Supplementary Information

A β-FeOOH/MXene Sandwich for High-Performance Anodes in Lithium-ion Batteries

Lu He[a]+, Chuan Tan[a]+, Chuanchao Sheng[b], Yuanzhao Chen[a], Fengjiao Yu[b]* and Yuhui Chen[a]*

[a] State Key Laboratory of Materials-Oriented Chemical Engineering, School of Energy, Nanjing Tech University, Nanjing, Jiangsu, 211816 China
[b] State Key Laboratory of Materials-Oriented Chemical Engineering, College of Chemical Engineering, Nanjing Tech University, Nanjing, Jiangsu, 211816 China

Email: fjyu@njtech.edu.cn, cheny@njtech.edu.cn,
+L.H and C.T. contributed equally to this work.

Results of thermogravimetric analysis

Thermogravimetric analysis (TGA) was performed in nitrogen at a heating rate of 10 ℃/min from 25 ℃ to 900 ℃. The weight loss is due to the decomposition of FeOOH. According to the TGA results in Figure 1b, 22.8 % and 19.7 % of weight were respectively lost for FeOOH and FeOOH-Ti_3C_2 composite. The content of FeOOH is responsible for all the weight loss of FeOOH-Ti_3C_2 composite, as Ti_3C_2 results in no weight loss during TG process. Therefore, the ratio of FeOOH in the composite is calculated as 19.7 / 22.8 = 87 %.

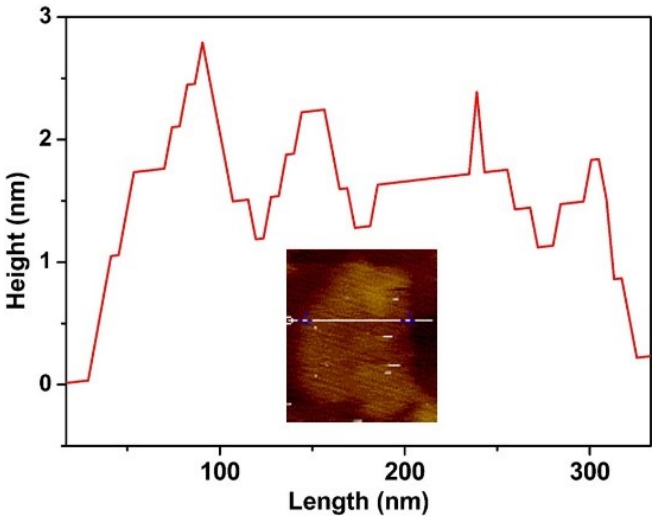

Figure S1 AFM results of a typical Ti_3C_2 flake. Sectional profile of the Ti_3C_2. Inset: Topographic image of the Ti_3C_2.

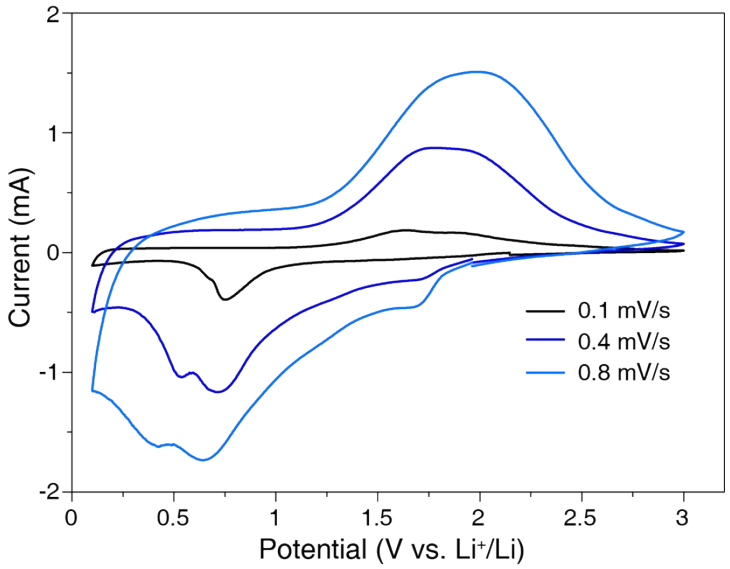

Figure S2 CV curves for the FeOOH/Ti_3C_2 composite at various scan rates.

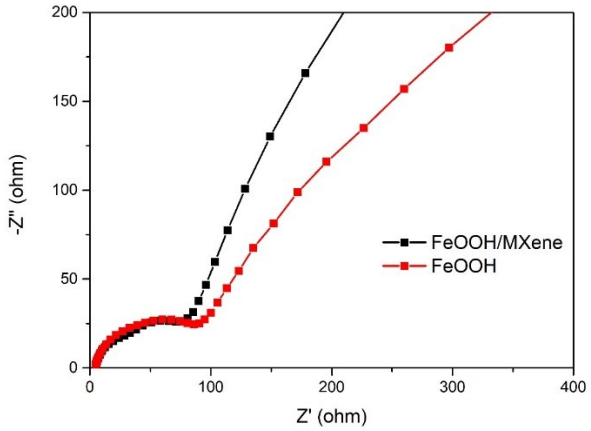

Figure S3 EIS results of the FeOOH/MXene and FeOOH.