



Thermoelectric Properties of Nanomaterials

Guest Editor:

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Message from the Guest Editor

In recent years, many research groups worldwide have experienced difficulty in increasing the figure-of-merit of thermoelectric materials. This is because most of these thermoelectric materials exhibit a rather **complex microstructure**, with a **hierarchical structure** containing point (vacancies and donor defects) and extended defects (dislocations and stacking faults), secondary stable and/or metastable phases, twin boundaries and/or high-angle grain boundaries, and different atomic bonding natures. Therefore, to further increase the performance of thermoelectrics, a detailed and accurate understanding of structural, chemical, electronic, and phonon transport properties from mesoscale down to atomic level is necessary. Moreover, the impact of **nanostructuring** in thermoelectric properties is vital.

Hence, this Special Issue will attempt to cover the most recent advances in nanostructuring for thermoelectric applications, with a special attention to synthesis and characterization. Last but not least, a particular attention will be given to the structural and functional properties of these nanomaterials. Design rules of better thermoelectrics for the future are greatly welcome too.





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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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