

Special Issue

Additive Manufacturing of Metals, Alloys, and Ceramics: Processes, Microstructures, and Properties

Message from the Guest Editors

Additive manufacturing (AM) of metals, alloys, and ceramics involves highly non-equilibrium processing conditions that differ significantly from conventional routes. The presence of large thermal gradients, rapid rates of temperature change, and repeated thermal cycling gives rise to unique process dynamics that influence microstructural evolution. As a result, the mechanical and functional properties of AM products, including strength, ductility, fracture resistance, fatigue life, and corrosion resistance, are governed by mechanisms markedly distinct from those observed in conventionally processed materials. This field is rapidly expanding, with ongoing efforts to establish clear correlations among processing conditions, microstructural evolution, and resultant properties. This Special Issue invites contributions that advance both the scientific understanding and technical application of AM. Topics of interest include, but are not limited to, process innovation and optimisation, hetero-microstructural design strategies, and new alloy or ceramic development tailored for AM.

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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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