

Special Issue

Recent Progress and Future Directions of Thermal and Mechanical Metamaterials

Message from the Guest Editors

Metamaterials are artificial composite materials/structures with extraordinary properties that are not occupied by bulk natural materials. Via deliberate structural design, various exotic physical properties have been realized in the thermal field, such as cloaking, camouflage, radiative cooling, topology states, and in the mechanical field, such as ultralight weight, high stiffness/strength/energy absorption, auxetics, nonreciprocity, etc. In recent years, research has been extended to coupled physical phenomena where one physical effect acts as the driving force for another, resulting in smart designs such as thermal-responsive mechanical metamaterials. The field is embracing novel materials and functionalities such as wave manipulation, vibration suppression and smart materials. This Special Issue aims to present recent advances related to metamaterials in the thermal and mechanical fields. The scope of this Special Issue includes, but is not limited to, the following topics: recent developments and achievements in the design, simulation and modelling of newly emergent thermal/mechanical metamaterials and functionalities, as well as their implementation in engineering.

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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.

Editor-in-Chief

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