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Fatigue Behavior of Additively-Manufactured Parts

Guest Editor:

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Message from the Guest Editor

Additive manufacturing (AM) has gained a lot of attention from both industry and academia. The combination of unique materials and incremental manufacturing in this technology provides opportunities for three-dimensionally structured parts with complex configurations and unique microstructures. A fairly high scatter in the fatigue strength of AM parts is commonly observed, which is attributed to the defects-induced stress concentration factors, which promote crack initiation at various locations. All of these necessitate further research in this area in order to increase the practicality of adopting AM in high-tech industrial applications.

In this Special Issue, we seek to provide a wide set of articles on current state-of-the-art research in fatigue behavior of additively-manufactured parts covering various materials systems that include metals and alloys, nanostructures, functionally gradient materials, porous materials, amorphous materials, shape memory alloys, high-entropy alloys, particle-reinforced metal/polymer matrix composites, and 3D tissues comprising multiple cell types.

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Message from the Editor-in-Chief

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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