

Electronic Supplementary Information (ESI) for

**Molecular Structure Simplification of the
Most Common Hole Transport Material in
Perovskite Solar Cells**

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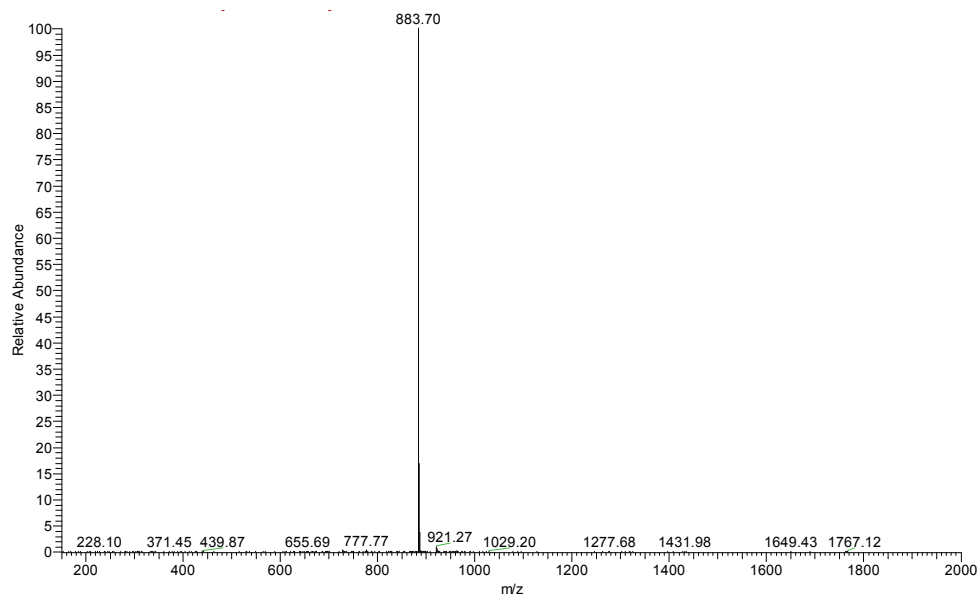


Fig. S1. LC-MS spectrum of spiro-027

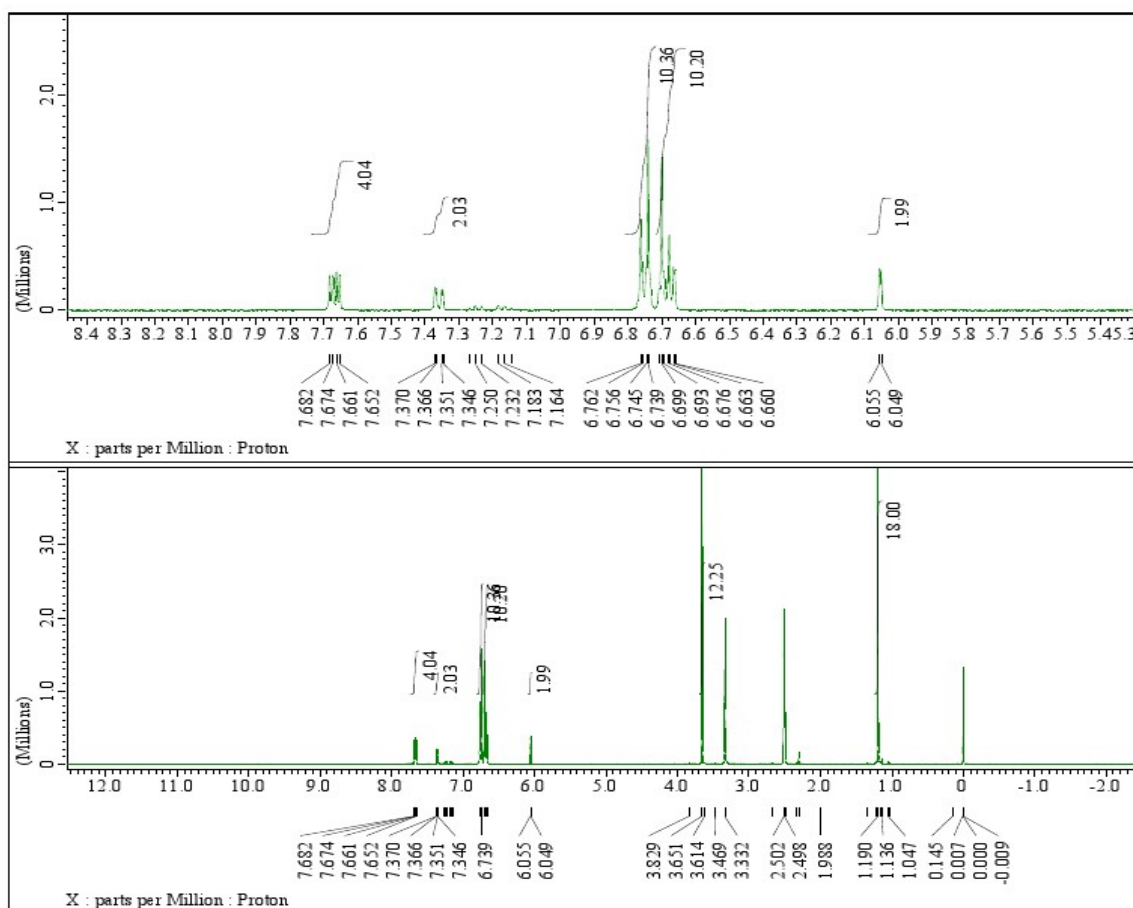


Fig. S2. ^1H NMR spectrum of spiro-027

Table S1. Values of the photovoltaic parameters of 30 devices based on spiro-027 and spiro-OMeTAD .

HTM	V_{OC} (V)	J_{SC} (mA cm ⁻²)	FF	PCE (%)
Spiro-027	1.06	21.02	0.69	15.31
	1.06	20.72	0.70	15.34
	1.06	21.49	0.69	15.72
	1.08	20.39	0.68	14.97
	1.08	20.66	0.68	15.25
	1.06	22.17	0.64	14.93
	1.07	21.67	0.71	16.41
	1.07	22.07	0.70	16.60
	1.06	22.02	0.65	15.22
	1.04	21.23	0.70	15.38
	1.05	21.98	0.64	14.79
	1.06	21.71	0.67	15.51
	1.05	22.49	0.68	15.98
	1.05	21.12	0.70	15.54
	1.06	21.43	0.70	15.97
	1.02	20.84	0.68	14.52
	1.02	21.23	0.67	14.54
	1.01	21.05	0.69	14.81
	1.03	20.04	0.71	14.63
	1.03	20.63	0.69	14.74
	0.99	22.46	0.67	14.90
	1.04	20.75	0.67	14.52
	1.05	21.45	0.68	15.30
	1.04	21.14	0.68	15.04
	1.04	21.50	0.65	14.61
	1.03	22.24	0.69	15.88
	1.04	22.00	0.69	15.86
	1.06	21.43	0.70	15.89
	1.05	20.80	0.70	15.34
	1.05	21.07	0.70	15.53

HTM	V_{oc} (V)	J_{sc} (mA cm ⁻²)	FF	PCE (%)
Spiro-OMeTAD	1.06	20.78	0.70	15.50
	1.06	20.93	0.71	15.82
	1.06	20.54	0.68	14.77
	1.05	20.32	0.69	14.66
	1.06	21.12	0.71	15.86
	1.07	20.54	0.71	15.60
	1.06	20.77	0.69	15.25
	1.07	20.88	0.71	15.95
	1.03	22.09	0.65	14.84
	1.04	21.48	0.69	15.42
	1.04	21.74	0.70	15.73
	1.05	20.30	0.70	14.96
	1.05	20.92	0.70	15.42
	1.04	20.58	0.70	14.89
	1.05	21.45	0.70	15.76
	1.04	21.85	0.70	16.05
	1.03	22.67	0.62	14.60
	1.06	20.89	0.70	15.40
	1.06	21.47	0.71	16.12
	1.07	21.08	0.68	15.20
	1.04	20.14	0.70	14.65
	1.06	20.78	0.69	15.13
	1.07	20.75	0.69	15.32
	1.05	21.05	0.70	15.44
	1.05	20.62	0.70	15.22
	1.02	21.45	0.67	14.75
	1.06	20.74	0.71	15.59
	1.05	20.99	0.71	15.64
	1.07	20.31	0.70	15.13
	1.04	20.54	0.70	14.91