Patent Search

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Abstract:

The proposed invention presents a high-efficiency electrolysis system for green hydrogen production using sustainable catalysts. By leveraging earth-abundant mate system offers a cost-effective and environmentally friendly alternative to traditional electrolysis methods that rely on precious metal catalysts. The sustainable catalys the electrolysis process, resulting in improved efficiency and higher hydrogen production rates. The innovation addresses the challenges of cost, scalability, and envir impact associated with hydrogen production, driving the adoption of green hydrogen as a clean energy source. This abstract encapsulates the essence of the inventic highlighting its potential to revolutionize the energy landscape and contribute to a sustainable and decarbonized future.

Complete Specification

Description:This field of invention focuses on developing innovative technologies that improve energy efficiency, reduce greenhouse gas emissions, and promote sustainability. It encompasses various areas such as renewable energy generation, energy storage, energy efficiency, and environmental conservation.

Background of the invention:

The global energy landscape is rapidly shifting towards renewable and sustainable sources to combat climate change and reduce reliance on fossil fuels. Hydrogen emerged as a promising clean energy carrier due to its high energy density and potential for zero-emission usage. However, the widespread adoption of hydrogen a alternative energy source faces challenges in terms of production, cost-effectiveness, and environmental impact.

One of the most common methods for hydrogen production is electrolysis, which involves the splitting of water molecules (H2O) into hydrogen (H2) and oxygen (O2 an electric current. Conventional electrolysis technologies often employ catalysts made of precious metals, such as platinum, iridium, and palladium, to facilitate the reaction and improve efficiency. However, these catalysts are expensive, scarce, and have detrimental environmental impacts associated with their extraction and production processes.

To address these limitations, the proposed invention focuses on developing a high-efficiency electrolysis system that utilizes sustainable catalysts for green hydroge production. Sustainable catalysts, also known as earth-abundant catalysts, are composed of elements that are widely available in the Earth's crust and offer a more environmentally friendly and cost-effective alternative to precious metal catalysts.

The field of sustainable catalysts has gained significant attention in recent years, driven by the need to develop scalable and economically viable solutions for renew energy technologies. Various research efforts have explored different classes of sustainable catalysts, including transition metal oxides, metal phosphides, metal ca

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