

Special Issue

Non-Fourier Thermal Wave Crystals: Fundamentals, Modeling, and Applications

Message from the Guest Editor

This Special Issue, “Non-Fourier Thermal Wave Crystals: Fundamentals, Modeling, and Applications,” invites original contributions that advance understanding of how periodic or quasi-periodic architectures—such as layered composites, phononic/metamaterial lattices, and patterned crystals—influence non-Fourier thermal waves. We welcome research that (i) develops or applies rigorous models of non-Fourier heat transport (e.g., Cattaneo–Vernotte, phason/phonon hydrodynamics, and dual-phase lattice approaches) in periodic media, (ii) analyzes dispersion, band gaps, anisotropy, and attenuation of thermal waves, and (iii) demonstrates practical applications in thermal management, thermoelectrics, cloaking, and energy harvesting. Submissions may span theory, computational methods and experimental developments, including micro-/nano-scale measurements and device-level prototypes. By connecting fundamental wave physics with engineered crystal geometries, this Special Issue will chart design principles for controlling heat with wave-like fidelity and to inspire innovative thermal management solutions in electronics, energy, and materials science.

Guest Editor

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About the Journal

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.

Editor-in-Chief

Prof. Dr. Alessandra Toncelli
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