Electronic Supplementary Information

A Bottom-Up Synthesis of α-Fe_2O_3 Nanoaggregates and their Composite with Graphene as Highly Performing Anode in Lithium-Ion Battery

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XRD simulation:
The simulated powder X-ray diffraction plot was obtained from the single crystal data using Mercury software. Single-crystal X-ray diffraction data of compound polymeric iron(III) acetate was recorded on a Bruker Apex CCD II area-detector diffractometer with graphite-monochromated MoK radiation(λ=0.71073 Å) at 100 K. The more information could be found in the previous paper (*Angew. Chem. Int. Ed.*, 2007, **46**, 6076-6080).

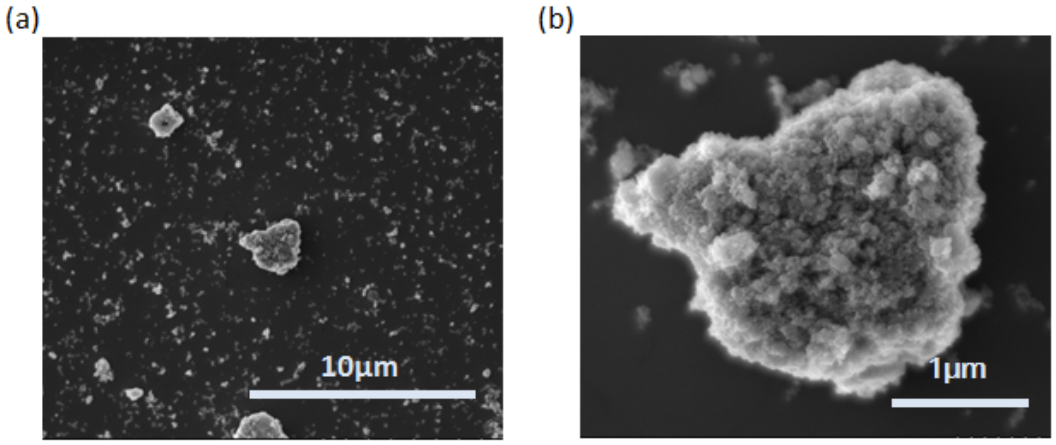

Fig. S1 TEM images of iron oxide which treated by hydrothermal at 200 °C for 24h with the equivalent amounts of $FeCl_3 \cdot 6H_2O$ and NaAc.

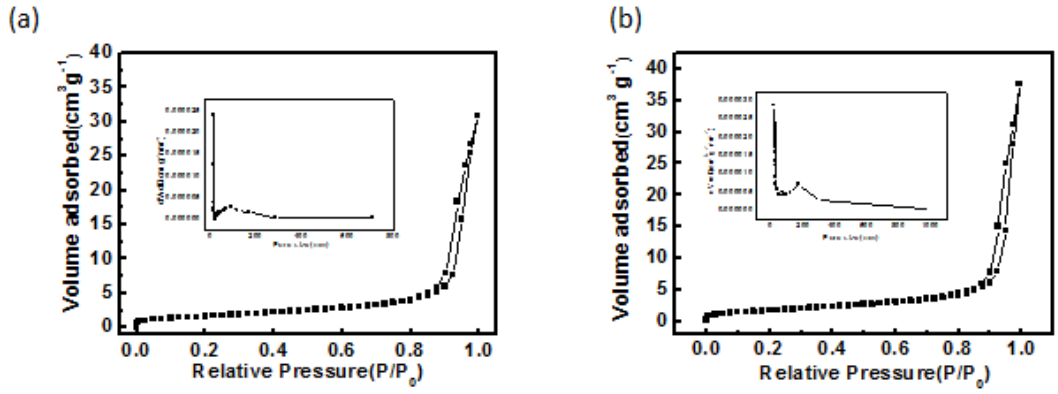

Fig. S2 (a) N_2 adsorption-desorption isotherms and pore-size distribution curves of α-Fe_2O_3 nanoaggregates; (b) N_2 adsorption-desorption isotherms and pore-size distribution curves of α-Fe_2O_3@rGO nanoaggregates;

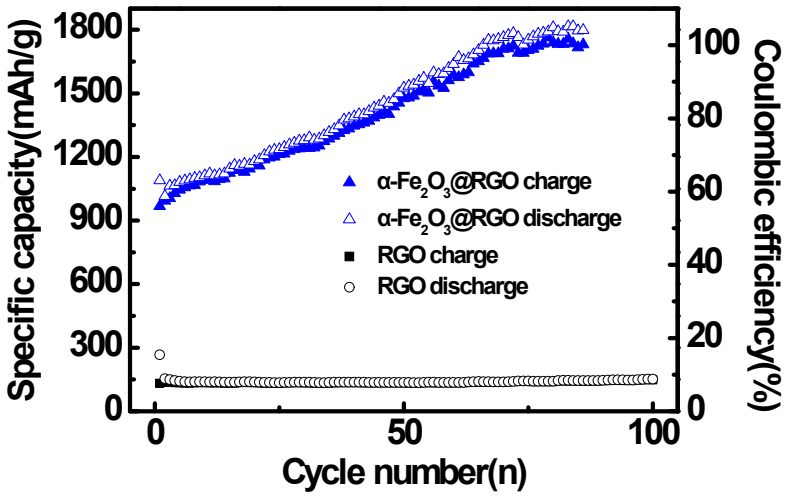

Fig. S3 Cycling performance of α-Fe_2O_3@rGO and reduced graphene oxide (rGO) electrodes at a current density of 100 mA g^{-1}. Blue triangles represent the α-Fe_2O_3@rGO electrode. Black circles represent the rGO electrode.