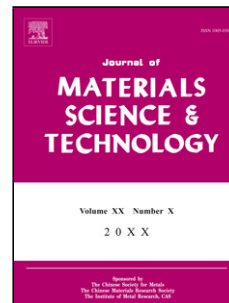


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Nitrogen-doped Graphene/Carbon Nanohorns Composite as a High-performance Supercapacitor Electrode

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Nitrogen-doped graphene/carbon nanohorns composite (NGLC) was prepared by one-step co-pyrolysis of graphene oxide, carbon nanohorns (CNHs), urea, and lignosulfonate. CNHs as spacers were inserted into graphene nanosheets. The introduction of CNHs and the loosened nano-structure of NGLC make it achieve a high specific capacitance of 363 F g⁻¹ at a discharge current density of 1 A g⁻¹, and NGLC exhibits an ultrahigh stability of 93.5% capacitance retention ratio after 5000 cycles. The outstanding comprehensive electrochemical performance of NGLC could meet the need of the future acted as an efficient supercapacitor electrode material.

Keywords: Nitrogen-doped graphene; Carbon nanohorns; Spacer; Supercapacitor; High-performance

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