

Here, we will provide an overview of currently existing electrochemical conversion technologies for space applications such as battery systems and fuel cells and outline their role in ...

Abstract Sustainable electrochemistry offers innovative solutions for addressing environmental challenges through green and efficient electrochemical processes. This paper explores the principles ...

The stochastic characteristics of renewable energy sources such as wind and solar pose major challenges in terms of supply matching demand due to the inherent variability and ...

Outdoor solar irradiation changes throughout the day, so it is necessary to study the influence of solar irradiation on the thermal and electrochemical performance of the reactor.

In recent years, materials science and electrochemical engineering advances have enabled more sustainable methods, leading to innovations such as using renewable or biodegradable materials, ...

As a result of the continued use of fossil fuels, serious ecological and social issues, including climate change, environmental harm, and resource depletion, have drawn global ...

Gas-involving electrochemical reactions, including gas-consuming reactions and gas-evolving reactions, play a critical role in the construction of clean energy conversion and storage ...

The Electrochemical Environmental Engineering section is committed to publishing research centered on the application of electrochemical principles to address environmental challenges for sustainable ...

Solar-powered electrochemical production of hydrogen through water electrolysis is an active and important research endeavor. However, technologies and roadmaps for implementation of this ...

This study presents an innovative approach for simultaneous hydrogen production and wastewater remediation, integrating electrochemical treatment with solar light-driven photocatalysis.

The conception of practical solar-hydrogen generators requires the implementation of engineering design principles that allow photo-electrochemical material systems to operate efficiently, ...

China and the United States emerge as the leading contributors in terms of research output. Moreover, developing countries like India and Saudi Arabia have demonstrated substantial ...

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In recent years, there has been a wealth of research on self-powered systems based on triboelectric nanogenerators (TENG) used in electrochemistry. Despite these strides, the ...

Environmental pollutant sensing is essential to the sustainable development of human health and ecosystems. As a category of two-dimensional materials consisting of nitrides and carbides, MXenes ...

However, studies on mitigating the environmental impact and improving the environmental safety of solar cells are rare [11]. From the above analysis, the effective recycling and ...

This work explores the integration of electrochemistry with solar power to drive efficient methanol production processes, focusing on electrochemical reduction (ECR) of CO₂ and methane ...



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