One-step synthesis of needle-like CoO/C composite materials and their enhanced electrochemical performance for supercapacitor

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A needle-like CoO/C composite material was designed to enhance the capacitance performance of CoO via one-step hydrothermal strategy. The obtained CoO/C is applied as electrode material and shows a high specific capacitance, reaching 752 F/g which is outstanding characteristic compared with this of recently reported supercapacitor. The CoO supported on C could provide highly enhanced electrochemical performance and show promising energy storage application. CoO/C can be regarded as promising material for practical supercapacitor and this work also provides a valuable reference for the preparation and application of high performance electrode materials.

Keywords: Supercapacitor; Needle-like; Composite material; One-step

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