Special Issue

Theoretical, Computational, and Experimental Studies of Deformation Behavior in HCP Metals

Message from the Guest Editor

Materials with a hexagonal close packed (HCP) crystal structure (e.g., magnesium and titanium alloys) are subjects of significant interest. HCP materials exhibit significant plastic anisotropy, which leads to the important role of deformation twinning in plastic deformation. The complexity of the deformation mechanisms in HCP metals leads to the continued interest to this problematic. Particularly, deformation twinning in these materials is still the subject of intensive study. Topics addressed in this Special Issue may include but are not limited to:

- Atomistic modeling and simulations of crystallographic defects responsible for plastic deformation in HCP metals: dislocations, twin boundaries, grain boundaries;
- Experimental study of crystallographic defects: their structure, mobility, and mechanisms of mutual interaction;
- Theoretical and experimental studies of phase transformations, which take place during plastic deformation of HCP metals and alloys;
- Theoretical and experimental study of the relationship between microstructure and plastic properties of HCP metals.

Guest Editor

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Deadline for manuscript submissions

closed (31 May 2022)

Metals

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mdpi.com/si/74939

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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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