

To meet the ever-increasing requirement of high-energy supercapacitors, there is an urgent need to improve the energy storage ability of the carbon surface (e.g., introducing ...

This review article summarizes progress in high-performance supercapacitors based on carbon nanomaterials with an emphasis on the design and fabrication of electrode structures and ...

Various nanomaterials derived from carbon have been developed and incorporated into the design of energy conversion and storage systems, with a particular emphasis on their role as ...

The urgent global need for efficient, clean, and sustainable energy storage technologies has underscored the importance of supercapacitors as vital components in future energy systems. ...

By understanding the fundamentals, advancements, and applications of supercapacitors, researchers, engineers, and policymakers can accelerate the development and deployment of this ...

Main challenges, future directions, and methodological advancements required for next-generation high-capacitive supercapacitor system development are also presented in the review.

Herein, we investigate such a scalable material solution for energy storage in supercapacitors constructed from readily available material precursors that can be locally sourced from virtually ...

Improved carbon-cement supercapacitors could turn the concrete around us into massive energy storage systems. An electron-conducting carbon concrete (ec¹⁷⁹)-based arch structure ...

Technologies for electrochemical energy storage based on carbon-based nanomaterials have the potential to be the driving force behind research into the next generation of energy storage ...

This review aims to provide readers a comprehensive understanding of the energy storage mechanism of carbon-based supercapacitors and commonly used carbon electrode materials in ...

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