

In situ-polymerized lithium salt as a polymer electrolyte for high-safety lithium metal batteries Shenghang Zhanga,b,c,h, Fu Suna, Xiaofan ... which was kept out of the direct beam by using a mirror. 2400 projections within a 180°; battery rotation were recorded with the exposure time of 25 ms. The field of view (FOV) was 3.28 × 2.46 ...

The practical usage of sodium metal batteries is mainly hampered by their potential safety risks caused by conventional liquid-state electrolytes. Hence, solid-state ...

Solid-state metallic potassium batteries (SSMPBs) afresh have attracted incremental attention because of their potential to supplement solid-state metallic lithium batteries. However, SSMPBs suffer poor electrochemical performances due to the low ionic conductivity of solid electrolytes and huge electrode/electrolyte interfacial resistance. Herein, high-rate ...

Rechargeable room-temperature (RT) sodium-sulfur (Na-S) batteries hold great potential for large-scale energy storage owing to their high energy density and low cost. However, their practical application is hindered by challenges such as polysulfide shuttling and Na dendrite formation. In this study, a dual salt-based quasi-solid polymer electrolyte (DS-QSPE) was ...

Solid polymer electrolytes (SPEs) represent a pivotal advance toward high-energy solid-state lithium metal batteries. However, inadequate interfacial contact remains a ...

A simplified and greener procedure for in-situ obtaining polyimide anode materials for lithium-ion battery electrodes is developed. The combined polyimide material synthesis and electrode preparation reduces the number of processing steps and treatment duration and decreases the energy required for heat treatment, solvent evaporation, and organic solvent use.

In Situ Polymerized Fluorine-Free Ether Gel Polymer Electrolyte with Stable Interface for High-Voltage Lithium Metal Batteries. Xuanfeng Chen, Xuanfeng Chen. ... Lithium metal batteries offer increased energy density compared to traditional lithium-ion batteries. Commercial carbonate-based electrolytes are incompatible with lithium metal anodes ...

In situ-polymerized lithium salt as a polymer electrolyte for high-safety lithium metal batteries+. Shenghang Zhang abch, Fu Sun a, Xiaofan Du a, Xiaohu Zhang a, Lang Huang a, Jun Ma a, ...

The in-situ polymerized PDOL interlayer could match with the solvent-sensitive lithium argyrodite while enabling a stable and tight lithium interface. The symmetric lithium cell with the PDOL interlayer exhibits over-1200-hour dendrite-free lithium deposition and stripping at 0.5 mA cm⁻², and the critical current density

reaches 2.7 mA cm⁻² .

To verify the battery performance of the designed electrolyte, the integrated solid-state cells were assembled employing the in-situ polymerized PEL electrolyte on LiFePO₄ cathode and metallic lithium as anode. The in-situ procedure would endow the integrated batteries with enhanced interface compatibility between cathode and electrolyte, which can adapt the ...

The in situ polymerization strategy can achieve good interfacial contact between SPEs and electrodes, significantly reducing the interfacial resistance. This paper comprehensively reviews the latest in situ ...

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