

The Li-argyrodites, $\text{Li}_{6-x}\text{PS}_{5-x}\text{Cl}_{1+x}$ ($x = 0, 0.3, 0.5, 0.7, \text{ and } 0.8$), are prepared to investigate the correlation of anion chemistry, structure, and composition with ionic conductivity. To create more Cl⁻ at 4d sites, beyond the limit generated by spontaneous Cl-S exchange in $\text{Li}_6\text{PS}_5\text{Cl}$, more Cl is inserted into the structure to replace S at the 4d sites with ...

Wei Zhong. State Key Laboratory of Advanced Electromagnetic Technology, School of Electrical and Electronic Engineering, Huazhong University of Science and Technology, Wuhan, 430074 China ... The sufficient and reversible active lithium is the cornerstone for the operation of high-energy lithium-ion batteries. However, active lithium is ...

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Flexible dielectrics with high energy density (U_e) and low energy loss (U_l) under elevated electric fields are especially attractive for the next-generation energy storage devices, e.g., high-pulse film capacitors. However, raising U_e by introducing high dielectric constant materials generally increases U_l , which is detrimental to the devices. To overcome this trade-off, a new strategy ...

Electrodeposition drives uphill reactions by applying electric energy instead of heating. These features may enable electrodeposition to meet some needs for battery fabrication that conventional technologies can rarely achieve. The latest progress of electrodeposition technologies in Li-based batteries is summarized.

The ever continuing and rising demand for portable and wearable electronics requires new types of energy storage devices that can accommodate the desired multi-functionalities, such as being bendable [1, 2], squeezable [[3], [4], [5]], stretchable [6, 7] and foldable [8], while maintaining their electrochemical performance deed, the design and ...

Abstract. High-voltage lithium metal batteries (LMBs) are a promising high-energy-density energy storage system. However, their practical implementations are impeded ...

International Journal of Energy Research. ... Flux preparation of $\text{LiNi}_{0.6}\text{Co}_{0.2}\text{Mn}_{0.2}\text{O}_2$ micron-sized crystals as cathode materials for highly reversible lithium storage. Yiheng Zong, Yiheng Zong. Department of Materials Engineering, Changshu Institute of Technology, Changshu, China ... Yiheng Zong. Department of Materials Engineering ...

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Li Zhong. Institution. University of Pittsburgh. Projects. Surface/Interface Induced Nucleation and Phase/Structure Evolution and the Correlation to the Performance Boosting/Fading of Advanced Energy Storage Materials. Lead Institution. Pacific ...

Lithium-ion batteries are an important power source and have dominated portable electronics [1, 2]. Nonetheless, the development of advanced energy-storage battery technology systems beyond conventional lithium-ion batteries is critical for various high demand energy storage applications such as electric vehicles and grid-level storage [3, 4]. Among ...

Lianbo Ma #; Juntong Wu #; Yang Li; Yaohui Lv; Baohua Li*; Zhong Jin*; Rational design of carbon nanotube architectures for lithium-chalcogen batteries: Advances and perspectives, Energy Storage Materials, 2021, 42: 723~752.

High-temperature dielectric polymers have a broad application space in film capacitors for high-temperature electrostatic energy storage. However, low permittivity, low energy density and poor thermal conductivity of high-temperature polymer dielectrics constrain their application in the harsh-environment electronic devices, especially under elevated temperatures.

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Lin Zong-Qiong. Northwestern Polytechnical University. ... Solution-processed nitrogen-rich graphene-like holey conjugated polymer for efficient lithium ion storage. ZQ Lin, J Xie, BW Zhang, JW Li, J Weng, RB Song, X Huang, H Zhang, ... Nano Energy 41, 117-127, 2017. 174: 2017: Nanostructured conjugated polymers for energy-related ...

All-solid-state Li-S batteries (ASSLSBs) have exhibited great promise as next-generation energy storage systems due to the elimination of the shuttle effect and flammability. However, the low reactivity of sulfur and poor solid-solid contact in the composite cathode result in limited electrochemical performances.

Dr. N. Ding, Dr. D.-S. Geng, S.-W. Chien, Dr. T. An, Prof. T. S. A. Hor, Dr. Z.-L. Liu, Dr. Y. Zong Institute of Materials Research and Engineering (IMRE) A*STAR (Agency for Science, Technology and Research) 3 Research Link, Singapore 117602, Republic of Singapore E-mail: zl-liu@imre.a-star .sg; y-zong@imre.a-star .sg Dr. S.-F. Chen, Prof. S.-H. Yu ...

Abstract. Zinc-air batteries deliver great potential as emerging energy storage systems but suffer from sluggish kinetics of the cathode oxygen redox reactions that render ...

Hanyun Zhong, Jing Wang, Xiaowei Mu, Ping He, Haoshen Zhou. Article 103292 View PDF. Article preview. ... decorated bilayer carbon structures for polysulfide conversion and dendrite-free lithium toward high-performance Li-S full cell" [Energy Storage Materials Volume 62 ...

A multiscale construction strategy is proposed to rationally integrate multiple active sites into composite electrocatalysts. NiFe-layered double hydroxides and cobalt coordinated framework porphyrin...

Glassy polymer dielectrics exhibit significant advantages in energy storage density and discharge efficiency; however, their potential application in thin-film capacitors is limited by the complexity of the production process, rising costs, and processing challenges arising from the brittleness of the material. In this study, a small amount of the polar monomer ...

Solid-state lithium (Li) metal batteries, employing solid electrolytes, with high energy density and enhanced safety are promising choices for next-generation electrochemical energy storage devices. However, the large interfacial resistances seriously hinder their commercialization.

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