

Electronic Supplementary Information

Fabrication of silver nanowire transparent conductive films with an ultra-low haze and ultra-high uniformity and application in transparent electronics

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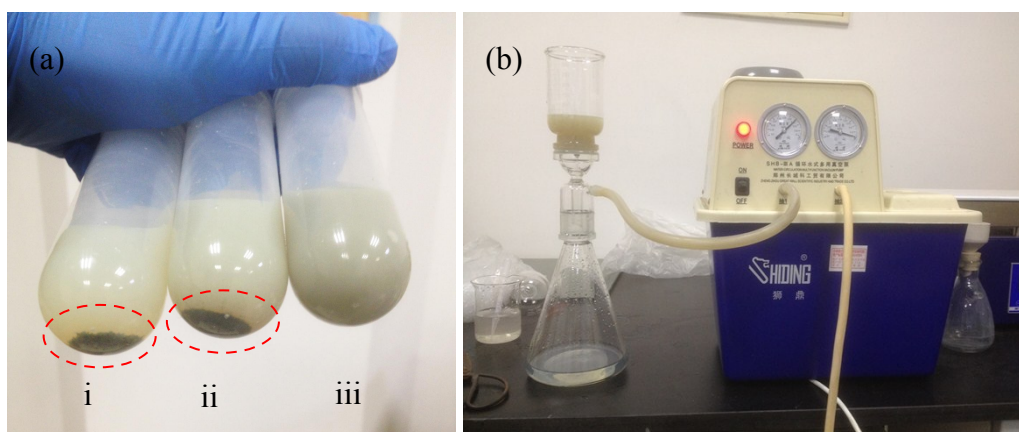


Fig. S1 (a) AgNWs collected in 0.5 wt% PVP-55000 aqueous solution that was purified by i) centrifugation, ii) negative-pressure filtration and iii) positive-pressure filtration; (b) digital picture of a representative negative-pressure filtration device.

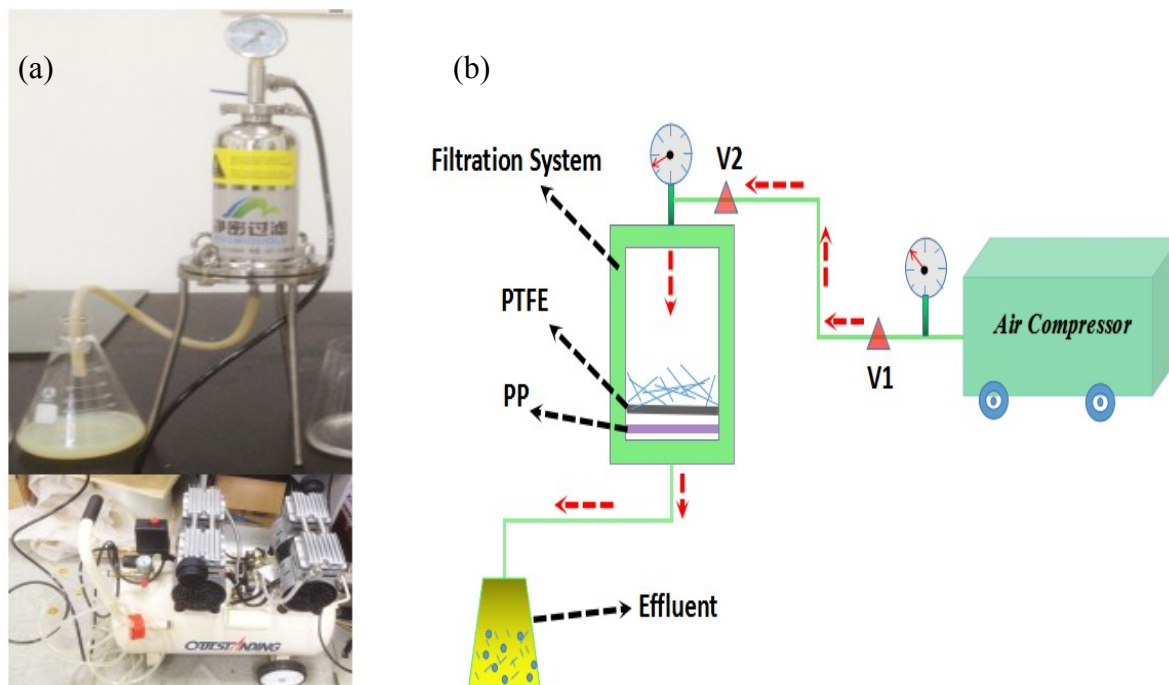


Fig. S2 (a) Digital picture and (b) schematic diagram of the positive-pressure filtration system.

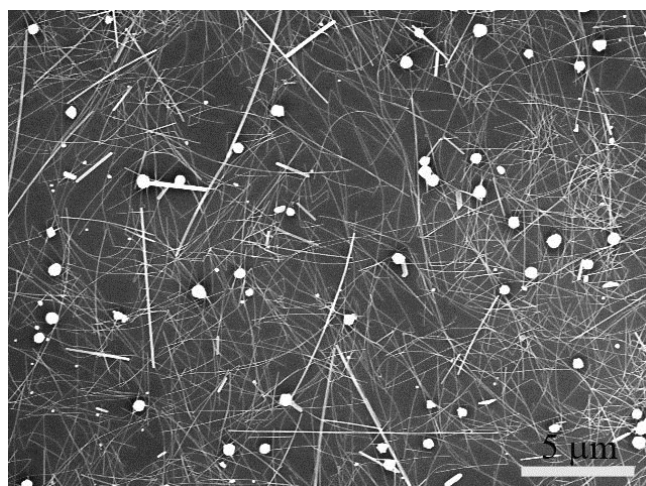


Fig. S3 SEM image of 3 mL raw AgNW reaction solution processed by direct filtration where no dilution solvent was added.

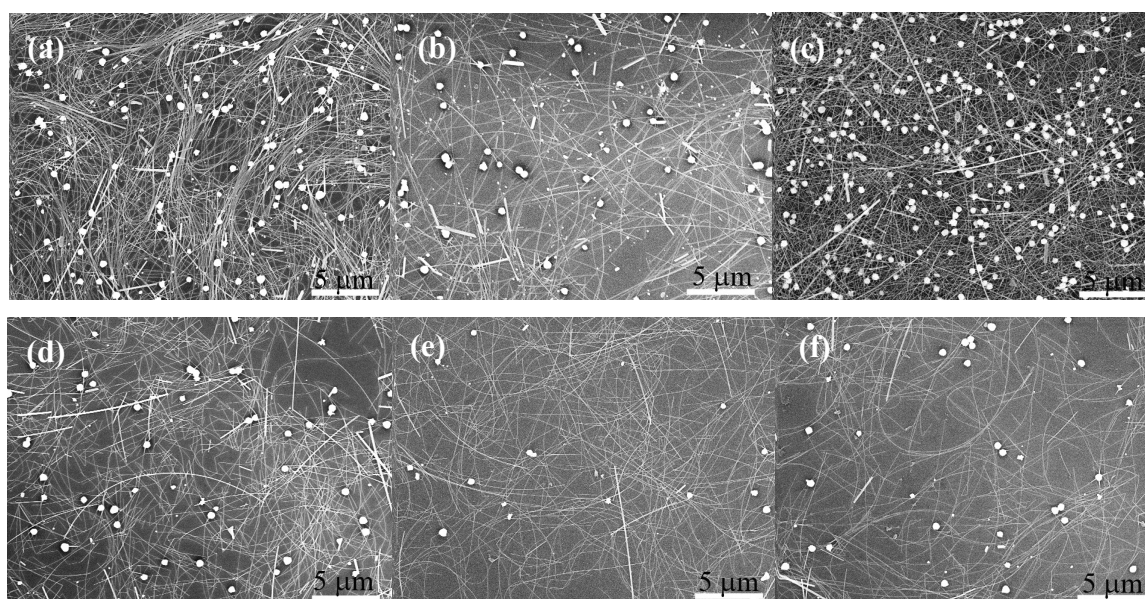


Fig. S4 SEM images of 3 mL raw AgNW dispersion diluted by DI water to times of (a) 20, (b) 40 and (c) 80 when positive-pressure filtration was applied; SEM images of 3 mL raw AgNW dispersion diluted by EG to times of (d) 20, (e) 40 and (f) 80 when positive-pressure filtration was applied.

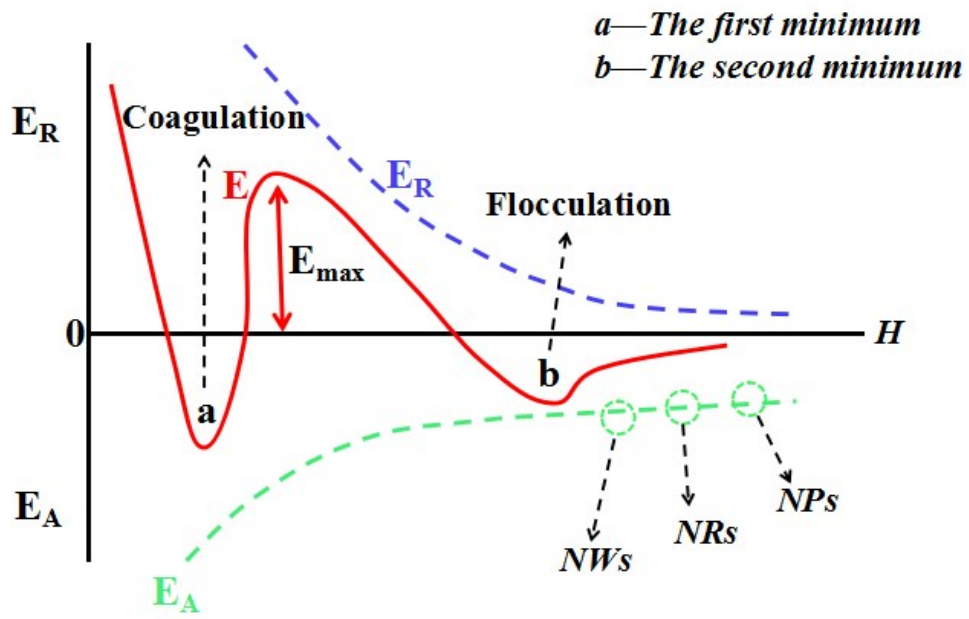


Fig. S5 Schematic diagram curves for the potential energy (E_A , E_R and E_{Total}) varying with the distance (H) between nanomaterials and the range of E_A for NWs/NRs/NPs.

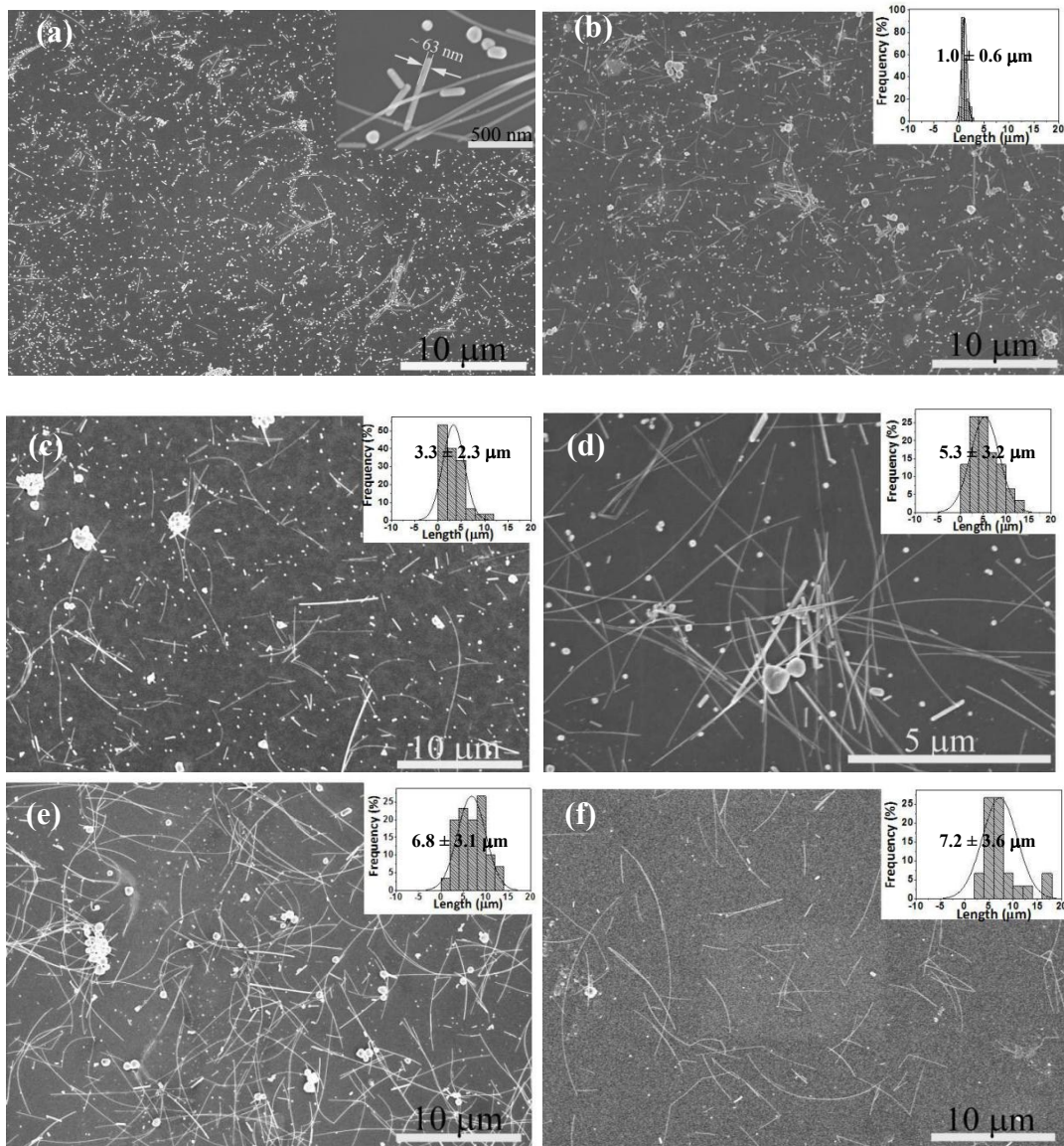


Fig. S6 SEM images of (a) the filtered effluent and (b)-(f) the pipetted supernate in subsequent cleaning process with acetone after 1-5 cycles, respectively.

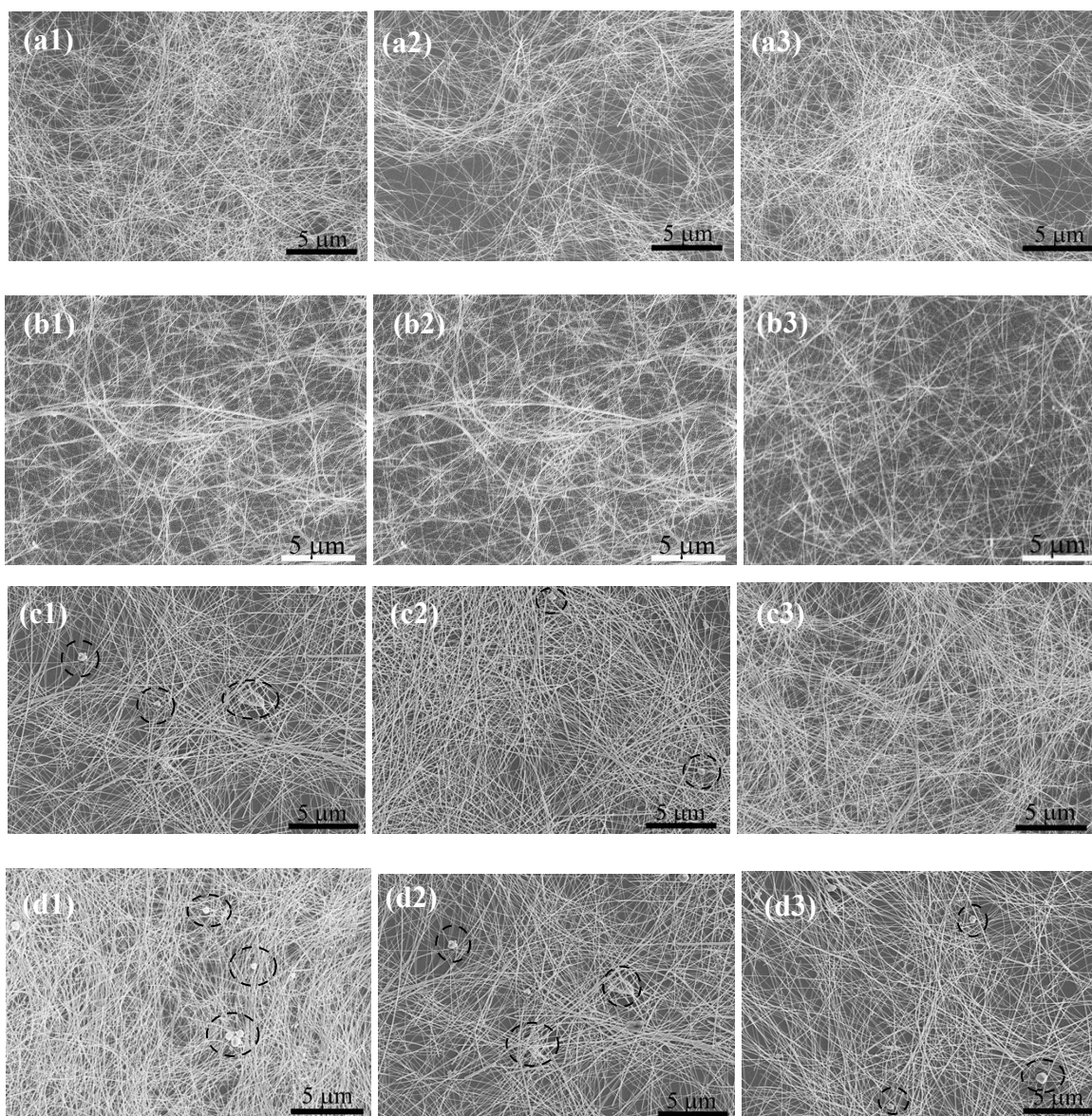


Fig. S7 SEM images of the final AgNWs purified by positive-pressure filtration for 1 cycle and acetone cleaning for 5-7 cycles as shown from left to right. The experiments of acetone cleaning were all conducted in a 250 mL conical flask, where the volume of raw AgNW reaction solution was varied among (a) 3 mL, (b) 6 mL, (c) 9 mL and (d) 12 mL, respectively.

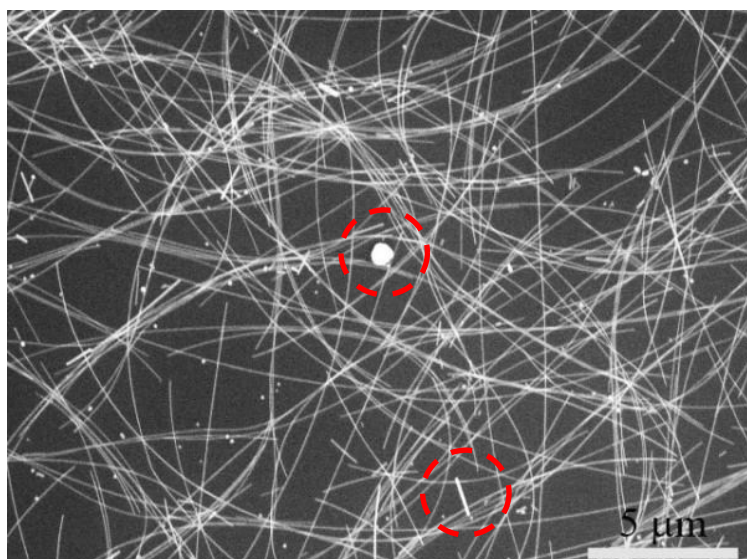


Fig. S8 SEM image of 3 mL raw AgNW reaction solution purified merely by acetone cleaning for 5 cycles without the assistance of positive-pressure filtration.

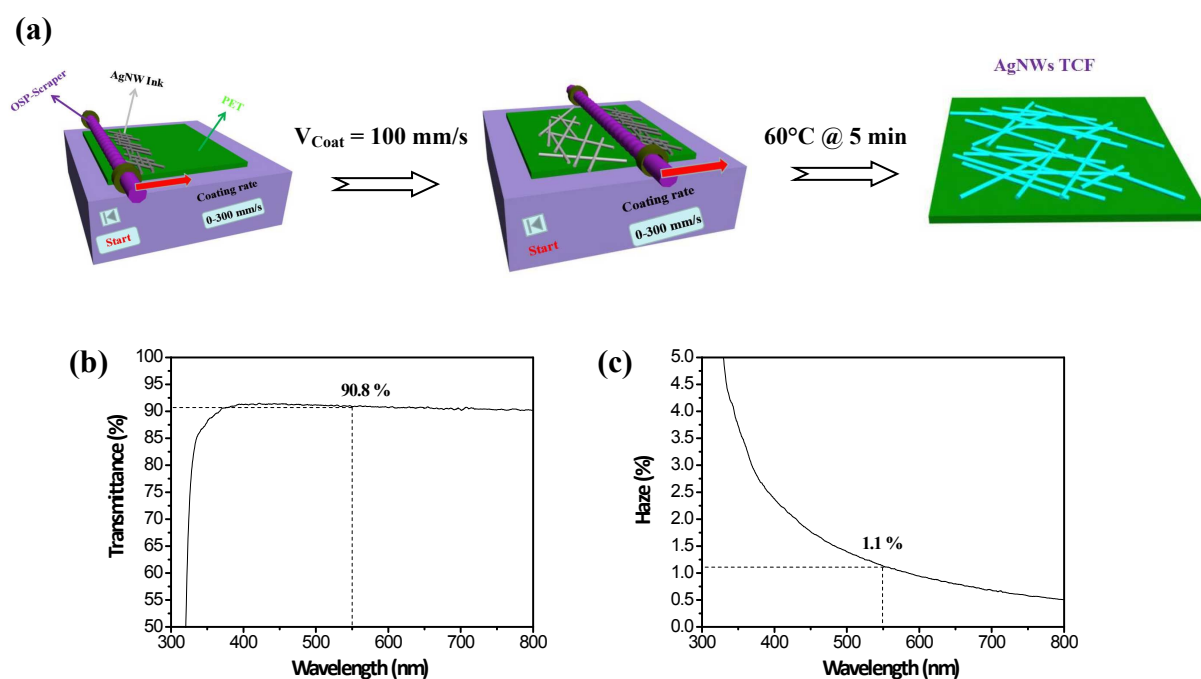


Fig. S9 (a) The schematic diagram for the fabrication of AgNW TCFs by one-step coating method utilizing an automatic coating machine; UV-Vis curves to characterize the (b) T_i and (c) haze of the PET substrate.

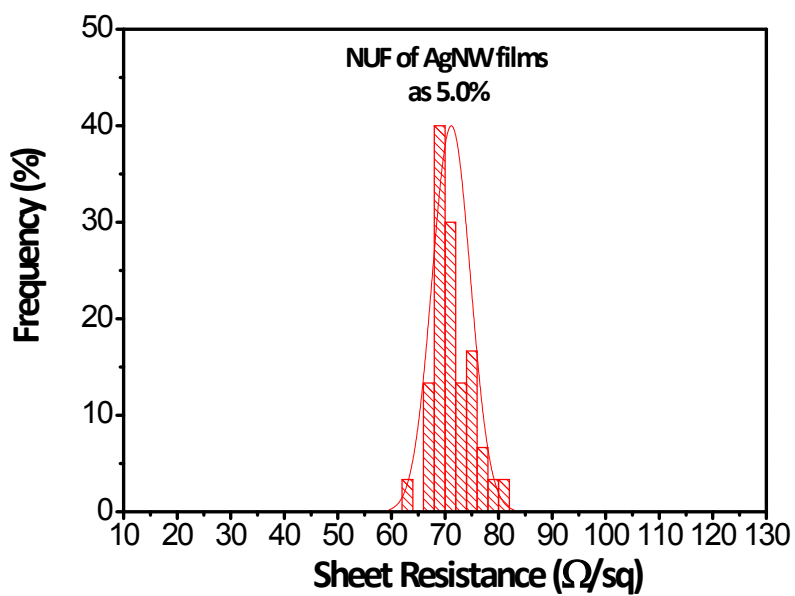


Fig. S10 The statistic histogram of sheet resistance for the fabricated AgNW TCFs.