



crystals



an Open Access Journal by MDPI

Laser–Material Interaction: Principles, Phenomena, and Applications

Guest Editors:

Dr. Chaudry Sajed Saraj

Changchun Institute of Optics
Fine Mechanics and Physics
Chinese Academy of Sciences,
Changchun, China

Dr. Diego Pugliese

National Institute of Metrological
Research (INRIM), Turin, Italy

Deadline for manuscript
submissions:

20 October 2024

Message from the Guest Editors

Laser–material interaction is a fascinating nexus wherein laser physics, optical physics, and materials science intersect. The main factors that influence this process are the laser beam properties, the material characteristics, and the phenomena that occur during and after the interaction.

The laser beam properties include the wavelength, intensity, pulse duration, and beam shape. These affect how the laser energy is absorbed, reflected, or transmitted by the material. The material characteristics include the composition, structure, phase, temperature, and optical properties. These determine how the material responds to laser irradiation. The phenomena that occur during and after the interaction include heating, melting, evaporation, plasma formation, shock waves, phase transformations, and material transport.

Laser–material interaction has many applications in various fields, such as microfabrication, surface modification, materials processing, biomedical engineering, and sensing. By controlling the laser parameters and the material properties, one can achieve the desired effects on the material surface or inside the material volume.



mdpi.com/si/184525

Special Issue



an Open Access Journal by MDPI

Editor-in-Chief

Prof. Dr. Alessandra Toncelli

Department of Physics, University
of Pisa, 56126 Pisa, Italy

Message from the Editor-in-Chief

Welcome to *Crystals*, the journal dedicated to the fascinating world of crystallographic research! Crystals are more than mere decorative elements; they hold the key to understanding the fundamental structure of matter. Our mission is to explore the crucial significance of this research across various fields. From medicine to technology, chemistry to geology, crystals play a vital role. Their structure provides insights into new advanced materials, innovative drugs, and groundbreaking technologies. Through *Crystals*, we delve into the microscopic world to discover solutions that will shape the future. Join us on a journey through the *Crystals*, where science merges with beauty and innovation.

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](#), [CAPus / SciFinder](#), and [other databases](#).

Journal Rank: JCR - Q2 (*Crystallography*) / CiteScore - Q2 (*Condensed Matter Physics*)

Contact Us

Crystals Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

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

mdpi.com/journal/crystals
crystals@mdpi.com
[X@Crystals_MDPI](#)