

Despite the extensive application of low-valent metal-based MOFs for energy conversion and storage, high-valent 3d-metal-based MOFs and their related materials have ...

This chapter dedicates itself to an in-depth exploration of the energy storage mechanism of MOF-based cathode materials, bifurcating the analysis into two parallel streams: ...

Notably, MOF-based materials (including pristine MOFs, MOF composites, and their derivatives) play the vital role in electrochemical energy storage and conversion systems, ...

Here, we review the recent advances in thermal energy storage by MOF-based composite phase change materials (PCMs), including pristine MOFs, MOF composites, and ...

However, safe and efficient hydrogen storage is essential to the hydrogen energy chain. Metal-organic frameworks (MOFs) are potential solid hydrogen storage materials ...

Design criteria and opportunities: Overall, Li-O<sub>2</sub> batteries show promise for providing high-capacity energy storage to meet future energy consumption needs, and MOFs ...

Meanwhile, the regulation of morphology and nano-size, optimization of components and enhancement of electrical conductivity of bimetallic MOFs-based electrode ...

Supercapacitor (SC) is generally regarded as a promising electrochemical device in the field of energy storage. Electrode materials, as one of the components of SCs, play an ...

Metal-organic framework (MOF)-based materials with high porosity, tunable compositions, diverse structures, and versatile functionalities provide great scope for next ...

The rise of metal-organic frameworks (MOFs) that are distinctive class of porous materials has attained enormous consideration during the last decades owing to their ...

Metal-organic frameworks (MOFs) are a new class of crystalline porous hybrid materials with high porosity, large specific surface area and adjustable channel structure and ...

MOFs are an innovative class of hybrid materials composed of metal ions or clusters coordinated to organic ligands, forming porous, crystalline structures. Owing to their highly adjustable ...

However, the capacity, durability, and safety issues associated with traditional technologies are often

problematic. The rapidly developing field of metal-organic frameworks (MOFs) as ...

At present, the transformation of clean energy represented by hydrogen is a critical demand. Metal-organic frameworks (MOFs) possess immense potential for accelerating ...

A lot of effort has been done to identify better materials for energy storage devices in order to meet the need for more high-performance systems while also protecting the ...

Recent technological advances and increasing energy demands have triggered the development and synthesis of novel materials for efficient energy storage and conversion ...

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