

Supplementary Information

Engineering Single Crystalline Mn₃O₄ Nano-octahedra with Exposed Highly Active {011} Facets for High Performance Lithium Ion Battery

Shao-Zhuan Huang^a, Jun Jin^a, Yi Cai^a, Yu Li*^a, Hai-Yan Tan^c, G. Van Tendeloo^c, Hong-En Wang^a and Bao-Lian Su^{*ab}

^a *Laboratory of Living Materials at the State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, 122 Luoshi Road, 430070, Wuhan, Hubei, China; Fax: +86 27 87879468; Tel: +86 27 87855322; Email: yu.li@whut.edu.cn and bao-lian.su@unamur.be*

^b *Laboratory of Inorganic Materials Chemistry (CMI), University of Namur, 61 rue de Bruxelles, B-5500 Namur, Belgium; Fax: +32 81 725414; Tel: +32 81 724531; E-mail: bao-lian.su@unamur.be*

^c *EMAT, University of Antwerp, Groenenborgerlaan 171, B-2020 Antwerp, Belgium*

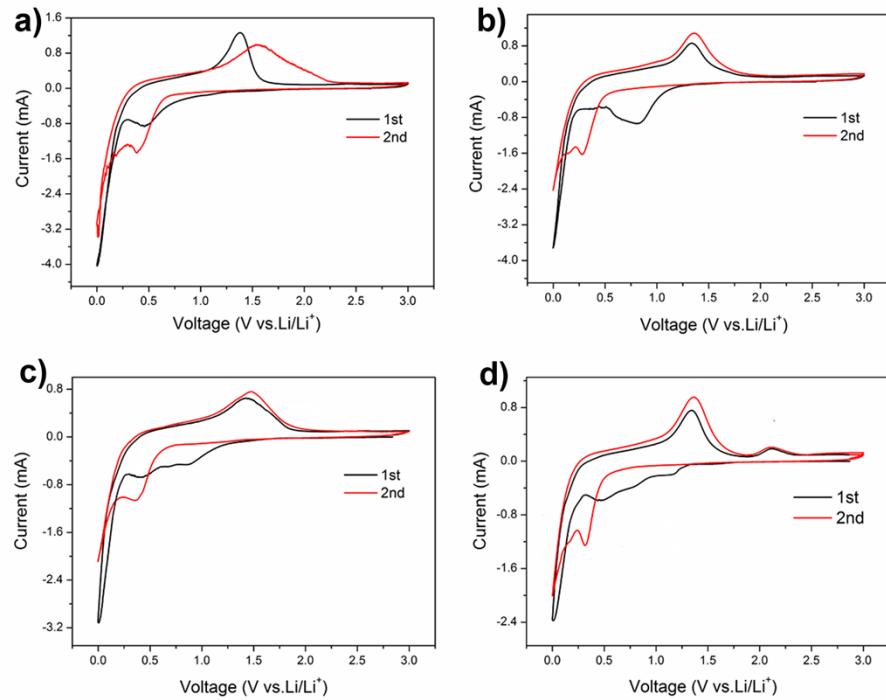


Fig. S1 CV curves of the four samples for first 2 cycles with 0.2 mV s^{-1} scan rate in the potential window from 3.0 V to 0 V: a) MO1; b) MO2; c) MO3; d) MO4.

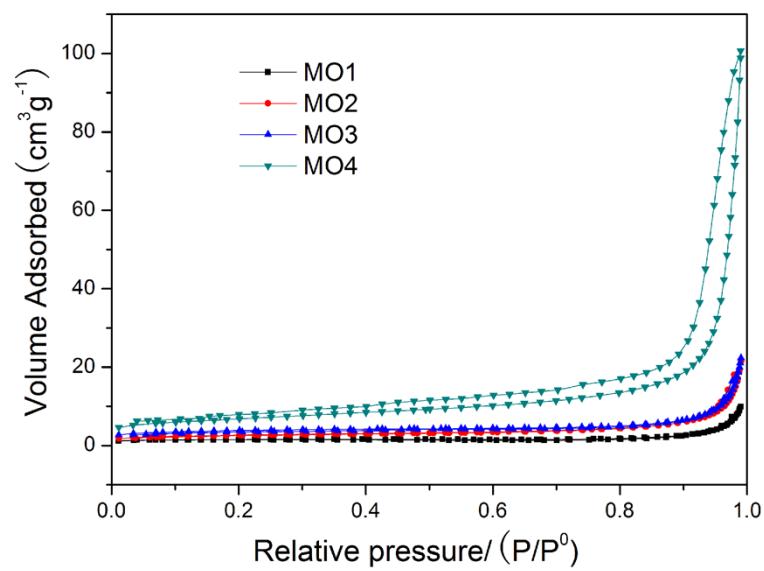


Fig. S2 Nitrogen adsorption/desorption isotherms of MO1, MO2, MO3 and MO4.

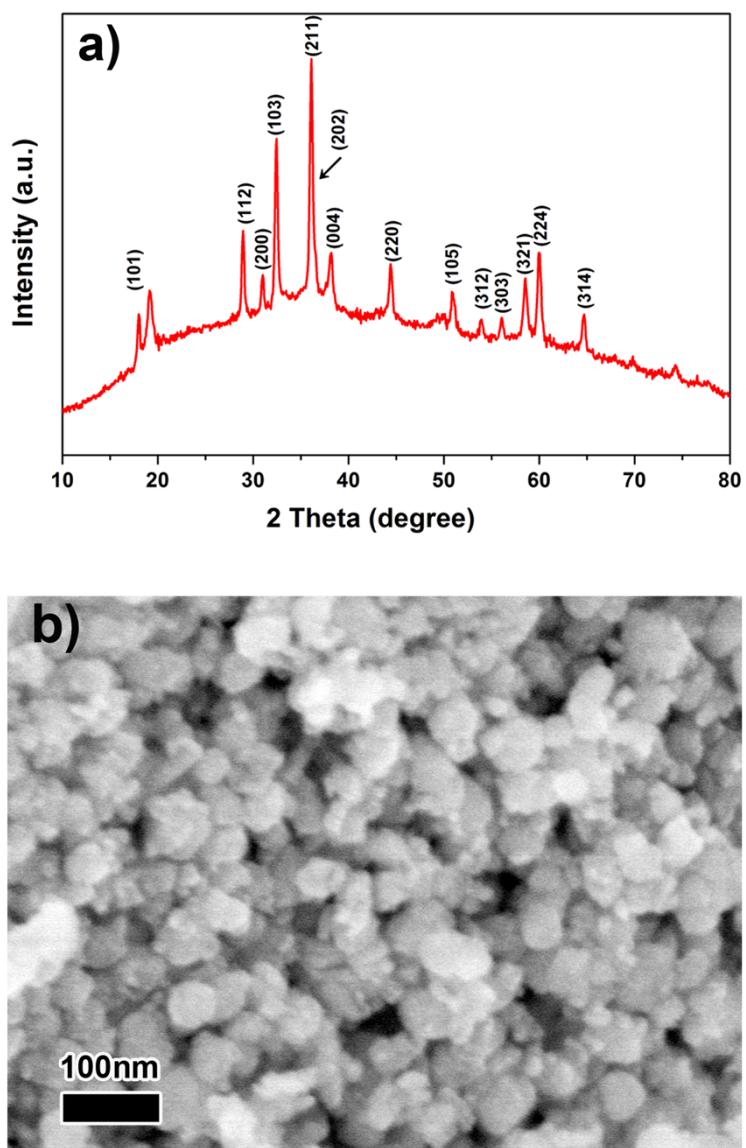


Fig. S3 A typical XRD pattern (a) and FESEM image (b) of irregular shaped Mn_3O_4 nanoparticles.

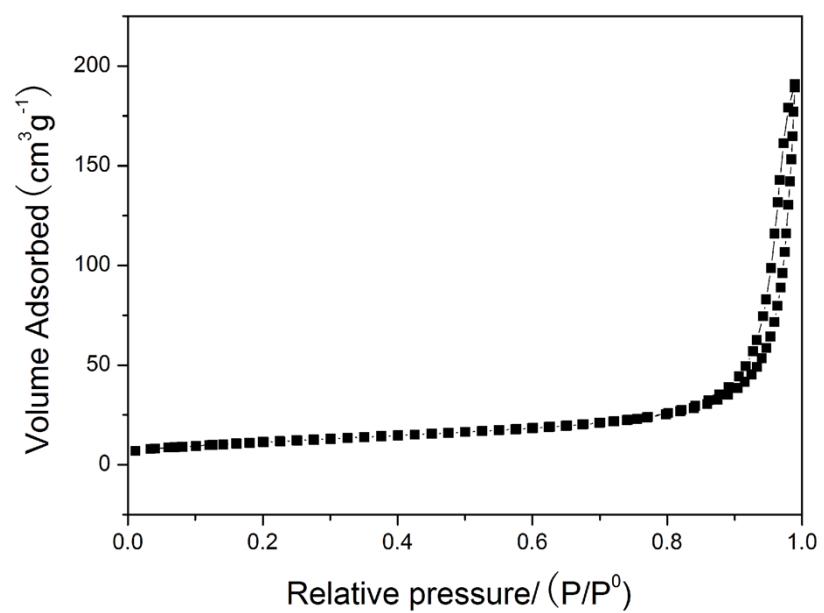


Fig. S4 Nitrogen adsorption/desorption isotherms of the irregular shaped Mn₃O₄ nanoparticles.

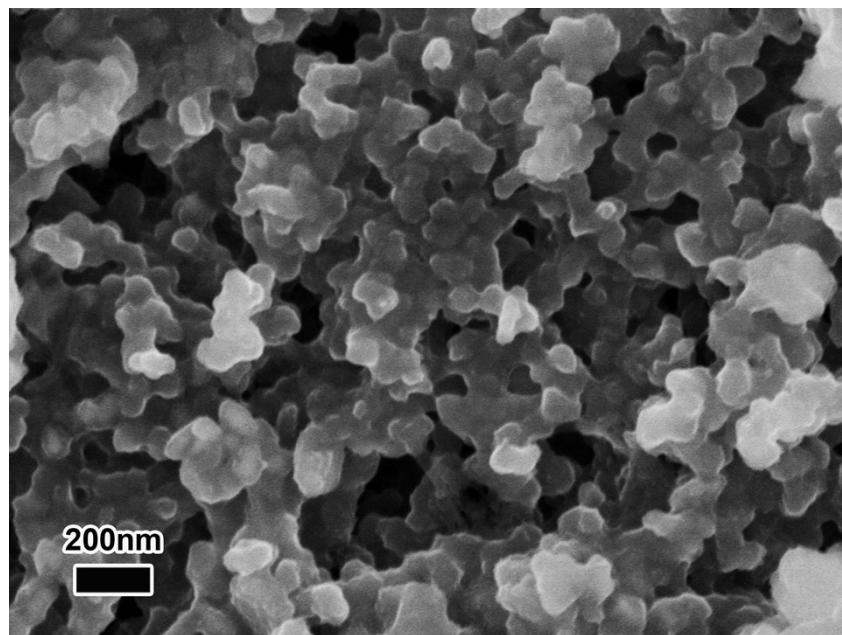


Fig. S5 FESEM images of the irregular shaped Mn₃O₄ nanoparticles after cycling for 50 cycles.

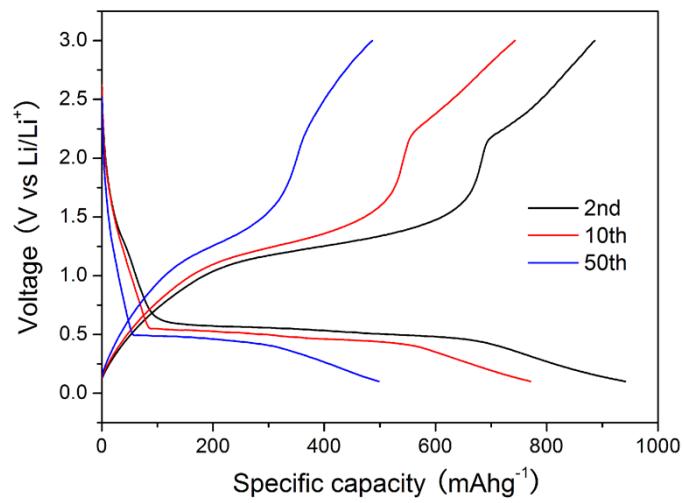


Fig. S6 The second, 10th and 50th charge-discharge profiles of MO4 at 50 mA g⁻¹ in the voltage range of 0.1 V-3 V.