Special Issue

Advances in Microstructure and Properties of High Entropy Alloys

Message from the Guest Editors

This Special Issue, entitled "Advances in Microstructure and Properties of High Entropy Alloys", provides a focused platform for recent progress in the research and development of High-Entropy Alloys (HEAs)—multi-principal element systems with near-equiatomic compositions.

This Special Issue welcomes studies that investigate the interplay between processing methods—such as casting, mechanical alloying, additive manufacturing, and thermal spraying—and the resulting microstructures, including phase formation, grain refinement, and defect evolution. A key objective is to elucidate how these microstructural features influence mechanical and functional properties. Both experimental and computational works (e.g., DFT, CALPHAD, MD) are encouraged, especially those that advance the understanding of phase stability, deformation mechanisms, and failure behavior. The integration of advanced characterization tools (e.g., in-situ TEM, synchrotron XRD) and machine learning-assisted alloy design is also highly valued. Target application fields include aerospace, energy, defense, and structural materials.

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About the Journal

Message from the Editor-in-Chief

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.

Editor-in-Chief

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