Carbon-based electrochemical energy storage

This chapter summarizes recent developments in carbon nanomaterial synthesis and their use in electrochemical energy storage devices like batteries and supercapacitors. ...

This review summarizes the fabrication techniques of carbon-based fibers, especially carbon nanofibers, carbon-nanotube-based fibers, and ...

Highlights o Review on natural bast fibres based sustainable electrochemical energy storage devices. o Electrochemical performances of natural bast fibres (jute, flax, hemp, ...

Here, this review firstly focuses on the concept, classification, and physicochemical property of lignin. Then, the application research of lignin in the field of ...

Carbon-based materials, for example, graphene, activated carbon, carbon nanotubes, have gained massively focus because of their essential electrical, thermal and ...

Carbon-based fibers hold great promise in the development of these advanced EESDs (e.g., supercapacitors and batteries) due to their being lightweight, high electrical ...

The urgent need for efficient energy storage devices (supercapacitors and batteries) has attracted ample interest from scientists and researchers in ...

This comprehensive review provides a state-of-the-art overview of these advanced carbon-based nanomaterials for various energy storage ...

These characteristics make them appealing candidates for effective energy storage and electrocatalytic energy conversion applications. This review explores the recent ...

Given all that, this special issue selected 32 articles published in Materials Research Bulletin on the recent development of carbon-based materials for electrochemical ...

Materials with a core-shell structure have received considerable attention owing to their interesting properties for their application in ...

Carbon materials have been playing a significant role in the development of alternative clean and sustainable energy technologies. This review article summarizes the ...

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7 · Novel Averrhoa bilimbi Linn. water-based natural acidic aqueous electrolyte assembled with activated carbon from A. bilimbi L. fruit waste for electrochemical energy ...

Carbon, featured by its distinct physical, chemical, and electronic properties, has been considered a significant functional material for electrochemical energy storage and conversion systems. ...

Carbon-based nanomaterials, including graphene, fullerenes, and carbon nanotubes, are among the most rapidly emerging building blocks ...

Carbonaceous materials play a fundamental role in electrochemical energy storage systems. Carbon in the structural form of graphite is widely used as the active material in lithium-ion ...

Different structures and morphologies of carbon-based materials allows for a wide range of electrochemical properties, making some structures and morphologies more suited for ...

Carbon dots (CDs) and their composites as energy storage materials and electrocatalysts have emerged as new types of quasi-zero-dimensional carbon ...

Abstract In the laboratory, carbon-based nanomaterials have been shown to hold significant promise in improving the performance and reliability of energy storage and conversion devices. ...

As increasing attention has been paid to applications of lignin-derived energy storage materials in the last decade, most studies pursue the improvement of electrochemical ...

The increasing need to attain zero carbon emissions and harness renewable energy sources underscores the importance of advancing energy storage technologies. A recent focus has ...

Oxygen reduction reaction (ORR) and oxygen evolution reaction (OER) play curial roles in electrochemical energy conversion and storage, including fuel ...

Carbonaceous materials play a fundamental role in electrochemical energy storage systems. Carbon in the structural form of graphite is widely used as the active material ...

This book systematically summarizes the advanced development of carbon-based nanomaterials for electrochemical catalysis, and it is comprised of four ...

The use of conducting polymers and doped-conducting polymers, especially in the carbon-based electrochemical energy storage systems has shown numerous developments and applications ...

Because of damage to the environment and the energy crisis, the storage and use of sustainable energy, such as

solar and wind, has become urgent. Much attention has ...

The aim of this Joint Special Topic Collection in Applied Physics Letters and The Journal of Chemical Physics is to bring together articles that focus on an ...

Carbon dots (CDs) and their composites as energy storage materials and electrocatalysts have emerged as new types of quasi-zero-dimensional carbon materials. CDs can provide a large ...

Porous carbons are widely used in the field of electrochemical energy storage due to their light weight, large specific surface area, high electronic conductivity and structural ...

In this review, we discuss the research progress regarding carbon fibers and their hybrid materials applied to various energy storage devices (Scheme 1). Aiming to uncover ...

This review summarizes the fabrication techniques of carbon-based fibers, especially carbon nanofibers, carbon-nanotube-based fibers, and graphene-based fibers, and ...

Insights into activators on biomass-derived carbon-based composites for electrochemical energy storage Shun Lu a, Ling Fang a, Xi Wang b, Terence Xiaoteng Liu b, ...

Biomass-derived carbonaceous materials have attracted significant research interest for their potential applications in energy storage devices due to ...