Jiang energy storage electronic lock

DOI: 10.1016/j.mtadv.2020.100072 Corpus ID: 219412653; Intercalation pseudocapacitance in electrochemical energy storage: recent advances in fundamental understanding and materials development

Dielectric capacitors have drawn growing attention for their wide application in future high power and/or pulsed power electronic systems. However, the recoverable energy storage density (Wrec) for dielectric ceramics is relatively low up to now, which largely restricts their actual application. Herein, the domain engineering is employed to construct relaxor antiferroelectric NaNbO3 ...

Researchers have studied the integration of renewable energy with ESSs [10], wind-solar hybrid power generation systems, wind-storage access power systems [11], and optical storage distribution networks [10].The emergence of new technologies has brought greater challenges to the consumption of renewable energy and the frequency and peak regulation of ...

Consequently, it is crucial to explore energy storage systems to absorb and release such green energy round the clock. Among them, phase change energy storage as a significant energy storage technology has attracted the attention of both academia and industrial world in the fields of solar power and other related thermal regulations.

These findings and insights unveil a new general and transformative guidance for designing porous framework materials and systems for high-rate ion conduction, energy storage, and energy conversion. Molecular design of covalent organic framework photocatalysts Yongzhi Chen and Donglin Jiang* Nature Synthesis 2024, 3, 939-940.

Jian Jiang ... Key Laboratory for Photonic and Electronic Bandgap Materials, Ministry of Education, School of Physics and Electronic Engineering, Harbin Normal University, Harbin, China ... [84-90] This concept gives birth to viable energy-storage prototypes by using redox couples of Fe 3+ /Fe 2+ and Fe 2+ /Fe with a standard ...

Dielectric ceramics with outstanding energy-storage performances are nowadays in great demand for pulsed power electronic systems. Here, we propose a synergistic design strategy to significantly enhance the energy-storage properties of (1 - x)(0.94Na0.5Bi0.5TiO3-0.06BaTiO3)-xCaTi0.75Ta0.2O3 solid solution ceramics through introducing polar ...

Aqueous metal-air batteries with high theoretical energy densities, based on zinc (Zn), aluminum (Al), magnesium (Mg), and iron (Fe), have attracted renewed interest as a promising energy storage candidate for mobile and electronic devices, benefiting from the advantages of low cost, abundant raw materials, environmental friendliness, and ...

In this work, we report a 90 µm-thick energy harvesting and storage system (FEHSS) consisting of high-performance organic photovoltaics and zinc-ion batteries within an ...

The fast-response feature from a superconducting magnetic energy storage (SMES) device is favored for suppressing instantaneous voltage and power fluctuations, but the SMES coil is much more ...

The energy storage capacity could range from 0.1 to 1.0 GWh, potentially being a low-cost electrochemical battery option to serve the grid as both energy and power sources. In the last decade, the re-initiation of LMBs has been triggered by the rapid development of solar and wind and the requirement for cost-effective grid-scale energy storage.

Fig. S1 shows the surface energy of different terminations and surface rearrangements of the (010) slab within a 1 × 1 cell. The surface energy of the Li/O-terminated surface was lower than that of the Li/Mn/O-terminated one. However, the rearrangement can reduce the surface energy when surface Mn ions exist with a less than six-fold ...

An atomistic effective Hamiltonian technique is used to investigate the finite-temperature energy storage properties of a ferroelectric nanocomposite consisting of an array of BaTiO$_{3}$ nanowires embedded in a SrTiO$_{3}$ matrix, for electric field applied along the long axis of the nanowires. We find that the energy density textit{versus} temperature curve ...

A bulk-type compact composite electrode was designed and prepared by standard ball milling and sintering with LiNi0.5Co0.2Mn0.3O2, 0.44LiBO2·0.56LiF, and In2O5Sn (ITO).

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DOI: 10.1016/j.cej.2021.133447 Corpus ID: 243835976; Superior energy storage BaTiO3-based amorphous dielectric film with polymorphic hexagonal and cubic nanostructures @article{Jiang2021SuperiorES, title={Superior energy storage BaTiO3-based amorphous dielectric film with polymorphic hexagonal and cubic nanostructures}, author={Xuewen Jiang ...

Supercapacitors are increasingly used for energy conversion and storage systems in sustainable nanotechnologies. Graphite is a conventional electrode utilized in Li-ion ...

As one of the important electronic components, the dielectric capacitors for energy storage applications have been extensively studied in recent years. Among various dielectric materials, the perovsk...

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The ceramic capacitors with excellent energy storage properties and wide operating temperature are the main challenges in power system applications. Here, the lead-free (1-x)Bi0.5Na0.5TiO3-xCaTiO3 (a...

A comprehensive overview of charge-storage mechanisms for ferruginous anodes in different aqueous electrolytes, and newly developed iron-based electrochemical energy storage devices is presented. The...

Hedong Jiang"s 19 research works with 413 citations and 605 reads, including: Redox Molecule Adsorbed Graphene Films with Compact Structure for Electrochemical Energy Storage

Energy Technology is an applied energy journal covering technical aspects of energy process engineering, including generation, conversion, storage, & distribution. High entropy alloys (HEAs) have attracted substantial attention in diverse fields, including hydrogen storage, owing to their unique structural and functional properties.

High entropy alloys (HEAs) have attracted substantial attention in diverse fields, including hydrogen storage, owing to their unique structural and functional properties. The diverse components of HEAs have made them a focal point in research, aiming to develop new hydrogen storage materials with exceptional comprehensive properties.

Supercapacitors are increasingly used for energy conversion and storage systems in sustainable nanotechnologies. Graphite is a conventional electrode utilized in Li-ion-based batteries, yet its specific capacitance of 372 mA h g-1 is not adequate for supercapacitor applications. Interest in supercapacitors is due to their high-energy capacity, storage for a ...

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Accordingly, the energy storage and release of nanoencapsulated PCMs has been become an important field in many applications such as electronic devices, food industry, buildings, solar energy ...

An overview of the relevant related works. a Implantable batteries and the experimental animal models.b Working mechanism of the Zn-MnO 2 batteries. c Schematics of introducing the Sn hetero nucleus and its effects on mitigating dendrite growth and hydrogen evolution reaction. Experimental Section Materials. All the reagents are of analytical purity and used as received ...

One of the long-standing challenges of current lead-free energy storage ceramics for capacitors is how to

improve their comprehensive energy storage properties effectively, that is, to achieve a synergistic improvement in the breakdown strength (E b) and the difference between maximum polarization (P max) and remnant polarization (P r), making ...

Dielectric and antiferroelectric materials are particularly promising for high-power energy-storage applications. However, relatively low energy density greatly hinders their usage in storage technologies. Here, we report first-principles-based calculations predicting that epitaxial and initially non-polar AlN/ScN superlattices can achieve an ultrahigh energy density of up to 200 ...

With the elastic energy storage-electric power generation system, grid electrical energy can drive electric motors to wind up a spiral spring group to store energy when power ...

DOI: 10.1016/J.CEJ.2021.130130 Corpus ID: 235531443; Enhanced energy storage properties of lead-free NaNbO3-based ceramics via A/B-site substitution @article{Jiang2021EnhancedES, title={Enhanced energy storage properties of lead-free NaNbO3-based ceramics via A/B-site substitution}, author={Jie Jiang and Xiangjun Meng and Ling Li and Ji Zhang and Shun Guo ...