

Feb 22, 2019&ensp;&#0183;&ensp;This work aims at analyzing an integrated system of a zinc-air flow battery with a zinc electrolyzer for energy storage application. For ...

Jan 1, 2024&ensp;&#0183;&ensp;Abstract Zinc-Iodine hybrid flow batteries are promising candidates for grid scale energy storage based on their near neutral electrolyte pH, relatively benign reactants, and an ...

Nov 8, 2025&ensp;&#0183;&ensp;As global demand for renewable energy continues to grow, developing efficient, sustainable, and long-term energy storage systems becomes increasingly critical. Zinc-based ...

Nov 6, 2020&ensp;&#0183;&ensp;Alkaline zinc-iron flow batteries (AZIFBs) are a very promising candidate for electrochemical energy storage. The electrolyte plays an important role in determining the ...

Jan 1, 2025&ensp;&#0183;&ensp;This paper employs a phase-field-Lattice-Boltzmann method incorporating ion transport mechanisms in the electrolyte, including diffusion, electromigration and convection, ...

Jul 27, 2021&ensp;&#0183;&ensp;Zinc-based batteries are promising for use as energy storage devices owing to their low cost and high energy density. However, zinc ...

Oct 15, 2023&ensp;&#0183;&ensp;Rechargeable zinc-based batteries (RZABs) show much promise over a wide range of applications due to their scalability, safety, and low cost. However, achieving stable ...

Apr 27, 2024&ensp;&#0183;&ensp;This article demonstrates a dual-function additive strategy aimed at addressing the capacity loss in alkaline aqueous zinc-based flow ...

Oct 23, 2024&ensp;&#0183;&ensp;The decoupling nature of energy and power of redox flow batteries makes them an efficient energy storage solution for sustainable ...

May 2, 2025&ensp;&#0183;&ensp;A liquid metal electrode enables dendrite-free, zinc-based flow batteries with exceptional long-duration energy storage.

Apr 30, 2018&ensp;&#0183;&ensp;Abstract Conventional zinc bromide electrolytes offer low ionic conductivity and often trigger severe zinc dendrite growth in zinc-bromine flow batteries. Here we report an ...

Oct 21, 2025&ensp;&#0183;&ensp;Aqueous zinc-iodine flow batteries show potential in large-scale storage but face water imbalance-induced instability. Here, authors develop a tailored ionic-molecular sieve ...

3 days ago&ensp;&#0183;&ensp;Membranes with selective ion transport and long-term stability remain

# Zinc flow battery effect

urgently needed for energy devices, particularly in metal-based batteries, where dendrite penetration ...

In order to achieve maximum efficiency and long lifetime of a zinc-bromine flow battery (ZBB), the deposition and dissolution of zinc during the charging and discharging processes, ...

Jul 26, 2018&ensp;&#0183;&ensp;Zinc-air flow batteries exhibit high energy density and offer several appealing advantages. However, their low efficiency of zinc ...

Apr 15, 2024&ensp;&#0183;&ensp;Zinc-bromine flow batteries (ZBFBs) are regarded as one of the most appealing technologies for stationary energy storage due to their excellent safety, high energy density, ...

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