Nature communications energy storage

We also extend the highly polarizable concentrated dipole glass to the prototype multilayer ceramic capacitor, which exhibits record-breaking recoverable energy density of ~26.3 J cm-3 ...

Here, the authors propose a high-entropy strategy to design "local polymorphic distortion" in lead-free ceramics, achieving high energy storage performance.

The authors synthesize metal-organic cage crosslinked nanocomposites by incorporating self-assembled metal-organic cages with amino reaction sites into the ...

Here, authors showed an uncommon charge storage mechanism in a high-rate conjugated polyelectrolyte and demonstrated practical pouch and solid-state pseudocapacitor ...

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Improving the accessibility of ions in the electrodes of electrochemical energy storage devices is vital for charge storage and rate performance. Here, the authors report a new type of MXene ...

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Grain alignment and polarization engineering were simultaneously utilized to enhance the energy storage performance of Na1/2Bi1/2TiO3-based multilayer ceramic ...

Dielectric polymers are widely used in electrostatic energy storage but suffer& nbsp;from low energy density and efficiency at elevated temperatures. Here, the ...

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The authors demonstrate enhanced energy storage performance and thermal stability in lead-free Bi0.5Na0.5TiO3-based multilayer capacitors by employing a hierarchical ...

The authors propose a strategy for designing chemical short-range ordering in high-entropy ferroelectric ceramics, where elements with chemical short-range order exhibit ...

The authors report the enhanced energy storage performances of the target Bi0.5Na0.5TiO3-based multilayer

ceramic capacitors achieved via the design of local ...

227,Nature?Nature Communications?202516"Enhanced energy storage performance of nano-submicron structural dielectric films by suppressed ferroelectric phase...

Differentiating the structural order of the commensurate modulated antiferroelectric can double the energy storage density of ceramics to over 23 J/cm3 while maintaining their efficiency.

Supercapacitors represent an important strategy for electrochemical energy storage, but are usually limited by relatively low energy density. Here we report a three ...

Flexible laminated polymer nanocomposites with the polymer layer confined are found to exhibit enhanced thermal stability and improved high-temperature energy storage ...

Dielectric materials with high energy storage performance are desirable for power electronic devices. Here, the authors achieve high energy density and efficiency ...

We investigate the potential of energy storage technologies to reduce renewable curtailment and CO2 emissions in California and Texas under varying emissions taxes.

The authors present an equimolar-ratio element high-entropy strategy for designing high-performance dielectric ceramics and uncover the immense potential of ...

Here, authors apply an ultrathin conductive lithium borate glass coating via a simple dry process, which enables improved long-term cycling, a high areal capacity, and high ...

Here, the authors optimize TENG and switch configurations to improve energy conversion efficiency and design a TENG-based power supply with energy storage and output ...

The editors at Nature Communications, Communications Materials, and Scientific Reports invite original research articles about dielectric materials for energy storage ...

The authors utilize a high-entropy design strategy to enhance the high-temperature energy storage capabilities of BaTiO3-based ceramic capacitors, realizing energy ...

The authors realize the enhancement of energy storage performance of NaNbO3-based multilayer ceramic capacitors guided by phase-field simulation through the ...

Authors reveal microstructural origin of enhanced dielectric energy storage and develop a framework directly relating local inhomogeneity to dielectric properties. The results ...

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