Special Issue

Multi-Functional High Entropy Alloys: Relationship between Microstructure and Property

Message from the Guest Editor

The emergence of multiprincipal element alloys (MPEAs), known as high-entropy alloys (HEAs) and medium-entropy alloys (MEAs), has significantly increased the possibility of discovering new alloys via traditionally uncommon element grouping. Since this design concept of MPEAs is promising a broad range of compositional flexibility, various MPEAs exhibiting multifunctional performances have been developed over the past two decades. Moreover, beyond the advantages of compositional complexity of this type of alloys, most material scientists have attempted to finetune the microstructure to overcome the limitation of the property window of MPEAs via grain refinement, precipitation hardening, or heterostructuring. Based on the compositional flexibility of MPEAs, controllable microstructural factors are diverse, and these microstructural factors complicatedly affect the properties of MPEAs. In order to develop a novel strategy for effectively tailoring the multifunctional performance of metallic materials, a comprehensive understanding of the relationship between microstructure and properties is needed.

Guest Editor

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