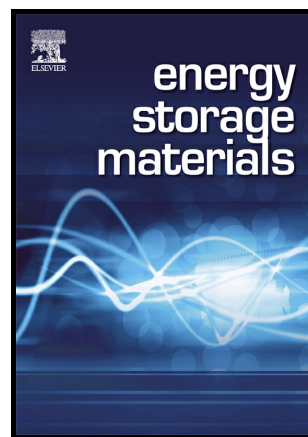


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## Nanostructured graphene-based materials for flexible energy storage

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### Abstract

Graphene comprising  $sp^2$  hybridized carbon atoms has attracted ever-increasing attention for energy storage owing to its two-dimensional cellular structure, which brings about its unique electronic, thermal, mechanical, chemical characteristics and extensive applications. The recent rapid development in energy storage devices with good flexibility has attracted much interest, which will be a pivotal advantage in modern electronics. Graphene-based materials play a significant role in flexible energy storage devices because of their characteristics such as high power density, long cycling life, and short charging time. This review mainly focuses upon flexible supercapacitors and rechargeable batteries (lithium-ion batteries, lithium-sulfur batteries and sodium-ion batteries) based on graphene-based materials. Furthermore, future perspectives and challenges of graphene-based nanomaterials for FESDs are briefly discussed.

### Graphical abstract



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