Supporting Information

Electrospinning-derived ultrafine silver-carbon composite nanofibers for flexible transparent conductive films

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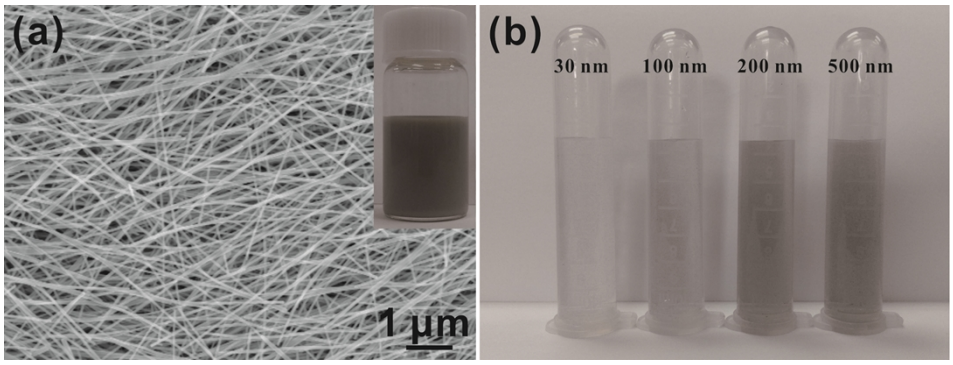

Fig. S1 (a) SEM image and optical photo of silver nanowire with average diameter of about 50 nm and average length of 20 μm; (b) optical photo of dispersive solutions containing Ag/CNFs with different diameter from 30 nm to 500 nm.

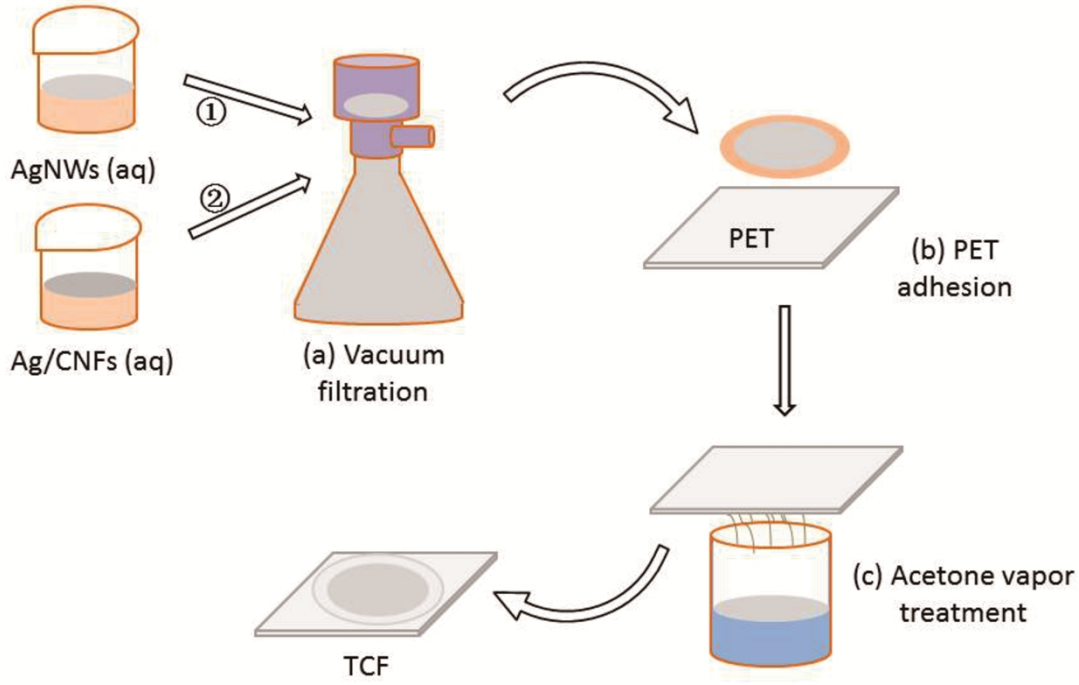

Fig. S2 Schematic diagram of TCF fabrication: (a) suction filtration through membrane; (b) PET transfer; (c) treatment in acetone vapor.

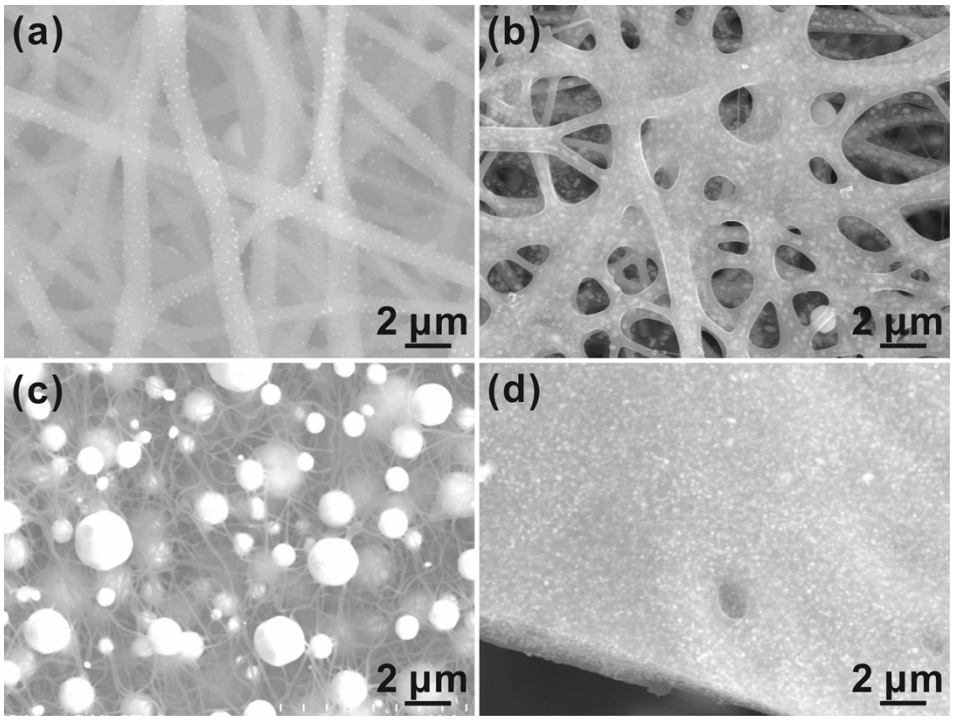

Fig. S3 SEM images of Ag/CNFs composite samples fabricated using different conditions: (a) without glucose; (b) with pre-oxidation treatment; (c) with high flow rate of NH_3; (d) with weight ratio of 1:1 between $AgNO_3$ and PAN.

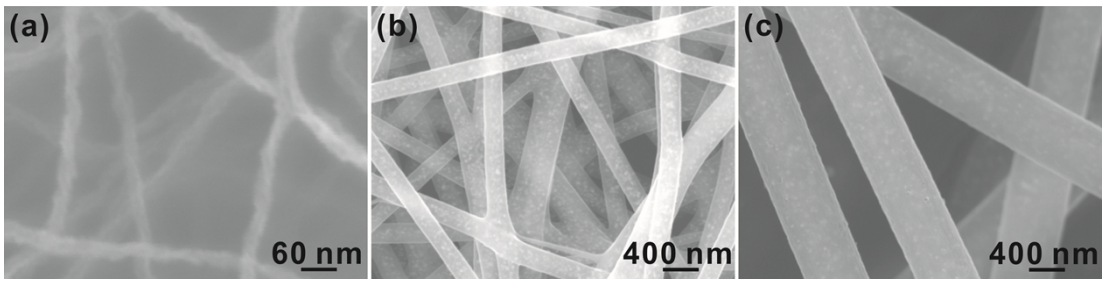

Fig. S4 SEM images of Ag/CNFs with different diameter: (a) 30 nm; (b) 200 nm; (c) 500 nm.

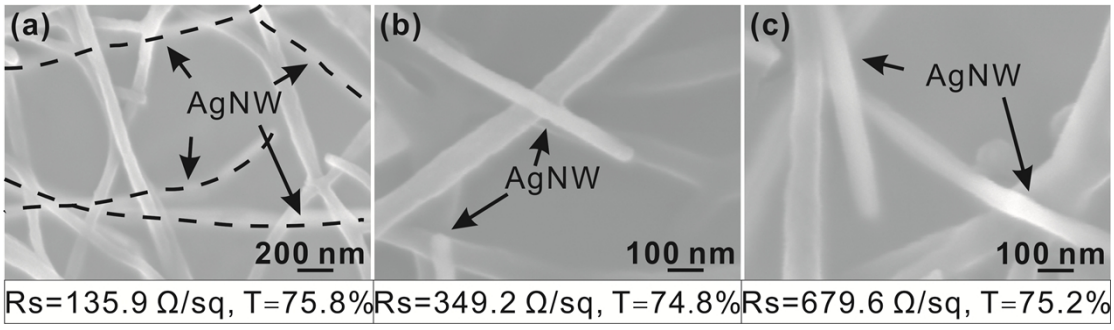

Fig. S5 SEM images of TCFs produced by different deposition orders: (a) deposition

of first AgNWs and then Ag/CNFs; (b) deposition of first Ag/CNFs and then AgNWs; (c) deposition of AgNW and Ag/CNFs mixture. The dash line reperesents AgNWs buried under Ag/CNFs, and the arrows indicate deformed AgNWs induced by flexibility of AgNWs and large diameter of Ag/CNFs.

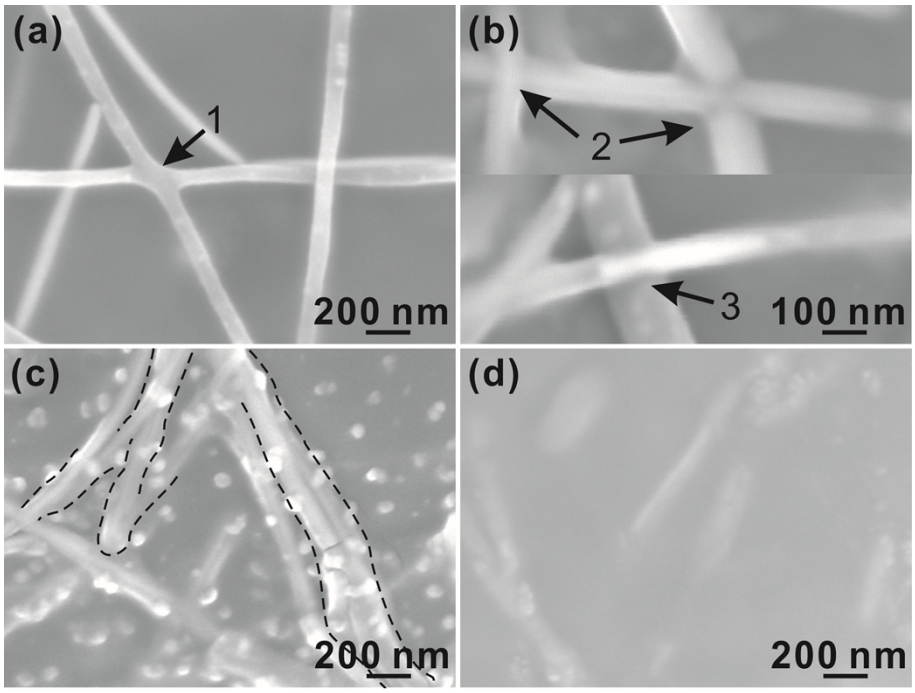

Fig. S6 SEM iamges: (a) the melting junctions between Ag/CNFs-Ag/CNFs (arrow 1); (b) the interfused cross section between AgNWs-AgNWs (arrow 2) and AgNWs-Ag/CNFs (arrow 3); **(c) welding of adjacent AgNWs after high temperature treatment**; (d) the crossion in HCl soltuion with high concentration.

Table S1 Relationship between surface concentration of AgNWs and performance (sheet resistance and transmittance) of TCFs.

Surface concentration of AgNWs (mg/m^2)	28	33	38	43	48	53
Sheet resistance (Ω/sq)	13600.0	1200.0	581.8	232.3	132.7	95.5
Transmittance at 550 nm (%)	92.5	92.0	91.1	89.2	87.6	85.3