

Supporting Information

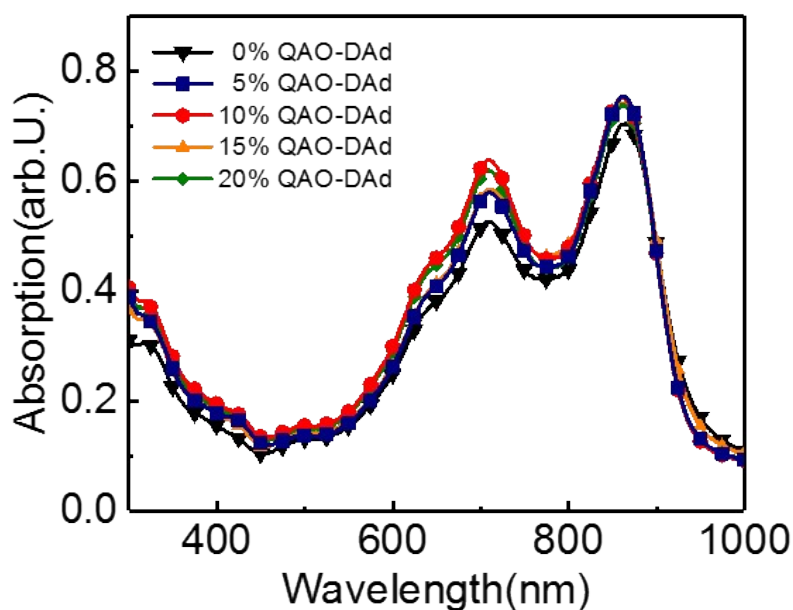


Figure S1. Absorption spectra of PTB7-Th: IEICO-4F system with different content of QAO-DAd.

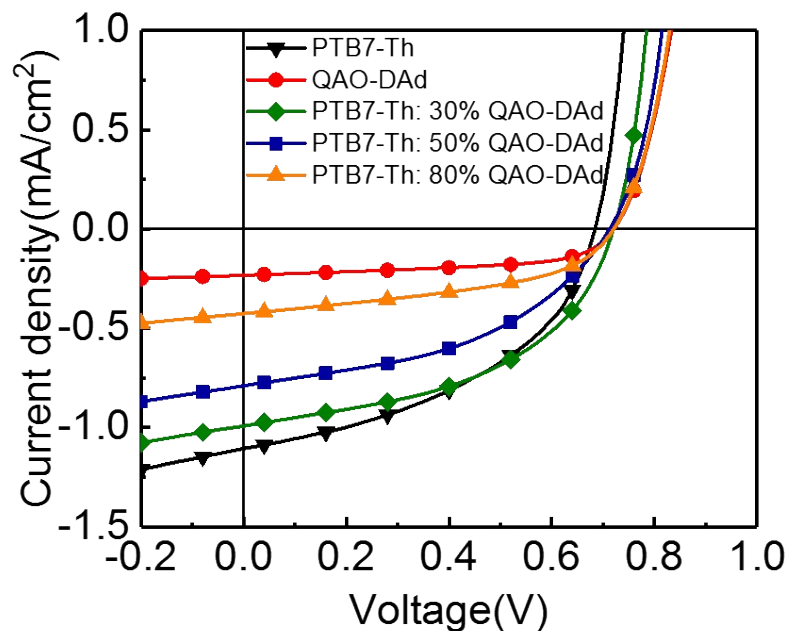


Figure S2. J-V characteristic curves of PTB7-Th: QAO-DAd system binary OSCs under illumination of AM 1.5 G, 100 mW/cm², respectively.

Table S1. Summary of photophysical parameters for PTB7-Th, PTB7-Th: QAO-DAd and QAO-DAd.

compound	τ_1 [ns] ^{a)}	τ_2 [μ s] ^{a)}
PTB7-Th	6.1	--
PTB7-Th: QAO-DAd	33.8	4.5
QAO-DAd	26.4	10.7

a) prompt fluorescence lifetime; b) delayed fluorescence lifetime.

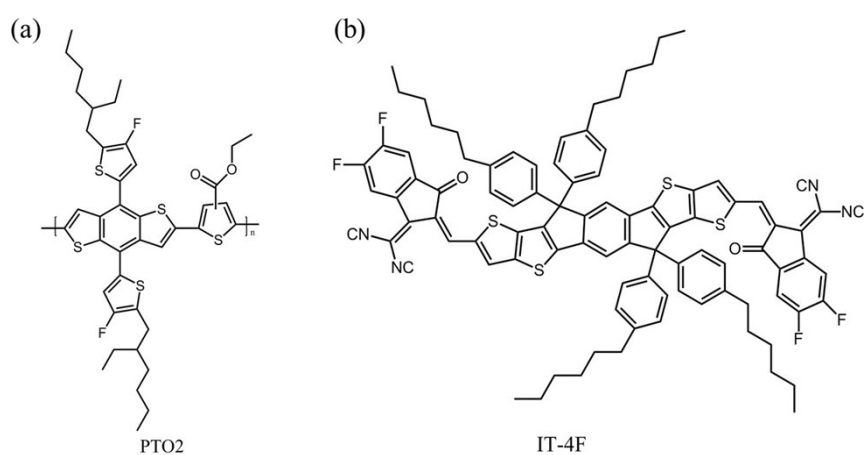


Figure S3. Molecular structure of (a) PTO2 and (b) IT-4F.

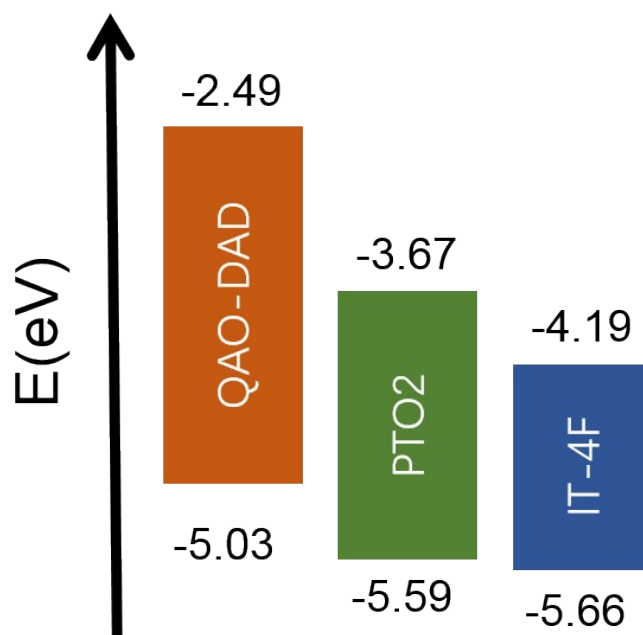


Figure S4. Energy levels diagram of PTO2, IT-4F and QAO-DAd.