Special Issue

Recent Trends in Solid-State Additive Manufacturing of Alloys

Message from the Guest Editors

This Special Issue explores recent alloy design and development trends tailored explicitly for various solid-state AM techniques. It also aims to showcase advancements in state-of-the-art AM processes, as well as efforts towards the development of novel solid-state AM processes. Encompassing fusion-based and solid-state AM approaches, we welcome contributions that delve into the current challenges associated with AM for diverse alloy systems, preferentially for solid-state AM. We are particularly interested in strategies that effectively mitigate these challenges, supported by comprehensive microstructural and mechanical characterization. Additionally, we encourage submissions that utilize physics-based process modeling (i.e., computational solid mechanics, computational fluid mechanics, thermo-metallurgical modeling, computational welding mechanics) to address process-induced variability, coupled with thorough in situ or post-experimental validation. Approaches employing physics-informed machine learning frameworks to mitigate challenges associated with AM processing are also encouraged.

Guest Editors

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Deadline for manuscript submissions

closed (20 February 2025)

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Message from the Editor-in-Chief

Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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