Electronic Supplementary Material (ESI) for Nanoscale.

Encapsulation of $MnFe_2O_4$ Nanoparticles into Carbon Framework with Superior Rate Capability for Lithium Ion Battery

Weiqin Li,[a] Cuihua An,[b] Huinan Guo,[a] Yan Zhang,[a] Kai Chen,[a] Zeting Zhang,[a] Guishu Liu,[a] Yafei Liu,[a] and Yijing Wang[a]*

[a]Key Laboratory of Advanced Energy Materials Chemistry (Ministry of Education), Renewable Energy Conversion and Storage Center, College of Chemistry, Nankai University, Tianjin, 300071 P. R. China
[b]Tianjin Key Laboratory of Advanced Functional Porous Materials, School of Materials Science and Engineering, Tianjin University of Technology, Tianjin, 300384 P. R. China
**Corresponding author: Prof. Yijing Wang, E-mail: wangyj@nankai.edu.cn*

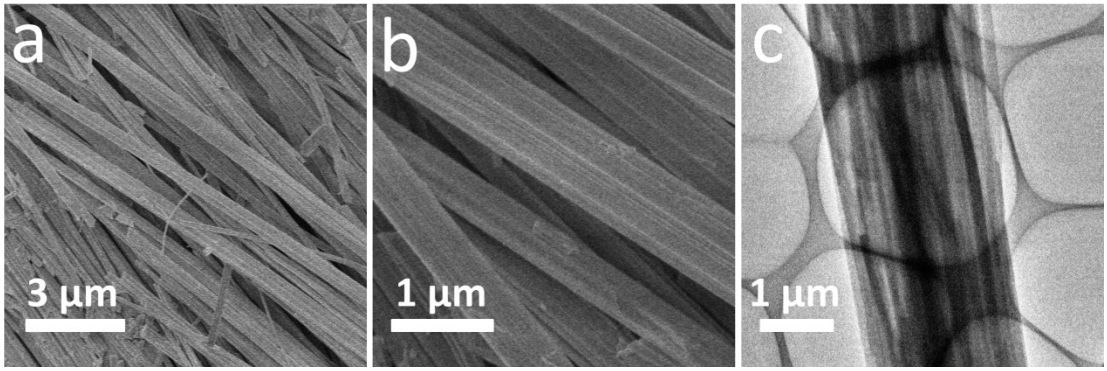

Figure S1. (a, b) SEM images and (c) TEM image of MnFe-NTA precursor.

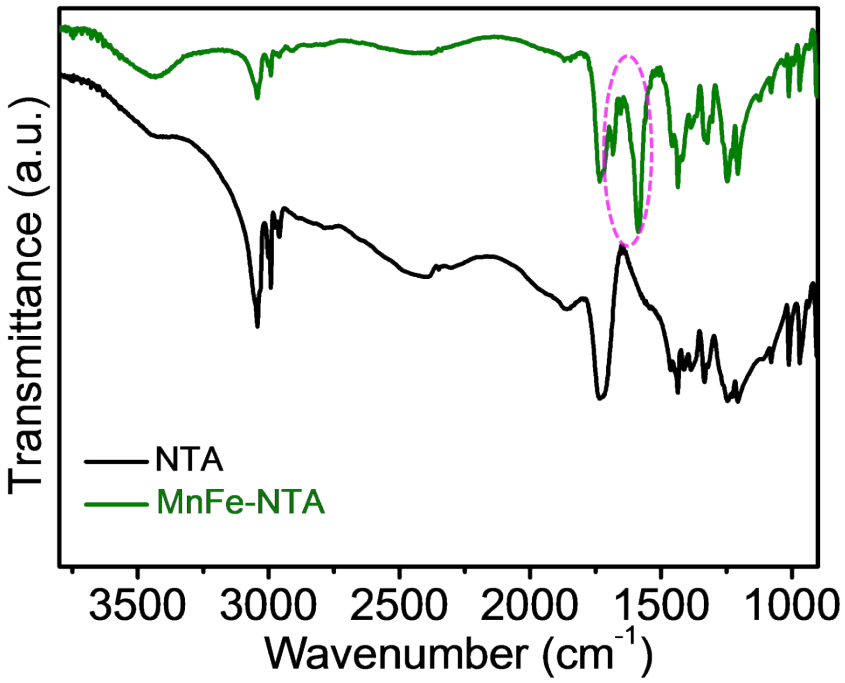

Figure S2. FT-IR spectra of NTA and MnFe-NTA precursor.

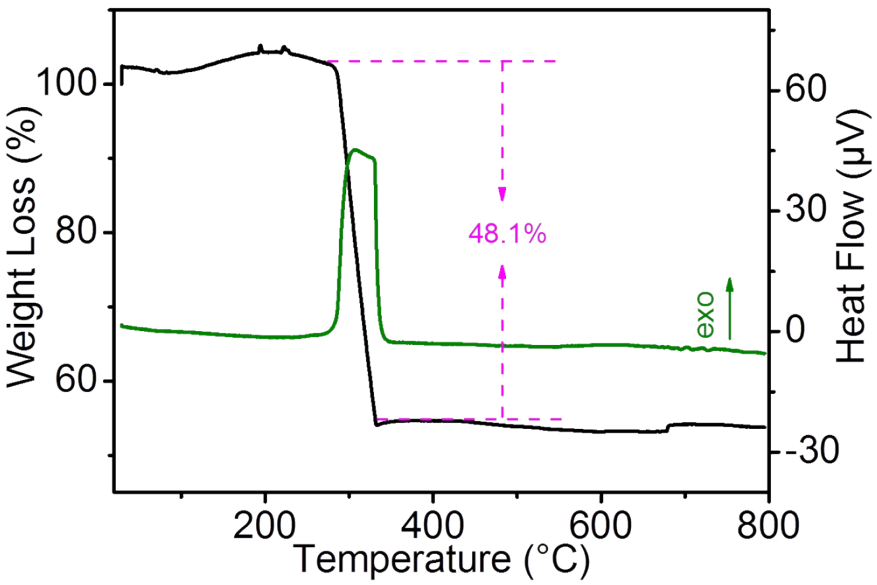

Figure S3. TG-DTA curves of MnFe-NTA precursor.

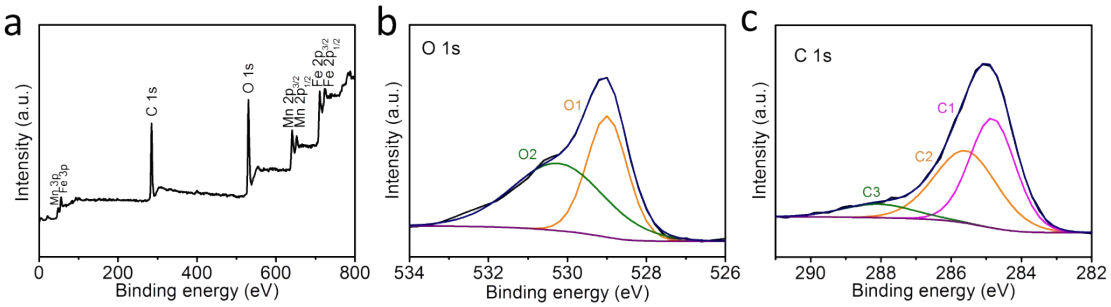

Figure S4. (a) XPS survey spectrum, the high resolution spectra of O 1s (b) and C 1s (c) for $MnFe_2O_4$@C.

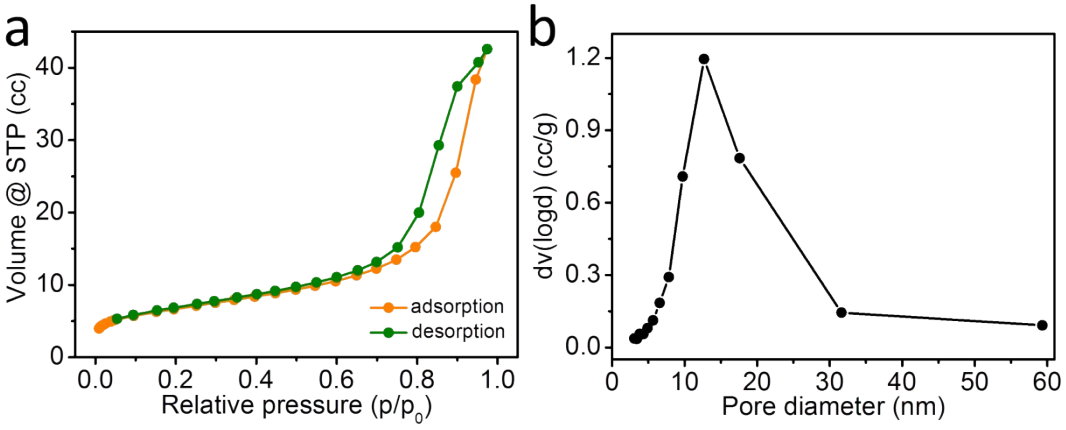

Figure S5. (a) N_2 adsorption-desorption isotherm and (b) pore diameter distribution curve of $MnFe_2O_4$@C.

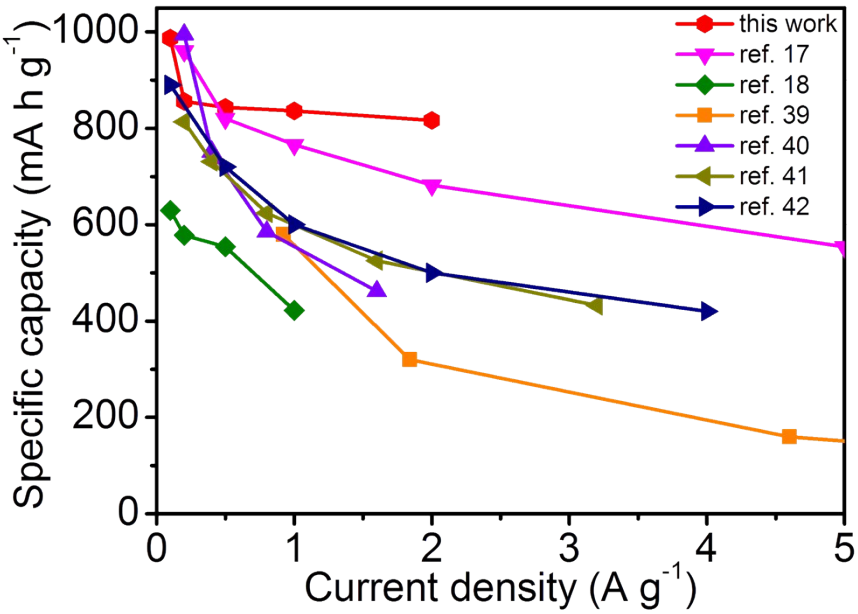

Figure S6. Comparison of rate capabilities between $MnFe_2O_4$@C and reported previously $MnFe_2O_4$ electrode for LIBs.

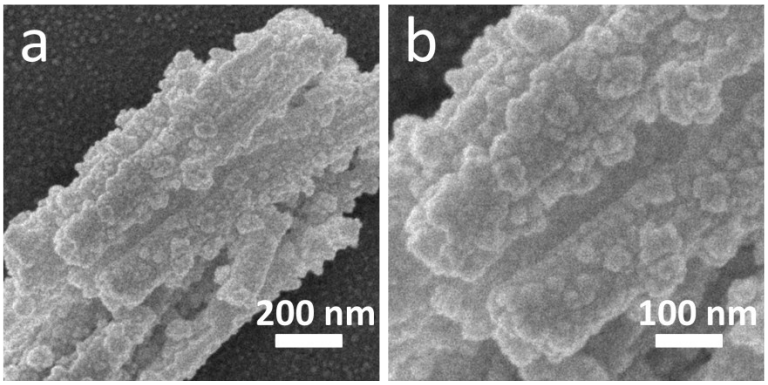

Figure S7. (a, b) SEM images of $MnFe_2O_4$@C electrode after 100 cycles at the current density of 1000 mA g^{-1}.

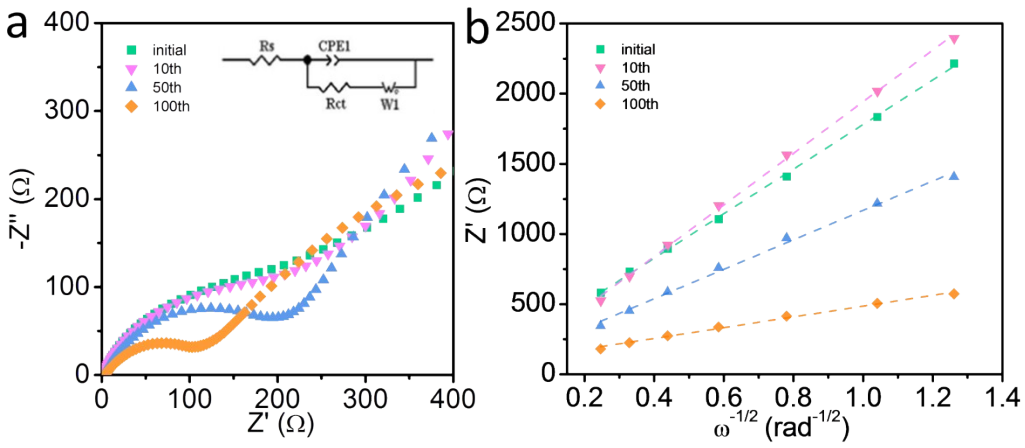

Figure S8. (a) EIS spectra with different cycles at the current density of 1000 mA g^{-1} and (b) the plots of impedance as a function of the inverse square root of angular frequency in the Warburg region for $MnFe_2O_4$@C.