



atoms

an Open Access Journal by MDPI



Collective Atomic and Free-Electron Lasing

Guest Editors:

Dr. N. Piovella

Dipartimento di Fisica, Università
degli Studi di Milano, 20133
Milano, Italy

Dr. Gordon Robb

Department of Physics, University
of Strathclyde, Glasgow G4 0LN,
UK

Deadline for manuscript
submissions:

closed (31 May 2021)

Message from the Guest Editors

Dear Colleagues,

Collective or cooperative behaviors and interactions are abundant in nature. In physics, collective interactions mediated by light are of importance both for fundamental studies of phenomena such as spontaneous self-organization in classical and quantum systems as well as for their technological application. Recent examples of ground-breaking applications include new laser sources with extraordinary spectral capabilities, e.g., coherent X-ray generation by electron beams in free-electron lasers (FELs) and ultranarrow linewidth optical radiation generation by atoms in superradiant lasers. We invite contributions to this Special Issue on any topic relating to collective effects involving the interaction between light and matter, including, but not limited to:

- Collective atomic recoil lasing¹/collective Rayleigh scattering²
- Free-electron lasing³
- Cooperative emission or scattering of light⁴
- Superradiant and subradiant emission or scattering of light⁵
- Spontaneous self-organization mediated by light

This Special Issue is dedicated to the memory of Rodolfo Bonifacio, who was a pioneer in this field.

Dr. N. Piovella
Dr. Gordon Robb
Guest Editors

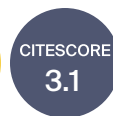


mdpi.com/si/46920

Special Issue



atoms



an Open Access Journal by MDPI

Editor-in-Chief

Dr. James F. Babb

Institute for Theoretical Atomic
and Molecular Physics, Center for
Astrophysics | Harvard &
Smithsonian, Cambridge, MA
02138, USA

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.

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, CAPus / SciFinder, INSPIRE, and other databases.

Journal Rank: CiteScore - Q2 (*Nuclear and High Energy Physics*)

Contact Us

Atoms Editorial Office
MDPI, St. Alban-Anlage 66
4052 Basel, Switzerland

Tel: +41 61 683 77 34
www.mdpi.com

mdpi.com/journal/atoms
atoms@mdpi.com
[X@Atoms_MDPI](https://twitter.com/Atoms_MDPI)