Supporting information

**Engineering the vertical concentration distribution within the polymer:fullerene blends for high performance inverted polymer solar cells**

Yaping Wang, Honglu Zhu, Zhenzhen Shi, Fuzhi Wang, Bing Zhang, Songyuan Dai, and Zhan'ao Tan*

State Key Laboratory of Alternate Electrical Power System with Renewable Energy Sources, Beijing Key Laboratory of Novel Thin Film Solar Cells, North China Electric Power University, Beijing 102206, China.
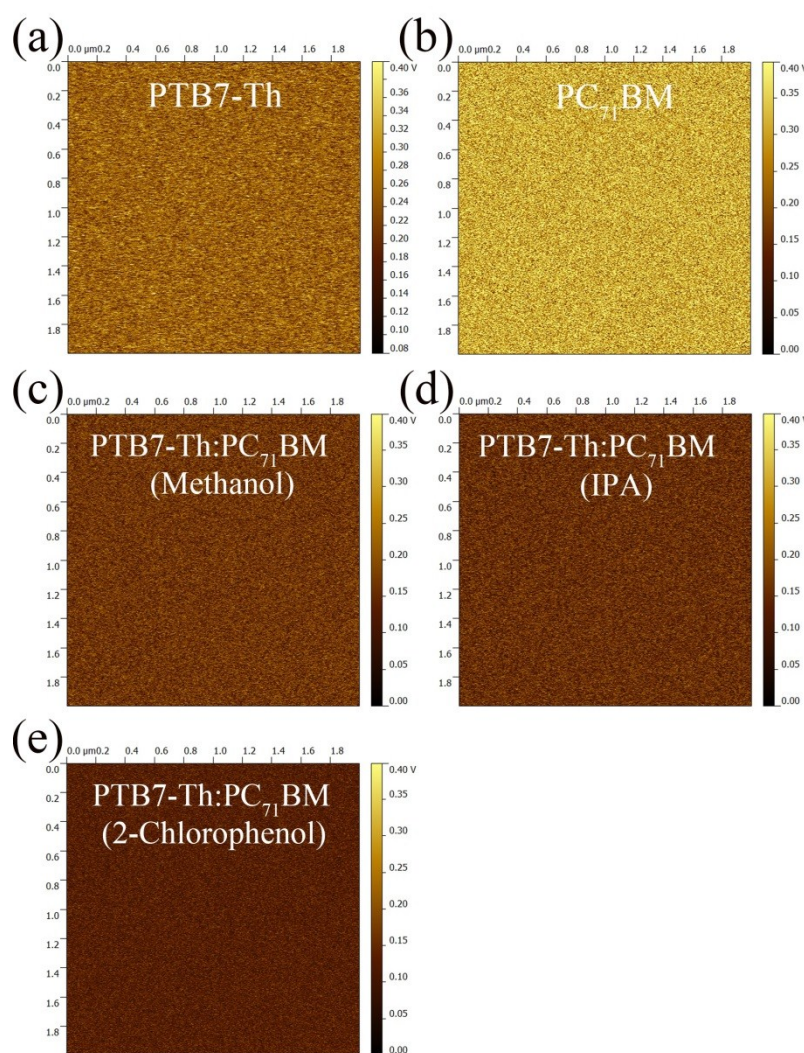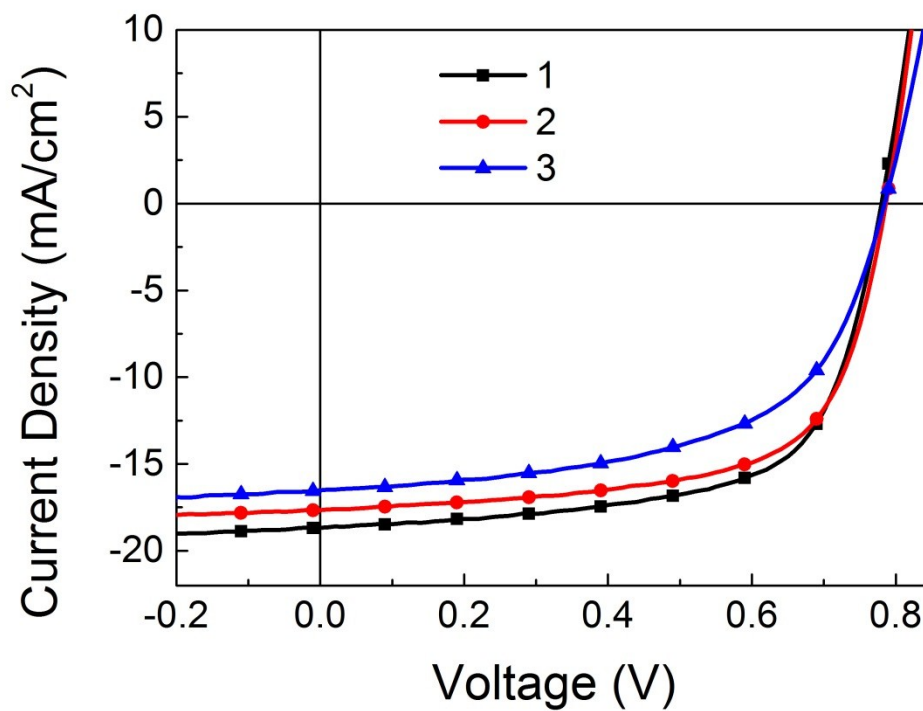
Fig. S1. Surface potential of (a) PTB7-Th film, (b) $PC_{71}BM$ film, and PTB7-Th:$PC_{71}BM$ film with (c) methanol, (d) IPA and (e) 2-Chlorophenol (IPA) flush treatment.
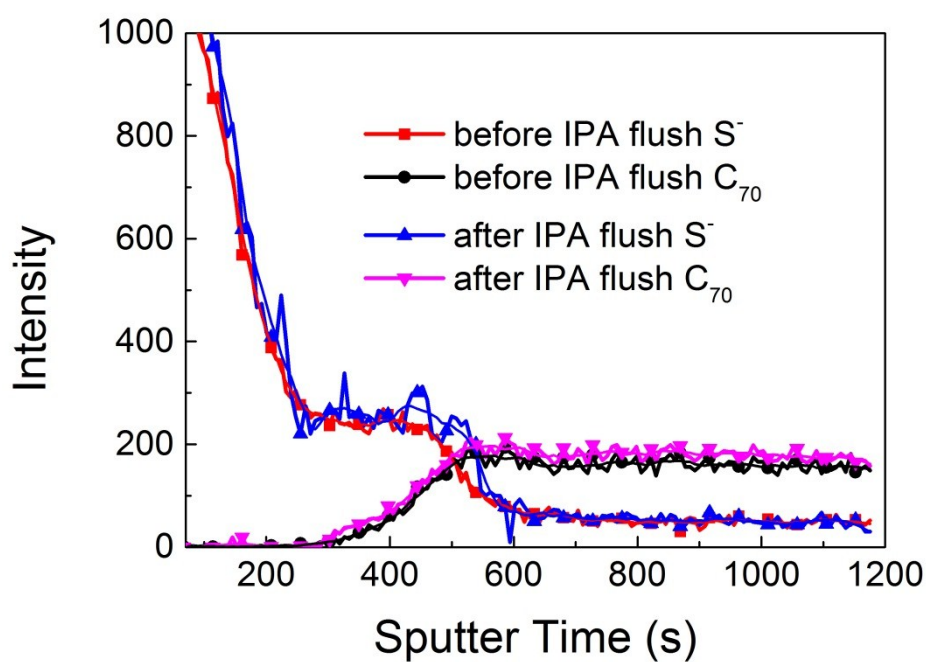
Fig. S2. TOF·SIMS curve of PTB7-Th:PC$_{71}$BM film before and after IPA flush treatment.
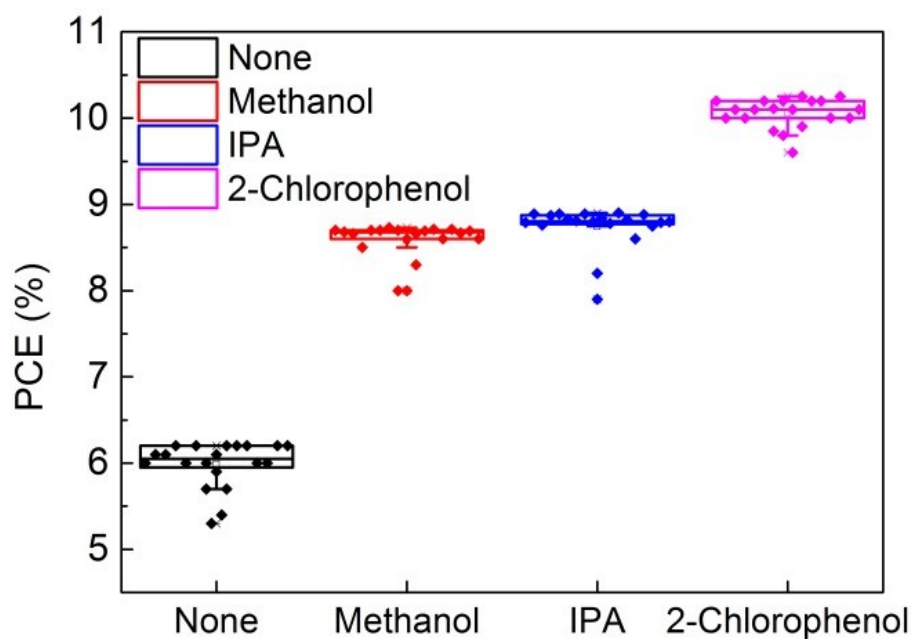
Fig. S3. Statistical PCE of 20 individual devices with none, methanol, IPA and 2-Chlorophenol (IPA) flush treatment.

Fig. S4. *J-V* curves of devices flushed with the best concentration (0.2%) of 2-Chlorophenol for different times

Table S1. Summary of performance parameters of devices flushed with the best concentration (0.2%) of 2-Chlorophenol for different times

Flush times	J_{sc} (mA/cm^2)	V_{oc} (V)	FF (%)	PCE (%)
1	18.50	0.786	69.80	10.15
2	18.15	0.780	66.25	9.51
3	17.66	0.786	65.26	9.06