Electronic Supplementary Information

A New High Conjugated Crossed Benzodithiophene and Its Donor-Acceptor Copolymers for High Open Circuit Voltages Polymer Solar Cells

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1. X-ray Diffraction

![X-ray Diffraction Pattern](image1)

Fig. S1 X-ray diffraction (XRD) pattern of the PCBDT-DTBT and the PCBDT-DTffBT.

2. $^1$H NMR and $^{13}$C NMR spectra of monomers and polymers

![NMR Spectra](image2)

Fig. S2 $^1$H NMR spectra of compound 1.
Fig. S3 $^1$H NMR spectra of compound 2.

Fig. S4 $^1$H NMR spectra of Crossed-BDT.
**Fig. S5** $^1$H NMR spectra of Crossed-BDT-Sn.

**Fig. S6** $^{13}$C NMR spectra of Crossed-BDT-Sn.
Fig. S7 $^1$H NMR spectra of the PCBDT-DTBT.

Fig. S8 $^1$H NMR spectra of the PCBDT-DTffBT.