Supporting information

The effect of light and humidity on the stability of silver nanowire transparent electrodes

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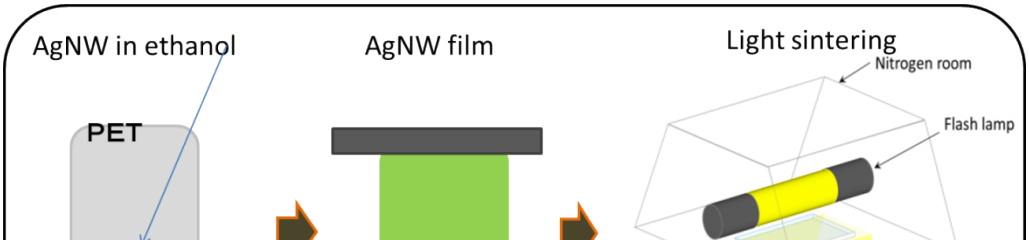


a

b

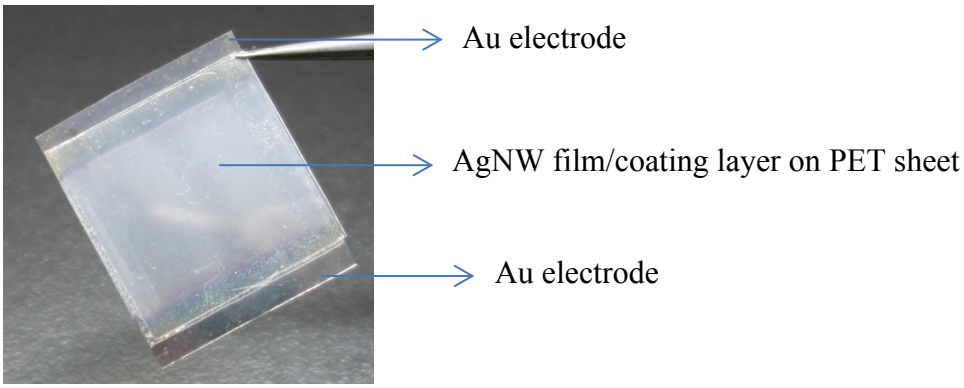


Fig. S1 the formation process of AgNW films (a), AgNW film photo with thick coating layer (b). AgNWs dispersed in ethanol with a concentration of about 2.5 wt% were drop-coated onto 3 × 3 cm polyethylene terephthalate (PET) or glass substrates to make AgNWs films, which were allowed to dry naturally at room temperature. These AgNWs films were treated with high-intensity pulse light illumination (PulseForge 3300, Novacentrix, Austin, TX, USA) at a fixed light intensity of 1.0 J/cm^2. After that, the films were over-coated and stored at real laboratory conditions. The sheet resistance of AgNWs films was regularly measured. When a coating was too thick to measure sheet resistance, Au electrodes (each 0.3 × 3 cm) were coated on two sides of the film by sputtering at RT. These electrodes were used to evaluate the film's conductive performance.

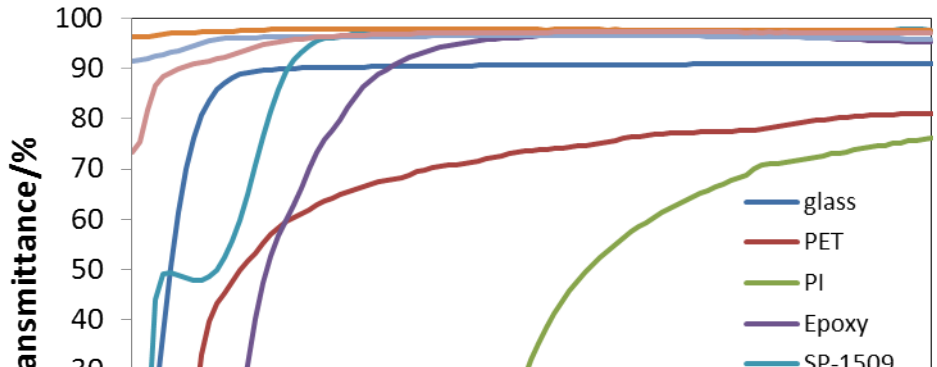
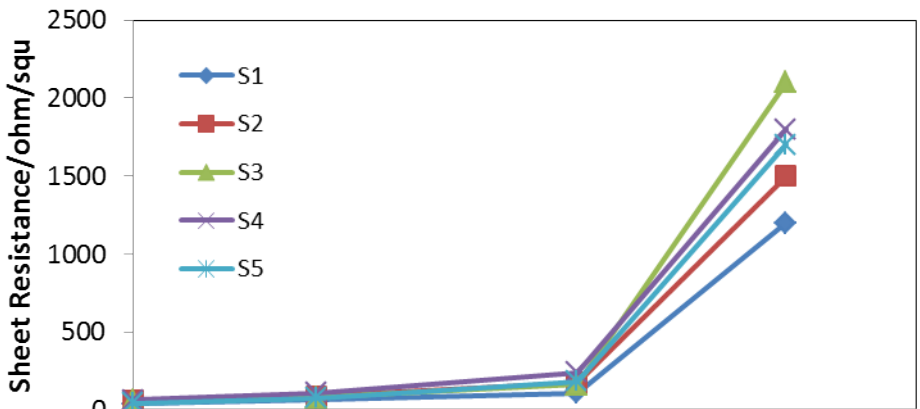


Fig. S2 Vis-UV spectra of different coating materials.

Transmittance spectra of all these substrates were recorded using a Jasco UV–visible-near-infrared spectrophotometer (V670, JASCO Corp.) with air as a reference.



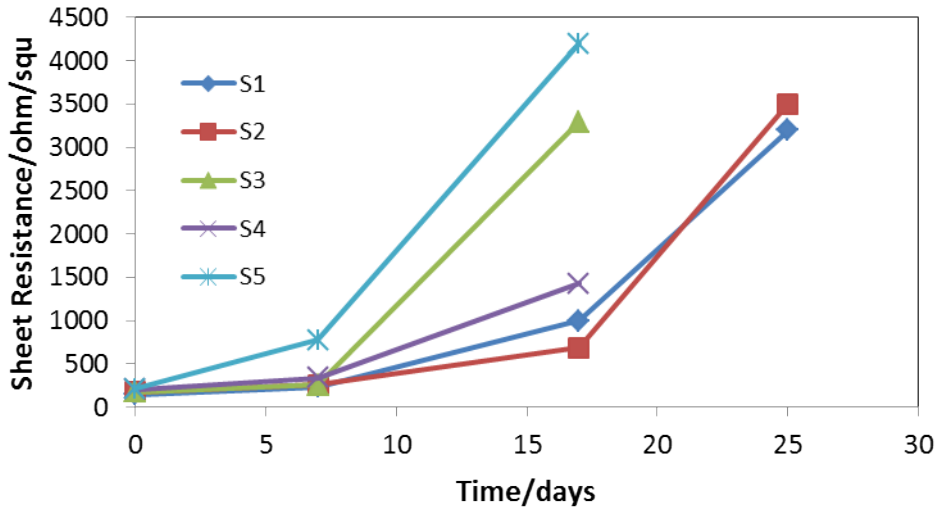


Fig. S3. The change of resistance in those pristine AgNW films with different initial sheet resistance, 40~64 Ω/□ (a) and 150~215 Ω/□ (b). Low initial resistance samples showed a slow rise in resistance with the time, and high initial resistance samples gave a rapid increase with the time.

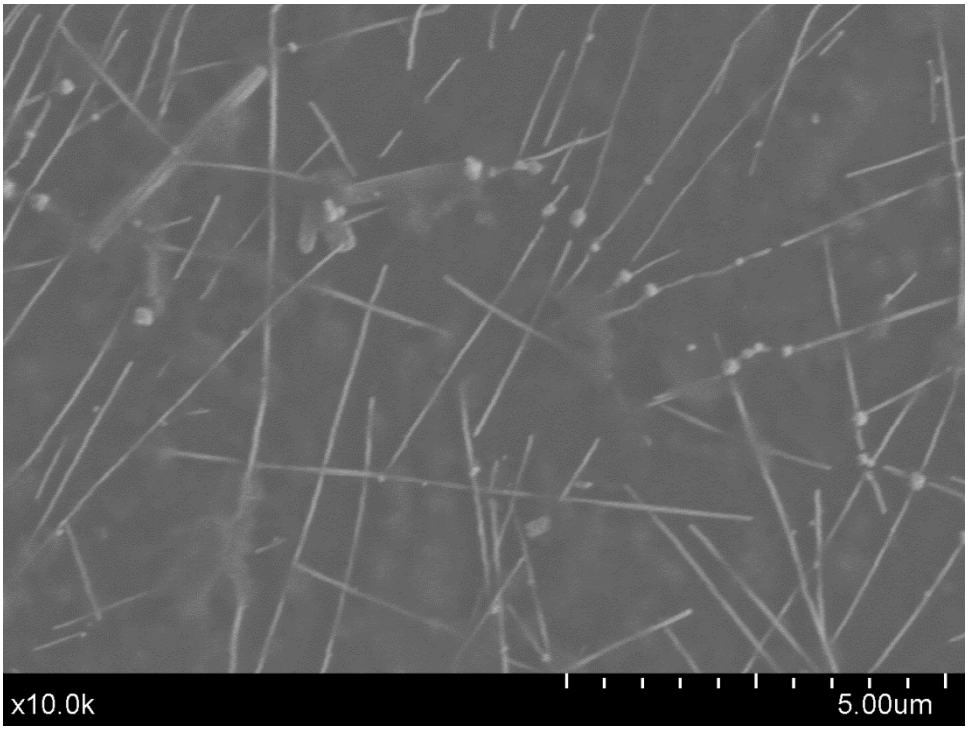


Fig. S4 The SEM image of AgNW films coated with SP-1509 and stored at 85°C and 85% RH for 30 days.

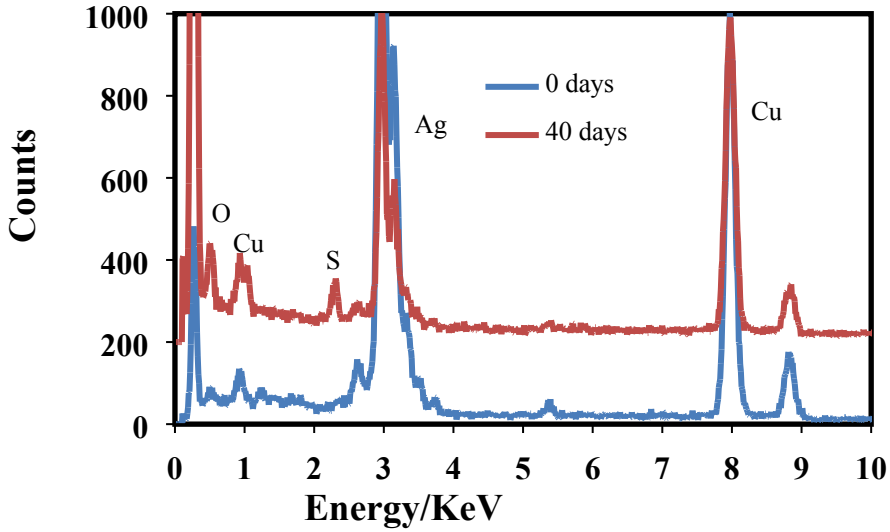


Fig. S5 The EDS **spectra of AgNW placed directly on TEM Cu grid and stored in air for 40 days.**