Special Issue

Kinetics of Plastic Deformation in Metallic Materials

Message from the Guest Editors

The problem of plasticity of solids are complicated. They are determined by the extraordinary complexity of the form of the response of the deformable medium to external influences. This complexity is illustrated by the shape of the stress–strain curves for different materials and loading conditions. The complexity of the plasticity problem is associated with the nonlinearity and activity of the deformable medium, as well as its ability to memorize the effects on it, arising from structural changes. The simplicity and clarity of the model concepts should be sought within the framework of the macroscopic approach associated with the analysis of the localization of plastic deformation. Plastic deformation is considered a collective phenomenon characteristic of a nonlinear and active deformable medium. This approach to the problem of plasticity of solids is hybrid and develops at the intersection of physics and mechanics of a deformable solid. The Special Issue will cover new findings of advances in the kinetics of plastic deformation in metals. Manuscripts that describe new experimental and theoretical studies on the plastic deformation mechanisms would be welcome.

Guest Editors

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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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