Special Issue

Microstructural, Functional and Mechanical Properties of Metallic Materials Processed by Additive Manufacturing

Message from the Guest Editor

Solidification in materials processed by beam-based Additive manufacturing (AM) technologies usually occurs very rapidly, out of equilibrium, and leads to the formation of extended solid solutions, fine cellular microstructures, and crystallographic textures. Non-beam-based AM technologies typically use organic binders and additives to assemble metal powders. Debinding and sintering operations are needed to achieve high-density parts. Post-process heat treatments not only have a strong effect on the shrinkage behavior and residual porosity of AM parts but also lead to different microstructures. Thus, in order to maximize the performance of AM components, it is of primary importance to tailor alloy formulations and heat treatments. It is my pleasure to invite you to submit contributions to this Special Issue on the correlation between process parameters, microstructures, and properties of alloys produced by AM, focusing on your most important findings, highlighting future challenges, and providing new perspectives. Keywords

- Metallurgy
- Additive Manufacturing
- Microstructures
- Mechanical properties
- Functional properties

Guest Editor

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Deadline for manuscript submissions

closed (30 September 2019)

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/22170

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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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