Special Issue

Microstructure and Mechanical Properties of Aluminum Alloy and Its Composites by Additive Manufacturing

Message from the Guest Editor

Aluminum alloys include many kinds of series, which have important application prospects. Metal additive manufacturing has great advantages in forming aluminum alloy parts, because it can realize the integration of material preparation and parts forming. At present, there are many studies on aluminum alloy prepared by metal additive manufacturing, but most of them focus on Al-Si casting aluminum alloy. This kind of alloy is easy to form under the action of lasers, but its mechanical properties and corrosion resistance are not high. Traditional 2XXX series, 3XXX series, 7XXX series, etc. aluminum alloys face many difficulties in laser additive manufacturing because of low-laser absorptivity or stress cracking caused by various factors after laser irradiation. This Special Issue is focused on the design of aluminum alloy for laser additive manufacturing process, process optimization, and the control of microstructure and performance. Through the publication of this Issue, we hope to form a series of professional aluminum alloy design and preparation for metal additive manufacturing.

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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