

Within the broad spectrum of light-mediated catalysis, which includes heat and photocatalysis (relevant to processes like organic transformations, water splitting, and CO₂ ...

Phase change material for solar-thermal energy storage is widely studied to counter the mismatch between supply and demand in solar energy utilization. Here, authors introduce optical ...

Photothermal catalysis has been proposed as a promising alternative to conventional photocatalysis and thermocatalysis for energy transformation and environmental remediation due to ...

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. Amongst the ...

In general, photothermal catalysis overcomes the limitations of both photocatalysis and thermal catalysis through the comprehensive use of light and heat energy, and shows higher catalytic ...

Effective thermal management is essential in enhancing the efficiency of photothermal conversion systems, which convert solar energy into thermal energy. Here, we discuss strategies to ...

Recent rise of solar thermal energy conversion and utilization is fueled by the re-emergence and also by our recognition of the importance of many low-grade heat driven processes ...

Solar-driven seawater desalination has received massive attention as it holds great promise to solve the worldwide freshwater and energy issues. The key of this technology relies on the ...

Abstract: In order to develop new high-efficiency photothermal conversion materials, we propose and numerically verify a rectangular layered cavity metasurface (RLCM) for efficient solar ...

SUMMARY Solar energy provides an alternative, sustainable, and clean source of energy to meet the global energy demands without extra carbon emissions. However, the utilization efficiency of sunlight ...

Solar energy, the most promising renewable energy, suffers from intermittency and discontinuity. Phase change material (PCM)-based energy storage technology can mitigate this issue ...

Solar thermal conversion technology, as an emerging solar energy harvesting strategy, has attracted much attention in many application areas. In this field, plasmonic materials have a ...



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This paper mainly summarized the development trend of carbon-based materials, metal materials, semiconductor materials and efficient photothermal conversion technology in solar ...

Maintaining an optimal amount of water within the evaporator helps prevent the loss of solar thermal energy caused by the latent heat of evaporation from excess water absorbed within the ...



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