Special Issue

Laser Powder Bed Fusion of Metals and Alloys: Microstructure and Mechanical Properties

Message from the Guest Editors

Laser powder bed fusion (LPBF) has been widely used in the fields of aerospace, energy, and medicine, among others, due to its high design freedom, the ability to produce complex components, and the reduced lead time and material waste. Understanding the underlying mechanisms of the evolution of microstructure in LPBF and harnessing the correlations between microstructure and properties are of great significance for additive manufacturing. In this Special Issue, original research articles and reviews are welcome. Research areas may include (but not limited to) the following topics:

Development of novel alloys and composites for LPBF;
Process monitoring and control;
Defect analysis and suppression methods;
Microstructural evolution in LPBF;
Advances in microstructure and property control;
Residual stresses and distortion in LPBF components;
Post-processing techniques;
Advanced applications of LPBF-processed metals and alloys;
Computational modeling and simulation;
Anisotropy in LPBF components.

Guest Editors

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Deadline for manuscript submissions

closed (20 November 2025)

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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal *Applied Sciences* has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

Editor-in-Chief

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