Journal of Nanotechnology

Hindawi

Special Issue on

Advanced Experimental and Theoretical Techniques for Nanoscale Thermal Transport and Thermoelectrics

CALL FOR PAPERS

Great success has been achieved in improving the thermal, thermodynamical, and thermoelectric properties using nanotechnology in recent years. On the one hand, with the rapid development of super computer, advanced computational and simulational techniques have been developed and applied to the discovery of new structures of advanced materials and new physics for thermal transport. On the other hand, the fast progress of the experimental nanotechnology enables the exploration of a vast variety of nanostructures for tailoring novel properties and studying the structure-function relationship. Despite the success, challenges remain in understanding the fundamental thermal transport in a variety of nanomaterials, accurately predicting the thermal and thermoelectric properties for novel materials and nanostructures, searching and synthesizing ultrahigh or ultralow-thermal conductivity materials, experimentally characterizing novel thermal and thermoelectric transport mechanisms, and improving the thermoelectric figure of merit for large-scale commercial use.

The aim of this special issue is to collect experimental and theoretical works on the thermal and thermoelectric properties study. All relevant experimental, theoretical, numerical, simulational, and analytical works will be considered in this special issue. We invite researchers to contribute original research articles as well as review articles that relate to the proposed fields.

Potential topics include but are not limited to the following:

- Materials:
- Thermoelectric materials and nanostructures
- Materials and structures for heat conducting/thermal management including interfacial thermal materials and transport
- Novel 2D materials and nanostructures
- Organic thermoelectric materials
- Thermal transport in biomaterials
- Methods:
- Experimental techniques development on thermal conductivity and phonon band structure measurement
- Tuning the thermal conductivity of nanomaterials via mechanical methods, optical methods, electrical methods, and so on
- Theoretical/simulational methods for thermal transport study
- Fundamental problems in thermal or thermoelectric transport in nanoscale
- Coupling effects among various energy carriers in thermal transport

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/jnt/aet/.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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