SUPPLEMENTARY

Laser ablation of pristine Fe foil constructing a layer-by-layer SiO_2/Fe_2O_3/Fe

integrated anode for the high cycling-stability lithium-ion batteries

Zhongyuan Zhang^{a,1}, Chen Yang^{b,1}, Canfeng Fang^a, Wenfei Yang^a, Xue Zhang^a, Zhiguo Rong^a, Xiyang Li^a, Feirong Huang^a, Youngguan Jung^c, Jing Lu^b, Xinglong Dong^{*a}

^aKey Laboratory of Materials Modification by Laser, Ion and Electron Beams (Ministry of Education), School of Materials Science and Engineering, Dalian University of Technology, Dalian, 116024, P.R. China.

^bState Key Laboratory for Mesoscopic Physics and Department of Physics, Academy for Advanced Interdisciplinary Studies, Peking University, Beijing 100871, P. R. China

^cDepartment of Mechanical Engineering, Kumoh National Institute of Technology, Daeharkro 53, Gumi, Gyeong-Buk, 730-701, South Korea

* Corresponding author.

E-mail: XL Dong, dongxl@dlut.edu.cn. Phone: +86-411-8471630. Fax: +86-411-84706130

¹ The authors contributed equally to this work.



Fig.S1. EDS mapping on Fe (k), Si (l), O (m) elements of the SiO₂/Fe₂O₃/Fe foil.



Fig.S2. Cyclic voltammograms of the Fe_2O_3/Fe anode over a potential range of 0.01 - 3.00 V (vs. Li^+/Li) at a scan rate of $0.2 \text{ mV} \cdot \text{s}^{-1}$



Fig.S3. The fitting B-M plots for Li⁺ adsorbing in amorphous (a)SiO₂ and (b)Fe₂O₃.