

Are flexible photovoltaics (PVs) beyond Silicon possible?

Recent advancements for flexible photovoltaics (PVs) beyond silicon are discussed. Flexible PV technologies (materials to module fabrication) are reviewed. The study approaches the technology pathways to flexible PVs beyond Si. For the previous few decades, the photovoltaic (PV) market was dominated by silicon-based solar cells.

Are flexible solar cells the future of photovoltaic technology?

For the previous few decades, the photovoltaic (PV) market was dominated by silicon-based solar cells. However, it will transition to PV technology based on flexible solar cells recently because of increasing demand for devices with high flexibility, lightweight, conformability, and bendability.

What is flexible PV technology?

Flexible PV technologies require highly functional materials, compatible processes, and suitable equipment. The highlighting features of flexible PV devices are their low weight and foldability. Appropriate materials as substrates are essential to realize flexible PV devices with stable and excellent performance.

Can solar cells be used in flexible PV?

Silicon-based solar cells have a limited potential for application in flexible PVs because of their drawbacks. Thus, now we introduce flexible PV technology beyond silicon. 3.1. Flexible OSCs

What is PV technology & how does it work?

PV technology is the best method to harness power from natural sunlight. Currently, PV devices such as solar panel cells are typically fabricated on Si-based wafers, which are widely used as both negative- and positive-type semiconductor materials.

Can plastic substrates be used for flexible PV devices?

Among them, plastic (polymer) substrates have been widely used for conventional flexible PV devices. Plastic substrates have many advantages, such as good optical transmittance in the visible range, low cost, lightweight, and a simple design. Recently, many studies have focused on the use of plastic materials for flexible circuits [19,20].

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