metals

an Open Access Journal by MDPI

IMPACT FACTOR 2.5

CITESCORE 5.3

Precipitating Strengthening, Heat Treatment and Deep Cryogenic Treatment of Steel

Guest Editors:

Dr. Zbyšek Nový
COMTES FHT a.s., 334 41 Dobrany, Czech Republic

Mr. Jaromir Dlouhy
COMTES FHT a.s., 334 41 Dobrany, Czech Republic

Prof. Dr. Ludmila Kučerová
Faculty of Mechanical Engineering, University of West Bohemia in Pilsen, Univerzitni 2732/8, 301 00 Plzen, Czech Republic

Deadline for manuscript submissions:
closed (31 March 2023)

Message from the Guest Editors

Dear Colleagues,

Precipitation strengthening is one of several mechanisms leading to higher strength in metals. This powerful phase transformation is used in steels to control their properties. Precipitation strengthening is normally induced by heat treatment where diverse thermal processes can be applied. The chapter on heat treatment deals with deep cryogenic treatment, which benefits mainly steel materials after quenching and tempering. Refinement of the kinetic description of precipitation, identification of effects of microstructural features, and environmental impacts on precipitation kinetics, the effect of precipitate morphology on the activation energy of defect nucleation, and confirmation of theories of structural changes during deep cryogenic treatment are just a handful of themes to be addressed.

In this Special Issue, we aim to contribute to the entire theory of precipitation in steels to advance the knowledge of heat treatment and deep cryogenic treatment processes. The comprehensive view of the relationships among the treatment process, characterization of fine microstructure, and the final properties of the workpiece should provide another piece in the puzzle.

metals

IMPACT FACTOR 2.5

CITESCORE 5.3

an Open Access Journal by MDPI

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

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.

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 Compendex, 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