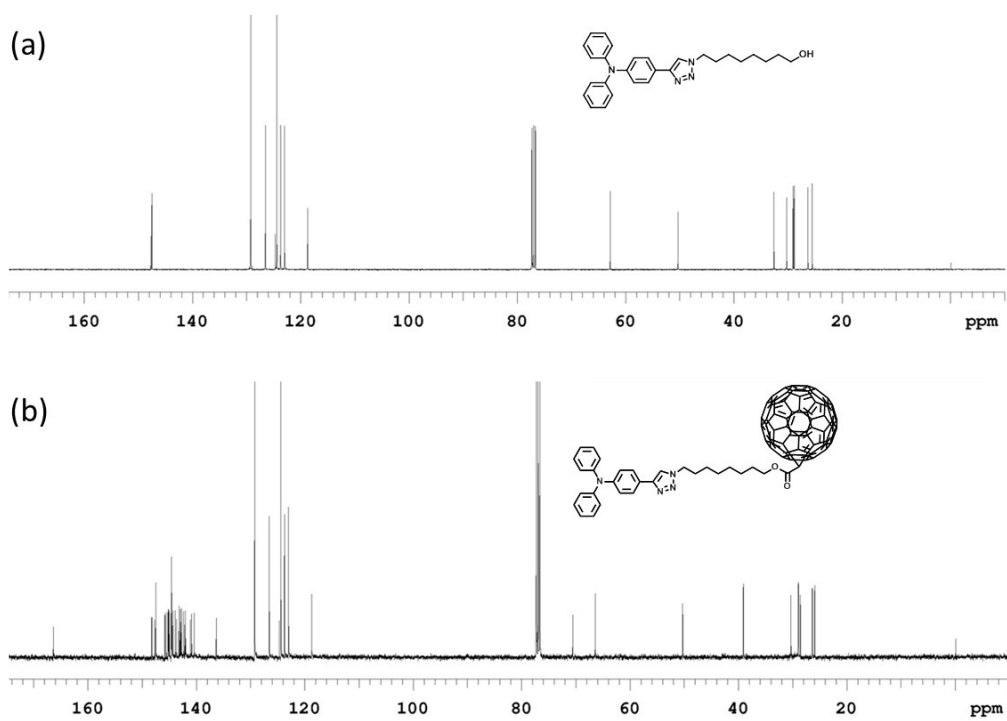
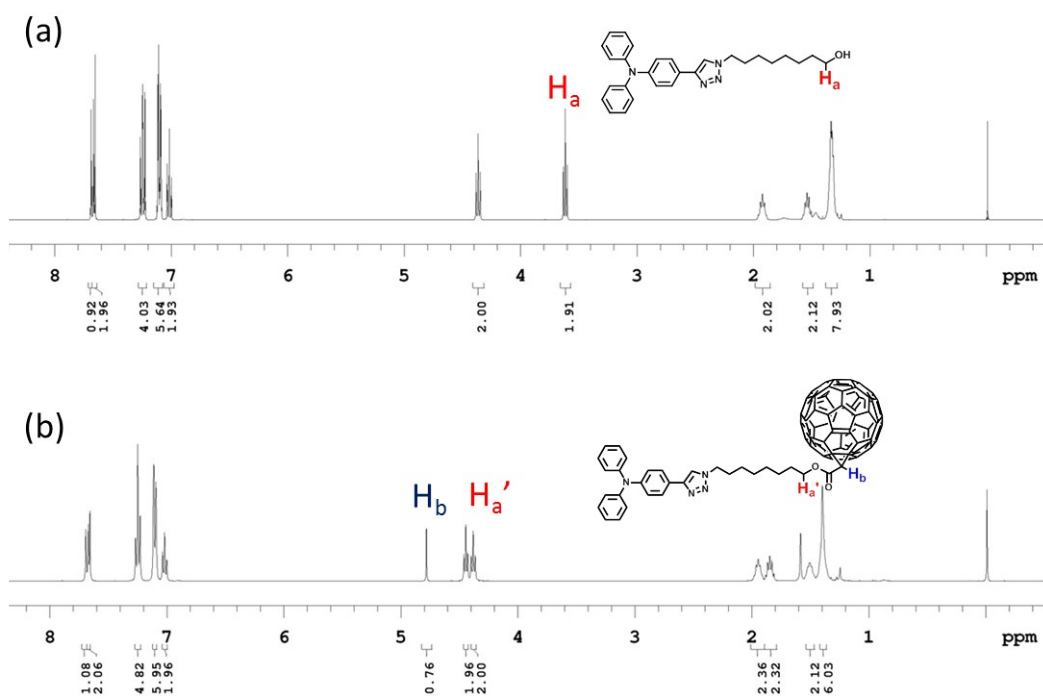


## Supplementary information

### **The Flat-on Ambipolar Triphenylamine/C<sub>60</sub> Nano-Stacks Formed from the Self-Organization of a Pyramid-Sphere Shape Amphiphile**

Wei-Wei Liang,<sup>a</sup> Chi-Feng Huang,<sup>a</sup> Kuan-Yi Wu,<sup>a</sup> San-Lien Wu,<sup>a</sup> Shu-Ting Chang,<sup>a</sup> Yen-Ju Cheng,<sup>a</sup> and Chien-Lung Wang<sup>a\*</sup>

*<sup>a</sup>Department of Applied Chemistry, National Chiao Tung University, 1001 Ta Hsueh Road Hsin-Chu, 30010, Taiwan  
E-Mail: kclwang@nctu.edu.tw*



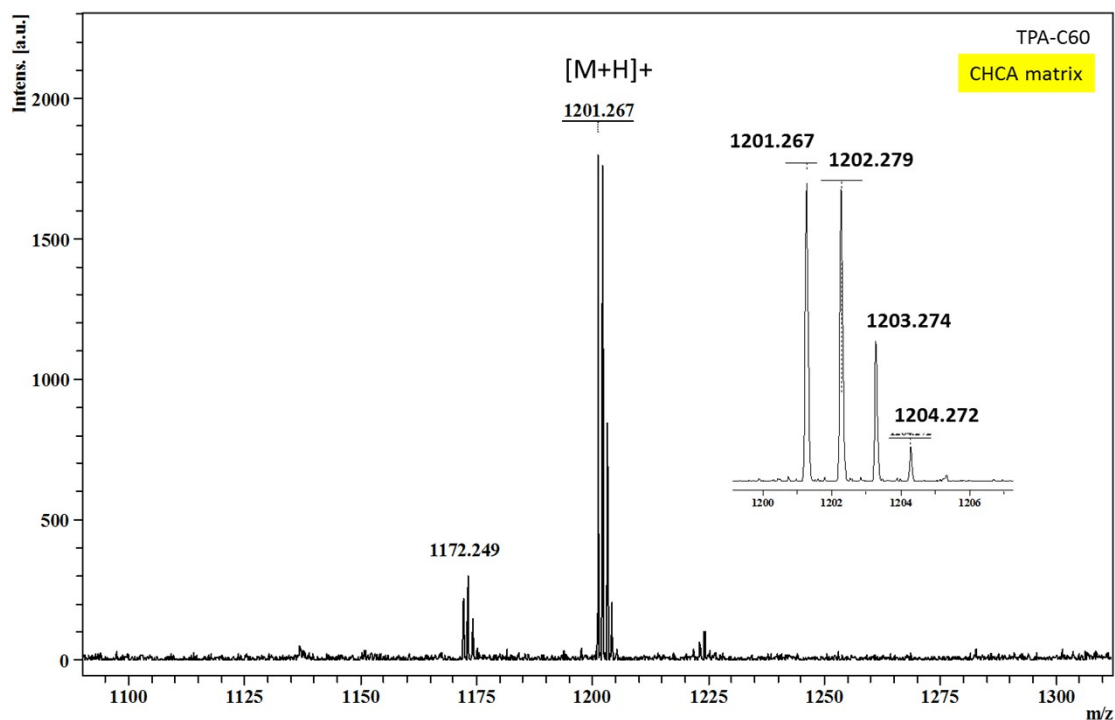


Fig. S3 MALDI TOF mass spectra of TPA-C<sub>60</sub>.

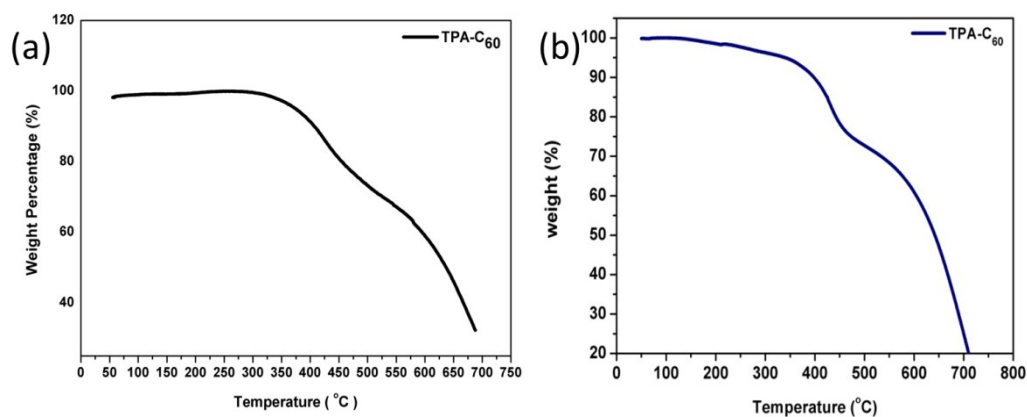
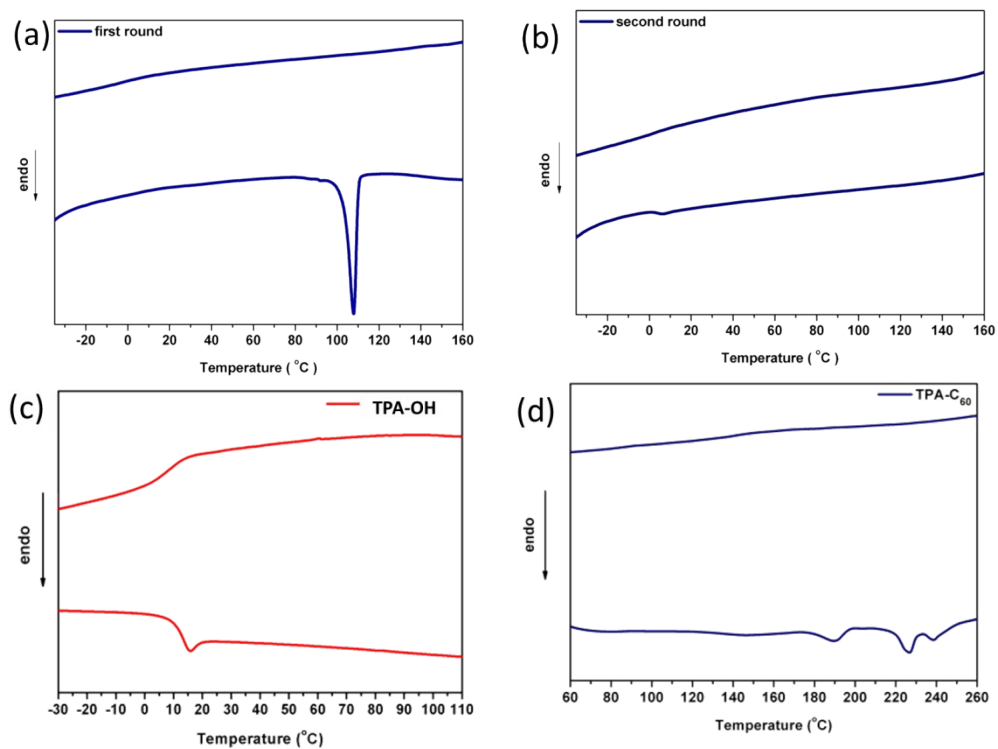
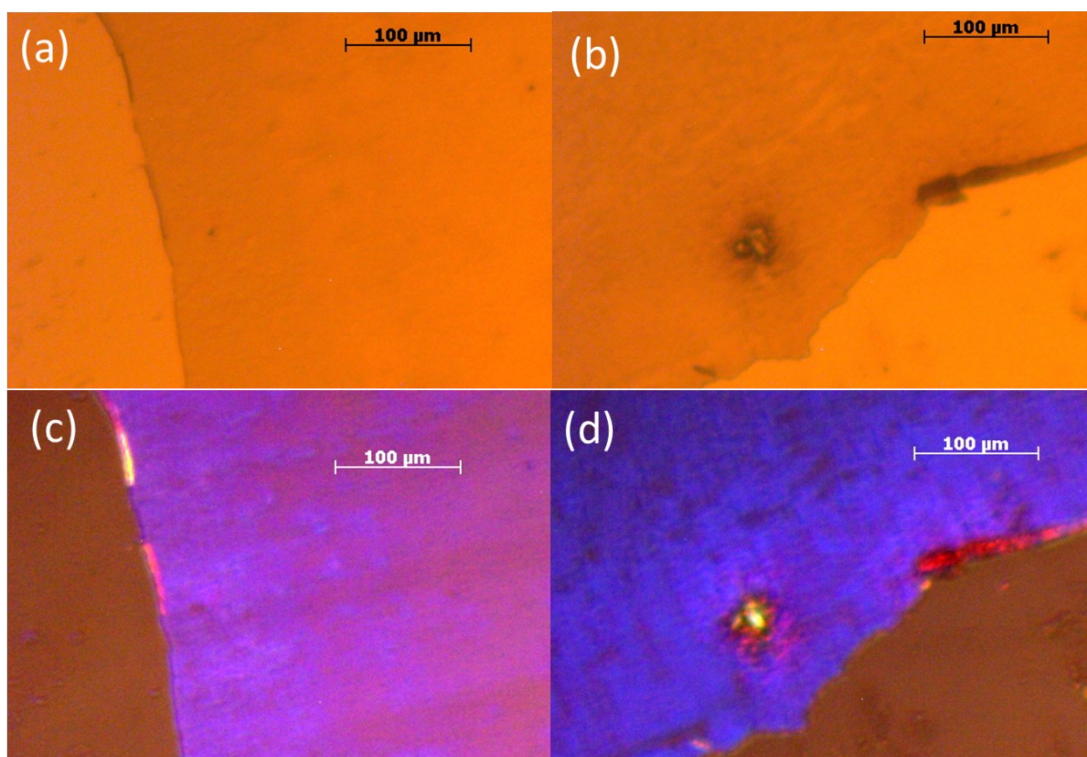


Fig. S4 Thermogravimetry analysis of the TPA-C<sub>60</sub> samples dried by (a) a cryo pump ( $\sim 6 \times 10^{-7}$  torr) and (b) a mechanical pump ( $\sim 10^{-2}$  torr).



**Fig. S5** DSC curves of (a) (b) 4-ethynyl-N,N-diphenylamine, (c) TPA-OH, (d) TPA-C<sub>60</sub>



**Fig. S6** Optical microscope (OM) images (a) (b), and POM images (c) (d) of TPA-C<sub>60</sub> processed via the PAC method with ODCB.

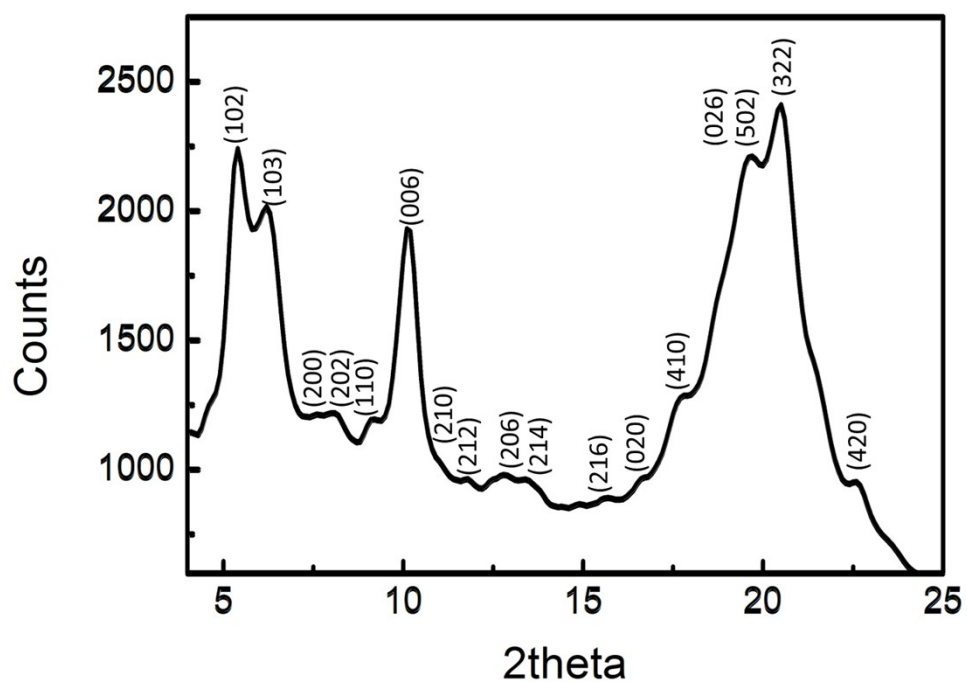


Fig. S7 The powder X-ray diffraction pattern of TPA-C<sub>60</sub>.

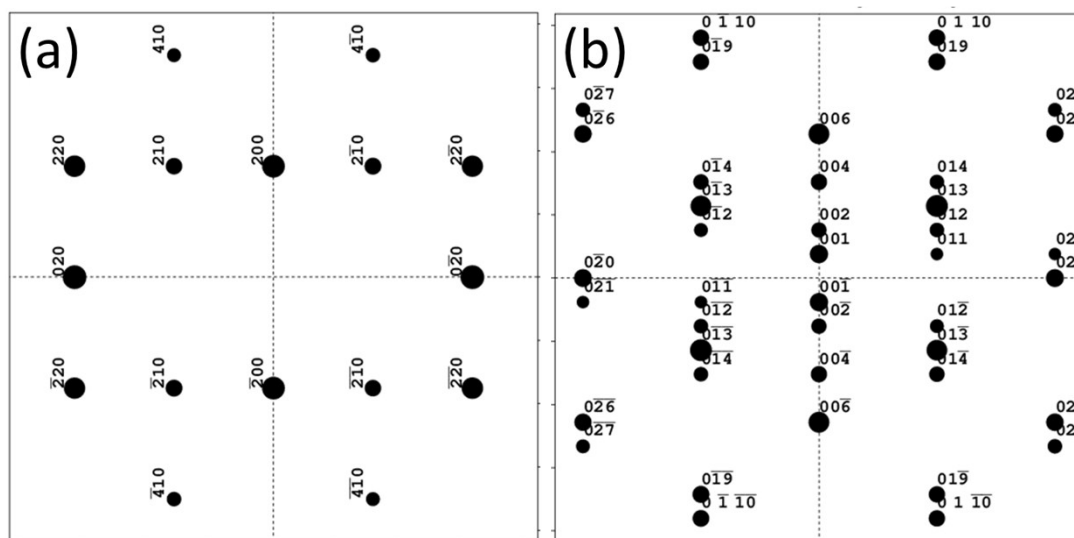
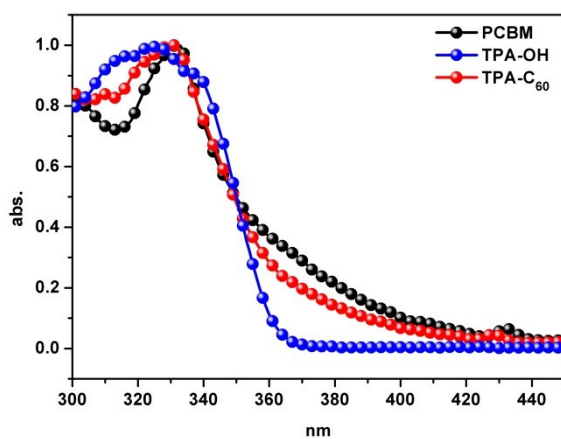
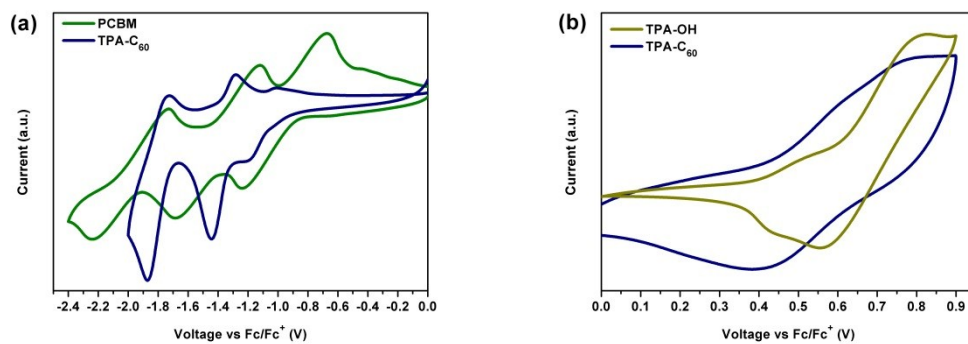


Fig. S8 Simulated ED patterns of TPA-C<sub>60</sub> along (a) the [001] zone and (b) the [100] zone.



**Fig. S9** UV-Vis spectra of TPA-C<sub>60</sub>, TPA-OH, and PCBM.



**Fig. S10** (a) Reduction and (b) oxidation cyclic voltammetry curves of TPA-C<sub>60</sub> and comparisons.

**Table S1.** The d-spacings of the (hkl) planes of the crystalline phase of **TPA-C<sub>60</sub>**.

(hkl) plane	Theoretical d-spacing (Å)	Experimental d-spacing (Å)
(102)	16.4	16.3
(103)	14.2	14.2
(200)	11.4	11.6
(202)	10.4	10.9
(110)	9.7	9.7
(006)	8.5	8.7
(210)	7.8	8.0
(210)	7.5	7.5
(206)	6.8	6.9
(214)	6.7	6.6
(216)	5.7	5.7
(020)	5.4	5.3
(410)	5.0	5.0
(026)	4.5	4.5
(502)	4.5	4.5
(322)	4.3	4.3
(420)	3.9	3.9

**Table S2.** Reduction potential, oxidized potential, HOMO and LUMO energy of PC<sub>61</sub>BM, **TPA-C<sub>60</sub>** and TPA-OH.

	<b>E<sub>ox</sub><sup>onset</sup> [V]</b>	<b>E<sub>re</sub><sup>onset</sup> [V]</b>	<b>HOMO [eV]</b>	<b>LUMO [eV]</b>
<b>PC<sub>61</sub>BM</b>		−0.88		−3.91
<b>TPA-C<sub>60</sub></b>	0.41	−0.85	−5.20	−3.94
<b>TPA-OH</b>	0.40		−5.19	