Electronic Supplementary Information for

Integrated SnO_2 Nanorod Array with Polypyrrole Coverage for High-rate and Long-life Lithium Batteries

Lei Zhang[§], Kangning Zhao[§], Wangwang Xu[§], Yifan Dong, Rui Xia, Fengning Liu, Liang He*, Qiulong Wei, Mengyu Yan, Liqiang Mai*

State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, WUT-Harvard Joint Nano Key Laboratory, Wuhan University of Technology, Wuhan 430070, China

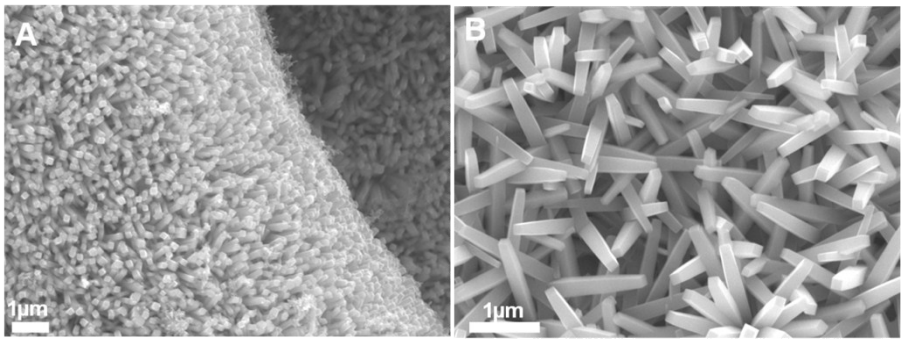

Figure S1, SEM image of the bare SnO_2 nanorod array

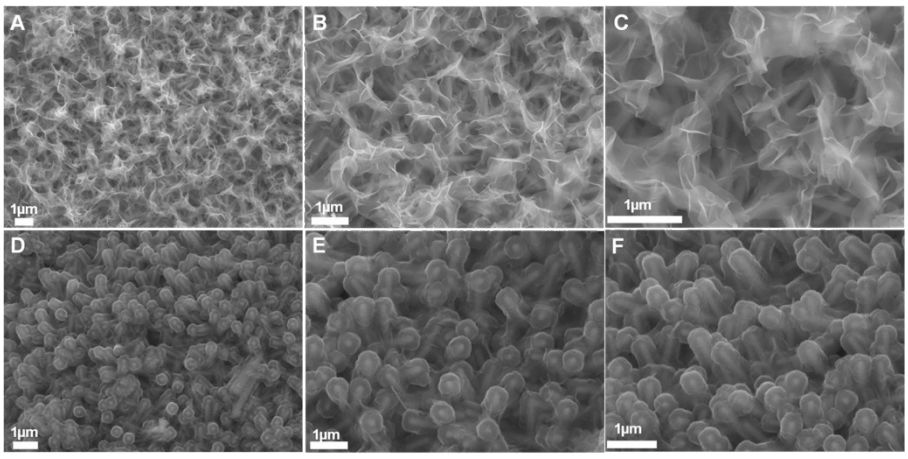

Figure S2, SEM image of the SnO_2-PPy nanorod array with higher current density (A, B, C); the core-shell SnO_2-PPy nanorod array (D, E, F).

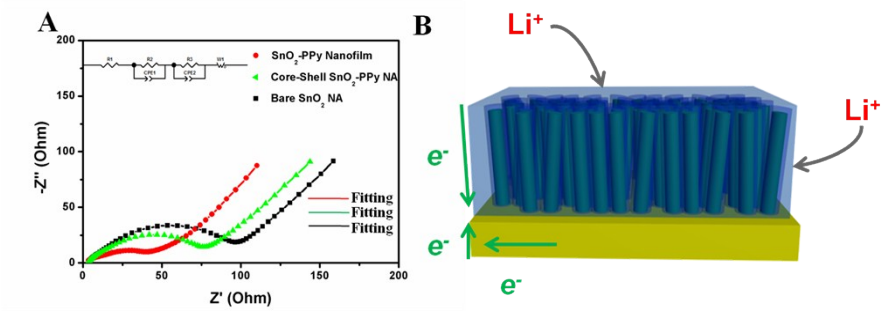

Figure S3, (A) Nyquist plots of bare SnO_2 NA, core-shell SnO_2-PPy NA, and SnO_2-PPy nanofilm, (B) the schematic illustration of the SnO_2-PPy nanofilm in which the conducting polymer provides a flexible confinement for anchoring each nanorod and maintaining the whole structural integrity.

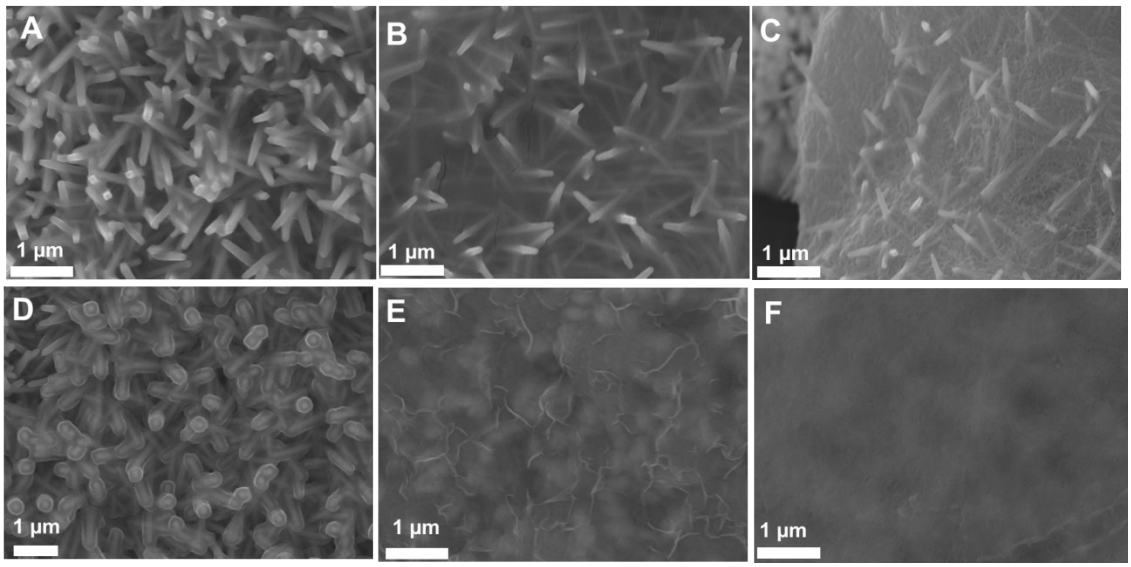

Figure S4, SEM images of as-prepared sample with the electro deposition time of 100 s (A), 300 s (B), 500 s (C), 700 s (D), 2500 s (F) and 3000 s (E).

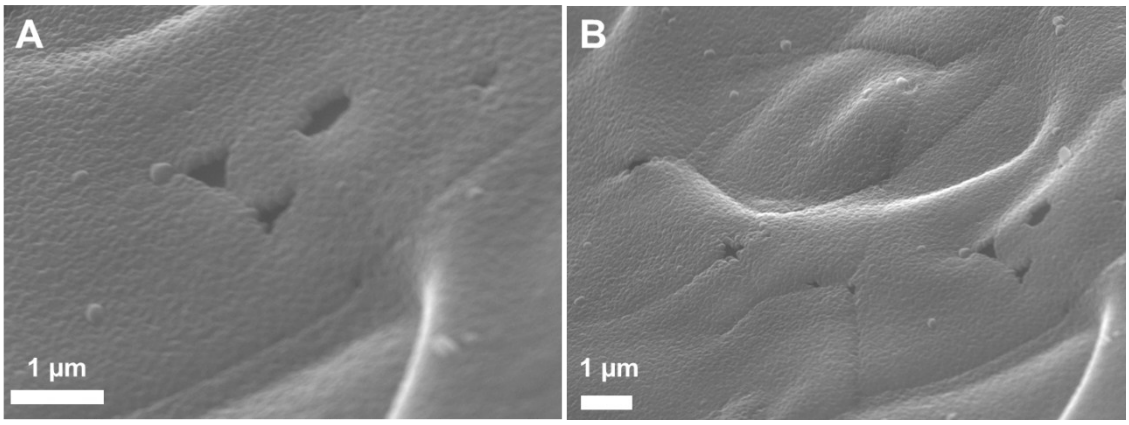

Figure S5, SEM images of bare PPy.

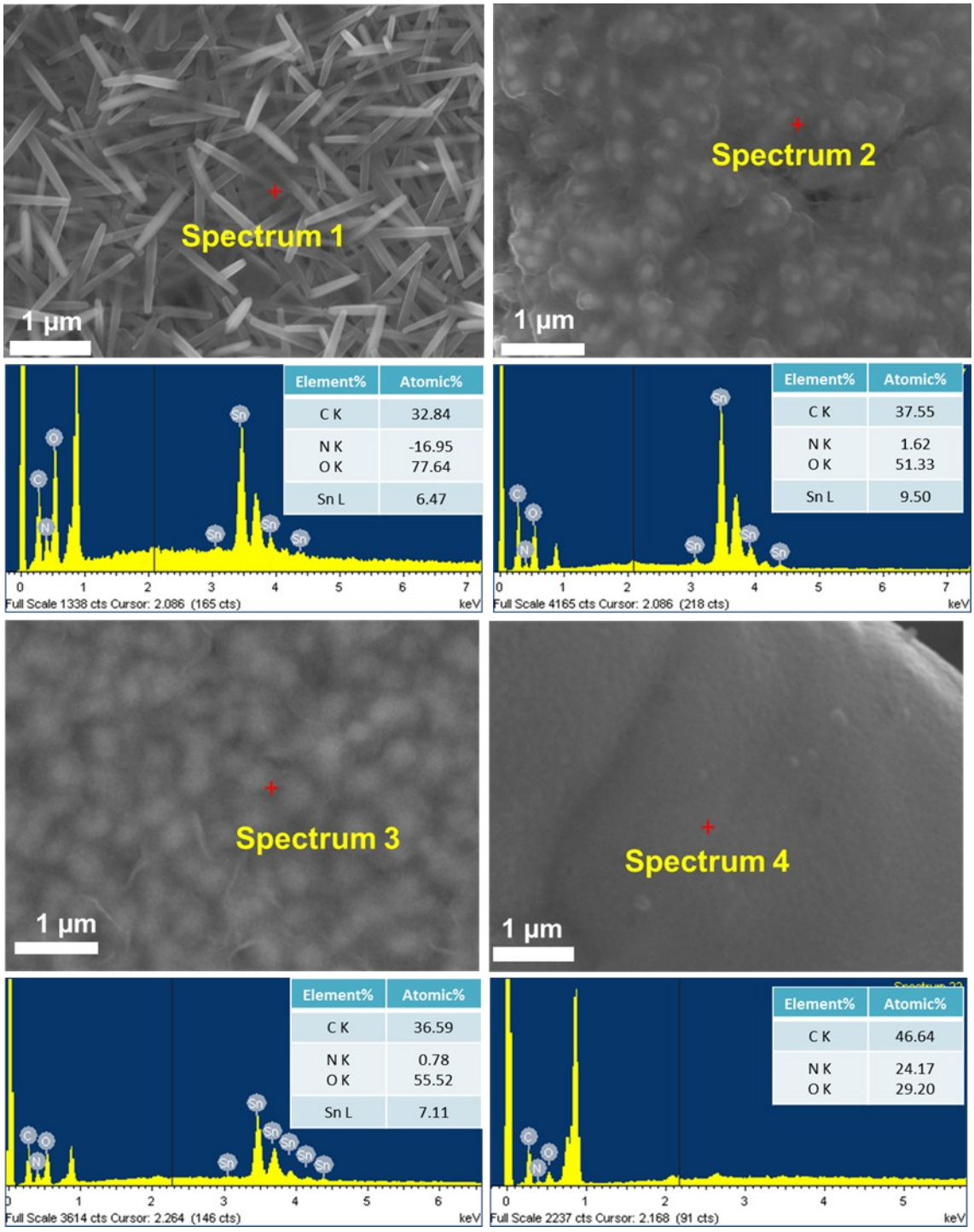

Figure S6, SEM images and the corresponding EDAX results of bare SnO_2 NA (A), core-shell SnO_2-PPy NA (B), SnO_2-PPy nanofilm (C) and bare PPy (D).

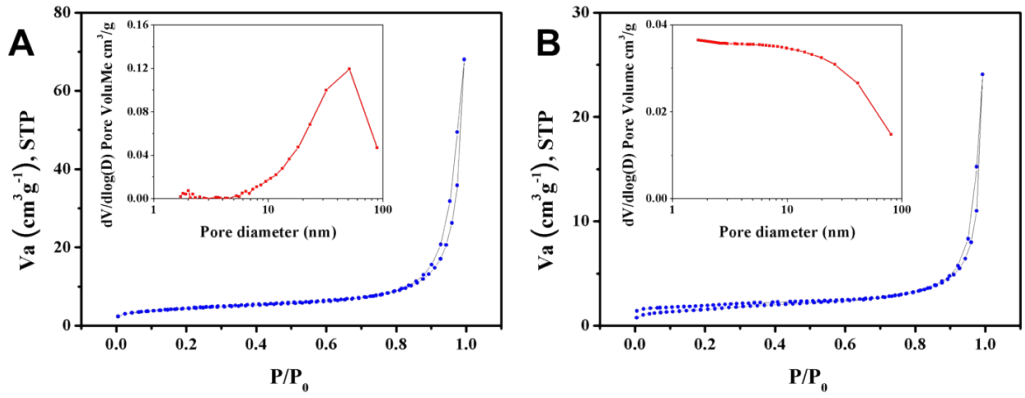

Figure S7, the nitrogen adsorption−desorption isotherm of bare SnO2 nanorod (A) and the SnO_2-PPy nanofilm (B).

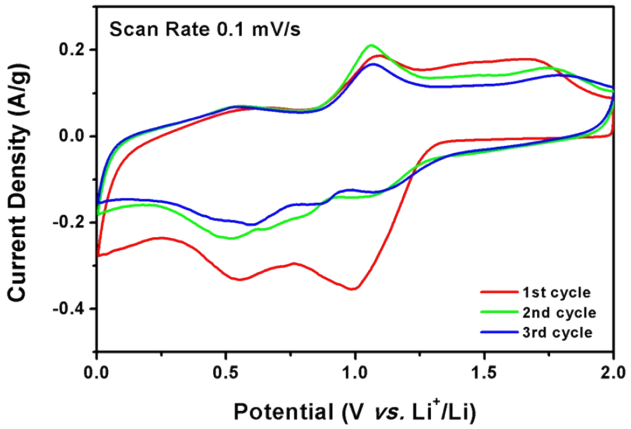

Figure S8, the CV curves of the SnO_2-PPy nanofilm at scan rate of 0.1 mV/s.

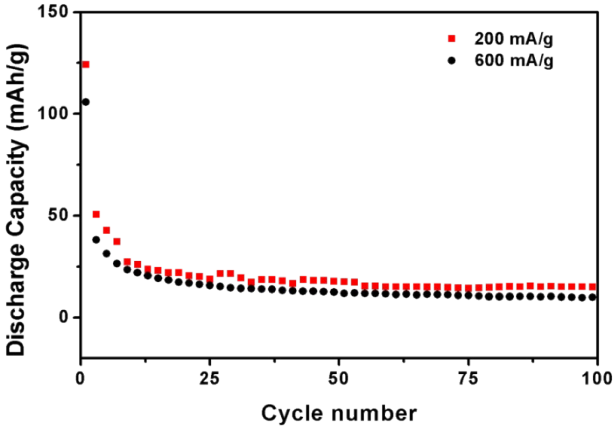

Figure S9, the cycle performance of bare PPy at current density of 200 and 600 mAh/g at voltage window of 0.01-2 V.

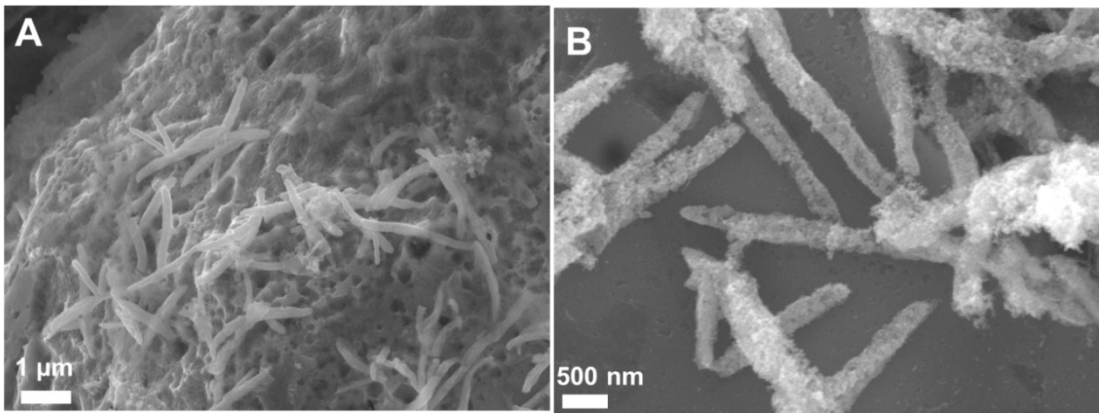

Figure S10, SEM images of the bare SnO_2 NA after cycling 100 cycles.