Interface solar steam power generation technology

With the increasing shortage of water resources and the aggravation of water pollution, solar-driven interfacial steam generation (SISG) technology has garnered considerable attention because of its low energy ...

Interfacial solar steam/vapor technology uses abundant and clean solar energy and water to achieve heating and cooling, a promising technology to alleviate environmental and energy issues. To obtain higher ...

One promising path to achieve an energy efficiency beyond the theoretical limit (i.e., >100%) under 1.0 sun is to increase the net energy gain from environment during solar ...

Solar-driven interfacial evaporation is a desalination technology using solar energy. The technology utilises interface evaporators by placing them on the water surface to ...

Solar thermal evaporation employs the renewable solar energy to drive steam generation and has been widely used in desalination since ancient times [14] addition, it has widespread ...

The global shortage of freshwater supply has become an imminent problem. The high energy consumption of traditional desalination technology cannot meet the demand for sustainable energy development. ...

The main challenges of a solar steam generation device based on biomass materials are complicated processing techniques and relatively low efficiency. To solve these problems, we reported a simple immersion ...

The evaporation process at the "air-water" interface is a potential driving force for power generation, and SDIE co-generation is driven by solar energy, the light absorbing ...

The interfacial solar steam generation and water evaporation-driven power generation are regarded as promising strategies to address energy crisis. ... to produce freshwater and ...

In this bio-inspired solar steam generation method, the floating absorbers at the air-water interface collect sunlight and convert it to thermal energy, enabling surface heating at ...

A low cost, highly flexible and environmentally friendly water generation method known as interfacial solar steam generation (SSG) has recently been popularized by many researchers due to the continuously ...

As a result, the efficiency of solar steam generation exceeds 90% under 4 kW m -2 solar intensity using the gold plasmonic light absorber. However, gold is a kind of noble metal and it is expensive for solar steam ...

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