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Facile Synthesis of Porous Iron oxide/graphene Hybird Nanocomposites and Potential Application in Electrochemical Energy Storage

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(Supporting Information)

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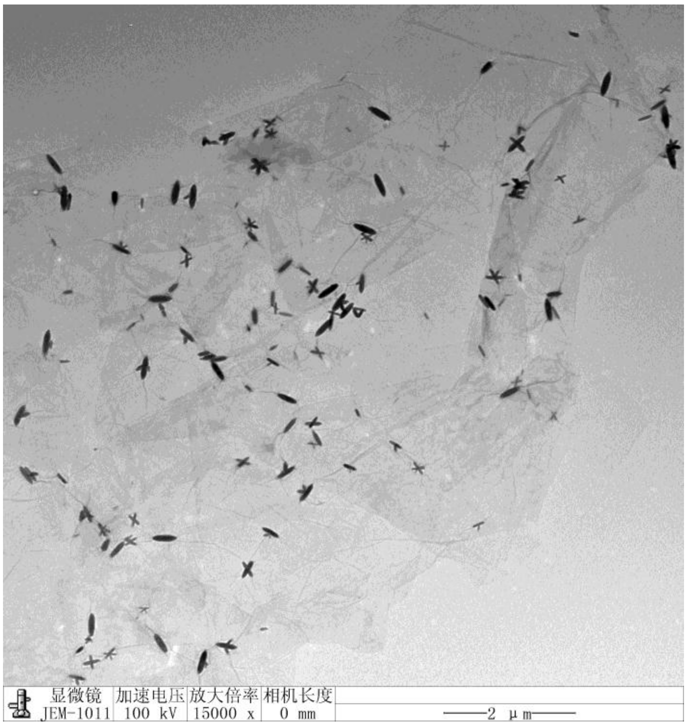

Figure S1. TEM image of FeOOH nanorods coated with graphene.

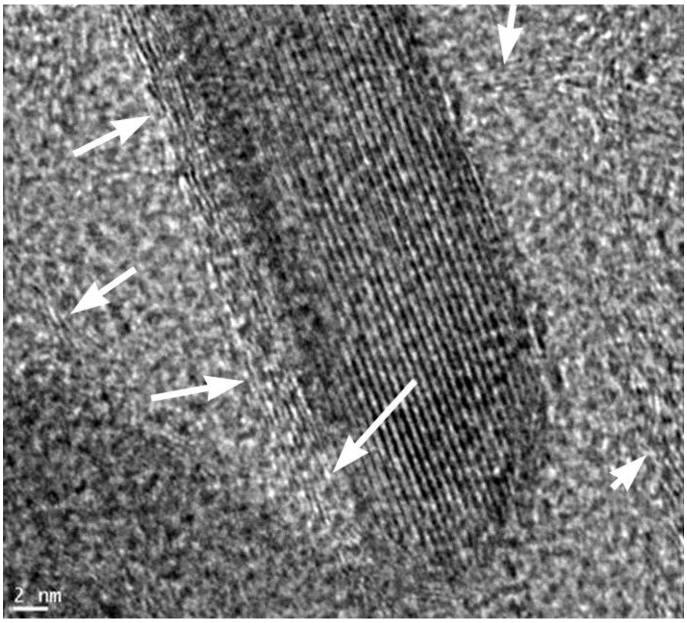

Figure S2. TEM image of Fe_2O_3 nanorods coated with graphene.

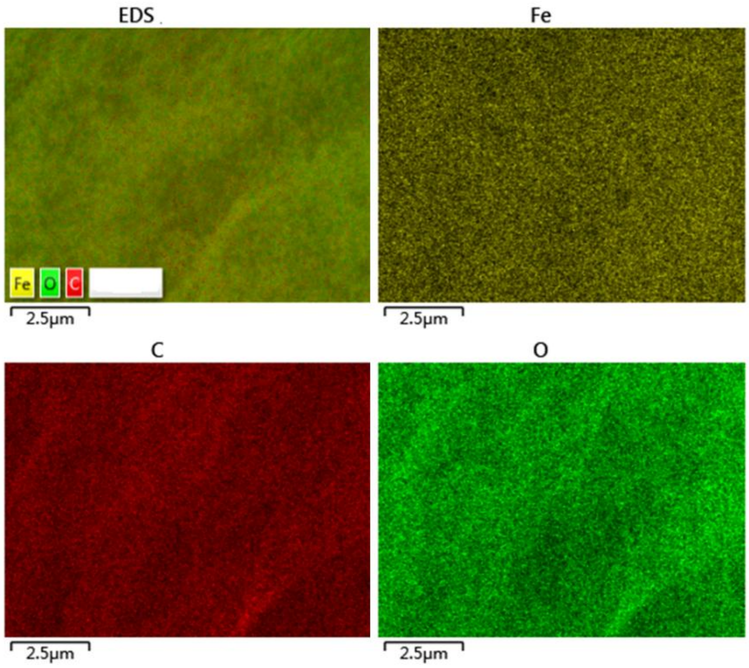

Figure S3a. Elemental mapping of FeOOH@GO.

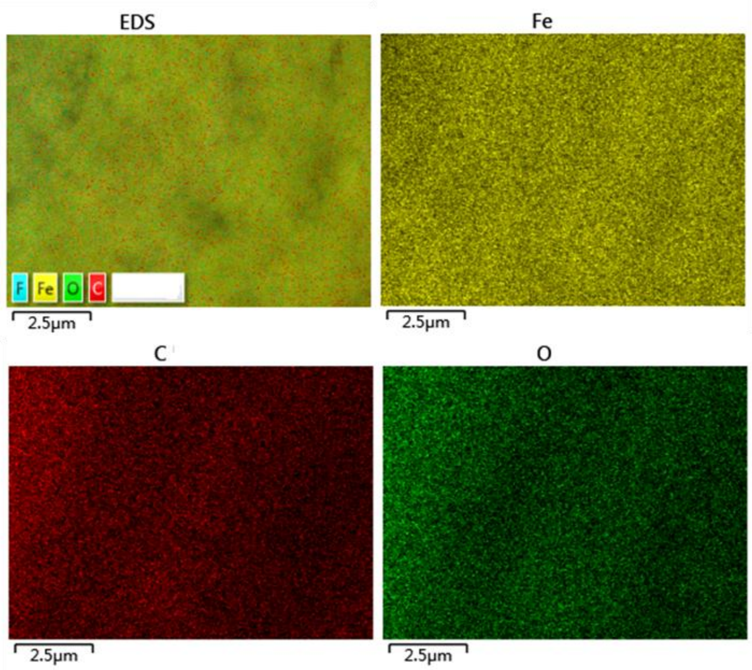

Figure S3b. Elemental mapping of Fe_2O_3@GNS.

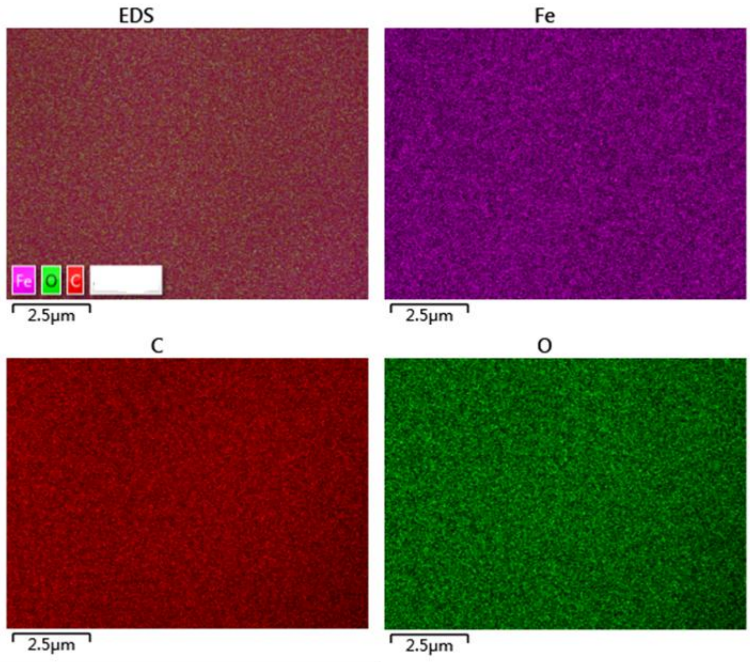

Figure S3c. Elemental mapping of Fe_3O_4@GNS.

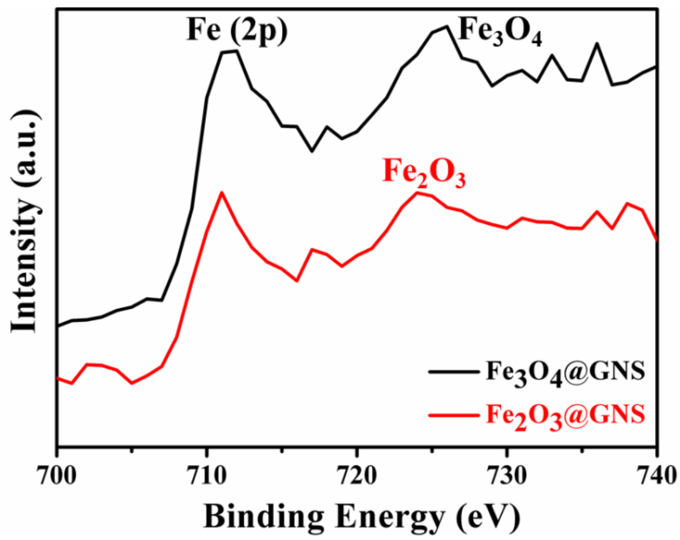

Figure S3d. XPS spectra of iron element in Fe_2O_3@GNS and Fe_3O_4@GNS.

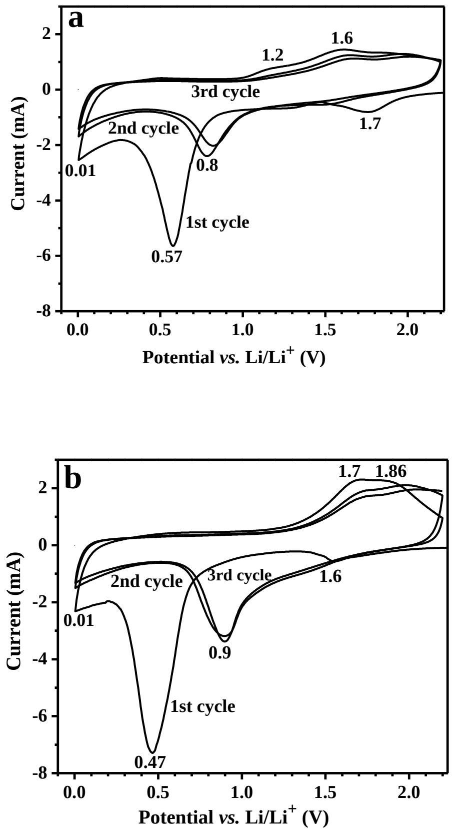

Figure S4. Cycling voltammetry profiles of (a) Fe_2O_3@GNS and (b) Fe_3O_4@GNS. (Potential range: 0.005-2.2 V vs. Li/Li+, Scan rate: 0.1 mV/s).

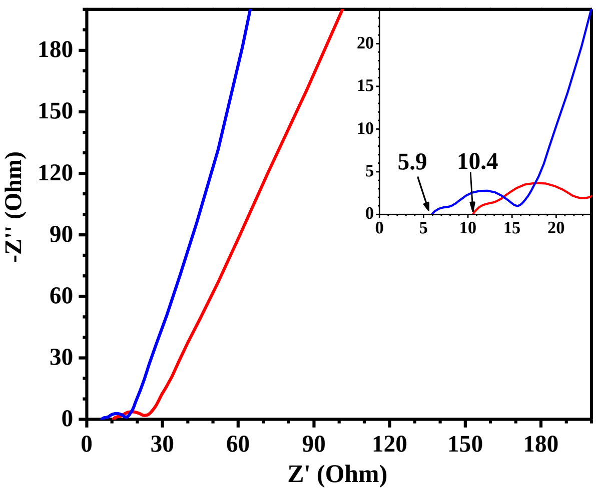

Figure S5. Nyquist plot of Fe_2O_3@GNS (red) and Fe_3O_4@GNS (blue).

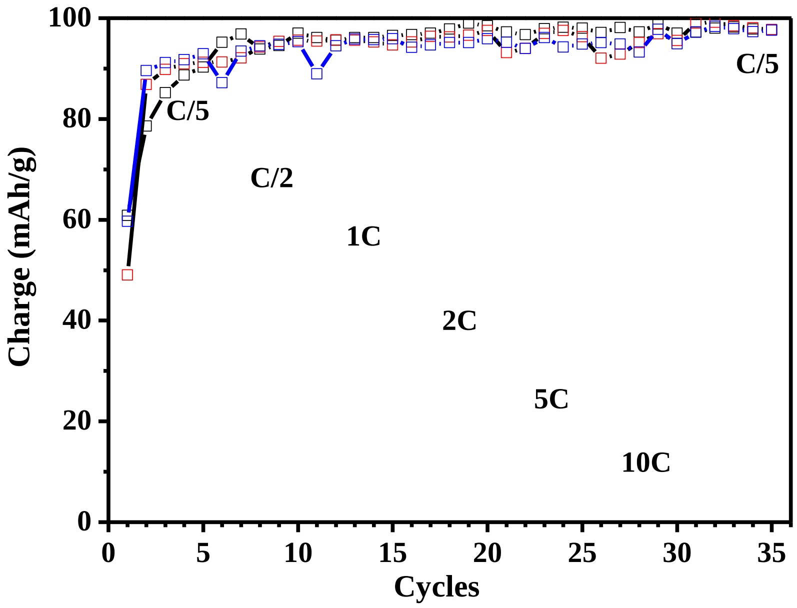

Figure S6. Coulombic efficiency of Fe_2O_3@GNS (red) and Fe_3O_4@GNS (blue)

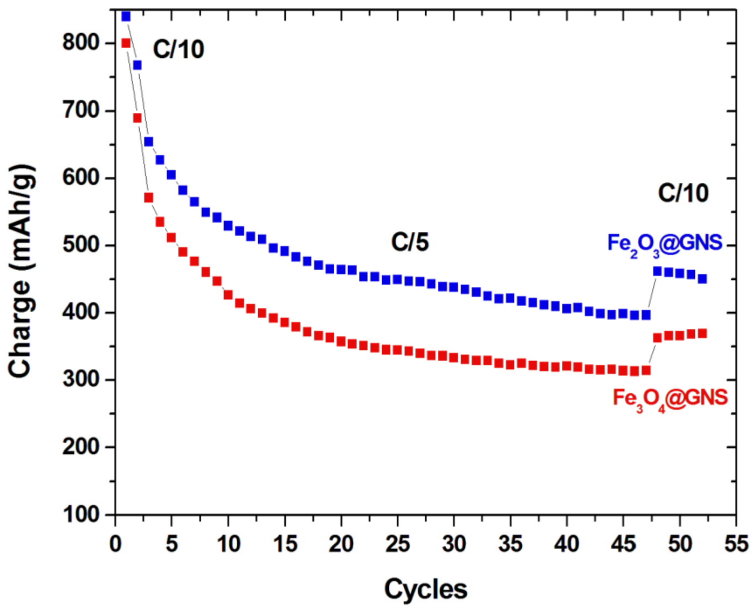

Figure S7. Long term stability of Fe_2O_3@GNS (red) and Fe_3O_4@GNS (blue).

Table S1**.** Comparison of reversible capacities with other iron oxide/carbon-based materials in the lithium-ion battery system reported in literature.

Materials	Reversible Capacity	Current density	Reference
Fe_3O_4@C	254 mAh/g (100 cycles)	300 mA/g	J. Mater. Chem. A 2013, 1, 12879-12884
Fe_2O_3/GO	350 mAh/g (100 cycles)	0.2 C	J. Mater. Chem. 2012, 22, 3868-3874
Fe_3O_4@N-rich C	670 mAh/g (30 cycles)	92.6 mA/g	Electrochimica Acta 2014, 130, 679-688
Fe_3O_4/GNS	492 mAh/g (30 cycles)	0.2 C	Present work