

Special Issue

Industry 4.0: Design and Improvement of Additive Manufacturing

Message from the Guest Editor

Additive manufacturing (AM) is an umbrella term that encompasses seven categories. AM has been around for decades and has demonstrated its significance through design freedom, time and cost-effectiveness, as well as integration with artificial intelligence. These benefits have evolved AM into a notable pillar of Industry 4.0; the other pillars include autonomous robots, big data analytics, cloud computing, cyber security, as well as horizontal and vertical integration. These are exciting times for AM, as with the rapid growth in consumer demands and need for the customization of products, it can meet these stringent requirements with the help of other Industry 4.0 pillars able to support the design, analysis, and improvement of AM methods and products. This Special Issue focuses on such interactions, resulting in the development of digital twins, cyber-physical systems, and operation management approaches through the incorporation of Industry 4.0 in driving the optimisation of AM methods and products. Therefore, we welcome articles demonstrating the impact of Industry 4.0 on AM via principles such as virtualisation, decentralisation, real-time capability, and modularity.

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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