

Although solar steam generation has been combined with photocatalytic degradation for purifying wastewater, the inherent synergistic effects on enhancing solar-thermal water evaporation and ...

Solar energy-driven water evaporation is an environmentally-friendly and promising technology for purifying seawater and wastewater to produce clean water. [7] There has been a focus on ...

Interfacial water evaporation driven by solar energy is believed to be one of the most effective methods to reduce water pollution and scarcity globally. However, lower evaporation and salt ...

The combination of solar water evaporation and hydrovoltaic effect (HVE) provides an effective way to solve the crisis of water shortage and fossil fuel pollution. However, they are still facing ...

We report an all-passive synergistic evaporative-radiative cooling (SECRC) strategy. TiO<sub>2</sub> coated wooden substrate jointly achieve efficient and stable cooling effect. ...

Water-electricity cogeneration is designed to efficiently utilize the thermal energy released during the water evaporation process, with voltage reaching 57.1 mV under 1.0 kW m<sup>-2</sup> solar ...

New research shows sunlight's oscillating electric field boosts water evaporation by efficiently breaking clusters of molecules, enhancing solar desalination and purification technologies.

Solar-driven interfacial evaporators represent a promising low-energy and cost-effective solution. These systems function by harnessing solar energy to generate heat, accelerating the ...

The efficient heat absorption and evaporation mechanisms of the hemispherical design can lead to higher yields of distilled water in a given time, particularly in regions with high solar radiation.

?? Recent advancements and assessments in MXene-based composites stability for efficient solar-heating water evaporation: A systematic and comprehensive review ?????????? ...

The fully bio-based solar-driven interfacial evaporator offers the advantage of being environmentally friendly, but achieving efficient evaporation throughout the day, good salt ...

Solar-driven interfacial evaporation has garnered significant attention as a sustainable technology for freshwater production. However, its widespread application is impeded by challenges, such ...

Solar interfacial evaporation is a promising technology for steam preparation to solve the global shortage of

freshwater resources. Existing research has achieved significant enhancement ...

This review traces the evolution of solar evaporation from bulk heating to optimized interfacial evaporators, focusing on recent innovations and challenges in surface-engineering solar ...

Abstract Photothermal materials have gained attention for their ability to efficiently convert solar energy into heat for a wide range of applications. Solar-driven water evaporation provides a ...

Water scarcity is a growing global challenge, intensified by climate change, seawater intrusion, and pollution. While conventional desalination methods are energy-intensive, solar-driven ...

This study proposes a novel strategy to construct durable solar evaporators with high salt resistance and low evaporation enthalpy for efficient water production and electricity generation.

We present a bioinspired body-centered cubic evaporator (BCE) that integrates cellular fluidics to achieve unprecedented ultrahigh evaporation flux in solar-driven interfacial evaporation ...

The application of solar interfacial evaporation technology in clean water production has garnered increasing attention in recent years, with thin-film evaporation being considered one of the ...

Solar water evaporation can produce water at low carbon footprint using abundant solar energy, but efficiency and stability are hindered by low evaporation rates and salt accumulating issues. ...

The core of our innovation lies in a unique biomimetic root that facilitates rapid water conduction from challenging, concentrated particle-water mix- tures, coupled with a porous sail surface ...



# Solar water evaporation reviews

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