

Fabrication of textile fabric counter electrode using activated charcoal doped multiwalled carbon nanotube hybrid for dye sensitized solar cell

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SUPPORTING INFORMATION

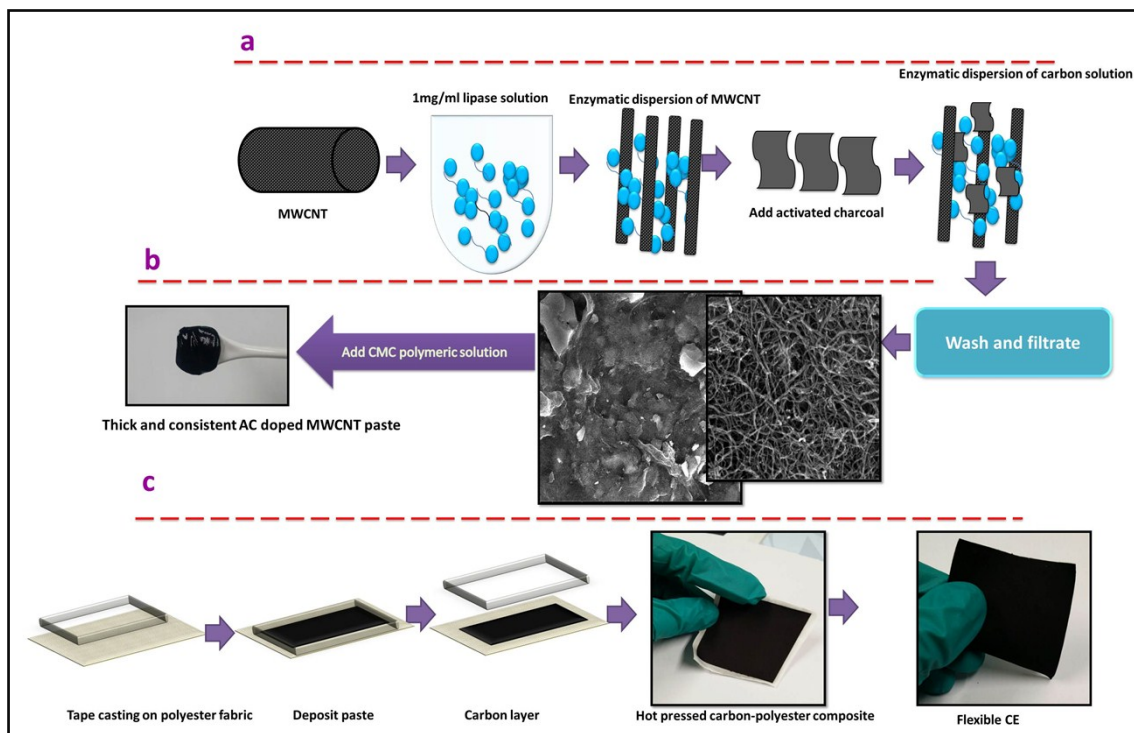


Fig. S1 Schematic illustration of fabrication of carbon fabric composite counter electrode. (a) Enzymatic dispersion of carbon nanotube and activated charcoal. (b) Filtration and addition of binder. (c) Printing of AC doped MWCNT on polyester fabric.

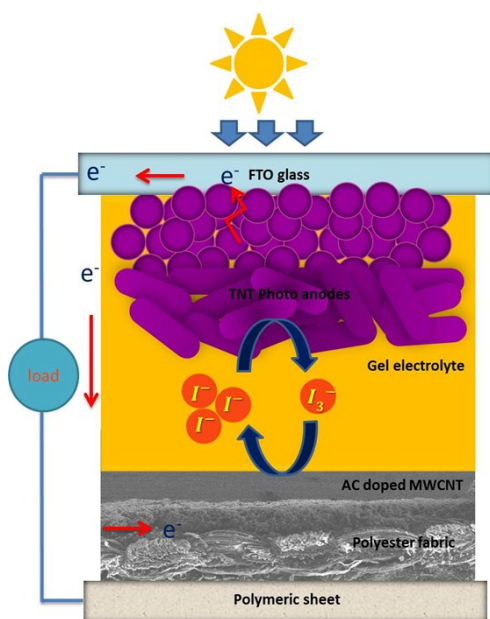


Fig. S2 Schematic illustration of DSSC fabricated with carbon fabric composite counter electrode.

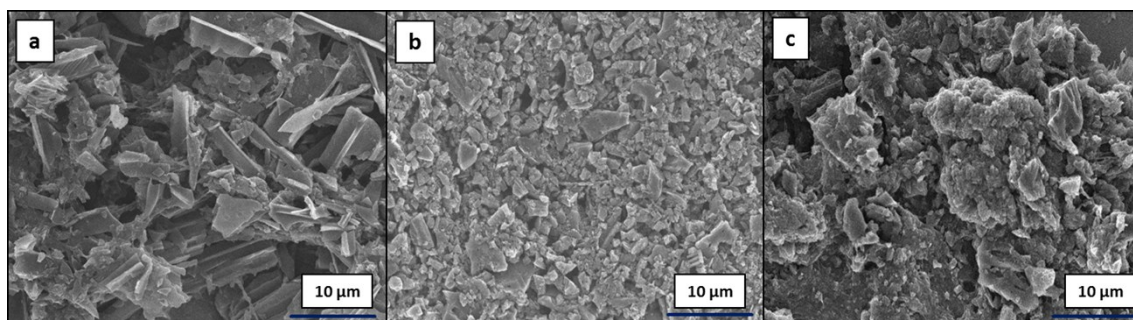


Fig. S3 FE-SEM images of (a) Pine tree (b) coconut shell and (c) coal derived activated charcoal.

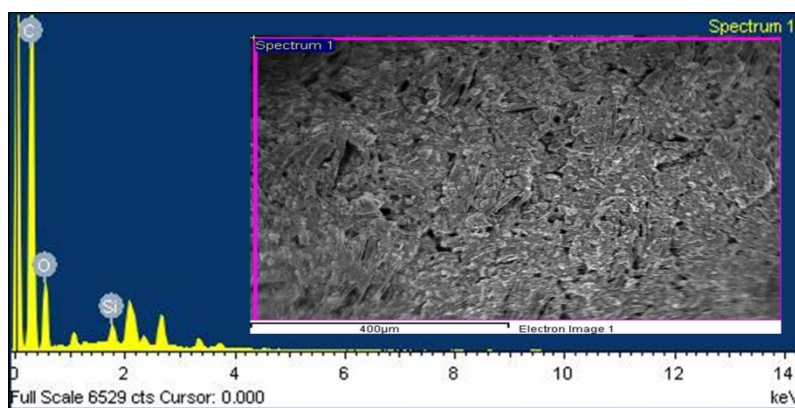


Fig. S4 EDS spectrum of carbon fabric composite.

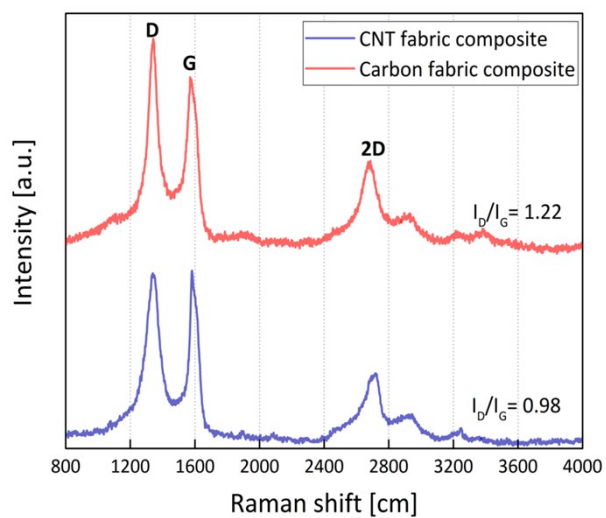


Fig. S5 Raman Spectrum of MWCNT and AC doped MWCNT coated fabric.

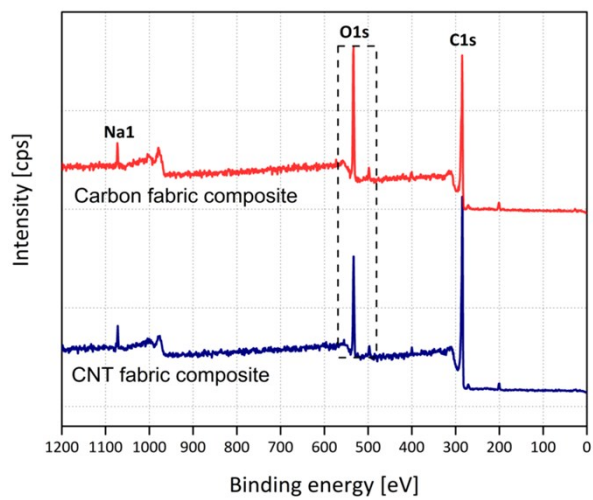


Fig. S6 XPS spectrum of MWCNT coated fabric and AC doped MWCNT coated fabric.

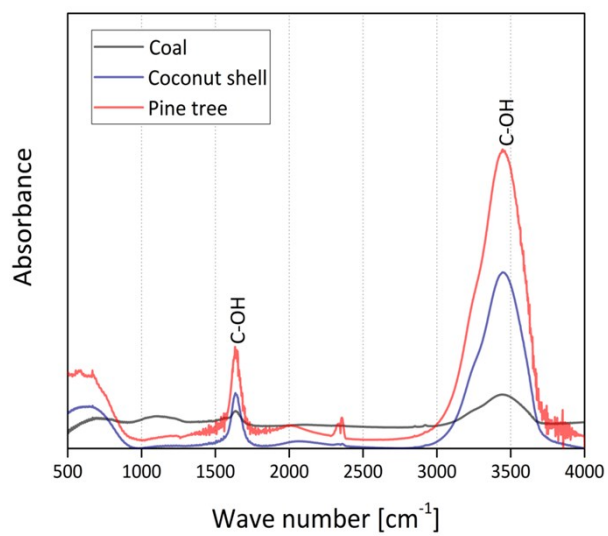


Fig. S7 FT-IR spectrum of different activated carbon.

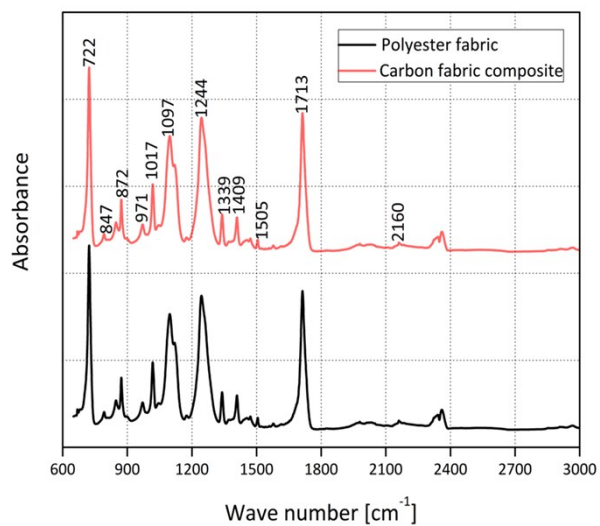


Fig. S8 FT-IR ATR spectrum of polyester fabric and carbon fabric composite.

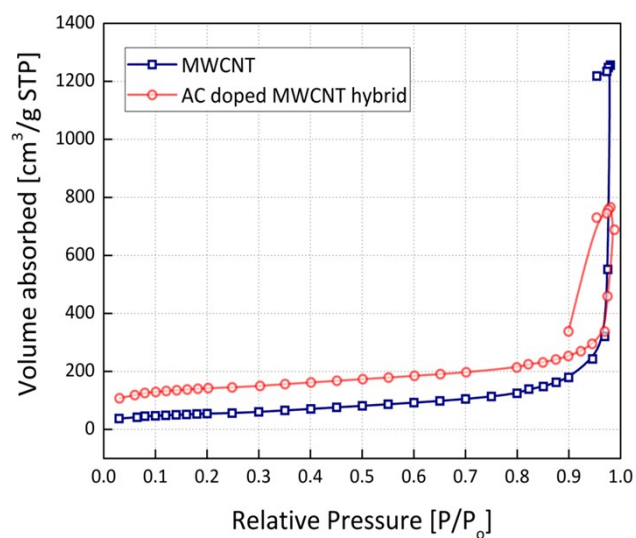


Fig. S9 N₂ absorption-desorption isotherms of MWCNT and AC doped MWCNT hybrid.

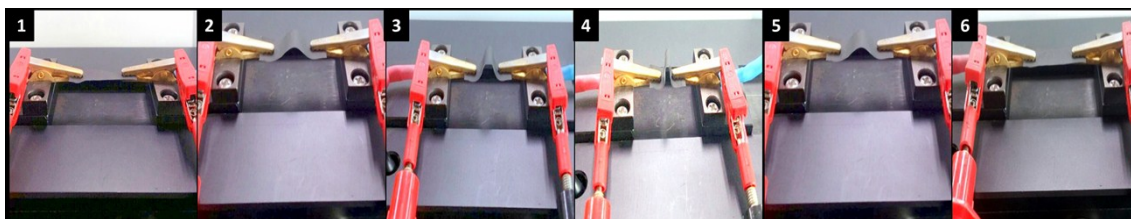


Fig. S10 Custom-build two probe device measuring electrical resistance of carbon fabric composite at different statuses.

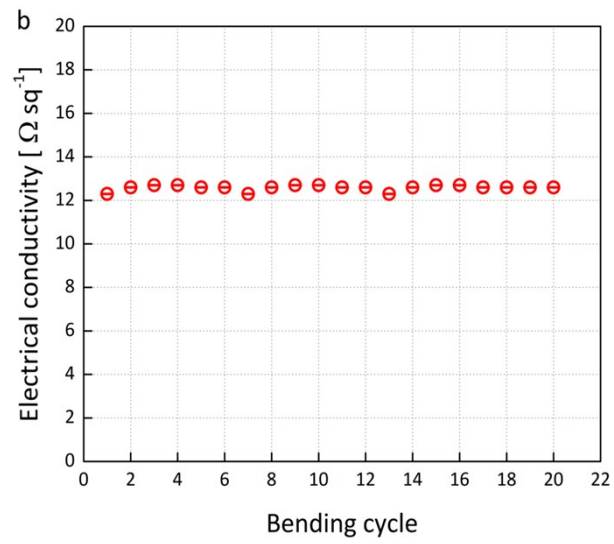
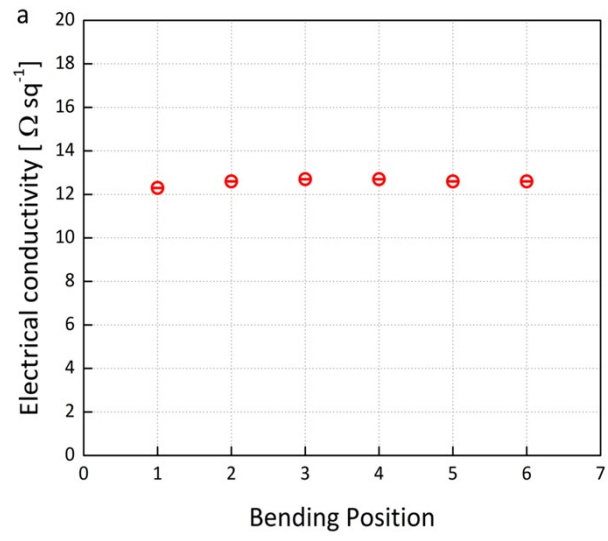


Fig. S11(a) Electrical resistance of carbon fabric composite at different bending position.

(b) Electrical resistance of the carbon fabric composite electrode against bending cycle.

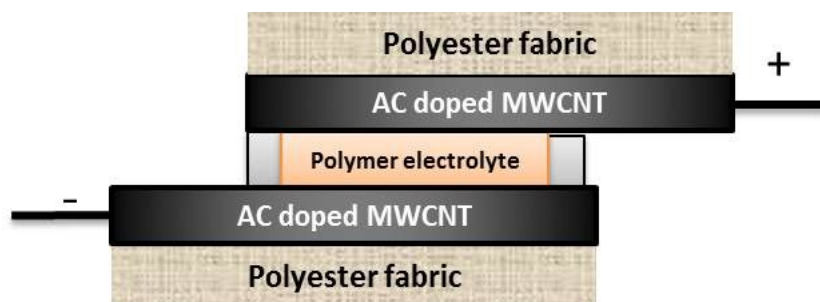


Fig. S12 Schematic illustration of symmetrical cell fabrication with carbon fabric composite.

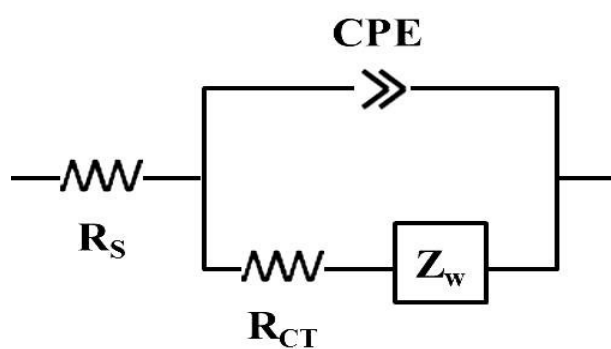


Fig. S13 Randles-type equivalent circuit.