

Densely packed N-doped CNT balls for supercapacitor application

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The combination of the control of assembled CNT ball density and intrinsic carbon properties by doping can synergistically enhance the supercapacitive properties of CNT-based electrodes. In this study, we prepare densely packed CNT balls and subsequently performed nitrogen (N) doping to fabricate high performance CNT based supercapacitor. We control the doping content in the CNT spherical assembly and characterize the doping and its nitrogen configuration, as well as the doping effect on the electrochemical capacitive properties. We confirm the morphological advantage of N-doped CNT spheres over CNT films in the electrochemical capacitive properties. Our approach is a facile and high-throughput method for producing compact packing of CNTs and, simultaneously, multiscale porous morphologies.