

Supporting Information

Electrochemical and in situ X-ray spectroscopic studies of MnO₂/reduced graphene oxide nanocomposites as a supercapacitor

Han-Wei Chang^{a,b}, Ying-Rui Lu^{a,b,c}, Jeng-Lung Chen^b, Chi-Liang Chen^b, Jyh-Fu Lee^b,
Jin-Ming Chen^b, Yu-Chen Tsai^{d*}, Ping-Hung Yeh^a, Wu Ching Chou^e, and Chung-Li
Dong ^{a*}

^aDepartment of Physics, Tamkang University, New Taipei, 25137, Taiwan

^bNational Synchrotron Radiation Research Center, Hsinchu, 30076, Taiwan

^cProgram for Science and Technology of Accelerator Light Source, National Chiao
Tung University, Hsinchu 30010, Taiwan

^dDepartment of Chemical Engineering, National Chung Hsing University, 250, Kuo
Kuang Road, Taichung 402, Taiwan

^eDepartment of Electrophysics, National Chiao Tung University, Hsinchu 30010,
Taiwan

Figure S1 presents the pre-edge regions of the Mn K-edge XAS of (a) $\text{MnO}_2/\text{C-CNT}$, (b) MnO_2/RGO , and (c) $\text{MnO}_2/\text{RGO-Au}$ electrodes at different stages of cycling. The pre-peak intensity of the $\text{MnO}_2/\text{C-CNT}$ electrodes visibly changes during the charge process. Additionally, the pre-peak intensity of the MnO_2/RGO -based electrodes exhibits almost no change in 1000 cycles because of very slight change in the tunnel size of MnO_2/RGO -based electrodes, which enables the structure to be maintained throughout the charge/discharge processes and improves the electrochemical capacitive performance.“

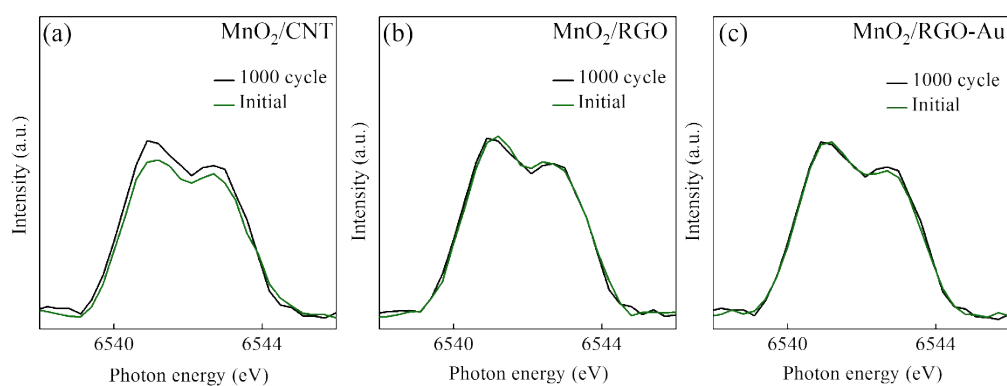


Figure S1