Chlorine-doped perovskite solar cells

Does chlorine incorporation improve the performance of planar perovskite solar cells?
Nature 501:395-398 Qing J, Chandran HT, Cheng YH, Liu XK, Li HW, Tsang SW, Lo MF, Lee CS (2015) Chlorine incorporation for enhanced performance of planar perovskite solar cell based on lead acetate precursor.

What is a planar perovskite solar cell with chlorine-passivated Sno 2?
Planar perovskite solar cells with chlorine-passivated SnO 2 exhibit a higher open-circuit voltage of 1.195 V than that of reference ones (1.135 V) for a lower band gap of 1.58 eV perovskite absorbers, which achieve a power conversion efficiency of 20% with negligible hysteresis.

What is the use of chlorine in perovskite?
They also used chlorine in perovskite to restrain halide segregation,especially between iodide and bromide,and to stabilize the triple-anion perovskite film with high bromine content. Cheng et al.8 reported the best PCE (36.2%) under indoor light conditions.

Can introducing chlorine anion into a CH3NH3PbI3 perovskite material improve solar cell performance?
It has been proposed that introducing the chlorine anion into a CH3NH3PbI3 perovskite material can substantially improvethe materials properties as well as the solar cell performance. To elucidate the role of chlorine in perovskite solar cells (PSCs),here we introduced PbCl2 into the precursor,and studied

How efficient are perovskite solar cells?
Perovskite solar cells have attracted significant attention due to their ability to exhibit efficient ambipolar transport,tunable direct band gaps,high solar-to-electric power conversion efficiencies and low fabrication costs. The efficiency of these devices has also increased in recent years,from 3.8 to 22.7%[1,2,3,4,5,6].

Does chlorine synthesis improve solar cell performance?
Further optimization according this protocol leads to solar cells achieving power conversion efficiency of 17.91%. Chlorine incorporation into CH3NH3PbI3improves solar cell performance,but its optoelectronic role is still unclear.

Organometal halide perovskite solar cells (PeSCs) with efficiency over 25% and high stability have been reported, however, lead (Pb)-free PeSCs should be developed for the commercialization due to ...

An electron-transporting layer (ETL) with improved charge extraction-transfer kinetics and a perovskite film with improved quality highly determine the power conversion efficiency (PCE) of perovskite solar cells (PSCs). Herein, various alkali chlorides (MCl, M = Li, Na, K, Rb and Cs) are employed as passivat

Perovskite solar cells (PSCs) have garnered considerable attention over the past decade owing to their low cost

and proven high power conversion efficiency of over 25%.

In just a few years, power conversion efficiencies (PCEs) of the lead-halide perovskite solar cells (PSCs) have significantly increased to 25.2% (certified). 1, 2 ...

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A high-quality electron transport layer (ETL) is a critical component for the realization of high-efficiency perovskite solar cells. We developed a controllable direct-contact ...

a) Schematic illustration of the stack of n-i-p perovskite solar cell (PSCs) produced employing FAPbI 3, FAPbI 3 (methylammonium chloride (MACl)), and FAPbI 3 (MACl) + 4-methylphenethylammonium chloride (MePEACl) as active materials. The perovskites were sandwiched between SnO 2 electron-transporting layer (ETL) and Spiro-OMeTAD HTL. ITO ...

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KEYWORDS: dye-sensitized solar cell, perovskite oxide, cathode, anion doping, electrocatalyst 1. INTRODUCTION High-efficiency conversion of sunlight energy to electric power is a promising route to address the energy shortage problem. Among the various sunlight-to-electricity systems, dye-sensitized solar cells (DSSCs) have received increasing ...

Despite the impressive power conversion efficiency (PCE) beyond 25.5%, perovskite solar cells, especially the Sn-based variants, are poorly stable under normal operating conditions compared with the market-dominant silicon solar cells that can last for over 25 years. 2D3D hybrid perovskite materials are one of the best options to overcome the instability ...

Highlights o Efficiency and reproducibility of lead-free Sn based-perovskite solar cell are improved by a simple MACl doping method. o Chlorine doping effect on the ...

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