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Additive Manufacturing and Microstructure Characteristics of Metallic Material

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Message from the Guest Editors

For a given metal fabricated by additive manufacturing (AM), there can be a variety of microstructural features that affect its mechanical and functional properties, including the size of grains, grain boundaries, formation of anisotropic and heterogeneous microstructure. During the AM process, the microstructure is formed in situ and would therefore depend largely on the process parameters and material used. The process parameters are dependent on the metal AM method used.

Therefore, this Special Issue aims to appeal to the latest research about the microstructure in metals and alloys fabricated by different AM technologies. Examinations of titanium, iron, nickel, cobalt, copper, zirconium and their alloys, as well as refractory metals, glass metals, noble metals and high-entropy alloys, are all welcomed. AM technologies focus primarily on powder bed fusion and direct metal deposition, while solid-state processes such as ultrasonic additive manufacturing and cold spray additive manufacturing are also on our radar. Beyond the materials and techniques summarized above, the microstructure characterization of metal AM parts after various post-treatments is also within this scope.

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Message from the Editor-in-Chief

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