

Polyimide (PI) has received great attention for high-temperature capacitive energy storage materials due to its remarkable thermal stability, relatively high ...

Achieving Excellent Energy Storage Properties in Fine-Grain High-Entropy Relaxor Ferroelectric Ceramics
Advanced Electronic Materials (IF 5.3) Pub ...

5 · Abstract Multilayer ceramic capacitors (MLCCs) with ultrahigh power density are critical components in electronic products. However, with the accelerating miniaturization and ...

For the development of high energy density capacitors with dielectric materials, the material with slim P-E hysteresis loops and high ...

Advanced materials play a critical role in enhancing the capacity and extending the cycle life of energy storage devices. High-entropy materials (HEMs) with controlled ...

1. Introduction Dielectric materials find wide usages in microelectronics, power electronics, power grids, medical devices, and the military. Due to the vast demand, the ...

In this review, we summarize the recent progress on the HEMs related to their electrochemical energy storage applications. Firstly, the concept of HEMs will be introduced. Then, synthetic ...

These findings are significant in facilitating the development of high-performance film dielectric capacitor materials using PMMA-based nanocomposites toward high energy ...

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1 · High-entropy sulfides, characterized by multiple metal cations, offer unique electronic and structural properties that make them promising candidates for energy storage applications. In ...

Polymer-based dielectric capacitors are widely-used energy storage devices. However, although the functions of dielectrics in applications like high-voltage direct current ...

The dielectric compound may store the electric energy via its polarization in the presence of external electric field and therefore be used for various ...

Abstract Due to a steady increase of electrical energy consumption, the demand for high-performance energy

storage materials becomes more urgent than ever. Compared to ...

We propose a microstructural strategy with dendritic nanopolar (DNP) regions self-assembled into an insulator, which simultaneously ...

New active materials with high pseudocapacitance beyond electronic double layer capacitance and novel devices with high working voltage, are two approaches toward "dual ...

In this perspective, we start with the early development of high-entropy materials and the calculation of the configurational entropy. Then, we summarize the recent progress in ...

However, electronic conductivity, the number of intercalation sites, and stability during extended cycling are also crucial for building high-performance energy storage devices.

To this end, ingesting sufficient active materials to participate in charge storage without inducing any obvious side effect on electron/ion transport in the device system is ...

Materials offering high energy density are currently desired to meet the increasing demand for energy storage applications, such as pulsed ...

High-entropy materials (HEMs), including high-entropy alloys (HEAs), high-entropy oxides (HEOs), and other high-entropy compounds, have gained significant interests over the past ...

Abstract: High-entropy oxides (HEOs), with their multi-principal-element compositional diversity, have emerged as promising candidates in the realm of energy materials. This review ...

Electrochemical energy storage technologies have a profound influence on daily life, and their development heavily relies on innovations in materials science. Recently, high ...

Dielectric energy storage materials in electrostatic form are widely used in various advanced electronic devices and power systems, 1, 2 such as large-scale energy ...

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5 · Abstract Multilayer ceramic capacitors (MLCCs) with ultrahigh power density are critical components in electronic products. However, with the ...

The large maximum polarization P_{max} and low remnant polarization P_r in relaxor ferroelectrics are key features for the energy storage density (W) and energy-storage ...

High Energy Storage Properties and Electrical Field Stability of Energy Efficiency of $(Pb_{0.89}La_{0.11})(Zr_{0.70}Ti_{0.30})_{0.9725}O_3$ Relaxor Ferroelectric Ceramics Electronic Materials ...

Electrical equipment and electronic devices with high power density and integration have been developed in recent years. Glass-ceramic materials with ...

Dielectric ceramics with high energy storage performance are crucial for advanced high-power capacitors. Atomic-scale investigations ...

The electrical performance of high energy storage density materials has always been a research direction that has received high attention. This study used three typical high ...

High recoverable energy density ($W_{rec} \sim 2.1 \text{ J/cm}^3$) was obtained in $(0.7 - x)BiFeO_3 - 0.3BaTiO_3 - x Bi$ ($Zn_{2/3}Nb_{1/3}O_3 + 0.1 \text{ wt} \% \dots$

Polyimide (PI) has received great attention for high-temperature capacitive energy storage materials due to its remarkable thermal stability, relatively high breakdown strength, strong ...

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