Light energy phase change storage

Light energy phase change storage

Shape-stabilized phase change materials for thermal energy storage ...

The light-to-thermal conversion and energy storage ability of the SPG composites were tested under simulated light source, as exhibited in Fig. 5. The plateaus can be observed ...

Multiresponsive Shape-Adaptable Phase Change Materials with ...

Strong rigidity, low thermal conductivity, and short of multi-driven capabilities of form-stable phase change materials (FSPCMs) have limited their practical utilization. Herein, we report a shape ...

Light-Responsive Solid-Solid Phase Change ...

We report a series of adamantane-functionalized azobenzenes that store photon and thermal energy via reversible photoisomerization in the ...

Polypyrrole-coated expanded graphite-based phase change ...

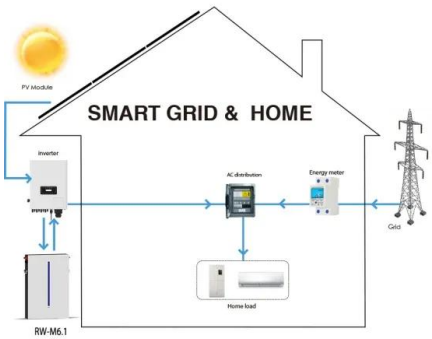
Pristine organic phase change materials (PCMs) suffer from liquid leakage and weak solar absorption in solar energy utilization. To address these deficiencies, we prepared ...

Fabricating MOF-derived CoNC@FeNC phase change

5 ???· Fabricating MOF-derived CoNC@FeNC phase change nanocomposites by layered self-assembly strategy for energy storage, photothermal conversion, and microwave absorption

Thermo and light-responsive phase change nanofibers with high energy

Thermo/light-responsive functionalized cellulose nanocrystal-zinc oxide (f- CNC-ZnO) nanohybrids based poly (3-hydroxybutyrate-co-3-hydroxy valerate) (PHBV) phase ...



3D porous aerogel based-phase change materials with excellent flame

To sum up, neoteric multifunctional composite phase change materials have enormous prospects for safe and efficient application in the fields of solar energy acquisition, ...

Photoguided AZO-phase change composite for high-energy solar storage

In this paper, a class of azobenzene (AZO)-based organic phase change composites (AZO-OPCC) was designed and prepared for light-controlled energy storage and ...

Solar thermal energy storage based on sodium acetate trihydrate phase

Abstract Phase change materials (PCMs) play significant roles in solar thermal energy storage. In this work, a novel PCM, light-to-thermal conversion phase change hydrogel ...

High-energy and light-actuated phase change composite for solar ...

Here, we report a high-energy organic phase change composite (PCC) by introducing long-chain azobenzene molecule (AZO) into low-cost tetradecyl alcohol (TA) for ...

Intelligent phase change materials for long-duration thermal energy storage

Conventional phase change materials struggle with long-duration thermal energy storage and controllable latent heat release. In a recent issue of Angewandte Chemie, Chen et ...

Flexible phase change composite materials with simultaneous light

Phase change materials (PCMs) are widely used in the thermal energy storage fields. However, the strong rigidity and poor photoabsorption ability of PCMs have inhibited ...

The shape-stabilized light-to-thermal conversion phase change material

Latent thermal energy storage using phase change material (PCM) is an effective way to store and transport thermal energy. In this work, a shape-stabi...

Polyurethane-based solid-solid phase change materials with in ...

Polyurethane-based solid-solid phase change materials with in situ reduced graphene oxide for light-thermal energy conversion and storage

Enhanced light-thermal conversion efficiency of mixed clay base phase

In order to improve the energy storage and conversion efficiency of phase change materials, a mixed clay sponge (MCS) containing palygorskite (Pal) an...

Melamine foam/reduced graphene oxide supported form-stable phase change

The advanced utilization of phase change materials (PCMs) is limited by the strong rigidity, liquid leakage and lack of photoabsorption ability. In this work, a novel form ...

Optically-controlled long-term storage and release of thermal energy ...

Thermal energy storage offers enormous potential for a wide range of energy technologies. Phase-change materials offer state-of-the-art thermal storage due to high latent ...

A new way to store thermal energy

A new phase-change material developed at MIT provides a way to store heat in a stable chemical form, then release it later on demand using light as a trigger.

High energy storage density titanium nitride-pentaerythritol solid

High energy storage density titanium nitride-pentaerythritol solid-solid composite phase change materials for light-thermal-electric conversion Rongrong Luo a, Liuwei Wang a, ...

Biomass carbon aerogels based shape-stable phase change composites ...

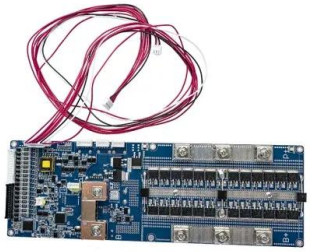
The development of high-performance shape-stable phase change materials composites (ss-PCMCs) with enhanced thermal conductivity and high phase change enthalpy ...

Development of flexible phase-change heat storage materials for

Inorganic phase change materials offer advantages such as a high latent heat of phase change, excellent temperature control performance, and non-flammability, making them ...

Phase change material-based thermal energy storage

Solid-liquid phase change materials (PCMs) have been studied for decades, with application to thermal management and energy storage due to the large latent heat with a ...



Molecular Solar Thermal Systems towards Phase ...

However, the pristine molecular photoswitches are limited by low storage energy density and UV light photon energy storage. Recently, ...

Optically-controlled long-term storage and release of ...

Phase-change materials offer excellent thermal storage due to their high latent heat; however, they suffer from spontaneous heat loss.

Optically controlled phase change wood for energy storage and ...

This work paves the way for the development of phase change wood for efficient solar energy storage and release and application in encrypted information display.

Polyethylene glycol (PEG)/silicon dioxide grafted

The development of light-to-heat energy conversion and storage materials with high thermal conductivity and stability is very helpful to overcome limitations of using solar ...

Light-driven phase change microcapsules modified by TiN/CNTs

The development of microencapsulated phase change materials (PCMs) integrating solar photothermal conversion and storage holds significant for solar energy ...

Multifunctional shape-stabilized phase change composites based ...

Multifunctional shape-stabilized phase change composites based upon multi-walled carbon nanotubes and polypyrrole decorated melamine foam for light/electric-to-thermal ...

Optically-controlled long-term storage and release of thermal ...

These dopants, possessing activation energy barriers for switching between photoisomers, provide stability to the phase storing thermal energy and triggerabilty for energy release, thus ...

Optically-controlled long-term storage and release of ...

Thermal energy storage offers enormous potential for a wide range of energy technologies. Phase-change materials offer state-of-the-art ...

Light-actuated shape memory and self-healing phase change ...

Phase change materials (PCMs), which are recognized as a promising latent heat storage material, have attracted much interest in the aspects of energy-saving buildings, ...

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