A-Core Container

Megawatt-scale solar oxidation cells

Overview

Is STH a cost-feasible pathway for large-scale solar hydrogen production systems?

Therefore, it is a cost-feasible pathway for large-scale solar hydrogen production systems. In general, semiconductors with a wide band gap above 3.0 eV, such as TiO 2 and SrTiO 3 , have been widely used as photocatalysts. They utilize only UV light, thereby showing low STH efficiency.

What is the conversion efficiency of solar-hydrogen production by water splitting?

Peharz, G.; Dimroth, F.; Wittstadt, U. Solar-hydrogen production by water splitting with a conversion efficiency of 18%. Int. J. Hydrogen Energy 2007, 32, 3248–3252. [Google Scholar] [CrossRef] Nakamura, A.; Ota, Y.; Koike, K.; Hidaka, Y.; Nihioka, K.; Sugiyama, M.; Fujii, K.

Which solar concentrator produces 72 mg of hydrogen?

Sunlight was concentrated by the SoCRatus solar concentrator located in Cologne, Germany. It produced 72 mg of hydrogen during the operation for 13.5 h. The temperature of the system was controlled to avoid the degradation of performance owing to the heat from the concentrated sunlight during the demonstration.

How efficient is solar-to-hydrogen conversion?

Additionally, an outdoor scaled-up setup of 692.5 cm 2 achieves an average solar-to-hydrogen conversion efficiency of 1.21% during a week-long test under natural sunlight.

Does solar cell degradation affect photocurrent stability of IPV-anodes?

The solar cell degradation was studied at ambient conditions with a 10 mV s −1 scan rate. The operational PEC photocurrent stability of IPV-anodes was measured under continuous 1 sun illumination, at an applied bias of +1.23 V

RHE for three-electrode measurements.

Why do polymer solar cells have a lower Eon?

The lower Eon is in accordance with the higher photovoltage indicated by ΔOCP measurements (Supplementary Fig. 14), which results from reduced non-radiative voltage losses in these polymer:polymer solar cells 25.

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