

Supporting Information for

**Electrospun Fe₂O₃-carbon Composite Nanofibers as Durable Anode
Materials for Lithium Ion Batteries**

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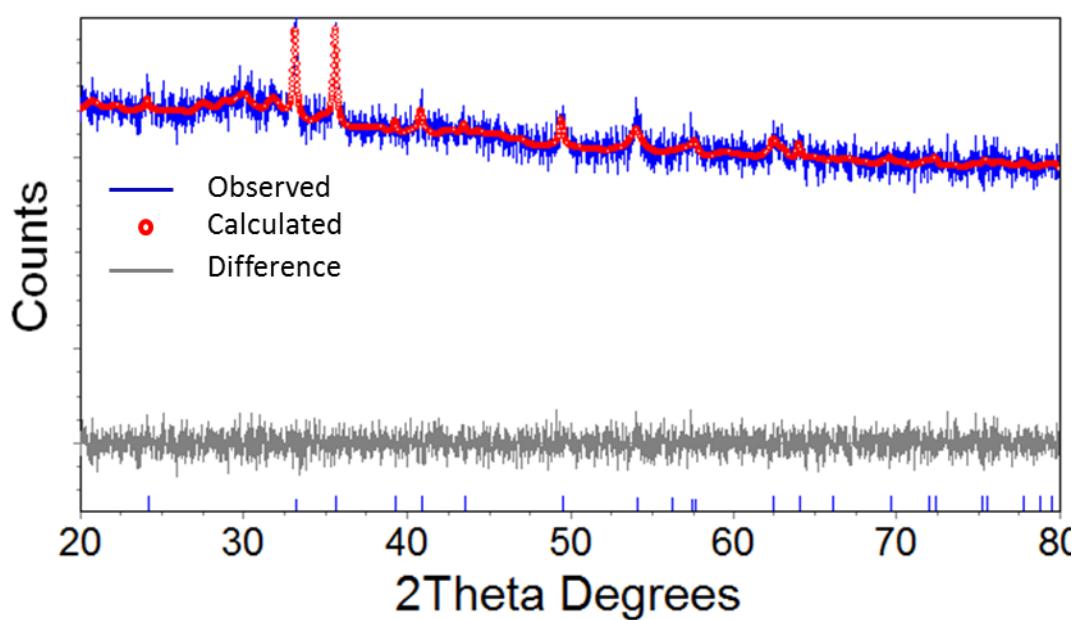


Fig S1 Riveted refined X-ray diffraction pattern

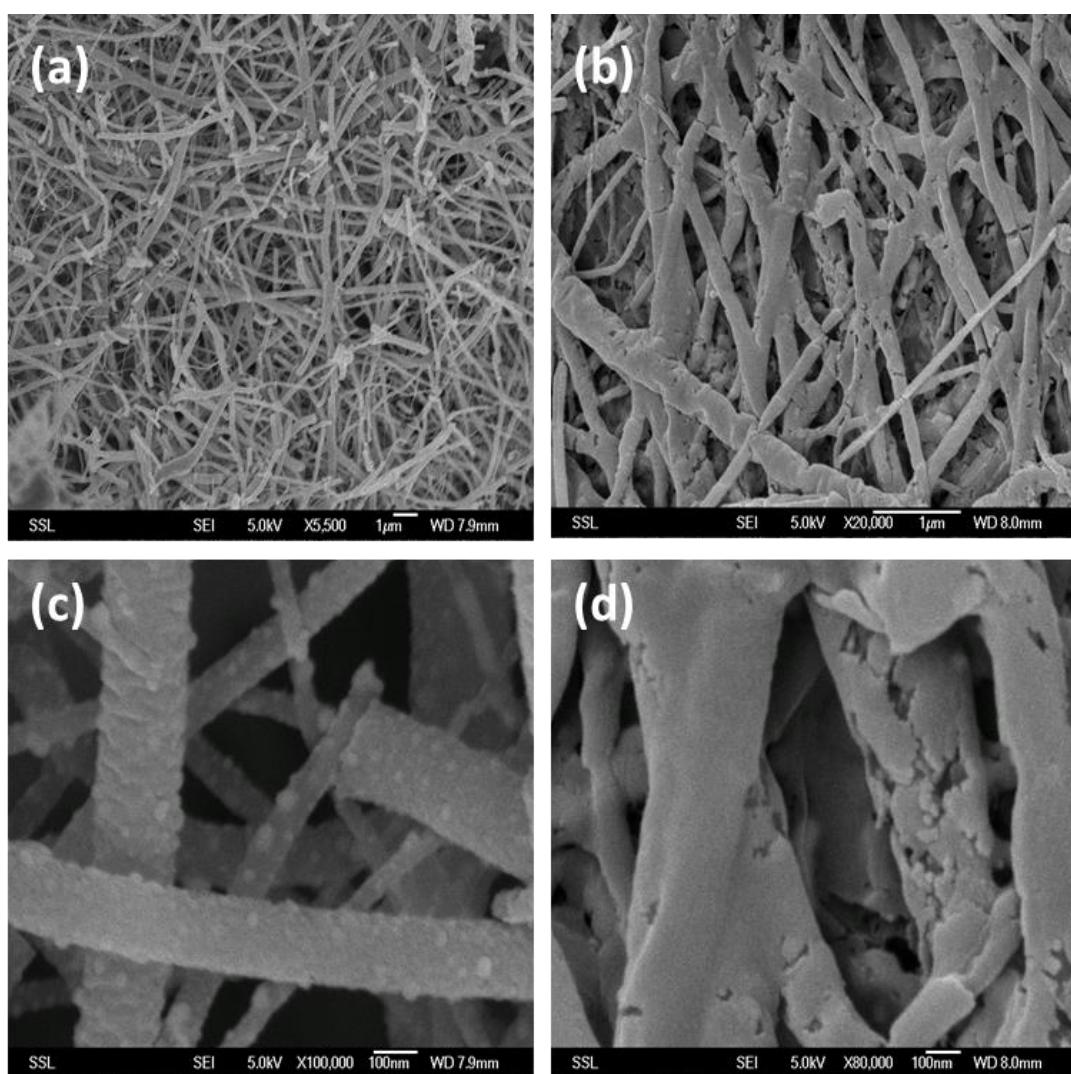


Fig S2 FESEM image of Fe_2O_3 -C composite nanofiber mat after calcination at 550°C (a) and 600°C (b); Close-up FESEM image of a bundle of Fe_2O_3 -C composite nanofibers after calcination at 550°C (c) and 600°C (d) in Ar

Table S1 Impedance parameters of Fe_2O_3 -C composite nanofibers and bare Fe_2O_3 nanofibers electrodes

Sample	R_e	R_{sf}	R_{ct}
Fe_2O_3 -C composite nanofibers	2.1Ω	67Ω	159Ω
bare Fe_2O_3 nanofibers	4.7Ω	112Ω	192Ω

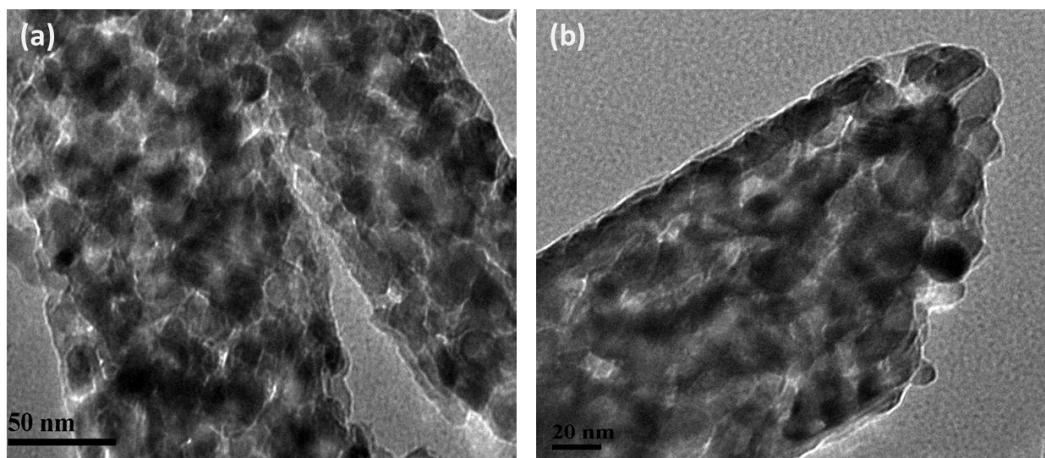


Fig S4 TEM image of electrospun Fe_2O_3 nanofibers.

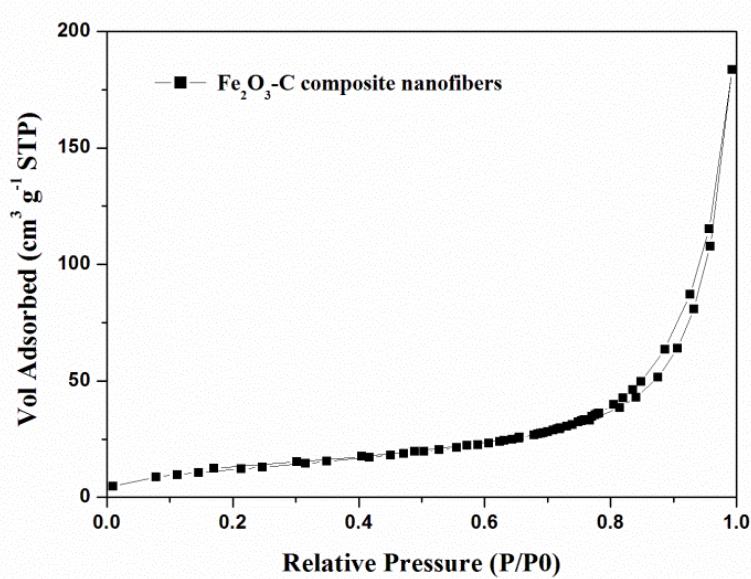


Fig S5 N_2 adsorption and desorption isotherm of Fe_2O_3 -C composite nanofibers.

Table S2. The comparisons of electrochemical performance of Fe_2O_3 and Fe_3O_4 with carbon, carbon nanotubes and graphene.

Materials	Initial Capacity (mAh g ⁻¹)	Current Rate (C)	Reversible Capacity (mAh g ⁻¹ /cycles)	Capacity Retention against the 2 nd cycle (%)	Ref.
Carbon/ Fe_2O_3 nanorod array	1115	0.5C	595 (50)	73	[1]
Fe_2O_3 /Carbon composite	1227	0.2C	688 (50)	84	[2]
Fe_2O_3 hollow spheres	1820	0.2C	710 (100)	80	[3]
Fe_2O_3 nanoflakes	1235	0.065C	680 (80)	83	[4]
Fe_2O_3 microflowers	1820	0.1C	929 (10)	74	[5]
Mesoporous Fe_2O_3 nanostructures	1730	0.2C	1293 (50)	95	[6]
Hierarchical hollow Fe_2O_3 spheres	1255	0.5C	815 (200)	88	[7]
Fe_2O_3 nanoparticles in CNTs	1950	0.035C	811 (100)	83	[8]
Fe_2O_3 Nanospheres	1398	0.1C	414 (60)	52	[9]
Fe_2O_3 nanoparticles filled in CNTs	2081	0.035C	768 (40)	82	[10]
Carbon coated γ - Fe_2O_3 microparticles	1580	0.1C	635 (40)	72	[11]
Reduced graphene oxide/ Fe_2O_3	1693	0.1C	821 (50)	80	[12]
Fe_2O_3 nanorod on carbon fibers	1278	0.2C	758 (50)	81	[13]
Fe_2O_3 /graphene composite	1500	0.2C	800 (100)	68	[¹⁴]
Fe_2O_3 rice on graphene nanosheet	825	1C	582 (100)	73	[¹⁵]
Hollow structure Fe_2O_3 /carbon	1400	2C	722 (220)	82.9	[¹⁶]
Carbon-encapsulated Fe_3O_4 NPs	1021	1C	998 (100)	97.7	[¹⁷]
Fe_2O_3 -SWCNTs	831	0.5C	801 (90)	96	[¹⁸]
Fe_3O_4 -carbon-rGO three dimensional composite	1426	0.2C	843 (100)	88.5	[¹⁹]
TiO_2 @ Fe_2O_3	840	0.2C	530 (200)	85	[²⁰]
TiO_2 @ Fe_2O_3 core-shell arrays	500	0.12C	497 (150)	99.4	[²¹]
Fe_2O_3 -carbon composite nanofibers	1214	0.2C	820 (100)	96	This Study

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