

Photochemical reactions involve chemical transformations initiated by the absorption of photons, typically from sunlight. These reactions occur when molecules, known as photo-reactants, absorb ...

By understanding the key photoelectrochemical processes and mechanisms that underpin natural photosynthesis, advanced solar utilization technologies have been developed that may be used to ...

In this review, we systematically discuss a typical photochemical system for solar-to-fuel production, from classical theories and fundamental mechanisms to raw material selection, reaction ...

1 Introduction The Sun delivers a continuous and prodigious flux of energy to Earth, dwarfing humanity's total power consumption. Harnessing this resource through photochemical ...

This study presents recent advances in the development of photocatalysts for solar energy conversion and the synthesis methods for such nanomaterials. In addition, various applications of ...

Table II presents the adsorption ranges, quantum yields, and free energy changes involved in a number of near ultraviolet and visible photochemical reactions which are of the most interest in terms of ...

In this study, we present a three-dimension polymeric photocatalyst achieving a solar-to-H₂O₂ conversion efficiency of 3.6% under ambient conditions, including real water, open air, and ...

Here we explore photochemical phase transitions--a photochemistry-thermophysics coupled regime--for coharvesting of solar and thermal energy.

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 ...



Photochemical utilization of solar energy

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