# Special Issue

# Microstructures and Deformation Mechanisms of Magnesium Alloys

## Message from the Guest Editors

Magnesium (Mg) alloys are the lightest structural materials used in practical engineering applications, known as the “green engineering metal of the 21st century”. The development and application of Mg alloys can significantly reduce energy consumption in industrial equipment and facilities. Consequently, a series of new Mg alloys have been developed, such as ultra-light Mg-Li alloys, high-performance Mg alloys with rare earth element additions, and Mg alloys with heterostructures.

This Special Issue aims to summarize the latest and future research developments of magnesium alloys. The mechanical properties, deformation mechanisms of magnesium alloys (dislocation slip, twinning, grain boundary sliding, phase transformation), and their relationships with microstructures and crystallographic textures are key areas of focus. Special attention is given to magnesium alloys with novel microstructural features and the transformation of deformation mechanisms under different temperatures and extreme strain rates. We welcome relevant review articles and original research articles through experimental techniques or theoretical approaches.

## Guest Editors

Dr. Cai Chen

Dr. N. Siredey-Schwaller

Prof. Dr. Mingyi Zheng

## Deadline for manuscript submissions

closed (20 June 2025)

Crystals

an Open Access Journal by MDPI

Impact Factor 2.4
CiteScore 5.0

mdpi.com/si/216532

*Crystals*
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
crystals@mdpi.com

mdpi.com/journal/crystals

# Crystals

an Open Access Journal by MDPI

Impact Factor 2.4
CiteScore 5.0

mdpi.com/journal/crystals

MDPI

# 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

Prof. Dr. Alessandra Toncelli
Department of Physics, University of Pisa, 56126 Pisa, PI, Italy

## 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, Ei Compendex, CAPlus / SciFinder, and other databases.

**Journal Rank:**

JCR - Q2 (Crystallography) / CiteScore - Q2 (Condensed Matter Physics)