Electronic Supplementary Information for:

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

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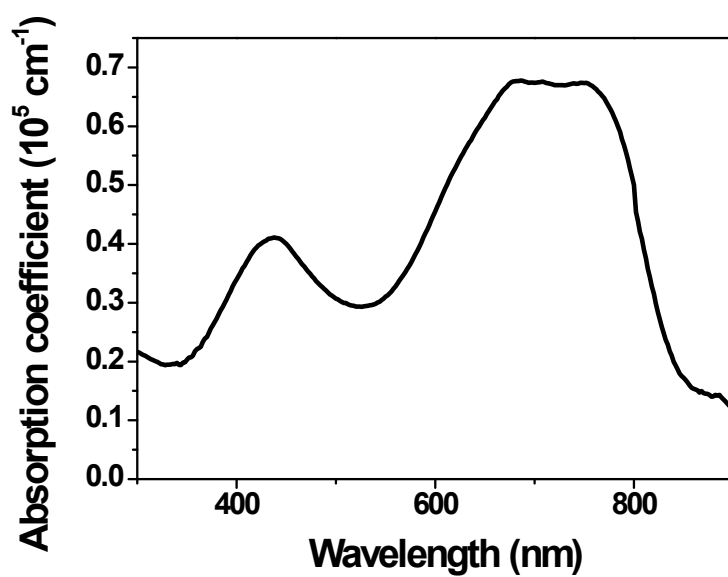
[b] College of Chemistry and Chemical Engineering and Ministry of Education Key Laboratory for Large-Format Battery Materials and System, Hubei Key Laboratory of Material Chemistry and Service Failure, Huazhong University of Science and Technology, Wuhan, 430074, China. E-mail: chmsamuel@mail.hust.edu.cn (S.W.)
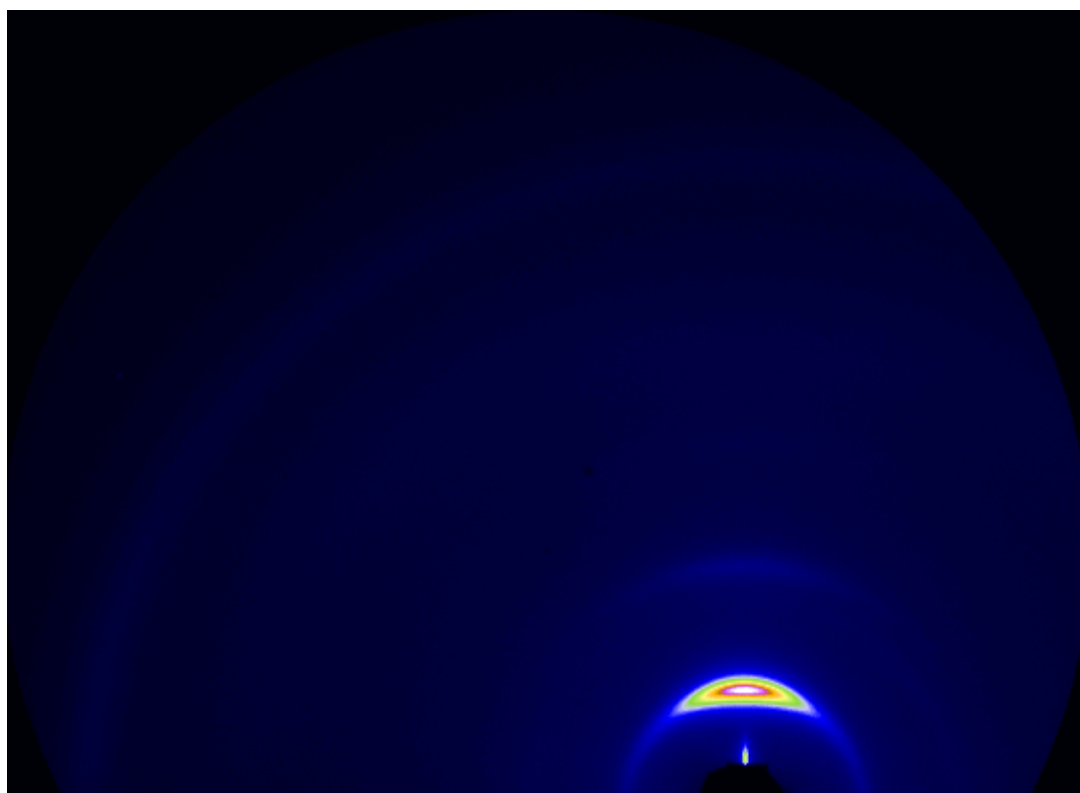
[c] Department of Materials Science and Engineering, College of Engineering, Peking University, Beijing 100871, China.
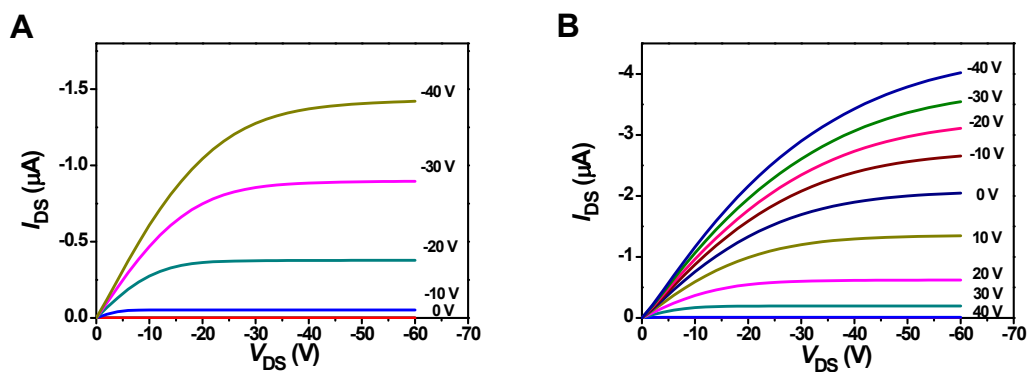
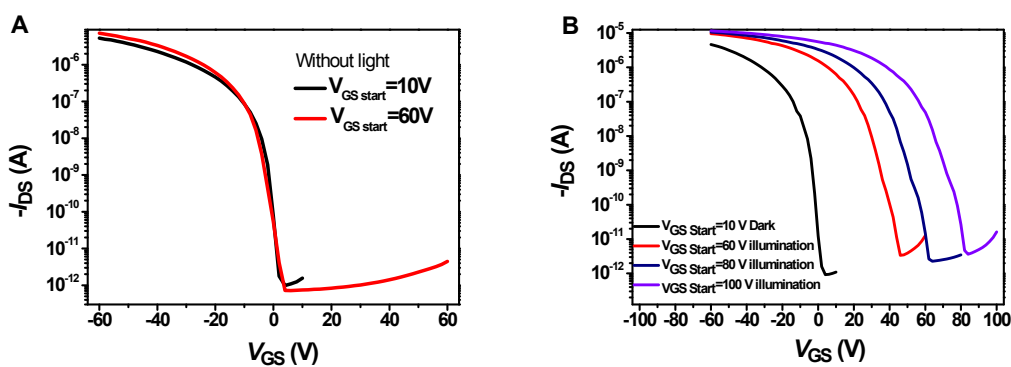[d] University of Chinese Academy of Sciences, Beijing 100049, China.

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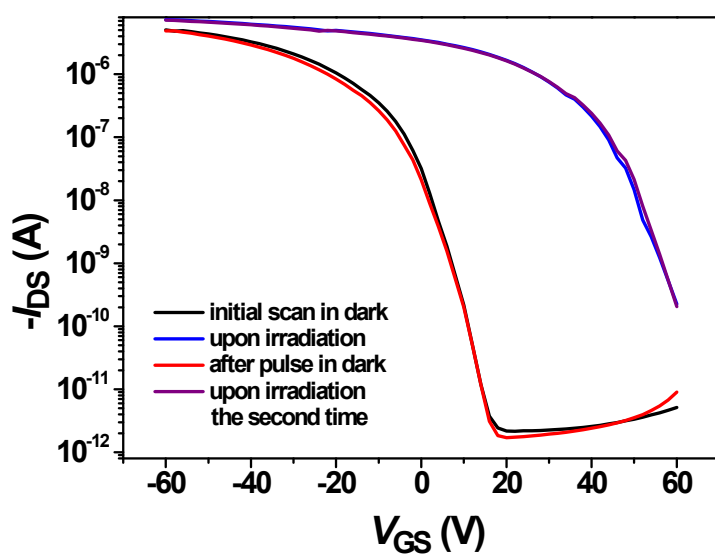

Fig. S2 2D GIXRD image of P(DPP4T-co-BDT) thin films on OTS-treated SiO$_2$/Si substrates after thermal treatment at 200 °C.

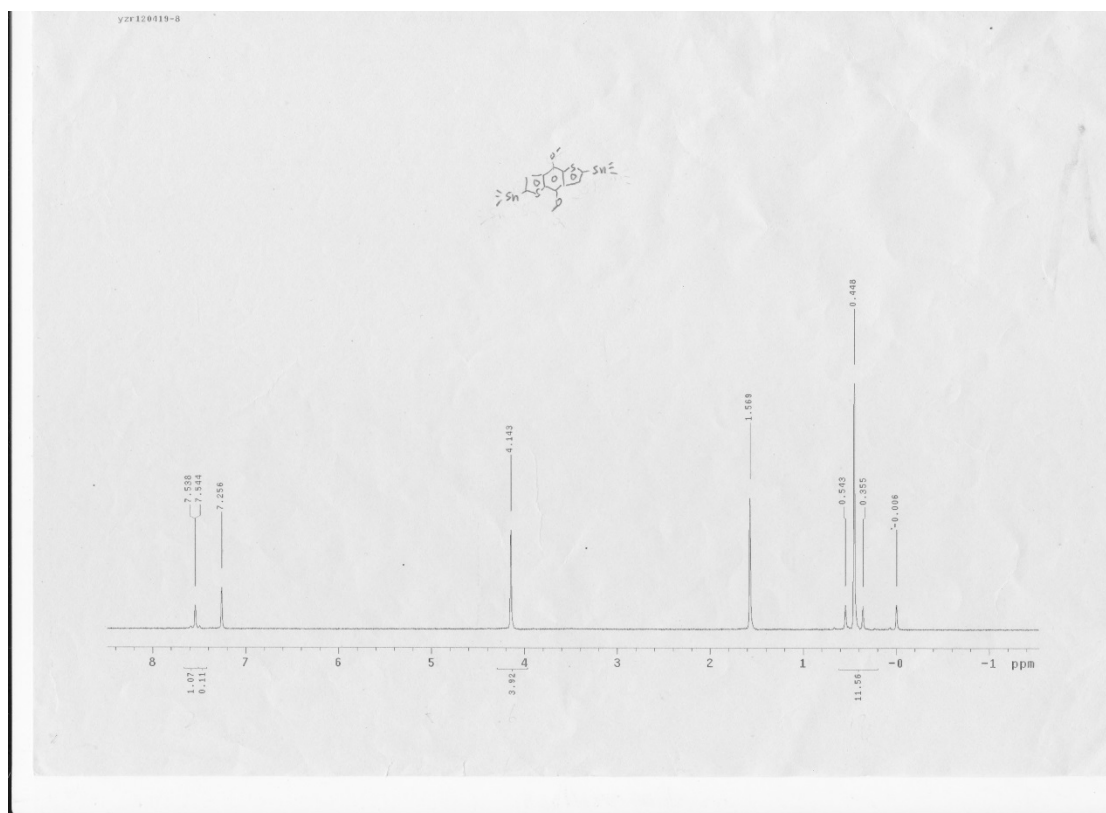**Fig. S3** The output characteristics of the OTFPTs (A) in the dark and (B) under white light irradiation with a power of 9.7 µW/cm^2.

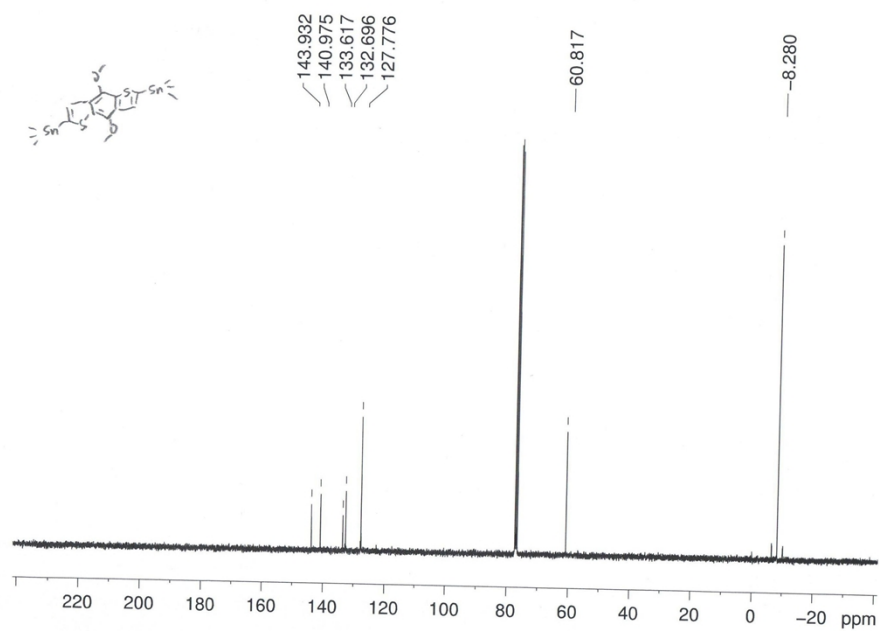**Fig. S4** The transfer curves of OTFPTs with different started gate voltage ($V_{GS\ start}$) in dark (A) and under illumination (B).

Fig. S5 The reversibility of the OTFPTs.

Figure S6. ^{1}H NMR spectrum of **2**.
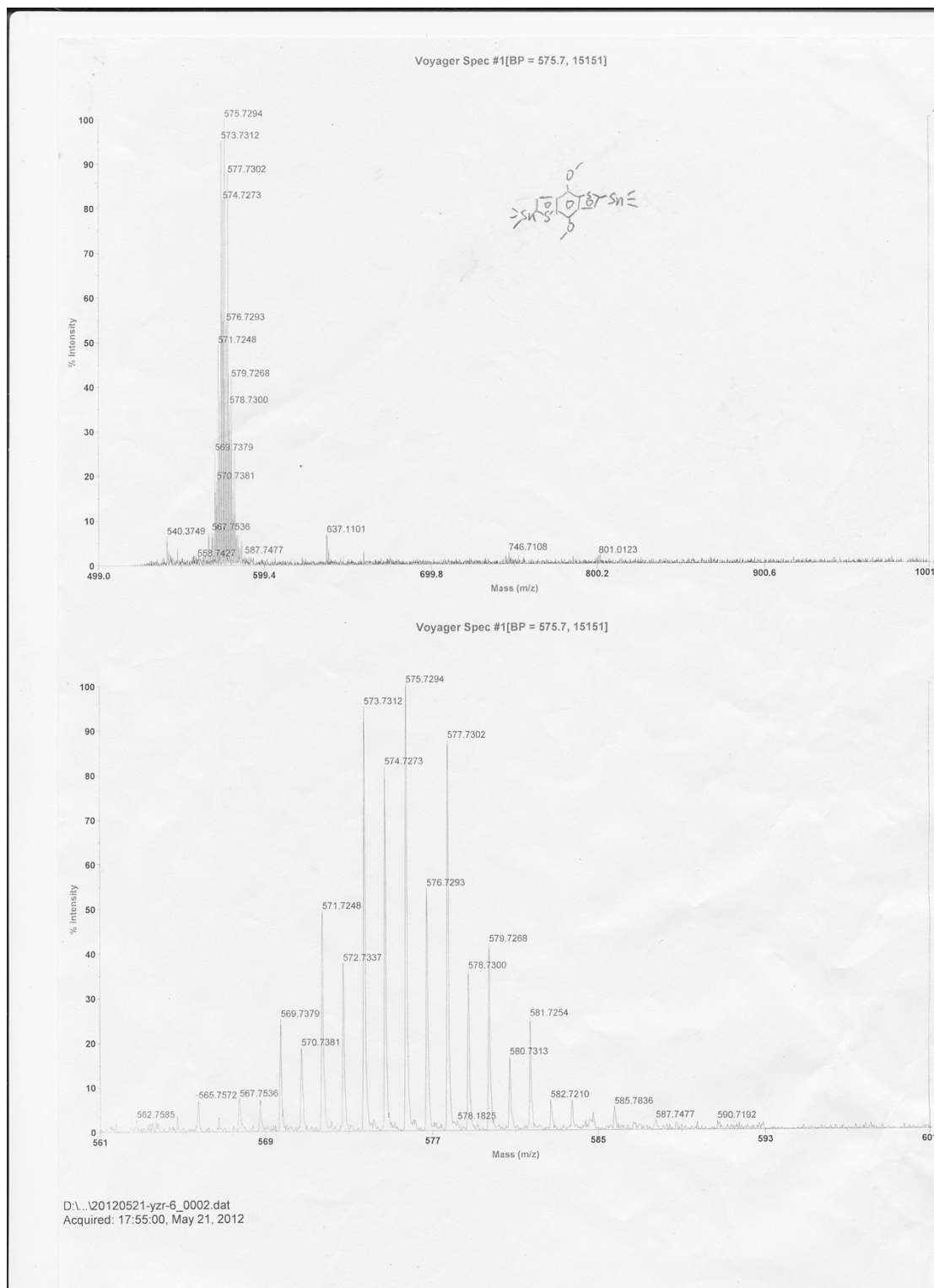
Fig. S7 ^{13}C NMR spectrum of **2**.

Fig. S8 MALDI-TOF of **2.**