Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting Information

Thiophene and diketopyrrolopyrrole based conjugated polymers as efficient alternatives for spiro-OMeTAD in perovskite solar cells as hole transporting layers.

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CONTENT

HTM	Li-TFSI	V_{oc} [V]	J_{sc}	FF [%]	PCE [%]	Rs(Ω x cm^2)

	Conditon		[mA/cm^2]			
PQT-12	x	0.93	8.82	41.6	3.40	32.77
PQT-12	0.049 M	0.84	10.22	68.31	5.86	13.72
PQT-12	0.098 M	0.93	14.23	51.50	6.83	13.55
PQT-12	0.197 M	0.84	7.16	64.59	3.88	18.03

Table S1 Different doping concentration of PQT-12

HTM	Li-TFSI Conditon	V_{oc} [V]	J_{sc} [mA/cm^2]	FF [%]	PCE [%]	Rs(Ω x cm^2)
PBTTT-14	x	0.93	9.16	51.0	4.41	38.20
PBTTT-14	0.049 M	0.87	11.44	56.66	5.64	17.88
PBTTT-14	0.098 M	0.93	12.41	62.01	7.16	20.34
PBTTT-14	0.197 M	0.96	16.89	64.61	10.48	9.94

Table S2 Different doping concentration of PBTTT-14

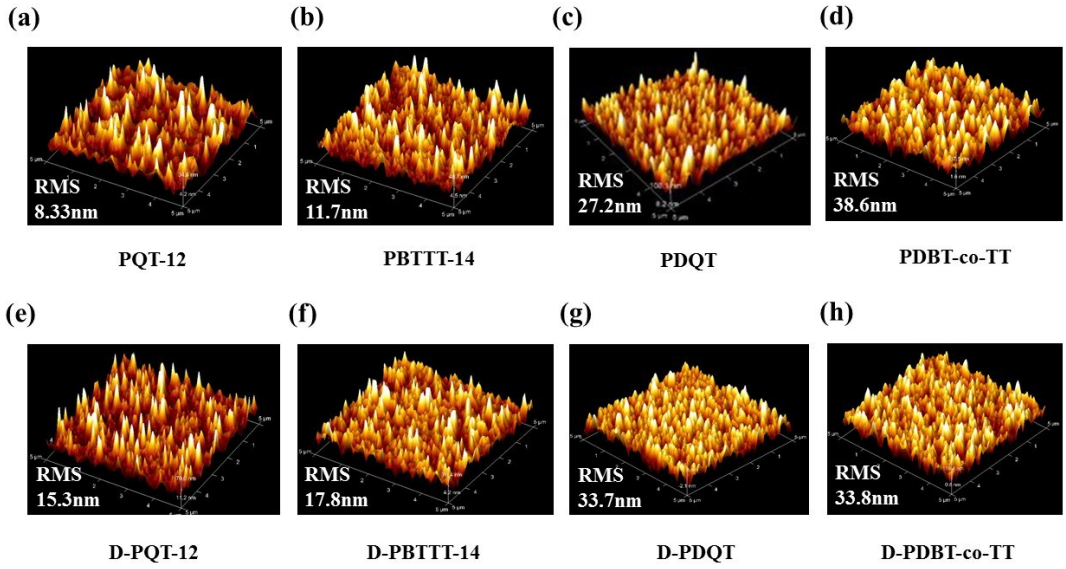

Figure S1 The 3D AFM images for surface morphology of (a) PQT-12 (b) PBTTT-14 (c) PDQT (d) PDBT-co-TT (e) D-PQT-12 (f) D-PBTTT-14 (g) D-PDQT (h) D-PDBT-co-TT images.

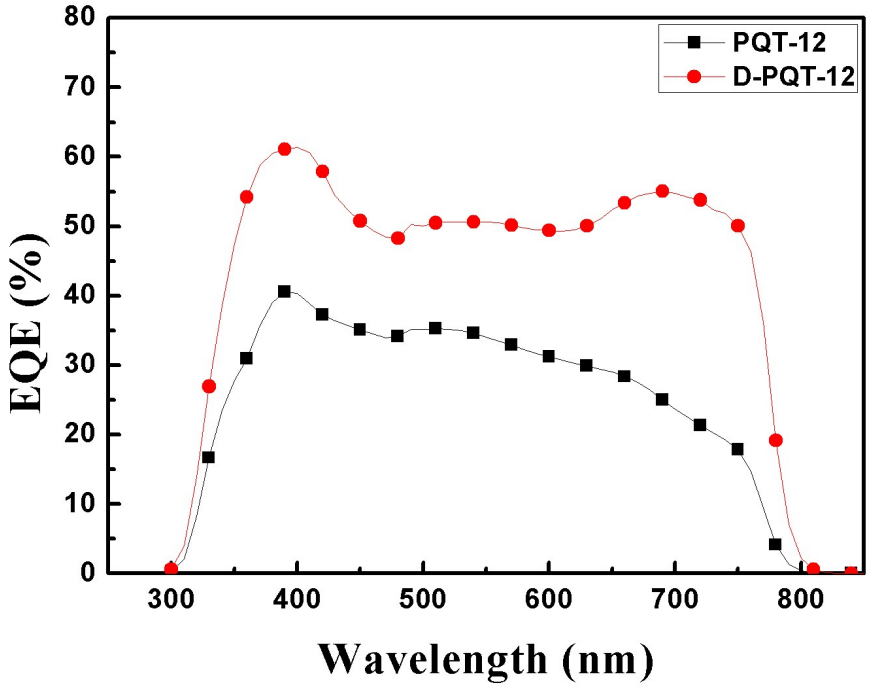

Figure S2 EQE of PQT-12 and D-PQT-12.

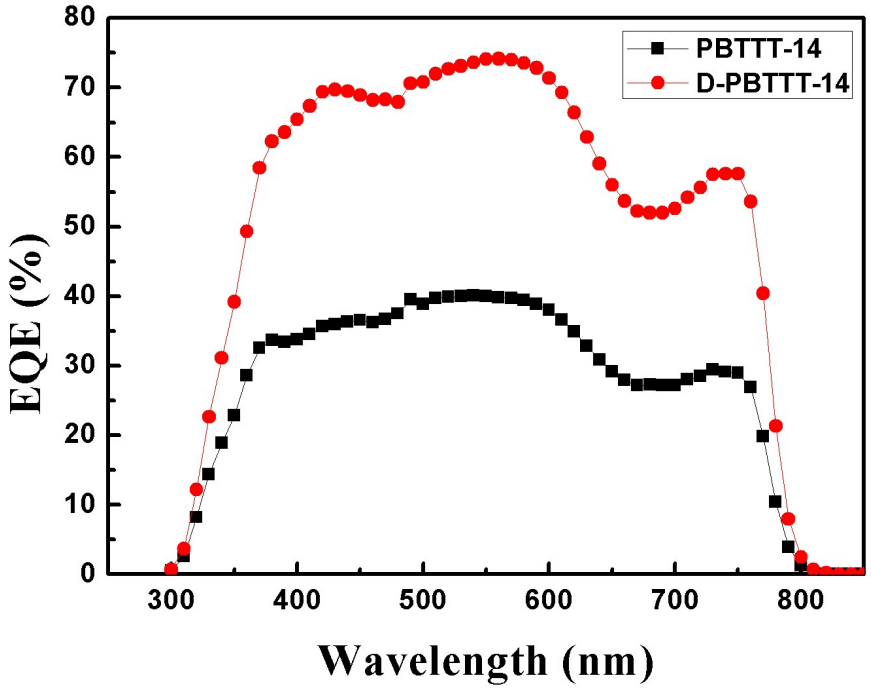

Figure S3 EQE of PBTTT-14 and D-PBTTT-14.

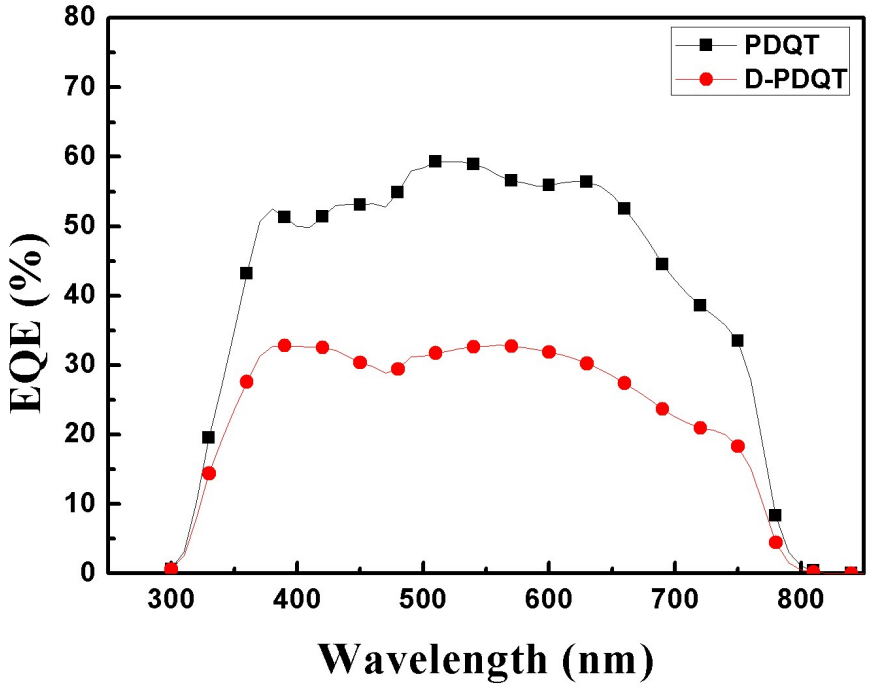

Figure S4 EQE of PDQT and D-PDQT.

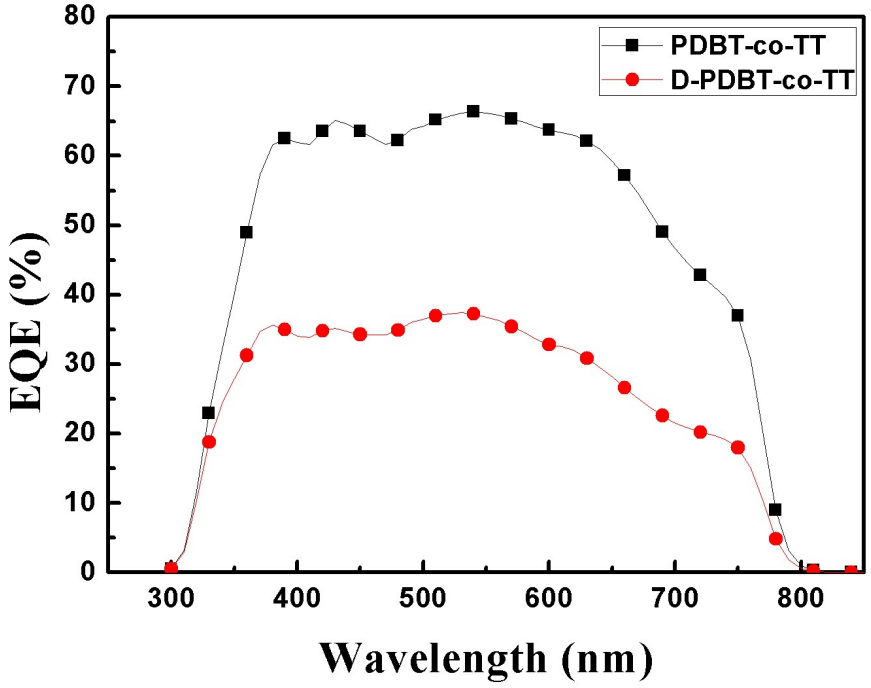

Figure S5 EQE of PDBT-co-TT and D-PDBT-co-TT.

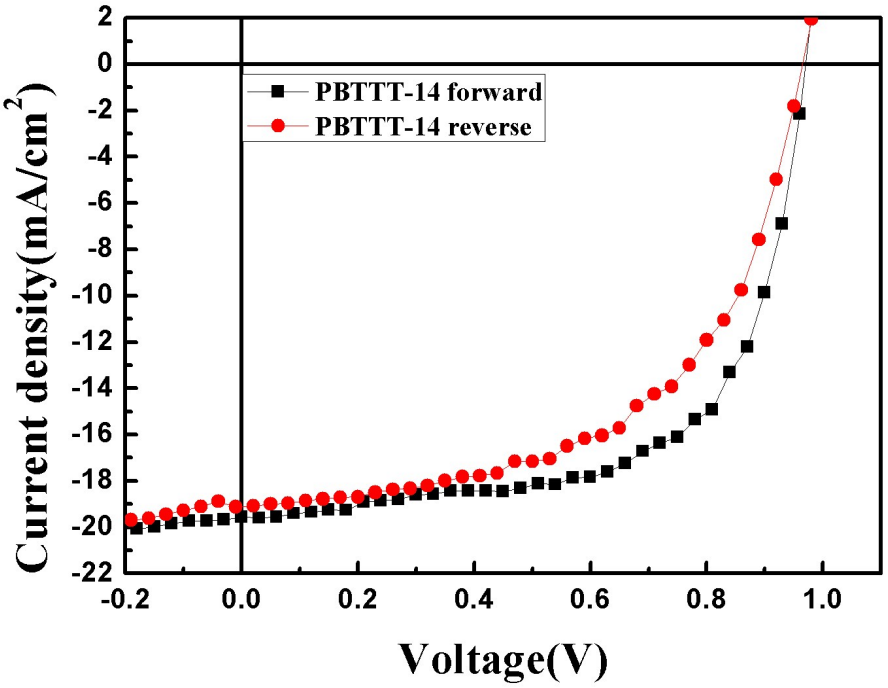

Figure S6 The forward and reverse sweep J-V curves of D-PBTTT-14 with PCBSD.

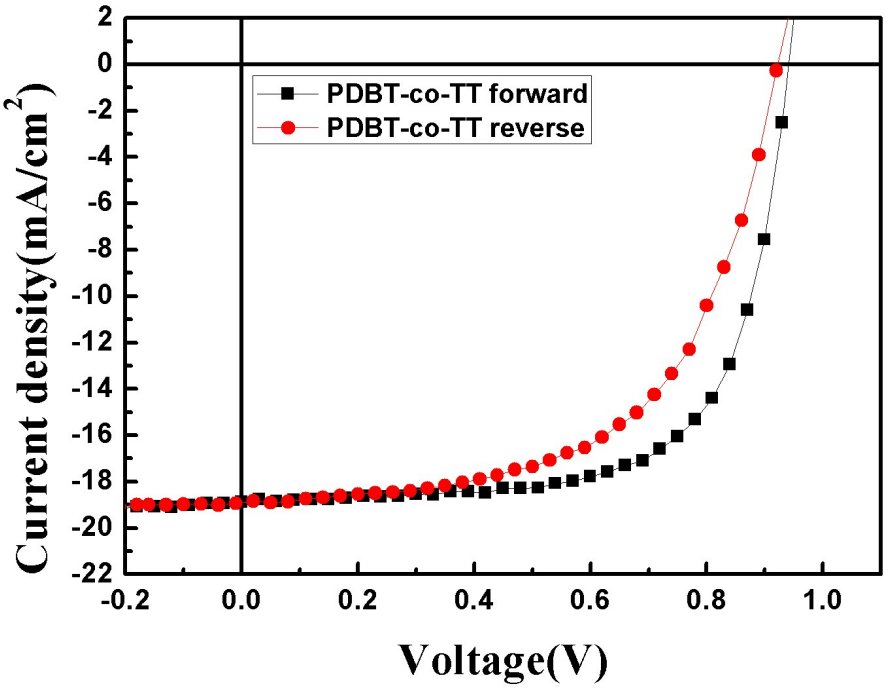

Figure S7 The forward and reverse sweep J-V curves of PDBT-co-TT with PCBSD.