

# **Self-assembled solar power generation system**





## Overview

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Can self-assembled monolayers be used in organic solar cells?

In summary, we have presented the different roles of self-assembled monolayers in state-of-the-art organic solar cells. SAMs have exhibited the potential as an alternative to commonly used electron and hole transport layers such as ZnO and PEDOT:PSS for high-performing organic solar cells.

What is a 3rd generation photovoltaic?

Third-generation novel photovoltaics include dye-sensitized solar cells (DSSCs), organic solar cells (OPVs), quantum dot solar cells (QDSCs), and perovskite solar cells. Low-dimensional systems, such as 1D nanostructures, have attracted significant attention due to their unique optical and electronic properties [2, 3].

Do self-assembly monolayers manipulate power conversion processes in organic photovoltaics?

T. Hu, X. Lv, X. Cheng, L. Huang, L. Zhang and W. Zhou, et al., Self-assembly monolayers manipulate the power conversion processes in organic photovoltaics, J. Power Sources, 2019, 409, 66–75 CrossRef CAS.

Are organic solar cells better than Sam based solar cells?

Organic solar cells are lightweight, flexible and have a PCE of around 19–20%, and SAM-based PSCs with a PCE range of 12.60% to 26.54% outperform them on average due to better charge transport and light harvesting.



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Fig. 1 (a) Schematic illustration of the energy band diagram elucidating the role of charge transport layers in a conventional donor-acceptor organic solar cell; (b) molecular structure of ...



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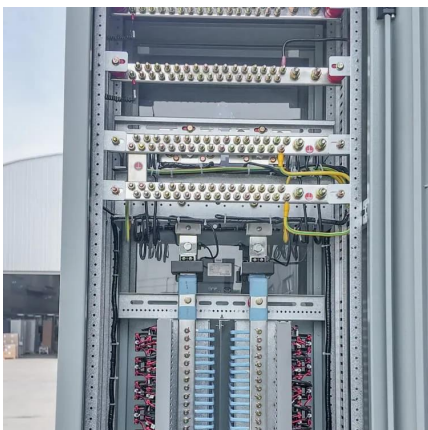
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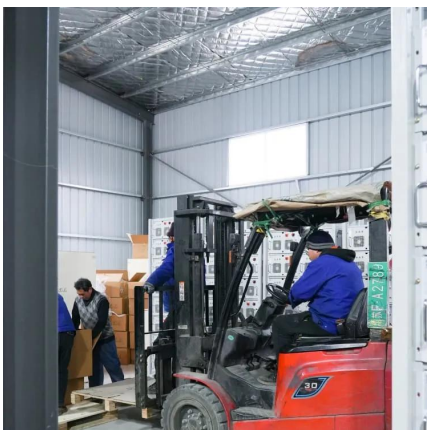
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