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## Nanostructured Materials for Thermoelectrics

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### Message from the Guest Editors

Dear Colleagues,

Thermoelectric devices offer numerous advantages over competing technologies in the fields of temperature control and thermal energy harvesting. Accordingly, countless applications have been proposed. However, most of them have yet to be successfully commercialized due to the low cost-effectiveness of current thermoelectric devices. Recently, nanomaterials and particularly nanocomposites have revolutionized the field of thermoelectrics, enabling the design of improved thermoelectric materials and devices. Thermoelectric performance can be improved upon nanostructuring by increasing electrical conductivity through modulation doping, decreasing thermal conductivity through scattering of phonons and minority charge carriers, and increasing the Seebeck coefficient by optimizing the density of states or filtering charge carriers according to their sign and energy. Additionally, nanomaterials have associated more favorable mechanical properties as grain boundaries disrupt the motion of dislocations. This Special Issue of *Nanomaterials* aims at gathering contributions that cover the whole spectrum of advantages of nanostructuring in the field.

*Guest Editors*



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# Special Issue



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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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