

What is Rh alloy nanosheets based battery?

The RuRh alloy nanosheets-based battery can achieve the lowest voltage gap of 1.35 V during the charge-discharge process and stably cycle for 180 cycles with a cutoff capacity of 1,000 mAh g⁻¹ at 1,000 mA g⁻¹.

Why should you choose RuRh alloy nanosheets for a Li-CO₂ battery?

The RuRh alloy nanosheets can effectively reduce the charge overpotential and improve the cycling performance and rate capability, which endow the Li-CO₂ battery with superior reversibility.

Can carbon be used for sodium ion batteries?

Carbon materials have long been the primary electrode materials for a series of electrochemical devices, but their applications for sodium-ion batteries (SIBs) are still restricted by limited embedding pathways between narrow graphene layers owing to relatively large size of Na⁺.

Are large-area carbon nanosheets doped with phosphorus a high-rate anode material?

Hou H, Shao L, Zhang Y et al (2017) Large-area carbon nanosheets doped with phosphorus: a high-performance anode material for sodium-ion batteries. *Adv Sci* 4 (1):1600243 Lu P, Sun Y, Xiang H et al (2018) 3D amorphous carbon with controlled porous and disordered structures as a high-rate anode material for sodium-ion batteries.

What materials are used in a battery cathode?

Among the zinc-ion battery cathode materials, manganese-based materials and carbon materials occupy the main positions, respectively. Among them, nickel manganate (NiMn₂O₄) nanosheets and carbon nanotubes (CNTs) as active materials have received extensive attention.

Are ultrathin triangular Ru alloy nanosheets effective catalysts for a Li-CO₂ battery?

Ru, light blue; Rh, dark green; Li, pink; O, red; C, gray. In summary, we report the synthesis of ultrathin triangular RuRh alloy nanosheets as exceptionally active catalysts for significantly activating CO₂ reduction and evolution reactions and achieving high performance in a Li-CO₂ battery.

We demonstrate that peat moss, a wild plant that covers 3% of the earth's surface, serves as an ideal precursor to create sodium ion battery (NIB) anodes with some of the most attractive electrochemical properties ever reported for carbonaceous materials. By inheriting the unique cellular structure of peat moss leaves, the resultant materials are composed of ...

Vacancy-engineered CeO₂/Co heterostructure anchored on the nitrogen-doped porous carbon nanosheet arrays vertically grown on carbon cloth as an integrated cathode for the oxygen reduction reaction of ... A rechargeable zinc-air battery (ZAB) is regarded as a promising energy storage device owing to its high energy

density, good safety, and ...

A novel multidimensional composite of 1D iron oxide (Fe_3O_4)-carbon tube and 2D graphene nanosheet (GNS) was demonstrated to be used as the anode material for lithium-ion batteries (LIBs). Fe_3O_4 -carbon tube-GNS manifested a unique core-shell composite structure, where the Fe_3O_4 nanoparticles were embedded in the carbon tube with the GNS. ...

Among these carbon materials, interconnected porous N-doped carbon nanosheets (N-CNs) have received increasing attention [9], [28]. Xu et al. obtained three-dimensional N-doped porous carbon/VN as a sulfur host via a facile heat-treatment strategy [9], with the Li-S battery exhibiting a capacity of 615 mAh g^{-1} over 300 cycles at 1 C. The ...

Preparation of Co-N carbon nanosheet oxygen electrode catalyst by controlled crystallization of cobalt salt precursors for all-solid-state Al-air battery+ Jianhua Shen, a Lu Meng,a Yanyan Liu,a Cheng Chen, b Yihua Zhu *a and Chunzhong Li *a Production of bifunctional catalysts for catalyzing both the oxygen reduction reaction (ORR) and oxygen

In this work, a TiO_2 /sulfur/atomic-iron loaded carbon nanosheet cathode is designed for high performance RT Na-S battery. When the atomic iron exists, a much higher ...

We created a unique sodium ion battery (NIB, SIB) cathode based on selenium in cellulose-derived carbon nanosheets (CCNs), termed Se-CCN. The elastically compliant two-dimensional CCN host incorporates a high ...

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N,S-Doped hollow carbon nanosheet-encapsulated Co_9S_8 nanoparticles as a highly efficient bifunctional electrocatalyst for rechargeable zinc-air batteries ... Co_9S_8 /NSC-3 exhibits promising battery performance with a high specific capacity of 804 mA h g^{-1} and a pleasing charge/discharge cyclability of over 140 h at 10 mA cm^{-2} .

Two-dimensional (2D) TiO_2 /carbon nanosheet (NS) composites have been demonstrated to exhibit higher Li^+ intercalation specific capacity as the electrode materials for Li-ion batteries compared to the theoretical capacity of TiO_2 according to our previous work. In order to demonstrate the Li^+ storage mechanism, TiO_2 nanoparticles (NPs), NSs, and nanotubes ...

To circumvent the narrow interlayer issue for SIB application of carbon materials, 2D porous carbon nanosheets (CNSs) with large aspect ratio and very thin thickness were ...

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