Special Issue

Microstructure and Characterization of Crystalline Materials

Message from the Guest Editors

Metallic and composite crystalline materials play an important role in many applications across a wide range of fields, including aviation, automotives, energy, and medicine.

Crystal defects such as dislocation are central to the understanding of plasticity. Reliable algorithmic settings of crystal plasticity are needed for the structural design of single crystals, as they provide a cornerstone for multiscale analyses of evolving microstructures in polycrystals. Thus, it is necessary to reveal the dislocation characteristics and the microstructure evolution of crystalline materials to provide instructions for the design of these materials.

The purpose of this Special Issue is to present the latest results of basic and applied research in the field of crystalline material development, microstructural evolution, deformation mechanisms, and technologies for their production and processing, including casting, additive manufacturing, plastic working, SPD, heat treatments supported by numerical simulations, expert systems, and the use of artificial intelligence and its ability to improve properties, efficiency, and new applications.

Guest Editors

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Deadline for manuscript submissions

10 September 2025

Crystals

an Open Access Journal by MDPI

Impact Factor 2.4
CiteScore 5.0

mdpi.com/si/212643

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About the Journal

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.

Editor-in-Chief

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