Electronic Supplementary Information for:

Highly sensitive thin film phototransistors based on a copolymer of benzodithiophene and diketopyrrolopyrrole

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**Fig. S1** The absorption coefficient of P(DPP4T-co-BDT) thin film on quartz substrate.

**Fig. S2** 2D GIXRD image of P(DPP4T-co-BDT) thin films on OTS-treated SiO$_2$/Si substrates after thermal treatment at 200 °C.
Fig. S3 The output characteristics of the OTFPTs (A) in the dark and (B) under white light irradiation with a power of 9.7 μW/cm².

Fig. S4 The transfer curves of OTFPTs with different started gate voltage ($V_{GS\, \text{start}}$) in dark (A) and under illumination (B).

Fig. S5 The reversibility of the OTFPTs.
Figure S6. $^1$H NMR spectrum of 2.
Fig. S7 $^{13}$C NMR spectrum of 2.
Fig. S8 MALDI-TOF of 2.