

## Special Issue

# Technology for the Monitoring and Control of Laser Powder Bed Fusion

### Message from the Guest Editor

We invite contributions to a Special Issue of the *Journal of Manufacturing and Materials Processing* titled “Technology for the Monitoring and Control of Laser Powder Bed Fusion (LPBF).” As LPBF matures in fabricating complex metal parts, robust in situ monitoring and intelligent control systems are increasingly vital to address challenges like melt pool instability, porosity, residual stress, and geometric inaccuracies that limit quality and repeatability. This issue seeks advances in sensor-based monitoring, real-time analytics, closed-loop control, machine learning integration, and multi-physics modeling. Submissions of experimental, theoretical, numerical, and hybrid studies that enhance understanding of process behavior, defect reduction, and optimization are welcome. Topics include in situ monitoring (optical, acoustic, thermal), defect detection, adaptive control, sensor fusion, AI and machine learning for prediction, real-time data and digital twins, melt pool modeling, process stability and reliability, and multiscale simulations. We look forward to your high-quality contributions advancing LPBF manufacturing technology.

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### Guest Editor

Dr. Fan Chen

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### Deadline for manuscript submissions

31 March 2026



## Journal of Manufacturing and Materials Processing

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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*.

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### Editor-in-Chief

Prof. Dr. Steven Y. Liang  
George W. Woodruff School of Mechanical Engineering, Georgia  
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