

CALL FOR PAPERS



PHYS Physical Chemistry
ACS Technical Division

ACS DIVISION OF PHYSICAL CHEMISTRY
FALL 2026 NATIONAL MEETING
AUGUST 23-27, 2026
CHICAGO, ILLINOIS

The Division of Physical Chemistry (PHYS) is hosting the following oral symposia, consisting of both invited and contributed papers, as well as a general poster session. **Abstract submission is currently open and closes on March 31, 2026.** For those interested in an oral presentation, please submit abstracts to the appropriate symposium via ACS-MAPS. For each symposium, the organizers (listed below) will select some contributed papers for oral presentations; contributions not selected for oral presentations will be assigned to the poster session.

Astrochemistry in Planetary Science

The Merriam-Webster dictionary defines astrochemistry as “the chemistry of celestial bodies and interstellar space.” However, people tend to associate “astrochemistry” with the chemical processes occurring in the interstellar medium (ISM), aka interstellar space, where most chemical processes occur in the gas phase or on small dust and ice grains. Yet, astrochemistry plays a vital role within the planetary science community, spanning virtually all divisions within the field of chemistry. This symposium aims to increase the awareness of astrochemistry within the planetary sciences, by highlighting the role of astrochemistry in the development of planetary missions, as well as the importance of the study of astrochemical processes in astronomical observations, laboratory experiments, and modeling of atmospheres of Solar System planets and small objects (dwarf planets, moons, asteroids, comets), the search for biosignatures, the study of analog environments in the contexts of both scientific discoveries and human exploration.

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Light-Driven Synthesis and Modulation of Functional Materials

Advances in light-driven synthesis techniques have unlocked new possibilities in the fabrication and modulation of functional materials with precise control over structure, composition, and properties. This session will bring together researchers exploring novel light-assisted synthesis strategies for a range of material systems, from 2D materials and nanostructures to bulk functional materials. Sessions will focus on emerging methods such as ultrafast laser processing, laser-induced phase transitions, laser-driven modulation of material properties and in-situ characterization during laser synthesis. Talks will emphasize tailoring material functionality for applications in energy, electronics, and quantum technologies but fundamental studies are strongly encouraged as well. Attendees will gain insights into cutting-edge experimental techniques and theoretical models that are reshaping our understanding of light-matter interactions and enabling the creation of next generation materials.

Kevin McPeak | Louisiana State University | kmcpeak@lsu.edu
Ji-Young Kim | Rensselaer Polytechnic Institute | kimi58@rpi.edu

Treatment of Electrostatics and Polarization in the Simulation of Materials, Biomolecules and Interfaces

The long-range nature of electrostatic forces warrants careful attention in molecular modeling and computer simulations. In this regard, significant advancements in computational algorithms and software have enabled increasingly rigorous and accurate descriptions of long-range electrostatics and electronic polarization within both classical and hybrid quantum/classical modeling of complex chemical systems. The symposium will highlight recent developments in classical and mixed quantum/classical algorithms and force fields that target state-of-the-art treatment of electrostatics and electronic polarization, and applications in biochemical, interfacial, and materials systems in which a high-fidelity description of electrostatics and polarization is important.

Wanlu Li | University of California, San Diego | wal019@ucsd.edu
Jesse McDaniel | Georgia Tech | jesse.mcdaniel@chemistry.gatech.edu
Qiang Cui | Boston University | qiangcui@bu.edu

Dynamic Processes in Electrolytes and Biomolecular Systems

Vibrational, optical, NMR, and other spectroscopic techniques are powerful tools for investigating molecular interactions, dynamics, and kinetics in complex molecules, materials, and their interfaces. Theoretical models capable of computing these spectra help interpret complicated experimental data. Advanced quantum-classical statistical mechanical methods, such as rate theories, assist in understanding equilibrium and dynamics, ranging from ultrafast to rare, slow events. Furthermore, emerging machine-learning methods trained on *ab initio* energy and forces are simulating complex molecules and materials with sustainable *ab initio* accuracy across different scales. The symposium invites physicists and chemists with both theoretical and experimental backgrounds to discuss connecting spectroscopy with quantum-classical statistical mechanical theory, machine learning, and high-performance computing, aiming to understand events occurring across a broad range of length and time scales. Specific areas of interest include, but are not limited to, hydrogen bonding, reactivity, charge transfer, ion pairing and solvation, nucleation, phase transitions, and other phenomena in biological systems and energy-relevant chemical and materials systems.

Santanu Roy | Oak Ridge National Laboratory | roys@ornl.gov
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YOUNG INVESTIGATOR RESEARCH AWARDS

PHYS Division Young Investigator Research Award talks will be presented during the relevant PHYS technical symposia. See <http://phys-acs.org/young-investigator-award-phys/> for application details.

PHYSICAL CHEMISTRY POSTER SESSION

Contributions from all areas of physical chemistry are highly encouraged for the poster session. Multiple awards will be given for exemplary work. To be eligible for the awards, the presenting author must be a graduate or undergraduate student at the time of the poster presentation and must be present during judging.

Machine learning meets electronic structure theory

This symposium brings together world-leading experts in quantum chemistry, condensed matter theory, and machine learning to share the cutting-edge advances at this interface. These sessions will bring complementary expertise ranging from neural network-based force fields and coarse-grained models to generative molecular design and uncertainty quantification in ML-driven simulations. This event will foster discussion between theoreticians and practitioners alike, connecting developments in fundamental algorithms with real-world applications in chemistry and materials science.

Yeongsu Cho | University of Houston | ycho22@central.uh.edu
Fang Liu | Emory University | fang.liu@emory.edu

Spectroscopic Insights into Dynamics and Control in Quantum and Energy Materials

This symposium will focus on the development and application of laser techniques to probe and control dynamic processes in emergent energy and quantum materials. Spanning time-resolved optical, terahertz (THz), X-ray, and their multidimensional modalities, spectroscopy has become a key enabler for investigating phenomena such as photoinduced energy and charge transport, structural rearrangements, and quantum coherence. Simultaneously, advances in laser control have opened new avenues to manipulate material properties on fast timescales and at the atomic level. The symposium will bring together experimental and theoretical approaches aimed at understanding and controlling photophysical behavior in materials that underpin next-generation energy, quantum information, and photonic technologies. Emphasizing both experimental and computational insights, the program will highlight how light-matter interactions govern electronic, vibrational, and structural dynamics in systems such as hybrid perovskites, correlated oxides, organic semiconductors, 2D materials, and photonic architectures.

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Lili Wang | Emory University | lili.wang@emory.edu
Jiaojian Shi | University of Washington | jiaojian@uw.edu

Co-Sponsored Symposia

Electronic Structure Contributions to Function (Celebrating Edward Solomon, Stanford) INOR-PHYS

This symposium is a forum to discuss latest advances in understanding the functions of metal sites in biology, materials, and catalysts, using spectroscopic, theoretical, and synthetic methods.

Peng Chen | Cornell University | pc252@cornell.edu
Abhishek Dey | abbeyde@gmail.com
Ryan Hadt | Caltech | rghadt@caltech.edu

Carbon-based Nanomaterials: From Fundamental Insights to Applications PHYS-COLL-ORGN

Carbon-based nanomaterials cover a broad variety of naturally occurring and synthetic materials. The first class includes melanin granules, humic substances in soils, organic matter dissolved in terrestrial waters, biochars, and carbon-rich structures present in atmospheric aerosols generated by combustion, while the second one comprises systems such as carbon dots, graphite oxide, extended conjugated systems, and polydopamine. These materials share common properties such as broadband optical absorption, electronic and ionic conductivity, facile redox and catalytic behavior, and paramagnetism, providing them with great potential for applications in bioelectronics, photoprotection, catalysis, sensing, cosmetics and health, environmental remediation, and energy conversion and storage. They also share common challenges centered around structure elucidation, establishment of structure-property relationships and mechanisms, structural control in synthesis, and the design of applications. This symposium will cover the state of the art and build bridges between researchers interested in these seemingly diverse materials.

Lluís Blancafort | University of Girona | lluis.blancafort@udg.edu
Nathan Gianneschi | Northwestern University | nathan.gianneschi@northwestern.edu
Jean-Philip Lumb | McGill University | jean-philip.lumb@mcgill.ca

Chemistry Behind Art and Art Conservation YCC-HIST-PHYS

This joint symposium led by the Younger Chemists Committee (YCC) will encompass technical talks relevant to the intersections of chemistry and art and the evolution of the chemistry of art conservation. Participants will also engage in an early career flash talk session, a career panel discussion with speakers, and an evening networking event to support the professional development of our largely early career audience. Other nominally co-sponsoring divisions include the Division of Polymer Chemistry, Division of Inorganic Chemistry, and Chemical Health and Safety Division.

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On-Line Abstract Submission Deadline: **31 March 2026**

<http://abstracts.acs.org>

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