Environmental energy storage materials

Phase change materials (PCMs) have emerged as a viable technology for thermal energy storage, particularly in solar energy applications, due to their ability to efficiently ...

These characteristics make them appealing candidates for effective energy storage and electrocatalytic energy conversion applications. This review explores the recent ...

Energy storage and conversion are vital for addressing global energy challenges, particularly the demand for clean and sustainable energy. Functional organic materials are gaining interest as ...

Unsustainable fossil fuel energy usage and its environmental impacts are the most significant scientific challenges in the scientific community. Two-dimensional (2D) materials have received ...

The comprehensive discussion extends to diverse applications, emphasizing the pivotal roles of 2D materials in environmental remediation, alternate energy storage and ...

This review highlights significant progress in the nature-inspired design and fabrication of energy storage materials and devices, including the exploration, preparation, and ...

Developing a clean and novel energy storage system is the need of the hour due to the immediate consumption of fossil fuels and the escalation of environmental concerns. The ...

The performance and scalability of energy storage systems play a key role in the transition toward intermittent renewable energy systems and the achievement of ...

Biomass can be utilised to produce biochar, a carbon-rich material, produced via pyrolysis under oxygen-limited conditions. It has been gaining attention in recent years as a ...

The development of new energy relies heavily on advancements in electrochemical energy storage materials, as they are a key determinant of battery performance. Electrochemical ...

As urbanization accelerates, the need for innovative solutions that integrate energy storage within the built environment (BE) becomes increasingly vital for sustainable and ...

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Materials for Energy Storage is a collection of articles that explores advanced materials and technologies for

storing energy efficiently. This collection includes research on ...

The integration of energy storage using cementitious materials in buildings and construction holds immense potential for improving energy efficiency, sustainability, and ...

Storage of electrical energy generated by variable and diffuse wind and solar energy at an acceptable cost would liberate modern society from its dependence for energy on ...

This review is devoted to analyzing the internal structure and fundamental properties of hydrogels, and elaborating their electrochemical energy storage mechanism and ...

The pressing global energy crisis and environmental issues, including climate change and the greenhouse effect stemming from the overreliance on non-renewable fossil ...

Broader context Global warming, environmental pollution, and an energy shortage in the current fossil fuel society may cause a severe global crisis. Storage and conversion of renewable, ...

Silicon-based anode materials possess exceptionally high specific capacity, hence facilitating the achievement of high energy density in lithium-ion batteries, as they are ...

Today, the most difficult challenge faced by the humanity is the global energy for the future. Our anxiety about our environment, limited natural sources, energy storage ...

This study deals with an economic and environmental Life Cycle Assessment of an innovative thermal energy storage - based on phase change materials embedded in open ...

Energy storage technologies, which are based on natural principles and developed via rigorous academic study, are essential for sustainable energy sol...