

Special Issue

Micromechanical Modelling and Its Applications to Polycrystals

Message from the Guest Editors

The microstructure of a material influences its mechanical properties. It is hence desirable for the materials science and engineering (MSE) community to elucidate the relationships between microstructural features and mechanical properties. One of the promising ways to achieve this goal is to apply micromechanical modelling, which explicitly takes into account key microstructural features such as crystallographic texture and grain morphology. This Special Issue will focus on modelling methods and their applications, which are not restricted solving scientific problems but can also be applied to industry-related problems. The following topics are welcomed:

- Microstructure digitalisation: methods for generate realistic microstructure model for micromechanical simulations
- Constitutive models for describing deformation of crystalline materials e.g. crystal plasticity model
- Parameterization of a material model by an inverse method
- Homogenisation technique and prediction of mechanical properties
- In-depth analysis of microstructure deformation
- Assessment of damage, fatigue, and fracture by micromechanical modelling
- Property-based design of microstructures

Guest Editors

Dr. Napat Vajragupta

Prof. Dr. Junhe Lian

Prof. Sebastian Münstermann

Deadline for manuscript submissions

closed (30 November 2021)



Crystals

an Open Access Journal
by MDPI

Impact Factor 2.4
CiteScore 5.0



mdpi.com/si/66327

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

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





Crystals

an Open Access Journal
by MDPI

Impact Factor 2.4
CiteScore 5.0



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



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, CAPus / SciFinder, and other databases.

Journal Rank:

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