Secondary reflection solar power generation

How to design additional secondary reflector (SR) of PTCs?
A novel method is developed for designing the additional secondary reflector (SR) of PTCs. Flux compensation strategy is proposed by balancing the solar flux on upper and lower surfaces of absorber. Performances of PTCs with designed SR are compared with other studies and shows superior performance.

Can additional secondary reflector improve distribution on absorber tube surface?
To solve the problem, a novel method is proposed for designing the additional secondary reflector (SR) in a PTC to improve distribution on absorber tube surface. In the design, the heat flux between upper and lower surfaces of absorber tube is well balanced by optimizing the location of absorber.

How does methanol decomposition contribute to net solar-to-electric (NSE) efficiency?
The allocation is enabled by the adoption of both a spectral filter and linear Fresnel reflectors,and the thermochemical module based on methanol decomposition provides a strong basisfor net solar-to-electric (NSE) efficiency at the system level.

What is the thermal efficiency of a solar energy system?
The thermochemical efficiency is maintained at a high level (60-65%),indicating that nearly two-thirds of the thermal energy captured by the system can be stored via syngas,which can be fed into the SOFC to supply electricity when sunlight is absent.

What is solar energy used for?
As the cleanest and most promising energy source,solar energy has widely used for power generation,heating,cooling,desalination,chemical fuel preparation,and other applications [,,].

Can composite parabolic SR design improve the uniformity of solar flux distribution?
Wang et al. [30] proposed a composite parabolic SR design method to improve the uniformity of solar flux distribution. Their SR design for LS-2 PTC was verified by Monte Carlo ray tracing (MCRT) method, which can significantly improve the uniformity of heat flux distribution with about 3% decrease in optical efficiency.

mances both for thermal stability and solar selective reflection. The solar reflectivity can reach 94.6%. 1. Introduction Concentrating solar power (CSP) technology, which converts the ...

The cavity wall is an important part of a cavity receiver in determining the receiver eficiency. Using solar se-lective reflector (SSR) materials with low solar absorptivity and high thermal emissivity ...

Abstract. The present paper aims to develop a new shape of secondary reflector for Fresnel linear concentrator; it represents the continuation of a series of optimization carried ...

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??????:??????????????????19%,???????????7.6%,??????????????????????????. Tower-type solar power ...

Renewable energy plays a significant role in achieving energy savings and emission reduction. As a sustainable and environmental friendly renewable energy power technology, concentrated ...

The secondary mirror is a critical component in the optical system of certain Solar Power Tower plants (SPT), as it redirects the concentrated sunlight from the primary mirror onto the receiver, which can be ...

In addition, a comparison is made between solar thermal power plants and PV power generation plants. Based on published studies, PV-based systems are more suitable for small-scale power ...

The calculation results were applied in a secondary reflection comparison of hyperbola, plane, ellipse, and parabola reflective surface types. ... Prospects and problems of ...

Assuming a perfect tracking system, for every sun position during the day, the primary mirror shown in Fig. 1 is rotated so that sun rays that strike its mid-point (point M) are ...

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