

This review presents an overview of the development of visible-light responsive azo-based materials, covering molecular design strategies ...

Weng, Intrinsically lighting absorptive PANI/MXene aerogel encapsulated PEG to construct PCMs with efficient photothermal energy storage and stable reusability, Sol. Energy Mater.

In this paper, a summary of hybrid photo-isomerization energy storage materials with AZO and nanoscale templates is conducted from the aspects of templates, preparation ...

This paper proposes a molecular model of covalent grafting of azobenzene derivatives with graphite-like carbon nitride based on hydrogen bond regulation to improve the azobenzene ...

This review presents the broad scope of photothermal applications, offers a comprehensive understanding of the photothermal conversion of solar energy with ...

A photothermal anti-icing surface with sustainable evaporation by the synergistic action of photothermal, energy storage, and hydrophilicity is ...

To meet the demands of the global energy transition, photothermal phase change energy storage materials have emerged as an innovative solution. These materials, utilizing various ...

High energy storage density, minimal temperature swings, and restricted volume changes are some benefits of phase change energy storage, which is a method of ...

In this review, Ding and colleagues summarize the functioning principles and categories of photothermal catalysis, catalyst design criteria and ...

Flexible highly thermally conductive biphasic composite films for multifunctional solar/electro-thermal conversion energy storage and thermal management

Recently, photothermal superhydrophobic energy-storage coatings (PSECs) with anti-icing abilities via latent heat release in the dark environment have drawn attention, yet their heat ...

Conversion and utilization of solar energy is one of the most important strategies being proposed to mitigate the foreshadowed global energy crisis and environmental issues. ...

In this study, we prepared CNT-BN-SA-1, a photothermal phase change energy storage material with excellent stability, long life, and high enthalpy value. The Hm of CNT-BN ...

The inherently intermittent feature of solar energy requires reliable energy conversion and storage systems for utilizing the most abundant solar energy. Phase change materials are potential ...

This study grafted a bulky azobenzene derivative, 4'-aminoazobenzene-4-sulfonic acid (AABS), onto the surface of ZIF-90, thereby preparing a metal-organic framework ...

Phase change materials (PCMs) are promising for thermal energy storage due to their high latent enthalpy and constant phase change temperature. Howeve...

Photochemical phase transition is an effective strategy to realize photothermal conversion and multi-source energy storage. Azobenzene molecule with photo-induced reverse solid-liquid ...

Moreover, photothermal PCM microcapsules are particularly desirable for solar energy storage. Herein, we fabricated photothermal PCM microcapsules with melamine ...

An integrated photothermal storage device was constructed and heated by a Fresnel lens to concentrate the 1000 W/m² light from a solar simulator, and the heat storage ...

Photons can be absorbed by the energy storage process of PCMs, which exhibits the excellent photo-thermal energy storage characteristic, then stored in the way of internal ...

Abstract To meet the requirement of multipurpose applications in infrared thermal camouflage and solar photothermal energy storage, we have developed a series of ...

Download Citation | On Sep 1, 2024, Li Zhang and others published Improvement of azobenzene photothermal energy storage density via grafting onto g-C₃N₄ and introducing hydrogen ...

Despite the immense potential of photothermal conversion and energy storage materials, the low light absorption efficiency and leakage issues of limitations hinder ...

All-weather, high-efficiency solar photothermal anti-icing/deicing systems are of great importance for solving the problem of ice accumulation on outdoor equipment surfaces. In this study, a ...

All-weather, high-efficiency solar photothermal anti-icing/deicing systems are of great importance for solving the problem of ice accumulation on ...

Developing multifunctional composite phase change materials (PCMs) featuring enhanced photothermal

energy conversion and storage performance is of vital importance, yet traditional ...

Pristine organic phase change materials (PCMs) suffer from liquid leakage and weak solar absorption in solar energy utilization. To address these deficiencies, we prepared ...

To summarize, the design principles developed towards the electrode materials and configurational aspects of photothermal harvesters for generating PTSCs capable of ...

Moreover, we have introduced an advanced high-photothermal conversion layer that synergizes with our directionally conductive phase change composite. This strategic ...

Solar energy is a seasonal, intermittent and spatially changing energy source [20]. As a result, developing effective methods to continuously convert solar energy is critical. ...

2 · Recently, photothermal superhydrophobic energy-storage coatings (PSECs) with anti-icing abilities via latent heat release in the dark environment have drawn attention, yet their ...

All forms of energy follow the law of conservation of energy, by which they can be neither created nor destroyed. Light-to-heat conversion as a traditional yet constantly evolving means of ...

Moreover, photothermal PCM microcapsules are particularly desirable for solar energy storage. Herein, we fabricated photothermal PCM microcapsules with melamine-formaldehyde resin ...

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