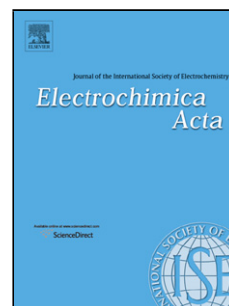


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**Systematic investigation of reduced graphene oxide foams for high-performance
supercapacitors**

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Abstract: Highly flexible energy-storage devices strongly depend on both mechanical integrity of the constitutive materials and electrical properties. The preparations and electrochemical properties of reduced graphene oxide (RGO) foams used as electrodes in supercapacitors have been systematically investigated. The rational design of preparation led to excellent electrochemical performance in supercapacitors such as high specific capacitance (224 F g^{-1} at 0.1 A g^{-1}) and rate performance. Highly flexible solid-state supercapacitors based on RGO foams exhibit high gravimetric specific capacitances (193 F g^{-1} at 0.1 A g^{-1}) with excellent cycling stability ($\sim 100\%$ retention after 5000 cycles). This work provides the proper preparation of RGO foams by hydrothermal process with excellent electrochemical performance and high mechanical flexibility in solid-state supercapacitors, suggesting that the RGO foams have great potential in the development of lightweight high-performance flexible energy storage device.

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