SOLAR PRO.

Photoconductive multilayer photovoltaic cells

We demonstrate that an optimized layer-by-layer organic photovoltaic can effectively improve the photophysical properties of the device, resulting in a conversion efficiency of 16.21%, surpassing the bulk heterojunction counterpart.

The photovoltaic effect is a process that generates voltage or electric current in a photovoltaic cell when it is exposed to sunlight.These solar cells are composed of two different types of semiconductors--a p-type and an n-type--that are joined together to create a p-n junction joining these two types of semiconductors, an electric field is formed in the region of the ...

Multilayer photoconductive compositions have been formulated in the past, for xerographic application, using porphyrinic compounds overlayered with a charge-transport layer, as disclosed, for example, in U.S. Pat. Nos. 3,895,944 and 3,992,205. However, such charge-transport layers in the U.S. Pat. No. 3,895,944 patent have required the use of binders, as well as sensitizers, ...

The multilayer MoS 2 shows dominant p-type behavior under dark conditions while its shows dominant n-type conduction under light illumination. In addition, this MoS 2 ...

Efficient and stable perovskite tandem solar cells are demonstrated by incorporating novel conductive cross-linkable interfacial layer. The resulting devices afford a ...

Organic photovoltaic (OPV) cells, also known as organic solar cells, are a type of solar cell that converts sunlight into electricity using organic materials such as polymers and small molecules. 83,84 These materials are carbon-based and can be synthesized in a laboratory, unlike inorganic materials like silicon that require extensive mining and processing. 84,85 OPV ...

Photoconductive atomic force microscopy (PC-AFM) is a variant of atomic force microscopy that measures photoconductivity in addition to surface forces. Multi-layer photovoltaic cells have gained popularity since mid 1980s. At the time, research was primarily focused on single-layer photovoltaic (PV) devices between two electrodes, in which PV properties rely heavily on the ...

A novel multilayer, organic composition, a photovoltaic element fabricated therefrom having enhanced conversion efficiencies, and their use to generate power, are disclosed. Compounds with generally planar polycyclic nuclei such as organic photoconductive dyes comprise the several layers of the composition.

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