Special Issue

Corrosion and Corrosion Protection of Additively Manufactured Alloys

Message from the Guest Editors

Metal additive manufacturing (MAM), a process by which complex multifunctional metal parts are produced in a layer-by-layer fashion, is considered one of the enabling technologies for Industry 4.0. This technology has attracted a great deal of attention in recent years and has found numerous applications in such industries as medical implants, energy, aerospace, and automotives because it allows near net-shape manufacturing of geometrically complex parts. It has also shown great potential for applications in repair. Due to the special conditions associated with MAM. a very fine microstructure with unique directional growth features far from equilibrium is generally obtained. This distinctive microstructure, together with defects originating from the MAM process, is known to greatly influence the performance and corrosion behavior of these materials. Therefore, this Special Issue focuses on the complex relationship between the microstructure, post-thermal treatments, and defect characteristics of MAM processes such as surface roughness, porosity, and internal residual stresses on the corrosion behavior of additively manufactured (AM) metal parts.

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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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