Special Issue

Recrystallization and Heat Treatment Optimization of Alloys

Message from the Guest Editor

Heat treatment and the related physical metallurgy phenomena which occur during the thermal processing of materials have long been recognized as being both of technological importance and scientific interest. Despite a vast body of literature, the requirements of industry for high-throughput heat treatment drive the metallurgical research in this field, particularly along the lines of the recrystallization phenomenon, to improve and optimize the microstructure and texture of the finished products. Although the fundamental aspects involved in recrystallization are clear, many are not well understood and the experimental evidence is often poor and conflicting. This Special Issue addresses the effects of heat treatment and prior-deformation parameters on microstructural evolutions. Theoretical and research papers on softening phenomena and their interplay with other physical processes are welcome. This issue covers, but is not limited to, the following topics: The effect of temperature and time on the recrystallization process;
Innovative heat treatment to optimize mechanical properties;
Recrystallization mechanisms and features;
Concurrent recrystallization and phase transformation.

Guest Editor

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Message from the Editorial Board

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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