

Supplementary Information

Facile synthesis of carbon nanoparticles/graphene composites derived from biomass resources and their application in lithium ion batteries

Hongxia Xing,^a Feng Zhang,^{a,*} Yonggang Lu,^a Bin Zhai,^{a,*}, Shangru Zhai, Qingda An^{a,*} and Changshun Yu

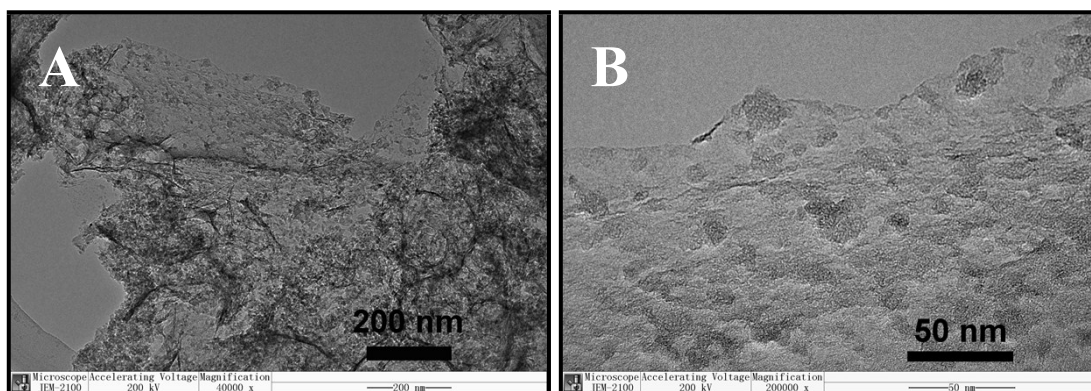


Fig S1 TEM images of the carbon nanoparticles/graphene composites prepared with 15 g of quartz sand

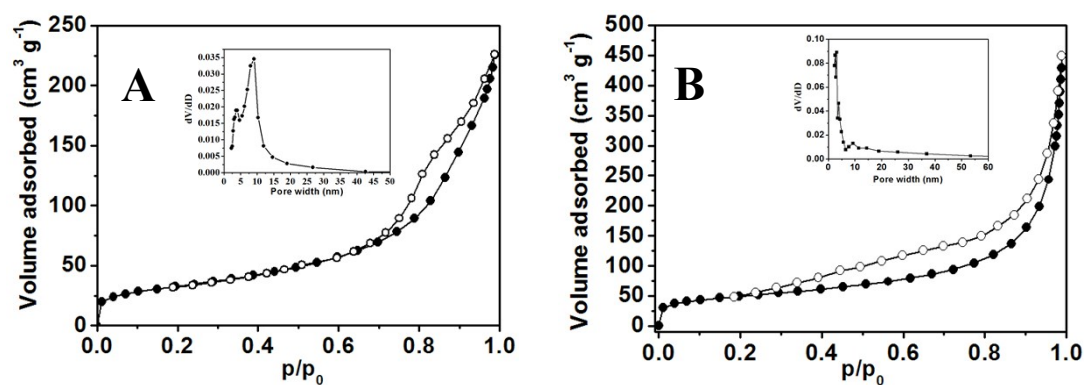


Fig S2 N₂ adsorption/desorption isotherms for the carbon nanoparticles/graphene composites prepared with (A)15 g and (B) 20 g of quartz sand

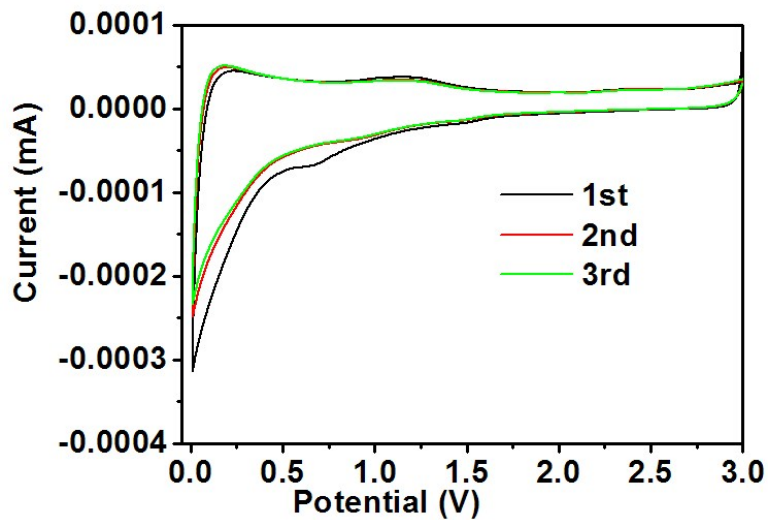


Fig S3 Cyclic voltammograms of the initial three cycles of the carbon nanoparticles/graphene composites prepared with 30 g of quartz sand (vs Li/Li⁺ at a scanning rate of 0.2 mV s⁻¹)

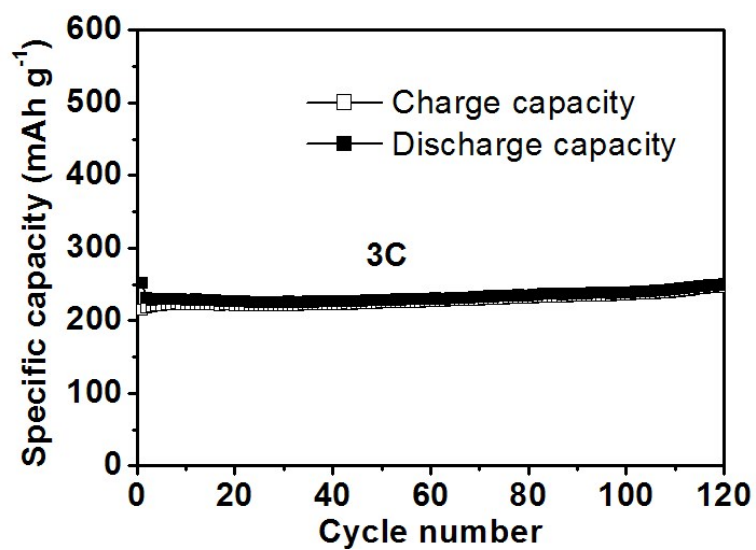


Fig S4 Cycling performance of the carbon nanoparticles/graphene composites prepared with 30 g of quartz sand at 3C rate

Table S1 Comparison of electrochemical performance of carbon nanoparticles/graphene composites with other biomass derived carbon electrode materials

Materials	Discharge capacity (mAh g ⁻¹)	Reference
Carbon nanoparticles/graphene composites	370.9 at 1C (372 mA g ⁻¹) 258.8 at 2C (744 mA g ⁻¹)	This work
Coconut oil derived carbon	183 at 0.8 A g ⁻¹	26
Sisal fiber derived carbon	283 at 0.1C	35
Rice husk derived carbon	199 at 2C	36
Spongy pomelo peels derived carbon	293 at 320 mA g ⁻¹	37
Puffed rice derived carbon	<300 at 1C	38
Sodium alginate derived carbon	224.4 at 2C	39