Special Issue

High-Entropy and Complex Concentrated Alloys: A New Generation of Alloys

Message from the Guest Editors

The goal of this Special Issue is to discuss major materials issues for complex concentrated alloys (CCAs) and high entropy alloys (HEAs), from property-targeted design to process optimization, from structures to properties, and from the fundamental science to viable industrial applications. CCAs have been reported to have useful performances, including great toughness, high-temperature strength, corrosion resistance, as well as a good irradiation resistance. In addition, the concept of CCAs shifts the focus away from the corners of alloy phase diagrams toward their centers, vastly increasing the number of possible alloy systems with an unexplored property realm. Thus, CCAs have attracted worldwide attention as a new generation of alloys to resolve the challenges of modern industries in the fields of transportation, energy, safety, and infrastructure with remarkable properties never seen before.

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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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