Xiaonan perovskite solar cells

Are inverted perovskite solar cells efficient?
Inverted perovskite solar cells (PSCs) with p-i-n structure have recently attracted widespread attention owing to their fast-growing power conversion efficiency. In this Review,we focus on the pro...

How long do inverted perovskite solar cells stay 85% efficiency?
The devices remain 85% initial efficiency under 85°C in nitrogen for 500hours. The immobilization of all-type ions is critical for further enhancing the efficiency and stability of inverted perovskite solar cells as the volatilization of organic cations and migration of halides could cause device degradation and non-radiative recombination.

What is a dopant in a perovskite solar cell?
Dopants are utilized to enhance the mobility and optimize energy levels of hole-transporting layersin perovskite solar cells (PSCs),which are crucial to achieving high power conversion efficiencies (PCEs) of normal PSCs.

Does biomaterial improve the stability of perovskite solar cells?
This article is cited by 2 publications. Zuwang Liu, Zhan Su, Bo Yu, Yapeng Sun, Jiankai Zhang, Huangzhong Yu. Biomaterial Improves the Stability of Perovskite Solar Cells by Passivating Defects and Inhibiting Ion Migration.

What are the recent advances in perovskites?
Then,we discuss the recent advances in perovskites,including optimization of the bandgap,interfacial band engineering,and the development of film processing.

Who are Xiaonan Huo and Yansheng Sun?
Xiaonan Huo is a Ph.D. student in Beihang Universityunder the guidance of associate Prof. Tingting You and Prof. Penggang Yin. His current research is focusing on the impact of small organic molecule on the performances of perovskite solar cells. Yansheng Sun is a Ph.D. student in Beihang University under the guidance of Prof. Penggang Yin.

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The electron extraction and transfer play a crucial role in high performance of perovskite solar cells (PSCs). Tin dioxide (SnO 2), with the high electrical conductivity and low ...

The interface energy level alignment modulation and charge carrier transportation play an important role in the device performance of perovskite solar cells (PSCs).

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The electron extraction and transfer play a crucial role in high performance of ...

Wei Fan1,2, Shaochen Zhang 1,2, Shenglong Chu2, Xiaonan Wang 1,2, Liuwen Tian 1,2, Ruzhang Liu4, Li Zhang 5, Ilhan Yavuz 3, ... high-eciency inverted perovskite solar cells 1-5. ...

Molecule-based selective contacts have become a crucial component to ensure high-efficiency inverted perovskite solar cells 1,2,3,4,5.These molecules always consist of a conjugated core ...

In this study, we utilized a multifunctional ion-migration inhibitor at the Spiro-OMeTAD/perovskite interface to control ion migration. As a result, both Spiro-OMeTAD and ...

Extensive research interest has focused on perovskite solar cells (PSCs) and its tandem devices due to its high efficiency, wide bandgap, and low fabrication cost (Green, ...

A perovskite solar cell. A perovskite solar cell (PSC) is a type of solar cell that includes a perovskite-structured compound, most commonly a hybrid organic-inorganic lead or tin halide ...

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4 ???· In the field of photovoltaics, organic and, to a larger extent, perovskite solar cells have shown promising performance in academic laboratories, and thus have attracted the interest of ...

Finally, the preliminary perovskite/silicon-heterojunction (SHJ) two-terminal tandem solar cell achieves a relative 8.06% improvement in power conversion efficiency ...

This core structure produced a relatively chemically inert and structurally rigid molecular ...

4 ???· This paper presents a perovskite solar cell with a distinctive multilayered structure, which includes an FTO anti-reflective glass layer, a TiO2 electron transport layer, a MAPbI3 ...

Article Low-dimensional/3D heterostructure boosts efficiency and stability of carbon-based CsPbI2Br perovskite solar cells Xiaonan Huo,1,5 Jinqing Lv,2 Kexiang Wang,3 Weiwei Sun,1 ...

A peri-fused polyaromatic core structure is used to produce a relatively chemically inert and structurally rigid molecular contact that improves the efficiency and ...

Metal halide perovskites have drawn enormous attention in the photovoltaic field owing to their excellent photoelectric properties. 1, 2, 3 Over 26% efficient perovskite ...

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(DOI: 10.1016/j.cej.2024.149626) The inferior interface quality between CsPbI2Br perovskite and the electron transport layer (ETL) as well as carbon electrode limits the stability and power ...

By constructing gradient arrangement energy levels using a low-/three-dimension heterojunction strategy, Huo et al. report an improved power conversion efficiency up to 14.15% with a fill ...

Xiaonan Huo is a Ph.D. student in Beihang University under the guidance of ...

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