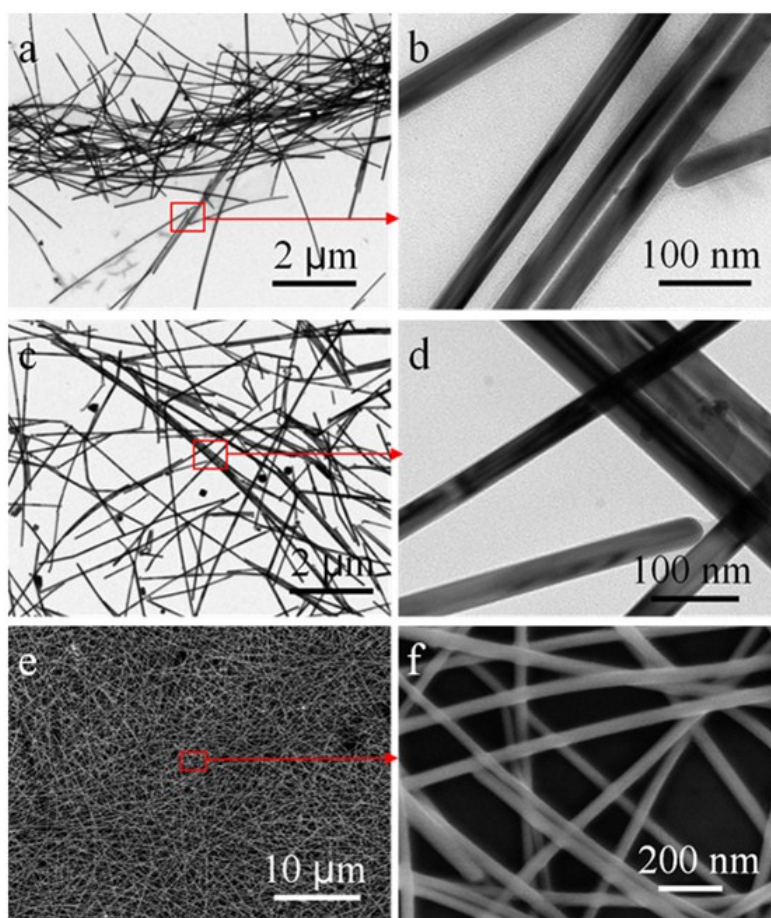


Supplementary Information

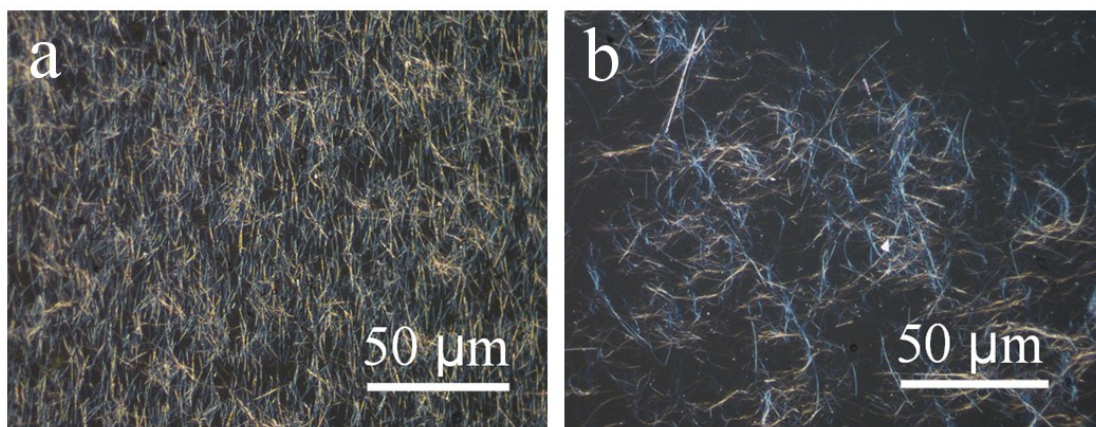
Order-Enhanced Silver Nanowire Networks Fabricated by Two-Step Dip-Coating as Polymer Solar Cell Electrodes

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Finger S1. TEM images of Ag NW with length of 5 μm (a, b) and 20 μm (c, d); SEM images of Ag NWs with length of 50 μm (e, f).



Finger S2. Optical microscopy images of $L/D = 400$ Ag NW films prepared by dip coating in one direction (a) and spray coating (b).

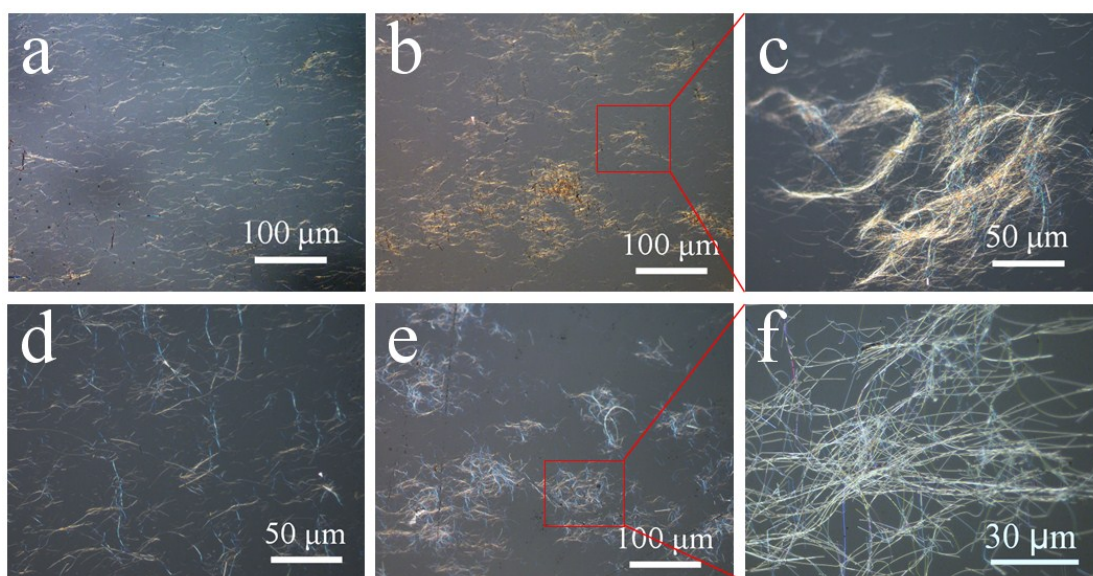


Figure S3. Optical microscopy images of Ag NW ($L/D = 1000$) films prepared by one-direction (a-c) and two-direction (d-f) dip coating with 1(a, d) and 3 (b, c, e, f) times coating.

Note: Figure S3a-c show the optical microscopy images of Ag NW networks dip-coated in one direction through 1 and 3 times, respectively. It is seen that with increasing coating times, Ag NW tend to aggregate (Figure S3b&c). The networks prepared by dip coating in cross (Figure S3a-c) show the same evolution trend. Compared with Ag NW of $L/D = 100$ and 400, Ag NW of $L/D = 1000$ are easier to aggregated into bundles, which might be attributed to their higher flexibility.

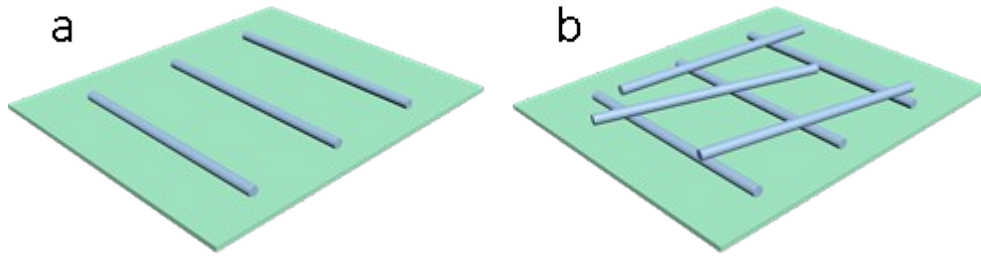


Figure S4. Schematic of the attachment of the first-layer (a) and the second-layer Ag NW (b) on PET substrate. In two-step dip coating process, the first-layer Ag nanowires deposited by the first-run coating directly contact with PET substrate while the second layer is isolated by the first layer from the PET substrate, as depicted in Figure S4. The contact area of the second-layer Ag nanowires with PET substrate is largely reduced, resulting in the slide of these nanowires during their coating.

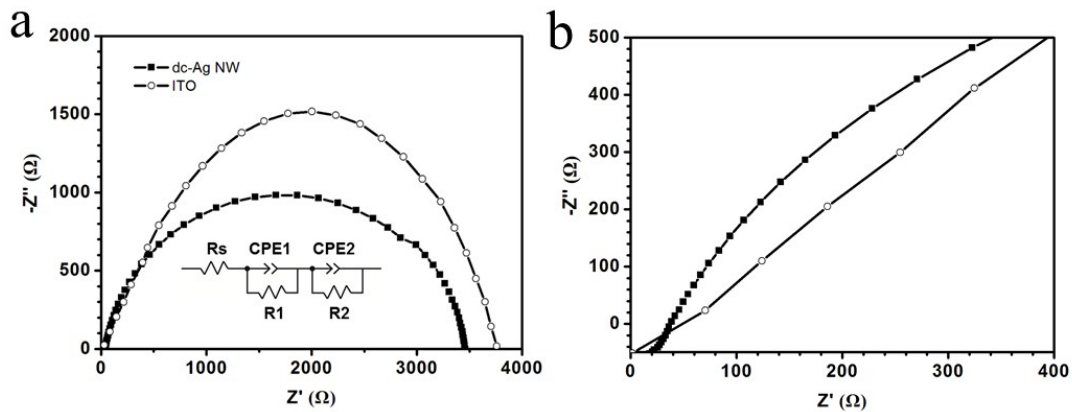


Figure S5. (a) Nyquist plots in complex impedance plane obtained from cell device fabricated with dc-Ag NW/PET and ITO/glass electrodes. Inset is the basic RC series model of the equivalent circuit for solar cells. (b) Enlarged Nyquist plots of (a). The impedance spectra of the devices demonstrates that dc-Ag NW based devices have lower charge transfer resistance and the time constant than ITO based devices, resulting in the faster charge transfer, and then higher power conversion efficiency.