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Perspective

Graphene fiber based supercapacitors: strategies and perspective toward high performances

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Abstract

Modern wearable electronics are thirsty for flexible, lightweight energy storage and supply devices. Flexible fiber-shaped supercapacitors, possess good flexibility, high power density, fast charging capability and long cycle life, becoming a promising option for wearable devices. The past decade has witnessed the emergence of graphene fiber based supercapacitors (GFSCs) as one of the most active vicinity in fiber-supercapacitors, for their excellent properties including high surface area, chemical stability, excellent electrical conductivity, lightweight and mechanical properties. In this perspective, we introduced the basic energy storage mechanisms of GFSCs, followed by the analysis in improving their overall performances, recent advances, and a conclusive discussion on the challenges and opportunities.

Keywords

Graphene; Fiber; Two-dimensional materials; Supercapacitors; Energy storage

1. Introduction

Increasing demands for high-tech electronic products drive very impressive progresses in developing flexible, lightweight and wearable electronic devices, such

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