Special Issue

Nanoscale Thermoelectric Materials: Advanced Synthesis and Characterisation Approaches

Message from the Guest Editors

The amount of energy nowadays converted into waste heat accounts for a substantial percentage and is predicted to reach more than 50% of the total energy input globally. Utilization, even partly of enormous energy amount is of imminent importance, considering the energy issues on a global scale and environmental effects. In this aspect, thermoelectric (TEs) materials and devices have been widely exploited in the last decades to address this energy conversion and harvesting challenging issue. Among the most promising solutions for increasing their efficiency, nanostructuring approaches have been widely exploited, aiming predominately into decreasing their thermal conductivity, whereas preserving a high Seebeck coefficient and low electrical resistivity at the same time. This Special Issue aims to address nanostructuring approaches in advanced TEs. Research topics may include (though not limited to) novel synthesis routes, involving environmentally friendly starting materials or sustainability concepts, advanced characterisation approaches in the micro-, nano- and atomic scales by typical laboratory equipment or large scale facilities alike and detailed TE property measurements.

Guest Editors

Dr. Andreas Delimitis

Condensed Matter and Materials Physics, Department of Physics, Aristotle University of Thessaloniki, GR-54124 Thessaloniki, Greece

Prof. Dr. Theodora Kyratsi

Department of Mechanical and Manufacturing Engineering, University of Cyprus, Nicosia, Cyprus

Deadline for manuscript submissions

13 August 2025

Nanomaterials

an Open Access Journal by MDPI

Impact Factor 4.3
CiteScore 9.2
Indexed in PubMed

mdpi.com/si/209883

Nanomaterials
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
nanomaterials@mdpi.com

mdpi.com/journal/nanomaterials

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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.

Editor-in-Chief

Prof. Dr. Eugenia Valsami-Jones
School of Geography, Earth and Environmental Science, University of Birmingham, Birmingham B15 2TT, UK

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