

Supporting information for:

## Magnetite modified graphene nanosheets with improved rate performance and cyclic stability for Li ion battery anodes

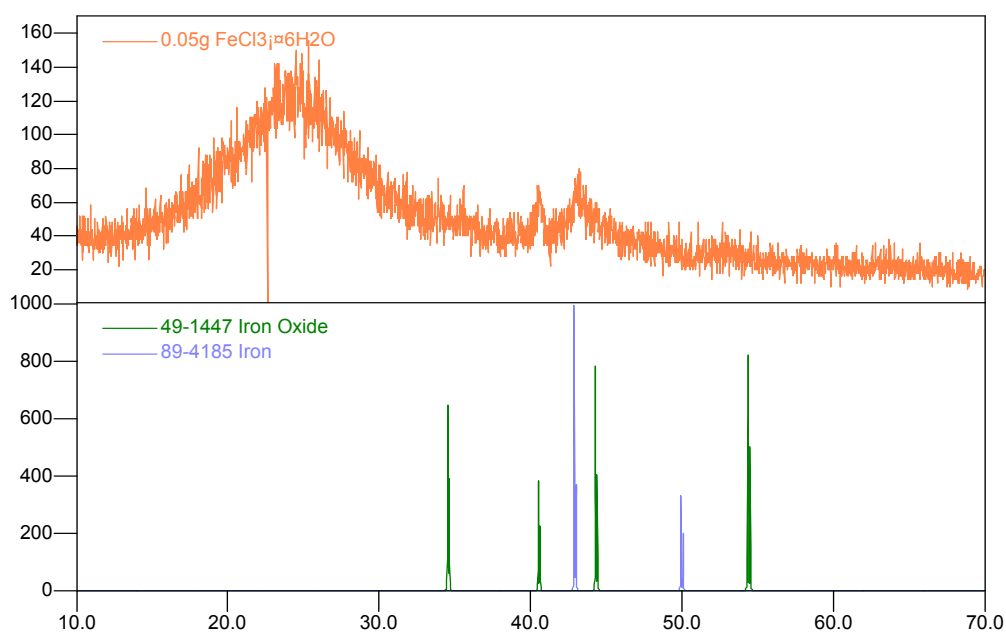
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School of Chemistry and Chemical Engineering

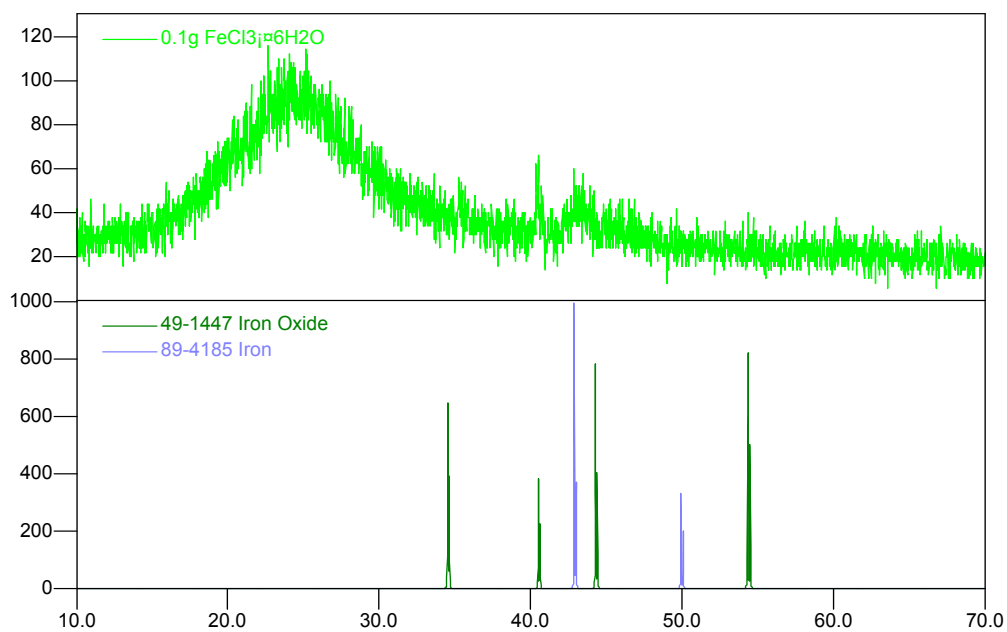
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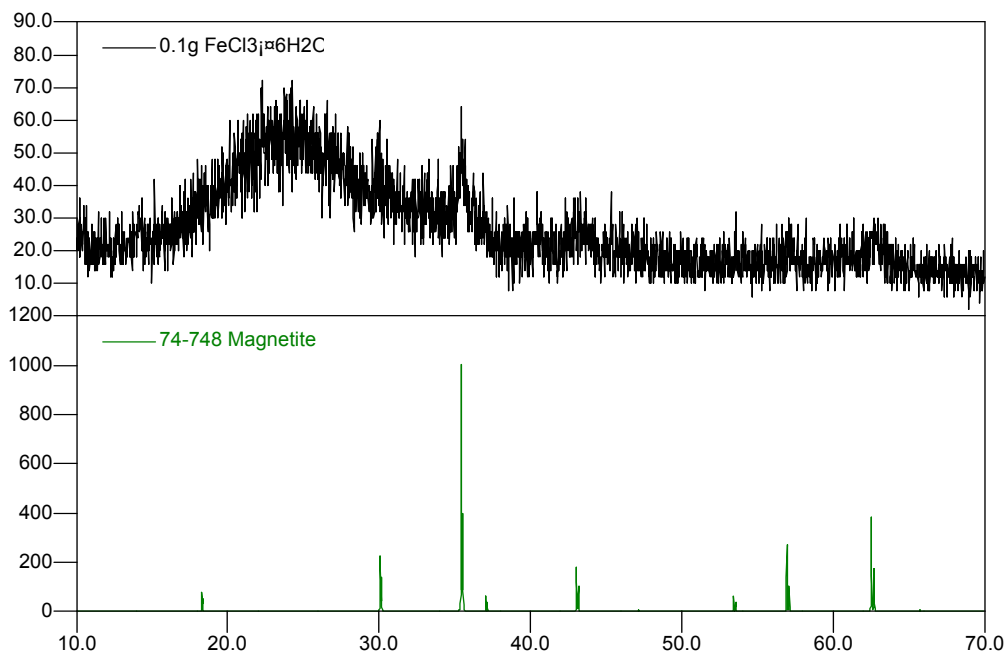
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**Fig. S1** XRD patterns of sample prepared with 0.05g FeCl<sub>3</sub>·6H<sub>2</sub>O (top) and JCPDS cards (No.49-1447 and 89-4185, bottom).



**Fig. S2** XRD patterns of sample prepared with 0.1g FeCl<sub>3</sub>·6H<sub>2</sub>O (top) and JCPDS cards (No.49-1447 and 89-4185, bottom).



**Fig. S3** XRD patterns of sample prepared with 0.4g FeCl<sub>3</sub>·6H<sub>2</sub>O (top) and JCPDS cards (No.74-748, bottom).

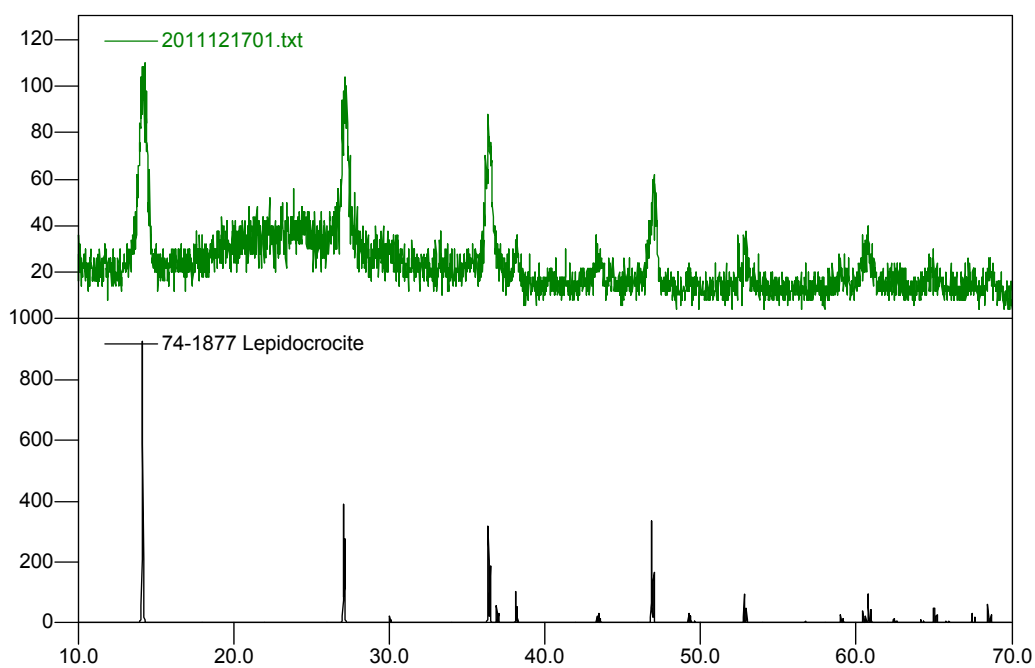


Fig. S4 XRD patterns of sample prepared with 0.9g FeCl<sub>3</sub>·6H<sub>2</sub>O (top) and JCPDS cards (No.74-1877, bottom).

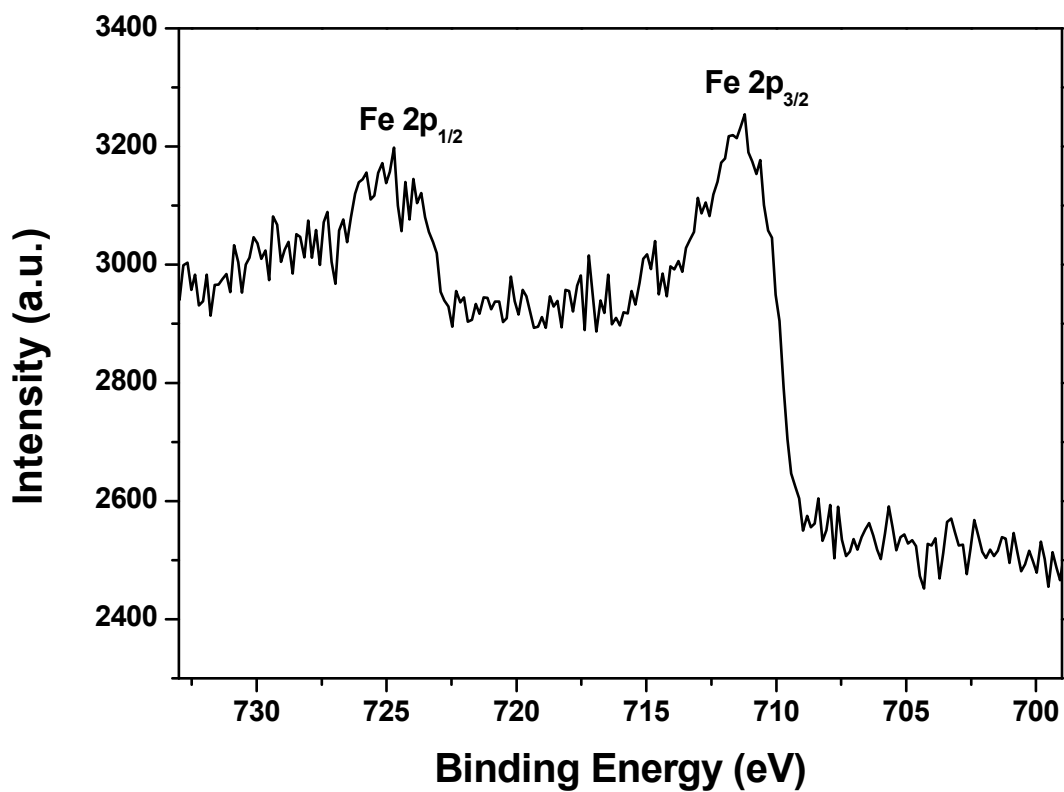
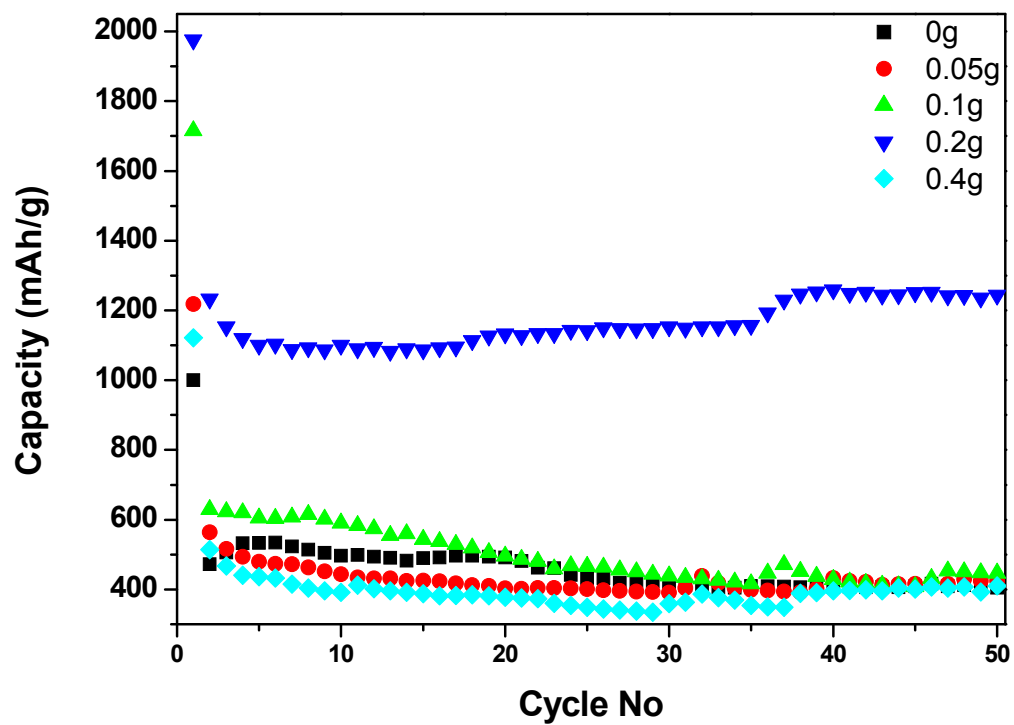


Fig. S5 Fe 2p core-level XPS spectrum of MGNSs.



**Fig. S6** Cyclic behaviors of lithium ion batteries assembled with samples prepared with different dosage of  $\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$ .