Special Issue

Mechanical Behavior and Superplasticity of Metals and Alloys

Message from the Guest Editors

Superplasticity was a laboratory curiosity before 1960. Since then, it has grown enormously both scientifically and industrially. Superplasticity is now an established technology that produces components for different industries with large profits using a large range of materials, including ceramics. However, there are very relevant metallurgical problems to be solved, including the development of mathematical models of the superplastic forming process and the application of high strain-rate superplastic forming to form auto body components. Additionally, the combination of superplastic forming with diffusion bonding as associated with gas-pressure forming of sheet components into shaped dies and the use of superplastic deformation during isothermal forging operations has to be improved. This Special Issue aims to present investigations dealing with fine-grained materials processed by different routes and their resulting effects on the superplastic properties, as well as investigations on the industrial application of superplasticity.

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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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