Supporting Information

Dual Förster Resonance Energy Transfer and Morphology Control to Boost the Power Conversion Efficiency of All-Polymer OPVs

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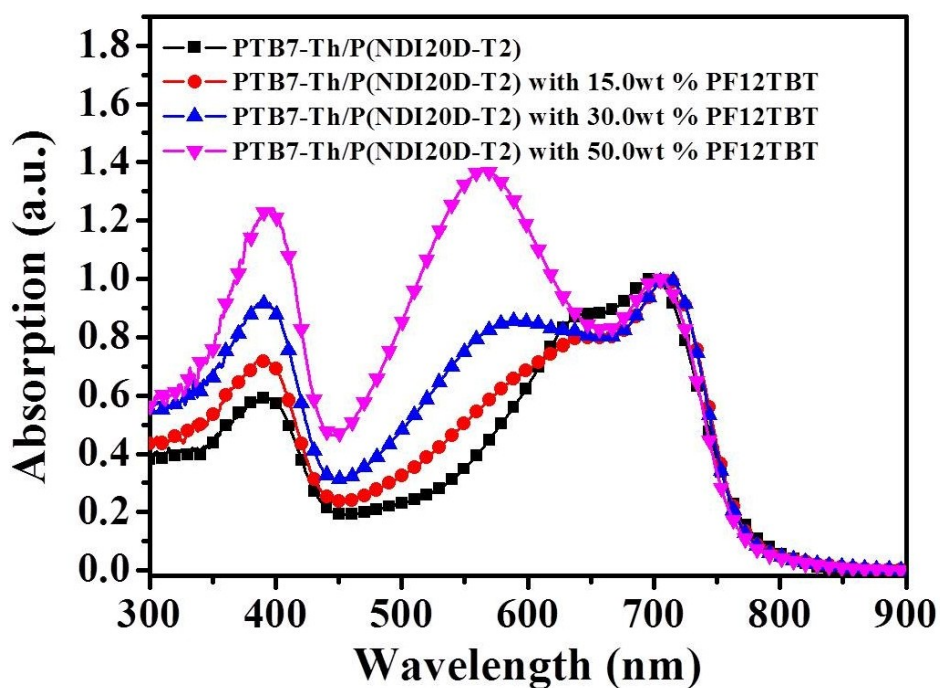* To whom correspondence should be addressed, E-mail: ychan@ciac.jl.cn

Figure S1. UV–vis absorption spectra of PTB7-Th/P(NDI2OD-T2) and PTB7-Th/P(NDI2OD-T2) with different contents of PF12TBT.
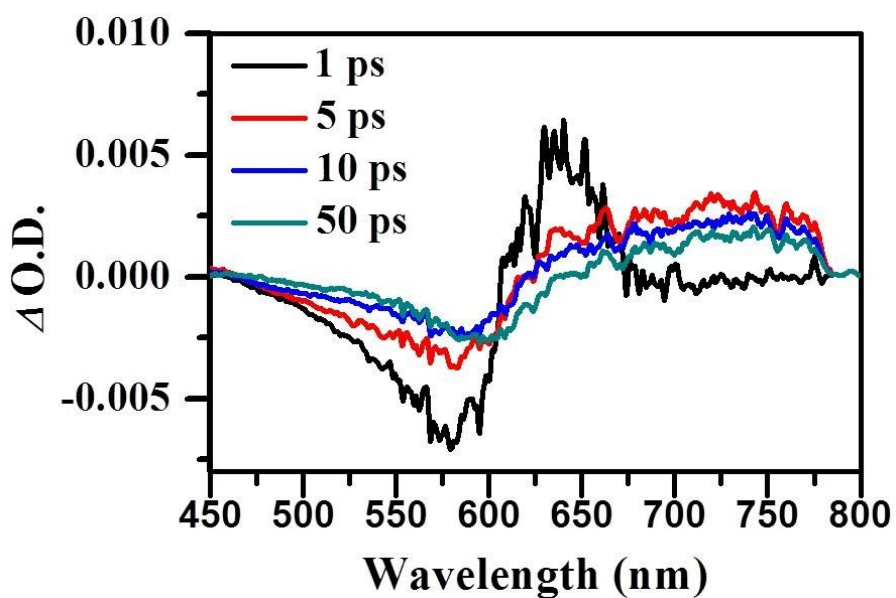

Figure S2. Transient spectra of PF12TBT film in 1, 5, 10, 50 ps after time zero.
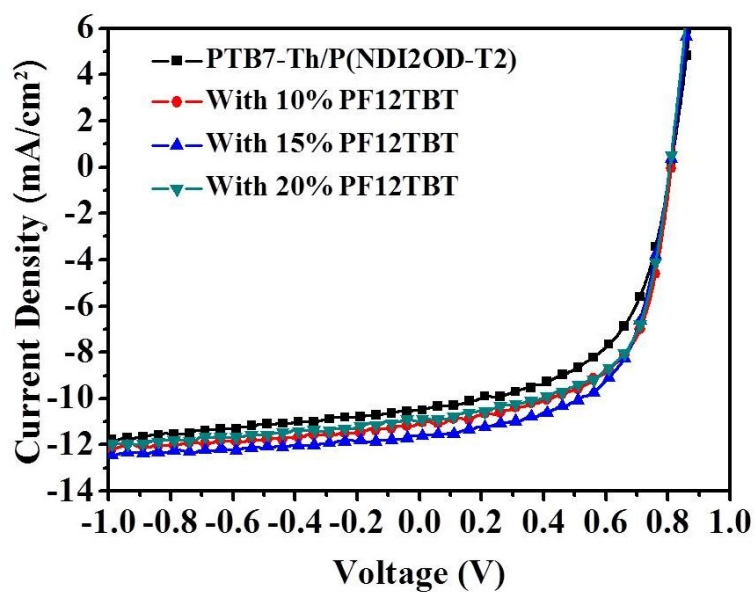
Figure S3. Photocurrent-voltage curves of photovoltaic devices for binary blend system and ternary blend systems with different content of PF12TBT.
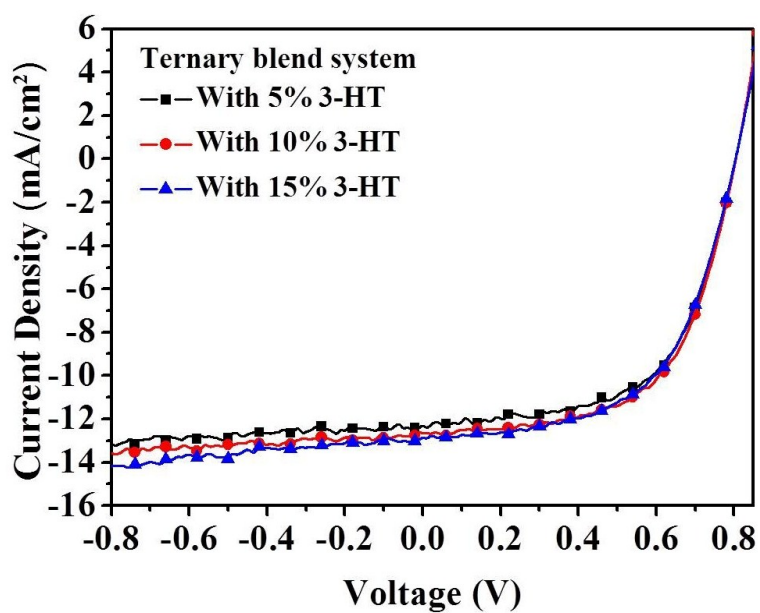

Figure S4. Photocurrent-voltage curves of photovoltaic devices for ternary blend system with different content of 3-HT.

	τ_1 (ns)	Std.(%)	τ_2 (ns)	Std.(%)	τ (ns)
PF12TBT	1.73	91.17	6.56	8.83	2.15
PF12TBT/PTB7-Th	0.64	92.80	5.25	7.20	0.97
PF12TBT/P(NDI2OD-T2)	1.03	92.14	5.32	7.86	1.36
PF12TBT/PTB7-Th with 3-HT	0.61	93.61	4.93	6.39	0.88
PF12TBT/P(NDI2OD-T2) with 3-HT	0.97	93.41	5.16	6.59	1.24

Table S1. Double exponential fitting data of PF12TBT film, PF12TBT/PTB7-Th blend film, PF12TBT/P(NDI2OD-T2) blend film and the corresponding films with 3-HT.

Device	V_{oc} (V)	J_{sc} (mA/cm^2)	FF	PCE (%)
Binary	0.81	10.53	0.56	4.78
10% PF12TBT	0.80	11.08	0.59	5.23
15% PF12TBT	0.81	11.63	0.61	5.75
20% PF12TBT	0.81	10.98	0.61	5.43

Table S2. The values are the photovoltaic parameters of binary blend system and ternary blend systems with different content of PF12TBT.

Device	V_{oc} (V)	J_{sc} (mA/cm^2)	FF	PCE (%)
5% 3-HT	0.81	12.13	0.61	5.99
10% 3-HT	0.81	12.66	0.59	6.05
15% 3-HT	0.81	12.81	0.58	6.01

Table S3. The values are the photovoltaic parameters of ternary blend system with different content of 3-HT.