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Textile-based Flexible Supercapacitor using Polypyrrole and Graphene

The high interest in wearable technologies has inspired an increased demand for portable, flexible energy storage devices. Currently available commercial electrochemical energy storage units such as batteries and supercapacitors are mostly only available in rigid formats, failing to meet the flexibility standards that allow them to be integrated in wearables such as smart textiles and flexible electronics. In order to combat these limitations, we have developed a lightweight, flexible textile-based supercapacitor that can be easily integrated into fabrics and apparels.