Tang photovoltaic devices

Are organic photovoltaic devices a promising technology for indoor light harvesting?
Organic photovoltaic (OPV) devices are a promising technology for indoor light harvestingand power conversion,but high voltage losses,especially under weak illumination,hinder their development. In this work,the... [...][...]

What is the structure of an organic photovoltaic device?
The general structure of an organic photovoltaic device similar to that reported by Tang16in 1986 is shown in Fig. 1. It consists of a transparent electrode, typically a conducting oxidesuch as indium-tin oxide(ITO), two organic light-absorbing layers, and a second electrode.

What are organic photovoltaics based on organic active layers?
As a matter of fact,photovoltaics based on organic active layers,known as organic photovoltaics (OPVs),are an important branch of organic electronics research and are one of the most promising emerging PV technologies.

Are organic semiconductors suitable for photovoltaic applications?
In addition to charge transport properties, some organic semiconductors can also realize high-light-absorption coefficients, which makes them candidates for photovoltaic applications.

Are Thiophene-Based polymer acceptors still used in organic solar cells?
In 2009, when-thiophene-based polymer donors like P3HT and fullerene-based acceptors such as PCBM were still the dominant material combination, Rau et al. calculated the radiative efficiency limits of BHJ-type organic solar cells using the S-Q model [72].

Can nonfused ring acceptors be used for organic solar cells?
[...]Nonfused ring acceptors have shown great potentialfor future commercial applications of organic solar cells (OSCs) due to their simple structure and low synthetic costs.

As a photovoltaic detector, the device possesses a responsivity of 80 mA W -1 (?20% external quantum efficiency), a specific detectivity of over 10 11 Jones and fast response features (200 µs rising time and 16 µs falling time) ...

Taking advantage of these new generation electrodes we furthermore report devices with fill factors over 70%--to our knowledge, the largest published to date for an organic photovoltaic cell ...

Here we report a multilayer photovoltaic device structure in which photon absorption instead occurs in photoreceptors deposited on the surface of an ultrathin metal-semiconductor ...

Photovoltaic (PV) cells are popularly considered a feasible device for solar energy conversion. However, the

temperature on the surface of a working solar cells can be high, which significantly decreases the power conversion efficiency and seriously reduces the cell life.

Organic photovoltaic (OPV) devices are promising tools for indoor light harvesting and power conversion, but high voltage losses, especially under weak illumination, hinder their development. In this work, the organic active material system PM6/IT-4Cl, which is green solvent processible and highly suitable f

In 1986, Tang 7 reported a bilayer heterojunction solar cell based on copper phthalocyanine and perylene tetracarboxylic derivative. This structure can promote the dissociation of photogenerated excitons, achieving an efficiency of 1%. ... Organic photovoltaic devices have received extensive attention because of the great potential of ...

Inorganic-organic hybrid perovskites MAPb(I x Br 1-x) 3 (0 < x < 1) hold promise for efficient multi-junction or tandem solar cells due to tunable bandgap and improved long-term stability. However, the phase transformation from Pb(I x Br 1-x) 2 precursors to perovskites is not fully understood which hinders further improvement of optoelectronic properties and device ...

It is seen that crystallization is the major factor that accounts for J SC and FF in photovoltaic devices, thus the quaternary blends reach the maximum value. ... Zaifei Ma & Zheng Tang.

As a photovoltaic detector, the device possesses a responsivity of 80 mA W -1 (?20% external quantum efficiency), a specific detectivity of over 10 11 Jones and fast response features (200 µs rising time and 16 µs falling time) at zero bias, simultaneously. Moreover, a large open-circuit voltage of 0.38 V and an external power conversion ...

Then in 1986, Tang reported a bilayer solar cell consisting two distinctive layers (one is donor layer and the other is acceptor layer). ... Short-circuit current density (J sc) is the photocurrent generated by a photovoltaic device under illumination at short circuit condition.

Two-layer organic photovoltaic cell. CW Tang. Applied physics letters 48 (2 ... Organic electroluminescent devices having improved power conversion efficiencies. SA VanSlyke, CW Tang. ... I Bello, ST Lee, RM Chen, TY Luh, J Shi, CW Tang. Applied physics letters 74 (6), 865-867, 1999. 930: 1999: Work function of indium tin oxide transparent ...

This Review discusses recent developments in photovoltaic and light-emitting optoelectronic devices made from metal-halide perovskite materials. Metal-halide perovskites are crystalline materials ...

There has been an active search for cost-effective photovoltaic devices since the development of the first solar cells in the 1950s (refs 1-3). In conventional solid-state solar cells, electron-hole pairs are created by light absorption in a semiconductor, with charge separation and collection accom ...

Organic photovoltaic (OPV) devices are a promising technology for indoor light harvesting and power conversion, but high voltage losses, especially under weak illumination, hinder their...

Flexible infrared detectors with multispectral imaging capability are attracting great interest with increasing demand for sensitive, low-cost and scalable devices that can distinguish coincident spectral information and achieve wide field of view, low aberrations, and simple imaging optics at the same time. However, the widespread use of such detectors is still limited ...

As a photovoltaic detector, the device possesses a responsivity of 80 mA W -1 (?20% external quantum efficiency), a specific detectivity of over 10 11 Jones and fast response features (200 µs rising time and 16 µs falling time) at zero bias, ...

At the moment, the scheme of combination or integration of PV and TE will have to face a challenge of a large amount of generated heat dissipation resulted from the working devices that significantly restrict its improvement of energy efficiency [11].Although a lot of works have been done to improve the energy conversation efficiency of PV-TE system, there has not ...

Semiconductor nanowires are promising for photovoltaic applications1,2,3,4,5,6,7,8,9,10,11, but, so far, nanowire-based solar cells have had lower efficiencies than planar cells made from the same ...

Yan-Lin Tang; Quan Xie ... Photovoltaic devices comprising metal chalcogenide nanocrystals as light-harvesting components are emerging as a promising power-generation technology. Here, we ...

Jian-Xin Tang a) Jiangsu Key Laboratory for Carbon-Based Functional Materials and Devices, Institute of Functional Nano and Soft Materials (FUNSOM), Soochow University ... Bin-Bin Yang, Dan-Dan Zhang, Shuit-Tong Lee, Yan-Qing Li, Jian-Xin Tang; Efficiency enhancement of organic photovoltaic devices using a Sm:Al compound electrode. Appl. Phys ...

The current understanding of the crystallization, morphology evolution, and phase stability of wide-bandgap hybrid perovskite thin films is very limited, as much of the community"s focus is on lower bandgap systems. Herein, the crystallization behavior and film formation of a wide and tunable bandgap MAPbBr3-xClx system are investigated, and its formation and ...

Organic solar cells provide a potentially cost-effective approach to supply clean energy. Herein, organic solar cell configurations, organic donor and acceptor materials, basic concepts in ...

Here we report a multilayer photovoltaic device structure in which photon absorption instead occurs in photoreceptors deposited on the surface of an ultrathin metal-semiconductor ...

In 1986, Tang first fabricated a two-layer organic solar cell with a power-conversion efficiency (PCE) of 1%, the highest among all other organic-based photovoltaic devices at that time (Tang cell). The idea of

introducing an interface between two organic semiconductors, namely the electron donor and acceptor, is critical in improving the ...

DOI: 10.1002/smll.201804920 Corpus ID: 73455321; Towards Infrared Electronic Eyes: Flexible Colloidal Quantum Dot Photovoltaic Detectors Enhanced by Resonant Cavity. @article{Tang2019TowardsIE, title={Towards Infrared Electronic Eyes: Flexible Colloidal Quantum Dot Photovoltaic Detectors Enhanced by Resonant Cavity.}, author={Xin Tang and ...

molecules was demonstrated by Tang in 1986 [17], leading to a dramatic increase of PCE to 1%. The ensuing research on ... structures are incorporated into photovoltaic devices, absorption enhancement can be achieved by two different mechanisms. One is the scattering effect, known to be stronger in metal NPs which support LSPRs. Enhanced