

American Chemical Society

ENVR Division Technical Program

Fall 2021 National Meeting

August 22-26, 2021

Virender Sharma, Fall Program Chair; Christie Sayes, Asst. Fall Program Chair

Sunday 8/22/2021 – In-Person Session 1

8:00 AM - 10:00 AM (EDT)

Innovative Materials for Environmental Sustainability

Novel Adsorbents

Organizers: Luque, Rafael; Universidad de Cordoba|Orlov, Alexander; Materials Science Engineering
Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Introductory Remarks		8:00 AM
Innovative materials for environmental sustainability: From sustainable concrete removing pollutants to ceramics breathing out nanoparticles	Alexander Orlov	8:05 AM
Functionalized metal-organic frameworks for nitrogen recovery from fresh source-separated urine	Lei Guo	8:35 AM
Systematic study of MOFs containing different N-sites for hydrogen sulfide adsorption	Chengzhai Wang	8:55 AM
Selective recovery of ammonia nitrogen from wastewaters with transition metal-loaded polymeric cation exchange adsorbents	Brandon Clark	9:15 AM
Novel low-cost adsorbents for phosphate removal from freshwaters	Chandra Mouli Tummala	9:35 AM
Concluding Remarks		9:55 AM

Disinfection Byproducts in Drinking Water & Wastewater: Detection, Formation & Control

Organizers: Yang, Xin; Sun Yat-sen University, Environmental Science|Westerhoff, Paul; Arizona State Univ|Richardson, Susan|Shang, Chii; The Hong Kong University of Sci. Technol.
Oral - In-person, B401 (Georgia World Congress Center)

Introductory Remarks		8:00 AM
Revisiting bromine incorporation during chlorination of drinking water	David Reckhow	8:05 AM
Establishing formation potential test conditions for assessing haloacetonitrile precursors in source waters	Erica Marti	8:35 AM
Benzalkonium chloride is present in wastewater influent and is biotransformed to the potent <i>N</i> -nitrosodimethylamine precursor benzyldimethylamine during secondary treatment	David Hanigan	8:55 AM

Effects of intermittent water supply and point-of-use disinfection with chlorocyanurates on DBP formation and exposure risk in low-income communities	Kirin Furst	9:15 AM
Formation of <i>N</i> -nitrosoglyphosate from glyphosate and nitrite at neutral pH and occurrence in recycled wastewater	Shannon Roback	9:35 AM
Concluding Remarks		9:55 AM

Nanoparticle Interactions in Environmental Systems

Organizers: Keller, Arturo; University of California, Santa Barbara | Adeleye, Adeyemi; University of California Irvine

Oral - In-person, B402 (Georgia World Congress Center)

Introductory Remarks		8:00 AM
Opportunities of nanotechnology in sustainable agricultural practices	Yiming Su	8:05 AM
Nanotechnology-based agrochemicals for improved target delivery and use efficiency	Ramesh Raliya	8:30 AM
Biomolecular corona formation on copper oxide nanoparticles in pumpkin xylem fluid	Christian Lochbaum	8:50 AM
Graphene quantum dots effects on <i>Capsicum annuum</i> leaf wax	Yuqing Ye	9:10 AM
Towards a general framework for quantitative assessment of the potential risks associated with soil release of reduced carbon species	Xiao Chen	9:30 AM
Concluding Remarks		9:50 AM

Sunday 8/22/2021 – In-Person Session 2 / Virtual Session 1

10:30 AM - 12:30 PM (EDT)

Current Perspectives in Water Reuse & Recycling

Challenges, Opportunities, and Technologies in Water Reuse

Organizers: Liu, Jiaqi; Baylor University

Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Introductory Remarks		10:30 AM
Challenges and opportunities in water reuse: A water supplier's perspective	Rajendra Bhattarai	10:35 AM
Precise design of fit-for-purpose nanofiltration membrane for simultaneous nutrient recovery and micropollutant removal	Yangying Zhao	11:05 AM
Thiostannate intercalated layer double hydroxides as highly efficient adsorbents for toxic heavy metal ions	Saiful Islam	11:25 AM
Ultra-selective and oxidation-resistant vapor-gap reverse osmosis membranes for desalination and water reuse	Duong Nguyen	11:45 AM
Understanding the feasibility of membrane distillation powered by waste heat for the treatment of unconventional oil and gas wastewater	Tiezheng Tong	12:05 PM
Concluding Remarks		12:25 PM

Disinfection Byproducts in Drinking Water & Wastewater: Detection, Formation & Control

Organizers: Yang, Xin; Sun Yat-sen University, Environmental Science|Westerhoff, Paul; Arizona State Univ|Richardson, Susan|Shang, Chii; The Hong Kong University of Sci. Technol.

Oral - In-person, B401 (Georgia World Congress Center)

Introductory Remarks		10:30 AM
Occurrence of bromine and iodine in drinking water supplies	Paul Westerhoff	10:35 AM
Modeling the transport of disinfection byproducts in forward osmosis membrane process	Ning Dai	11:05 AM
Emerging unregulated disinfection by-products: Can Brita filters remove them?	Ashley Perkins	11:25 AM
Formation, fate, and transformation of nitromethanes during wastewater reuse processes	Jiaming Shi	11:45 AM
Halogenation of parabens to form trihalomethanes: Implications for greywater reuse	Marella Schammel	12:05 PM
Closing Remarks		12:25 PM

Nanoparticle Interactions in Environmental Systems

Organizers: Keller, Arturo; University of California, Santa Barbara|Adeleye, Adeyemi; University of California Irvine

Oral - In-person, B402 (Georgia World Congress Center)

Introductory Remarks		10:30 AM
Role of foliar biointerface properties and nanomaterial chemistry in controlling Cu transfer into tomato and <i>Arabidopsis thaliana</i> leaf tissue	Jaya Borgatta	10:35 AM
Uptake and translocation of mesoporous SiO ₂ -coated ZnO nanoparticles in tomato plants following foliar application	Xiaoyu Gao	11:00 AM
Transcriptome responses to environmental stresses in crops exposed carbon nanotubes and graphene	Mariya Khodakovskaya	11:20 AM
Impacts of porous silica-nanoencapsulated pesticide on plant growth and soil microbial community	Vinicius Bueno	11:40 AM
Nutritional and agronomical impact of soil and foliar application of zinc oxide nanoparticles in corn plants under NPK fertilization	Elena Venegas Rodriguez, Illya Medina Velo	12:00 PM
Concluding Remarks		12:20 PM

Advances in Chemical Oxidative Processes for Emerging Contaminants in Water & Wastewater Photochemical Methods

Organizers: Lefebvre, Olivier; National University of Singapore|Huang, Ching-Hua; Georgia Institute of Technology|Guan, Xiaohong

Oral – Virtual, Zoom Room 30

Fabrication of ZnTi mixed metal oxide/carbon nitride composite for ciprofloxacin degradation under visible-light irradiation	Chitiphon Chuaicham	10:30 AM
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Degradation mechanisms of typical preservative parabens and their consequences for toxicity	Yanpeng Gao, Guiying Li. Taicheng An	10:50 AM
New mechanistic insights into the transformation of reactive oxidizing species in UV/S(IV) system under aerobic conditions: Modeling and the impact of Mn(II)	Xiaohong Guan	11:10 AM
Activation of persulfate with metal-organic framework (MOF)-derived catalysts for organic contaminant removal	Shun Mao	11:30 AM
Transformation kinetics and products identification of pharmaceuticals during chlorination	Jianfa Gao	11:50 AM
Enhanced oxidation of organic contaminants by Mn(VII)/CASO ₃ under environmentally relevant conditions: Performance and mechanisms	Dan-Dan Rao	12:10 PM

Ecosystems, Water & Food Security in a Changing World: Challenges & Solutions in Arid Regions Water Treatment and Remediation

Organizers: Al Enizi, Bader; Kuwait University|ABDULLAH, MESHAL; Texas A&M University System|Al-Abed, Souhail; US EPA

Oral – Virtual, Zoom Room 31

Introductory Remarks		10:30 AM
Anaerobic digestion as an option for biodegradable waste management in the Kingdom of Bahrain	Sumaya Abbas	10:35 AM
Feather keratin derived sorbents for the treatment of wastewater produced during energy generation systems with the effect of process parameters on adsorption	Irum Zahara	10:55 AM
Keratin based nanocomposite sorbents for poultry industry water remediation	Muhammad Zubair	11:15 AM
Novel materials from renewable resources for water remediation	Aman Ullah	11:35 AM
Eco-friendly facile synthesis of glucose-derived microporous carbon spheres electrodes with enhanced performance for water capacitive deionization	Nageh Allam	11:55 AM
Closing Remarks		12:15 PM

Innovative Materials for Environmental Sustainability Novel Adsorbents

Organizers: Luque, Rafael; Universidad de Cordoba|Orlov, Alexander; Materials Science Engineerin

Oral – Virtual, Zoom Room 33

Introductory Remarks		10:30 AM
Paradigm shift in water treatment: Reengineering with new separation methods and sustainable fiber-based materials	Mathieu Lapointe	10:35 AM
Experimental and DFT studies of the adsorptive properties of porous carbon derived from shrimp shell	Omobayo Salawu	10:55 AM

Predicting adsorption breakthroughs of hexavalent chromium by CS/MWCNTs/Fe packed-bed column using homogeneous surface diffusion model	Mian Muhammad Ahson Aslam	11:15 AM
Concentration and separation of REEs from coal fly ash leachate using a novel ligand associated organosilica media	Mohammed Dardona	11:35 AM
Towards more sustainable, affordable, and safer drinking water in Andean countries: Reuse of drinking water treatment residuals (DWTRs)	Alejandro Briso	11:55 AM
Concluding Remarks		12:15 PM

WISE: Women in Environmental Science & Engineering

Career Paths and Resilience

Organizers: Dionysiou, Dionysios; University of Cincinnati | Sharma, Virender; Texas AM University

Oral – Virtual, Zoom Room 32

Resilient women: our collective role in advocating for each other and the future of environmental chemistry	Sharon Walker	10:30 AM
Why are women faculty in Europe lagging behind their colleagues in the U.S.?	Janet Hering	11:00 AM
Path of privilege, water, and microbes	Katherine McMahon	11:30 AM
Women do <i>amazing</i> science: Hear us you can too	Michelle Scherer	12:00 PM

Sunday 8/22/2021 – In-Person Session 3 / Virtual Session 2

2:00 PM - 4:00 PM (EDT)

WISE: Women in Environmental Science & Engineering

Career Paths and Resilience

Organizers: Dionysiou, Dionysios; University of Cincinnati | Sharma, Virender; Texas AM University

Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Transformative work of women leaders in environmental science, technology and engineering	Sherine Obare	2:00 PM
Developing a community of fellowship in environmental chemistry	Lynn Katz	2:30 PM
Reluctant advocate: How a chemist learned to speak up for science and the environment	Kristen Kulinowski	3:00 PM
Simultaneous mitigation of greenhouse gases and heavy metal pollution with carbonate mineral precipitation	Catherine Peters	3:30 PM

Disinfection Byproducts in Drinking Water & Wastewater: Detection, Formation & Control

Organizers: Yang, Xin; Sun Yat-sen University, Environmental Science | Westerhoff, Paul; Arizona State Univ | Richardson, Susan | Shang, Chii; The Hong Kong University of Sci. Technol.

Oral - In-person, B401 (Georgia World Congress Center)

Introductory Remarks		2:00 PM
Recent discoveries related to a novel disinfection-by product, 2,6-dichloro-1,4-benzoquinone	Aarthi Mohan	2:05 PM

Web-based access to data for >600 disinfection by-products via the US-EPA CompTox chemicals dashboard	Antony Williams	2:25 PM
Formation of secondary oxidations in the reaction of chlorine dioxide with organic matter	Holger Lutze	2:45 PM
Determination of haloacetonitrile fate in gastrointestinal tract culture: Application of GC-EI-MS and LC-MS/MS to identify haloacetonitriles and biotransformation products	Hollie Adejumo	3:05 PM
Update on US EPA's water treatment plant model for DBP formation	Zaid Chowdhury	3:25 PM
Concluding Remarks		3:45 PM

Nanoparticle Interactions in Environmental Systems

Organizers: Keller, Arturo; University of California, Santa Barbara | Adeleye, Adeyemi; University of California Irvine

Oral - In-person, B402 (Georgia World Congress Center)

Introductory Remarks		2:00 PM
Cerium-based metal-organic framework for environmental remediation	Mohamed Hassan	2:05 PM
Magnetic chitosan as nano-softener to improve groundwater quality	Estephany Santiago	2:30 PM
Influence of sulfolipid density on the extent of carbon dot interaction with chloroplast membranes	Kyoungtea Kim	2:50 PM
Synergistic effects of airborne nano titanium mixed with iron-bearing mineral-dust on the growth of a marine diatom, <i>Cyclotella meneghiniana</i>	Gayan Rubasinghege	3:10 PM

Advances in Chemical Oxidative Processes for Emerging Contaminants in Water & Wastewater

Electrochemical Methods

Organizers: Lefebvre, Olivier; National University of Singapore | Huang, Ching-Hua; Georgia Institute of Technology | Guan, Xiaohong

Oral – Virtual, Zoom Room 32

Development of Fenton-based electrochemical processes for the removal of organic contaminants in wastewaters	Enric Brillas	2:00 PM
Electrochemical production of oxidants for the removal of emergent pollutants from water and wastewater	Manuel Rodrigo	2:20 PM
Reaction mechanisms for removal of organic pollutants by electro-oxidation on novel TiO _x electrodes	Clement Trellu	2:40 PM
Combined effect of the cathode and anode for the removal of perfluorooctanoic acid by electrochemistry	Karine Groenen Serano	3:00 PM
Efficient treatment of the polyfluorinated pollutant GenX by electro-Fenton paired to boron doped diamond oxidation: synergy and mechanisms	Hugo Olvera Vargas	3:20 PM
Discussion		3:40 PM

Current Perspectives in Water Reuse & Recycling Challenges, Opportunities, and Technologies in Water Reuse

Organizers: Liu, Jiaqi; Baylor University

Oral – Virtual, Zoom Room 34

Water reuse in China: Current status, policies and experience	Wu Yin-Hu	2:00 PM
Pilot-scale sulfur-based sulfidogenic system for the treatment of Cu-laden electroplating wastewater using real domestic sewage as electron donor	Yu Li	2:30 PM
Demonstration of DDNP-containing industrial wastewater treatment in the combined hydrogel/Vis/PMS with biological system	Jin Qian	2:55 PM
The recovery of sulfur as ZnS particles from sulfide-contained wastewater using fluidized bed homogeneous crystallization technology	Po-Lin Liao	3:20 PM
Antibiotics removal by microalgae in a continuous flow membrane photobioreactor: Operating conditions and hydrodynamic simulation	Claude Kiki	3:40 PM

Ecosystems, Water & Food Security in a Changing World: Challenges & Solutions in Arid Regions

Water Security and Management

Organizers: Al Enizi, Bader; Kuwait University|Abdullah, Meshal; Texas A&M University System|Al-Abed, Souhail; US EPA

Oral – Virtual, Zoom Room 33

Introductory Remarks		2:00 PM
Challenges for water security in the GCC countries	Waleed Zubari	2:05 PM
Assessing the effects of reject brine from desalination on air entrainment rate utilizing CPLR	Bader Al-Anzi	2:25 PM
Use of plunging liquid jets for the dilution reject brine from desalination plants	Aaron Chow	2:45 PM
Assessment of future water, energy, and food nexus by using WEAP and LEAP models in the state of Kuwait	Hamed Abbas	3:05 PM
Biodesalination of brackish water using salt tolerant microalgae isolated from a saline Lake, Lake Beseka, Ethiopia	Muluwork Maru, Endalkachew Sahle Demessie	3:25 PM
Closing Remarks		3:45 PM

Innovative Materials for Environmental Sustainability

Novel Adsorbents, Catalysts and Membranes

Organizers: Luque, Rafael; Universidad de Cordoba|Orlov, Alexander; Materials Science Engineerin

Oral – Virtual, Zoom Room 35

Introductory Remarks		2:00 PM
Towards <i>in situ</i> protein-bound soil construction materials: A DFT investigation of binding energies between soil components and the urease enzyme	William Pisani	2:05 PM
Electrochemical hydrogenation of nitrate and N ₂ yield over PdSn/Ni and PdCu/Ni foam electrodes as affected by facet ratio of Sn(200)/Sn(101) and Cu(200)/Cu(111)	Yu-Jen Shih	2:30 PM
Conductive PANI/Fe ₃ O ₄ @PTFE membrane for interfacial induction heating membrane distillation	Weihua Qing	2:50 PM

Crystalline cobalt antimonate as a noble-metal-free electrocatalyst for chlorine evolution: Wastewater treatment application and active site identification	Heng Dong	3:10 PM
Single-atom catalysis in advanced oxidation processes toward water decontamination	Xiaoguang Duan	3:30 PM
Concluding Remarks		3:50 PM

Sunday 8/22/2021 – In-Person Session 4 / Virtual Session 3

4:30 PM - 6:30 PM (EDT)

Innovative Materials for Environmental Sustainability

Novel Adsorbents and Membranes

Organizers: Luque, Rafael; Universidad de Cordoba|Orlov, Alexander; Materials Science Engineerin
Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Introductory Remarks		4:30 PM
Filled 3D-biocomposite multiple-porous absorbent for iron removal and reuse as plant micronutrients	Zhaohui Tong	4:35 PM
Synthesis of ferrate, Fe(VI)-coated sand for oxidation and complexation of organic and inorganic contaminants in urban stormwater	Fanny Okaikue-woodi	5:00 PM
Mussel inspired green and sustainable adsorbents (MIGSA) for selective removal of heavy metals, anionic pollutants and dyes from wastewater	Rawan Abu Alwan	5:20 PM
Ion-selective membranes for resource recovery: Utilizing facilitated transport	Ryan DuChanois	5:40 PM
Concluding Remarks		6:00 PM

Disinfection Byproducts in Drinking Water & Wastewater: Detection, Formation & Control

Organizers: Yang, Xin; Sun Yat-sen University, Environmental Science|Westerhoff, Paul; Arizona State Univ|Richardson, Susan|Shang, Chii; The Hong Kong University of Sci. Technol.
Oral - In-person, B401 (Georgia World Congress Center)

Introductory Remarks		4:30 PM
Reactivity of monobromamine and dibromamine with phenolic compounds: Rate constants and formation of bromoform	Tele Anette Mensah	4:35 PM
Effective removal of anionic dyes (remzol brilliant blue and remzol reactive black) from aqueous solutions by novel ozone oxidized hydrochar treated with polyethyleneimine	Sunith Madduri	4:55 PM
What happens when algae and algal toxins enter our drinking water sources? Formation of disinfection by-products during the chlorination of <i>Lyngbya wollei</i> , <i>Microcystis aeruginosa</i> , <i>Phormidium</i> sp., and Saxitoxin	MD Tareq Aziz	5:15 PM
Role of iodinated X-ray contrast media as a source of iodine for the formation of iodinated DBPs upon chlorination at wastewater treatment plants	Caroline Granger	5:35 PM
Formation of chlorinated and brominated haloacetonitriles from tryptophan and its structural analogues	Zachary Kralles	5:55 PM

Concluding Remarks		6:15 PM
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General Papers

Organizers: Sharma, Virender; Texas AM University | Sayes, Christie; Baylor University

Oral - In-person, B402 (Georgia World Congress Center)

Introductory Remarks		4:30 PM
Multivariate approach to identify key parameters influencing micropollutants biotransformation during conventional wastewater treatment	Yuxin Wang	4:35 PM
Open-access database for water purification and desalination membranes	Cody Ritt	4:55 PM
Modelled zinc and sediment transport of the Spring River watershed: An evaluation of best management practices for remediation	Keith O'Connor	5:15 PM
Two site model for the prediction of NAC/MC reduction kinetics with iron oxides	Kevin Hickey	5:35 PM
Cradle-to-grave life cycle assessment of epoxidized sucrose soyate thermoset resin	Shokoofeh Ghasemi	5:55 PM
Closing Remarks		6:15 PM

Advances in Chemical Oxidative Processes for Emerging Contaminants in Water & Wastewater

Electrochemical Methods

Organizers: Lefebvre, Olivier; National University of Singapore | Huang, Ching-Hua; Georgia Institute of Technology | Guan, Xiaohong

Oral – Virtual, Zoom Room 36

Reactions of dimethylarsinic acid: Comparison of oxidative and reductive processes	Gregory Korshin	4:30 PM
Electrochemical advanced oxidation processes for the removal of recalcitrant contaminants	Brian Chaplin	4:50 PM
Ozone and hydroxyl radical-mediated oxidation of pharmaceuticals using Ni-Sb-SnO ₂ electrodes: Reaction kinetics and transformation product identification	Yi Zhang	5:10 PM
Flow anodic oxidation of contaminants	Trevor Waite	5:30 PM
Porous carbon monoliths for electrochemical removal of aqueous herbicides by “one-stop” catalysis of oxygen reduction and H ₂ O activation	Heng Dong	5:50 PM
Electro-Fenton as a pre-treatment solution: Prospects in industrial water reuse	Olivier Lefebvre	6:10 PM

Current Perspectives in Water Reuse & Recycling

Characterization, Control and Removal of Micropollutants

Organizers: Liu, Jiaqi; Baylor University

Oral – Virtual, Zoom Room 39

Introductory Remarks		4:30 PM
Characterization and prediction of disinfection byproducts from anthropogenic compounds	Shinya Echigo	4:35 PM
Removal of disinfection byproducts by natural sunlight photolysis during water reuse	Guanghui Hua	5:05 PM
UV photolysis of chloramines for potable water reuse: Opportunities and challenges	Haizhou Liu	5:35 PM

Comparison of two different granular activated carbon treatment approaches for controlling halogenated disinfection byproducts in saline sewage chlorine disinfection	Jingyi Jiang	6:05 PM
Discussion		6:25 PM

Ecosystems, Water & Food Security in a Changing World: Challenges & Solutions in Arid Regions

Remote sensing and spatial analysis in ecological applications

Organizers: Al Enizi, Bader; Kuwait University|Abdullah, Meshal; Texas A&M University System|Al-Abed, Souhail; US EPA

Oral – Virtual, Zoom Room 37

Introductory Remarks		4:30 PM
Potential of vegetation indices for soil salinity discrimination: A myth or a reality?	Abderrazak Bannari	4:35 PM
Uptake of cerium by corn, its effects and mapping in the corn plant	George William Kajjumba	4:55 PM
Vegetation restoration targeting approach to identify the optimum environmental conditions for the restoration of native desert plants using remote sensing and maxent modeling	Naseraldeen Asadalla, Meshal Abdullah, Zahraa Al-Ali, Mansour Abdullah	5:15 PM
Use of UAVs to develop biological indicators to assess and evaluate ecosystem condition	Meshal Abdullah	5:35 PM
Assess the impact of lockdown during COVID-19 on natural rangelands in the arid regions using remote sensing technologies	Zahraa Al-Ali	5:55 PM
Closing Remarks		6:15 PM

WISE: Women in Environmental Science & Engineering

Sensors, Materials, Interfaces and Nanotechnology

Organizers: Dionysiou, Dionysios; University of Cincinnati|Sharma, Virender; Texas AM University

Oral – Virtual, Zoom Room 38

Reflections on sensor-mediated solutions that enhance sustainability, data transparency and access to quality water	Nancy Love	4:30 PM
Developing next generation real time <i>in situ</i> sensing towards intelligent water infrastructure	Baikun Li	5:00 PM
Extracting and quantifying rare earth, critical and precious elements in consumer electronics	Inez Hua	5:30 PM
Nucleation and nanoscale interfacial processes for resilient and sustainable water-energy systems	Young-Shin Jun	6:00 PM

Sunday 8/22/2021 – Virtual Session 4

7:00 PM – 9:00 PM (EDT)

Advances in Chemical Oxidative Processes for Emerging Contaminants in Water & Wastewater Photochemical Methods

Organizers: Lefebvre, Olivier; National University of Singapore | Huang, Ching-Hua; Georgia Institute of Technology | Guan, Xiaohong

Oral – Virtual, Zoom Room 34

Transformation of aliphatic amine compounds during water oxidation and disinfection: Chemistry and practical implications	Yunho Lee	7:00 PM
Degradation of iopromide during UV-LED/chlorine reaction: Radical contribution and effect of wavelength	Youngho Cha	7:20 PM
Photocatalytic degradation of ciprofloxacin using hollow porous graphitic carbon nitride prepared via a simple tactic method	Dr. Balakumar Vellaichamy	7:40 PM
Facilitated prediction of micropollutant degradation by UV-AOPs in practical waters through combination of model simulation and portable measurement	Zhimin Qiang	8:00 PM
Impact of wavelengths on atrazine photo-degradation in the presence of nitrate	Xiaodi Duan	8:20 PM
Rate constants and mechanisms for the reaction of bromine radicals with trace organic contaminants	Yu Lei	8:40 PM

Current Perspectives in Water Reuse & Recycling Characterization, Control and Removal of Micropollutants

Organizers: Liu, Jiaqi; Baylor University

Oral – Virtual, Zoom Room 37

Introductory Remarks		7:00 PM
Treatment processes for wastewater reclamation: The challenges of emerging contaminants and direct potable reuse	Paolo Roccaro	7:05 PM
Which micropollutants in water environments deserve more attention globally?	Yun Yang	7:35 PM
Saturation of Pseudomonadale species caused by microbial treatment of coastal organic waste	Ning Qiu	7:55 PM
Treatment and desalination of hydraulic fracturing produced water using ferrate and directional solvent extraction	Sean Timons	8:15 PM
Effluent polishing for non-potable wastewater reuse from anaerobic membrane bioreactors	Stephen Galdi	8:35 PM
Concluding Remarks		8:55 PM

Disinfection Byproducts in Drinking Water & Wastewater: Detection, Formation & Control

Organizers: Yang, Xin; Sun Yat-sen University, Environmental Science|Westerhoff, Paul; Arizona State Univ|Richardson, Susan|Shang, Chii; The Hong Kong University of Sci. Technol.

Oral – Virtual, Zoom Room 35

Introductory Remarks		7:00 PM
Formation, stability, and modeling of haloacetonitriles	Tanju Karanfil	7:05 PM
Role of reactive bromine species in bromate formation during ozonation of bromide-containing waters	Sungeun Lim	7:35 PM
Removal of indicator contaminants and formation of inorganic chlorine oxides and halogenated disinfection byproducts during the treatment of light-emitting diode UV coupled with chlorine dioxide (LED-UV/ClO ₂) advanced oxidation process	Yi-Hsueh Chuang	7:55 PM
Nontargeted identification of a <i>N</i> -heterocyclic compound in source water and wastewater as a precursor of multiple nitrosamines	Junlang Qiu	8:15 PM
Systematic evaluation of haloacetonitrile (HAN) formation and precursor characterization in source waters	Mohammad Shakhawat	8:35 PM
Concluding Remarks		8:55 PM

WISE: Women in Environmental Science & Engineering

Reactions and Analytical Environmental Chemistry

Organizers: Dionysiou, Dionysios; University of Cincinnati|Sharma, Virender; Texas AM University

Oral – Virtual, Zoom Room 36

Mechanisms of sulfite-mediated advanced oxidation processes	Xiaohong Guan	7:00 PM
Multiplication through transformation	Linda Lee	7:30 PM
Now you see it, now you don't: Significance of transformation products of chemicals of emerging concern	Diana Aga	8:00 PM
Intrinsic supramolecular resilience of abiotic aqueous dissolved organic matter	Martha Wells	8:30 PM

Monday 8/23/2021 – In-Person Session 1

8:00 AM - 10:00 AM (EDT)

WISE: Women in Environmental Science & Engineering Environmental Chemistry Interfaces and Reactions

Organizers: Dionysiou, Dionysios; University of Cincinnati | Sharma, Virender; Texas AM University
Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Chemistry and impacts of environmental interfaces	Vicki Grassian	8:00 AM
Compatibility of polyamide membranes with peracetic acid disinfectant: A comparative study with chlorine	Ning Dai	8:30 AM
Career focused on improving the safety of drinking water: New discoveries, potential risks, and promising solutions	Susan Richardson	9:00 AM
Advanced oxidation process with peracetic acid: Mechanism, modeling, and application	Ching-Hua Huang	9:30 AM

Advances in Chemical Oxidative Processes for Emerging Contaminants in Water & Wastewater Ferrates and Chemical Methods

Organizers: Lefebvre, Olivier; National University of Singapore | Huang, Ching-Hua; Georgia Institute of Technology | Guan, Xiaohong
Oral - In-person, B401 (Georgia World Congress Center)

Introductory Remarks		8:00 AM
Ferrates(Fe^{VI} , Fe^{V} , and Fe^{IV}) oxidation of pharmaceuticals in hydrolyzed urine: Underlying mechanisms	Ching-Hua Huang	8:05 AM
Aliphatic amines enhanced oxidation of pharmaceuticals by ferrate $^{\text{IV}}$: Density function theory strategy to elucidate the generation of Fe^{IV} species	Virender Sharma	8:25 AM
Kinetic model for TMP degradation by Fe activated persulfate oxidation	Hui Zhang	8:45 AM
Evaluation of hydroxyl radical and reactive chlorine species generation from the superoxide/hypochlorous acid reaction as the basis for a novel advanced oxidation process	Sin-Yi Liou	9:05 AM
Catalytic degradation of algogenic odor using Fe_3O_4 nanoparticles under long-wavelength electromagnetic irradiation	Wen Zhang	9:25 AM

Understanding Biological, Chemical, & Environmental Interactions & Transport of SARS-Co-2 Transport and Surface Interactions

Organizers: Boufadel, Michel; New Jersey Institute of Technology
Oral - In-person, B402 (Georgia World Congress Center)

Introductory Remarks		8:00 AM
Virus adhesion to fomites	Volodymyr Tarabara	8:05 AM
Impact of surfaces on the transport of virus-laden particles indoor	Michel Boufadel	8:35 AM
Photosensitized electrospun nanofibrous filters for capture-and-kill of coronavirus aerosols	Zhe Zhou	8:55 AM

Environmental exposures and their impacts on SARS-CoV-2 transmission and COVID-19 susceptibility and severity	Amanda Weaver	9:15 AM
Reaction kinetics governing the thermal inactivation of viruses	Daniel Preston	9:35 AM
Concluding Remarks		9:55 AM

Monday 8/23/2021 – In-Person Session 2 / Virtual Session 1

10:30 AM - 12:30 PM (EDT)

Innovative Materials for Environmental Sustainability

Novel Oxidants and Catalysts

Organizers: Luque, Rafael; Universidad de Cordoba | Orlov, Alexander; Materials Science Engineerin

Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Introductory Remarks		10:30 AM
Accelerating environmental degradation of plastics with pro-oxidant additives	Endalkachew Sahle Demessie	10:35 AM
Carbon dot-decorated heterostructured bismuth oxides for the visible light degradation of trichloroethylene	Elsayed Zahran	11:00 AM
Microwave-assisted catalytic membrane filtration for bacteriophage MS2 inactivation	Fangzhou Liu	11:25 AM
Metal-azolate framework decorated thin-film composite membranes: Antibacterial mode of action and beyond	Mostafa Firouzjaei	11:45 AM
Palladium single atom catalyst for the selective degradation of halogenated organic pollutants	Kali Rigby	12:05 PM
Concluding Remarks		12:25 PM

Advances in Chemical Oxidative Processes for Emerging Contaminants in Water & Wastewater

Electrochemical and Photochemical Methods

Organizers: Lefebvre, Olivier; National University of Singapore | Huang, Ching-Hua; Georgia Institute of Technology | Guan, Xiaohong

Oral - In-person, B401 (Georgia World Congress Center)

Modeling advanced oxidation processes (AOPs) with an emphasis on UV/free chlorine process	John Crittenden	10:30 AM
Environment-friendly electrochemical processes for water and wastewater treatment	Carlos Alberto Martinez Huitle	10:50 AM
Electrochemical advanced oxidation as off-grid water treatment technology	Sergi Garcia-Segura	11:10 AM
Enhanced reduction of nitrate and active chlorine mediated ammonia oxidation: Mechanism exploration from both experimental and DFT studies	Jianan Gao	11:30 AM
Sunlight powered oxidation of pentoxifylline by green synthesized LiCs ferrites	Carlos Huerta-Aguilar	11:50 AM

Understanding Biological, Chemical, & Environmental Interactions & Transport of SARS-Co-2 Human Factor in Covid-19

Organizers: Boufadel, Michel; New Jersey Institute of Technology
Oral - In-person, B402 (Georgia World Congress Center)

COVID Information Commons (CIC)	Florence Hudson	10:30 AM
Probing the interactions between coronavirus with contact surfaces in the presence of body fluids	Yun Shen	11:00 AM
3D lung microtissue models of SARS-CoV-2 infection and progression	Duy Nguyen	11:20 AM
Role of mucins in coronavirus surface transmission	Jessica Kramer	11:40 AM
Effect of environment on the behavior of coronavirus aerosols	Maria King	12:00 PM
Concluding Remarks		12:20 PM

Current Perspectives in Environmental Science

Organizers: Sayes, Christie; Baylor University | Sharma, Virender; Texas AM University
Oral – Virtual, Zoom Room 37

Correction of soil organic matter, heavy metals transfer and accumulation drivers via intra-soil safe waste recycling technology	Valery Kalinitchenko	10:30 AM
Mineralogy controlled dissolution and toxicological assessment of uranium dust in simulated gastrointestinal fluids	Milton Chandra Das	10:50 AM
Insight into the isomeric diversity of the pyrolysis bio-oil components	Jasmine Hertzog	11:30 AM
Utilizing estolides as sustainable synthetic petroleum replacements	Mark Miller	11:50 AM
Methane activation over transition metal single atom doped (211) facets of Pt and Pd	Lars Grabow	12:10 PM

Current Perspectives in Perfluorinated Chemicals: Fate & Behavior

Organizers: Peng, Hui; University of Toronto | Ng, Carla; ETH Zurich
Oral – Virtual, Zoom Room 39

Introductory Remarks		10:30 AM
Occurrence, distribution, and algae uptake of PFAS in Nevada watersheds	Xuelian Bai	10:35 AM
Monitoring a wide range of per- and polyfluoroalkyl substances in New Zealand wastewater	Swadhina Priyadarshini Lenka	10:55 AM
LCST-driven catch-n-release of perfluoroalkyl substances (PFAS) from water: Remediation and sampling	Mohammadamin Ezazi	11:15 AM
Removal of polyfluoroalkyl surfactants (PFAS) from groundwater by nanofiltration: Effect of PFAS molecular structures and membrane properties	Caihong Liu	11:35 AM
Seasonal difference in the performance of powdered activated carbon to adsorb per- and polyfluoroalkyl substances (PFASs) in drinking water treatment plant source water	Geunyoung Kim	11:55 AM
Concluding Remarks		12:15 PM

Toward Creating a Water-Energy-Food Nexus Community of Practice: Symposium in Honor of Professor Rabi H. Mohtar

Opening Plenary

Organizers: Daher, Bassel; Texas A&M University| Sharma, Virender; Texas AM University| Laspidou, Chrysi| Kim, Hyunook; University of Seoul

Oral – Virtual, Zoom Room 38

Welcome & Overview		10:30 AM
Water-Energy-Food Nexus Journey	Rabi Mohtar	10:55 AM
Discussion		11:30 AM

WISE: Women in Environmental Science & Engineering

Effects of Climate, Energy Extraction & Engineered Processes on Environmental Science & Policy

Organizers: Dionysiou, Dionysios; University of Cincinnati| Sharma, Virender; Texas AM University

Oral – Virtual, Zoom Room 36

Climate change accelerates mobilization of rare earth elements in a mountain watershed in the Colorado Mineral Belt	Diane McKnight	10:30 AM
Fossil energy in a modern world: Managing impacts on water and climate from domestic energy extraction	Desiree Plata	11:00 AM
Environmental justice: Role of science, engineering, and policy in ensuring equity in urban water systems	Kimberly Jones	11:30 AM

Monday 8/23/2021 – In-Person Session 3 / Virtual Session 2

2:00 PM - 4:00 PM (EDT)

Innovative Materials for Environmental Sustainability

Novel Approaches to Sustainability

Organizers: Luque, Rafael; Universidad de Cordoba| Orlov, Alexander; Materials Science Engineerin

Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Introductory Remarks		2:00 PM
Reducing agricultural nitrogen losses via mechanochemically synthesized urea cocrystals	Jonas Baltrusaitis	2:05 PM
Stabilization of silicic acid for silica scale mitigation: Role of polymeric antiscalant functional groups and molecular structure	Masashi Kaneda	2:30 PM
Life cycle assessment in the design of plant oil-based latex adhesives	Iryna Bon	2:50 PM
<i>Bombyx mori</i> larvae (silkworms) as a factory for wearable electronic materials	Basant Ali	3:10 PM

Current Perspectives in Environmental Science

Organizers: Sayes, Christie; Baylor University| Sharma, Virender; Texas AM University

Oral - In-person, B401 (Georgia World Congress Center)

Introductory Remarks		2:00 PM
Addressing criticality in rare earth elements by reducing CO ₂ emission in permanent magnets recycling	Denis Prodius	2:05 PM
Superparamagnetic iron oxide nanoparticles	Vijayendra Garg	2:25 PM

Chemistry of air pollutants during the lockdown period amid COVID-19 pandemic over India	Neha Bhadauria	2:45 PM
Atmospheric aqueous phase T- and pH-dependent OH(aq) radical reaction kinetics with glycine, alanine, serine and threonine	Liang Wen, Thomas Schaefer, Hartmut Herrmann	3:05 PM
Monitoring of air quality with satellite-based sensor: The case of four towns in Southeast, Nigeria	Francis Abulude, Usha Damodharan	3:25 PM
Discussion		3:45 PM

Understanding Biological, Chemical, & Environmental Interactions & Transport of SARS-Co-2 SARS-COV-2 in Water Systems

Organizers: Boufadel, Michel; New Jersey Institute of Technology

Oral - In-person, B402 (Georgia World Congress Center)

Trends in drug consumption during COVID-19 pandemic using wastewater-based epidemiology	Alexander Montgomery	2:00 PM
Genomic sequencing wastewater-based epidemiology	Rachel Spurbeck	2:20 PM
Detection of SARS-CoV-2 in wastewater and municipal solids in a Canadian province with low prevalence of COVID-19	Emalie Hayes, Crystal Sweeney	2:40 PM
Effects of wastewater collection system characteristics on SARS-CoV-2 levels in wastewater	Karen Valcarce	3:00 PM
Normalization of wastewater SARS-CoV-2 gene copy numbers using readily available biomarkers to improve correlations with case data	Justin Hutchison	3:20 PM
Detection of SARS-CoV-2 in a river and estuary system in southern San Diego, CA: Implications of sewage discharge in coastal regions	Rebecca Simpson	3:40 PM

Advances in Chemical Oxidative Processes for Emerging Contaminants in Water & Wastewater Ozonation

Organizers: Lefebvre, Olivier; National University of Singapore | Huang, Ching-Hua; Georgia Institute of Technology | Guan, Xiaohong

Oral – Virtual, Zoom Room 34

Micropollutant abatement during pilot-scale ozonation of a surface water: Formation of transformation products and their fate during biological sand filtration	Urs von Gunten	2:00 PM
MEMBRO ₃ X application to wastewater treatment: An optimized micropollutants abatement with minimized bromate formation	Jaedon Shin	2:20 PM
Tracing ozonation products in municipal wastewater using supercritical fluid chromatography-high resolution mass spectrometry	Maolida Nihemaiti	2:40 PM
Changes in the electron-donating capacity during ozonation of secondary-treated wastewater: A novel surrogate parameter for micropollutant abatement?	Nicolas Walpen	3:00 PM
Kinetic modeling of phenol oxidation in over seven advanced oxidation processes in the presence of halides and carbonate	Kuan Huang	3:20 PM
Reactions of pyrrole, imidazole, and pyrazole with ozone: Kinetics and mechanisms	Sungeun Lim	3:40 PM

Current Perspectives in Perfluorinated Chemicals: Fate & Behavior

Organizers: Peng, Hui; University of Toronto | Ng, Carla; ETH Zurich

Oral – Virtual, Zoom Room 37

Introductory Remarks		2:00 PM
Helicity in perfluorinated molecules: Computational method development for predicting ¹⁹ F NMR chemical shifts and connection to structure	Maleigh Pagenkopf	2:05 PM
Bioaccumulation and biotransformation of PFASs using AFFF-dosed in vivo and in vitro models	Carrie McDonough	2:25 PM
Identification of 8:2 fluorotelomer acrylate protein adducts using a proteomics method	David Hall	2:45 PM
Deep transfer learning of PFAS toxicity with uncertainty quantification	Jeremy Feinstein	3:05 PM
Concluding Remarks		3:25 PM

Toward Creating a Water-Energy-Food Nexus Community of Practice: Symposium in Honor of Professor Rabi H. Mohtar

State of the Art Models and Approaches

Organizers: Daher, Bassel; Texas A&M University | Sharma, Virender; Texas AM University | Laspidou, Chrysi | Kim, Hyunook; University of Seoul

Oral – Virtual, Zoom Room 36

Decision-making tool for the optimal selection and allocation of renewable energy generation and storage systems under food-energy-water nexus considerations	Julie Cook, Styliani Avraamidou	2:00 PM
Decision-making tool for the optimal selection and allocation of renewable energy generation and storage systems under food-energy-water nexus considerations	Efstratios Pistikopoulos	2:00 PM
Enhancing Agro-ecological system resilience through a Water-Energy-Food-Climate nexus approach	Chrysi Laspidou	2:20 PM
Water-energy-food and sustainable development goals: The case study of Morocco	Bassel Daher	2:40 PM
Food security under compound shocks: Can Lebanon produce its own Mediterranean food basket?	Bassel Daher	3:00 PM
Sustainable resource optimization under water-energy-food-carbon nexus	Majdi Abou Najm	3:20 PM

WISE: Women in Environmental Science & Engineering

Biological Processes, Microbiome, and Public Health

Organizers: Dionysiou, Dionysios; University of Cincinnati | Sharma, Virender; Texas AM University

Oral – Virtual, Zoom Room 35

Critical public health challenges call for our engagement: How can we help?	Barbara Turpin	2:00 PM
Manipulating treatments, water chemistry, and system design to limit proliferation of pathogens and antibiotic resistance in water systems: A microbiome perspective	Amy Pruden	2:30 PM
Management of nutrients and pathogens using hybrid adsorption biological treatment systems (HABITS)	Sarina Ergas	3:00 PM
Elevated temperatures in municipal solid waste landfills due to exothermic abiotic reactions	Debra Reinhart	3:30 PM

Monday 8/23/2021 – In-Person Session 4 / Virtual Session 3

4:30 PM - 6:30 PM (EDT)

WISE: Women in Environmental Science & Engineering

Biological Processes, Microbiome, and Public Health

Organizers: Dionysiou, Dionysios; University of Cincinnati | Sharma, Virender; Texas AM University

Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Building the toolbox to address the complexity of exposures and effects of emerging contaminants	Rebecca Klaper	4:30 PM
Influence of corrosion inhibitors on infection risk of <i>Legionella pneumophila</i> released from drinking water biofilms	Thanh Nguyen	5:00 PM
From ocean microbiome to wastewater microbiome: A journey through an invisible world	Sunny Jiang	5:30 PM
Fabrication of polymeric ultrafiltration membrane using green polymers and solvents	Isabel Escobar	6:00 PM

Current Perspectives in Perfluorinated Chemicals: Fate & Behavior

Organizers: Peng, Hui; University of Toronto | Ng, Carla; ETH Zurich

Oral - In-person, B402 (Georgia World Congress Center)

Introductory Remarks		4:30 PM
Development of a low-cost portable sensor for rapid detection of perfluoroalkyl substances	Abd Ur Rehman	4:35 PM
Influence of residual nonaqueous-phase liquid (NAPL) on the transport and retention of perfluoroalkyl substances (PFAS) in quartz sand	Shuchi Liao	4:55 PM
Electric field-aided reversible adsorption-desorption of PFAS via inexpensive carbonaceous electrode in a portable device	Bishwash Shrestha	5:15 PM
Kinetics of aqueous persulfate-induced oxidative degradation of heptafluorobutanoate, pentafluoropropionate, and trifluoroacetate	Alexander Marchione	5:35 PM
Development of models to predict physicochemical properties of PFAS	Todd Martin	5:55 PM
Concluding Remarks		6:15 PM

General Papers

Organizers: Sharma, Virender; Texas AM University | Sayes, Christie; Baylor University

Oral - In-person, B401 (Georgia World Congress Center)

Introductory Remarks		4:30 PM
Experimental kinetics study of missing mercury oxidation pathways of BrHg + NO and O ₃	Rongrong Wu	4:35 PM
On the critical role of arrangement and dynamics of water molecules in CO ₂ capture by aqueous amines	Bohak Yoon	4:55 PM
The effect of structure and functionality on benzyl and semi volatile organic compound on environmentally relevant metal oxides: a flow tube and infrared spectroscopy study	Graham Frazier	5:15 PM
Optimization of natural coagulant dosing strategies for struvite recovery from poultry litter	Michael Fleming	5:35 PM
Dark abiotic transformation of nitroguanidine (NQ) by carbonaceous, ferruginous soil constituents and ISCR reductants	Paula Cardenas	5:55 PM
Closing Remarks		6:15 PM

Advances in Chemical Oxidative Processes for Emerging Contaminants in Water & Wastewater Ferrates and Fenton

Organizers: Lefebvre, Olivier; National University of Singapore | Huang, Ching-Hua; Georgia Institute of Technology | Guan, Xiaohong

Oral – Virtual, Zoom Room 36

Bridging the gaps between Ferrate(VI) chemistry and water treatment applications	Yang Deng	4:30 PM
Membrane-confined heterogeneous Fenton reaction: Mechanism and potential application	Shuo Zhang	4:50 PM
Iron-mediated disruption of antibiotic resistance gene uptake and expression in wastewater	Hari Sathasivam	5:10 PM
Unveiling the mechanism of imidacloprid removal by ferrate (VI): Kinetics, role of oxidation and adsorption, reaction pathway and toxicity assessment	Kanming Wang	5:30 PM
Enhanced oxidation of organic contaminants by iron(II)-activated periodate: The significance of high-valent iron-oxo species	Yang Zong	5:50 PM
New insights into the role of reactive intermediate Fe species during the oxidation of emerging organic contaminants by Fe(VI)	Shuchang Wang	6:10 PM

Disinfection Byproducts in Drinking Water & Wastewater: Detection, Formation & Control

Organizers: Yang, Xin; Sun Yat-sen University, Environmental Science | Westerhoff, Paul; Arizona State Univ | Richardson, Susan | Shang, Chii; The Hong Kong University of Sci. Technol.

Oral – Virtual, Zoom Room 37

Introductory Remarks		4:30 PM
Regulated DBPs are not the forcing agents of toxicity in disinfected water	Michael Plewa	4:35 PM
Disinfection by-product drivers of cytotoxicity in U.S. drinking water: Should other DBPs be regulated?	Joshua Allen	5:05 PM
Effect of sunlight on the formation of inorganic disinfection byproducts in water and on produce surfaces	Min Jeong Suh	5:25 PM
Nature and impacts of chlorination by-products issued from coastal industrial plants	Jean-Luc Boudenne	5:45 PM
Investigations into the origin of mutagenicity occasionally observed during wastewater ozonation	Tarek Manasfi	6:05 PM
Concluding Remarks		6:25 PM

Innovative Materials for Environmental Sustainability Novel Approaches to Sustainable Materials

Organizers: Luque, Rafael; Universidad de Cordoba | Orlov, Alexander; Materials Science Engineerin

Oral – Virtual, Zoom Room 39

Introductory Remarks		4:30 PM
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Computational and experimental design of solvents for CO ₂ capture	Flaviu Cipcigan	4:35 PM
Physical membrane-stress-mediated antimicrobial properties of cellulose nanocrystals	Victor Noronha	5:00 PM
Bridging three gaps in biodegradable plastics: Misconceptions and truths about biodegradation	Shinhyeong Choe	5:20 PM
Highly sustainable underwater superoleophobicity derived from bovine serum albumin following a facile covalent approach	Arpita Shome	5:40 PM
Discussion		6:00 PM
Concluding Remarks		6:15 PM

Toward Creating a Water-Energy-Food Nexus Community of Practice: Symposium in Honor of Professor Rabi H. Mohtar

WEF Nexus Initiatives and Case Studies

Organizers: Daher, Bassel; Texas A&M University|Sharma, Virender; Texas AM University|Laspidou, Chrysi|Kim, Hyunook; University of Seoul

Oral – Virtual, Zoom Room 38

Water-Energy-Food-Health nexus renewable resources initiative (WEFRAH) at the American University of Beirut	Mirella Aoun	4:30 PM
Potential impact of management practices on green water under arid and semi-arid conditions	Ripendra Awal	4:50 PM
Antibiotics Contaminated Irrigation Water: A study on its impact on edible crops and photocatalytic degradation as potential treatment	Assi Al-Moussawi	5:10 PM
Application of imaging processing for $\hat{1}/4$ -Raman spectroscopy to quantification of microplastics in drinking water systems in Seoul, Korea	Ingyu Lee	5:30 PM
Air-water-energy-environment nexus in TAMUMAP: A campus collaborative for urban health	Maria King	6:10 PM

Monday 8/23/2021 – Virtual Session 4 / Sci-Mix

7:00 PM - 9:00 PM (EDT)

Current Perspectives in Environmental Science

Organizers: Sayes, Christie; Baylor University|Sharma, Virender; Texas AM University

Oral – Virtual, Zoom Room 39

Decision support tool for sustainable treatment selection for the management of PFAS in water	Cameron Oden	7:00 PM
Effects of effluent organic matter on adsorptive removal of propranolol in fixed-bed column using tyre char as packing material	Farzaneh Feizi	7:20 PM
Degradation of polyamide thin film by chlorine and peracetic acid: A combined AFM and QCM-D study	Tashfia Mohona	7:40 PM
Facile synthesis and characterization of ZnO nanoparticles decorated on graphene oxide for efficient removal of Cr(VI) frp, aqueous solutions	Simranjeet Singh	8:00 PM
Assessing the safe and sustainable use of emerging agricultural biotechnology: A case study on herbicide drift from herbicide tolerant crops	Kimberly Parker	8:20 PM
Discussion		8:40 PM
Closing Remarks		8:55 PM

Disinfection Byproducts in Drinking Water & Wastewater: Detection, Formation & Control

Organizers: Yang, Xin; Sun Yat-sen University, Environmental Science | Westerhoff, Paul; Arizona State Univ | Richardson, Susan | Shang, Chii; The Hong Kong University of Sci. Technol.

Oral – Virtual, Zoom Room 37

Introductory Remarks		7:00 PM
Predicting high-yield disinfection byproducts from disinfectant reactions with biomolecules	William Mitch	7:05 PM
Formation of halogenated byproducts from halogen radical-involved reactions	Xin Yang	7:35 PM
Reactions of ozone and chlorine with water matrix components: Characterization of oxidant-reactive nitrogenous moieties	Karim Essaied	7:55 PM
Pilot-scale evaluation of IX and SIAC for the removal of DBP precursors in a surface water and potable reuse	Mahmut Selim Ersan	8:15 PM
Effects of pre-oxidation by ClO_2 and post-treatment by the UV/chlorine process on the DBP formation in the drinking water treatment	Gabriela Scheibel Cassol	8:35 PM
Concluding Remarks		8:55 PM

Ecosystems, Water & Food Security in a Changing World: Challenges & Solutions in Arid Regions Sustainability of Ecosystem, Water and Food Security

Organizers: Al Enizi, Bader; Kuwait University | Abdullah, Meshal; Texas A&M University System | Al-Abed, Souhail; US EPA

Oral – Virtual, Zoom Room 38

Introductory Remarks		7:00 PM
Facilitated revegetation of native desert plants enhances water sustainability and food security in arid regions	Meshal Abdullah	7:05 PM
Environmental DNA using NGS techniques provide an in-depth molecular biodiversity identification	Mansour Abdullah	7:25 PM
Evaluate the optimum re-vegetation treatment processes in poor soil conditions in arid landscapes: A case study from the State of Kuwait	Nouf Alhashash	7:45 PM
Evaluating soil moisture to improve the supplemental irrigation in two different areas and the impact of climate change in an arid ecosystem	Ahmed Alqallaf	8:05 PM
Chitosan-harvested polyhydroxybutyrate-rich <i>Zobellella denitrificans</i> ZD1 as an effective delivery method to control pathogens and enhance immune system in aquaculture	Fahad Asiri	8:25 PM
Closing Remarks		8:45 PM

Nanoparticle Interactions in Environmental Systems

Organizers: Keller, Arturo; University of California, Santa Barbara | Adeleye, Adeyemi; University of California Irvine

Monday 8/23/2021, 7:00 PM - 8:55 PM, Oral - Virtual

Zoom Room 40

Introductory Remarks		7:00 PM
Aggregation of DNA-grafted nanoparticles in water: Roles of cations and natural organic matter	Bo Peng	7:05 PM
Comparison of different nanoparticle-embedded electrodes for electrochemical oxidation of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS)	Kelsey Rodriguez	7:30 PM
Evaluation of the influence of the particle size and coating on the stability of AuNPs in suspension using single particle ICP-MS	Antonio Montoro Bustos	7:50 PM
Distinguishing engineered TiO ₂ nanomaterials from natural Ti nanomaterials in soil using spICP-TOFMS and machine learning	Garret Bland	8:10 PM
Simultaneous removal copper and phosphate in aqueous media by pristine and sulfidated nanoscale zero-valent iron: Application of artificial neural network	Ziwei Han	8:30 PM
Concluding Remarks		8:50 PM

Sci-Mix, In-Person

Sci-Mix is a large meeting-wide poster event, including posters and oral abstracts selected from among ENVR presenters requesting participation in Sci-Mix. Participation in Sci-Mix is voluntary.

Organizers: Sharma, Virender; Texas AM University | Sayes, Christie; Baylor University

Hall B4 (Georgia World Congress Center)

Interactions between nano/micro plastics and suspended sediment in water: Implications on aggregation and settling	Xinjie Wang
Analysis of microplastics in wastewater treatment plants: Challenges and lessons learned during sample preparation	Kelsey Sikon
Use of UV LEDs for halogen based advanced oxidation processes for removal of micropollutants from DOM-rich water	Madhusudan Kamat
Electrochemical membrane aging and oxides of halogen formation	Qingquan Ma
Halogenation of <i>para</i> -hydroxybenzoate esters (parabens) in chlorinated and brominated waters under simulated drinking water disinfection conditions	Andrew Psoras, Seth McCoy
Evaluating transformation of parabens at two wastewater treatment plants with two different disinfection processes	Michael Penrose
Environmental health effects after vaping: Mechanistic analyses resulting from terpene and diluent co-exposures	Yanira Baldovinos, Christie Sayes
Detection of infectious prions in plants	Kate Burgener
Data-driven model of the thermal inactivation of SARS-CoV-2	Te Faye Yap
Detection and persistence of SARS-CoV-2 in the Tijuana River	Alma Rocha
Investigation of PFOA and PFOS adsorption on engineered biochar using column and batch experiments	Yudi Wu
Desulfonation and defluorination of 6:2 fluorotelomer sulfonic acid (6:2 FTSA) by <i>Rhodococcus jostii</i> RHA1: Carbon and sulfur sources, enzymes, and pathway	Shih-Hung Yang
β ² -Cyclodextrin polymers with different cross-linkers and ion-exchange resins exhibit variable adsorption of anionic, zwitterionic, and nonionic PFASs	Casey Ching

Facet-dependent electrochemical behavior of Cu ₂ O microcrystals for methyl orange: Theoretical prediction and experimental validation	Qingquan Ma
Utilization of solid-phase metal sulfide as electron donors by <i>A. vinosum</i> and <i>H. halophila</i> : A comparative and mechanistic study	Hugo Alarcon
Enhanced removal of methylene blue from aqueous solutions employing ball milling and hydrogen peroxide modified biochar	Yue Zhang
Sorption and reduction of insensitive munitions compounds by wood biochar	Julian Giron
Low-temperature CO oxidation over surface-oxygenated nanoalloy catalysts	Shan Wang
Modifying the active surface of TFC membranes by Ag-MOF nanorods to improve anti-biofouling performance for water treatment application	Ehsan Zolghadr
Discriminatory detection of antibiotic resistance genes (ARGs) by surface-enhanced Raman spectroscopy (SERS) and tree-based support vector machines (Tr-SVM)	Seju Kang
Extracting active perchlorate-reducing enzymes from soils as a measure of bioremediation potential	Wambura Chacha
Fast peroxymonocarbonate formation on aqueous aerosols	Alan Gu
Atomically dispersed copper catalyst-functionalized polymeric membrane for organic contaminant degradation	Tayler Hedtke
Degradation of PFAS in the UV/BOHP photocatalytic system: Reactor design implications and the effect of operating parameters	Mojtaba Qanbarzadeh
Adsorption and solid-phase photocatalytic degradation of perfluorooctane sulfonate in water using gallium-doped carbon-modified titanate nanotubes	Dongye Zhao
Enhanced removal and destruction of per- and polyfluoroalkyl substances in municipal landfill leachate through a “concentrate and destroy” technology	Dongye Zhao
Kinetic model for TMP degradation by Fe activated persulfate oxidation	Hui Zhang
Establishing formation potential test conditions for assessing haloacetonitrile precursors in source waters	Erica Marti
Determination of haloacetonitrile fate in gastrointestinal tract culture: Application of GC-EI-MS and LC-MS/MS to identify haloacetonitriles and biotransformation products	Hollie Adejumo
Reactivity of monobromamine and dibromamine with phenolic compounds: Rate constants and formation of bromoform	Tele Anette Mensah
Formation of chlorinated and brominated haloacetonitriles from tryptophan and its structural analogues	Zachary Kralles
Laboratory determination of isotope fractionation factors ($\hat{\delta}_{15N}$, $\hat{\delta}_{18O}$) for Fe catalyzed HONO production from NO ₂	Danielle Blum
Effect of humidity on the reactive uptake of ammonia and amines by nitrogen-containing secondary organic aerosol	Natalie Smith
Multi-generation production of secondary organic aerosol and brown carbon from toluene photooxidation	Yixin Li
Photosensitized electrospun nanofibrous filters for capture-and-kill of coronavirus aerosols	Zhe Zhou
3D lung microtissue models of SARS-CoV-2 infection and progression	Duy Nguyen
Influence of residual nonaqueous-phase liquid (NAPL) on the transport and retention of perfluoroalkyl substances (PFAS) in quartz sand	Shuchi Liao
Electric field-aided reversible adsorption-desorption of PFAS via inexpensive carbonaceous electrode in a portable device	Bishwash Shrestha
Development of a low-cost portable sensor for rapid detection of perfluoroalkyl substances	Abd Ur Rehman
Magnetic chitosan as nano-softener to improve groundwater quality	Estephany Santiago
Algal impacted surface waters: Disinfection byproduct risks and the effects of peracetic acid pre-oxidation	Zachary Kralles
Comparing the photochemical reactivity of extracellular organic matter (EOM) and intracellular organic matter (IOM) from algae	Joseph Wasswa

Remove and reclaim phosphorous from wastewater with engineered biochar: Methods and application	Yulin Zheng
Sorption of As(V) using Fe ₃ O ₄ nanoparticles dispersed on Douglas fir biochar	Prashan Rodrigo
Occurrences and impacts of microplastics in soils and groundwater	Jinsheng Huang
Investigating interactional effects during chemical recycling of mixed PET waste by hydrothermal liquefaction	Seshasayee Mahadevan Subramanya
CH ₄ steam reforming on Pt+Pd/Al ₂ O ₃ AlO ₃ monolith catalyst: impact of Mn _{0.5} Fe _{2.5} O ₄ spinel addition	Pak Wing Chen
Wettability and photocatalysis decoupled membranes for desalination and separation of oil-saline water mixture	Bishwash Shrestha
Sustainable cellulose nanocrystals for improved antimicrobial properties of thin film composite membranes	Jennifer Jackson
Nano-biocatalyst for next generation water treatment challenges	Anushree Ghosh
Seasonality studies of collected environmental films using interfacial spectroscopy	Jessica DeYoung
Environmental sensing applications of bacterial cellulose-based nanocomposites: Combining surface enhanced Raman spectroscopy and machine learning techniques	Asifur Rahman
Optimizing Fenton-like oxidation of legacy munitions/insensitive high explosives utilizing a cost-effective MnO ₂ -doped activated carbon catalyst in the presence of electrochemically generated H ₂ O ₂	Patrick Compton
Rapid electrochemical treatment of lead-leaching pipes to stop leaching of lead in drinking water	Gabriel Lobo
Energy efficiency of brackish water desalination: Comparison of reverse osmosis, electrodialysis, and capacitive deionization	Sohum K Patel
Rapid removal of hexavalent chromium in groundwater using a novel low-cost iron electrocoagulation reactor	Andrea Naranjo Soledad
Nano-enhanced electric-field treatment harnessing lightning-rod effect for rapid bacteria inactivation	Ting Wang
Decoupling wastewater treatment and microalgae cultivation in an algal-microbial separatory cell	Zixuan Wang
Elucidating counterion mobility in ion-exchange membranes for electrically-driven ion-selective separations: Spatial effect and valency-dependent electrostatic interaction	Hanqing Fan
Novel electrohydrodynamic approach for enhanced struvite recovery in wastewater treatment systems	Kamruzzaman Khan
Pathogen inactivation by pulsed electric field treatment: From liquid food to drinking water	Jianfeng Zhou
Efficient water disinfection enabled by locally enhanced electric field treatment with zinc-oxide nanowire-modified electrodes	Wenxiaoshan Sui
Evaluation of polarity reversal as a means of mitigating fouling in electrocoagulation	Helene Chow
Hydrophobic conductive polymer modified anion exchange membrane for selective nitrate separation in membrane capacitive deionization	Lingchen Kong
Cradle-to-grave life cycle assessment of epoxidized sucrose soyate thermoset resin	Shokoofeh Ghasemi
On the critical role of arrangement and dynamics of water molecules in CO ₂ capture by aqueous amines	Bohak Yoon
Optimization of natural coagulant dosing strategies for struvite recovery from poultry litter	Michael Fleming
Dark abiotic transformation of nitroguanidine (NQ) by carbonaceous, ferruginous soil constituents and ISCR reductants	Paula Cardenas
Enhanced porous superabsorbent polymer (PSAP)-based virus stabilization for diagnostics and surveillance	Wensi Chen
Elucidating specific chemical interactions between emerging contaminants and surface functional groups relevant to natural organic matter	Philomena Olaniyan

Evaluation of the inhibitory effects of azole compounds on biological nitrogen removal processes in wastewater treatment plants	Xiaojue Chen
Complexation of mercury with dissolved organic matter from Everglades periphyton	Afia Anjuman
Enhancement of anaerobic co-digestion for treating food wastes and sewage sludge using free nitrous acids as pretreatment	Camila Proano, Ruizhe Liu
Forward solute transport across a freestanding graphene oxide membrane in forward osmosis	Su Liu
Effective removal of iodine species by organoclays MRM and PM-199	Phuong Pham

Sci-Mix, Virtual

Sci-Mix is a large meeting-wide poster event, including posters and oral abstracts selected from among ENVR presenters requesting participation in Sci-Mix. Participation in Sci-Mix is voluntary.

Organizers: Sharma, Virender; Texas AM University | Sayes, Christie; Baylor University

Long-lived photooxidants derived from dissolved organic matter: Effects and characterization	Stephanie Remke
Scalable surface nanoengineering of polymeric filtration membranes via electrospray-assisted deposition and incorporation of biocidal nanomaterials	Zhishang Wan

Tuesday 8/24/2021 – In-Person Session 1

8:00 AM - 10:00 AM (EDT)

Microplastics & Nanoplastics: Fate & Behavior

Organizers: Ma, Xingmao; Texas A&M University | Al-Abed, Souhail; US EPA | Potter, Phillip; EPA

Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Introductory Remarks		8:00 AM
Light-induced changes in microplastics and dissolved organic matter in their co-existence	Virender Sharma	8:05 AM
Photodegradation of secondary microplastics unraveled by non-target screening	Vittorio Albergamo	8:25 AM
Aging of microplastics increases its sorption affinity towards organic contaminants	Kartik Bhagat	8:45 AM
Plastic formulation is an emerging control of its photochemical fate in the ocean	Amy McKenna	9:05 AM
Analytical methods for detecting and characterizing microplastics and nanoplastics in the environment	Phillip Potter	9:25 AM

Advanced Oxidation Processes: Progress & Challenges

Oxidation Processes

Organizers: Minakata, Daisuke; Michigan Technological University College of Engineering | Dionysiou, Dionysios; University of Cincinnati | Sharma, Virender; Texas AM University

Oral - In-person, B401 (Georgia World Congress Center)

Pilot-scale evaluation of UV/H ₂ O, UV/chlorine, UV/TiO ₂ , and O ₃ /H ₂ O systems to treat 1,4-dioxane contaminated groundwater across Long Island, NY	Arjun Venkatesan	8:00 AM
Halogen radicals contribute to halogenation and degradation of chemical additives used in hydraulic fracturing fluids	Moshan Chen	8:20 AM
Fast peroxymonocarbonate formation on aqueous aerosols	Alan Gu	8:40 AM
Co-oxidation of Fe(II), As(III) and Mn(II) by O ₂ , NaOCl and KMnO ₄ : Contrasting reaction pathways of weak and powerful oxidants	Case van Genuchten	9:00 AM
Radical chain reduction of CHCl ₃ initiated by HCO ₂ H/ HCO ₂ ^{•-} buffers in contact with swollen SPEEK/PVA films	German Mills	9:20 AM
Atomically dispersed copper catalyst-functionalized polymeric membrane for organic contaminant degradation	Tayler Hedtke	9:40 AM

Reactivity of Biochar & its Modification

Organizers: Pan, Bo; Kunming University of Science Technology | Rinklebe, Jörg | Oleszczuk, Patryk; Uniwersytet Marii Curie-Skłodowskiej | Xing, Baoshan; Univ of Massachusetts

Oral - In-person, B402 (Georgia World Congress Center)

Introductory Remarks		8:00 AM
Fractionation of biochar and molecular characterization by ultrahigh resolution mass spectrometry	Amy McKenna	8:05 AM
Understanding the electron storage capacity of pyrogenic black carbon	Pei-Chun Chiu	8:25 AM
Effect of native biochars chemical modification on the total and freely dissolved polycyclic aromatic hydrocarbons content	Patryk Oleszczuk	8:45 AM
Extracellular enzyme activity impacted by surface adsorption: Comparison between black carbon and minerals	Lingqun Zeng	9:05 AM
Sorptive removal of selenates and selenites using Douglas fir biochar/ metal oxide/ hydroxide nanocomposites	Catalina Carrasco	9:25 AM

Concluding Remarks		9:45 AM
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Tuesday 8/24/2021 – In-Person Session 2 / Virtual Session 1

10:30 AM - 12:30 PM (EDT)

Microplastics & Nanoplastics: Fate & Behavior

Organizers: Ma, Xingmao; Texas A&M University | Al-Abed, Souhail; US EPA | Potter, Phillip; EPA

Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Investigation on the altered plant uptake of poly- and per- fluorinated substances (PFAS) by co-present microplastics	Xingmao Ma	10:30 AM
Removal of microplastics from water using plant-based polysaccharides	Jeri Laneice Gill	10:50 AM
Dynamics of microplastic particle deposition in porous media	Navid Bizmark	11:10 AM
Leaching of bisphenol S from polyethersulfone (PES) and polyphenylsulfone (PPSU) microplastics during environmental weathering processes	Xinjie Wang	11:30 AM
Aquatic biodegradation of wood-based bathroom tissue, cotton microfibers, and flushable wipes in a wastewater treatment plant condition and a seawater environment	Madilynn Smith	11:50 AM
Post-consumer recycles (PCR) in asphalt pavement: Is the production of microplastics a concern?	Yufei Duan	12:10 PM

Reactivity of Biochar & its Modification

Organizers: Pan, Bo; Kunming University of Science Technology | Rinklebe, Jörg | Oleszczuk, Patryk;

Uniwersytet Marii Curie-Sklodowskiej | Xing, Baoshan; Univ of Massachusetts

Oral - In-person, B402 (Georgia World Congress Center)

Introductory Remarks		10:30 AM
Biochar-amended rapid-flow engineered media filters for removal of organic contaminants in stormwater runoff	Conrad Pritchard	10:35 AM
Conversion of Spiky Sweetgum Tree (<i>liquidambar Syraciflua</i>) seed into sustainable bio-adsorbent for water contaminant removal: Static and dynamic adsorption assessment	Kollipara Venkata Sai Cherith	10:55 AM
Remove and reclaim phosphorous from wastewater with engineered biochar: Methods and application	Yulin Zheng	11:15 AM
Sorption of As(V) using Fe ₃ O ₄ nanoparticles dispersed on Douglas fir biochar	Prashan Rodrigo	11:35 AM
Sorption of As(III) using Fe ₃ O ₄ nanoparticles dispersed on <i>Guadua chacoensis</i> bamboo Si-rich biochar (Si-char) and its redox transformations	Hailey Jamison	11:55 AM
Concluding Remarks		12:15 PM

Advanced Oxidation Processes: Progress & Challenges

Oxidation and Reduction Processes

Organizers: Minakata, Daisuke; Michigan Technological University College of Engineering | Dionysiou,

Dionysios; University of Cincinnati | Sharma, Virender; Texas AM University

Oral - In-person, B401 (Georgia World Congress Center)

Adsorption and solid-phase photocatalytic degradation of perfluorooctane sulfonate in water using gallium-doped carbon-modified titanate nanotubes	Dongye Zhao	10:30 AM
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Leveraging virus-particle interactions for achieving rapid photosensitized inactivation of viruses in complex waters	Samuel Snow	10:50 AM
Enhanced removal and destruction of per- and polyfluoroalkyl substances in municipal landfill leachate through a “concentrate and destroy” technology	Dongye Zhao	11:10 AM
Degradation of PFAS in the UV/BOHP photocatalytic system: Reactor design implications and the effect of operating parameters	Mojtaba Qanbarzadeh	11:30 AM
Evaluating UV-advanced reduction process performance by hydrated electron exposure	Benjamin Fennell	11:50 AM
Degradation of perfluorooctane sulfonate (PFOS) using a UV/BiPO ₄ photocatalytic reduction process	Michael Bentel	12:10 PM

Disinfection Byproducts in Drinking Water & Wastewater: Detection, Formation & Control

Organizers: Yang, Xin; Sun Yat-sen University, Environmental Science | Westerhoff, Paul; Arizona State Univ | Richardson, Susan | Shang, Chii; The Hong Kong University of Sci. Technol.

Oral – Virtual, Zoom Room 32

Introductory Remarks		10:30 AM
Biofiltration and GAC adsorption of preformed regulated and unregulated disinfection byproducts in water and water reuse scenarios	Randy Summers	10:35 AM
Role and fate of NDMA and precursors in water in the industrialized area of East China: Emerging DBPs and contaminants	Chao Chen	11:05 AM
Status quo and challenges of disinfection by-products control by household water technologies	Baiyang Chen	11:25 AM
New group of heterocyclic nitrogenous disinfection byproducts (DBPs) in drinking water: Role of extraction pH in unknown DBP exploration	Yang Pan	11:45 AM
Pharmaceuticals might contribute to the formation and toxicity of DBP mixtures in chlorine disinfection	Wanxin Li	12:05 PM
Concluding Remarks		12:25 PM

Role of Nitrogen-Containing Compounds in Formation & Transformation of Ambient Aerosols: Past, Present, & Future

Organizers: QIU, CHONG; University of North Alabama | Zheng, Jun | Wang, Yuan

Oral – Virtual, Zoom Room 34

Formation and optical properties of nitrogen-containing brown carbon (BrC)	R Zhang	10:30 AM
Formation of secondary brown carbon in biomass burning aerosol proxies through NO ₃ radical reactions	Yinon Rudich	11:00 AM
Nitrogen-containing organic aerosols from biomass burning emission and secondary formation in the atmospheres	Min Hu	11:30 AM
Radical-initiated brown carbon formation in sunlit carbonyl amine ammonium sulfate bulk mixtures and aqueous aerosol particles	David Dehaan	12:00 PM

Toward Creating a Water-Energy-Food Nexus Community of Practice: Symposium in Honor of Professor Rabi H. Mohtar

WEF Governance and Stakeholder Engagement: In honor of Professor Kent Portney

Organizers: Daher, Bassel; Texas A&M University | Sharma, Virender; Texas AM University | Laspidou, Chrysi | Kim, Hyunook; University of Seoul

Oral – Virtual, Zoom Room 35

In memory of Professor Kent Portney: Toward understanding the convergence of researcher and stakeholder perspectives related to water-energy-food (WEF) challenges	Bassel Daher	10:30 AM
Interdisciplinary theory and practice for societal impact: An idiosyncratic water diplomacy journey with Kent Portney	Shafiqul Islam	10:50 AM
Comparing the impacts of different irrigation systems on the livelihoods of women and youth: Applying propensity score matching to clustered data	Pamela Katic	11:10 AM
Nexus approach in times of Covid-19: Future challenges and prospects	Chrysi Laspidou	11:30 AM
Virtual water and the water-energy-food nexus	Martin Keulertz	11:50 AM
Dietary shifts amongst Lebanese adolescents are associated with changes in environmental footprints between the years 1997 and 2009	Lara Nasreddine	12:10 PM

WISE: Women in Environmental Science & Engineering

Water Treatment and Reuse

Organizers: Dionysiou, Dionysios; University of Cincinnati | Sharma, Virender; Texas AM University | Sayes, Christie; Baylor University

Oral – Virtual, Zoom Room 33

Removal of PAHs, PCBs, PFASs, and metals from stormwater using green infrastructure technologies	Staci Simonich	10:30 AM
Recent advances in electrodialysis for water reuse, desalination, and concentrate treatment	Pei Xu	11:00 AM
Potable water reuse and desalination: More salt, less energy	Amy Childress	11:30 AM
Quantitative tools for assessing research impact on water treatment's grand challenges	Meagan Mauter	12:00 PM

Tuesday 8/24/2021 – In-Person Session 3 / Virtual Session 2

2:00 PM - 4:00 PM (EDT)

C. Ellen Gonter Graduate Student Award Symposium

Organizers: O'Shea, Kevin; Florida Intrntnl Univ

Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Introductory remarks		2:00 PM
First report of <i>in vitro</i> glucuronidation of Caribbean ciguatoxins in reef fish using UHPLC-HRMS(/MS): Implications for ciguatera poisoning	Jessica Gwinn	2:05 PM
Radical-driven decomposition of graphitic carbon nitride nanosheets: Light exposure matter-c	Mengqiao Li	2:25 PM
Near quantitative defluorination of perfluorinated and fluorotelomer carboxylates and sulfonates with integrated oxidation and reduction	Zekun Liu	2:45 PM

Field fortification to improve analytical accuracy in fate and transport studies of pharmaceuticals in the environment	Rebecca Dickman	3:05 PM
Discussion		3:25 PM
Closing remarks		3:35 PM

Electrified Water Treatment Processes

Organizers: Xie, Xing; Georgia Institute of Technology|Hatzell, Marta|Lin, Shihong|Tarpeh, William
 Oral - In-person, B401 (Georgia World Congress Center)

Introductory Remarks		2:00 PM
Electrochemical advanced oxidation/reduction processes (EAOP/EARP)	John Crittenden	2:10 PM
Favoring the unfavored: Electrochemically selective ammonia extraction from nitrate by coupling electron- and phase-transfer reactions at a three-phase interface	Jianan Gao	2:40 PM
Enhancing the direct anodic oxidation via the electronic metal-support interaction	Dahong Huang	3:00 PM
Managing aquatic selenium pollution through direct electrochemical reduction	Shiqiang Zou	3:20 PM
Reductive electrochemical activation of hydrogen peroxide as an advanced oxidation process to treat reverse osmosis permeate during potable reuse	Cindy Weng	3:40 PM

Current Progress in Emission Control Catalysis

Organizers: Kunal, Pranaw; Ames Laboratory|Toops, Todd
 Oral - In-person, B402 (Georgia World Congress Center)

Introductory Remarks		2:00 PM
Sub-stoichiometric methane oxidation on structured Pt/Pd + mixed metal oxide spinel: Mechanistic origins of rate multiplicity and enhancement during feed modulation	Michael Harold	2:05 PM
CH ₄ steam reforming on Pt+Pd/Al ₂ O ₃ AlO ₃ monolith catalyst: impact of Mn _{0.5} Fe _{2.5} O ₄ spinel addition	Pak Wing Chen	2:35 PM
Investigating the effects of SO ₂ during period conditions in reduced precious metal catalysts for emission control in natural gas engines	Natalia Diaz Montenegro	2:55 PM
Pt-CeO ₂ -Al ₂ O ₃ nanosheet catalysts with enhanced lean/rich hydrothermal aging stability for TWC applications	Junjie Chen	3:15 PM
Relationship between mobility and activity of Cu ion species in the Cu-SSZ-13 for selective catalytic reduction	Hwangho Lee	3:35 PM
Concluding Remarks		3:55 PM

Advanced Oxidation Processes: Progress & Challenges

Organizers: Minakata, Daisuke; Michigan Technological University College of Engineering|Dionysiou, Dionysios; University of Cincinnati|Sharma, Virender; Texas AM University
 Oral – Virtual, Zoom Room 35

Identification and verification of a special mechanism occurring in UV ₂₅₄ degradation process: Direct photolysis-induced indirect photolysis (DPIP)	Yiya Wei	2:00 PM
Assessment of UV/chlorine process as treatment barrier dealing with HABs impacted water	Minghao Kong	2:20 PM
UV/monochloramine process enhanced the trichloronitromethane formation: Roles of reactive radicals	Xinran Zhang	2:40 PM
Assessment of naproxen degradation in two persulfate-based AOP systems: UV-A/MIL-88A/PS vs solar/MIL-88A/PS activated systems	Antoine Ghauch	3:00 PM

Interlayer electronic structure manipulation of iron oxychloride by potassium cation intercalation to steer activation pathway of H ₂ O	Xuejing (Aurora) Yang	3:40 PM
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Disinfection Byproducts in Drinking Water & Wastewater: Detection, Formation & Control

Organizers: Yang, Xin; Sun Yat-sen University, Environmental Science | Westerhoff, Paul; Arizona State Univ | Richardson, Susan | Shang, Chii; The Hong Kong University of Sci. Technol.

Oral – Virtual, Zoom Room 36

Introductory Remarks		2:00 PM
Novel approaches for the characterization of dissolved organic matter to assess the DBP formation potential	Urs von Gunten	2:05 PM
Facile route for the construction of 3 in 1 hybrid nano-filter linings to remediate waterborne pollutants	Qurat ul Ain Nadeem, Rohama Gill, Dmitry Shchkuin	2:35 PM
Automobile brake pads: A source of DBP precursors in stormwater runoff	Mahmut Selim ERSAN	2:55 PM
Control of regulated and non-regulated disinfection byproduct precursors by carbon based advanced treatment (CBAT) for potable reuse	Yun Yu	3:15 PM
Disinfection by-products in Scottish waters impact of treatment improvements a decade later	Emma Goslan	3:35 PM
Concluding Remarks		3:55 PM

Role of Nitrogen-Containing Compounds in Formation & Transformation of Ambient Aerosols: Past, Present, & Future

Organizers: QIU, CHONG; University of North Alabama | Zheng, Jun | Wang, Yuan

Oral – Virtual, Zoom Room 37

Current status of atmospheric measurements of reduced nitrogen compounds	Shanhu Lee	2:00 PM
Evidence for significant particulate organic nitrate formation in the Los Angeles Basin at night	Benjamin Schulze	2:30 PM
Additional factors in NDMA formation in the atmosphere through Fortran modeling	Samantha Donovan	3:00 PM
Effects of particle phase acidity and gaseous ammonia on the heterogenous interactions between amines and ambient aerosol	Chong Qiu	3:30 PM

Toward Creating a Water-Energy-Food Nexus Community of Practice: Symposium in Honor of Professor Rabi H. Mohtar

Chemical Processes and the Water-Energy-Food Nexus

Organizers: Daher, Bassel; Texas A&M University | Sharma, Virender; Texas AM University | Lapidou, Chrysi | Kim, Hyunook; University of Seoul

Oral – Virtual, Zoom Room 38

Ammonia-phosphate recovery and struvite generation from a wastewater effluent for food quality	Lucy Camacho	2:00 PM
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Groundwater table impacts on water use, yield, and grain quality of hard red spring wheat (<i>Triticum aestivum</i> L.)	Halis Simsek	2:20 PM
Shaping anaerobic digester microbiomes to be resistant to organic overloads	Ashley Berninghaus	2:40 PM
Biocompatible magnetite nanoparticles coated with natural product extract to remove heavy metal oxo-anions	Sajid Bashir, Jingbo Liu	3:00 PM
Novel environmentally friendly trifunctional β -Cyclodextrin-EDTA-Chitosan polymer adsorbent synthesis for simultaneous removal of inorganic and organic pollutants from wastewater	Monu Verma	3:20 PM

Tuesday 8/24/2021 – In-Person Session 4 / Virtual Session 3

4:30 PM - 6:30 PM (EDT)

C. Ellen Gonter Graduate Student Award Symposium

Organizers: O'Shea, Kevin; Florida Intrntnl Univ

Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Introductory Remarks		4:30 PM
Exploring the molecular mechanisms behind ion selectivity in nanoporous polymeric membranes	Cody Ritt	4:35 PM
Linking lipid peroxidation to iron-facilitated organic radical formation from secondary organic aerosols in lung fluid	Jinlai Wei	4:55 PM
Origin of electron storage capacity of black carbon (biochar): Pyrolysis of lignocellulosic biomass	Danhui Xin	5:15 PM
Does <i>tert</i> -butyl alcohol really terminate the oxidative activity of hydroxyl radical in inorganic redox chemistry?	Zhenwei Gao	5:35 PM
Discussion		5:55 PM
Closing Remarks		6:05 PM

Electrified Water Treatment Processes

Organizers: Xie, Xing; Georgia Institute of Technology|Hatzell, Marta|Lin, Shihong|Tarpeh, William

Oral - In-person, B402 (Georgia World Congress Center)

Opportunities of electrochemically-driven nanotechnology for water treatment	Sergi Garcia-Segura	4:30 PM
Promoting Li in electrochemical competitive co-intercalation	Chong Liu	5:00 PM
Optimizing Fenton-like oxidation of legacy munitions/insensitive high explosives utilizing a cost-effective MnO ₂ -doped activated carbon catalyst in the presence of electrochemically generated H ₂ O	Patrick Compton	5:30 PM
Rapid electrochemical treatment of lead-leaching pipes to stop leaching of lead in drinking water	Gabriel Lobo	5:50 PM
Stabilization of source-separated urine using electrochemically synthesized hydrogen peroxide	Sudeep Popat	6:10 PM

Role of Nitrogen-Containing Compounds in Formation & Transformation of Ambient Aerosols: Past, Present, & Future

Organizers: Qiu, Chong; University of North Alabama | Zheng, Jun | Wang, Yuan
 Oral - In-person, B401 (Georgia World Congress Center)

Nitrogen containing organic components of atmospheric brown carbon	Alexander Laskin	4:30 PM
Laboratory determination of isotope fractionation factors ($\delta^{15}\text{N}$, $\delta^{18}\text{O}$) for Fe catalyzed HONO production from NO_2	Danielle Blum	5:00 PM
Multi-generation production of secondary organic aerosol and brown carbon from toluene photooxidation	Yixin Li	5:30 PM
Effect of humidity on the reactive uptake of ammonia and amines by nitrogen-containing secondary organic aerosol	Natalie Smith	6:00 PM

Advanced Oxidation Processes: Progress & Challenges

Advancements

Organizers: Minakata, Daisuke; Michigan Technological University College of Engineering | Dionysiou, Dionysios; University of Cincinnati | Sharma, Virender; Texas AM University
 Oral – Virtual, Zoom Room 35

Inactivation of <i>Escherichia coli</i> by bimetallic iron-aluminum in water	Hsing Lien	4:30 PM
Inhibition effect of dissolved organic matter on organic micropollutants degradation in the sulfate radical-mediated process	Shuangshuang Cheng	4:50 PM
Reactivity of sulfate radical with dissolved organic matter and formation of disinfection byproducts during post-chlorination	Xin Lei	5:10 PM
Construction of g-C ₃ N ₄ /carbon ring/TiO ₂ nanocomposite by improving heterojunction contact for enhanced photocatalytic performance	Chao Liu	5:30 PM
Novel vacuum-UV based advanced oxidation system for efficient degradation and dehalogenation of chlorophenols	Xu He	5:50 PM
UV/sodium percarbonate for the degradation of bisphenol A: Role of carbonate radical anion and detoxification potential	Jiong Gao	6:10 PM

Current Progress in Emission Control Catalysis

Organizers: Kunal, Pranaw; Ames Laboratory | Toops, Todd
 Oral – Virtual, Zoom Room 37

Introductory Remarks		4:30 PM
NO- and CO-mediated redox chemistry of palladium exchanged zeolite passive NOx adsorbers	Andrew (Bean) Getsoian	4:35 PM
Insights into engine-aged deactivation of Pd/CeO ₂ -ZrO ₂ in CH ₄ combustion	Weiwei Yang	5:00 PM
Single Ru atom-doped ceria as stable and superior passive and reactive NOx adsorber	Janos Szanyi	5:20 PM
Exploring the reactivity of single atom doped MxOy catalysts for NO reduction in TWC applications	Konstantin Khivantsev	5:45 PM
Impact of field aging on the redox half cycles of NH ₃ -selective catalytic reduction of NOx over commercial Cu-SSZ-13 monolith catalysts	Dhruba Jyoti Deka	6:05 PM
Concluding Remarks		6:25 PM

Disinfection Byproducts in Drinking Water & Wastewater: Detection, Formation & Control

Organizers: Yang, Xin; Sun Yat-sen University, Environmental Science | Westerhoff, Paul; Arizona State Univ | Richardson, Susan | Shang, Chii; The Hong Kong University of Sci. Technol.

Oral – Virtual, Zoom Room 36

Introductory Remarks		4:30 PM
Comparative cytotoxicity of selected DBPs on SV-HUC-1 and CHO-K1 cell lines	Xing-Fang Li	4:35 PM
Non-target screening of carbonyl compounds formed during ozonation of different water matrices	Joanna Houska	5:05 PM
Haloacetonitrile formation from chlorination of nitrogen-containing heterocycles	Zakiyyah Brown	5:25 PM
Reactions of α,β -unsaturated carbonyls with free chlorine, free bromine, and combined chlorine	Emily Marron	5:45 PM
Using APPI(-) and ESI(-) FT-ICR MS to characterize disinfection byproduct precursors from wildfire-induced <i>Microcystis aeruginosa</i> blooms controlled by copper sulfate	Huan Chen	6:05 PM
Concluding Remarks		6:25 PM

Microplastics & Nanoplastics: Fate & Behavior

Organizers: Ma, Xingmao; Texas A&M University | Al-Abed, Souhail; US EPA | Potter, Phillip; EPA

Oral – Virtual, Zoom Room 34

Influence of environmental and physiological exposure on the fragmentation behavior and surface characteristics change of microplastic inducing potential toxicity	Kyungtae Park	4:30 PM
Release of fibers from disposable face masks and their fate in aquatic environments	Oluwadamilola Pikuda	4:50 PM
Microfiber fate in simulated wastewater treatment and upon release with treated wastewaters	Olubukola Alimi	5:10 PM
Degradation mechanisms of polyethylene materials investigated using a combination of analytical techniques	Zhan Chen	5:30 PM
Well characterized nano- and microplastics of high-volume commodity plastics are needed to understand fate and behavior	Ninell Mortensen	5:50 PM
Interactions of nanoscale plastics with natural organic matter and silica surfaces using a quartz crystal microbalance	Indranil Chowdhury	6:10 PM

Tuesday 8/24/2021 –Virtual Session 4 / Virtual Posters

7:00 PM - 9:00 PM (EDT)

Advanced Oxidation Processes: Progress & Challenges

Advancements

Organizers: Minakata, Daisuke; Michigan Technological University College of Engineering | Dionysiou, Dionysios; University of Cincinnati | Sharma, Virender; Texas AM University

Oral – Virtual, Zoom Room 35

Withdrawn		7:00 PM
Combined nanofiltration and advanced oxidation processes with bifunctional carbon nanomembranes	Barak Shapira	7:20 PM
Denitration of nitroglycerin (NG) and nitrogen transformation via enhanced reduction using a magnesium-based bimetallic reagent	Andrew Mai	7:40 PM

Disinfection Byproducts in Drinking Water & Wastewater: Detection, Formation & Control

Organizers: Richardson, Susan | Yang, Xin; Sun Yat-sen University, Environmental Science | Shang, Chii; The Hong Kong University of Sci. Technol. | Westerhoff, Paul; Arizona State Univ

Oral – Virtual, Zoom Room 01

Introductory Remarks		7:00 PM
Contributions of aromatic halo-DBPs to the TOX and developmental toxicity of chlorinated drinking water	Xiangru Zhang	7:05 PM
Occurrence of odorous problems derived from chlor(am)ine disinfection in drinking water	Bin Xu	7:35 PM
Treatment of forty pre-formed halogenated disinfection byproducts with biofiltration for potable reuse	Eric Peterson	7:55 PM
Haloquinone chloroimides as toxic disinfection byproducts identified in drinking water	Wei Wang	8:15 PM
Can ClO ₂ pre-oxidation reduce the byproduct formation and toxicity of the water treated by the UV/chlorine process?	Tao Li	8:35 PM
Concluding Remarks		8:55 PM

Microplastics & Nanoplastics: Fate & Behavior

Organizers: Ma, Xingmao; Texas A&M University | Al-Abed, Souhail; US EPA | Potter, Phillip; EPA

Oral – Virtual, Zoom Room 34

Visible light degradation of polyethylene terephthalate microplastic by nanocomposite photocatalyst MoO ₃ /Polypyrrole/Fe ₃ O ₄	Hoang Nguyen	7:00 PM
Thermodynamic analysis of microplastic-clay interactions	Gustavo Salazar	7:20 PM
Role of microplastics in sorption of perfluorinated compounds (PFAS) in soil-water systems	Xuelian Bai	7:40 PM
Panel Discussion		8:00 PM
Concluding Remarks		8:35 PM

Nanoparticle Interactions in Environmental Systems

Organizers: Keller, Arturo; University of California, Santa Barbara | Adeleye, Adeyemi; University of California Irvine

Oral – Virtual, Zoom Room 36

Introductory Remarks		7:00 PM
Effect of sulfidation on the application and ecotoxicity of nanoscale zero-valent iron in soil	Ziwei Han	7:05 PM
Nano-CeO ₂ transformation in soil-plant system as affected by plant species and water management	Peng Zhang	7:30 PM
Detection and separation of gold nanoparticles from water and soil samples	Arnab Bhattacharya	7:50 PM
Polystyrene nanoparticle diffusion in biofilms and their influence on gene expression as a function of particle charge and biofilm age	Joann Rodriguez	8:10 PM
Soils, a natural photocatalytic resource for NO _x gases abatement	Vidal Barron	8:30 PM

Reactivity of Biochar & its Modification

Organizers: Pan, Bo; Kunming University of Science Technology | Rinklebe, Jörg | Oleszczuk, Patryk; Uniwersytet Marii Curie-Skłodowskiej | Xing, Baoshan; Univ of Massachusetts

Oral – Virtual, Zoom Room 37

Introductory Remarks		7:00 PM
Unsteady adsorption of phthalic acid esters on biochar surface mediated by strong interaction between adsorbates: Experimental investigations and molecular dynamics simulations	Quan Chen	7:05 PM
Biochar based composite for sorptive removal of aqueous pharmaceutical	Abhishek Kumar Chaudhary	7:25 PM
Fe-modified biochar enhances microbial nitrogen removal capability of constructed wetland	Yicheng Yang	7:45 PM
Rapid adsorptive removal of low to moderate concentrations of Uranium(VI) using Douglas fir biochar magnetic variant	Chanaka Navarathna	8:05 PM

Role of Nitrogen-Containing Compounds in Formation & Transformation of Ambient Aerosols: Past, Present, & Future

Organizers: Wang, Yuan | QIU, CHONG; University of North Alabama | Zheng, Jun

Oral – Virtual, Zoom Room 20

Aqueous-phase photochemistry of phenolic compounds initiated by inorganic nitrate photolysis	Theodora Nah	7:00 PM
Modelling the effects of atmospheric alkylamines on the properties of sea salt aerosols using the extended aerosols and inorganics model (E-AIM)	Kuanfu Chen	7:30 PM
Effects of amides on aerosol hygroscopicity and CCN activities	Jun Zheng	8:00 PM
pH dependence of the nitrate-mediated photooxidation of organic acids in the aqueous phase	Theodora Nah	8:30 PM

Advanced Oxidation Processes: Progress & Challenges

Organizers: Minakata, Daisuke; Michigan Technological University College of Engineering | Dionysiou, Dionysios; University of Cincinnati | Sharma, Virender; Texas AM University

Poster – Virtual, Virtual Room

Degradation kinetics and mechanism of bisphenol A in vacuum ultraviolet photolysis	Grace Choi
Regeneration mechanism and cost estimation of organic pollutants absorbed activated carbon by microwave-based advanced oxidation process	Xianbing Zhang
Adsorptive removal of martius yellow and Cd (II) ions using MgFe ₂ O ₄ -bentonite NC: Comparison of linear and nonlinear modeling	Khushboo Arora
Numerical simulation of bubble sonoactivity in presence of carbon tetrachloride	Aissa Dehane
Phosphorous- doped graphene oxide as an efficient photocatalyst for degradation of organic pollutants	Manpreet Kaur Ubhi
Phenols removal by Mg doped CuO-Fe ₂ O ₃ /PS system: the role of oxygen vacancies	Jianfeng Ma
Mechanistic insight into structural, magnetic, optical and photocatalytic properties of core-shell reversal of tri-metallic titanium strontium ferrite-silica nanocomposites	Jaspreet Kaur
NGO@MgFe ₂ O ₄ @SiO ₂ dual core composite as an efficient photocatalyst for the degradation of organic pollutants	Manmeet Kaur

Advances in Chemical Oxidative Processes for Emerging Contaminants in Water & Wastewater

Organizers: Lefebvre, Olivier; National University of Singapore | Huang, Ching-Hua; Georgia Institute of Technology | Guan, Xiaohong

Poster – Virtual, Virtual Room

Control of harmful algae with ultrasound: Behaviors of algal organic matter components during sonication at different frequency ranges and evaluation of toxicity	Yangrui Huang
Exploring degradation of trimethoprim by chromium(III/VI)-peracetic acid and chromium(III/VI)-ascorbic acid systems	Joshua Bell
Efficient 1,4-dioxane degradation under visible light by both titanium dioxide and zero-valent iron nanoparticles	Jia Liu
Influence of different anchoring groups on photocatalytic activity of hybrid materials based on titanium(IV) oxide and porphyrins for potential water photoremediation	Rafal Krakowiak
Degradation of oseltamivir (Tamiflu) in UV photolysis and UV/H ₂ O reactions: Performance, kinetics, and mechanism	Erica Sohn
Photodegradation of pharmaceutical contaminants using phthalocyanine grafted titanium dioxide nanoparticles	Joanna Musial
Photoelectrocatalytic decomposition of perfluorooctanoic acid by using In ₂ O ₃ electrode.	Udani Wijethunga
Visible-light-driven photo-Fenton degradation of ceftriaxone sodium using SnS ₂ /LaFeO ₃ composite photocatalysts	Yuting Guo
Ferrate(VI) for treating antimicrobial resistance in the waters of lower Ganga River	Nithya Cheemalamarri
Theoretical investigation of the properties and radical degradation mechanism of aryl azo naphthol dyes	Ana Geladze, Saba Birkadze
PVDF catalytic membrane decorated with uniformly anchored Fe^{2+} -FeOOH for wastewater decontamination via synergistic filtration-oxidation process	Longfei Zhang
Mesoporous Fe-doped MgO nanoparticles as a heterogeneous photo-Fenton-like catalyst for oxidizing emerging pharmaceutical contaminants in wastewater	Manoj Silva

Circularity Challenges & Advances in Plastics Recycling

Organizers: Glaser, John; USEPA|Sahle Demessie, Endalkachew; U, S Environmental Protection Agency
Poster – Virtual, Virtual Room

Graft copolymers as coatings for the fabrication of environmentally friendly oil- and water-resistant paper	Syeda Hamdani
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Current Perspectives in Perfluorinated Chemicals: Fate & Behavior

Organizers: Peng, Hui; University of Toronto|Ng, Carla; ETH Zurich
Poster – Virtual, Virtual Room

Efficient removal of PFOA from wastewater using sustainable, low-cost activated carbon prepared from lignocellulosic material	Sujata Mandal
Optimization of solid-phase extraction conditions of PFOA in landfill leachate by response surface methodology	Sicheng Ding
Screening for per- and polyfluoroalkyl substances (PFAS) in human blood by particle-induced gamma-ray emission (PIGE)	Yukun Jin
Electron transfer reactions of PFASs using chemical computations: What should we know?	Maleigh Pagenkopf
Perfluoroalkyl ether carboxylic acids target multiple isoforms of fatty acid binding proteins	Diwen Yang

Current Perspectives in Water Reuse & Recycling

Organizers: Liu, Jiaqi; Baylor University
Poster – Virtual, Virtual Room

Sonication-induced, solvent-selective gelation of a 1,8-naphthalimide-conjugated amide: Structural insights and pollutant removal applications	Apurba Pramanik
Merit evaluation of disinfection and decolorization of municipal wastewater by the biochar/PMS biological system for reuse	Xueqian Yan
Synthesis of carbon from <i>Raphanus sativus</i> leaves for water treatment application	Sania Sadaf, Ataf Ali Altaf
Demonstration of emerging contaminants containing wastewater treatment for water reclamation via the combined AOPs with biological system	Rui Ma

Current Progress in Emission Control Catalysis

Organizers: Kunal, Pranaw; Ames Laboratory|Toops, Todd
Poster – Virtual, Virtual Room

Investigation and improvement of an industrial NO _x scrubber	Lydia Weddle
Synthesis and characterization of novel periodic mesoporous organosilicas, SMS -1 and SMS-2 and its potential application on solar cells	Md Kamal Hossain

Development of Sustainable Household Water Treatment

Organizers: Deng, Yang; Montclair State University|Wang, Yin; University of Wisconsin-Milwaukee
Poster – Virtual, Virtual Room

Removing chromium (VI) from contaminated water using a low-cost chitosan coated diatomaceous earth	Johan Demessie
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Disinfection Byproducts in Drinking Water & Wastewater: Detection, Formation & Control

Organizers: Yang, Xin; Sun Yat-sen University, Environmental Science|Westerhoff, Paul; Arizona State Univ|Richardson, Susan|Shang, Chii; The Hong Kong University of Sci. Technol.

Poster – Virtual, Virtual Room

Information analysis of 3096 known disinfection by-products based on a self-constructed internet database	XiaoQiu Yang
Investigating the absorption characteristics of wastewater contaminants on graphenic surfaces	Steven Pellizzeri
Nitrogen deposition effects on dissolved organic matter in forested watersheds: Implication on source water quality & water treatability	Alex Chow
Effect of operational conditions on the disinfection by-products formation potential of exopolymeric substances from biofilms in drinking water	Mildred Lemus
Nitrogen origins and roles of radical on the trichloronitromethane formation in the UV/monochloramine process	Xinran Zhang
Disinfection by-products derived from dissolved algal organic matter: Green algae, cyanobacteria and diatom	Manuel Rodriguez-Susa
Thermally modified coconut shell activated carbon as efficient adsorbent for <i>N</i> -nitrosodimethylamine	Maryani Paramita Astuti
Nitrosamines formation of tetracycline antibiotics during chlorination of nitrite-enriched water	chenglin liu
Ozonation treatment increases chlorophenylacetonitrile formation in downstream chlorination or chloramination	Di Zhang
Disinfection by-product formation during breakpoint chlorination of ground waters with naturally occurring ammonium and high iodide/ bromide ratio	Anca-Maria Tugulea

Ecosystems, Water & Food Security in a Changing World: Challenges & Solutions in Arid Regions

Organizers: Al Enizi, Bader; Kuwait University|Abdullah, Meshal; Texas A&M University System|Al-Abed, Souhail; US EPA

Poster – Virtual, Virtual Room

Improvement of canola protein functionality by atmospheric cold plasma treatment	Muhammad Faisal Arif
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Environmental Analysis: Current Advances & Challenges

Organizers: Goranov, Aleksandar; Old Dominion University|Wagner, Sasha; Rensselaer Polytechnic Institute|Podgorski, David|Zito, Phoebe

Poster – Virtual, Virtual Room

Review on HTC hydrochar/coal	Vandana Katariya
Chemiresistive carbon nanotube sensors for aqueous permanganate	Md Ali Akbar
Long-term challenges of Kuwait marine environment	Hanan Alsarawi
Facile, green, and simultaneous detection of trace cyanurate and chlorine in water by ion chromatography	Yiya Wei
Chemical variability over the last millennium as recorded in the ice core "GV7" drilled in Northern Victoria Land, Antarctica	Raffaello Nardin
Chemiresistive detection of dissolved nitrogen compounds in aqueous solutions	Maryam Darestanifarahani

Highly efficient, rapid, and concurrent removal of a wide range of heavy metals by the novel 2D hybrid LDH-[Sn ₂ S ₆]	Ahmet Celik
Development of opto-chemical mercury sensor using fluorescent pyrene-functionalized silica nanoparticles	Shahid Ali

Environmental Health & Toxicology

Organizers: Sayes, Christie; Baylor University | Prasse, Carsten; Johns Hopkins University

Poster – Virtual, Virtual Room

Plants as potential vectors for environmental prion transmission: uptake and translocation by several plant species	Samuel Thomas
Analysis of substances affecting visual perception in black and odorous water: Determination of existing forms and species	Peng Li
Mexico's water and soil: Threatened by fracking gas?	Victor Hugo FERMAN AVILA
Identifying triphenyl phosphate-caused hepatic energy imbalance via profiles of targeted metabolomics	Cui Wang
Stress response and nutrient homeostasis in lettuce (<i>Lactuca sativa</i>) exposed to graphene quantum dots are modulated by particle surface functionalization	Peng Zhang

General Posters

Organizers: Sharma, Virender; Texas AM University | Sayes, Christie; Baylor University

Poster – Virtual, Virtual Room

Assessment of multiple solvents for compound inventory determination from smoke water	Marc Koyack, Maria Rojas, Caitlin Hilligoss
Traditional Chinese medicine (TCM) wastewater enhance the synergistic removal of azo dye in MFCs: The roles of redox mediators	Tao Li
Towards a comprehensive understanding of malathion degradation: Theoretical investigation of degradation pathways and related kinetics	Robert Lamb
Systematic chemical approaches for soil analysis in forensic investigation	Mayssa Hachem
Satellite-based survey of China's nitrogen oxide super-emitters	Pengfei Li
Optimisation of cellulose nanocrystal production using sulfuric and maleic acid	Jessica Mhlongo
Release mode of mercury from iron ores during the sintering process	Javzandolgor Bud
Machine learning blueprints for green chelants via high-throughput screening in chemical compound space	John Keith
Effects of perfluorooctanesulfonic acid (PFOS) on plant physiology and metabolite profile	Dane Wagner
Recovery of phosphorus from steelmaking slag	Jiaqian Liu
Mechanistic insights into parathion degradation: A density functional theory approach	Caitlin Bresnahan
Triple oxygen stable isotopes reveal changes in sulfate sources and production during the COVID-19 shutdown in Southern California	Daniel Crocker
Comparative analysis on influencing factors of the classification effect of urban residential domestic waste: Case studies in Glen Ridge City, New Jersey and Shapingba, Chongqing	Sicheng Ding
Sodium arsenite oxidation by hydroxyl radical: A density functional study	Ashlyn Koval
Chemical investigations of pasaqan and interdisciplinary paint restoration	Kerri Taylor

Non-electrolytic high-temperature reaction between CO ₂ and steam: Applications in oxy-pyrohydrolysis of CaCl ₂ waste	Song Zhou
Heterogeneous aerobic oxidation catalysis: A sustainable route for fine chemical production	Sourav Biswas
Coenzyme vitamin B ₁₂ enhancing methane production during anaerobic digestion of food waste and mechanisms	Yu Su
Progress report: Assessment of microplastic pollution in Utah County by micro-infrared spectrometry	Landon Stubbs, Sadie Squire, Gary Naisbitt
Reactions of phenolic aldehydes with ozone and hydroxyl radicals	Marcelo Guzman
Hydrogenolysis of polyethylene into value-added products using a well-defined core shell catalyst	Xun Wu
DCS based COD & BOD evaluation of effluent treatment plant (ETP) discharge water by measuring TOC	Ramesh Borah

Innovative Materials for Environmental Sustainability

Organizers: Luque, Rafael; Universidad de Cordoba | Orlov, Alexander; Materials Science Engineerin
Poster – Virtual, Virtual Room

Mesoporous MgO nanoparticles as an Mg-source for struvite recovery from wastewater	Manoj Silva
Biobased photodimer synthesis in green medium with blacklights	Briana Krupinsky
Preventing aquatic contamination by cytostatics with supported ionic liquids	Bruna Monteiro
Pistachio shells for the extraction of actinides from contaminated water	Jafar Ali

Microplastics & Nanoplastics: Fate & Behavior

Organizers: Ma, Xingmao; Texas A&M University | Al-Abed, Souhail; US EPA | Potter, Phillip; EPA
Poster – Virtual, Virtual Room

Evaluation of various factors impacting the transport of Microplastics in unsaturated soil systems	Saerom Park
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Mössbauer Spectroscopy from Magnetic Nanoarchitectures to Environmental Science: A Symposium in Honor of Dr. Jean-Marc Greneche

Organizers: Nishida, Tetsuaki | Homonnay, Zoltan; Eotvos Lorand Tudomanyegyetem | Li, Xuning | Garcia, Karen

Poster – Virtual, Virtual Room

Mössbauer characterization of co-precipitated akaganeites in presence of antimony, mercury, and arsenic	Veronica Villacorta
Mössbauer studies of beta-Haematin formed in presence of chloroquine	Caesar Barrero
Improved characterization of synthesized iron-oxide-loaded clay pollutant adsorbents	Maria Luciana Montes
Influence of Ru doping on the structural, magnetic, and optical properties of γ -Fe ₂ O ₃ nanorods	Stjepko Krehula
Effects of Cr ³⁺ ions and hexamethylenetetramine on the forced hydrolysis of FeCl ₃ solutions	Marko Robic
Magnetic properties of radiolytically synthesized iron oxide nanoparticles	Ivan Maric
Effect of Cr ^{III} doping on Vanadate glass cathode active materials for lithium-ion batteries	Shunsuke Matsusako
Development of New Vanadate Glass containing Iron of Higher Oxidation States	Saeko Matsuo

Nanoparticle Interactions in Environmental Systems

Organizers: Su, Yiming; University of California Los Angeles| Adeleye, Adeyemi; University of California Irvine| Keller, Arturo; University of California, Santa Barbara

Poster – Virtual, Virtual Room

When nanoparticle and microbes meet: The effect of multi-walled carbon nanotubes on microbial community and nutrient cycling in hyperaccumulator system	Xunfeng Chen
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Understanding Biological, Chemical, & Environmental Interactions & Transport of SARS-Co-2

Organizers: Boufadel, Michel; New Jersey Institute of Technology| Sayes, Christie; Baylor University

Poster – Virtual, Virtual Room

Monitoring the spread of COVID-19 using wastewater-based epidemiology	Brandi Williams
Lower than expected reduction of nitrogen oxides emissions during the COVID-19 pandemic over the United States	Qiyang Yan
Particle capture efficiency studies on face mask	Zhaobo Zhang

Water Purification with Nanomaterials Exemplify Resilience of Chemistry

Organizers: Ahuja, Satinder; Ahuja Consulting

Poster – Virtual, Virtual Room

Investigation, characterization and identification of disinfection by-products precursors in FBW and SSW during drinking water treatment	Yunkun Qian, Yue Hu, Dong An
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Wednesday 8/25/2021 – In-Person Session 1

8:00 AM - 10:00 AM (EDT)

Environmental Health & Toxicology

Organizers: Sayes, Christie; Baylor University | Prasse, Carsten; Johns Hopkins University

Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Introductory Remarks		8:00 AM
Occurrence of Z-drugs and antidepressants in wastewater in the United States and Mexico during the COVID-19 pandemic	Sangeet Adhikari	8:05 AM
Significant spike on syringe use and the drug consumption during COVID-19 pandemic	Houston Hampton	8:25 AM
Elevated community anxiety during COVID-19 pandemic based on the quantified biomarkers of oxidative stress in wastewater	Isaac Bowers	8:45 AM
Effects of transitional metals on the persistence of chronic wasting disease prions in the environment	Qi Yuan	9:05 AM
Persistence of glyphosate, glufosinate and aminomethylphosphonic acid in karstic central Kentucky watersheds	Pedro Martin	9:25 AM
Panel Discussion		9:45 AM

Electrified Water Treatment Processes

Organizers: Xie, Xing; Georgia Institute of Technology | Hatzell, Marta | Lin, Shihong | Tarpeh, William

Oral - In-person, B401 (Georgia World Congress Center)

Electrochemically reactive membrane filtration for removal of algae and algogenic micropollutants	Wen Zhang	8:00 AM
Electrified membranes for transformation of nitrate in wastewaters	Lea Winter	8:30 AM
Electrifying reverse osmosis pretreatment using electro-assisted regeneration of pH-sensitive ion exchangers	Hang Dong	9:00 AM
Energy efficiency of brackish water desalination: Comparison of reverse osmosis, electrodialysis, and capacitive deionization	Sohum K Patel	9:20 AM
Electrochemically assisted nanocarbon-based nanofiltration membranes for improving water flux and ion rejection	Xie Quan	9:40 AM

Wednesday 8/25/2021 – In-Person Session 2 / Virtual Session 1

10:30 AM - 12:30 PM (EDT)

Environmental Health & Toxicology

Organizers: Sayes, Christie; Baylor University | Prasse, Carsten; Johns Hopkins University

Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Introductory Remarks		10:30 AM
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Determination of degradation pathways for antibiotics and agrochemicals during anaerobic digestion of animal manure	Chris Brueck	10:35 AM
Macronutrient and vitamin influences on Chowan River (North Carolina, USA) cyanobacterial harmful algal bloom biomass and toxicity	Malcolm Barnard	10:55 AM
Development of a semi-automated multi-endpoint ROS activity analyzer (SAMERA) and its application in assessing spatiotemporal variability of PM _{2.5} oxidative potential in Midwest USA	Haoran Yu	11:15 AM
Nanoporous materials for measuring environmental VOC exposures	Allen Apblett	11:35 AM
Post-wildfire surface water quality monitoring using a novel water cytotoxicity test	Yu Huang	11:55 AM
Panel Discussion		12:15 PM

Electrified Water Treatment Processes

Organizers: Xie, Xing; Georgia Institute of Technology|Hatzell, Marta|Lin, Shihong|Tarpeh, William
 Oral - In-person, B401 (Georgia World Congress Center)

Electrocoagulation-electroflotation for primary treatment of animal rendering wastewater to enable recovery of fats	Sudeep Popat	10:30 AM
Transport properties of ion-exchange membranes for brine concentration via electrodialysis	Jovan Kamcev	11:00 AM
Nano-enhanced electric-field treatment harnessing lightning-rod effect for rapid bacteria inactivation	Ting Wang	11:30 AM
Rapid removal of hexavalent chromium in groundwater using a novel low-cost iron electrocoagulation reactor	Andrea Naranjo Soledad	11:50 AM
Decoupling wastewater treatment and microalgae cultivation in an algal-microbial separatory cell	Zixuan Wang	12:10 PM

General Papers

Organizers: Sharma, Virender; Texas AM University|Sayes, Christie; Baylor University
 Oral - In-person, B402 (Georgia World Congress Center)

Introductory Remarks		10:30 AM
Surface oxidation of pyrogallol and 3-methoxycatechol by ozone	Md Sohel Rana	10:35 AM
Quantification of total phosphorus in Lake Lanier's creeks and inlets water using spectrophotometric method	Morgan Liffers, Bhawani Sigdel Regmi	10:55 AM
Reactions of disinfectants with viral genomes: Kinetics and product identification	Alex Szczuka	11:15 AM
Enhanced porous superabsorbent polymer (PSAP)-based virus stabilization for diagnostics and surveillance	Wensi Chen	11:35 AM
On the hunt for volatile organic acid sources: Aqueous OH oxidation of 2-methyltetrols and erythritol	James Cope	11:55 AM
Rising concentrations of intact carbonic acid in the earth seas and atmosphere due to rising levels of atmospheric CO ₂ are likely to have considerable still unappreciated environmental effects	Ehud Pines	12:15 PM
Closing Remarks		12:35 PM

Mössbauer Spectroscopy from Magnetic Nanoarchitectures to Environmental Science: A Symposium in Honor of Dr. Jean-Marc Greneche

Organizers: Nishida, Tetsuaki | Homonnay, Zoltan; Eotvos Lorand Tudományegyetem | Garcia, Karen | Li, Xuning

Oral – Virtual, Zoom Room 33

Introductory Remarks		10:30 AM
Journey of Jean-Marc Greneche from amorphous or bulk crystalline materials to nanoarchitectures and to environmental science using ^{57}Fe Mössbauer spectroscopy	Marc Leblanc	10:35 AM
Mössbauer spectroscopy: Basic aspects and applications in ferrites and their nanocomposites	Manpreet Kaur	11:05 AM
Mössbauer spectroscopy, a tool to follow the reductive immobilization of essential elements, or undesired radionuclides, in the environment	Laurent Charlet	11:25 AM
^{57}Fe -Mössbauer and ^{119}Sn Mössbauer study of photo-Fenton ability via tin-doped goethite nanocrystal	Bofan Zhang	11:45 AM
Insightful contribution of Mössbauer spectroscopy (and Jean-Marc!) to the field of iron metal organic frameworks (MOFs)	Thomas Devic	12:05 PM

Toward Creating a Water-Energy-Food Nexus Community of Practice: Symposium in Honor of Professor Rabi H. Mohtar

WEF Education, Community and Practice

Organizers: Daher, Bassel; Texas A&M University | Sharma, Virender; Texas AM University | Laspidou, Chrysi | Kim, Hyunook; University of Seoul

Oral – Virtual, Zoom Room 34

Role of communities of practice in implementing the water-energy-food (W-E-F) nexus	Richard Lawford	10:30 AM
How does systems thinking competency increase leadership capacity	Noeline Gunasekara	10:50 AM
Water, energy, food, and health: The H in WEFRAH is yet another resource	Iman Nuwahyid	11:10 AM
Towards making the resource Nexus operational: Building an International Nexus Community	Chrysi Laspidou	11:30 AM
Opportunities for and challenges to establishing a water-energy-food nexus community of practice	Rabi Mohtar	11:50 AM
Concluding Remarks		12:10 PM

Toxicity Assessment & Removal of "Forever Chemicals" in Environmental Matrices & Chemical Approaches for the Sustainment of Environmental Resiliency

Breakdown Products and Mechanistic Studies of Perfluorinated Alkyl Substances (PFAS) Degradation

Organizers: Kelley-Loughnane, Nancy | Kolel-Veetil, Manoj; Naval Research Laboratory | Nadagouda, Mallikarjuna; US EPA | Shukla, Manoj | Sayes, Christie; Baylor University

Oral – Virtual, Zoom Room 35

Introductory Remarks		10:30 AM
Atomistic understanding of PFAS degradation techniques: An <i>ab initio</i> quantum chemistry investigation	Glen Jenness	10:35 AM
Mechanism of per- and polyfluoroalkyl substances defluorination by <i>Acidimicrobiaceae bacterium</i> TMED77	Haobo Guo	10:55 AM

Theoretical gas phase kinetics of perfluorocarboxylic acid (PFCA) decomposition	Robert Buszek	11:15 AM
Simultaneous dichlorination of 1,2,3 TCP and difluorination of PFOA by <i>Acidimicrobium</i> sp. strain A6	Peter Jaffé	11:35 AM
Understanding how the chemical structure of perfluoroalkyl substances (PFAS) affects degradation from a DFT perspective	Brian Etz	11:55 AM
Concluding Remarks		12:15 PM

Wednesday 8/25/2021 – In-Person Session 3 / Virtual Session 2

2:00 PM - 4:00 PM (EDT)

Environmental Health & Toxicology

Organizers: Sayes, Christie; Baylor University | Prasse, Carsten; Johns Hopkins University

Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Introductory Remarks		2:00 PM
Synergistic cytotoxicity of bromoacetic acid and three emerging bromophenolic disinfection byproducts against human intestinal and neuronal cells	Jiaqi Liu	2:05 PM
Network-based analysis implies critical roles of microRNAs in the long-term cellular responses to gold nanoparticles	Priscila Falagan Lotsch	2:25 PM
Assessing the potential for pulmonary sensitization after respirable environmental stimuli exposure	Matthew Gibb	2:45 PM
Exposure to combustion-derived air pollution may induce prolonged neuroinflammation	Sahar Pradhan	3:05 PM
Panel Discussion		3:25 PM

Electrified Water Treatment Processes

Organizers: Xie, Xing; Georgia Institute of Technology | Hatzell, Marta | Lin, Shihong | Tarpeh, William

Oral - In-person, B402 (Georgia World Congress Center)

Withdrawn		2:00 PM
Pathogen inactivation by pulsed electric field treatment: From liquid food to drinking water	Jianfeng Zhou	2:20 PM
Elucidating counterion mobility in ion-exchange membranes for electrically-driven ion-selective separations: Spatial effect and valency-dependent electrostatic interaction	Hanqing Fan	2:40 PM
Influence of electrolyte on concentration-induced conductivity-permselectivity tradeoff of ion-exchange membranes	Yuxuan Huang	3:00 PM
Exploring scalability of flow-electrode systems for low-cost brackish water desalination	Lukas Hackl	3:20 PM
Novel electrohydrodynamic approach for enhanced struvite recovery in wastewater treatment systems	Kamruzzaman Khan	3:40 PM

Natural Organic Matter: Fate & Characterization

Organizers: Pedersen, Joel; Univ of Wisconsin | Rosario, Fernando; Univ of Colorado | Song, Weihua; Fudan University | Deng, Yang; Montclair State University | Gonsior, Michael; Chesapeake Biological Laboratory

Oral - In-person, B401 (Georgia World Congress Center)

Introductory Remarks		2:00 PM
Multiple roles of dissolved organic matter in the advanced oxidation processes	Xin Yang	2:05 PM
Does molecular size and charge influence the reactivity of dissolved organic matter with sodium borohydride?	Garrett McKay	2:25 PM
Dead end for nitroaromatic explosives: Incorporation of the 2,4-dinitroanisole (DNAN) reduced daughter product into quinone moieties of natural organic matter	Osmar Luiz Moreira Pereira F Menezes	2:45 PM
Long-lived photooxidants derived from dissolved organic matter: Effects and characterization	Stephanie Remke	3:05 PM
Quenching of dissolved organic matter fluorescence by nitroxide free radicals	Hang Li	3:25 PM
Concluding Remarks		3:45 PM

Mössbauer Spectroscopy from Magnetic Nanoarchitectures to Environmental Science: A Symposium in Honor of Dr. Jean-Marc Greneche

Organizers: Nishida, Tetsuaki | Homonnay, Zoltan; Eotvos Lorand Tudományegyetem | Garcia, Karen | Li, Xuning

Oral – Virtual, Zoom Room 33

Fe-Si oxides and amorphous iron formed in ^{57}Fe layer vacuum deposited on SiO_2/Si due to swift heavy ion irradiation	Erno Kuzmann	2:00 PM
Understanding structural and magnetic properties of $\text{SrFe}_{12}\text{O}_{19}$ in platelets and thin film form	Jose Francisco Marco	2:20 PM
Role of ^{57}Fe Mössbauer spectrometry in evidencing the non-trivial effect of molecular coating on spinel ferrite nanoparticles	Souad Ammar	2:40 PM
Electric explosion of amorphous iron alloy ribbons in water and glycol	Karoly Lajzajr	3:00 PM
Mössbauer studies of Fe and Co-based nanocrystalline and multicomponent amorphous alloys	Javier Blazquez	3:20 PM
Mössbauer spectroscopy of the nanocrystalline $\text{Fe}_{42}\text{Co}_{30}\text{Nb}^6\text{B}_{11}\text{Si}_{10}\text{Cu}_1$ soft magnetic alloy	Zulia Caamano	3:40 PM

Sustainable Agriculture & Food Systems

Organizers: Braswell, Evan

Oral – Virtual, Zoom Room 35

Introductory Remarks		2:00 PM
Biochar supported slow-release nitrogen fertilizer for sustainable agriculture	Santanu Bakshi	2:05 PM
Recycling phosphate using Fe-modified biochar for environmental applications	Santanu Bakshi	2:25 PM
An integrative approach of recycling phosphate and ammonium from swine manure	Chumki Banik	2:45 PM
Performance evaluation of precision separation processes for recovery of value-added resources from agricultural wastewater	Shu-Yuan (Sean) Pan	3:05 PM
Concluding Remarks		3:25 PM

Toxicity Assessment & Removal of "Forever Chemicals" in Environmental Matrices & Chemical Approaches for the Sustainment of Environmental Resiliency

New Insights into the treatment technologies of emerging contaminants

Organizers: Kelley-Loughnane, Nancy | Kolel-Veetil, Manoj; Naval Research Laboratory | Nadagouda, Mallikarjuna; US EPA | Shukla, Manoj | Sayes, Christie; Baylor University

Oral – Virtual, Zoom Room 34

Introductory Remarks		2:00 PM
Ultrasound-induced defluorination of per- and polyfluoroalkyl substances (PFAS) with different chain lengths and terminal groups	Xuexiang He, Kevin O'Shea	2:05 PM
Bioprospecting approaches for emerging contaminants	Vanessa Varaljay	2:25 PM
Electrochemical mineralization of GenX	Vivek Pulikkal	2:45 PM
Identification of per- and polyfluoroalkyl degrading enzymes <i>via</i> natural language processing models	Eric Harper	3:05 PM
Molecular dynamics investigations into the impact of graphene functionalization on PFAS adsorption	Caitlin Bresnahan	3:25 PM
Concluding Remarks		3:45 PM

Wednesday 8/25/2021 – In-Person Session 4 / Virtual Session 3

4:30 PM - 6:30 PM (EDT)

Sustainable Agriculture & Food Systems

Organizers: Braswell, Evan

Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Introductory Remarks		4:30 PM
Mechanistic understanding of nanoparticle interactions with bacterial cells: Reaction oxygen species and metal ion content are equally important in nano-based antibacterial agents	Thelma Ameh	4:35 PM
Uptake of phosphorus from modified P enriched Douglas fir biochar influenced crop growth and P use efficiency	Beatrice Arwenyo	4:55 PM
Bacterial inhibition efficacy analyses of nanoparticle production schemes for agricultural and environmental applications	Thelma Ameh	5:15 PM
Novel iron based nanoformulation for HLB management	Swarna Shikha	5:35 PM
Nanobubbles and soil interactions and the effects on soil nutrient release and plant growth	Shan Xue	5:55 PM
Concluding Remarks		6:15 PM

Electrified Water Treatment Processes

Organizers: Xie, Xing; Georgia Institute of Technology | Hatzell, Marta | Lin, Shihong | Tarpeh, William

Wednesday 8/25/2021, 4:30 PM - 6:30 PM, Oral - In-person

B402 (Georgia World Congress Center)

Robust correlation equation for predicting the energy efficiency and process performance of electrodialysis in brackish water desalination	Li Wang	4:30 PM
Salinity exchange for potable water	Mourin Jarin	4:50 PM

Novel energy efficient design of iron electrocoagulation for remediating arsenic contaminated waters	Siva Rama Satyam Bandaru, Dana Hernandez	5:10 PM
The evaluation of polarity reversal as a means of mitigating fouling in electrocoagulation	Heline Chow	5:30 PM
Efficient water disinfection enabled by locally enhanced electric field treatment with zinc-oxide nanowire-modified electrodes	Wenxiaoshan Sui	5:50 PM
Hydrophobic conductive polymer modified anion exchange membrane for selective nitrate separation in membrane capacitive deionization	Lingchen Kong	6:10 PM

Natural Organic Matter: Fate & Characterization

Organizers: Pedersen, Joel; Univ of Wisconsin | Rosario, Fernando; Univ of Colorado | Song, Weihua; Fudan University | Deng, Yang; Montclair State University | Gonsior, Michael; Chesapeake Biological Laboratory

Oral - In-person, B401 (Georgia World Congress Center)

Introductory Remarks		4:30 PM
Algal impacted surface waters: Disinfection byproduct risks and the effects of peracetic acid pre-oxidation	Zachary Kralles	4:35 PM
Comparing the photochemical reactivity of extracellular organic matter (EOM) and intracellular organic matter (IOM) from algae	Joseph Wasswa	4:55 PM
Computational assessment of the optical properties of dissolved organic matter	Fernando Rosario	5:15 PM
Interaction of pathogenic prion protein with humic substances: Direct observation and characterization	Stuart Lichtenberg	5:35 PM
Concluding Remarks		6:15 PM

Environmental Health & Toxicology

Organizers: Sayes, Christie; Baylor University | Prasse, Carsten; Johns Hopkins University

Oral – Virtual, Zoom Room 33

Impacts of hydraulic fracturing flowback and produced water on soil microbial communities	Cheng Zhong	4:30 PM
PFAS impacts on microbial metabolism and biodegradation of aromatic hydrocarbons and chlorinated solvents	Christopher Olivares	4:50 PM
Genome, metabolic pathways and characteristics of co-metabolism of dibenzothiophene and the biodiesel byproduct glycerol in <i>Paraburkholderia sp.</i> C3	Xiaolu Liu	5:10 PM
Removal of particulate matter and associated trace elements from ambient air by four evergreen tree species in Dhaka, Bangladesh	Saif Shahrukh	5:30 PM
Particulate pollution near drains In New Delhi	Asha Jamloki	5:50 PM
Barrier functions of tomato (<i>Solanum lycopersicum</i>) under artificial contamination of soils with benzo[a]pyrene	Valery Kalinitchenko	6:10 PM

Mössbauer Spectroscopy from Magnetic Nanoarchitectures to Environmental Science: A Symposium in Honor of Dr. Jean-Marc Greneche

Organizers: Nishida, Tetsuaki | Homonnay, Zoltan; Eotvos Lorand Tudományegyetem | Garcia, Karen | Li, Xuning

Oral – Virtual, Zoom Room 34

Glass transition behavior of oxide glass regulated by local and network structure	Tetsukai Nishida	4:30 PM
New photo-Fenton type catalyst of soda-lime aluminosilicate glass prepared by recycling waste slag	Shiro Kubuki	4:50 PM
Photocatalytic degradation of phenol by iron-silicate glass under visible light irradiation	Irfan Khan	5:10 PM
Influence of selected metal cations on the structural, magnetic, optical, and photocatalytic properties of γ -Fe ₂ O ₃ nanorods	Nina Popov	5:30 PM
Role of iron in kaolin as a precursor for kaolinite-based catalysts	Zoltan Homonnay, Erno Kuzmann, János Kristóf	5:50 PM

Toxicity Assessment & Removal of "Forever Chemicals" in Environmental Matrices & Chemical Approaches for the Sustainment of Environmental Resiliency

New Approaches for PFAS Destruction

Organizers: Kelley-Loughnane, Nancy | Kolel-Veetil, Manoj; Naval Research Laboratory | Nadagouda, Mallikarjuna; US EPA | Shukla, Manoj | Sayes, Christie; Baylor University

Oral – Virtual, Zoom Room 35

Introductory Remarks		4:30 PM
Hybrid plasma - A novel route for degradation and destruction of PFASs in AFFF concentrates	Swathi Iyer G R	4:35 PM
Degradation of perfluorooctane sulfonate (PFOS) by UV-irradiation of hydrogen terminated detonation nanodiamond (HDND)	William Maza	4:55 PM
AI/ML models for guiding PFAS degradation approaches	Harley McAlexander	5:15 PM
Discussion		5:35 PM
Concluding Remarks		5:45 PM

Wednesday 8/25/2021 –Virtual Session 4 / In-Person Posters

7:00 PM - 9:00 PM (EDT)

Environmental Health & Toxicology

Organizers: Sayes, Christie; Baylor University | Prasse, Carsten; Johns Hopkins University

Oral – Virtual, Zoom Room 33

Combination of DTT assay results and thermodynamic calculations to assess the oxidative potential of PAHs in ambient PM _{2.5}	Amber Kramer	7:00 PM
Bisphenol A (BPA) migration from plastic containers into packaged foods: An overview of the risk assessment and its ongoing monitoring	Sugata Datta	7:20 PM

Bisphenol A (BPA) migration from plastic containers into packaged foods: An overview of the risk assessment and its ongoing monitoring	Abhishek Chauhan	7:20 PM
Are there excess fetal deaths attributable to waterborne lead exposure during the Flint Water crisis? Evidence from bio-kinetic model predictions and vital records	Siddhartha Roy	7:40 PM
Abstract sifter: A literature informatics tool for computational toxicology	Nancy Baker	8:00 PM
Structures of endocrine-disrupting chemicals determine binding to and activation of the estrogen receptor α and androgen receptor	Haoyue Tan	8:20 PM
Effect of contaminants of emerging concern in soils on plant secondary metabolites profile	Inna Popova	8:40 PM

Natural Organic Matter: Fate & Characterization

Organizers: Pedersen, Joel; Univ of Wisconsin | Rosario, Fernando; Univ of Colorado | Song, Weihua; Fudan University | Deng, Yang; Montclair State University | Gonsior, Michael; Chesapeake Biological Laboratory

Oral – Virtual, Zoom Room 34

Introductory Remarks		7:00 PM
Characterization of landfill leachate organic matter using ultrahigh resolution mass spectrometry	Katherine Martin	7:05 PM
Biodegradation of terrigenous organic matter (TOM) in a stratified large-volume water column: Implications of the removal of TOM in the coastal ocean	Xilin Xiao	7:25 PM
Photochemical formation of carbonate radical and its reaction with dissolved organic matters	Weihua Song	7:45 PM
Abiotic reduction of the munitions compounds DNAN and NTO by humic acids	Jimmy Murillo Gelvez	8:05 PM
Exploring the correlation between physicochemical characteristics of micropollutants and the competitive pressure of dissolved organic matter for micropollutant adsorption on activated carbon	Jiwon Jeong	8:25 PM
Concluding Remarks		8:45 PM

Reactivity of Biochar & its Modification

Organizers: Pan, Bo; Kunming University of Science Technology | Rinklebe, Jörg | Oleszczuk, Patryk; Uniwersytet Marii Curie-Skłodowskiej | Xing, Baoshan; Univ of Massachusetts

Oral – Virtual, Zoom Room 35

Introductory Remarks		7:00 PM
Replenishing the electron storage capacity of pyrogenic carbonaceous materials using microbial communities	Douglas Call	7:05 PM
Microbial interspecies electron transfer and the reactivity of biochars	Zhiling Guo	7:25 PM
Modulation effects of biochar on the soil microbiome: A three-level meta-analysis	Yaqi You	7:45 PM
Inhibition p-nitrophenol degradation mechanism of biochar by Fe(III)	Wenyan Duan	8:05 PM
Extracting value-added compounds and improving water treatment capabilities of hydrochar through secondary char separation	Madeline Karod	8:25 PM
Concluding Remarks		8:45 PM

Advanced Oxidation Processes: Progress & Challenges

Organizers: Minakata, Daisuke; Michigan Technological University College of Engineering | Dionysiou, Dionysios; University of Cincinnati | Sharma, Virender; Texas AM University

Poster - In-person, Hall B4 (Georgia World Congress Center)

Use of UV LEDs for halogen based advanced oxidation processes for removal of micropollutants from DOM-rich water	Madhusudan Kamat
Role of advanced oxidation species in the degradation of antibiotic pharmaceuticals	Hanoz Santoke

Advances in Chemical Oxidative Processes for Emerging Contaminants in Water & Wastewater

Organizers: Lefebvre, Olivier; National University of Singapore | Huang, Ching-Hua; Georgia Institute of Technology | Guan, Xiaohong

Poster - In-person, Hall B4 (Georgia World Congress Center)

Powder activated carbon promotes persulfate activation to degrade PFOA and 1,4-dioxane at room temperature	Katherine Manz
Optimizing the simultaneous degradation of bisphenol A (BPA) and bisphenol F (BPF) using manganese oxide-coated magnetic nanoparticles	Kaitlin Bridges
Green use of persulfate electrogenerated at boron doped diamond (BDD) electrodes: Storage capacity, service-life solution, and application in soil washing	Carlos Alberto Martinez Huitle

Current Perspectives in Perfluorinated Chemicals: Fate & Behavior

Organizers: Peng, Hui; University of Toronto | Ng, Carla; ETH Zurich

Poster - In-person, Hall B4 (Georgia World Congress Center)

The investigation of PFOA and PFOS adsorption on engineered biochar using column and batch experiments	Yudi Wu
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Current Perspectives in Water Reuse & Recycling

Organizers: Liu, Jiaqi; Baylor University

Poster - In-person, Hall B4 (Georgia World Congress Center)

Adsorptive removal of hair dye BB99 from solution using agricultural waste	Gabriel Mascagni
Introduction of air sparging in direct contact membrane distillation (DCMD) to mitigate membrane flux reduction and fouling	Mitun Chandra Bhoumick
Effluent reduction in pulp and paper manufacturing: Paper machine white water recycle in bleaching section	Amod Parkhi

Current Progress in Emission Control Catalysis

Organizers: Kunal, Pranaw; Ames Laboratory | Toops, Todd

Poster - In-person, Hall B4 (Georgia World Congress Center)

Low-temperature CO oxidation over surface-oxygenated nanoalloy catalysts	Shan Wang
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Development of Sustainable Household Water Treatment

Organizers: Deng, Yang; Montclair State University | Wang, Yin; University of Wisconsin-Milwaukee

Poster - In-person, Hall B4 (Georgia World Congress Center)

Water, water everywhere, but not a drop to drink	Rebecca Bushway
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Disinfection Byproducts in Drinking Water & Wastewater: Detection, Formation & Control

Organizers: Yang, Xin; Sun Yat-sen University, Environmental Science|Westerhoff, Paul; Arizona State Univ|Richardson, Susan|Shang, Chii; The Hong Kong University of Sci. Technol.

Poster - In-person, Hall B4 (Georgia World Congress Center)

Electrochemical membrane aging and oxides of halogen formation	Qingquan Ma
Halogenation of <i>para</i> -hydroxybenzoate esters (parabens) in chlorinated and brominated waters under simulated drinking water disinfection conditions	Andrew Psoras Seth McCoy
Evaluating transformation of parabens at two wastewater treatment plants with two different disinfection processes	Michael Penrose

Electrified Water Treatment Processes

Organizers: Xie, Xing; Georgia Institute of Technology|Hatzell, Marta|Lin, Shihong|Tarpeh, William

Poster - In-person, Hall B4 (Georgia World Congress Center)

Novel electrochemical technology for removing arsenic to less than 1 µg/L: Role of pH on removal pathways	Siva Rama Satyam Bandaru
Understanding the extent of ionic dissociation and ionic conductivity in model thin film polymer electrolytes as a function of different side chain configurations	Mario Ramos-Garcés

Environmental Analysis: Current Advances & Challenges

Organizers: Goranov, Aleksandar; Old Dominion University|Wagner, Sasha; Rensselaer Polytechnic Institute|Podgorski, David|Zito, Phoebe

Poster - In-person, Hall B4 (Georgia World Congress Center)

Production and optimization of extracellular lipase expressed by <i>Aspergillus flavus</i> isolated from petroleum-contaminated soil	Eucharia Nwaichi
Advancing detection of infectious prion protein in complex matrices relevant for indirect disease transmission	Heather Inzalaco
High-throughput prion detection in contaminated soils and compost	Stuart Lichtenberg
Discriminatory detection of antibiotic resistance genes (ARGs) by surface-enhanced Raman spectroscopy (SERS) and tree-based support vector machines (Tr-SVM)	Seju Kang
Extracting active perchlorate-reducing enzymes from soils as a measure of bioremediation potential	Wambura Chacha

Environmental Health & Toxicology

Organizers: Sayes, Christie; Baylor University|Prasse, Carsten; Johns Hopkins University

Poster - In-person, Hall B4 (Georgia World Congress Center)

Environmental health effects after vaping: Mechanistic analyses resulting from terpene and diluent co-exposures	Yanira Baldovinos, Christie Sayes
Development of biochar nanocomposites for water purification	Ye Gao
Detection of infectious prions in plants	Kate Burgener

General Posters

Organizers: Sharma, Virender; Texas AM University|Sayes, Christie; Baylor University

Poster - In-person, Hall B4 (Georgia World Congress Center)

Comparison of heavy metal concentrations in water sediment of Lake Greenwood, Lake Murray, and Clarks Hill Lake in South Carolina	Albert Dukes
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Forward solute transport across a freestanding graphene oxide membrane in forward osmosis	Su Liu
Effective removal of iodine species by organoclays MRM and PM-199	Phuong Pham
Fenton oxidation of bisphenol A in a sediment environment-a pilot study	Young Hun Kim
Heavy metal dissolution characteristics of lake sediments from Andong Dam, Korea	Jeong Jin Kim
National climate assessment: Updates and opportunities for participation by the ACS community	Christopher Avery
Complexation of mercury with dissolved organic matter from Everglades periphyton	Afia Anjuman
Enhancement of anaerobic co-digestion for treating food wastes and sewage sludge using free nitrous acids as pretreatment	Camila Proano, Ruizhe Liu
Progress in the development of a natural, environmentally friendly synthesis of loperamide	Riley Alpuche, Brian Agee
Elucidating specific chemical interactions between emerging contaminants and surface functional groups relevant to natural organic matter	Philomena Olaniyan
Phosphate removal from contaminated waters via iron hydroxide adsorption	Erika Flores
Chlorine-free disinfection of water contaminated with <i>E.coli</i> combination of electrolysis, ultrasonic and photochemical treatment: Role of hydroxyl radical formation and generation of singlet oxygen	Nikolay Barashkov
Progression in the green synthesis of acetaminophen	Elizabeth Barker
Evaluation of the inhibitory effects of azole compounds on biological nitrogen removal processes in wastewater treatment plants	Xiaojuan Chen

Innovative Materials for Environmental Sustainability

Organizers: Luque, Rafael; Universidad de Cordoba | Orlov, Alexander; Materials Science Engineerin
Poster - In-person, Hall B4 (Georgia World Congress Center)

Screening biological and non-biological materials for the biosorption of proteins	William Roman
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Microplastics & Nanoplastics: Fate & Behavior

Organizers: Ma, Xingmao; Texas A&M University | Al-Abed, Souhail; US EPA | Potter, Phillip; EPA
Poster - In-person, Hall B4 (Georgia World Congress Center)

Microplastic detection and quantification in the Cincinnati urban watershed using laser direct infrared (LDIR) chemical imaging system	Quinn Whiting
Analysis of microplastics in wastewater treatment plants: Challenges and lessons learned during sample preparation	Kelsey Sikon
Interactions between nano/micro plastics and suspended sediment in water: Implications on aggregation and settling	Xinjie Wang

Nanoparticle Interactions in Environmental Systems

Organizers: Su, Yiming; University of California Los Angeles | Adeleye, Adeyemi; University of California Irvine | Keller, Arturo; University of California, Santa Barbara
Poster - In-person, Hall B4 (Georgia World Congress Center)

Facet-dependent electrochemical behavior of Cu ₂ O microcrystals for methyl orange: Theoretical prediction and experimental validation	Qingquan Ma
Effects of CuO based nanoparticles (NPs) on the growth and fruit quality of candyland red tomatoes	Jesus Cantu
Chemical and colloidal stability of Ti ₃ C ₂ T _x MXenes under environmentally relevant conditions	Nasim Ganji

Utilization of solid-phase metal sulfide as electron donors by <i>A. vinosum</i> and <i>H. halophila</i> : A comparative and mechanistic study	Hugo Alarcon
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Reactivity of Biochar & its Modification

Organizers: Pan, Bo; Kunming University of Science Technology | Rinklebe, Jörg | Oleszczuk, Patryk; Uniwersytet Marii Curie-Sklodowskiej | Xing, Baoshan; Univ of Massachusetts
Poster - In-person, Hall B4 (Georgia World Congress Center)

Simultaneous sorption of multioxyanions using magnetic Douglas fir biochar	Arisa Ramirez
Enhanced removal of methylene blue from aqueous solutions employing ball milling and hydrogen peroxide modified biochar	Yue Zhang
Sorption and reduction of insensitive munitions compounds by wood biochar	Julian Giron

Toxicity Assessment & Removal of "Forever Chemicals" in Environmental Matrices & Chemical Approaches for the Sustainment of Environmental Resiliency

Organizers: Kolel-Veetil, Manoj; Naval Research Laboratory | Kelley-Loughnane, Nancy | Nadagouda, Mallikarjuna; US EPA | Shukla, Manoj | Sayes, Christie; Baylor University
Poster - In-person, Hall B4 (Georgia World Congress Center)

Desulfonation and defluorination of 6:2 fluorotelomer sulfonic acid (6:2 FTSA) by <i>Rhodococcus jostii</i> RHA1: Carbon and sulfur sources, enzymes, and pathway	Shih-Hung Yang
β-Cyclodextrin polymers with different cross-linkers and ion-exchange resins exhibit variable adsorption of anionic, zwitterionic, and nonionic PFASs	Casey Ching
Kinetic and mechanistic studies of the ultrasound-induced remediation of hexafluoropropylene oxide homologues, as emerging per- and polyfluoroalkyl substances (PFAS)	Xuexiang He, Kevin O'Shea
Cucurbit[n]urils: Metal-mediated interactions with dyes	Farooq Khan
Photoluminescent carbon dot-intercalated bentonite: A light responsive nanohybrid for lead removal	Khoulood Jlassi

Understanding Biological, Chemical, & Environmental Interactions & Transport of SARS-Co-2

Organizers: Boufadel, Michel; New Jersey Institute of Technology
Poster - In-person, Hall B4 (Georgia World Congress Center)

Detection and persistence of SARS-CoV-2 in the Tijuana River	Alma Rocha
Praemonitus, praemunitus: Expected new pandemics outbreaks and factors leading to them	Zoe Sessions
Data-driven model of the thermal inactivation of SARS-CoV-2	Te Faye Yap
Using WBE to identify covid-19 hotspots, prevalence and dynamics within a community	Devrim Kaya

Water Purification with Nanomaterials Exemplify Resilience of Chemistry

Organizers: Ahuja, Satinder; Ahuja Consulting
Poster - In-person, Hall B4 (Georgia World Congress Center)

Modifying the active surface of TFC membranes by Ag-MOF nanorods to improve anti-biofouling performance for water treatment application	Ehsan Zolghadr
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Thursday 8/26/2021 – In-Person Session 1

8:00 AM - 10:00 AM (EDT)

Toxicity Assessment & Removal of "Forever Chemicals" in Environmental Matrices & Chemical Approaches for the Sustainment of Environmental Resiliency

Developing tools for more effective PFAS remediation

Organizers: Kelley-Loughnane, Nancy|Kolel-Veetil, Manoj; Naval Research Laboratory|Nadagouda, Mallikarjuna; US EPA|Shukla, Manoj|Sayes, Christie; Baylor University

Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Introductory Remarks		8:00 AM
Material design criteria for selective adsorption and retention of various PFAS as predicted by molecular dynamics simulations	Timothy Schutt	8:05 AM
Insight into thermal PFAS decomposition using in situ high-temperature DRIFTS for computational model validation	Robert Balow	8:25 AM
Machine learning approach for predicting defluorination of per- and polyfluoroalkyl Substances (PFAS) for their efficient treatment and removal	Bryan Wong	8:45 AM
Curation and enrichment of per- and polyfluoroalkyl substances databases using feature engineering approaches for AI/ML	Andrew Castillo	9:05 AM
Concluding Remarks		9:25 AM

Circularity Challenges & Advances in Plastics Recycling

Organizers: Glaser, John; USEPA|Sahle Demessie, Endalkachew; U, S Environmental Protection Agency

Oral - In-person, B401 (Georgia World Congress Center)

Introductory Remarks		8:00 AM
Developing circular solutions in the petrochemicals industry	Ronald Abbott	8:05 AM
Upcycling polyolefin plastics to liquid alkane by catalytic hydrogenolysis	Linxiao Chen	8:25 AM
Occurrences and impacts of microplastics in soils and groundwater	Jinsheng Huang	8:45 AM
Investigating interactional effects during chemical recycling of mixed PET waste by hydrothermal liquefaction	Seshasayee Mahadevan Subramanya	9:05 AM
Evaluation of the expanded polystyrene pyrolysis process to obtain fuel precursors	Natalia Correa Palencia	9:25 AM
Discussion		9:45 AM
Closing Remarks		9:55 AM

Water Purification with Nanomaterials Exemplify Resilience of Chemistry

Organizers: Ahuja, Satinder; Ahuja Consulting

Thursday 8/26/2021, 8:00 AM - 9:45 AM, Oral - In-person
B402 (Georgia World Congress Center)

Introductory Remarks		8:00 AM
Role of chemistry in water purification with nanomaterials	Satinder Ahuja	8:05 AM
Scalable surface nanoengineering of polymeric filtration membranes via electrospray-assisted deposition and incorporation of biocidal nanomaterials	Zhishang WAN	8:50 AM
Lead phosphate nanoparticles in tap water: Challenge for point-of-use devices	Weiyi Pan	9:10 AM
Discussion		9:30 AM

Concluding Remarks		9:40 AM
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Thursday 8/26/2021 – In-Person Session 2 / Virtual Session 1

10:30 AM - 12:30 PM (EDT)

Toxicity Assessment & Removal of "Forever Chemicals" in Environmental Matrices & Chemical Approaches for the Sustainment of Environmental Resiliency Removal of PFAS using porous adsorbents and advanced filtration membranes and regeneration of spent carbon

Organizers: Kelley-Loughnane, Nancy|Kolel-Veetil, Manoj; Naval Research Laboratory|Nadagouda, Mallikarjuna; US EPA|Shukla, Manoj|Sayes, Christie; Baylor University

Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Introductory Remarks		10:30 AM
Immobilization of a perfluorooctanesulfonate (PFOS) molecularly imprinted polymer adsorbent on spent coffee ground biochar for targeted PFOS removal	Jessica Steigerwald	10:35 AM
Removal of poly and perfluorinated compounds from contaminated groundwater using metal-organic frameworks	Rui Li	10:55 AM
Removal of perfluorooctanoic acid and perfluorooctanesulfonic acid using polyelectrolyte modified ultrafiltration membrane	A H M Sadmani	11:15 AM
Competition between short-chain and long-chain per- and polyfluoroalkyl substance (PFAS) during sorptive removal by granular activated carbon	Yi Zhang	11:35 AM
Competition between short-chain and long-chain per- and polyfluoroalkyl substance (PFAS) during sorptive removal by granular activated carbon	Arjun Venkatesan	11:35 AM
Regeneration of PFAS-exhausted granular activated carbons by microwave irradiation	Yeakub Zaker	11:55 AM
Concluding Remarks		12:15 PM

Environmental Analysis: Current Advances & Challenges

Mass Spectrometry Method Development

Organizers: Goranov, Aleksandar; Old Dominion University|Wagner, Sasha; Rensselaer Polytechnic Institute|Podgorski, David|Zito, Phoebe

Oral - In-person, B402 (Georgia World Congress Center)

Introductory Remarks		10:30 AM
Dissolved marine metabolomics: Advances and continuing challenges to constraining the dynamics of biologically labile molecules in the ocean	Elizabeth Kujawinski	10:35 AM
Airborne extractive electrospray mass spectrometry measurements of the chemical composition of organic aerosol	Jose Jimenez	10:55 AM
Identification of disinfection byproduct precursors in recycled wastewater by chemical derivatization	Jean Van Buren	11:15 AM
MFAssignR: Molecular formula assignment software for ultrahigh resolution mass spectrometry analysis of environmental complex mixtures	Simeon Schum	11:35 AM
Statistical evaluation of quantitative non-targeted analysis methods using ENTACT data	Louis Groff	11:55 AM
Concluding Remarks		12:15 PM

Water Purification with Nanomaterials Exemplify Resilience of Chemistry

Organizers: Ahuja, Satinder; Ahuja Consulting

Oral - In-person, B401 (Georgia World Congress Center)

Wettability and photocatalysis decoupled membranes for desalination and separation of oil-saline water mixture	Bishwash Shrestha	10:30 AM
Advanced polymeric materials for produced water treatment	Fahd Alghunaimi	10:50 AM
Multifunctional MoS ₂ -supported nanocomposites for water decontamination	Kfir Shapira	11:10 AM
Nanocellulose from sorghum stalk: An effective substrate to remove thallium (I) impurities	Priyanka Sharma	11:30 AM
Molybdenum sulfides (MoS ₂) nanosheets for sorption of methylene blue from wastewater	Abdulmajeed Hendi	11:50 AM
Tailored nanoparticles for advanced water purification	Sherine Obare	12:10 PM

Circularity Challenges & Advances in Plastics Recycling

Organizers: Glaser, John; USEPA|Sahle Demessie, Endalkachew; U, S Environmental Protection Agency

Oral – Virtual, Zoom Room 33

Introductory Remarks		10:30 AM
Defining aspects of plastic recycling in a circular economy	John Glaser	10:35 AM
Withdrawn		11:00 AM
Plastics packaging and the environment	Muhammad Rabnawaz	11:25 AM
"Most dangerous pollutant on the planet": Causes and effects of plastic pollution in Bangladesh	M Jamaluddin Ahmed	11:50 AM
Discussion		12:15 PM
Closing Remarks		12:25 PM

Electrified Water Treatment Processes

Organizers: Xie, Xing; Georgia Institute of Technology|Hatzell, Marta|Lin, Shihong|Tarpeh, William

Thursday 8/26/2021, 10:30 AM - 12:30 PM, Oral - Virtual

Zoom Room 34

Introductory Remarks		10:30 AM
Ion-exchange membranes for electrified separations	Ngai Yin Yip	10:40 AM
MoS ₂ modified membrane electrode for <i>in situ</i> electrocatalytic dehalogenation of halogenated antibiotics	Wenli Jiang	11:10 AM
Simultaneous dechlorination and advanced oxidation using electrically conductive membranes	Charles-Francois de Lannoy	11:30 AM
Highly-efficient membrane self-cleaning through <i>in situ</i> electro-generation of reactive chlorine species	Xiaoxiong Wang	11:50 AM
Electrochemical mercury removal and recovery using polyelectrolyte nanofiber membrane	Stephen Sarnyai	12:10 PM

Mössbauer Spectroscopy from Magnetic Nanoarchitectures to Environmental Science: A Symposium in Honor of Dr. Jean-Marc Greneche

Organizers: Nishida, Tetsuaki | Homonnay, Zoltan; Eotvos Lorand Tudományegyetem | Garcia, Karen | Li, Xuning

Oral – Virtual, Zoom Room 32

Ferrihydrite/goethite/hematite nanoparticles: Transformation and utilization by the roots of <i>cucumis sativus</i>	Maria Gracheva	10:30 AM
Biotransformation of magnetite and ferrihydrite studied by Mössbauer spectroscopy	Angelina Antonova	10:50 AM
On the application of the Mössbauer spectra centroid to characterize non stoichiometric magnetite and quantify relative abundance in magnetite/maghemite mixtures	Juan Manuel Orozco Henao	11:10 AM
Role of chemical pressure in doped LaCoO ₃	Zoltan Nemeth	11:30 AM
Advances of Mössbauer spectroscopy in the study of meteorites	Michael Oshtrakh	11:50 AM
Concluding Remarks		12:10 PM

Thursday 8/26/2021 – In-Person Session 3 / Virtual Session 2

2:00 PM - 4:00 PM (EDT)

Toxicity Assessment & Removal of "Forever Chemicals" in Environmental Matrices & Chemical Approaches for the Sustainment of Environmental Resiliency

Degradation methods for perfluoroalkyl and polyfluoroalkyl substances in environmental media

Organizers: Kelley-Loughnane, Nancy | Kolel-Veetil, Manoj; Naval Research Laboratory | Nadagouda, Mallikarjuna; US EPA | Shukla, Manoj | Sayes, Christie; Baylor University

Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Introductory Remarks		2:00 PM
Microwave-assisted catalytic membrane filtration for PFOA degradation	Fangzhou Liu	2:05 PM
Vanadium carbide (V ₂ C) nanocatalysts for reductive defluorination of perfluorooctanesulfonate (PFOS) in the presence of hydrogen peroxide	Jessica Ray	2:25 PM
Thermal treatment of PFAS in environmental media	Phillip Potter	2:45 PM
Solvated electron defluorination of per- and polyfluoroalkyl substances (PFAS)	Chanaka Navarathna	3:05 PM
Degradation of PFAS by electrochemical oxidation	Lama SALEH	3:25 PM
Concluding Remarks		3:45 PM

Environmental Analysis: Current Advances & Challenges

Mass Spectrometry Applications

Organizers: Goranov, Aleksandar; Old Dominion University | Wagner, Sasha; Rensselaer Polytechnic Institute | Podgorski, David | Zito, Phoebe

Oral - In-person, B402 (Georgia World Congress Center)

Introductory Remarks		2:00 PM
Composition and nature of dissolved organic carbon in groundwater at petroleum release sites	Rachel Mohler	2:05 PM
Identification and characterization of per- and polyfluoroalkyl substances (PFASs) using FT-ICR MS in groundwater resources in Colorado, USA	Hamidreza Sharifan	2:25 PM
Molecular-level understanding of the harmful effects of road sealants	Taylor Glatke	2:45 PM

Oxidation products of polycyclic aromatic hydrocarbons with thermally activated persulfate: Mobility and reactivity with biomolecules	Amy Cuthbertson	3:05 PM
Untargeted MS _n -based monitoring of glucuronides in fish: Screening complex mixtures for contaminants with biological relevance	Jonathan Mosley	3:25 PM
Concluding Remarks		3:45 PM

Water Purification with Nanomaterials Exemplify Resilience of Chemistry

Organizers: Ahuja, Satinder; Ahuja Consulting

Oral - In-person, B401 (Georgia World Congress Center)

Introductory Remarks		2:00 PM
TiO ₂ mixed matrix hollow fibers for water purification	Alberto Figoli	2:05 PM
Remediation of arsenic contaminated water with graphene oxide	Swagotom Sarkar	2:30 PM
Sustainable cellulose nanocrystals for improved antimicrobial properties of thin film composite membranes	Jennifer Jackson	2:50 PM
Nano-biocatalyst for next generation water treatment challenges	Anushree Ghosh	3:10 PM
Discussion		3:30 PM
Closing Remarks		3:40 PM

Development of Sustainable Household Water Treatment

Organizers: Deng, Yang; Montclair State University|Wang, Yin; University of Wisconsin-Milwaukee

Oral – Virtual, Zoom Room 30

Introductory Remarks		2:00 PM
Removal of per- and polyfluoroalkyl substances and 1,4-dioxane in home filters under field conditions	Detlef Knappe	2:05 PM
Removing disinfection byproducts from drinking water by household heating devices: Efficiency, Influencing factors, and mechanisms	Baiyang Chen	2:30 PM
Decentralized water treatment and monitoring in rural Kenyan communities	Sruthi Dasika	2:50 PM
Achieving an ultrastable graphene oxide-based membrane in a magnetic field	Delai Zhong	3:10 PM
Concluding Remarks		3:30 PM

Electrified Water Treatment Processes

Organizers: Xie, Xing; Georgia Institute of Technology|Hatzell, Marta|Lin, Shihong|Tarpeh, William

Oral – Virtual, Zoom Room 31

Electrochemical ammonium and phosphate recovery from wastewater	Lauren Greenlee	2:00 PM
Effects of oxygen-vacancy forming supports on the electrocatalytic nitrate reduction reaction	O. Quinn Carvalho	2:30 PM
Studying the kinetics in microbial electrochemical system: Comparison between Butler-Volmer model and simplified Marcus-Hush-Chidsey model	Fubin Liu	3:00 PM
Electrochemical lithium recovery from lithium-ion battery leachate solution	YunJai Jang	3:20 PM
Electrochemical ammonia recovery using a proton-mediated redox couple	Weikun Chen	3:40 PM

Thursday 8/26/2021 – In-Person Session 4 / Virtual Session 3

4:30 PM - 6:30 PM (EDT)

Toxicity Assessment & Removal of "Forever Chemicals" in Environmental Matrices & Chemical Approaches for the Sustainment of Environmental Resiliency

Biological and Bio-Inspired Treatment of PFAS and Waterborne Contaminants

Organizers: Kelley-Loughnane, Nancy|Kolel-Veetil, Manoj; Naval Research Laboratory|Nadagouda, Mallikarjuna; US EPA|Shukla, Manoj|Sayes, Christie; Baylor University

Oral – Hybrid, Thomas Murphy Ballroom Sections 1 & 2 (Georgia World Congress Center)

Introductory Remarks		4:30 PM
Bio-inspired design of three dimensional nanoarchitecture for removal of waterborne contaminants	Paresh Ray	4:35 PM
Investigation of multigenerational PFOS exposures in zebrafish (<i>Danio rerio</i>)	Kurt Gust	4:55 PM
MD perspective on competitive factors affecting PFAS adsorption on clay surfaces	Charles Luft	5:15 PM
Biotransformation of 6:2 fluorotelomer sulfonate in AFFF-impacted soil under oxic and anoxic conditions	Pengfei Yan, Sheng Dong	5:35 PM
Concluding Remarks		6:15 PM

Environmental Analysis: Current Advances & Challenges

Spectroscopy

Organizers: Goranov, Aleksandar; Old Dominion University|Wagner, Sasha; Rensselaer Polytechnic Institute|Podgorski, David|Zito, Phoebe

Oral - In-person, B401 (Georgia World Congress Center)

Introductory Remarks		4:30 PM
Interrogating interactions and adsorption of organic carbon to mineral surfaces with nanometer spatial resolution and high sensitivity using nanoscale infrared spectroscopy	Brian O'Callahan	4:35 PM
Seasonality studies of collected environmental films using interfacial spectroscopy	Jessica DeYoung	4:55 PM
Environmental sensing applications of bacterial cellulose-based nanocomposites: Combining surface enhanced Raman spectroscopy and machine learning techniques	Asifur Rahman	5:15 PM
Combining selective sequential extraction with XAFS analysis as a tool for the heavy metal speciation in spolic technosols	Valery Kalinitchenko	5:35 PM
Omics fingerprinting of chemical signatures to predict the environmental effects on organic biofertilizer/stimulant and bioenergy feedstock	Sophie Uchimiya	5:55 PM
Concluding Remarks		6:15 PM

Development of Sustainable Household Water Treatment

Organizers: Deng, Yang; Montclair State University|Wang, Yin; University of Wisconsin-Milwaukee

Oral – Virtual, Zoom Room 30

Introductory Remarks		4:30 PM
Point-of-use water treatment devices and lead-containing particles: Accumulation, release, and transport	Daniel Giammar	4:35 PM
Principles for designing sustainable household water treatment	Yang Deng	5:00 PM

Electric-field-enhanced electrochemical water disinfection by novel energy sources	Jianfeng Zhou	5:20 PM
Accessible electrically-generated chlorine disinfectant for resource-poor communities	Sara Mahmoud	5:40 PM
Concluding Remarks		6:00 PM

Electrified Water Treatment Processes

Organizers: Xie, Xing; Georgia Institute of Technology | Hatzell, Marta | Lin, Shihong | Tarpeh, William

Oral – Virtual, Zoom Room 31

Electrochemical reduction of water contaminants through novel electrode design	Brian Chaplin	4:30 PM
Electrochemical treatment of emerging biological and chemical contaminants: from bench-scale study to field application	Yang Yang	5:00 PM
Electrochemical oxidation of PFOA and PFOS using a novel molybdenum disulfide (MoS ₂)-biopolymer-nanocarbon coated electrode	Jae Hoon Hwang	5:30 PM
Electric field enhanced membrane fouling mitigation and trace organic compounds removal in a membrane filtration system treating secondary effluent of a sewage treatment plant	Zhen Du	5:50 PM
Towards practical electrocatalysis for industrial wastewater treatment: The stability of H ₂ O electrosynthesis	David Kim	6:10 PM

Thursday 8/26/2021 – Virtual Session 4

7:00 PM – 9:00 PM (EDT)

Development of Sustainable Household Water Treatment

Organizers: Deng, Yang; Montclair State University | Wang, Yin; University of Wisconsin-Milwaukee

Oral – Virtual, Zoom Room 01

Introductory Remarks		7:00 PM
Electrospun nanofiber composites as chemically reactive membranes for in home water treatment	David Cwiertny	7:05 PM
Passive permeate-side-heated solar thermal membrane distillation: Extracting potable water from seawater, surface water, and municipal wastewater at high single-stage solar efficiencies	Peng Yi	7:30 PM
Membrane-assisted electrochlorination for zero-chemical-input point-of-use drinking water disinfection	Daniel Ocasio	7:50 PM
Can trihalomethane disinfection byproducts be managed at the household level?	George William Kajjumba	8:10 PM
Understand the role of nanoscale zerovalent iron (nZVI) in removing arsenite during groundwater treatment	Yang Ha	8:30 PM
Concluding Remarks		8:50 PM

Electrified Water Treatment Processes

Organizers: Xie, Xing; Georgia Institute of Technology | Hatzell, Marta | Lin, Shihong | Tarpeh, William

Oral – Virtual, Zoom Room 11

Asymmetric capacitive deionization and numerical analysis of electrode surface modification: Gold deposition vs acid treatment of carbon-fiber electrodes	Sanjay Tewari	7:00 PM
Flow-through electrosorption process for selective removal of silica	Wen Ma	7:20 PM

GAC-carbon cloth composite cathodes for electrochemical reduction of halogenated compounds in water	Jacob King	7:40 PM
Factors affecting the yield of electrochemical activation of H ₂ O by stainless steel electrodes	Yanghua Duan	8:00 PM
Closing Remarks		8:20 PM

Environmental Analysis: Current Advances & Challenges

Separations and Electrochemistry

Organizers: Goranov, Aleksandar; Old Dominion University|Wagner, Sasha; Rensselaer Polytechnic

Institute|Podgorski, David|Zito, Phoebe

Oral – Virtual, Zoom Room 10

Introductory Remarks		7:00 PM
Deciphering molecular level information of natural organic matter using thermal-slicing pyrolysis coupled with gas chromatography mass spectrometry	Zhanfei Liu	7:05 PM
Illuminating the dark metabolome: Species-specific <i>Pseudo-nitzschia</i> metabolomes are distinguished by structurally diverse nitrogen compounds	Irina Koester	7:25 PM
Toward automated identification and sorting of <i>foraminifera</i> via microfluidics	Michael Daniele	7:45 PM
Single-molecule sensing of perfluorinated carboxylic acids	Kaipei Qiu	8:05 PM
Electro-spraying zwitterionic copolymer to minimize biofouling on S-ISE sensors: Tackling long-term wastewater monitoring challenge	Yuankai Huang	8:25 PM
Concluding Remarks		8:45 PM

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