

1 Introduction. With the development of (hybrid) electrical vehicles, the demand for effective energy conversion and storage technologies has never been higher, [1-4] as conventional lithium-ion battery is approaching its theoretical limit (500 Wh kg⁻¹) for the emerging energy market. [5, 6] Lithium-air battery (LAB) represents a promising alternative, ...

Two one-dimensional nanowires, Fe₃O₄ and MnO₂ nanowires, were modified with polyphosphazene-derived carbon (PZSC) using in situ polymerization and high-temperature calcination methods. PZSC coated with MnO₂ nanowire (MnO₂/PZSCNW) was designed as the positive electrode, while PZSC coated with Fe₃O₄ nanowire (Fe₃O₄/PZSCNW) was designed ...

Poly(vinylidene fluoride) (PVDF) films with various crystal phases (a, v, and g phases) and varied crystallinities were fabricated via different processes. The influence of the crystalline properties, such as the crystallinity and crystal phases, on the breakdown strength and dielectric and energy storage properties of the films were studied. Under low electric field, the ...

Wearable All-Solid-State Supercapacitors with Ultrahigh Energy Density Based on a Carbon Fiber Fabric Electrode", *Advanced Energy Materials*, 2017, 7:1700409. 2. Zilei Wang, Shanglong Peng*, Yuxiang Wen, Tianfeng Qin, Qiming Liu, Deyan He, Guozhong Cao*, "High-Performance Si/Organic Hybrid Solar Cells using A

Polymer nanocomposites dielectrics have attracted increasing attention for electric energy storage applications in recent years due to their enhanced dielectric performance by combining the high permittivity of nanoparticles and the high electrical breakdown strength of polymer matrix. Herein we present a review of the recent advances in the modelling of ...

Ferroelectric materials have been widely used in electromechanical (EM) energy conversion such as energy harvesting, acoustic transducers for imaging, fault detection, ship navigation, and sensors and artificial muscles in robots (1, 2). Owing to their high pliability, easy fabrication into complicated shapes, light weight, and low cost, ferroelectric polymers are ...

Given the crucial role of high-entropy design in energy storage materials and devices, this highlight focuses on interpreting the progress and significance of this innovative work. ... Liu Y, Zhang Q, Qi J, Chen D, Su H, Yi D, Yang Y, Wei R, Cai H, Han H, Gu L, Nan CW, Lin YH. Ultrahigh energy storage in high-entropy ceramic capacitors with ...

DOI: 10.1016/J.PMATSCI.2018.12.005 Corpus ID: 140054764; Perovskite lead-free dielectrics for energy storage applications @article{Yang2019PerovskiteLD, title={Perovskite lead-free dielectrics for energy

storage applications}, author={Letao Yang and Xi Kong and Fei Li and Hua Hao and Zhenxiang Cheng and Hanxing Liu and Jingfeng Li and Shujun Zhang}, ...

The most anticipated and sponsored fields of study for rGO and its composites in the future are going to be energy harvesting and storage, environmental protection, biology, and medicine. Highly flexible and conductive poly (3, 4-ethylene dioxythiophene)-poly (styrene sulfonate) anchored 3-dimensional porous graphene network-based ...

With the development of (hybrid) electrical vehicles, the demand for effective energy conversion and storage technologies has never been higher, [1-4] as conventional lithium-ion battery is approaching its theoretical limit ...

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Crosslinked polymer nanocomposites that contain boron nitride nanosheets have outstanding high-voltage capacitive energy storage capabilities at record temperatures and have been demonstrated to preserve excellent dielectric and capacitive performance after intensive bending cycles, enabling broader applications of organic materials in high ...

This letter investigates dielectric responses of aromatic polyurea thin films fabricated through vapor deposition polymerization. The high quality polymer films exhibit high breakdown field (800 MV/m) and high-energy density ($>12 \text{ J/cm}^3$) at room temperature. These values decrease slightly from room temperature to $180 \text{ }^\circ\text{C}$. Linear dielectric responses were ...

DOI: 10.1016/j.job.2022.104165 Corpus ID: 246778396; Applications of reinforcement learning for building energy efficiency control: A review @article{Fu2022ApplicationsOR, title={Applications of reinforcement learning for building energy efficiency control: A review}, author={Qiming Fu and Zhicong Han and Jianping Chen and You Lu and Hongjie Wu and Yunzhe Wang}, ...

Hajime Shirai; Qiming Liu; Tatsuya Ohki; Ryo Ishikawa; Keiji Ueno, Optical Anisotropy and Compositional Ratio of Conductive Polymer PEDOT:PSS and Their Effect on Photovoltaic Performance of Crystalline Silicon/Organic Heterojunction Solar Cells, pp.137-159, Book chapter 5 in "Advances in Silicon Solar Cells" (Print ISBN: 978-3-319-69702-4, Online ISBN: 978-3 ...

DOI: 10.1016/j.job.2023.108345 Corpus ID: 266444254; Efficient model-free control of chiller plants via cluster-based deep reinforcement learning @article{He2023EfficientMC, title={Efficient model-free control of chiller plants via cluster-based deep reinforcement learning}, author={Kun He and Qiming Fu and You Lu and Jie Ma and Yi Zheng and Yunzhe Wang and Jianping ...

The vanadium flow battery (VFB) as one kind of energy storage technique that has enormous impact on the stabilization and smooth output of renewable energy. Key materials like membranes, electrode, and electrolytes will finally determine the performance of VFBs. In this Perspective, we report on the current understanding of VFBs from materials to stacks, ...

Xudong Wu, Xin Chen, Qiming Zhang Zhang and Daniel Q Tan, 2022, "Advanced dielectric polymers for energy storage", Energy Storage Materials, 44, pp. 29 Xiaoshi Qian, Xin Chen and Qiming Zhang, 2021, "High-entropy polymer produces a giant electrocaloric effect at low fields", Nature, 600, pp. 6

with net zero energy consumption Yonggang Zhao,¹ Qiming Liu,^{1,2,*} Yang Wang,¹ Hao Liu,¹ Mingzhi Lv,¹ Pu Cheng,¹ Yujun Fu,¹ Junshuai Li,¹ and Deyan He^{1,*} SUMMARY ... electrochemical energy storage performances and long lives of over 10,000 cycles in a wide temperature range of 20 C to 40C. Subsequently, prepared flexible ...

1. Introduction. Alternative technologies in the energy generation sector, miniaturization in the electronics industry, and electric mobility have opened up many doors for advancements in the field of energy storage [1]. Due to the high dielectric strength, various dielectric polymers, such as polypropylene, polycarbonate, and polyethylene terephthalate, were ...

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