

Supporting Information

Ultrathin Hole Extraction Layer for Efficient Inverted Perovskite Solar Cells

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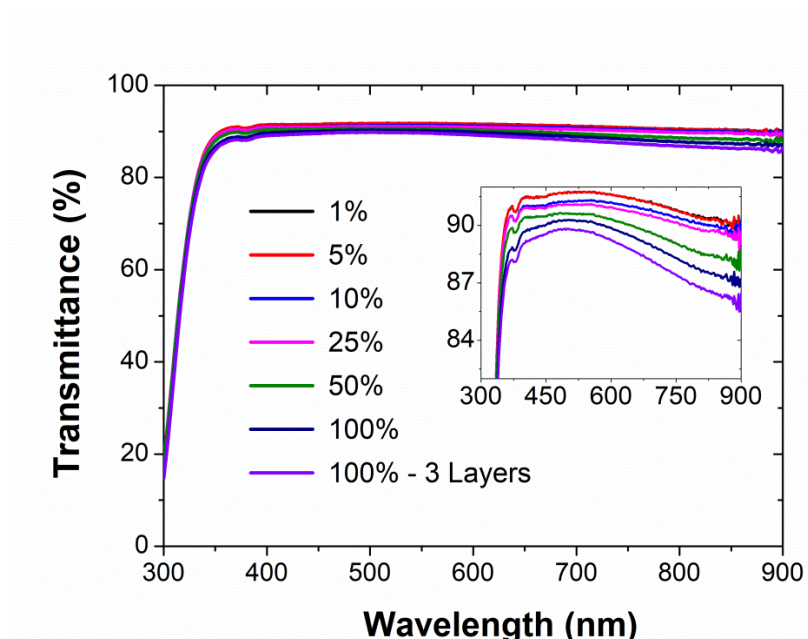


Figure S1. The transmittance spectra of PEDOT films. The inset shows the transmittance spectra with the transmission > 82% range.

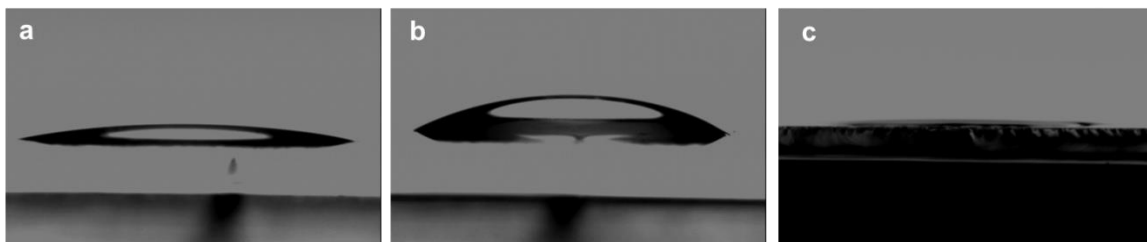


Figure S2. The contact angle tests of 100%-PEDOT film (a), 5%-PEDOT film (b) and the bare ITO substrate (c). The contact angle of water on 100%-PEDOT film, 5%-PEDOT film and the bare ITO substrate is 13.5° , 25.7° and $\sim 0^\circ$, respectively.

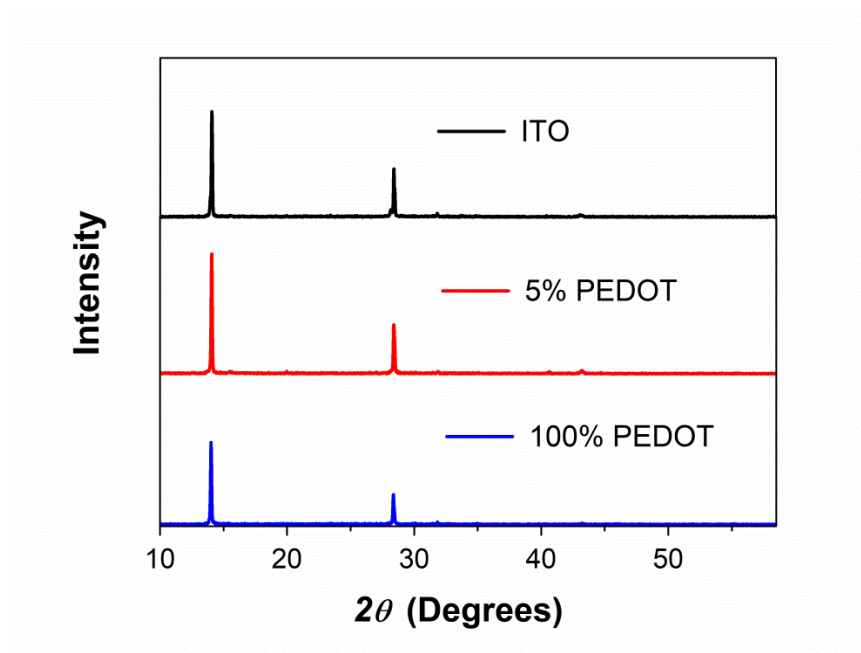


Figure S3. XRD patterns of perovskite films deposited with various thicknesses of PEDOT on ITO substrates.

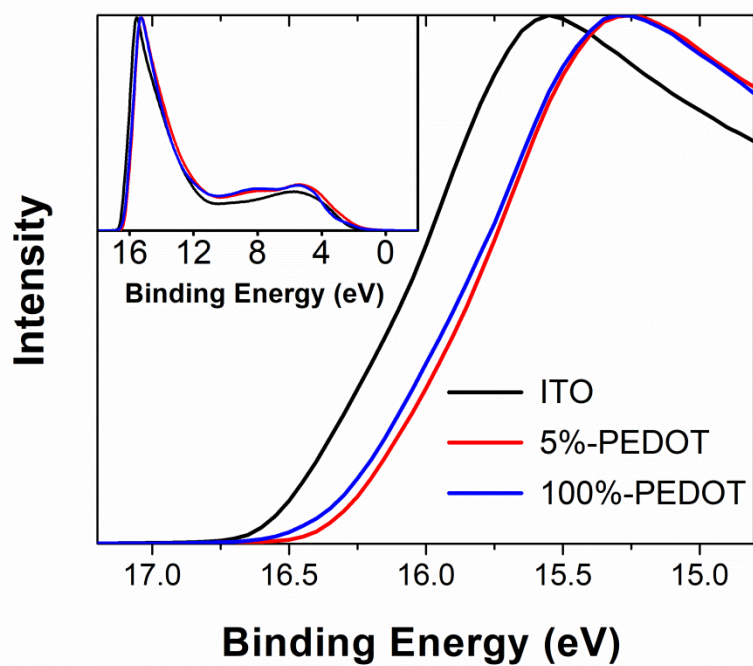


Figure S4. UPS for the ITO substrate and PEDOT films on ITO substrate. The inset shows the corresponding full UPS curves

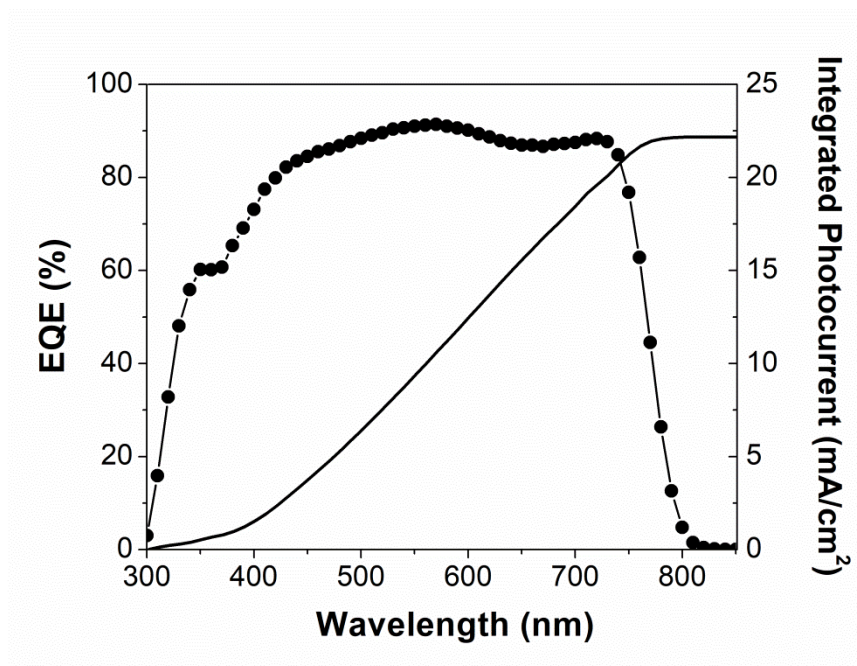


Figure S5. The corresponding EQE spectra of the champion devices prepared on 5%-PEDOT substrate.

Concentration of PEDOT	n	R_p ($\Omega \text{ cm}^2$)	R_s ($\Omega \text{ cm}^2$)	J_{s0} (A cm^{-2})
w/o	1.58	11	0.020	1.05×10^{-11}
5%	1.45	140	0.018	8.65×10^{-12}
100%	1.45	19	0.017	6.89×10^{-12}

Table S1. Fitting parameters for dark J - V curves.