Special Issue

Recent Advances in Metals and Alloys for Nuclear Applications

Message from the Guest Editor

The development of metallic fuel or structural materials for nuclear reactors has been of great significance for the safety and reliability of nuclear power plants. The reactor is designed to be used for several dozens of years under an extreme core environment. Designing alloys to withstand extreme environments, characterized by high temperatures or strong irradiation, in the reactor core is a fundamental challenge for materials scientists.

For this Special Issue, we welcome articles that focus on the fabrication, characterization, and theoretical study of metallic fuel, advanced nuclear fuel cladding, and structural alloys in the field of advanced nuclear systems. Innovative research on additive manufacturing of superalloys for nuclear applications and multiscale research methods that bridge the microstructure and properties of these materials are of particular interest.

- nuclear fuel
- structural alloys
- structural characterization
- fabrication process
- in-pile performance
- extreme environment
- irradiation
- corrosion

Guest Editor

Dr. Kun Yang

Department of Nuclear Science and Technology, Nanjing University of Aeronautics and Astronautics, Nanjing 210016, China

Deadline for manuscript submissions

closed (20 June 2024)

Metals

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.3

mdpi.com/si/188826

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