Special Issue

High-Entropy Alloys for Extreme Environments

Message from the Guest Editors

High-entropy alloys (HEAs), consisting of multi-principal elements, have been attracting extensive attention as promising candidates for structural applications beyond those of conventional metallic materials. The concept of HEAs enables a paradigmatic shift from the conventional alloying strategies consisting of one or two principal elements to unique alloy design with multi-principal elements by opening vast compositional space and providing vast compositional degrees of freedom. Moreover, new physical phenomena and excellent properties for HEAs under various environments have been reported. For this Special Issue, reviews and research articles in the field of high-entropy alloys for extreme environments are welcomed. This includes research related to high-entropy alloys in temperatures ranging from deep cryogenic temperatures to ambient and high temperatures on physical metallurgy, mechanical properties, microstructures, corrosion resistance, alloy design, severe plastic deformation, and industrial applications. We welcome either experimental or theoretical approaches on the above subjects.

Guest Editors

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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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