

Supporting Information

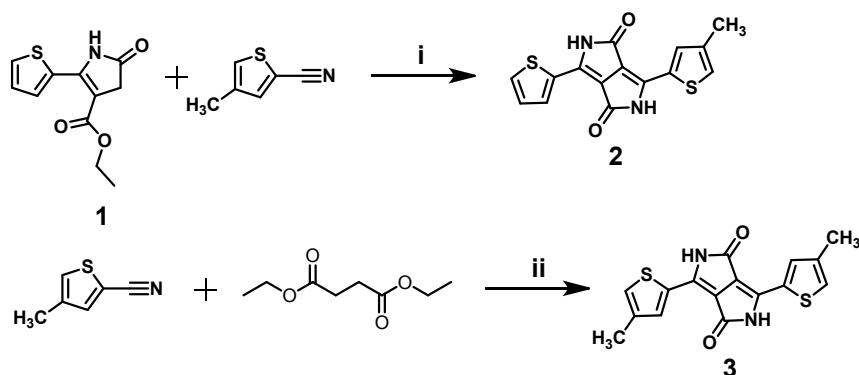
Enhancing the Photovoltaic Performance of Binary Acceptors-based Conjugated Polymers Incorporating Methyl Units

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Scheme S1. The synthetic procedures for the starting compound **2** and **3**. (i) sodium/FeCl₃ in 2-methyl-2-butanol at 95 °C, 2 h; **1** was added and 4-methylthiophene-2-carbonitrile was added dropwise at 120 °C; reflux at 120 °C, 3 h.

(ii) sodium/FeCl₃ in 2-methyl-2-butanol at 95 °C, 2 h; 4-methylthiophene-2-carbonitrile was added and diethyl succinate was added dropwise at 120 °C; reflux at 120 °C, 3 h.

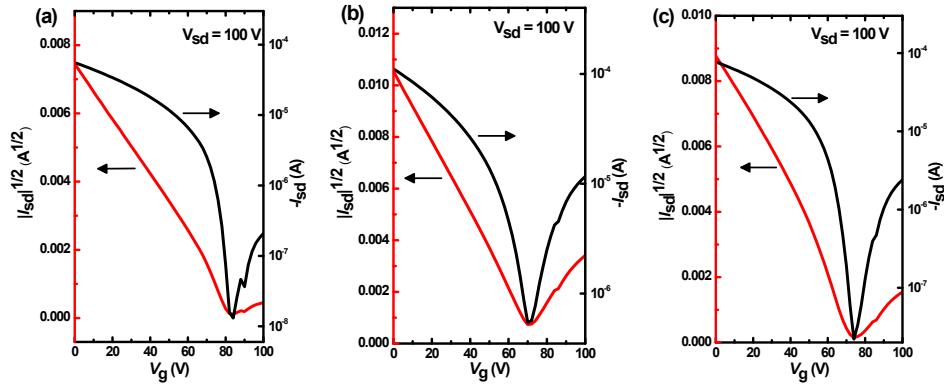


Fig. S1 Transfer curves obtained from BGBC FET devices for n-type characteristics. (a) for DPP2TPCL; (b) for PMDPP2TPCL and (c) for P2MDPP2TPCL. The thin films were spin cast from CHCl₃/o-DCB (10%) solution and annealed at 120 °C for PDPP2TPCL and P2MDPP2TPCL, and 150 °C for PMDPP2TPCL.

Table S1. Field-effect electron mobilities of the polymers in a BGBC configuration.

Polymer	μ_e (cm ² V ⁻¹ s ⁻¹)	V_T (V)	I_{on}/I_{off}
PDPP2TPCL ^a	0.01	84.8	1.6×10 ¹
PMDPP2TPCL ^b	0.07	64.3	2.1×10 ¹
P2MDPP2TPCL ^a	0.03	74.5	1.1×10 ²

^a Thermal annealed at 120 °C. ^b Thermal annealed at 150 °C. The polymer thin films were spin coated from CHCl₃/o-DCB (10%).

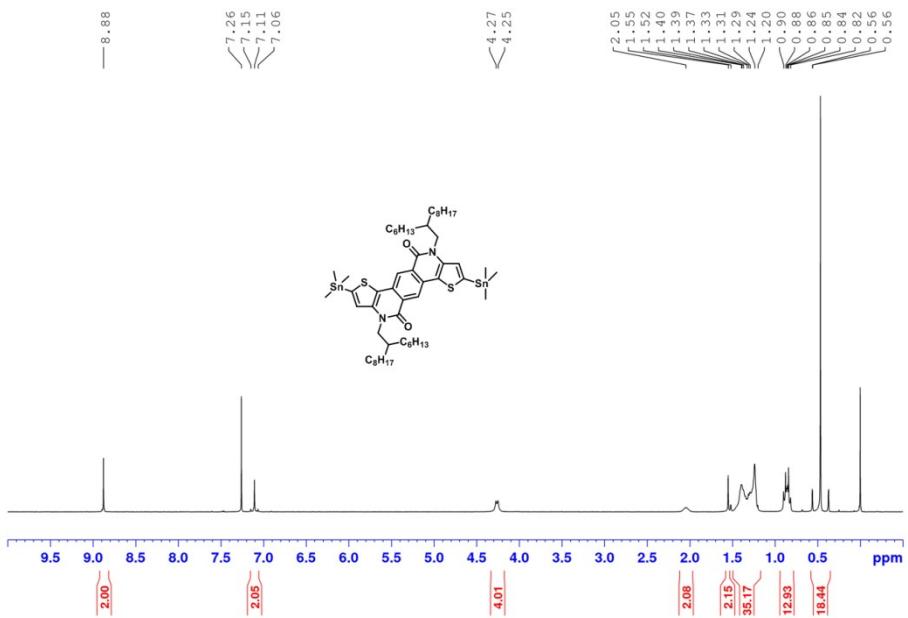


Figure S2. ^1H -NMR of the monomer **M1** recorded in CDCl_3 .

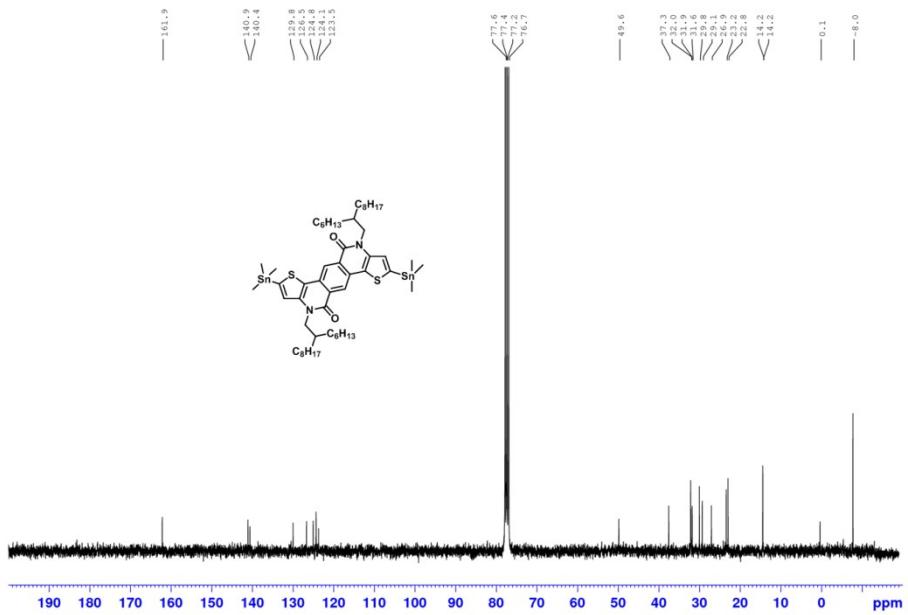


Figure S3. ^{13}C -NMR of the monomer **M1** recorded in CDCl_3 .

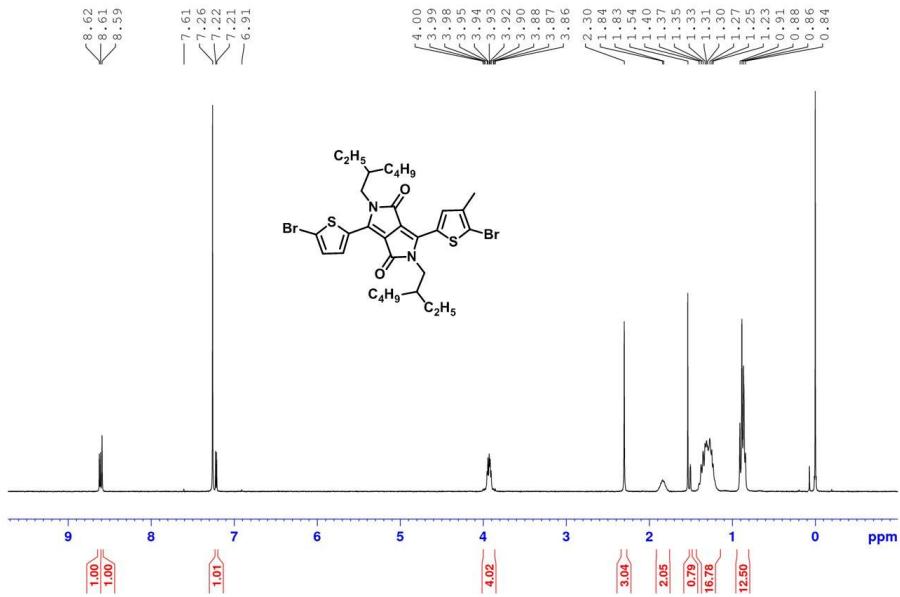


Figure S4. ^1H -NMR of the monomer **M3** recorded in CDCl_3 .

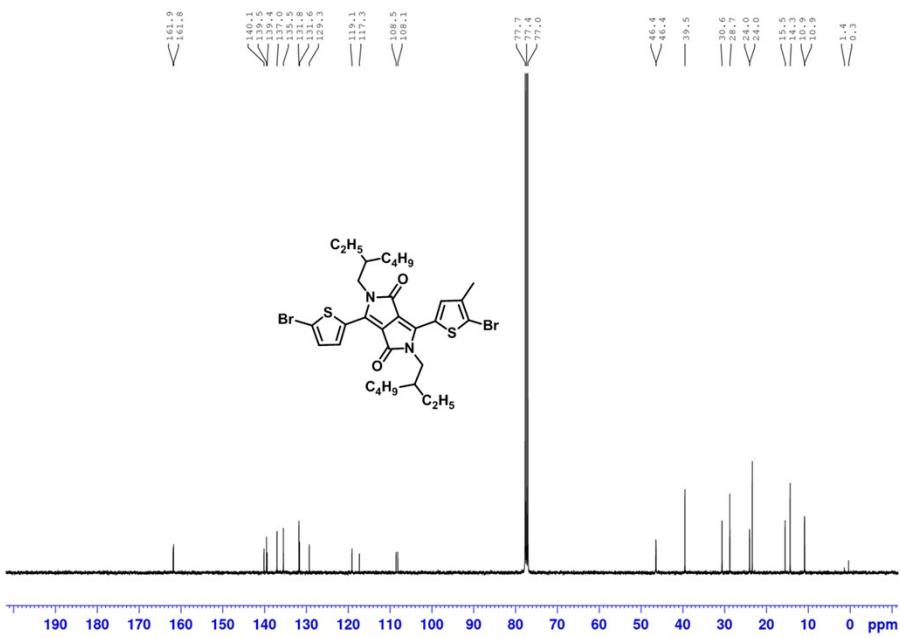


Figure S5. ^{13}C -NMR of the monomer **M3** recorded in CDCl_3 .

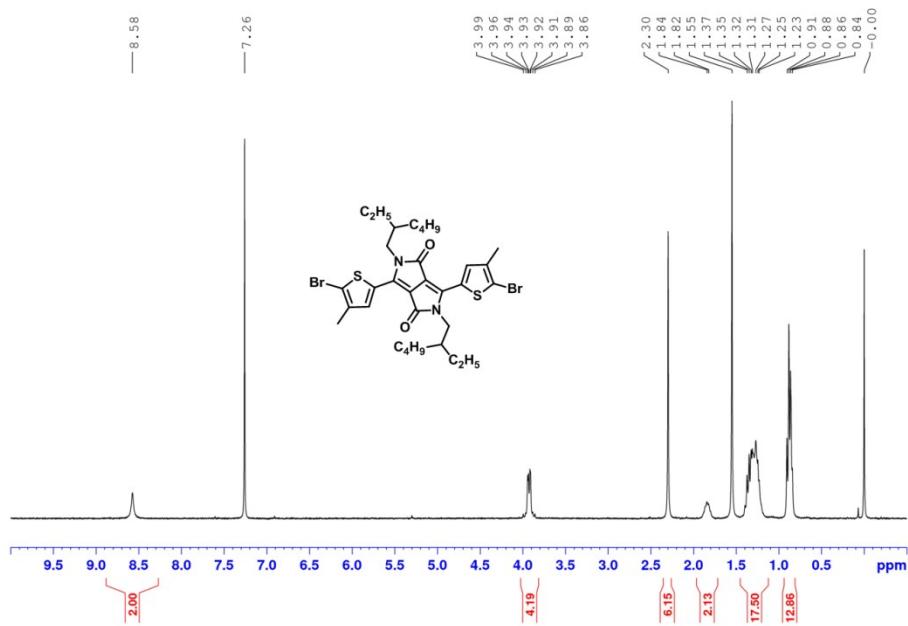


Figure S6. ^1H -NMR of the monomer **M4** recorded in CDCl_3 .

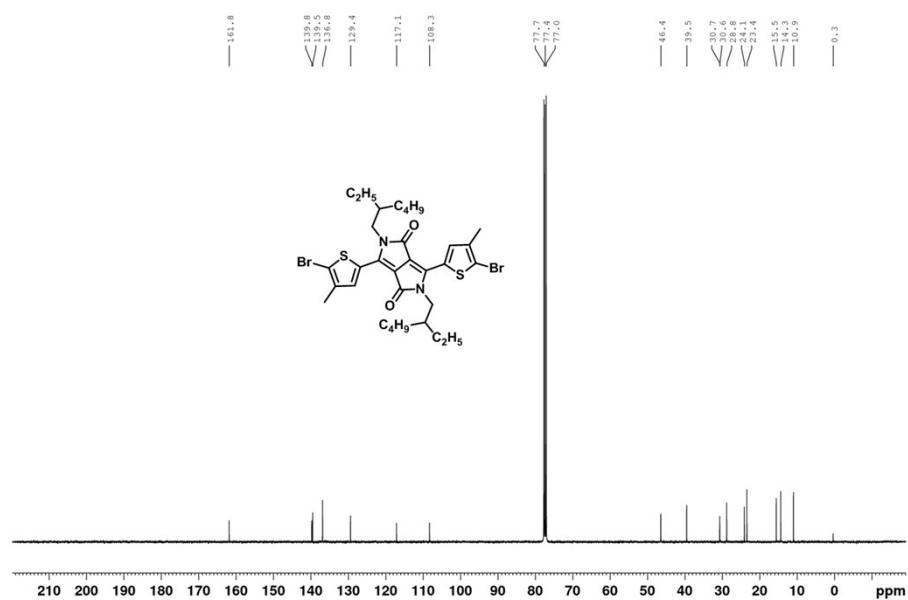


Figure S7. ^{13}C -NMR of the monomer **M4** recorded in CDCl_3 .