

## Electronic Supplementary Information

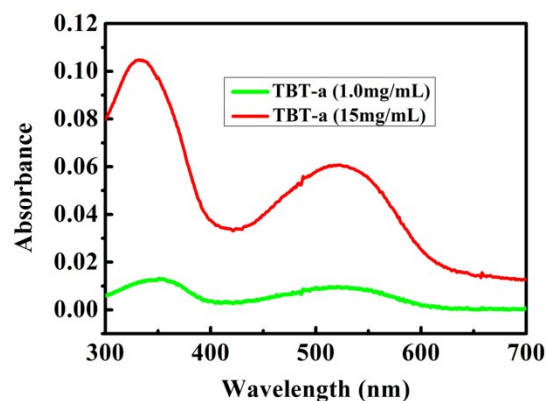
### Sulfonate anionic small molecules as cathode interfacial materials for highly efficient polymer solar cells

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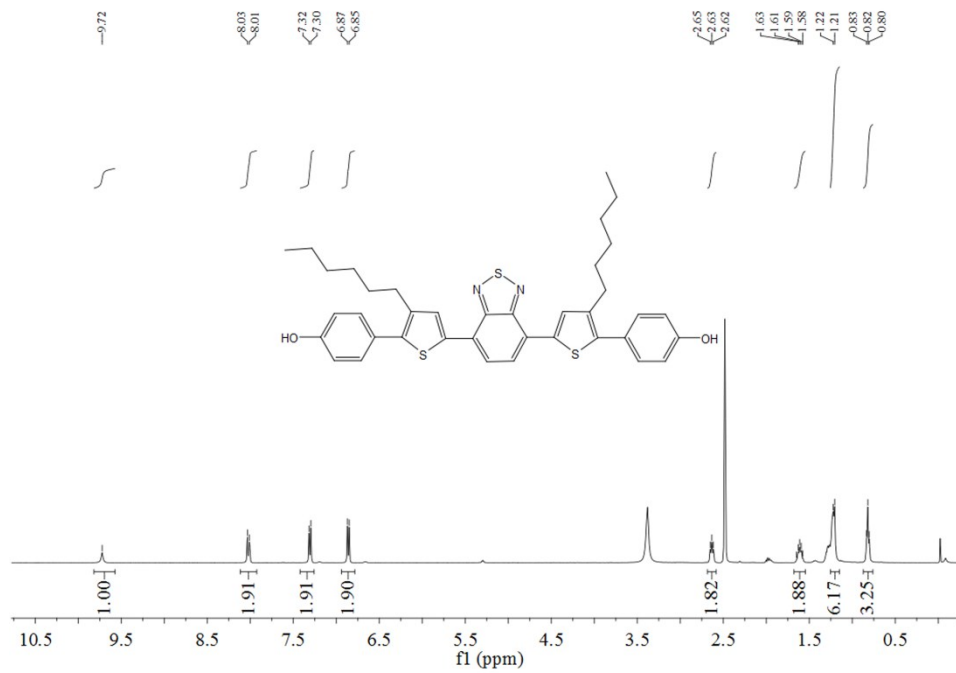
**Fig. S1** The absorbance of different TBT-a films.

**Table S1.** The  $abs_{max}$  and relative thickness of different TBT-a films

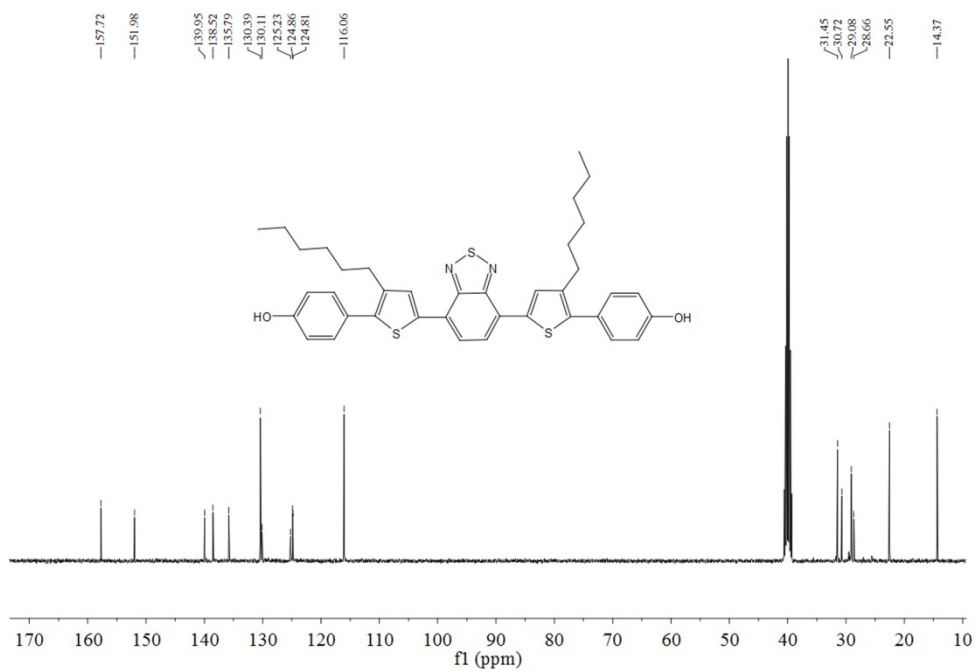
Interlayer	$Abs_{max}$	Relative thickness (nm)						
		1	2	3	4	5	6	Average
TBT-a (15mg/mL)	0.105	76.0	76.2	72.6	70.9	72.8	70.1	73.1
TBT-a (1.0mg/mL)	0.013	/	/	/	/	/	/	9.0

The thickness of TBT-a film (15 mg/mL) was determined by the Veeco profiler (Dektak 150) for 73.1 nm, while the thickness of TBT-a film was estimated by an absorbance-thickness curve that assumed a linear dependence of the absorbance at 336 nm on thickness.<sup>1</sup> The result was shown in Table S1. When TBT-a concentration was 1.0 mg/mL, the thickness of TBT-a film was about 9 nm.

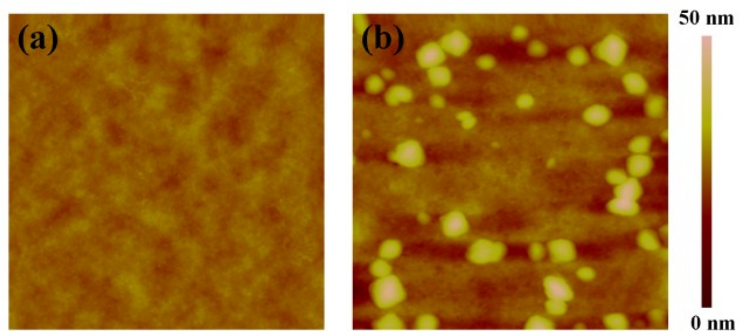




**Fig.S4**  $^1\text{H NMR}$  of **3**



**Fig.S5**  $^{13}\text{C NMR}$  of **3**



**Fig. S6** Tapping-mode AFM images: the surface of the PTB7:PC71BM (a) treated by MeOH, RMS = 1.13 nm and (b) with TBT-a interlayer, RMS = 3.41 nm. (size: 2.5 $\mu$ m $\times$ 2.5 $\mu$ m)

#### Reference

1. S. Liu, Zhang, K., Lu, J., Zhang, J., Yip, H. L., Huang, F. and Cao, Y., *J Am Chem Soc*, 2013, **135**, 15326-15329.