Special Issue

Design, Optimization, Simulation, and Defect Detection for Additive Manufacturing

Message from the Guest Editors

Additive manufacturing (AM), colloquially known as 3D printing, is emerging into a general-purpose technology. AM characterizes a group of seven technologies (ISO/ASTM 52900:2021) that deposit, fuse, dispense, bond, and cure a wide selection of feedstocks, composed of polymers, metals, ceramics, elastomers, and hybrid materials, on a layer-by-layer basis. The advent and proliferation of the additive process is triggering Industry 4.0 and is challenging practitioners and academics alike to establish and substantiate new applications, designs, materials, optimization methods, process simulation, data management, in and ex situ defect detection, and modes of creating end-use parts. Contributing to the emerging stream of research and advances in AM technologies, the overarching mission of this Special Issue is to provide a leading publication channel for engineers, scientists, researchers, and practitioners in academia and virtually in any industry to document their latest achievements and to identify underlying issues and challenges for future investigations that may define, transcend, and steer the contemporary progress in AM technologies and its widespread adoption.

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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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