Special Issue

X-Ray Spectroscopy of Gas-Phase Biomolecules

Message from the Guest Editors

This special issue, entitled "X-ray spectroscopy of gasphase 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

Dr. Lucas Schwob

Prof. Dr. Sadia Bari

Dr. Marta Berholts

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As the premier open access journal dedicated to experimental organic chemistry, and now in its 25th 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 multidisciplinary topics bridging biochemistry, biophysics and materials science, as well as timely reviews and topical issues on cutting edge fields in all these areas.

Editor-in-Chief

Prof. Dr. Thomas J. Schmidt

Institute of Pharmaceutical Biology and Phytochemistry, University of Münster, Corrensstrasse 48, D-48149 Münster, Germany

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