Xiao ni energy storage

Are Ni-based oxides a promising material for aqueous energy storage systems?
Ni-based oxides/hydroxides are believed to be greatly promising materialsfor aqueous energy storage systems due to their active valence transformation,which enables multiple redox reactions in aqueous media.

What is the specific capacity of Co 3 O 4 @NiO NSRAs?
The Co 3 O 4 @NiO NSRAs exhibit ultrahigh specific capacity of ~242.4 mAh·g -1 at 5 mA·cm -2,good rate capability (~60.5%) and excellent long-term cycle performance (with only ~4% capacity loss over 1000 cycles) in a strong alkaline electrolyte (containing 6 mol·L -1 KOH).

What is the function of Ni-Zn battery with Co 3 O 4 @NiO NSRAs?
The Ni-Zn battery with Co 3 O 4 @NiO NSRAs functions as an advanced cathode material,which can deliver comparable or higher power and energy densities in comparison with other reported aqueous batteries.

What is the band gap energy of CE-ni-cu@mof nanomaterial?
Nonetheless,in this study,the as-synthesized Ce-Ni-Cu@MOF nanomaterial exhibited the band gap energy as 3.13 eV,demonstrating improved photo emission characteristics and expected to well-suited for energy storage applications. The dielectric properties were studied in impedance analyzer in the frequency range of 100 Hz to 5 MHz.

What is the band gap energy of NiO & CEO 2?
According to literature,the band gap energies of pure NiO,CeO 2,and CuO are reported as (3.6-4 eV) ,(3.2-3.4 eV) ,and 4.59 eV ,respectively. Nonetheless,the composite of these metal oxides results a decrease in band gap energy,i.e.,3.13 eV,aligning it in the range of the visible region.

What is Ni3S2 nanorod@Ni(OH)2?
The article discusses the synthesis of Ni3S2 nanorod@Ni(OH)2core-shell nanostructures on a three-dimensional graphene network for high-performance supercapacitors.

Energy Storage Materials, 2018, 13, 160-167. Panpan Li, Zhaoyu Jin, Dan Xiao *. Three-Dimensional Nanotube-Array Anode Enables A Flexible Ni/Zn Fibrous Battery to Ultrafast Charge and Discharge in Seconds. Energy Storage Materials, 2018, 12, 232-240. *.

A promising energy storage system: rechargeable Ni-Zn battery. / Lai, Shi-Bin; Jamesh, Mohammed-Ibrahim; Wu, Xiao-Chao et al. In: Rare Metals, Vol. 36, No. 5, 01.05.2017, p. 381-396. Research output: Journal Publications and Reviews > RGC 62 - Review of books or of software (or similar publications/items) > peer-review

Ni-rich layered oxide (LiNi x Mn y Co z O 2 (NMC), x > 60%), one of the most promising cathode materials for high-energy lithium ion batteries (LIBs), still suffers from surface instability even with the

state-of-art protective coatings, which normally are limited to <=10 nm to maintain the required kinetics. Here we demonstrate a highly conductive protective layer with ...

Transition metal (Fe, Co, Ni) fluoride-based materials for electrochemical energy storage. Nannan Zhang+, Xiao Xiao+ and Huan Pang * School of Chemistry and Chemical Engineering, Institute for Innovative Materials and Energy, ...

All solid state batteries (ASSBs) are regarded as promising next-generation energy storage systems that have the potential to achieve both high energy density and improved ...

A high-voltage and low-solvating electrolyte towards promising micro-Si/Ni-rich NMC full cells Energy Storage Materials (IF 18.9) Pub Date : 2024-02-21, DOI: 10.1016/j.ensm.2024.103258

The Ni-25%X (X=Fe, Co, Cu, molar fraction) solid solutions were prepared and then doped into MgH 2 through high-energy ball milling. The initial dehydrogenation temperatures of MgH 2 /Ni-25%X composites are all decreased by about 90 °C relative to the as-milled pristine MgH 2.The Ni-25%Co solid solution exhibits the most excellent catalytic effect, and the milled ...

M Ni, T Yang, G Xiao, D Ni, X Zhou, H Liu, U Sultan, J Chen, Z Luo, K Cen. Energy 137, 20-30, 2017. 34: ... Thermodynamic modelling and real-time control strategies of solar micro gas turbine system with thermochemical energy storage. J Yang, G Xiao, M Ghavami, J Al-Zaili, T Yang, A Sayma, D Ni. Journal of Cleaner Production 304, 127010, 2021. 29:

With the development of population and industrial technology, the demand for energy in today"s world is increasing [1].Traditional energy such as coal and oil, due to their non-renewability and large amounts of carbon dioxide and other pollutants produced in the combustion process, make people urgently need to find a new sustainable green energy [2].

O3-type layered oxide materials are being considered as one of the most promising cathodes for Na-ion batteries owing to their higher capacity, however, they usually suffer from structural damage at the highly desodiated state. To achieve the stable/high-capacity O3-type Na-ion cathodes, a series of Ni-rich O3-Na[Ni x Fe y Mn 1-x-y]O 2 (x = 0.6, 0.7 and 0.8) oxide ...

A Novel Ni-rich O3-Na[Ni0.60Fe0.25Mn0.15]O2 Cathode for Na-ion Batteries Feixiang Dinga,b,#, Chenglong Zhaoa,b #, Dong Zhouc, Qingshi Menga b, Dongdong Xiaod, Qiangqiang Zhanga,b, Yaoshen Niua,b, Yuqi Lia,b, Xiaohui Ronga b,**, Yaxiang Lua,e,***, Liquan Chena,e, Yong-Sheng Hua,b,e * a Key Laboratory for Renewable Energy, Beijing Key ...

We develop a 3D nanowire-supported Cu network through electrodepositing an active metal layer (NiZn alloy and Fe) to grow NiZn-phytate and Fe-phytate nanostructures as the anode and cathode, respectively, of a flexible energy ...

We develop a 3D nanowire-supported Cu network through electrodepositing an active metal layer (NiZn alloy and Fe) to grow NiZn-phytate and Fe-phytate ...

Dr. Xiao has been leading research thrusts in both fundamental research and practical applications of energy storage materials and systems to accelerate deep decarbonization. Dr. Xiao"s research has led to breakthroughs in long cycling next-generation high energy lithium metal batteries and novel battery materials, accelerating the process to ...

The LDH/GO composites showed excellent performance in energy storage, e.g., a high specific capacitance of 1031 F/g at a current density of 1 A/g and a high energy density of 7.7 W h/kg at power density of 4.8 kW/kg. The high performance was attributed to the fact that face-to-face assembly of the CoAl LDH nanosheets and GO maximized the area ...

The escalating need for energy on a global scale and the necessity for sustainable energy solutions have spurred the advancement of sophisticated energy storage devices. This ...

Adv. Mater., ACS Nano, ACS Catal., Carbon Energy, Energy Storage Mater., Nano Energy 300,64? : ...

Transition-metal (Fe, Co, Ni) fluoride-based materials exhibit excellent chemical tailorability due to their different functional groups, and they have attracted wide research interest for use in next-generation electrochemical energy storage. This review introduces EN ...

Synthesis of high-performance single crystal Ni-rich NMC, especially when Ni>=0.8, poses a challenge. A conflict exists because as Ni content increase in NMC811, a lower calcination temperature is preferred due to Ni reduction at elevated temperatures, while high temperatures favour single crystal growth [18].Therefore, molten salt is sometimes employed ...

A promising energy storage system: rechargeable Ni-Zn battery. / Lai, Shi-Bin; Jamesh, Mohammed-Ibrahim; Wu, Xiao-Chao et al. In: Rare Metals, Vol. 36, No. 5, 01.05.2017, p. 381 ...

A redox-active polymeric network facilitates electrified reactive-capture electrosynthesis to multi-carbon products from dilute CO 2-containing streams

Sustainable and renewable energy is extremely demanding due to the excessive consumption of fossil fuels, such as H 2, solar, wind, geothermal energy, and hydropower.However, these sources are considered as the intermittent energy, which means energy storage and conversion systems need to be attached much importance to cultivate ...

Rechargeable Ni-Zn batteries (RNZBs), delivering high power density in aqueous electrolytes with stable cycle performance, are expected to be promising candidates to ...

Methods to synthesize transition metal (Fe, Co, Ni) fluoride materials and their applications in batteries and supercapacitors are introduced and the current challenges and future opportunities of iron fluoride in electrochemistry are presented. The improvement of advanced battery performance has always been a key issue in energy research. Therefore, it is ...

The key binding energy peaks of Ni, Co, Mn and O were detected in both samples, whereas the binding energy peaks of Nb5+ could be merely found in the NCM-Nb2 sample (Figs. 5(a) and (f)). The divided parts of the Ni 2p3/2 spectrum shown in Fig. 5(b) at 854.6 and 855.8 eV can correspond to the binding energies of Ni2+ and Ni3+, respectively.

Transition-metal (Fe, Co, Ni) based metal-organic framework materials with controllable structures, large surface areas and adjustable pore sizes have attracted wide research interest for use in next-generation electrochemical energy-storage devices.

Nitrogen-doped carbon encapsulating iron-doped Co 0.5 Ni 0.5 alloy derived from MOF-on-MOF as a bifunctional oxygen electrocatalyst ... demonstrating its potential to replace ...

Toward the Proper Selection of Carbon Electrode Materials for Energy Storage Applications: Experimental and Theoretical Insights. Energy & Fuels 2021, 35 (16 ... Weiliang Zhou, Dijun Shen, Qian Yang, Shengfu Xiao, Yunyong Li. Ni/Co-MOF@aminated MXene hierarchical electrodes for high-stability supercapacitors. Chemical Engineering Journal 2023 ...

Read the latest articles of Energy Storage Materials at ScienceDirect , Elsevier"s leading platform of peer-reviewed scholarly literature ... Jun-Wei Zhang, Jin-Long Sun, Dong-Ni Zhao, Yan-Jun Zhao, ... Xiao-Ling Cui. Article 103698 View PDF. ... select article Phase compatible surface engineering to boost the cycling stability of single ...

Lithium ion batteries (LIBs) have been widely used in electronic devices, and are gaining momentum in electrical vehicles and stationary energy storage [1].With an ever increasing demand for higher energy density of LIBs, safety issues are becoming increasingly prominent [2].All solid state batteries (ASSBs) are regarded as promising next-generation energy storage ...

In this study, we tried to build pure B33 <-> B33? reactions to eliminate the severe capacity fading in ZrCo-based alloys via Nb and Ni co-substituting strategy, and ultralong cycle life as well as remarkable capacity were achieved for hydrogen isotope storage by building homogeneous structural phase transformation reaction in Zr 1-x Nb x Co ...

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