

To further improve the performance of thermal energy storage (TES) system with phase change materials (PCMs), this paper proposed a novel method, i.e. combining the additions of TiO₂ nanoparticles, metal foam and the provision of ultrasonic field, investigated its synergetic effects in enhancing conduction and convection heat transfer.

The immense potential of lead-free dielectric capacitors in advanced electronic components and cutting-edge pulsed power systems has driven enormous investigations and evolutions heretofore. One of the significant challenges in lead-free dielectric ceramics for energy-storage applications is to opti ...

In his speech, XJTU President Wang Shuguo pointed out that the energy revolution is related to the sustainable development of the world in the future, and more importantly, the great rejuvenation of the Chinese nation. Wang said he believes that constructing the energy storage platform can solve the problem of energy technology innovation.

Professor Lou Xiaojie from Xi'an Jiaotong University (XJTU) and collaborators have enhanced the high-temperature energy storage performance of tetragonal tungsten bronze dielectric ceramics using high-entropy strategies and bandgap engineering, building on their previous work (Adv. Mater. 2024,36, 2310559).

The School of Chemistry of Xi'an Jiaotong University (XJTU) is derived from the Department of Chemistry (founded in 1928) of National Chiao Tung University. ... The school now comprises Shaanxi Province University Engineering Research Center for Energy Storage Materials and Chemistry, a University-Enterprise Joint Research Center for Power ...

To explore the methods of overcoming the two inherent drawbacks of renewable energy sources (i.e., intermittency and fluctuation), a novel compressed-air based pumped hydro energy storage (CA-PHES) system is proposed using the laws of thermodynamics and the principle of cascade energy utilization in this paper.

2019,ACS APPLIED ENERGY MATERIALS Improved Energy Storage Density performance of the (1-x)[0.88BaTiO₃-0.12Bi(Li_{0.5}Nb_{0.5})O₃]-x(0.8BaTiO₃-0.2SrTiO₃) Lead-Free Ceramics 2023,MATERIALS RESEARCH BULLETIN Tuning the microstructure of BaTiO₃@SiO₂ core-shell nanoparticles for high energy storage composite ceramics

At 400 C, the energy storage density of the capacitor reaches 85 J per cubic meter, with an energy storage efficiency exceeding 81 percent. Additionally, after one million charge/discharge cycles, the energy storage characteristic change rate is less than 2 percent, demonstrating excellent high-temperature energy storage

performance.

XJTU research team makes significant progress in high-temperature energy storage dielectric capacitors August 07, 2024 Professor Liu Ming's team from the School of Microelectronics at Xi'an Jiaotong University (XJTU) and their collaborators abandoned traditional design strategies and applied metadielectrics to the design of high-temperature ...

:hanxiaoqu@mail.xjtu .cn. ... Karellas S. Life cycle environmental hotspots analysis of typical electrochemical, mechanical and electrical energy storage technologies for different application scenarios: Case study in China[J]. ... Energy Procedia, 2017, 105: 1614-1621 (EI: 20172503792296)

Dielectric capacitors with high energy storage performance are highly needed parts in modern electronic devices. In this work, we realized high energy storage performance by regulating the electron transport based on the barrier height in the sandwich structures of $\text{Ba}(\text{Hf}_{0.17}\text{Ti}_{0.83})\text{O}_3$ (BHT) and $0.85\text{BaTiO}_3\text{-}0.15\text{Bi}(\text{Mg}_{0.5}\text{Zr}_{0.5})\text{O}_3$ (BT-BMZ). It was found ...

A PhD candidate at XJTU's Energy Storage program typically receives a stipend ranging from 3,000 to 7,000 CNY per month, alongside potential funding for research projects and travel allowances. 2. In addition to the monthly stipend, the total compensation may include a waiver of tuition fees and other academic costs. 3. The financial aspects ...

Carnot battery is a novel and promising technology that can realize large-scale energy storage. This investigation focuses on a Carnot battery energy storage system based on the CO_2 transcritical cycle, six system configurations employing different thermal energy storage materials and with or without recuperation are firstly designed and the thermodynamic parameters are ...

This study provides evidence that developing high-entropy relaxor ferroelectric material via equimolar-ratio element design is an effective strategy for achieving ultrahigh energy storage characteristics. Our results also uncover the immense potential of tetragonal tungsten bronze-type materials for advanced energy storage applications.

:zhichengzhang@xjtu .cn. ... Significant improvement in high-temperature energy storage performance of polymer dielectrics via constructing a surface polymer carrier trap layer. J. Mater. Chem. A., 2022, 10, 24611-24619. 2. Meirong Zhang, Xiao Zhang, Bofeng Zhu, Shaobo Tan, Honghong Gong, Xiaoyong Wei, Zhicheng Zhang. High ...

Time: Beijing time 19:30-21:30, July 29 to August 26 2024, every Monday and Thursday. Class sessions: 9 sessions, each session lasting 2 hours. Course format: Free online course. Introduction:. This course aims to comprehensively introduce the basic principles, cutting-edge applications, and engineering practices of advanced energy and new energy storage ...



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