

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

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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

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