

Special Issue

Corrosion and Mechanical Properties of Mg Alloys for Biomedical Applications

Message from the Guest Editors

Mg, the lightest structural metal, has attracted the attention of researchers due to its excellent machinability, recyclability, electromagnetic shielding, damping response, specific mechanical characteristics and nutritional properties. Mg has fundamental characteristics that are similar to those of human bone, such as density and elastic modulus. Mg alloys have a high degradation rate and H₂ evolution in simulated body fluid (SBF), resulting in implant failure before the whole healing process. In addition, such an uncontrollable and rapid corrosion rate causes a major decrease in the mechanical properties of the bioimplants, resulting in premature failure. The most popular procedure to improve corrosion resistance in Mg is alloying, composite preparation and surface modification. This Special Issue, therefore, aims to present the latest research related to the creation and development of novel Mg-based alloy/composite and/or scaffolds with controllable corrosion/degradation rates for expanding their clinical and industrial applications.

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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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