



Advances in Al-Mg-Si Alloys

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Message from the Guest Editor

Al-Mg-Si alloys have been used in the automobile industry because of their excellent age-hardening response, formability, and corrosion resistance. Enhancement of strength can be achieved through the precipitate formation. Various approaches to clarify the age-hardening behavior including the early stage of phase decomposition, clustering evolution, age-hardening sequence, structure analysis of precipitates, and transition behavior from nuclei to strengthening phases have been attempted. Also, the vacancy affecting the atomic diffusion has been characterized by positron and muon. First principal calculation and Monte Carlo simulation help to understand the structure of precipitates, nucleation and growth behavior of the metastable phases. The variety of the thermomechanical process has been introduced to improve the age-hardening response.

The Special Issue embraces advanced characterization, fundamental physics and review of the age-hardening behavior as well as the industrial viewpoint for application in Al-Mg-Si alloys. Manuscripts are welcomed from both academic and commercial viewpoints with progressive results.





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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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