Special Issue

Additive Manufacturing of Metallic Alloys and Composite Materials—Process, Structure, Properties and Part Performance: Experimental and Computer Methods

Message from the Guest Editors

Dear colleagues, Additive manufacturing (AM) has been experiencing an explosion of research in materials science and non-equilibrium processing aimed at designing novel high-value products for potential engineering applications. Although many materials, geometries and fabrication methods have been investigated, our ability to systematically and unambiguously determine the mechanical performances, detect the actual 3D microstructures, tailor the mechanical properties to specific applications remains fragmented and unsatisfactory. This Special Issue calls for contributions focusing on advanced AM methods, in combination with new alloy and composite materials, monitoring techniques for process and microstructure control, 3D microstructure characterization, the elucidation of deformation modes during mechanical testing, with special attention to non-destructive testing, measurement techniques and strategies to discern mechanical properties from residual stresses; the optimization of metallurgical/mechanical properties, computer modelling and simulation to verify new theories and optimize the AM process, material properties and performance of components.
Sincerely,
Guest editors

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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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