Special Issue

Numerical Analysis of Welding and Processing

Message from the Guest Editor

Numerical modeling of phenomena occurring in the technological processes of metals and their alloys is increasingly attracting the interest of scientists. With regard to welding processes, the main directions of research are the fields of temperature, phase transformations, strains and stresses, and distortions, which have a direct impact on the strength and utility of welded constructions.

The purpose of this Special Issue is to present the latest developments in the field of research on welding techniques of metals and alloys, as well as other technological processes involving heat in the manufacturing process.

The main topics of interest include but are not limited to the following processes:

Welding (GMA, GTA, P-GMAW,SAW, ESW, PAW, etc.);
Laser welding;
Hybrid welding;
Rapid welding prototyping;
Friction welding;
Friction stir welding and processing;
Laser and heat treatment;
Spraying;
Plasma cutting;
Machining;
Coating;
Additive manufacturing.

Guest Editor

Prof. Dr. Jerzy Winczek

Faculty of Mechanical Engineering and Computer Science, Department of Technology and Automation, Czestochowa University of Technology, 19 Armii Krajowej St., 42-200 Czestochowa, Poland

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Metals
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
metals@mdpi.com

mdpi.com/journal/metals

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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.

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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

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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).

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