Supporting Information

Effects of pyridyl group orientations on the optoelectronic properties of regio-isomeric diketopyrrolopyrrole based π-conjugated polymers

Jing Yue, Sheng Sun, Junfei Liang, Wenkai Zhong, Linfeng Lan, Lei Ying*, Fei Huang*, Wei Yang, Yong Cao

State Key Laboratory of Luminescent Materials and Devices, and Institute of Polymer Optoelectronic Materials and Devices, South China University of Technology, Guangzhou 510640, China

***Corresponding authors**

Prof. Lei Ying (L. Ying)

Email: msleiying@scut.edu.cn

Tel : +86-20-87114346-17

Fax: +86-20-87110606

Prof. Fei Huang (F. Huang)

Email: msfhuang@scut.edu.cn

Tel : +86-20-87114346-17

Fax: +86-20-87110606

Table S1. Molecular weight and thermal properties of the copolymers.

	M_n [a] (kDa)	M_w [a] (kDa)	PDI	Yield (%)	T_d [b] (°C)
d-PDBPy	37.7	94.1	2.5	82	413
p-PDBPy	21.4	67.5	3.1	69	394

[a] Determined by GPC in tetrahydrofuran (THF) using polystyrene standards.

[b] The 5% weight-loss temperatures under a nitrogen atmosphere.

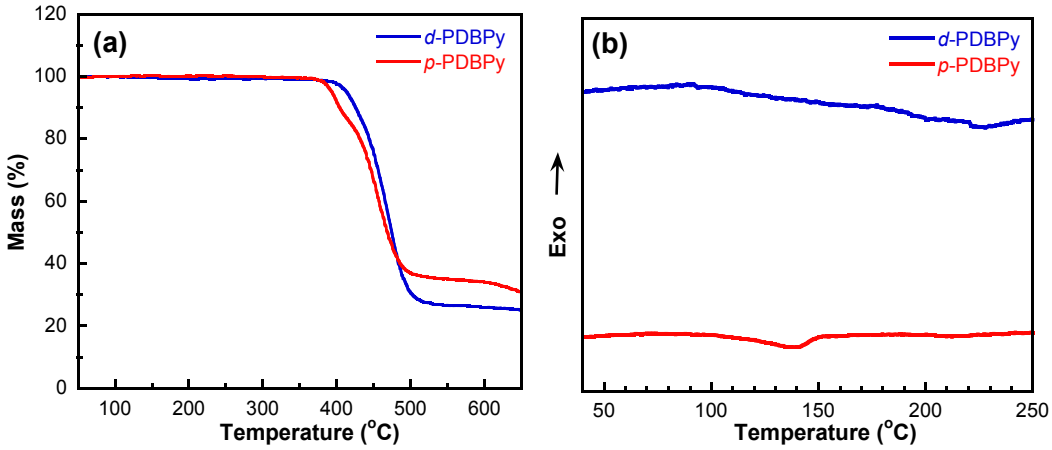


Fig. S1 (a) TGA curves of copolymers at a heating rate of 20 °C min^{-1} under a nitrogen atmosphere; (b) DSC characteristics of polymers at a scanning rate 10 °C min^{-1}.

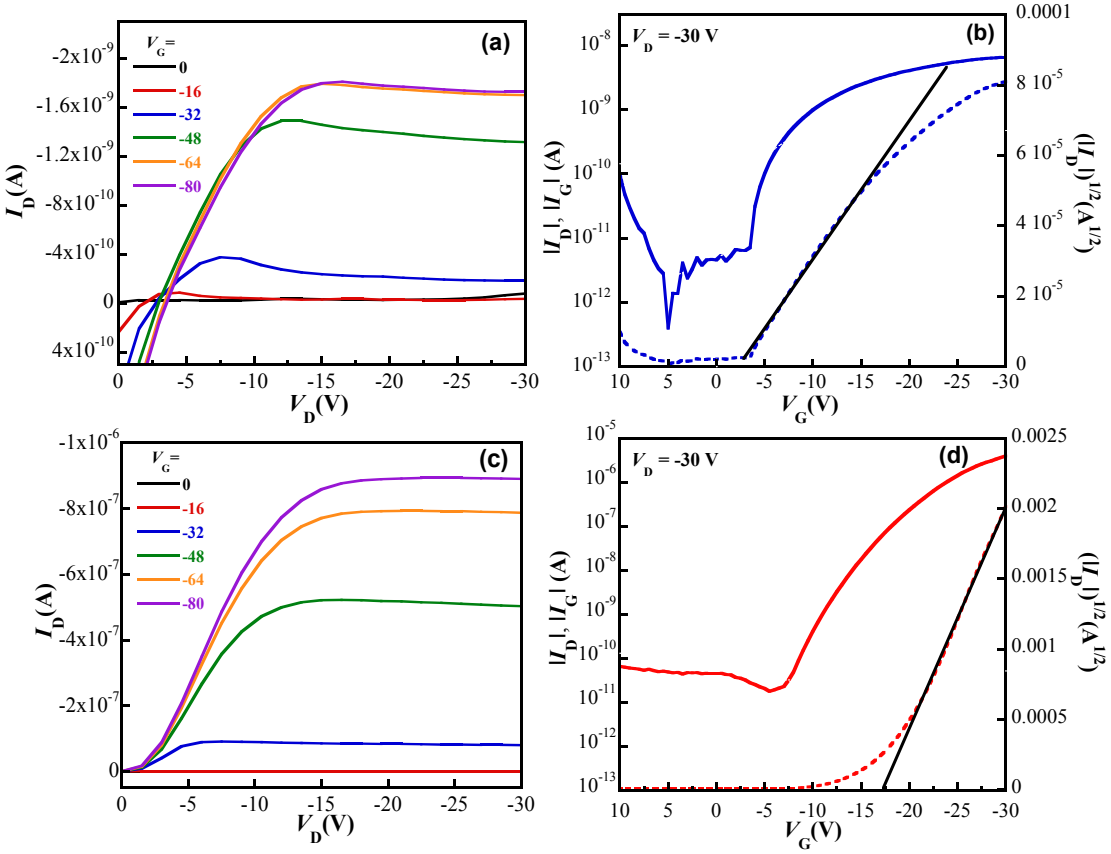


Fig. S2 Output and transfer characteristics of (a and b) *d*-PDBPy and (c and d) *p*-PDBPy devices (spin-coated from CF solutions) at V_{SD}=-30 V (L=70 μm, W=500 μm) after thermal annealing at 100 for 10 min.

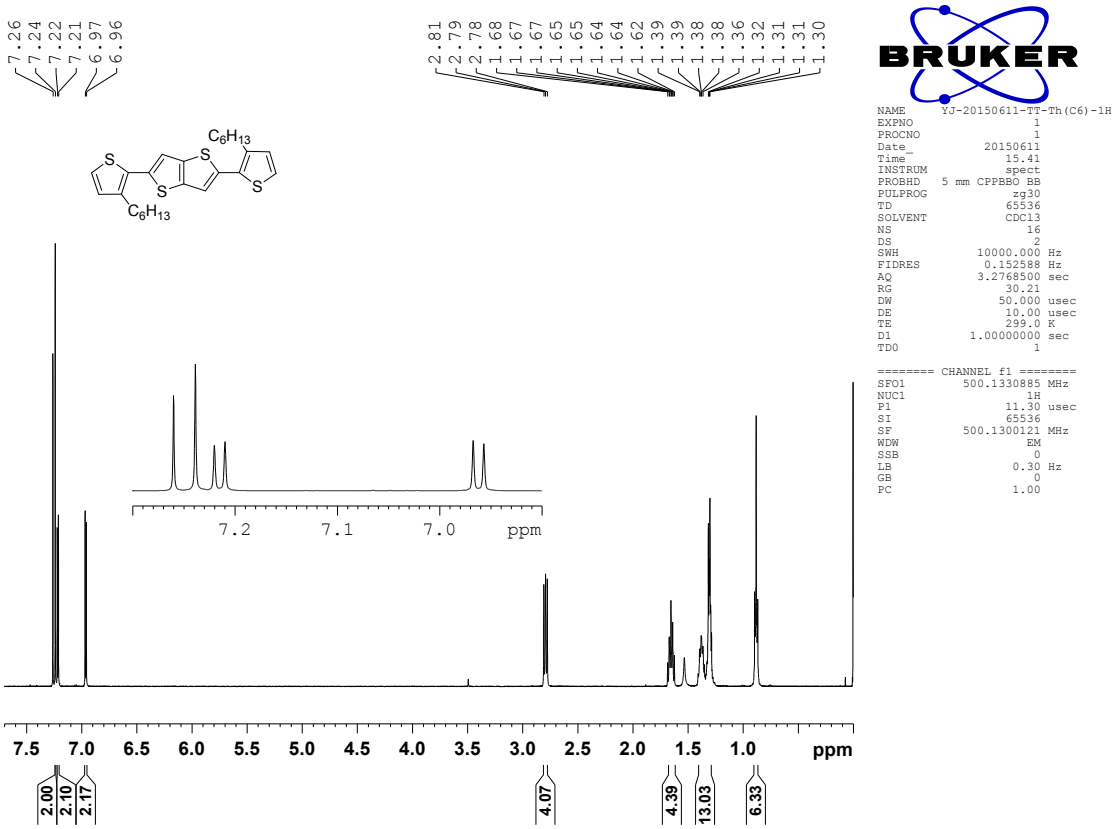


Fig. S3 The 500 MHz ^{1}H NMR spectrum of compound **1**.

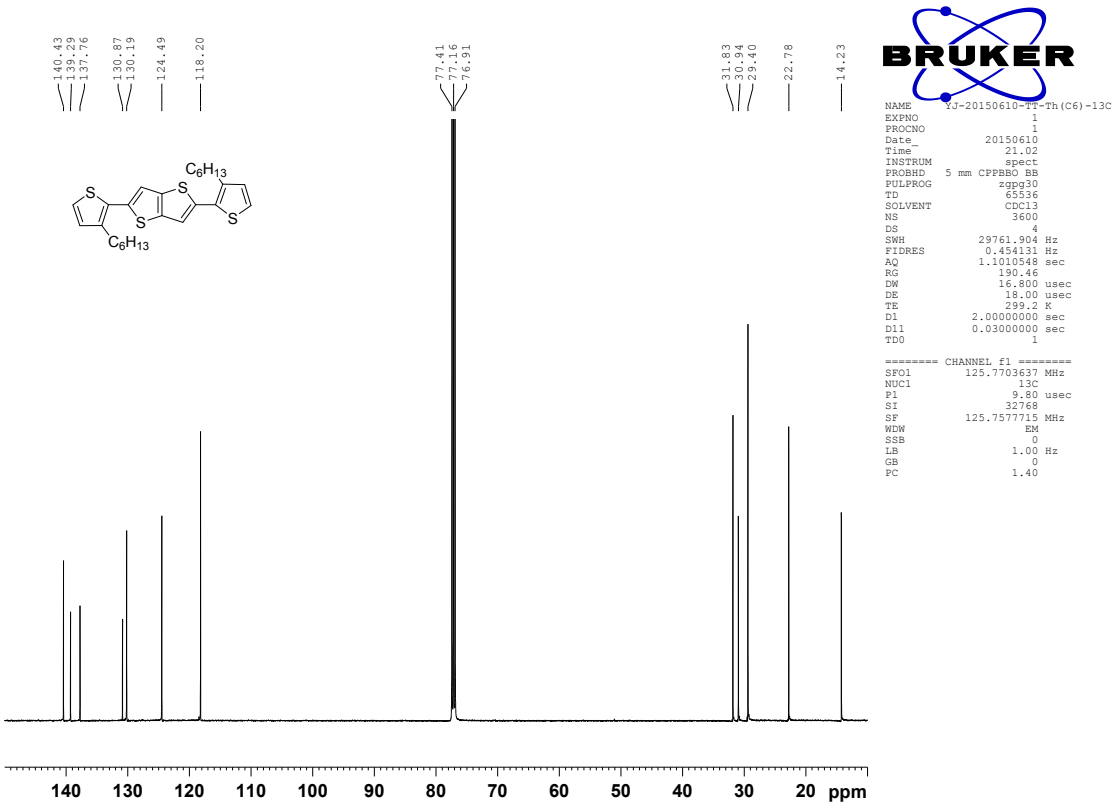


Fig. S4 The 126 MHz ^{13}C NMR spectrum of compound **1**.

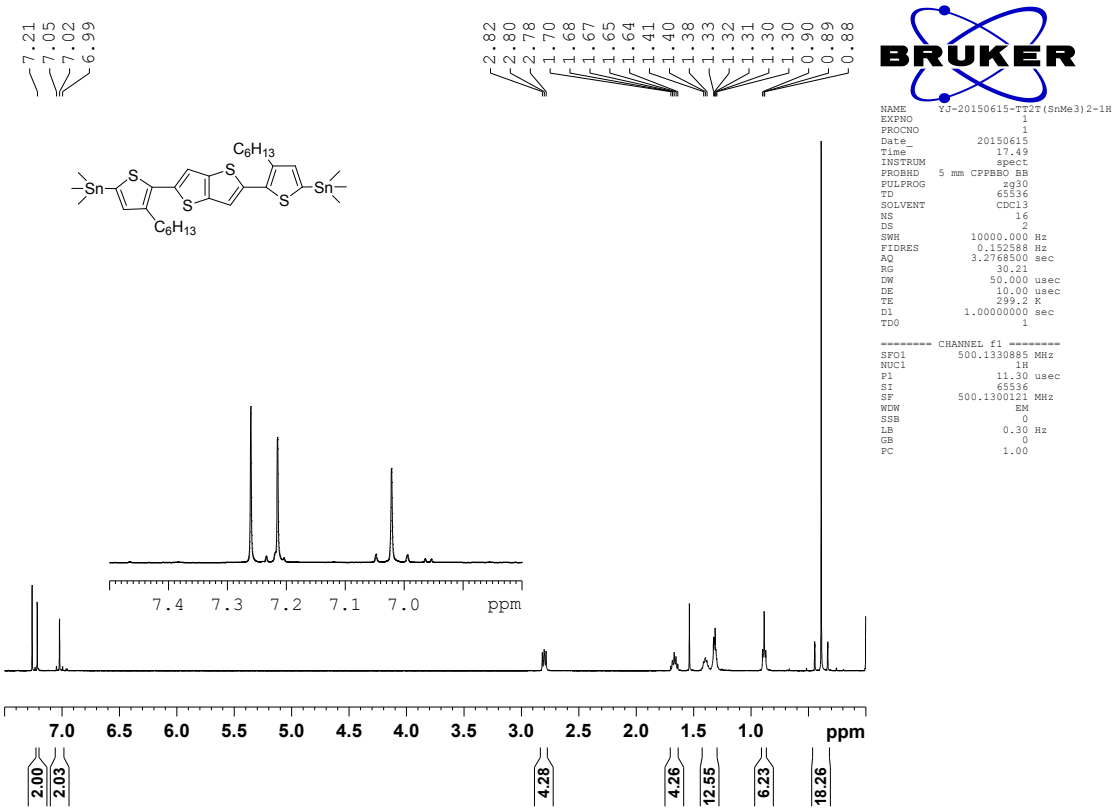


Fig. S5 The 500 MHz ^{1}H NMR spectrum of monomer **2**.

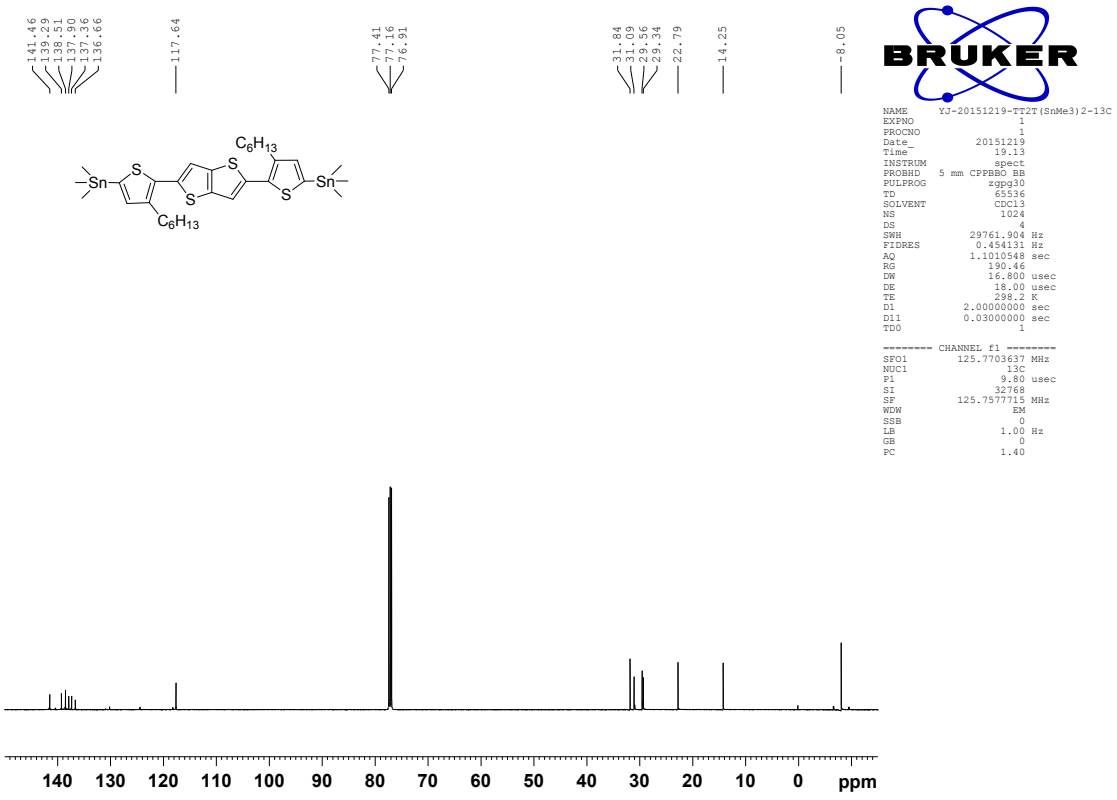


Fig. S6 The 126 MHz ^{13}C NMR spectrum of monomer **2**.

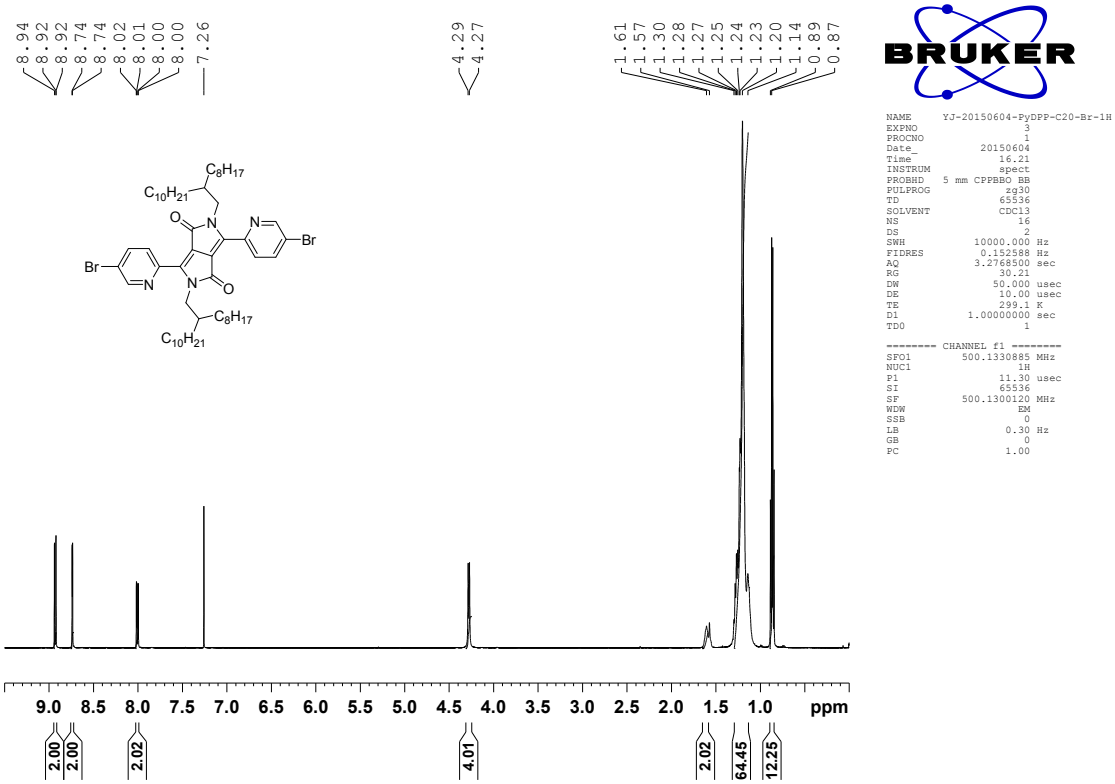


Fig. S7 The 500 MHz ^{1}H NMR spectrum of monomer **4**.

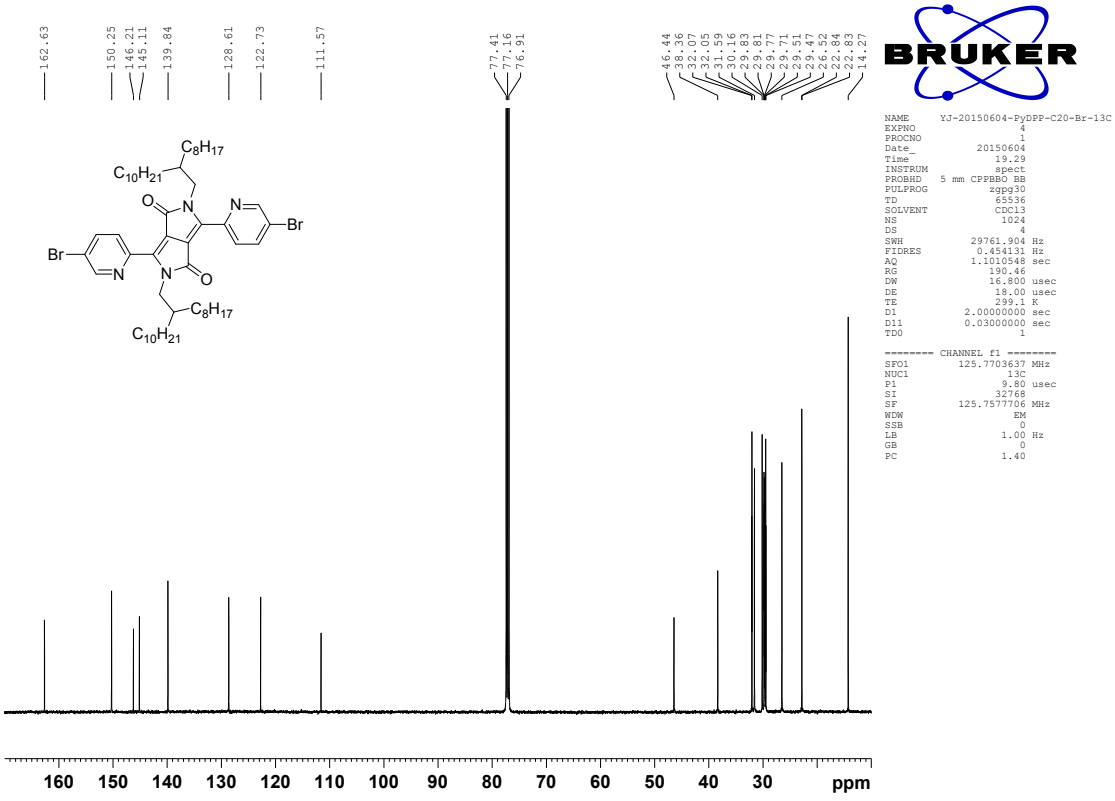
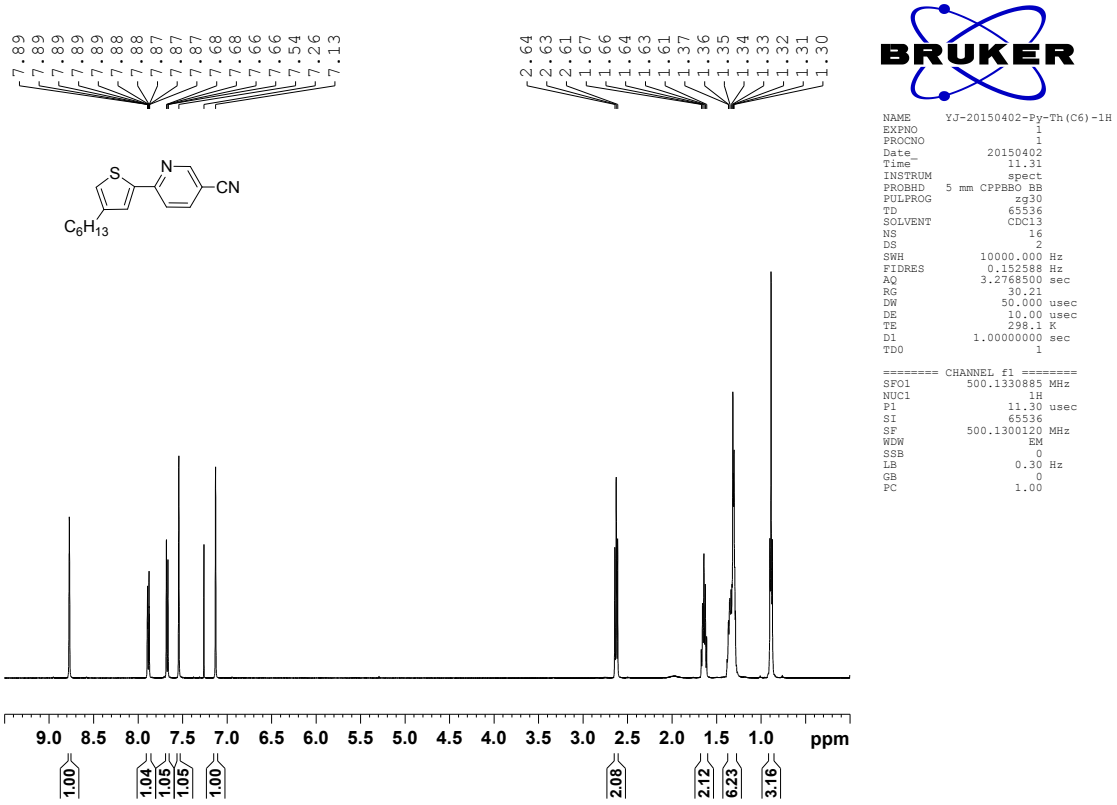


Fig. S8 The 126 MHz ^{13}C NMR spectrum of monomer **4**.

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PROCNO                   1
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Time_                11.31
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PULPROG               zg30
TD                   65536
SOLVENT              CDCl3
NS                      16
DS                       2
SWH              10000.000 Hz
FIDRES               0.15258 Hz
AQ                3.2768500 sec
RG                    30.21
DW                   50.000 usec
DE                   10.00 usec
TE                   298.1 K
D1               1.00000000 sec
TD0                      1

======== CHANNEL f1 ========
SFO1            500.1330885 MHz
NUC1                    1H
P1                   11.30 usec
SI                   65536
SF              500.1300120 MHz
WDW                     EM
SSB                      0
LB                    0.30 Hz
GB                       0
PC                    1.00
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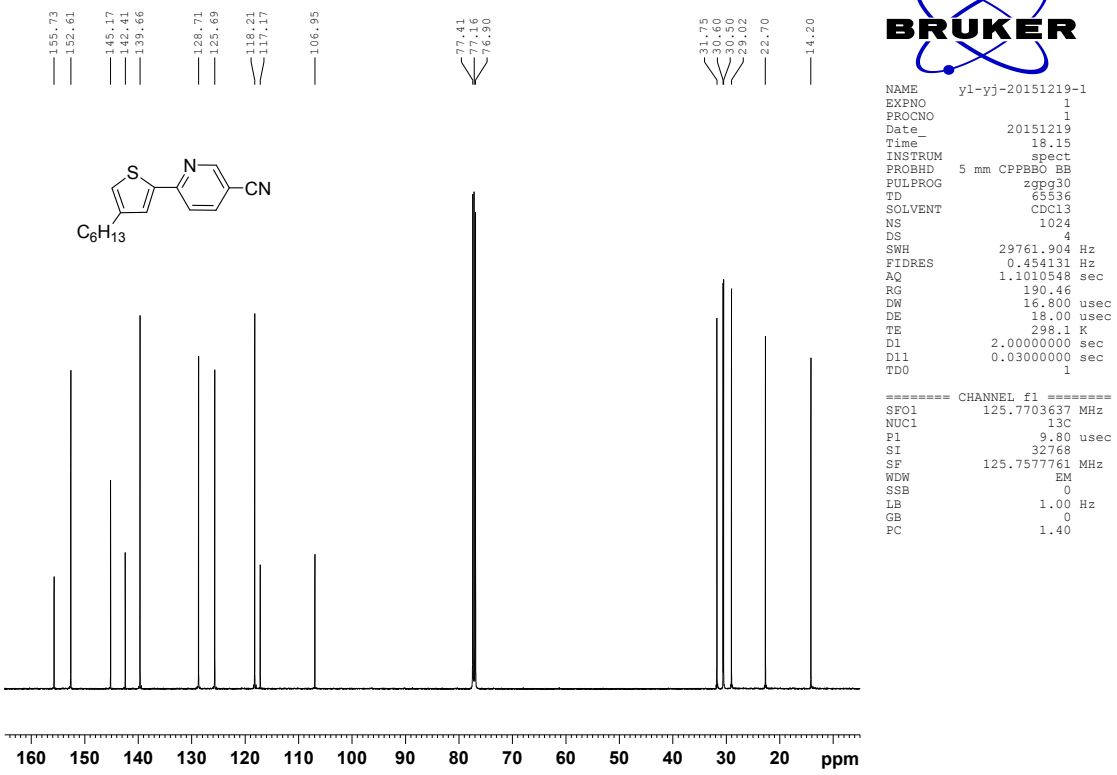
Fig. S9 The 500 MHz ^{1}H NMR spectrum of compound **5**.

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TD                   65536
SOLVENT              CDCl3
NS                    1024
DS                       4
SWH              29761.904 Hz
FIDRES               0.454131 Hz
AQ                1.1010548 sec
RG                   190.46
DW                   16.800 usec
DE                   18.00 usec
TE                   298.1 K
D1               2.00000000 sec
D11              0.03000000 sec
TD0                      1

======== CHANNEL f1 ========
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NUC1                    13C
P1                    9.80 usec
SI                   32768
SF              125.7577761 MHz
WDW                     EM
SSB                      0
LB                    1.00 Hz
GB                       0
PC                    1.40
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Fig. S10 The 126 MHz ^{13}C NMR spectrum of compound **5**.

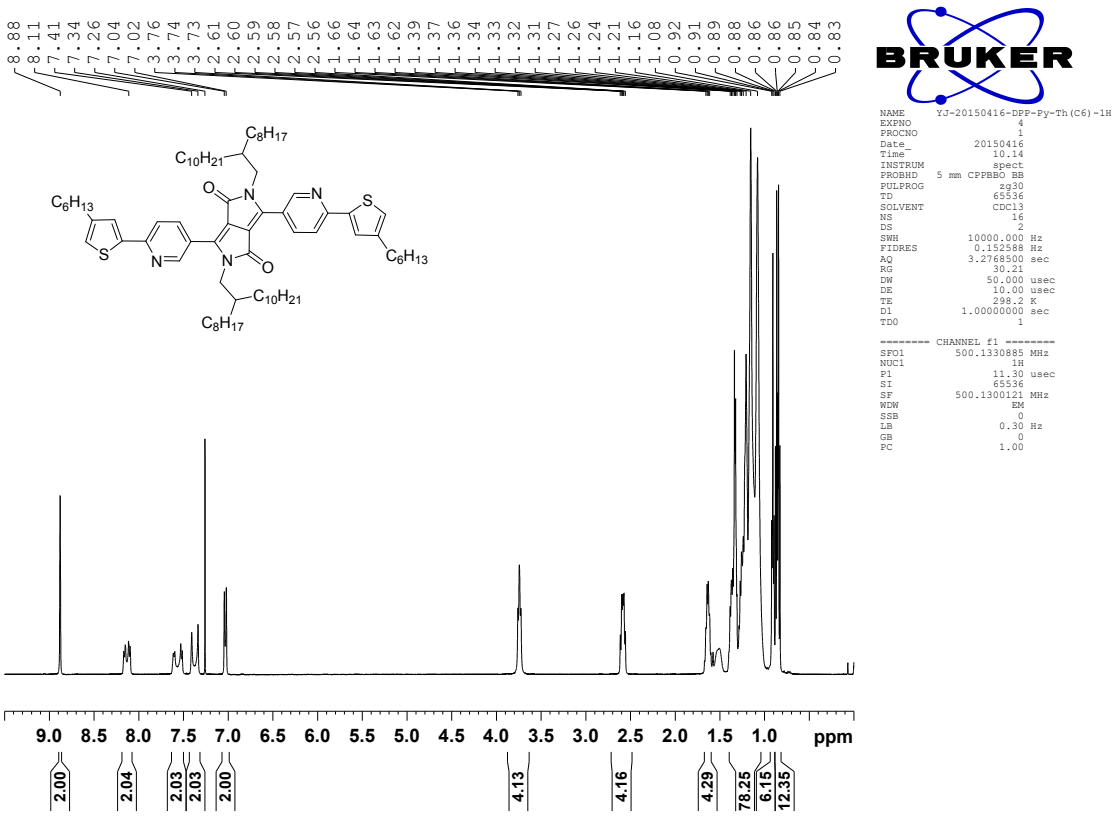

Fig. S11 The 500 MHz ^{1}H NMR spectrum of compound **7**.

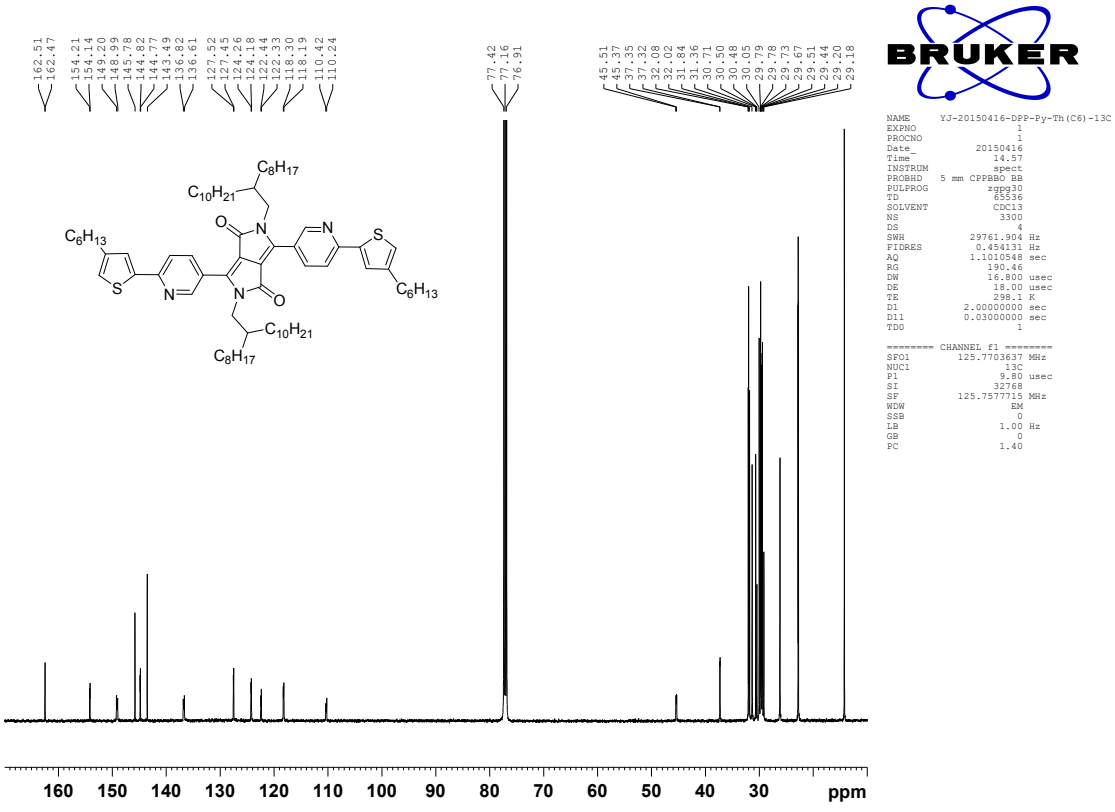

Fig. S12 The 126 MHz ^{13}C NMR spectrum of compound **7**.

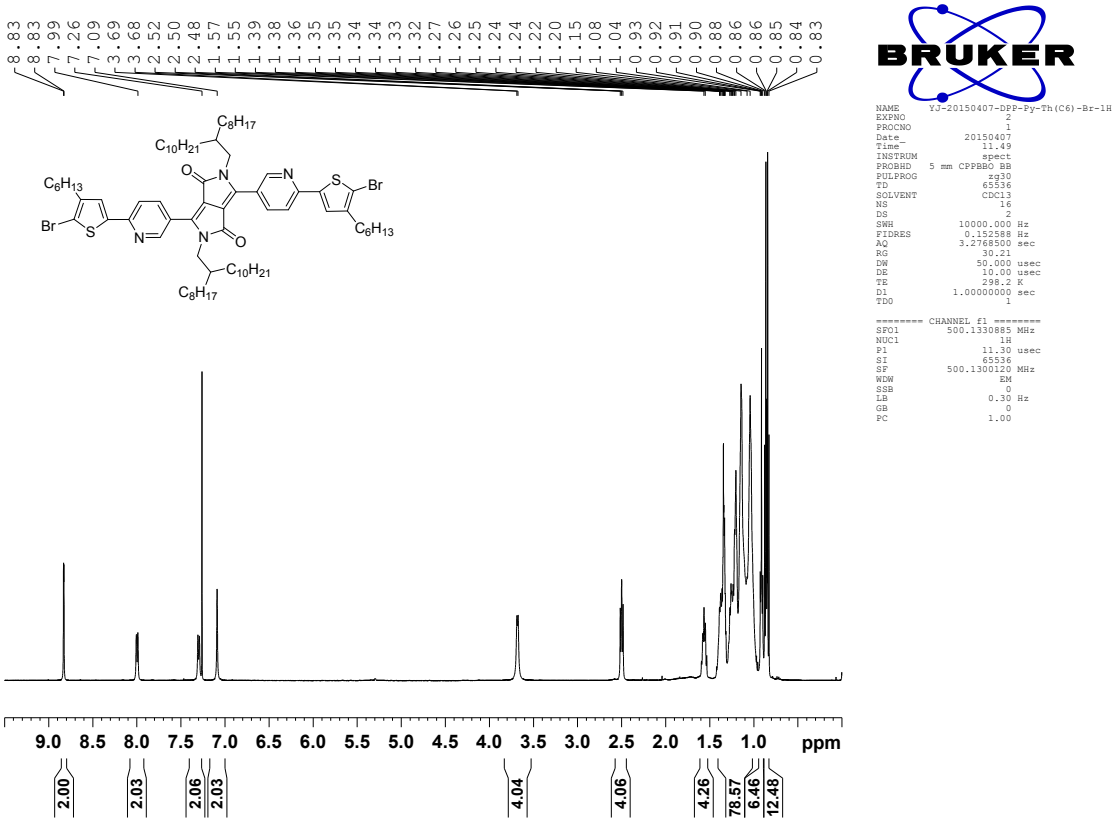

Fig. S13 The 500 MHz ^{1}H NMR spectrum of monomer **8**.

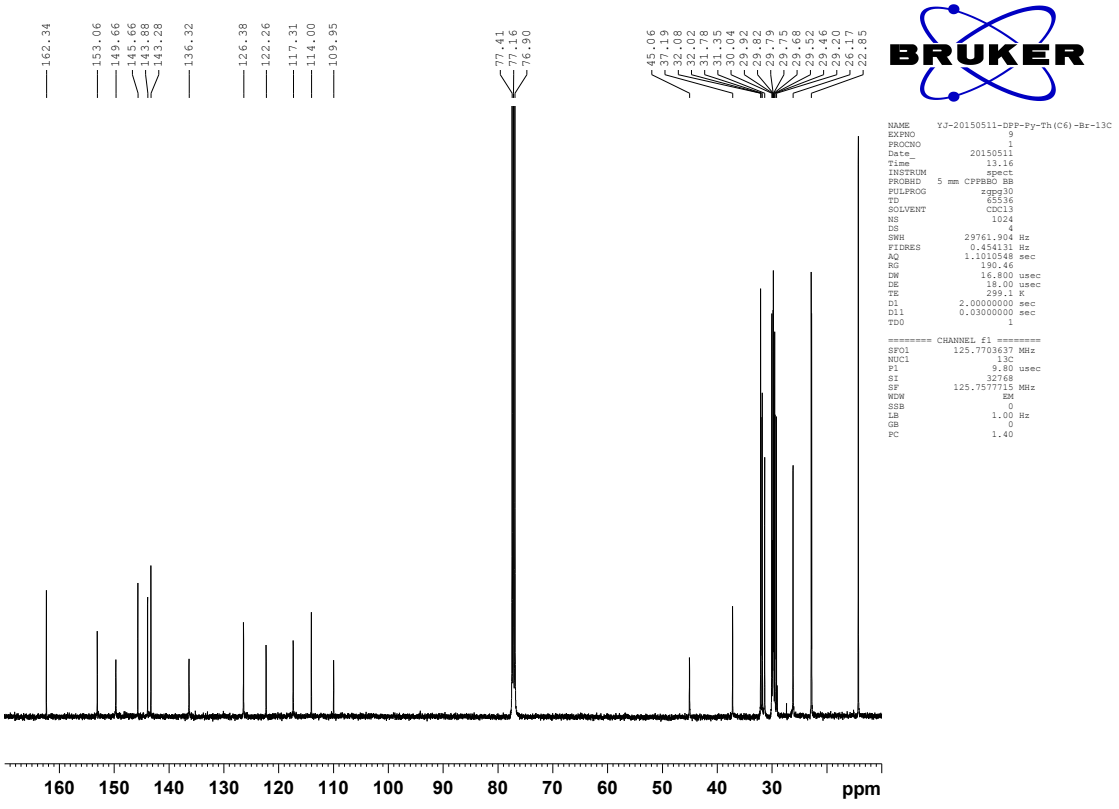

Fig. S14 The 126 MHz ^{13}C NMR spectrum of monomer **8**.