Special Issue

Recent Progress and Scientific Challenges in Laser-Based Additive Manufacturing

Message from the Guest Editor

We invite submissions to the Special Issue of the *Journal of Manufacturing and Materials Processing* titled "Recent Progress and Scientific Challenges in Laser-Based Additive Manufacturing." Advances in laser systems, process monitoring, and zero-defect manufacturing are driving efficient, cost-effective production. The demand for organically and free-form designed components requires high agility and productivity, typical of laser-based additive manufacturing (AM). Challenges include pore and crack formation, layer height consistency, gas content control, residual stress, and microstructure optimization. This issue welcomes fundamental and applied research on novel laser-based AM processes, including mechanics, computational analysis, process development, characterization, and monitoring using smart systems, machine learning, and data analytics. Studies may be theoretical, numerical, experimental, or combined. Topics include material testing, defect analysis, beam shaping, constitutive modeling, multiscale simulations, dynamic testing, process optimization, machine learning, and data-driven manufacturing.

Guest Editor

Dr. Ahmad Wael Al Shaer
Advanced Manufacturing Group, School of Engineering and Computing, University of Central Lancashire, Preston PR1 2HE, UK

Deadline for manuscript submissions

30 June 2026

Journal of Manufacturing and Materials Processing

an Open Access Journal by MDPI

Impact Factor 3.3
CiteScore 5.2

mdpi.com/si/239363

Journal of Manufacturing and Materials Processing
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
jmmp@mdpi.com

mdpi.com/journal/jmmp

MDPI

Journal of Manufacturing and Materials Processing

an Open Access Journal by MDPI

Impact Factor 3.3
CiteScore 5.2

mdpi.com/journal/jmmp

MDPI

About the Journal

Message from the Editor-in-Chief

Journal of Manufacturing and Materials Processing (*JMMP*)(ISSN 2504-4494) is a new MDPI peer-reviewed, open access venue with a focus on the scientific fundamentals and engineering methodologies of manufacturing and materials processing. We offer an online platform facilitating effective exchange of innovative scientific and engineering ideas and the dissemination of recent, original, and significant research and developmental findings. On behalf of the Editorial Board, I extend an invitation to our scientific and engineering colleagues to contribute high-quality, innovative, and ground-breaking research articles to *JMMP.*

Editor-in-Chief

Prof. Dr. Steven Y. Liang
George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA 30332-0405, USA

Author Benefits

High Visibility:

indexed within Scopus, ESCI (Web of Science), Inspec, CAPlus / SciFinder, Ei Compendex and other databases.

Journal Rank:

JCR - Q2 (Engineering, Mechanical) / CiteScore - Q2 (Mechanical Engineering)

Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 16.2 days after submission; acceptance to publication is undertaken in 3.6 days (median values for papers published in this journal in the first half of 2025).