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Supporting Information

Electrodes of Poly(*N*-methyl pyrrole)/Au and Poly(*m*-aminobenzene sulfonic acid)-Functionalized Multiwalled Carbon Nanotubes for Supercapacitor Applications

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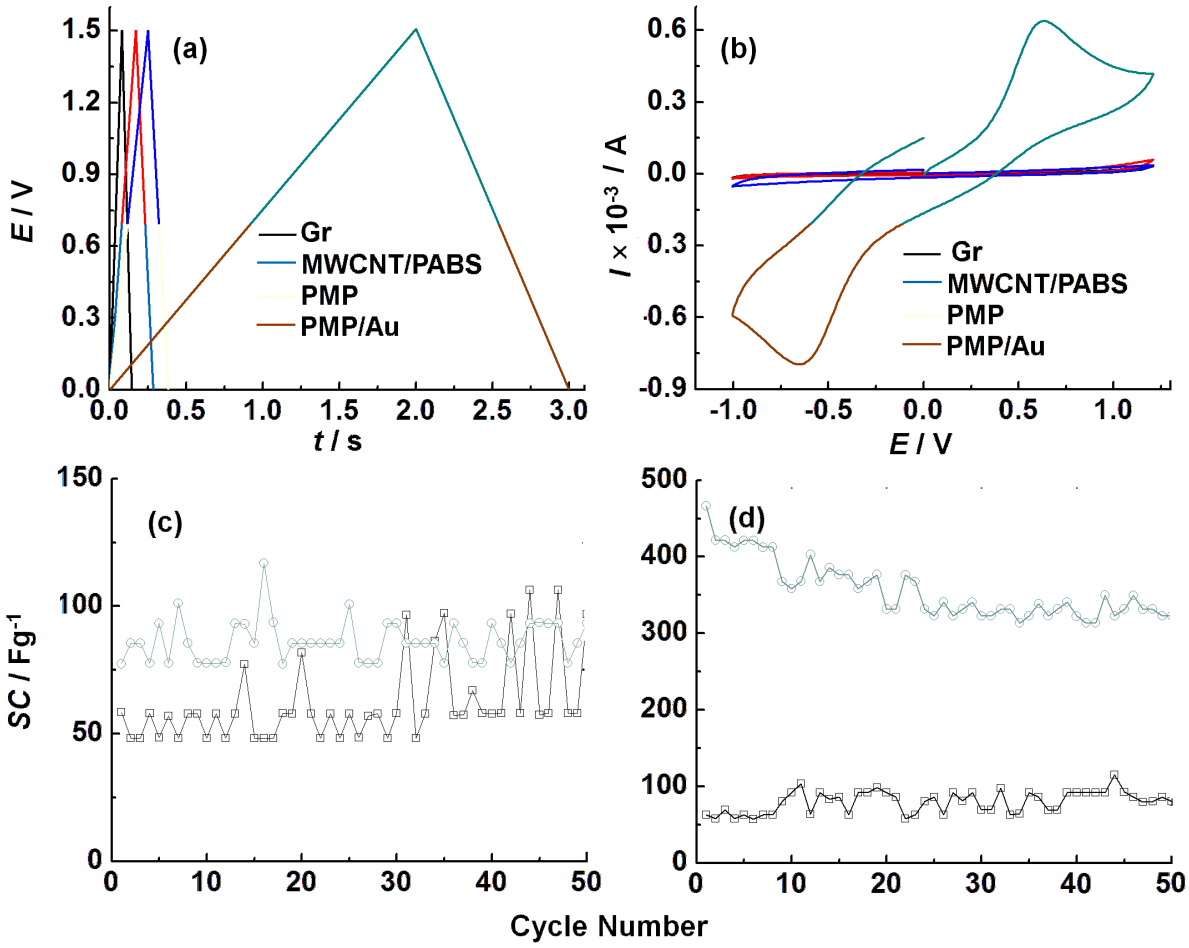

Figure S1 (a) Galvanostatic charge-discharge curves at a constant current density of 0.5 A g^{-1} and (b) cyclic voltammograms (scan rate = 100 mV s^{-1}) of symmetric cells: Gr-Gr, MWCNT/PABS-MWCNT/PABS, PMP-PMP and PMP/Au-PMP/Au cells. Specific capacitance *versus* number of cycles at 0.5 A g^{-1} for (c) Gr-Gr (□), MWCNT/PABS-MWCNT/PABS (○) and (d) PMP-PMP (□) and PMP/Au-PMP/Au (○) cells.

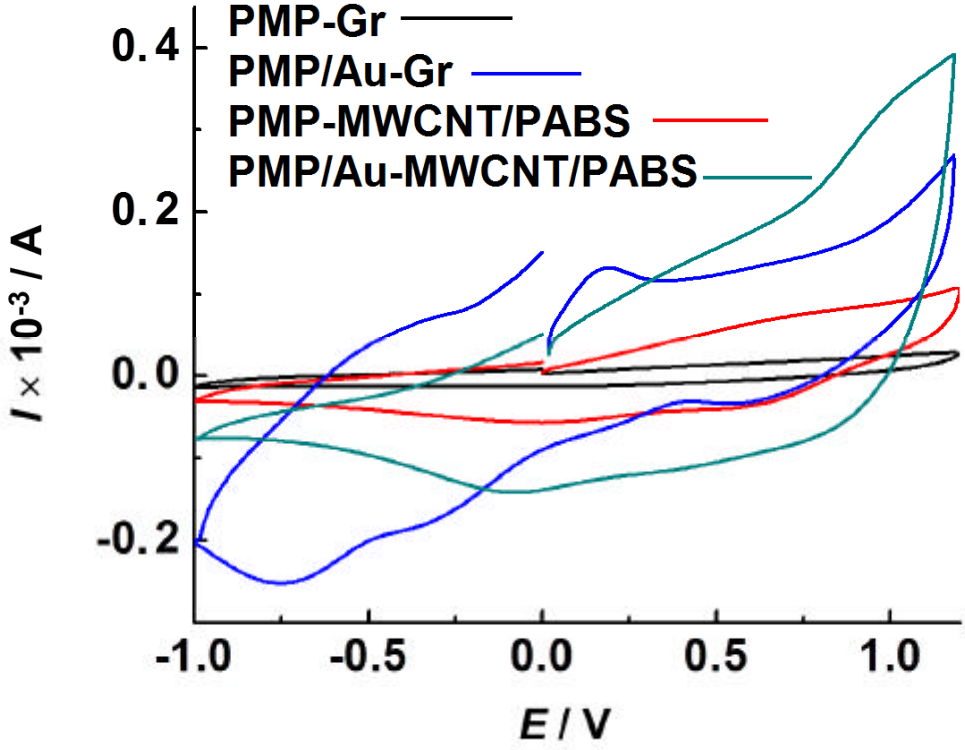

Figure S2 Cyclic voltammograms of PMP-Gr, PMP-MWCNT/PABS, PMP/Au-Gr and PMP/Au-MWCNT/PABS cells recorded at a scan rate of 20 mV s^{-1}.

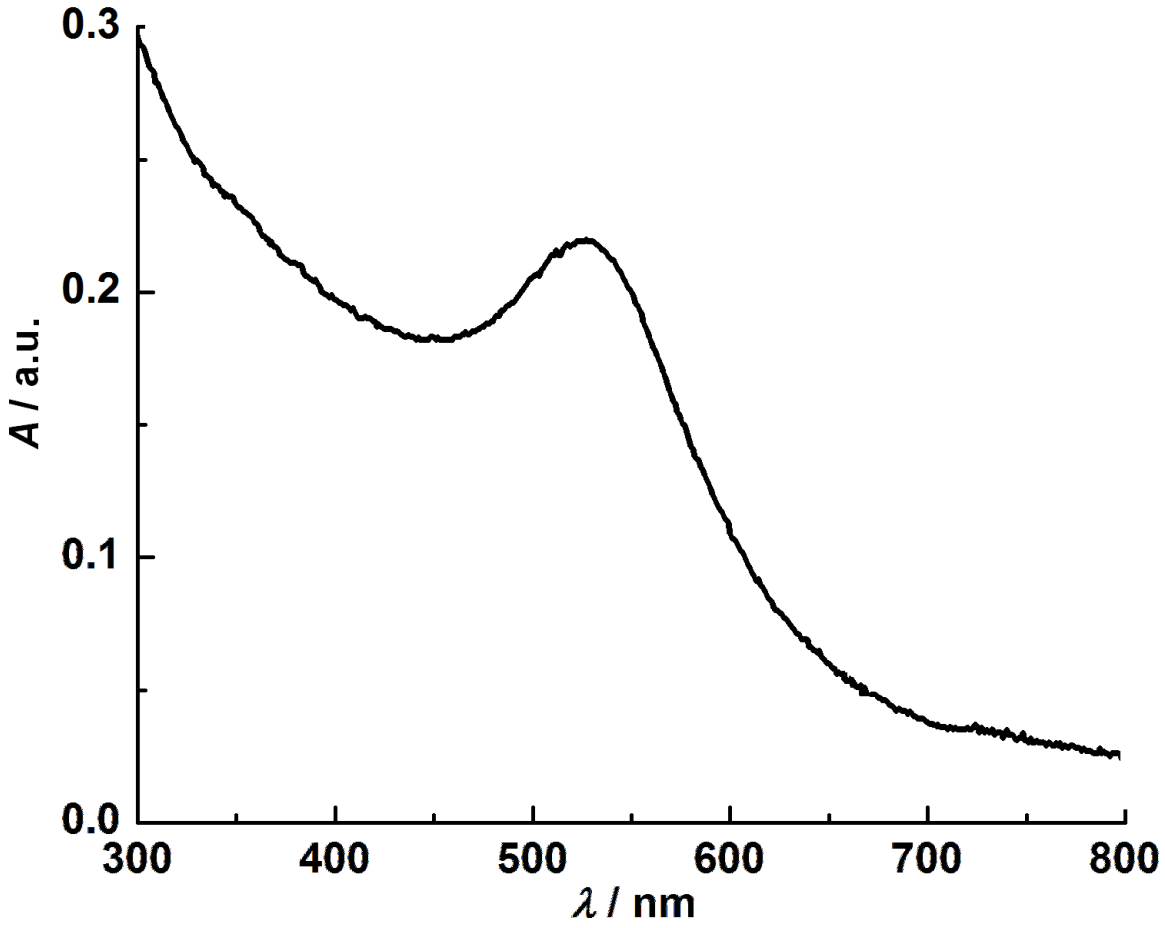

Figure S3 Absorption spectrum of Au colloid displaying the surface plasmon resonance peak at ~ 500 nm.

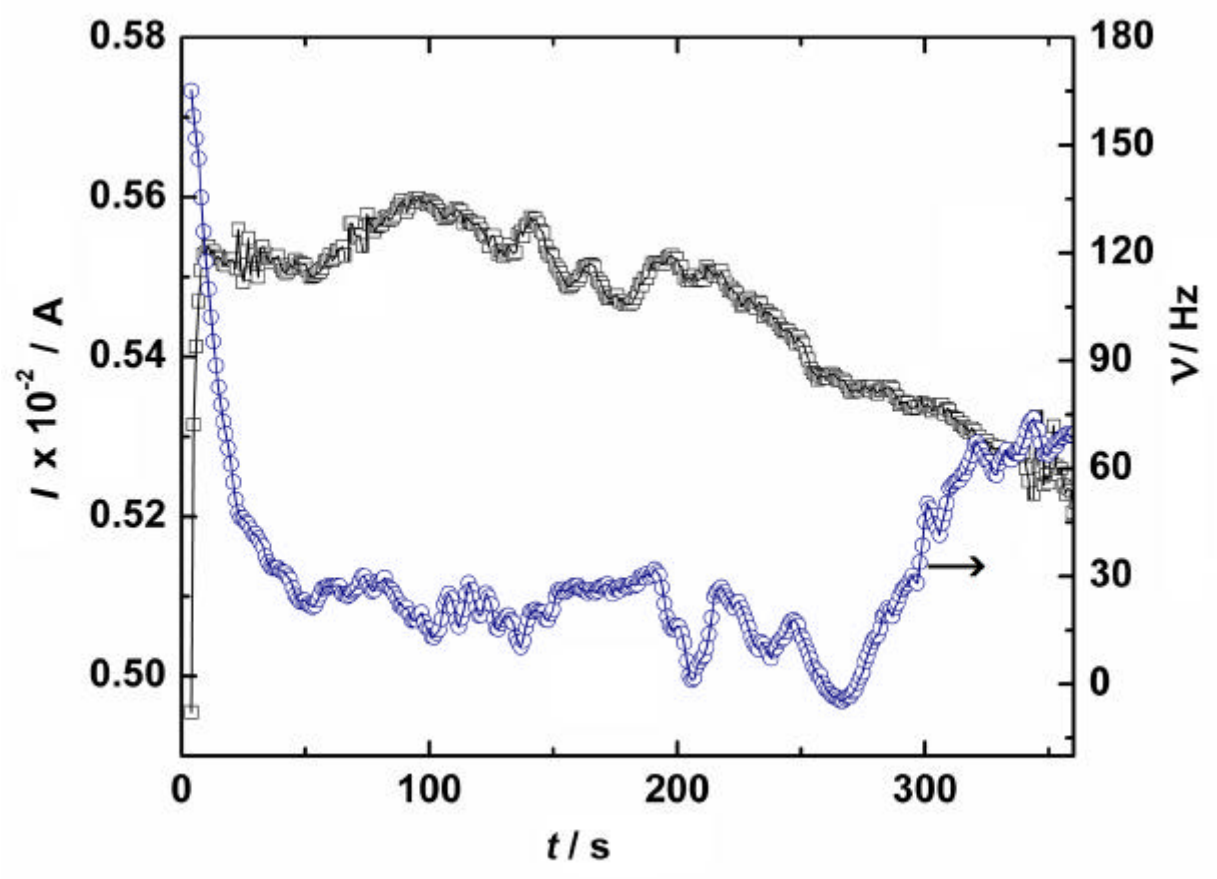

Figure S4 Current (□) versus time transients for oxidative electropolymerization from a solution containing N-methyl pyrrole (0.1 M) and sodium poly(3-styrene sulfonate) and frequency change (○) versus time plots recorded during electropolymerization in chronoamperometric mode.

The current-time transient recorded during electropolymerization from a solution containing N-methyl pyrrole (0.1 M) and sodium poly(3-styrene sulfonate) shows an initial spike followed by a plateau like response, is representative of monomer oxidation followed by coupling of radical cations and precipitation of the oligomers onto the substrate to yield PMP nuclei. The corresponding *Df* versus time plot is also shown. The Sauerbrey equation was employed for determination of mass of PMP deposited on the electrode, where *Df* is the resonant frequency of the quartz crystal, and C_f is the sensitivity factor which has a known value (Hz cm^2 μg^{-1}).

$$\Delta f = -C_f m \qquad (1)$$

From equation (1), the mass of PMP deposited on the electrode was deduced.