Fan-shaped folding photovoltaic modules

Can a fan-shaped plate pulsating heat pipe cool concentrated photovoltaic cells?
In this regard, this paper proposed a fan-shaped plate pulsating heat pipe (FS-PPHP) for cooling concentrated photovoltaic cells. The flow channels are segmented based on the triple-junction cells and their encapsulation areas to effectively remove excess heat from the cells.

Why do we need a thermal management system for photovoltaic cells?
Present search and results could benefit the future thermal managements in chip and relevant units. High sunlight concentration on photovoltaic cells causes a substantial increase in the temperature of semiconductor, which leads to a decrease in conversion efficiency and irreversible faults of PV modules.

Can FS-PPHP cool HCPV cells under simulated solar radiation?
Subsequently,the FS-PPHP was applied for cooling HCPV cells under simulated solar radiation,and its effect on the thermal and the output power characteristics of the HCPV cells was explored.

What is the output power of HCPV cell utilizing FS-PPHP cooling method?
It can be observed that the output power of the HCPV cell utilizing FS-PPHP cooling method generally ranges from 1.5 to 2.5 W.Under constant solar intensity,the power of the photovoltaic cell initially increases with the increase in external load voltage,reaching a peak before decreasing,showing a characteristic inverted "V" shape.

Can natural steam cool photovoltaic cells?
Ebrahimi et al. proposed a method of using natural steam to cool photovoltaic cells,the results indicated that when the flow rate reached 1.6 to 5 g/min,the temperature of the PV cells decreased to 16 °C,leading to a significant enhancement in photovoltaic efficiency by approximately 12.12 % ~ 22.90 %.

What is a high-concentration photovoltaic system?
High-concentrated photovoltaic systems The high-concentration focusing module consists of a Fresnel lens and a secondary concentrating prism,as illustrated in Fig. 13. Parallel light from the source converges through the Fresnel lens onto the upper surface of the secondary concentrating prism for primary concentration.

Article "Analysis of modal shape and harmonic response of folding mechanism of fan-shaped solar arrays" Detailed information of the J-GLOBAL is an information service managed by the ...

The present invention relates to a kind of sunflower-shaped automatic folding type solar energy photovoltaic panels, including controller, central axis, successively order rotation installation multiple round storehouses on center shaft, be fixedly mounted on central axis upper end for driving the expansion motor of round storehouse rotation, being fixedly mounted on the ...

The invention relates to the technical field of photovoltaic installation equipment, in particular to an easy-to-store type photovoltaic bracket with a turnover folding mechanism. According to the easy-to-store type photovoltaic bracket with the turnover folding mechanism, the transverse storage groove, the longitudinal storage groove and the top installation plate of the lateral storage ...

The utility model provides a fan-shaped solar cell and a photovoltaic module, and belongs to the technical field of solar cells. The fan-shaped solar cell comprises a fan-shaped substrate, wherein the fan-shaped substrate comprises a first surface and a second surface which are opposite; the line segment edge of the first surface is provided with a first electrode, and the arc edge of the ...

The utility model relates to a movable folding photovoltaic support structure, which comprises a single-pin support, an SN frame, support columns and inclined struts, wherein the upper end of the single-pin support is hinged with the top of the SN frame through bolts, so that the single-pin support can rotate around the hinged bolts and outwards unfold from the inside of the SN ...

Experimental investigation on the thermal performance of high-concentrated photovoltaic module utilizing the thermal sink of a novel Fan-shaped plate pulsating heat pipe Wei-Wei Wang, Teng Liu, Jun-Zhe Guo, Bin Li, ...

A folding mechanism, fan-shaped plate technology, applied in photovoltaic power generation, photovoltaic modules, electrical components and other directions

The utility model relates to a movable fan-shaped photovoltaic panel folding bracket, belonging to the technical field of photovoltaic power generation; the left end of the inner side wall of the lower side of the box body is fixedly provided with a left supporting plate, the upper side of the left supporting plate is provided with an inserting plate, the front end and the rear end of the ...

Therefore, the folding photovoltaic mechanism increases the daylighting area of the roof by one time after being turned; the lighting area of the rotated fan-shaped frame is increased by a plurality of times after the frame is screwed out, namely the lighting area can be increased by a plurality of times on a certain building area.

The utility model discloses photovoltaic power generation equipment, in particular to a portable photovoltaic module, which comprises a support frame with an annular structure and a photovoltaic panel module arranged on the support frame in an annular mode, wherein the photovoltaic panel module comprises a plurality of trapezoid first photovoltaic panels, the first ...

Abstract: In recent years, the rapid development of electric vehicle vehicles, in order to use solar energy to generate electricity with the vehicle and improve the range of electric vehicles, a ...

The increasing demand for photovoltaic (PV) electricity has resulted in wider usage for many applications.

Current dominant PV electrical sources use crystalline silicon (c-Si) solar modules. These would provide greater potential as an energy source if they could be installed to any surface with a curvature, for example integration into buildings, and would perform better ...

The traditional folding solar array with large size and big mass, using single deployment and locking mechanism, can cause flutter during the spacecraft attitude ...

The three main routines for photovoltaic panel cooling are contingent on the following techniques: (1) evaporative cooling using marble, (2) evaporative cooling using palm fibers with fan-assisted airflow, and (3) thermoelectric cooler modules. These materials that used in the studied system as coolants are characterized by, abundant local ...

The utility model relates to a photovoltaic module technical field, and a foldable solar photovoltaic module is disclosed, mounting panel the same including two structures, the mounting groove has all been seted up to the upper surface of two mounting panels, and fixed mounting has the photovoltaic module who matches in the mounting groove, a plurality of lugs of the equal ...

The utility model belongs to the cable field especially relates to a fan-shaped photovoltaic support, has two first frames and support main part and constitutes, first frame comprises arc pole and the straight-bar fixed with arc pole bottom end, and two first frames are placed side by side, support main part upside is equipped with a peg, and the downside still is equipped with a third pivot ...

The invention relates to an umbrella-shaped opening-closing type photovoltaic mechanism unfolding and folding device which comprises a box body base, a driving assembly, a fixing rod, an extension part and an umbrella-shaped solar power generation plate, wherein the box body base is of a box body structure with an opening at the top; the driving component drives the ...

Concentration photovoltaic is an effective way to improve the overall photovoltaic(PV) efficiency and reduce the cost of photovoltaic systems by replacing the amount of expensive semiconductor material with cheap optical devices, such as lenses or mirrors [1], [2].Nevertheless, under high concentration ratios, heat accumulation into a small PV cell ...

Downloadable (with restrictions)! High sunlight concentration on photovoltaic cells causes a substantial increase in the temperature of semiconductor, which leads to a decrease in conversion efficiency and irreversible faults of PV modules. Thereby, an ultra-thin Fan Shaped-Plate Pulsating Heat Pipe (FS-PPHP) was innovatively proposed by optimizing the traditional ...

The utility model discloses a folding photovoltaic module framework, including protection module and spacing module, protection module include with the box bottom that protection module connects, surround in the box bottom outside and with box bottom swing joint"s box board and be located the box top at box bottom top, spacing module including can dismantle with two ...

Solar tiles and compact folding photovoltaic solar modules, as well as paraboloid concentrator of solar radiation for solar cogeneration plants are presented. ... a method of fan-shaped geometric ...

The invention discloses unmanned aerial vehicle photovoltaic panel installation mechanisms, which relate to the technical field of unmanned aerial vehicles and comprise a fixed platform assembly, four cantilevers, an upper photovoltaic panel installation assembly, a lower photovoltaic panel installation assembly and two fan-shaped photovoltaic panels, wherein the four ...

Experimental investigation on the thermal performance of high-concentrated photovoltaic module utilizing the thermal sink of a novel Fan-shaped plate pulsating heat pipe 0 : 7 : WW Wang,T Liu,JZ Guo,B Li, ...