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Latest Developments in Magnesium Technology—Alloying, Processing, Microstructure, Deformation Mechanism and Mechanical Properties

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Deadline for manuscript submissions:
closed (31 December 2017)

Message from the Guest Editors

Research on magnesium alloys has made great progress in the past 20 years, as demonstrated by significant improvements in their collective properties: Strength, ductility, formability, and even corrosion resistance. Alloy design strategies involving second phase precipitates have varied widely, from duplex microstructures involving long period stacking ordered (LSPO) intermetallic compounds, to ultrafine grained alloys with grain boundaries pinned by icosahedral quasicrystalline particles, all the way to microalloying strategies designed to enhance the number density of ultrafine precipitates and Guinier-Preston (GP) zones. Solid solution alloying effects of elements like Y and Li continue to be of great interest. In addition, there have been major developments in understanding the deformation behavior that involves the activation of multiple slip systems and stacking faults, as well as mechanical twinning. New processing techniques have been applied to obtain fine grain size and manipulate texture in order to control strength and ductility. We welcome your latest contributions to these areas of investigation.

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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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