Host and battery

Are Li-S batteries a good host material?
Li-S batteries have fulfilled a major breakthrough over the last few years. However, recent research on sulfur host materials seems to level off. Designing an ideal host material still faces some challenges. As a conversion reaction electrode, sulfur converts into various soluble polysulfide intermediates during (de)lithiation.

Are host-guest interactions effective in constructing electrochemically stable and thermally safe lithium metal batteries?
The host-guest interactions are highly effectivein constructing electrochemically stable and thermally safe lithium metal batteries. To access this article,please review the available access options below. Read this article for 48 hours. Check out below using your ACS ID or as a guest.

What is the future of host-guest inclusion complexes in batteries?
Materials Innovation: The future of host-guest inclusion complexes in batteries lies in the innovation of new materials. Researchers are continually exploring novel host molecules and guest molecules to design complexes with improved performance,stability,and cost-effectiveness.

Are supramolecular host-guest systems incorporated into batteries systems?
Various models of supramolecular host-guest systems incorporated into batteries systems are closely discussed and elaborated. The ever-escalating demand for high-performance batteries with increased energy density and cycling capabilities necessitates extensive research in the domain of battery technology.

What are 2D host materials in Li-S batteries?
Based on the characters of various materials, three different families of 2D sulfur hosts have been proposed and discussed in detail: (1) Main group nonmetallic elements (C, B and P); (2) metal compounds; (3) covalent organic frameworks (COFs) (Fig. 11). Fig. 11. (a) Schematic of the basic requirements of 2D host materials in Li-S batteries.

Why is a sulfur host important for Li-S batteries?
A sulfur host is essential for polysulfide anchoring in the cathode. At present,there has not been a single host material that can address all the problems. Integrating the advantages of different types of host materials will further boost the performance of Li-S batteries.

Herein, we explore the use of BiOI as sole cathode material for a photo-assisted Zn-iodine battery that integrates the bifunctional roles of an iodine host and solar-responsive ...

In the present work, we conceive a new concept that use of a Si alloy host that not only allows Li to uniformly plate on the host surface with strong root due to a strong bonding to Li but also ...

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Therefore, it is urgent to develop new rechargeable battery technology to meet the needs of green economy. Up to now, lithium-ion batteries (LIBs) ... The host materials with ...

However, identifying a suitable photocathode with excellent iodine capture capabilities for photo-assisted Zn-iodine batteries still remains challenging. In this work, ...

In summary, this review has aimed to explore the applications of host-guest inclusion complexing molecules--cyclodextrins, calixarenes, cucurbiturils, and crown ...

Lithium-sulfur batteries (LSBs), as very promising lithium-ion batteries, have received widespread attention from researchers. However, the low conductivity of sulfur in ...

When we design a Li-S battery with high energy density, the ratio for Sulfur/Host should be as high as possible. The carbon-based hosts provide the best chance to achieve a ...

The design and development of sulfur host materials represents a promising approach for high-performance Li-S batteries. This review comprehensively discusses the recent advances of ...

2D materials, such as MoS 2, MXene and graphene, have long been extensively studied for applications in lithium-sulfur battery cathode host materials due to their ...

Stabilizing polysulfide shuttle while ensuring high sulfur loading holds the key to realizing high energy density of lithium-sulfur (Li-S) batteries. Herein we present our first ...

Introducing Li metal into a host is a promising strategy for stabilizing Li metal anode [36], [37], [38].Metallic Li, during charging/discharging, suffers from large volume ...

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In situ measurements and DFT calculations reveal that the transport kinetics of the Li + ions in the composite electrolyte can be accelerated by the introduced MOF host. This ...

In order to address these issues and improve the electrochemical performance ...

2D materials, such as MoS 2, MXene and graphene, have long been ...

A common problem facing lithium and zinc ion batteries is the evolution of H 2 gas and the formation of dendrites due to side reactions [119], these two factors result in poor ...

Song and co-workers proposed a facile thermally induced expansion approach to preparing a highly crumpled

Host and battery

N-G sheets as sulfur host for Li-S battery [82].

The design and development of sulfur host materials represents a promising approach for high-performance Li-S batteries. This review comprehensively discusses the recent advances of sulfur host mater...

In order to address these issues and improve the electrochemical performance and safety of lithium metal batteries, tuning the lithium deposition via structuring a host for Li ...

In the present work, we conceive a new concept that use of a Si alloy host that not only allows Li to uniformly plate on the host surface with strong root due to ...

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