Oxygen-deficient chlorine solar power generation

Overview

CFN researchers demonstrated a method to generate chlorine and hydrogen from seawater by solar water splitting, using bismuth vanadate and a cobalt oxide co-catalyst. The approach bypasses the bottleneck of the inefficient oxygen evolution reaction. gy-efficient system for natural water treatment. Contamination of natural water (NW) by emerging contaminants has been widely pointed out as one of the main has great potential for boosting the efficiency. By harnessing solar energy, this system enables the. The optimum catalyst was then used to make an anode for a light-driven brine-splitting demonstrator device to produce hydrogen and chlorine gases.

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Solar-driven electrolysis coupled with valuable chemical synthesis

Solar-driven (photo)electrolysis can convert chemicals into value-added products without the need for energy-intensive processes such as heating.

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A Dual Photoelectrode System for Solar-Driven Saltwater

By harnessing solar energy, this system enables the concurrent, safe, and efficient production of both chlorine and hydrogen gases. The TiO2 photoelectrode is employed for chlorine ...

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A 25.1% Efficient Stand-Alone Solar Chloralkali Generator Employing ...

This study demonstrates an off-grid solar-powered chlorine generator that couples a novel planar solar concentrator, multijunction InGaP/GaAs/InGaAsNSb solar cells and an ...

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Solar-Powered Chlorine Production: A Sea Change in Water Splitting

CFN researchers demonstrated a method to generate chlorine and hydrogen from seawater by solar water splitting, using bismuth vanadate and a cobalt oxide co-catalyst. The ...

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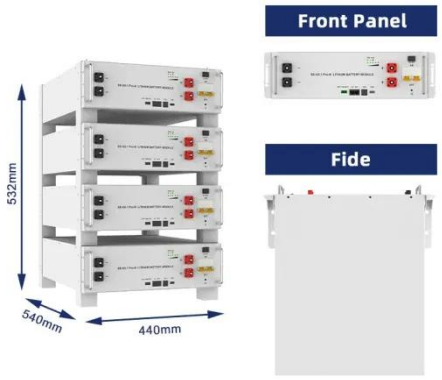

Oxygen-deficient chlorine solar power generation

Here, we present oxygen-deficient black ZrO2-x as a new material for sunlight absorption with a low band gap around ~1.5 eV, via a controlled magnesiothermic reduction in 5% H2/Ar from

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Oxygen-Deficient Solar Generator Power: Challenges and ...

Solar generators have long been hailed as the future of clean energy. But what happens when these systems must operate in oxygen-scarce environments like high-altitude regions or sealed industrial ...

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Oxygen-deficient solar power generation cells

In this work, we demonstrate a new solar-microbial (PEC-MFC) hybrid device based on the oxygen-deficient Nb2O5 nanoporous (Nb2O5-x NPs) anodes for sustainable

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Light-driven generation of chlorine and hydrogen from brine using

As the transportation of chlorine gas is expensive and dangerous, the production of chlorine in situ using a portable solar powered device, such as that developed herein, would facilitate production at the ...

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Solar-driven chloride activation via 3D oxygen-vacancy-rich TiO2

Experiments and computational analysis indicate that oxygen vacancies (Ovs) on TiO 2 NNs-r 400 promote the photocarriers separation efficiency and more importantly, facilitate Cl - ...

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Role of NOM in the Photolysis of Chlorine and the Formation

of ...

In this study, the role of natural organic matter (NOM) in the photolysis of free available chlorine (FAC) and the formation of HO o and Cl o in the solar/chlorine system was investigated ...

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