

In just over a decade, certified single-junction perovskite solar cells (PSCs) boast an impressive power conversion efficiency (PCE) of 26.1%. Such outstanding performance makes it highly...

Solar cells based on metal halide perovskites continue to approach their theoretical performance limits thanks to worldwide research efforts. Mastering the materials properties and addressing...

Perovskite materials based on the mineral perovskite (calcium titanium oxide, CaTiO_3) have attracted much attention in the field of photovoltaics because of their extraordinary ...

Long-term stability concerns are a barrier for the market entry of perovskite solar cells. Here, we show that the technological advantages of flexible, lightweight perovskite solar cells, compared with silicon, allow for lowering the needed lifetime. The flexibility and lower weight especially allow for saving costs during the installation of residential PV. We analyze how ...

Hybrid perovskites, materials composed of metals and organic substances in their structure, have emerged as potential materials for the new generation of photovoltaic cells due ...

In this mini review, we systematically evaluate the latest research progress on flexible perovskite solar cells, including the flexible substrates, preparation of electrodes, and fabrication of high-quality perovskite films. Meanwhile, we also discuss the stretchability of FPSCs and the challenges of large-scale manufacturing. At the ...

Perovskite photovoltaic technology offers huge potential for the solar energy industry with its high efficiency and promising prospects for low-cost production. However, addressing stability, scalability, and environmental ...

Hybrid perovskites, materials composed of metals and organic substances in their structure, have emerged as potential materials for the new generation of photovoltaic cells due to a unique combination of optical, excitonic and electrical properties. Inspired by sensitization techniques on TiO_2 substrates (DSSC), $\text{CH}_3\text{NH}_3\text{PbBr}_3$ and $\text{CH}_3\text{NH}_3\text{PbI}_3$...

In this chapter we present an overview of a variety of solar cells with potential to perform in niche aerospace applications at lower costs without sacrificing performance or power. We review recent advances in perovskite solar cells to ...

Technological progress in photovoltaic (PV) technologies provides hope that a comprehensive and desperately

needed decarbonization of the energy sector is possible. Commercially successful PV technologies based predominantly on silicon wafer technology are reliable and cost-effective, but remain capital- and carbon-intensive. In this context, emerging ...

Organic-inorganic hybrid perovskite compounds are widely used in photovoltaic applications. However, perovskite material's insufficient durability has restricted its application usage. Carbon-based perovskite solar cells promise great performance, inexpensive, and stability, making them an appropriate choice for future photovoltaic applications. Further, halide ...

Perovskite solar cells (PSCs) have attracted intensive attention because of high energy conversion efficiency, low-cost materials constituents, and simple solution fabrication process, which are considered as a disruptive technology. Currently, perovskite solar cells have achieved an impressive certification efficiency of 26%.

The reverse-bias resilience of perovskite-silicon tandem solar cells under field conditions--where cell operation is influenced by varying solar spectra and the specifications of cells and strings when connected into modules--must be addressed for these tandems to become commercially viable. We identify flexible protection options that also enable achieving maximal ...

Effective recycling of worn-out perovskite photovoltaic modules could improve their energy and environmental sustainability. The authors perform holistic life cycle assessments of selected solar ...

6 ???· Perovskite photovoltaic technology offers huge potential for the solar energy industry with its high efficiency and promising prospects for low-cost production. However, addressing stability, scalability, and environmental concerns is essential for its successful commercialization and widespread adoption in the market. This article summarizes the current progress in ...

Significant developments in almost all aspects of perovskite solar cells and discoveries of some fascinating properties of such hybrid perovskites have been made recently. This Review describes the fundamentals, recent research progress, present status, and our views on future prospects of perovskite-based photovoltaics, with ...

Web: <https://doubletime.es>

