Special Issue

Structure, Properties and Applications of Magnesium Alloys

Message from the Guest Editor

Magnesium alloys are an attractive option for many structural and biomedical applications thanks to their lightweight, high specific strength, good machinability, and excellent biocompatibility. However, their poor corrosion resistance and inadequate mechanical properties limit the widespread use of these alloys. Therefore, extensive research is required to find effective solutions to these challenges and mitigate their impacts. This Special Issue will focus on areas of magnesium alloys that still need to be developed. In particular, a better understanding of the complex relationships between microstructure, mechanical properties, and corrosion resistance is critical for improving the performances of these alloys. In addition, studies discussing detailed analyses of microstructures via advanced characterisation techniques, the elucidation of corrosion mechanisms and innovative approaches to improve the performances of these materials are encouraged. The applicability of new technologies such as computational modelling and additive manufacturing to magnesium alloys will be an important focus of this Special Issue.

Guest Editor

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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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