organic solar cell applications are limited by the low photoconversion e?ciency of these devices4. To improve organic solar cell eciency, various procedures have been implemented in the past few decades. A representative example is the deployment of new organic molecules with an enhanced band gap in their active layer. Other methods, such as ...

Carbon nanofibers (CNFs) are promising materials for the construction of energy devices, particularly organic solar cells. In the electrospinning process, polyacrylonitrile (PAN) has been utilized to generate nanofibers, which is the simplest and most popular method of creating carbon nanofibers (CNFs) followed by carbonization. The ...

Developing a durable and scalable transparent conductor (TC) as an electrode with high optical transmission and low sheet resistance is a significant opportunity for enabling next generation solar cell devices. High performance fibrous composite materials based on a carrier polymer with embedded functional nanostructures have the potential to serve as a TC ...

A strategy for fabricating organic photovoltaic (OPV) devices based on PCDTBT nanofibers and PC 70 BM is described. Electrospinning techniques are used to prepare PCDTBT nanofibers and OPV devices in ambient air. The diameters ...

Organic photovoltaics (OPVs) utilizing an interdigitated bilayer of an alkoxynaphthalene-based polymer nanofiber/fullerene have been developed by the sequential solution deposition (SqD) process.

We used the electrospinning and sacrificial template method to improve the obtained emeraldine PANI performance for solar cells. These steps led us to introduce hollow core PANI nanofibers as a...

DOI: 10.1039/c3nr04857h Corpus ID: 205871834; High efficiency electrospun TiO2 nanofiber based hybrid organic-inorganic perovskite solar cell. @article{Dharani2014HighEE, title={High efficiency electrospun TiO2 nanofiber based hybrid organic-inorganic perovskite solar cell.}, author={Sabba Dharani and Hemant Kumar Mulmudi ...

Highly photoresponsive polymer/fullerene blend nanofibers are demonstrated for flexible photovoltaics. The blend nanofibers are produced via co-axial electrospinning and ...

of various elements: O, Ti, I and Pb along the nanofiber film thickness. It is evident from the EDX mapping that PbI. 2 was able to infiltrate the entire nanofiber film owing to the open pores of the nanofiber network. The large pores of the nanofiber network facilitate easy infiltration of PbI 2 till the base of the film.

Nanofiber organic solar cells

This review presents works that improve the efficiency of photovoltaic devices by addressing the development of materials used in the active layer (semiconductor polymers and acceptor materials)....

Nanofi ber-Based Bulk-Heterojunction Organic Solar C ells Using Coaxial Electrospinning Nanofi bers consisting of the bulk heterojunction organic photovoltaic (BHJ-

A strategy for fabricating organic photovoltaic (OPV) devices based on PCDTBT nanofibers and PC 70 BM is described. Electrospinning techniques are used to prepare PCDTBT nanofibers and OPV devices in ambient air. The diameters of the PCDTBT nanofibers are approximately twice the exciton diffusion length, 20 nm. The active layer exhibits 100% ...

The good electrical and morphological characteristics of TiO 2 nanofibers and the high extinction coefficient of CH 3 NH 3 PbI 3 perovskite are combined to obtain a solar cell with a power conversion efficiency of 9.8%. The increase of the film ...

This review presents works that improve the efficiency of photovoltaic devices by addressing the development of materials used in the active layer (semiconductor polymers ...

Solar energy plays a pivotal role in addressing energy challenges, and photovoltaic (PV) cells are among the most commonly utilized apparatus for converting solar energy [1].Recently, bulk heterojunction (BHJ) organic solar cells (OSCs) have escalated in popularity owing to their reduced production expenditures, straightforward production process, and inherent material ...

The good electrical and morphological characteristics of TiO 2 nanofibers and the high extinction coefficient of CH 3 NH 3 PbI 3 perovskite are combined to obtain a solar cell with a power conversion efficiency of 9.8%.

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