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Development and Application of Biodegradable Metals

Guest Editor:

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Message from the Guest Editor

Magnesium-, zinc- and iron-based alloys as biodegradable metals eliminate the need for a second surgery in order to be removed.Alloy development aims to balance appropriate mechanical properties, moderate degradation rates, and biocompatibility. Strengthening mechanisms might not always promote the best degradation behavior. Many testing methods on mechanical and degradation properties are well-established, others like in-vitro test procedures for full assessment of the cytocompatibility as well as fatigue and stress degradation are under improvement. The community is deeply engaged in discussing the relation between in vitro and in vivo properties. Potential applications of biodegradable metal alloys are represented by structural material for orthopedics, like pins and screws and temporary cardiovascular devices, like stents and wires. The wide range of applications is also part of this Special Issue on the development of biodegradable metals.

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Message from the Editor-in-Chief

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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