Sn-Ca-Solar Cells

Improving the stability of Sn-based perovskite solar cells is still a crucial direction for future research. Strategies such as passivation of defects, encapsulation, and ...

For perovskite solar cells (PSCs), the rational design of the device architecture plays a critical role in obtaining high-performing devices, and architecture engineering has ...

Ned Taylor, Arnaldo Galbiati, Monica Saavedra, and Steve Hepplestone have just published an article exploring the potential of calcium-doped stannous oxide, (Sn:Ca) x O, ...

The fact that the NBG mixed Sn-Pb perovskite is highly sensitive to oxidants would introduce numerous traps or defects into the polycrystalline film, severely limiting the ...

Sn-based perovskite solar cells are attracting great attention because of their potential for efficiency enhancement and their relative eco-friendliness compared with Pb ...

The low power conversion efficiency (PCE) of tin-based hybrid perovskite solar cells (HPSCs) is mainly attributed to the high background carrier density due to a high density ...

The quest for clean and renewable energy sources to meet the demands of a growing global population and industrialization is a paramount challenge. 1,2 Photovoltaics ...

The effect of DAP barrier layer in improving resistance against oxidation was first tested by ageing unencapsulated solar cells in ambient air: the DAP-treated Sn-Pb cell ...

In this study, we employed the one-dimensional solar cell capacitance simulator (SCAPS-1D) software to optimize the performance of Pb-based and Sn-based (Pb-free) all ...

Sn-Pb perovskite solar cells, which have the advantages of low toxicity and a simple preparation process, have witnessed rapid development in recent years, with the power ...

However, mixed Pb-Sn compositions can offer optimal bandgap energies for single-junction solar cells, suggesting the promise of future efficiency improvements. Thus, ...

In this work, CsPb.625Zn.375IBr2-based perovskite solar cells (PSCs) are numerically simulated and optimized under ideal lighting conditions using the SCAPS-1D ...

Long term stability and lead toxicity are their two main hurdles to overcome for commercialization as solar

cells. Keeping these significant ...

In practical applications, 2F-based single-junction and tandem perovskite solar cells achieved PCEs of 19.33% and 23.24% for wide and narrow bandgap cells, respectively, ...

In this study, solid solutions formed of SnO and CaO [termed (Sn:Ca) x O] are explored as potential solar active layers. The results indicate that a ratio of x = 7 : 1 leads to a ...

a) Schematic of the p-i-n device stack. b) Current density-voltage characteristics recorded in forward (dashed lines) and backward (solid lines) scan directions of the best ...

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