

# Calculation method of photothermal energy storage conversion efficiency

Photothermal conversion phase change materials can combine the mechanisms of photothermal conversion and phase transformation to realize storage or release solar ...

The photothermal conversion can also be controlled by shell coating and assembly through the change in the plasmon resonance energy of Au nanocrystals. Moreover, ...

Solar energy is a primary form of renewable energy, and photothermal conversion is a direct conversion process with tunable conversion efficiency. Among various kinds of photothermal conversion materials, porous ...

The nonradiative conversion of light to heat by plasmonic nanostructures, the so-called plasmonic photothermal effect, has attracted enormous attention due to their widespread potential applications. Herein, the ...

To evaluate the photothermal conversion efficiency  $\eta$  of the GNR dispersions, the rate of energy absorption  $A$  and the rate of heat dissipation  $B$  were extracted by fitting the experimental temperature transients with Eq. (8).

CO<sub>2</sub> reduction is an effective method for achieving carbon neutralization, and photothermal catalysis is a promising strategy that combines thermal and photochemical ...

The photothermal conversion efficiencies have been obtained from the modeling based on the energy balance and compared with those obtained from electrodynamic calculations.

Generally, the application of solar energy in buildings is divided into two forms: photothermal (PT) and photovoltaic (PV). In residential buildings, solar thermal utilization is ...

Moreover, ODA@Fe<sub>3</sub>O<sub>4</sub>/C-GP composite PCMs exhibit excellent latent heat storage stability, photothermal conversion stability and durable reliability after undergoing ...

A general methodology was proposed to measure the light-to-heat conversion efficiency of solid materials by considering laser heating process with electric heating process.

Solar thermal energy converts solar light into heat and has been extensively applied for solar desalination and power generation. In the present work, to address the failure problem of energy storage devices in a cold ...

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Photothermal Energy-Storage Capsule with Sustainable Evaporation for Efficient Herein, a photothermal energy-storage capsule (PESC) by leveraging both the solar-to-thermal ...

The performance analysis of the form-stable PCMs (FSPCMs) shows that SA/PSC800 has good shape stability and excellent photothermal conversion efficiency and ...

Functional colloidal nanoparticles capable of converting between various energy types are finding an increasing number of applications. One of the relevant examples concerns light-to-heat-converting colloidal nanoparticles ...

Calculation of the photothermal conversion efficiency The photothermal conversion efficiency of the Cys-CuS NPs was determined according to the previous method.<sup>1,2</sup> Detailed calculation ...

Maximizing the utilization of solar energy is crucial for achieving high photothermal conversion efficiency. To this end, many studies have opted to design 3D ...

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