Special Issue

Laser Powder Bed Fusion Process in Alloy Manufacturing

Message from the Guest Editor

Laser Powder Bed Fusion (LPBF), also generally referred to Selective Laser Melding, is a 3D metal printing method in which 3D components are fabricated by means of a high-energy laser beam to fuse the pre-deposited metal powder. LPBF has been increasingly used in many sectors of industry due to its ability to produce near-net shape parts directly from a CAD model and hence offering robust design flexibility without the limitations of conventional manufacturing methods that include a series of manufacturing processes, more material consumption, higher cost and energy. LPBF is the subject of intensive scientific research, particularly in the areas of manufacturing strategies and their effect on LPBF produced parts.

The aim of this Special Issue is to highlight recent innovations introduced in the Laser Powder Bed Fusion process and their impact on the mechanical and/or material behavior of metals and alloys by experimental techniques and/or modelling at all length scales down to nanostructures.

Scholars are encouraged to submit research papers and reviews to this Special ilssue.

Guest Editor

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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.

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