Nanomaterials for building energy storage

Nearly half of the global energy consumption goes toward the heating and cooling of buildings and processes. This quantity could be considerably reduced through the ...

Lithium-ion batteries, which power portable electronics, electric vehicles, and stationary storage, have been recognized with the 2019 Nobel Prize in chemistry. The development of ...

PCMs, indeed, can provide higher energy density as compared to traditional technologies based on sensible heat storage; however, their low thermal conductivity may ...

In the latest edition of Science, an international team of researchers, led by Drexel University professors Yury Gogotsi, PhD, and Ekaterina Pomerantseva, PhD, present a comprehensive analysis of two ...

The thermal energy storage (TES) potential of PCMs has been deeply explored for a wide range of applications, including solar/electrothermal energy storage, waste heat storage, and utilization, building energy-saving, and thermal ...

ConspectusThe development of next-generation lithium-based rechargeable batteries with high energy density, low cost, and improved safety is a great challenge with ...

It is therefore imperative that we write a systematic review article in the field of energy storage in order to improve and elaborate the current overview of the latest advances in the field of ...

In a significant advancement for energy storage technologies, researchers have synthesized polyaniline (PANI) nanomaterials that promise to enhance the performance ...

A comprehensive list of different nanomaterials is reviewed from the literature, as non-structural, insulation, and thermal energy storage materials to improve the insulation ...

This review paper investigates the crucial role of nanotechnology in advancing energy storage technologies, with a specific focus on capacitors and batteries, including lithium-ion, sodium-sulfur, and redox flow.

The use of thermal energy storage (TES) technologies in buildings could help smooth-ing temperature indoors and reducing the total energy consumption in buildings by storing and ...

In this study, research on efficient nanomaterials used in solar energy storage and conversion has been reviewed and discussed. According to the reviewed studies, ...

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This review also explores recent advancements in new materials and design approaches for energy storage devices. This review discusses the growth of energy materials ...

Nanotechnology is an emerging technology that can introduce innovative materials in the building sector which offers great potential for development of innovative ...

Nanotechnology is revolutionizing various fields, especially in enhancing solar energy storage systems. This paper reviews its historical development and current ...

MoS 2, a typical layered transition-metal dichalcogenide material, has attracted significant attention for application in heterogeneous catalysis, lithium ion batteries and electrochemical energy storage systems ...

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