INTERFACIAL ELECTROCHEMICAL ENERGY STORAGE

Is Interfacial Engineering a viable strategy for high-performance aqueous Zn metal batteries? Besides,the Zn//$NH_4V_4O_{10}$ full cell also demonstrated enhanced capacity retention after 1000 cycles,highlighting a viable interfacial engineering strategyfor constructing the coordination layer and promoting high-performance aqueous Zn metal batteries. Fig. 1.

How does interfacial structure affect mobile ions behavior? The interfacial structure has a great influence on mobile ions behavior at the interface. The interface,a confined region of charge transfer,is the key to affecting the performance of electrode materials (specific capacity,rate capability,and cycling stability,etc.).

Why are solvation complexes too bulky and clumsy for interfacial charge transfer? Generally,the solvation complexes are usually too bulky and clumsy to enable solvents/anions co-intercalate into the cathode. Interfacial charge transfer processes in CEI requires the de-solvation of the inserted ions from their solvation structure,as shown in Fig. 3e.

How does interfacial structure affect solvation structure? The enhanced interfacial structure can effectively inhibit the formation of zinc dendrite,and suppress side reaction of HER. As a consequence,it achieves an average 99.55% Zn utilization and 1000 cycles long-time stability. Similarly,sub-nanometer-sized pore in certain MOF materials can be used as a sieve to control solvation structures.

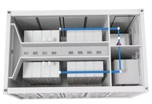
What are interfacial reactions based on aqueous electrolyte? 4.1. Interfacial reactions Based on the aqueous electrolyte,interfacial reactions at AEI such as Zn dendriteand other side reactions will be occurred,resulting in the instability and irreversibility of the Zn anode.

INTERFACIAL ELECTROCHEMICAL ENERGY STORAGE

Are aqueous ZIBs suitable for large-scale energy storage? Aqueous ZIBs with the unique merits including intrinsic safety,low cost and environmental benignity,exhibit great potentialin large-scale energy storage. The interfacial ions behavior can profoundly affect the entire electrochemical energy storage process of aqueous ZIBs.

2D MXenes have been widely applied in the field of electrochemical energy storage owing to their high electrical conductivity, large redox-active surface area, rich surface a?|


1) how to correlate material or solvent properties to the interfacial reactions on the electrode surface; 2) how the interfacial reactions control the electrochemical performances of a?|




Electrode interphases are vital for energy storage performance, regulating ion transport and preventing side reactions. In a recent Journal of the American Chemical Society study, Wang et al. investigated how multi-salt a?|


Water-induced strong isotropic MXene-bridged graphene sheets for electrochemical energy storage. The formation of interfacial water, which refers to a densely packed water-molecule layer with a density much higher a?|

INTERFACIAL ELECTROCHEMICAL ENERGY STORAGE


Aqueous zinc-ion batteries have emerged as promising candidates in next-generation energy storage systems. However, their practical implementation is significantly hindered by interfacial a?|


In this review, we summarize the synthesis techniques of MXenes, as well as the recent advances in the interfacial structure design of MXene-based nanomaterials for electrochemical energy storage and conversion applications.


The interfacial ions behavior can profoundly affect the entire electrochemical energy storage process of aqueous ZIBs. A thorough understanding in this aspect helps to analyze a?|

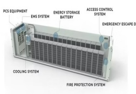

Electrochemical energy storage systems, such as lithium-ion batteries (LIBs) and sodium-ion batteries (SIBs), play a significant part in sustainable energy applications. 1,2 In prevailing electrochemical energy a?|


To support the global goal of carbon neutrality, numerous efforts have been devoted to the advancement of electrochemical energy conversion (EEC) and electrochemical energy storage (EES) technologies. For these a?|

INTERFACIAL ELECTROCHEMICAL ENERGY STORAGE

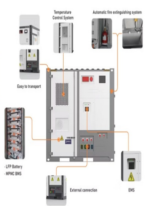

Energy Storage Materials. Volume 33, December 2020, Pages 216-229. Multifunctional electrolyte additive for improved interfacial stability in Ni-rich layered oxide full a?|





Additionally, we provide an ina??depth discussion on the relationship between interfacial structure and electrochemical performance from the perspectives of energy storage and electrocatalysis


His research interests include advanced electrochemical energy storage devices, bioelectronic devices/sensors, and integrated on-chip and 3D soft electronic systems. Dr Kai Yang is a a?|



1. Introduction. Electrochemical energy storage devices, including supercapacitors and batteries, can power electronic/electric devices without producing greenhouse gases by storing electricity from clean energy (such as a?|


Electrochemical energy conversion and storage are central to developing future renewable energy systems. For efficient energy utilization, both the performance and stability of electrochemical systems should be optimized in terms of the a?|

INTERFACIAL ELECTROCHEMICAL ENERGY STORAGE

3 Electrolyte-Wettability of Electrode Materials in Electrochemical Energy Storage Systems. In electrochemical energy storage systems including supercapacitors, metal ion batteries, and metal-based batteries, the essence that electrodes a?|