

# Special Issue

## Atomic Physics in Dense Plasmas

### Message from the Guest Editor

The purpose of this Special Issue is to identify dedicated problems in dense plasma atomic physics theory and to correlate them with appropriate experimental conditions and diagnostic methods. In order to challenge theory for specific parts, particular interest is devoted to X-ray spectroscopic diagnostics, including X-ray scattering, high-intensity and high-energy laser-produced plasmas, X-Ray Free Electron Laser interaction with dense matter, pinch plasmas, radiation sources, collisional-radiative properties and radiation transport, non-equilibrium phenomena, ionization potential depression, X-ray line shifts, perturbed atomic structure, mixed atomic states, cross sections and rates of elementary atomic physics processes perturbed by the dense plasma environment. The Issue will familiarize readers with the challenging field of atomic physics of dense plasmas and matter under extreme conditions. The material is of fundamental interest, has important applications in astrophysics, fusion science, radiation sources, laser matter interaction and is of great relevance for almost all particle driven material heating that starts from cold dense matter.

### Guest Editor

Prof. Dr. Frank B. Rosmej

1. Sorbonne University, Faculty of Sciences, 75252 Paris, France  
2. Ecole Polytechnique, LULI, 91128 Palaiseau, France

### Deadline for manuscript submissions

closed (29 February 2024)

## Atoms

an Open Access Journal  
by MDPI

Impact Factor 1.5  
CiteScore 3.1



[mdpi.com/si/148407](https://mdpi.com/si/148407)

*Atoms*  
Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland  
Tel: +41 61 683 77 34  
[atoms@mdpi.com](mailto:atoms@mdpi.com)

[mdpi.com/journal/  
atoms](https://mdpi.com/journal/atoms)



# Atoms

---

an Open Access Journal  
by MDPI

---

Impact Factor 1.5  
CiteScore 3.1



[mdpi.com/journal/  
atoms](https://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)