Special Issue

Quantum Technologies with Ultracold Atoms

Message from the Guest Editors

- Quantum simulation: Ultracold atoms act as sophisticated quantum simulators, enabling scientists to model complex systems from condensed matter physics to cosmological mysteries. With unprecedented control over trapping potentials and interaction strengths at ultra-low temperatures, researchers can address fundamental questions on superfluidity and phase transitions.
- Quantum information and computing: the remarkable ability to maintain coherence and to be manipulated into qubits—through various atomic states or species—make ultracold atoms suitable for implementing quantum gates and algorithms.
- Atomtronic circuits: this new emerging field utilizes ultracold atoms to create circuits analogous to electronic circuits, both for demonstrating fundamental physics phenomena and for implementing new quantum devices and sensors.

Guest Editors

Dr. Klejdja Xhani

Department of Applied Science and Technology (DISAT), Politecnico di Torino, Corso Duca degli Abruzzi, 24, 10129 Torino, Italy

Dr. Chiara Mazzinghi

INO-CNR, Largo Enrico Fermi 6, Florence, Italy

Dr. Giulia Del Pace

Department of Physics and Astronomy, University of Florence, Via Sansone 1, 50019 Sesto Fiorentino, Italy

Deadline for manuscript submissions

31 January 2026

Atoms

an Open Access Journal by MDPI

Impact Factor 1.5
CiteScore 3.1

mdpi.com/si/221854

Atoms
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
atoms@mdpi.com

mdpi.com/journal/atoms

Atoms

an Open Access Journal by MDPI

Impact Factor 1.5
CiteScore 3.1

mdpi.com/journal/atoms

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

Prof. Dr. Pascal Quinet
1. Physique Atomique et Astrophysique, Université de Mons, B-7000 Mons, Belgium
2. IPNAS, Université de Liège, B-4000 Liège, Belgium

Author Benefits

Open Access

— free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

indexed within Scopus, ESCI (Web of Science), Astrophysics Data System, Inspec, CAPlus / SciFinder, INSPIRE, and other databases.

Journal Rank:

CiteScore - Q2 (Nuclear and High Energy Physics)

MDPI