# **Special Issue**

# Low-Dimensional Nanocomposites for Energy Harvesting, Storage, and Conversion

## Message from the Guest Editors

Energy harvesting, conversion, and storage technologies are essential for sustainable development, as they convert ambient energy to electricity and store it to meet modern energy demands. Low-dimensional nanocomposite materials play a significant role in advancing energy harvesting, energy conversion, and storage technologies, owing to their unique properties and capabilities achieved through the synergistic integration of low-dimensional nanomaterial fillers (such as OD, 1D, and 2D) with polymers or other materials. In triboelectric mechanical energy harvesting, lowdimensional nanocomposites facilitate the efficient generation of electricity through the contact and separation of materials based on the coupling of contact electrification and electrostatic induction. Furthermore, nanocomposite materials have revolutionized the field of energy storage by increasing the effective surface area of electrodes, resulting in increased specific capacitance, energy density, and cyclic lifespan. This novel approach not only increases the cycle life of supercapacitors but also increases their flexibility and adaptability for a wide range of applications.

#### **Guest Editors**

Dr. Puran Pandev

Division of Physics and Semiconductor Science, Dongguk University-Seoul, Seoul 04620, Republic of Korea

Dr. Seunghwan Jo

Division of Physics and Semiconductor Science, Dongguk University-Seoul. Seoul 04620. Republic of Korea

### Deadline for manuscript submissions

18 March 2026



# **Nanomaterials**

an Open Access Journal by MDPI

Impact Factor 4.3 CiteScore 9.2 Indexed in PubMed



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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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#### **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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