

Supporting Information for

**Work-function tunable Polyelectrolyte Complex (PEI:PSS) as the Interfacial Layer for
Inverted Organic Solar Cells**

Zhenhua Lin,^a Jingjing Chang,^b Jie Zhang,^c Changyun Jiang,^{*c} Jishan Wu,^{b,c*} and Chunxiang
Zhu^{a*}

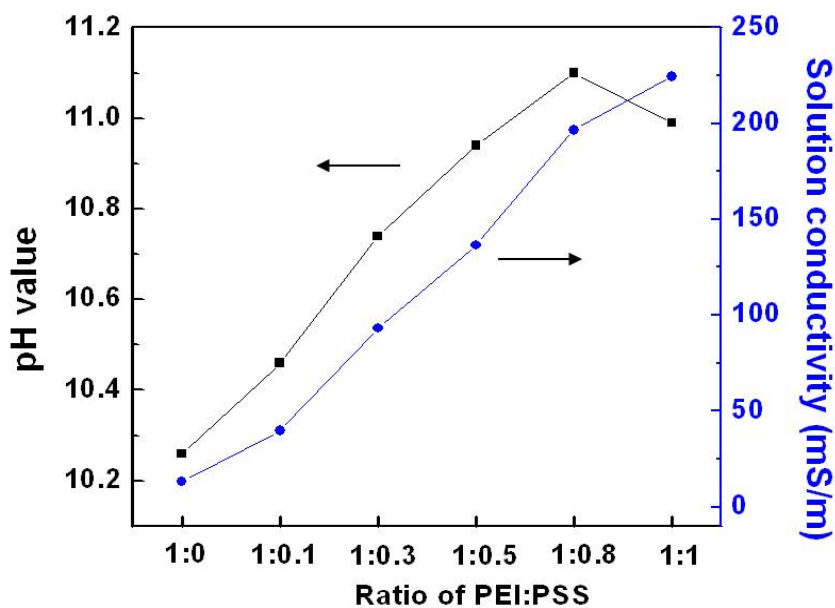


Fig. S1. The pH value and conductivity of the PEI:PSS solutions as a function of the PEI:PSS ratios.

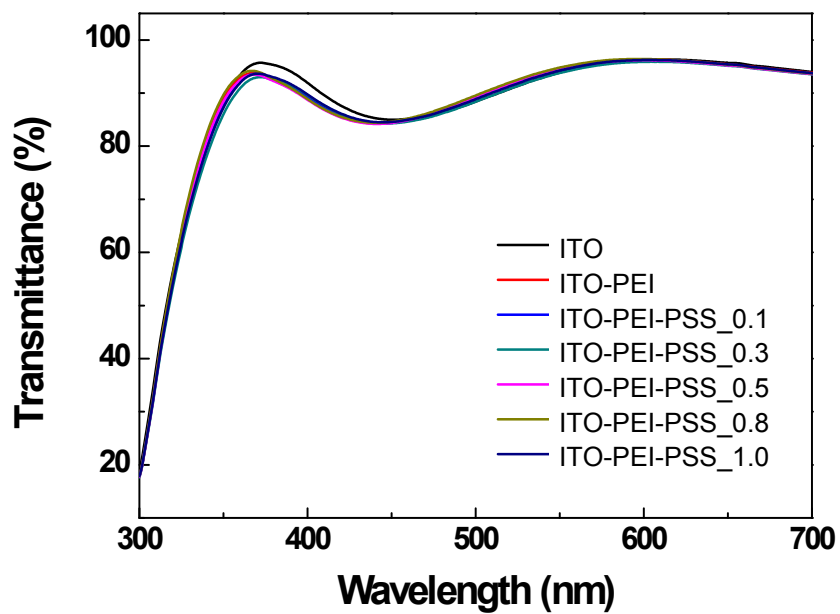
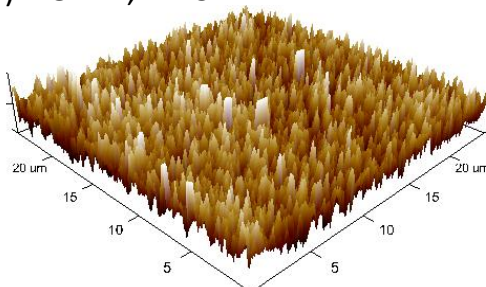
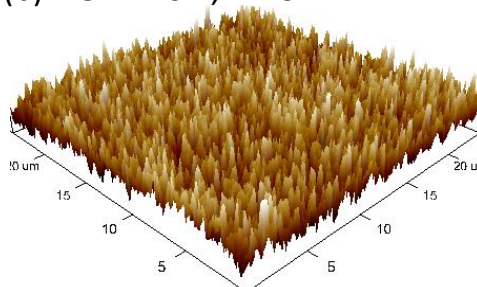


Fig. S2. Transmittance spectra of ITO, ITO/PEI and ITO/PEI:PSS films on glass substrates.

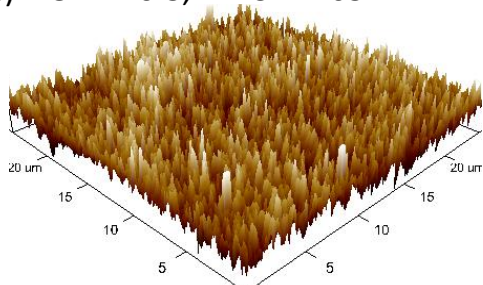
(a) ITO-PEI, RMS = 2.41 nm



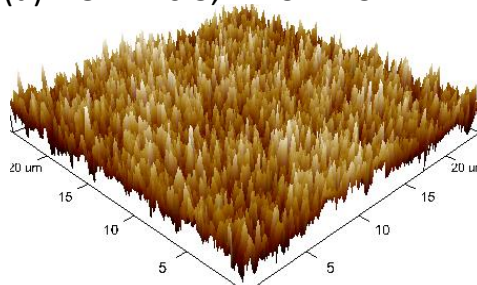
(b) ITO-PEI-0.1, RMS = 1.71 nm



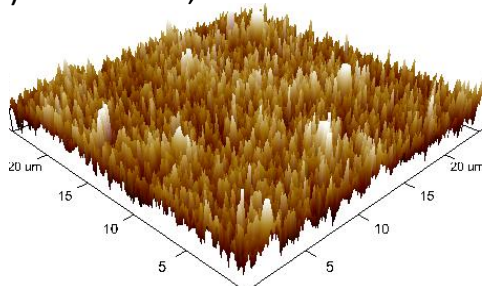
(c) ITO-PEI-0.3, RMS = 1.65 nm



(d) ITO-PEI-0.5, RMS = 1.92 nm



(e) ITO-PEI-0.8, RMS = 2.39 nm



(f) ITO-PEI-1.0, RMS = 2.17 nm

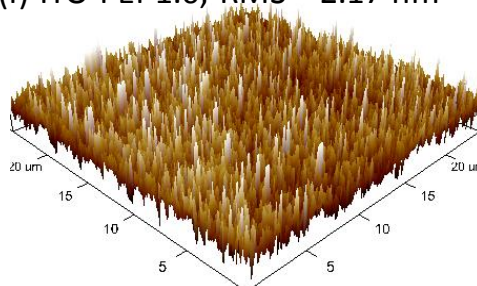


Fig. S3. AFM images of the ITO glass substrates covered with PEI (a), PEI:PSS with ratios of 1:0.1 (b), 1:0.3 (c), 1:0.5 (d), 1:0.8 (e) and 1:1 (f).

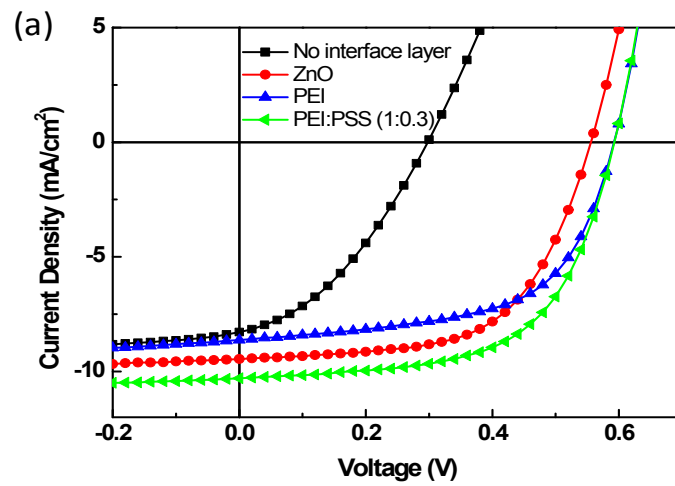


Fig. S4. $J - V$ characteristics of inverted P3HT:PC₆₁BM solar cells with different interface layers.

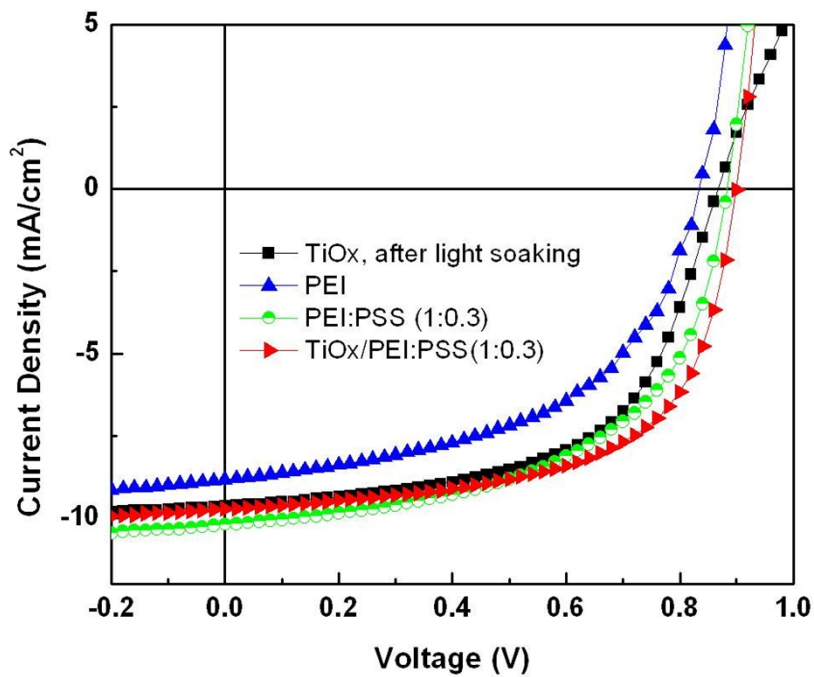


Fig. S5. $J - V$ characteristics of inverted PCDTBT:PC₇₁BM solar cells with TiO_x (with light soaking), PEI, PEI:PSS(1:0.3) and TiO_x/PEI:PSS (1:0.3) interfacial layers.

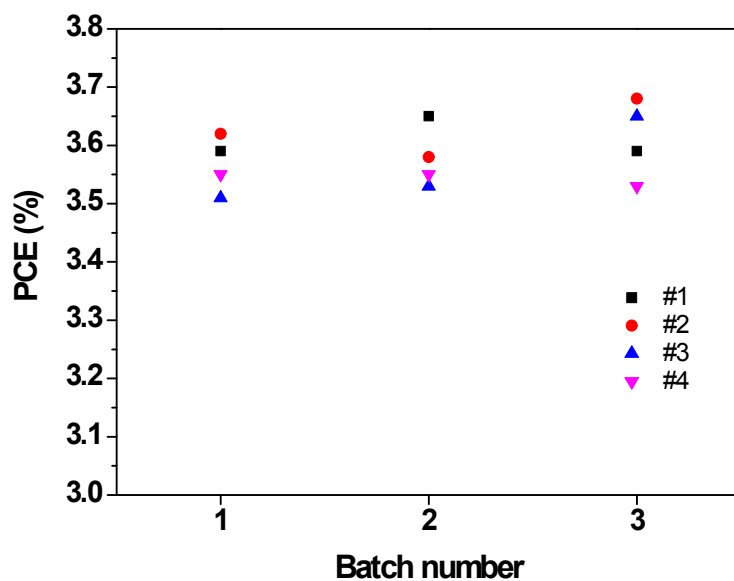


Fig. S6. Batch-to-batch and device-to-device variations of the PCEs (η) of the P3HT:PC₆₀BM solar cells with ITO/PEI:PSS (1:0.3) cathode. For each batch, four devices (#1, #2, #3 and #4) were measured. The variations are in reasonable small range ($\leq 5\%$).