Special Issue

Advances in Aluminum Alloys: Microstructure, Mechanical Properties and Applications

Message from the Guest Editor

Aluminum alloys have been widely used for aerospace and automobile industries because of their excellent specific strength. Processes such as casting, deformation, heat treatment, surface treatment, additive manufacturing and joining become more interesting with the increase of aluminum application. Moreover, emphasis has been placed not only on clarifying the mechanism through the modeling, simulation and advanced characterization, but also on designing new processes using artificial intelligence and machine learning. The promotion of understanding of the fundamental aspects of the relationships among processing, property and microstructure from the viewpoints of the metallurgical field cannot be overemphasized. Advanced characterization would provide confirmation for theories such as solidification, phase transition, recrystallization, deformation, fracture, corrosion and age-hardening behavior. This Special Issue welcomes papers from the perspective of fundamental physics as well as from an industrial point of view for application in aluminum alloys. Manuscripts are highly welcomed from both academic and commercial authors which present progressive results.

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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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