

Special Issue

Modeling of Dynamic Response of Metals

Message from the Guest Editor

Atomistic modeling plays a crucial role in understanding the microscopic mechanism of plastic deformation, phase changes, damage, and so on in metallic materials. The aim of this Special Issue is to present the advanced achievements of atomistic modeling in the study of the mechanical response of metal materials. Original research papers and critical reviews that focus on the following three topics are welcome: (i) new physical understanding of the mechanical response process of metallic materials, especially the structural evolution of plasticity, phase transformation, damage, etc.; (ii) multiscale simulation methods and machine learning (ML) potentials and their applications to metallic materials, including first-principles calculation, potential function development, coarse-grained modeling, etc.; (iii) the development of machine-learning-based approaches, including the training of artificial neural networks, the parameterization of micromechanical models, the verification and choice of models, etc., on the basis of big data generated by atomistic modeling.

Guest Editor

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About the Journal

Message from the Editorial Board

Metallic materials play a vital role in the economic life of modern societies; contributions are sought on fresh developments that enhance our understanding of the fundamental aspects related to the relationships between processing, properties and microstructure – disciplines in the metallurgical field ranging from processing, mechanical behavior, phase transitions and microstructural evolution, nanostructures, as well as unique metallic properties – inspire general and scholarly interest among the scientific community.

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