

ENVR

DIVISION OF ENVIRONMENTAL CHEMISTRY

Virender K. Sharma, *Fall Program Chair*

Malikarjuna Nadagouda, *Assistant Fall Program Chair*

SUNDAY MORNING

Moscone Center

Room 3006, West Bldg.

Wildfires: Chemistry and Environmental Impacts on Air, Water, and Soil

Cosponsored by AGFD, AGRO, ANYL, CEI, ENVR and TOXI

Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community

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

8:00 Introductory Remarks.

8:05 . Withdrawn

8:30 . Nature and transformation of metal-bearing incidental nanomaterials in fires at the wildland-urban interface. **M. Baalousha**

8:55 . Bioaccessible and environmentally relevant trace metals in ash from a wildland urban interface fire in Colorado. **C. Villarruel**, L. Figueroa, J.F. Ranville

9:15 . Wildfire-induced formation of incidental nanoparticles and their association with hexavalent chromium. **A. Namayandeh**, A.M. Lopez, C.C. Avila, S.E. Fendorf

9:40 Intermission.

9:55 . Post-wildfire mobilization of organic carbon. **T.R. Numan**, S. Lokesh, A. Timilsina, A. Shahriar, M. Lard, Q. Zhao, J. Richardson, J. Clark, S. Poulson, R.L. Cook, V. Samburova, Y. Yang

10:15 . Chemical and biological water quality dynamics of wildland-urban interface fire: Coastal Fire, Orange County, CA. **L.E. Morgan**, A. Tilzey, M. El Ajouz, C.I. Olivares

10:35 . Advancing post-wildfire response research with rapid measurements and model developments following the Caldor Fire. **J. Pena**, K. Kang, E. Whelan, M. Rowley, P. Spalholz, S. Bone, M. Newcomer, E. Siriila-Woodburn

11:00 . Wildland fire as a catalyst of soil-borne metal transformations. **A.M. Lopez**, C.C. Avila, A. Namayandeh, S.E. Fendorf

11:25 Concluding Remarks.

Moscone Center
Room 3001, West Bldg.

Aquatic Science and Technology at Environmental, Disciplinary, and Societal Interfaces: A Symposium Honoring the Career of Janet Hering

Cosponsored by GEOC

K. Campbell, D. Giammar, S. Kraemer, G. Lee, *Organizers, Presiding*

8:00 Introductory Remarks.

8:10 . Practical application of surface complexation modeling and contributions of Prof. Janet G. Hering. **D.A. Dzombak**

8:40 . Understanding the role of ion pairing and dehydration in confined systems. **L.E. Katz**

9:00 . Uranium at mineral-water interfaces – research with and inspired by Janet Hering. **D. Giammar**, J.G. Catalano, A. Satpathy, A. Singh

9:20 . Adsorption thermodynamics and kinetics of arsenic and other oxyanions of environmental relevance. **J.D. Kubicki**, N. Kabengi

9:40 Intermission.

10:00 . Sorbents for removal of mercury from water: A review of sorption mechanisms, materials, and considerations for practical implementation. **P.A. O'Day**, D.J. Jones, S.J. Traina, M. Beutel

10:30 . Mitigating global arsenic crisis through sustainable hybrid ion exchange Nanotechnology (HIX-Nano). **A.K. Sengupta**

10:50 . Arsenic adsorption on MOFs: Performance and surface complexation modelling. W. Hu, Z. Wang, Z. Cai, **B. Deng**

11:10 . Arsenic sorption onto iron-rich clay minerals during multiple redox cycles. **J. Biswakarma**

11:30 . Reactions and evolution of corrosion products and of mineral phases in microfluidic models of zerovalent iron-based water filters for arsenic removal. J. Wielinski, **S.J. Hug**, j. jimenez-martinez, M. Berg, J. Göttlicher, R. Steininger, S. Mangold, A. Voegelin

Moscone Center
Room 3007, West Bldg.

Electrochemical Materials and Interfaces for Environmental and Sustainability Challenges

C. Arges, T. Kim, *Organizers*

C. Liu, X. Liu, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 . Decoupling electric field treatment (EFT) and copper release in the coaxial-electrode copper ionization cell (CECIC) by applying asymmetric electric pulses for water disinfection. **X. Xie**, F. Mo

8:35 . Withdrawn

8:55 . Redox properties of particulate carbonaceous materials for remediation of contaminated groundwater. **J. Hudson**, P.G. Tratnyek

9:15 . Polarizable Fe₃O₄@ACF supported bio-electro Fenton system for simultaneous sewage wastewater and methyl orange degradation. **R. Nuguse**, S. Kebede, K.J. Wun, M. Verma, H. Kim

9:35 . Overcoming passivation layer formation in Iron electrocoagulation: Insights into mechanisms, materials characterization, and the role of polarity reversal. **G. Jang**, K. Kim, S. Chellam, C. Tsouris

9:55 Intermission.

10:10 . Coupling electrochemical reaction and separations for environmental remediation. **X. Su**, P. Baldaquez Medina, A. Roman Santiago

10:40 . Deicing with bubbles. **S. Nath**, H. Girard, H. Kang, S. Subramanyam, Y. Shao-Horn, K.K. Varanasi

11:00 . Dual-functional single-atomic Mo/Fe clusters decorated C₃N₅ via 3 electron-pathway in oxygen reduction reaction (ORR) for tandemly removing contaminants. **C. DONG**, Z. Wang, C. Yang, X. Hu, P. Wang, X. Gong, X. Li

11:20 . Investigations of activated carbon from different natural sources for the preparation of binder-free CNTs/activated carbon electrodes. **M. Atamanov**, A. Abdisattar, Z. Mansurov, T. Atamanova

11:40 . Real-time investigation of C-C coupling intermediates and surface properties of Cu-based catalysts for electrocatalytic CO₂ reduction. **S. Park**, W. Kim

Moscone Center
Room 3005, West Bldg.

Impact of PFAS on Environment and Health

Cosponsored by COLL, GEOC and TOXI
S. Belcher, N. Loganathan, A. Slitt, A. K. Wilson, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 . Sources and timescales of PFAS contamination in U.S. drinking water. **E.M. Sunderland**, B. Ruyle, J. Liddie

8:35 . Category-based toxicity and toxicokinetic evaluations of per- and polyfluoroalkyl substances (PFAS) for new approach method (NAM) application. **B. Wetmore**, K. Paul Friedman, K. Carstens, J. Harrill, J.F. Wambaugh, T. Shafer, R. Judson, G. Patlewicz

9:05 . Review of Polyfluoroalkyl Substances (PFAS) exposure influence on childhood immunity, allergic response, infection, and asthma. **Z.F. Dembek**, H. von Holst, **R.A. Lordo**, **L. John**

9:35 . Interaction of PFAS with proteins – A molecular level perspective. **A.K. Wilson**

10:05 Intermission.

10:15 . Disentangling the mechanisms driving accumulation and elimination of perfluoroalkyl acids (PFAA) using toxicokinetic modeling in knock-out mice. **F.C. Fischer**, S. Lutdke, S. Ryu, E. Kaye, A. Slitt, E.M. Sunderland

10:35 . Bayesian estimation of human population toxicokinetics of PFOA, PFOS, PFHxS, and PFNA from studies of contaminated drinking water. **W. Chiu**, M. Lynch, C. Lay, A. Antezana, P. Malek, S. Sokolinski, R. Rogers

11:05 . Use of albumin-, fatty acid binding protein-, and transporter-deficient mouse models to reveal critical mechanisms for Perfluorooctanesulfonic Acid (PFOS) uptake, distribution, and excretion. **A. Slitt**

11:35 . Characterizing distribution, metabolism, and excretion of known and novel PFASs in mice dosed with a PFAS-containing aqueous film-forming foam (AFFF) mixture. D. Dukes, **C.A. McDonough**

11:55 Discussion.

Moscone Center
Room 3008, West Bldg.

Interfacial PFAS Processes and Mechanisms

C. I. Olivares, J. Ray, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 . Adsorption of per- and polyfluoroalkyl substances (PFAS) on Ni: A systematic DFT study. **M.S. Mohamed**, B.P. Chaplin, A.A. Abokifa

8:25 . Probing PFAS adsorption behavior on hydrophobic surface at the molecular scale: A combined characterization and simulation study. N. Dai, **T. Mohona**, P. Nalam, Z. Ye

8:45 . Measurement of PFAS adsorption isotherms at complex aqueous surfaces using nonlinear optical spectroscopy. **A. Carpenter**, J. White, A. Hasbrook, M. Reiersen, J.E. Baio

9:05 . Spontaneous self-assembly of per- and polyfluoroalkyl substances at environmentally related conditions. **B. Yan**, J. Liu

9:25 . Understanding the effects of salinity and solid types on the sorption behavior of per- and polyfluoroalkyl substances. **K. Tsou**, D.L. Sedlak, L. Alvarez-Cohen, Y. Duan, A. Parks, F. Dixit

9:45 . Adsorption and dynamics of legacy PFAS at charged interfaces. **C.E. Schumm**, N. Loganathan, A.K. Wilson

10:05 Intermission.

10:20 . Anion exchange resins employed for water treatment fail to remove zwitterionic PFAS from drinking water sources. **E.H. Antell**, S. Chaudhuri, Y. Duan, F. Dixit, S. Yi, C.I. Olivares, L. Alvarez-Cohen, D.L. Sedlak

10:40 . Immobilization of a multi-template imprinted polymer on spent coffee grounds activated carbon for improved adsorption of short-chain per- and polyfluoroalkyl substances in (waste)water. **J. Steigerwald**, J. Ray

11:00 . Influence of water chemistry and microplastics ageing on the adsorption of per- and polyfluoroalkyl substances to secondary microplastics. **O.A. Salawu**, A.S. Adeleye

11:20 . Physical and chemical aging effects on the effectiveness of colloidal activated carbon (CAC): adsorption-relative surface properties and ability of per- and polyfluoroalkyl substances (PFASs) removal. **L. Jiang**, G. Li

11:40 . Binding of PFAS surfactants from water using functional polymers. **M. Tsianou**, S. Kancharla, A. Choudhary, D. Dong, D. Bedrov, P. Alexandridis

Moscone Center
Room 3012, West Bldg.

Materials Development to Address Environmental and Sustainability Challenges Separation Chemistry

Cosponsored by AGFD, AGRO, ANYL and ENVR
Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community
D. D. Dionysiou, M. Nadagouda, V. K. Sharma, *Organizers*
M. J. Bentel, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 . Enhanced ammonia recovery from wastewater by photothermal-incorporated membrane distillation. **K. Yang**, H. Du, M. Qin

8:25 . Effect of operation parameters on ammonia recovery performance of liquid-liquid membrane contactor system. **Y. Jang**, W. Lee, Y. Choi

8:45 . Tuning polyimide thin film composite membranes for organic solvent reverse osmosis separations via Boc protected amine solid-state crosslinking. **Y. Feliachi**, R.P. Lively, M. Finn, A. Roy

9:05 . In situ thermal oxidative crosslinks of amine-functionalized PIM-1 using tert-butoxycarbonyl (tBOC) groups to increase diffusion selectivity for membrane applications. **T. Joo**, T. Lee, W. Wu, S. Wi, Z.P. Smith

9:25 . KTS-3 nanoadsorbent embedded PAN nanofiber membrane for radioactive material removal. **H. Eom**, Y. Kim, D. Harbottle, J.W. Lee

9:45 Intermission.

9:55 . MoS₂-based multifunctional membranes for oxyanion removal. **M. Wang**, A. Mishrra, K. Chen, B. Mi, D.L. Sedlak

10:15 . Sacrificial MoS₂-polyelectrolyte layer-by-layer assembled membranes with removal and regeneration capabilities. **K. Conway**, B. Mi

10:35 . Selective hybrid nanocomposite membrane for monovalent/divalent cation separation in electrodialysis. **Y. Feng**, X. Huang, T. Chen, Z. He, H. Shen, k. zuo, Q. Li

10:55 . Synthesis and characterization of fluorinated polyimide membrane for H₂ separation. **N. Lim**, H. Kim

11:15 . Metal organic frameworks (MOFs) for the removal of dissolved silica before reverse osmosis desalination. **P. Ni**

11:35 . Artificial water channels- toward biomimetic membranes for desalination. **M. Barboiu**

11:55 Concluding Remarks.

Moscone Center
Room 3003, West Bldg.

Methods and Modeling for Evaluating and Mitigating Plastic Pollution in Air, Land, and Water

M. Gallagher, *Organizer*
S. R. Al-Abed, P. Potter, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 . Microplastics from source to the environment: Detection and characterization in urban watersheds. **S.R. Al-Abed**, D. Duvvuru, P. Potter, E. Nusz, A. Civiello, E. Chamberlain

8:55 . Vibrational spectroscopy investigation of pristine and weathered nanoplastic test samples to improve identification and quantification. **J.M. Pettibone**

9:15 . Research in improving freshwater sediment pretreatment methods for monitoring microplastics, and challenges. **H. Lee**, J. Kim, B. Mezgebe, C. Han

9:35 . Detecting plastic debris from complex solid matrix: Fusion of hyperspectral and RGB image for classification. **Z. Yang**, H. Zhang, F. Lü, Y. Yang, T. Hu, P. He

9:55 . Improved direct injection analysis and determination of glyphosate, glufosinate, and aminomethylphosphonic acid. **P.J. Martin**, S.R. Hobbs

10:15 Intermission.

10:35 . Assessment and development of multiple linear regression models for kinetics of hydrolysis: Carboxylic acid ester substructure compounds. **J. Lazare**, C. Tebes-Stevens, E.J. Weber

10:55 . Withdrawn

11:15 . Non-target analysis and toxicity screening of photochemically formed hydrocarbon oxidation products from crude oil; implications for monitoring and high-latitude spills. **Z. Redman**, S. Robine, J. Burkhead, P.L. Tomco

11:35 . Effect of thermal pollution on microfauna “Foraminifera”: A case study of Ras al-Zour and Ras Al-Subiya power stations, state of Kuwait. **N.T. Altheyabi, M.A. Alsarawi**

11:55 Concluding Remarks.

Virtual Only
Virtual Session

Remediation of Contaminated Water for Reuse

Cosponsored by ANYL, CEI and CHED
S. Ahuja, K. Sathiyar, *Organizers, Presiding*

10:00 Introductory Remarks.

10:05 . Potential of electrochemical oxidation for the removal of organic contaminants in produced water. C. Smugor, C.S. Swanson, **Q. He**

10:35 . Rational fabrication of scalable and completely amorphous chitosan sorbents with ultra-low polymer density and excellent durability for cost-effective reuse of contaminated water. **B. Mu**, L. Xu, Y. Yang

10:55 . Removal of pharmaceutical pollutants and formation of hazardous byproducts in water during advanced oxidation process using graphene oxide-complex metal oxide composites. **W. Chen**, S. Peng, Y. Tseng, M. Ho

11:25 . Withdrawn

11:45 Intermission.

12:00 . Degradation of mobile genetic elements (MGEs) in water matrices by UV treatment and its impact on the viability of residual antibiotic resistance genes. **A. Bordoloi**, K. Pourrostami Niavol, R.P. Suri

12:30 . Withdrawn

12:50 . Use of targeted/non-targeted analyses and toxicity measurements for assessing PAH bioremediation success. **J. Huizenga**, J. Schindler, M. Simonich, L. Troung, R. Tanguay, M. Garcia-Jaramillo, L. Semprini

1:10 . Speciation of adsorbed Hg on the surface of stable ZIF-derived catalysts during the removal of aqueous Hg(II) for potential reuses. **M. Nurmyrza, W. Lee**

1:30 Concluding Remarks.

1:35 Discussion.

Virtual Only
Virtual Session

**General Session: Advances in Environmental Chemistry
Life Cycle Assessment /Environmental Risk Analysis**

M. Nadagouda, V. K. Sharma, *Organizers, Presiding*

10:00 Introductory Remarks.

10:05 . Withdrawn

10:20 . Fifth National Climate Assessment: Updates and opportunities for the ACS community. **C.W. Avery**,
A. Crimmins

10:35 . Down-the-drain disposal: Environmental exposure & risk assessment for formulated consumer products.
R.E. Heisler

10:50 . Comprehensive technic-economic analysis of the thermal cracking treatment on sludge driven by the
high-temperature concentrating solar thermal technology. **L. Gong**

11:05 Intermission.

11:15 . Acid gas capture by nitrogen heterocycle ring expansion. **M.P. Confer**, D.A. Dixon

11:30 . Process intensification for carbon sequestration by resonant vibratory mixing: Applications in
environmental and material science engineering. **A. Riahi**, E. Heggem, R. LaDouceur

11:45 . Automated data review process at Los Alamos National Laboratory. **S.C. Sandborgh**, W. Donaldson, J.
Garrett, J. Patureau, H. Westbrook, C. White, R. Cowan, P. Mark, J. Grippa, T. Walters

12:00 . Data Science for Environment Conservation. **G. Pant**, G. Matta

12:15 . Effect of intact carbonic acid on marine life as ocean acidity rises due to increasing amounts of
atmospheric CO₂. D. Pines, V. Baranauskaite, D. Aminov, **E. Pines**

12:30 Discussion and Concluding Remarks.

Cosponsored by ENVR

Critical Materials: Perspectives from the Industry, Government, and Research Communities
Strategic vision for critical materials

Sponsored by COMSCI, Cosponsored by ENFL, ENVR and GEOC

Food Security: The Role of Alternative Protein Sources in Addressing World Hunger

Sponsored by AGFD, Cosponsored by AGRO, ANYL and ENVR

Molecular and Heterogeneous Photocatalysts: Advances in Experiments and Theory
Heterogeneous Photocatalysis: Recent Advances in Experiments and Theory

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

Electrocatalysis for Sustainable Energy: Fundamental, Applications, & Perspective

Sponsored by CATL, Cosponsored by ENFL, ENVR and PHYS

Environmental Fate, Transport, and Modeling of Agriculturally-related Chemicals

Sponsored by AGRO, Cosponsored by AGFD, ANYL and ENVR

Technological Solutions to Address Food Insecurity, Trade Challenges and Food Waste

Sponsored by AGRO, Cosponsored by AGFD, ANYL, ENVR and ORGN

SUNDAY AFTERNOON

Moscone Center

Room 3008, West Bldg.

Advanced Materials and Technologies for Detection and Treatment of PFAS and Other Emerging Contaminants

Cosponsored by ANYL

N. Aich, S. Andreescu, K. Malekani, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05 . High-frequency ultrasound for the removal of PFAS. **G. Andaluri**, T. Shende, R.P. Suri

2:25 . Separation and destruction of per and polyfluoroalkyl substances through galvanic reaction. **A.M. Hanley**

2:45 . Short chain and ultrashort chain PFAS removal with functionalized resins. B. Harris, **L. Guo**

3:05 . Sequestering per- and poly-fluoroalkyl substances (PFAS) in soil with biochar-based materials. **H. Bui**, N. Zuverza-Mena, C. Dimkpa, S.L. Nason, J.C. White

3:25 . Defects enhanced degradation of perfluorooctanoic acid via In_2O_3 . **W. Ding**, Y. Huang

3:45 Intermission.

4:00 . New sensors and analytical approaches for in field detection of PFAS. **E.S. Andreescu**

4:20 . Nontarget LC/QToF interrogation of fluorinated residues in a fluoropolymer dispersion prepared with a hydrocarbon based processing aid. J.E. Boyle, M.D. Cervantes Garcia, J. Kramer, P.A. Morken, A.P. Smith, J.C. Sworen, **M.C. Davis**

4:40 . Rapid detection and targeted analysis of fluorinated compounds in feminine hygiene products. **A. Wicks**, A. Meckley, T. Hedman, A. Zachritz, H. Whitehead, G.F. Peaslee

5:00 . Automating a quantitative LC/MS testing workflow for EPA 1633 PFAS methodology to allow scientists to generate more data quickly to make more environmentally and socially responsible decisions. **T. Astill**

5:20 . Fabrication of a novel BiO_x/g-C₃N₄ composite for LED-driven photocatalytic degradation of sulfamethazine. **J. Wang**, Q. Fan, L. Kou, X. Xing

5:40 Concluding Remarks.

Moscone Center
Room 3001, West Bldg.

Aquatic Science and Technology at Environmental, Disciplinary, and Societal Interfaces: A Symposium Honoring the Career of Janet Hering

Cosponsored by GEOC
K. Campbell, D. Giammar, S. Kraemer, G. Lee, *Organizers, Presiding*

2:00 Introductory Remarks.

2:10 . Fascination with Phenazines. **D.K. Newman**

2:40 . Marine vitamin marketplace: B vitamin auxotrophies shape particle-associated microbial communities. **R. Gregor**, R. Szabo, M. Gralka, E. Qu, O. Cordero

3:00 . Hydrodynamics affected biofilm function in iron(III) reduction. **S. Wang**, C. Liu

3:20 . Investigating the efficiency, toxicity, and oxidant releasing properties of calcium peroxide granules for the mitigation of cyanobacteria harmful blooms (cyano-HABs) from surface waters. E.C. Keliri, A. Zindrou, Y. Deligiannakis, **M.G. Antoniou**

3:40 Intermission.

4:00 . From aquatic chemistry to bacterial surface chemistry: Adhesion at microbial interfaces. **M.A. Ferguson**, R. Grodin, P.R. Saha, D. Fitzmaurice

4:30 . Detection of impurities in individual metal sulfide colloids in complex matrices by sp-icpTOF-MS. **J. Wielinski**, G. Lowry

4:50 . Investigation of europium (III) acetylacetonate complexes and dibutylphosphate at air/water interfaces by sum frequency generation-vibrational spectroscopy. **Z. Wang**, c. Louie, N.M. Adhikari, M.D. Boamah, R.G. Felsted, A. Tuladhar, S.B. Clark

5:10 . Aqueous geochemical dynamics of Fe and Mn during ice formation. **G. Lee**, Y. Won, S. Choi, S. Lee, W. Choi

Moscone Center
Room 3007, West Bldg.

Electrochemical Materials and Interfaces for Environmental and Sustainability Challenges

C. Liu, X. Liu, *Organizers*
C. Arges, T. Kim, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05 . Ammonia recovery from manure wastewater and simultaneous electrosynthesis using ammonium-ion selective redox material. **S. Jin**, R. Wang, K. Yang, M. Qin

2:35 . Capacitive deionization for bioenergy production: Carboxylate and inorganic ion extraction and recovery using activated carbon electrodes. **L. Valentino**, A. Alejandre, C. Ehinger

3:05 . Modeling ion transport across polyamide membranes during saltwater electrolysis using a solution-diffusion-electromigration approximation. **R. Taylor**, X. Zhou, B. Blankert, F. Martinez, L. Shi, X. Zhang, C. Piciooreanu, B. Logan

3:25 . Novel, low energy approach to nutrient removal. **C. Borrás**

3:45 Intermission.

4:00 . Ion-exchange membranes with ultrahigh charge densities. **J. Kamcev**

4:30 . Deionization of concentrated salt solutions using poly(biphenylene) based ion exchange membranes. **B. Shrimant**, T. Kulkarni, M. Hasan, C. Arges

4:50 . Ion selectivity in ionomers. **P. Goyal**, A. Kusoglu, A.Z. Weber

5:10 . Electroinduced ion-ion interaction enhances the selective separation of monovalent cations through polydopamine/Ti₃C₂T_x MXene membrane. **W. Xu**, X. Quan

5:30 . Using diethylenetripenaetic acid as an environmentally benign iron-complexing agent for continuous electrochemical water desalination. **P. Akinyemi**, T. Kim

5:50 Concluding Remarks.

Moscone Center
Room 3003, West Bldg.

Methods and Modeling for Evaluating and Mitigating Plastic Pollution in Air, Land, and Water

P. Potter, *Organizer*

S. R. Al-Abed, M. Gallagher, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05 . Synthesis of a series of ligands to be used as complexing agents as a means of cleaning polluted water. A. Ivanciu, G. Brown, M. Caruso, Y. Park, P. Bedi, R. Nistor, H. Song, M. Naddaf, N. Alkhareef, F. Abdulrahim, A. Al-Wakeel, A. Alduis, Y. Fettohy, N. Kheirbek, F. Siddique, A. Mousaad, R. Hamo, R. Virk, N. Ka, E. Koneva, G. Mihalopoulos, Z. Shouman, R. Trotman, L. Jeki, J. Crandall, **M.A. Benvenuto**

2:25 . Machine learning-based prediction of enzymatic degradation of plastics using encoded protein sequence and effective feature representation. **R. Jiang**, L. Shang, D. Wang, N. Wei

2:45 . Nanocomposite membranes for mitigation of nanoplastic pollution. **J. Hegarty**, V.P. Dravid

3:05 . Chemical recycling and upcycling of waste plastics. **E. Yoshida**

3:25 Intermission.

3:45 . Preparation of Plastics Uniformly Doped with Metal-Tags: An approach to understand environmental generation and size dependent characteristics of nanoplastics. **C. Smith**, S. Bevers, S. Brown, N. Malone, J.F. Ranville, H. Fairbrother

4:05 . Sampling and analysis of airborne microplastic particles collected at a recycling facility. **D.L. Ortiz-Montalvo**, A.P. Lindstrom, J.M. Conny, T.P. Forbes, J.M. Pettibone, T. Cho, E.S. Windsor

4:25 . Microplastic contamination in wastewater treatment plants: Estimating removal efficiency and environmental impact. **D. Zhaxylykova**, M. Meirambayeva, **W. Lee**

4:45 . Characterization of particle emissions from 3D printing with thermoplastics and their potential health impacts. **Q. Zhang**, M. Black

5:05 . Tire-derived chemicals in San Francisco Bay. **E.L. Miller**, A. Gilbreath, E.P. Kolodziej, K. Moran, R.A. Sutton

5:25 Concluding Remarks.

Moscone Center
Room 3006, West Bldg.

Impact of PFAS on Environment and Health

Cosponsored by COLL, GEOC and TOXI
S. Belcher, N. Loganathan, A. Slitt, A. K. Wilson, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05 . Assessing the implications of PFAS: Monitoring environmental distribution, fate and transport, and infiltration into our living environment. **J. Bowden**

2:35 . Dirty side of clean energy part 1: Environmental occurrence of PFAS used in lithium ion batteries. **J. Guelfo**, L. Ferguson, E.P. Gray, A. Doria Manzur

3:05 . Dirty side of clean energy part 2: PFAS in lithium ion batteries and implications for disposal. **L. Ferguson**, J. Guelfo, M. Shojaei, P.W. Faught, A.S. Joyce

3:35 . Best available treatment technology for PFAS removal from water: Current gaps and research needs. **P. Roccaro**, E. Gagliano

4:05 Intermission.

4:15 . Interaction between Perfluorosulfonic Acids and Layered Double Hydroxides: Sorption Experiment and Molecular Dynamics Simulation. J. Feng, N. Loganathan, G. Rhodes, W. Zhang, D. Sheng, A.K. Wilson, **H. Li**

4:35 . Thermodynamics of PFAS in atmospheric conditions. **B. Welch**, N. Loganathan, A.K. Wilson

4:55 . Characterization of Per- and/or Polyfluoroalkyl substances in drinking water and reclaimed water in Arizona Native American Communities. **M.G. Molzahn**, J.C. Ingram, V. Karanikola

5:15 . Integration of metabolic and microbial profiling for characterizing soil microbial community under per- and polyfluoroalkyl substance (PFAS) stress. **E. Wu**, B. Chen

5:35 . Interaction of per- and polyfluoroalkyl substances (PFAS) with the PPAR γ /RXR α heterodimer and their effect on DNA binding. **N. Almeida**, S. Bali, D. James, C. Wang, A.K. Wilson

5:55 Concluding Remarks.

Moscone Center
Room 3012, West Bldg.

Materials Development to Address Environmental and Sustainability Challenges

Separation Chemistry/Agrochemistry

Cosponsored by AGFD, AGRO, ANYL and ENVR

Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community

D. D. Dionysiou, M. Nadagouda, V. K. Sharma, *Organizers*

M. J. Bentel, *Organizer, Presiding*

2:00 Introductory Remarks.

2:05 . Data-driven method guided design of adsorptive membrane for heavy metal removal. **L. Gan**, S. Zhong, Y. Chen

2:25 . Covalent organic frameworks membranes and adsorbents for wastewater treatment: Opportunities and challenges. **A. Jrad**, F. Benyettou, G. Das, A. Trabolssi

2:45 . Continuous adsorption and degradation of perfluorooctanoic acid (PFOA) in covalent organic framework photocatalytic flow reactor. **S. Khalil**, R. Verduzco

3:05 . Development of a molecularly imprinted hybrid for efficient and selective solid phase extraction of bisphenol A. B. Chen, K. Chin, C. Weng, **S. Chang**

3:25 . Targeted removal of micro- and nanoplastics from water by functionalized superparamagnetic iron oxide nanoparticles. **L. Rockmann**, H. Gaß, M. Halik

3:45 . Withdrawn

4:05 Intermission.

4:15 . Novel nanocarriers for efficient precision delivery of agrochemicals into plants. **G. Lowry**, Y. Zhang, J. Giraldo, R.D. Tilton

4:35 . Gas-phase hydrophobic functionalization of glucose biopolymers for controlled nutrient release. **S. Phillips**, N. Ganji, D. Gomez-Maldonado, S. Vaidya, M.S. Peresin, J.C. White, H. Fairbrother

4:55 . Materials for sustainable capture and reuse of plant nutrients as fertilizer. **A.W. Apblett**, C. Kelly, P. Kitzel

5:15 . Sustainable nutrient recovery with novel tube-in-tube Donnan dialysis reactors. **S. Souizi**, h. chen, K. Stewart, L. Blaney

5:35 . Mesoporous silica nanocarrier enhanced phloem-based translocation efficiency of ZnO nanoparticles to tomato plant following foliar application to the abaxial side of a leaf. **X. Gao**, A. Kundu, D.O. Persson, A.E. Szameitat, F. Minutello, S. Husted, S. Ghoshal

5:55 Concluding Remarks.

Moscone Center
Room 3005, West Bldg.

Radiation Chemistry, Aquatic Photochemistry, and Advanced Oxidation Processes in Environmental Chemistry in Honor of William J. Cooper
Advanced Oxidation Processes (AOPs) and Radiation Chemistry

D. D. Dionysiou, K. E. O'Shea, V. K. Sharma, *Organizers, Presiding*

2:00 Introduction.

2:10 . Sources and transport of organic matter in America's surface waters under changing environmental conditions. **E.W. Boyer**, D.M. McKnight, D.F. Levia

2:30 . Advanced oxidation studies for the remediation of organic contaminants in water using gamma radiolysis: dissolved compounds to plastic particulates. **J.R. Peller**, G.P. Horne, S.P. Mezyk

2:50 . Role of reactive oxygen species in the transformation of toxins in aqueous environments and during advanced oxidation processes. **K.E. O'Shea**

3:10 . Transformation of a fully halogenated organic compound by a radical chain reaction: The use of ethanol to use an oxidant for reductive treatment. **T. Kim, D.L. Sedlak**

3:30 . Be cautious of methods used for determining radicals in AOP processes. **B. Chen**

3:50 Intermission.

4:00 . Metal ions-mediated enhanced oxidation of micropollutants by ferrate(VI) in water. **V.K. Sharma**, K. Sathiyan, J. Wang, C. Huang

4:20 . UV-activated low-molecular-weight diketones (UV/LDK): A novel advanced redox process for water treatment. **P.G. Tratnyek**, S. Zhang

4:40 . Radical treatment of Halonitroacetonitriles in aqueous systems: A kinetic study. **S.P. Mezyk**, W.J. Cooper

5:00 . Predicting oxidative transformation products in water: Current state and outlook. **D. Minakata**, U. von Gunten

5:20 . Life in the excited state. **W.J. Cooper**

5:40 . Photochemical fate of saxitoxins in surface waters. **F.L. Rosario**

Virtual Only
Virtual Session

Remediation of Contaminated Water for Reuse

Cosponsored by ANYL, CEI and CHED
S. Ahuja, K. Sathiyar, *Organizers, Presiding*

3:00 Introductory Remarks.

3:05 . Recyclable functionalized PEI-coated magnetic nanoparticles for efficient removal of lead from aqueous solution. **S. Titinchi**, H. Abbo, C. Tsague

3:35 . Sustainable water remediation of hydrocarbons across different molecular length scales and its upcycling as an oil sorbent. **H. Gaß**, M. Halik

3:55 . Efficient biopolymer ligand for toxic metals extraction from water media. **M. Rahman**, S.M. Sarjadi

4:25 . Cysteine reduced the inhibition of CO₂ on heterotrophic denitrification: restoring redox balance, facilitating iron acquisition and carbon metabolism. **X. Zhang**

4:45 Intermission.

5:00 . Synthesis of graphene based ferrites and its application in removal of heavy metals. **A. Ahmad**, N. Ahmad

5:30 . Innovative water treatment through enhanced interfacial evaporation using metal-doped LIG surfaces. **U. MISRA**, N.H. Barbhuiya, N. Dixit, S.P. Singh

5:50 . Nutrient recovery from polluted brackish groundwater with selective electrodialysis (SED) & nanofiltration (NF). **S.M. Heath**, Z. Foo, D. Rehman, J. Arrieta Morales, J. Lienhard

6:10 . In situ synthesis of NiFe PBA on alginate hydrogel and photoinduced enhancement of ¹³⁷Cs removal from seawater. **S. Eun**, s. Kim, M. Kim

6:30 . Nanoparticles of Tin Sulfide for photodegradation of organic pollutants. **J. Colon Dedos**, L. Alamo-Nole

6:45 Concluding Remarks.

6:50 Discussion.

Cosponsored by ENVR

Critical Materials: Perspectives from the Industry, Government, and Research Communities
Multi-faceted Perspectives of Critical Materials

Sponsored by COMSCI, Cosponsored by ENFL, ENVR and GEOC

Developments and Future Challenges in Environmental Catalysis

Sponsored by CATL, Cosponsored by ENVR

Biorational Technologies for Control of Invasive Pests in a Changing Climate

Sponsored by AGRO, Cosponsored by AGFD, ANYL, ENVR and ORGN

Electrocatalysis for Sustainable Energy: Fundamental, Applications, & Perspective

Sponsored by CATL, Cosponsored by ENFL, ENVR and PHYS

Environmental Fate, Transport, and Modeling of Agriculturally-related Chemicals

Sponsored by AGRO, Cosponsored by AGFD, ANYL and ENVR

Epidemiology: A Growing Field in Agrochemistry and Agrochemical Regulation

Sponsored by AGRO, Cosponsored by AGFD, CHAL, ENVR and TOXI

Food Security: The Role of Alternative Protein Sources in Addressing World Hunger

Sponsored by AGFD, Cosponsored by AGRO, ANYL and ENVR

Molecular and Heterogeneous Photocatalysts: Advances in Experiments and Theory Spectroscopy and Molecular Photocatalysis

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

Technological Solutions to Address Food Insecurity, Trade Challenges and Food Waste

Sponsored by AGRO, Cosponsored by AGFD, ANYL, ENVR and ORGN

MONDAY MORNING

Moscone Center
Room 3008, West Bldg.

Advanced Materials and Technologies for Detection and Treatment of PFAS and Other Emerging Contaminants

Cosponsored by ANYL

N. Aich, S. Andreescu, K. Malekani, *Organizers, Presiding*

8:30 Introductory Remarks.

8:35 . Photocatalytic degradation of perfluorooctanoic acid, PFOA, by brookite and brookite-rich TiO₂ nanoparticles. **O. Love**, L. Coward, L. Dippy, M. Rossi

8:55 . Covalent organic framework membrane for improved selective perfluoroalkyl substances (PFAS) separation toward enhanced water recovery. **T. NGUYEN**, W. Xia, X. Min, Z. Qiang, R. Khandge, Y. Wang, X. Ma

9:15 . Acid activation enhances the photocatalytic activity of boron nitride toward efficient decomposition of perfluorooctanoic acid. P. Chu, M. Yang, F. Lung, **W. Hou**

9:35 . Electrochemical degradation of 6:2 fluorotelomer sulfonic acid using boron-doped diamond electrodes. **M. Samuel jayakumar**, K. Govindan, B. Mayer, P. McNamara

9:55 . PFAS removal from hard-to-treat waste streams. **M. Ateia**

10:15 Intermission.

10:30 . Synthesis of alumina based metal-organic framework using red mud acid leachate and its application as PFOA adsorbent. **S. Yoon**, S. Bae

10:50 . Ultrafast activation of peroxymonosulfate by polyoxometalate-based heterostructures for remediation of emerging contaminants. **Z. Jiang**

11:10 . Exploration of titanium dioxide photocatalysts for oxidation of long and short chain PFAS. **S.E. Massimi**, B.G. Trewyn

11:30 . Graphene as a rational interface for enhanced removal of cyanotoxins and emerging contaminants for water security. **J.L. Roberts**, A. Evans, S.G. Zetterholm, L. Gurtowski, A. Fernando, B. Fernando, A. Thompson, C.S. Griggs

11:50 Concluding Remarks.

Moscone Center
Room 3007, West Bldg.

Environmental Chemistry and Nanotechnology: A Tribute to Joel Pedersen

H. Fairbrother, R. J. Hamers, M. Suffet, *Organizers*
F. L. Rosario, *Organizer, Presiding*

8:00 Introductory Remarks.

8:15 . Degradation of contaminants of concern by peroxymonosulfate and persulfate-based processes. **D.D. Dionysiou**

8:35 . Mechanistic insights into (toxic) carbonyl formation during ozonation of phenols. **C. Prasse**, Z. Zhang, D. Grace, H.P. Hendrickson

8:55 . Molecular-level characterization of polyamide membrane degradation by disinfectants: A combined QCM and AFM study. N. Dai, **T. Mohona**, P. Nalam

9:15 . Recent advances in environmental prion detection and remediation. **S.S. Lichtenberg**

9:35 . Environmental chemistry of ionizable organic contaminants: formation of Charge-Assisted Hydrogen Bonds between ions of similar proton affinity in sorption and aggregation interactions. **J.J. Pignatello**

9:55 . Tandem aromatization of pentane with temperature shifting three-stage fluidized bed reactor. **W. Hongmei**, Y. Xiang, C. Chaojie, W. Jian, Q. Weizhong, W. Fei

10:15 Intermission.

10:30 . On the disproportionate contribution of membrane electron-donor functionality in membrane biofouling. **M. Xiao**, E. Hoek

10:50 . Treatment of reverse osmosis concentrate produced during brackish groundwater desalination with a nature-based treatment system. **S. Kilpatrick**, Z. Yang, J. Sharp, D.L. Sedlak

11:10 . Internal standard-free quantification of imidacloprid in drinking water using its surface-enhanced Raman spectral patterns. **H. Wei**

11:30 . Evaluation of 6PPD-quinone removal from stormwater runoff using soils and sorption media. **A.M. Hildebrandt**, X. Hu, K.T. Peter, C. Rideout, M. Gonzalez, E.P. Kolodziej, J. Ray

11:50 Concluding Remarks.

Moscone Center
Room 3003, West Bldg.

Plastic Pollution and E-Waste: Treatment and Valorization

Cosponsored by BIOT, CATL, CELL, ENFL and I&EC
E. Sallam, B. Sang, J. Seo, *Organizers, Presiding*

8:45 Introductory Remarks.

8:50 . Isolation, identification, and characterization of polystyrene-degrading bacteria from the gut of zophobas atratus larvae. **X. Liu**

9:05 . Biodegradation of polystyrene by bacteria from the soil in landfill site. **W. Wang**

9:20 . Thermochemical conversion of plastic waste to enable a circular economy. **P. Wang**, S. Natesakhawat, V. Abdelsayed, J. Weidman, N. Means, Y. Soong, F. Shi, J.W. Lekse, M. Gray

9:35 . Long-lifetime water-washable ceramic catalyst filter for air purification. **H. Kwon**, D. Yang, M. Koo, S. Oh, H. Lee

9:50 . Interactive adverse effects of low-density polyethylene microplastics on marine microalga *Chaetoceros calcitrans*. **E. Sallam**

10:05 Intermission.

10:25 . Characterization and distribution of microplastics in the Delaware River. **G. Andaluri**, R.P. Suri

10:40 . Metallic fingerprint in nanoplastics generated from plastic consumer products. **M. Baalousha**

10:55 . Withdrawn

11:10 . Quantitation of chemical additives present in different plastic and natural fabrics. D.A. Espinosa González, F. Luo, L. Wooster, A. Soni, S. Ali, M. Martis, **L.Y. Tseng**

11:25 . Identification of microplastics . F. Weston, **T. Yan**, J. Anderson

11:40 Concluding Remarks.

Moscone Center
Room 3006, West Bldg.

Processes and Risks of Micro-& Nano-Plastics in the Environment

F. Dang, V. K. Sharma, C. P. Ward, *Organizers*
B. Xing, J. Zhao, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 . Developing methods to track micro- and nano plastics in ecosystem and living organisms. Y. Gao, K. Zhang, Z. Li, Y. Deng, X. Zhou, **B. Yan**

8:35 . Rapid, portable analysis of micro/nano-plastics via microfluidic lateral diffusion. **E. Johnston**, V. Ugaz

8:55 . Suitability of elutriation for the extraction of microplastics from terrestrial ecosystem soils. **K.R. Forsythe**, M. Egermeier, A. Jilling, J. Gonzalez-Estrella

9:15 . Application of optical photothermal infrared spectroscopy to identify micro- and nanoplastic removal during drinking water treatment. **M. Jamison**, J.J. Lenhart

9:35 Intermission.

9:50 . Withdrawn

10:20 . Spatio-temporal distribution and ecological risk assessment of microplastics in canals and ponds in the cities of Saudi Arabia. **D. Barcelo**, y. Pico, v. soursou, M.M. El Sheik, A. Alfarhan

10:50 . Ecological risk of aquaculture-derived microplastics in marine environment. **X. Zhu**, L. Lin

11:20 Concluding Remarks.

Moscone Center
Room 3001, West Bldg.

Aquatic Science and Technology at Environmental, Disciplinary, and Societal Interfaces: A Symposium Honoring the Career of Janet Hering

Cosponsored by GEOC
K. Campbell, D. Giammar, S. Kraemer, G. Lee, *Organizers, Presiding*

8:00 Introductory Remarks.

8:10 . Creating change at the science-technology-policy interface. **D.L. Sedlak**, R.G. Luthy, J.E. Drewes, T. Waite

8:40 . Sunrise of PFAS replacements: Tools for a safer transition. **M. Ateia**

9:00 . Regulating mercury in a large river basin: The messy policymaking reality that follows scientific advancement. **R. Wildman**, S. Washburn, J. Lewis, J. Krall

9:20 . Assessing and predicting groundwater uranium contamination using GIS and machine learning. **S.K. Singh**, R. Singh

9:40 . Drinking water quality of private wells in Pennsylvania. **B. Redder**, E.W. Boyer

10:00 Intermission.

10:20 . Arsenic contamination of groundwater: Anthropogenic pressures on a geogenic problem. **L. Winkel**, A. Nghiem, D. Haaf, P. Renard, M. Berg

10:50 . Treatment of mine influenced water: Utilization of biogeochemical process in reducing risk from metal contamination to environmental systems. **L. Starr**, S.R. Al-Abed

11:10 . Electroanalytical methods for studying important environmental and biogeochemical processes. **Y. Chin**, G.W. Luther, J. Hudson, D. Xin

11:30 . Rethinking artificial rock: New materials in the built environment. **C.M. Eggleston**, N. Rahbar

Moscone Center
Room 3012, West Bldg.

Materials Development to Address Environmental and Sustainability Challenges Sustainability & Recovery

Cosponsored by AGFD, AGRO, ANYL and ENVR

Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community

D. D. Dionysiou, M. Nadagouda, V. K. Sharma, *Organizers*

M. J. Bentel, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 . Sustainable approach towards rapid water evaporation, space-heating and water remediation via nanostructured hard carbon. **A. SAH**, C. Subramaniam

8:25 . Unveiling the secrets of lithium selectivity: A systematic exploration of crown ether-based polymer materials. **S. Tamm**, I. Oral, V. Abetz

8:45 . Advanced structured material for direct air capture. **P. Sitaula**

9:05 . Direct CO₂ capture from atmosphere and sequestration using a new class of hybrid ion exchanger. **A.K. Sengupta**, H. Chen

9:25 . Modular design of metal-organic framework-based sorbents for atmospheric water harvesting. **S.P. Chheda**, N. Hanikel, D. Kurandina, Z. Zheng, Z. Rong, E. Neumann, J. Sauer, O.M. Yaghi, J.I. Siepmann, L. Gagliardi

9:45 Intermission.

9:55 . Understanding of water vapor permeation properties through modified nanocellulose membranes. **H. Kwon**, H. Kim

10:15 . In silico model to predict biodegradation of functionalized polysaccharides. **S.E. Scott**, J. Fernandez, F. Rodriguez Roperro, A. Macke, P.H. Koenig

10:35 . Thermally responsive hydrogels for passive temperature regulation under direct sunlight. **D. Xie**, W. Li, C. Richards, H. Gao, C. Chen, N. Miljkovic, S. Fan, J. Lee, S. Joshi, P.V. Braun

10:55 . Waste foundry sand as a sustainable remediate for concrete industry: A microstructural behavior. **D.K. Ashish**, S.K. Verma

11:15 . Addressing the heterogeneity of carbon dots sourced from waste precursors. **K. Ghosh**, J. Grey, E. Westphal, M. Ohlhausen, T. Habteyes

11:35 . Unravelling the growth mechanisms of synthetic C-S-H: A breakthrough in cement chemistry. **A. Morales Melgares**, A. Testino, K. Scrivener, L. Emsley

11:55 Concluding Remarks.

Moscone Center
Room 3005, West Bldg.

Radiation Chemistry, Aquatic Photochemistry, and Advanced Oxidation Processes in Environmental Chemistry in Honor of William J. Cooper

UV-based Processes and Photocatalysis

D. D. Dionysiou, K. E. O'Shea, V. K. Sharma, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 . Impact of UV irradiation at 222 nm on the formation potential of chloropicrin disinfection byproduct. J. Xu, R. Kann, **C. Huang**

8:25 . Importance of measuring photochemical kinetic parameters in the UV/sulfite advanced reduction process. **G. McKay**

8:45 . Effective radical production by combining far-UVC radiation with chlorinated cyanurates for micropollutant elimination in water. **J. Zhao**, R. Yin, C. Shang

9:05 . Synergistic effects of multiple light sources in UV/Chlorine on radical speciation and water treatment. **H. Kim**, K. Cho

9:25 . Efficiency and optimization of UV-LED/chlorine advanced oxidation process for pollutant degradation and DBP control in drinking water treatment. **B. Xu**

9:45 Intermission.

10:00 . Degradation of the chemotherapeutic drug methotrexate by the UV/peracetic acid process. **Z. Tang**, W.W. Lai

10:20 . Shining some (LED) light on fluorinated compounds! UV wavelength dependent photolysis. **A. Bhat**, W.C. Pomerantz, W.A. Arnold

10:40 . Solar light driven photodegradation of organic pollutants using Nitrogen-Tungsten codoped nanocrystalline TiO₂. **G. Siddiqui**, A. ALI, Y. Mok

11:00 . Withdrawn

11:20 . Novel approach to facilitate superoxide anion radicals generation for enhanced photocatalysis under visible light. J. Zhang, Y. Xuan, **R. Balasubramanian**

11:40 . Photocatalytic oxidation of Mn²⁺(aq) using hematite: Implications for environmental redox cycles and manganese removal. **J. Choi**, H. Jung

Virtual Only
Virtual Session

General Session: Advances in Environmental Chemistry
Wastewater Treatment / Innovative Analytical Tools for Contaminants Detection and Monitoring

M. Nadagouda, V. K. Sharma, *Organizers, Presiding*

10:00 Introductory Remarks.

10:05 . Linking anaerobic wastewater treatment to water reuse at pilot-scale. **J. MacDonald**

10:20 . Insights into high ammonia reshaping active microbiome, enzyme manufacture and key enzymes in anaerobic digestion: From community to biomolecule. **C. Liu**, Y. Chen

10:35 . Withdrawn

10:50 . Anoxic MBBR coupled advanced activated sludge system for in-situ biosolids minimization from industrial wastewater. **V. Sodhi**, **N. Sodhi**, A. Bansal, M.K. Jha

11:05 Intermission.

11:15 . Using electroanalytical techniques with carbon-based electrodes for the detection of pertechnetate. **J.M. Rakos**, S. Kazemeini, D. Weber, N. Baule, C.A. Rusinek

11:30 . Dissolved Organic Material (DOM) characterization with LC – 21T FT-ICR MS. **J. Frye-Jones**, M.L. Chacon Patino, W.K. Robbins, C.R. Weisbrod, B. Bouyssiére, P. Guisti, A.G. Marshall, R.P. Rodgers

11:45 . Do we appropriately detect and understand singlet oxygen possibly generated in advanced oxidation processes by electron paramagnetic resonance spectroscopy?. **Y. Zong**, D. Wu

12:00 . Extended characterization of DOM through aminopropyl silica SPE fractionation and analysis by SEC ICP-MS and 21 T FT ICR-MS. **D. Giraldo Davila**, M. Poutingon, S. Le Faucheur, P. Giusti, M. Bueno, B. Bouyssiére, **R.P. Rodgers**

12:15 . Probing molecular-level dynamic interactions of dissolved organic matter with iron oxyhydroxide via a coupled microfluidic reactor and an online high-resolution mass spectrometry system. **X. Zhu**, K. Wang, B. Chen

12:30 Intermission.

12:40 . Non-target identification and characterization of chlorination and chloramination disinfection by-products with LC-FT-ICR MS. **L. Han**, R. Mobarak, M. Nihemaiti, T. Reemtsma, O. Lechtenfeld

12:55 . Withdrawn

1:10 . in-situ monitoring of sulfate radical-induced polymerization of aromatic pollutants using plasmonic colorimetry. **H. Wang**, A. Kvit, H. Wei

1:25 . Water quality monitoring and contaminants analysis with coffee ring effect by artificial intelligence. **x. Li**, R. Lahr

1:40 . Heterogeneous interactions of dibasic esters on indoor relevant surfaces. **C. Deeleeipojananan**, J. Zhou, V.H. Grassian

Virtual Only
Virtual Session

Remediation of Contaminated Water for Reuse

Cosponsored by ANYL, CEI and CHED
S. Ahuja, K. Sathiyar, *Organizers, Presiding*

10:00 Introductory Remarks.

10:05 . Leverage microbial ecology for biofilm control in water treatment and reuse systems. **P. Yu**, P.J. Alvarez

10:35 . Selective removal of emerging organic contaminants from water using electro-generated Fe(IV) and Fe(V) under near-neutral conditions. **S. Wang**, X. Guan

10:55 . Synthesis, characterization and photodegradation efficiency of ZnO@Ag nanocatalyst towards atrazine in aqueous solution: Cytotoxicity activity. **M. Ojemaye**, I.O. Daramola, C.Y. Ojemaye, O.O. Okoh, A. Okoh

11:15 . Degradation of tetracyclines in the Fenton process under near neutral pH conditions: Overlooked contaminants-driven process. **Y. Lin**, X. Guan

11:35 Intermission.

11:50 . Molecular transformation of effluent organic matter during (catalytic) ozonation-filtration process. **C. Li**, F. Qi

12:20 . Neutral phenolic contaminants are not necessarily more resistant to permanganate oxidation than their dissociated counterparts: Importance of proton-coupled electron transfer. **T. Chen**, X. Guan

12:40 . Naproxen as a turn-on chemiluminescent probe for real-time quantification of sulfate radical. **h. Shao,**
X. Guan

1:00 . Sustainable mitigation of paracetamol with a novel dual functionalized pullulan/kaolin hydrogel
nanocomposite from simulated wastewater. **S.A. KHAN**

1:20 Concluding Remarks.

1:25 Discussion.

Cosponsored by ENVR

**AGRO International Award: Symposium in Honor of Dr. Thomas M. Stevenson for His Contributions to
the Discovery of New Fungicides, Herbicides and Insecticides**

Sponsored by AGRO, Cosponsored by AGFD, ANYL, ENVR and ORGN

**Critical Materials: Perspectives from the Industry, Government, and Research Communities
Recovery of Critical Materials**

Sponsored by COMSCI, Cosponsored by ENFL, ENVR and GEOC

Developments and Future Challenges in Environmental Catalysis

Sponsored by CATL, Cosponsored by ENVR

**Environmental Monitoring Data Collection, Utility, and Use in Pesticide Risk Assessment and
Registration**

Sponsored by AGRO, Cosponsored by AGFD, ANYL and ENVR

Understanding and Reducing Anthropogenic Emissions of Methane: Harnessing the Power of Data

Sponsored by I&EC, Cosponsored by CEI, ENFL and ENVR

Biotechnology and Synthetic Biology for Sustainable Foods, Food Ingredients, and Flavor

Sponsored by AGFD, Cosponsored by AGRO, ANYL and ENVR

Portable and Compact Separation Technologies

Sponsored by ANYL, Cosponsored by AGFD, AGRO and ENVR

Zero Waste Strategies: Valorizing Undervalued Agricultural Coproducts and Food Waste

Sponsored by AGRO, Cosponsored by AGFD, ANYL, BMGT, ENFL and ENVR

Forever Chemicals in the Environment, Distribution and Risk

Sponsored by AGFD, Cosponsored by AGRO and ENVR

MONDAY AFTERNOON

Moscone Center
Room 3008, West Bldg.

Advanced Materials and Technologies for Detection and Treatment of PFAS and Other Emerging Contaminants

Cosponsored by ANYL
S. Andreescu, K. Malekani, *Organizers*
N. Aich, *Organizer, Presiding*

2:00 Introductory Remarks.

2:05 . Effects of soil amendments on bioavailability of PFAS to plants. **W. Zhang**, Y. Liang

2:25 . PFAS in northern Indiana drinking water. **Y. Jin**, H. Whitehead, A. Wicks, G.F. Peaslee

2:45 . Development of anion-exchange membranes as passive samplers for diverse per- and polyfluoroalkyl substances. **K. He**, J. Liang, M. Siao, M. Ellington, h. chen, K. Stewart, L. Blaney

3:05 . Effective breaking of fluorocarbon chain by interface Bi₂O₂X-PFOA complex strategy via coordinated Se on construction of the internal photogenerated carrier pathway. **G. Mobley**, S. Li, X. Fan, J. Huang, G. Yu

3:25 . Impact of PFAS adsorbents on disinfection by-products formation during water treatment and reuse. **F. Dixit**, W. Mitch

3:45 Intermission.

4:00 . Withdrawn

4:20 . Ultrathin metal oxide nanomaterials as adsorbents for the removal of organophosphorus compounds from water at ambient temperatures. **G. Pathiraja**, M. Sa'ed, S.O. Obare

4:40 . Withdrawn

5:00 . Exploring acetylacetone as a molecular co-catalyst for enhancing photocatalytic degradation of emerging contaminants: Insight into the overlooked coordination of the exciton-mediated and carrier-mediated mechanisms. **Q. YOU**, C. Zhang, M. Cao, G. Yu

5:20 . Dechlorination helps defluorination: New insights into the defluorination of florfenicol and DFT calculations on the reaction pathways. **Y. Zhang**

5:40 Concluding Remarks.

Moscone Center
Room 3007, West Bldg.

Environmental Chemistry and Nanotechnology: A Tribute to Joel Pedersen

H. Fairbrother, R. J. Hamers, F. L. Rosario, *Organizers*
M. Suffet, *Organizer, Presiding*

2:00 Introductory Remarks.

2:05 . Computational investigation on the Origin of the optical properties of dissolved organic matter. **F.L. Rosario**

2:30 . Fluorescence quenching of humic substances and natural organic matter by nitroxide free radicals. **G. McKay**, H. Li

2:50 . Withdrawn

3:10 . Oxidation and immobilization of As(III) by colloidal ferric hydroxide in the concomitant pollution of tetracycline. **J. Gao**

3:30 . Highly-efficient preparation of methylene blue adsorbents by using spent lithium-ion battery anode graphite via one-step mechanochemistry process without additives. **J. Li**, Z. Xu

3:50 . Synthesis of bismuth ferrite hollow spheres and their application in the photocatalytic degradation of dyes using visible light. **T. Cadenbach**, M. Benitez, A. Debut

4:10 Intermission.

4:25 . Evaluating dissolved organic matter in drinking water sources. **M. Suffet**

4:45 . Protein misfolding cyclic amplification (PMCA) as an ultra-sensitive technique for the screening of CWD prions in different sample types. **R. Morales**

5:05 . Interfacial adsorption and growth of phosphates on lead oxide and carbonate microcontaminants in aqueous environments. **P. YAN**, J.W. Bennett

5:25 . Yields, characterization and photochemical reactivity of water-soluble dissolved organic matter from microplastics and microfibers. M. Schutte, S.M. Kteeba, **L. Guo**

5:45 Concluding Remarks.

Moscone Center
Room 3005, West Bldg.

Radiation Chemistry, Aquatic Photochemistry, and Advanced Oxidation Processes in Environmental Chemistry in Honor of William J. Cooper

Photochemical Processes in Natural and Engineered Systems

D. D. Dionysiou, K. E. O'Shea, V. K. Sharma, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05 . One Radical Chemist: “Bad” Bill’s legacy to ROS photochemistry. **L. Powers**, D. Le Roux, N.V. Blough, W.L. MILLER

2:25 . Photodegradation of antibiotics in the presence of agriculturally-derived organic matter. **L. Blaney**, K. Mangalgi

2:45 . Effect of light on the oxidation of vivianite. **W. Liu**, Z. Wang, M. Bowden, O. Qafoku, K. Rosso

3:05 . Enhanced pharmaceuticals degradation by the coexistence of sunlight photolysis and MnO₂ oxidation. **M. Hsieh**, Y. Su, M. Hsu, H. Lin, A.Y. Lin

3:25 Intermission.

3:40 . Mitigating harmful algal blooms in water facilities using advanced oxidation processes. E. Passa, M. Kong, **D.D. Dionysiou**

4:00 . Photochemistry of thiophenes in aquatic environment. **M. Amacha**, O. Yushchenko, K.P. McNeill

4:20 . Photosensitized transformation of common oxidants in dissolved organic matter solutions under simulated solar irradiation. **W. Song**

4:40 . Contaminant photoreactions at Gulf of Mexico beaches. **R.G. Zepp**, M. Marirosa, M. Cyterski, B. Acrey

5:00 . Apparent quantum yield for photo-production of singlet oxygen in reservoirs and its relation to the water matrix. **Z. Guo**, C. Yoshimura

5:20 . Rapid reaction mechanism and application method of persulfate activated by a novel UV laser with concentrated light beam for micropollutant degradation in water. **T. Zhang**

Moscone Center
Room 3001, West Bldg.

Aquatic Science and Technology at Environmental, Disciplinary, and Societal Interfaces: A Symposium Honoring the Career of Janet Hering

Cosponsored by GEOC
K. Campbell, D. Giammar, S. Kraemer, G. Lee, *Organizers, Presiding*

2:00 Introductory Remarks.

2:10 . Illuminating chemical reactions at or near chemical equilibrium with non-traditional stable isotopes. **C. Zhu**

2:40 . Rates and mechanisms of vivianite dissolution. R. Metz, W.D. Schenkeveld, N. Kumar, **S.M. Kraemer**

3:00 . Effects of a solid substrate on competitive formation of Mn carbonate and oxides. **S. Namgung**, S. Lee, G. Lee

3:20 . Interplay of oxidative mobilization and re-adsorption of Cr(VI) in Cr(OH)₃-MnO₂-Fe(OH)₃ mixed mineral systems. **K. Kang**, J. Pena

3:40 Intermission.

4:00 . Removal of Cr(VI) from groundwater with MoS₂-coated granular activated carbon. **A. Mishra**, M. Wang, B. Mi, D.L. Sedlak

4:20 . Recovery of rare earth elements from acid mine drainage by supported liquid membrane separations. **H. Hsu-Kim**, A. Middleton

4:40 . Development of an algae-based ion pumping membrane for brackish water desalination. **P. Quan**, H. Liu, R. Jinkerson

5:00 . Modeling UV photochemical treatment of PFAS: Influence of chemical speciation of non-target chemical constituents. **T.J. Strathmann**, S. Vyas, C. Amador

5:20 . Advances in the theory and application of metals geochemistry from 30 years of research on contaminant remediation with zerovalent iron. **P.G. Tratnyek**

5:50 Concluding Remarks.

Moscone Center
Room 3003, West Bldg.

Harnessing Data to Improve Oxidation and Disinfection Processes

Cosponsored by BIOT, CEI, PMSE and POLY
K. E. Furst, A. Szczuka, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05 . Quantifying the contribution of amine precursors to nitrogenous disinfection byproduct formation in recycled wastewater by chemical derivatization. **D. McCurry**, E. Kim, S. Steck, J. Van Buren

2:25 . Tradeoffs between N-nitrosamine formation and reactive radical formation in water systems disinfected by free chlorine and cyanuric acid combined. **Y. Chuang**, C. Chou

2:45 . Indole and anilines as overlooked precursors to small-molecule disinfection byproducts: Reaction pathway exploration and non-target product analysis. **N. Dai**, Z.T. Kralles

3:05 . Disinfection by-products formed from dimethylbenzylamine and methylbenzylamine during chlorination. **C. Lin**, W. Chen, W. Mitch

3:20 Intermission.

3:35 . Data-driven predictions of reactivities of hydrated electrons with conventional and emerging groups of organic compounds in aqueous-phase advanced reduction processes. **D. Minakata**, R. Turner

3:55 . Modelling the reaction kinetics between NOM and ClO₂ for predicting chlorite/chlorate formation in water. **J. PENG**, C. Shang, R. Yin

4:10 . Machine learning based predictive models for contaminant reactivity toward common oxidants. S. Zhong, **H. Zhang**

4:25 . Exploring photochemical oxidation using the MATLAB-based Toolbox for Environmental Research (TEEnvR). **A.I. Goranov**, R. Sleighter, D. Yordanov, P.G. Hatcher

4:40 Intermission.

4:55 . Lysine and arginine reactivity and transformation products during peptide chlorination. **J.L. SHI**, W. Mitch

5:10 . Chlorinated byproducts form in chlorine disinfected meats, but high background levels may indicate their existence as an inflammatory response in slaughtered animals. **A.M. Simpson**

5:25 . Chlorotyrosines and oleic acid chlorohydrins as byproducts in disinfected conventional drinking waters and potable reuse waters. **M. Hinkle**, M. Suh, W. Mitch

5:40 . Impact of chlorine booster on antibiotic resistome composition along drinking water distribution system. Y. Hsiao, **H. Tung**

5:55 Concluding Remarks.

Moscone Center
Room 3012, West Bldg.

Materials Development to Address Environmental and Sustainability Challenges Sustainability & Recovery/Photo- & Electrochemistry

Cosponsored by AGFD, AGRO, ANYL and ENVR

Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community

D. D. Dionysiou, M. Nadagouda, V. K. Sharma, *Organizers*

M. J. Bentel, *Organizer, Presiding*

2:00 Introductory Remarks.

2:05 . Energy efficient advanced separation process of solvent mixture (xylene, butyl acetate and methyl ethyl ketone) recovery/re-processing for paint industry. **A. REHMAN**, A. Ahmad

2:25 . Ion-selective separations from hypersaline mixtures using switchable solvent-based desalination. **I. Billinge**, E.M. Dach, K. Shah, N. Yip

2:45 . Metal-single-site catalytic materials for electrochemical advanced oxidation processes. P. Cao, **X. Quan**

3:05 . Withdrawn

3:25 . Electrochemical and chemical mining of municipal solid waste incinerator ash. **D. Zhang**, M. Wang, Y. Chiang

3:45 Intermission.

3:55 . Synergistic effects of Mn-modified CeO₂ and ZrO₂ catalysts for photocatalytic reduction of CO₂ to methane. **U. Lavrencic Stangar**, V. Tatiparthi, P. Kumar, M. Filip Edelmannová, M. Reli, K. Koci, P. Nadrah, A. Sever Skapin

4:15 . Withdrawn

4:35 . Superhydrophilic WO₃/MWCNTs/SDBS/cotton fabric membrane for photocatalytic degradation petroleum wastewater treatment and antibacterial assay. N. Elmi Fard, Z. Yousefipour, **I. Raeisi**

4:55 . Redox-mediated photoelectrochemical (PEC) separation of ions. **K. Cho**, R. Chen, J. Elbert, X. Su

5:15 . Defect engineering towards improved performance in Environmental Photocatalysis. **C. Wang**

5:35 . Synthesis of petitjeanite Bi₃O(OH)(PO₄)₂ photocatalytic microparticles: Effect of synthetic conditions on crystal structure and activity towards degradation of aqueous perfluorooctanoic acid (PFOA). **M.J. Bentel**, M.M. Mason, E.L. Cates

5:55 Concluding Remarks.

Moscone Center
Room 3006, West Bldg.

Processes and Risks of Micro-& Nano-Plastics in the Environment

C. P. Ward, B. Xing, J. Zhao, *Organizers*
F. Dang, V. K. Sharma, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05 . Withdrawn

2:35 . Diffusion ordered spectroscopy for determining molecular weights of consumer plastics and photodegraded polymers. **T.F. Nelson**, C. Reddy, C.P. Ward

2:55 . Aging of plastic debris in the terrestrial environment. **L. Wang**, D. Hou

3:15 . Photolysis of disposable surgical masks facilitates abiotic manganese oxide formation. **P. Chou**, Z. Gao, M. Jung, Y. Jun

3:35 Intermission.

3:45 . Interactions of microplastics and dissolved organic matter in water under light irradiation. **V.K. Sharma**, X. Ma, Y. Liu, R. Joshi, M.R. Shields

4:15 . Photochemistry of microplastics and its associate effect on the coexisting pharmaceuticals in an aqueous environment. **H. Lin**, H. Wang, M. Hsieh, A.Y. Lin

4:45 . Leveraging isothermal titration calorimetry to obtain thermodynamic insights into the aggregation behavior of nanoplastics in aquatic environments. M. Kim, **E. Kim**

5:15 . Nanoscale abrasive wear of pristine and photooxidized polyesters: The role of polymer chemistry on nanoplastic release. **E. RAHMAN**, S. Kamal, J. Qin, B. Xiong

5:35 . AFM force spectroscopy sheds light on the role of microplastics in antibiotic transport in quartz sand. **W. Jiayi**, X. Zhu

5:55 Concluding Remarks.

Virtual Only
Virtual Session

Remediation of Contaminated Water for Reuse

Cosponsored by ANYL, CEI and CHED
S. Ahuja, K. Sathiyar, *Organizers, Presiding*

3:00 Introductory Remarks.

3:05 . Functional biomaterials for tackling the water impurities. **P.R. Sharma**

3:25 . Emerging contaminants abatement in drinking water by the photocatalytic chlorine activation process using TiO₂ embedded metamaterial porous structures on polymeric optical fibers. **W. Jinxin**, z. cheng, C. Shang, L. Li

3:45 . Enhanced sorptive reduction of aqueous Hg(II) on the surface of novel Pd-Cu-BTC. **N. Nurlan**, M. Nurmyrza, **W. Lee**

4:05 . Steam explosion coupled freeze-thaw technology for deep dewatering of sewage sludge. **L. Yin**

4:25 . Biomineralization of hypersaline wastewater. m. alahmari, **A. Al-Humam**, f. ghunaimi

5:05 Intermission.

4:50 . Simultaneous sorption of Multioxyanions (phosphate, arsenate, chromate and selenate) using magnetic Douglas fir biochar. **S. Madduri**, P.M. Rodrigo, C. Navarathna, T. Mlsna

5:10 . Remediation of groundwater polluted by crude oil via enriched anaerobic consortium. **m. alahmari**, A. Al-Humam, C. Sanchez-Huerta, I. Zefzafy

5:30 . Treatment and reuse of dye laden wastewater from unorganized dyeing sectors in Kharagpur using MoS₂-Fe(BDC) composites. **h. singh**, A. Majumder, J. Bhattacharya

5:45 . Removal of As (III) by La-doped Al₂O₃/ g-C₃N₄ heterojunction via simultaneous photocatalytic oxidation and adsorption. **D. DEY**, S. Chowdhury, R. SEN

6:00 . Insights into oxidation of pentachlorophenol (PCP) by low-dose ferrate(VI) catalyzed with α -Fe₂O₃ nanoparticles. **B. Liu**, J. Wei, S. Zhang, Z. Wang

6:15 . Ball milling synthesis of Fe/Cu bimetallic particles and its application for efficient trichloroethylene degradation. **B. Fan**

6:50 Concluding Remarks.

Virtual Only
Virtual Session

Virtual Graduate Students Symposium in Asia-Pacific Region on Current Environmental Issues

Y. Liu, C. Zhao, C. Zheng, *Organizers, Presiding*

5:30 Introductory Remarks.

5:35 . Generating high-valent iron-oxo $\equiv\text{Fe}^{\text{IV}}=\text{O}$ complexes in neutral microenvironments through peroxymonosulfate activation by Zn-Fe layered double hydroxides. **Y. Bao**, C. Lian, K. Huang, H. Yu, W. Liu, J. Zhang, M. Xing

5:50 . Selective oxidation of organic pollutants over a new 2D Co-MOF via peroxymonosulfate activation: Performance and mechanism. **Z. Zhang**, C. Wang

- 6:05** . Acid-tailored self-assembled perylene diimide supramolecular for visible-light-driven activation of peroxymonosulfate towards efficient degradation of iohexol. **Q. Ji**, H. He
- 6:20** . Derivatives of two-dimensional MXene-MOFs heterostructure for boosting peroxymonosulfate activation: Enhanced performance and synergistic mechanism. **X. Guo**, J. Li
- 6:35** . Occurrence and risk of iodinated X-ray contrast media in source and tap water from Jiangsu province, China. **X. Cheng**, H. He
- 6:50** . Improved machine learning models by data processing for predicting life-cycle environmental impacts of chemicals. **Y. Sun**, S. You
- 7:05** . Application of copper membrane in the treatment of algal-laden water. **z. zhutingting**
- 7:20** . Electrochemical membrane with metal heteroatom interface for bromate reduction: Efficacy and mechanism. **Y. Li**, Z. Wang
- 7:35** Intermission.
- 7:45** . Ambient-temperature catalytic mineralization of emerging contaminants. **Y. Wang**, L. Lyu, C. Hu
- 8:00** . Efficient hydrogen production from wastewater remediation by piezoelectricity coupling advanced oxidation processes. **W. Liu**, M. Xing
- 8:15** . Effects of molecular structure of pollutants on degradation ratio and toxicity in Peracetic acid (PAA) activation system. **X. Zhi Hui**
- 8:30** . Modulating electronic structure engineering of atomically dispersed cobalt catalyst in Fenton-like reaction for efficient degradation of organic pollutants. **b. huang**
- 8:45** . Green solvent cleaning removes irrecoverable foulants from end-of-life membranes in membrane bioreactor: Efficacy and mechanisms. **C. Tian**, R. Dai, Z. Wang
- 9:00** . Metagenomic unravels the microbiome response of microbial electrochemical biofilter for manganese and ammonia removal. **S. Liu**, D. Xing
- 9:15** . Withdrawn
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Cosponsored by ENVR

AGRO International Award: Symposium in Honor of Dr. Thomas M. Stevenson for His Contributions to the Discovery of New Fungicides, Herbicides and Insecticides

Sponsored by AGRO, Cosponsored by AGFD, AGRO, ANYL, ENVR and ORGN

Artificial Intelligence (AI) Applications for Food and Agriculture

Sponsored by AGFD, Cosponsored by AGRO, ANYL and ENVR

Biotechnology and Synthetic Biology for Sustainable Foods, Food Ingredients, and Flavor

Sponsored by AGFD, Cosponsored by AGRO, ANYL and ENVR

Critical Materials: Perspectives from the Industry, Government, and Research Communities Recovery of Critical Materials

Sponsored by COMSCI, Cosponsored by ENFL, ENVR and GEOC

Pesticide Runoff Mitigation: Characterization, Quantification, and Implementation

Sponsored by AGRO, Cosponsored by AGFD and ENVR

Portable and Compact Separation Technologies

Sponsored by ANYL, Cosponsored by AGFD, AGRO and ENVR

Transitioning from the Laboratory to the Landscape: Challenges and Opportunities

Sponsored by AGRO, Cosponsored by AGFD, ANYL, ENVR and TOXI

Adapting Agricultural Chemistry and Practices to a Changing Climate

Sponsored by AGRO, Cosponsored by AGFD, ANYL, CELL, ENFL, ENVR and TOXI

Molecular and Heterogeneous Photocatalysts: Advances in Experiments and Theory

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

Zero Waste Strategies: Valorizing Undervalued Agricultural Coproducts and Food Waste

Sponsored by AGRO, Cosponsored by AGFD, ANYL, BMGT, ENFL and ENVR

Food Security: The Role of Alternative Protein Sources in Addressing World Hunger

Sponsored by AGFD, Cosponsored by AGRO, ANYL and ENVR

MONDAY EVENING

Moscone Center
Hall F, South Bldg.

ENVR Sci-Mix

8:00 . Use of computational fingerprinting techniques to distinguish sources of accelerants used in wildfire arson. **H.M. Nguyen**, G. O'Sullivan, R. Suehring, C. Sandau

8:00 . Withdrawn

8:00 . Building kinetically favorable gas-liquid transfer route during NO₂ absorption in typical sulfite solutions. **Z. Lian**, S. Zhang, W. Ma, Q. Zhong

8:00 . Simultaneous H₂O₂ production in a highly efficient photoelectrochemical cell coupled with BN-codoped gas diffusion electrode. **S. Li**, B. Chen

8:00 . Aggregate distribution of *Pseudomonas aeruginosa* on biochar facilitate quorum sensing and biofilm formation. **h. yan**, B. Chen

8:00 . Challenge of applying anammox in modern water resource recovery facilities (WRRFs) that receive wastewater containing emerging organic contaminants (EOCs). **X. chen**, G. Li

8:00 . Copper binding to prion fibril structures: A molecular dynamics study. **R.M. Benedict**, M. Jafari, K.M. Merz, H. Li, W. Zhang

8:00 . Liquid chromatography mass spectrometry analysis of potential metabolites of cellulose nanofibrils after an enzymatic simulated gastric digestion. **C. Collom**, C. Sayes

8:00 . Electrocatalytic synthesis of hydrogen peroxide at industrial-relevant currents for sustainable environmental water treatment. **p. Cao**, X. Quan

8:00 . Effect of mono- and divalent cations on Mercury sorption in the presence of dissolved organic matter. **D.J. Jones**, J. Chavez, N. Agramont, M. Beutel, S.J. Traina, A. Johs, P.A. O'Day

8:00 . Identification and quantification of potentially hazardous chemicals emitted by consumer 3D printers. **N. Williams**, J. Miller-Schulze, S. Crawford

8:00 . Withdrawn

8:00 . Probing interactions at the organic-inorganic interface of biomass burning aerosol: Reactivity of iron oxides with organic tracer species. **J. Sedlak**, V.H. Grassian

8:00 . UIO-66 modified boron nitride for enhanced electrochemical degradation of perfluorooctanoic acid (PFOA). **S. Yin**, J. Francisco López, J. J. Calvillo Solís, D. Villagran

8:00 . Determining thermal stability and degradation of neat and adsorbed perfluoroalkyl substances using hyphenated TGA-FTIR-GC-MS. **B. Mezgebe**, A. Tegenaw, E. Sahle-Demessie

8:00 . Improvement on CO₂ uptake by sterically hindered amine AMP using anionization. **M. Yu**, Q. Zhong, S. Zhang

8:00 . Withdrawn

8:00 . Process intensification for rare earth elements adsorption by resonant vibratory mixing. **O.E. Adebayo**

8:00 . Quantification of microplastics in food containers and packaging. **N. kim**, I. Lee, K. Uhm, Y. Choi, H. Kim

8:00 . Adsorption of brilliant blue dye on biochar from the macroalgae *Cladophora glomerata* . **S. Badshah**

8:00 . Effect of pyrolysis temperature on biochar chemistry. **R.N. Luu**, Y. Zvulunov, T. Borch, A. Bhattacharyya

- 8:00** . Using diethylenetripenaetic acid as an environmentally benign iron-complexing agent for continuous electrochemical water desalination. **P. Akinyemi**, T. Kim
- 8:00** . Structure-sorption relationship in Per- and poly-fluoroalkyl substances (PFAS) sequestration by lignin in pulp and paper wastewater. **M. Mel**, B. Lau, W.C. Hockaday
- 8:00** . Detection and classification of per- and poly fluoroalkyl substances (PFAS) based on interfacial behavior at the liquid-liquid interface. **B. BARUA**, T. Durkin, L. Dunham, S. Savagatrup
- 8:00** . Development of economical and sensitive colorimetric biosensor materials for onsite and simultaneous detection of multiple targets. **B. Pan**, M. Norwood, G. Sun
- 8:00** . DNA-PLGA nanosphere tracers: A reliable tool for studying environmental DNA (eDNA) transport in aquatic ecosystems. **Z. Li**, C. Ramón, D. Wang, F. Valdivia, T. Walter, D. Lodge, E. Cowen, J. Andrés, D. Luo
- 8:00** . Mechanochemical synthesis of oxidation catalysts for VOC removal. **Z. JIA**, L. Zhang, X. Zhai, C. Xie, W. Han, W. Chu, K. Yeung
- 8:00** . High performance copper oxide-ceria catalysts for reverse water-gas shift reaction. **Z. JIA**, J. LU, W. Li, Y. Zhu, L. Zhang, X. Chen, W. Han, K. Yeung
- 8:00** . Solid-state and solvent-assisted mechanochemical synthesis of spinel ferrite nanoparticles. **I. Ogbogo**, T.M. Trad
- 8:00** . Enhancing the electrocatalytic OER: Structural transformation of PBA core-shell nanocubes to phosphorized WS₂-coated nanostructures. **P. Mukherjee**, K. Sathiyar, R. Bar Ziv, T. Zidki
- 8:00** . Environmentally sustainable routes utilized to produce new copper niacinamide coordination complexes. **H. Kouadio**, S. Iqbal, V. Nesterov, M. Rawashdeh-Omary
- 8:00** . Capturing of inorganic and organic pollutants simultaneously from complex wastewater using recyclable magnetically chitosan functionalized with EDTA adsorbent. **M. Verma**, H. Kim
- 8:00** . Withdrawn
- 8:00** . Nano-encapsulation: Overcoming conductivity limitations of MOF for electrocatalytic reduction of carbon dioxide. **K. Sathiyar**, A. Dutta, V. Marks, O. Fleker, T. Zidki, R.D. Webster, A. Borenstein
- 8:00** . Low-cost water quality sensors for informed microbial analyses in underserved communities. **A. Woody**, J. Hacker, H. Walden, F. Cubas, F. Diaz, L.S. Rowles
- 8:00** . Modeling for the study of carbon dioxide and oxygen dynamics in saline lakes: Effects of climate change in Salar de Huasco, Chile. **K. Valenzuela Martínez**, A. Prieto, A. De la Fuente
- 8:00** . Using cholestosome encapsulated chelators to remove Lead from neural cells: Towards development of a therapeutic for lead poisoning. **D. Cordone**, **M. Hildreth**, A. Alves, **L. Mielnicki**, **M. Mc Court**
- 8:00** . Identifying precursors of nitrogenous disinfection byproducts in wastewater effluent by chemical derivatization. **S. Steck**, E. Kim, J. Van Buren, D. McCurry

8:00 . Oxidative transformation of azoles in aquatic environments. E. Kim, **J. Gonzalez**, S. Steck, D. McCurry

8:00 . Antibacterial activity of sulfur-doped porous carbons. **I. Bautista**, **B. Matos**, A. Fekri, M. Florent, T.J. Bandosz, J. Callahan, W. Li

8:00 . Withdrawn

8:00 . Quantification of antibiotic residues in meat and poultry samples using Dispersive Liquid-Liquid Microextraction (DLLME) coupled with High-Performance Liquid Chromatography Diode Array Detection (HPLC-DAD). **A. Adkisson**, C. Osunmakinde, A. Nweke

8:00 . Reducing the bioaccumulation potential of per- and polyfluoroalkyl substances by electrocatalysis: Treatment and quantification. **Z. Lin**, P.K. Westerhoff, M.S. ERSAN

8:00 . Improved screening test for lead in water: activated carbon-felt filter with on-site drying and portable XRF measurement. **O.A. Joseph**, D. Kwon, D. Sammanasu, A. Wicks, M. Lieberman

8:00 . Toward data harmonization in PFAS: Examining both biological and environmental reference materials. **C. Camacho**, J. Bowden

8:00 . Investigating the impacts of Perfluorooctane sulfonic acid (PFOS) on coral larvae. **K. Costa**, J. Bowden

8:00 . Selective extraction of Co and Ni from cathode materials of spent lithium-ion batteries. **C. Lee**, E. Chung

8:00 . Deciphering the intersection of soil metal dynamics using colorimetric chelators. **R.N. Tran**, M.C. Heffern

8:00 . RuNiO_x Interface promotes Hydrogen production from alkaline seawater. **H. LUO**, Z. Guo

8:00 . New Lysoglycerophospholipids biocides obtained from soybean oil production residue as a green alternative for combating biofouling and *Limnoperna fortunei* dissemination. **E. Braga**

8:00 . Formation of simulated microplastics: An accelerated method to create model microplastics using mechanochemical and oxidation strategies. **J. Hong**, S. Ghoshal, A.H. Moores

8:00 . Affordably automating arsenic treatment for underserved communities in rural California: Applications of water treatment for the future. **P. Wickliff**, A. Gadgil, S. Bandaru, J. Majmudar, L. Smesrud, B. Akuzum, **A. Naranjo Soledad**, D. Hernandez

8:00 . Electro-Fenton and Induced electro-Fenton as versatile wastewater treatment processes for decontamination and nutrient removal without byproduct formation. **L. Quispe Cardenas**, Y. Yang, S. Wang, Y. Ye

8:00 . Electrified membrane flow-cell for synchronous nitrate reduction and ammonia recovery. **J. Gao**, W. Zhang

8:00 . Reuse options and opportunities of carbon from exhausted water filter cartridges: An Evaluation of Regeneration Methods and Cost Benefits. **A. Shahab**, F. Coulon, S. Wagland

- 8:00** . Growth of crystalline titania within PLA microsponges for photocatalytic degradation of organics in water. **S.L. Nealy**, V.A. Kozlovskaya, D. Inman, E.P. Kharlampieva
- 8:00** . Environmental orthogonal reactions for dissolving and tagging pyrogenic carbon. **A. Radakovich**, S. Lokesh, A. Timilsina, Y. Yang
- 8:00** . Metal-organic framework-based walnut biochar nanocomposite for adsorption of lead and chromium from aqueous environments. **S. Pochampally**, E. Letourneau, I. Abdulraheem, J. Moon, E.J. Marti, S. Hunyadi Murph
- 8:00** . Pyrolyzed $\text{Fe}_x\text{O}_y\text{-n@Z5}$ composite as an efficient non-precious metal catalyst for elective catalytic oxidation of triethylamine and mechanism investigation. **L. Meng**, F. Qin, X. Fan, W. Ma, S. Zhang
- 8:00** . Highly efficient binary photocatalysts $\text{NiAl}_2\text{O}_4/\text{g-C}_3\text{N}_4$ with enhanced photocatalytic reduction of CO_2 to CO and photocatalytic degradation of 2, 4-dinitrophenol under visible -light irradiations. **N. Ahmad**, **C. Kuo**
- 8:00** . Mapping the exposome of firefighters through the lens of Chemistry. **X. Lin**, X. Zhang, B. Michael, F. Wong, M. Prunicki, K.C. Nadeau, M.P. Snyder
- 8:00** . Determining the toxicity of polyethylene photoproduct complex mixtures in developing zebrafish. **B.D. James**, S. Karchner, A.N. Walsh, N. Aluru, D. Franks, K. Sullivan, C. Reddy, C.P. Ward, M. Hahn
- 8:00** . Effect of inlet tube diameter and residence time on the evaporation of organic aerosol particles during airborne sampling. **L. Fortado**, D. Pagonis
- 8:00** . Interaction of persistent xenobiotics with β -lactoglobulin. **A. Yadav**, L. Vukovic, M. Narayan
- 8:00** . Disinfection byproduct formation from chlorocyanurates, an alternative chlorine source. **K.B. Adusei**, K.E. Furst
- 8:00** . Designing direct redox reaction chemically coupling NO and SO_2 removal. **D. Zhao**, Q. Jiang, W. Lin, H. Song
- 8:00** . Nanoparticle solution for lung damage by air pollution particulate matter PM2.5. **V. Kanuru**
- 8:00** . Withdrawn
- 8:00** . Comparison of coagulation-flocculation methods for removal of contaminants from water. **S.J. Pilkenton**, E. Brack , T.M. Tiano
- 8:00** . Picolinic acid sorption in Alaskan soils: Biochars effects on herbicide persistence. **B. Woodruff**
- 8:00** . Can criteria pollutants help to reduce greenhouse gases. **H. Gokturk**
- 8:00** . Development of a proteomics-based method for the detection of viral proteins in wastewater. **W. Li**, C.L. Fisher, J. Boeck, H. Bischel
- 8:00** . Reported aggregation behaviors of amino acid-based surfactants in the presence of alkyl diammonium counterions. **M. Alvarez**, N. Black, F. Overstreet, T. Younger, F.H. Billiot, E. Billiot

- 8:00** . Solubility and aggregation behaviors of dicarboxylic mixed micelle amino acid-based surfactant systems. **X. Gallegos**, S. Fritz, F.H. Billiot, E. Billiot
- 8:00** . Water pollution in El Salvador: Preliminary assessment of trace organic compounds in the Lempa river and drinking water. **V. Chichique Martinez**, D. Lee, A. Fuentes, F. Bautista, G. Valencia, M.J. Lopez, C. Calderón, J. Orteiz, R. Rivas, D. Quanrud, R. Arnold, A.E. Saez
- 8:00** . Photocatalytic degradation of Congo red, Reactive red, Acid, and Basic blue using hydrogen peroxide/UV visible, and sol-gel synthesized Titanium oxide catalyst. **A.M. Shemsi**
- 8:00** . Alkaline hydrothermal treatment for model compounds of gangue components present in iron ores. B. Su, Y. Mochizuki, K. Higuchi, **N. Tsubouchi**
- 8:00** . Organic-linker-free superhydrophobic mesh designed by the galvanic displacement reaction to separate the oil/water mixture. **N. Baig**, I. Kammakakam
- 8:00** . Thermal breakdown of PFAS, AFFF, and FFF. **E. Tseng**, C. West, H. Brown, P. Fedick
- 8:00** . Comprehensive analytical workflow of PFAS analysis in aqueous environmental samples. **Y. Long**, A. Ramos, J. Smalley, H.L. Leung
- 8:00** . In-situ chemical bonding of Praseodymium oxide and triamine functionalized silane to mesoporous silica MCM-41 network: Covalent decoration in nanofiltration membrane for desalination and micropollutants removal. **S. Jillani**, A. Waheed, U. Baig, I. Aljundi
- 8:00** . Development of a bio-torch-oil and charcoal-lighter. **Z. Kaleta**, R. Kaleta, G. Riszter, M. Kaleta
- 8:00** . Membrane-based energy technology for water-energy-environment nexus. **N. Jeong**, H. Kim, J. Nam, J. Choi, K. HWANG, J. Han, Y. Jeung, E. Jwa
- 8:00** . Scale-up and optimization of a bipolar membrane electrodialysis stack for ammonia nitrogen recovery from wastewater streams. **K. HWANG**, J. Nam, N. Jeong, J. Han, E. Jwa, Y. Jeung
- 8:00** . High-yield hydrogen production by using a novel anion-exchange membrane in microbial electrolysis cells. **J. Nam**, E. Jwa, H. EOM, J. Han, J. Choi, H. Kim, K. HWANG, N. Jeong, Y. Jeung
- 8:00** . Nature-based solutions: Food waste-derived carbon materials for water-energy nexus. **M. Gao**
- 8:00** . Photoelectrochemical denitrification using a novel Pd-Cu decorated nanoparticle on spaced TiO₂ nanotube arrays. **A. Son**, S. Mingizem Gashaw, K. Cho, B. Jeehye, S. Hong
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Cosponsored by ENVR

Fentanyl and the Devastating Effects on Students and Young Adults: Dangers, Statistics and Current Status

Sponsored by CHAS, Cosponsored by CATL, CCS, COMSCI, ENVR, MEDI, PROF, SCC, TOXI, WCC and YCC

TUESDAY MORNING

Moscone Center
Room 3007, West Bldg.

Environmental Chemistry and Nanotechnology: A Tribute to Joel Pedersen

R. J. Hamers, F. L. Rosario, M. Suffet, *Organizers*
H. Fairbrother, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 . Molecular insights into environmental impact of nanoscale transition metal oxides. **R.J. Hamers**, C.E. Kruszynski, A. Henke

8:30 . Sustainable nanoparticles and model membranes. **R. Hernandez**

8:50 . Joining ecology and nanotechnology: A tribute to Joel Pedersen. **C.J. Murphy**

9:10 . Exploring transport, transformation and fate of 10nm and 20nm uio-66-nh₂ nanoparticles in celery plant: A study on human health and environment. **S.H. GARCIA**, K. Yeung

9:30 . Interactions between 2D materials and model membranes and living organisms in the environment. S. Sengupta, S.B. Ambade, L.P. Escobar, **Z. Rosenzweig**

9:50 . Nanoscale soil amendments to decrease toxic metal accumulation in and toxicity to food crops. **J.C. White**, O. Parkash Dhanker, S. Sharma, C. Ma, A.S. Adeleye, B. Xing

10:10 Intermission.

10:25 . Nanoparticle interactions with model and native plant membranes is dictated by electrostatics and membrane composition. **J. Giraldo**, S. Jeon, K. Kim, P. Hu, C. Anastasia, C. Castillo, H. Kim, C. Ahern, H. Fairbrother, J.A. Pedersen

10:45 . Interactions between positively charged nanoparticles and supported lipid bilayers. **A.C. Mensch**

11:05 . Colloidal PFAS in textile manufacturing wastewater: A novel class of nanoparticulate emerging pollutant. **L. Ferguson**, P.W. Faught, M. Shojaei, A.S. Joyce

11:25 . Engineering porous silica nanoparticles to promote crop health. **C.L. Haynes**

11:45 Concluding Remarks.

Moscone Center
Room 3006, West Bldg.

Advances in Isolation, Removal, Sensing, Detection, Degradation, and Replacement of PFAS and Future Outlook

N. Kelley-Loughnane, *Organizer*

M. K. Kolel-Veetil, M. Nadagouda, M. K. Shukla, *Organizers, Presiding*

8:00 Introductory Remark.

8:05 . PFAS research at US Army Engineer Research and Development Center. **M.K. Shukla, E. Ferguson**

8:25 . Technologies for PFAS assessment, detection, and treatment. **N. King**

8:45 . Predict environmentally relevant properties of poly- and perfluorinated compounds from structural features using machine learning techniques. **R. Lamb**, H. McAlexander, M.K. Shukla

9:05 . Sufficient H₂ delivery enables Pd hydrodefluorination of Perfluorooctanoic acid (PFOA). **M. Long**, C. Zhou, B. Rittmann

9:25 . Thermal destruction and transformation of PFAS in wastewater treatment residuals. **E. Sahle-Demessie**, T. Yamada, M. Kahandawala, S. Chalivendra, F. Karimzadeh, B. Mezgebe

9:45 Intermission.

10:00 . Design of fluorine rich magnetic biochar for separation of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) from environmental water. **P.C. Ray**, M.K. Shukla

10:20 . Evaluation of solution and interfacial properties for reference fire-fighting forms using molecular dynamics. **B. Etz**, T.C. Schutt, r. ananth, K. Hinnant, L. Brown, M.K. Shukla

10:40 . Computational study of the thermal degradation of perfluoroalkyl ether carboxylic acids. **C. Paultre**, A.M. Mebel, K.E. O'Shea

11:00 . Defluorinating toxic forever chemicals through quantum chemistry. **G.R. Jenness**, A.M. Koval, B. Etz, M.K. Shukla

11:20 . Field Remediation of PFAS. **J. Meegoda**, J. Kewalramani, R. Marsh, B. Bezerra de Souza

11:40 . Ruggedized 3D-PCSI-MS for in-field PFAS screening of bulk soils. T.J. Pinedo, H. Brown, C.C. Mulligan, **P. Fedick**

Moscone Center

Room 3001, West Bldg.

Electrified Water Treatment Processes

Cosponsored by AGFD and CATL

W. Chen, W. Tarpeh, L. Winter, X. Xie, *Organizers, Presiding*

8:00 Introductory Remarks.

8:10 . Electrochemical routes for nutrient recovery from sludge. J.A. Adjei, E. Abbasi, M. jafari, **G.G. Botte**

8:40 . Electrochemical nitrate remediation: Identifying the electrocatalyst properties that control nitrate reduction. **N. Singh**, B.R. Goldsmith

9:00 . Withdrawn

9:20 . Electrified nitrogen element reduction in the aqueous phase. **X. Wu**, X. Wang, H. Xu, Z. Li, M. Nazemi, S. Gupta, A. Chismar, K. Hong, H. Jacobs, W. Zhang, K. Rigby, T. Hedtke, Q. Wang, E. Stavitski, C. Muhich, M.S. Wong, Y. Liu, Z. Wu, M. Elimelech, J. Kim

9:40 . Electrochemical nitrate and nitrite treatment with rational catalyst design. **J. Lim**, B.D. McCloskey, S.W. Lee, M. Hatzell

10:00 Intermission.

10:10 . Electrochemical conversion of nitrate sources into ammonia. **H. Wang**

10:40 . Electrified water resource recovery processes towards a circularized carbon economy: Wastewater organic oxidation combined with sustainable water and CO₂ electrolysis. **J. Jack**

11:00 . Integrating microbial electrolysis with water electrolysis for efficient H₂ production from wastewater. **X. Zhu**, X. Dong

11:20 . Artificial intelligence technologies for electrochemical water-energy production processes of saline water. **M. SON**

11:40 . Electrofiltration-enabled nitrate reduction reactivity of carbon nanotube electrified membrane for drinking water treatment. **Y. Fan**, L. Winter

Moscone Center
Room 3012, West Bldg.

Materials Development to Address Environmental and Sustainability Challenges Detection & Remediation

Cosponsored by AGFD, AGRO, ANYL and ENVR
Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community
D. D. Dionysiou, M. Nadagouda, V. K. Sharma, *Organizers*
M. J. Bentel, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05 . Development of MoS₂ nanoparticles for optical detection of lead in drinking water. **M. Teli**, B. Mi

8:25 . Cationic gelatin based-flocculants for efficient removal of algae and suspended solid manure dairy wastewater. **N. Amaly**, g. sun, p. pandey

8:45 . Super active magnetic iron doped carbon nanocatalyst from brown coal for efficient removal of phenol from aqueous solutions. **F. SHAHID**, A. Chaffee, P. Marriott

9:05 . Upcycling plant biomass as novel supporting material of single atom metal catalysts for sustainable contaminant removal. **X. Ma**, J. Yuan, V.K. Sharma

9:25 . Influence of dissolved organic matter and nitrate on the performance of manganese oxide modified activated carbon (MOMAC) for remediation of mercury-contaminated sediments. **E. Rivas Meraz**, D. Baerwaldt, P. Lee, M. Beutel, S.J. Traina, P.A. O'Day

9:45 Intermission.

9:55 . Withdrawn

10:15 . Microbial diversity and TPHs distribution in a crude oil contaminated ultisol remediated with biochar-humus sediment slurry. **N.O. Offiong**

10:35 . Antimicrobial electrospun polymer-metal oxide composite filters for indoor air quality improvement. **J. Robayo Moreno**, J. Ternero Hidalgo, R. LINTAG, W. Han, J.K. Kwan, K. Yeung

10:55 . Shaped radiation resistant materials for nuclear waste management: A journey from concept to commercialization. **S.K. Elsaïdi**, M. Mohamed, I. Elzeny

11:15 . Persistent free radicals in biochar: Measurement, implications, and knowledge gaps. **X. Chen**, X. Gao, J. Hinojosa, P.J. Alvarez, C.A. Masiello

11:35 . Molecular signatures of polymer-based antiscalants for mitigation of silica scale. **D. Dong**, M. Kaneda, Y. Chen, M. Zhong, M. Elimelech, V. Bryantsev

11:55 Concluding Remarks.

Moscone Center
Room 3003, West Bldg.

Processes and Risks of Micro-& Nano-Plastics in the Environment

F. Dang, V. K. Sharma, B. Xing, *Organizers*
C. P. Ward, J. Zhao, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 . Microplastics reduce lipid digestion in a simulated human digestive system. J. Zhao, **B. Xing**

8:35 . Micro-nanoplastics influence on the uptake of environmental pollutants by lettuce. **N. Zuverza-Mena**, H. Bui, E. Kendrick, A. Walker, O. Mackinnon, C. Tamez, S.L. Nason, G. DeLoid, P. Demokritou, J.C. White

9:05 . Disentangling the complex relationship between microplastic effects and traits using machine learning. **S. Coffin**, W. Cowger, L. Thornton Hampton, A. Koelmans

9:35 . Threats to terrestrial plants from emerging nanoplastics. **F. DANG**

10:05 . Visualization of accumulation and translocation of polystyrene nanoplastics in radish (root, fruit, and leaves) using high-resolution confocal laser scanning microscopy. **C. Li**, C. Ma, H. Shang, J.C. White, B. Xing

10:25 Intermission.

10:35 . Projecting the sorption capacity of fungicides onto microplastics using automated machine learning (AutoML) methods. **L.z. zhimin**

10:55 . Photochemical behavior and degradation products of microfibers in aquatic environments. **S. Kteeba**, L. Guo

11:15 . Enhancing the understanding of the impact and mechanisms of different types of microplastics on the bioavailability of polychlorinated biphenyls (PCBs) in soil. **X. LI**

11:35 . Microplastics contamination in marine and port environments: A meta-analysis and review. **M. Belioaka**, D. Achilias

11:55 Concluding Remarks.

Moscone Center
Room 3005, West Bldg.

Radiation Chemistry, Aquatic Photochemistry, and Advanced Oxidation Processes in Environmental Chemistry in Honor of William J. Cooper
Peroxide-based Processes and Reactions and Radical Chemistry

D. D. Dionysiou, K. E. O'Shea, V. K. Sharma, *Organizers, Presiding*

8:00 . Cooper's dream: Global hydrogen peroxide photoproduction model. **D.J. Kieber**, Y. Zhu, L. Powers, W.L. Miller

8:20 . Chemiluminescence of acridinium esters: My journey with Bill Cooper and hydrogen peroxide. **J.J. Kiddle**, W.J. Cooper

8:40 . Peroxymonosulfate activation by Fe(III)-picolinate complexes for water treatment at circumneutral pH: Fe(III)/Fe(IV) cycle and generation of oxyl radicals. **J.J. Pignatello**, Z. Yang, Y. Cui, B. Pan

9:00 . Hydrogen peroxide-assisted alkaline hydrolysis of fumigant emissions of sulfuryl fluoride, a potent greenhouse gas, in scrubbing media. **Z. Chen**, C. Wang, J.J. Pignatello

9:20 . Catalytic transformation of water micropollutants to polymers by persulfate. **X. Duan**

9:40 . Is Peroxymonosulfate (PMS) a better alternative to hydrogen peroxide treatment for the in situ mitigation of cyanobacteria harmful blooms (cyano-HABs)?. E.C. Keliri, A. Zindrou, Y. Deligiannakis, **M.G. Antoniou**

10:00 Intermission.

10:10 . Harnessing chloramine radical chemistry for advanced oxidation processes in potable reuse. **H. Liu**, L. Wu

10:30 . Sustainable inland desalination concentrate management: Case study in inland Southern California and a novel persulfate-based brine treatment for water and mineral recovery. **X. Tang**, S. Kum, H. Liu

10:50 . Clarifying the role of different reactive and nonreactive species in sulfate radical-based systems. **X. Ma**, V.K. Sharma

11:10 . Degradation of the methotrexate by unactivated peroxymonosulfate: Kinetics and mechanism. W.W. Lai, **W. HSU**, J. Tsai, K. Wang, H. Chen, H. Chen

11:30 . Optimizing catalytic activity of cobalt borates/peroxymonosulfate for degradation of various organic pollutants. E. Lin, F. Wu, P. Wu, H. Cheng, **P. Keng**

11:45 . Methods for colorimetric determination of hydrogen peroxide, peroxymonosulfate and peroxydisulfate in binary peroxide systems. **Z. Chen**, J.J. Pignatello

Moscone Center
Room 3008, West Bldg.

Women in Science and Engineering (WISE)
Nanomaterials, Surfaces, Interfaces, Membranes and their Applications

Cosponsored by CEI
D. D. Dionysiou, C. Huang, V. K. Sharma, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 . Nanoparticles in environmental contexts: Characterization and modeling to predict behaviors. **S.M. Louie**

8:28 . Materials and interface understanding to enable electrochemical separation. **C. Liu**

8:51 . Go-based membranes for membrane distillation: A chemist-chemical engineer pathway to solve an environmental engineering problem. **L.M. Camacho**

9:14 . Sustainable UCST-based polystyrene ultrafiltration membrane formation. **M. Chwatko**, S. Dhameri

9:37 . Polymer materials to extract value from radioactive mining wastes. **C.E. Duval**, L. Johnson, P. Suresh

10:00 Intermission.

10:05 . New membrane materials and manufacturing strategies. **O. SANYAL**, K. Piash, B. Leonard

10:28 . Ammonia recovery from livestock manure using membrane electrochemical systems. **M. Qin**

10:51 . From Waste to Wealth: The development of sustainable chemical processes to promote a circular economy. **K.L. Gilliard-AbdulAziz**

11:14 . Advancing chain elongation biotechnology to valorize organic waste streams to platform chemicals. **S. Shrestha**

Virtual Only
Virtual Session

Innovative Materials for Environmental Sustainability Sustainability

Cosponsored by AGFD, AGRO, ANYL and ENVR
Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community
A. Orlov, *Organizer, Presiding*
N. Yip, *Presiding*

10:00 Introductory Remarks.

10:05 . Sodium alginate-CuS nanostructures synthesized at the gel-liquid interface as efficient photocatalyst for redox reaction and water remediation. **L. Dhruv**, D. Kori, A. Das

10:25 . Status of surface water at two selected surface waters of coastal Guyana. **R.C. Jagessar**

10:45 . Experimental study of modified EICP as a method for sand control. **A. Baig, m. alahmari**, A. Al-Humam, M. mahmoud

11:05 . Fluorescent carbon dots for detection of total and insoluble Cr(VI) species in particulate matter. **E.K. Adotey**, D. Shah, M. Torkmahalleh Amouei, W. Lee, M.P. Balanay

11:20 . New environmentally friendly and sustainable biosorbent for the removal of chromium VI from drinking water. **O. Koumai**, G.A. Sorial, E. Sahle-Demessie, M. Nadagouda

11:40 . Enhancing zerovalent iron-based Fenton-like chemistry by copper sulfide: Insight into the active sites for sustainable Fe(II) supply. **C. Feng**

11:55 Concluding Remarks.

Cosponsored by ENVR

Fentanyl and the Devastating Effects on Students and Young Adults: Dangers, Statistics and Current Status

Television, Congress, and Science: Communities Unite Against Illicit Fentanyl

Sponsored by CHAS, Cosponsored by CATL, CCS, COMSCI, ENVR, MEDI, PROF, SCC, TOXI, WCC and YCC

**Natural Polymers - A Back to the Future Approach to Deal with the Plastics Issues
Current Applications and Mass Productions**

Sponsored by POLY, Cosponsored by CARB, CELL, ENVR and SCHB

AGRO International Award: Symposium in Honor of Dr. Thomas M. Stevenson for His Contributions to the Discovery of New Fungicides, Herbicides and Insecticides

Sponsored by AGRO, Cosponsored by AGFD, ANYL, ENVR and ORGN

Electrocatalysis for Sustainable Energy: Fundamental, Applications, & Perspective

Sponsored by CATL, Cosponsored by ENFL, ENVR and PHYS

Pesticides and Other Organics in Urban Environments

Sponsored by AGRO, Cosponsored by ANYL and ENVR

Role of Chemistry in Addressing Hunger and Food Security

Sponsored by AGRO, Cosponsored by AGFD, ANYL, CEI, COMSCI and ENVR

Uses of HPLC-Mass Spectrometry in Support of Agricultural Research and Development - Trends and Best Practices

Sponsored by AGRO, Cosponsored by AGFD, ANYL and ENVR

Zero Waste Strategies: Valorizing Undervalued Agricultural Coproducts and Food Waste

Sponsored by AGRO, Cosponsored by AGFD, ANYL, BMGT, ENFL and ENVR

TUESDAY AFTERNOON

Moscone Center
Room 3012, West Bldg.

C. Ellen Gonter Graduate Student Award Symposium

Cosponsored by CHED

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

2:00 Introductory Remarks.

2:05 . Insights into molecular interactions in switchable, biphasic amine-water mixtures for solvent-driven water treatment. **I. Billinge**, G.D. Barbosa, S. Tao, C.H. Turner, S.J. Billinge, N. Yip

2:25 . Abiotic reduction of organic and inorganic compounds by Fe(II)-associated reductants: Comprehensive datasets and machine learning modeling. **Y. Gao**, H. Zhang, S. Zhong, K. Zhang

2:45 . Lanmodulin-functionalized magnetic nanoparticles as a highly selective biosorbent for recovery of rare earth elements. **Q. YE**, N. Wei

3:05 Intermission.

3:15 . Mechanistic insight for disinfection byproduct formation potential of peracetic acid and performic acid in halide-containing water. **J. Wang**, J. Xu, J. Kim, C. Huang

3:35 . Chemical-free and selective boron removal using bipolar membrane assisted electrosorption. **S. Patel**, W. Pan, E. Ahn, J. Kamcev, M. Elimelech

3:55 . Roles of chloride ions and amino acid moieties on kinetics of degradation of Microcystin variants using UV/Chlorine process. **M. Kong**, D.D. Dionysiou

4:15 . Decoupling electron- and phase-transfer processes to enhance electrochemical nitrate-to-ammonia conversion by blending hydrophobic PTFE nanoparticles within the electrocatalyst layer. **J. Gao**, Q. Ma, J. Young, J.C. Crittenden, W. Zhang

4:35 Concluding Remarks.

Moscone Center
Room 3003, West Bldg.

Advanced Materials and Technologies for Detection and Treatment of PFAS and Other Emerging Contaminants

Cosponsored by ANYL
S. Andreescu, K. Malekani, *Organizers*
N. Aich, *Organizer, Presiding*

2:00 Introductory Remarks.

2:05 . Selective analysis of trace PFASs in complex environmental waters based on dual-functionalized MOFs. **J. Yuqian**, **B. Pan**

2:25 . Photocatalytic activation of monochloramine for micropollutant abatement in water. X. Cheng, z. cheng, B. Jing, Z. Ao, C. Shang, **L. Ling**

2:45 . Cu–g-C₃N₄/BiOBr Z-scheme heterojunction for enhanced photocatalytic degradation of ciprofloxacin under visible light irradiation. **V.K. PARIDA**, S. Chowdhury, A.K. Gupta

3:05 . Simultaneous removal of sulfamethoxazole, 17 β -estradiol, and carbamazepine from hospital wastewater using Al-ZnO/Fe photocatalyst in a continuous mode. **A. Majumder**, H. Singh, M. Jain

3:25 Intermission.

3:35 . Proof of concept of alkali-activated material from bauxite residue for the manufacture of pollutant adsorbents. **P. Bambier**, C. Ouellet-Plamondon

3:55 . Influence of feature dimensions on the resolution of single-entity sensing of emerging pollutants. **H. Li**, K. Qiu

4:15 . Novel Iron-activated biochar catalyst for heterogeneous reduction and oxidation of perfluorooctanoic acid in water. **B. Guo**, S. Zeng, E. Kan

4:35 . Structure-sorption relationship in Per- and poly-fluoroalkyl substances (PFAS) sequestration by lignin in pulp and paper wastewater. **M. Mel**, B. Lau, W.C. Hockaday

4:55 Concluding Remarks.

Moscone Center
Room 3006, West Bldg.

Advances in Isolation, Removal, Sensing, Detection, Degradation, and Replacement of PFAS and Future Outlook

M. Nadagouda, *Organizer*

N. Kelley-Loughnane, M. K. Kolel-Veetil, M. K. Shukla, *Organizers, Presiding*

2:00 Introductory Remark.

2:05 . Fungal biotransformation of PFASs: Responsible enzymes and proteomic evidence. Y. Gao, K. Shah, G. Nurwono, V. Pandey, A. Mayank, J. Park, J. Wohlschlegel, **S. Mahendra**

2:25 . Anaerobic biotransformation of PFAS – Insights from batch systems and anaerobic membrane bioreactors. **B.F. Costa**, C.B. Sawaya, A.L. Smith

2:45 . Enhanced photodegradation of tetracycline hydrochloride and perfluorooctanoic acid over oxygen vacancy mediated BiOBr: Insights into the different mechanism. **Q. Zeng**, C. Wang, G. Zhu

3:05 . Hemp phytoremediation of PFAS and degradation of PFAS in harvested hemp: A comprehensive PFAS remediation trial at the former Loring Airforce Base. S.L. Nason, C. Stanley, R. Silliboy, M. Blumenthal, W. Zhang, Y. Liang, S. Thomas, **N. Zuverza-Mena**, J.C. White, C.L. Haynes, V. Vasiliou, S. Huang, P.R. Jaffe, B. Berger

3:25 . Computational insights towards oxidation induced chemical degradation of EPA advisory PFAS contaminants. **B. Etz**, M.K. Shukla

3:45 Intermission.

4:00 . Accelerating molecular simulations with metadynamics to predict interactions between perfluoroalkyl molecules and filter materials. **K.M. Salerno**, L.P. Skala, D. Nachman, N.Q. Le, J. Johnson

4:20 . Rate limiting factors for PFAS degradation on carbonaceous sorbents using UV/sulfite generated hydrated electrons. **H. Santiago**, Z. Lou, J. Li, W. Zhang, R. Mole, S. Dai, G. Lowry

4:40 . Styrene based ionic fluoropolymers for the removal of anionic perfluoroalkyl substances from water. **S. Sahu**, Y. Wang

5:00 . Thermal treatment of PFAS in environmental media. **P. Potter**

5:20 Discussion.

5:40 Concluding Remarks.

Moscone Center
Room 3007, West Bldg.

Environmental Chemistry and Nanotechnology: A Tribute to Joel Pedersen

R. J. Hamers, F. L. Rosario, M. Suffet, *Organizers*
H. Fairbrother, *Organizer, Presiding*

2:00 Introductory Remarks.

2:05 . Macromolecular nanocarriers for turning crop plants into vaccine factories. **G. Lowry**, Y. Zhang, V. Kumar, R.D. Tilton, J. Giraldo

2:30 . NaCl removal mediated by OH functionalized Mo_{1.33}C MXene. **J. Guerrero-Sanchez**, D.M. Muñoz-Pizza

2:50 . Molecular and data-centric modeling of interactions between ligand-functionalized nanoparticles and lipid membranes. C. Huang-Zhu, **R. Van Lehn**

3:10 . Role of the biomolecule Corona in determining biocompatibility of nanoscale materials. **I. Lynch**, P. Zhang, K. Reilly

3:30 . Antibacterial activity of herb-loaded Chitosan-CuO nanocomposites. **G. Ekanayake**, C. Thambiliyagodage, H. Liyanaarachchi, M. Jayanetti, A. Mendis

3:50 Intermission.

4:05 . Laser-induced photoreduction of iron (III) oxide nanoparticles prolonged by the presence of organic chromophores. **M.D. Boamah**, C. Pearce, J. Yu, D. Boglaienko, P. Chen, Z. Wang, X. Zhang, K. Rosso

4:25 . Hexavalent chromium removal from aqueous solution using peg functionalized mnfe₂O₄ as a Nanoadsorbent: Modelling, optimization, kinetic, isotherm, and thermodynamic studies. **S. Dan**

4:45 . Biodegradation of biosolid-associated surfactants by white-rot fungi *Pleurotus ostreatus*. **K. Burgener**, C. Prasse

5:05 . Effects of eco-corona on the phototoxicity of P25 TiO₂ to green algae *Chlorella Vulgaris*. **Z. Liu**, S. Ghoshal, A.H. Moores, S. George

5:25 . Chronic exposure to complex metal oxide nanomaterials induces production of reactive oxygen species in bacteria. **E.E. Carlson**

5:45 Concluding Remarks.

Moscone Center
Room 3005, West Bldg.

Improving Water Quality by Understanding Environmental Chemical Processes: A Symposium in Honor of Richard G. Luthy

C. P. Higgins, J. Mihelcic, C. A. Peters, J. Wolfand, *Organizers*
U. Ghosh, *Presiding*

2:00 Introductory Remarks.

2:05 . Pathways to decarbonization through carbon sequestration and mineralization. C.A. Peters

2:25 . Tuning the reactivity of sulfidated zerovalent iron nanoparticles for enhancing degradation of different chlorinated solvent compounds. S. Ghoshal, S. Mu

2:45 . Intersecting pathways of Prof. Richard G. Luthy and the evolution of remediation engineering and science in the U.S.. D.A. Dzombak

3:05 Intermission.

3:25 . Assessing equilibrium partitioning between proteins and lipids in insect tissue homogenates: a suspect screening approach for PFAS. W. Li, H. Bischel

3:45 . Are PFASs the “new” PCBs? Lessons from the past 20 years of research on perfluoroalkyl substances. C.P. Higgins

4:05 . Density functional theory computations to evaluate photolysis and photoproduct formation from fluorinated compounds. A. Bhat, W.C. Pomerantz, W.A. Arnold

4:25 Intermission.

4:45 . Separation-and-destruction treatment train for PFASs and co-contaminants in semiconductor fabrication wastewater. T.J. Strathmann, A. Griffin, S. Brooks, C.P. Higgins, C. Bellona

5:05 . Black carbon: from passive sorbent to active catalyst for the electrochemical destruction of halogenated organic contaminants. J. King, W. Mitch

5:25 . Fate of trace organic contaminants during urine treatment. W. Tarpeh

Moscone Center
Room 3001, West Bldg.

Electrified Water Treatment Processes

Cosponsored by AGFD and CATL
W. Chen, W. Tarpeh, L. Winter, X. Xie, *Organizers, Presiding*

2:00 . Electrochemical advanced processes for water treatment: From the lab to practical application. J.C. Crittenden, Z. Chen

2:30 . Leveraging redox-electrochemistry for adsorption and membrane-driven water treatment processes. X. Su, J. Elbert, N. Kim

2:50 . Enlightening the path of emerging photoelectrocatalytic water treatment technologies. S. Garcia-Segura

3:10 . Correlating electrocoagulation aluminum production, current density, and pitting distributions to determine key water treatment efficiency indicators. K.A. Alfredo, M. Carias, C. Alexander

3:30 . Catch and release of precious metals: closed-loop adsorption and electrochemical regeneration of functionalized CNT sorbents. M. Ganzoury, C. Hanna, N. Zhang, Y. Wu, **C. de Lannoy**

3:50 Intermission.

4:00 . Scalable synthesis of hydrogen peroxide from water, light, and air. Z. Pan, C. Chu, **S. Hu**

4:20 . Efficiency and mechanism of degrading ibuprofen by catalytic ozonation-assisted electrocoagulation process. F. Qi, **Y. Jia**

4:40 . Electrochemical reduction of brominated benzenes and polybrominated diphenyl ethers using activated carbon-based cathodes. **J. LaPier**, Y. Liu, J. King, W. Mitch

5:00 . Electrochemical oxidation of per- and polyfluoroalkyl substances in groundwater using Bi₂O₃-SnO₂ deposited reactive electrochemical membranes. **S.N. Misal**, R. Alvarez Ruiz, L.S. Lee, B.P. Chaplin

5:20 . Electrochemical advanced oxidation of perfluorooctanoic acid: Mechanism exploration and kinetic modeling. **Z. Chen**, J.C. Crittenden

5:40 . Effect of wastewater constituents on the electrochemical degradation of PFAS using Ti₄O₇ anodes. **S. Saffar avval**, R. Alvarez Ruiz, M. Modiri-Gharehveran, L.S. Lee, B.P. Chaplin

Moscone Center
Room 3008, West Bldg.

Women in Science and Engineering (WISE) Biological and Chemical Processes and Interactions for Water Treatment

Cosponsored by CEI
D. D. Dionysiou, C. Huang, V. K. Sharma, *Organizers, Presiding*

2:00 . Drinking water opportunistic pathogens and their interactions with free-living amoebae. **K. Dowdell**

2:23 . Withdrawn

2:46 . To filter or not to filter? Water quality impacts of carbon-based point-of-use (POU) filters installed in monochloramine systems. **K.A. Alfredo**

3:09 . Advanced functional materials for sustainable water treatment and reuse. **W. Chen**

3:32 . Sorption-assisted approaches for nano-plastics free water: Advancements and challenges. **N. Singh**

3:55 Intermission.

4:05 . Impaired water treatment: tradeoffs between pathogen inactivation and disinfection byproduct formation. **A. Szczuka**

4:28 . Comparison of the hydroxyl and sulfate radical-based oxidation of wastewater effluent by high resolution mass spectrometry. **L. Lian**

4:51 . Ligand-accelerated catalysis of metals for peracetic acid oxidation processes. **J. Kim**, C. Huang

5:14 . Oxidized vanadium carbide nanosheets for catalytic defluorination of PFAS in water. Y. Ye, **J. Ray**

5:37 . Impact of wavelength on UV-assisted oxidation/reduction processes for treating contaminants of emerging concern. **X. Duan**

Virtual Only
Virtual Session

Materials Development to Address Environmental and Sustainability Challenges

Cosponsored by AGFD, AGRO, ANYL and ENVR
Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community
D. D. Dionysiou, M. Nadagouda, V. K. Sharma, *Organizers*
M. J. Bentel, *Organizer, Presiding*

3:00 Introductory Remarks.

3:05 . Homogenously dispersed co-doping of cobalt and iron into nanostructured manganese dioxide: Promoting oxygen activation for toluene elimination. **Q. Huang**, L. Lv

- 3:25** . Roles of activated carbon in UV/chlorine/activated carbon-TiO₂ process for micropollutant abatement and DBP Control. **S. He**, L. Ling, M. Zhu, J. Fang
- 3:45** . Engineered nanocomposite for enhanced photocatalytic and antimicrobial activity. **R. Sharma**, V. Kumar
- 4:05** . Assembling tailor-made 2D nanomaterials into monolithic aerogels for visible light-induced photocatalytic degradation of pharmaceutical pollutants. **T. Shafi**, B. Dubey, **S. Chowdhury**
- 4:25** . Remediation of rhenium, a surrogate of technetium-99, via titanate-mediated photocatalytic reduction. **J.S. Ali**, D. Nemirovsky, S. Groveman, J. Samson, A. Younes
- 4:45** Intermission.
- 4:55** . Effect of bermudagrass-derived engineered biochar on anaerobic digestion treating cow manure. **G. Choi**, E. Kan
- 5:15** . Effective metal-based semiconductor nanomaterials for solar photocatalytic hydrogen generation. **L. Clarizia**
- 5:35** . Sorption and desorption of volatile organic sulfur compound from air by porphyrin aluminum metal-organic frameworks. **A. Samokhvalov**, S. Ullah
- 5:55** . Comparison of incorporation positions of environmentally preferable carboxylated cellulose nanocrystals on the performance of thin-film composite membrane. **Y. Liu**, F. Qi, Z. Wang, C. Li
- 6:15** . Rationally controlled lattice distortion of Co_{1-x}Ni_xFe₂O₄ for preferential ¹O₂ production from H₂O₂. **J. Yilan**, P. Wang, T. Chen, K. Gao, **D. Wang**
- 6:35** . Synthesis of porous alkali-activated materials using untreated bauxite residue as principal precursor. **R. Guha**, C. Ouellet-Plamondon
- 6:55** Concluding Remarks.
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Virtual Only
Virtual Session

Virtual Graduate Students Symposium in Asia-Pacific Region on Current Environmental Issues

C. Zhao, C. Zheng, Y. Zhou, *Organizers, Presiding*

- 5:30** . New sustainable utilization approach of livestock manure: Conversion to dual-reaction-center Fenton-like catalyst for water purification. **Y. Sun**, C. Hu, L. Lyu
- 5:45** . Photocatalytic molecular oxygen activation for organic wastewater treatment by regulating the excitonic effect. **d. zhang**, Y. Li, s. zhan
- 6:00** . Enhanced antibiotic resistance control by UV/H₂O₂ with higher production of hydroxyl radicals. **R. Gao**, Y. Zhao, S. Gao, A. Wang

6:15 . Regulatory mechanisms of quorum sensing system of bacteria response to chlorine/ozone disinfection. **Y. Liu, D. Xing**

6:30 . Development of atomic hydrogen-mediated electrocatalytic filtration system for peroxymonosulfate activation towards ultrafast degradation of emerging organic contaminants. **W. Zheng**

6:45 . Janus photoelectrocatalytic filter for sustainable water decontamination. **L. Jin**

7:00 . Efficiency of full-scale subsurface constructed wetlands with high hydraulic loading rates in removing pharmaceutical and personal care products from secondary effluent. **J. Wang, X. Yu, H. Lin, J. Wang, L. Chen, Y. Ding, S. Feng, J. Zhang, B. Ye, X. Kan, Q. Sui**

7:15 . Withdrawn

7:30 . Automatic and high-throughput production of metal-organic framework-based polymer monolith catalysts for water decontamination via advanced oxidation processes. **H. Chu, C. Wang**

7:45 . Rational regulation of M-N-C coordination for high-efficiency generation of ROS toward selective degradation of organic pollutants. **Y. Yao, Y. Yang, J. Li**

8:00 . Engineering palladium nanocrystals boosting C–C coupling by photocatalysis. **y. Ren**

8:15 . Tailoring the asymmetric structure of NH₂-UiO-66 metal-organic frameworks for light-promoted selective and efficient gold extraction and separation. **H. Shang, J. Cao**

8:30 . Pyrogenic carbon accelerates iron cycling and hydroxyl radical production during redox fluctuations of paddy soils. **D. Huang, N. Chen, Y. Lin, C. Ge, X. Wang, D. Wang, C. Zhu, G. Fang, D. Zhou**

8:45 . One-stop rapid decomplexation and copper capture of Cu(II)-EDTA with nanoscale zero valent iron. **X. Zou, Y. Zhang, K. Wei, J. Dai, C. Mao, L. Hu, H. Li, Y. Yao, L. Zhang**

9:00 . Molecular insights into antibiotics coordinating with metal ions in the environment. **Q. Wang, Q. Xu, W. Liu, Z. Chen, A. Wang**

9:15 . Underestimated humic acids release and influence on anaerobic digestion during sludge thermal hydrolysis. **F. Huang, Y. Zhao, S. Gao, A. Wang**

Cosponsored by ENVR

Early Career Symposium: Harnessing Chemical Ecology to Achieve Food Security

Sponsored by AGRO, Cosponsored by AGFD, ANYL, BIOT and ENVR

Fentanyl and the Devastating Effects on Students and Young Adults: Dangers, Statistics and Current Status

Engineering, Science, Medicine, and Society: The Challenge Spans All Disciplines

Sponsored by CHAS, Cosponsored by CATL, CCS, COMSCI, ENVR, MEDI, PROF, SCC, TOXI, WCC and YCC

Linking Toxicology and Human Health Through the Exposome

Sponsored by TOXI, Cosponsored by BIOL and ENVR

Natural Polymers - A Back to the Future Approach to Deal with the Plastics Issues

New and Emerging Technologies and Products

Sponsored by POLY, Cosponsored by CARB, CELL, ENVR and SCHB

Sustainable Agriceuticals

Sponsored by AGFD, Cosponsored by AGRO, ANYL and ENVR

Electrocatalysis for Sustainable Energy: Fundamental, Applications, & Perspective

Sponsored by CATL, Cosponsored by ENFL, ENVR and PHYS

New Strategies in Process Research and Development in Crop Protection

Sponsored by AGRO, Cosponsored by AGFD, ANYL and ENVR

Pesticides and Other Organics in Urban Environments

Sponsored by AGRO, Cosponsored by ANYL and ENVR

Role of Chemistry in Addressing Hunger and Food Security

Sponsored by AGRO, Cosponsored by AGFD, ANYL, CEI, COMSCI and ENVR

Zero Waste Strategies: Valorizing Undervalued Agricultural Coproducts and Food Waste

Sponsored by AGRO, Cosponsored by AGFD, ANYL, BMGT, ENFL and ENVR

Adapting Agricultural Chemistry and Practices to a Changing Climate

Sponsored by AGRO, Cosponsored by AGFD, AGRO, ANYL, CELL, ENFL, ENVR and TOXI

AGRO International Award: Symposium in Honor of Dr. Thomas M. Stevenson for His Contributions to the Discovery of New Fungicides, Herbicides and Insecticides

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

Biorational Technologies for Control of Invasive Pests in a Changing Climate

Sponsored by AGRO, Cosponsored by AGFD, AGRO, ANYL, ENVR and ORGN

Effect of EPA's Endangered Species Enforcement on the Future of Agrochemicals

Sponsored by AGRO, Cosponsored by ANYL and ENVR

Environmental Fate, Transport, and Modeling of Agriculturally-related Chemicals

Sponsored by AGRO, Cosponsored by AGFD, ANYL and ENVR

Environmental Monitoring Data Collection, Utility, and Use in Pesticide Risk Assessment and Registration

Sponsored by AGRO, Cosponsored by AGFD, ANYL and ENVR

Pesticide Runoff Mitigation: Characterization, Quantification, and Implementation

Sponsored by AGRO, Cosponsored by AGFD and ENVR

Technological Solutions to Address Food Insecurity, Trade Challenges and Food Waste

Sponsored by AGRO, Cosponsored by AGFD, ANYL, ENVR and ORGN

Unmanned Aerial Systems (aka Drones): Pesticide Spraying and Other Agricultural Applications

Sponsored by AGRO, Cosponsored by ANYL and ENVR

Uses of HPLC-Mass Spectrometry in Support of Agricultural Research and Development - Trends and Best Practices

Sponsored by AGRO, Cosponsored by AGFD, ANYL and ENVR

TUESDAY EVENING

Cosponsored by ENVR (Posters)

Natural Polymers - A Back to the Future Approach to Deal with the Plastics Issues

Sponsored by POLY, Cosponsored by CARB, CELL, ENVR and SCHB

WEDNESDAY MORNING

Moscone Center
Room 3003, West Bldg.

Sensors for Water Quality Monitoring in Resource Limited Environments

Cosponsored by ANYL

T. Alexander, *Organizer*

E. Brack, *Organizer, Presiding*

S. J. Pilkenton, *Presiding*

8:00 Introductory Remarks.

8:05 . NSF P248.04 military operations water sensors: Chemical and microbiological. **N.R. Beetsch**, E. Brack

8:25 . Development of a voltammetric sensor system for rapid onsite detection of heavy metals. **C. Sullivan**, P. Kurup, Y. Bozkurt, R. Nagarajan, E. Brack

8:45 . Detection of heavy metal contaminants in drinking water supplies using a portable, lightweight electrochemical sensing platform. **J. pimlott**

9:05 . Capillary flow-driven microfluidics combined with a paper device for fast, user-friendly detection of heavy metals in water. **P. Aryal**

9:25 Intermission.

9:40 . Testing an AChE sensor for arsenic analysis with groundwater samples taken from Shepley's Hill Landfill. **T. Li**, R.G. Ford

10:00 . Ultrasensitive nitrogen sensor for real-time monitoring of water quality. P.L. Schorr, **M. McCaul**

10:20 . Paper-based, cell-free sensors for in-field detection of heavy metals. **C.B. Bernhards**, K. Beabout, M. Thakur, G.K. Kilper, A.E. Miklos, E. Brack , M. Wiederoder, S. Walper, G. Ellis, J.L. Chavez, M.W. Lux

10:40 . Flow injection analysis and charged aerosol detection (FIA-CAD) for bulk water quality monitoring. **A. Mohan**, O. Quinones, E. Dickenson

11:00 Concluding Remarks.

Moscone Center
Room 3012, West Bldg.

Advances in Isolation, Removal, Sensing, Detection, Degradation, and Replacement of PFAS and Future Outlook

M. K. Shukla, *Organizer*

N. Kelley-Loughnane, M. K. Kolel-Veetil, M. Nadagouda, *Organizers, Presiding*

8:15 Introductory Remark.

8:20 . PFAS degradation using Plasma-Based Methods. **M.K. Kolel-Veetil**

8:40 . Quantification errors of PFOA in Fe(II)-catalyzed H₂O₂ degradation system. **B. Cheng**, Y. BIAO, W. Chen

9:00 . Mechanistic study on the catalytic degradation of PFAS on metal oxide surfaces. **O.A. Abiodun**, C.P. Oden

9:20 . Vitamin B12 as a facilitator of reductive defluorination of per- and polyfluoroalkyl substances: A density functional study. **A.M. Koval**, G.R. Jenness, M.K. Shukla

9:40 . Deployable PFAS effluent treatment systems. **J. Mattei-Sosa**, S. Waisner, J. Puhnaty, J. Lalley, C. Clark

10:00 Intermission.

10:15 . Silica nanoparticles ornamented with sulfonated naphthalene as a fluorescent sensor for detection of mercury in real seawater. **M. Mansha**, S. ALI, S.A. Khan

10:35 . Low-cost portable electrochemical sensor for rapid detection of perfluoroalkyl substances (PFAS). **A. Rehman**, D. Andreescu, E.S. Andreescu

10:55 . Affinity adsorption mediated co-absorption of PFAS in covalent organic frameworks: molecular dynamics study. T. Ricard, T.C. Schutt, C.G. Bresnahan, **M.K. Shukla**

11:15 . Degree of functionalization of graphene oxide and fluorinated graphene for PFAS removal. **C.G. Bresnahan**, T.C. Schutt, M.K. Shukla

11:35 Discussion.

11:55 Concluding Remarks.

Moscone Center
Room 3001, West Bldg.

Electrified Water Treatment Processes

Cosponsored by AGFD and CATL
W. Chen, W. Tarpeh, L. Winter, X. Xie, *Organizers, Presiding*

8:00 . Electro-dialytic crystallization. X. Zhang, Y. Yao, T. Horseman, R. Wang, Y. Yin, S. Zhang, T. Tong, **S. Lin**

8:30 . Techno-economic assessment of brackish water electrochemical desalination with intercalative electrodes. **K. Hu**, J. Chen, X. Liu

8:50 . Hardness removal through electrodeposition in aluminum electrocoagulation: Saturation behavior of calcium, magnesium, and silicon bearing solids in hypersaline produced water. **S. Joag**, S. Chellam

9:10 . Desalination battery for energy storage and desalination: Addressing challenges of the energy-water nexus. **N. Kim**, Y. Kim, K. Cho

9:30 . Scale formation on gas diffusion cathodes and its effect on electrochemical hydrogen peroxide generation. **N. Sergienko**, D.L. Sedlak

9:50 Intermission.

10:00 . Withdrawn

10:20 . Towards more economical water treatment: The development of robust and low-cost electrodes for on-site chlorine generation. **S. Hancox**, J. Tobiason, S. McBeath

10:40 . Electrochemical reduction as a novel approach to dechlorination of wastewater. **C. Weng**, W. Mitch

11:00 . Purifying environmental toxic and carcinogenic 1,2-dichloroethane under challenging aqueous conditions by recovering ethylene at ultimate efficiency. **C. Choi**, X. Wang, S. Kwon, W.A. Goddard, M. Elimelech, H. Wang

11:20 . Electrode longevity: An overlooked but critical factor for the adaptation of electrified water treatment processes. **Y. Duan**, D.L. Sedlak

11:40 . Performance of electrochemically reduced graphene oxide-coated membrane for ammonia recovery through localized heating. **W.J. Cardona**, B. Jafari, B. Mete, O. Gecgel, G.G. Botte

Moscone Center
Room 3007, West Bldg.

Exposome Meets Chemistry - Assessing Exposures to Complex Chemical Mixtures and their Impacts

Cosponsored by ANYL, MEDI and TOXI

C. Sayes, *Organizer*

M. N. Newmeyer, C. Prasse, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 . Expanding non-target analysis methods to characterize the prenatal exposome. **G. Bland**, D. Panagopoulos Abrahamsson, M. Wang, M. Zlatnik, R. Morello-Frosch, M. Sirota, T. Woodruff

8:25 . Novel approaches to infant formula safety screening: using non-target analysis and computational toxicological tools to assess organic contaminants in infant formula. **Q. Lyu**, M.N. Newmeyer, S.N. Lupolt, A.J. Williams, C. Prasse, K. Nachman

8:40 . Evaluation by inductively coupled plasma mass spectrometry (ICPMS) of uranium in sheep muscle tissues, kidney, and liver samples on the Navajo Nation. **A. Lister**, J.C. Ingram

8:55 . Water and air quality assessment of Cocopah tribal lands. **J. Arviso**, J. Alspach, F. Monroy, J. Credo, J.C. Ingram

9:10 . Regression machine learning models for predicting DBPs toxicity and revealing toxicity drivers. **R. Sikder**

9:25 . Development of a novel reactivity-directed analysis approach for the detection and identification of (toxic) organic electrophiles in water treatment applications. **D. Grace**, A.S. Overton, C. Prasse

9:40 . Prioritizing fractions of disinfection byproducts within complex mixtures. S. Lau, **W. Mitch**, M.J. Plewa, A. Gu, C. Russell, Y. Feng, G. Pope

10:00 Intermission.

10:15 . Working with stakeholders to determine high impact research directions for non-targeted analysis. **S.L. Nason**, Y. Feng, J. Sobus, C. Fisher, R. Marfil-Vega, A. Phillips, J. McCord, G. Johnson, J. Sloop, K. Nahan, S. Bayen, E. Mutlu

10:35 . Characterizing biosolids-associated organic contaminants (BOCs) to support human health risk-based prioritization. **M.N. Newmeyer**, S.N. Lupolt, A.J. Williams, K. Nachman, C. Prasse

10:55 . Assessing the impact of recreational activities on a natural stream: a Colorado River case study. **N. Hamdan**, C. Villarruel, M.N. Newmeyer, V. Wallace, J.F. Ranville, C. Prasse

11:10 . Using an anaerobic biosensor to model the effects of dissolved organic matter and complexed ferric iron on arsenite bioavailability. **H. Yoon**, B. Stenzler, L. Abu-Ali, M.P. Asta, A. Poulain, M. Reid

11:25 . Molecular insights into health effects of sea spray aerosol exposure under environmentally realistic conditions. **Z. Liu**, E. Van Acker, M. De Rijcke, C.R. Janssen, J. Asselman

11:40 . Urban airborne bacteria-phage communities, antibiotic resistome and potential health implications. T. He, J. Xie, L. Jin, J. Zhao, X. Zhang, H. Liu, D. Wu, L.C. Marr, **X. Li**

Moscone Center
Room 3005, West Bldg.

Improving Water Quality by Understanding Environmental Chemical Processes: A Symposium in Honor of Richard G. Luthy

C. P. Higgins, J. Mihelcic, C. A. Peters, *Organizers*
J. Wolfand, *Organizer, Presiding*

8:00 . Translating bioavailability science into practice: A story of disruptive innovation in sediment remediation and enduring Luthy legacy. **U. Ghosh**

8:20 . DDT: From saviour to villain, and how to deal with its legacy. **D. Werner**

8:40 . Feasibility demonstration of activated carbon remediation technology for in-situ stabilization of DDT at the United Heckathorn Superfund site. **Y. Cho**, R.G. Luthy

9:00 Intermission.

9:20 . Biochar and activated carbon-based remediation of PFAS and PCDD/Fs in water, soil and sediment: waste-based sorbents and large-scale field trials. **G. Cornelissen**, E. Sørmo, K.M. Krahn, C.M. Lade, H.H. Arp, A.P. Oen, E. Eek

9:40 . Diversity and transformation processes of cyanobacterial toxins from lakes to alpine mountains. **E. Janssen**

10:00 . Investigation of PFAS sources to municipal wastewater to inform management. **D. Lin**, M. Mendez, R.A. Sutton, L. Fono

10:20 Intermission.

10:40 . Validation of rare congener PCB Performance Reference Compound (PRC) method for equilibrium concentration determination of hydrophobic organic chemicals in sediment porewater. **J. Thompson**, B. Pautler, A. Sweett, I. Ilina, F. Salim, J. Roberts, J. Conder, A. Patterson, P. McIsaac, R. Mitzel

11:00 . Genesis of selectivity for sorption of hydrophobic ionizable organic compounds (HIOCs) onto polymeric sorbents and mechanistic similarity with natural systems. **A.K. Sengupta**

11:20 . Bioavailability reductions through nature-based remediation: Engineering components and potential regulatory aspects. **J. Ortega-Calvo**

11:40 . Analysis of oily sludge and its WSF and estimation of component contribution to toxicity using the Petrotox Model. P. Chand, S. Dutta, **S. Mukherji**

Moscone Center
Room 3006, West Bldg.

Innovative Materials for Environmental Sustainability

Cosponsored by AGFD, AGRO, ANYL and ENVR

Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community

A. Orlov, *Organizer, Presiding*

N. Yip, *Presiding*

8:00 Introductory Remarks.

8:05 . Switchable solvents for hypersaline brine desalination. **N. Yip**

8:30 . Organic solvent-free polyelectrolyte complex membrane preparation: Effect of monomer mixing ratio and casting solution temperature. **M. Mizan**

8:50 . Preferential adsorption of prominent amino acids in the urease enzyme of *Sporosarcina pasteurii* on arid soil components: A periodic DFT study. **W.A. Pisani**, G.R. Jenness, T.C. Schutt, S.L. Larson, M.K. Shukla

9:10 . Boosting reactive oxygen species evolution by photo(electro)catalysis using carbon-based catalysts: Unveiling the role of surface functionalities. **H. Kim**

9:30 . Photocatalytic and photo-reductive conversion of nitrate to ammonium ion. **A. Sanchez**, Z. Ye, Y. Yin, H. Liu

9:50 Intermission.

10:00 . Waste-derived mesoporous nanomaterial recovery valuable fluorite by Fluidized-Bed reactor for crystallization. **C. Tsai**, J. Horng

10:20 . Synthesis of Fe(VI)-coated sand composite media and application for enhanced removal of phenol. **F. Okaikue-Woodi**, J. Ray

10:40 . Selective separation and recovery of rare earth elements (REEs) from acidic solutions by novel organosilica-TODGA media. **S. Praneeth**, A. Sakr, M. Dardona, C. Tummala, M.J. Allen, T.M. Dittrich

11:00 . Novel struvite and calcium phosphate mineral-hydrogel composites for simultaneous removal of ammonium and phosphate. **M. Jung**, J. Ilavsky, Y. Tang, Y. Jun

11:20 . Extraction and Separation of valuable metals from phosphate rock fertilizers. **C. Tummala**, S.K. Mohanty, T.M. Dittrich

11:40 . Sequential column separation of individual REEs and Th from coal fly ash leach solution. **M. Dardona**, M.J. Allen, S.K. Mohanty, T.M. Dittrich

Moscone Center
Room 3008, West Bldg.

Women in Science and Engineering (WISE)
Air Quality, Aerosols, Climate Change Geochemical Processes

Cosponsored by CEI
D. D. Dionysiou, C. Huang, V. K. Sharma, *Organizers, Presiding*

8:00 . Air quality and data science: Regulatory compliance, emission mitigation, and exposure reduction. **C. Ivey**, K. Do, A. Kashfi Yeganeh, A. Nguyen, R. Xu, I. Torres, A. Delgado, C. Mourad

8:23 . Vibrational spectroscopy methods for quantification of workplace aerosols with high specificity. **V. Vogiazzi**, P. Kulkarni, N. Pugh, E. Ashley, C. Wang

8:46 . From climate change to cultural heritage conservation: explorations of chemistry at environmental interfaces. **S.A. Styler**

9:09 . Straddling geosciences and environmental engineering as a chemist. **Q. Li**

9:32 . Investigating high temperature gas transport for nuclear event detection. **C.W. Neil**, B. K C, M. Meng, W. Li, J. Carey, P. Stauffer

9:55 Intermission.

10:05 . Methylmercury formation in Arctic soils: Implications in remobilization and transformation of heavy metals under changing climate. **L. Zhang**

10:28 . Engineering conductive surfaces to promote biodegradation? A roadmap for successfully combining subsurface remediation strategies. **K. Millerick**

10:51 . Limiting arsenic mobilization during managed aquifer recharge. **S. Fakhreddine**, S.E. Fendorf

11:14 . Contentious nature of "total petroleum hydrocarbons" in soils. **A. Delgado**, M. Silverman, S.V. Sundar, R. Mohler, N. Sihota

11:37 . Formation and stability of nanominerals: from mechanisms to soil remediation application. **Y. Hu**

Virtual Only
Virtual Session

General Session: Advances in Environmental Chemistry
Air Pollution Control and Mitigation / Membrane Monitoring and Fouling Control

V. K. Sharma, *Organizer*

M. Nadagouda, *Organizer, Presiding*

M. Kaur, *Presiding*

10:00 Introductory Remarks.

10:05 . Predicting atmospheric concentrations of volatile methyl siloxanes in densely populated urban environments. **C. Brunet**, R.F. Marek, K.C. Hornbuckle

10:20 . Withdrawn

10:35 . Thermocatalytic oxidation of VOC through harnessing indoor waste heat. **M. Lee**, H. Kim

10:50 . Accumulation, removal, and emission factors of volatile organic bioeffluents during sleep. **B. Molinier**, C. Arata, D.M. Lunderberg, E.F. Katz, J. Ofodile, B.C. Singer, W.W. Nazaroff, A.H. Goldstein

11:05 . Plasma-catalysis system for air purification. **J. CHUNG**, D. Kim, J. Jeong

11:20 . Direct analysis of ambient particulate nitrogenous organic compounds by thermal desorption-gas chromatography-mass spectrometry (TD-GC-MS). **D. Yang**, H. Heo, M. Koo, J. Jeong, H. Lee

11:35 . Aligned UV-LED with textured waveguides on ceramic catalyst filter for air purification. **M. Koo**, J. Park, J. Kim, I. Hwang, H. Kwon, S. Ji, J. Kim, H. Lee

11:50 Intermission.

12:00 . Data analytics and reflections on the Notre Dame Lead Screening Kit. **A. Wicks**, O.A. Joseph, M. Lieberman

12:15 . Calcium sulfate scales and fouling removal using aqueous recipes: A comparative study. **F.M. Alissa**, M.F. Alqahtani

12:30 . Using germicidal ultraviolet light side-emitting optical fibers to mitigate biofouling of reverse osmosis membrane processes. **H. Rho**, J. lee, K. Park, C. Lee, P.K. Westerhoff

12:45 . In situ monitoring of biocide diffusion gradients from antifouling coatings. **J. Church**, E. Haslbeck

Cosponsored by ENVR

Chemical Intervention Technology to Improve Microbial Stability of Food

Sponsored by AGFD, Cosponsored by AGRO, ANYL and ENVR

Fentanyl and the Devastating Effects on Students and Young Adults: Dangers, Statistics and Current Status

Controlling Fentanyl with Science: Vaccines, CBD, and Advanced Detection Techniques

Sponsored by CHAS, Cosponsored by CATL, CCS, COMSCI, ENVR, MEDI, PROF, SCC, TOXI, WCC and YCC

Natural Polymers - A Back to the Future Approach to Deal with the Plastics Issues

Future - Fundamental and End-of-life

Sponsored by POLY, Cosponsored by CARB, CELL, ENVR and SCHB

Sustainable Agriceuticals

Sponsored by AGFD, Cosponsored by AGRO, ANYL and ENVR

Early Career Symposium: Harnessing Chemical Ecology to Achieve Food Security

Sponsored by AGRO, Cosponsored by AGFD, ANYL, BIOT and ENVR

Electrocatalysis for Sustainable Energy: Fundamental, Applications, & Perspective

Sponsored by CATL, Cosponsored by ENFL, ENVR and PHYS

Unmanned Aerial Systems (aka Drones): Pesticide Spraying and Other Agricultural Applications

Sponsored by AGRO, Cosponsored by ANYL and ENVR

Trace Analysis of Substances of Concern (SoC) for Safer Materials

Sponsored by ANYL, Cosponsored by AGFD, AGRO and ENVR

WEDNESDAY AFTERNOON - POSTERS

Moscone Center
Hall A, South Bldg.

Advances in Isolation, Removal, Sensing, Detection, Degradation, and Replacement of PFAS and Future Outlook

N. Kelley-Loughnane, M. K. Kolel-Veetil, M. Nadagouda, M. K. Shukla, *Organizers*

12:00 . Development of a U.S. EPA method to determine total organic fluorine in drinking water by combustion ion chromatography. **J. Jones**, D.R. Tettenhorst

12:00 . Reducing the bioaccumulation potential of per- and polyfluoroalkyl substances by electrocatalysis: Treatment and quantification. **Z. Lin**, P.K. Westerhoff, M.S. ERSAN

12:00 . UIO-66 modified boron nitride for enhanced electrochemical degradation of perfluorooctanoic acid (PFOA). **S. Yin**, J. Francisco López, J. J. Calvillo Solís, D. Villagran

12:00 . Determining thermal stability and degradation of neat and adsorbed perfluoroalkyl substances using hyphenated TGA-FTIR-GC-MS. **B. Mezgebe**, A. Tegenaw, E. Sahle-Demessie

12:00 . Examination of per- and polyfluoroalkyl substances (PFAS) in San Francisco Bay fish from 2009 to 2019. **M. Mendez**, E. Miller, R. Grace, R.A. Sutton, J.A. Davis

12:00 . Selective capture and membrane filtration of per- and polyfluoroalkyl substances (PFAS) through graphene oxide synthesis for water purification applications. **E. Lew**, B. Veldman

12:00 . Thermal breakdown of PFAS, AFFF, and FFF. **E. Tseng**, C. West, H. Brown, P. Fedick

Moscone Center
Hall A, South Bldg.

Electrified Water Treatment Processes

Cosponsored by AGFD and CATL

S. Bandaru, W. Tarpeh, L. Winter, X. Xie, *Organizers*
W. Chen, *Presiding*

12:00 . Real-time control system for automating electrified water treatment process. **J. Shim**, K. Cho

12:00 . Electrochemical adsorption for nuclear waste remediation: Synthesis of ZnHCF-ZDC composite for cesium removal. **H. Eom**, H. Kim, Y. Kim, D. Harbottle, J.W. Lee

12:00 . Effect of natural organic matter fouling on membranes of seawater battery desalination system. **S. Kim**

12:00 . Electro-Fenton and Induced electro-Fenton as versatile wastewater treatment processes for decontamination and nutrient removal without byproduct formation. **L. Quispe Cardenas**, Y. Yang, S. Wang, Y. Ye

12:00 . Affordably automating arsenic treatment for underserved communities in rural California: Applications of water treatment for the future. **P. Wickliff**, A. Gadgil, S. Bandaru, J. Majmudar, L. Smesrud, B. Akuzum, **A. Naranjo Soledad**, D. Hernandez

12:00 . Electrified membrane flow-cell for synchronous nitrate reduction and ammonia recovery. **J. Gao**, W. Zhang

Electrified Water Treatment Processes

Cosponsored by AGFD and CATL
S. Bandaru, W. Chen, L. Winter, X. Xie, *Organizers*
W. Tarpeh, *Organizer, Presiding*

12:00 . Advanced purification of pharmaceutical wastewater using integration technology of electrocoagulation and catalytic ozonation: Parameters optimization by central composite design. **Y. Li**, F. Qi, Y. Jia, Z. Huangfu, Z. Wang

Moscone Center
Hall A, South Bldg.

Electrocatalysts and Electrochemical Processes for Water Reuse

Cosponsored by AGFD, AGRO, ANYL and ENVR
Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community
K. Cho, S. Hong, J. Kim, J. Lee, *Organizers*

12:00 . Regenerable, low energy-consuming electrocatalytic system for bromate reduction in water and wastewater. **K. Lee**, C. Yan, C.J. Werth

12:00 . Decomposition of chlorine by electrically conductive membranes for oxidation of organic compounds. **H. LEE**, N. Zang, M. Elganzoury, Y. Wu, C. de Lannoy, A. Jang

12:00 . Photoelectrochemical denitrification using a novel Pd-Cu decorated nanoparticle on spaced TiO₂ nanotube arrays. **A. Son**, S. Mingzem Gashaw, K. Cho, B. Jeehye, S. Hong

12:00 . RuNiO_x Interface promotes Hydrogen production from alkaline seawater. **H. LUO**, Z. Guo

12:00 . Efficient synthesis of Prussian blue analogue deposited carbon nanofiber electrode and enhanced removal of Cs ion by electrochemical adsorption and desorption reaction. **M. Kim**, s. Kim, S. Eun

12:00 . Withdrawn

12:00 . In situ fabrication of titanium suboxide-laser induced graphene composites with enhanced electrochemical activity for environmental remediation. **A. KUMAR**, S.P. Singh

12:00 . Exploring the strategies to fabricate electrically conductive titanium oxides for anodic water treatment: Comparison of Magnéli phase Ti_nO_{2n-1} and Ti³⁺ self-doped TiO₂ in terms of electrical properties, oxidative treatment efficiency, and primary mechanisms. **M. Kim**, J. Lee

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Virtual Session

Electrocatalysts and Electrochemical Processes for Water Reuse

Cosponsored by AGFD, AGRO, ANYL and ENVR

Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community

K. Cho, S. Hong, J. Kim, J. Lee, *Organizers*

12:00 . Novel electrochemical water treatment processes for refractory organic contaminants in wastewater: Construction and reaction mechanism. X. Shang, R. Ren, Z. Wang, C. Li, Y. Liu, **F. Qi**

12:00 . Electrochemical studies of perfluorooctanoic acid (PFOA), perfluorooctane sulfonamide (PFOSA), and hexafluoropropylene oxide dimer acid (HFPO-DA). D. Orefuwa, **B. Workie**, E. Sahle-Demessie

Moscone Center
Hall A, South Bldg.

Electrochemical Materials and Interfaces for Environmental and Sustainability Challenges

C. Arges, T. Kim, C. Liu, X. Liu, *Organizers*

12:00 . Binder enabling robust cathode electrolyte interphase via displacement reaction for high voltage NVPF cathode. **S. Choi**, d. yoo, D. yun, J. Song, j. seo

12:00 . Low temperature CO₂ reduction to multicarbon alcohols using a supported metal oxide electro-catalysts. S.B. Dongare, **H. BHUNIA**

12:00 . Investigating the effects of PVDF-TrFE blend layer on swelling and performance of Nafion Ion exchange membrane. J. Kim, J. Jung, **C. soyeong**, C. Kiwoon

Virtual Only
Virtual Session

Electrochemical Materials and Interfaces for Environmental and Sustainability Challenges

C. Arges, T. Kim, C. Liu, X. Liu, *Organizers*

12:00 . Strongly coupled Ag(S)@NiO/nickel foam electrode induced by laser direct writing for hydrogen evolution at ultrahigh current densities with long-term durability. **J. Zhang**

Moscone Center
Hall A, South Bldg.

Environmental Chemistry and Nanotechnology: A Tribute to Joel Pedersen

H. Fairbrother, R. J. Hamers, F. L. Rosario, M. Suffet, *Organizers*

12:00 . In planta metabolism of the environmentally persistent drug lamotrigine. **B. Chefetz**, M. Madmon, M. Shenker, A. Weissberg

12:00 . Expanding work on microcontaminants in agricultural and wastewater systems using non-targeted analysis with high resolution mass spectrometry. **S.L. Nason**

12:00 . Withdrawn

Virtual Only
Virtual Session

Environmental Chemistry and Nanotechnology: A Tribute to Joel Pedersen

H. Fairbrother, R. J. Hamers, F. L. Rosario, M. Suffet, *Organizers*

12:00 . In-silico optimization of coating parameters in photocatalyst-coated optical fibers for maximized light usage. **Z. Ma, Y. Zeng**, W. Jinxin, Y. Song, L. Li

12:00 . Salinity-mediated interface process between pollutants and catalyst to enhance water self-purification in complicated aqueous system. **W. Cao**

12:00 . Adsorption of Pb^{2+} on graphene oxide-like materials by controlling the oxidative decomposition reactions of Sargassum: New insights from first-principles calculations. **S. Gutierrez**, R. Martinez-Flores, R. Pareja-Rodriguez, G. Rodriguez-Gattorno, D. Robledo, R. Ponce-Perez, M. Moreno--Armenta, J. Guerrero-Sanchez

Moscone Center
Hall A, South Bldg.

Exposome Meets Chemistry - Assessing Exposures to Complex Chemical Mixtures and their Impacts

Cosponsored by ANYL, MEDI and TOXI
M. N. Newmeyer, C. Prasse, C. Sayes, *Organizers*

12:00 . Evaluation of exposure studies for TSCA risk evaluations using a systematic review approach to improve consistency and transparency. **J.Y. Kang, E. Lo**, G. Kaupas, K.E. Miller

12:00 . Mapping the exposome of firefighters through the lens of Chemistry. **X. Lin**, X. Zhang, B. Michael, F. Wong, M. Prunicki, K.C. Nadeau, M.P. Snyder

12:00 . Determining the toxicity of polyethylene photoproduct complex mixtures in developing zebrafish. **B.D. James**, S. Karchner, A.N. Walsh, N. Aluru, D. Franks, K. Sullivan, C. Reddy, C.P. Ward, M. Hahn

12:00 . Identification and quantification of potentially hazardous chemicals emitted by consumer 3D printers. **N. Williams**, J. Miller-Schulze, S. Crawford

12:00 . Exposure of blood agent (Cyanogen) in an explosive site and effective decontamination of the explosive site. **S.N. Olatunji**

Moscone Center
Hall A, South Bldg.

General Session: Advances in Environmental Chemistry

M. Nadagouda, V. K. Sharma, *Organizers*

12:00 . Withdrawn

12:00 . Catalytic degradation of anti-microbial agents in hand sanitizers for COVID-19 prevention using steel slag-loaded coffee biochar catalysts via persulfate activation: A mechanism study. **J. Shin**, K. Chon

12:00 . Electrocatalytic synthesis of hydrogen peroxide at industrial-relevant currents for sustainable environmental water treatment. **p. Cao**, X. Quan

12:00 . Use of computational fingerprinting techniques to distinguish sources of accelerants used in wildfire arson. **H.M. Nguyen**, G. O'Sullivan, R. Suehring, C. Sandau

12:00 . Challenge of applying anammox in modern water resource recovery facilities (WRRFs) that receive wastewater containing emerging organic contaminants (EOCs). **X. chen**, G. Li

12:00 . Water pollution in El Salvador: Preliminary assessment of trace organic compounds in the Lempa river and drinking water. **V. Chichique Martinez**, D. Lee, A. Fuentes, F. Bautista, G. Valencia, M.J. Lopez, C. Calderón, J. Orteza, R. Rivas, D. Quanrud, R. Arnold, A.E. Saez

12:00 . High-risk trace organic contaminants in food production systems during recycled water irrigation for agriculture: Modeling framework and field study. **A. Azad**, J. Iradukunda, A. Truong, A. Haghverdi, H. Liu

12:00 . Withdrawn

12:00 . Impact of Ni on trimetallic InPdNi catalyst for nitrate reduction. **K. Hong**, J. Donoso, D. Rivera, B. Shin, H. Jacobs, K. Heck, W. Elias, P.K. Westerhoff, Y. Han, M.S. Wong

12:00 . Enhanced virucidal activity of facet-engineered Cu/TiO₂ nanorods under visible light illumination. **J. Lee**, J. Kim, c. lee

12:00 . Effect of mono- and divalent cations on Mercury sorption in the presence of dissolved organic matter. **D.J. Jones**, J. Chavez, N. Agramont, M. Beutel, S.J. Traina, A. Johs, P.A. O'Day

12:00 . Building kinetically favorable gas-liquid transfer route during NO₂ absorption in typical sulfite solutions. **Z. Lian**, S. Zhang, W. Ma, Q. Zhong

12:00 . Simultaneous H₂O₂ production in a highly efficient photoelectrochemical cell coupled with BN-codoped gas diffusion electrode. **S. Li**, B. Chen

12:00 . Enhanced immobilization of metal pollutants in sewage sludge ash (SSA)-cement pastes by calcium salts. **S.F. Li**, Y. Yarpary

12:00 . Aggregate distribution of *Pseudomonas aeruginosa* on biochar facilitate quorum sensing and biofilm formation. **h. yan**, B. Chen

12:00 . Virucidal activity of TiO₂-CuO_x nanocomposites under visible light illumination: Effect of Cu oxidation state. **J. Kim**, J. Lee, c. lee

12:00 . Hematite facets portray microbial reduction of iron oxides and recrystallization in regulating antimony mobility. **C. Jing**

12:00 . Degradation of hexagonal boron nitride in neutrophils. **Z. Liu**, J. Zhao, B. Xing

12:00 . Removal of hexavalent chromium by nZVI doped alkali pre-treated natural zeolite and its application in porous media: Alkaline pre-treatment effect on reactivity, dispersibility and mobility. **M. Choi**, S. Bae

12:00 . Nanoparticle solution for lung damage by air pollution particulate matter PM2.5. **V. Kanuru**

12:00 . Withdrawn

12:00 . Photocatalytic degradation of Congo red, Reactive red, Acid, and Basic blue using hydrogen peroxide/UV visible, and sol-gel synthesized Titanium oxide catalyst. **A.M. Shemsi**

12:00 . Withdrawn

12:00 . Adhesion of sustainable poly(butylene succinate)/rosin type in hot-melt adhesives for packaging. **K. Ryu**, H. Kim

12:00 . Use of column experiments to understand the sorption and transport behavior of BPA and NP in sandy river sediment. **Y. BIAO**, W. Chen

12:00 . Characterization of haloacetonitrile (HAN) precursors to evaluate formation of HANs by investigating nitrogenous and non-nitrogenous model compounds. **M.(. Shakhawat**, E. Marti, E. Dickenson, D.A. Reckhow

12:00 . Withdrawn

12:00 . Withdrawn

12:00 . Copper binding to prion fibril structures: A molecular dynamics study. **R.M. Benedict**, M. Jafari, K.M. Merz, H. Li, W. Zhang

12:00 . Withdrawn

12:00 . Liquid chromatography mass spectrometry analysis of potential metabolites of cellulose nanofibrils after an enzymatic simulated gastric digestion. **C. Collom**, C. Sayes

12:00 . Relationship between smokers' preference for cigarettes and chemical composition of tobacco smoke. **M. Noguchi**, A. Yamasaki

12:00 . Solubility and aggregation behaviors of dicarboxylic mixed micelle amino acid-based surfactant systems. **X. Gallegos**, S. Fritz, F.H. Billiot, E. Billiot

12:00 . Reported aggregation behaviors of amino acid-based surfactants in the presence of alkyl diammonium counterions. **M. Alvarez**, N. Black, F. Overstreet, T. Younger, F.H. Billiot, E. Billiot

- 12:00** . Development of a proteomics-based method for the detection of viral proteins in wastewater. **W. Li**, C.L. Fisher, J. Boeck, H. Bischel
- 12:00** . Effect of inlet tube diameter and residence time on the evaporation of organic aerosol particles during airborne sampling. **L. Fortado**, D. Pagonis
- 12:00** . Transformation products and chemical kinetics of ISCO treatment of naphthalene with sodium peroxydisulfate. **G.E. Walsh**, T. Kim, D.L. Sedlak
- 12:00** . Method of ultraviolet disinfection of water when growing fish in recirculating systems. **A. Semenov, T. Sakhno, N. Barashkov**
- 12:00** . Remediation of heavy metal contaminated soil by functionallized biochar. **A. Pandey, Y. Aduloju**, S. Niroula, F. Eivazi, Z. Afrasiabi
- 12:00** . Detecting unaccounted microplastics in the environment. **M. Akenkou**, A. Gangula, R. Kannan, A. Upendran, Z. Afrasiabi
- 12:00** . Ammonia gas adsorption by using Zeolite derived from coal fly ash. **J. Lee**, S. Bae
- 12:00** . Novel adsorptive materials and their application for rare earth elements recovery from coal fly ash extracts. **A. Rybak**, A. Rybak, S. Boncel, A. Kolanowska
- 12:00** . Integral model of A2MBR system for wastewater reuse wastewater. **N.I. Balsebre**
- 12:00** . Life Cycle Assessment of total petroleum hydrocarbons (TPH) remediation technologies. **Q. Zaib**, D. Kyung
- 12:00** . Process intensification for rare earth elements adsorption by resonant vibratory mixing. **O.E. Adebayo**
- 12:00** . Treatment of multiple heavy metals contaminated groundwater using hydroxide and carbonate, and sulfide ion. S. Saruul, J. Kim, S. Woo, **Y. Kim**
- 12:00** . Can criteria pollutants help to reduce greenhouse gases. **H. Gokturk**
- 12:00** . Comparison of coagulation-flocculation methods for removal of contaminants from water. **S.J. Pilkenton**, E. Brack , T.M. Tiano
- 12:00** . Using cholestosome encapsulated chelators to remove Lead from neural cells: Towards development of a therapeutic for lead poisoning. **D. Cordone, M. Hildreth**, A. Alves, **L. Mielnicki, M. Mc Court**
- 12:00** . Organic-linker-free superhydrophobic mesh designed by the galvanic displacement reaction to separate the oil/water mixture. **N. Baig**, I. Kammakakam
- 12:00** . Improvement on CO₂ uptake by sterically hindered amine AMP using anionization. **M. Yu**, Q. Zhong, S. Zhang
- 12:00** . Fluorescence quenching of humic acid by naphthenic acids. C. Jules, **A.V. Vazquez**

- 12:00** . Immobilized nanocomposite photocatalyst development for cyanotoxin decomposition under sunlight. **N. Zhang**, K.V. Nedunuri, K. Islam, a. rahman
- 12:00** . Efficient water harvesting from window glass using cooling TiO₂ nanostructured surfaces inspired by cold-blooded tree frogs. **Y. Do**, M. Ko, Y. Lee
- 12:00** . Withdrawn
- 12:00** . Modulator-derived defective MOF-808 for efficient removal of nerve-agent simulant. J. Choi, S. Jeong, J. Choi, H. ZHANG, **D. Hong**
- 12:00** . Picolinic acid sorption in Alaskan soils: Biochars effects on herbicide persistence. **B. Woodruff**
- 12:00** . Temporal variation in sulfide uptake and distribution in the seagrass halodule wrightii. **N.A. Dalton**, P.D. Larkin
- 12:00** . Withdrawn
- 12:00** . Advanced oxidation of recalcitrant organic compounds in the brine from membrane process for treated wastewater reuse. H. Hwangbo, J. Park, B. Lee, C. Hwang, **Y. Kim**
- 12:00** . Fabrication of Cu-Ti alloy from TiO₂ raw material via two step metallothermic reduction process. **K. Lim**, S. Park, S. Heo, N. Kwon, M. Kim, S. Oh, K. Park, S. Seo
- 12:00** . Selective extraction of Co and Ni from cathode materials of spent lithium-ion batteries. **C. Lee**, E. Chung
- 12:00** . Utilizing carbon dioxide via cycloaddition reaction with epoxide for cyclic carbonate by several green pathway. Y. Kim, K. Kim, W. Lee, **H. Cha**
- 12:00** . Development of a U.S. EPA method for the analysis of select pesticides and fungicides in drinking water by solid phase extraction and LC/MS/MS. **D.R. Tettenhorst**, J. Jones
- 12:00** . Product development from apple, grapes and berries food waste (pomace): Market research, industry analysis and opportunity assessment. **S. KESHARWANI**
- 12:00** . Removal efficiency and characteristics of 53 micropollutants during oxidation process (ozonation, chlorination, and UV/H₂O₂) in drinking water treatment plants in Korea. **s. sohn**, **M. KIM**, **Y. Lee**, **Y. Park**, **K. Zoh**
- 12:00** . Identifying photochemical pathways and photoproducts for high latitude aquatic contaminant, 6-PPD quinone. **J. Begley**, **I. Hillestad**, Z. Redman, P.L. Tomco
- 12:00** . Performance based analysis of dibenzo-p-dioxins/furans (PCDD/F) using high-resolution GC Orbitrap MS. N. Warner, P. Benedetti, X. Zheng, D. Roberts, D. Kutscher, **A. Fornadel**
- 12:00** . Bioaccumulation, translocation, and phytotoxicity of metal oxide nanoparticle in soil-crop system. S. Kim, S. Bae, **Y. Hwang**

12:00 . Characterization of volatile organic compounds (VOCs) in the spray-type consumer products using non-target analysis. **H. Yun**, J. Park, C. Yoon, K. Lee, K. Zoh

12:00 . Amplification of PE and PP microplastic detection signal via lithography patterned hydrophobic microneedle structure. **A. Jo**, B. Jeon, E. Jang, H. Hwang, H. Lee

12:00 . Disinfection of water contaminated by bacteria using combined advanced oxidation processes. **M. Carlson**, N. Barashkov, J. Shin, L. Lam, D. Eisenberg

12:00 . Evaluation of purification efficiency of high-concentration heavy metal contaminated smelter groundwater using $Mg(OH)_2$ calcined beads. **B. Song**, Y. Kim, S. Woo, **J. Kim**

12:00 . Biosorption of heavy metals in wastewater and utilization of recovered biomass to produce biofuel. **N.B. Smith**, S. Islam, N. Green, V. Duran, B. Jang

12:00 . Deciphering the intersection of soil metal dynamics using colorimetric chelators. **R.N. Tran**, M.C. Heffern

12:00 . Evaluation of adsorption performance of heavy metals using biochar: Effect of feedstock and pyrolysis conditions. **Y. Hanwool**, S. Yoon, S. Bae

12:00 . Modern computer applications REE 2.0 and REE_isotherm to model REE ion behaviour in adsorptive membranes and sorbents. **A. Rybak**, A. Rybak, S. Boncel, A. Kolanowska

12:00 . Alkaline hydrothermal treatment for model compounds of gangue components present in iron ores. B. Su, Y. Mochizuki, K. Higuchi, **N. Tsubouchi**

12:00 . Modeling for the study of carbon dioxide and oxygen dynamics in saline lakes: Effects of climate change in Salar de Huasco, Chile. **K. Valenzuela Martínez**, A. Prieto, A. De la Fuente

Virtual Only
Virtual Session

General Session: Advances in Environmental Chemistry

M. Nadagouda, V. K. Sharma, *Organizers*

12:00 . Data science as a tool for groundwater conservation and management in developing countries. **A. Nayak**

12:00 . Theoretical investigation of metal clusters/TiPc for ammonia decomposition. **S. Kang**, J. Zhou

12:00 . Understanding and designing a high-performance ultrafiltration membrane using machine learning. **H. Gao**

12:00 . Field study of carbon dioxide concentration variability in Los Angeles County over a decade. **L. Chen**, **S. Gupta**, S. Chen, C. Chen, X. Zhang

12:00 . Paths for an energy transition: Assessment of waste from the main Brazilian temporary crops and prospections for biofuel production. E. Freire, **A.L. Pereira**

12:00 . Decomposition of dibutyl phosphate by pulsed discharge over water. **N. Tashiro**, M. Sasaki, R. Mori, T. Horimai, K. Anzai, T. Tsukada

12:00 . Effects of pulsed repetition rate and discharge time on product distribution of pulsed interfacial discharge treatment of Ala-DKP aqueous solutions. **R. YAMADA**, M. Sasaki

12:00 . Withdrawn

12:00 . Membrane filtration with nanoparticles: Applications in water treatment. **F. Roza**

12:00 . Science Communication for data preservation targeting SDG goals aiming global environmental conservation. **G. Matta**

12:00 . Pilot program of Tennessee Department of Health - private well water and emergency response test kit program. **P. Leathers**, K. Dunaway

12:00 . Photocatalytic activity of rice straw derived CQDs-Sr_{0.4}Ti_{0.4}Mg_{0.2}Fe₂O_{4.4} nanocomposites. **A. Kaur**

12:00 . Sustainable recovery, surface chemical engineering, and second-life application of spent graphite. **S. Ghosh**, S.K. Martha

12:00 . Designing direct redox reaction chemically coupling NO and SO₂ removal. **D. Zhao**, Q. Jiang, W. Lin, H. Song

12:00 . Impact regularities of CO₂-water-shale interaction on reservoir rock properties. **W. Yifan**, J. Wang, H. Liu

Virtual Only
Virtual Session

Harnessing Data to Improve Oxidation and Disinfection Processes

Cosponsored by BIOT, CEI, PMSE and POLY
K. E. Furst, A. Szczuka, *Organizers*

12:00 . Comparison of peroxide and chloramine addition for bromate control in potable reuse. **A. Mohan**, H. Ray, C. Morrison, A. Atkinson, D. Gerrity, E. Wert, E. Dickenson

Moscone Center
Hall A, South Bldg.

Harnessing Data to Improve Oxidation and Disinfection Processes

Cosponsored by BIOT, CEI, PMSE and POLY
K. E. Furst, A. Szczuka, *Organizers*

12:00 . Oxidative transformation of azoles in aquatic environments. E. Kim, **J. Gonzalez**, S. Steck, D. McCurry

12:00 . Disinfection byproduct formation from chlorocyanurates, an alternative chlorine source. **K.B. Adusei**, K.E. Furst

12:00 . Oxidative degradation of bentazon herbicide in a UV₂₅₄/PS system. A. Khalil, W. Bou Karroum, A. Baalbaki, **A. Ghauch**

12:00 . Identification of disinfection by-products associated with the interaction of cationic polyelectrolytes with chlorine and chloramine disinfectants. **K.C. Sekgota**, **E.J. Ncube**, K. Voyi, P.B. Forbes

Moscone Center
Hall A, South Bldg.

Impact of PFAS on Environment and Health

Cosponsored by COLL, GEOC and TOXI
S. Belcher, N. Loganathan, A. Slitt, A. K. Wilson, *Organizers*

12:00 . Understanding PFAS toxicity for Great Lakes fish: A computational approach. **S. Bali**, K. Hall, R. Massoud, N. Almeida, A.K. Wilson

12:00 . Investigating the impacts of Perfluorooctane sulfonic acid (PFOS) on coral larvae. **K. Costa**, J. Bowden

12:00 . Toward data harmonization in PFAS: Examining both biological and environmental reference materials. **C. Camacho**, J. Bowden

12:00 . Interaction of persistent xenobiotics with β -lactoglobulin. **A. Yadav**, L. Vukovic, M. Narayan

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Hall A, South Bldg.

Innovative Materials for Environmental Sustainability

Cosponsored by AGFD, AGRO, ANYL and ENVR
Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community
A. Orlov, *Organizer*

12:00 . Pyrolyzed $\text{Fe}_x\text{O}_y\text{-n@Z5}$ composite as an efficient non-precious metal catalyst for elective catalytic oxidation of triethylamine and mechanism investigation. **L. Meng**, F. Qin, X. Fan, W. Ma, S. Zhang

12:00 . Highly efficient binary photocatalysts $\text{NiAl}_2\text{O}_4/\text{g-C}_3\text{N}_4$ with enhanced photocatalytic reduction of CO_2 to CO and photocatalytic degradation of 2, 4-dinitrophenol under visible -light irradiations. **N. Ahmad**, **C. Kuo**

12:00 . Electrical, optical property measurements of biofactory-produced 6,6'-dichloroindigo. **B. Jeon**, A. Jo, H. Hwang, E. Jang, H. Lee

12:00 . Environmentally sustainable routes utilized to produce new copper niacinamide coordination complexes. **H. Kouadio**, S. Iqbal, V. Nesterov, M. Rawashdeh-Omary

Virtual Only
Virtual Session

Innovative Materials for Environmental Sustainability

Cosponsored by AGFD, AGRO, ANYL and ENVR

Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community

A. Orlov, *Organizer*

12:00 . Terpinol yield of pinene hydration catalyzed by deep eutectic solvents system and effect of temperature/time/materials ratio on reaction. **Y. Zhao**

12:00 . Laponite nanosheets stacked loose nanofiltration membrane for effective dye/divalent salt separation. **J. Ma**

Moscone Center
Hall A, South Bldg.

Interfacial PFAS Processes and Mechanisms

C. I. Olivares, J. Ray, *Organizers*

12:00 . Withdrawn

12:00 . Effect of minerals on the interfacial behavior of per- and polyfluoroalkyl substances. **N. Loganathan, A.K. Wilson**

Virtual Only
Virtual Session

Interfacial PFAS Processes and Mechanisms

C. I. Olivares, J. Ray, *Organizers*

12:00 . Mechanisms of short- and ultrashort-chain PFAS adsorption on anion exchange resins and activated carbon. **S. Lenka, M. Kah, L. Padhye**

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Materials Development to Address Environmental and Sustainability Challenges

Cosponsored by AGFD, AGRO, ANYL and ENVR

Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community

M. J. Bentel, D. D. Dionysiou, M. Nadagouda, V. K. Sharma, *Organizers*

12:00 . Environmental orthogonal reactions for dissolving and tagging pyrogenic carbon. **A. Radakovich, S. Lokesh, A. Timilsina, Y. Yang**

- 12:00** . Chemiresistive methane sensing with printable Pt-CNT ink. **K. Bhattacharyya**, A. Thukral, R. Pandey, D. Schwartz
- 12:00** . DNA-PLGA nanosphere tracers: A reliable tool for studying environmental DNA (eDNA) transport in aquatic ecosystems. **Z. Li**, C. Ramón, D. Wang, F. Valdivia, T. Walter, D. Lodge, E. Cowen, J. Andrés, D. Luo
- 12:00** . Degradation of meropenem by the activation of persulfate using molybdenum-iron oxide. **G. Kim**, H. Lee, A. Choi, S. Kim, K. Ha, M. Kim, **C. Han**
- 12:00** . Persulfate activation by Pd and Co nanoparticles co-deposited on carbon: Synergistic efficiency improvement and variation in major degradative route depending on persulfate type. **J. Choi**, D. Min, J. Kim, J. Lee
- 12:00** . Antibacterial activity of sulfur-doped porous carbons. **I. Bautista**, **B. Matos**, A. Fekri, M. Florent, T.J. Bandosz, J. Callahan, W. Li
- 12:00** . Solid-state and solvent-assisted mechanochemical synthesis of spinel ferrite nanoparticles. **I. Ogbogo**, T.M. Trad
- 12:00** . Mechanochemical synthesis of oxidation catalysts for VOC removal. **Z. JIA**, L. Zhang, X. Zhai, C. Xie, W. Han, W. Chu, K. Yeung
- 12:00** . High performance copper oxide-ceria catalysts for reverse water-gas shift reaction. **Z. JIA**, J. LU, W. Li, Y. Zhu, L. Zhang, X. Chen, W. Han, K. Yeung
- 12:00** . Waste foundry sand as a sustainable remediate for concrete industry: Elaborated mechanical and durability behavior. **D.K. Ashish**, S.K. Verma
- 12:00** . Storing digital data in unknown organic small molecule mixtures. **S. Gumus**, J. Rosenstein
- 12:00** . Comprehensive study of HFC ceramics derived from a precursor: Synthesis and characterization. **S. Mujib**, M. Rasheed, S. Arunachalam, G. Singh
- 12:00** . Surface adsorption and photocatalysis: A study of spinel ferrite nanomaterials for removal of organic pollutants from water. **K. Sanchez Lievanos**, K.E. Knowles
- 12:00** . Growth of crystalline titania within PLA microsponges for photocatalytic degradation of organics in water. **S.L. Nealy**, V.A. Kozlovskaya, D. Inman, E.P. Kharlampieva
- 12:00** . Development of porous nanomaterial cross-linked anion exchange membrane for water electrolysis. **K. Chu**, A. Jang
- 12:00** . Enhancing the electrocatalytic OER: Structural transformation of PBA core-shell nanocubes to phosphorized WS₂-coated nanostructures. **P. Mukherjee**, K. Sathiyar, R. Bar Ziv, T. Zidki
- 12:00** . Nano-encapsulation: Overcoming conductivity limitations of MOF for electrocatalytic reduction of carbon dioxide. **K. Sathiyar**, A. Dutta, V. Marks, O. Fleker, T. Zidki, R.D. Webster, A. Borenstein

12:00 . Zeolite sorbents for treating boron leachate from coal ash impoundments. **P. Wang**, A.K. Sekizkardes, J. Findley, B. Howard, E.J. Granite, J.A. Steckel, E. Grol

12:00 . Metal-organic framework-based walnut biochar nanocomposite for adsorption of lead and chromium from aqueous environments. **S. Pochampally**, E. Letourneau, I. Abdulraheem, J. Moon, E.J. Marti, S. Hunyadi Murph

12:00 . Withdrawn

12:00 . Enhanced adsorption capacity through combined modification methods of nitrogen-doped walnut shell biochar. **E. Letourneau**, S. Pochampally, J. Moon

Virtual Only
Virtual Session

Materials Development to Address Environmental and Sustainability Challenges

Cosponsored by AGFD, AGRO, ANYL and ENVR

Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community

M. J. Bentel, D. D. Dionysiou, M. Nadagouda, V. K. Sharma, *Organizers*

12:00 . Treating produced water using hybrid polymeric and ceramic membranes. **H. AlTamreh**, M. Nasser, M.K. Hassan

12:00 . Color-tunable, time-dependent, temperature and humidity-responsive afterglow from hyaluronic acid-based film. **W. Xu**

Moscone Center
Hall A, South Bldg.

Methods and Modeling for Evaluating and Mitigating Plastic Pollution in Air, Land, and Water

Cosponsored by AGRO, ORGN and POLY

S. R. Al-Abed, M. Gallagher, P. Potter, *Organizers*

12:00 . Formation of simulated microplastics: An accelerated method to create model microplastics using mechanochemical and oxidation strategies. **J. Hong**, S. Ghoshal, A.H. Moores

12:00 . Characterization of weathered microplastics from the environment: The application of hyperspectral sensing. C. Huang, Y. Tseng, Y. Hsu, **M. Lee**

12:00 . Deep learning model for classification of microplastics and natural organic matter from mixtures using Raman spectra. **S. Lee**, S. Kim

12:00 . Partition coefficient determination of low-density polyethylene passive samplers for absorption of tributyltin in seawater. **J.H. Kang**, H. Jeong, G.B. Kim

12:00 . Development of novel bio-based water filtration materials. **D. Barker**, D. Joseph, S. Basharat, T. Kerr-Philips, L. Pilkington, V. Sarojini

Methods and Modeling for Evaluating and Mitigating Plastic Pollution in Air, Land, and Water

Cosponsored by AGRO, ORGN and POLY

S. R. Al-Abed, M. Gallagher, P. Potter, *Organizers*

12:00 . Cephalixin binding to biosolids dissolved organic matter: Mechanisms and potential implications for wastewater treatment. **M. Schmidt**, D. Ashworth, A.M. Ibekwe

Moscone Center
Hall A, South Bldg.

Plastic Pollution and E-Waste: Treatment and Valorization

Cosponsored by BIOT, CATL, CELL, ENFL and I&EC

B. Sang, J. Seo, *Organizers*

12:00 . Plastic waste to value added products: A sustainable approach for low temperature mediated thermo-catalytic conversion using Ce doped SnO₂ nanoparticles. **B. VERMA**

12:00 . Mn-substituted MgAl₂O₄ spinel as a reusable and regenerable heterogeneous catalyst for glycolysis of post-consumer PET. **J. Choi**, H. ZHANG, C. Sarkar, D. Hong

12:00 . Tandem catalysis for direct conversion of waste PET into bis(2-hydroxyethyl) cyclohexane-1,4-dicarboxylate. **H. ZHANG**, J. Choi, S. Kanwal, D. Hong

12:00 . Biodegradation evaluation of biodegradable hybrid vinyl acetate ethylene copolymers. **G. Yoon**, Y. Lee, Y. Kim, B. Sang

12:00 . Enzymatic synthesis of dicarboxylate diesters as potential bio-based plasticizers. **D. Ok**, Y. Kang, B. Sang

12:00 . Enzymatic synthesis of renewable polymers for bio-based adhesives from lignin monomers. **G. Oh**, H. Lee, Y. Kang, B. Sang

12:00 . Assessing biodegradation of PLA/PBAT blend mulch film under varying soil conditions. **Y. Lee**, G. Yoon, D. Prabhakaran, Y. Kim, B. Sang

12:00 . Investigation of the fabrication and properties of PLA and PBAT films using solvent casting and blending techniques. **M. Noh**, G. Yoon, D. Pak, Y. Kang, B. Sang

12:00 . Enzymatic synthesis of isosorbide diester for eco-friendly plasticizer applications. **M. Noh**, G. Yoon, S. Kang, D. Pak, Y. Kang, B. Sang

12:00 . Effect of different pretreatment methods on biological n-butyric acid production using rice husk. J. Won, Y. Gu, H. Park, B. Sang, J. Lee, **B. Jeon**

12:00 . Monitoring of microplastics in the atmosphere. **B. Kwon**

12:00 . Withdrawn

12:00 . Withdrawn

Moscone Center
Hall A, South Bldg.

Processes and Risks of Micro-& Nano-Plastics in the Environment

F. Dang, V. K. Sharma, C. P. Ward, B. Xing, J. Zhao, *Organizers*

12:00 . Microplastics identification in Southern California coastal sediments. **T. Tran**, Y. Wang

12:00 . Adsorption mechanism of benzalkonium chlorides(BACs) on Polypropylene and polyethylene terephthalate microplastics(MPs): Effects of alkyl chain length of BACs and MPs aging. **M. JAng**, T. Kim, **Y. Hwang**

12:00 . Sorption mechanism analysis of methylparaben unto laboratory-generated secondary microplastics. **T. AYORINDE**, C.M. Sayes

12:00 . Adsorption of carbaryl on freshwater sediments microplastics. **J. Kim**, A. Choi, H. Lee, M. Kim, C. Han

12:00 . Optimization of organic matter removal and density separation to analyze microplastics in soils. **y. seonjin**, H. Choi, K. Yoo, B. Lee

12:00 . Size-dependent toxic effects of microplastics in presence of benz[a]anthracene in zebrafish (Danio rerio) larvae. **Y. Sim**, H. Cho, J. Lee, W. Lee, H. Kim, J. Jeong

12:00 . Removal and degradation of microplastics from water by iron-based technologies. A. Tomic, S. Tonkovic, M. Kovacic, Z. Katancic, **H. Kusic**, Z. Hrnjak Murgic, A. Loncaric Bozic

12:00 . Polystyrene nanoplastics decreased starch hydrolysis in simulated INFOGEST model. **C. Ma**, C. Li, H. Shang, I. Eggleston, J.C. White, B. Xing

Virtual Only
Virtual Session

Processes and Risks of Micro-& Nano-Plastics in the Environment

F. Dang, V. K. Sharma, C. P. Ward, B. Xing, J. Zhao, *Organizers*

12:00 . Degradation of petroleum-based biodegradable plastics along aquatic pathway. **Y. Kim**

Virtual Only
Virtual Session

Remediation of Contaminated Water for Reuse

Cosponsored by ANYL, CEI and CHED

S. Ahuja, K. Sathiyar, *Organizers*

12:00 . Synthesis, characterization and evaluation of SiC-PVA@Nylon composite membrane for effective produced water treatment. M. Alqassab, **I.H. Aljundi**

12:00 . Polymer-containing Metal Organic Framework (PcMOF) for efficient removal of lead from water: Applications in water purification. **P. Maity**, N.K. Singha, R. Mitra

12:00 . Produced water treatment using composite ceramic/polymeric membrane. M. Alqassab, **I.H. Aljundi**

Moscone Center

Hall A, South Bldg.

Remediation of Contaminated Water for Reuse

Cosponsored by ANYL, CEI and CHED

S. Ahuja, K. Sathiyar, *Organizers*

12:00 . Degradation of phenol by perborate in the presence of iron and carbonaceous materials. **S. Oh**, J. Kim

12:00 . Multifunctional bio-based photothermal hydrogel for highly efficient seawater desalination and contaminant adsorption. **B. Chaw pattnayak**

12:00 . In-situ chemical bonding of Praseodymium oxide and triamine functionalized silane to mesoporous silica MCM-41 network: Covalent decoration in nanofiltration membrane for desalination and micropollutants removal. **S. Jillani**, A. Waheed, U. Baig, I. Aljundi

12:00 . Recoverable core-shell Fe₃O₄ nanocubes coated with doped-TiO₂ shells for photocatalytic degradation of antibiotics from wastewater. **M. Ariza Gonzalez**, D.F. Rodrigues, T. Lee

12:00 . Ceramic nanofiltration membranes with two-dimensional nanostructured materials for the treatment of semiconductor wastewater. Y. Lee, Y. So, S. Kim, **C. Park**

12:00 . Remediating pollutants from wastewater using sulfonated graphene oxide: Experimental and computational methods. **O.O. Oluwasina**, A.A. Adelodun, S.J. Olusegun, O.O. Oluwasina

12:00 . Effective cesium removal by Prussian blue immobilized 3D printed filter. **B. Kim**, D. Oh, Y. Hwang

12:00 . Efficient visible light driven-photodegradation of Fluoroquinolone-based antibiotics with Type II heterojunction MnNb₂O₆/g-C₃N₄ as a novel binary composite. **C. Kuo**, N. Ahmad

12:00 . Adsorption of brilliant blue dye on biochar from the macroalgae Cladophora glomerata . **S. Badshah**

12:00 . Machine learning approach for predicting attenuation of adsorption capacity of Activated Carbon amended in sediment for in-situ remediation. **H. Lee**, Y. Choi

12:00 . Cu/Cu₂O immobilization of 3D filter based on PLA(polylactic acid) for iodide removal in aqueous solution. **B. Kim**, D. Oh, Y. Hwang

12:00 . Chloride-mediated activation of peroxymonosulfate for bisphenol a degradation: Exploring non-free radical and free radical pathways. **Y. Chen**

12:00 . Identifying precursors of nitrogenous disinfection byproducts in wastewater effluent by chemical derivatization. **S. Steck**, E. Kim, J. Van Buren, D. McCurry

12:00 . Effect of pyrolysis temperature on biochar chemistry. **R.N. Luu**, Y. Zvulunov, T. Borch, A. Bhattacharyya

Moscone Center
Hall A, South Bldg.

Role of Chemistry in Developing Sustainable Infrastructures

Cosponsored by BIOT, ENFL and I&EC
C. Fan, H. Kim, I. Lee, S. Pan, B. Sang, *Organizers*

12:00 . Capturing of inorganic and organic pollutants simultaneously from complex wastewater using recyclable magnetically chitosan functionalized with EDTA adsorbent. **M. Verma**, H. Kim

12:00 . Development of a bio-torch-oil and charcoal-lighter. **Z. Kaleta**, R. Kaleta, G. Riszter, M. Kaleta

12:00 . Improving munitions wastewater treatment. **D. Tran**

12:00 . Survey of micro-pollutants discharged from wastewater treatment plants in Korea. H. Kim, **C. Lee**, H. Lee, D. Seo, D. Cheong

12:00 . Quantification of microplastics in food containers and packaging. **N. kim**, I. Lee, K. Uhm, Y. Choi, H. Kim

12:00 . High-yield hydrogen production by using a novel anion-exchange membrane in microbial electrolysis cells. **J. Nam**, E. Jwa, H. EOM, J. Han, J. Choi, H. Kim, K. HWANG, N. Jeong, Y. Jeung

12:00 . Scale-up and optimization of a bipolar membrane electrodialysis stack for ammonia nitrogen recovery from wastewater streams. **K. HWANG**, J. Nam, N. Jeong, J. Han, E. Jwa, Y. Jeung

12:00 . Membrane-based energy technology for water-energy-environment nexus. **N. Jeong**, H. Kim, J. Nam, J. Choi, K. HWANG, J. Han, Y. Jeung, E. Jwa

12:00 . Nature-based solutions: Food waste-derived carbon materials for water-energy nexus. **M. Gao**

Moscone Center
Hall A, South Bldg.

Sensors for Water Quality Monitoring in Resource Limited Environments

Cosponsored by ANYL

T. Alexander, E. Brack , *Organizers*

12:00 . Improved screening test for lead in water: activated carbon-felt filter with on-site drying and portable XRF measurement. **O.A. Joseph**, D. Kwon, D. Sammanasu, A. Wicks, M. Lieberman

12:00 . Distribution of carbamazepine in the Yeongsan River, South Korea. **H. Choi**, B. Lee, y. seonjin, K. Yoo

12:00 . Investigating the aquatic-terrestrial ratio as a precursor to harmful algal blooms. **W. Hodge**

12:00 . Withdrawn

12:00 . Low-cost water quality sensors for informed microbial analyses in underserved communities. **A. Woody**, J. Hacker, H. Walden, F. Cubas, F. Diaz, L.S. Rowles

Virtual Only

Virtual Session

Separation, Destruction, and Monitoring of Per- and Polyfluoroalkyl Substances (PFASs) and Fluorinated Alternatives

Cosponsored by ANYL and CATL

J. Choe, Y. Choi, J. Liu, Y. Wang, *Organizers*

12:00 . Removal and destruction of PFAS in water by a treatment train comprising foam fractionation and electrochemical oxidation. **Y. Wang, M. Warner**

Moscone Center
Hall A, South Bldg.

Separation, Destruction, and Monitoring of Per- and Polyfluoroalkyl Substances (PFASs) and Fluorinated Alternatives

Cosponsored by ANYL and CATL
J. Choe, Y. Choi, J. Liu, Y. Wang, *Organizers*

12:00 . Behavior analysis of micropollutants for each industry wastewater and evaluation of removal efficiency by underwater plasma process. **J. Kang**, J. YOO, G. SON, H. KIM

12:00 . Effect of pH on the evaluation of removal efficiency of PFCs using NF/RO membrane. **G. SON**, J. Kang, J. YOO, H. KIM

12:00 . Reductive degradation of GenX by hydrated electron within self-assembled micelle structure. **S. Eom**, T. Kim, M. KIM, K. Zoh

Moscone Center
Hall A, South Bldg.

United Nations Sustainable Development Goal #6-Clean Water and Sanitation: Current Progress, Challenges, and Future Outlook

Cosponsored by CEI
D. D. Dionysiou, G. Matta, K. Weitzel, *Organizers*

12:00 . Revisiting the life cycle impacts of water reclamation technologies. C. Huang, **M. Lee**

12:00 . Quantification of antibiotic residues in meat and poultry samples using Dispersive Liquid-Liquid Microextraction (DLLME) coupled with High-Performance Liquid Chromatography Diode Array Detection (HPLC-DAD). **A. Adkisson**, C. Osunmakinde, A. Nweke

Virtual Only
Virtual Session

United Nations Sustainable Development Goal #6-Clean Water and Sanitation: Current Progress, Challenges, and Future Outlook

Cosponsored by CEI
D. D. Dionysiou, G. Matta, K. Weitzel, *Organizers*

12:00 . Role of coastal blue carbon in sequestration capacity and mitigating climate change in Kuwait. **J. Bahzad**, A.A. El-Sammak, E.A. El Masry

12:00 . Evaluating vegetation biomass rehabilitation in a steppe rangeland reserve in northern Jordan using ESA's Sentinel-2 MSI and field data. **R.N. Jawarneh**, Z. Makhamreh, A. Al-Taani, N. Obeidat

12:00 . Design and application of hydrochar composite from winery wastes as sorbent for dye removal. **S. Bhattarai**, N.F. Adegboyega

Moscone Center
Hall A, South Bldg.

Wildfires: Chemistry and Environmental Impacts on Air, Water, and Soil

Cosponsored by AGFD, AGRO, ANYL, CEI, ENVR and TOXI
Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community
M. A. Benvenuto, E. Roberts-Kirchhoff, *Organizers*

12:00 . Enhanced formation of gas-phase nitrous acid (HONO) from heterogeneous reactions of NO₂ on surfaces exposed to wildfire smoke. **K. Rojas Garcia**, V.H. Grassian

12:00 . Probing interactions at the organic-inorganic interface of biomass burning aerosol: Reactivity of iron oxides with organic tracer species. **J. Sedlak**, V.H. Grassian

Moscone Center
Hall A, South Bldg.

Advanced Materials and Technologies for Detection and Treatment of PFAS and Other Emerging Contaminants

Cosponsored by AGRO and ANYL
N. Aich, S. Andreescu, K. Malekani, *Organizers*

12:00 . Development of economical and sensitive colorimetric biosensor materials for onsite and simultaneous detection of multiple targets. **B. Pan**, M. Norwood, G. Sun

12:00 . Simultaneous detection of eleven phthalic acid esters (PAEs) via aptasensor based on fluorescence quenching of graphene quantum dots by gold nanoparticles. **H. Lim**, A. Son, B. Chua

12:00 . Reuse options and opportunities of carbon from exhausted water filter cartridges: An Evaluation of Regeneration Methods and Cost Benefits. **A. Shahab**, F. Coulon, S. Wagland

12:00 . Enhanced adsorption of Per- and Polyfluoroalkyl substances from water by nanoporous materials. **Y. Park**, J. Park, J. Lee, S. Kim, Y. Hwang

12:00 . Comprehensive analytical workflow of PFAS analysis in aqueous environmental samples. **Y. Long**, A. Ramos, J. Smalley, H.L. Leung

12:00 . Detection and classification of per- and poly fluoroalkyl substances (PFAS) based on interfacial behavior at the liquid-liquid interface. **B. BARUA**, T. Durkin, L. Dunham, S. Savagatrup

12:00 . Withdrawn

12:00 . Mechanistic study to assess the removal mechanism of PFAS by alkylamine modified cellulose-based bioadsorbent. **D. Li**, A.K. Venkatesan, B.S. Hsiao

12:00 . Sustainable synthesis of 2D MXene based nanocomposite for removal of per- and perfluoroalkyl substances in water. **Y. Park**, N. Thachnatharen, S. Kim, M. Khalid, Y. Hwang

Virtual Only
Virtual Session

Advanced Materials and Technologies for Detection and Treatment of PFAS and Other Emerging Contaminants

Cosponsored by AGRO and ANYL
N. Aich, S. Andreescu, K. Malekani, *Organizers*

12:00 . Boosted electron-transfer by coupling Ag and Z-scheme heterostructures in CdSe-Ag-WO₃-Ag for excellent photocatalytic H₂ evolution with simultaneous degradation. **S. Li**, T. Zhang

WEDNESDAY AFTERNOON – ORAL SESSIONS

Moscone Center
Room 3005, West Bldg.

Improving Water Quality by Understanding Environmental Chemical Processes: A Symposium in Honor of Richard G. Luthy

J. Mihelcic, C. A. Peters, J. Wolfand, *Organizers*
C. P. Higgins, *Organizer, Presiding*

2:00 . Pilot scale biofiltration with engineered geomedia: Successes and challenges in stormwater treatment. M. Teixidó, **J. Charbonnet**, G.H. LeFevre, R.G. Luthy, D.L. Sedlak

2:20 . Enhanced removal of urban stormwater contaminants using engineered geomedia in pilot-scale biofilters: Field research experiences. **M. Teixidó**, S. Spahr, R.G. Luthy, D.L. Sedlak

2:40 . Effects of dissolved organic carbon composition on the removal of PFASs from stormwater. **C. Brown**, M. Sabo, J. Schipper, Y. Cho, R.G. Luthy

3:00 Intermission.

3:20 . Removal of trace organic contaminants in stormwater runoff with black carbon filters. **C.C. Pritchard**, Y. Cho, K.M. Hawkins, C.P. Higgins, R.G. Luthy

3:40 . Microplastic pathways in the Portland, OR region: Results from stormwater and atmospheric sampling. **J. Wolfand**, C.J. Poor, B.L. Taylor, H. Chang, E. Granek, J. Brahney

4:00 . Discovering novel plant and fungi transformation products and pathways of emerging contaminants to improve water quality for reuse and in green stormwater infrastructure. **G.H. LeFevre**, C. Muerdter, S. Chowdhury, E.O. Wiener, D.S. Tanmoy

4:20 Intermission.

4:40 . Removal of organic chemicals and their mixture effects in a highway runoff retention pond. **S. Spahr**, N. Wang, C. Glaser, G. Braun, M. König, M. Krauss, B. Escher

5:00 . Contribution of urban stormwater to disinfection byproduct risks: Is wastewater the only concern for de facto reuse?. **N. Dai**, S. Gallimore-Repole, Z. Zhu

5:20 . Evaluation of dry well infiltration capacity under different climate conditions and dry well designs. **Y. Li**, C. Wessel, Y. Andersen, M. Zaniolo, S. Fletcher, R.G. Luthy

Moscone Center
Room 3006, West Bldg.

Innovative Materials for Environmental Sustainability

Cosponsored by AGFD, AGRO, ANYL and ENVR

Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community

A. Orlov, *Organizer, Presiding*

N. Yip, *Presiding*

2:00 Introductory Remarks.

2:05 . Graphitic carbon nitride incorporated alkali-activated materials as efficient and sustainable adsorbents for wastewater treatment. K. Kaya-Özkipir, A. Uzun, **S. Soyer Uzun**

2:25 . Moringa oleifera husk activated carbon-kaolin composite for dyes adsorption: Equilibrium and kinetic models. **L. Numfor**, J.W. Choi, M. Rwiza, R. Machunda

2:45 . Smart rust to clean water from hormones. **L. Mülller**, M. Halik

3:05 . Pt-Co@NC catalyst for nitrate removal from water: Mechanistic insights and catalyst durability. **M. Absalyamova**, **W. Lee**

3:25 . Alumina-assisted permanganate oxidation of 2,4-dibromophenol: Efficiency, mechanism insights and potential industrial application. **S. Zhang**, J. Wei, B. Liu, W. Wang, Z. Wang, C. Wang, L. Wang, W. Zhang, H.R. Andersen, R. Qu

3:45 Intermission.

3:55 . Evaluation of hydrogel beads for the in-situ cometabolic treatment of chlorinated solvents in a lab scale physical aquifer model. J. Wortkoetter, M.F. Azizian, **L. Semprini**

4:15 . Natural and metal-impregnated clays catalyze the pyrolytic treatment of crude-oil contaminated soils. **S. Denison**, P. Dias Da Silva, C. Koester, P.J. Alvarez, K. Zygourakis

4:35 . Probing aqueous phase sequestration of europium (Eu³⁺) by amidoxime functionalized hydrochar. **N. Abbasi**, S. Ayoub Khan, T. Khan

4:55 . Hierarchically porous carbons from brown coal and organic waste using a dual-templating approach. **D. Lee**, D. Italia-Prasad, A.N. Simonov, J.F. Varga, A. Chaffee

Moscone Center
Room 3008, West Bldg.

Role of Chemistry in Developing Sustainable Infrastructures

Cosponsored by BIOT, ENFL and I&EC
C. Fan, I. Lee, S. Pan, B. Sang, *Organizers*
H. Kim, *Organizer, Presiding*

2:00 Introductory Remarks.

2:05 . Development and validation of Green-RP and Green-NP-HPTLC methods for estimation of Dasatinib monohydrate in bulk and in formulations and their comparative evaluation by AGREE. **H. Bhatt**, P. Bang

2:25 . Behavior of pharmaceuticals and personal care products(PPCPs) from Han River Basin and Water Treatment Pilot Plant. **m. jeon**, E. Hong, I. Lee, H. Kim, S. Chae

2:45 . β -cyclodextrin crosslinked with chitosan for the removal of perfluorobutanesulfonate from aqueous solution: Adsorption kinetics, isotherm, and mechanism. **M. Verma**, H. Kim

3:05 . Degradation of an insecticide carbaryl by UV/Cl process and identification of its degradation mechanisms. **A. Choi**, J. Kim, M. Kim, C. Han

3:25 . Synthesis of $\text{Fe}_3\text{O}_4/\text{CNT}/\text{ACF}$ cathode-based electro-Fenton system for efficient mineralization of methylene blue dye: Kinetics and mechanism. **R. Nuguse**, M. Verma, H. Kim

3:45 Intermission.

4:00 . New Lysoglycerophospholipids biocides obtained from soybean oil production residue as a green alternative for combating biofouling and *Limnoperna fortunei* dissemination. **E. Braga**

4:20 . Total-organic-carbon-based method for quantification of microplastics in environmental matrix. **I. Lee**, N. Kim, O. Choi, H. Kim

4:40 . Harnessing the power of decoupled acid-base asymmetric aqueous electrochemical device with a three-compartment configuration with a simultaneous neutralization and deionization of various wastewaters. **A. Rani**, S. Negi, T. Cao, Y. Lin, S. Pan

5:00 . Prediction of attenuation of activated carbon adsorption efficiency for micropollutants in the presence of dissolved organic matter. **J. Jeong**, W. Koo, G. Kim, Y. Choi

5:20 Concluding Remarks.

Moscone Center
Room 3012, West Bldg.

Sensors for Water Quality Monitoring in Resource Limited Environments

Cosponsored by ANYL

T. Alexander, *Organizer*

E. Brack, *Organizer, Presiding*

S. J. Pilkenton, *Presiding*

2:00 Introductory Remarks.

2:05 . Rapid and label-free bacterial pathogen detection based on graphene and stimuli-responsive nanobrushes for in-field water quality monitoring. D. Oliveira, C. Cardoso-Pola, R. Soares, R. Hjort, J. Claussen, E. McLaamore, **C.L. Gomes**

2:25 . Continuous monitoring of fertilizer ion and pesticide pollution in surface waters and soil via laser induced graphene sensors. **J. Claussen**, Z. Johnson, N. Jared, R. Soares, G. Miliao

2:45 . Real-time monitoring of aquatic pollution and carbon sequestration using microbial potentiometric sensors. **K.D. Hristovski**, S. Burge, R. Burge, D. Boscovic, E. Taylor, L. Pejov

3:05 . Rapid detection system of E.coli using printed paper-based assay. **A. Khan**, F.M. Mustafa, S. Andreescu

3:25 . Withdrawn

3:45 Intermission.

4:00 . Engineer a whole-cell biosensor for point-of-care detection of waterborne bacterial pathogens. Y. Wu, R. Jiang, **N. Wei**

4:20 . Thermal pyocyanin sensor based on molecularly imprinted polymers for the indirect detection of *Pseudomonas aeruginosa*. **M. Frigoli**, T.J. Cleij, H. Diliën, K. Eersels, B. van Grinsven

4:40 . Dual-mode paper-based detection of antimicrobial resistance genes using RPA-CRISPR/Cas assay in water. **W. Li**, F. Coulon, Z. Yang

5:00 . Spectroscopic based sensors for DBPs control in drinking water. **P. Roccaro**

5:20 Concluding Remarks.

Moscone Center

Room 3018, West Bldg.

Separation, Destruction, and Monitoring of Per- and Polyfluoroalkyl Substances (PFASs) and Fluorinated Alternatives

Cosponsored by ANYL and CATL

J. Liu, Y. Wang, *Organizers*

J. Choe, Y. Choi, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05 . Investigating bond dissociation energies in per- and polyfluorinated alkyl substances complexed with metal ions. **M. Marciesky**, C. Ng, S. Simpson

2:25 . PFAS classes for intelligent subset selection via stepwise machine learning cluster models to support remediation development. **H. McAlexander**, R. Lamb, M. Roth, M.K. Kolel-Veetil, M.K. Shukla

2:45 . Development of a prediction model for the removal of perfluorinated compounds through membrane filtration processes (NF/RO). **J. YOO**, J. Kang, G. SON, H. KIM

3:05 . Coupling removal and destruction technologies: Application of ion exchange resins and electrochemical oxidation in the treatment of PFAS. **M. Warner**, Y. Wang, G. Hawkins, Q. Huang

3:25 Intermission.

3:40 . Influence of regenerant conditions on degradation and defluorination efficiency of UV/sulfite reductive treatment of PFASs in sorption regenerant. **Y. Choe**, J. Choe

4:00 . Withdrawn

4:20 . Degradation of 6:2 Fluorotelomer sulfonate acid (FTS) by enzyme catalyzed oxidative humification reactions. **U. Munir**, Y. Wang, Q. Huang

4:40 . Effective defluorination of PFAS by VUV/sulfite reduction process followed by VUV/ H₂O₂ reduction process. **T. Kim**, S. Eom, M. KIM, S. Yi, K. Zoh

5:00 . Comparative assessment of degradation and defluorination efficiency of UV/H₂O₂ treatment for fluorotelomers with different chain lengths and functional groups. **D. Kwon**, J. Choe

5:20 Closing Remarks.

Electrified Water Treatment Processes

Cosponsored by AGFD and CATL

W. Chen, W. Tarpeh, L. Winter, X. Xie, *Organizers, Presiding*

2:00 . Removal of oxyanion contaminants by iron electrocoagulation. **D. Giammar**, X. He, y. yuan, J.G. Catalano, E. Flynn

2:30 . Laser-induced graphene composite membranes for biofouling control and removal of emerging contaminants. **S.P. Singh**, N.H. Barbhuiya

2:50 . Withdrawn

3:10 . Electrochemical systems for wastewater remediation and metals recovery. **A. Rassoolkhani**, C. Dunn, J. Landon

3:30 . Electrochemical oxidation using flow-through boron-doped reduced graphene anodes: Enhanced contaminant transformation with minimal formation of chlorinated byproducts. **W. Jiang**, B. Mi

3:50 Intermission.

4:00 . Operando investigation of microbial inactivation by electric field treatment using lab-on-a-chip devices. **X. Xie**, T. Wang, M. Jarin

4:20 . Electrochemical inactivation of enteric viruses using doped laser-induced graphene filters. **A.M. Nair**, N.H. Barbhuiya, S.P. Singh

4:40 . Germicidal potency of chlorine in water disinfection. **C. Awuah**

5:00 . Microbial electrolysis cell (MEC) treatment and valorization of post-hydrothermal liquefaction wastewater (PHW): Molecular insights to engineering scale-up. **J. Jiang**, J.A. Lopez-Ruiz, L. Du, H. May, Z. Ren

5:20 . Removal and inactivation of non-enveloped and enveloped virus surrogates by conventional coagulation and electrocoagulation using aluminum and iron. **K. Kim**, S. Anindito, S. Chellam

5:40 . Mitigating water quality impacts of manure with bioelectrochemical systems for resource recovery. **M. Burns**, M. Qin

Electrocatalysts and Electrochemical Processes for Water Reuse

Cosponsored by AGFD, AGRO, ANYL and ENVR

Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community

J. Kim, *Organizer*

K. Cho, S. Hong, J. Lee, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05 . Heterojunction mixed metal oxide anodes for chlorine evolution reaction and wastewater reuse. **K. Cho**

2:25 . Solar-driven electrochemical advanced oxidation process using photocathode and mechanism analysis using isotope. **J. LEE**, H. Kim

2:45 . Photoelectrochemical process combined with persulfate for degradation of nitrosamines using Pd/Ti³⁺ hybrid TiO₂ nanotube arrays. **S. Mingizem Gashaw**, A. Son, K. Cho, S. Hong

3:05 . Treatability of ammonia-containing wastewater in a continuous flow batch reactor using RuO_x/Ru@Ti electrode. **S. Rahardjo**, **C. JHANG**, **Y. Shih**

3:25 . Liquid-diffusion electrode with core-shell structured mixed metal oxide catalyst. **H.W. Lim**, D. Cho, G. Hong, J. Park, Y. Yoon, J. Yoon, C.W. Lee, J. Kim

3:45 Intermission.

3:55 . Ammonia oxidation reaction on Ni-Cu based electrocatalysts with heterojunction overlayers. **J. Kim**, K. Cho

4:15 . Electrodialysis and nitrate reduction to enable distributed ammonia manufacturing from wastewaters. **J. Guo**, M. Liu, C. Laguna, S.J. Blair, B.D. Clark, K. Fang, D. Miller, Z. Perzan, C. Wong, A. Nielander, D. Lobell, M.S. Mauter, K. Maher, T.F. Jaramillo, W. Tarpeh

4:35 . Enhanced capacitive deionization using asymmetric Fe-MOF/rGO and GQDs@PANI/rGO nanocomposites as electrode materials. T. Nguyen, **R. Doong**

4:55 . Achieving energy-saving, continuous redox flow desalination with iron chelate redoxmers. **R. Xie**, D. Yue, Z. Peng, X. wei

5:15 . Selective electrochemical separation of rare earth elements. **H. Vapnik**, J. Elbert, Y. Kim, A. Ooi, A.A. Park, X. Su

5:35 . Dechlorination of perchlorate ions (ClO₄⁻) using bimetallic RhCu/Ti electrode in an electrodialysis-assisted bipolar electrochemical reduction system (ED-ER). **Y. Shih**, C. Hsu

5:55 Concluding Remarks.

United Nations Sustainable Development Goal #6-Clean Water and Sanitation: Current Progress, Challenges, and Future Outlook

Cosponsored by CEI

D. D. Dionysiou, G. Matta, K. Weitzel, *Organizers, Presiding*

M. Abdullah, Y. Charabi, *Presiding*

2:00 Introductory Remarks.

2:05 . Adsorptive properties of the world's most consumed beverage. **B. Shindel**, C. Harms, S. Wang, V.P. Dravid

2:25 . Elucidating ferrate technology in water sustainable goals. **V.K. Sharma**

2:45 . How harmful algal blooms are affecting progress towards achieving United Nations Sustainable Development Goal #6. D.D. Dionysiou, **K. Weitzel**

3:05 . Spatiotemporal trajectories of greenhouse gas emissions from urban wastewater treatment for precise pollution and carbon reduction. **Y. Huang**, F. Meng, S. Liu

3:25 . Photocatalytic sequential oxidizers generation for robust disinfection via spatial nanosystem. **H. Cho**, H. Kim

3:45 . Performance of advanced oxidation process technologies for segregated influent from textile dyeing units and tanneries. **V. Sodhi**, **N. Sodhi**

4:05 Intermission.

4:20 . Toward a holistic system of thinking for managing arid ecosystems: In-depth modeling of the eco-water-food nexus using spatial analysis. **M. Abdullah**

4:40 . Spatial and temporal assessment of carbon footprint of water consumption across six different types of buildings in Qatar. **A. Abulibdeh**

5:00 . Enhancing mangrove conservation in the Gulf Cooperation Council countries using remote sensing. **D.M. Rondon Florez**, E. Ewane, M. ABDULLAH, A. Blanton, P.S. Pitumpe, J. Pons, M. Mohan

5:20 . Evaluating Pb leaching and the contribution of particulate lead to exposure levels from pitcher pumps in Madagascar. **K.A. Alfredo**, A. Buerck, J. Mihelcic

5:40 . Carbon neutrality in Oman by 2050: It's achievable. **Y. Charabi**

**General Session: Advances in Environmental Chemistry
Occurrence, Detection, and Removal of Organic Pollutants in the Environment**

V. K. Sharma, *Organizer*

M. Kaur, M. Nadagouda, *Organizers, Presiding*

3:00 Introductory Remarks.

3:05 . What do we know about the production and release of persistent organic pollutants in the global environment?. **L. Li**, C. Chen, D. Li, K. Breivik, G. Abbasi, Y. Li

3:20 . Per- and polyfluoroalkyl substances (PFAS) in residential air conditioner condensate. **D. Amparo**, N.Y. Chang, C.M. Eichler, H.K. Liberatore, M. Strynar, G.C. Morrison, B.J. Turpin

3:35 . Oxidative degradation of organic contaminants by heat-activated persulfate in the presence of tetrapolyphosphate (TPP): Interactive effects of soil components and TPP on persulfate utilization efficiency. **H. Jeon**, D. Lee, D. Kwon, S. Kim, c. lee

3:50 . Sorghum-grown fungal biocatalysts for the degradation of synthetic dyes: Mechanistic insights from environmental chemistry perspectives. **Y. Gao**, B. Croze, Q. Birch, M. Nadagouda, S. Mahendra

4:05 . Occurrence and spatiotemporal distribution of microplastics in the Han River Estuary to the Coastal area of Incheon. **S. Park**, J. Yoo, C. Lee, S. Kim, D. Ahn, K. Changgyun

4:20 Intermission.

4:30 . Automated sample preparation platform for parallel analyte extraction and solvent evaporation: Application to determination of organic persistent contaminants in soil samples. **R. Ullah**, G. Bera, G. Gomez, M. Wang, H. Al-Esawi, Y. Liu

4:45 . Parameters Optimization of Gas Assisted dynamic Accelerated Solvent Extractor (GA-dASE) towards fastest determination of persistent organic contaminants in soil samples. R. Ullah, **G. Gomez**, G. Bera, H. Al-Esawi, Y. Liu

5:00 . Analysis on the attenuation characteristics of pharmaceuticals in surface water and their influencing factors based on a compilation of literature data. **R. Du**, L. Duan, Q. Zhang, B. Wang, J. Huang, S. Deng, G. Yu

5:15 . Evaluating the use of nZVI-biochar in degradation of 3,4-dinitro-1H-pyrazole. **R. Rahmati**, D. Sarkar, A. Mai, C. Christodoulatos

5:30 Discussion and Concluding Remarks.

Cosponsored by ENVR

Effect of EPA's Endangered Species Enforcement on the Future of Agrochemicals

Sponsored by AGRO, Cosponsored by ANYL and ENVR

Chemical Intervention Technology to Improve Microbial Stability of Food

Sponsored by AGFD, Cosponsored by AGRO, ANYL and ENVR

Food Toxicants: Occurrence, Detection, Formation Mechanism and Mitigation

Sponsored by AGFD, Cosponsored by AGRO, ANYL and ENVR

Trace Analysis of Substances of Concern (SoC) for Safer Materials

Sponsored by ANYL, Cosponsored by AGFD, AGRO and ENVR

Electrocatalysis for Sustainable Energy: Fundamental, Applications, & Perspective

Sponsored by CATL, Cosponsored by ENFL, ENVR and PHYS

THURSDAY MORNING

Moscone Center

Room 3003, West Bldg.

Improving Water Quality by Understanding Environmental Chemical Processes: A Symposium in Honor of Richard G. Luthy

C. P. Higgins, J. Mihelcic, J. Wolfand, *Organizers*

C. A. Peters, *Organizer, Presiding*

8:00 . Effect of repeated sorption-desorption on irreversible and reversible absorption of hydrophobic perfluoroalkyl acids to freshwater sediment. **M. Reinhard**, H. Chen, L. You, K. Gin

8:20 . Enhancing the metabolic capability of the microbiome in novel engineered subsurface systems for improved trace organic chemical attenuation. **J.E. Drewes**

8:40 . Differential utilisation of dissolved organic carbon (DOC) by GAC microbial communities from different depths of a biofilter. **M. Vignola**, X. Shi, R. Pereira, C. Smith

9:00 Intermission.

9:20 . Pyrogenic carbonaceous matter (PCM): The reverse of its dark side. **W. Xu**

9:40 . Water supply planning in the face of drought and ecosystem flows: Examining the impact of the Bay-Delta Plan on Bay Area water supply. **B.C. Gile**, A.R. Sherris, R.T. Holmes, S.E. Fendorf, R.G. Luthy

10:00 . Systems analytics for engineering the urban food-energy-water nexus toward sustainability. **A. Ramaswami**

10:20 Intermission.

10:40 . Improving water quality and well-being for all: Stormwater management in underserved urban communities. **J. Mihelcic**

11:00 . From invention to adoption: creating a nature-based treatment technology that facilitates urban water reinvention. **D.L. Sedlak**, A. Cecchetti, A. Stiegler, A. DeSalvo, J. Uhler

11:20 . Runoff for water supply: Managing climate whiplash. **R.G. Luthy**, S.E. Fendorf

11:40 Discussion.

Moscone Center
Room 3007, West Bldg.

Innovative Materials for Environmental Sustainability

Cosponsored by AGFD, AGRO, ANYL and ENVR

Financially supported by Food Security: Tackling Hunger Convergent Chemistry Community

A. Orlov, *Organizer, Presiding*

N. Yip, *Presiding*

8:00 Introductory Remarks.

8:05 . 6PPD alternatives for salmon-safe tires: In silico and in vitro studies. **E.C. Rossomme**, W. Hart-Cooper, W.J. Orts, C. McMahan

8:25 . Eco-friendly synthesis of novel 2D materials using DFT and thermodynamics. **M. Layegh**, J.W. Bennett

8:45 . Upcycling plastic waste into composites through cold-sintering. **P. Lai**, B.D. Vogt, E. Gomez

9:05 . Biodegradable, biocompatible, robust, and high-barrier paper coated by crosslinked poly(vinyl alcohol) for sustainable packaging. **S. Choe**, S. You, K. Park, Y. Kim, J. Park, Y. Cho, J. Seo, H. Yang, J. Myung

9:25 . Fabricating mycelium-agrowaste 3D composite materials for use in building construction insulation. **K.B. Bonga**, D. Fragouli, A. Athanassiou

9:45 Intermission.

9:55 . Green Synthesis of Zinc molybdate nanoparticles for growth inhibition of microbacteria and dye remediation. **B. Jain**

10:15 . Environmental life cycle assessment of caproic acid recovery from brewery waste streams. **M. Abdullah**, S. Shrestha, L. Baskin, S. Skerlos

10:30 . Establishing a definition and criteria for “sustainable chemistry” for use by government, industry, investors, and in education. **M.A. Roy**, J. Moir, S. Edwards, M. Jacobs, A.S. Cannon, J. Tickner

10:50 . Addressing plastic environmental impact through eco-design. **B.D. James**, C.P. Ward, M. Hahn, S. Thorpe, C. Reddy

11:10 . Evaluation of tertiary amines as switchable polarity solvents for carbon dioxide removal. **J. Cruz-Lebron**, P.E. Cruz Tato, E. Nicolau

11:30 . Stability of Salt hydrate eutectics for low-cost thermal energy storage. **S. Ahmed**, D. Ibbotson, P. Shamberger

Moscone Center
Room 3008, West Bldg.

Separation, Destruction, and Monitoring of Per- and Polyfluoroalkyl Substances (PFASs) and Fluorinated Alternatives

Cosponsored by ANYL and CATL

J. Liu, Y. Wang, *Organizers*

J. Choe, Y. Choi, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05 . Grafted SILP development for sorptive PFAS removal in the presence of DOM. **A. Lee**, Y. Choi

8:25 . Evaluation of activated carbon adsorption removal of per- and polyfluoroalkyl substances (PFAS): Effect of surface chemistry. **G. Kim**, D.N. Mengesha, Y. Choi

8:45 . Molecular dynamics screening of porous media for PFAS adsorption: Mechanisms and design principles. **T. Schutt**, C. Bresnahan, T. Ricard, M.K. Shukla

9:05 . Development of a colorimetric sensor detecting per- and polyfluoroalkyl substances (PFAS) employing spectrum shifting of perfluoroalkylated-gold-nanoparticle suspension. **J. Jung**, J. Park, J. Choe, Y. Choi

9:25 Intermission.

9:40 . Study of ssDNA aptamer toward PFOA, PFOS, and verrucarin A and their application with sensing platforms to monitor the levels in the environment. **J. Park**, J. Choe

10:00 . Characterizing PFASs in groundwater: assessment of HRMS tools and fluorine balances. **C. Zhang**, N. Gonda, C.E. Shaefer, C.P. Higgins

10:20 . Quantitative assessment of per- and polyfluoroalkyl substances (PFASs) in aqueous film forming foam (AFFF) impacted soils via draft EPA method 1633 and alternative methodologies. **N. Gonda**, C. Zhang, C.E. Shaefer, C.P. Higgins, A. Smith

10:40 . Novel per- and polyfluoroalkyl substances in the agricultural soils across China: Source tracking, national loads, and exposure risks. **Y. Zhang**

11:00 . Prediction of 35 target per- and polyfluoroalkyl substances (PFAS) in California groundwater using multi-label semi-supervised machine learning. **J. Dong**, G. Tsai, C.I. Olivares

11:20 Closing Remarks.

Moscone Center
Room 3001, West Bldg.

Electrified Water Treatment Processes

Cosponsored by AGFD and CATL
W. Chen, W. Tarpeh, L. Winter, X. Xie, *Organizers, Presiding*

8:00 . Ion-selective membranes for electric-field driven separations. F. Chen, S. Nnorom, E. Deemer, J. Feuille, W.S. Walker, **R. Verduzco**

8:30 . Carbon nanotube electrified membranes for contaminant degradation and transformation in water. **X. Wang**, L. Winter

8:50 . Developing mitigation strategies to prevent membrane fouling during electrochemical ammonia stripping. **N. Sharma**, K. Williams, A. Kogler, J.N. Weker, S. Bone, W. Tarpeh

9:10 . Treatment of mixed salt brackish groundwater permeate with bipolar membrane electrodialysis. **J.M. Wegmueller**, S.M. Heath, J. Lienhard

9:30 . Electrochemical processes for water and wastewater treatment. **L. Wang**

9:50 Intermission.

10:00 . Advancing the selectivities of ion-exchange membranes for electrified separations. **N. Yip**

10:30 . Highly charged ion-exchange membranes for treating concentrated salt solutions via electrodialysis. **J. Kamcev**

10:50 . Sulfonated polystyrene membranes near the percolation threshold for hypersaline electrodialysis desalination. **Y. Huang**, M. Tekell, H. Chen, S. Kumar, N. Yip

11:10 . Electrified resource recovery with composite cation-exchange membranes: Impact of base layer properties on selectivity. **R. DuChanois**, L. Mazurowski, H. Fan, R. Verduzco, O. Nir, M. Elimelech

11:30 . Electrocatalytic destruction of PFOA using cathodic reactive electrochemical membranes. **J. King**, B.P. Chaplin

11:50 Closing Remarks.

Cosponsored by ENVR

Food Toxicants: Occurrence, Detection, Formation Mechanism and Mitigation

Sponsored by AGFD, Cosponsored by AGRO, ANYL and ENVR

Smart Food Safety

Sponsored by AGFD, Cosponsored by AGRO, ANYL and ENVR

Sustainable Agriceuticals

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Electrocatalysis for Sustainable Energy: Fundamental, Applications, & Perspective

Sponsored by CATL, Cosponsored by ENFL, ENVR and PHYS