Electronic Supplementary Material (ESI) for Nanoscale.

Supplementary Material

Porous hybrid encapsulation enables the high-rate lithium storage for micron-sized SiO anode

Xiaoyi Chen, Guanjia Zhu,* Xinlin Zhang, Dandan Luo, Zhongling Cheng, Haijiao Zhang*

Institute of Nanochemistry and Nanobiology, School of Environmental and Chemical Engineering, Shanghai University, Shanghai 200444, P. R. China

*Corresponding author

E-mail: hjzhang128@shu.edu.cn; zhuguanjia@shu.edu.cn

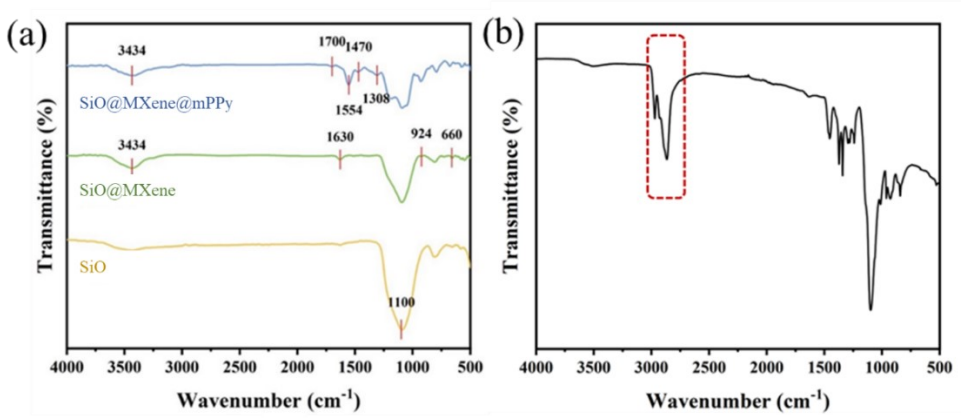

Fig. S1 FT-IR spectra of (a) SiO, SiO@MXene, SiO@MXene@mPPy and (b) P123.

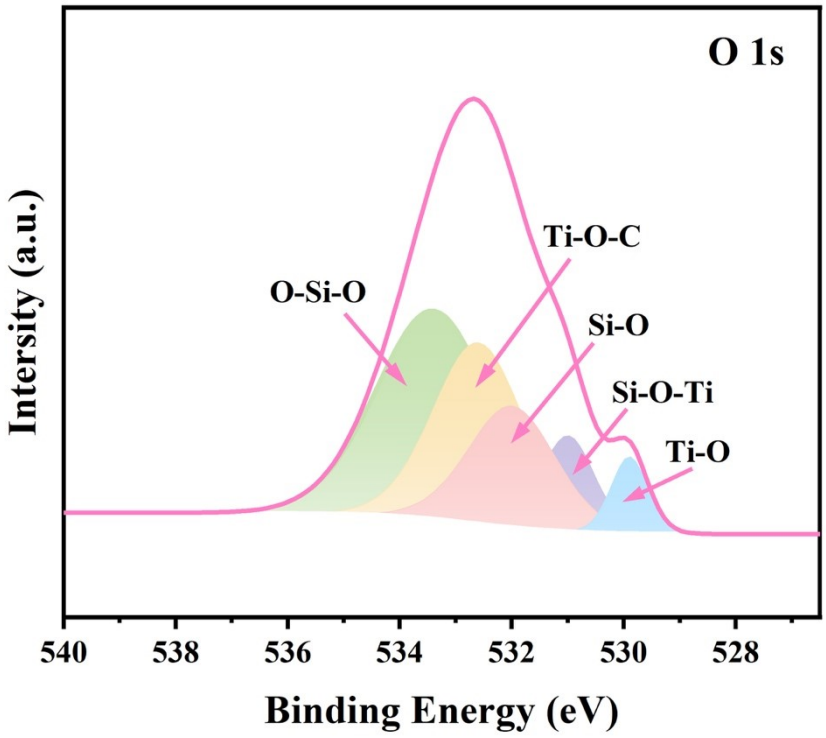

Fig. S2 XPS spectrum of O 1s.

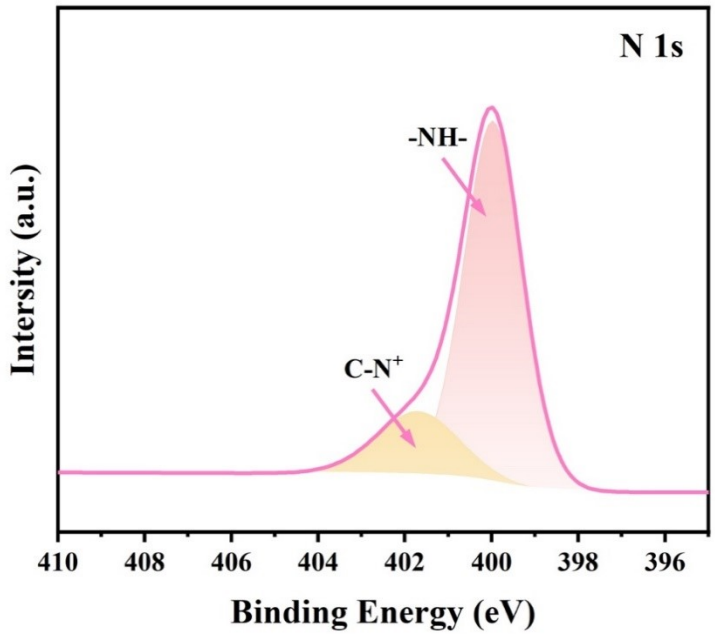

Fig. S3 XPS spectrum of N 1s.

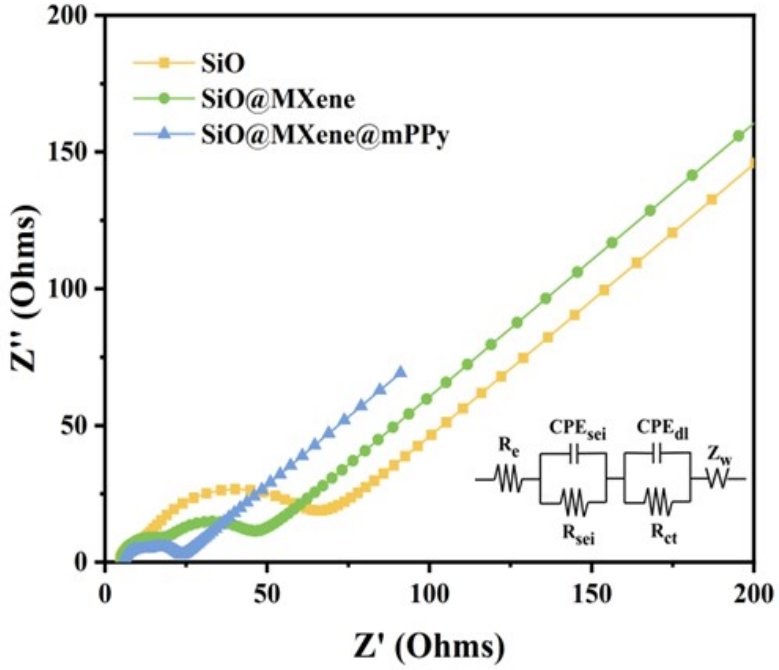

Fig. S4 Electrochemical impedance spectra (EIS) of SiO, SiO@MXene and SiO@MXene@mPPy after cycling.

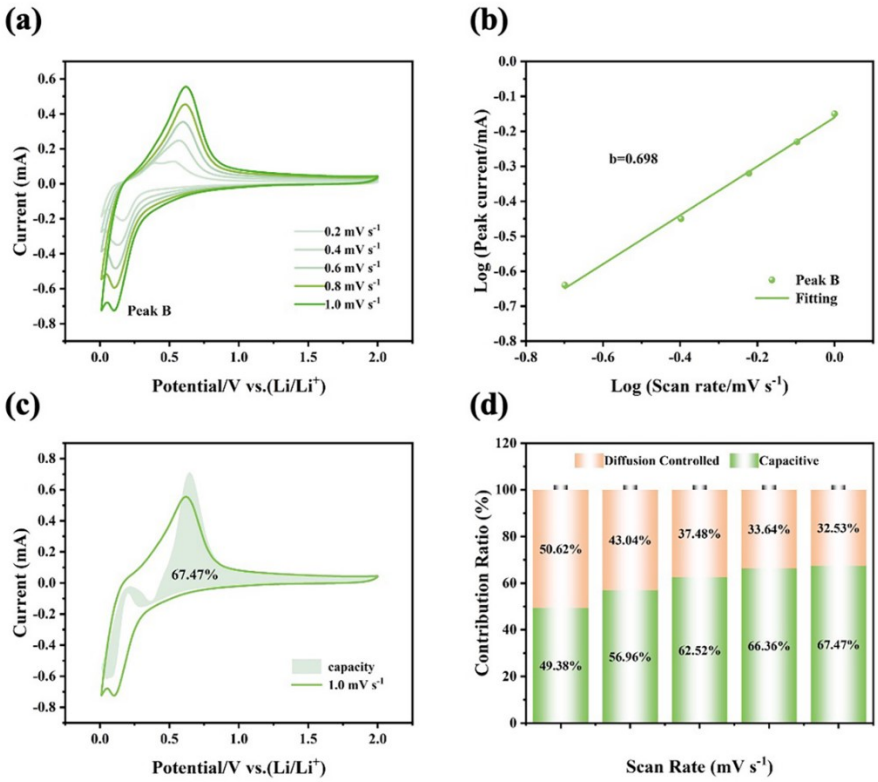

Fig. S5 (a) CV curves of SiO@MXene at different scan rates from 0.1 to 1.0 mV s^{-1}. (b) Correlation between the log(peak current) and the log(scan rate) of SiO@MXene. (c) Contribution of capacitive charge storage to the total capacity of the SiO@MXene electrode at a scan rate of 1.0 mV s^{-1}. (d) Contribution ratio of the capacitive and diffusion-controlled charge storage at different scan rates of SiO@MXene electrode.

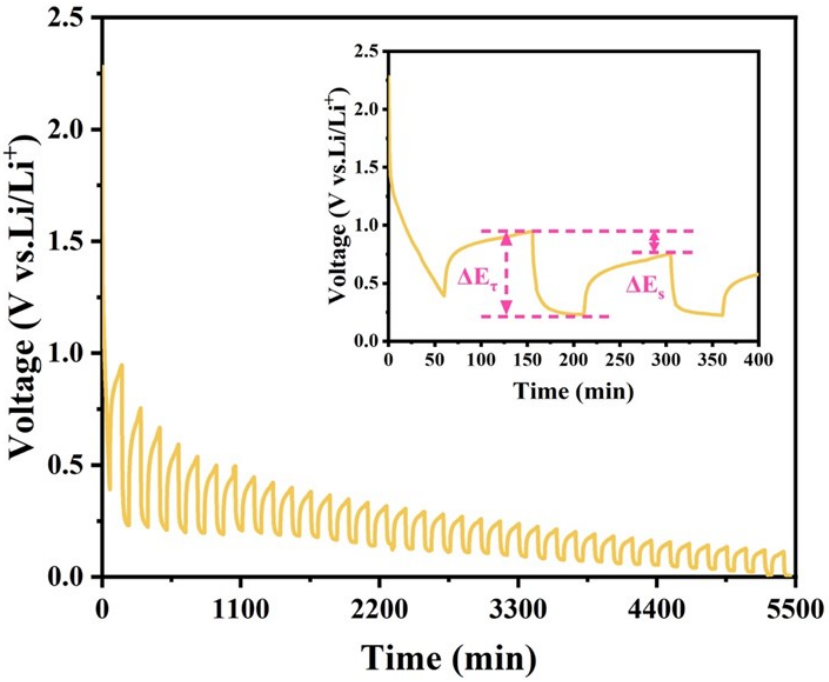

Fig. S6 GITT curve of SiO@MXene electrode.

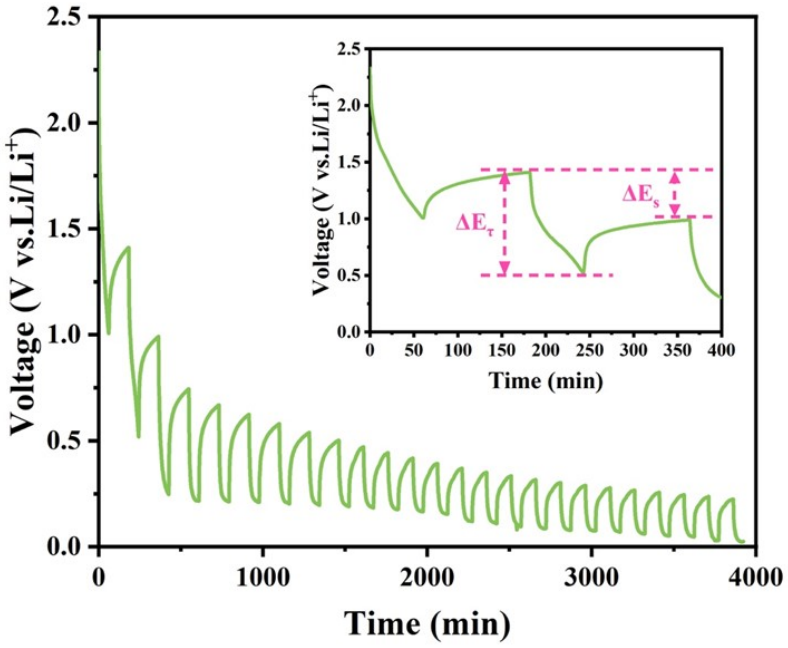

Fig. S7 GITT curve of SiO electrode.