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Introducing metal fins or foams can both enhance the performance of shell-and-tube phase change thermal energy storage (TES) devices, but the heat transfer mechanisms are different, i.e., heat transfer through a micro-liquid film, named close-contact melting (CCM) mode, brought by fins and reinforced-heat-conduction is triggered by foams. In order to find a method with ...

Zn-based electrochemistry is considered to be the most promising alternative to Li-ion batteries due to its abundant reserves and cost-effectiveness. In addition, aqueous electrolytes are more convenient to be used in Zn-based batteries due to their good compatibility with Zn-chemistry, thereby reducing cost and improving safety. Furthermore,  $Zn^{2+}/Zn$  couples ...

Abstract Developing high-performance energy storage and conversion (ESC) device relies on both the utilization of good constituent materials and rational design of assembly structure. ... Fan Guo. MOE Key Laboratory of Macromolecular Synthesis and Functionalization, Department of Polymer Science and Engineering, Key Laboratory of Adsorption and ...

Responsible for the development and promotion of BYD's overseas new energy market business, including the global energy storage market research and strategic development, innovation project explore and lifecycle management of BYD energy storage product portfolio, as well as the customer resources accumulation and team buildings. 15 years" experience in micro grid ...

Energy storage in dielectrics is realized via dielectric polarization  $P$  in an external electric field  $E$ , with the energy density  $U_e$  determined by  $\int P_r P_m E dP$ , where  $P_m$  and  $P_r$  are the maximum polarization in the charging process and remnant polarization in the discharging process, respectively (fig. S1) ().  $P_r$  manifests itself as the P-E hysteresis, which ...

Since 2008, the company has deeply cultivated the electric vehicle battery business, forming a whole industrial chain layout with battery cells, modules, BMS and PACK as the core, extending upstream to mineral raw materials, expanding downstream to the echelon utilization of electric vehicles, energy storage power stations and power batteries, and building an integrated ...

Zinc-air batteries deliver great potential as emerging energy storage systems but suffer from sluggish kinetics

of the cathode oxygen redox reactions that render unsatisfactory cycling lifespan. The exploration on bifunctional electrocatalysts for oxygen reduction and evolution constitutes a key solution, where rational design strategies to ...

DOI: 10.1021/acs.energyfuels.0c03739 Corpus ID: 230581852; Microwave-Heated Graphene Realizes Ultrafast Energy Conversion and Thermal Storage @article{Yang2020MicrowaveHeatedGR, title={Microwave-Heated Graphene Realizes Ultrafast Energy Conversion and Thermal Storage}, author={Chao Yang and Hengrui Yang and Yuge ...

Technical and economic evaluation of a liquid air energy storage system with air precooling for compressor inlet. Z Gao 1,2, J Hu 1, W Ji 1, L Guo 1,2, X Fan 1,2, J Guo 1, L Chen 1 and J Wang 1,2. Published under licence by IOP Publishing Ltd

Yi-Fan Tian: Data curation, Visualization, Writing - review & editing. ... Yu-Guo Guo: Conceptualization, Writing - review & editing, Supervision, Project administration, ... Energy Storage Mater, 37 (2021), pp. 215-223. View PDF View article View in ...

Supporting Information for Microwave-Heated Graphene Realizes Ultrafast Energy Conversion and Thermal Storage Chao Yang, Hengrui Yang, Yuge Bai, Xiaodong Wu, Weichang Guo, Manni Li, Fan Zhang, Peng-Fei Wang, Xiaogang Han\* Center of Nanomaterials for Renewable Energy, State Key Laboratory Insulation and Power

Associated with the rapid development of 2D transition metal carbides, nitrides, and carbonitrides (MXenes), MXene derivatives have been recently exploited and exhibited unique physical/chemical properties, holding promising applications in the areas of energy storage and conversions.

Abstract Aqueous zinc-metal batteries are considered to have the potential for energy storage due to their high safety and low cost. ... Zhikun Guo. State Key Laboratory of Urban Water Resource and Environment, School of Chemistry and Chemical Engineering, Harbin Institute of Technology, Harbin, 150001 China ... Search for more papers by this ...

State-of-the-art battery technologies use liquid electrolytes, because liquid electrolytes offer the benefits of high conductivity and perfect wettability with maximized electrolyte/electrode contact area (Fig. 1 a), however, they often suffer from inadequate stability, low ion selectivity and poor safety [1]. Moreover, the uncontrolled growth of Li dendrites and ...

@article{Ren2023AMA, title={A metalophilic, anion-trapped composite gel electrolyte enables highly stable electrode/electrolyte interfaces in sodium metal batteries}, author={Yufeng Ren and Meng Yang and Zhenhai Shi and Junhong Guo and Dongkun Chu and Fan Feng and Hongping Li and Zifeng Ma and Suli Chen and Tianxi Liu}, journal={Energy Storage ...

This study provides an idea for improving the energy storage performance by combining the design of the composite dielectric structure and the control of nanofillers' defect and morphology. ... Zhang, Q.; Zhang, L.; Zhu, Y. W.; Guo, X.; Fan, P. Y.; Zhang, H. B. Ultrahigh discharged energy density in polymer nanocomposites by designing linear ...

Seeking for the advanced energy storage system with high energy density and safety is of great urgency due to the booming development of powerful electronics and electric vehicles [1], [2], [3], [4]. Since lithium (Li) metal possesses the high theoretical specific capacity (3860 mAh g<sup>-1</sup>) and low reduction potential (-3.04 V vs standard hydrogen electrode), Li ...

DOI: 10.1016/J.ENERGY.2018.11.129 Corpus ID: 115369525; Comprehensive assessment for battery energy storage systems based on fuzzy-MCDM considering risk preferences @article{Zhao2019ComprehensiveAF, title={Comprehensive assessment for battery energy storage systems based on fuzzy-MCDM considering risk preferences}, author={Haoran Zhao ...

Carbon Energy is an open access energy technology journal publishing innovative interdisciplinary clean ... electrochemical activity of an iron hexacyanoferrate cathode boosts superior sodium ion storage. Junhong Guo, Junhong Guo. Key Laboratory of Synthetic and Biological Colloids, Ministry of Education, International Joint Research Laboratory ...

The increasing demand for new energy vehicles and portable electronic devices has stimulated the development of energy storage devices for higher safety and higher energy ... Fan Feng: Visualization, Methodology, Formal analysis. Junhong Guo: Visualization, Formal analysis. Rui Wang: Writing - review & editing, Formal analysis. Jiayi Yu ...

Manganese dioxide, MnO<sub>2</sub>, is one of the most promising electrode reactants in metal-ion batteries because of the high specific capacity and comparable voltage. The storage ability for various metal ions is thought to be modulated by the crystal structures of MnO<sub>2</sub> and solvent metal ions. Hence, through combining the relationship of the performance (capacity and ...

Keywords: distribution network, energy storage system, particle swarm optimization, photovoltaic energy, voltage regulation. Citation: Li Q, Zhou F, Guo F, Fan F and Huang Z (2021) Optimized Energy Storage System Configuration for Voltage Regulation of Distribution Network With PV Access. Front. Energy Res. 9:641518. doi: 10.3389/fenrg.2021.641518

To address the above challenge, we present in this work a flame-retardant solid-liquid hybrid electrolyte (FRSE) in Li-metal batteries that simultaneously feature high Li<sup>+</sup> conductivity, high mechanical strength, and stable electrolyte/electrode interface (Fig. 1a-c). Unlike the previous strategies, an in-situ solidified process was applied in the battery to ...

Currently, realizing a secure and sustainable energy future is one of our foremost social and scientific challenges [1]. Electrochemical energy storage (EES) plays a significant role in our daily life due to its wider and wider application in numerous mobile electronic devices and electric vehicles (EVs) as well as large scale power grids [2]. Metal-ion batteries (MIBs) and ...

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