



Emerging Trends in Phononic Crystals

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Message from the Guest Editors

The study of phononic crystals (PCs) has evolved into a mature research field offering a versatile platform for the creation of materials with properties that go well beyond what is naturally permissible. Ranging from structural lattices with unique inherent geometries to periodic media with locally resonant substructures, engineered phononic crystals have registered new milestones across varying length and time scales. Most recently, a remarkable spurt of seminal efforts have given rise to new trends in PCs that exploit dispersion topology, chirality, and spatial symmetry in both physical and reciprocal space. New innovations in lattice design that benefit from auxetic microstructures, nonlinearities, as well as unique folding mechanisms have demonstrated an ability to intentionally bias the mechanical response and fundamentally change the way materials interact with static forces and incident elastic waves. This Special Issue shall assemble contributions that explore, integrate, and shed new light and perspectives onto such emerging trends—to further push the boundaries of what is naturally conceivable in the realm of acoustics, mechanics, and nanoscale thermal sciences.





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Message from the Editor-in-Chief

Welcome to *Crystals*, the journal dedicated to the fascinating world of crystallographic research! Crystals are more than mere decorative elements; they hold the key to understanding the fundamental structure of matter. Our mission is to explore the crucial significance of this research across various fields. From medicine to technology, chemistry to geology, crystals play a vital role. Their structure provides insights into new advanced materials, innovative drugs, and groundbreaking technologies. Through *Crystals*, we delve into the microscopic world to discover solutions that will shape the future. Join us on a journey through the *Crystals*, where science merges with beauty and innovation.

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