Special Issue

Weldability and Reparability of Nickel-Base Alloys

Message from the Guest Editor

There is a strong motivation to improve the heat resistance of alloys in order to enhance the thermal efficiency of engines, which is necessary to achieve environmental targets and reduce the emissions of harmful greenhouse gasses. For advanced-ultra supercritical applications, the emphasis is on high-temperature strength, long-term creep life, phase stability, oxidation resistance, and robust and flexible welding processes. In this scenario, Ni-base superalloys are successfully used for mechanical components operating at high temperatures and stresses; however, these conditions may cause surface cracks. Cracks can also form during the fabrication process, compromising product quality. Therefore, repair techniques, in the frame of a circular economy, have a relevant economic and environmental impact, particularly when dealing with high-cost materials like Ni-base superalloys. This Special Issue intends to collect new advances in the welding and repairing of nickel-base alloys that are aimed at improving the high-temperature performances of joints as well as extending their lifespan from the perspective of sustainability.

Guest Editor

Prof. Dr. Paolo Ferro
Department of Engineering and Management, University of Padova, Stradella San Nicola 3, 36100 Vicenza, Italy

Deadline for manuscript submissions

31 January 2026

Metals

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.3

mdpi.com/si/221524

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