Special Issue

3D Printed Functional Lattice Structures

Message from the Guest Editor

The advent of 3D printing brings about the possibilities of designing functional materials based on their structures as opposed to their chemistry. Specifically, these materials are cellular and designed with the introduction of architectured pores. A new class of porous material, known as lattice structure, manifests from this. They often display properties not commonly found in traditional bulk materials, such as being lightweight, with a usually low/high specific stiffness and strength, deforming with a stress plateau region, having a high specific surface area, with unique flow properties, and with meta-mechanical behaviors. They are widely adopted as energy-absorbers, artificial bone implants, electrochemistry, membranes, filters, and acoustic metamaterials.

This Special Issue welcomes all articles related to the 3D printing of lattice structures, including to but not limited to their design, materials processing, applications and performance, and mechanisms. This Special Issue also aims to help to advance the scientific and technical understandings of 3D-printed functional lattice structures.

Guest Editor

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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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