



Grain Size and Additive Technologies Effects on Mechanical Properties of Alloys

Guest Editor:

Prof. Dr. S. V. Razorenov

Institute of Problems of Chemical
Physics of Russian Academy of
Sciences, 142432 Chernogolovka,
Russia

Deadline for manuscript
submissions:

closed (31 July 2023)

Message from the Guest Editor

Dear Colleagues,

Nano- and sub-microcrystalline states in structural materials open up unique opportunities for obtaining a new level of mechanical properties: super-strength at a sufficiently high level of plasticity, hardness, low-temperature and high-speed superplasticity, low- and multi-cycle fatigue, and wear resistance. Currently, such materials are widely used in the field of operating temperatures for parts of aviation and space equipment, the chemical industry, engineering equipment, medical implants, etc.

The most promising methods for creating bulk sub-microcrystalline materials are severe plastic deformation methods such as equal-channel angular pressing (ECAP), torsion under high pressure, comprehensive pressing, as well as methods that combine SPD with various heat treatment modes. The sub-microcrystalline structure of metals formed by such methods, are characterized by the presence of a large number of microdefects. The prospect of using sub-microcrystalline materials with such an internal structure as structural materials establishes the importance of comprehensively studying the laws of their deformation behavior in a wide range of strain rates.





an Open Access Journal by MDPI

Editor-in-Chief

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

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.

Author Benefits

Open Access: free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility: indexed within Scopus, SCIE (Web of Science), Inspec, Ei Compindex, CAPlus / SciFinder, and other databases.

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
www.mdpi.com

mdpi.com/journal/metals
metals@mdpi.com
[X@Metals_MDPI](#)