Principle of photovoltaic panel deicing device

What is a photothermal surface de-icing mechanism?
Different photothermal surface de-icing mechanism is not the same, but ultimately remove the surface ice, keep the surface clean and dry and reduce the energy loss and economic loss caused by ice accumulation on the surface of different materials . 4.2.1. Carbon-based photothermal (CBPT) anti-/de-icing materials

Are photothermal phase change materials effective against icing & deicing?
Due to the constant latent heat value of the photothermal phase change materials,their anti-icing performance is limited and insufficientto meet the requirements of all-weather anti-icing/deicing applications on outdoor equipment surfaces under harsh and complex environmental conditions.

How does surface micro-nano structure affect photothermal conversion & deicing properties?
Disruption of the surface micro-nano hierarchical structure and alteration of the low surface energy material can reduce the superhydrophobic propertiesof the material,which in turn reduces the photothermal conversion and photothermal anti-icing/deicing properties of the material.

What are the characteristics of photothermal anti-icing/deicing materials?
Subsequently,the characteristics of recently developed photothermal anti-icing/deicing materials such as photothermal SHSs,photothermal SLIPSs,and other photothermal surfaces with different wettability properties (hydrophobicity,amphiphilicity,and hydrophilicity) are summarized in detail.

Does photothermal deicing damage a material surface?
There is nomechanical force or chemical solvent damage to the material surface in the process of photothermal deicing,which protects the surface of the material well. The superhydrophobic properties and photothermal properties almost remain unchanged after several caking and thawing tests.

Can photothermal deicing surfaces remove ice?
Figure 10g is the real-time ice removal effect with the photothermal trap and the reference. Obviously,the ice on the photothermal trap can be totally removed with solar light after 5 min. The presented photothermal deicing surfaces exhibit significant impacts on solving potential risks in our daily life for the human community.

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