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Selective Laser Melting: Advantages and Challenges

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Message from the Guest Editors

Additive Manufacturing (AM) is revolutionizing the way products are designed, fabricated and distributed to end users. Selective Laser Melting (SLM), an AM powder–bed fusion technique is being developed at a particularly fast pace, as both academy and industry become aware of its ability to fabricate complex geometries and customized products with adequate mechanical properties.

In this Special Issue, we welcome reviews and articles that focus on Selective Laser Melting of metals and alloys, metal matrix composites, functionally graded materials, multi-material parts, cellular structures, etc. We welcome either experimental or numerical studies addressing component design approaches (e.g., topology optimization for AM), manufacturing strategies for different purposes (e.g., speed, cost, deformation, geometrical accuracy, residual stresses), characterization including standardized procedures and also failure analysis of damaged AM manufactured components.

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Message from the Editorial Board

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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