Electronic Supplementary Information

Hydrothermal growth of ferrous hydroxide terephthalate as a new positive electrode material for supercapacitors

Xiuling Ou, Shuijin Lei,* Xinlai Zhang, Kun Wan, Yifan Wang, Wei Zhou, Yanhe Xiao and Baochang Cheng

School of Materials Science and Engineering, Nanchang University, Nanchang, Jiangxi 330031, P. R. China

* To whom correspondence should be addressed. E-mail: shjlei@ncu.edu.cn

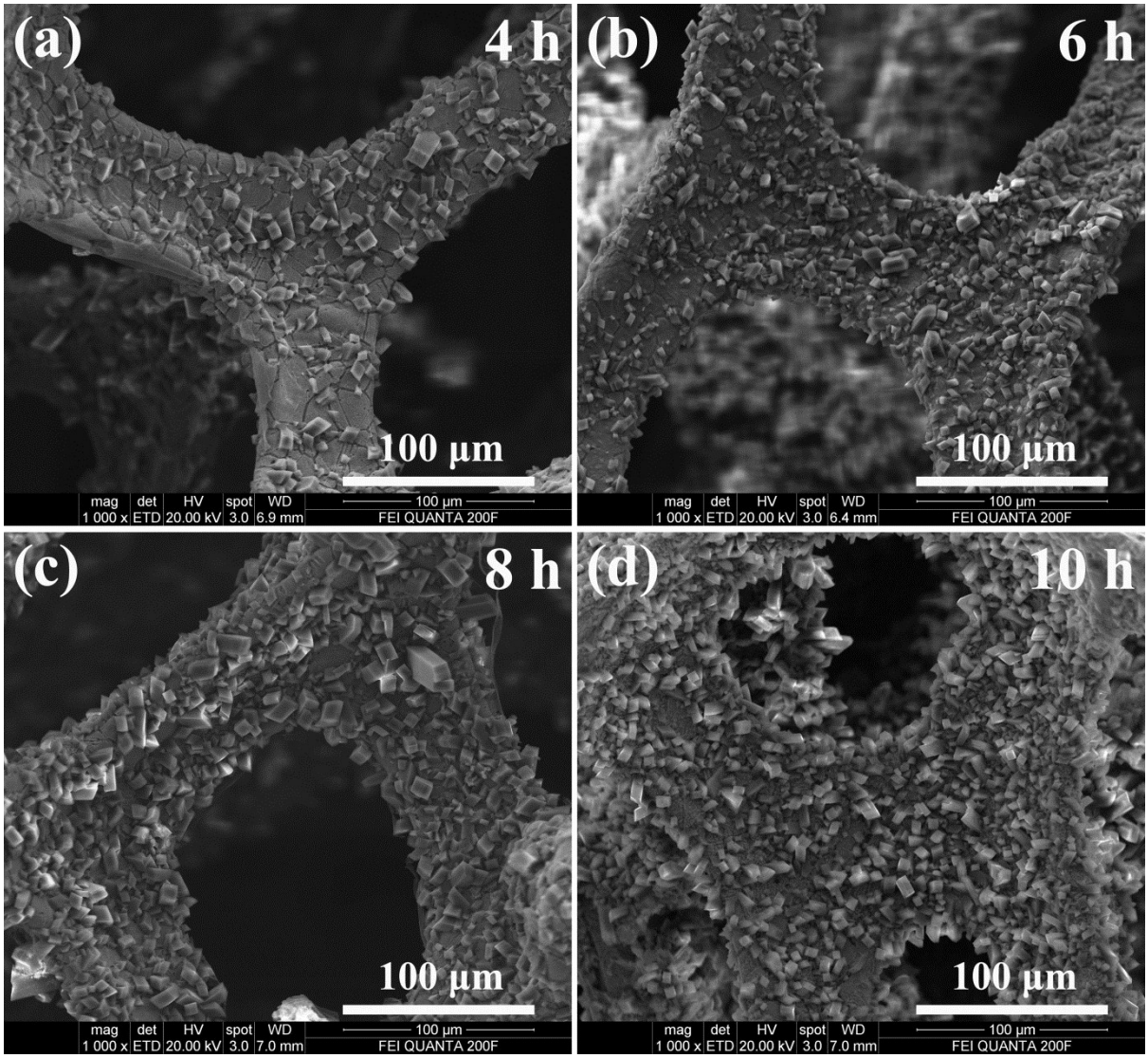

Fig. S1 SEM images of the comparative Fe(OH)(Tp) samples prepared for different reaction time with different mass loading: (a) 4 h, (b) 6 h, (c) 8 h, and (d) 10 h.

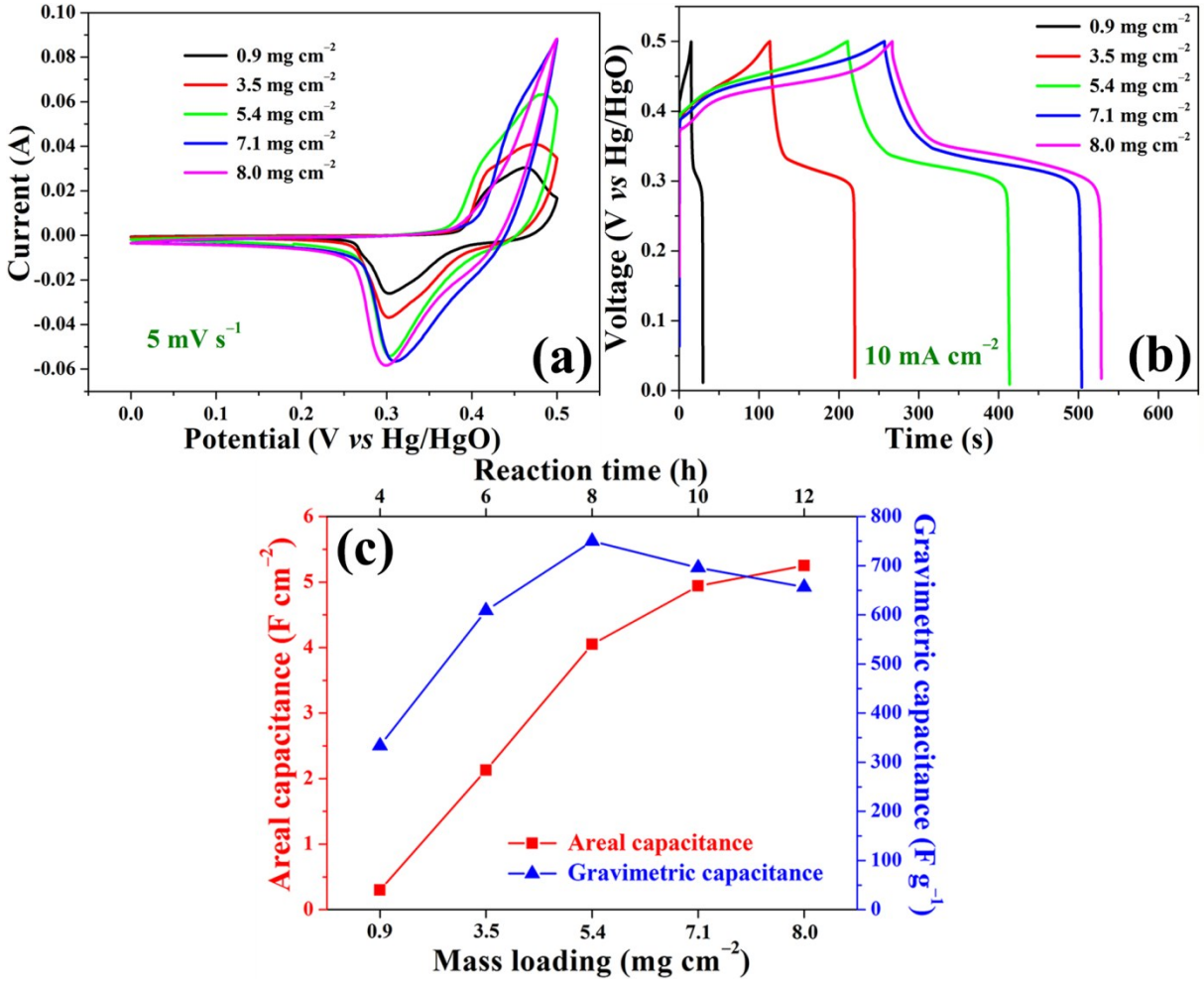

Fig. S2 (a) CV curves recorded at a scan rate of 5 mV s^{-1}, (b) GCD curves measured at a current density of 10 mA cm^{-2}, and (c) the areal and gravimetric specific capacitances of the Fe(OH)(Tp) electrodes as a function of the mass loading of the Fe(OH)(Tp) samples prepared for different reaction time.

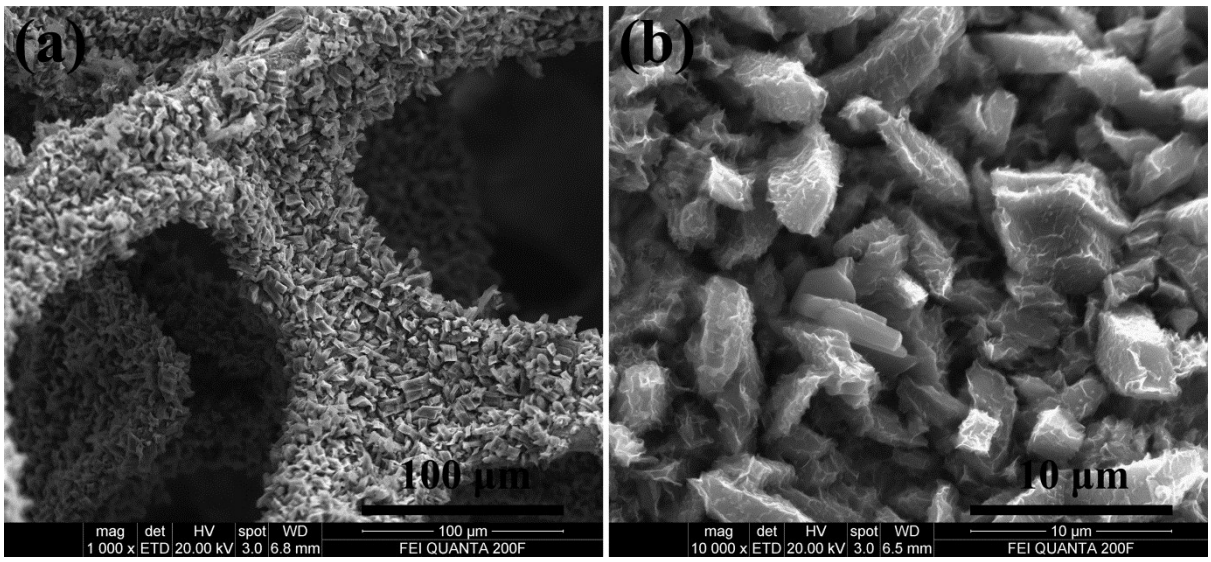

Fig. S3 (a) Low-magnification and (b) high-magnification SEM images of the Fe(OH)(Tp) electrode materials after cycling test.

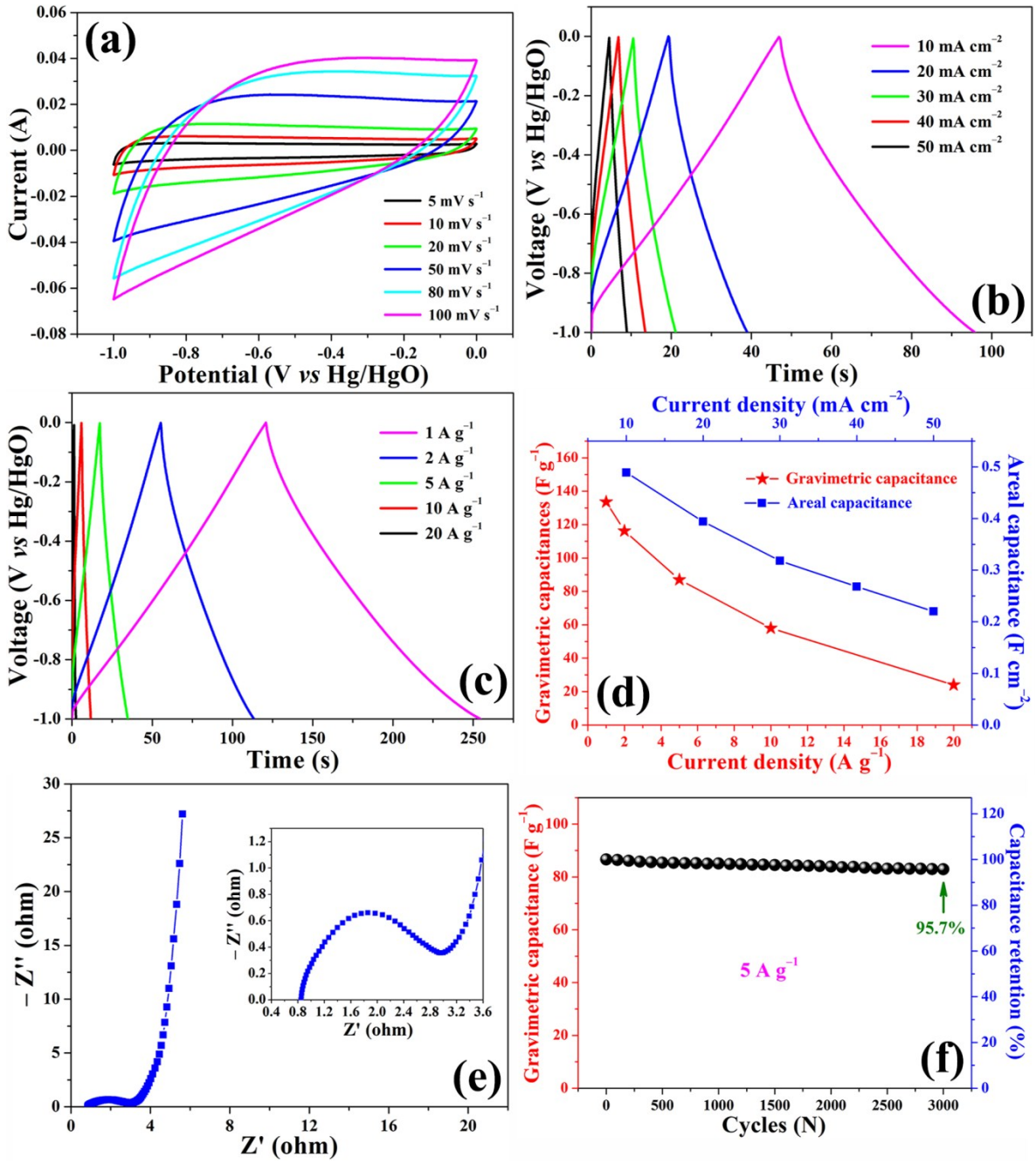

Fig. S4 Electrochemical behaviors of the activated carbon negative electrode in 3 M KOH aqueous electrolyte with a three-electrode model: (a) CV curves at different scan rates; (b) GCD curves at different areal current densities; (c) GCD curves at different gravimetric current densities; (d) the gravimetric and areal specific capacitances of the carbon electrode as a function of the current density; (e) EIS Nyquist plots; (f) cycling stability of the carbon electrode over 3000 cycles at a current density of 40 mA cm^{-2}.

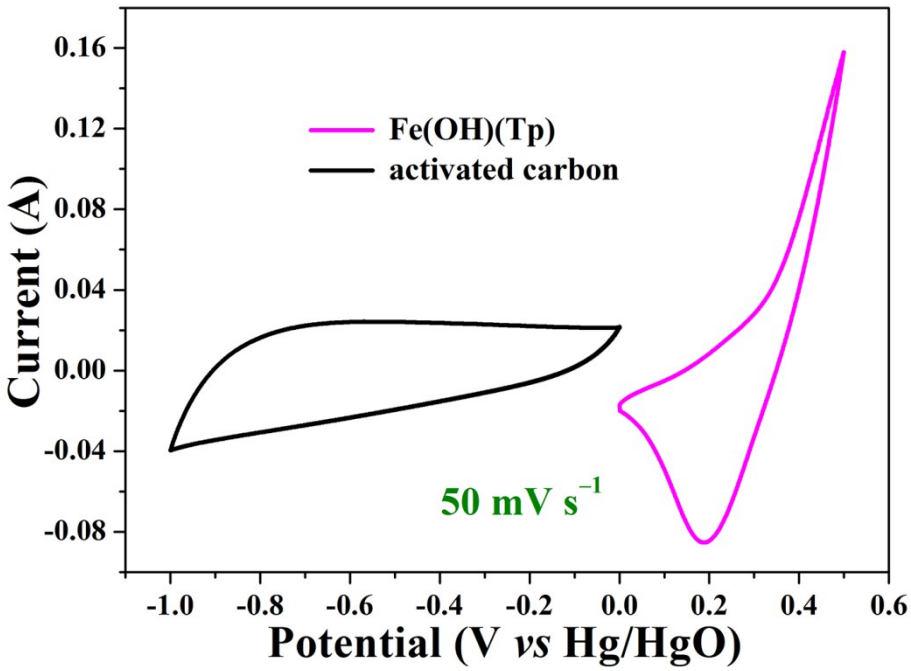

Fig. S5 The contrastive CV curves of the Fe(OH)(Tp) positive electrode and the activated carbon negative electrode at a scan rate of 50 mV s^{-1}.

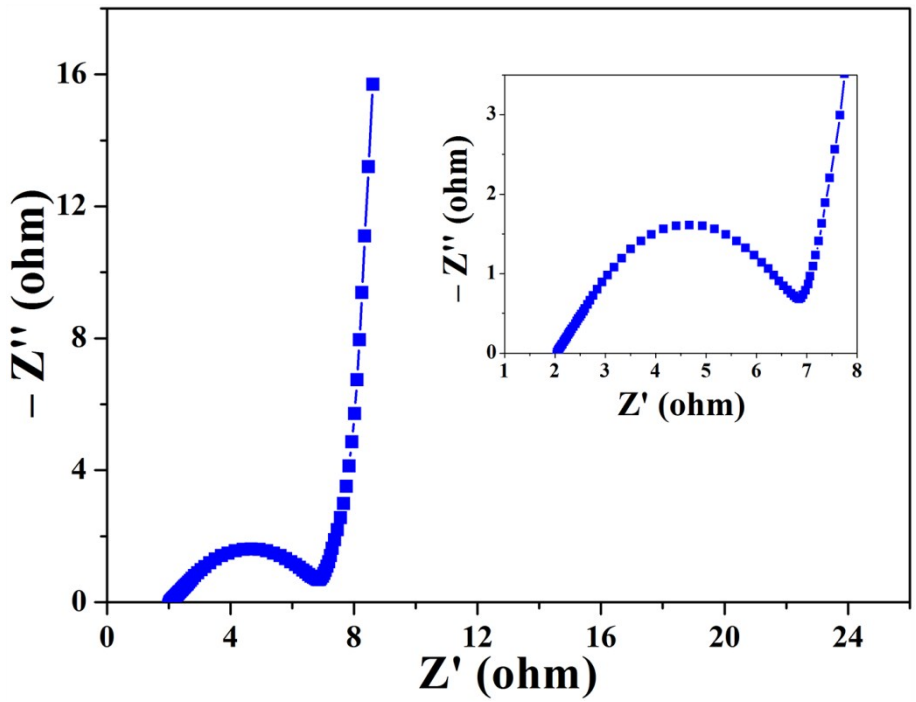

Fig. S6 Nyquist plots of the assembled asymmetric supercapacitor device.