

Special Issue

X-Ray Spectroscopy of Gas-Phase Biomolecules

Message from the Guest Editors

This special issue, entitled "X-ray spectroscopy of gas-phase biomolecules", highlights cutting-edge studies using advanced X-ray techniques to investigate the electronic structure and dynamics of biomolecules. These studies exploit the full potential of modern X-ray sources, including synchrotrons, free electron lasers (FELs), and high harmonic generation (HHG) to probe phenomena such as site ionization, charge migration, and electron relaxation at different time and energy scales. Complementary theoretical studies elucidate spectral features, decay pathways, and nuclear motions, combining experiments with molecular-level insights.

This special issue explores a variety of targets, from small biomolecular building blocks to complex systems, revealing the interplay between electronic structure and geometry. By combining state-of-the-art instrumentation with computational models, these studies reveal key aspects of the X-ray spectroscopic behavior of gas-phase biomolecules. This synergy deepens the understanding of fundamental processes related to biology, chemical physics, and materials science, paving the way for future breakthroughs in the field.

Guest Editors

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Message from the Editor-in-Chief

As the premier open access journal dedicated to molecular chemistry, now in its 29th year of publication, the papers published in *Molecules* span from classical synthetic methodology to natural product isolation and characterization, as well as physicochemical studies and the applications of these molecules as pharmaceuticals, catalysts, and novel materials. Pushing the boundaries of the discipline, we invite papers on all major fields of molecular chemistry and multidisciplinary topics bridging chemistry with biology, physics, and materials science, as well as timely reviews and topical issues on cutting-edge fields in all of these areas.

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