Electronic supplementary information

Synthesis of Hexagonal-symmetry α-Iron Oxyhydroxide Crystals Using Reduced Graphene Oxide as Surfactants and Their Li Storage Properties

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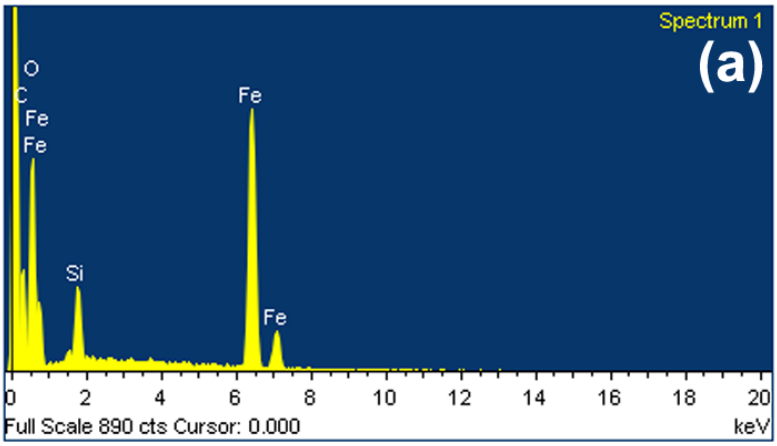

Element	Weight%	Atomic%
C K	16.41	32.69
O K	29.52	44.14
Fe K	54.07	23.17
Totals	100.00	

(b)

Fig. S1

Fig. S1 EDX (a) and elements analysis results (b) of the as-prepared α-FeOOH/rGO sample at 180 ^{o}C for 24 hours with concentration of 0.0143 M Fe^{3+}.

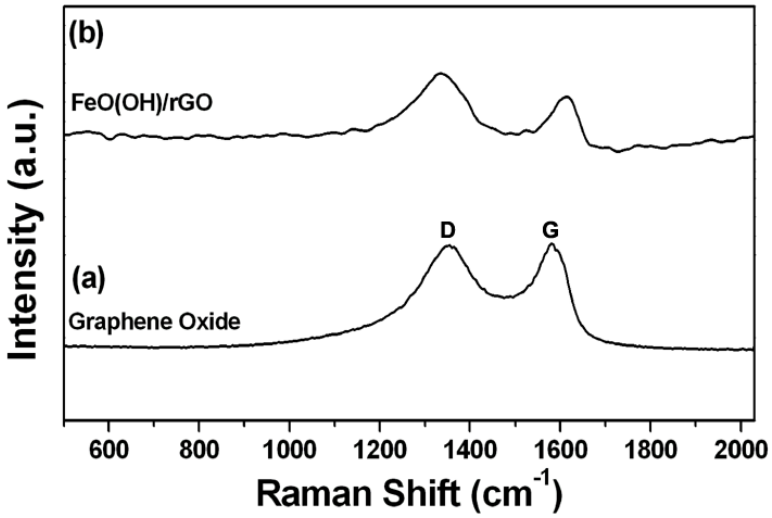

Fig. S2

Fig. S2 Raman spectra of the graphene oxide (a) and as-prepared α-FeOOH/rGO (b).

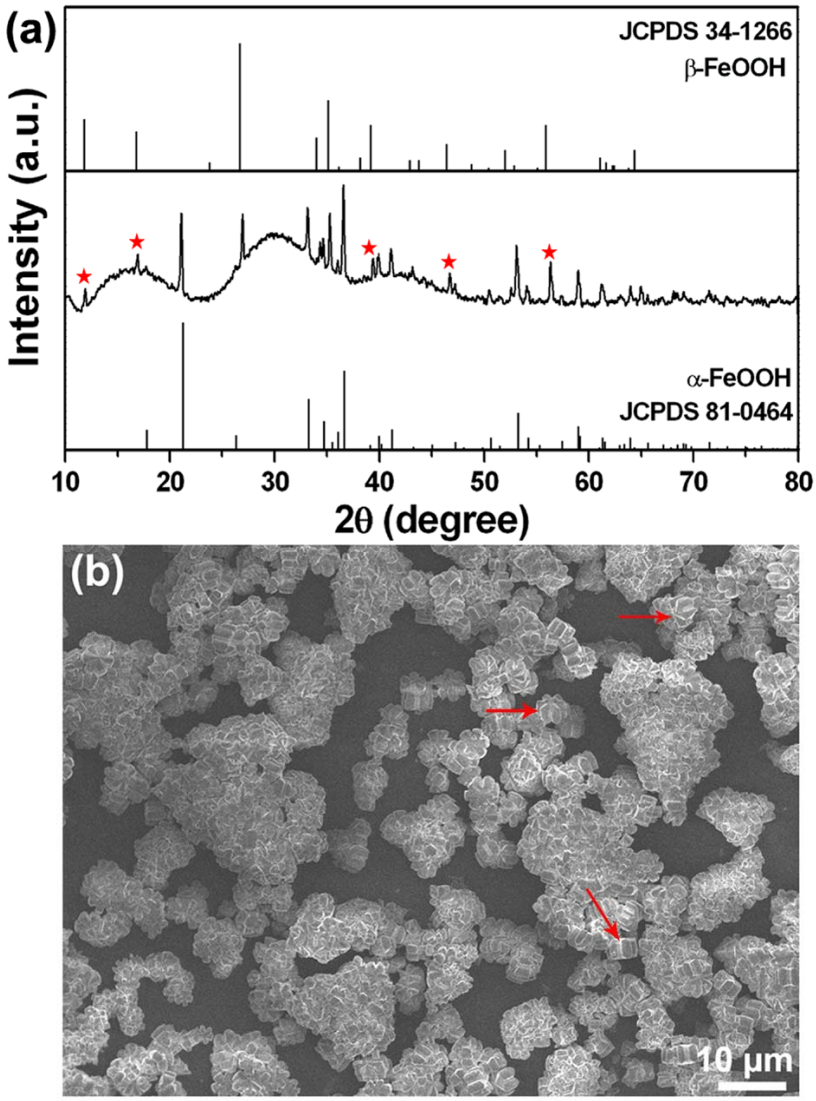

Fig. S3

Fig. S3 XRD pattern (a) and SEM image (b) of as-synthesized FeOOH without GO during the synthetic process. The standard data of FeOOH (JCPDS 81-0464 and 34-1266) are also plotted as reference.

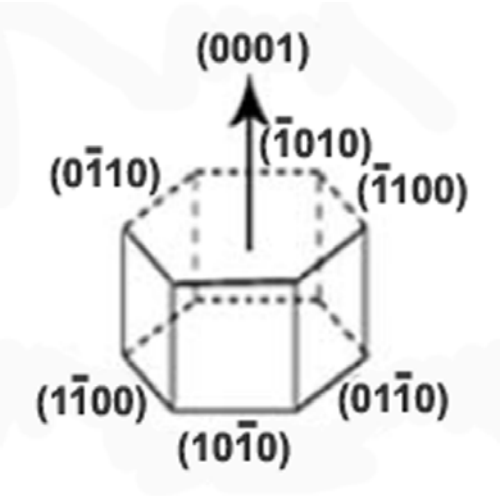

Fig. S4

Fig. S4 Schematic diagram of α-FeOOH hexagonal structures with different crystal planes.

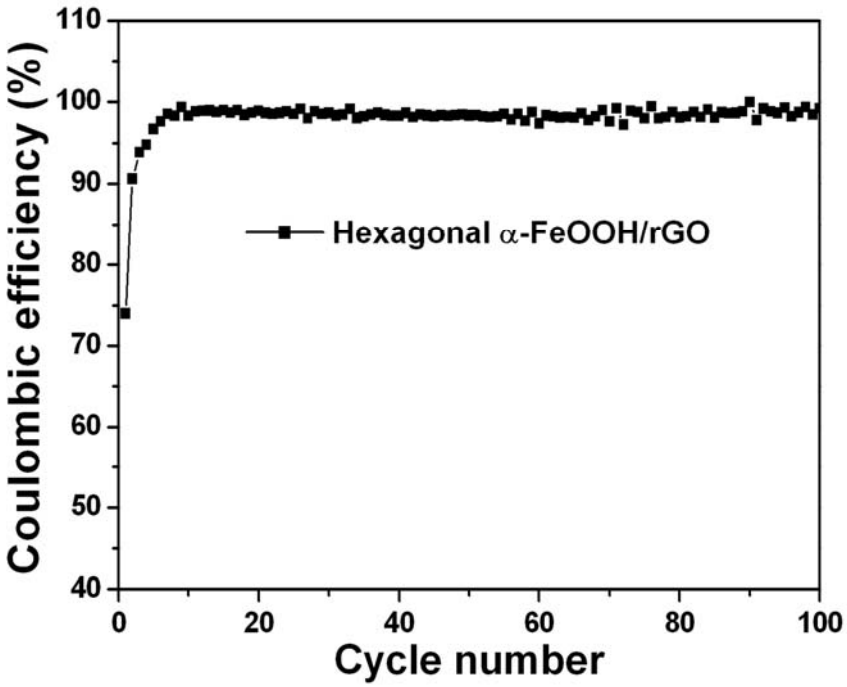

Fig. S5

Fig. S5 The coulombic efficiency of hexagonal-disk α-FeOOH/rGO electrode at a current density of 100 mA/g with a voltage window of 0.005−3.0 V.

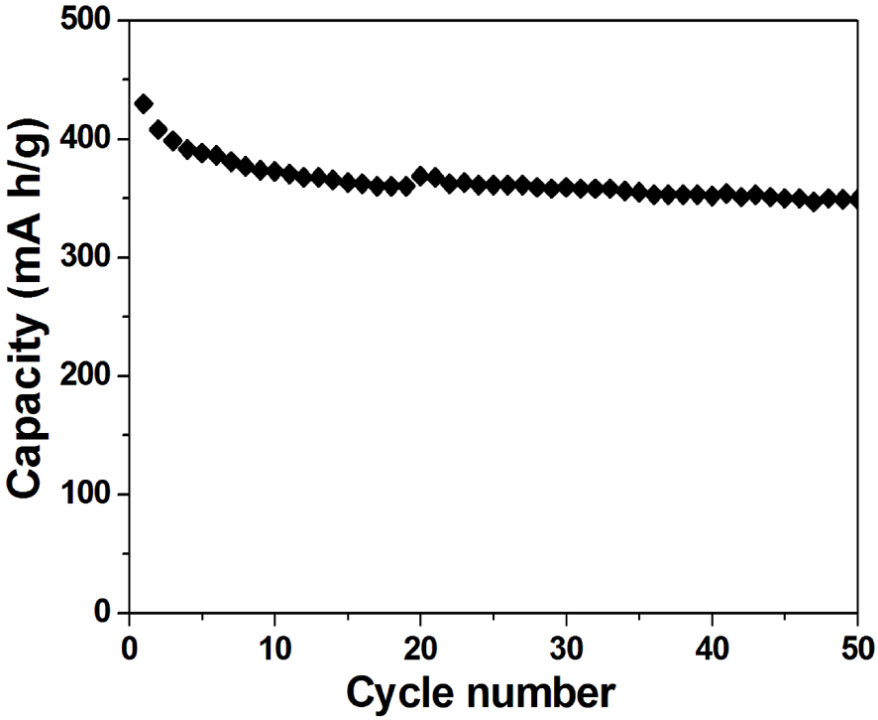

Fig. S6

Fig. S6 Cycling performance of pure FeOOH electrode at a current density of 100 mA/g.

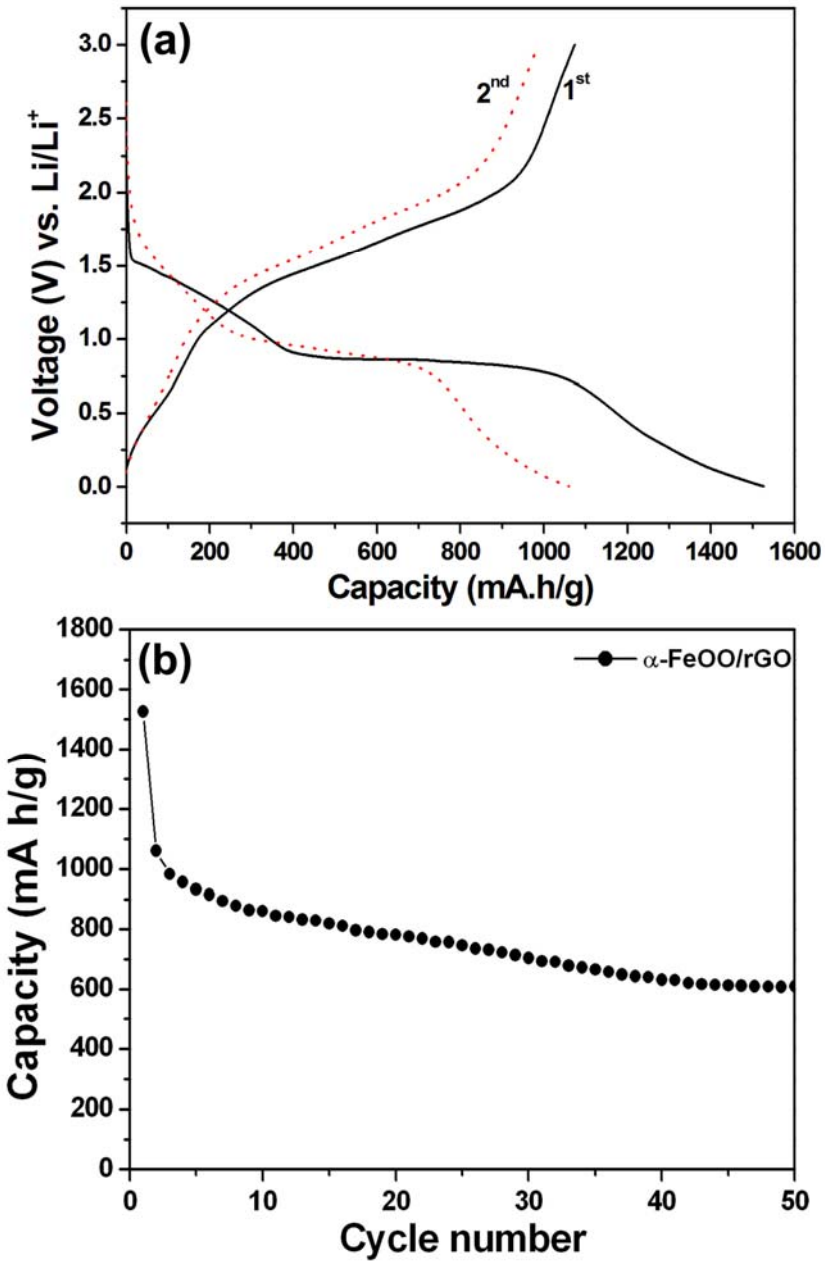

Fig. S7

Fig. S7 (a) Charge-Discharge voltage profiles of hexapod α-FeOOH/rGO sample for the first and second cycles at a current density of 100 mA/g. (b) Cycling performance of hexapod α-FeOOH/rGO sample at the current density of 100 mA/g.