Special Issue

Ultrafine Grained Metallic Materials Processed by Severe Plastic Deformation (SPD) Processing

Message from the Guest Editors

Severe plastic deformation (SPD) processing has been established as one of the most prominent techniques to produce ultrafine-grained (UFG) and nano-grained (NG) metallic materials. These two classes of materials have attracted widespread interest in both academia and industries due to their enhanced properties that promise significant potential for various applications compared to conventional coarse-grained (CG) materials. UFG and NG materials attained through SPD processing typically exhibit superior strength, improved corrosion and wear performance, and superplasticity at room temperature. These are often attributed to the extreme grain refinement down to the sub-micron and/or nano-regime and other associated extremely fine microstructural features. Despite the considerable progress in producing UFG and NG materials and understanding their behaviour in the past few decades, there are a number of key areas that are still not well understood.

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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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