Special Issue

New Advances in Acoustic and Mechanical Metamaterials: Design and Applications

Message from the Guest Editor

Metamaterials are man-made and have been engineered to exhibit unusual physical and mechanical properties, including unusual acoustic or mechanical behaviors. It is well known that acoustic metamaterials are generally designed to efficiently manipulate sound waves, including low-frequency sound insulation, acoustic cloaking, sound focusing, biomedical acoustics, passive destructive interference, etc. On the other hand, mechanical metamaterials, also known as building materials, have rationally designed microstructures with unusual static mechanical properties (e.g., negative Poisson's ratio, anisotropic stiffness, and pentamodes) and dynamic behaviors (e.g., selective wave transmission, partial resonance, and full-band vibration isolation). These properties mean that these materials can be applied to noise and vibration control, energy localization and absorption, super-resolution imaging and sensing, multiphysics, hybrid metamaterial or device research, etc. In this Special Issue, we aim to explore recent advances in the design and fabrication of acoustic and mechanical metamaterials.

Guest Editor

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As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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