

A novel Sn-graphite dual-ion battery (DIB) based on sodium-ion electrolyte is developed, using Sn foil as both anode and current collector. The Sn-G DIB presents a reversible capacity of 74 mA h g⁻¹ at 2 C rate and ...

S1 Supporting Information Tin-Graphite Composite as a High-Capacity Anode for All-Solid-State Li-Ion Batteries Thangavelu Palaniselvam,a,b* Annica I. Freytag,c Hyein Moon,d Knut Arne Janßena Stefano Passerinid Philipp Adelhelma,c* aInstitute of Chemistry, Humboldt -University of Berlin, Brook Taylor Strasse 2, 12489 Berlin, Germany.

At 0.02 mA cm⁻², the Sn/Graphite electrode delivers a gravimetric capacity of 470 mAh g (Sn/Graphite)-1, i.e., close to its theoretical value. At 0.1 mA cm⁻², the capacity is 330 mAh g⁻¹ (second cycle) but drops to 84 mAh g⁻¹ after ...

Tin nanoparticles are a promising candidate for Li-ion battery anodes to replace carbon materials due to their high theoretical Li-ion storage capacity (994 mAh g⁻¹), which is much higher than ...

The positive electrode incorporates a graphite film modified with a stable and conductive phosphate, referred to as GFN. This approach enables the development of an all-solid-state Sn-C ion secondary battery while prioritizing safety and environmental friendliness.

Converting waste graphite into battery-grade graphite can effectively reduce manufacturing cost and environmental impact. While recycled scrap graphite may not meet ...

We demonstrate how the equations can be applied to aid in the design of electrodes by comparing silicon-graphite and tin-graphite composite negative electrodes as ...

DOI: 10.1002/aenm.201601963 and cost effective, their energy densities are moderate and still have plenty room for improvement. Our group recently developed novel aluminum-graphite DIBs using an aluminum foil directly as both the anode and current collector.[8] The key point for successful working of the novel batteries is that AlLi alloy was formed and ...

The most successful strategy was adopted by Sony where an amorphous nanocomposite of tin with cobalt and carbon gave capacities 30% higher than graphite and used in a commercial lithium-ion battery. The use of nanotechnology principles to make better materials has proven to be successful and can be generalized to other lithium alloyable metals with ...

Testing of the tin interface on a lithium anode revealed a battery life cycle of more than 500 hours at a current

density of 3 milliamperes per square centimeter. The test was repeated without the protective interface and the ...

The goals of this work were to prepare and characterize nanosize tin based alloy-graphite composite anodes for a lithium-ion battery, and to study its degradation mechanism.

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