

Special Issue

Advanced Heterogeneous Metallic Materials

Message from the Guest Editor

It is well known that bulk nanostructured metallic materials generally exhibit high strength but poor ductility, which greatly hinders their applications. Recently, heterogeneous metallic materials have proven to be a new strategy for attaining unprecedented mechanical properties compared to conventional homogeneous materials, including gradient structure, heterogeneous lamella structure, bimodal structure, harmonic structure, laminate structure, dual-phase steel, nanodominated structure, nanotwinned grains, etc. These structural heterogeneities trigger stress/strain partitioning between domains with significantly different strengths during strain. Recent advances in the preparation technologies of heterostructured materials have yielded an understanding of the underlying deformation mechanisms. The investigation of heterogeneous metallic materials is one of the most promising emerging areas of advanced structural materials systems. This Special Issue covers a wide range of topics in the field of heterogeneous metallic materials and we cordially invite original research articles and reviews on recent achievements in the following areas related to heterostructured materials.

Guest Editor

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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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