

Article from the Special Issue on Sustainability assessment of Energy Storage technologies; Edited by Claudia D'Urso, Marco Ferraro; Vincenzo Antonucci and Manuel Baumann; Receive an update when the latest issues in this journal are published. Sign in to set up alerts.

On July 30, the Central Enterprise New Energy Storage Innovation Consortium was established in Beijing. The consortium is a national-level new energy storage innovation platform jointly led by State Grid Corporation of China and China Southern Power Grid Co., Ltd. under the guidance of the State-owned Assets Supervision and Administration Commission of ...

High-capacity anode materials are one of the bottlenecks to further improve the energy density of Na-ion batteries (NIBs). Except for introducing more defects to increase the sloping capacity, tuning the closed porous structure to boost the plateau capacity is another direction. Here by adopting phenol-formaldehyde resin (PF) as the carbon precursor and ...

Integrated energy conversion and storage devices: Interfacing solar cells, batteries and supercapacitors. Lucia Fagiolari, Matteo Sampò, Andrea Lamberti, Julia Amici, ... Federico Bella. Pages 400-434 View PDF. Article preview. select article Recent status and future perspectives of 2D MXene for micro-supercapacitors and micro-batteries.

A customizable electrochemical energy storage device is a key component for the realization of next-generation wearable and biontegrated electronics. This Perspective begins with a brief introduction of the drive for customizable electrochemical energy storage devices. It traces the first-decade development trajectory of the customizable electrochemical energy ...

Combined with the classical dielectric prediction formula, the energy storage density prediction of polymer-based composites is obtained. The accuracy of the prediction is verified by the directional experiments, including dielectric constant and breakdown strength. This work provides insight into the design and fabrication of polymer-based ...

Although extensive studies have been done on lead-free dielectric ceramics to achieve excellent dielectric behaviors and good energy storage performance, the major problem of low energy density has not been solved so far. Here, we report on designing the crossover relaxor ferroelectrics (CRFE), a crossover region between the normal ferroelectrics and relaxor ...

In recent years, polymer-based dielectric capacitors have attracted much more attention due to the advantages of excellent flexibility, light weight, and high power density. However, most studies focus on energy storage performances of polymer-based dielectrics at room temperature, and there have been relatively fewer

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investigations on polymer-based dielectrics working under ...

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Abstract . As a long-term energy storage technology, hydrogen energy storage has a good development prospect. China's 14th five-year plan points out that hydrogen energy development is a long-term development strategy, in which the key points are to improve the conversion efficiency of hydrogen production by electrolysis, improve the design and manufacturing ...

The ability to tune both local and global environments of a single-metal active center on a support is crucial for the development of highly robust and efficient single-atom electrocatalysts (SAECs) that can surmount both thermodynamic and kinetic constraints in electrocatalysis. Here, we designed a core-shell-structured SAEC (Co1-SAC) with superior ...

Enterprise Products Partners L.P. is one of the largest publicly traded partnerships and a leading North American provider of midstream energy services to producers and consumers of natural gas, natural gas liquids (NGLs), crude oil, refined products and petrochemicals. ... >50,000 miles of pipeline >300 MMBbls liquids storage capacity. 26 ...

The ever-increasing market demand for grid-scale energy storage systems (EESs) urgently needs to develop state-of-the-art energy storage technologies with high conversion efficiency and cost-effectiveness. 1-4 Sodium-ion batteries (SIBs), with remarkable merits in rich abundance and worldwide distribution of sodium resources, resultant low cost ...

While the technological importance of carbon-based anodes for sodium-ion batteries is undebated, the underlying mechanism for sodium insertion and storage is still strongly disputed. Here, we present a joint experimental and theoretical study that allows us to provide detailed insights into the process of Na insertion in nongraphitizable (hard) carbon. For this ...

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Conventional single thermal nature of phase change materials (PCMs) seriously obstructs their frontier applications. Herein, we designed advanced carbon nanotube (CNT) bundles assembled flexible hierarchical framework based phase change material composites for high-performance thermotherapy of allergic rhinitis. Hierarchically interconnected 3D freestanding flexible CNT ...

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Compared with the energy storage properties at room temperature, the performance at elevated temperatures is more worth exploring. The high-temperature E_b of the two polyimide films at 150 °C is shown in Fig. 5 a, and the E_b value of semi-aromatic polyimide (430.7 MV m⁻¹) is also significantly greater than that of all-aromatic polyimide ...

Integrating revolutionary perovskite solar cells with energy storage devices is a very promising technology to reduce the total cost of solar power utilization. Here, for the first time, lead-free (C₆H₅NH₃)BiI₄ perovskite materials were used as light absorbers in low-cost triple-layer mesoscopic perovskite solar cells with a power conversion efficiency of 0.35%. We fabricated ...

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Article from the Special Issue on Selected papers from the 6th International Symposium on Materials for Energy Storage and Conversion (mESC-IS 2022); Edited by Ivan Tolj; Article from the Special Issue on Innovative materials in energy storage systems; Edited by Ana Inés Fernández and Camila Barreneche

The Enterprise Solar Storage Project, as proposed by Enterprise Solar Storage, LLC, is for the construction and operation of a photovoltaic (PV) solar facility and associated infrastructure necessary to generate 600 megawatts (MW) of renewable electrical energy with up to 4,000 megawatt-hours (MWh) of energy storage capacity (approximately ...

High energy storage performance of triple-layered nanocomposites with aligned conductive nanofillers over a broad electric field range. Fengwan Zhao, Jie Zhang, Hongmiao Tian, Chengping Lv, ... Jinyou Shao. Article 103013 View PDF. Article preview.

Tin-assisted fully exposed Pt clusters are fabricated on the core-shell nanodiamond@graphene (ND@G) hybrid support (a-PtSn/ND@G). The obtained atomically dispersed Pt clusters, with an average Pt atom number of 3, were anchored over the ND@G support by the assistance of Sn atoms as a partition agent and through the Pt-C bond ...

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