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Microstructure and Mechanical Properties of Titanium Alloys

Guest Editor:

Prof. Dr. Artur Shugurov
Institute of Strength Physics and Materials Science, Siberian Branch, Russian Academy of Sciences, 634055 Tomsk, Russia

Deadline for manuscript submissions:
closed (31 March 2021)

Message from the Guest Editor

Titanium and its alloys are widely used engineering materials within the Aerospace, Automotive, Energy and Chemical industries. Their unique combinations of high strength-to-weight ratio, strong resistance to creep, excellent corrosion resistance, and low heat conductivity. A large variety of microstructures can be obtained in titanium alloys depending on the thermomechanical processing routes. Detailed studies of the effect of their microstructure on the mechanical behavior are still necessary because of ever-increasing demands for structural materials to optimize their properties for different applications by varying processing parameters and resulting microstructures.

This Special Issue is focused on various aspects of microstructure evolution in titanium alloy samples obtained using traditional and additive technologies and subjected to different processing techniques as well as on the relation between their microstructure and mechanical behavior. Reviews and articles in the areas of preparation and experimental characterization of titanium alloys as well as computer simulation of their mechanical behavior under different loading conditions are welcomed.

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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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Journal Rank: JCR - Q2 (Metallurgy and Metallurgical Engineering) / CiteScore - Q1 (Metals and Alloys)

Contact Us

Metals Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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