Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supporting Information

Solution-processed Poly (3,4-ethylenedioxythiophene) Nanocomposite Paper Electrodes for Flexible High-Capacitance Supercapacitors

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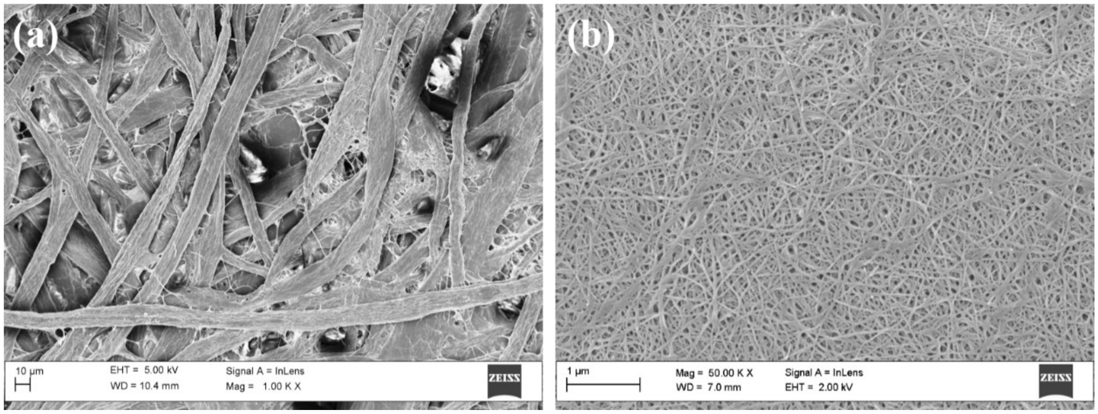

Figure S1. SEM images of bulk cellulose paper (a) and nanocellulose paper (b).

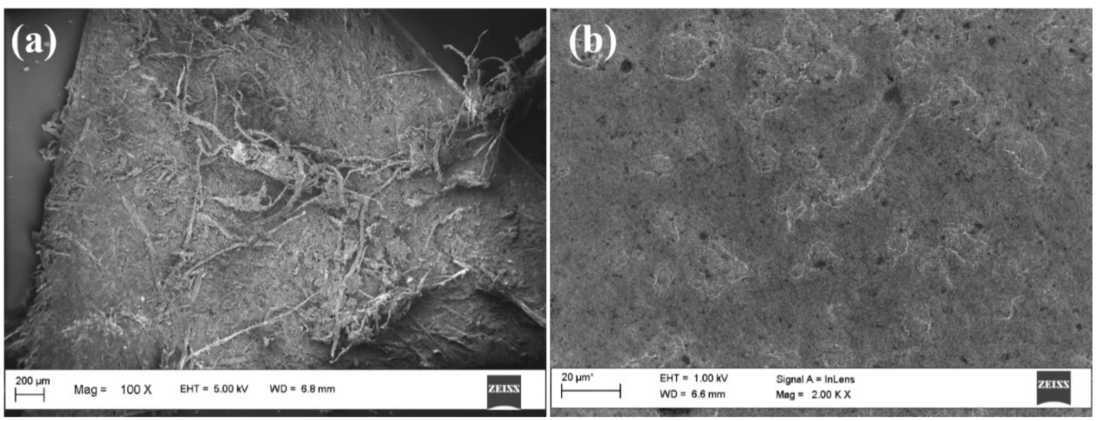

Figure S2. Low magnification SEM images of PEDOT bulk paper (a) and PEDOT nanopaper (b).

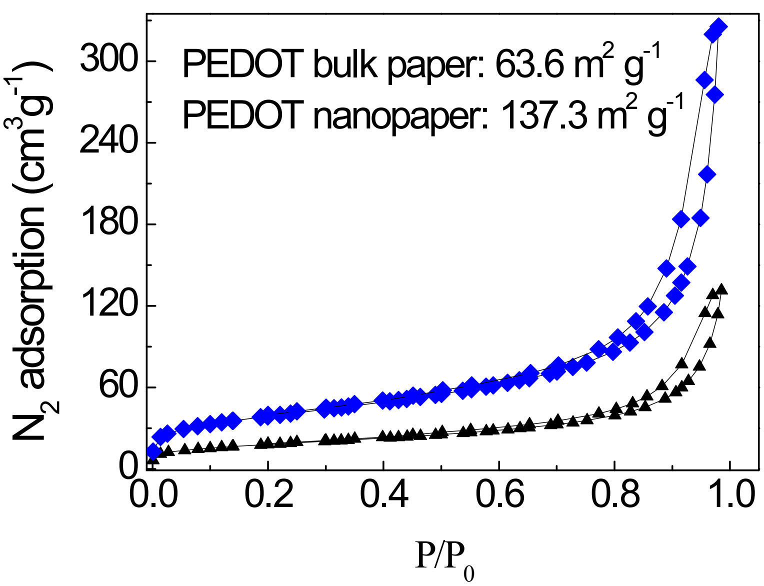

Figure S3. Nitrogen adsorption/desorption isotherms for the two PEDOT-based papers.

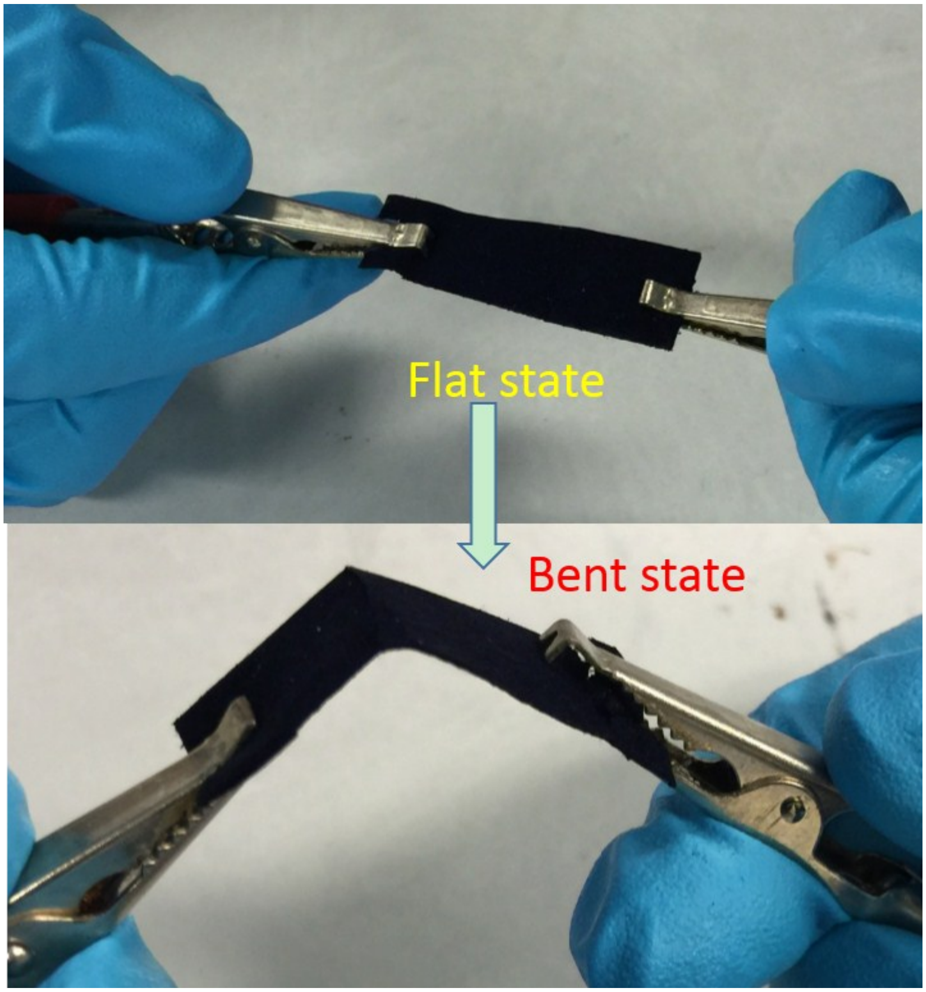

Figure S4. The PEDOT bulk paper showed a limited flexibility with induced cracks in the electrode after slight bending.

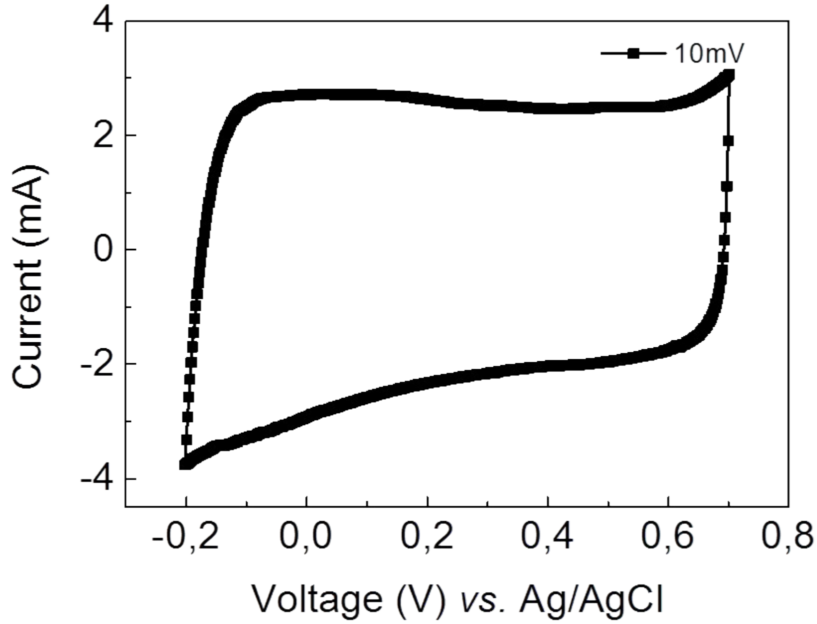

Figure S5. CV profiles for the PEDOT nanopaper electrode in a three-electrode setup in 1 M H_2SO_4.

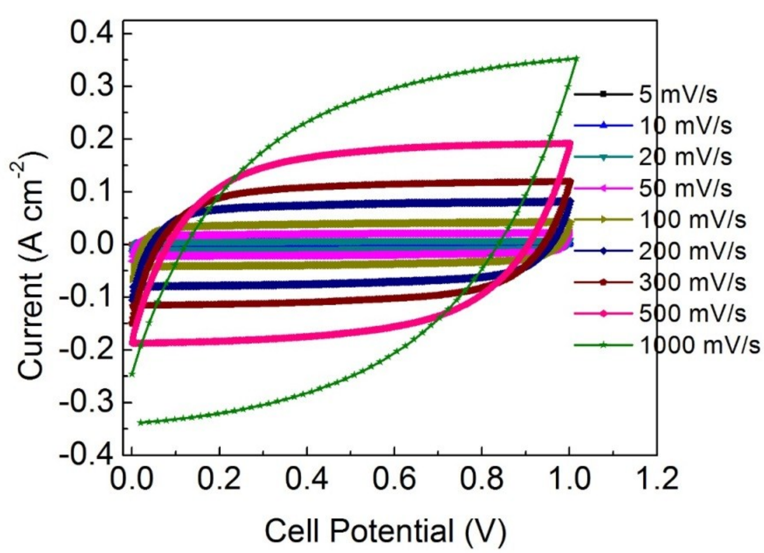

Figure S6. CV profiles for the PEDOT nanopaper-based supercapacitors.

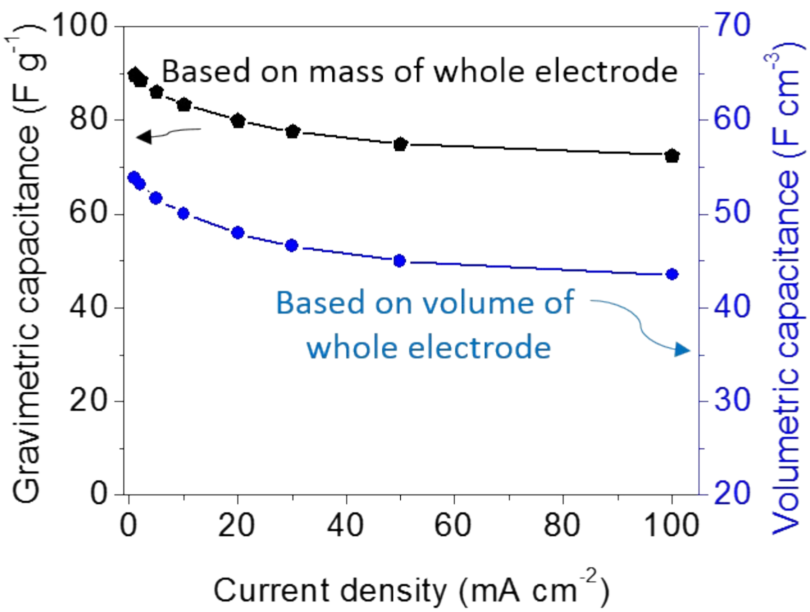

Figure S7. The gravimetric and volumetric electrode specific capacitance for the PEDOT nanopaper electrode at different current densities.

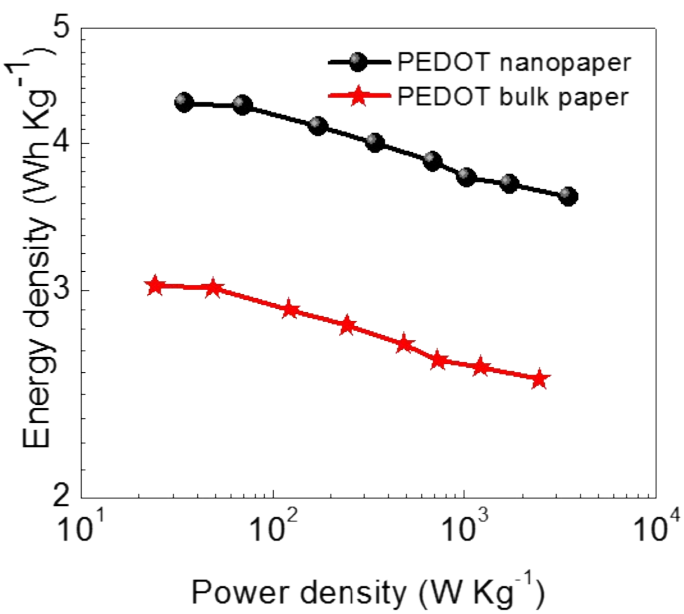

Figure S8. The specific electrode gravimetric energy and power densities for the PEDOT-based paper electrode after normalization with respect to the electrode weight.

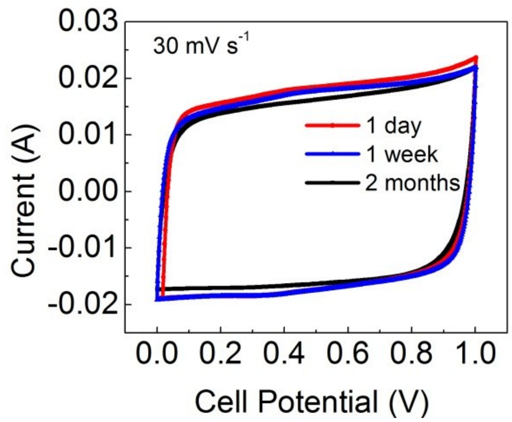

Figure S9. CV profiles of PEDOT nanopaper-based supercapacitor with respect to time.

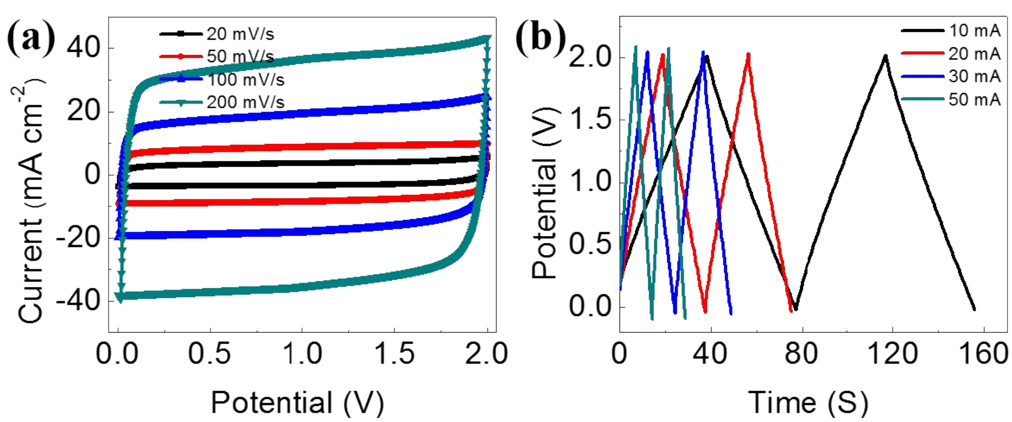

Figure S10. Cyclic voltammograms (a) and charge and discharge curves (b) for the two-cell tandem supercapacitor.

Table S1. Comparison of cycling performances of PEDOT-based supercapacitors.

Materials	Cycling capability	Remarks	Ref.
PEDOT-NWs/CC	70%, 1000 cycles (4.1 A/g) [a]		1
PEDOT paper	91%, 2000 cycles (2 mA/cm^2)[b]		2
PEDOT	55%, 20000 cycles (25 mV/s) [a]		3
PEDOT@carbon paper	~ 60%, 10000 cycles (1 mA/cm^2) [b]		4
PEDOT nanofibers	90%, 10000 cycles (2 mA/cm^2) [b]		5
PEDOT/carbon fiber	90%, 12000 cycles (5 A/g) [b]		6
PEDOT/PEDOT:PSS/paper	80%, 10000 cycles (0.2 mA/cm^2) [b]		7
PEDOT/CNTs	94%, 3000 cycles (0.1 A/g) [b]		8
EVPP-PEDOT	92%, 10000 cycles (1.8 mA/cm^2) [b]		9
MWCNTs@PEDOT/PSS	97.8%, 5000 (100 mV/s) [b]		10
PEDOT/MWCNTs/rGO	88%, 4000 (100 mV/s) [a]		11
PEDOT nanopaper	93.2%, 15000 cycles (30 mA/cm^2) [b]		

[a] 3-electrode set-up; [b] 2-electrode set-up;

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