Electronic Supplementary Material (ESI) for RSC Advances.

Carbon Nanotube-Polyaniline Core-Shell Nanostructured Hydrogel for Electrochemical Energy Storage

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Supporting Information

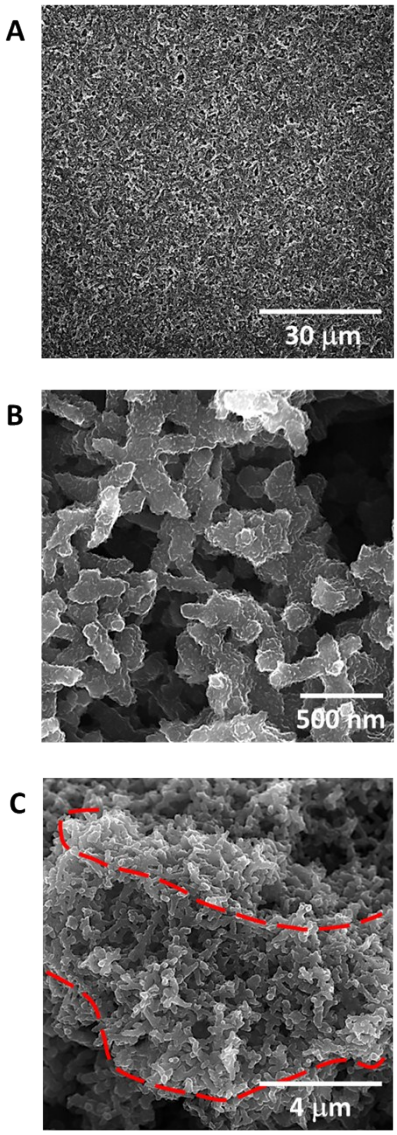

Figure S1. A. Top-down SEM image of PANI-only thin film. B. High-resolution SEM image of PANI-only thin film. C. Cross-sectional SEM image of PANI-only thin film.

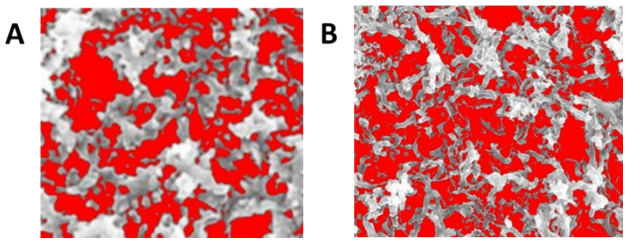

Figure S2. Porosities of A. PANI-only thin film and B. MWNT-PANI thin film are estimated using the top-down SEM images (**Figure 3A** and **3B**), and performing image analysis using the *ImageJ* software. The pores identified by *ImageJ* are shown in red, and the porosity is calculated from the ratio of the area of the pores over the total image area.

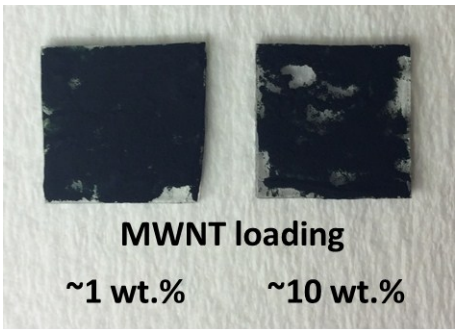

Figure S3. Illustration of the large aggregation of MWNTs, leading to rough surface, in the doctor-bladed MWNT-PANI thin film (loading of MWNTs ~10.0 wt.%).

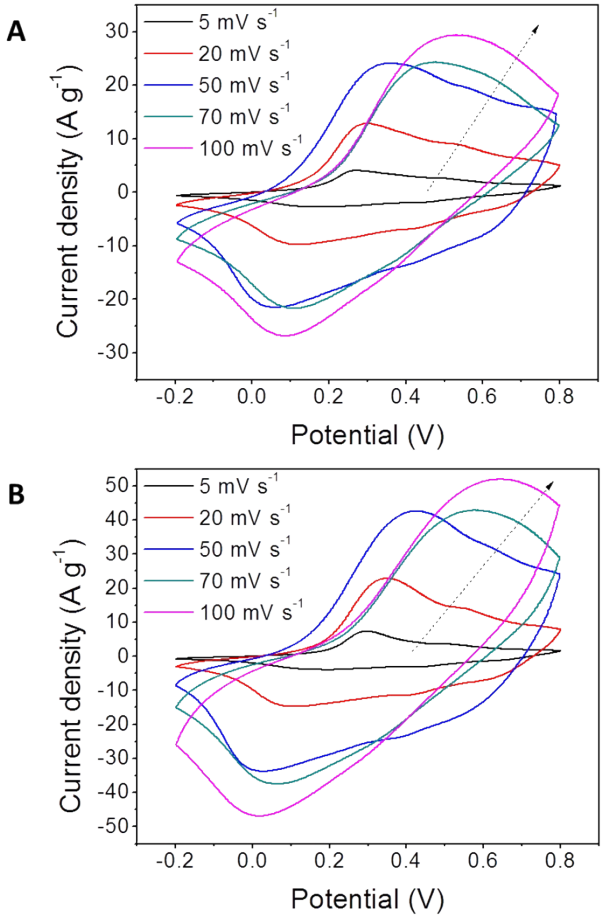

Figure S4. CV curves of A. the PANI-only thin film and B. the MWNT-PANI thin film with a loading of MWNTs of 3.0 wt.%, at scan rates ranging from 1 mV s^{-1} to 100 mV s^{-1}.

Table S1. Summary of the relevant parameters obtained from this work and the literature.

	Fabrication Method	Electrical Conductivity ($S\ cm^{-1}$)	Specific Capacity ($F\ g^{-1}$)
This work	Phytic acid mediation	1.54	609
Ref. 15	Colloidal mixture	-	535
Ref. 16	Interfacial polymerization	-	606
Ref. 14	Electrostatic deposition	4.1	250
Ref. 13	Vacuum-assisted layer-by-layer	5.7	-
Ref. 19	Enzymatic synthesis	10.1	440