



## Micromechanical Modelling and Its Applications to Polycrystals

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### 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





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## 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.

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