Special Issue

Advances in Near-Net-Shape Manufacturing Routes of Metallic Parts

Message from the Guest Editor

Near-net-shape manufacturing (NNS) has advanced significantly, with current practices focusing on enhancing precision and efficiency. Key developments include the integration of additive manufacturing for complex geometries, advancements in powder metallurgy for high-performance materials, and refined casting techniques. However, challenges with materials, structures, and real-time monitoring remain. This Special Issue focuses on recent advancements in the NNS manufacturing of metallic parts, addressing challenges such as multi-material integration, complex geometries, lightweight structures, and real-time monitoring. It highlights the need for innovative solutions like additive manufacturing, powder metallurgy, and advanced casting processes to meet the industry's growing demand for high-performance components. Research on improvements to conventional forging and extrusion techniques is also encouraged.

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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