Supporting Information

A new *V*-shaped triphenylamine/diketopyrrolopyrrole containing donor material for small molecular organic solar cells†

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† Electronic Supplementary Information (ESI) available: ^{1}H NMR, ^{13}C NMR and MS spectra of TPA(DPPT2)2.
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1 Supporting Table

Table S1 Photovoltaic parameters of solar cells based on TPA(DPPT2)2: PC71BM(1: 1, w/w) blends

Devices	V_{OC}	J_{SC} (mA cm^{-2})	*FF* (%)	PCE (%)
1	0.74	4.68	37	1.30
2	0.73	5.01	67	1.39
3	0.70	5.08	34	1.19
4	0.72	5.11	37	1.37

Table S2 Photovoltaic parameters of solar cells based on TPA(DPPT2)2: PC71BM(1: 1, w/w) blends and 0.1% DIO as a processing additives.

Devices	V_{OC}	J_{SC} (mA cm^{-2})	*FF* (%)	PCE (%)
1	0.64	9.12	61	3.53
2	0.64	9.37	61	3.67
3	0.64	9.48	63	3.81
4	0.64	9.35	62	3.71
5	0.64	9.28	62	3.69
6	0.64	9.20	63	3.69

Table S3 Photovoltaic parameters of solar cells based on TPA(DPPT2)2: PC71BM(1: 1, w/w) blends and 0.2% DIO as a processing additives.

Devices	V_{OC}	J_{SC} (mA cm^{-2})	*FF* (%)	PCE (%)
1	0.63	9.82	57	3.51
2	0.64	9.88	59	3.70
3	0.62	10.17	58	3.69
4	0.62	9.89	58	3.60
5	0.62	10.34	54	3.44
6	0.62	10.30	55	3.55

Table S4 Photovoltaic parameters of solar cells based on TPA(DPPT2)2: PC71BM(1: 1, w/w) blends and 0.3% DIO as a processing additives.

Devices	V_{OC}	J_{SC} (mA cm^{-2})	*FF* (%)	PCE (%)
1	0.64	9.38	58	3.54
2	0.64	9.50	59	3.60
3	0.65	9.46	59	3.64
4	0.65	9.57	57	3.55
5	0.64	9.37	60	3.61
6	0.64	9.58	56	3.44

Table S5 Photovoltaic parameters of solar cells based on TPA(DPPT2)2: PC71BM(1: 1, w/w) blends and 0.5% DIO as a processing additives.

Devices	V_{OC}	J_{SC} (mA cm^{-2})	*FF* (%)	PCE (%)
1	0.64	8.87	52	2.93
2	0.64	9.47	51	3.06
3	0.63	8.68	51	2.83
4	0.62	8.74	51	2.72
5	0.63	8.98	51	2.90
6	0.63	8.89	50	2.82

Table S6 Photovoltaic parameters of solar cells based on TPA(DPPT2)2: PC71BM(1: 1, w/w) blends and 0.7% DIO as a processing additives.

Devices	V_{OC}	J_{SC} (mA cm^{-2})	*FF* (%)	PCE (%)
1	0.64	9.76	47	2.98
2	0.63	9.79	46	2.82
3	0.64	9.50	48	2.87
4	0.65	9.26	44	2.65

2 Supporting Figure

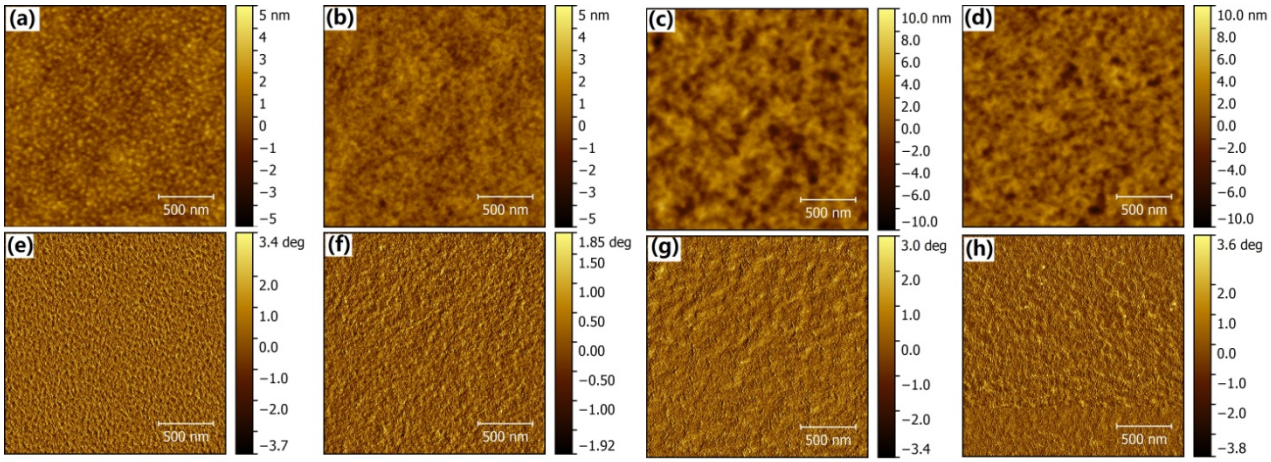


Fig. S1 AFM topography (top) and phase (bottom) images (2 μm × 2 μm) of blend film: TPA(DPPT2)2:$PC_{71}BM$ with (a, e) 0% DIO, (b, f) 0.1% DIO, (c, g) 0.2% DIO, (d, h) 0.5% DIO.

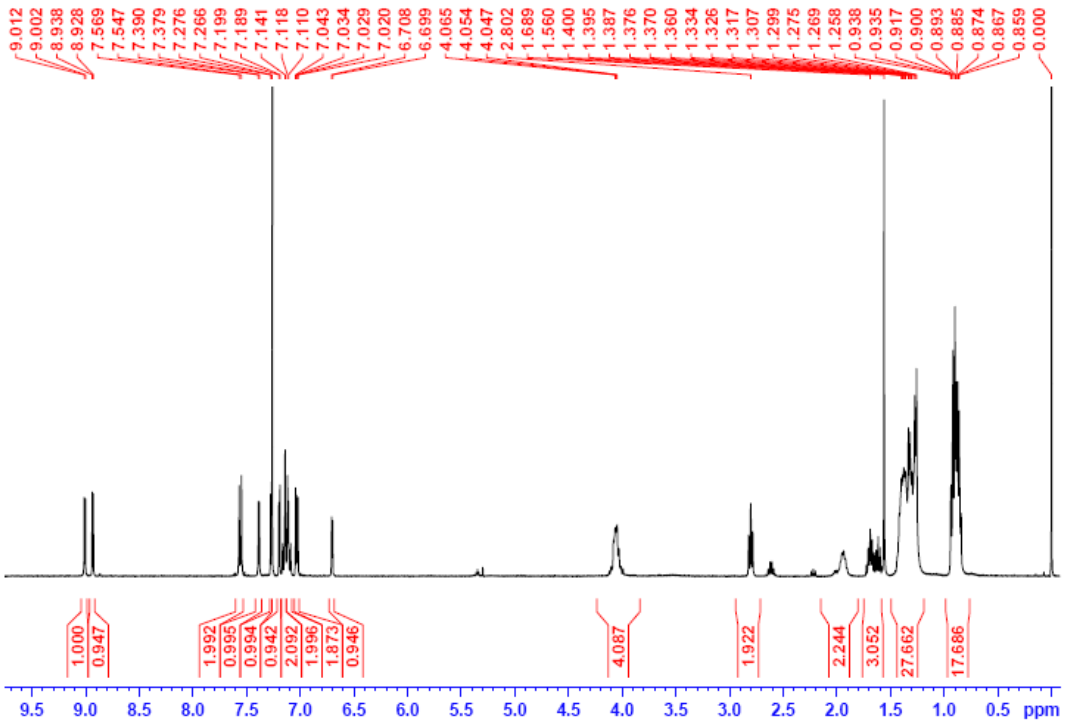


Fig.S1 ^{1}H NMR spectra of TPA(DPPT2)2

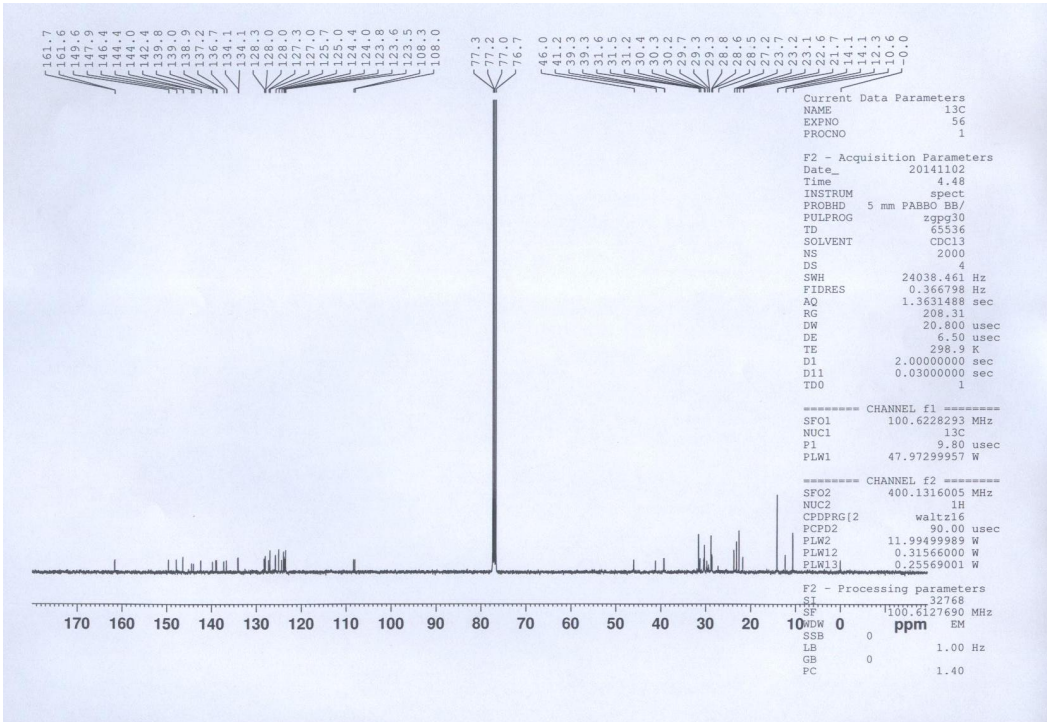
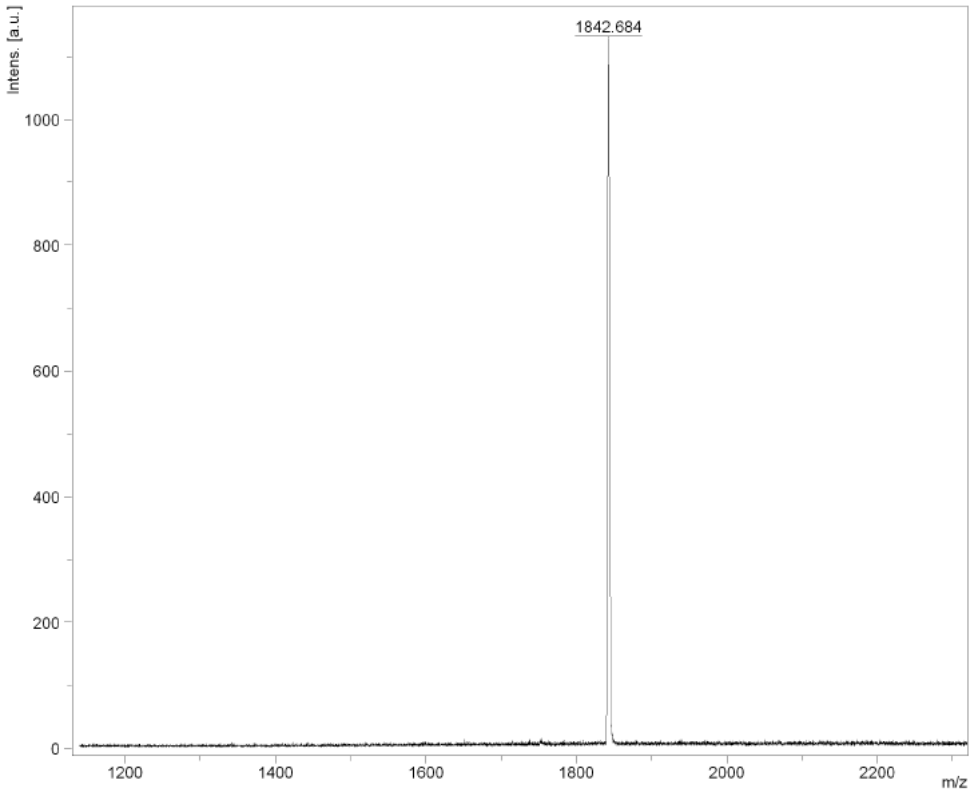


Fig.S2 ^{13}C NMR spectra of TPA(DPPT2)2



Acquisition Parameter

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Aquisition operation mode	Reflector
Voltage polarity	POS
Number of shots	500
Name of spectrum used for calibration	
Calibration reference list used	

Fig.S3 MS spectra of TPA(DPPT2)2