Wang Liang Lithium Battery

Are all-solid-state lithium-metal batteries Coulombic?
Such all-solid-state lithium-metal batteries (ASSLMBs) demonstrate a high initial coulombic efficiency of 98.1%based on lithium cobalt oxide and a high discharge capacity of 166.9 microampere hours per gram based on single-crystal LiNi 0.6 Mn 0.2 Co 0.2 O 2.

Do recycled cathode materials improve performance of lithium-ion batteries?
Ma,X. T. et al. Recycled cathode materials enabled superior performancefor lithium-ion batteries. Joule 5,2955-2970 (2021). Xu,P. P. et al. Efficient direct recycling of lithium-ion battery cathodes by targeted healing. Joule 4,2609-2626 (2020).

Why are lithium metal batteries becoming a solid-state electrolyte?
1. Introduction The growing demand for advanced energy storage systems,emphasizing high safety and energy density,has driven the evolution of lithium metal batteries (LMBs) from liquid-based electrolytes to solid-state electrolytes (SSEs) in recent years.

Are halide-based lithium-metal batteries compatible with all-inorganic solid-state batteries?
Stable All-Solid-State Lithium Metal Batteries Enabled by Machine Learning Simulation Designed Halide Electrolytes. Bilayer Halide Electrolytes for All-Inorganic Solid-State Lithium-Metal Batteries with Excellent Interfacial Compatibility. Prospects of halide-based all-solid-state batteries: From material design to practical application.

How are lithium batteries disassembled?
These batteries were first discharged by soaking them in a NaCl solution to ensure safety during disassembly. After drying,they were manuallydisassembled and separated into cathodes,anodes,separators,and shells. The cathode powder (S-LFP) was obtained after separation from the Al foils.

How does residual lithium content affect the cost of degraded LFP batteries?
We assume that the residual lithium content is a critical factor in the degraded LFP batteries, which determines the cost of the different routes and the revenue they produce. For the hydro-route, a typical sulfur acid leaching technology was chosen as ref. 47. Figure 5b shows the different costs involved based on the real market price in China.

Rechargeable lithium-oxygen (Li-O2) batteries have attracted wide attention due to their high energy density. However, the sluggish cathode kinetics results in high overvoltage and poor cycling performance. ... Yu-Zhe Wang, Zhuo-Liang Jiang, Bo Wen, Yao-Hui Huang, Fu-Jun Li. Recent Advances on Ruthenium-Based Electrocatalysts for Lithium-Oxygen ...

Sulfide electrolyte (SE)-based all-solid-state lithium batteries (ASSLBs) have gained worldwide attention

because of their instrinsic safety and higher energy density over ...

A Nonflammable High-Voltage 4.7 V Anode-Free Lithium Battery. P Liang, H Sun, CL Huang, G Zhu, HC Tai, J Li, F Wang, Y Wang, ... Advanced Materials 34 (51), 2207361, 2022. 60: ... RA Tong, H Zhang, P Liang, CA Wang, M Zhong. Journal of Alloys and Compounds 787, 295-300, 2019. 8: 2019: Analysis of Si, Cu, and Their Oxides by X-ray ...

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All-solid-state lithium-metal batteries (ASSLMBs) are attracting tremendous attention because of their high theoretical energy density and much-improved safety (1, 2). ...

High-entropy oxide (HEO) is a novel type of anode material for lithium-ion batteries (LIBs), exhibiting high specific capacity and excellent cycle stability. ... Jingfeng and Li, Kun and Liang, Yongxing and Wang, Guiting and Zhang, Zhi and Guo, Chenfeng, A Novel Co-Free High-Entropy Oxide (Fenicrmnmgal)3o4 as Advanced Anode Material for Lithium ...

The recycling of spent lithium-ion batteries is an effective approach to alleviating environmental concerns and promoting resource conservation. ... Wang, J., Liang, Z. et al. Direct regeneration ...

Sulfide electrolyte (SE)-based all-solid-state lithium batteries (ASSLBs) have gained worldwide attention because of their instrinsic safety and higher energy density over conventional ...

Such all-solid-state lithium-metal batteries (ASSLMBs) demonstrate a high initial coulombic efficiency of 98.1% based on lithium cobalt oxide and a high discharge capacity of ...

Hongmei Liang"s 27 research works with 325 citations and 2,708 reads, including: Boosting the Intrinsic Stability of Lithium Metal Anodes by an Electrochemically Active Encapsulating Framework ...

The development of flexible lithium-ion batteries (LIBs) imposes demands on energy density and high mechanical durability simultaneously. Due to the limited deformability of electrodes, as well as the flat and smooth surface of the metal current collectors, stable/durable/reliable contact between electrode materials and the current collectors remains ...

Shi, Jie and Li, Ping and Han, Kun and Sun, Dong and Zhao, Wang and Liu, Zhiwei and Liang, Gemeng and Davey, Kenneth and Guo, Zaiping and Qu, Xuanhui, High-Rate and Durable Sulfide-Based All-Solid-State Lithium Battery with in situ Li 2 O Buffering.

Lithium-sulfur (Li-S) batteries with the merits of high theoretical capacity and high energy density have gained significant attention as the next-generation energy storage devices. Unfortunately, the main pressing

issues of sluggish reaction kinetics and severe shuttling of polysulfides hampered their practical application. To overcome these obstacles, various strategies ...

Lithium-ion battery (LIB) anodes using red phosphorus materials are promising with the advantages of high capacity, low price, and abundant reserves. ... Tao Wang. National Supercomputer Research Center of Advanced Materials, Advanced Materials Institute, Qilu University of Technology (Shandong Academy of Sciences), Jinan, 250014 P. R. China ...

Haichen Liang. Department of Chemistry, Laboratory of Advanced Materials, Shanghai Key Lab of Molecular Catalysis and Innovative Materials, and State Key Laboratory of Molecular Engineering of Polymers, ...

Several high-quality reviews papers on battery safety have been recently published, covering topics such as cathode and anode materials, electrolyte, advanced safety batteries, and battery thermal runaway issues [32], [33], [34], [35] pared with other safety reviews, the aim of this review is to provide a complementary, comprehensive overview for a ...

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