

ADVANCED NANOMATERIALS AND COMPOSITES FOR ENERGY CONVERSION AND STORAGE

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DESCRIPTION

This special issue will focus on the latest research on the development of nanomaterials and composites for energy conversion and storage applications, with a particular emphasis on batteries and catalysts. In recent years, nanomaterials and composites have emerged as promising candidates for improving the performance of energy conversion and storage technologies. They offer unique properties such as high surface area, enhanced electrical conductivity, and tunable bandgap, which can improve the efficiency and performance of batteries and catalysts. The special issue will cover a wide range of topics related to energy, battery, and catalysts nanomaterials.

The topics will include, but are not limited to:

- ▶ Innovative technologies and engineering processes for the preparation and transformation of green nanomaterials, composite, chemicals and other products
- ▶ Functional nanomaterials-based cathodes/electrodes for battery, supercapacitors, photovoltaics, and fuel cells electrochemistry
- ▶ Advanced nanomaterials for photoelectrochemical catalysis
- ▶ Smart nanomaterials and self-powered nanodevices/ nano-systems for future energy challenges
- ▶ Nanomaterials with a role in hydrogen production, storage, and transportation.
- ▶ Novel materials for energy conversion and storage
- ▶ Advanced battery technologies and their performance enhancement using nanomaterials and composites
- ▶ Emerging trends in the synthesis and characterization of advanced nanomaterials and composites for energy conversion and storage
- ▶ Modeling and simulation studies of energy conversion and storage systems using nanomaterials and composites
- ▶ High-performance battery technologies based on nanomaterials
- ▶ Nanomaterial for catalysis and electrocatalysis in energy conversion processes

- ▶ Applications of nanomaterial in solar energy conversion and storage
- ▶ Integration of nanomaterial for enhanced performance and energy efficiency
- ▶ Environmental impacts of nanomaterial and composites for energy conversion and storage
- ▶ Design and synthesis of multifunctional nanocomposites for simultaneous energy conversion and storage.
- ▶ Hybrid nanomaterials combining multiple functionalities, such as energy harvesting and self-healing capabilities.
- ▶ Integration of nanomaterials into flexible and wearable energy devices.
- ▶ Lithium-ion battery advancements using nanomaterials for improved energy density, cycling stability, and safety.
- ▶ Nanomaterial-based electrodes and electrolytes for high-performance batteries.
- ▶ Role of nanoscale morphology and surface properties in catalytic activity.
- ▶ Integration of nanocatalysts into energy conversion systems for enhanced performance.
- ▶ Application of nanomaterials in electric vehicles and hybrid electric vehicles for improved energy storage and efficiency.
- ▶ Nanomaterial-based solutions for fast-charging and high-power applications in transportation.
- ▶ Lightweight nanocomposites for energy-efficient vehicle components.
- ▶ Life cycle assessments and environmental impact studies of nanomaterials used in energy conversion and storage.
- ▶ Sustainable synthesis methods for nanomaterials and composites.
- ▶ Recycling and disposal strategies for nanomaterial-based energy devices.

PUBLICATION SCHEDULE / HOW TO SUBMIT

Open for submissions: 1st June 2023

Paper submission deadline: 31st October 2023

When entering your submission please choose the option type of an article: "Advanced Nanomaterials and Composites for Energy" Submissions for the special issue are now open. In case of any technical problems, please contact the Managing Editor of Nanotechnology Reviews: **Juliusz Skoryna, Ph.D., Juliusz.Skoryna@degruyter.com**