tam, P. Pande

2:45 293. Incorporating environmental chemistry concepts into an analytical chemistry lecture/laboratory course. **D.E. Latch**

3:05 Intermission.

3:10 294. Can field sampling still be educationally valuable without obvious trends in the data?. **S.J. Bachofer**

3:30 295. Analysis of heavy metals in water using cloud point extraction and flame atomic absorption spectrometry. **A. Rihana-Abdallah**, **Z. Li**

3:50 296. Semi-synthetic microcystins and their role in public health. **J. Westrick**, J. Birbeck, G. O'Neill

4:10 297. Selenium removal from power plant waters using layered double hydroxide materials. **M. Li**, L. Farmen, C.K. Chan

4:25 298. Real-time electronic sensor based on black phosphorus/Au NPs/DTT hybrid structure for arsenic ion detection. **G. Zhou**, J. Chen

4:40 Concluding Remarks.

Section H

San Francisco Marriott Marquis
Sierra J

Sulfidation of Metal-Based Engineered & Natural Nanomaterials: Implications for Their Fate & Effects in the Environment

P. G. Tratnyek, P. K. Westerhoff, *Organizers*
Y. Bi, D. Fan, *Organizers, Presiding*

1:00 Introductory Remarks.

1:05 299. Reactivity of nanoparticulate iron sulfide (mackinawite). **K.F. Hayes**

1:35 300. Reactivity and bioavailability of mercury sorbed to or coprecipitated with iron sulfides. N. Rivera, **H. Hsu-Kim**

2:05 301. Technetium stabilization in low solubility sulfide phases. M. Asmussen, **C. Pearce**, J. Neeway, A. Lawter, R. Clayton, N.P. Qafoku

2:25 302. Environmental application and implication of sulfide modified nanoscale zerovalent iron. **Y. Su**, A.A. Keller, X. Zhou, Y. Zhang

2:45 Intermission.

3:00 303. Effects of sulfidation on the reactivity of iron and iron oxides with contaminants. **P.G. Tratnyek**, D. Fan, Y. Lan, A. Agrawal

3:30 304. Understanding the effect of sulfidation on the reactivity of zero-valent iron materials. **W. Yan**, Y. Han

3:50 305. Degradation of chlorinated hydrocarbons by nanoscale zero-valent Iron treated with bisulfide and stabilized with carboxymethylcellulose. **A. Agrawal**

4:10 306. From the lab to the field: Development of sulfidized nanoiron for 1,2-dichloroethane degradation. **D.M. O'Carroll**, A. Nunez Garcia, C. de Boer, C. Kocur, H. Boparai, A. Chowdhury

4:40 307. Sulfidized nZVI particles for groundwater treatment: Synthesis, complex characterization and laboratory-scale testing. **J. Filip**, J. Slunský, J. Nosek, J. Semerád, J. Kašlík, J. Oborná, J. Bachorik, I. Medrik

San Francisco Marriott Marquis
Sierra K

Nanomaterials in Consumer Products: Formulation, Characterization & Applications Across the Product Life Cycle

S. Hussain, A. J. Kennedy, *Organizers*
C. Sayes, *Organizer, Presiding*

1:00 Introductory Remarks.

1:10 308. Identification and quantification of ENPs in cosmetics, food and the environment: Critical assessment of FFF-ICPMS and single-particle (multi-element) ICPMS. **F. Von Der Kammer**, A. Praetorius, M. Velimirovic, A. Gundlach-Graham, D. Günther, T. Hofmann

1:40 309. Development and application of methods that reliably measure graphene oxide release from aged polymer nanocomposites. **D.G. Goodwin**, D. Jacobs, L. Sung

2:00 310. Aging of wood stains containing CeO_2 nanoparticles as UV filters. **L. Scifo**, **A. Masion**, P. Chaurand, D. Borschneck, V. Vidal, C. Levard, J. Rose

2:20 311. TiO_2 nanoparticles in sunscreen lotion: Asymmetric flow field-flow fractionation hyphenated to ICPMS for their characterization. **M. Velimirovic**, S. Wagner, M. Gräf, M. Ehler, F. Abdolahpur Monikh Fazel, F. Von Der Kammer, T. Hofmann

2:40 Intermission.

2:55 312. Environmentally relevant physicochemical transformations of silver nanoparticles used in consumer products. **S.R. Al-Abed**, A. Gitipour, I. Radwan

3:25 313. Release and transformation of ZnO nanoparticles from coated surfaces during simulated dermal contact. **J.G. Clar**, E. Baumann, A. Remsen, T. Treye, t. luxton

3:45 314. Determination of anions on the surface of Printed Circuit Boards (PCBs) by IPC-TM- 650 method 2.3.28 using HPIC. **B. Huang**, J. Rohrer

4:05 315. Influence of wear and tear on the release of silver nanoparticles from sports socks. V. Gagnon, M. Button, D. O'Carroll, **K. Weber**

4:25 316. *In vitro* characterization of Reactive Oxygen Species (ROS)-generating capacity of commercially available MesoSilver™ used as dietary supplement. **H. Rong**, S. Garg, T. Waite

4:45 Concluding Remarks.

Science for a Sustainable Energy Future/Chemical & Biological Conversions Approaches to Energy Conversion
Sponsored by PRES, Cosponsored by BIOL, BIOT, BMGT, CARB, CATL, CEI, CELL, COLL, ENVR, GEOC, I&EC, MEDI, MPPG‡, ORGN and PROF

Teaching, Researching & Community Building in the Global Chemical Enterprise
Sponsored by IAC, Cosponsored by BMGT, ENVR, I&EC, PRES and PROF

LGBT Graduate & Postdoctoral Student Chemistry Research Symposium/Advances in Medicinal & Biological Chemistry: From Therapeutics to Education
Sponsored by PROF, Cosponsored by ANYL‡, BIOL‡, CHED, CMA, COLL, COMP, CWD, ENVR, INOR‡, MEDI, MPPG, ORGN, PHYS, PMSE‡, POLY, PRES‡ and WCC

Elucidation of Mechanisms & Kinetics on Surfaces/Mechanisms
Sponsored by CATL, Cosponsored by COLL and ENVR

Undergraduate Research Posters

Environmental Chemistry
Sponsored by CHED, Cosponsored by ENVR and SOCED

MONDAY EVENING

Section A

Moscone Center
Hall D

Sci-Mix

S. O. Obare, *Organizer*

8:00 - 10:00

See Previous Listings: **632**, **633**, **634**, **640**, **641**, **645**, **647**, **649**, **650**, **654**, **659**, **660**, **661**, **662**, **663**, **664**, **665**, **666**, **669**, **670**, **675**, **676**, **677**, **683**, **687**, **689**, **690**, **710**, **713**, **715**, **717**, **720**, **725**, **735**, **737**, **738**, **739**, **740**, **746**, **747**, **749**, **752**, **755**, **758**, **761**, **762**, **763**, **764**, **770**, **771**, **772**, **774**, **775**, **776**, **778**, **779**, **780**, **785**, **789**, **790**, **792**, **794**, **799**, **800**, **801**, **802**, **803**, **804**, **805**, **812**, **814**, **815**, **816**, **817**, **818**, **820**, **821**, **824**, **825**, **829**, **862**, **864**, **865**, **870**, **878**, **879**, **880**, **881**, **882**. See Subsequent Listings.

TUESDAY MORNING

Section A

San Francisco Marriott Marquis
Salons 10/11

ACS Award for Creative Advances in Environmental Science & Technology: Symposium in honor of Dr. Douglas R. Worsnop

Financially supported by ES&T Journal, ES&T Letters
M. Canagaratna, S. O. Obare, *Organizers*
J. L. Jimenez, *Organizer, Presiding*

8:00 Introductory Remarks.

8:10 317. How clusters form atmospheric aerosol particles: Nucleation in the CLOUD experiment at CERN. **U. Baltensperger**

8:35 318. Probing the formation, behavior, and evolution of organic particulate matter through high-resolution mass spectrometry. **N.M. Donahue**

9:00 319. From aerosol mass spectrometry to global models of aerosol formation. **K. Carslaw**

9:25 320. Highly oxidized molecules in atmospheric chemistry. **T.F. Mentel**

9:50 Intermission.

10:10 321. Why molecular structure matters in the chemistry of atmospheric organic aerosol formation. **P. Ziemann**

10:35 322. Bringing on-line aerosol and gas measurements close to home. **J.P. Abbatt**

11:00 323. Molecular description of SOA formation: From new particle growth rates to aqueous organic chemistry. **J. Thornton**

11:20 324. Chemical changes arising from the heterogeneous oxidation of atmospheric organic aerosol. **J.H. Kroll**

11:40 325. Atmospheric chemistry and role of isoprene hydroxy hydroperoxides: Prototype preindustrial VOC oxidation products. **F. Keutsch**

Section B

San Francisco Marriott Marquis
Salons 12/13

Oxidation Processes, Nanoparticles & Membranes in Water & Wastewater Treatment: A Symposium in honor of Prof. Jun Ma/Disinfection/Oxidation Byproducts Formation & Control

Financially supported by Sciex China
D. D. Dionysiou, V. K. Sharma, *Organizers*
J. Fang, *Organizer, Presiding*
S. D. Richardson, *Presiding*

8:00 Introductory remarks.

8:05 326. Relative effectiveness of ferrate, chlorine dioxide, zone and peroxone for control of disinfection byproduct precursors. **D.A. Reckhow**, X. Ma, J. Bliss, J. Gao

8:30 327. Impacts of hydraulic fracturing on drinking water: High resolution-MS uncovers new chemical by-products of concern. **S.D. Richardson**, H.K. Liberatore, M.J. Plewa, L.H. Cizmas, J.M. Vanbriesen

8:55 328. Titanium dioxide and zinc oxide nanoparticles: Disinfection byproduct formation in synthetic freshwater. **L.H. Cizmas**, C. Gray, V.K. Sharma, T. McDonald

9:15 329. Ozone microbubbles: Mass transfer and formation of disinfection by-products. **P. Li**, Y. Yang, C. Wu, Y. Wang

9:35 330. Determination of trace concentrations of oxyhalides and bromide in municipal and bottled waters using a compact ion chromatography system. **J. Hu**, J. Rohrer

9:55 Intermission.

10:10 331. Disinfection byproducts as challenge targets for AOP treatment during potable reuse. **W. Mitch**, Y. Chuang

10:35 332. NDMA formation during chlorination and ozonation of N, N-dimethyl hydrazine compounds: Reaction kinetics, mechanisms, and implications for NDMA formation control. **Y. Lee**

11:00 333. UV/PMS disinfection: An efficient method for inactivation of four kinds of dominant fungal spores in groundwater. **G. Wen**, X. Xu, T. Huang

11:20 334. Enhanced bactericidal effect towards *E. coli* and removal of 1,1,1-trichloroethane by reduced graphene oxide supported FeCu. **A. Ahmad**, **X. Guo**, Y. Xu

Section C

San Francisco Marriott Marquis
Salons 14/15

Chemistry of Water Treatment from Sorption to Taste & Odor: Symposium honoring the Contributions of Mel Suffet/ Environmental Analytical Chemistry

Cosponsored by CHED
Financially supported by AEESP
M. J. McGuire, J. A. Pedersen, *Organizers*
F. L. Rosario, *Organizer, Presiding*

8:00 335. Interaction of cationic pharmaceuticals with dissolved natural organic matter. **J.A. Pedersen**, I. Christl, B. Liu

8:25 336. Development, validation, and implications of a broad spectrum screenng method for Pharmaceuticals and Personal Care Products (PPCPs) in wastewate effluents, source waters, and finished drinking waters. **A.D. Eaton**, A. Haghani

8:50 337. Things you can't do with a GC-M. **S.A. Snyder**

9:15 338. Using dark matter accurate mass to discover NDMA precursors in wastewater. **E.M. Thurman**, I. Ferrer, D. Hanigan, P.K. Westerhoff

9:40 339. Polarity rapid assessment method: A promising tool for characterizing NDMA precursors in water. **C. Chen**, X. Liao, S. Li, E. Bei, J. Wang, X. Zhang

10:05 Intermission.

10:20 340. Analysis of water quality: A journey beyond the Abbott's building. **C.D. Hertz**

10:45 341. Analytical chemistry and stormwater modeling. **M.K. Stenstrom**

11:10 342. Understanding how hydrophobic organic pollutants distribute in urban runoff by using perylene as a probe. **M. Hsu**, I.H. Suffet

11:35 343. Disparate antibiotic resistance gene levels revealed across four major cities in California: A survey in drinking water, air, and soil at 24 public parks. **C.M. Echeverria Palencia**, J.A. Jay, V. Thulsiraj, N.K. Tran, C.A. Ericksen, I. Melendez, M.G. Sanchez, D. Walpert, T. Yuan, E. Ficara, N. Senthilkumar, M. Hernandez-Cira, D. Gamboa, H. Haro, S. Paulson, Y. Zhu

Section D

San Francisco Marriott Marquis
Golden Gate C1

Understanding Dissolved Organic Matter Reactivity: Honoring George Aiken, the DOM Whisperer

Y. Chin, D. M. McKnight, *Organizers*
P. Maurice, *Presiding*

8:00 Introductory Remarks.

8:10 344. Nanoscale metal-organic matter interactions. **H. Hsu-Kim**, C. Jiang, U. Ndu

8:45 345. Radium and thallium binding to dissolved organic matter. L. Martin, C. Simonucci, E. Viollier, **M.F. Benedetti**

9:10 346. Complexation with dissolved organic matter affects aqueous uranium speciation and adsorption. **K.M. Campbell**, C. Fuller, J. Schaper, G. Aiken

9:35 347. Influence of dissolved organic matter on the stability of trace level hexavalent chromium in surface and ground water samples. **V.I. Furdui**, S. Maedler

10:00 Intermission.

10:10 348. Can we predict metal binding by DOM?. **E. Tipping**, S. Lofts, A. Stockdale

10:45 349. Detection of aqueous complexes of arsenic and iron with dissolved organic matter. H.V. Kulkarni, **N. Mladenov**, O. Prakash, A. Herrea

11:10 350. Hg-DOM interactions during removal of Hg from natural and polluted ecosystems. **F. Diaz**, L.E. Katz, D. Lawler

11:35 351. Photoreduction of Hg(II) and photodemethylation of methylmercury: The key role of thiol sites on dissolved organic matter. **D.E. Latch**, J.D. Jeremiason, G. Aiken, J.C. Portner, A.J. Hiranaka, M.T. Dvorak, K.T. Tran

Section E

San Francisco Marriott Marquis
Sierra C

Chemistry & Application of Advanced Oxidation Processes for Water Detoxification, Treatment & Reuse

Financially supported by AEESP
D. D. Dionysiou, X. He, G. Li Puma, D. Minakata, X. Quan, *Organizers*
K. E. O'Shea, *Organizer, Presiding*
A. Sanroman, M. Valnice Boldrin Zanoni, *Presiding*

8:00 352. Withdrawn

8:35 353. Photoelectrochemical cell for simultaneous electricity generation and heavy metals recovery from wastewater. **D. Wang**, G. Li Puma

9:00 354. Enhanced photoelectrocatalytic degradation of organic pollutants in artificial photosynthesis systems. **L. Zeng**, **X. Li**

9:25 355. Enhanced filtration performance of carbon nanotube-based membrane by electrochemical assistance. **F. Xinfei**, X. Quan

9:50 Intermission.

10:05 356. Inactivation and removal of C*andida parapsilosis* in hemodialysis water by photoelectrocatalysis using W/WO_3 electrodes. **m. boldrin zanoni**, B.A. SOUZA

10:40 357. Electrochemically enhanced microfiltration for water detoxification and fouling control in advanced wastewater treatment. **K. Choo**, H. Park, H. Park

11:05 358. Removal of pharmaceuticals from different waters by conventional ozonation and an electro-peroxone process. **H. Wang**, W. Yao, G. Yu, Y. Wang

11:30 359. Development of a novel high throughput Ti_4O_7-based reactive electrochemical filter: A case study on efficient mineralization of Perfluorooctanoate (PFOA). H. Lin, C. Wang, **J. Niu**

San Francisco Marriott Marquis
Sierra I

Green Chemistry Adoption: Progressive Changes by Different Industry Sectors

Cosponsored by CEI, MEDI, ORGN and SCHB‡
Financially supported by AEESP
S. O. Obare, *Organizer*
N. Vaidya, *Organizer, Presiding*

8:30 Introductory Remarks.

8:40 360. Exemplifying green chemistry with sterically protected and electronically activated azamacrocycle catalysts. **R. Chorghade**, M. Chorghade

9:00 361. Overview of more sustainable and greener chemistry implementation in industry. **D.J. Constable**

9:40 362. Seamless integration of green chemistry at Pfizer from development to discovery. **D.T. Richter**

10:00 363. Design and evolution of the BMS process greenness scorecard. **D.K. Leahy**, E. Simmons, V. Hung, W. Fleming, J. Sweeney, M. Miller

10:20 Intermission.

10:35 364. Leading the textile and footwear industries towards zero discharge of hazardous chemicals: The ZDHC Foundation. **N. Sponsler**

10:55 365. Data and tools needed to enable toxicity-aware product-development within different industries. **N. Vaidya**

11:15 366. Recent green progress in the preparative and analytical separations industries. **J.P. McCauley**

San Francisco Marriott Marquis
Sierra B

Innovative Materials & Technologies for Sustainable Water Purification/Adsorption Technologies

Cosponsored by CEI
B. P. Chaplin, J. Choe, J. Liu, D. Shuai, W. Zhang, *Organizers*
E. L. Cates, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 367. Measuring and modeling U(VI) adsorption to engineered iron oxide nanoparticles. **Z. Pan**, W. Li, J. Fortner, D. Giammar

8:25 368. Magnetic porous nanocomposites for water remediation. **K. Ventura**, R. Arrieta, V. Jabbari, D. Villagran

8:45 369. Removal of Cu^{2+} in aqueous system by different amine types on silica nanotube. **Y. Chun**, Y. Ko, T. DO, U. Choi

9:05 370. Adsorption of chlorpheniramine and N-nitrosodimethylamine formation potential toward nano-sized graphene oxide-iron oxide particle and suspension. **W. Chen**, C. Li, C. Chen

9:25 371. Highly efficient and specific capture of radioactive iodine in water by using gold nanoparticle-immobilized dextran gel columns. **J. Jeon**, M. Choi, H. Shim, S. Yun, S. Park, D. Choi, B. Jang

9:45 Intermission.

10:00 372. Innovative materials for water treatment: From custom designed adsorbents to scalable membranes. **A. Orlov**, G. Ramakrishnan, S.M. Uchimiya

10:40 373. Silver binding affinity of silica/melanin nanoparticles. **A.P. Zane**, M. Morgan, E. Botts, D. Olivera, J. Hoyle

11:00 374. Removal of hexavalent chromium from aqueous solutions by a novel biochar supported nanoscale iron sulfide composite. **Y. Gong**, H. Lyu, J. Tang

11:20 375. Fluorinated nanoporous networks for charged organic contaminant removal from water. J. Byun, H.A. Patel, D. Thirion, **C.T. Yavuz**

11:40 376. Sorption of heavy metals using tungsten oxide based sorbents. **C.K. Perkins**, T. Reed, Z. Brown, A.W. Apblett

Section H

San Francisco Marriott Marquis
Sierra J

From the Bench to the Field: Evaluating Innovative Remediation & Detection Technologies

S. R. Al-Abed, H. Henry, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 377. Case study comparing novel remediation technologies for boron contaminated groundwater. **J.L. McKernan**, Z. Hendren, A. Vengosh, C. Northeim, S. Fang

8:25 378. Enhanced non-fouling membranes for water purification and recycling. **D. Battaglia**, P. Clement, J. Lange, E.P. Giannelis

8:45 379. Magnetic nanocomposite materials as capture agents for organic pollutants in water treatment. **A.M. gutierrez**, T. Dziubla, J. Hilt

9:05 380. Bi-phase Catalyst for PCB removal from sediments and ground water. **S.M. Lomnicki**, B. Subramanian, S.R. Al-Abed, J.L. McKernan

9:25 Intermission.

9:45 381. Field study on the *in situ* treatment of a DNAPL source by nanoscale zero-valent iron: Effects of site oxidants. J. Ahn, C. Kim, H. Kim, K. Hwang, **I. Hwang**

10:05 382. Aspen Park Solvents long term cleanup of a DNAPL in fractured bedrock. **P. Stevenson**

10:25 383. On-site soil remediation experience in a large contaminated site by various solvents caused by illegal dumping of wastes. **K. Kawamoto**

10:45 384. From the bench to the field: Translating a novel plasmonic mercury sensor into a portable instrument for soils and sediments. **J. Crosby**, J. James, **D. Lucas**, C.P. Koshland

11:05 385. Monitoring trichloroethylene, benzene, and other VOCs in air using cavity ring-down spectroscopy and chemical dispersion. C.R. Viteri, **A.E. Miller**, M.A. Armen, B.A. Richman

11:25 386. Withdrawn

Section I

San Francisco Marriott Marquis
Sierra K

Processes, Technologies & Sensors for Food-Energy-Water Nexus Research

Cosponsored by AGFD, CEI and CHED
Financially supported by Electric Power Research Institute (EPRI); National Science Foundation (NSF)
W. J. Cooper, *Organizer*
S. Bushart, N. S. Rao, *Organizers, Presiding*
W. Cooper, *Presiding*

8:00 Introductory Remarks.

8:05 387. Intensive aquatic protein production using duckweed as a model platform. **A. McQuilling**, J. Lawson, S. Mukhtar, W. Grieco

8:25 388. Vibration-driven droplet motion on a flapping film for water collection. **M. Derby**, R. Huber, N. Doughramaji, X. Chen

8:45 389. Redox-based electrochemical technologies for energy-efficient water purification and wastewater treatment. **X. Su**, T.F. Jamison, T. Hatton

9:05 390. Highly permeable thin film composite membranes with nanocomposite barrier layer for desalination applications. K. Liu, H. Ma, **B.S. Hsiao**

9:25 391. Capacitive nutrient removal and recovery from anaerobic membrane bioreactor effluent. **Z. Ge**, **Z. Ren**

9:45 Intermission.

10:00 392. Olefin/paraffin separation properties of graphene oxide membranes. **B. Yoo**, S. Lee, H. Park

10:20 393. Toward energy-neutral and decentralized water re-use with flow-electrode capacitive deionization. **K. Hatzell**, **M. Hatzell**, M. Dixit, D. Moreno

10:40 394. Characterization and implications of cometabolic bio-methanol production by ammonia oxidizing bacteria. **Y. Su**, L. Arellano-García, S. Sathyamoorthy, K. Chandran

11:00 395. Carbon nanotube enabled water treatment. **S. Ragunath**, S. Roy, S. Mitra

11:20 396. Algae cultivation on a pilot-scale Algal Turf Scrubber® from dairy wastewater for bioremediation and sustainable biofuel production. **J. Yan**

11:40 Concluding Remarks.

Mineral-Water Interface Chemistry
Sponsored by GEOC, Cosponsored by COLL and ENVR

Operando Methodology at the Junction between Fundamental Chemistry & Chemical Engineering
Sponsored by CATL, Cosponsored by ENVR and I&EC

Elucidation of Mechanisms & Kinetics on Surfaces/Electrons
Sponsored by CATL, Cosponsored by COLL and ENVR

TUESDAY AFTERNOON

Section A

San Francisco Marriott Marquis
Salons 10/11

ACS Award for Creative Advances in Environmental Science & Technology: Symposium in honor of Dr. Douglas R. Worsnop

Financially supported by ES&T Journal, ES&T Letters
J. L. Jimenez, S. O. Obare, *Organizers*
M. Canagaratna, *Organizer, Presiding*

1:30 397. Recent advances in atmospheric chemistry studies: Applications of mass spectrometric methods. **J.T. Jayne**

1:50 398. Dielectric spectroscopy and glass transitions of organic molecules and mixtures prepared from submicron particle deposition. **P. Davidovits**

2:10 399. Toward understanding aqueous-phase chemistry of secondary organic aerosol via aerosol mass spectrometry. **Q. Zhang**

2:30 400. Aerosol mass spectrometry of refractory black carbon particles: Black carbon particles in the atmosphere. **T.B. Onasch**

2:50 401. Aerosol composition and properties in the developing world. **H. Coe**

3:10 Intermission.

3:25 402. Bright future of the potential aerosol mass concept and chamber. **W. Brune**

3:50 403. Recent results on organic aerosol sources and properties, and on the experimental systems used to study them. **J. Jimenez**

4:15 404. Award Address (ACS Award for Creative Advances in Environmental Science & Technology sponsored by the ACS Division of Environmental Chemistry & the ACS Publications Journals Environmental Science & Technology & Environmental Science & Technology Letters). Mass spectrometry of atmospheric aerosol: 1 nanometer to 1 micron. **D.R. Worsnop**

Section B

San Francisco Marriott Marquis
Salons 12/13

Oxidation Processes, Nanoparticles & Membranes in Water & Wastewater Treatment: A Symposium in honor of Prof. Jun Ma/Membrane & Adsorption Technologies

Financially supported by Sciex China
D. D. Dionysiou, J. Fang, V. K. Sharma, *Organizers*
S. Lin, L. Tang, *Presiding*

1:30 Introductory Remarks.

1:35 405. Membrane fouling bevavior of composite coagulant PAC-PDMDAAC under different membrane materials in coagulation-ultrafiltration combined process. X. Shen, **B. Gao**, Q. Yue

2:00 406. Anti-oil-fouling membranes in membrane distillation: Drivers, materials development, and force spectroscopy for mechanisms elucidation. **S. Lin**, Z. Wang

2:25 407. Bioinspired polydopamine and silver nanoparticles form *in situ* on membrane surface to mitigate biofouling. **L. Tang**, K.J. Livi, K. Chen

2:45 408. Preparation and properties of PVDF adsorption membrane. **Y. Zhang**

3:05 409. Development of nanocomposite membrane process for drinking water treatment. **P. Wang**, D. Song, Z. Sun, L. RU, H. Wang, F. Wang, H. Jiang, J. Ma

3:25 Intermission.

3:40 410. Enhanced removal of trace antimony(V) in water by iron oxide supported by chitosan/cellulose acetate. **J. Yang**, H. Chen, Z. Li, R. Bai

4:05 411. Adsorption behavior of Cu(II) ions from aqueous medium on TEMPO-mediated oxidized cellulose nanofibers. **P. Liu**, A. Mathew, H. Sehaqui

4:25 412. Adsorption of Cs in water using functionalized, templated and magnetic mesoporous composites. **K. Guo**, F.X. Han, Z. Arslan, R. Zhang , Y. Zhang , C. Rogers

4:45 413. Ammonia nitrogen adsorption onto modified zeolites at low temperature. **L. Qiu**, Q. Qiu, L. Zhu, S. Zhang

5:05 414. Critical effect of solute species and concentrations on cation exchange behavior of thin-film composite membranes in forward osmosis. **X. Lu**, W. Cheng, Y. Yang, J. Ma

Section C

San Francisco Marriott Marquis
Salons 14/15

Chemistry of Water Treatment from Sorption to Taste & Odor: Symposium honoring the Contributions of Mel Suffet

Source Water Quality

Cosponsored by CHED
Financially supported by AEESP
J. A. Pedersen, F. L. Rosario, *Organizers*
M. J. McGuire, *Organizer, Presiding*

1:30 415. Wildfires: Burning questions regarding drinking water supplies and treatment. **A.D. Revchuk**, I.H. Suffet

1:55 416. Laboratory simulation of wildfire heating: Effects on DOM and water treatment. **A.K. Hohner**, F.L. Rosario

2:20 417. Effect of fire-impacted source water on ozonation kinetics in drinking water treatment. **Z. Wu**, M. Mizel, T.M. Young

2:45 418. Mobilization of nitrogenous pyrogenic soil organic matter in wildfire-affected watersheds and its impact on the formation of haloacetonitriles. **Y. Yu**, F.L. Rosario

3:10 Intermission.

3:25 419. Evaluation of prevailing flush guidelines to reduce water lead exposures: Implications for regulations and public health outreach. **A.L. Katner**, K. Pieper, J. Parks, K. Brown, C. Hu, H. Lin, X. Wang, J. Diaz, M. Edwards

3:50 420. Barriers to access to chemical data for source water vulnerability assessments. **J. Rosen**

4:15 421. Mexico City: The case for integrative science and policy. **T.J. Downs**

4:40 422. Federal framework for regulating acidization, a sister-technology to hydraulic fracturing. **K. Abdullah**, I.H. Suffet, M. Stenstrom, T. Malloy

Section D

San Francisco Marriott Marquis
Golden Gate C1

Understanding Dissolved Organic Matter Reactivity: Honoring George Aiken, the DOM Whisperer

Y. Chin, D. M. McKnight, *Organizers*
E. J. O'Loughlin, *Presiding*

1:30 423. Comparison of the properties of different natural organic matter samples from the Suwannee River (GA, USA). **P. Maurice**

2:05 424. Effects of dissolved organic matter on the fate and transformation of nanosized zero-valent iron in aqueous system. **C. Kim**, Y. Chin, J. Ahn, M.L. Wei-Haas, B. McAdams, I. Hwang

2:30 425. Impact of Natural Organic Matter (NOM) on the formation and reactivity of iron oxide particles formed on Fe(III) and Fe(II) addition: Comparison of terrigenous NOM versus Algogenic NOM. **S. Garg**, K. Wang, D. Waite

2:55 426. Dark formation of hydrogen peroxide upon oxidation of dissolved organic matter. **C. Chu**, N. Walpen, M. Sander, K.P. McNeill

3:20 Intermission.

3:30 427. Exploring the relationships between the redox and mineral adsorption properties of DOM. **B. McAdams**, G. Aiken, J. Hudson, **Y. Chin**

4:05 428. Dissolved organic matter-mediated solar degradation of endocrine-disrupting pollutants in natural waters. **J. Gray**, D.E. Latch, K. Daumit, G. Aiken

4:30 429. Understanding DOM-organic contaminant attenuation of non-polar organic pollutants. **M. Hsu**, I.H. Suffet

4:55 430. Effect of NOM and water hardness on Diffusive Gradient in Thin-Film (DGT) prediction of bioaccumulation by yellow lampmussel and fathead minnow. **G.L. Mills**, R. Philipps, R. Bringoff

5:20 Concluding Remarks.

Section E

San Francisco Marriott Marquis
Sierra C

Chemistry & Application of Advanced Oxidation Processes for Water Detoxification, Treatment & Reuse

Financially supported by AEESP
X. He, G. Li Puma, D. Minakata, K. E. O'Shea, X. Quan, *Organizers*

D. D. Dionysiou, *Organizer, Presiding*
D. Hermosilla, *Presiding*

1:30 431. 1,4-dioxane treatment by advanced oxidation processes: Current situation, future perspectives, and potential industrial implementation. **D. Hermosilla**, H. Barndök, N. Merayo, A. Blanco

2:05 432. Withdrawn

2:30 433. TiO_2 Photocatalytic degradation of the flame retardant, tris (2-chloroethyl) phosphate: Kinetic and mechanistic studies. **A. Abdullah**, K.E. O'Shea

2:55 434. Kinetic modeling of sunlight-assisted degradation of trace organic substances. **H. Vo**

3:20 Intermission.

3:35 435. Withdrawn

4:00 436. Color-stripping of dye-containing wastewater by a new H_2O_2/Cu(II)-phenanthroline AOP. **E. Walger**, F. Molton, C. Duboc, n. Marlin, G. Mortha

4:25 437. Withdrawn

4:50 438. Is it time to replace traditional UV lamps by UV-Light Emitting Diodes (UVLEDs) in water treatment industry? Towards sustainable photovoltaic-powered UVLED photoreactors. **M. Eskandarian**

Section F

San Francisco Marriott Marquis
Sierra I

Green Chemistry Adoption: Progressive Changes by Different Industry Sectors

Cosponsored by CEI, MEDI, ORGN and SCHB‡
Financially supported by AEESP
S. O. Obare, *Organizer*
N. Vaidya, *Organizer, Presiding*

1:30 Introductory Remarks.

1:35 439. Sustainable applications of magnetic nano-catalysts and graphitic carbon nitrides. **R.S. Varma**

1:55 440. Advancing greener reptide and oligonucleotide syntheses. **M.E. Kopach**

2:15 441. Chemetry's Shuttle™ process: New technology platform to produce caustic soda and EDC while eliminating chlorine gas and saving energy. **M.K. Leclerc**

2:35 442. Green process development using chiral resolution. **N.A. Vaidya**

2:55 443. Evolution of chiral HPLC toward greener techniques. **R. Romero**

3:15 Intermission.

3:30 444. Biologics: The new frontier for green chemistry in the pharma industry. **K. Budzinski**, D. O'Connor

3:50 445. Key consideration when choosing a manufacturing solvent in pharmaceutical manufacturing. **A. Mehta**

4:10 Panel Discussion.

Section G

San Francisco Marriott Marquis
Sierra B

Innovative Materials & Technologies for Sustainable Water Purification/Adsorption Technologies

Cosponsored by CEI
E. L. Cates, J. Choe, J. Liu, D. Shuai, W. Zhang, *Organizers*
B. P. Chaplin, *Organizer, Presiding*

1:30 Introductory Remarks.

1:35 446. Hemoglobin/iron oxide composite: Synthesis, characterization and adsorption of organic dyes. **M. Essandoh**, R.A. Garcia

1:55 447. Cationic materials for reversible, selective perchlorate trapping. **S. Oliver**

2:15 448. Selective silica separations from waste water using ion-exchange media. **K. Sasan**, T.M. Nenoff, P.V. Brady, J. Krumhansl

2:35 449. Withdrawn

2:55 Intermission.

3:10 450. Removal of oxyanion pollutants from water by bicomponent metal oxide adsorbents. **Y. Zou**, Y. Wang

3:30 451. Removal of heavy metals from drinking water using hydrothermal char. **M.T. Timko**

3:50 452. Rapid removal of phosphate from wastewater using magnetized fast pyrolysis biochar from waste Douglas fir. **A.G. Karunanayake**, M. Crowley, R. Anderson, T.E. Mlsna

4:10 453. Withdrawn

4:30 454. Removal of perfluoroalkyl substances from water using molecularly engineered coatings on sand and silica. **P. Edmiston**

4:50 455. Arsenic, cadmium, nickel and lead adsorption mechanism, kinetics and thermodynamics of copper based and iron based metal organic framework. **A. Yurdusen**, Y. Yurum

Section H

San Francisco Marriott Marquis
Sierra J

From the Bench to the Field: Evaluating Innovative Remediation & Detection Technologies

S. R. Al-Abed, H. Henry, *Organizers, Presiding*

1:30 456. Unexpected ring cleavage products from $OH^{\bullet}$ and $SO_4^{\bullet-}$ treatment of contaminants. **J. Van Buren**, C. Prasse, B. Skeel, D.L. Sedlak

1:50 457. Mechanisms on the impacts of alkalinity, pH and chloride on heterogeneous persulfate activation for groundwater remediation. **W. Li**, H. Liu

2:10 458. Enhanced bioremediation of PAH contaminated soils: Combining novel molecular techniques with targeted bioaugmentation strategies. **L. Redfern**, C.K. Gunsch

2:30 459. Investigating polychlorinated biphenyl biodegradation potential in contaminated sediments with chemical and molecular biology approaches. Y. Liang, A. Martinez, J. Ewald, A. Awad, J.L. Schnoor, **T. Mattes**

2:50 Intermission.

3:10 460. Metagenomic analysis of mobile elements and phage in Trichloroethene (TCE) dechlorinating communities. **R. Keren**, V. Brisson, M. Xinwei, M. Yujie, K. Yu, J.F. Banfield, L. Alvarez-Cohen

3:30 461. Probing active acidophilic methanotrophs involved in chlorinated solvent biodegradation. **Y. Shao**, K. Chu

3:50 462. Bioprocess development for 1,4-dioxane treatment: Bench through field investigation. F. Shirazi, **A. razavi**, A. Gregg, C. McGrath, N. Hlavacek, J. Salanitro

4:10 463. Biomarkers for validating natural and enhanced biodegradation of 1,4-dioxane in groundwater. P. Gedalanga, Y. Miao, A. Madison, T. Richards, W. Gierke, H. Holbrook, R. Mora, D. Chiang, **S. Mahendra**

4:30 464. From infancy to full-scale demonstration: The twenty year development of electrokinetically-enhanced bioremediation for successful treatment of chlorinated solvents in clays and silts. **N.D. Durant**, J. Wang, E. Cox, D. Gent

Section I

San Francisco Marriott Marquis
Sierra K

Science & Perception of Climate Change

Cosponsored by CEI and CHED
Financially supported by AEESP
S. O. Obare, *Organizer*
E. Schoffers, *Organizer, Presiding*

1:30 465. How culture shapes the climate change debate. **A.J. Hoffman**

2:10 466. Climate science literacy: An imperative for the next generation. **G.P. Foy**

2:40 467. Facing the new world of climate disruption. **J.A. Bell**

3:00 468. Visualizing and understanding the science of climate change. **P.G. Mahaffy**

3:30 469. Why do students respond favorably to attempts to teach climate change?. **G.M. Bodner**

3:55 470. Does science get lost in translation? How popular media frames the climate change debate. **E. Schoffers**

4:15 471. Educating communities about the impact of climate change. **C.M. Crudden**

4:35 472. ACS action needed to influence attitudes and behavior on climate change. **B.Z. Shakhashiri**

5:00 Panel Discussion.

Mineral-Water Interface Chemistry
Sponsored by GEOC, Cosponsored by COLL and ENVR

Recent Developments in TSCA Regulation: New Requirements for Chemicals in Commerce
Sponsored by CHAL, Cosponsored by CHAS, ENVR and I&EC

Operando Methodology at the Junction between Fundamental Chemistry & Chemical Engineering
Sponsored by CATL, Cosponsored by ENVR and I&EC

Elucidation of Mechanisms & Kinetics on Surfaces

Organic Oxygenates
Sponsored by CATL, Cosponsored by COLL and ENVR

WEDNESDAY MORNING

Section A

San Francisco Marriott Marquis
Salons 10/11

Great Achievements in Environmental Science & Technology: James J. Morgan Award Symposium

Financially supported by ES&T Journal, ES&T Letters
A. Grostern, *Organizer*
D. Sedlak, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 473. Biological and chemical activities of extracts from plastics collected from the North Pacific Gyre and plastics treated with UV-light. **D. Schlenk**, S.L. Coffin, J. Gan

8:30 474. Explaining the presence of respiratory tract opportunistic bacterial pathogens in drinking water systems. **L. Raskin**, S. Haig, N. Kotlarz, J. LiPuma

8:55 475. Stable isotope view of the formation of *N*-nitrosodimethylamine during water disinfection with chloramine. **T.B. Hofstetter**, S. Spahr, U. von Gunten

9:20 476. Is bioremediation of PAH contaminated soil worth it?. **S. Simonich**

9:45 477. Photochemical conversions at the interfaces of semiconductor hybrids for environmental applications. **W. Choi**

10:10 Intermission.

10:25 478. Impacts of the Minamata Convention on mercury in Asia. **N. Selin**, A. Giang, L.C. Stokes, E.S. Corbitt, D.G. Streets, V.J. Karplus, D. Zhang, K.M. Mulvaney, M. Li, C. Li, S.Y. Kwon

10:50 479. Investigation into the transfer of biological species from the ocean to the atmosphere: Mother nature's way of controlling climate?. **K.A. Prather**, C. Gaston

11:15 480. Working on environmental challenges as an engineer gone wrong. **M.S. Mauter**

11:45 Concluding Remarks.

San Francisco Marriott Marquis
Salons 12/13

Oxidation Processes, Nanoparticles & Membranes in Water & Wastewater Treatment: A Symposium in honor of Prof. Jun Ma/Nanoparticles & Nanomaterials

Financially supported by Sciex China
J. Fang, *Organizer*
D. D. Dionysiou, V. K. Sharma, *Organizers, Presiding*

8:00 Introductory remarks.

8:05 481. Nanostructured eco-materials based on clay minerals: Synthesis and applications in organic contaminants transformation and heavy metal removal. **C. Wang**

8:30 482. Application of natural organic matter coated magnetic iron oxide nanoparticles for the remediation of arsenic and selenium. **M. Rashid**, Y. Cai, G. Sterbinsky, K.E. O'Shea

8:50 483. Molecular dynamic simulation of natural organic matter-TiO_2 nanoparticles interaction in aqueous environment: Effect of Ca^{2+} and Na^{+} ions. **J. Lu**, H. Liu, F. Cui, X. Zhu

9:10 484. Nanoparticles removed by $AlCl_3$ in the process of coagulation. **l. zhang**

9:30 485. Advances of nanosized metal oxides formed *in situ* for the enhanced coagulation of surface water and removal of heavy metals, algae. **L. Wang**, Y. Liu, J. Ma

9:50 Intermission.

10:05 486. Synthesis of novel carbon spheres and their supported Fe nanoparticles for removal of metronidazole. **X. Wang**

10:25 487. N-doped carbon nanotubes for advanced oxidation processes. R.R. Rocha, O. Soares, A. Gonçalves, J. Órfão, J. Figueiredo, **M.R. Pereira**

10:45 488. Catalytic effects of carbon nanomaterials in abiotic transformation of organic contaminants: Implications for water and wastewater treatments. **W. Chen**, L. Duan, c. zhang, M.B. Tomson, P.J. Alvarez

11:05 489. Development and application of layered carbon materials in advanced oxidation processes for water purification. **F. Qi**, b. xu, z. song

11:25 490. Investigations on oxidation processes, nanoparticles, and membranes in water and wastewater treatment with engineering applications. **J. Ma**, J. Jiang, P. Wang, Y. Zhou, Y. Gao, H. Cheng, X. Liu, D. Song

San Francisco Marriott Marquis
Salon 5

Chemical Principles of Environmental, Cellular & Organismal Nanotoxicology

Cosponsored by COLL
C. Celle, L. L. Charlet, J. SIMONATO, C. Vulpe, *Organizers*
B. Gilbert, S. Lehman, *Organizers, Presiding*
D. Arndt, *Presiding*

8:00 491. Contribution of phagolysosomal membrane permeability to micro and nanoparticle toxicity. **A. Holian**

8:30 492. Structure activity relationships of engineered nanomaterials in inducing NLRP3 inflammasome activation and chronic lung fibrosis. **T. Xia**

9:00 493. Imogolite nanotubes as model HARN: Synthesis strategies and toxicological assesment. A. Masion, C. Levard, E. Doelsch, **A. Avellan**, C. Mauroy, W. Liu, J. Rose, C. Santaella, W. Achouak

9:20 494. Impact of silver nanowire length and diameter on rainbow trout RTgillW1 and RTgutGC cell lines. **D. Arndt**, D. TOYBOU, J. SIMONATO, C. Celle, B. Gilbert, L.L. Charlet, C. Vulpe, S. Lehmann

9:40 495. Toward safer silver nanowires by design: Modulation of characteristics and evaluation of dermal toxicity. **S. Lehmann**, B. Gilbert, M. Viau, D. TOYBOU, J. SIMONATO, C. Celle, T. Maffeis, L.L. Charlet

10:00 Intermission.

10:20 496. Spectroscopic insights into the role of defects in nano-bio interactions. **R. Podila**, J. Brown

10:50 497. Identifying the molecular mechanisms responsible for differences in toxicity of complex nanomaterials across organisms. **R. Klaper**, J. Bozich, J. Crago, B. Curtis, V. Feng, M. Hang, R.J. Hamers, C.L. Haynes, E. Melby, C.J. Murphy, N. Niemuth, G. Orr, T.A. Qiu, K. Zhang

11:10 498. Biological Impact of nanoscale lithium-intercalating battery materials to model bacterium *Bacillus subtilis*. **V. Feng**, M. Hang, T. Linn, B. Miller, R.J. Hamers

11:30 499. Integrated chemical and toxicological investigation of fullerene after UV/UV-chlorine drinking water treatment. **c. zhang**, Q. Zhang

San Francisco Marriott Marquis
Salon 14

Novel Membrane Materials & Processes for Water Purification

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

8:00 500. Artificial water channel based membranes. **M. Kumar**, Y. Shen, T. Ren

8:30 501. Artificial water channels exhibiting enhanced dipolar water translocation. **M.D. Barboiu**

8:50 502. Two-dimensional MoS_2 nanosheets: An emerging material for advanced water separation membranes. **Z. Wang**, S. Zheng, J. Urban, B. Mi

9:10 503. Covalent organic frameworks as novel membrane materials. **L. Valentino**, M. Matsumoto, W.R. Dichtel, M. Abdulsalam, A. Livingston, B.J. Marinas

9:30 504. Polycrystalline metal-organic framework membranes for water purification. **D. Zhao**, X. Wang

9:50 Intermission.

10:10 505. Development of polymer-graphene oxide based filter coatings for simultaneous removal of heavy metals, nitrate and microorganisms. **D.F. Rodrigues**, P. Bandara, E.T. Nadres

10:40 506. Understanding graphene oxide swelling properties in aqueous phase. **S. Zheng**, J. Urban, Q. Tu, S. Li, B. Mi

11:00 507. Breathable graphene oxide toxicant barriers. **R. Spitz**, M. Cruz, N. Mahfouz, Y. Qiu, R. Hurt

11:20 508. Co-assembly of graphene oxide and magnetic bimetallic nanoparticle for highly efficient removal of tetracycline. **P. Tabrizian**, S. Rahaman

Section E

San Francisco Marriott Marquis
Sierra C

Chemistry & Application of Advanced Oxidation Processes for Water Detoxification, Treatment & Reuse

Financially supported by AEESP
D. D. Dionysiou, X. He, G. Li Puma, K. E. O'Shea, X. Quan, *Organizers*
D. Minakata, *Organizer, Presiding*
N. H. Ince, *Presiding*

8:00 509. Single, simultaneous and sequential applications of ultrasonic frequencies to eliminate pharmaceutical residues in water. **N.H. Ince**, A. Ziylan Yavas

8:35 510. Kinetic, product, and computational studies of the ultrasonically induced degradation of 4-methylcyclohexanemethanol (MCHM). **D. Cui**, A.M. Mebel, L.E. Arroyo-Mora, H. Holness, K. Furton, K.E. O'Shea

9:00 511. High performance Magnéli phase reactive electrochemical membranes for oxidation and reduction of water contaminants. **B.P. Chaplin**, S. Nayak

9:25 512. Co-effects of UV/H_2O_2 and natural organic matter on the surface properties and colloidal stability of cerium oxide nanoparticles. **X. Wu**, C.W. Neil, H. Jung, Y. Jun

9:50 Intermission.

10:00 513. Abatement of polychoro-1,3-butadienes in aqueous solution by ozone, UV-photolysis, and advanced oxidation processes (O_3/H_2O_2 and UV/H_2O_2). **M. Lee**, T. Merle, D. Rentsch, S. Canonica, U. von Gunten

10:25 514. Treatment of 11-nor-9-carboxy-Δ^9-tetrahydrocannabinol (THC-COOH) through advanced oxidation processes. Y. Park, A. Mackie, **G. Gagnon**

10:50 515. Advanced oxidation of benzodiazepines compounds using TiO_2/Photocatalysis and UV/Chlorine. **S. Satyro**, M. Bosio, E.M. Saggioro, M.W. Dezotti

11:15 516. Use of multivariable analysis (anova) to compare irradiation sources on diuron destruction by photocatalysis using TiO_2-P25 Impregnated with Sm^{3+}, Eu^{3+} and Gd^{3+}. J. Torres Torres, **J. Arevalo Perez**, H. Perez Vidal, I. Cuauhtemoc Lopez

11:40 517. Treatment of emerging contaminants by UV/H_2O_2 in water detoxification & reuse applications. Y. Huang, Y. Liu, W. Abdelraheem, K.H. Cochran, E.G. Xu, S.D. Richardson, D. Schlenk, **D.D. Dionysiou**

Section F

San Francisco Marriott Marquis
Sierra A

Aquatic Photochemistry

Cosponsored by GEOC
Financially supported by AEESP
W. Arnold, V. Lin, *Organizers*
K. P. McNeill, *Organizer, Presiding*

8:30 518. Identification and toxicity testing of the photochemical degradation products of octyl methoxycinnamate, a common organic UV filter chemical. C. Berg, H. Stein, J. Maung, L. O'Connor, A. Pagano, M.G. Paulick, **L. MacManus-Spencer**

8:50 519. Photochemical fate of lampricides in tributaries of the Great Lakes. **C.K. Remucal**, M. McConville, A. Ward

9:10 520. Effect of agricultural dissolved organic matter on the photolytic fate of poultry antibiotics. **K. Mangalgiri**, L.M. Blaney

9:30 521. p-Nitroanisole/pyridine and p-nitroacetophenone/pyridine actinometers revisited: Quantum yield corrections based on ferrioxalate. J.R. Laszakovits, S. Berg, J. O'Brien, K.H. Wammer, **C.M. Sharpless**

9:50 522. Singlet oxygenation of dienes in water and methanol: Domoic acid, sorbate, and sorbic alcohol. **M. Jaramillo**, K.E. O'Shea

10:10 Intermission.

10:20 523. Photomineralization of 5-halogenosalicylic acids: A self-sustained reaction via the formation of Light Induced Secondary OH precursors (LIS-OH). R. Tafer, **M. Sleiman**, P. De sainte claire, P. Vicendo, A. Boulkamh, c. richard

10:40 524. Compound specific isotope analysis of aqueous photodegradation of substituted chlorobenzenes. **E. Passeport**, N. Zhang, L. Wu, H. Herrmann, B. Sherwood Lollar, H. Richnow

11:00 525. QSARs for phenols and phenolates: Oxidation potential as a predictor of reaction rate constants with photochemically produced oxidants. **W. Arnold**, Y. Oueis, M. O'Connor, J. Rinaman, M. Taggart, R. McCarthy, K. Foster, D.E. Latch

11:20 526. Chemically accurate aqueous redox potentials for organic pollutants via high-speed cyclic voltammetry and Molecular Dynamics (MD)/Equation-of-Motion Coupled Cluster (IP-EOM-CCSD) simulations. M. Paul, D. Ruuska, **S.N. Eustis**

11:40 527. Use of 4-(dimethylamino)benzonitrile to probe the photosensitizing and inhibitory effects of dissolved organic matter. **S. Canonica**, F. Leresche, L. Ludvíková, D. Heger, P. Klan, U. von Gunten

San Francisco Marriott Marquis
Sierra I

Innovative Materials & Technologies for Sustainable Water Purification

Membrane & Other Treatment

Cosponsored by CEI
E. L. Cates, B. P. Chaplin, J. Liu, D. Shuai, W. Zhang, *Organizers*
J. Choe, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 528. Pseudocapacitive deionization: Desalination of water using high capacity MnO_2 electrodes. **S. Hand**, R. Cusick

8:55 529. Molecular insight of ethinylestradiol (EE2) interaction with polymer membranes in waste water purification. **C.D. Domilongo Bope**, A. Nalaparaju, N.K. Chun, Y. Cheng, B. Cao, L. Lu

9:15 530. Effect of pre-ozonation and membrane modification with carbon nanotubes on fouling control. **J. Guo**

9:35 531. Porous CNT Joule heaters in ionizable environments and their use in desalination: Frequency dependent stability and application in MD. **A.V. Dudchenko**, C. Chen, A. Cardenas, J. Rolf, D. Jassby

9:55 Intermission.

10:10 532. Next generation of water purification membranes made of 2D nanomaterials: Promises and challenges. **B. Mi**, S. Zheng, Z. Wang, C. Finnerty

10:50 533. Toward a multi-layered multi-functional filter: Using cellulose acetate electrospun nanofibers and renewable nanomaterials for water purification. **C. Fausey**, J.B. Zimmerman

11:10 534. Nanoscale zero-valent iron in mesoporous carbon (nZVI@C): Stable nanoparticles for precious metal extraction. **W. Teng**, J. Fan, W. Zhang, D. Zhao

11:30 535. Preventing regrowth of nitrosamines during wastewater reuse by manipulating chloramine chemistry. **D. McCurry**

San Francisco Marriott Marquis
Sierra J

Poly- & Per-Fluoroalkyl Substances: Where, What, When, Why, Who & How

K. Chu, L. S. Lee, J. Liu, V. Yingling, *Organizers, Presiding*

8:00 536. Perfluoroalkyl ether carboxylic acids: Occurrence in the Cape Fear river watershed and fate in drinking water treatment processes. **D. Knappe**, M. Sun, L. Dudley, E. Arevalo, M. Strynar, A. Lindstrom

8:25 537. Minnesota Poly- and Perfluoroalkyl Substance (PFAS) megaplume: A case study of PFAS fate and transport and implications for site investigation and drinking water treatment. **V. Yingling**

8:50 538. Poly- and perfluoroalkyl substances in soil following aqueous film forming foam deployment during firefighting efforts after the train derailment in Lac-Mégantic, Québec. **S. Mejia-AvendaÃ±o**, G. MUNOZ, S. Vo Duy, M. Desrosiers, S. Sauvé, J. Liu

9:15 539. Estimating the number PFAS contaminated airports in Canada. S. Milley, P. Fortin, N. Battye, D. Loock, I. Koch, D. Reynolds, **K. Weber**

9:40 Intermission.

10:10 540. Biodegradability of Polyfluoroalkyl Phosphates (PAPs), fluorotelomer alcohol-based surfactants. M. Lewis, M. Kim, N. Wang, **K. Chu**

10:35 541. Isomer-Specific biotransformation of N-Ethyl Perfluorooctane Sulfonamide Ethanol (EtFOSE) in aerobic soil. **J. Liu**, G. Zhong, W. Li, S. Mejia Avendaño

11:00 542. Sorption of Poly- and Perfluoroalkyl Substances (PFASs) relevant to Aqueous Film Forming Foam (AFFF)-impacted groundwater by biochars and activated carbon. X. Xiao, B. Ulrich, B. Chen, **C.P. Higgins**

11:25 543. Fate and transport modeling of co-occurring PFOS, MTBE, and BTEX in a fractured chalk aquifer. **I. Ross**, J. Burdick, J. McDonough, J. Miles, J. Hurst, E. Houtz

11:50 Concluding Remarks.

Section I

San Francisco Marriott Marquis
Sierra K

Whole Organism Metrology to Support Nanotoxicology Research in the Environment

S. K. Hanna, C. M. Sims, *Organizers*
M. Johnson, B. C. Nelson, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 544. Agglomeration of *Escherichia coli* with positively charged nanoparticles can lead to artifacts in a standard *Caenorhabditis elegans* toxicity assay. **S.K. Hanna**, A.R. Montoro Bustos, A.W. Peterson, V. Reipa, L.D. Scanlan, S. Hosbas Coskun, T. Cho, M. Johnson, V.A. Hackley, B.C. Nelson, M.R. Winchester, J.T. Elliott, E. Petersen

9:00 545. High-throughput single-cell ICP-MS methods development and application to study algaecide and nanoparticles interaction and toxicity to unicellular organism cyanobacteria. **H. Shi**, K. Li, H. Zhang, H. Jiang, C. Stephan

9:25 546. Separation, sizing, and quantitation of engineered nanoparticles in an organism model using inductively coupled plasma mass spectrometry and image analysis. **M. Johnson**, S.K. Hanna, A.R. Montoro Bustos, C.M. Sims, L. Elliott, A. Lingayat, A.C. Johnston, B. Nikoobakht, J.T. Elliott, D. Holbrook, K.C. Scott, K. Murphy, E. Petersen, L. Yu, B.C. Nelson

9:50 Intermission.

10:05 547. Single cell and single particle ICP-MS analysis of nanohybrids. **J. Lead**

10:30 548. Systems-level approach to characterizing effects of ENMs in terrestrial organisms and ecosystems. **C.M. Rico**, M.G. Johnson, J.R. Reichman, C.P. Andersen

10:55 549. Nanoparticle uptake in plant cells: A nano-CT and hyperspectral imaging study. **A. Masion**, A. Avellan, C. Levard, F. Schwab, D. Borschneck, C. Perrine, C. Santaella

11:20 550. Novel image and data fusion method to improve spatial resolution and spectral content of biological images using ToF-SIMS. **T.M. Milillo**, R. Fischione, A. Montes, J.A. Gardella

Evolving Nanoparticle Reactivity throughout Nucleation, Growth & Dissolution
Sponsored by GEOC, Cosponsored by COLL, ENVR and NUCL

Mineral-Water Interface Chemistry
Sponsored by GEOC, Cosponsored by COLL and ENVR

Operando Methodology at the Junction between Fundamental Chemistry & Chemical Engineering/Fundamental Structure-Activity Relationships: The Interface of Operando with Physical Sciences
Sponsored by CATL, Cosponsored by ENVR and I&EC

Elucidation of Mechanisms & Kinetics on Surfaces/Organic Oxygenates
Sponsored by CATL, Cosponsored by COLL and ENVR

WEDNESDAY AFTERNOON

Section A

San Francisco Marriott Marquis
Salons 10/11

Pesticides in Surface Water: Monitoring, Modeling, Mitigation, Risk Assessment & Regulation

Cosponsored by AGRO
Financially supported by Compliance Services International (CSI)
Y. Luo, D. Young, *Organizers*
J. Gan, K. S. Goh, *Organizers, Presiding*

1:30 Introductory Remarks.

1:35 551. Agricultural and urban pesticide signatures in wadeable streams from regional stream-quality studies. **L.H. Nowell**, B.J. Mahler, P.W. Moran, M. Shoda, J.E. Norman, P.C. Van Metre, W.W. Stone

1:55 552. Reconnaissance study of current-use pesticides in 12 urban and agricultural surface water sites in California. **M.L. Hladik**, J. Orlando

2:15 553. Pesticides in wastewater: Linking pesticide use patterns to sewershed monitoring results. **J. Teerlink**, R. Budd, Y. Xie, C. Alaimo, T.M. Young

2:35 554. Influence of rainfall event characteristics on urban pesticide runoff. **A. GORGOGLIONE**, F. Bombardelli, T.M. Young

2:55 555. Concentrations of synthetic pyrethroids in surface water and sediment from agricultural and urban land use areas. **J. Giddings**, J. Frew, D. Campana, J. Wirtz, B. Finch

3:15 Intermission.

3:35 556. Passive samplers for *in situ* monitoring of pesticides in urban surface water. **J. Gan**, W. Lao, C. Liao, A. Xue, J. Richards, K.A. Maruya

3:55 557. Continuous Low Level Aquatic Monitoring (C.L.A.M.) samplers for organic contaminant screening in urban runoff: Development of an analytical approach. **M. Vasquez**, S. Mohammed, H. Tsai, G. Cho, M. Ensminger

4:15 558. Analyses of polar pesticides and glyphosate in Mekong Delta. **N. Tran-Thi**, M. Do, l. Truong, T. Nguyen, T. Nguyen, Q. Chau, L. Tran, D. Orange, **P. Behra**

4:35 559. Environmental monitoring of systemic insecticides in surface water ecosystems: Development and application of an ultrasensitive and automated analytical method. **J.M. Montiel León**, S. Vo Duy, G. Munoz, M. Amyot, S. Sauvé

4:55 560. Desorption of known persistent organic pollutants from atmospheric dust and black carbon into aquatic ecosystems. **T. Togashi**, **C. Bowyer**, R.A. Lyons

5:15 Concluding Remarks.

Section B

San Francisco Marriott Marquis
Salons 12/13

Advances in Resource Recovery & Conservation in Water Systems

Cosponsored by AGFD, CEI and GEOC
S. Ahuja, L. M. Blaney, T. H. Boyer, *Organizers, Presiding*

1:30 Introductory Remarks.

1:40 561. Urea hydrolysis characterization and inhibition by chemical addition. **H. Ray**, D. Saetta, T.H. Boyer

2:00 562. Urea hydrolysis inhibition in waterless urinals for water conservation and nutrient recovery. **D. Saetta**, T.H. Boyer

2:20 563. Electrochemical stripping to recover nitrogen from source-separated urine. **W.A. Tarpeh**, K.L. Nelson

2:40 564. Life cycle comparison of urine source separation and centralized wastewater treatment. **T.H. Boyer**, K. Landry

3:00 Intermission.

3:20 565. Advanced spatial modeling and lifecycle assessment for real world implementation of decentralized nitrogen recovery. **O. Kavvada**, W.A. Tarpeh, A. Horvath, K.L. Nelson

3:40 566. Solution to pollution is not dilution: An integrated system for total nutrient recovery from source separated urine. **N. Jagtap**

4:00 567. Mechanisms and modeling of pathogen fate in pilot scale nutrient recovery reactors. **H. Bischel**, K. Udert, T. Kohn

4:20 568. Physical-chemical interactions of biochar and pharmaceuticals in synthetic urine. **A. Solanki**, T.H. Boyer

4:40 569. Fate of human BK polyomavirus through urine diverted for fertilizer. **H. Goetsch**, N. Love, M. Imperiale, K. Wigginton

5:00 Concluding Remarks.

San Francisco Marriott Marquis
Salon 5

Contaminants in Urban & Coastal Estuarine Ecosystems/Advanced Analytical Techniques to Assess Chemical Profiles

Cosponsored by AGRO
K. L. Armbrust, G. P. Cobb, P. Saranjampour, *Organizers, Presiding*

1:30 570. Combining chemical and bioanalytical methods to screen for emerging contaminants in California's receiving waters. **K.A. Maruya**, A. Mehinto, M. Raphael, E.D. Nelson, E. Hoh, S.A. Snyder, R. Fadness, J. Lyons

1:55 571. Regional trends in sediment quality in southern California: Responses to multiple stressors. **S. Bay**, N.G. Dodder, D. Gillett, K. Schiff

2:20 572. Examining urban metabolism and contaminants of emerging concern in coastal environments: A pilot study in Hong Kong and Taipei. **S. Burket**, J. Zheng, K. Chambliss, S. Chung, B.W. Brooks

2:45 573. Dissolved PAHs and PBDEs in the Narragansett Bay Watershed using passive polyethylene samplers. W. Zhao, M. Khairy, M. Cai, **R. Lohmann**

3:10 Intermission.

3:30 574. Ecotoxicological assessment of Polycyclic Aromatic Hydrocarbons (PAHs) and metals in the Mississippi River coastal watershed and offshore shoaling regions of the northern Gulf of Mexico. **L. Basirico**, R.J. Portier, H. Rockett

3:55 575. Quantifying Polycyclic Aromatic Hydrocarbons (PAHs) distribution and accumulation in coastal Louisiana using natural radioisotope tracers. **K. Maiti**, P. Adhikari, W. Bam

4:20 576. Assesment of emerging contaminants from wastewater treatment systems along Louisiana coastal and estuarine waterways. **M.S. Miles**

4:45 577. Stereoisomer-specific distribtuion of 1,2,5,6,9,10-hexabromocyclododecane and 1,2-dibromo-4-(1,2-dibromoethyl)cyclohexane in sediment and marine organisms from the South China Sea. **Y. Ruan**, X. Zhang, J.C. Lam, B. Zhu, P.K. Lam

5:10 578. Distribution and abundance of microplastic pollution on Sandy Hook Bay beaches is higher than on New Jersey coastal beaches. **K. Veasey**, S. Rosenstein

San Francisco Marriott Marquis
Salon 14

Novel Membrane Materials & Processes for Water Purification

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

1:30 579. Novel membranes with special wetting properties for anti-fouling and anti-wetting membrane distillation. Z. Wang , Y. Huang, **S. Lin**

2:00 580. Accurately determining convective heat transfer coefficients in membrane distillation cassettes. **M.S. Mauter**, M. Leitch, G. Lowry

2:20 581. Modification of permeate surface by hydrophilization to enhance flux in membrane distillation for desalination. **S. Ragunath**, S. Roy, S. Mitra

2:40 582. Desalting water with electric double-layers: Assessing impacts of material chemistry and operation strategies on capacitive deionization energy consumption and cost. S. Hand, **R. Cusick**

3:00 Intermission.

3:20 583. Sunlight enables reduced graphene oxide/bacterial nanocellulose ultrafiltration membranes to resist biofouling. **Y. Jun**, Q. Jiang, D. Ghim, S. Tadepalli, H. Kwon, K. Liu, Y. Min, J. Luan, S. Singamaneni

3:50 584. Surfactant-stabilized oil separation from water using ultrafiltration and nanofiltration. **X. Zhu**, A.V. Dudchenko, D. Jassby

4:10 585. Integration of reactive ceramic membrane with ozonation for advanced treatment of reclaimed water. **X. Zhang**

4:30 586. Novel nanohybrids enables microwave radiation to disinfection water. **N.B. Saleh**

4:50 587. Integration of *in-situ* ozonation and ceramic UF membrane for effective algae and MC-LR removal and membrane fouling control in the treatment of algal-rich water. **Z. Zhang**, Y. Tao, X. Zhang

Section E

San Francisco Marriott Marquis
Sierra C

Chemistry & Application of Advanced Oxidation Processes for Water Detoxification, Treatment & Reuse

Financially supported by AEESP
X. He, D. Minakata, K. E. O'Shea, X. Quan, *Organizers*
D. D. Dionysiou, G. Li Puma, *Organizers, Presiding*
A. Ghauch, *Presiding*

1:30 588. Degradation of antibiotics in UV-persulfate activated systems: Application to Chloramphenicol. **A. Ghauch**, M. Amasha, A. Baalbaki, R. El Asmar, O. Tantawi

2:05 589. Electrochemical enhancement of oxidation process using persulfate activated by nanosized zero-valent iron. **C. Kim**, I. Hwang

2:30 590. Selective degradation of sulfamethoxazole by peroxymonosulfate without activating agents: Self-activation and nonradical pathways. R. Yin, **W. Guo**, H. Wang, J. Chang, N. Ren

2:55 591. Activation of persulfate with vanadium species for PCBs degradation: A mechanistic study. **G. Fang**, W. Wu , C. Liu, Y. Deng, D. Zhou

3:20 Intermission.

3:35 592. Effect of synthesis parameters in the removal of 4-chlorophenol under visible light irradiation using ammonium iron (II) sulfate-doped nano-titania photocatalyst. **F.A. Villaluz**, M. Lu, M.G. de Luna

4:00 593. :β-Bi_2O_3 thin films on different substrates for photodegradation of organic dyes. **T. Gadhi**, L. Gómez, M. Bizarro, **J.C. Medina**, P. Jagdale, A. Hernández-Gordillo, A. Tagliaferro, S.E. Rodil

4:25 594. Evaluation of heterogeneous photocatalysis degradation of ketoprofen in aqueous solution with catalysts TiO_2/Mo/Ag. **A. Suarez**, V. Rodriguez Gonzalez, E.F. Sarria, L. Clavijo

4:50 595. Micromotors as tools for efficient water decontamination. **D. Vilela Garcia**, J. Parmar, S. Sanchez

5:15 Concluding Remarks.

Section F

San Francisco Marriott Marquis
Sierra A

Aquatic Photochemistry

Cosponsored by GEOC
Financially supported by AEESP
W. Arnold, K. P. McNeill, *Organizers*
V. Lin, *Organizer, Presiding*

1:30 596. Characterizing the role of photochemical processes in the oxidation of hydrocarbons released during the Deepwater Horizon disaster. **C.P. Ward**, C. Reddy

1:50 597. Time dependence of aldehyde and ketone photoproduct generation from crude oil-seawater systems under solar irradiation. **X. Cao**, M.A. Tarr

2:10 598. Steric hindrance reduces aquatic photochemical transformation rates of alkylated sulfur heterocycles. **P. Saranjampour**, K.L. Armbrust, B. Marx

2:30 599. Photolysis of aromatic pollutants in salty water and ice. **T.F. Kahan**, A. Stathis, P. Malley, J. Grossman

2:50 600. Petroleum provides model compounds to assess the compositional and structural controls of dissolved organic matter photoreactivity. **P. Zito**, M.A. Tarr, D.C. Podgorski

3:10 Intermission.

3:20 601. Investigating the photochemical pathways of organic sulfur in forming COS and CS_2 in natural waters. **M. Modiri Gharehveran**, A. Shah

3:40 602. Counter-ions influence nitrate photolysis yields through altering interfacial concentrations. **K.M. Callahan**, D. Tobias

4:00 603. Characterization of photooxidants in atmospheric particles. **R. Kaur**, C. Anastasio

4:20 604. Is gas-aerosol particle interface the same as the air/water interface?. **Y. Rao**, Y. Wu, X. Li, Y. Wu, Y. Qian, H. Dai

4:40 605. From the desert to the city: Dust as a photochemical source of hydroxyl radical and singlet oxygen in aqueous aerosol. **S.A. Styler**, S.R. Schneider, C.D. Cote

San Francisco Marriott Marquis
Sierra I

Innovative Materials & Technologies for Sustainable Water Purification

Photocatalytic

Cosponsored by CEI
E. L. Cates, B. P. Chaplin, J. Choe, J. Liu, W. Zhang, *Organizers*
D. Shuai, *Organizer, Presiding*

1:30 Introductory Remarks.

1:35 606. Boosting the photocatalytic activity of m-$BiVO_4$ with Pd nanodomains and BiOBr nanosheets dual heterojunction: Highly effecient photocatalytic degradation of polychlorinated biphenyls. **E. Zahran**, M. Palmai, S. Angaramo, M.R. Knecht, L. Bachas

1:55 607. Tailored graphitic carbon nitride: Selective production of oxidative species and applications for organic micropollutant removal. **Q. Zheng**, D. Shuai

2:15 608. Synthesis and application of highly reductive TiO_2-based photocatalysts for hexavalent chromium and nitrate removal. **G. Chen**, H. Liu

2:35 609. Microreactor-inspired photocatalytic PBR for intensified solar photocatalysis: A study of the effects of packing material on light absorption. **B. Ramos**, S. Ookawara, A.S. Teixeira

2:55 Intermission.

3:10 610. Towards multifunctionality in water treatment: Developing photoactive selective adsorbents for inorganic contaminants using nano-enabled biomaterials. **L. Pincus**, J. Yamani, J.B. Zimmerman

3:30 611. Designing photocatalytic nano-adsorbents with greater specificity through shape and size using advanced spectroscopy techniques. **A.W. Lounsbury**, N. Billmyer, J. Yamani, D. Peak, J.B. Zimmerman

3:50 612. Physical and chemical characterization of iron (III) oxide produced by SORAS technique for the removal of arsenic in drinking water. **E. Araya**, J. Valverde-Cerdas, J.M. Cubero-Sesin, D. Méndez, **L.G. Romero**

4:10 613. Antimicrobial applications of visible-light-responsive photocatalysts. **H. shen**, D. Shuai

San Francisco Marriott Marquis
Sierra J

Poly- & Per-Fluoroalkyl Substances: Where, What, When, Why, Who & How

K. Chu, L. S. Lee, J. Liu, V. Yingling, *Organizers, Presiding*

1:30 614. Encapsulation of legacy and emerging perfluoroalkyl substances by cyclodextrins. M.J. Weiss-Errico, Z. Hopkins, D. Knappe, **K.E. O'Shea**

1:55 615. Protective effects of β-cyclodextrin in biological systems contaminated with perfluoroalkyl substances. **M.J. Weiss-Errico**, K.E. O'Shea

2:20 616. Novel approach to the enhancement of PFAS adsorption in groundwater systems. **Y. Aly**, M.F. Simcik

2:45 617. Selective and fast adsorption of perfluorooctane sulfonate from wastewater by magnetic fluorinated vermiculite. **S. Deng**, P. Meng, G. Yu

3:10 Intermission.

3:40 618. Abiotic transformation of perfluorooctane sulfononate by catalyzed permanganate under amenable in-situ conditions. **S. Park**, L.S. Lee

4:05 619. Remediation of per- and polyfluoroalkyl substances using heat-activated persulfate. **T. Bruton**, D.L. Sedlak

4:30 620. Remediation of perfluorinated surfactants in groundwater by injection of nanoscale zerovalent iron particles. **Y. Zhang**, Y. Zhi, J. Liu, S. Ghoshal

4:55 621. Degradation of Poly- and Per-Fluoroalkyl Substances ($PFAS_S$) using photocatalyst zinc oxide. K. Chu, **Y. Shao**

5:20 Concluding Remarks.

Section I

San Francisco Marriott Marquis
Sierra K

Whole Organism Metrology to Support Nanotoxicology Research in the Environment

S. K. Hanna, M. Johnson, *Organizers*
B. C. Nelson, C. M. Sims, *Organizers, Presiding*

1:30 622. Development of correlative optical microscopy and focused ion beam tomography for quantitation of metal nanoparticles in whole cells. **K. Jeerage**, A. Sanders

1:55 623. Single cell ICP-MS: Quantifying exposure and dose of gold and silver nanoparticles to freshwater algae. **R. Merrifield**, J. Lead, C. Stephan

2:20 624. Optofluidic Surface Enhanced Raman Spectroscopy (SERS) interrogation for targeted detection of individual cells. **M. Willner**, D. Graham, M. Zagnoni, P.J. Vikesland

2:45 625. Quantitative analysis of the physicochemical properties of cerium oxide nanomaterials and their influence on nano-bio interactions. **C.M. Sims**, R.A. Maier, A.C. Johnston-Peck, J.M. Gorham, S.K. Hanna, V.A. Hackley, B.C. Nelson

3:10 Intermission.

3:25 626. Transfer and accumulation of TiO_2 nanoparticles along a marine benthic food chain. J. Zhao, Z. Wang, **B. Xing**

3:50 627. Toxicity studies of silver nanoparticles on the anaerobic sulfate reducing bacteria *Desulfovibrio alaskensis*. **M.O. Montes**, J.M. Snitker

4:15 628. Effects of pH and dissolved organic carbon on the toxicity of silver nanowires to *Daphnia magna*: Acute toxicity and spICP-MS measurement of silver nanowire uptake. **L.D. Scanlan**, M.D. Montano, N. Karunaratne, M. Eng, T. Cun, J.Y. Hsu, C. ter Haar, B. Gilbert, C. Vulpe

4:40 629. Monitoring toxicity of oral magnetite nanoparticles *in vivo* using drosophila melanogaster. **X. Bi**

Evolving Nanoparticle Reactivity throughout Nucleation, Growth & Dissolution
Sponsored by GEOC, Cosponsored by COLL, ENVR and NUCL

Operando Methodology at the Junction between Fundamental Chemistry & Chemical Engineering/Fundamental Structure-Activity Relationships: The Interface of Operando with Physical Sciences
Sponsored by CATL, Cosponsored by ENVR and I&EC

Elucidation of Mechanisms & Kinetics on Surfaces/Mechanisms: Hydrogenation
Sponsored by CATL, Cosponsored by COLL and ENVR

WEDNESDAY EVENING

Section A

Moscone Center
Hall D

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

Cosponsored by ANYL
T. Anumol, R. Marfil-Vega, T. M. Young, *Organizers*

6:00 - 8:00

630. Screening and quantitation of micro-pollutants from sewage water in the process of bank filtration using UHPLC-HRAM. **E. George**

631. Assessment of biotransformation of macrolide antibiotics using target and non-target analyses by ultraperformance liquid chromatography/quadrupole-time-of-flight mass spectrometry and antibiotic bioassay. **S. Terzic**, N. Udikovic-Kolic, I. Krizman, I. Senta, I. Mihaljević, T. Smital, M. Ahel

632. Withdrawn

633. Polypropylene glycol surfactants and their degradation products as potential indicator compounds for shallow groundwater impacted by hydraulic fracturing fluids. **J.D. Rogers**, I. Ferrer, E.M. Thurman, J. Rosenblum, A.R. Bielefeldt, J.N. Ryan

634. Microcystin screening in water samples using LC-MS/MS and triggered information dependent acquisition for non-targeted variant detection. **R.A. Trenholm**, B. Vanderford

635. Levels, profiles and potential risks of dioxins and dioxin-like compounds in atmosphere surrounding industrial sources. **G. Liu**, **M. Zheng**, L. Yang, R. Jin, Q. Zhu

636. Determination and quantitative of plant metabolites by using triple quadrupole liquid chromatography coupled to mass spectrometry. **Y. Huang**, L. Zhao, A.S. Adeleye, T. Anumol, A.A. Keller

637. Withdrawn

638. Use of gas chromatography orbitrap mass spectrometry for small molecule discovery: Iodinated disinfection byproducts as case study. C. Postigo, C. Cojocariu, S.D. Richardson, **P. Silcock**, D. Barceló

639. Python script to streamline non–targeted GC×GC/TOFMS data analysis of remediated soil samples. **I. Titaley**, O. Ogba, L. Chibwe, E. Hoh, P. Cheong, S.L. Simonich

Moscone Center
Hall D

Advances & Applications in Water Sensing Technologies for Drinking Water, Re-Use, Agri-Tech & Research

P. L. Schorr, *Organizer*

6:00 - 8:00

640. Withdrawn

641. Nano-sized TiO_2 thin film synthesis and characterization on quartz slides, borosilicate beads and quartz cylinders for use in photocatalytic degradation of organic contaminants. **M. Russell**, S.R. Kanel, d. kempisty

642. Engineering analysis of water reuse through water sensing spectrophotometers. **P.L. Schorr**

Moscone Center
Hall D

Advances in Resource Recovery & Conservation in Water Systems

S. Ahuja, L. M. Blaney, T. H. Boyer, *Organizers*

6:00 - 8:00

643. Effect of humic analogue on microbial leaching of iron from hematite into seawater. **A. Aneksampant**

644. Phosphorus recovery using pelletized adsorptive materials: Study of desorption for potential reuse. **E. Martin**, M. Nadagouda, S. Chae

645. Integrated seawater aquaculture and agriculture as an avenue for food and energy security in arid regions. **Z. Almheiri**

646. Efficacy of Hydrotalcite-based nanocomposites for sorbing heavy metal in industrial wastewater. **Y. Li**, J. Ma, P.J. Alvarez

647. Phosphate ion exchange on cross-linked cationic surfactant micelles across dialysis membranes. **M. Chen**, C.T. Jafvert

Moscone Center
Hall D

Applications of Cheminformatics & Computational Chemistry in Environmental Health

C. Grulke, A. J. Williams, *Organizers*

6:00 - 8:00

648. Integrating chemometrics and computational chemistry in the workflow of suspect screening analysis of polycylic aromatic hydrocarbon biotransformation products. **I. Titaley**, L. Chibwe, K.R. Glaesemann, P. Cheong, S.L. Simonich

649. Molecular dynamics study of the influence of activated carbon pore structures on dioxin adsorption. **F. Gao**, S. Qu, C. Liu, H. Li, B.J. Teppen, C.T. Johnston, S. Boyd

650. Progress towards a general model to predict hydroxylated polycyclic aromatic hydrocarbon stabilities. **D. Walden**, I. Titaley, O. Ogba, S. Simonich, P. Ha-Yeon Cheong

651. Delivering an informational hub for data at the National Center for Computational Toxicology. **A.J. Williams**, C. Grulke, J. Smith, K. Mansouri, A. McEachran, G. Patlewicz, J. Fitzpatrick, A. Richard, J. Edwards

Section A

Moscone Center
Hall D

Aquatic Photochemistry

Cosponsored by GEOC
Financially supported by AEESP
W. Arnold, V. Lin, K. P. McNeill, *Organizers*

6:00 - 8:00

652. FT-ICRMS analysis of photochemically degraded and burned surrogate oil. **M.D. Seivert**, C.A. Davis, A.M. McKenna, Y. Corilo, R.A. Snyder, W.H. Jeffrey, P.P. Vaughan

653. Direct and indirect photochemical transformation of imidazolium, pyridinium, pyrrolidinium, and piperidinium ionic liquids. **S.G. Pati**, W. Arnold

654. Formation of brown carbon in snow and ice through SOA-like chemistry. **M. Barr**, A.M. Grannas, V. Boschi

655. Photochemical transformation of nicotine in the wastewater effluent. **L. Lushi**, s. yan, W. Song

656. Photoreactivity of plant elicitor acibenzolar S-methyl in solutions and on plant surfaces. **M. Sleiman**, M. stawinoga, S. Wang, P. Goupil, c. richard, P. De sainte claire

657. Removal of arsenic by UV photoreduction in the presence of dithionite. **B. Jung**, A. Abdel-Wahab

658. Photochemical reactions of hematite-soot mixtures in various environmentally representative scenarios. **J. Rodriguez**, J. Rodriguez, A. Reddy, H. Casique, A.M. Johansen

659. Fluorescence spectroscopy for determining photochemical degradation rates of natural and industrial crude oil with DOC and GC×GC/TOF-MS analysis. **K. Snyder**, N. Mladenov, A. Nour, C. Campbell, M. McConnell, R. Luna, E. Hoh

660. Modeling singlet oxygen production by dissolved organic matter. **J.R. Laszakovits**, Y. Chin, A. MacKay, **C.M. Sharpless**

661. Exploration of the role of ambient conditions in organic aerosol growth via photosensitized oxidation of VOCs. **M. Galloway**, M.G. Ippolito, J.M. Ackendorf, A. Sager

662. Antioxidant response to singlet oxygen production under light stress on the polyphasic rise of chlorophyll a fluorescence induction curves of *Botryococcus braunii*. **F.M. Joaquin**, G. Guihurt, K. Doble, V. Barcelo Bovea, K. Griebenow

663. Biological toxicity of extracts from photochemically degraded crude oil water accommodated fractions. **P. Bann**, **S. Bifulco**

664. Fractionation and biological toxicity studies of crude oil water accommodated fractions with dispersant. **C. Brannon**, P. Bann, S. Bifulco, J. Fair, M.D. Seivert, W.H. Jeffrey, P.P. Vaughan

Moscone Center
Hall D

Bioprocesses for Engineered Nanomaterials in Soil-Plant Systems

J. C. White, B. Xing, Y. Yang, *Organizers*

6:00 - 8:00

665. *In-situ* study of the evolution of quantum dots in contact with the biofilm/mineral interface. **M. Desmau**, **G. Alexandre**, C. Levard, G. Ona-Nguema, V. Vidal, J. Stubbs, G. Charron, Y. Sivry, M.F. Benedetti

666. Effects of carbonaceous nanomaterials on soil-grown soybean and its symbiosis with nitrogen-fixing bacteria: A mesocosm study. **Y. Wang**, D.C. Bouchard, R.M. Nisbet, J.P. Schimel, J.L. Gardea-Torresdey, P. Holden

667. Molecular mechanisms underlying biotransformation of carbon nanotubes by *Mycobacterium vanbaalenii* PYR-1. **Y. You**, J. Angermann, B. Xing, S. Kim, O. Kweon, C. Cerniglia, Y. Yang

Section A

Moscone Center
Hall D

Chemical Principles of Environmental, Cellular & Organismal Nanotoxicology

Cosponsored by COLL
C. Celle, L. L. Charlet, B. Gilbert, S. Lehman, J. SIMONATO, C. Vulpe, *Organizers*

6:00 - 8:00

668. Stability and cytotoxicity of synthesized CeO_2 nanoparticles in water. **Y. Lin**, L. Shen, Y. Shih

669. Predictive insight into the silver nanomaterial protein corona fingerprint. **M.R. Findlay**, **D.N. Freitas**, M. Mobed-Miremadi, **K. Wheeler**

670. Exploring impacts of complex nanomaterials using the nematode *C. elegans*. **N. Niemuth**, M. Hang, X. Zhang, R.J. Hamers, C.J. Murphy, R. Klaper

671. Characterization of biophysical characteristics that impact individual peptide binding to an engineered nanomaterial within a complex blood protein corona. **M. Nguyen**, **K. Wheeler**

672. Modeling the environmental fate of graphene oxide and its transformation products in surface waters. **D.C. Bouchard**, B. Avant, X. Chang, L. Guiney, Y. Han, M. Henderson, M. Hersam, C. Knightes, S. Martin, J. Spear, R.G. Zepp

673. Characterization of the dissolution properties of copper oxide nanoparticles in cell culture media and their effects on *in-vitro* toxicity. **S. Jang**, W. Kim, E. Cho, S.I. Yang

674. Inhibition effects of silver nanoparticles and ions on toxic airborne fungi. **E. Cho**, J. Lee, S.I. Yang

675. Nanotoxicology of NMC, PAH-AuNP, Citrate-AuNP and *D. melanogaster*. **B. Curtis**, M. Hang, R.J. Hamers, X. Zhang, C.J. Murphy, R. Klaper

Moscone Center
Hall D

Chemistry & Application of Advanced Oxidation Processes for Water Detoxification, Treatment & Reuse

Financially supported by AEESP
D. D. Dionysiou, X. He, G. Li Puma, D. Minakata, K. E. O'Shea, X. Quan, *Organizers*

6:00 - 8:00

676. Photodegradation of antibotic in organic matter solution using H_2O_2/UV process. **A.S. Batista**, N. Silva, L. Gil da Barbara, I.V. Corrêa, A.S. Teixeira

677. Degradation of a toxic molecule in industrial effluents using UV/PS activated systems: Application to o-toluidine. **A. Ghauch**, A. Baalbaki, M. Amasha, S. Al Hakim, Y. Nehme, R. El Asmar

678. Withdrawn

679. Withdrawn

680. Withdrawn

681. Effects of bulk water temperature on PAH degradation by ultrasonically activated persulfate. **W.P. Fagan**, J. Zhao, L.K. Weavers

682. Withdrawn

683. Gaseous VOC abatement in a Circulating Fluidized Bed (CFB) riser reactor: A Computational Fluid Dynamics (CFD) modeling approach. **D. Matsumoto**, L. Diniz, J.L. de Paiva, A.S. Teixeira, R. Guardani, T. Hewer

684. Photocatalytic decomposition of imidacloprid by TiO_2-Fe_3O_4 nanocomposite in a PV-UV-LED continuous photoreactor. **M. Eskandarian**, M. Fazli, M. Rasoulifard

685. Natural enhancement of Solar Disinfection (SODIS) via the photo-Fenton process towards bacterial and chemical contaminant elimination in developing countries. **S. Giannakis**, C. Pulgarin

686. Photocatalytic degradation of C.I. basic red 46 in thin film fixed bed photoreactor: Non linear regression analysis and intermediates. **M. Berkani**, M. Bouhelassa, B. Abdelkrim, M. Bouchareb, Y. Kadmi

687. Influence mechanisms of textile-dyeing sludge characteristics on degradation of anilines by integrated ultrasound-permanganate treatment. **X. Ning**, **J. Liang**, T. An, J. Sun, X. Lu, Y. Zhang

688. Efficient degradation of DBP by magnetic nano-fiber GO-$MnFe_2O_4$ as ozonation catalyst in the water. **Y. Ren**, J. Ma, H. Zhang

689. Chloroperoxidase oxidative transformation of roxarsone. **y. tan**, X. Wang, K.E. O'Shea

690. Bioactivity-oriented approach to investigate fate and transformation of selected personal care products during chlorination. L. LI, **W. Han**, K. Yeung

691. Simultaneous photocatalytic Cr(VI) reduction and ciprofloxacin oxidation over TiO2/Fe0 composite under aerobic conditions: Performance, durability, pathway and mechanism. **z. Diao**

692. Elimination of analgesic residuals in water by ultrasound and ultrasound-assisted catalytic processes. **A. Ziylan Yavas**, N.H. Ince

693. Photocatalytic removal of toluene in a TiO_2 /SiO_2 circulating fluidized bed reactor. **L. Diniz**, D. Matsumoto, T. Hewer, A.S. Teixeira, J.L. de Paiva, R. Guardani

694. Withdrawn

695. Application of iron mining residue for heterogeneous photo-fenton degradation of sulfathiazole and sulfamethazine. **S.C. Ayala**, P. HAMMER, R. Pupo Nogueira

696. 17-Ethinylestradiol degradation promoted by persulfate activated with UV-light. **C. Rackov**, A.G. Camara, T.A. Ferreira, H.N. Maia de Oliveira, M. Vianna, O. Chiavone-Filho, C.A. Oller do Nascimento

697. Semiconductor nanomaterials for solar photocatalytic activity. L. Gustin, B. Dallakoti, X. Cao, **M.A. Tarr**

698. Toxicity removal by electro-peroxone process. **D. Amado Piña**, G. Roa Morales, G. Santana Martínez, C. Barrera-Díaz, P. Balderas-Hernández, R. ROMERO ROMERO, **R. Natividad**

699. Ag nanoparticles stabilized with starch deposited on the TiO_2 and TiO_2-CeO_2 systems. **J.C. Arevalo Perez**, J.G. Torres Torres, I. Sanchez Lombardo, A. Cervantes, A. Cordero, A.A. Silahua

700. Probing electron trapping energy states of TiO_2-WO_3 composites and their consequences on photocatalytic activity for bisphenol A removal. G. Zerjav, S. Arshad, P. Djinovic, **A. Pintar**

701. Removal of alkyl nitrate chemical contaminants in wastewaters using advanced oxidative processes. **S. Arciva**, B. Daws, S.P. Mezyk, M.P. Schramm

702. Bromine atom reactions under advanced oxidation process conditions. **A. Lechner**, **S.P. Mezyk**

703. Withdrawn

704. Design of hierarchical photocatalyst for waste water treatment. **B. Barbero**, C.M. Parlett, A.F. Lee, K. Wilson

705. Withdrawn

706. QSAR prediction of rate constants for the reaction of ozone with organic compounds using quantum chemical descriptors beyond HOMO. **P.R. Tentscher**, U. von Gunten

Section A

Moscone Center
Hall D

Chemistry of Water Treatment from Sorption to Taste & Odor: Symposium honoring the Contributions of Mel Suffet

M. J. McGuire, J. A. Pedersen, F. L. Rosario, *Organizers*

6:00 - 8:00

707. Photochemical reactivity of thermally-altered water soluble organic matter. **K.D. Couch**, F.L. Rosario, G. McKay, Y. Yu, A. Retuta

708. Characterizing the properties and release kinetics of dissolved organic carbon from thermally treated soils in arid climates. **A. Retuta**, Y. Yu, F.L. Rosario

709. Do all reduced sulfur compounds in foul air vary in the same manner over a daily fluctuation in the wastewater treatment process?. **T. Vitko**

Moscone Center
Hall D

Clay Minerals Selectivity & Its Environmental Applications

M. ElSayed, *Organizer*

6:00 - 8:00

710. Use of NMR carbon-type distributions to assess the extent of preferential adsorption of natural organic matter components. M. Khalaf, G. Chilom, **J.A. Rice**

711. Sorption of substituted pyridines to aluminosilicate clays: Building predictive models for cationic amines. **D. Haas Freeman**, J. Sullivan, D. Vasudevan

Section A

Moscone Center
Hall D

Contaminants in Urban & Coastal Estuarine Ecosystems

Cosponsored by AGRO
K. L. Armbrust, P. Saranjampour, *Organizers*

6:00 - 8:00

712. Determination of total copper concentration and copper speciation in Humboldt Bay, California through use of competitive ligand exchange-adsorptive cathodic stripping voltammetry. **M.A. Amezcua**, N. Tuttle, M.P. Hurst

713. Soil degradation and sorption of azithromycin in simulated California river and river bed conditions. **M.L. Maier**, R.S. Tjeerdema

714. Anti-depressant and legacy contaminant fate in the Gulf of Mexico. **J. Landry**, K.L. Armbrust

715. Potential mechanisms of 2,6-dichloro-4-nitroaniline (Dicloran) phototoxicity to *Pimephales promelas* (Fathead Minnow). **E.N. Vebrosky**, K.L. Armbrust

716. Analysis of metabolites of Polycyclic Aromatic Hydrocarbons (PAH) in fish bile: A 15-year temporal survey of PAH exposure in Puget Sound, WA. **C. Gallagher**, D. Da Silva

717. From sediment to top predators: Broad exposure of polyhalogenated carbazoles in San Francisco Bay (U.S.A.). Y. Wu, H. Tan, R.A. Sutton, **D. Chen**

718. Withdrawn

Moscone Center
Hall D

Contaminants of Emerging Concern in Natural & Engineered Systems

Cosponsored by AGRO, ANYL and CEI
L. M. Blaney, A. J. Hernandez, *Organizers*

6:00 - 8:00

719. UV-driven antibiotic-to-antibiotic transformation pathways and kinetics of sulfonamides. **D. Ocasio**, **H.A. Adejumo**, K. Mangalgiri, K. He, L.M. Blaney

720. Photolytic fate of organo-selenium and -tin chemicals and their carbon analogs in the natural environment. **M. Hopanna**, S. Steinly, L.M. Blaney

721. Photocatalytic degradation of 1,4-dioxane and trihalomethanes by zinc oxide. **M. Hwangbo**, Y. Shi, E. Claycomb, B.S. Abada, K. Chu

722. Occurrence and fate of low molecular weight aldehydes in potable water reuse systems. **E. Marron**, C. Prasse, D. Sedlak

723. Occurrence of phthalic acid esters and alkylphenols in the Asan Lake region, Korea. Y. Lee, T. Kim, J. Lee, W. Choe, **K. Zoh**

724. Withdrawn

725. Enabling time dependent predictions of emerging organic chemicals in the environment using the OrganoFate model. **R. Thakar**, D. Elsbury, K. Garner, A.A. Keller

726. Toxicity and degradation of a polyalkylene glycol-based hydraulic fluid. **Y. Yang**, K.K. Das, R. Murnane, J. Hou, V. Edirveerasingam

727. Identification of PAH oxidation products on secondary organic aerosols. **A. Kramer**, S. Simonich, A. Zellenyuk, K. Suski, D. Bell

728. Hexachlorobutadiene in agricultural soils from the Yangtze River Delta of China. **J. Sun**, **X. Li**

729. Adsorptive removal of contaminants of emerging concern from water with imprinted zeolite carbon composites functionalized with extra-framework Cu^{2+}. **B. Fernandez-Reyes**, K.M. Gonzalez-Ramos, K. Ortiz-Martinez, A.J. Hernandez

730. Predicting sorption of anionic pharmaceuticals to soils: An evaluation of potential probe compounds. **L. Alper**, A. Lopez, D. Vasudevan

731. Characterizing in-situ methane-enhanced biostimulation potential for 1,4-dioxane biodegradation in groundwater. **V. Sadeghi**, D. Chiang, R. Mora

732. Withdrawn

733. New analytical method for analysis of a broad range of chemicals found in Australian waters and wastewaters. **A. Kahl**

Moscone Center
Hall D

Environmental Chemistry: Undergraduate & Graduate Classroom, Laboratory & Local Community Learning Experiences

Cosponsored by ANYL and CHED
Financially supported by AEESP
M. A. Benvenuto, E. Roberts-Kirchhoff, *Organizers*

6:00 - 8:00

734. Seasonal differences in mercury concentrations in fish from Flint Creek, Alabama: Implications for monitoring. **P. Okweye**

735. Measurement of hazardous air pollutants with regard to environmental justice policy in the Atlanta metropolitan region. W. Hudson, D. Patel, **K. Zimmermann**

736. Adsorption of herbicide on the model solid/liquid interface. **P. Orlović-Leko**, K. Vidović, I. Ciglenečki

737. Localized surface plasmon resonance and electrochemical analysis of electron transfer mediators. **D. PANFILOV**, P.W. Hall

738. Effects of wastewater treatment on Azithromycin. **E. Avila**, A. Hermelinda, M. Perri

739. Levels of metals in aquatic plants, surface water and sediments from a natural wetland in Puerto Rico. **P.J. Rivera Molina**, M. Ramos , **E. Rivera**, **W. Figueroa**, **P.N. Molina**, **A. Cartagena**, **W. Cuevas**

740. Gas-phase mercury cycles during May at urban/industrial sites on Svalbard. **S. Le Cras**, M.H. Hermanson, A. Nikulina

741. Synthesis of a series of podand ligands all incorporating long-chain aliphatic moieties. **G. Nguyen**, J. Pothoof, S. Tinawi, M.A. Benvenuto

742. Analysis of mineral cosmetics with a handheld X-ray fluorescence analyzer. **S. Thomas**, **G. Nguyen**, D. Stokes, T. Tieu Ngo, M.A. Benvenuto, E. Roberts-Kirchhoff

Section A

Moscone Center
Hall D

From the Bench to the Field: Evaluating Innovative Remediation & Detection Technologies

S. R. Al-Abed, H. Henry, *Organizers*

6:00 - 8:00

743. Enhanced field screening methods of soil gas in petroleum hydrocarbon contaminated sites. **C.S. Chen**, C. Tien, C. Kuo

744. Evaluation of oxidizer hazard in sorbents used to solidify transuranic waste for the waste isolation pilot plant. **B.A. Crawford**, T. Hayes, J. Lucchini, C. Chancellor, C. Poulos

745. Development and demonstration of high pressure direct push jet injection for controlled emplacement of treatment agents in low-permeability geologic matrices. **N.D. Durant**, C. Ross, W. Slack

746. Utilization of multivariate analysis for evaluating geomaterial performance on fluoride removal from water. **E. Kim**, J. Park, S. Han, Y. Lim, K. Kong, J. Do

747. Identification and quantification of polycyclic aromatic hydrocarbon breakdown products in thermally remediated soil from the Wyckoff/Eagle Harbor Superfund site. **L. Santiago Delgado**, E.L. Davis, S. Simonich

748. Electrokinetic enhanced amendment transport at a contaminated field site. **D.M. O'Carroll**, A. Chowdhury, J. Gerhard, N. Head, A. Inglis, A. Nunez Garcia

Section A

Moscone Center
Hall D

General Posters
S. R. Al-Abed, S. O. Obare, *Organizers*

6:00 - 8:00

749. Removal of microcystin-LR using powdered activated carbon: Effects of water quality and activated carbon properties. **A. Bajracharya**, J.J. Lenhart

750. Adsorption of fluoride in aqueous solution using Jamun (Syzygium cumini) seed derived activated carbon. **R. araga**, C. Sharma

751. Fabrication and characterization of surface-patterned thin-film composite membranes. **O. Heinz**, S.H. Maruf, M. Aghajani, A.R. Greenberg, Y. Ding

752. Image analysis for assessment of nanomaterial uptake and elimination kinetics. **T. Kefela**, M. Mortimer, P. Holden

753. Modification of graphene oxide with magnesium oxide: Synthesis, characterization, and demonstration with high-rate adsorption of methylene blue. **M. Heidarizad**, S.S. Sengor

754. Caffeine analysis of wastewater using online SPE-LC high resolution mass spectrometry. **S. Spence**, P.R. Gardinali

755. Correlation of chemical composition of wood smoke and diesel exhaust particulate matter with light absorbance and toxicity. **K. Kukowski**, B.C. Brinchmann, R. Cochran, J.A. Øvrevik, A. Kubatova

756. Factors affecting the fate of dissolved organic carbon in groundwater. **L.K. McDonough**, A. Baker, D. O'Carroll, M. Andersen

757. Comprehensive real-time fenceline monitoring using SIFT-MS. V.S. Langford, **B.J. Prince**, D.B. Milligan, T. Wilks, T. Potter

758. Removal of chromium(VI) and chromium(III) ions from aqueous solution using bio-char generated from agricultural waste products. **D.F. Gonzalez**, K. Flores, M. Gonzalez, A. Cantu, C. Serna, T.M. Eubanks, J.G. Parsons

759. Effect of absorber and desorber unit interactions on N-nitrosamine formation during amine-based carbon capture. **Z. Wang**, Z. Zhang, W. Mitch

760. Characterization of heavy metal adsorption using precipitates in acid mine water from abandoned metal mine. **J. Kim**, J. Kim, C. Seo, J. Seo, Y. Kim

761. Quantitative analysis of tetrabromobisphenol-A and tribromobisphenol-A in dust from consumer electronics. E. Gaulke, C.R. Butler, A. Schoffstall, L.E. Lowe, **J.E. Owens**

762. Comparison of the persistence of caffeine in constructed wetlands versus convention wastewater treatment systems. **P.R. Alvaro**, C. Tripp, M.P. Hurst

763. Reduction of ferric iron in aqueous soot slurries. H. Casique, A. Reddy, C. Neuman, **A.M. Johansen**

764. Detailed examination of particulate matter from waste vegetable oil biodiesel combustion: Oxidative potential relationships to fuel feedstock and blend ratio composition. **B. Holmen**, B. Rukavina, J. Kasumba, J. Reed, Y. Han, N.K. Fukagawa

765. Novel approaches to the study of bio-based products and anaerobic digestion per compost environment standard. E.J. Parish, G. Ren, H. Honda, **S. Lee**, Y. Lo

766. Novel development to the application of life cycle approach to design greener products. G. Ren, E.J. Parish, **H. Honda**, Y. Lo

767. Novel approaches to the application of estimation methods to reduce carbon emission on climate change. G. Ren, E.J. Parish, H. Honda, **Y. Lo**

768. Influence of dissolved organic carbon on mercury transport in watersheds affected by historical gold and mercury mining in northern California. **C.N. Alpers**, J.A. Fleck, M. Marvin-DiPasquale, G. Aiken

769. Identification of fungal genus level using DNA barcode method. **D. Kim**, D. Kang, J. Lee, E. Cho, S.I. Yang

770. Relationships between dissolved organic matter and mercury cycling in California ecosystems affected by historic mining. **J.A. Fleck**, C. Alpers, M. Marvin-DiPasquale, G. Aiken

771. Occurrence of micropollutants in the Han River, Seoul, Korea. **M. Kim**, S. Tak, T. Kim, J. Lee, W. Choe, Y. Lee, K. Zoh

772. Light-based technology for surface disinfection. N. WONG, N. ZHAN, **Q. CHANG**, J. KWAN, K. Yeung

773. Simplified method for concentrating volatile disinfection byproducts. **K.E. Furst**

774. Biocomposite magnetic coated chitosan beads for removal of estrone products from water systems. **S.M. Ríos-Bonilla**, V. Fernandez-Alos, O. Perales, F. Roman

775. Effect of UV and chlorination-dechlorination tertiary treatment on pharmaceutic loads in Chicago WWTP effluent. **a. welch**

776. Evaluation of swellable organically modified silica passive samplers in complex matrices. **S. Pitell**, P. Edmiston

777. Study of degradation products derived from hydrocortisone by ozonolysis. **T. Rahman**, T. Siddiquee

778. Elimination of tetrakis (hydroxymethyl) phosphonium chloride from surface water using biochar as an adsorbent. **S.R. Akech**, O.O. Harrison, A. Saha

779. Using waste products of the seafood industry to reduce anthropogenic carbon dioxide emissions. **B. Barnes**, P. Sharma, U. Onuchukwu, V. Volkis

780. Investigation of anti-depressant load reduction in wastewater treatment plant effluent by hypochlorite disinfection. **R.A. Mole**, P. Edmiston

781. Recyclable superparamagnetic adsorbent based on mesoporous carbon for sequestration of radioactive cesium. **S. Husnain**, W. Um, Y. Chang, Y. Chang

782. Magnetite graphene oxide encapsulated in alginate beads for remediation of heavy metals contaminated wastewater. **C.V. Huong**, A.D. Dwivedi, T.T. Le, S. Seo, E. Kim, Y. Chang

783. Comparing removal efficiencies of 1,4-dioxane and arsenite by nZVI-common oxidants system: Persulfate, peroxymonosulfate and hydrogen peroxide. **y. kang**, E. Kim, H. Yoon, D. Oh, Y. Chang

784. Impacts of diverse nanoscale zero-valent iron on aquatic and terrestrial organisms: Physicochemcial insight on nanomaterials. **H. Yoon**, M. Pangging, M. Jang, Y. Hwang, y. kang, J. Kim, Y. Chang

785. Inhibition and gene expression of wastewater nitrifying enrichments exposed to cyanide. **V. Kapoor**, M. Elk, J. Santo Domingo

786. Extraction chromatography using various thiosemicarbazone ligands for metal complexation and the potential environmental applications. **K. Richards**, E.C. Lisic

787. Decomposition characteristics of model organic contaminants by persulfate/ZVI system. **Y. Kim**, H. Kwon

788. Magnetization of silicotitanate for separation of cesium from aqueous phase using a magnetic separating system. **Y. Kim**, J. Kim, W. Lim, S. Choi, H. Kwon

789. Detection of volatile arsenic-sulfur species in environments of high level of sulfide. **J. Zhang**, **S. Jamison**

790. Chemical changes during anaerobic decomposition of hardwood, softwood, and old newsprint under mesophilic and thermophilic conditions. **F. De la Cruz**

791. Implication of nanomaterial embedded polymer composites in the environment: Decomposition kinetics and nanorelease of environmentally aging CNT composites based of activation energy calculation. **C. Han**, E. Sahle-Demessie, **A. Zhao**, J. Wang

792. Conceptual design of a cyclone separator for the separation and recovery of the immobilized anionic radionuclides using a flow analysis. **T. Park**, Y. Choi

793. Influence of oxygen concentration in aqueous solutions of electrolyte on the process of singlet oxygen generation during electrochemical disinfection of contaminated water. **N. Barashkov**, **T. Sakhno**, I. Irgibayeva

794. Development of an analytical method for the measurement of the metabolites of Organophosphate Flame Retardants (OPFRs) in human urine using liquid chromatography-tandem mass spectrometry. **J. She**

795. Assessment of the interactions of herbicides with manganese dioxide to evaluate its availability as a possible remediation process. **E. Segura**, N. López-Santiago, A. Ceniceros, M.E. Gutierrez Ruiz

796. Adsorption of copper and lead to ZnS nanomaterial. **J. Cantu**, J.G. Parsons

797. Method development for the chromatographic/mass spectrometric detection of arsenic species in sulfidic waters. **A. Harper**, **D. Bolden**, J. Zhang

798. Adsorption of chromium(VI) metal ions via amino modified biochar. **K. Flores**, D.F. Gonzalez, J.G. Parsons

799. Analysis of heavy metal content in the Conasauga, Oostanaula and Coosa Rivers utilizing the PerkinElmer NexION 350D ICP-MS. W. Hudson, C. Fernandes, D. Jones, **K. Zimmermann**

800. Alteration of membrane-adherent biofilm properties by acoustic cavitation. **A.N. Rosi**, I. Mergos, M. Qiu, H. Verweij, P. Mouser, L.K. Weavers

801. Oxidation of 3,5,6-trichloro-2-pyridinol by heat-activated persulfate. **R. Mogharbel**, F.M. Zullo, C. Yestrebsky

802. Reformulation of treatment system for remediation of polychlorinated biphenyls in paint. **A. Almutairi**, C.G. Lewis, K. Duranceau, C. Clausen, C. Yestrebsky

803. Dechlorination of octachlorodibenzofuran by zero valent magnesium in acidified ethanol system. **A. Mogharbel**, **C. Yestrebsky**

804. Wastewater analysis: Challenges and optimization of solid phase extraction methods. **C. Good**, P. Edmiston

Moscone Center
Hall D

Green Chemistry & the Environment

Cosponsored by CEI
Financially supported by AEESP
A. M. Balu, R. Luque, S. O. Obare, *Organizers*

6:00 - 8:00

805. Withdrawn

806. Distribution of microplastic pollution in a tributary of the Three Gorges Reservoir: A case study in Xiangxi River. **K. Zhang**, H. Hu, X. Xiong, C. Wu, P.K. Lam

807. Focal plane array-based micro-FT-IR imaging as an effective tool for microplastic monitoring within wastewater treatment facilities. **A.S. Tagg**, J.P. Harrison, M. Sapp, E.L. Bradley, C. Sinclair, J.J. Ojeda

808. Bioactive compounds in okra seed extract as novel anti-hepatitis C virus agents. **B. Dayal**, K. Basun

809. Microplastic size effect on sorption coefficient and toxicity of polychrinated biphenyl. **r. Jiang**, W. Lin, E. Zeng

810. Relative performance of different peroxone advanced oxidation processes on the Oil Sands Process-Affected Water (OSPW) remediation. **M. Meshref**, A. Singh, M. Belosevic, M. Mohamed Gamal El-Din

811. Fe-assisted hydrothermal liquefaction and sequential catalytic cracking for production of light olefins from protein-rich microalgae. **Y. Hirano**, Y. Arita, Y. Kasai, N. Funakoshi, A. Nishimura, M. Taniguchi, K. Sagata, Y. Kita

812. Nitrogen and sulfur content of natural organic matter. **S. Coleman**, J. Rice

813. Reactions in poly(a-olefin)s: A replacement for alkane solvents. **T. Malinski**, M.L. Harrell, D.E. Bergbreiter

814. Protecting palladium: Balancing stability and reactivity in support-tether design. **D. Paull**, S.P. George

815. Influence of engineered nanoparticles on microorganism growth in the presence and absence of β-lactam antibiotics. **K. Current**, N.M. Dissanayake, S.O. Obare

816. Influence of the engineered iron oxide nanoparticles on the growth and mutagenicity of microorganisms. **N.M. Dissanayake**, K. Current, S.O. Obare

817. Conversion of carbon dioxide to formic acid mediated by light driven electron storage systems. **J.M. Arachchilage**, S.O. Obare

818. Chemical speciation of anthropogenic nanoparticles. **S.O. Obare**

819. Polymers that substantially degrade, decompose or depolymerize: Draft interpretation affecting the notification of new polymers under Canadian new substances notification regulations. **G. Hammond**

820. Extracting calcium and strontium cations from hydraulic fracturing flowback water using pyridine based small molecules. **S.G. Tajc**

821. Withdrawn

822. Monolithic aerogels of graphene-mixed metal oxides for air purification and disinfection. W. Chen, **Z. Li**, K. Yeung

Section A

Moscone Center
Hall D

Have Great Lakes Restoration Programs Been Successful? The Case of Legacy & Emerging Pollutants

K. C. Hornbuckle, J. J. Pagano, *Organizers*

6:00 - 8:00

823. Pyrogenic carbon materials in facilitating the abiotic degradation of DDT and its metabolites. K. DING, **W. Xu**

824. Air-Water exchange of legacy and emerging contaminants in Lake Michigan near Chicago. **A. Boesen**, A. Martinez, K.C. Hornbuckle

Section A

Moscone Center
Hall D

Innovative Materials & Technologies for Sustainable Water Purification

Cosponsored by CEI
E. L. Cates, B. P. Chaplin, J. Choe, J. Liu, D. Shuai, W. Zhang, *Organizers*

6:00 - 8:00

825. Effects of biological decontamination on chemical contaminants in emergency drinking water. **E. Brack**, W. Zukas, N. Farhadi, M. McPartlin, T. Tiano

826. Study on new method of TiO_2 nanorod arrays preparation and photocatalytic performance. **G. Wang**, Y. Shih, Y. Su

827. Nanoconfined water in graphene hydrogel as superadsorbents for water purification. **J. Ma**, **Y. Sun**, M. Yang, **M. Zhang**, F. Yu, **F. Yang**, **K. Chu**, J. Zheng

828. Ceria nanoparticles for sustainable heavy metal water filtration application. **M.J. King**, L. MacManus-Spencer, M.E. Hagerman

829. Reversible, selective trapping of perchlorate from water in record capacity by a cationic metal-organic framework. **I. Colinas**

830. Withdrawn

831. Cloning and expression of protocatechuate dioxygenase gene from *Klebsiella pneumoniae:* Application for degradation of sulphonated aromatic amines. **S. Dixit**, S. Garg

832. Preparation and application of substrate-immobilized TiO_2 nano-photocatalysts for organic micropollutants removal. **S. Hong**

833. Properties evolution of fresh nanoscale Zero-Valent Iron (nZVI) in aerobic and anaerobic water. **A. Liu**

834. Synthesis of biochars using household and agricultural byproducts (orange peel, pistachio shells, and corn stover) and their application in lead adsorption from aqueous solutions. **S. Mireles**, H. Rivera, J. Kang, T. Trad, J.G. Parsons

835. Withdrawn

836. Enhanced photoelectrochemical performance of the TiO_2 nanotube arrays sensitized with Fe_2TiO_5-graphene oxide for glycerol oxidation. **N. Pico**, **M. Niño**, Á. Meléndez

837. Understanding on the effects of pH and organic carbon concentration on nutrients removal in SBR process for treating domestic wastewater. **S. Lee**, M. Park, S. Yeon, D. Park

838. Individual water purification. **W. Zukas**, E. Brack, T. Tiano, J. Dunn, T. Oriard, Z. Gleason, K. Weitz, I. Norris

839. Fundamental study on chromium biosorption by natural biomass. **H. Yang**, D. Park, N. Kim

840. Modeling study of continuous biosorption process for metal removal and recovery by fermentation biowaste. **N. Kim**, J. Seo, H. Yang, D. Park

841. Hydrothermal treatment of sewage sludge to improve biological nitrogen removal process. **M. Park**, S. Lee, S. Yeon, D. Park

842. Optimization of anoxic-oxic process for the treatment of domestic wastewater with low C/N/P ratio. **S. Yeon**, S. Lee, M. Park, D. Park

Section A

Moscone Center
Hall D

Integrated & Sustainable Environmental Remediation

Cosponsored by CEI
S. K. Brar, M. Cledon, R. Galvez, *Organizers*

6:00 - 8:00

843. Comprehensive performance of vermibiofilter on treating typical pollutants. **Y. Wang**, M. Xing

844. Iron stability on the inner surface of PVC-U drinking pipe. **J. Wang**, T. Tao

845. Remediation of *s*-triazine herbicide spills via adsorption and biodegradation using hydrophobic bio-silica particles. **S. Yeom**, J.K. Sakkos, A. Aksan, L.P. Wackett

846. Synthesis and application of chemically-modified solid wastes as filtering devices of antibiotics from wastewater. **B. Sohn**

847. Synthesis and characterization of stabilized oxygen-releasing CaO_2 nanoparticles for soil remediation. **C. Yeh**, W. Chang, R. Wang, Y. Shih

848. Synthesis of magnetic iron oxide nanoparticles for removal reactive black 5: Reaction mechanism. **M. Chang**, Y. Shih

849. Soil organic matter in native prairies and prairie restorations: Structural studies of humic acids with carbon-13 NMR spectroscopy. A.K. Poladi, **J.S. McConnell**

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

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

852. Distribution of soil phosphorus and nitrate in the Spring Lake watershed region of western Illinois. S. Nicioli, K.E. Ribordy, J. Boeckler, **J.S. McConnell**

853. Metals removal from Acid Mine Drainage (AMD) using Bioelectrochemical System (BES). **J. Liu**, M. Peiravi

854. Removal of oxyanion pollutants via cationic transition metal coordination polymers. **D. Popple**, S. Citrak, K. Tabler-Miller, A. Alvarenga, K. Stone-Hunter, S. Oliver

855. Comparative analysis of compost and alkaline battery oxide amendments for reducing lead solubility and phytoavailability. **N. Abo-Sido**, C. Gallagher, G. Jerz, B. Love, D. Brabander

856. CO_2 Mineralization and utilization by high-gravity carbonation process: Past, present and future. **S. Pan**, M. Wang, S. Pei, Y. Chen, P. Chiang

857. Degradation of textile azo-dyes using enzymatic treatment with soybean peroxidase. **L.G. Cordova Villegas**, N. Biswas, K.E. Taylor

858. Virucidal activity and mechanism of an antimicrobial surface coating. **Q. CHANG**, H. LEUNG, J. KWAN, K. Yeung

Section A

Moscone Center
Hall D

Nanomaterials in Consumer Products: Formulation, Characterization & Applications Across the Product Life Cycle

S. Hussain, A. J. Kennedy, C. Sayes, *Organizers*

6:00 - 8:00

859. Manganese oxide (MnO) nano-powder in microorganism ionizing respirator gen-1 (MIR-1) for personal protection against airborne pathogens. **M. Park**, B. Chua, A. Son

860. Synthesis of nano-structured MoS_2 materials doped with lanthanide element for upconversion enhancement of solar cell performance. **J. Wu**

861. Monitoring released TiO_2 and ZnO nanoparticles in swimming pool. **S. Lee**, S. Jang, Y. Yim, S.I. Yang

862. Withdrawn

863. Fate and transport of nanoscale zinc oxide in subsurface environment. **S.R. Kanel**, S.R. Al-Abed

Section A

Moscone Center
Hall D

New Challenges in Environmental Chemistry: Marine Ecosystems & Microplastics

A. Kahl, *Organizer*

6:00 - 8:00

864. World oceans under serious threat: Debris polystyrene generate styrene oligomer in ocean water and sand areas. M. Okada, **K. Koizumi**, K. Yamada, B. Kwon, K. Saitoh, T. Takemura, N. Maximenko, **K. Saido**, T. Hiaki

Moscone Center
Hall D

Novel Membrane Materials & Processes for Water Purification

D. Jassby, B. Mi, *Organizers*

6:00 - 8:00

865. Novel membranes for sea water desalination via membrane distillation. **S. Ragunath**, S. Roy, S. Mitra

866. Surface modification of reverse osmosis membrane by graphene oxide grafting with different oxidation degrees. **W.H. Mak**, D. Jun, B. McVerry, M. Kowal, X.W. Huang, R.B. Kaner

867. Advanced membranes enabled by atomic layer deposition. **Y. Wang**

868. Examining relationship of surface chemistry to silica scaling and combined silica-foulant fouling with modified RO membranes. **A. Quay**, T. Tong, M. Elimelech

Section A

Moscone Center
Hall D

Pesticides in Surface Water: Monitoring, Modeling, Mitigation, Risk Assessment & Regulation

Cosponsored by AGRO
J. Gan, K. S. Goh, Y. Luo, D. Young, *Organizers*

6:00 - 8:00

869. Flow-weighted sampling to measure efficacy of a constructed water quality treatment pond in Folsom, CA. **M. Ensminger**, L.R. Oki, S. Teh, J. Sisneroz, B. Pitton, L. Deanovic, M. Stillway, K.S. Goh

870. Development of a California-based receiving waterbody model for pesticide registration evaluation. **Y. Xie**, Y. Luo, N. Singhasemanon, K.S. Goh

871. Aquatic risk evaluation of new pesticide products as part of California pesticide registration – a preventive approach for surface water protection. **N. Singhasemanon**, Y. Luo, X. Deng

872. Protecting surface water from pesticide contamination in California. **K.S. Goh**

873. Analyses of surface water monitoring results for pesticides in agricultural areas of central coast and Southern California. **X. Deng**, D. Wang, K. Kelley, K.S. Goh

874. Pesticide mitigation using woodchip bioreactors in agricultural regions of California. **S.D. Wagner**, X. Deng, G. Bates, P. Krone-Davis, R. Clark, J. Adelaars, K.S. Goh

875. Integrated vegetated ditch system reduces chlorpyrifos loading in agricultural runoff. **B. Phillips**

876. Developing passive sampling methods for bioavailable current-used pesticides in sediment. **W. Lao**, G. Kim, K.A. Maruya

877. Effectiveness of California's surface water regulations at lowering pyrethroid concentrations in surface waters. **R. Budd**, D. Wang, M. Ensminger

878. Towards a spatio-temporal analysis of pesticide concentrations. S. Jiao, O. Sonmez, **D. Iong**

879. Analysis of 3 commercial tampon brands for presence of herbicide glyphosate. **A. Corcoran**, **A. Hernandez**, **S. Koenig**

Section A

Moscone Center
Hall D

Poly- & Per-Fluoroalkyl Substances: Where, What, When, Why, Who & How

K. Chu, L. S. Lee, J. Liu, V. Yingling, *Organizers*

6:00 - 8:00

880. Systematic investigation of the effects of perfluoroalkyl acid chain length and ionic head group on human serum albumin binding. **J. Ulrich**, A. Glaser, L. MacManus-Spencer

881. Perfluorohexanoic acid pharmacokinetics in mouse, rat, microminipig, pig, monkey and human. **R.C. Buck**, S.A. Gannon

882. Short-chain fluorotelomer-based substances – Common biodegradation pathways. **R.C. Buck**

Section A

Moscone Center
Hall D

Science & Perception of Climate Change

Cosponsored by CEI and CHED
Financially supported by AEESP
S. O. Obare, E. Schoffers, *Organizers*

6:00 - 8:00

883. Economic analysis of the refinery CO_2-Urea-DMC industrial chain. **Y. Han**, **Q. Jiang**, **Z. Song**

884. Novel approaches of environmental effects to reduce the climate change on macroeconomic energy consumption for green marketing. **G. Ren**, E.J. Parish, H. Honda, S. Lee

885. Tackling drought with climate engineering. **H. Gokturk**

Moscone Center
Hall D

Sulfidation of Metal-Based Engineered & Natural Nanomaterials: Implications for Their Fate & Effects in the Environment

Y. Bi, D. Fan, P. G. Tratnyek, P. K. Westerhoff, *Organizers*

6:00 - 8:00

886. Fe^0- and sulfidized Fe^0-activated persulfate in oxidative degradation of benzoic acid: A comparative study. **C. Lee**, M. Rayaroth, Y. Chang, Y. Chang

887. Withdrawn

888. Controlled evaluation of surface coating effects on silver nanoparticle dissolution. **C. Liu**, W. Leng, P.J. Vikesland

889. *In situ* chemical reduction with Z-loy micrometal ZVI and sulfide and bioaugmentation cultures. **J. Freim**, M. Lee, J. Harvey, D. Raymond

890. Effect of $NaBH_4$ on catalytic reduction of p-nitrophenol by nanoscale zerovalent iron. **S. Bae**, S. Gim, H. Kim, K. Hanna

891. Preliminary study on wettability alternation of surface of carbonate rocks using SiO_2 nanofluids. **D. Wang**

892. Material and reactivity characterization of iron sulfides and sulfidated zerovalent iron during reductive dechlorination. **Y. Lan**, E.C. Butler, **P.G. Tratnyek**

893. Abiotic transformation of hexabromocyclododecane by sulfidated nanoscale zerovalent iron: Kinetics, mechanism and influencing factors. **D. Li**, Y. Zhong, W. Huang, P. Peng

894. Effect of aging on reactivity and surface chemistry of sulfidated nanoscale zerovalent iron. **S. Ghoshal**, S. Rajajayavel

Advances in Treatment Processes for Metals & Metalloids
Sponsored by GEOC, Cosponsored by ENVR

Contaminants Transport, Uptake & Remediation at Contaminated Sites
Sponsored by GEOC, Cosponsored by ENVR

Environmental Challenges & Solutions in Unconventional Oil & Gas Development
Sponsored by GEOC, Cosponsored by ENVR

Mineral-Water Interface Chemistry
Sponsored by GEOC, Cosponsored by COLL and ENVR

Mineral-Water Interface Chemistry
A Tribute to Glenn Waychunas
Sponsored by GEOC, Cosponsored by COLL and ENVR

THURSDAY MORNING

Section A

Moscone Center
2007

Pesticides in Surface Water: Monitoring, Modeling, Mitigation, Risk Assessment & Regulation

Cosponsored by AGRO
Financially supported by Compliance Services International (CSI)
K. S. Goh, D. Young, *Organizers*
J. Gan, Y. Luo, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 895. Risk assessment in the light of climate change – an evaluation of sub-lethal endpoints. **S. Hasenbein**, H. Poynton, R. Connon

8:25 896. Examination of the relative contributions of aqueous and dietary uptake to pyrethroid accumulation in organisms at different aquatic trophic levels. **J. Frew**, J. Giddings

8:45 897. Toxicity of pesticide mixtures in the USGS national water quality network. **M. Shoda**, W.W. Stone

9:05 898. Characterization of sediment chemistry, sediment toxicity and macroinvertebrate communities in wadeable streams of the southeastern United States. **P. Moran**, N. Kemble, L.H. Nowell, I. Waite, C. ingersoll, P. Van Metre, B.J. Mahler

9:25 899. Electrolytic degradation of pesticides in surface water using an activated carbon-based electrode system. **Y. Li**, W. Mitch

9:45 Intermission.

10:05 900. Urban surface water runoff mitigation of Fipronil and its primary degradation products. L. Greenberg, **Z. Cryder**, J. Richards, M. McGinnis, J. Gan

10:25 901. Environmental fate of double-stranded RNA (dsRNA) biopesticides from RNA interference (RNAi)-based crop protection. **K.M. Parker**, M. Sander

10:45 902. Mechanistic insight into remediation and isomerization of methyl-parathion by mixed metal oxide nanocomposites in aqueous solutions. S. Merlos, K. Nick, C.C. Perry, **M.M. Allard**

11:05 903. Chirality in metolachlor can be used to date grounwater in agricultural settings. **C.P. Rice**, C.J. Hapeman, G. McCarty

11:25 904. Implications of sorption nonlinearity on the environmental fate of penconazole. **D.T. Kuo**

11:45 Concluding Remarks.

Moscone Center
3008

Advances in Resource Recovery & Conservation in Water Systems

Cosponsored by AGFD, CEI and GEOC
S. Ahuja, L. M. Blaney, T. H. Boyer, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 905. Nanowire-modified 3D electrode enabling low-voltage electroporation for water disinfection. **Z. Huo**, H. Hu, X. Xie

8:25 906. Synthesis and microstructural characterization of novel manganese oxide coated titanium dioxide ceramic nanofiltration membranes for dye in wastewater filtration. **J.K. Macharia**, J. He, L. Achola, S.L. Suib

8:45 907. Beneficial reuse of produced water from oil & gas fields. **W. Stringfellow**, M. Camarillo, N. Spycher, P.S. Nico

9:05 908. Anaerobic digestion of renewable materials for biogas production: Experimental stage to the field. **O.O. Adetule**

9:25 909. Microbial fuel cells integrate energy production with nutrient management in municipal wastewater plant sidestreams. **K. Orner**, C. Cools, J. Mihelcic, J.A. Cunningham

9:45 Intermission.

10:05 910. Comparative transcriptomic analysis of lipid producing yeast *Cryptococcus albidus*. **S. Vajpeyi**, K. Chandran

10:25 911. Silver recovery from laundry washwater: Role of regeneration and detergent chemistry. **T. Nawaz**, S. Sengupta

10:45 912. Selective removals of heavy metals (Pb^{2+}, Cu^{2+}, and Cd^{2+}) from wastewater by gelation with alginate for effective metal recovery. **F. Wang**, X. Li

11:05 913. Withdrawn

11:25 914. Effect of ion composition and electrode properties on electrochemical lithium ion recovery process for application in various source waters. **S. Kim**, J. Yoon

11:45 Concluding Remarks.

Moscone Center
3002

Contaminants in Urban & Coastal Estuarine Ecosystems/Environmental Processes Affecting Chemical Availability & Toxicity

Cosponsored by AGRO
K. L. Armbrust, P. Saranjampour, R. A. Sutton, *Organizers, Presiding*

8:00 915. Multiple stressors in coastal ecosystems: Measuring responses across biological scales and generations in model estuarine organisms. **S. Brander**

8:25 916. Metal oxide nanomaterials in marine and estuarine organisms. **C. Torres**, G.N. Cherr

8:50 917. Photolysis and phototoxicity of dibenzothiophene and 4,6-diethyldibenzothiophene in marine ecosystems. **P. Saranjampour**, E.N. Vebrosky, K.L. Armbrust

9:15 918. Photolytic toxicological impacts of 2,6-dichloro-4-nitroaniline (Dicloran) in varying salinities on *Menidia beryllina* (Inland Silversides). **E.N. Vebrosky**, K.L. Armbrust

9:40 Intermission.

10:00 919. Binding of antibacterial agents at Fe(III) oxyhydroxide surfaces: Experimental study and modeling. **K. Hanna**, R. Marsac, S. Martin, J. Boily

10:25 920. Characterizing the volatilome of sewage sludge wastes disposed in the rainforests of the Puget Sound Watershed under environmentally relevant temperature regimes. **H. Juntunen**, L. Leinen, V. Swenson, R. Honour, P. Videau, M. Gaylor

10:50 921. Synthesis, occurrence and risk assessment of chlorinated by-products of benzophenone-type UV filters in various aquatic matrices. **M.M. Tsui**, K. NG, S. CHIU, T. MA, Y. HO, T. HE, M.H. Lam, R. KONG, P.K. Lam, M.B. MURPHY

11:15 922. Physiological and behavioural impacts of Pacific ciguatoxin-1 (P-CTX-1) on marine medaka (*Oryzias melastigma*). **Y. Mak**, J. Li, C. Liu, S. Cheng, P.K. Lam, J. Cheng, L. Chan

Section D

Moscone Center
3004

Novel Membrane Materials & Processes for Water Purification

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

8:30 923. Structurally and synthetically designed next generation novel polyamides for reverse osmosis application. **A. Roy**

9:00 924. High-performance thin-film composite forward osmosis membranes based on self-assembled amphiphilic block copolymer supporting substrate. **Y. Hu**, X. An

9:20 925. Membrane surface modification by graphene oxide: *In situ* regeneration for ultimate fouling control. **C. Finnerty**, E. Garcia, C. Evans, R. Kaliff, B. Mi

9:40 926. Carbon nanotubes-embedded, high-permeable polyamide thin-film composite membranes for desalination. **H. Lee**, T. Lee, H. Park

10:00 Intermission.

10:20 927. Bacteria inactivation via x-ray-induced UVC radioluminescence: Toward in situ biofouling prevention in membrane modules. T. Johnson, E.A. Rehak, S. Sahu, D. Ladner, **E.L. Cates**

10:50 928. Surface engineering of thin-film composite polyamide membranes with sliver nanoparticles during their fabrication process for providing antibiofouling properties. **L. Yun**, L. Qi, Y. Hu

11:10 929. Photothermal and hydrophilic functionalization of reverse osmosis membranes for enhanced resistance of mineral scaling, organic, and bio-fouling. **J. Ray**, S. Tadepalli, S. Nergiz, K. Liu, L. You, Y. Tang, S. Singamaneni, Y. Jun

11:30 930. Construction of a novel composite membrane with 3D structure for process intensification of membrane separation. **C. Zhang**, R. XIE, W. WU, X. LI, Z. LIU, X. JU, W. WANG, L. CHU

Moscone Center
3016

Applications of Cheminformatics & Computational Chemistry in Environmental Health

A. J. Williams, *Organizer*
C. Grulke, *Organizer, Presiding*
A. Williams, *Presiding*

8:00 931. Generation of alternative assessment scores using T.E.S.T. and online data sources. **T. Martin**

8:25 932. Use of chemotypes for profiling and exploring the ToxCast chemical-assay landscape. **A. Richard**, C. Grulke, G. Patlewicz, C. Yang, A.J. Williams

8:50 933. Identification and analysis of substructure fragments for developmental and reproductive toxicity endpoints within the Toxic Substances Control Act universe of chemicals. **D.T. Chang**, K.H. Markey, K. Mayo-Bean, W. Irwin, C. Baier-Anderson, C.J. Brinkerhoff, I. Shah, G. Patlewicz, A. Richard, S. Barone

9:15 934. Ecological Threshold for Toxicological Concern (eco-TTC): Assessing the potential of a new tool for environmental hazard assessment. **A. Beasley**, D.T. Chang, M.G. Barron, S.E. Belanger, J.L. Brill, D. DeZwart, M. Embry, B.A. Farr, M. Halder, A. Kienzler, T.J. Norberg-King, R.R. Otter, H. Sanderson, P. Wilson

9:40 Intermission.

10:00 935. Cheminformatics technologies for chemical risk assessment. **D. Fourches**

10:25 936. Using semi-automated curation workflows to collect, organize, and curate the data and models necessary to support the EPA CompTox chemical dashboard. **C. Grulke**, I. Thillainadarajah, R. Sayre, K. Mansouri, A.J. Williams, A. Richard

10:50 937. Supporting read-across predictions of chemical toxicity using high-throughput text-mining. **N. Baker**, T. Knudsen, A.J. Williams, K. Crofton, G. Patlewicz

11:15 938. New databases and software tools for exposomics and toxicological assessment. **Y. Djoumbou Feunang**, D.S. Wishart

11:40 Panel Discussion.

Moscone Center
3020

Aquatic Photochemistry

Cosponsored by GEOC
Financially supported by AEESP
V. Lin, K. P. McNeill, *Organizers*
W. Arnold, *Organizer, Presiding*

8:30 939. Biphenyl carboxylic acid probe pair for quantifying photochemically generated hydroxyl radical and excited triplet states in aqueous systems containing dissolved organic matter. **V. Lin**, M. Grandbois, K.P. McNeill

8:50 940. Investigation of the coupled effects of molecular weight and charge transfer interactions on the optical and photochemical properties of dissolved organic matter. **G. McKay**, K.D. Couch, S.P. Mezyk, F.L. Rosario

9:10 941. Fluorescence of humic acids in seawater. **L.T. Stirchak**, D. Donaldson

9:30 942. Photo-production of triplet excited states in effluent organic matter. **M. O'Connor**, K. Zimmerman, D.E. Latch, W. Arnold

9:50 943. Transient absorption-based approach to estimate the photophysical properties of triplet dissolved organic matter. **M. Schmitt**, P.R. Erickson, K.P. McNeill

10:10 Intermission.

10:20 944. Using direct observation of singlet oxygen to determine triplet organic matter rate constants. **K.P. McNeill**, P.R. Erickson

10:40 945. Inhibitory effect of dissolved organic matter on indirect phototransformations of organic contaminants. **S. Canonica**, U. von Gunten

11:00 946. Development of the novel chemical probes for examining the triplet-excited state of organic matters. H. Zhou, L. Lian, S. Yan, **W. Song**

11:20 947. Photochemical exposure of natural organic matter induces humification. **P.G. Hatcher**, D.C. Waggoner, N. DiDinato

11:40 948. Photochemical formation of carbonate radical and its effects on the photo-bleaching of dissolved organic matter. **s. yan**, W. Song, L. Lian, R. Li, Y. Liu

Section G

Moscone Center
3022

Innovative Materials & Technologies for Sustainable Water Purification

Catalytic

Cosponsored by CEI
E. L. Cates, B. P. Chaplin, J. Choe, D. Shuai, W. Zhang, *Organizers*
J. Liu, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 949. Bioinspired heterogeneous catalyst for perchlorate reduction: Continuous improvements with rational ligand design for the rhenium complex reaction center. **J. Liu**, T.J. Strathmann, M. Han, C. Ren

8:55 950. New-TAML activators: Innovative high-performance, low-cost, biosafety-scrutinized solutions for worldwide reduction of micropollutants in water. **T.J. Collins**

9:35 951. Removal of priority hazardous pollutants in municipal sewage effluent to meet environmental quality standards of the European Water Framework Directive using TAML Activators. **R. Kanda**

10:00 Intermission.

10:15 952. Design of longer-lived TAML catalysts. **M.A. DeNardo**

10:35 953. Introducing New-TAML activators for ultra-dilute catalytic oxidation in global water treatment. **G.R. Warner**, A.D. Ryabov, J.A. Taylor, F.S. Vom Saal, T.J. Collins

10:55 954. TAML activators for green oxidative degradation of propranolol: A comparative evaluation. **Y. Somasundar**, A.D. Ryabov, T.J. Collins

11:15 955. Smart catalytic films for water purification. **L. Wright**

11:35 956. Microwave assisted in-situ covalent functionalization of graphene with phenoxo-bridged dinuclear Iron complex: Preparation, characterization and evaluation. **J. YU**, C.J. Miller, D. Waite

Section H

Moscone Center
3006

Poly- & Per-Fluoroalkyl Substances: Where, What, When, Why, Who & How

K. Chu, L. S. Lee, J. Liu, V. Yingling, *Organizers, Presiding*

8:30 957. Fast and ultrasensitive screening of novel fluoroalkylated surfactants in aqueous media: On-line solid phase extraction hyphenated to liquid chromatography high resolution mass spectrometry. **G. MUNOZ**, S. Vo Duy, M. Desrosiers, J. Liu, S. Sauvé

8:55 958. Extraction and analysis of amphibians for four per/polyfluorinated alkyl acids. **C. de Perre**, L.S. Lee, G. Hoover, M. Chislock, B. Tornabene, S. Guffey, J. Hoverman, M. Sepulveda

9:20 959. Perfluorinated Alkyl Substance (PFAS) cytotoxicity: The differential effects of linear and branched isomers. G. Cantu, Y. Xing, **d. kempisty**

9:45 960. Investigation and remediation of multiple PFAS source zones at an airport to safeguard an at risk water supply. D. Atkinson, J. Lemon, J. Miles, I. Ross, **E. Houtz**

10:10 Intermission.

10:40 961. Why it matters: Frequency, occurrence, transport, and implications of the 40 classes of recently-discovered per- and polyfluoroalkyl substances in aqueous film-forming foam impacted groundwater. **K.A. Barzen-Hanson**, C.P. Higgins, J.A. Field

11:05 962. When do we need PFASs?: A policy and purchasing strategy for reducing their use. **A. Blum**, T. Bruton, A. Soehl, A. Lindeman

11:30 963. Changing regulatory landscape of Per- and Polyfluoralkyl Substances (PFAS). **S. Thomas**

11:55 Concluding Remarks.

Section I

Moscone Center
2000

Bioprocesses for Engineered Nanomaterials in Soil-Plant Systems

J. C. White, B. Xing, Y. Yang, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 964. Tuning NP properties for optimizing plant uptake and translocation. **G. Lowry**, E. Spielman-Sun, E. Lombi, J.M. Unrine

8:30 965. Withdrawn

8:55 966. Accumulation and transfer of engineered nanoparticles in terrestrial food chains: Correlating physiological and molecular response. **J.C. White**, B. Xing, O. Parkash, J.L. Gardea-Torresdey

9:15 967. Interaction of CuO nanoparticles with floating plant: Toxicity, distribution and transformation. **J. Zhao**, Z. Wang, B. Xing

9:35 Intermission.

9:55 968. Leguminous crop interactions with engineered nanomaterials in soils. **P. Holden**, Y. Wang, D.C. Bouchard, R.M. Nisbet, J.P. Schimel, J.A. Hernandez, J.L. Gardea-Torresdey

10:20 969. Advances in the metrology for characterizing the uptake, translocation and genotoxicity of engineered nanomaterials in terrestrial plants. **B.C. Nelson**

10:45 970. Examining the impact of copper oxide nanoparticles on carrot and lettuce growth and root hydraulic conductivity. **S.J. Parikh**, A.J. Margenot, M. Dumlao, D. Rippner, R.A. Davis, P.G. Green, J.L. Sutcliffe, A. McElrone

11:10 971. Bioformation of silver nanoparticles by plant root systems as affected by growth conditions. **H. Guo**, B. Xing, L. He

11:30 972. Detection of multi-walled carbon nanotubes uptake by lettuce. **K.K. Das**, Y. You, M. Torres, F. Barrios-Masias, B. Xing, Y. Yang

Environmental Challenges & Solutions in Unconventional Oil & Gas Development
Sponsored by GEOC, Cosponsored by ENVR

Contaminants Transport, Uptake & Remediation at Contaminated Sites
Sponsored by GEOC, Cosponsored by ENVR

Operando Methodology at the Junction between Fundamental Chemistry & Chemical Engineering
Engineering Operando to Larger Scale: Shaped Catalysts & Process Control
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Elucidation of Mechanisms & Kinetics on Surfaces
Mechanisms: Metals
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Elucidation of Mechanisms & Kinetics on Surfaces
Oxides
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THURSDAY AFTERNOON

Section A

Moscone Center
2007

Pesticides in Surface Water: Monitoring, Modeling, Mitigation, Risk Assessment & Regulation

Cosponsored by AGRO
Financially supported by Compliance Services International (CSI)
J. Gan, K. S. Goh, *Organizers*
Y. Luo, D. Young, *Organizers, Presiding*

1:00 Introductory Remarks.

1:05 973. Modeling spray drift and runoff related inputs of pesticides to receiving water. **X. Zhang**, K.S. Goh

1:25 974. Pesticide uptake into runoff evaluated at the field scale. **D. Young**

1:45 975. Improved modeling approaches for pesticide registration evaluation for surface water protection in California. **Y. Luo**, X. Yina, N. Singhasemanon, X. Deng, K.S. Goh

2:05 976. Why are real-world surface water exposure distributions much lower than US EPA FIFRA Tier II EECs? An evaluation based on pyrethroid insecticides. **P. Hendley**, A.M. Ritter, D.A. Desmarteau, C.M. Holmes, J. Giddings, J. Wirtz, J. Frew

2:25 Intermission.

2:45 977. Daily models of agricultural chemical concentrations and loads in rivers draining the Central Valley, California to the San Francisco Bay-delta estuary: Before and during an extended drought. **J. Domagalski**

3:05 978. Modeling pesticide loadings from the San Joaquin watershed using SWAT. **J. Chen**, M. Zhang

3:25 979. Expedition into the realm of environmental monitoring data: How can we make sense and make use of the information contained in the data?. **D. Wang**, J. Teerlink, N. Singhasemanon, K.S. Goh

3:45 980. PURwebGIS: Simplifying a large agro-environmental spatio-temporial dataset for quick assessment and decision making. **C. DeMars**, M. Zhang

4:05 Concluding Remarks.

Section B

Moscone Center
3008

Advances in Resource Recovery & Conservation in Water Systems

Cosponsored by AGFD, CEI and GEOC
S. Ahuja, L. M. Blaney, T. H. Boyer, *Organizers, Presiding*

1:00 Introductory Remarks.

1:05 981. Linking crystal growth kinetics to quantitative sustainable design of Struvite precipitation systems. **S. Agrawal**, J. Guest, R. Cusick

1:25 982. Recovering high-quality phosphorus- and nitrogen-laden fertilizers from poultry litter. **U. Shashvatt**, J. Benoit, H. Aris, L.M. Blaney

1:45 983. Sustainable struvite control and recovery in wastewater treatment plants using residual biogas. **S. Moore**, L. Ma, V. Karanikola, R.G. Arnold, A.E. Saez, D. Moulis, J. Bish, J. Prevatt

2:05 984. Fate and impact of contaminants of emerging concern during nutrient recovery via ion exchange from synthetic anaerobic effluent. **Y. Tong**, P.J. McNamara, B. Mayer

2:25 Intermission.

2:45 985. Two-stage process for phosphorus extraction and recovery from agricultural waste. **S. Sengupta**, J. Beaudry, u. shashvatt, L.M. Blaney

3:05 986. Calcium phosphate seed nuclei for selective phosphorus recovery at neutral pH. **D. Kim**, M. Cohen, M. Gu, I. Jeon, Y. Jun

3:25 987. Customizable nutrient products recovered using ion exchange technology. **A. Avila**, P.J. McNamara, B. Mayer

3:45 988. Application of the Donnan membrane principle for sustainable nutrient recovery. U. Shashvatt, **L.M. Blaney**

4:05 989. Coupling of Pd nanoparticles and denitrifying biofilm promotes H_2-based nitrate removal with greater selectivity towards N_2. **C. ZHOU**, B.E. Rittmann

4:25 Panel Discussion.

4:55 Concluding Remarks.

Section C

Moscone Center
3002

Contaminants in Urban & Coastal Estuarine Ecosystems/Temporal & Spatial Assessment of Persistent-Bioaccumulative Chemicals in Coastal & Urban Waters

Cosponsored by AGRO
J. Meador, D. Muir, R. A. Sutton, *Organizers, Presiding*

1:00 990. Legacy and emerging organic contaminants in urban estuaries: A global perspective. **E. Zeng**, L. Liu

1:30 991. Survey of legacy pollutants in margin sediments of central San Francisco Bay. **D. Yee**, P. Trowbridge, J.A. Davis

1:55 992. Continuous release of PCBs from New Bedford Harbor results in elevated concentrations in the surrounding air. A. Martinez, B. Hadnott, A. Awad, N. Herkert, K. Tomsho, K. Basra, M. Scammell, W. Heiger-Bernays, **K.C. Hornbuckle**

2:20 993. Characterizing the advection of Polychlorinated Biphenyls (PCBs) from the sediments in the Lower Duwamish Waterway Superfund site. **J. Apell**, D. Shull, C. Grimmett, P.M. Gschwend

2:45 Intermission.

3:05 994. Perspectives on environmental monitoring and bioaccumulation of contaminants of emerging concern in urban coastal systems. **B.W. Brooks**, S. Burket, S. Haddad, C. Scott

3:35 995. Application of non-targeted analysis approaches to assess input of organic micropollutants to San Francisco Bay. **L. Ferguson**, K. Overdahl, N. DeStefano, R.A. Sutton, J. Sun

4:00 996. Tracking contaminant trends, spatial patterns, and pathways over 20 years of fish contaminant monitoring in San Francisco Bay. **J. Sun**, J.A. Davis, R. Mayfield

4:25 997. San Francisco Bay area wastewater monitoring reveals previously unidentified pathway for pet spot-on flea treatments to reach estuaries. **K.D. Moran**, R.A. Sutton, A.M. Sadaria, R.U. Halden

Section D

Moscone Center
3004

Novel Membrane Materials & Processes for Water Purification

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

1:00 998. Facile grafting of zwitterions onto membrane surface to improve antifouling properties for wastewater reuse. **H. Lin**, N. Shahkaramipour, S. Ramanan

1:30 999. Control the biofouling of polysulfone (pSF) ultrafiltration (UF) membrane by using bacteriophage. **W. Ma**, M. Panecka, K. Wong, N. Tufenkji, S. Rahaman

1:50 1000. Quantifying bacterial adhesion to polymeric membranes by single-cell force spectroscopy. **S. BinAhmed**, A. Hasane, Z. Wang, S. Romero-Vargas Castrillon

2:10 1001. Fouling-resistant ultrafiltration membranes by selective swelling of polystyrene-block-poly(ethylene oxide). **H. Yang**, **Y. Wang**

2:30 Intermission.

2:50 1002. Antifouling properties of molybdenum disulfide and graphene oxide for water filtration. I. Alam, L. Guiney, M. Hersam, **I. Chowdhury**

3:20 1003. Evaluation of photocatalytic membrane fouling by humic acid. **R. Zhu**, A. Diaz, S. Solares, D. Shuai

3:40 1004. Fabrication of micro-filtration membrane to mitigate organic fouling during water treatment. **e. Igbinigun**

4:00 1005. Membrane surface charge and wettability parallel tuning through layer by layer assembly for antifouling. **X. Zhu**, B. Chen

Section E

Moscone Center
3016

Applications of Cheminformatics & Computational Chemistry in Environmental Health

C. Grulke, A. J. Williams, *Organizers, Presiding*

1:00 1006. Estimation of hydrolysis rate constants for carbamates. **J. Patel**, C. Tebes-Stevens, E.J. Weber

1:25 1007. In silico alkaline hydrolysis reaction kinetics of HMX and RDX. **M.K. Shukla**, L. Sviatenko, L. Gorb, D. Leszczynska, J.R. Leszczynski

1:50 1008. Using experimental data and computational chemistry to predict reactive sites of polycyclic aromatic hydrocarbons. **I. Titaley**, D. Walden, O. Ogba, P. Cheong, S.L. Simonich

2:15 1009. What works best for predicting human skin sensitization potential of chemicals: *In vitro* data or *in silico* models?. V.M. Alves, S. Capuzzi, E. Muratov, R.C. Braga, T. Thornton, D. Fourches, J. Strickland, N. Kleinstreuer, C.H. Andrade, **A. Tropsha**

2:40 Intermission.

3:00 1010. If it looks like, fits like and binds like a CYP450 ligand is it a CYP450 ligand? A molecular profiling case study using MOE. **M.R. Goldsmith**, C. Williams, D.T. Chang

3:25 1011. Structure-based understanding of binding affinity and mode of estrogen receptor α agonists and antagonists. **S. Lee**, M.G. Barron

3:50 1012. Application of functional use predictions to aid in structure identification of chemicals in house dust. **K. Phillips**, A. McEachran, J. Sobus, K. Isaacs

4:15 1013. OPERA: A QSAR tool for physicochemical properties and environmental fate predictions. **K. Mansouri**, C. Grulke, R. Judson, A.J. Williams

4:40 Panel Discussion.

Moscone Center
3020

Aquatic Photochemistry

Cosponsored by GEOC
Financially supported by AEESP
W. Arnold, K. P. McNeill, *Organizers*
V. Lin, *Organizer*, *Presiding*

1:00 1014. Photomineralization of dissolved organic matter in acid mine drainage-impacted waters. C. Yuan, L.K. Weavers, P.G. Hatcher, **Y. Chin**

1:20 1015. Photodegradation of pharmaceuticals in partially nitritated wastewater. **P.I. Hora**, P. Novak, W. Arnold

1:40 1016. Trace metal removal in oxidative treatment systems driven by cathodic H_2O_2 production and UV photolysis. **J.M. Barazesh**, C. Prasse, J. Wenk, D. Sedlak

2:00 1017. Amorphous peroxo-titania as a visible light response photocatalyst for oxidation of organic compounds. **J. Seo**, H. Lee, H. Lee, M. Kim, C. Lee

2:20 1018. Modeling the UV/H_2O_2 oxidation of phenolic compounds in a continuous-flow reactor with reflecting wall. **T. Zhang**, R.G. Arnold, G. Diefenthal, A.E. Saez

2:40 Intermission.

2:50 1019. Aquatic photochemical transformations of thiols with dissolved organic matter. **C. Chu**, D. Stamatelatos, P.R. Erickson, M. Schmitt, K.P. McNeill

3:10 1020. Photochemical damage of extracellular enzymes visualized by holistic proteomics techniques and enzymology. **E. Janssen**, C. Egli

3:30 1021. Direct and indirect photochemical reactions in viral RNA measured with RT-qPCR and mass spectrometry. **Z. Qiao**, K. Wigginton

3:50 1022. Modeling the endogenous sunlight inactivation rates of laboratory strain and wastewater *E. coli* and enterococci using biological weighting functions. **A.I. Silverman**, K.L. Nelson

4:10 1023. Photochemical reactive oxygen species generation and redox transformation of iron by the organic exudate secreted by *Microcystis aeruginosa* in natural waters. K. Wang, **S. Garg**, D. Waite

Moscone Center
3022

Innovative Materials & Technologies for Sustainable Water Purification

Catalytic & Electrochemical

Cosponsored by CEI
E. L. Cates, B. P. Chaplin, J. Choe, J. Liu, D. Shuai, W. Zhang, *Organizers*
W. Zhang, *Presiding*

1:00 Introductory Remarks.

1:05 1024. Oxidant and disinfection byproduct production of a point-of-use electrochemical water treatment device. **J. Bliss**, D.A. Reckhow

1:25 1025. Classification and quantification of electrochemical oxidants generating electrodes with chlorine generation. **J. Kim**, J. Yoon

1:45 1026. Redox-mediated electrochemical methods for water purification and environmental remediation of nitrosamines and contaminants of emerging concern. **X. Su**, L. Bromberg, K. Tan, T.F. Jamison, L. Padhye, T. Hatton

2:05 1027. Using electrolytic oxidation as pretreatment to improve As(III) removal by reverse osmosis membranes. Y. Hou, **B. Mayer**

2:25 1028. Application of quinoid mediators to develop redox-active flow-electrodes for high-performance capacitive deionization. **J. ma**, D. He, D. Waite, W. Tang, P. Kovalsky, C. Zhang

2:45 Intermission.

3:00 1029. Highly active palladium nanoparticles for catalytic reduction of *N*-nitrosodimethylamine. **H. Ma**, T. Wu, C. Na

3:20 1030. Natural fiber welding of lignocellulose-supported Pd-based catalysts for water purification. **D.P. Durkin**, T. Ye, E.G. Larson, J. Choi, K.J. Livi, H.C. De Long, P.C. Trulove, H. Fairbrother, L. Haverhals, D. Shuai

3:40 1031. Reduction of waterborne contaminants on graphitic carbon nitride supported Pd-based catalysts. **T. Ye**, D. Shuai

4:00 1032. Catalytic destruction of emerging contaminants by structured palladium-based materials. **X. Min**, Y. Wang

Section I

Moscone Center
2000

Bioprocesses for Engineered Nanomaterials in Soil-Plant Systems

J. C. White, B. Xing, Y. Yang, *Organizers*, *Presiding*

1:00 1033. pH-Dependent surface chemistry of biologically and environmentally relevant ligands on oxide nanoparticles. **V.H. Grassian**

1:25 1034. Withdrawn

1:50 1035. Effect of humic acid on the remediation of hexabromocyclododecane contaminated soil using an integrated nano-bio system. **Y. Chang**, T.T. Le, H. Yoon, J. Kim

2:15 1036. Three-dimensional surface enhanced Raman spectroscopy evaluation and visualization of gold nanoparticle tansport in a silicon-based micromodel. **M. Chan**, W. Leng, S.L. Walker, P.J. Vikesland

2:35 1037. Biodegradation of multi-walled carbon nanotubes by *Mycobacterium vanbaalenii* PYR-1. **Y. You**, K.K. Das, H. Guo, C. Chang, M. Navas-Moreno, J. Chan, P. Verburg, S.R. Poulson, x. wang, B. Xing, Y. Yang

2:55 Intermission.

3:10 1038. Assessing the risk of engineered nanomaterials in the environment using the nanoFate model. **A.A. Keller**, K. Garner

3:35 1039. Benefits and risks of agricultural use of carbon-based nanomaterials. **M. Khodakovskaya**

4:00 1040. Impacts of copper oxide nanoparticles on soil enzyme activities across diverse ecosystems. **A.J. Margenot**, S.J. Parikh

4:20 1041. Ecotoxicity of manufactured Al nanophases. **A. Masion**, C. Santaella, L. Shintu

4:40 1042. Determining phytotoxicity of carbon nanotubes in heat and drought stressed crops. **J.T. Jordan**, P. Payton, J.E. Canas-Carrell, D. Tissue

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Elucidation of Mechanisms & Kinetics on Surfaces/Oxidation Reactions
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Elucidation of Mechanisms & Kinetics on Surfaces/Beyond Hydrocarbons
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