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Nanogenerators for Energy Harvesting and Sensing

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Message from the Guest Editors

Using Maxwell's displacement current as the driving force to effectively convert mechanical/thermal energy into electric power, nanogenerators (NGs) are now flourishing. In addition to targeting self-powered sensor needs at a large scope, an area of nanoenergy sensors has also been developed, aiming at using nanotechnology to harvest the energy required for sustainable, independent, and maintenance-free operation of micro/nanosystems and mobile/portable electronics. Based on three effects, including piezoelectricity, triboelectricity, and pyroelectricity, NGs have broad applications in energy science, environmental protection, wearable electronics, self-powered sensors, medical science, robotics, and artificial intelligence.

This Special Issue of *Nanomaterials* aims to cover the most recent advances in energy harvesting and sensing for the preparation of different kinds of NGs, and related physicochemical effects, such as tribotronics, piezotronics, piezophotonics, pyroelectric, flexotronics, as well as potential applications such as wearable electronics, self-powered sensors, and blue energy.



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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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