Supporting Information

Fullerene-Free Organic Photovoltaics Based on Unconvensional Material Combination: Molecular Donor and Polymeric Acceptor

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Table S1. Device characteristics of OPV fabricated from p-DTS(FBTTh$_2$)$_2$ blending with three n-type polymers with different D/A molar ratio.

Active layer			V_{OC} (V)	J_{SC} (mA cm^{-2})	FF	PCE
n-type polymers	Solvent CB/DIO (v/v)	D-A ratio (wt/wt)				
PC-PDI	99.5/0.5	8:2	0.74	3.85	0.41	1.18%
	99.5/0.5	**7:3**	**0.80**	**6.73**	**0.46**	**2.45%**
	99.5/0.5	6:4	0.80	6.27	0.40	2.00%
	99.7/0.3	7:3	0.82	5.84	0.37	1.75%
	99/1	7:3	0.80	5.35	0.45	1.94%
PT-PDI	99.5/0.5	8:2	0.68	4.61	0.52	1.62%
	99.5/0.5	**7:3**	**0.66**	**6.34**	**0.48**	**2.02%**
	99.5/0.5	6:4	0.66	5.85	0.45	1.75%
	99.7/0.3	7:3	0.66	5.79	0.45	1.72%
	99/1	7:3	0.64	5.98	0.43	1.65%
PSe-PDI	99.5/0.5	9:1	0.64	5.28	0.44	1.48%
	99.5/0.5	**8:2**	**0.68**	**7.59**	**0.58**	**3.01%**
	99.5/0.5	7:3	0.68	7.30	0.54	2.69%
	99.5/0.5	6:4	0.68	5.77	0.56	2.19%
	99.5/0.5	5:5	0.68	1.71	0.55	0.64%
	99.7/0.3	8:2	0.68	6.68	0.57	2.60%
	99/1	8:2	0.64	6.23	0.53	2.11%

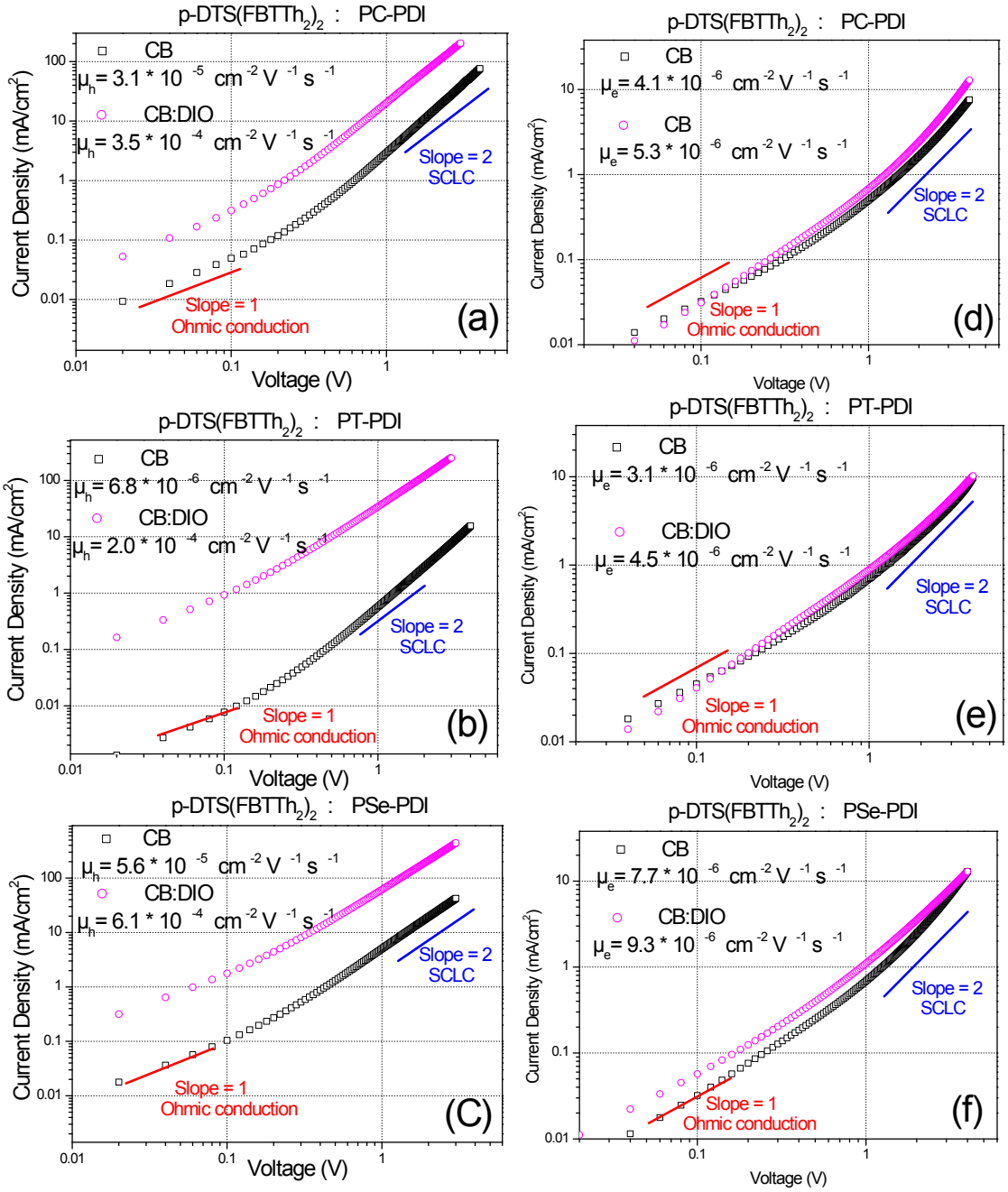

Figure S1 Typical *J–V* curves based on p-DTS(FBTTh$_2$)$_2$: PX-PDI composite films for (a, b, c) the hole-only and (d, e, f) the electron-only devices spin-coated from different solvents, CB or CB:DIO (99.5:0.5 v/v).

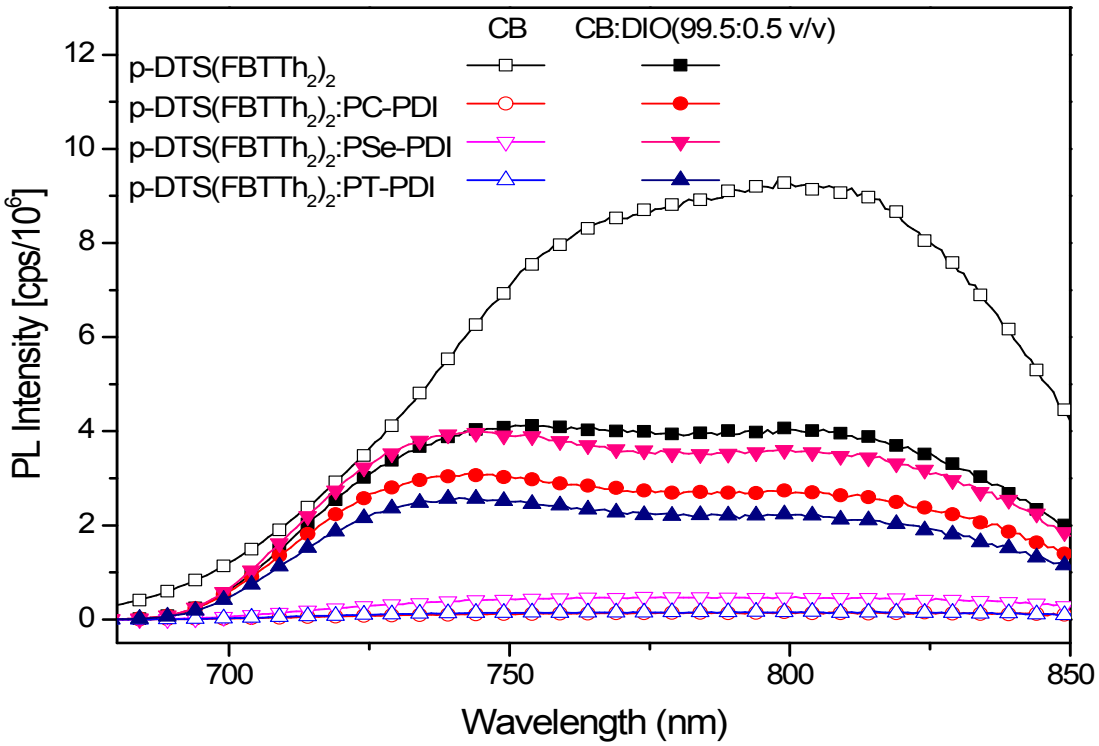

Figure S2. Photoluminescence spectra of pristine p-DTS(FBTTh$_2$)$_2$ and p-DTS(FBTTh$_2$)$_2$: PX-PDI blend films spin-coated from CB and CB:DIO (0.5vol%) excited at 610 nm.