Supporting Information for

Controllable In-situ Synthesis of Epsilon Manganese Dioxide Hollow Structure/RGO Nanocomposite for High-performance Supercapacitors

Mei Lin, Bolei Chen, Xiao Wu, Jiasheng Qian, Linfeng Fei, Wei Lu, Lai Wa Helen Chan, and Jikang Yuan*

Department of Applied Physics and Materials Research Centre, The Hong Kong Polytechnic University, Hong Kong, China. Tel:+852 27665685

E-mail: jikang.yuan@polyu.edu.hk

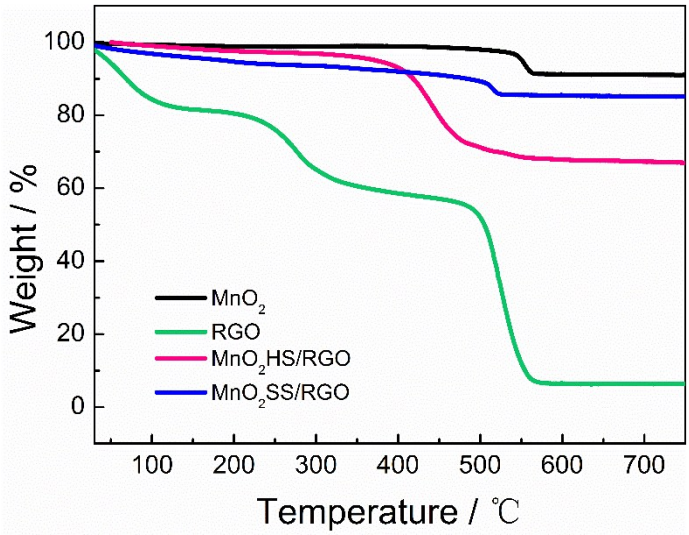

Fig. S1 TG curves of GO, ε-MnO_2 and ε-MnO_2/RGO nanocomposites at a heating rate of 10 °C min^{-1} in air. The weight loss of GO, ε-MnO_2, MnO_2HS/RGO and MnO_2SS/RGO nanocomposites are found to be 93.7%, 9%, 33.3% and 15%, respectively.

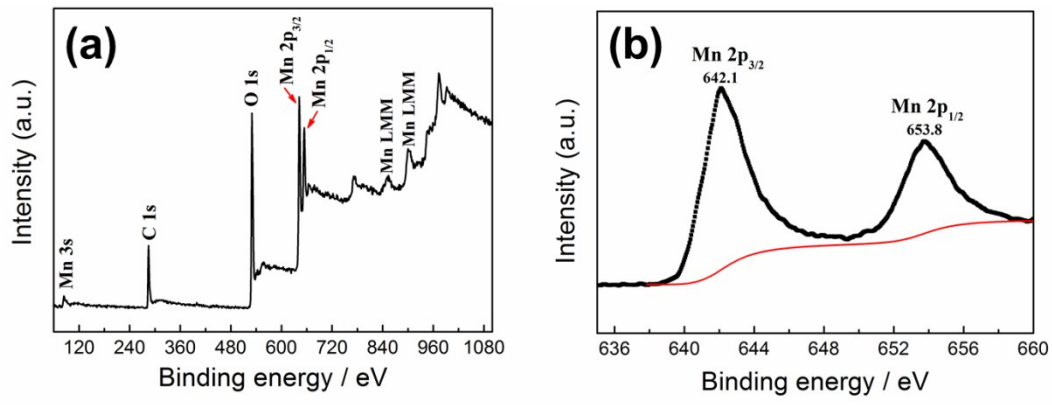

Fig. S2 XPS spectra of MnO_2HS/RGO nanocomposite. (a) Wide scan survey spectrum; (b) narrow-scan Mn 2p spectrum.

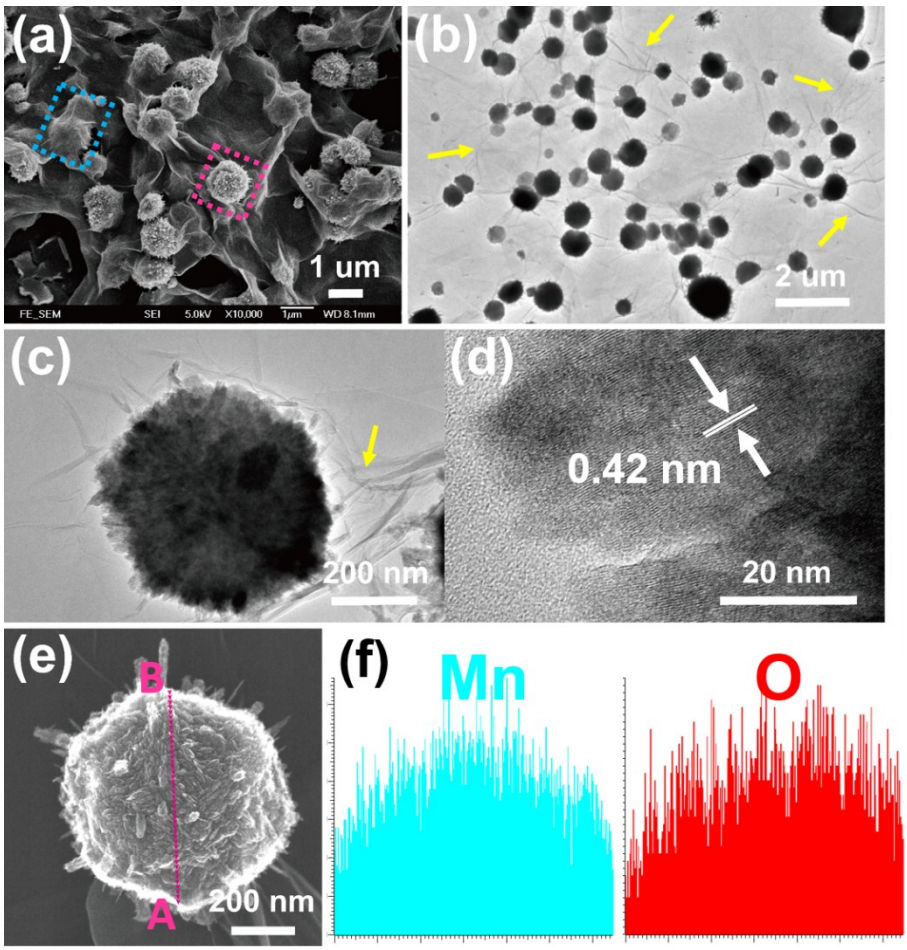

Fig. S3 (a) MnO_2SS/RGO nanocomposite, (b,c) low- and high-magnification TEM images of MnO_2SS/RGO nanocomposite, (d) HRTEM image of MnO_2 solid sphere, (e) STEM image of a single MnO_2 solid sphere, (f) cross-sectional compositional spectra of a single MnO_2 solid sphere along the line marked with AB in (e).

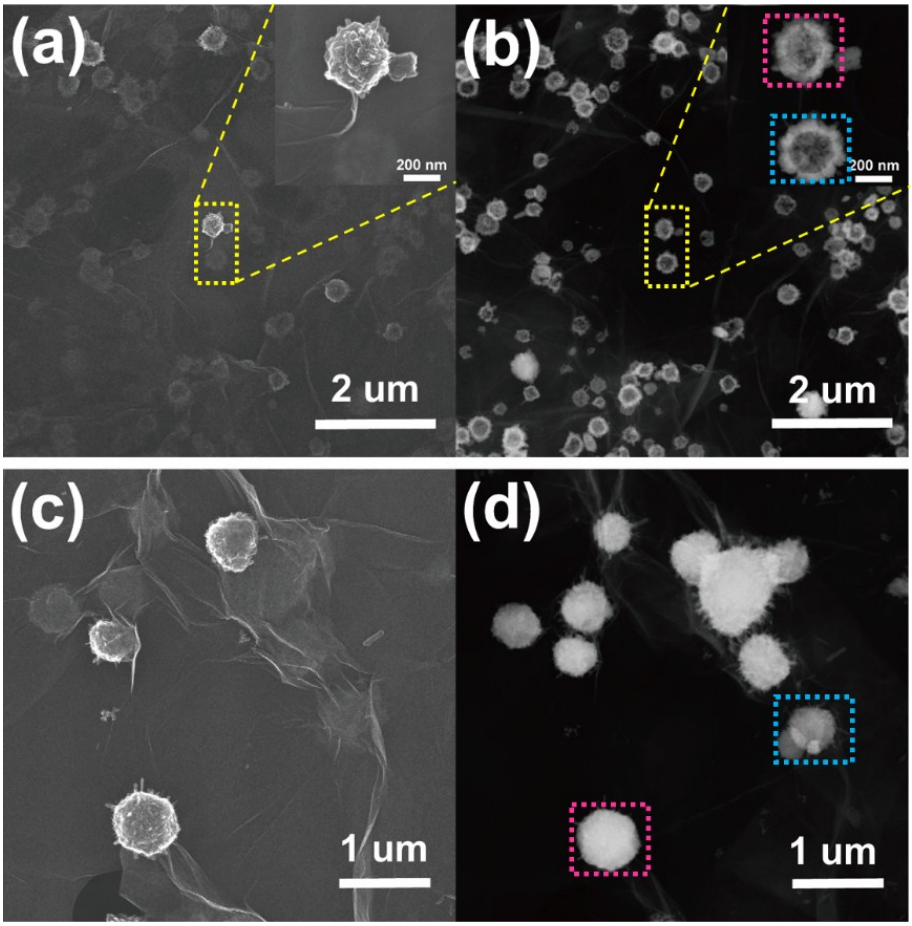

Fig. S4 (a, b) Bright-field and dark-field STEM images of MnO_2HS/RGO nanocomposite, (c, d) Bright-field and dark-field STEM images of MnO_2SS/RGO nanocomposite.

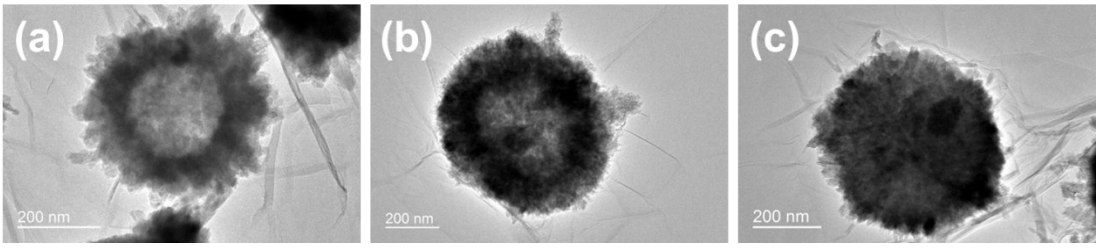

Fig. S5 TEM images of single MnO_2 sphere with different reaction time at room temperature. (a) 12 days, (b) 16 days, (c) 18 days.

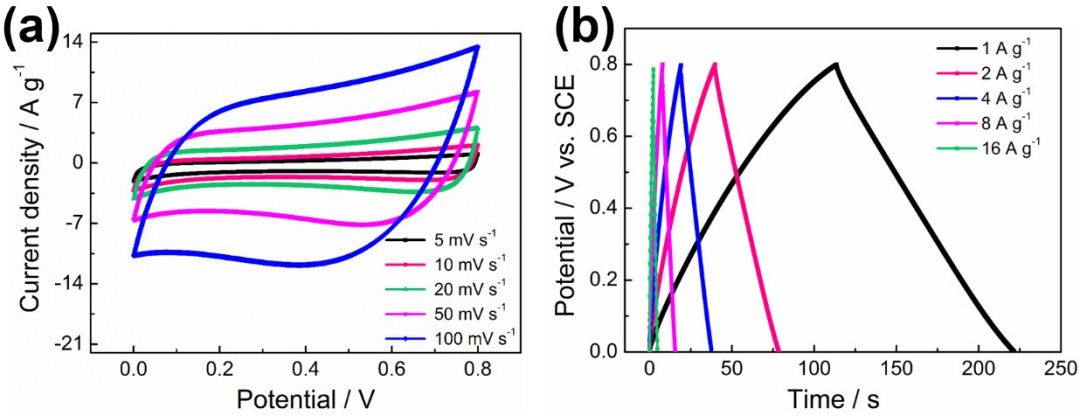

Fig. S6 Electrochemical characterization of MnO_2SS/RGO electrodes in 1M aqueous Na_2SO_4 electrolyte: (a) CV curves at different scan rates, (b) galvanostatic charge-discharge curves at different current densities.