

It is pivotal to improving the photothermal catalytic conversion by exploring efficient photothermal catalysts with intense broadband solar energy absorption and high efficiency of solar-to-heat ...

Due to the excellent photothermal and water transport properties, solar-driven water evaporation experiments were performed on MXene paper and artificial trees with the same ...

This innovative concept, illustrated in Fig. 1a, employs transparent photothermal (PT) thin films that allow solar light to penetrate multiple panels, activating the photothermal heating on each layer.

Photothermal catalysis represents a promising avenue towards achieving full-spectrum utilization of solar irradiation and enhancing the efficiency of solar energy conversion. ...

The aim of the present study is not to simulate the solar environment, but to suggest a proof-of-concept novel design of the receiver which could be used to harness the direct solar ...

The solar-heat storage efficiency of devices based on phase change materials (PCMs) is limited due to the light absorption and internal heat transfer within the PCMs, unclear thermal ...

Abstract Solar-driven interfacial evaporation technology (TSDIE), which directly uses solar energy to evaporate and purify water, is an emerging solution to address the shortage of ...

Developing high-efficiency solar photothermal conversion and storage (SPCS) technology is significant in solving the imbalance between the supply and demand of solar energy ...

2.1 Concerning the claims of Interfacial Photothermal Solar Evaporation It is a very common practice in the field of interfacial photothermal solar evaporation (IPSE) for researchers to begin their abstract or ...

The most important factor is photothermal conversion efficiency, which establishes how well the system converts solar energy that has been received into thermal energy [34]. To guarantee ...

TI - Photothermal Analysis of Novel Nanoparticles-laden Fluid-based Solar Thermal Receiver: A Proof-of-Concept Experimental Study author = {J.S.D. Nandini and Vishal Bhalla and ...

Solar-driven interfacial evaporation offers a promising solution to global water scarcity. Recent advancements have improved its efficiency by focusing solar energy on hydrophobic ...

Utilising solar thermal energy for membrane distillation desalination represents a green and sustainable solution for building environments in regions with a high correlation between water ...

This innovative concept, illustrated in Fig. 1a, employs transparent photothermal (PT) thin films that allow solar light to penetrate multiple panels, activating the photothermal heating on ...

o The photothermal membrane has excellent light absorption and covers the entire solar spectrum. o The photothermal membrane has higher solar-thermal efficiency and heat ...

Solar-driven interfacial evaporation (SIE) is an emerging research topic that is gaining attention due to its potential in addressing global water scarcity issues. This review provides a ...

A key assumption behind the research into interfacial photothermal solar evaporation, that optimizing photothermal conversion of sunlight to heat is an important factor in improving the use of solar ...

This new concept can also continuously collect condensed water into the lower container at the same time, so as to obtain purified water that can be directly drunk. In addition, the ...

Here we report a hybrid device consisting of a photocatalyst (PC) and a solar vapour generator (SVG) for simultaneous overall water splitting and water purification from open water sources.

Heat-localized solar distillation (HLSD) is an emerging environmentally- friendly high-efficiency distillation technology for clean water production. Solar interfacial distillation (SID) and ...

Recent advancements have highlighted the importance of developing photothermal materials that utilize polymer phase-change materials, which are critical for enhancing photothermal ...

Solar-driven chemistry is an attractive way to solve energy and environmental problems, among which photothermal chemistry (PTC) can realize full-spectral utilization of solar radiation and driving ...



Photothermal and solar container concept

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