



Nanostructured Thermoelectric Materials

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Message from the Guest Editors

The efficiency of thermoelectric (TE) materials is mostly reliant on one dimensionless parameter—the figure of merit (ZT) which depends on temperature, the Seebeck coefficient (S), electrical conductivity (σ), and thermal conductivity (κ). One approach to enhance the ZT value is to reduce the thermal conductivity, which can be accomplished by reducing the dimensions of the materials, for example, nanoparticles, thin films, and nanowires. In addition, it is desired to understand the pivotal role of the interactions between the charge carriers and phonons, as they play a decisive role in electric and thermal transport in TE materials. Special attention will be given to the experimental approaches to achieve reliable estimates of the TE parameters. Knowing the amazing importance of thermoelectricity from the applied physics perspective, we would be highlighting the works based on the synthesis and characterizations of TE devices. In addition, our secondary focus of this Special Issue will be on modeling and theoretical simulation of their astonishing behaviors caused at the nanoscale regime.





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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.

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