Special Issue

Ab Initio Calculations in Atomic, Molecular, and Optical Physics: A Tribute to Barry Irwin Schneider

Message from the Guest Editor

The development of ab initio methods is paramount for the theoretical description of atomic and molecular structures, and the interactions of such targets with other particles and fields. In recent years, many novel ab initio techniques have been developed to improve these calculations, thereby paving the way for new studies and applications that may support a plethora of experimental studies. This Special Issue aims to collect papers (original articles and reviews) that focus on current advancements in ab initio calculations and their applications in the fields of atomic, molecular, and optical physics. At the same time, we decided to make it a tribute to our dear colleague, Barry I. Schneider, who passed away on 3 July 2024. Research topics may include (but are not limited to) the following:

- Atomic and molecular structures, including atoms and molecules in static fields;
- Electron–atom, electron–ion, and electron–molecule collisions;
- Molecular dynamics (dissociation, vibrational excitation, etc.);
- Atomic and molecular photoionization;
- Attosecond and strong field processes in atoms and molecules.

Guest Editor

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Deadline for manuscript submissions

closed (18 June 2025)

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About the Journal

Message from the Editor-in-Chief

The scope of *Atoms* is deliberately wide and encompasses a large part of theoretical and experimental atomic,
molecular, nuclear, and chemical physics in order to encourage cross-disciplinary connections, while supporting the more traditional idea of individual subfields. The journal is also interested in papers concerning
the computation and compilation of data related to applications in the above areas. Details of experimental methods and codes are welcome. Your research is taken seriously and peer-reviewed with care. I encourage you
to contact me or any of the Editorial Board Members for further information.

Editor-in-Chief

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