Special Issue

Nanogenerators: Design, Fabrication and Applications

Message from the Guest Editors

Over the past decade, nanogenerators have emerged as a transformative technology, leveraging mechanisms such as triboelectric, piezoelectric, electromagnetic, and hybrid effects to efficiently harvest ambient mechanical energy. With advancements in materials science, design strategies, and fabrication techniques, nanogenerators have shown significant potential in diverse applications, including self-powered sensors, wearable electronics, medical implants, and environmental monitoring systems. Of course, there are many challenges that researchers and engineers must overcome in order to fully utilize nanogenerators; for example, the efficiency of energy conversion must be enhanced, its scalability for mass production must be addressed, and the long-term durability of nanogenerators under varied applications must be improved. Accordingly, this Special Issue seeks to present research papers, short communications, and review articles that focus on novel materials and device architectures, innovative manufacturing technology, and the novel application of nanogenerators, providing a comprehensive overview of the current state of the field and future trends in nanogenerator technology.

Guest Editors

Dr. Junqing Zhao

Beijing Institute of Nanoenergy and Nanosystems, Chinese Academy of Sciences, Beijing 100083, China

Prof. Dr. Xiaojing Mu

College of Optoelectronic Engineering, Chongqing University, Chongqing 400044, China

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

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Editor-in-Chief

Prof. Dr. Ai-Qun Liu
1. Department of Electrical and Electronic Engineering, The Hong Kong Polytechnic University, Hong Kong, China
2. School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore 639798, Singapore

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