

Carbon Fiber Reinforced Polymer (CFRP) has emerged as a material of choice in various industries due to its exceptional characteristics. One of its primary advantages is its impressive strength-to-weight ratio, making it particularly valuable in applications where both strength and reduced weight are essential, such as in aerospace and automotive sectors.

Hard carbon derived from bamboo for the anode material of sodium-ion batteries has a three-dimensional (3D) open framework structure and has naturally incorporated K-ions into its carbon structure, increasing the d-interlayer spacing of hard carbon materials for facilitating Na⁺ transport. In this work, bamboo-derived hard carbon was prepared via two carbonization ...

Laser-induced graphene (LIG) has drawn attention for energy storage devices owing to its fascinating material properties as well as for its use in the effective production of porous structures.

economical energy storage technologies for sustainable energy generation is essential and still continuously developing to the growing demand for energy storage [3, 4]. Nowadays, the lithium-ion battery (LIB) is one of ... open framework structure of hard carbon materials made from bamboo allowed sodium ions and electrons to move quickly and ...

Bamboo, a rapidly growing woody grass prevalent in pan-tropical zones, holds promising potential as a nature-based solution (NbS) for climate change mitigation. In this systematic review of 91 research articles, we ...

Advanced Materials Technologies is the materials technology journal for multidisciplinary research in materials science, innovative technologies and applications. Abstract Laser-induced graphene (LIG) has drawn attention ...

The Northeastern hilly states of India harbor nearly 90 species of bamboos, 41 of which are endemic to the region. Estimation of C-storage and C-sequestration in aboveground biomass of two common ...

Carbon is the most commonly utilized component material, and it has garnered significant interest because of its high electronic conductivity, large specific surface area, controllable pore size, excellent chemical stability, and good mechanical strength [5, 6]. Based on structural differences, carbon-based materials can be categorized into two groups [7]: graphite ...

Bamboo is believed to be one of the most appropriate candidates for afforestation to reduce CO₂ concentration and alleviate the effects of climate change. It is also an ideal building material with high tensile and compressive strengths. However, the carbon emissions and storage of bamboo building materials have not

been well understood.

The O-doped bamboo-derived porous carbon materials were prepared in this paper using the air pre-oxidation strategy with a KCl salt template as air flame retardant and CH₃ ... This electroactive biomass has great potential to be considered as an electrode material for energy storage devices or conversions that are abundantly available in the ...

The synthesis of various bamboo-derived carbon materials and some characterizations are shown in Figure 5. Owing to the synergy effect, the ZnHS fabricated using BC-CNa as the cathode material demonstrated elevated specific capacity and energy density. ... With the increasing demand for renewable energy and sustainable energy storage solutions ...

In this systematic review of 91 research articles, we critically assess the scope and constraints of bamboo's role in mitigating climate change across three dimensions: as a carbon sink in biomass form, as carbon storage ...

Flexible fiber/yarn-based supercapacitors (FSCs) are widely used as energy-storage devices for wearable electronics owing to their high capacity to be miniaturized and knitted into textiles with ...

It is necessary to explore new energy storage materials. Activated carbon-based electrode materials are promising for application in fuel cell, batteries, and supercapacitor supporting electrode material. ... In this work, the carbon from bamboo biomass and coconut husk biomass was successfully prepared using the carbonization method. SEM ...

Porous carbon has progressed remarkably in applications of energy storage, purification and treatment of air and water, catalysis and medicine owing to the outstanding porosity, good chemical stability, and high economic benefit [1,2,3].Currently, the production of porous carbon from renewable and low-cost biomass resources via a feasible thermal ...

With the growth of population and rapid economic development, global energy demand is expected to increase by 50% from 2005 to 2030 [].Fossil energy has dominated the world's energy mode for a long time because of mature technology, high-energy storage-density, convenience for transportation and storage [].However, the reserves of fossil energy are ...

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