Special Issue

Shape Memory Alloys 2022

Message from the Guest Editor

Shape memory alloys are endowed with a unique shape memory effect and pseudoelasticity via their essential thermoelastic martensitic transformation. At present, the exploitation of shape memory alloys with ultra-high performance is a major research trend, including wide temperature range pseudoelasticity, high shape recovery rate, cycling durability, and excellent elastocaloric. On the other hand, limited by the common poor machinability and weldability of shape memory alloys, conventional bulk shape memory alloys cannot meet the demands of complex-shaped structural parts in special service environments. Recently, the potential ability of additive manufactured shape memory alloys to achieve the formation of various structural parts has been extensively studied. However, due to the uniqueness of the additive manufacturing process, many new scientific issues have emerged that need to be investigated on shape memory alloys compared to traditional metallurgy. In this Special Issue, we welcome reviews and articles in the areas of preparation technology, novel functional performance, principle and micromechanisms, and special spatial structures and applications of shape memory alloys.

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.

Editor-in-Chief

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