

Special Issue

Analytical Modeling of Advanced Manufacturing Processes

Message from the Guest Editor

The control of machining is critical to the quality of the final product, while the evaluation of advanced manufacturing processes becomes more challenging. In situ parameters including force, temperature, and tool wear indicate whether the machining is conducted within an allowable range of equipment. Force and temperature in shear zone are the results of both mechanical and thermal loads. Moreover, tool wear describes the gradual failure of cutting tools due to regular operation. Residual stress and surface roughness reflect the machining process and are directly related to the fatigue performance and surface quality of the product. Surface roughness characterizes the surface texture in terms of deviations. To date, most related studies have been carried out using numerical analysis or experimental investigation. This includes forward analysis by predicting machining parameters (force, temperature, etc.) under given conditions and inverse analysis by predicting machining conditions under desired parameters. For this Special Issue in *Metals*, we welcome reviews and articles regarding analytical modeling of various parameters in advanced manufacturing processes.

Guest Editor

Dr. Yixuan Feng

Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA 30332, USA

Deadline for manuscript submissions

closed (30 June 2022)



Metals

an Open Access Journal
by MDPI

Impact Factor 2.5
CiteScore 5.3



mdpi.com/si/90576

Metals

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

[mdpi.com/journal/
metals](https://mdpi.com/journal/metals)





Metals

an Open Access Journal
by MDPI

Impact Factor 2.5
CiteScore 5.3



[mdpi.com/journal/
metals](https://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).