Electronic Supplementary Information

Bilayered microelectrodes based on electrochemically deposited MnO_2/polypyrrole towards fast charge transport kinetics for micro-supercapacitor

Waqas Ali Haider,[a] Liang He,*[a] Hameed A. Mirza,[b,c] Muhammad Tahir,[a] Aamir Minhas Khan,[d] Kwadwo Asare Owusu,[a] Wei Yang,[a] Zhuqing Wang[e] and Liqiang Mai*[a]

[a]*State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan 430070, Hubei, China.*

**E-mail: hel@whut.edu.cn, mlq518@whut.edu.cn*

[b]*Department of Chemistry, York University, Toronto M3J 1P3, Ontario, Canada.*

[c]*A.S. Chemical Laboratories Inc., Concord L4K 4M4, Ontario, Canada.*

[d]*Department of Electrical Engineering and Computer Science, York University, Toronto, M3J 1P3 Canada.*

[e]*Graduate School of Engineering, Tohoku University, Sendai 980-8579, Japan.*

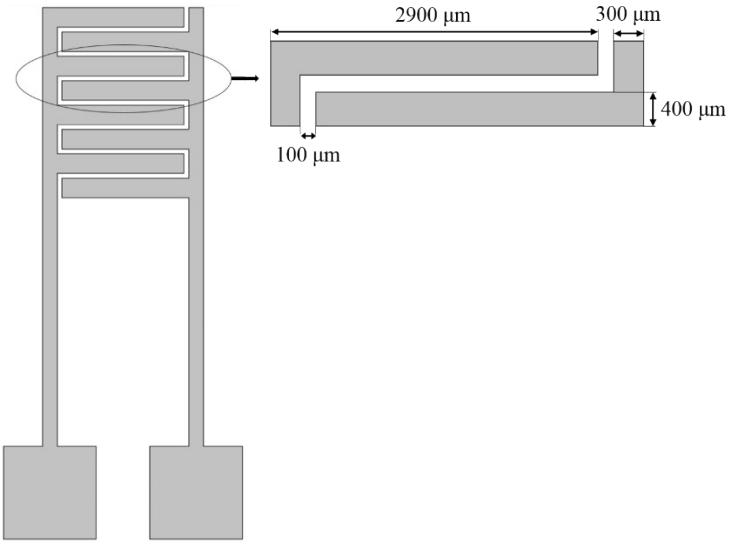

Fig. S1. Configuration and dimension of the microelectrodes.

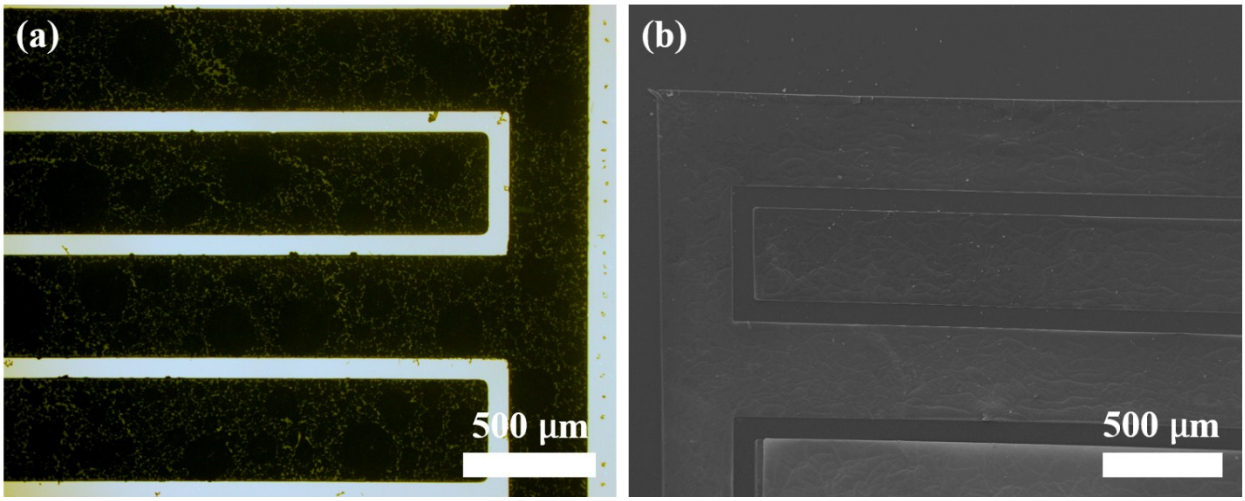

Fig. S2. (a) Optical microscope image and (b) SEM image of MnO_2/PPy microelectrodes.

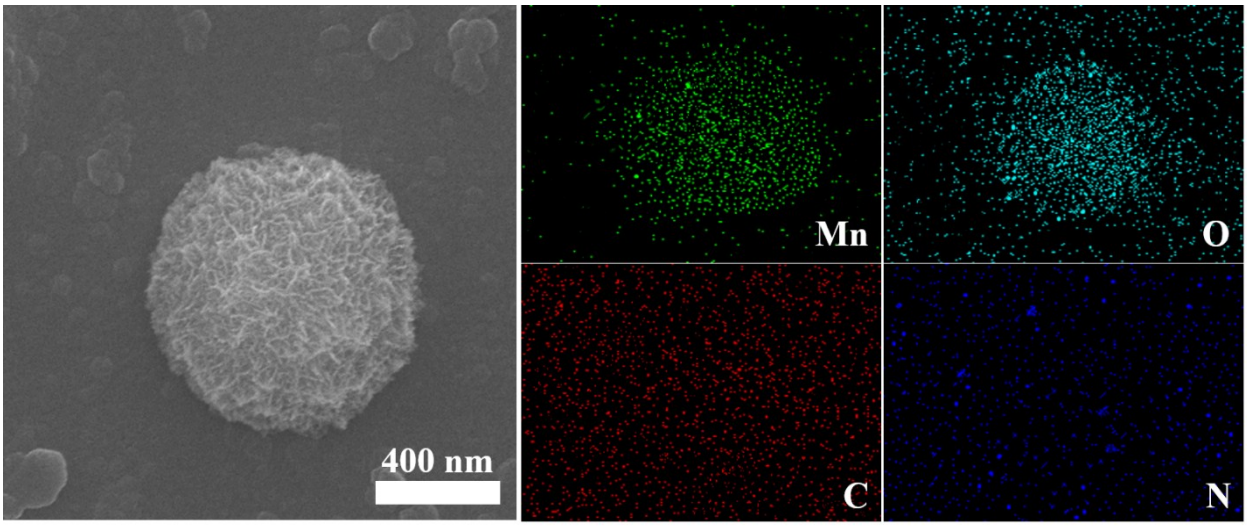

Fig. S3. EDS characterization results of MnO_2/PPy.

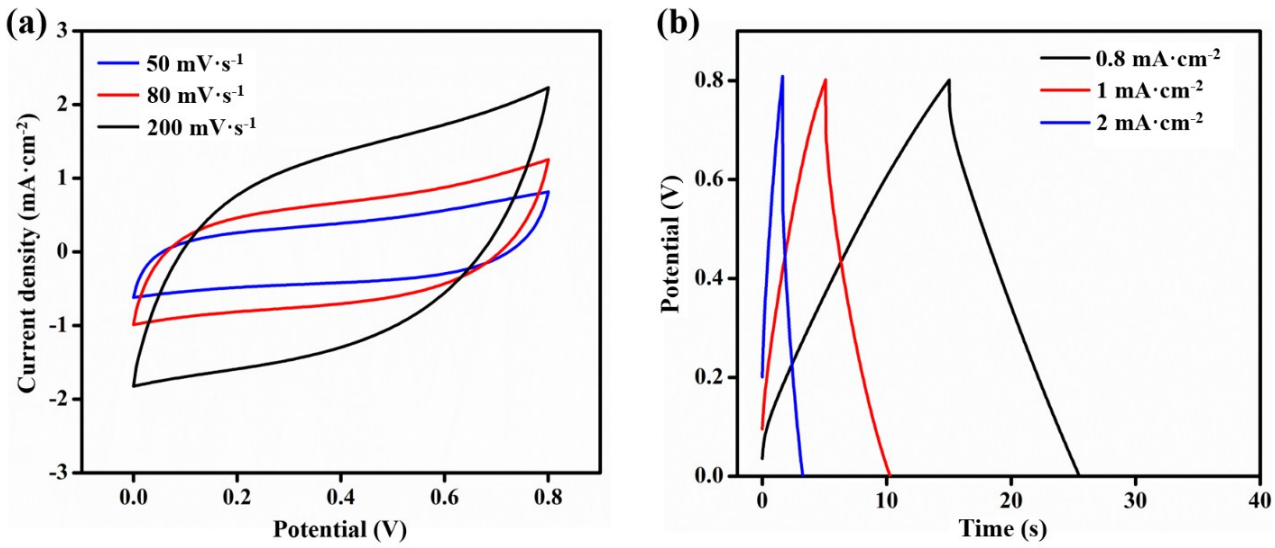

Fig. S4. Electrochemical performance of MnO_2/PPy-MSC. (a) Cyclic voltammetry curves at different scan rates and (b) charge-discharge curves at different current densities.

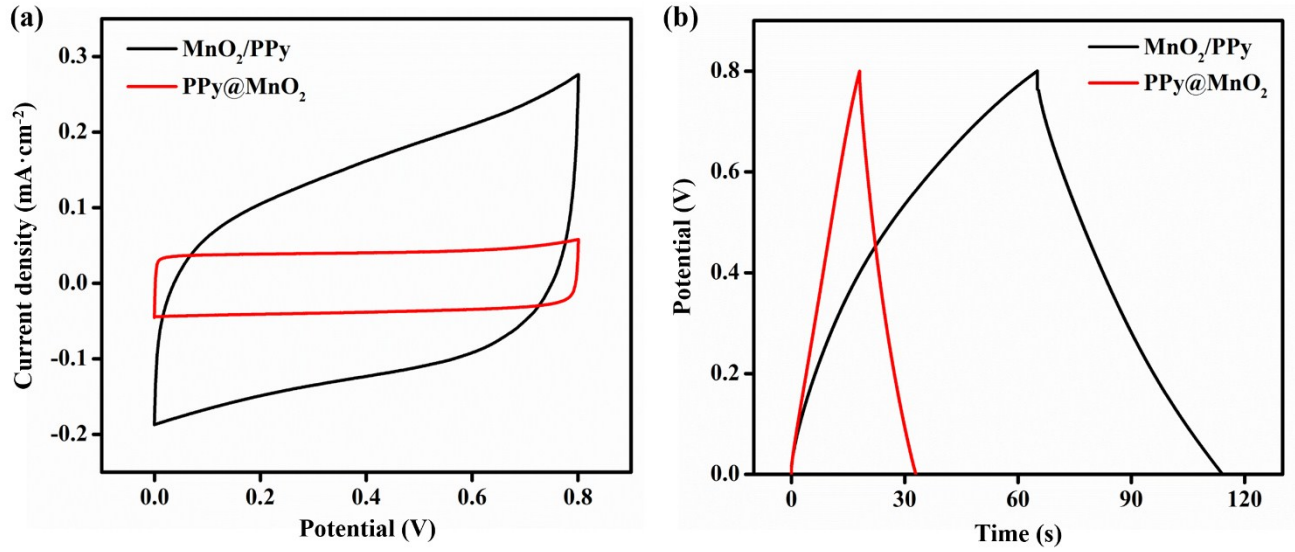

Fig. S5. Comparison of (a) CV and (b) GCD curves of MnO_2/PPy-MSC and PPy@MnO_2-MSC.

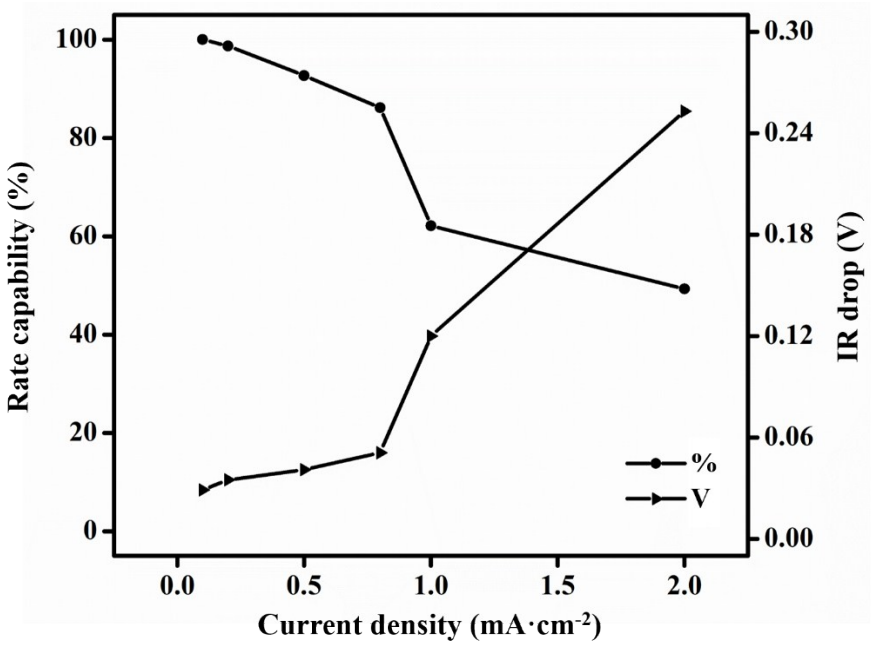

Fig. S6. Rate capability and corresponding voltage drop of MnO_2/PPy-MSC at different current densities.

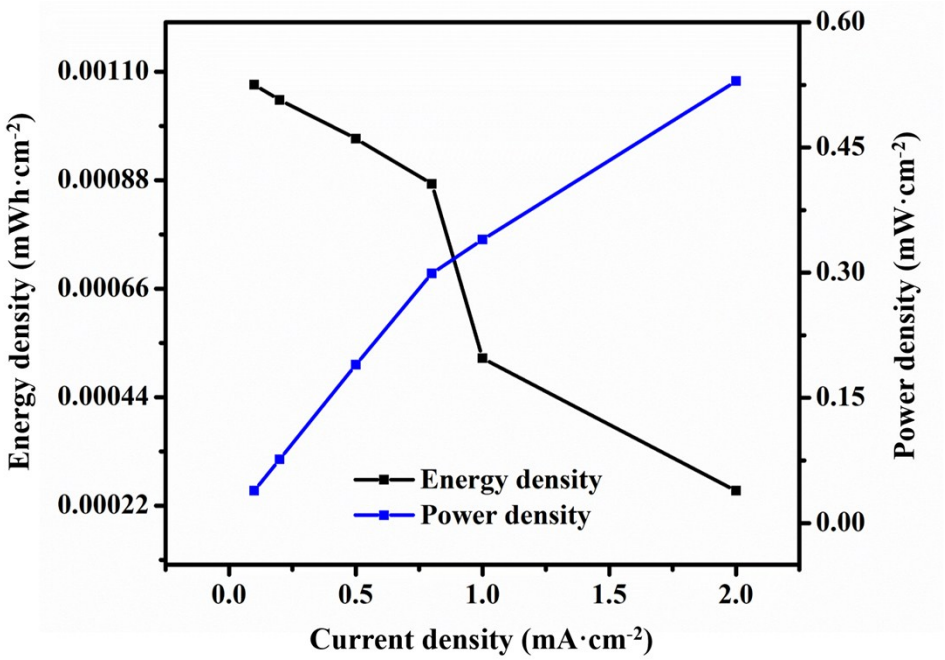

Fig. S7. Energy and power densities of MnO_2/PPy-MSC at different current densities.