Special Issue

Advances in Titanium Alloys: Mechanical Properties, Microstructure and Ultrasonic Impact Treatment

Message from the Guest Editor

Due to the remarkable combination of high strength-to-weight ratio, strong resistance to creep, excellent corrosion resistance, and low heat conductivity, titanium and its alloys have been extensively used in a wide range of applications. However, the poor wear resistance of titanium alloys is still the main shortcoming that restricts their applications, particularly in areas involving friction and wear. Currently, ultrasonic impact treatment (UIT) and its modifications (ultrasonic impact peening, ultrasonic nanostructural surface modification, etc.) are effective methods for surface hardening that significantly improves functional properties of structural materials, as well as their welded joints. In this Special Issue, we welcome articles that focus on the experimental observations, a molecular dynamics simulation and ab initio calculation mechanisms underlying the development of structural and phase transformations in loaded titanium alloys which made it possible to explain the UIT effect on their microstructure, mechanical properties, as well as deformation and fracture behavior under different external actions. Prof. Dr. Alexey Panin

Guest Editor

Prof. Dr. Alexey Panin

Institute of Strength Physics and Materials Science, Siberian Branch of Russian Academy of Sciences, Tomsk 634055, Russia

Deadline for manuscript submissions

closed (20 March 2024)

Metals

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.3

mdpi.com/si/131687

Metals
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
metals@mdpi.com

mdpi.com/journal/metals

Metals

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.3

mdpi.com/journal/metals

About the Journal

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.

Editors-in-Chief

Prof. Dr. Hugo F. Lopez
Department of Materials Science and Engineering, College of Engineering & Applied Science, University of Wisconsin-Milwaukee, 3200 N. Cramer Street, Milwaukee, WI 53211, USA

Prof. Dr. Yong Zhang
Beijing Advanced Innovation Center of Materials Genome Engineering, State Key Laboratory for Advanced Metals and Materials, University of Science and Technology Beijing, 30 Xueyuan Road, Beijing 100083, China

Author Benefits

High Visibility:

indexed within Scopus, SCIE (Web of Science), Inspec, Ei Compendex, CAPlus / SciFinder, and other databases.

Journal Rank:

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

Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 18 days after submission; acceptance to publication is undertaken in 2.6 days (median values for papers published in this journal in the first half of 2025).

MDPI