

## Flexible supercapacitors based on polyaniline nanowires-infilled 10 nm-diameter carbon nanotube porous membrane by in-situ electrochemical polymerization

### Supporting information

#### Preparation and Electrochemical measurement of an assembled symmetric cell device based on two pieces of PANI@MWCNT membrane

Two pieces of PANI@CNT films compressed with Ni foam are separated by a piece of polymeric membrane separator (Glass fibrous filter paper, Whatman) soaked with 1M KOH solution. Then the whole apparatus are compressed together to form a symmetric supercapacitor device. The two-electrode system was chosen to detect the electro-chemical performance of the assembled device.

$$P = \frac{E_{density}}{\Delta t}$$

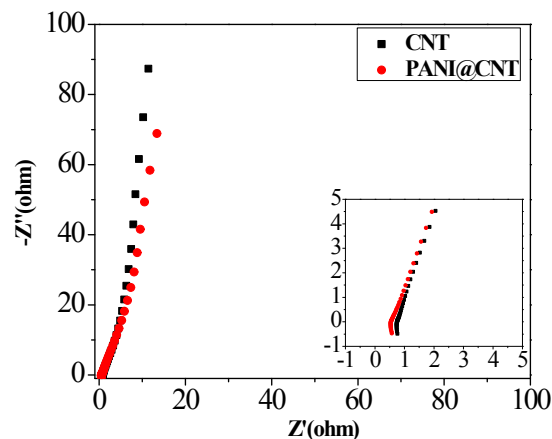


Figure S2 Impedance curve of the PANI-3@CNT film and CNT film

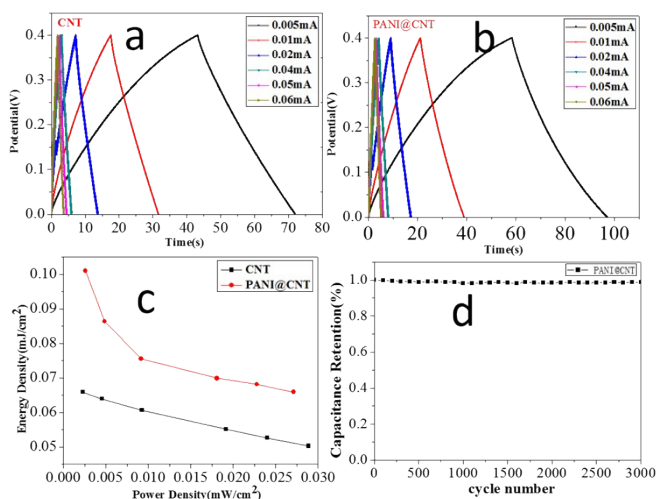


Figure S1 Galvanostatic charge/discharge curves of an assembled symmetric cell composed two pieces of CNT films(a) and PANI@CNT films(b) in 1 M KOH at different current densities; (c) Ragone plots of the symmetric cell based on CNT film and PANI@CNT film; (d) Galvanostatic charge-discharge cycling test of the symmetric cell based on PANI@CNT films at a current of 0.03 mA in 1 M KOH between 0 V and 0.4V.

$$E_{density} = \frac{1}{2} CV_{max}^2$$