Division of Environmental Chemistry
Call for Papers

ACS Spring 2026
Atlanta, GA & Digital | March 22-26

Share your recent research and results with the Division of Environmental Chemistry at ACS Spring 2026. Join us in Atlanta or virtually. Submit abstracts for in-person or digital presentation at https://callforabstracts.acs.org/acsspring2026/ENVR.

Several symposia are offered jointly with other ACS divisions (**Joint Symposia**). Contact ENVR Spring Program Chair if you would like to be part of the joint organization team.

Global Virtual Symposia (GVS) offer researchers from Asia, Oceania, Africa, the Middle East, Europe, and Latin America the opportunity to present their work virtually across multiple GMT time zones.

Abstract Submission Deadline: **September 29, 2025**

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Honorary and Special Symposia

ACS Award for Creative Advances in Environmental Science & Technology
Organizer: Virender K. Sharma

Symposium honoring 2026 recipient of the ACS Award for Creative Advances in Environmental Science & Technology, announced in August 2025. This award encourages creativity in research and technology or methods of analysis to provide a scientific basis for informed environmental control decision-making processes or to provide practical technologies that will reduce health risk factors.

ES&T Journals Award Session for James J. Morgan Early Career Lectureship
Organizer: Carlos Toro

This symposium celebrates the winners of the 2026 James J. Morgan Early Career Award. The award recognizes early career researchers who are pursuing new ideas, persisting despite adversity, and pushing the environmental science and technology community in exciting directions. The symposium features oral presentations by the winners of the award alongside other invited speakers.

Photocatalytic Fuel Synthesis: Mechanisms, Materials, and Future Trends; Honoring Professor Detlef W. Bahnemann, Germany
Organizers: Virender Sharma, Chuanyi Wang, Jia Hong Pan, Daniele Scheres Firak, Antônio Otávio de Toledo Patrocínio

A sympoium of colleagues celebrating the work of ENVR Emeritus Member, Prof. Dr. Detlef W. Bahnemann in photocatalysis, nanotechnology, and photoelectrochemistry. Prof. Bahnemann was

the Head of the Photocatalysis and Nanotechnology Research Unit at the Institute of Technical Chemistry, Leibniz University of Hannover (Germany), until his retirement at the end of 2021. Currently, he is Director of the Megagrant Laboratory "Photoactive Nanocomposite Materials" at St. Petersburg State University (Russia) and Distinguished Professor at Shaanxi University of Science & Technology, Xi'an (Peoples Republic of China). Prof. Bahnemann serves as Associate Editor of the Journal Catalysis Letters, Associate Editor of the Journal Photochem, Section Editor-in-Chief "Photocatalysis" of the Journal Catalysts, Executive Editorial Board Member of the Journal J Phys Energy, as well as Member of the Editorial Board of several other journals.

Addressing Sustainability Challenges

Circular Chemistry for Sustainable Development: Building Green Economies in Latin America and the Caribbean

Organizers: Laurel A. Royer, Celia K. Williams, Andrea Goldson-Barnaby, Isaac F. Céspedes Camacho, Patrick Gordon, Amalene Cooper-Morgan

This symposium explores how shifting Latin America and the Caribbean's chemical sector from a linear "take-make-dispose" model to circular, waste-to-value systems can simultaneously fuel economic growth and strengthen environmental security—especially for Small Island Developing States (SIDS), where land scarcity and import dependence heighten the urgency for innovative solutions. By spotlighting locally produced bio-based pesticides, the extraction of high-value compounds from agricultural residues, and closed-loop processes that transform municipal and industrial waste into new feedstocks, the program convenes researchers, entrepreneurs, policymakers, and multilateral partners to design the policy, financing, and technical frameworks needed to build regional innovation ecosystems. In doing so, it advances a clear message: environmental stewardship and economic prosperity are mutually reinforcing pillars of sustainable development, positioning Latin America and the Caribbean to lead globally in sustainable chemistry.

Circular Economy of Synthetic and Bio-based Polymers: Advances in Feedstocks, (bio)Degradation, Recycling, and Chemistry

Jointly sponsored with CELL, PMSE, POLY and ENVR

Organizers: Yujing Tan, Kate Knauer, Dimitrius Collias, Slawomir Lomnicki, Diego Gomez-Maldonado, Yuanqiao Rao

Our society is shifting from a linear economic model (take-make-use-dispose) to a circular economic model (raw-make-use-recycle/regenerate to raw) with the use of recycling and upcycling processes. This symposium focuses on three principles of circularity, designing at the beginning, applying re-approaches during the process, and using biodegradable/bio-sourced for sustainability (green). Scientists, engineers, and technologists interested in the latest developments and advances in this diverse field are highly encouraged to contribute oral and poster presentations and join the discussion. Topics include but are not limited to: 1) Upcycled products from waste-carbon feedstocks – for example, surfactants from waste plastics, chemicals and polymers from waste biomass or CO2; 2) Upcycling Processes and associated techno-economic analysis (TEA) and life cycle assessment (LCA); 3) Product Characterization – for example, process-structure-property relationships and property/composition/impurities relative to virgin materials; 4) Recyclable-by-Design Polymers – for example, the design of circular materials using waste carbon and green carbon building blocks.

Enabling Circular Economy through the Sustainable Conversion of Waste Streams into Valuable Resources
Organizers: Soryong Ryan Chae, Youngjune Park, Hanki Kim

This symposium aims to explore innovative scientific and engineering solutions that advance a sustainable future for both humanity and the environment. A central theme is enabling a circular economy through the sustainable conversion of waste streams (including wastewater, greenhouse gases, solid wastes, etc.) into valuable resources. By shifting away from the traditional linear 'take-make-dispose' model, the circular economy promotes a closed-loop system that emphasizes reducing, reusing, and recycling materials to extend their lifecycle and value.

Innovation, Community Impact, and Sustainable Chemistry Solutions across the Chemical Enterprise: A Multi-Stakeholder Approach
Organizers: Laurel A. Royer, Sederra Ross, Loyd Bastin, Jane Wissinger

While chemical innovations drive global progress, they create environmental challenges that disproportionately burden vulnerable and low-income communities, generating persistent disparities in who benefits from innovation versus who bears its environmental costs. This symposium brings together diverse stakeholders—community organizations, educators, researchers, policymakers, and industry leaders—to identify these challenges and develop solutions for just transitions that ensure all communities have meaningful roles in environmental decision-making. The collaborative discussion will focus on protecting vulnerable populations through environmental security and sustainable chemistry measures, creating equitable distribution of both chemical industry benefits and environmental risks, establishing transition pathways that support community health and economic stability, and integrating environmental justice principles with UN Sustainable Development Goals. Through this interdisciplinary dialogue, the symposium seeks to create actionable frameworks that fundamentally reshape chemical industry practices, ensuring that innovation strengthens rather than undermines community health, security, and well-being while advancing both global environmental protection and social equity.

Transforming Chemistry Practices for Sustainability and Safety
Jointly sponsored with CCS, CES, CHAS, COMSCI, and ENVR
Organizers: [TBA]

Advanced Materials

Advanced Materials and Computation for Environmental Applications
Organizers: Sudip Chakraborty, Catia Algieri, Mallikarjuna Nadagouda

Population growth, rising water demands, degrading freshwater supplies, changing weather patterns, emerging contaminants, and stringent water quality standards have burdened existing water and wastewater treatment technologies and infrastructure around the world. Recent advances in new material development and advanced membrane separation can address many of the challenges and offer tremendous opportunities to develop sustainable, highly efficient, and affordable next-generation processes. Besides chemical treatment units, advanced computational solutions (AI/ML) incorporated with conventional separation process have shown good potential and are expected to be further applied in large-scale industrial applications for separation and filtration process intensification. Key applications include water treatment, where the integration optimizes processes like desalination and purification of industrial pollutants. In the energy sector, synergy optimizes membrane-based systems, increasing efficiency and reducing environmental

impact. This symposium focuses on how new materials incorporated with nanomaterials enable efficient separation, remediation, and detection to mitigate current and emerging contaminants without impacting human health and the ecosystem. Presentations may address one or more aspect of the application of new materials and nanomaterials in environmental application. This symposium invites contributions on any of the above topics from researchers across academia, national laboratories, and industrial sectors for facilitating a well-rounded discussion of the field. Both fundamental and practical studies from experiments, simulations AI, ML and theory investigating these topics are encouraged. Research at any stage of development, including bench or lab scale to pilot scale, can be presented.

Behavior of Advanced Materials and Emerging Contaminants in the Soil-Plant Continuum
Organizers: Xiaoyu Gao, Yi Wang, Qingguo Huang

Modern agriculture is increasingly shaped by two parallel trends: the intentional application of advanced materials—such as biopolymers and functionalized nanomaterials—and the unintentional influx of emerging contaminants, including PFAS, micro/nanoplastics, and pharmaceuticals, which are delivered through biosolids, reclaimed water, and agrochemicals. Once in the field, these substances migrate through the soil–plant continuum, entering crops via both foliar and soil pathways. Understanding their uptake mechanisms, in-planta translocation routes, and biochemical or redox-driven transformations is essential for accurate environmental risk assessment and for designing safer, more effective agricultural technologies. Talks in this session will highlight recent advancements in deciphering the pathways of uptake, translocation, and transformation of materials intentionally or unintentionally introduced to soil and plant crops. Additionally, research on predictive models and life-cycle tools to inform the development of regulatory frameworks for these materials in agriculture will be encouraged. This interdisciplinary session targets researchers in environmental science, environmental and analytical chemistry, materials science, soil geochemistry, plant physiology, and agronomic engineering, aiming to bridge mechanistic insights with practical solutions for sustainable agriculture.

Advancing Water Chemistry Technologies

Aquatic Photochemistry
Organizers: Kristopher McNeill, William Arnold, Juliana Laszakovits, Garrett McKay

Aquatic photochemical transformations are important in geochemistry and environmental chemistry in diverse contexts, from natural systems where sunlight is acting on surface waters to engineered systems using UV irradiation. Light may act directly upon target compounds or indirectly through interactions with redox-active species including minerals, dissolved organic matter, and small molecule sensitizers. Understanding the roles of photochemistry in these complex systems will provide insight into the fate of chemical and biological species in the environment. In this symposium, we invite submissions that explore the direct and indirect photochemical transformations of natural and anthropogenic compounds, as well as interactions of light with organic matter, biomolecules, redox-active minerals, and microorganisms. Suggested topics: Photochemistry of dissolved organic matter; Reactive oxygen species; Photochemistry in water/wastewater treatment; Ice photochemistry; Plastic photochemistry; Photochemistry in aqueous aerosols; Photochemical transformation of pollutants; Photochemistry of biomolecules; Photochemical disinfection; Photochemically driven element cycling; Field studies.

Electrified Water Treatment Processes
Organizers: Neha Sharma, Wensi Chen, Wei Wang, Xing Xie

Most existing water treatment processes highly rely on the use of chemicals, such as coagulants, oxidants, and disinfectants. The transportation and storage of these chemicals can jeopardize the resilience of centralized water treatment and create intrinsic challenges for distributed water treatment. Recent attention has been drawn to treatment processes that mainly consume electricity instead of chemicals. These processes use electricity to drive separation processes (e.g., electrodialysis), provide direct redox power (e.g., electrochemical redox processes), or generate chemicals in situ (e.g., electrocoagulation, electrochemical acid/base production). Compared to chemical inputs, electricity is easier to deliver, can be generated locally upon grid disruption, and can be produced using sustainable energy for remote applications. As energy cost decreases and the treatment needs evolve (e.g., more stringent standards, zero-liquid discharge, and resource recovery), previously cost-prohibitive electrified processes may become economically favorable. In the meantime, new high-performance and energy-efficient electrified treatment processes are emerging. Therefore, we invite abstract submissions on electrified water treatment processes. The relevant technical areas include, but are not limited to, electrocoagulation, electrochemical redox processes, electrodialysis, electrified membranes, electrosorption and capacitive deionization, electrochemical or electrophysical water disinfection, electric-field assisted processes, and electrochemical resource recovery. Abstracts on the techno-economic analysis (TEA) and life cycle assessment (LCA) of electrified water treatment processes are also welcome.

Nanotechnology in Water and Wastewater Treatment: Advanced Materials for a Sustainable Future
Organizers: Sushil Kanel, Mallikarjuna Nadagouda, Sajan Silwal, Sudip Chakraborty, Sameer Rahatekar,

Population growth, rising water demands, deteriorating freshwater supplies, shifting climate patterns, emerging contaminants, and increasingly stringent water quality regulations are placing immense pressure on existing water and wastewater treatment technologies and infrastructure. These complex and escalating challenges demand innovative solutions. Recent advances in nanotechnology offer a transformative opportunity to develop sustainable, efficient, and cost-effective next-generation treatment systems. Applications such as membrane separation, adsorption, and photocatalysis are showing significant potential. Beyond treatment processes, nanotechnology also holds promise in disinfection and microbial control, as well as real-time sensing and monitoring. This symposium will explore how nanomaterials can enhance water and wastewater treatment by enabling effective contaminant-separation, remediation, and detection, while safeguarding human health and the environment. We invite presentations addressing one or more of the following topics: 1) Synthesis, characterization, application, and regeneration of nano-adsorbents (e.g., carbon nanotubes, nanofibers, metal oxides, dendrimers); 2) Development of nanocomposite and nanofiber membranes with high permeability, selectivity, and antifouling properties; 3) Bioactive nanomaterials for water disinfection and microbial control; 4) Synthesis and optimization of photocatalytic nanoparticles for the degradation of contaminants; 5) Nanoparticle-based sensors for detecting pathogens, heavy metals, and emerging contaminants. The Nanotechnology in Water and Wastewater Treatment symposium invites contributions on any of the above topics from researchers across academia, national laboratories, and industrial sectors to facilitate a well-rounded discussion of the field. Both fundamental and practical studies, experiments, simulations, and theoretical investigations of these topics are encouraged. Research at any stage of development, including bench or lab scale to pilot scale, can be presented.

Atmospheric Chemistry

Methane: Chemistry of a Greenhouse Gas

Jointly sponsored with ENFL, GEOC, I&EC and ENVR

Organizers: Joe Sabol, Kirsten Sinclair Rosselot, Paul Robinson, Tao Ye

Methane (natural gas) is an insidious greenhouse gas, accounting for about 1/3 of the recent increase in Earth's surface temperature. Present at about 2.00 ppm in Earth's atmosphere, and rising faster than at anytime since record keeping began in the 1980s, the infrared absorption cross-section of methane is much larger than carbon dioxide. Methane is a valuable fuel and industrial feedstock, having a global market value projected to be $120 billion in 2025 and grow 5-10% per year. Use of fossil fuels contribute 120 million tons (Mt) of methane emission into the atmosphere each year. Methane's savior is a mean atmospheric lifetime of about ten years, providing a near-term opportunity to mitigate atmospheric warming and climate disruption. This session includes methane sources and sinks, atmospheric measurements and modeling, understanding methane releases and leaks, and methodology for reducing methane emissions along the fossil fuel supply chain. Aligned with U.N. Sustainable Development Goals 7, Affordable and Clean Energy and 13, Climate Action.

New Trends in Air Pollution

Organizers: Slawo Lomnicki, Bikram Subedi

Air pollution issues are one of the most important drivers of the environmental human health. With the increasing technological advances, more details are becoming available on the presence of various pollutants in the air, that were previously not very well described or not realized. These advances clearly indicate that almost any anthropogenic activity can release air pollutants, even if they are not volatile. Recent studies has indicated the presence in air of such materials as nanoparticles and nanoplastics, perfluorinated compounds or environmentally persistent free radicals to name only few. This symposium is focused on the new discoveries and understanding of the presence of such new pollutants, potential correlation and source apportionment, exposure assessment and human health impact.

Energy and Geochemistry

Advancing Resource Recovery for Critical Minerals

Jointly sponsored with ENVR, GEOC

Organizers: Ching-Hua Huang, Yuanzhi Tang, Yong-Shin Jun, Amisha Shah

As global demand for critical minerals—such as rare earth elements, lithium, cobalt, and nickel—continues to surge, there is an urgent need for innovative solutions to secure sustainable and reliable supplies. These metals are essential to the green energy transition, modern electronics, and advanced manufacturing, yet their extraction and processing are often accompanied by significant environmental, social, and geopolitical challenges. Resource recovery from industrial residues, electronic waste, and other secondary sources offers a promising pathway to alleviate supply risks and reduce environmental impacts associated with traditional mining. Advancing the science and engineering of critical metal recovery also aligns with circular economy principles, driving innovation across the entire supply chain. This symposium aims to bring together researchers, industry practitioners, and policymakers for a vibrant discussion on recent advances in resource recovery technologies and opportunities for critical minerals. We invite abstracts that address topics such as: (1) Characterization and distribution of critical minerals in unconventional sources

and waste streams; (2) Novel extraction technologies to recover critical minerals from waste; (3) Novel technologies and processes for separation and purification of critical minerals; (4) Techno-economic assessments in critical minerals recovery; and (5) Life cycle assessment and environmental sustainability for critical minerals recovery.

Geochemical Perspectives on Energy Production, Development, and Transition
Jointly sponsored with GEOC, ENFL and ENVR
Organizers: Benjamin Legg (Pacific Northwest National Laboratory, benjamin.legg@pnnl.gov), Sang Soo Lee (Argonne National Laboratory, sslee@anl.gov)

Addressing the geochemical and environmental implications of energy production, development, and transition is vital for tackling global challenges in resource efficiency and energy management. This symposium aims to promote interdisciplinary research on the chemical processes underlying various energy technologies, advancing our understanding of the environmental impacts and opportunities associated with energy systems within the geosphere. Topics of interest include, but are not limited to: - Geochemical processes in the mining and extraction of critical materials; - Environmental impacts of energy production, transition, and storage technologies; - Recycling and recovery of energy-related materials; - Geochemical modeling and experimental studies of energy systems; - Innovations in long-term energy production and resource management within the geosphere.

Rare Earth Element: Occurrences, Extraction Method Development, and Application
Organizers: Chia Suei Hung, Mallikarjuna Nadagouda, John Boeckl, Sushil Kanel

This symposium invites contributions on the above topics from researchers across academia, national laboratories, and industrial sectors to facilitate a well-rounded discussion of the field. Both fundamental and practical studies from experiments, simulations, and theories, investigating these topics are encouraged. Research at any stage of development, including bench, lab scale, pilot scale, or real fields, is welcome.

Environmental Monitoring, Analytical Chemistry

Advancing Public Health Surveillance: Biomonitoring and Wastewater Analysis
Organizers: Bikram Subedi, Maria-Pilar Martinez-Moral

Exposure to a diverse range of environmental contaminants—both occupational and environmental—through air, water, food, materials, as well as genetic factors, has been reported to significantly impact human well-being. Two emerging approaches—biomonitoring and wastewater-based epidemiology (WBE)—offer valuable insights but differ in scope, methodology, and applications. Biomonitoring involves assessing the levels of pollutants and their metabolites in biospecimens such as blood, urine, and saliva, providing valuable individual-specific qualitative and quantitative data on the extent of chemicals entering the body. Biomonitoring allows exposome studies to assess total exposures from lifestyles, diets, indoor-outdoor environments, and biomarkers of health effects, and helps to elucidate environmental risks and exposure pathways leading to adverse health outcomes. While biomonitoring effectively links internal exposure levels with health outcomes and is useful for assessing high-risk populations, such as individuals with developmental disorders or chronic disease conditions, it is often resource-intensive, invasive, and typically limited to small sample sizes, which may hinder real-time, large-scale surveillance. WBE involves analyzing wastewater for traces of chemicals, drugs, and pathogens excreted by populations, providing pooled data that reflects the collective exposure and

health status of entire communities. WBE is a near-real-time, non-invasive, and cost-effective approach of understanding a comprehensive health status offering the trend in the use of drugs, infectious disease outbreaks, or environmental contaminants. It has been particularly useful for tracking polysubstance use, emerging psychoactive substances, and infectious disease prevalence during a recent upsurge on mental health and polysubstance use involving fentanyl and new psychoactive substances, particularly when conventional public health indicators such as forensic identifications and overdose death counts are significantly lagging. Despite eliminating individual sampling and reducing logistical barriers and participant burden, WBE is limited by its inability to link data to specific individuals or subpopulations. Their complementary application fosters a comprehensive approach to understanding environmental exposures, behavioral risks, and disease burdens—ultimately strengthening prevention, intervention, and policy efforts. This symposium will showcase the latest developments in biomonitoring and exposome research, highlighting their applications in understanding human exposure and disease burdens. Additionally, it will feature innovative methods for detecting environmental contaminants, drugs, and pathogens, in wastewater. Submissions that integrate biomonitoring and wastewater data with existing public health indicators are highly encouraged and anticipated.

Mass Spectrometry for Environmental Processes and Contaminant Fate
Organizers: Juliana R Laszakovits, Gordon J. Getzinger

Mass spectrometry has played a central role in advancing the molecular-level understanding of natural processes and contaminant fate in the environment. This session will tell stories of how mass spectrometry has advanced our understanding of environmental chemistry through advances in instrumentation, data acquisition, and molecular and structural annotation. Additionally, work on emerging techniques such as quantitative non-targeted analysis, ion mobility spectrometry, portable mass spectrometry, and prediction of chemical properties from mass spectrometry measurements is encouraged for submission. We welcome presentations ranging from bench- to field-scale, spanning the full range of contemporary contaminant classes, and characterizing environmentally relevant natural materials (e.g., dissolved organic matter, wildfire derived residuals).

Interdisciplinary Approaches to Environmental Challenges

Chemistry in Communities: Important Challenges to Understanding and Measuring Air, Water, and Soil Environmental Pollution
Organizers: Christopher Iceman, Julie Peller, Ken Brown, Graham Peaslee

Environmental challenges, both anthropogenic and natural, abound in communities facing decades of issues from historical pollution, current industrial emissions and/or natural disasters. Many of these communities are recognized as environmental justice centers and chemists can play a critical role in helping citizens understand pollutants, their fate and transport, and forming advocacy partnerships to promote mitigation strategies and/or cleanup. This session will focus on presentations from scientists, individuals, and groups focused on doing quantitative and qualitative chemical studies of soils, waters, and airborne contaminants in partnership with their communities.

Wildland Urban Interface (WUI) Fire Impacts on Environmental Systems: Integrating Soil, Water, Air, and Public Health Perspectives

Jointly sponsored with GEOC and ENVR

Organizers: Srinidhi Lokesh, Haroula Baliaka, Ali Namayandeh, David Hanigan, Thomas Borch,

The recent Wildland Urban Interface (WUI) fires, particularly in the Los Angeles regions, have highlighted the complex and enduring environmental consequences of fires occurring in densely populated and mixed urban-wildland settings. This symposium will bring together research spanning air, soil, dust, and water systems to examine the multifaceted chemical impacts of urban wildfires. Topics will include heavy metal and metalloid enrichment (e.g., lead, arsenic) and related trace element biogeochemistry, airborne contaminants, persistent organic pollutants such as PFAS and PAHs, and disinfection byproduct (DBP) precursors. The symposium will showcase advances in soil sampling, roadside dust analysis, and risk communication following major fires and feature case studies focused on community-based science and outreach. It will highlight field campaigns, and modeling approaches, with a goal of informing long-term monitoring needs, treatment, and strategies to protect public health. This joint symposium organized with the divisions of Geochemistry (GEOC) welcomes contributions from researchers working on related wildfire impacts in other urban or WUI environments.

Legacy and Emerging Contaminants

Advances in PFAS Research and Outlook

Organizers: Manoj Shukla, Manoj Kolel-Veetil, Mallikarjuna Nadagouda, Nancy Kelley-Loughnane

Per-and polyfluoroalkyl substances (PFAS), nicknamed “forever chemicals,” are synthetic compounds resistant to degradation due to the presence of carbon-fluorine (C-F) bonds and have been used in military applications, within aqueous film forming foams (AFFF) for fire training and emergency response purposes. It is estimated that around 110 million Americans find PFAS contamination in their drinking water supplies. Exposure of PFAS, including their short-chain cousins, has been linked to several health-related issues such as cancer, elevated cholesterol, obesity in humans. The U.S. Environmental Protection Agency (EPA) finalized critical rule to designate perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) as hazardous substances under CERCLA. EPA also established enforceable limit of presence of certain PFAS compounds in drinking water. The incineration of PFAS with other wastes have potential to produce the active greenhouse gases. Various traditional techniques attempted to degrade and remove PFAS from contaminated media. This symposium will discuss recent advances in research efforts on degradation, destruction, detection, isolation, removal, and sensing of PFAS. esearch on fluorine free PFAS alternatives and toxic effects of PFAS will also be discussed.

Environmental Contaminants: Impacts, Exposure, and Toxic Effects

Organizers: Carsten Prasse, Matthew Newmeyer, Carrie McDonough, Yanan Chen, Zachary Kralles,

A wide range of chemicals and chemical mixtures are released by human activity, including both legacy chemicals that have long been recognized as environmental contaminants and emerging chemicals of concern. Advances in analytical instrumentation, environmental monitoring, exposomics, and computational chemistry are paving the way towards a better understanding of the environmental implications and human health impacts of anthropogenic chemical releases. This symposium will showcase recent advances that contribute to our understanding of

environmental contaminants, including the characterization of complex contaminant mixtures, structural determination and prioritization of novel contaminants, and new research advancing our understanding of exposure, toxicokinetics, and health impacts of these chemicals in humans and wildlife.

Interfaces, Interactions, and Innovation: A Holistic View of PFAS Science
Organizers: Lei Guo, Carrie McDonough, Arjun Venkatesan, Mallikarjuna Nadagouda, Shilai Hao,

This symposium will explore the multifaceted chemistry of PFAS, spanning fundamental molecular behavior, interfacial interactions, and innovative remediation strategies. Topics will include the detection, occurrence, and fate of PFAS across environmental interfaces (air-water, solid-water), predictive modeling of transport dynamics, and advances in analytical techniques, including non-targeted and suspect screening, total/extractable/adsorbable organic fluorine, and the development of targeted methods for volatile and ultra-short chain PFAS. The session will highlight cutting-edge remediation technologies, ranging from separation and concentration to destructive defluorination, while also addressing toxicological impacts and mitigation approaches. The symposium aims to foster interdisciplinary dialogue around emerging challenges in PFAS research by bridging fundamental science with practical applications. We welcome experimental, theoretical, and modeling contributions across all areas of PFAS science.

Nanocomposites with Tunable Interfaces for Enhanced Catalytic Reactivity in Environmental Applications
Organizers: Ruey An Doong, Cheng-Di Dong, Virender Kumar Sharma, Oh Wen Da, Xuan-Thanh Bui, Yu-Jen Shih

This symposium aims to showcase recent advances in the design and applications of nanocomposites with tunable interfaces, specifically engineered to enhance catalytic reactivity. Over the past five years, a wide range of materials—including graphene-based structures, metal-organic frameworks (MOFs), covalent organic frameworks (COFs), and biopolymer-derived metal/carbon catalysts—have been explored for water purification and environmental remediation. These materials exhibit unique properties enabling precise control over electron and proton transfer mechanisms in electrochemical and photoelectrochemical processes. The spatial configuration of active sites—ranging from single atoms and bimetallic nanoparticles to nanoclusters, heterojunctions, and solid solutions embedded in carbon matrices—plays a significant role in improving both the selectivity and degradation efficiency of legacy and emerging contaminants. This symposium will bring together interdisciplinary researchers in chemistry, materials science, and environmental engineering to share results on material synthesis, interfacial engineering, computational modeling, and advanced characterization techniques. Discussions will focus on applications in the remediation of legacy and emerging contaminants, with potential crossovers into energy generation and storage.

PFAS in the Atmosphere: Sources, Fate, and Transport
Organizers: Marta Venier, Staci Capozzi, Chunjie Xia

PFAS are recognized as global environmental contaminants of emerging concern, comprising more than 15,000 known compounds. While extensive research has focused on ionic PFAS in water and soil, recent studies have drawn growing attention to the presence and behavior of PFAS—particularly neutral species—in the atmosphere. This symposium aims to bring together researchers to present the latest findings on the sources, fate, and transport of atmospheric PFAS. Discussions will emphasize interdisciplinary approaches to understanding the occurrence, transformation, and long-range mobility of these compounds in the air.

Technology and Engineering in Environmental Chemistry

Environmental Implications and Applications of Artificial Intelligence and Machine Learning

Organizers: Indranil Chowdhury, Nirupam Aich, L. Stetson Rowles

The rapid advancement of artificial intelligence (AI) and machine learning (ML) has opened new frontiers in environmental science and engineering, offering transformative tools to address critical challenges in pollution control, resource management, and environmental sustainability. AI/ML technologies provide innovative avenues to tackle complex environmental problems with high chemical specificity and spatial-temporal precision, spanning contaminant transport and chemical transformation pathways, optimizing water/wastewater treatment processes, enabling resource recovery, and enhancing environmental monitoring systems. Conversely, the environmental footprint of large-scale AI/ML infrastructure—including high energy demands, water use in data centers, and material intensity of hardware—raises important questions about sustainability and lifecycle impacts. A growing need has emerged for responsible development and deployment of AI/ML systems that consider their own environmental (chemistry-related) consequences, including emissions, waste streams, and interactions with air, water, and soil systems. This symposium welcomes research papers that describe recent advances in the context of environmental implications and applications of AI/ML.

Global Impact (Digital Content Only)

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

GVS Organizers: Chunxiao Zheng, ACSi China, czheng@acs-i.org

This *digital only symposium* will build on the success of previous meetings. Graduate students at universities in the Asia-Pacific region are encouraged to submit abstracts for virtual presentation. Submitters may plan for talks to be approximately 10 minutes. Organization of these sessions will continue to be managed by the ACSi office in Beijing.

General Environmental Chemistry

General Environmental Chemistry

Organizers: Slawo Lomnicki, Bikram Subedi

Recent advances in our understanding of environmental chemistry and engineering research, education, and policy that are not covered in other ENVR sponsored symposia. Abstracts accepted for oral and poster presentations.

Undergraduate Research Posters: Environmental Chemistry

Jointly sponsored with CHED

Organizers: Nicole DiFabio

Posters from students pursuing an undergraduate degree are accepted for in-person presentations only.