Special Issue

Advanced Locally Resonant Materials

Message from the Guest Editor

Metamaterials can be defined as engineered materials characterized by specific physical features that cannot be found—or are barely found—in natural materials. Metamaterials can be successfully applied in different fields, from photonics to acoustics. In the field of mechanics, a special class of metamaterials is represented by locally resonant materials (LRMs), which are periodic media with peculiar properties in terms of elastic wave propagation. In those materials, the presence of inclusions or suitably designed substructures gives rise to local resonance phenomena, with the final effect of achieving special dispersion spectrum. In many cases, LRMs show bandgaps—namely, frequency regions in which the propagation of elastic waves is inhibited. The applications of LRMs are abundant and varied: vibration attenuation, elastic or acoustic waveguides, protection against seismic waves, acoustic insulation, noise suppression, acoustic cloacking, acoustic superlenses, negative refraction, energy harvesting, and many more.

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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