Thermochemical energy storage systems

Amid the global shift to low-carbon energy, renewable energy sources such as solar and wind power are being increasingly adopted [1]. However, the intermittent and variable nature of ...

Our research focuses on enhancing the efficiency, reliability, and sustainability of thermal energy systems. We investigate heat transfer, energy storage, and thermal management solutions for ...

Thermo-chemical thermal storage offers high energy density and appropriate temperature levels for solar heat applications. The water-zeolite working pair is promising for both residential and ...

However, conventional adsorbents have shown suboptimal adsorption efficiency and inadequate thermal conductivity in thermochemical energy storage systems. This study proposes the use ...

The development of this technology aligns with global efforts to transition towards sustainable energy systems and reduce carbon emissions. The primary objective of research in this field is ...

Abstract. Composite materials play a critical role in thermochemical energy storage (TCES) systems due to their ability to enhance the performance, efficiency, and longevity of these ...

The traditional thermochemical energy storage systems need to first collect solar energy to heat the air, and then the high-temperature air is sent to the reactor to dry the ...

The special issue titled "Integration of Thermal and Storage Technologies in Buildings and Energy Communities" focuses on exploring innovations and advanced applications in the field of ...

The thermochemical energy storage (TCES) market is experiencing significant growth, driven by the increasing demand for efficient and sustainable energy storage solutions. As renewable ...

This study simulates the multi-field coupling characteristics of an energy storage fluidized bed reactor under attrition conditions, analyzing particle force chains, individual particle reactions, ...

Mobile thermochemical energy storage (MTES) has emerged as a promising method by effectively utilizing waste heat from power plants and transforming it into useful energy for ...

With the required increasing temperature and energy storage density for next-generation concentrated solar power (CSP) stations, high-temperature metallic phase change material ...

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