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Polymers Design for Thermal Management in Solar Panels.

Photovoltaic panels are one of the most popular means of producing renewable energy, mainly because of the innovations that have been made to improve properties such as mechanical flexibility, lightness, and semitransparency. However, the conversion efficiency of photovoltaic cells is still low (below 30%) compared with conventional generators. Much of the solar energy received by PV modules is converted into heat, which increases their operating temperature. This contributes not only to reducing the PV module's efficiency (between 0.4% and 0.65% per °C), but also to its degradation (reduced service life). Several techniques already exist in the literature to dissipate heat in solar panels, such as the use of free or forced convection at the back of the panels, or the use of phase-change materials... In this talk, we will discuss the experimental results of the device we have developed, which consists of the incoparation of two thin layers of two special polymers that act as heat sinks and significantly regulate the operating temperature of the PV module. Details of the synthesis and characterization of the two polymers used will also be presented.

Keywords

Polymers, solar panels, heat sink, van der waals heterostructures

Reference

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Author will attend

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