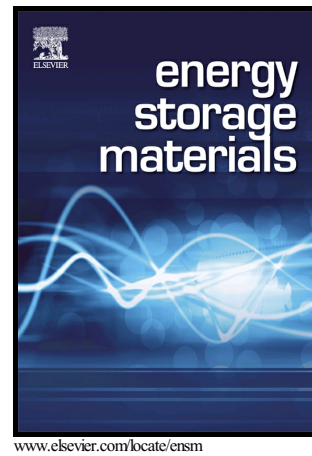


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Flexible Fiber-Shaped Supercapacitors: Design, Fabrication, and Multi-functionalities

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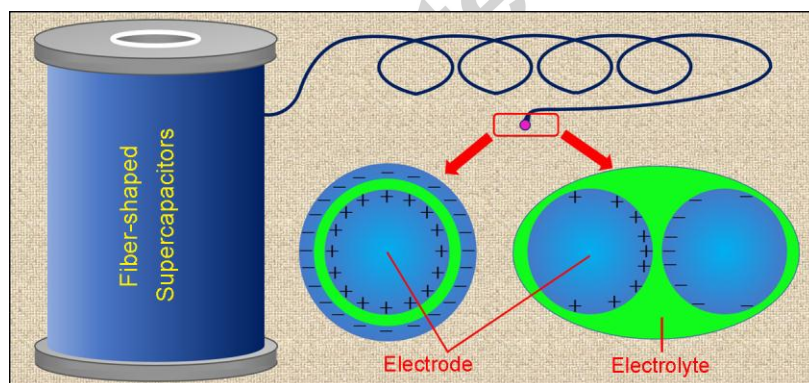
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ABSTRACT

Fiber-shaped supercapacitors (FSCs) have excellent electrochemical properties and flexibility, can function in the forms of individual fibers or integrated textiles, and thus are the most promising energy storage devices for future portable and wearable electronics. Considerable research effort and significant progress have been made in the past few years, and a comprehensive review of the recent development and achievement is becoming immediately necessary. Since the main driving forces in developing FSCs are flexibility and multi-functionalities, in addition to high capacitive performance, herein we review the FSCs according to their flexible scaffolds and functionalities, with special focuses on the material selection, assembly method, and the electrochemical and mechanical performance. The future trends, prospects and challenges are also presented.

Graphical abstract



Keywords

Fiber-shaped supercapacitors, Electrodes, Energy storage, Flexibility, Multi-functionalities

1. Introduction

Sustainable development and efficient utilization of energy on a broad scale necessitate the rapid progress and upgrading of energy harvesting, conversion and storage systems. Among

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