Ye Lin Photovoltaic Panel

How does forced convection affect PV panels?

Activating thermoelectric-driven forced convection further increases cooling power to 529 W·m -2,lowering PV panel temperature by 11.3 °C and enhancing PV efficiency by 15.6 %. Simulations of temperature distribution confirm the energy transfer and conversion processes in the coolers.

Who is Prof ye?

Prof. Ye has made phenomenal contributions to the fundamental science and technological development of advanced composites and functional structures. His wide-ranging research interests have included composites science and technology, smart materials and structures, nano-materials and nano-composites, structural integrity and durability.

Why do PV panels need to be inspected?

In addition,PV panel modules will also cause their circuit to short-circuit due to internal defectsto form a hot-spot effect . These defects will not only affect the power generation efficiency of PV but also may have safety hazards. Therefore,the detection of defects in PV panels has become a crucial step in inspection work .

How does a PV panel cooler improve efficiency?

The designed cooler enhances efficiency by 15.6 % under 1-sun irradiation. PV panel with the cooler maintains high efficiency and stability in the long term. Photovoltaic (PV) efficiency can be improved to some extent by using thermoelectric (TE) conversion cooling.

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Next generation materials and systems developments for sensors, fuel cells, batteries, super capacitor, catalysts and membranes. Advanced microscopy, interfaces and surface science in real ...

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AbstractAiming at the problem of difficult operation and maintenance of PV power plants in complex backgrounds and combined with image processing technology, a method for detecting ...

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