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Original Research Article

Role of Carbon Nanotubes as Energy Storage Materials

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ABSTRACT

Graphene and carbon nanotubes (CNTs) have gotten a lot of attention because of their varied nanostructures, making it a very intriguing and comprehensive topic in nanotechnology. Graphene and carbon nanotubes (CNTs) both have unique electrical, mechanical, thermal, catalytic, and electrochemical features because they are made up of sp^2 hybridized carbon atoms. Carbon nanotube hybrid nanostructured materials (CNT hybrid nanocomposites), Carbon nanotubes (CNTs), and nanotechnology have the potential to improve energy conversion and storage device applications. Carbon nanotubes are being evaluated for application in renewable energy sources, including solar cells and hydrogen storage. Carbon nanotubes (CNTs) are utilized in storage technologies such as Li-ion batteries, supercapacitors, and thermal energy harvesting. We describe the functions of carbon nanotubes (CNTs) in new energy storage technologies, particularly electrochemical supercapacitors and Lithium-ion batteries, in this study. The use of carbon nanotubes in binder-free electrodes, microscaled current collectors, and adaptable and stretchy energy storage systems is also explored.

Keywords: Carbon nanotube, Energy, Renewable Energy Sources, Li-Ion Batteries, Supercapacitors.

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