

Special Issue

Complex Concentrated Alloys (CCAs) - Current Understanding and Future Opportunities

Message from the Guest Editor

This Special Issue aims to present recent developments and future opportunities related to the topic of complex concentrated and high entropy alloys from fundamental aspects to various applications. Complex concentrated alloys (CCAs) retain the “high entropy” nature of the parent matrix and add complex precipitates containing multiple elements on their respective sub-lattices as strengtheners. The core effects of high configurational entropy, lattice distortion and sluggish diffusion lead to a gamut of attractive properties including high strength-ductility combination, resistance to oxidation, and interesting magnetic properties. Specific topics of interest include (but are not limited to):

- Thermodynamics, kinetics, and phase transformation in CCAs
- Mechanical behavior and deformation mechanisms
- Microstructure evolution as a function of processing
- Tribology, corrosion and oxidation behavior
- Magnetic and magneto-caloric properties; Irradiation effects
- High strain-rate deformation behavior
- Simulation and modeling including DFT, MD, Phase-field, and CALPHAD

Guest Editor

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Deadline for manuscript submissions

closed (31 December 2019)



Metals

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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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