



Recent Findings and Developments on Bainite in Advanced High-Strength Steels

Guest Editors:

Prof. Dr. Ulrich Prah

Institute of Metal Forming,
Technische Universität
Bergakademie Freiberg,
Bernhard-von-Cotta-Straße 4,
09599 Freiberg, Germany

Dr. Grzegorz Korpala

Institute of Metal Forming,
Technische Universität
Bergakademie Freiberg,
Bernhard-von-Cotta-Straße 4,
09599 Freiberg, Germany

Mathias Zapf

Institute of Metal Forming,
Technische Universität
Bergakademie Freiberg,
Bernhard-von-Cotta-Straße 4,
09599 Freiberg, Germany

Deadline for manuscript
submissions:

closed (20 July 2024)

Message from the Guest Editors

To reduce energy consumption in a world of high mobility, the automotive industry continuously demands lighter and stronger materials to design new lightweight concepts. Therefore, new steel grades with improved strength–ductility properties are in constant development. On the one hand, new medium-Mn TRIP/TWIP steels produced by C partitioning procedures are in the focus of research activity. On the other hand, bainite, often considered a single phase, is known to provide good toughness and high strength, promising high tensile strength–total elongation products (UTS x TE). Bainitic microstructures consisting of multiple constituents are the reason for these auspicious properties, and explain why the development of new advanced high-strength steels (AHSSs) has employed complex bainitic microstructures in recent years. The broad spectrum of properties achieved with bainitic microstructures indicates a vast potential to generate specific high-strength steel grades. Therefore, this Special Issue focuses on the latest findings on bainite to understand the technology–microstructure–property relations in complex bainitic steels for lightweight design.





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, 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](https://twitter.com/Metals_MDPI)