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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Fig. S1

Fig. S1 EDX (a) and elements analysis results (b) of the as-prepared α-FeOOH/rGO sample at 180 °C for 24 hours with concentration of 0.0143 M Fe\textsuperscript{3+}. 
Fig. S2 Raman spectra of the graphene oxide (a) and as-prepared α-FeOOH/rGO (b).
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 $\alpha$-FeOOH/rGO electrode at a current density of 100 mA/g with a voltage window of 0.005–3.0 V.
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.