

Chemically stable two-dimensional nanostructured graphene with huge surface area, high electrical conductivity and mechanical excellence ...

Abstract Graphene materials are attractive for use in novel aqueous electrochemical energy storage devices, including aqueous zinc-ion batteries (AZIBs) and ...

Abstract The need for high-performance and environmental friendly energy storage systems has prompted researchers to develop novel and improved electrode materials ...

We also discuss recent specific applications of graphene-based composites, from electrochemical capacitors and lithium-ion batteries to emerging electrochemical energy ...

Since the first exfoliation in 2004, graphene has been widely researched in many fields of materials engineering due to its highly appealing propertie...

The demand for high performance electrochemical energy storage devices has significantly increased in recent years and many efforts have been made to develop advanced ...

Owing to the unique two-dimensional (2D) planar structure, graphene has demonstrated excellent mechanical, electrical, chemical and thermal superiorities, which ...

MoS₂/Graphene composites have fascinating physical/chemical properties and have demonstrated their extensive capabilities to overcome the weaknesses of individual ...

Synthesis of structurally controlled graphene materials is critical for realizing their practical applications. The electrochemical exfoliation of graphite has emerged as a simple method to ...

Graphene quantum dots (GQDs) were discovered recently and their fascinating physical and chemical properties make them widely studied on the field energy ...

The following review presents a comprehensive report on the use of carbon-based polymer nanocomposites, specifically graphene and ...

The recent outbreak of graphene in the field of electrochemical energy storage has spurred research into its applications in novel systems such as magnesium-ion batteries (MIBs), which ...

Graphene is electrochemical energy storage

This investigation explored the application of graphene in energy storage device, absorbers and electrochemical sensors. To expand the utilization of graphene, its present ...

Transition metal sulfides based on graphene have been extensively investigated in the field of electrochemical energy storage applications, including lithium-ion batteries, ...

The recent advances in the holey graphene-based nanocomposites and their electrochemical energy storage applications are reviewed. Their formation mechanisms and ...

The graphene-metal oxide nanocomposites are studied extensively to put it into the electrochemical processes like energy storage, sensing, and catalytic processes [105].

Graphene and two-dimensional transition metal carbides and/or nitrides (MXenes) are important materials for making flexible energy storage devices because of their electrical and mechanical ...

Graphene and graphene-based materials have attracted great attention owing to their unique properties of high mechanical flexibility, large ...

Graphene and its hybrids have been considered promising candidates for electrochemical energy storage because of their fascinating physicochemical properties. ...

Graphene has attracted extensive research interest due to its strictly 2-dimensional (2D) structure, which results in its unique electronic, thermal, mechanical, and chemical properties and ...

Based on this, this review will discuss the novel synthesis of graphene for interdisciplinary applications of energy storage and conversion, ...

Graphene oxide with exceptional physical, chemical and electrochemical properties has shown great potential in energy storage devices. Here is an overview of its ...

The electrochemical study had been conducted on graphene by cyclic voltammetry, galvanostatic charge-discharge and impedance measurements, indicating its superb energy storage ...

These drawbacks are addressed by combining a superior type of carbon material, graphene, with WS₂ and WSe₂ to form a WS₂/WSe₂@graphene ...

This article focuses on graphene-based electrodes for electrochemical energy conversion and storage devices.^{1,2} As elaborated in the other feature articles in this issue, graphene is a 2D ...

hene in electrochemical energy-storage devices (EESDs). However, although such discussions always

highlight the advantages of graphene, they often lack an objective ...

Abstract With the nanomaterial advancements, graphene based electrodes have been developed and used for energy storage applications. Important energy storage devices ...

Since graphene was first experimentally isolated in 2004, many other two-dimensional (2D) materials (including nanosheet-like structures), such as transition metal ...

From biomass wastes to vertically aligned graphene nanosheet arrays: A catalyst-free synthetic strategy towards high-quality graphene for electrochemical energy storage

The ease of synthesis, lightweight, and cost-effectiveness of graphene, drive researchers to incorporate graphene-based nanocomposites into electrochemical energy ...

The ever-increasing demands for energy and environmental concerns due to burning fossil fuels are the key drivers of today's R&D of innovative energy ...

Graphene, with unique two-dimensional form and numerous appealing properties, promises to remarkably increase the energy density and power density of ...

We have investigated the Li-ion insertion properties of the self-assembled electrodes for energy storage and show that the SnO₂-graphene nanocomposite films can achieve near theoretical ...

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