Special Issue

Structure, Properties, and Applications of Amorphous Alloys

Message from the Guest Editor

Amorphous alloys, characterized by short-range atomic order and lack of long-range crystallinity, are fabricated via rapid solidification. Their disordered atomic structure confers the following exceptional properties: high strength (up to 5 GPa), excellent elastic deformation capacity (up to 2%), and superior wear and corrosion resistance due to the absence of grain boundaries. Magnetically, certain compositions exhibit high saturation magnetization, low coercivity, and low magnetostriction, making them ideal for soft magnetic applications. Above the glass transition temperature, their glassy nature enables thermoplastic forming of intricate geometries. These attributes underpin their diverse applications in electronics, medical devices, and structural components.

This Special Issue invites atomic structures and phase-formation mechanisms of amorphous alloys, their mechanical, magnetic, and corrosion properties, and innovative applications in electronics, energy, medical, and structural engineering.

- amorphous alloys
- atomic structure
- mechanical properties
- magnetic properties
- corrosion resistance
- thermoplastic forming
- applications

Guest Editor

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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.

Editor-in-Chief

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