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A high-capacity $NiCo_2O_4$@reduced graphene oxide nanocomposite Li-ion battery anode

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Abstract: Nano-engineering graphene-based composite anodes have motivated broad investigations of the high energy density lithium-ion batteries. Here, a sandwich-like and porous $NiCo_2O_4$@reduced graphene oxide (rGO) nanocomposite was presented. Through an incipient dipping process, the $NiCo_2O_4$ precursors attach on the rGO densely, which significantly improves the material loading of the $NiCo_2O_4$@rGO composites. Serving as an anode of the lithium-ion battery, the $NiCo_2O_4$@rGO composites exhibit an unprecedented capacity of 1566 mAh g^{-1} cycling at a current density of 1000 mA g^{-1} over 700 times; while a capacity of 886 mAh g^{-1} at 100 mA g^{-1} over 100 cycles was achieved upon a $NiCo_2O_4$@rGO//$LiCoO_2$ full-cell, which indicates a promising potential for high energy density battery applications.

Keywords: $NiCo_2O_4$; Graphene; Anode; Secondary battery; Capacity

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