Electronic Supplementary Information

Efficient charge transport in a solid electrolyte with percolated Pt for solid-state fiber dye-sensitized solar cells

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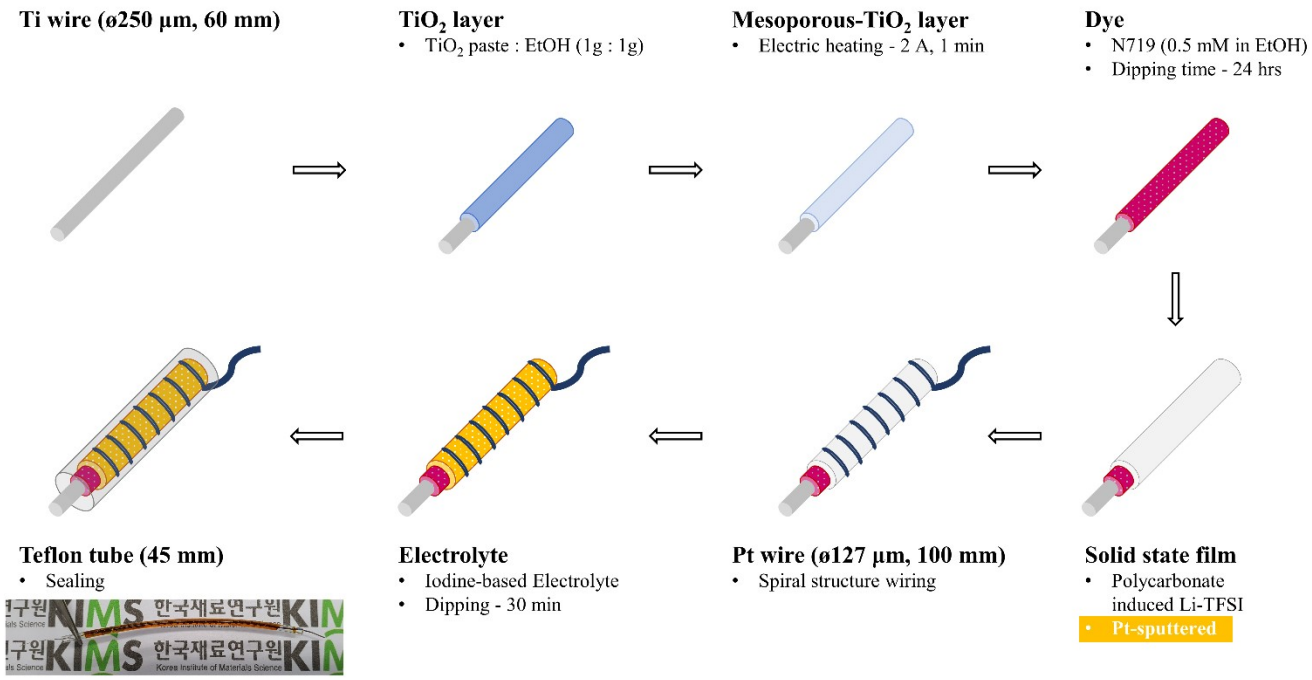

Scheme S1. Progress of schematic diagram of S-FDSSCs and actual device image.

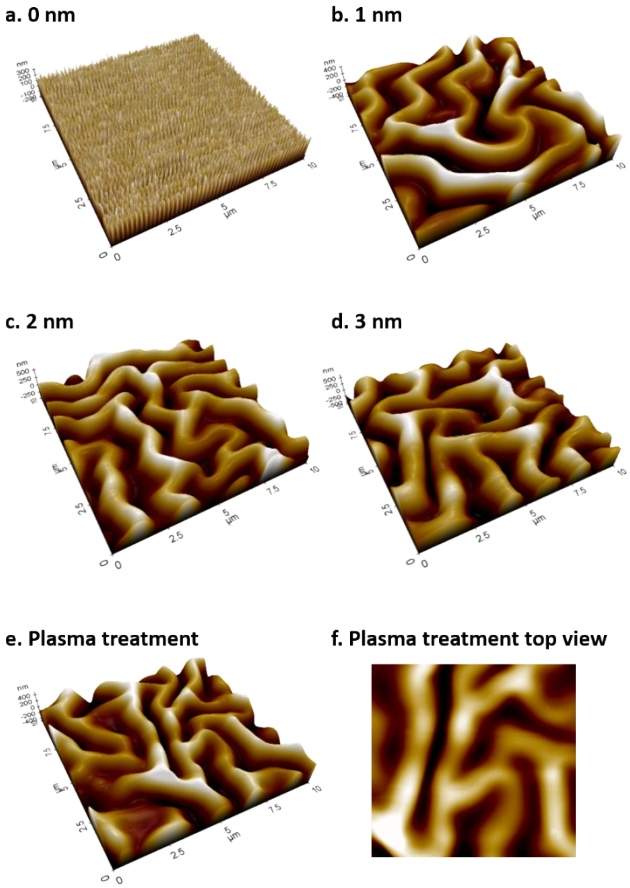

Figure S1. Atomic Force Spectroscopy (AFM) a-d) 3D view of plasma treatment under Pt-target in different exposure time. e-f) Plasma treatment without Pt target.

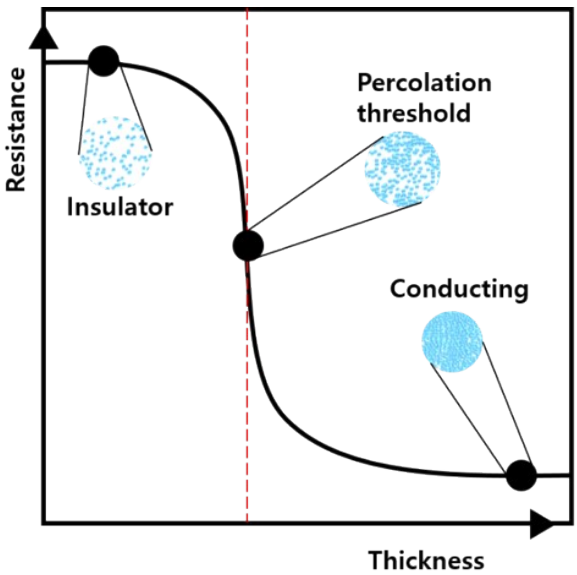

Figure S2. Percolation threshold between insulator state to conducting state

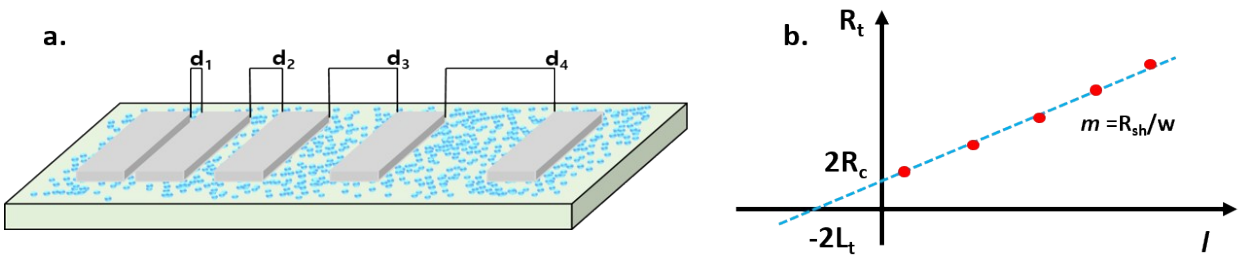

Figure S3. a) Transmission line latrix (TLM) Method scheme which derives contact resistance and sheet resistance measurement. b) intercept of *y-axis* line to measure contact resistance scheme

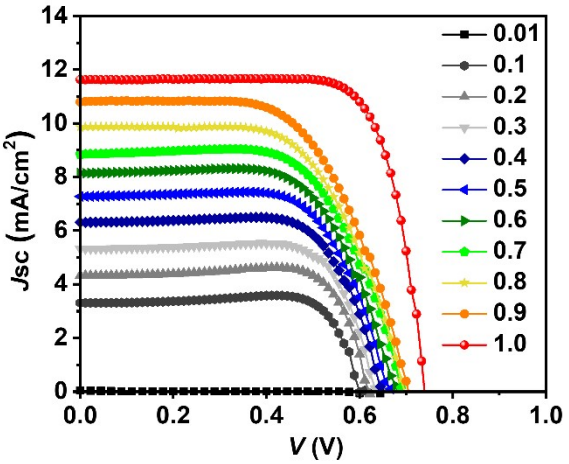

Figure S4. J-V curves of Pt (2 nm)-sputtered S-FDSSCs as a function of the intensity of illumination (0.01 and 0.1 to 1.0 Sun).

Table S1. The photovoltaic parameters of the Pt (2 nm)-sputtered S-FDSSCs as a function of the intensity of illumination (0.01 and 0.1 to 1.0 Sun).

Conditions (Sun)	V_{OC} (V)	J_{SC} (mA/cm^2)	FF (%)	PCE (%)
1.0	0.71	11.63	73.1	6.09
0.9	0.70	10.75	74.2	6.16
0.8	0.70	9.87	76.1	6.26
0.7	0.69	8.89	77.3	6.34
0.6	0.68	8.13	79.0	6.48
0.5	0.67	7.28	80.6	6.60
0.4	0.65	6.30	81.9	6.74
0.3	0.63	5.31	82.8	6.88
0.2	0.62	4.33	83.6	7.03
0.1	0.60	3.30	84.8	7.16
0.01 (1100 lux)	0.61	0.21	90.1	3.15

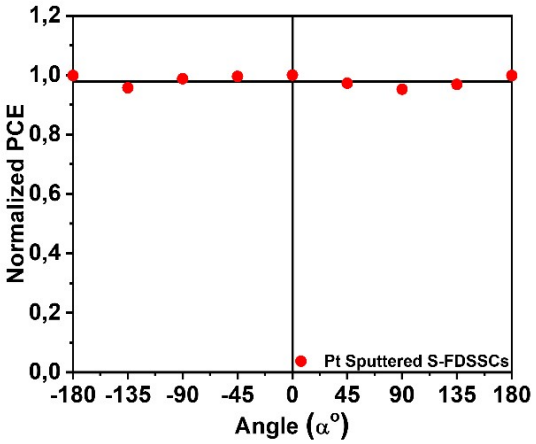

Figure S5. PCE of S-FDSSC at different illumination light angles.

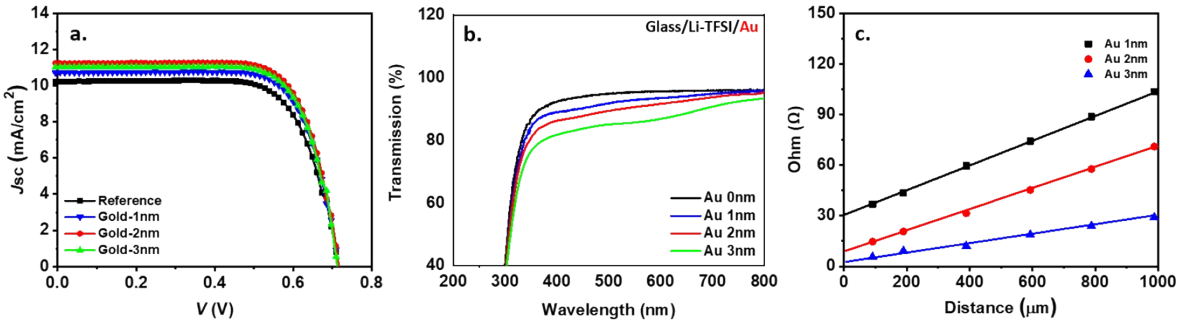

Figure S6. a) J-V characteristic of Au-sputtered device. b-c) Total transmittance and TLM method of plasma sputtering with Au target.

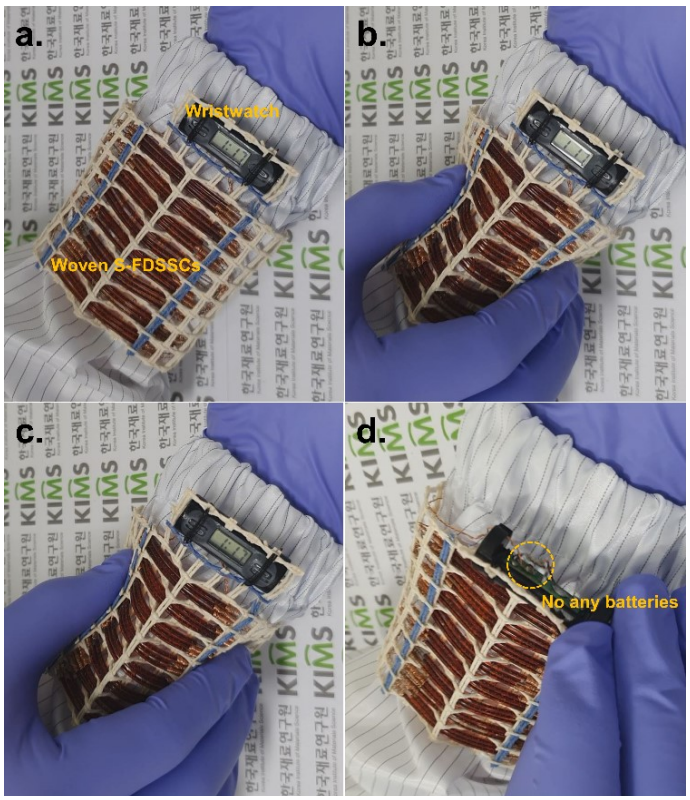

Figure S7. Woven S-FDSSCs: a) The wristwatch powered by woven S-FDSSCs connected in series and parallel with 24 devices. b-c) Wristwatch that run reliably even with repeated bending. It can be seen that the symbol ':' blinks over time between the time unit and the minute unit on the display of sports watch. d) The woven devices driven by incident light without any batteries.