



## Advances in High-Intensity Lasers and Their Applications

Guest Editor:

**Dr. Joachim Hein**

Helmholtz-Institute Jena,  
Fröbelstieg 3, 07743 Jena,  
Germany

Deadline for manuscript  
submissions:

**20 March 2025**

### Message from the Guest Editor

This Special Issue is dedicated to new developments in the field of high-energy ultrashort laser pulses and their applications in laser–plasma physics. Topics can cover the application, generation, amplification, compression, and characterization of ultrashort laser pulses, as well as laser–matter interaction and laser-assisted inertial fusion. The scientific community urgently demands new laser concepts that allow higher repetition rates and thus higher average laser powers, offering the possibility to achieve even more accurate experimental results. Moreover, the application of high-intensity laser sources requires sophisticated pulse diagnostics using novel methods. In particular, the generation of secondary radiation sources, such as laser-driven FELs or laser-accelerated particle beams, is reviewed.

### Keywords

ultrashort laser pulses; laser pulse metrology; active laser stabilization; pulse compression; pulse contrast improvement; high-energy frequency conversion; high-peak-power laser applications; laser–plasma interaction; laser particle acceleration; secondary source generation





an Open Access Journal by MDPI

## Editor-in-Chief

**Prof. Dr. Giulio Nicola Cerullo**  
Dipartimento di Fisica,  
Politecnico di Milano, Piazza L.  
da Vinci 32, 20133 Milano, Italy

## Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

## Author Benefits

**Open Access:** free for readers, with article processing charges (APC) paid by authors or their institutions.

**High Visibility:** indexed within Scopus, SCIE (Web of Science), Inspec, CAPlus / SciFinder, and other databases.

**Journal Rank:** JCR - Q1 (Engineering, Multidisciplinary) / CiteScore - Q1 (General Engineering)

## Contact Us

---

Applied Sciences Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland

Tel: +41 61 683 77 34  
[www.mdpi.com](http://www.mdpi.com)

[mdpi.com/journal/applsci](http://mdpi.com/journal/applsci)  
[applsci@mdpi.com](mailto:applsci@mdpi.com)  
[X@Applsci](#)