Special Issue

Heat Treatment of Additive Manufacturing-Processed Alloys

Message from the Guest Editors

Metal additive manufacturing, commonly referred to as AM, creates 3D metal parts layer by layer using a digital design model. Due to the nature of AM processes, the resulting parts could be characterised by heterogeneous microstructures and a high level of internal stress. In order to modify the part microstructure and relieve any residual stresses present, enabling parts to achieve properties comparable to or even better than their conventionally manufactured counterparts, post-processing heat treatment may be required. However, the heat treatments of AM alloys are different from those adopted after conventional processes and therefore require an ad hoc study, thus leading to a time-consuming procedure. The aim of this Special Issue is to collect the most innovative heat treatments with a critical analysis of their effects on microstructural features, thermophysical properties and mechanical behaviour of the treated alloy. In addition, this Special Issue also focuses on the development of new alloys that do not require post-processing treatments, with an emphasis on the stability of these materials when working at high temperatures.

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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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