

*Supporting Information*

**Precise Membrane Separation of Nanoparticles Using a Microporous  
Conjugated Polymer Containing Radially  $\pi$ -Conjugated Molecular  
Carbocycles**

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## Materials and General Information

All glassware was oven-dried and cooled under an inert atmosphere of nitrogen. Air-sensitive reactions were carried out using the standard Schlenk technique under nitrogen. Work-up and purification procedures were carried out with reagent-grade solvents under air. High resolution mass spectrometry (HR-MS) analyses were carried out using MALDI-TOF-MS techniques. Samples were characterized with infrared spectroscopy (IR, FTS-7000, Varian, USA). NMR spectra were recorded on Bruker BioSpin ( $^1\text{H}$  400 MHz,  $^{13}\text{C}$  100 MHz) spectrometer, and chemical shifts were reported as the delta scale in ppm relative to  $\text{CDCl}_3$  ( $\delta = 7.26$  ppm) for  $^1\text{H}$  NMR and  $\text{CDCl}_3$  ( $\delta = 77.0$  ppm) for  $^{13}\text{C}$  NMR. Data are reported as follows: chemical shift, multiplicity (s = singlet, d = doublet, t = triplet, m = multiplet), coupling constant (Hz), and integration. The molecular weight distribution, relative number average and weight-average molecular weights were determined at  $40^\circ\text{C}$  by gel permeation chromatography (GPC, Waters 1515) equipped with a refractive index detector (Waters 2414) and a series of Styragel HR<sub>1</sub>, HR<sub>3</sub> and HR<sub>5</sub> (DMF) column with the eluent at 1.0 mL/min. The calibration was built on polystyrene standards. The morphology of the sample was studied using JSM-6700F scanning electron microscope (SEM). Transmission electron microscopy (TEM) images were collected on a JEM-2010 electron microscope, operated at an acceleration voltage of 200 kV. Scanning tunneling microscope (STM) image was collected on a SPECS STM 150 Aarhus with SPECS 260 electronics. Au (111) surface was cleaned by cycles of bombardment with  $\text{Ar}^+$  ions and annealing at 750 K. The steady-state

photoluminescence (PL) spectra were recorded using a Perkin-Elmer LS 55 fluorescence spectrometer. Other chemicals were obtained from commercial suppliers (Innochem or Acros). Nylon syringe filters (pore size, 0.22  $\mu\text{m}$ ; filtration area,  $0.25\pi\text{ cm}^2$ ) were purchased from Sinopharm Chemical Regent Company (SCRC).

### Synthesis procedures:

**2,7-dibromophenanthrene-9,10-dione (2).** Compound **2** was synthesized according to literature reports.<sup>[S1]</sup>

**1,3-bis(4-chlorophenyl)propan-2-one (3).** Compound **3** was synthesized according to literature reports.<sup>[S2]</sup>

### **5,10-dibromo-1,3-bis(4-chlorophenyl)-2H-cyclopenta[1]phenanthren-2-one (4).**

To a round-bottom flask containing 2,7-dibromophenanthrene-9,10-dione (5.5 g, 15.0 mmol) and 1,3-bis(4-chlorophenyl)propan-2-one (4.2 g, 15.0 mmol) in EtOH (5 mL) was added KOH (560 mg, 10.0 mmol) as a solution in EtOH (10 mL). The reaction was then heated to reflux for 0.5 h and cooled to room temperature. The resulting purple solid was filtered and washed with ice cold MeOH (15 mL) to provide **4** as a green solid (5.5 g, 60% yield).

### **6,11-dibromo-2,3-bis(4-(tert-butyl)phenyl)-1,4-bis(4-chlorophenyl)triphenylene**

**(6).** 5,10-dibromo-1,3-bis(4-chlorophenyl)-2H-cyclopenta[1]phenanthren-2-one **4** (3.0 g, 4.9 mmol) and 1,2-bis(4-(*tert*-butyl)phenyl)ethyne **5** (1.5 g, 5 mmol) were refluxed under argon in diphenyl ether (4 mL) for 48 h. After cooling to room temperature, the resulting residue was recrystallized from MeOH to yield the desired product as a white solid **6** (2.8 g, 65% yield). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz): δ (ppm) 8.20 (d, *J* = 8.8 Hz, 2H), 7.62 (d, *J* = 2 Hz, 4H), 7.49 (d, *J* = 8.0 Hz, 2H), 7.12 (d, *J* = 8.4 Hz, 4H), 6.98 (d, *J* = 8.4 Hz, 4H), 6.90 (d, *J* = 8.4 Hz, 4H), 6.53 (d, *J* = 8.4 Hz, 4H); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz): δ (ppm) 148.55, 141.80, 140.37, 136.25, 136.22, 133.10, 132.81, 132.79, 131.92, 130.71, 130.09, 129.58, 129.45, 128.39, 124.58, 123.59, 120.20,

34.21, 31.22. HR-MS (MALDI-TOF)  $m/z$  calcd. for  $C_{50}H_{40}Br_2Cl_2$   $[M]^+$ : 870.0853, found: 870.0903. IR (KBr)  $cm^{-1}$ : 3029, 2955, 2898, 2862, 1899, 1595, 1483, 1394, 1364, 1240, 1091, 1011, 1000, 886, 854, 833, 798, 774, 749, 723.

**Compound 7.** Compound 7 was synthesized according to literature reports.<sup>[S3]</sup>

**Compound 8.** Dibromide 7 (2.0 g, 2.28 mmol) was dissolved in THF (20 ml) and cooled to  $-78$  °C. To this solution was added a 2.5 M solution of *n*-BuLi in hexanes (2.0 mL, 5 mmol) over 2 min. Immediately, neat isopropyl pinacol borate (1.1 mL, 5.3 mmol) was added rapidly and the solution was stirred for 20 min. Water (10 mL) was then added to the solution and the mixture was allowed to stir for 15 min at room temperature. The aqueous layer was extracted with  $CH_2Cl_2$  and concentrated under reduced pressure. The crude product was purified by column chromatography (hexane/ethyl acetate = 1/1) to afford 8 (1.8 g, 81% yield) as a white solid.  $^1H$  NMR ( $CDCl_3$ , 400 MHz):  $\delta$  (ppm) 7.75 (d,  $J = 7.2$  Hz, 4H), 7.40 (d,  $J = 8.4$  Hz, 4H), 7.49 (d,  $J = 8.0$  Hz, 2H), 7.34 (s, 8H), 3.42 (s, 18H), 1.33 (s, 24H);  $^{13}C$  NMR ( $CDCl_3$ , 100 MHz):  $\delta$  (ppm) 146.43, 142.73, 142.59, 134.89, 133.354, 133.254, 133.087, 125.99, 125.25, 83.72, 74.84, 74.59, 74.54, 51.91, 24.82. HR-MS (MALDI-TOF)  $m/z$  calcd. for  $C_{60}H_{70}B_2O_{10}Ag$   $[M]^+$ : 1079.4207, found: 1079.7707. IR (KBr)  $cm^{-1}$ : 3082, 3029, 2977, 2930, 2899, 2831, 2014, 1921, 1824, 1790, 1754, 1669, 1608, 1504, 1453, 1393, 1352, 1319, 1268, 1137, 1077, 1020, 939, 858, 834, 760.

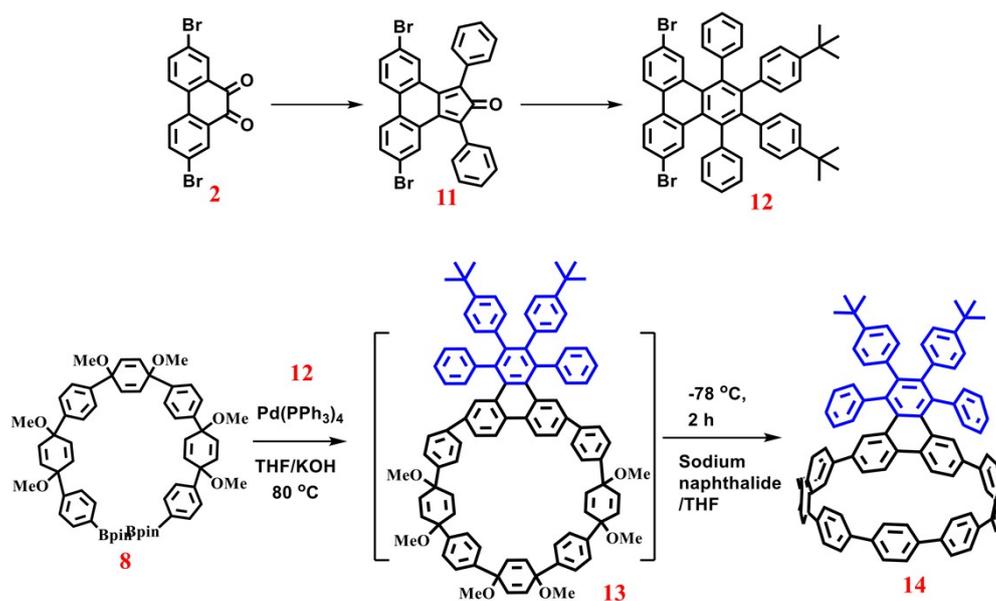
**Compound 9.** To a degassed suspension of 8 (195.0 mg, 0.2 mmol), 6 (174.0 mg, 0.2 mmol), and KOH (260.0 mg, 1.88 mmol) in THF/ $H_2O$  (200 mL/20 mL) was added  $Pd(PPh_3)_4$  (10.0 mg, 0.014 mmol), then the mixture was degassed for 30 min. The

mixture was then heated up to 80 °C for 48 h under nitrogen atmosphere. After cooling down to room temperature, water was added and the mixture was extracted with DCM. The combined organic layer was dried over anhydrous MgSO<sub>4</sub>, filtered and concentrated under reduced pressure to afford crude product **9** as a white solid for the next step without further purification.

**Compound 10.** To a 50-mL round-bottom flask (vessel A) containing a magnetic stirring bar were added SnCl<sub>2</sub>·2H<sub>2</sub>O (305 mg, 1.3 mmol), THF (25 mL) and concentrated HCl/H<sub>2</sub>O (0.2 mL, 12 mol/L) were added, and the resultant mixture was further stirred at room temperature for 30 min. To another 200-mL round-bottom flask (vessel B) containing a magnetic stirring bar were added the above crude product **9** and dry THF (10 mL). A solution of H<sub>2</sub>SnCl<sub>4</sub>/THF (18 mL, 0.7 mmol, 0.04 M in THF) in vessel A was added. After stirring the mixture at room temperature for 2 h, the mixture was quenched with aqueous sodium hydroxide, extracted with CH<sub>2</sub>Cl<sub>2</sub>, dried over Na<sub>2</sub>SO<sub>4</sub>, and concentrated under reduced pressure. The crude product was purified by column chromatography (hexane/CH<sub>2</sub>Cl<sub>2</sub> = 4/1) to afford **10** (52.3 mg, 21% yield over two steps) as a yellow solid. <sup>1</sup>H NMR (CDCl<sub>3</sub>, 400 MHz): δ (ppm) 8.14 (d, *J* = 8.8 Hz, 2H), 7.68 (d, *J* = 8.8 Hz, 2H), 7.54-7.41 (m, 16H), 7.39 (d, *J* = 8.4 Hz, 4H), 7.31 (d, *J* = 8.4 Hz, 6H), 7.25-7.20 (m, 4H), 7.17-7.12 (m, 4H), 7.04 (d, *J* = 8.4 Hz, 6H), 6.91 (d, *J* = 9.6 Hz, 2H), 6.71 (d, *J* = 9.6 Hz, 2H), 6.25 (d, *J* = 8.8 Hz, 2H); <sup>13</sup>C NMR (CDCl<sub>3</sub>, 100 MHz): δ (ppm) 148.20, 142.71, 140.63, 138.29, 138.25, 137.95, 137.87, 137.84, 137.79, 136.99, 136.91, 134.15, 133.78, 132.23, 132.09, 131.61, 131.57, 130.63, 130.19, 129.84, 128.35, 127.43, 127.38, 127.34,

127.29, 127.19, 126.86, 123.91, 123.68, 123.42, 122.78, 34.13, 31.15. HR-MS (MALDI-TOF)  $m/z$  calcd. for  $C_{92}H_{68}Cl_2 [M]^+$ : 1242.4698, found: 1242.8126. IR (KBr)  $cm^{-1}$ : 3071, 3022, 2957, 2917, 2855, 1895, 1589, 1481, 1385, 1365, 1263, 1088, 1014, 810, 729.

**Polymer PS2.** To a mixture of **10** (121.3 mg, 97.7  $\mu$ mol), 2,2'-bipyridyl (179.0 mg, 1.14 mmol), and 1,5-cyclooctadiene (140  $\mu$ L, 1.14 mmol) in a round-bottom flask (25 mL) was added anhydrous DMF/toluene (6 mL/6 mL). The mixture was bubbled with Ar for 0.5 h before bis(1,5-cyclooctadiene)nickel(0) (315.0 mg, 1.1 mmol) was added in one portion. Thereafter, the mixture was heated up to reflux for 120 h to give a deep purple suspension. Upon cooling to room temperature, the solvent was removed by rotary evaporator. The crude product was washed with methanol, filtered and washed with water, 0.5 M HCl solution in water, water, 0.5 M NaOH solution in water, water, methanol, acetone, methanol and hexane, and then the precipitate was collected, giving 83.0 mg (72.4% yield) of polymer **PS2** as a yellow solid:  $M_n = 8043$ ,  $M_w = 16430$ .  $^1H$  NMR ( $CDCl_3$ , 400 MHz):  $\delta$  (ppm) 8.17-8.01 (br), 7.59-7.31 (br), 7.10-6.93 (br), 6.90-6.75 (br), 6.70-6.60 (br), 6.34-6.20 (br), 1.14-0.95(br). IR (KBr)  $cm^{-1}$ : 3075, 3024, 2960, 2921, 2863, 1905, 1587, 1486, 1385, 1263, 1106, 1022, 1001, 814, 732.



**Figure S1.** Synthesis procedure for compound **14**.

**Compound 11.** Compound **11** was synthesized according to the reported method in the literature.<sup>[S4]</sup>

**Compound 12.** To a long neck flask was added 5,10-dibromo-1,3-diphenyl-2H-cyclopenta[1]phenanthren-2-one (2.00 g, 3.7 mmol), 1,2-bis(4-(tert-butyl)phenyl)ethyne (1.074 g, 3.7 mmol) and diphenyl ether (3 mL). The mixture was degassed 5 times by pumping and backfilling with nitrogen. The reaction was heated to 260 °C for 36 hours and then cooled to 70 °C before excessive MeOH was added. The resulting precipitate was collected by filtration and further purified by silica gel column chromatography (eluent 20% CH<sub>2</sub>Cl<sub>2</sub>/petroleum ether) to give pure 6,11-dibromo-2,3-bis(4-tert phenyl)-1,4-diphenyltriphenylene **11** (1.93 g, 2.4 mmol, 65%).  
<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>): δ(ppm) 8.19 (d, J = 8.7 Hz, 2H), 7.67 (d, J = 2.0 Hz, 2H), 7.47 (dd, J = 8.7, 2.0 Hz, 2H), 7.18-7.11 (m, 6H), 7.07-7.04 (m, 4H), 6.88-6.84 (m, 4H), 6.57-6.53 (m, 4H), 1.15 (s, 18H).  
<sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>): δ(ppm)

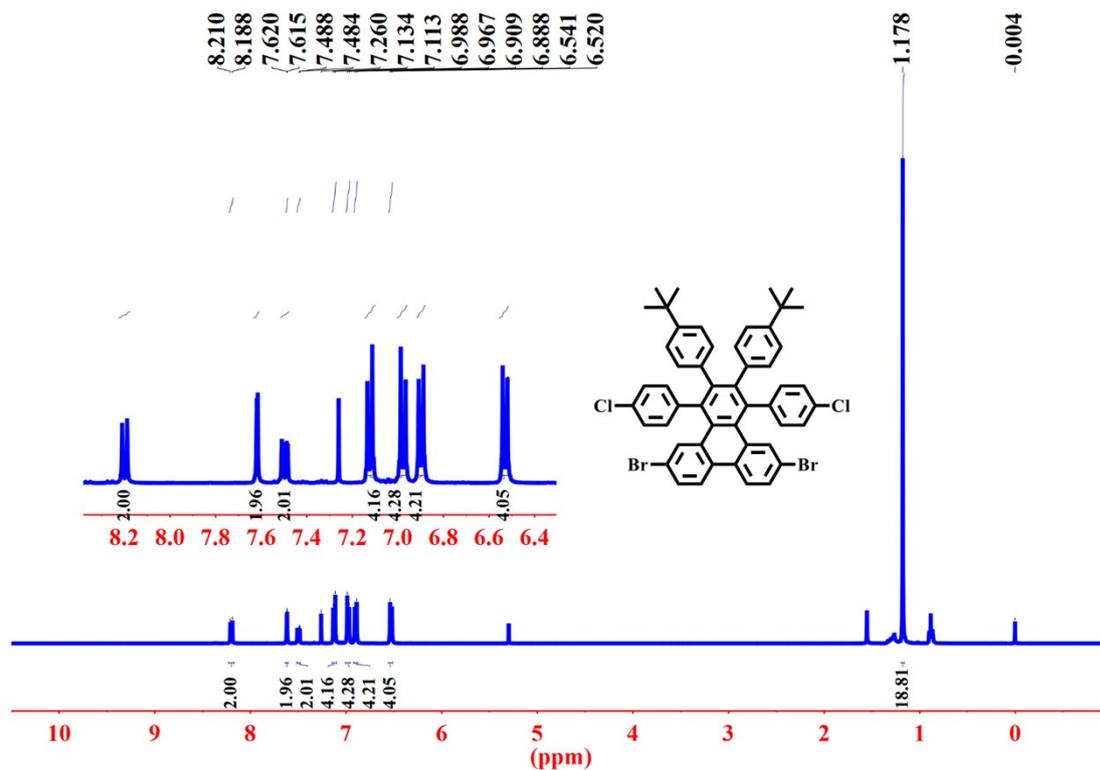
148.09, 141.86, 137.38 (s), 136.78, 132.87, 132.39, 131.86, 130.86, 130.07, 129.39, 128.14 (s), 126.60, 124.44, 123.31, 120.02, 77.32, 77.00, 76.68, 34.13, 31.22. HR-MS (MALDI-TOF)  $m/z$  calcd. for:  $C_{50}H_{42}Br_2[M]^+$ : 802.1633, found: 802.1679.

**Compound 13.** To a round-bottom flask (500 mL) was added compound **8** (181.4 mg, 0.186 mmol), **12** (149.30 mg, 0.186 mmol), THF (250 mL) and  $H_2O$  (20 mL), then potassium hydrate (134 mg, 2.38 mmol) and  $Pd(PPh_3)_4$  (30.06 mg, 0.026 mmol) was added after argon bubbling for 25 minutes. Then, the mixture was reacted at 75 °C for 48 hours. After cooling to room temperature, the solvent was removed under vacuum and the residue was extracted with  $CH_2Cl_2$ . The organic layer was dried by anhydrous  $MgSO_4$ , filtered and concentrated under reduced pressure to afford macrocycle intermediate **13** as a yellow solid for the next step without further purification.

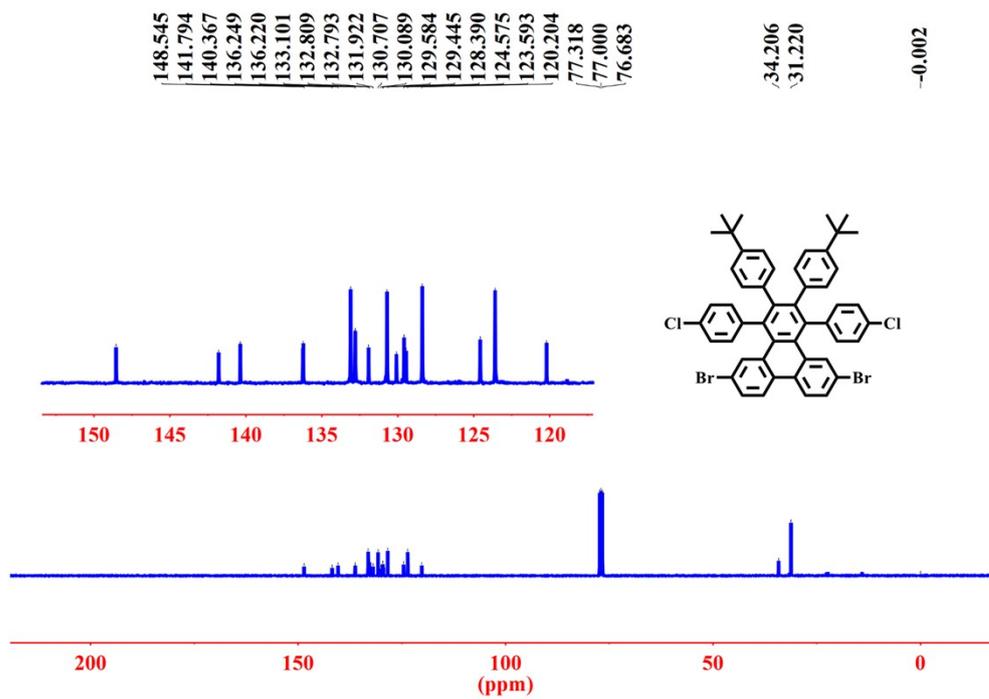
**Compound 14.** To a 50 mL round-bottom flask (vessel A), sodium metal (274 mg, 11.90 mmol), dry THF (12 mL), and naphthalene (1.00 g, 7.82 mmol) were added under nitrogen and the resultant mixture was stirred at room temperature for 24 hours. To another 250 mL flask (vessel B) containing the intermediate **13** in dry THF (30 mL) was added a solution of sodium naphthalenide (2 mL, 2 mmol, 1.0 M in THF) at -78 °C. This resulting mixture was reacted at -78 °C for 2 hours before quenched with 1.5 mL of  $I_2$  solution (1 M in THF). After warmed up to room temperature, the mixture was added aqueous saturated sodium thiosulfate, extracted with  $CH_2Cl_2$ , dried over anhydrous  $MgSO_4$ , and concentrated under reduced pressure. Purification by column chromatography with hexane/ $CH_2Cl_2$  as the eluent (v/v, 4:1) afforded pure **14** (43.73 mg, 22%) as yellow solid.  $^1H$  NMR (400 MHz,  $CDCl_3$ )  $\delta$  8.06 (d,  $J = 8.8$  Hz, 2H), 7.57 (d,  $J = 8.4$  Hz, 2H), 7.41 (m,  $J = 19.7, 8.0$  Hz, 16H), 7.35-7.27 (m, 8H), 7.21 (d,  $J = 8.2$  Hz, 6H), 7.13 (d,  $J = 8.8$  Hz, 2H), 7.06 (s, 4H), 6.95 (d,  $J = 7.9$  Hz,

8H), 6.60 (d,  $J = 7.9$  Hz, 2H), 6.21 (d,  $J = 7.9$  Hz, 2H), 1.02 (s, 18H).  $^{13}\text{C}$  NMR (101 MHz,  $\text{CD}_2\text{Cl}_2$ )  $\delta$  132.45, 131.52, 130.62, 129.75, 127.91, 127.65, 126.86, 126.68, 125.86, 123.35, 123.08, 122.36, 30.95. HR-MS (MALDI-TOF)  $m/z$  calcd. for:  $\text{C}_{92}\text{H}_{70}[\text{M}]^+$ : 1174.5477, found: 1174.5469. IR (KBr)  $\text{cm}^{-1}$ : 3023.72, 2959.35, 2925.28, 2866.35, 1723.40, 1587.35, 1485.39, 1457.41, 1443.55, 1271.30, 1120.25, 1022.72, 813.52, 736.91, 702.13, 603.15, 578.78, 518.47.

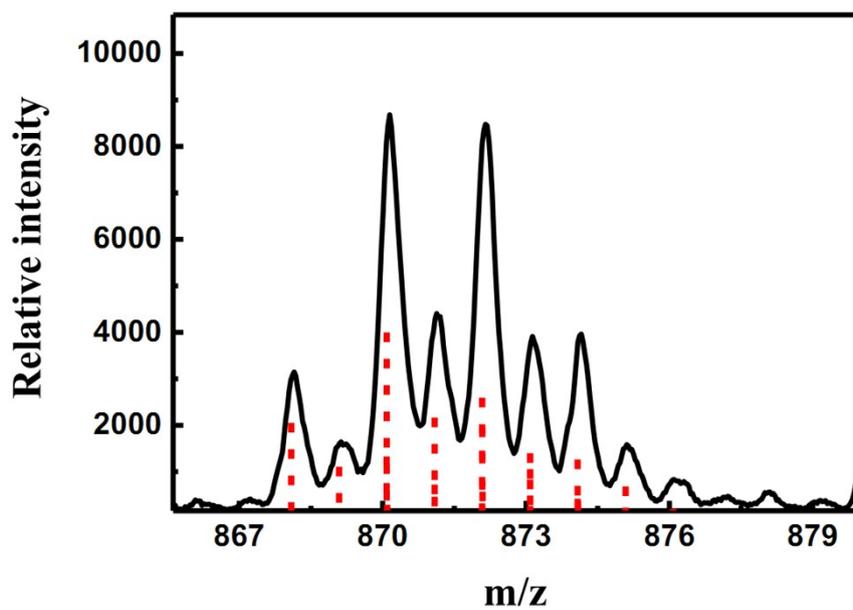
**Synthesis of Gold nanoparticles (AuNP):** Mercaptopropionic acid (MPA)-stabilized gold nanoparticles were prepared according to the reported method.<sup>[S5]</sup> A solution of  $\text{HAuCl}_4 \cdot 3\text{H}_2\text{O}$  (57 mg, 0.145 mmol) in 25 ml water was added to 250 ml of refluxing water. Then 25 ml of a mixed solution of MPA-Na (0.435 mmol) and trisodium citrate  $\cdot 2\text{H}_2\text{O}$  (500 mg, 1.70 mmol) was added rapidly. The solutions were refluxed for 6 hours. For separation from the excess of salts, the dispersions were treated with HCl (2 M) until the aggregated particles were precipitated. The precipitate was removed from the mother liquor by centrifugation. Then, it was re-dispersed by adding 250 ml water and adjusting the pH to 10 using NaOH (1.0 M).



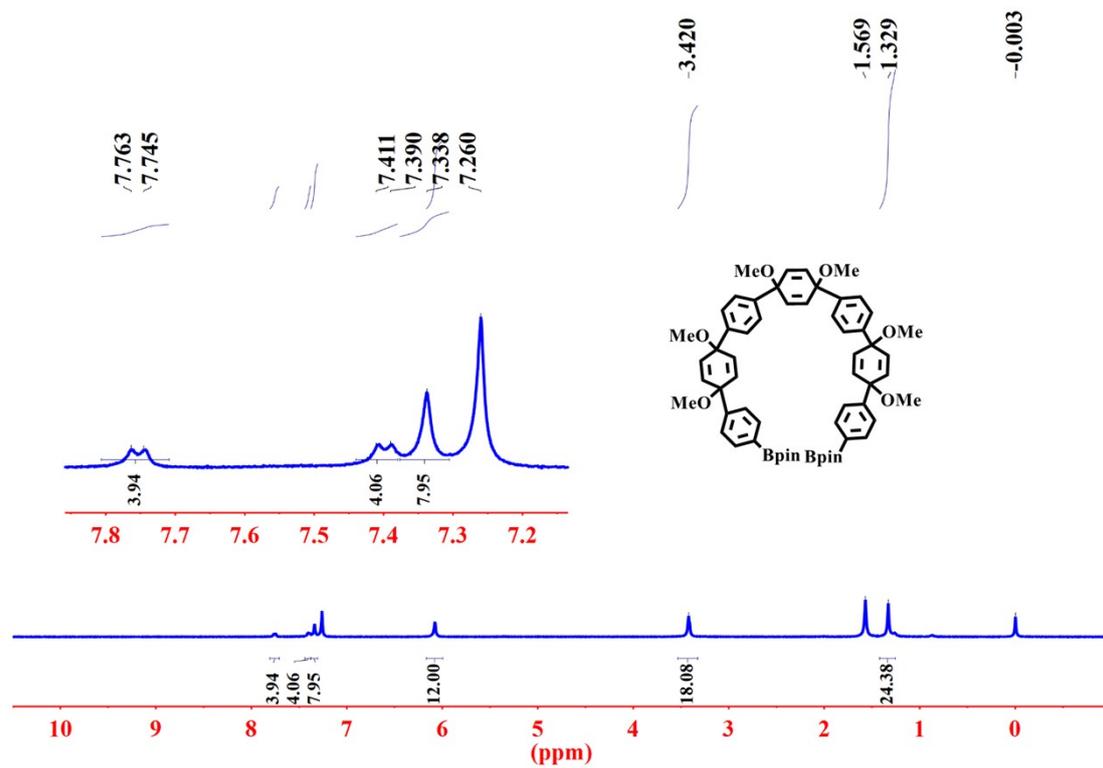
**Figure S2.**  $^1\text{H}$  NMR spectrum of compound **6** in  $\text{CDCl}_3$ .



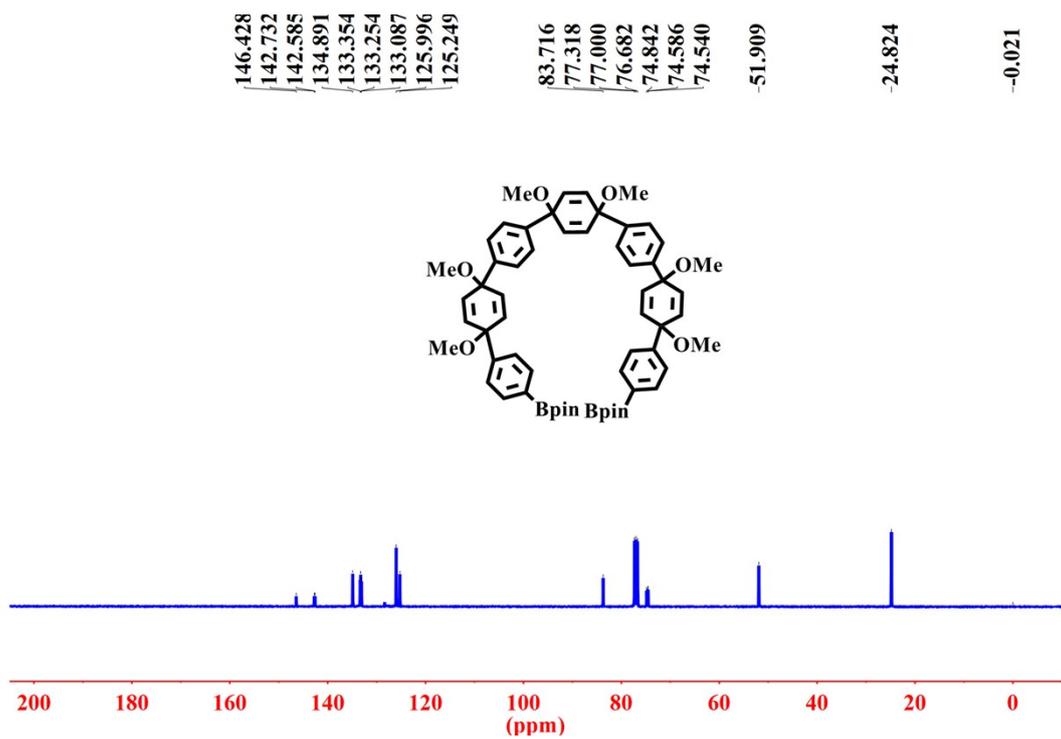
**Figure S3.**  $^{13}\text{C}$  NMR spectrum of compound **6** in  $\text{CDCl}_3$ .



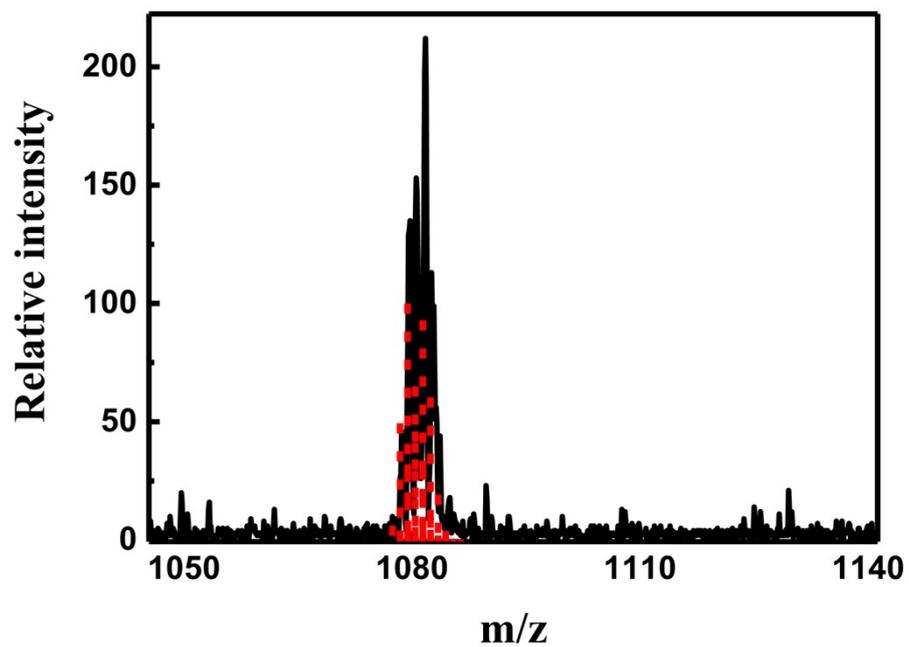
**Figure S4.** MALDI-TOF-MS spectrum (black) and simulated data (red) for compound 6.



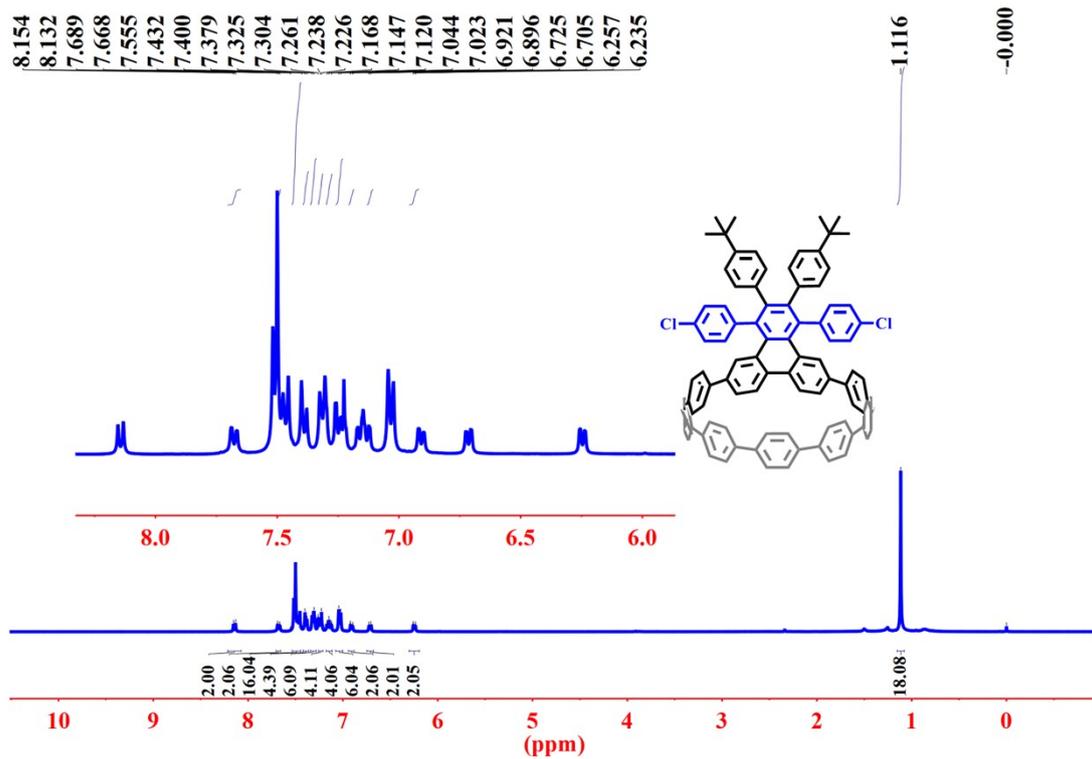
**Figure S5.**  $^1\text{H}$  NMR spectrum of compound **8** in  $\text{CDCl}_3$ .



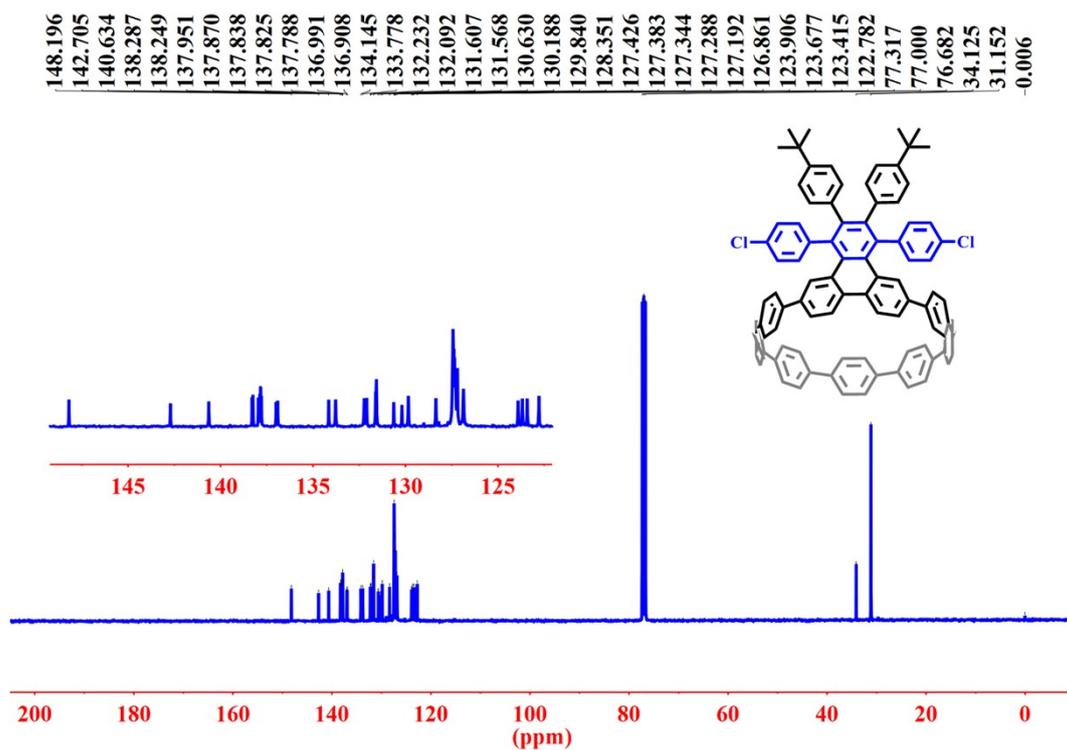
**Figure S6.**  $^{13}\text{C}$  NMR spectrum of compound **8** in  $\text{CDCl}_3$ .



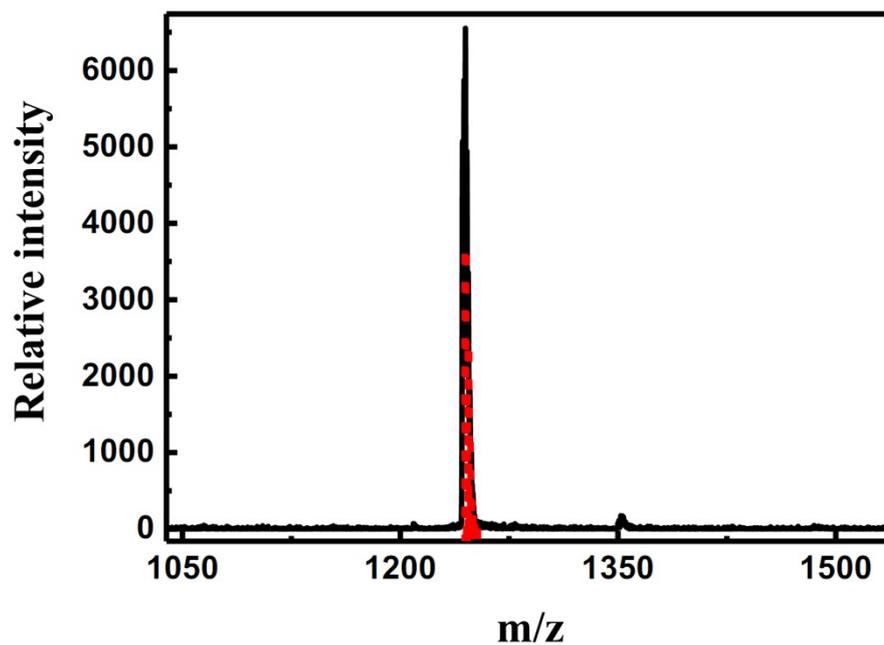
**Figure S7.** MALDI-TOF-MS spectrometry (black) and simulated data (red) for compound **8** +Ag<sup>+</sup>.



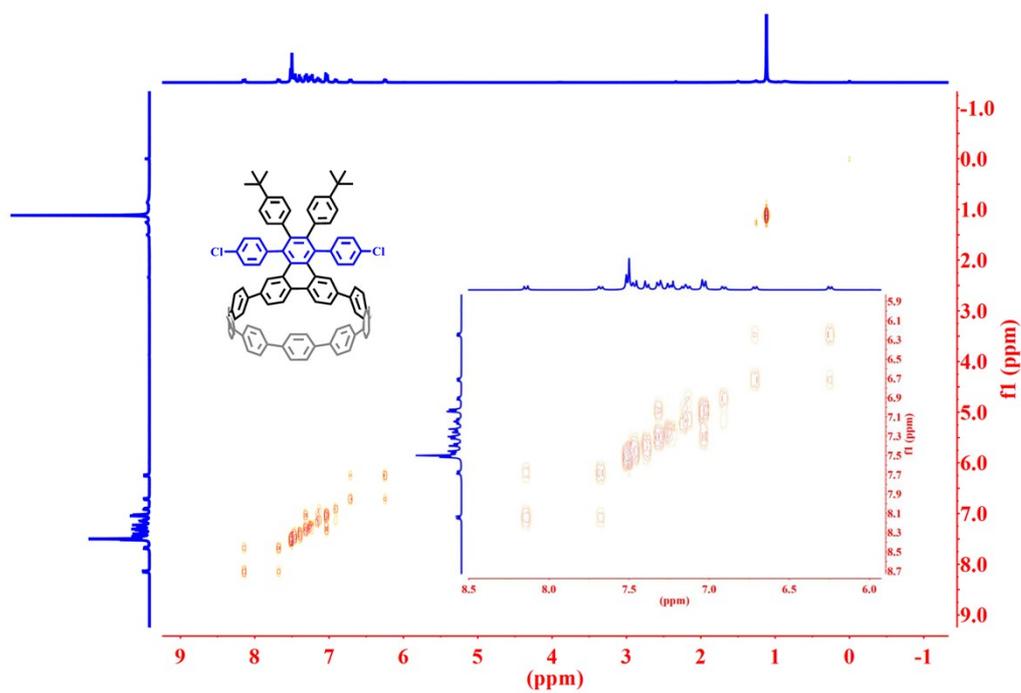
**Figure S8.** <sup>1</sup>H NMR spectrum of compound **10** in CDCl<sub>3</sub>.



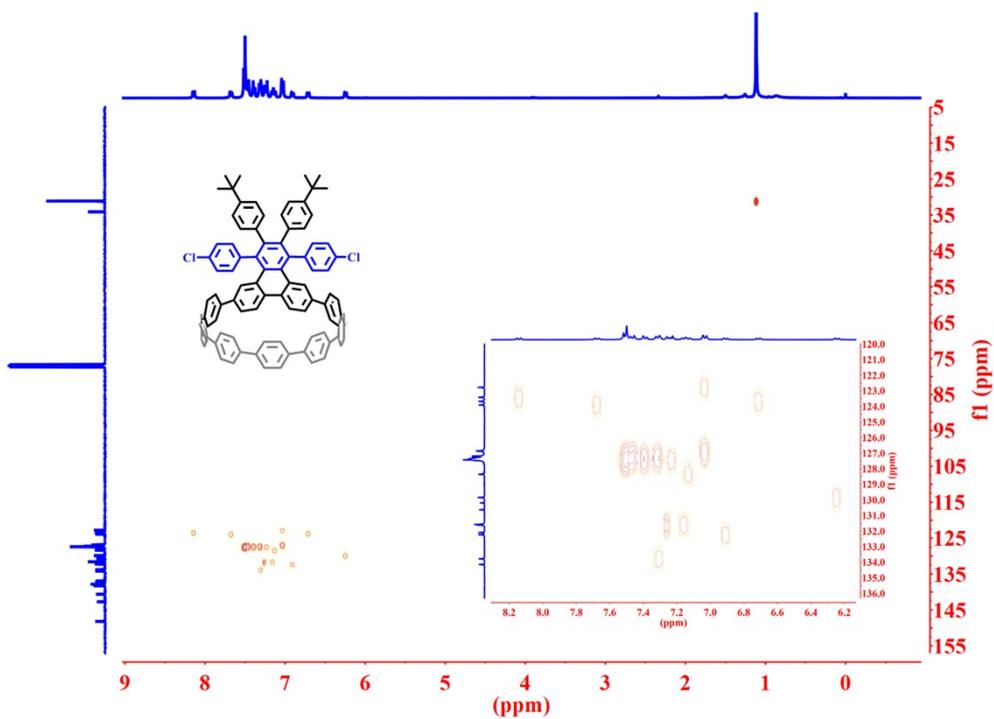
**Figure S9.**  $^{13}\text{C}$  NMR spectrum of compound **10** in  $\text{CDCl}_3$ .



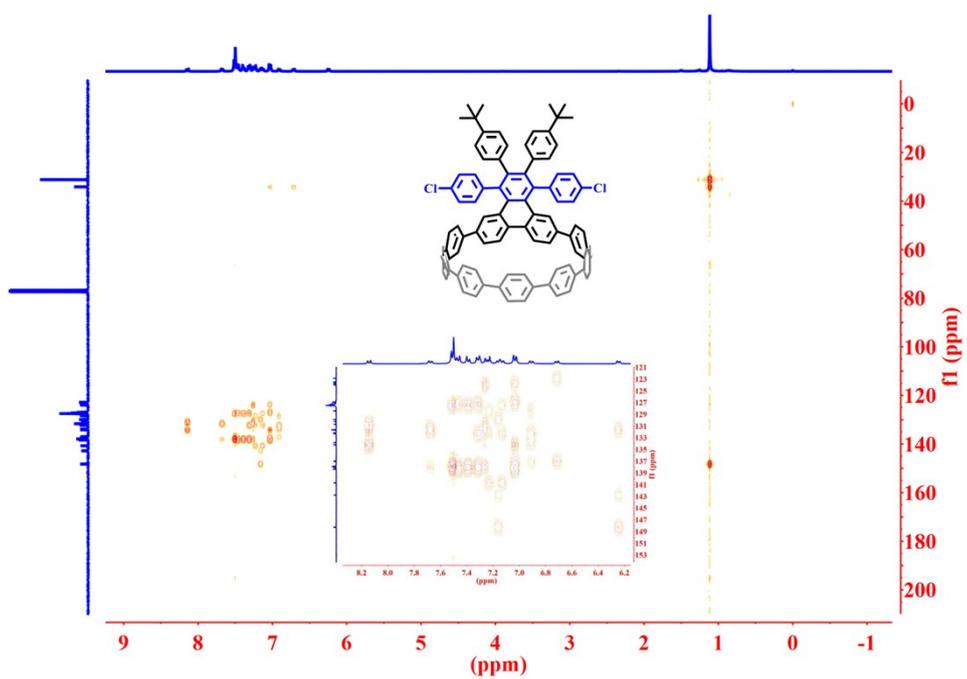
**Figure S10.** MALDI-TOF-MS spectrometry (black) and simulated data (red) for compound **10**.



**Figure S11.** Expanded 2D  $^1\text{H}$ - $^1\text{H}$  COSY NMR spectrum (400 MHz,  $\text{CDCl}_3$ ) of **10**.



**Figure S12.** Expanded 2D (H, C)-HSQC spectrum (400 MHz,  $\text{CDCl}_3$ ) of 10.



**Figure S13.** Expanded 2D (H, C)-HMBC spectrum (400 MHz,  $\text{CDCl}_3$ ) of 10.

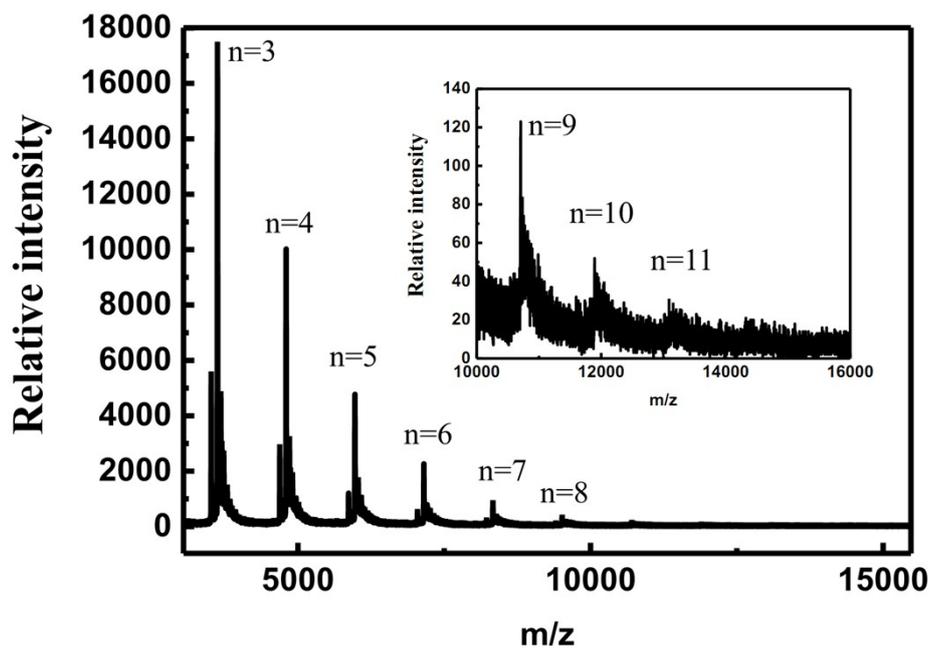


Figure S14. MALDI-TOF-MS spectrometry for PS2.

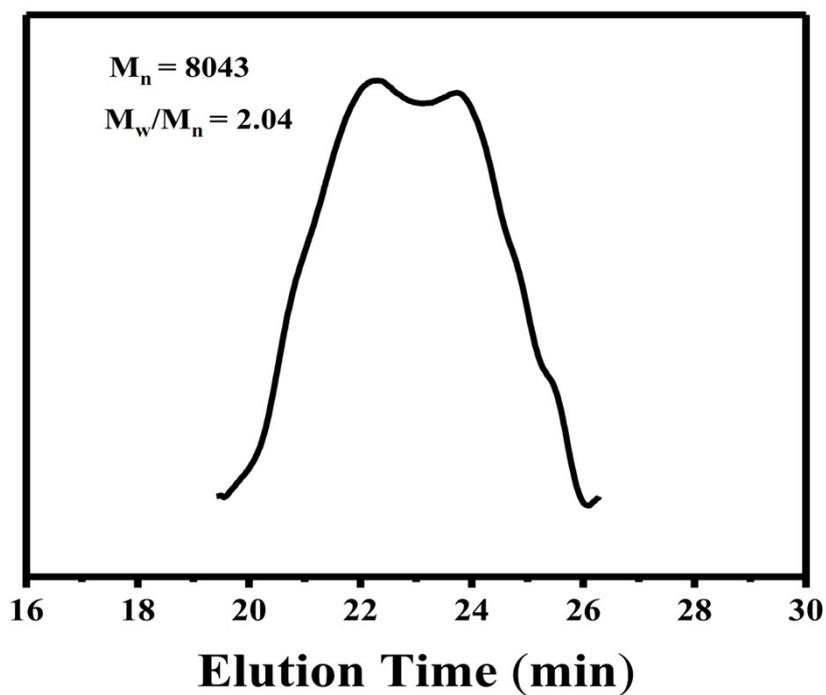
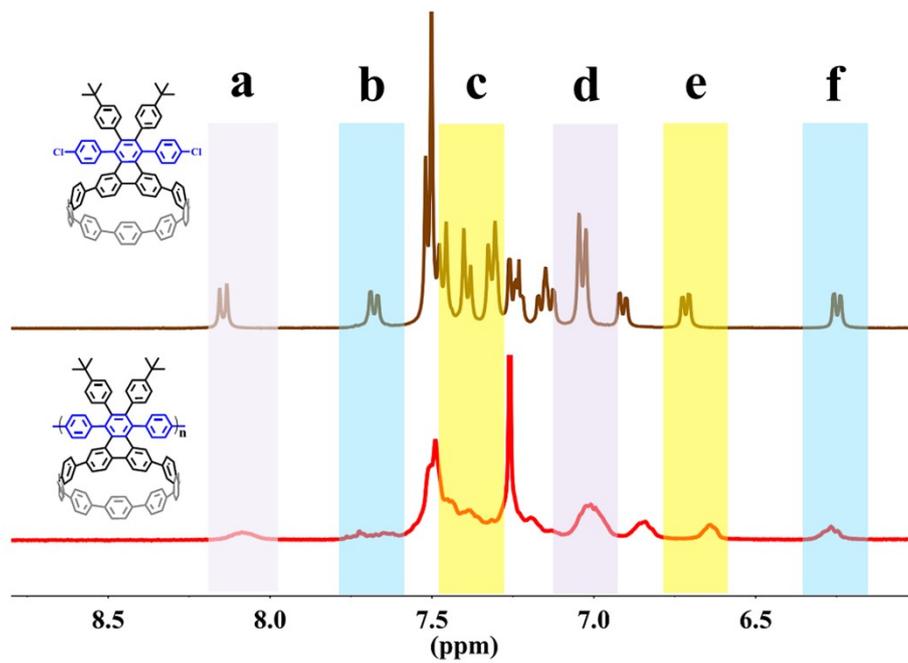


Figure S15. GPC trace of PS2 using DMF as the solvent.



**Figure S16.**  $^1\text{H}$  NMR spectra of **10** (brown) and **PS2** (red) in  $\text{CDCl}_3$ .

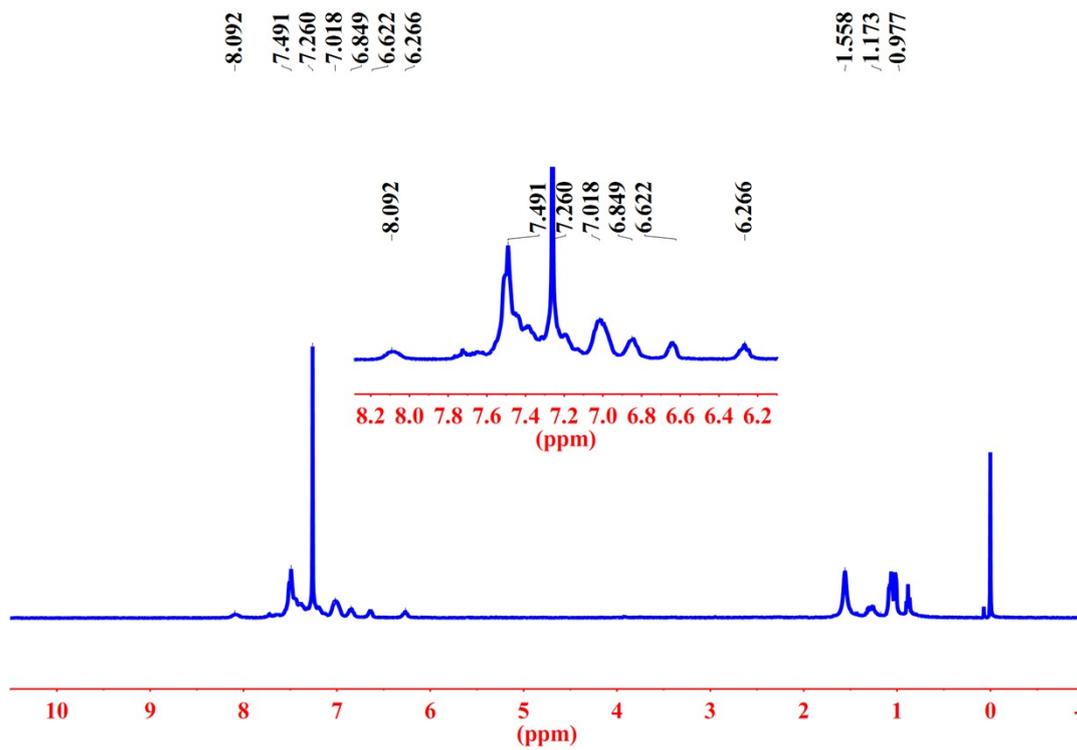


Figure S17.  $^1\text{H}$  NMR spectra of PS2 in  $\text{CDCl}_3$ .

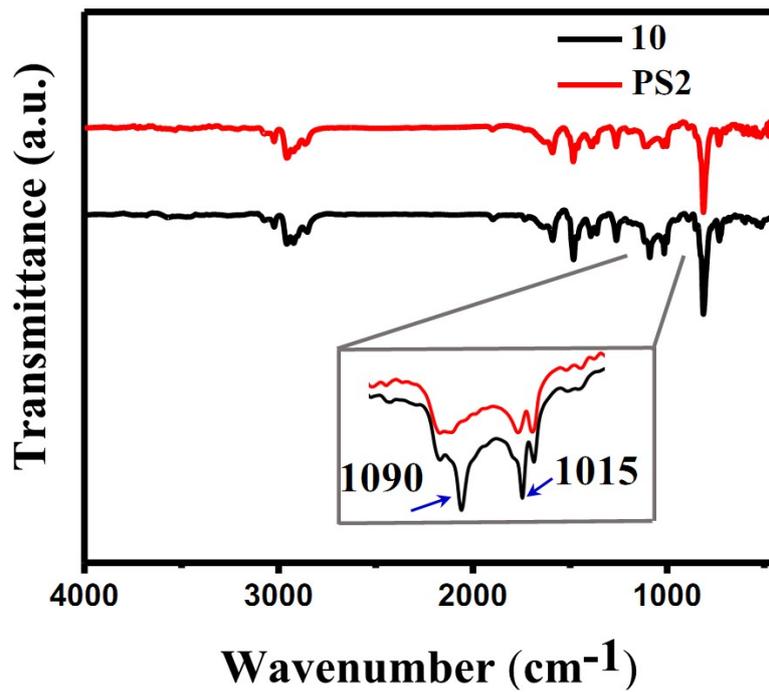
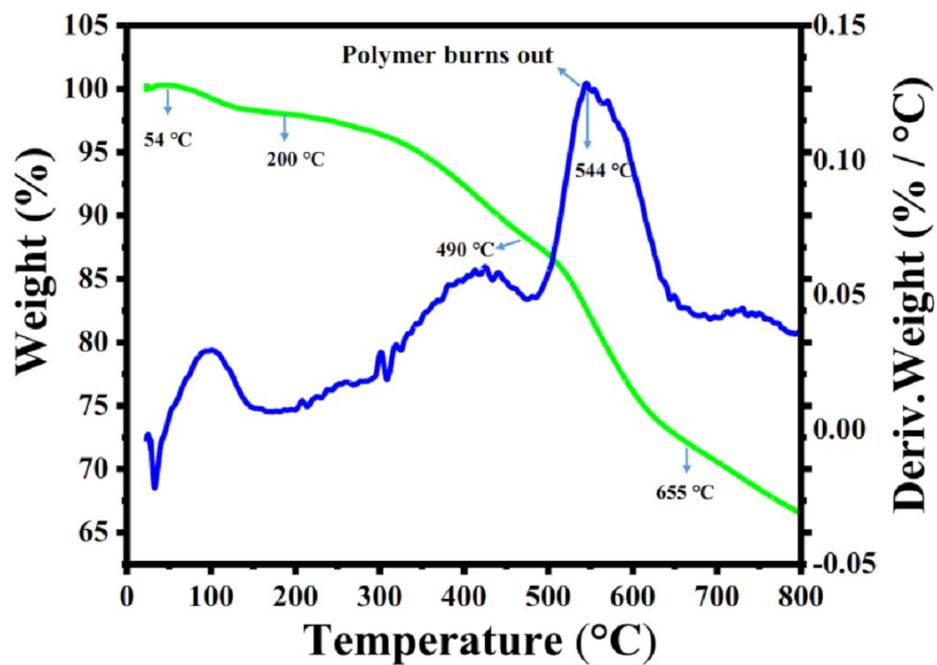
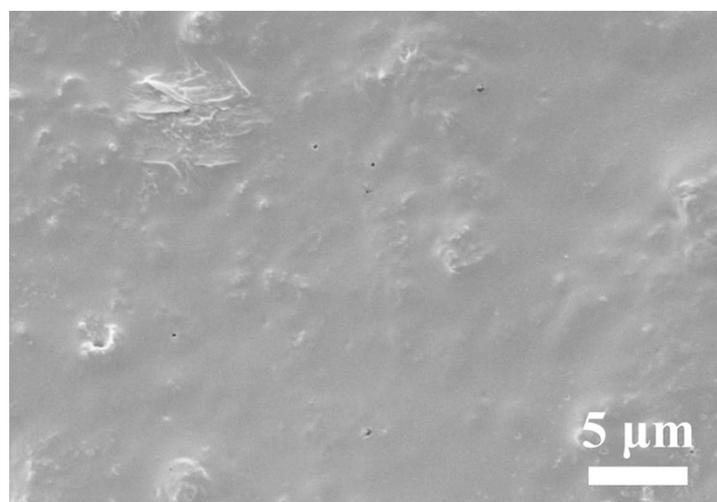


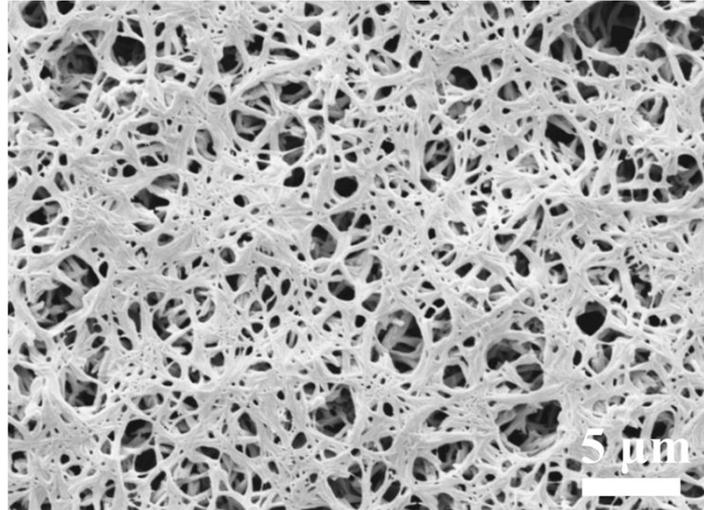
Figure S18. FTIR spectra of PS2 (red) and monomer 10 (black).



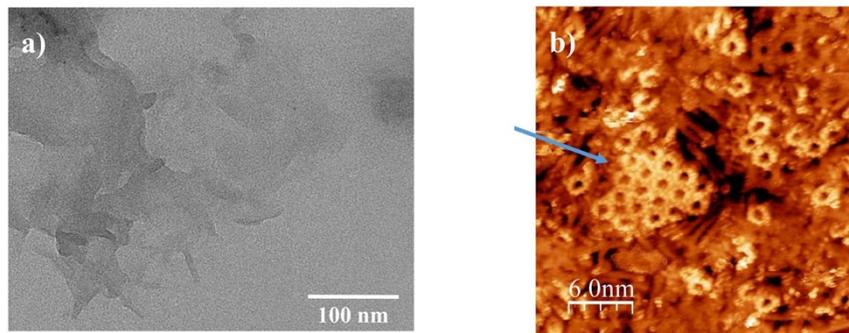
**Figure S19.** TG analyses. TGA data of as-synthesized **PS2** confirm the high thermal stability (minimum up to 200 °C) under N<sub>2</sub> atmosphere.



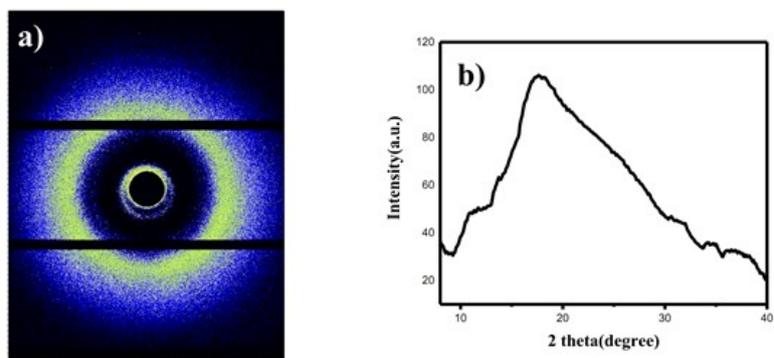
**Figure S20.** Top-view SEM image of the **PS2** membrane on the SCRC filter support.



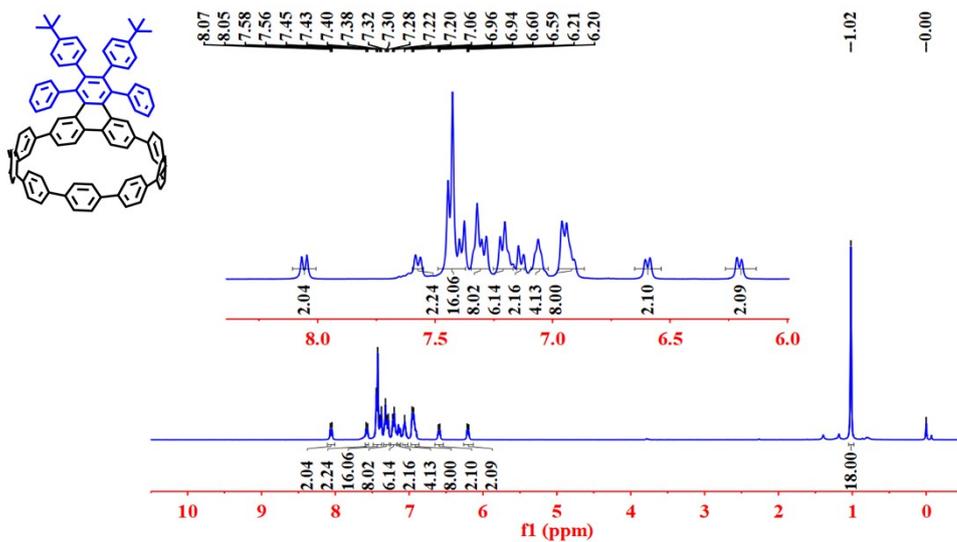
**Figure S21.** SEM image of the SCRC filter support.



**Figure S22.** a) A HR-TEM image showing the self-assembled **PS2** in solid state. The experiment was carried out on JEM ARM-200F microscope. b) A high resolution STM image showing the CPP-based nanosheets.



**Figure S23.** (a) Selected 2D WAXD pattern of **PS2** at room temperature. (b) Corresponding 1D WAXD intensity curve of **PS2** sample.



**Figure S24.**  $^1\text{H}$  NMR spectrum of **14** in  $\text{CS}_2/\text{CD}_2\text{Cl}_2(1:1)$ .

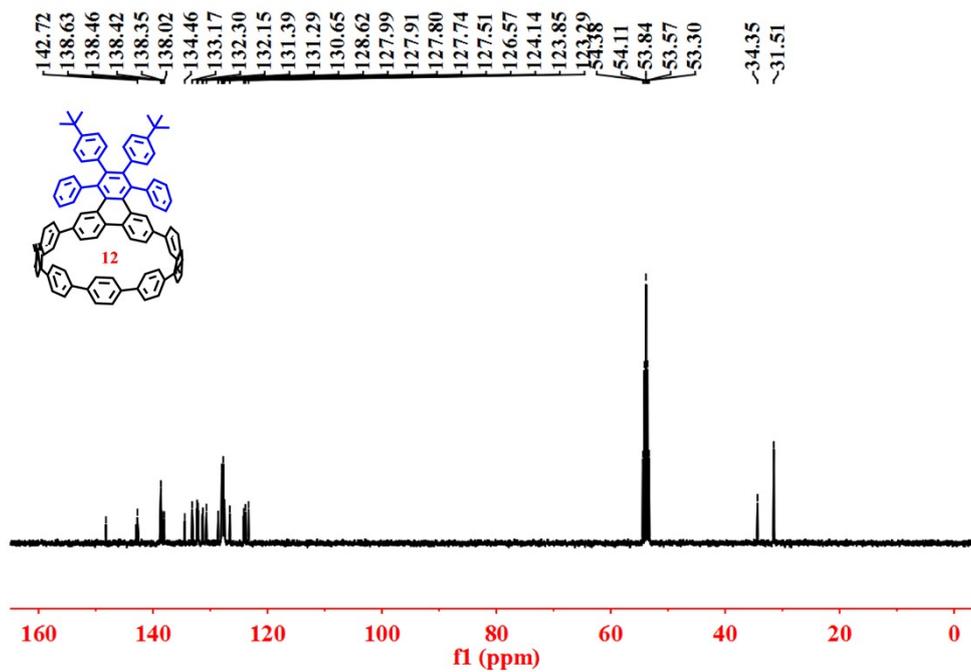
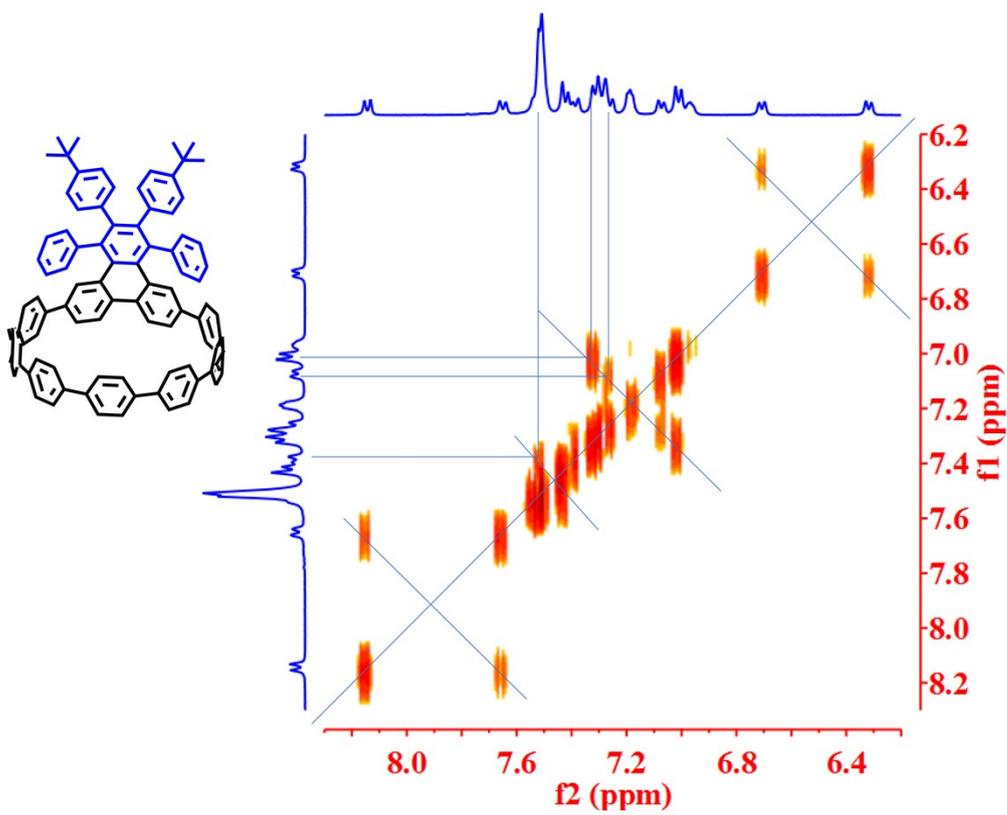
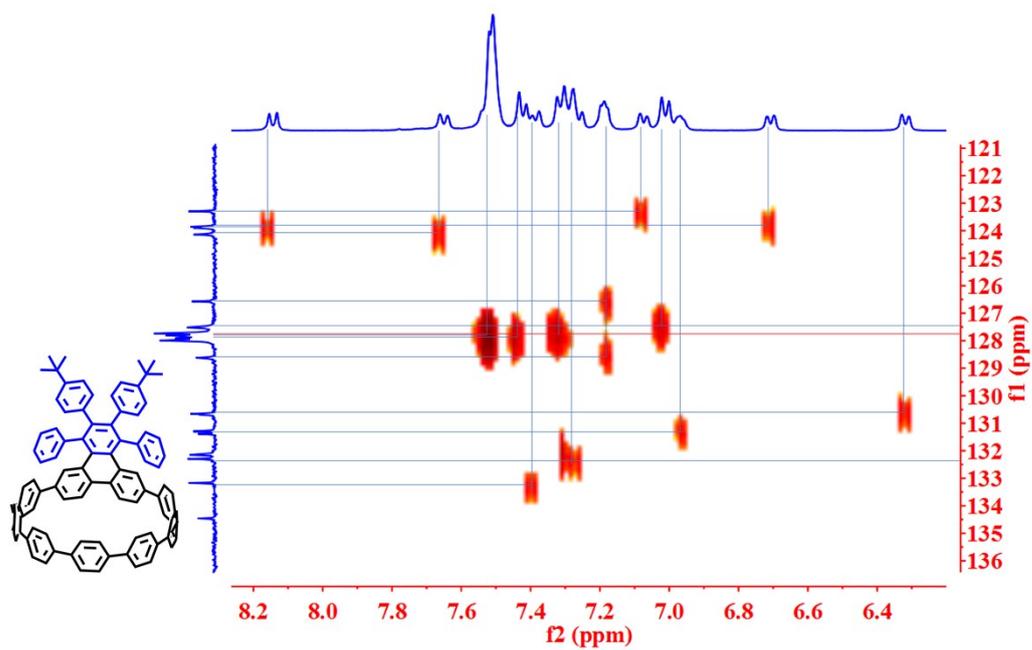


Figure S25.  $^{13}\text{C}$  NMR spectrum of 14 in  $\text{CD}_2\text{Cl}_2$ .



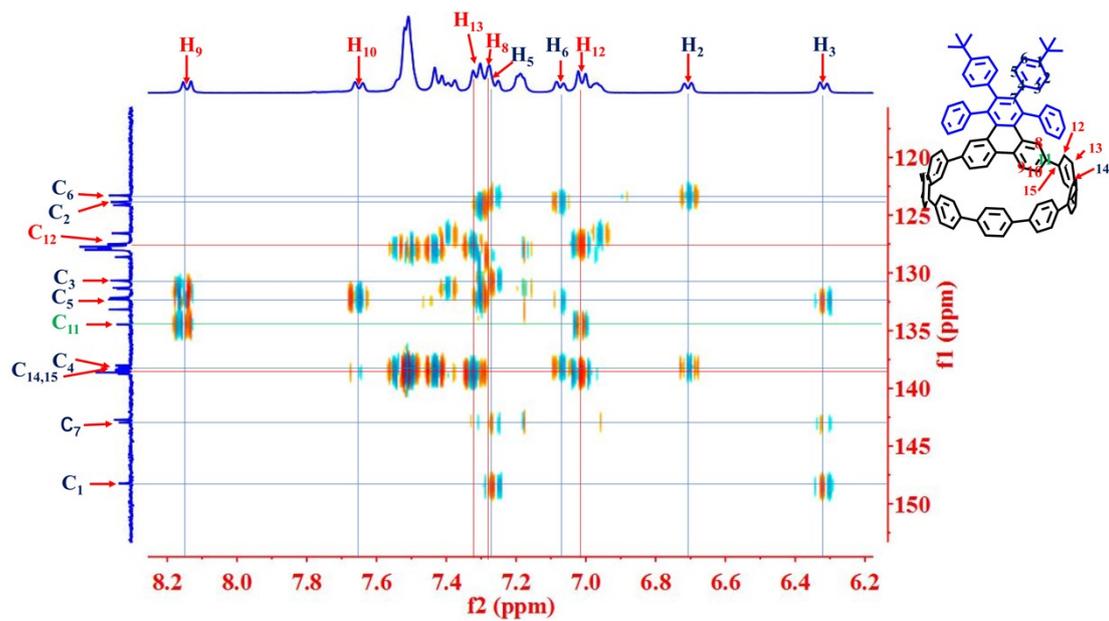
**Figure S26.** Expanded 2D  $^1\text{H}$ - $^1\text{H}$  COSY NMR spectrum (400 MHz,  $\text{CS}_2/\text{CD}_2\text{Cl}_2(1:1)$ )

of 14.

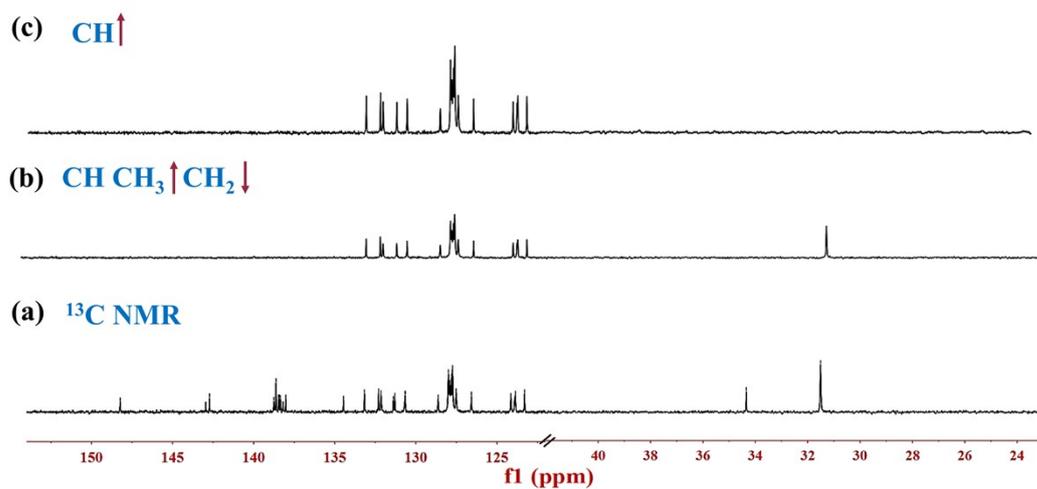


**Figure S27.** Expanded 2D (H, C)-HSQC NMR spectrum (400 MHz, CS<sub>2</sub>/CD<sub>2</sub>Cl<sub>2</sub>(1:1))

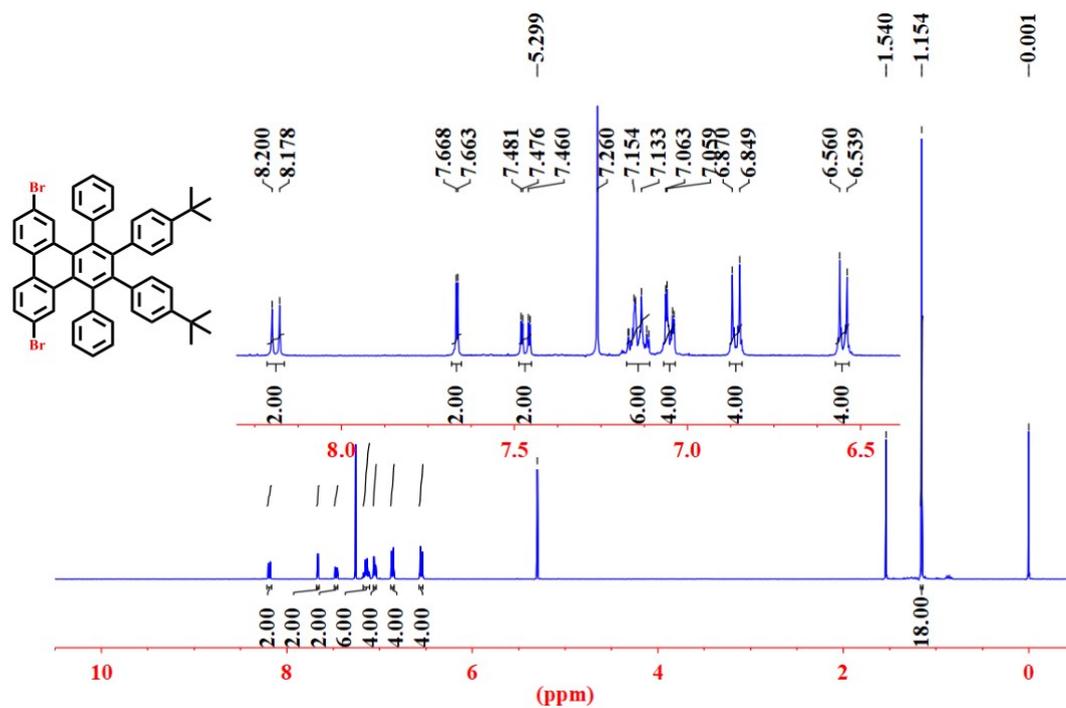
of 14.



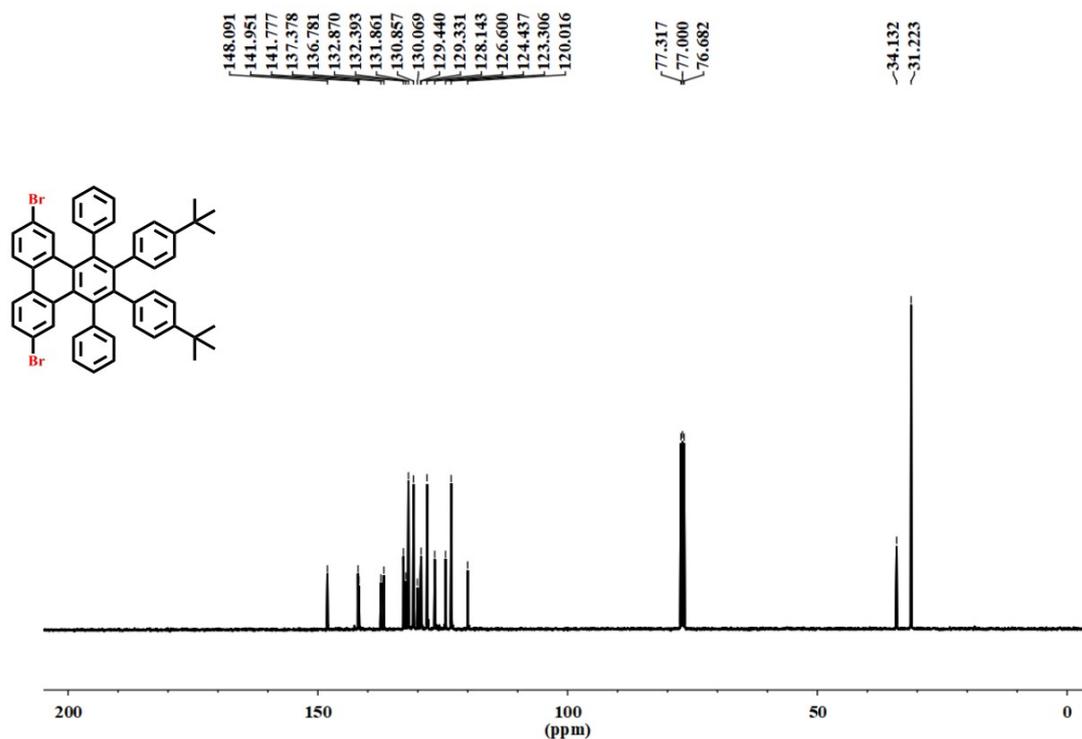
**Figure S28.** Expanded 2D (H, C)-HMBC NMR spectrum (400 MHz, CS<sub>2</sub>/CD<sub>2</sub>Cl<sub>2</sub>(1:1)) of **14**.



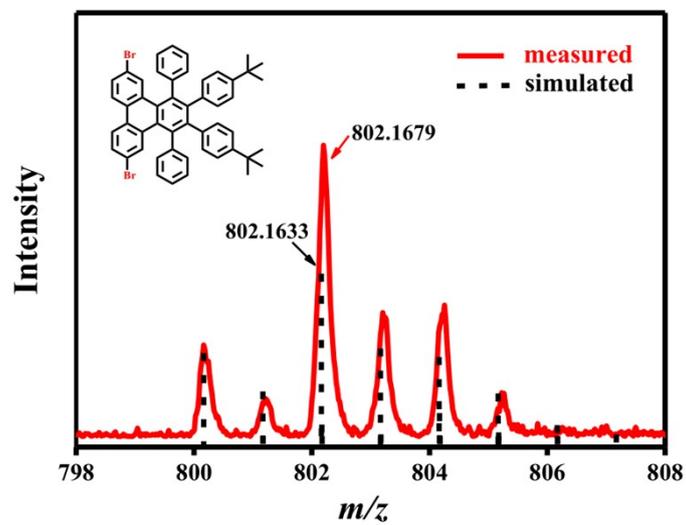
**Figure S29.** <sup>13</sup>C NMR (a), DEPT-135° NMR (b), DEPT-90° NMR (c) spectra of **14** in CD<sub>2</sub>Cl<sub>2</sub>.



**Figure S30.** <sup>1</sup>H NMR spectrum of 6,11-dibromo-2,3-bis(4-(*tert*-butyl) phenyl)-1,4-diphenyltriphenylene (**12**) in CDCl<sub>3</sub>.



**Figure S31.**  $^{13}\text{C}$  NMR spectrum of 6,11-dibromo-2,3-bis(4-(*tert*-butyl) phenyl)-1,4-diphenyltriphenylene (**12**) in  $\text{CDCl}_3$ .



**Figure S32.** HR-MS (MALDI-TOF) data for 6,11-dibromo-2,3-bis(4-(*tert*-butyl)phenyl)-1,4-diphenyltriphenylene (**12**).

**Table S1.** Crystal data, data collection and refinement of compound **14**.

Empirical formula	C <sub>92</sub> H <sub>70</sub>
Formula weight	1175.48
Temperature/K	100(2)
Crystal system	monoclinic
Space group	Cc
a/Å	12.920
b/Å	65.967
c/Å	18.697
α/°	90
β/°	94.64
γ/°	90
Volume/Å <sup>3</sup>	15883.1
Z	8
ρ <sub>calc</sub> /cm <sup>3</sup>	0.983
μ/mm <sup>-1</sup>	0.055
F(000)	4976.0
Crystal size/mm <sup>3</sup>	0.06 × 0.05 × 0.02
Radiation	synchrotron (λ = 0.71073)
2θ range for data collection/°	2.51 to 50.084
Reflections collected	14071
Independent reflections	14071 [Rsigma = 0.0574]
Data/restraints/parameters	14071/2/1669
Goodness-of-fit on F <sup>2</sup>	1.029
Final R indexes [I ≥ 2σ (I)]	R <sub>1</sub> = 0.0452, wR <sub>2</sub> = 0.1193
Final R indexes [all data]	R <sub>1</sub> = 0.0514, wR <sub>2</sub> = 0.1226
Largest diff. peak/hole / e Å <sup>-3</sup>	0.25/-0.24
Flack parameter	-1(5)
CCDC number	2020975

## References.

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