

Special Issue

Mechanical Properties of Deformed Alloys and Compounds

Message from the Guest Editors

Plastic deformation is an effective technique for producing bulk metals with tailored properties. Recently, severe plastic deformation (SPD) techniques have attracted much attention due to their ability to fabricate ultrafine or nanostructured materials. Manufacturing this kind of materials is an important advance in materials research due to their outstanding strength and their usually limited uniform elongation compared to coarse-grained counterparts, as indicated by the well-known Hall–Petch relationship. It is commonly accepted that pre-deformation greatly affects the deformation behaviors of metals. However, one significant drawback of the achieved structures is their limited thermal stability as a consequence of their highly unstable substructural features. The Special Issue will include the following topics: correlation between mechanical properties and microstructure of highly deformed alloys and compounds; microstructures and their development, including phase equilibrium and transformations; thermomechanical stability; mechanical performance, with strength, toughness, impact, and fatigue behavior; and formability, covering rolling, stamping, welding, among others.

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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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