Special Issue

Micro/Nano-Scale Thermodynamics and Heat Transfer

Message from the Guest Editors

Significant progress has been made in the last decade regarding knowledge of micro- and nano-scale thermodynamics and the rules of heat transfer, with emphasis having especially been placed on the fundamental rules of heat transfer and the thermal properties of materials at extremely small scales. With the rapid advancement of micro-electromechanical systems and nanotechnologies, it has become increasingly necessary to understand and master the properties of heat transport in these tiny structures. For example, studies based on first-principles and anharmonic lattice dynamics have revealed how thermal energy is transferred through heat carriers known as phonons, magnons, and electrons. Molecular dynamics simulations provide tools for understanding non-Fourier heat transfer, where heat flow is delayed rather than instantaneous in response to temperature gradients. This Special Issue of *Nanomaterials* is aimed at presenting current knowledge concerning micro/nano-scale thermodynamics and heat transfer. Original research articles and reviews are welcome.

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Message from the Editor-in-Chief

Nanoscience and nanotechnology are exciting fields of research and development, with wide applications to electronic, optical, and magnetic devices, biology, medicine, energy, and defense. At the heart of these fields are the synthesis, characterization, modeling, and applications of new materials with lower nanometer-scale dimensions, which we call “nanomaterials”. These materials can exhibit unusual mesoscopic properties and include nanoparticles, coatings and thin films, metal–organic frameworks, membranes, nano-alloys, quantum dots, self-assemblies, 2D materials such as graphene, and nanotubes. Our journal, *Nanomaterials*, has the goal of publishing the highest quality papers on all aspects of nanomaterial science to an interdisciplinary scientific audience. All of our articles are published with rigorous refereeing and open access. We are proud of our increasing impact factor and ability to provide rapid decisions to authors.

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