

Supporting Information

Asymmetric 2,3-fluoranthene Imide Building Block for Regioregular Semiconductors with Aggregation-induced Emission Property

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Instrumentations.

¹H NMR and ¹³C NMR spectra were measured using a Bruker 400 or 600 MHz instrument spectrometer. High-resolution mass spectrometry (MS) was performed by using Bruker Daltonics instrument, SolariX 7.0T. Cyclic voltammetry was measured on a CHI6001 electrochemical analyzer (CH Instruments, Inc., China) using a conventional three-electrode cell with Pt metal as the working electrode, Pt gauze as the counter-electrode, and Ag/Ag⁺ as the reference electrode at a scan rate of 50 mV/s. Thermal transition was measured on a NETZSCH STA 449 F3 Jupiter with a heating rate of 10 °C min⁻¹. UV-vis absorption spectra were collected using a Perkin Elmer UV-VIS-NIR spectrophotometer Lambda 750 S. The PL spectra were collected on a SHIMADZU RF-5301PC Spectrofluorophotometer. AFM was measured by using SHIMADZU SPM-9700SPM-9700. Grazing incidence wide-angle X-ray scattering

measurements (GIWAXS) were conducted on the beamline BL13A1 in the National Synchrotron Radiation Research Center (NSRRC), Taiwan. An incident angle at 0.12° were used. X-ray diffraction (XRD) measurements were conducted on The SmartLab SE.

Materials.

Toluene were dried and distilled from sodium under an atmosphere of dry nitrogen. Most of reagents were purchased from Adamas (Titan Scientific, Shanghai). Compounds **3**, **5** and **9** were synthesized as reported.^[1-3]

Device fabrication.

A bottom-gate/top-contact (BG/TC) device structure is employed. A highly n-doped silicon (100) wafer with a 300-nm-SiO₂ dielectric layer (areal capacitance = 10 nF/cm²) is used as the substrate. Wafers are exposed to UV/ozone for 5 minutes prior to device fabrication. Subsequently, a self-assembled monolayer of n-octadecyltrichlorosilane (ODTS) is deposited onto the dielectric layer by spin-coating the precursor solution (20 μ L of ODTS in 20 mL of trichloroethylene) at 3000 rpm for 10 s in a glovebox to ensure more optimized charge transport property. Note that chemical reactions between ODTS and SiO₂ is accelerated by NH₃ gas and proceeded for overnight, and residue chemicals are then removed by sonication with toluene for 15 minutes. Prior to the deposition of active layer, ODTS-modified wafers are partially covered by polydimethylsiloxane (PDMS) and plasma-treated for 5 minutes to draw up a hydrophilic boundary. Precursor solutions of **F1**, **F2**, **F3**, and **F4** are prepared in anhydrous chloroform (5 mg/mL) and stirred overnight in a glovebox. Before spin-

coating, precursor solutions are filtered using a 0.22 μm filter. Polymer films of **F1**, **F2**, **F3**, and **F4** are accordingly prepared by spin-coating precursor solutions at 1000 rpm for 60 s in a glovebox, followed by annealing at specific temperatures (180°C, 200°C, or 250°C) for 10 minutes. Finally, top-contact gold electrodes (70 nm) are deposited by thermal evaporation through a shadow mask with defined channel length (L) and width (W) of 50 μm and 1000 μm , respectively. Characterizations of FET performance are recorded using a Keithley 4200-SCS semiconductor parameter analyzer (Keithley Instruments Inc.) in a glovebox.

Synthetic Details and Characterization Data.

Synthesis of 2

CH_3Li (7.5 mL, 1.6 M in n-Hexane, 12.0 mmol) was added dropwise to a solution of 2,7-dibromo-9H-fluoren-9-one (3.38 g, 10.0 mmol) in THF (10 mL) at -78 °C, and the mixture was gradually warm to room temperature and stirred for overnight. Afterwards, the mixture was quenched with water and extracted with DCM. The organic layer was separated, concentrated and purified through silica gel column (SiO_2 , petroleum ether/DCM, 1/1, V/V) to afford 2,7-dibromo-9-methyl-9H-fluoren-9-ol as a white solid (2.6 g, 73.4%). ^1H NMR (400 MHz, Chloroform- d) δ 7.68 (d, $J = 1.8$ Hz, 2H, ArH), 7.50 (dd, $J = 8.1, 1.8$ Hz, 2H, ArH), 7.46 (d, $J = 8.1$ Hz, 2H, ArH), 1.99 (s, 1H, -OH), 1.71 (s, 3H, - CH_3).

Synthesis of 3

Maleic anhydride (11.76 g, 0.12 mol) and 2-ethylhexan-1-amine (12.90 g, 0.10 mol) were dissolved in 50 mL acetic acid and then stirred at 120 °C under N_2

atmosphere for 12 h. The solution turned to yellowish liquid indicating the completion of reaction. Add 100 mL water to the reaction mixture, the solution was extracted by DCM. The organic layer was collected, washed with water and dried with anhydrous Na_2SO_4 . After concentration using a rotary evaporator, the crude product was purified by column chromatography on the silica gel using petroleum ether/DCM (V/V:1/1) as the eluent to obtain **3** as a pale yellow liquid (10.0 g, 47.8%). ^1H NMR (400 MHz, Chloroform-*d*) δ 6.69 (s, 2H, -CH=CH-), 3.41 (d, $J = 7.3$ Hz, 2H, -CH₂-), 1.78 – 1.67 (m, 1H), 1.35 – 1.19 (m, 8H, -CH₂-), 0.89 (m, 6H, -CH₃).

Synthesis of 4

Compound **2** (2.83 g, 8.0 mmol), compound **3** (1.70 g, 8.1 mmol) and *p*-toluenesulfonic acid (138 mg, 0.8 mmol) were dissolved in 15 mL of nitrobenzene. The mixture was heated to 180 °C for 12 h. After the mixture cooled, 100 mL of methanol was added and the yellow crude product was collected by filtration. The crude product was purified by recrystallization (petroleum ether) to obtain **4** as a yellow solid (2.0 g, 46.3%). ^1H NMR (600 MHz, Chloroform-*d*) δ 8.28 (s, 1H, ArH), 8.07 (d, $J = 7.4$ Hz, 1H, ArH), 8.02 (d, $J = 1.7$ Hz, 1H, ArH), 7.73 (d, $J = 7.4$ Hz, 1H, ArH), 7.68 (d, $J = 8.0$ Hz, 1H, ArH), 7.57 (dd, $J = 8.0, 1.7$ Hz, 1H), 3.67 (d, $J = 7.4$ Hz, 2H, -CH₂-), 1.96 – 1.87 (m, 1H), 1.41 – 1.29 (m, 8H, -CH₂-), 0.95 (t, $J = 7.4$ Hz, 3H, -CH₃), 0.90 (t, $J = 7.0$ Hz, 3H, -CH₃).

Synthesis of 5

n-BuLi (8.0 mL, 20 mmol, 2.5 M in hexane) was added within 10 min to a solution of thiophene (0.84 g, 10 mmol) and TMEDA (2.32 g, 20 mmol) in THF at 0 °C. The

reaction mixture was heated to reflux for 45 min and after cooling the suspension to 0 °C, trimethyltin (20 mL, 20 mmol) was added within 10 min. After removal of cooling bath, the reaction mixture was stirred for 15 h at 25 °C and then quenched with a saturated solution of ammonium chloride. After the organic phase was separated, the combined organic phases were dried over anhydrous Na₂SO₄ and concentrated using a rotary evaporator. The crude product was purified by recrystallization (methanol) to obtain **5** as a white solid (2.0 g, 48.9%). ¹H NMR (400 MHz, Chloroform-*d*) δ 7.38 (s, 2H), 0.37 (s, 18H).

Synthesis of **7**

With N₂ atmosphere, a solution of compound **4** (270 mg, 0.5 mmol) and Pd(PPh₃)₄ (29 mg, 0.025 mmol) in 10 mL toluene was heated to 100 °C. A solution of **5** (103 mg, 0.25 mmol) in 5 mL toluene was added slowly over 1 h. After that, the solution was stirred for 24 h and then cooled to room temperature. The mixture was extracted by DCM, and the organic layer was separated, dried over anhydrous Na₂SO₄. After concentration using a rotary evaporator, the crude product was purified through silica gel column (SiO₂, petroleum ether/DCM, 1/2, V/V) to afford **7** as a red solid (140 mg, 55.8%). ¹H NMR (400 MHz, Chloroform-*d*) δ 8.33 (s, 1H, ArH), 8.10 (d, *J* = 1.8 Hz, 1H, ArH), 8.05 – 7.96 (m, 2H, ArH), 7.77 (d, *J* = 8.0 Hz, 1H, ArH), 7.61 (dd, *J* = 8.0, 1.8 Hz, 1H, ArH), 7.17 (s, 1H), 3.56 (d, *J* = 7.2 Hz, 2H, -CH₂-), 1.87 – 1.76 (m, 1H), 1.45 – 1.20 (m, 8H, -CH₂-), 0.91 (t, *J* = 7.4 Hz, 3H, -CH₃), 0.85 (d, *J* = 6.8 Hz, 3H, -CH₃). ¹³C NMR (101 MHz, Chloroform-*d*) δ 168.58, 166.87, 144.37, 142.28, 139.42, 138.13, 136.28, 136.24, 136.15, 134.95, 133.56, 132.18, 129.08, 127.60, 125.81,

125.14, 122.81, 122.31, 122.26, 113.79, 77.33, 77.22, 77.02, 76.70, 41.81, 38.46, 30.62, 28.67, 23.91, 23.02, 14.10, 10.55.

Synthesis of F1

A mixture of compound **7** (151 mg, 0.15 mmol), compound **9** (207 mg, 0.45 mmol), Pd(PPh₃)₄ (17 mg, 0.015 mmol) and dry toluene (10 mL) were heated to reflux under N₂ for 24 h. After cooling to room temperature, the mixture was extracted with DCM and the combined organic layer was dried by anhydrous Na₂SO₄. After concentration using a rotary evaporator, the crude product was purified through column chromatography (SiO₂, petroleum ether/DCM, 1/1, V/V) to afford **F1** (95 mg, 53.7%) as a dark red solid. ¹H NMR (600 MHz, Chloroform-*d*) δ 8.36 (s, 2H, ArH), 8.15 – 8.10 (m, 2H, ArH), 7.96 (d, *J* = 1.0 Hz, 4H, ArH), 7.87 – 7.80 (m, 2H, ArH), 7.65 (dd, *J* = 7.8, 1.7 Hz, 2H, ArH), 7.28 (d, *J* = 3.5 Hz, 2H), 7.16 (s, 2H), 6.82 (dt, *J* = 3.6, 1.0 Hz, 2H), 3.56 (d, *J* = 7.3 Hz, 4H), 2.87 (t, *J* = 7.4 Hz, 4H), 1.87 – 1.80 (m, 2H), 1.75 (p, *J* = 7.6 Hz, 4H), 1.47 – 1.24 (m, 28H), 0.92 (m, 12H, -CH₃), 0.86 – 0.79 (m, 6H, -CH₃). ¹³C NMR (151 MHz, Chloroform-*d*) δ 168.87, 167.05, 146.44, 144.48, 143.49, 141.14, 138.45, 137.89, 137.04, 136.83, 136.18, 135.13, 134.97, 132.93, 128.61, 127.46, 126.40, 125.29, 125.16, 123.26, 122.00, 121.76, 119.49, 113.34, 41.75, 38.44, 31.65, 31.63, 30.62, 30.37, 28.85, 28.68, 23.89, 23.05, 22.63, 14.13, 10.55). HRMS (APCI): (M+H)⁺ = 1179.5190 (calcd for C₇₆H₇₉N₂O₄S₃⁺, 1179.5196).

Synthesis of 8

Following the same synthetic procedure of compound **7**, compound **8** was obtained as an orange solid (340 mg, 65.4%). ¹H NMR (600 MHz, Chloroform-*d*) δ 8.33 (s, 2H,

ArH), 8.10 – 8.07 (m, 2H, ArH), 8.02 (d, $J = 7.2$ Hz, 2H, ArH), 7.97 (d, $J = 7.2$ Hz, 2H, ArH), 7.78 – 7.74 (m, 2H, ArH), 7.61 (dd, $J = 8.0, 1.8$ Hz, 2H, ArH), 3.60 (d, $J = 7.3$ Hz, 4H, -CH₂-), 1.85 (t, $J = 6.2$ Hz, 2H), 1.38– 1.29 (m, 16H, -CH₂-), 0.92 (t, $J = 7.5$ Hz, 6H, -CH₃), 0.85 (t, $J = 7.0$ Hz, 6H, -CH₃). ¹³C NMR (101 MHz, Chloroform-*d*) δ 168.48, 167.22, 142.57, 141.81, 139.51, 137.86, 137.31, 136.35, 136.13, 135.71, 132.29, 129.07, 127.84, 125.86, 124.72, 122.96, 122.77, 122.21, 119.11, 113.99, 42.32, 37.24, 31.89, 31.88, 31.55, 29.97, 29.65, 29.60, 29.32, 29.29, 26.43, 22.65, 22.62, 14.09, 14.06.

Synthesis of F2

Following the same synthetic procedure of compound **F1**, compound **F2** was obtained as a red solid (250 mg, 71.4%). ¹H NMR (400 MHz, Chloroform-*d*) δ 8.35 (s, 2H, ArH), 8.11 (d, $J = 1.5$ Hz, 2H, ArH), 7.94 (d, $J = 4.4$ Hz, 4H, ArH), 7.82 (d, $J = 7.9$ Hz, 2H, ArH), 7.65 (d, $J = 1.6$ Hz, 2H, ArH), 7.29 (d, $J = 3.6$ Hz, 2H), 6.83 (d, $J = 3.5$ Hz, 2H), 3.59 (d, $J = 7.2$ Hz, 4H-CH₂-), 2.88 (t, $J = 7.6$ Hz, 4H-CH₂-), 1.86 (s, 2H), 1.80 – 1.69 (m, 4H-CH₂-), 1.46 – 1.28 (m, 28H), 0.95 – 0.90 (m, 12H, -CH₃), 0.85 (t, $J = 6.6$ Hz, 6H, -CH₃). ¹³C NMR (151 MHz, Chloroform-*d*) δ 168.82, 167.45, 146.62, 143.86, 141.03, 138.61, 138.21, 137.63, 136.98, 136.18, 135.73, 135.54, 128.68, 127.21, 126.50, 125.34, 124.76, 123.39, 122.26, 121.78, 119.56, 119.25, 113.57, 41.80, 38.45, 31.65, 31.62, 30.56, 30.37, 28.84, 28.65, 23.77, 22.99, 22.62, 14.12, 14.08. HRMS (APCI): (M+H)⁺ = 1215.5005 (calcd for C₇₆H₇₇F₂N₂O₄S₃⁺, 1215.5008).

Synthesis of 10

A mixture of compound **4** (676 mg, 1.25 mmol), Pd(PPh₃)₄ (43 mg, 0.038 mmol)

and dry toluene (20 mL) were heated to 80 °C. A solution of **9** (571 mg, 1.25 mmol) in 10 mL toluene was added slowly over 1 h. After that, the solution was stirred for 24 h and then cooled to room temperature. The mixture was extracted by DCM and the combined organic layer was dried by anhydrous Na₂SO₄. After concentration using a rotary evaporator, the crude product was purified through silica gel column (SiO₂, petroleum ether/DCM, 4/1, V/V) to afford **10** as an orange solid (248 mg, 31.6%). ¹H NMR (600 MHz, Chloroform-*d*) δ 8.29 (s, 1H, ArH), 8.07 (d, *J* = 1.7 Hz, 1H, ArH), 7.94 (d, *J* = 7.2 Hz, 1H, ArH), 7.77 (d, *J* = 7.2 Hz, 1H, ArH), 7.72 (d, *J* = 8.0 Hz, 1H, ArH), 7.58 (dd, *J* = 8.0, 1.8 Hz, 1H, ArH), 6.91 (d, *J* = 3.4 Hz, 1H), 6.84 (d, *J* = 3.5 Hz, 1H), 3.52 (d, *J* = 7.3 Hz, 2H, -CH₂-), 2.90 (t, *J* = 7.7 Hz, 2H, -CH₂-), 1.75 (t, *J* = 7.6 Hz, 2H-CH₂-), 1.45 (t, *J* = 7.5 Hz, 2H, -CH₂-), 1.36 – 1.25 (m, 12H, -CH₂-), 0.90 (m, 9H, -CH₃). ¹³C NMR (101 MHz, Chloroform-*d*) δ 168.59, 166.72, 147.48, 142.05, 140.72, 139.33, 138.11, 136.22, 135.97, 135.73, 134.22, 134.11, 132.04, 129.19, 126.83, 125.69, 125.09, 124.30, 122.66, 122.28, 122.11, 113.66, 77.34, 77.02, 76.70, 41.82, 38.31, 31.81, 31.64, 30.57, 30.35, 28.84, 28.62, 23.86, 23.07, 22.64, 14.13, 14.10, 10.52.

Synthesis of F3

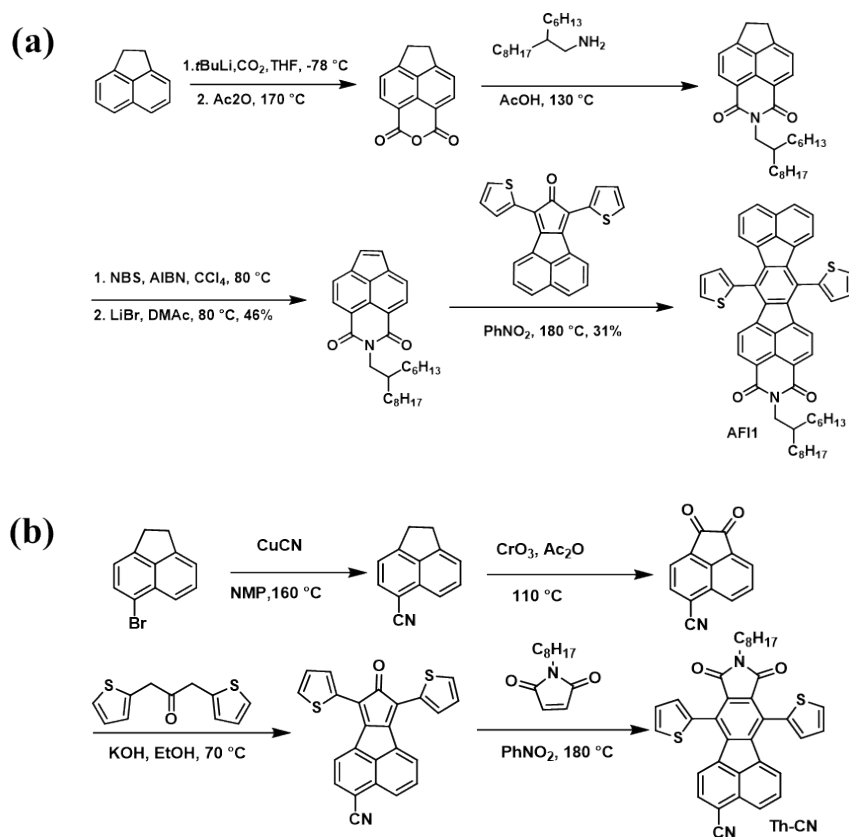
A mixture of compound **5** (82 mg, 0.20 mmol), compound **10** (314 mg, 0.50 mmol), Pd(PPh₃)₄ (23 mg, 0.02 mmol) and dry toluene (10 mL) were heated to reflux under N₂ for 24 h and then cooled to room temperature. The mixture was extracted by DCM and the combined organic layer was dried by anhydrous Na₂SO₄. After concentration using a rotary evaporator, the crude product was purified through column chromatography

(SiO₂, petroleum ether/DCM, 1/1, V/V) to afford **F3** (170 mg, 72.1%) as a dark red solid. ¹H NMR (400 MHz, Chloroform-*d*) δ 8.27 (d, *J* = 4.4 Hz, 2H, ArH), 8.13 (s, 2H, ArH), 7.88 – 7.69 (m, 8H, ArH), 7.54 – 7.48 (m, 2H, ArH), 6.93 (t, *J* = 2.3 Hz, 2H), 6.87 (d, *J* = 3.4 Hz, 2H), 3.55 (d, *J* = 7.3 Hz, 4H, -CH₂-), 2.94 (t, *J* = 7.7 Hz, 4H, -CH₂-), 1.81 (m, 6H), 1.49 (t, *J* = 7.3 Hz, 4H, -CH₂-), 1.41 – 1.28 (m, 24H), 0.94 (dd, *J* = 7.9, 6.2 Hz, 18H, -CH₃). ¹³C NMR (151 MHz, Chloroform-*d*) δ 168.69, 166.74, 147.23, 143.31, 142.79, 140.88, 138.26, 138.20, 136.53, 136.09, 135.91, 134.05, 133.99, 133.41, 128.59, 126.83, 126.04, 124.80, 124.56, 124.24, 121.68, 121.62, 119.26, 113.16, 41.75, 38.33, 31.85, 31.68, 30.59, 30.40, 28.91, 28.63, 23.87, 23.14, 22.68, 14.16, 14.14, 10.55. HRMS (APCI): (M+H)⁺ = 1179.5199 (calcd for C₇₆H₇₉N₂O₄S₃⁺, 1179.5196).

Synthesis of **F4**

Following the same synthetic procedure of compound **F3**, compound **F4** was obtained as a red solid (180 mg, 74.1%). ¹H NMR (600 MHz, Chloroform-*d*) δ 8.38 – 8.30 (m, 2H, ArH), 8.19 (s, 2H, ArH), 7.90 (d, *J* = 6.8 Hz, 2H, ArH), 7.87 (d, *J* = 7.7 Hz, 2H, ArH), 7.75 (d, *J* = 6.7 Hz, 4H, ArH), 6.93 (d, *J* = 3.2 Hz, 2H), 6.87 (d, *J* = 3.4 Hz, 2H), 3.55 (d, *J* = 7.4 Hz, 4H, -CH₂-), 2.94 (t, *J* = 7.7 Hz, 4H, -CH₂-), 1.87 – 1.75 (m, 6H), 1.49 (t, *J* = 7.6 Hz, 4H, -CH₂-), 1.40 – 1.30 (m, 24H, -CH₂-), 0.96 – 0.91 (m, 18H, -CH₃). ¹³C NMR (151 MHz, Chloroform-*d*) δ 168.53, 166.46, 147.23, 142.37, 141.57, 141.42, 140.57, 138.53, 138.01, 136.44, 135.85, 135.67, 133.97, 133.84, 129.89, 128.71, 127.10, 126.32, 124.71, 124.24, 121.92, 121.57, 119.28, 117.85, 113.18, 77.24, 77.03, 76.82, 41.68, 38.33, 31.84, 31.68, 30.55, 30.38, 28.91, 28.58,

23.82, 23.12, 22.69, 14.16, 14.14, 10.51. HRMS (APCI): (M+H)⁺ = 1215.5001 (calcd for C₇₆H₇₇F₂N₂O₄S₃⁺, 1215.5008).



Scheme S1. Synthetic routes of imide substituted fluoranthene derivatives **AFI1** (a) and **Th-CN** (b).

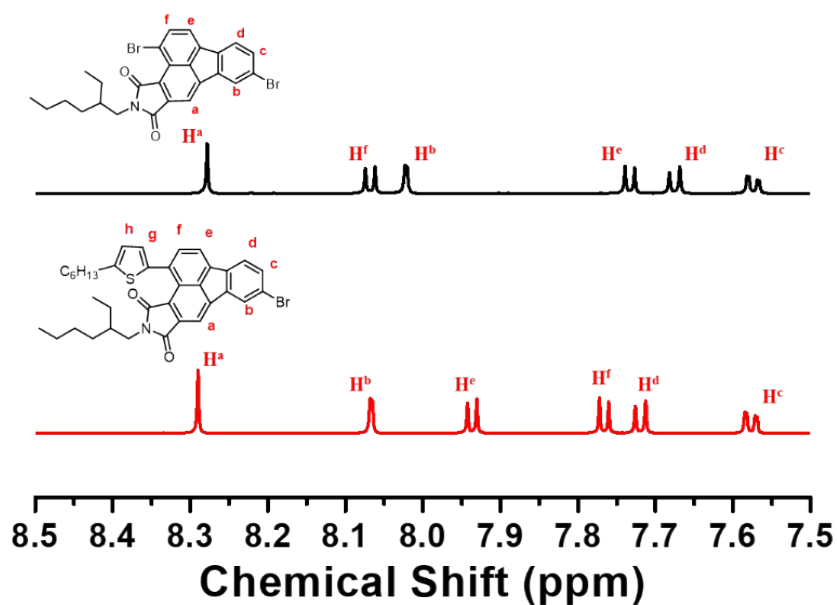


Figure S1. Comparison of ^1H NMR signals between compounds **4** and **10**.

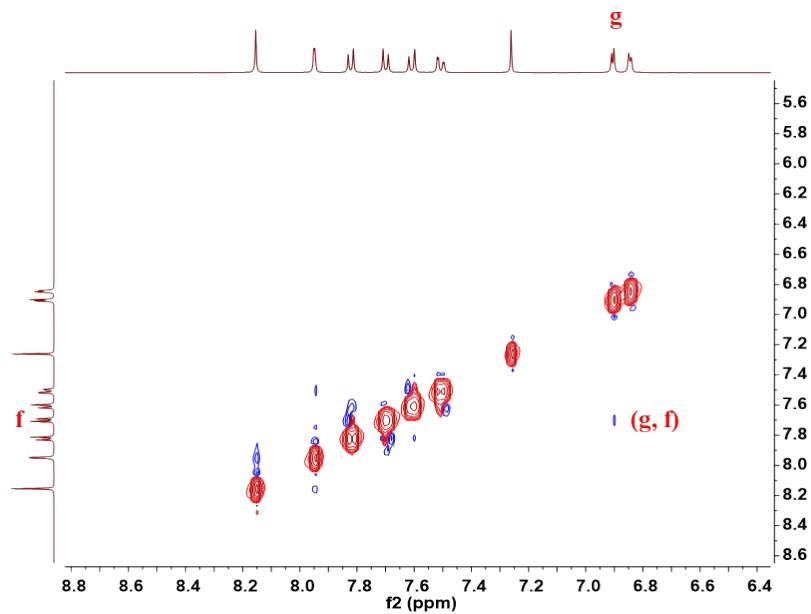


Figure S2. ^1H - ^1H NOESY spectra of compound **10**.

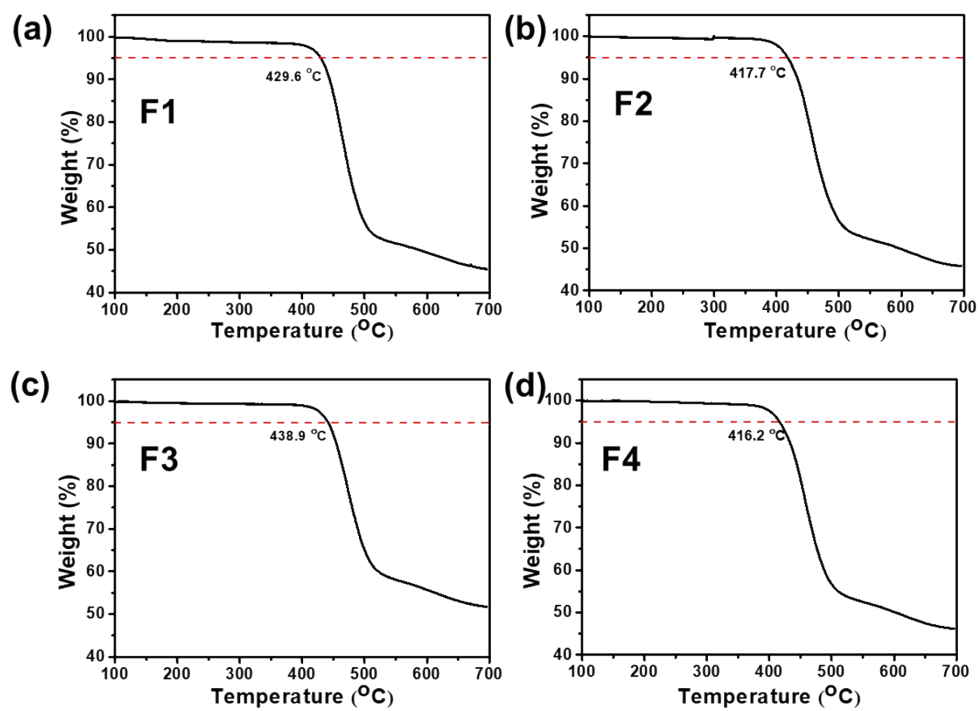


Figure S3. TGA curves of **F1-F4**.

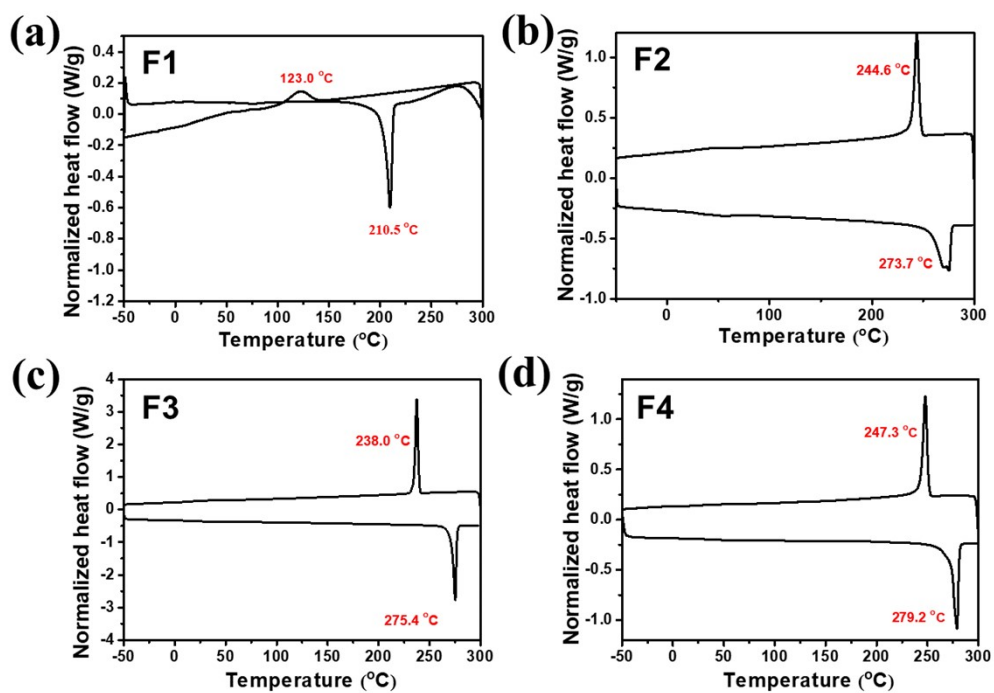


Figure S4. DSC curves of F1-F4.

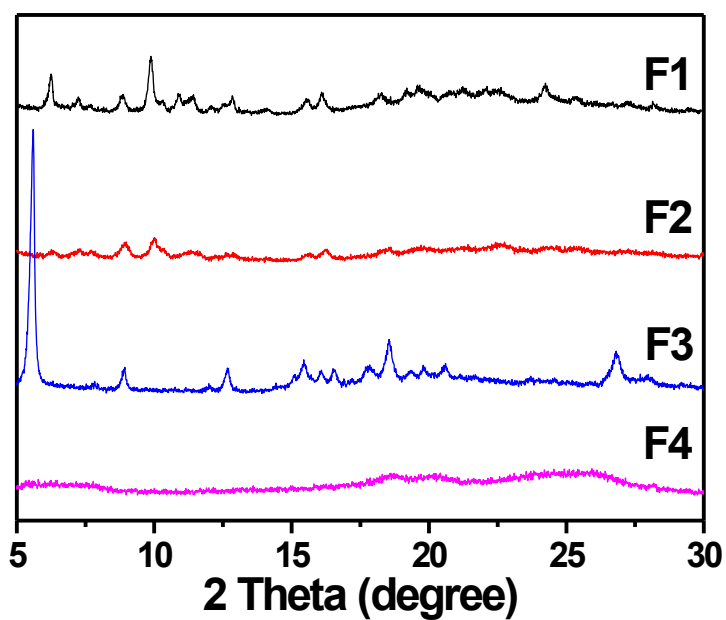


Figure S5. XRD patterns of F1-F4 powders.

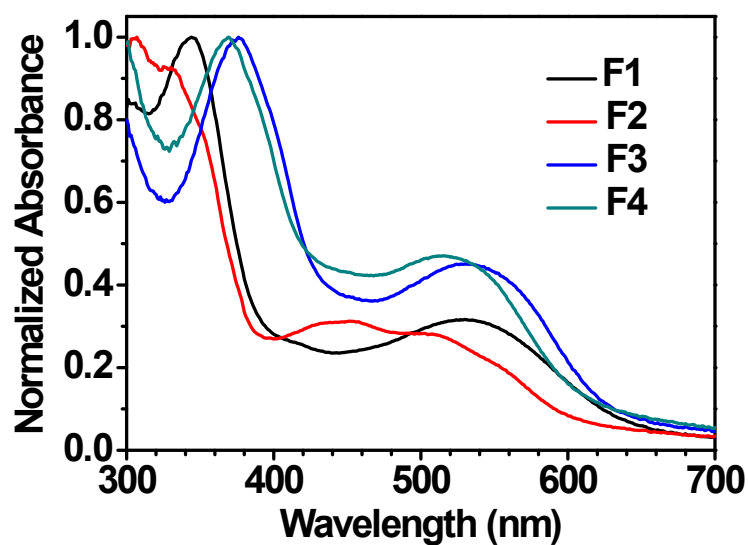


Figure S6. The absorption spectra of F1-F4 in films.

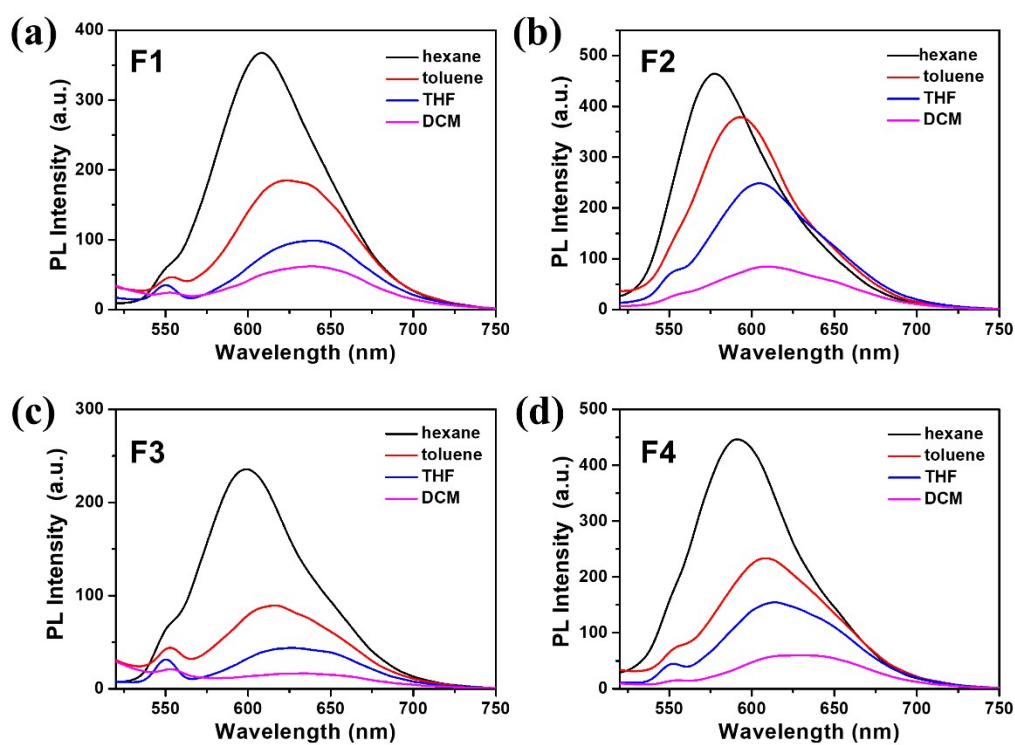


Figure S7. Normalized fluorescence spectra of F1-F4 in different organic solvents.

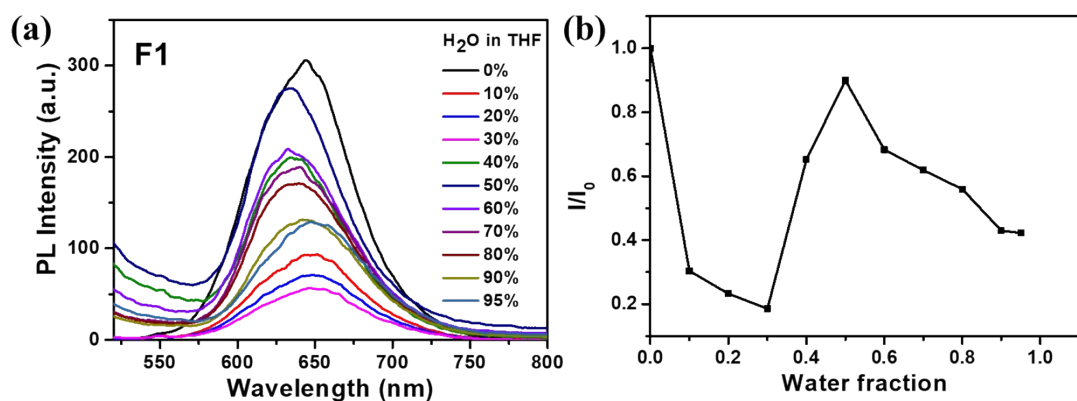


Figure S8. (a) The fluorescent spectra of **F1** in THF/water excited at 470 nm; (b) Plots of (I/I_0) vs. f_w in THF/water mixtures.

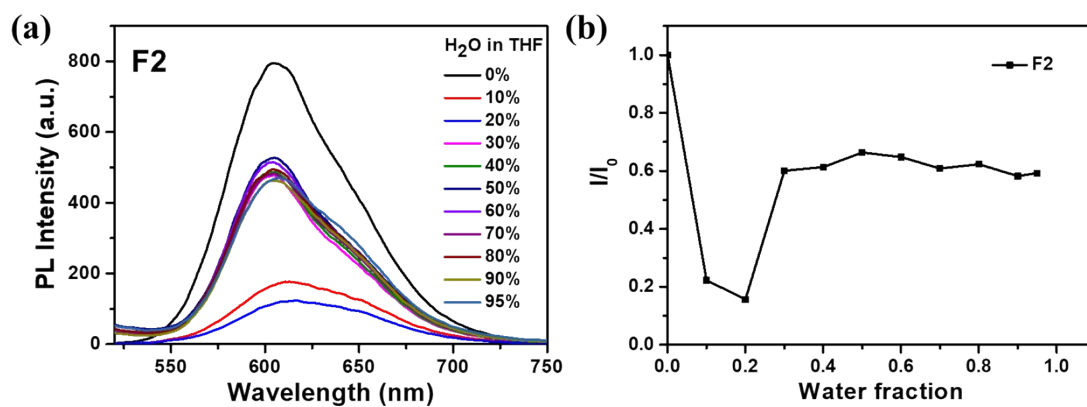


Figure S9. (a) The fluorescent spectra of **F2** in THF/water excited at 470 nm; (b) Plots of (I/I_0) vs. f_w in THF/water mixtures.

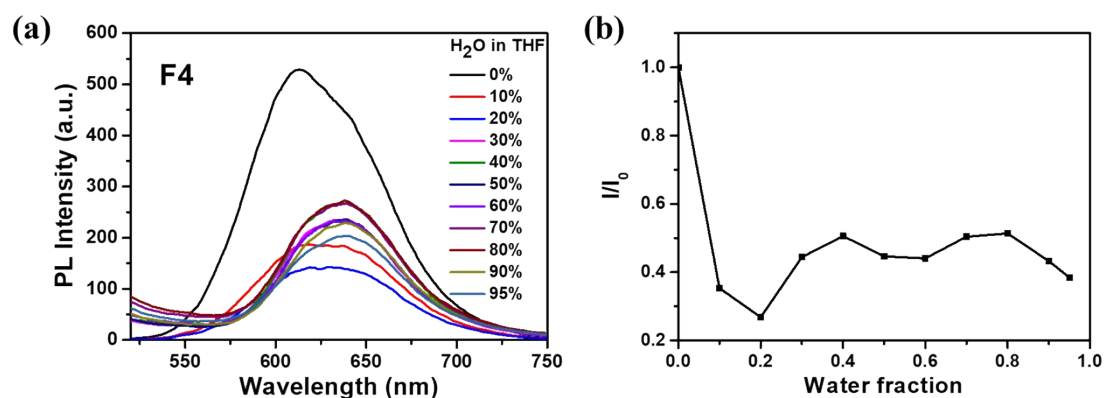


Figure S10. (a) The fluorescent spectra of **F4** in THF/water excited at 470 nm; (b) Plots of (I/I_0) vs. f_w in THF/water mixtures.

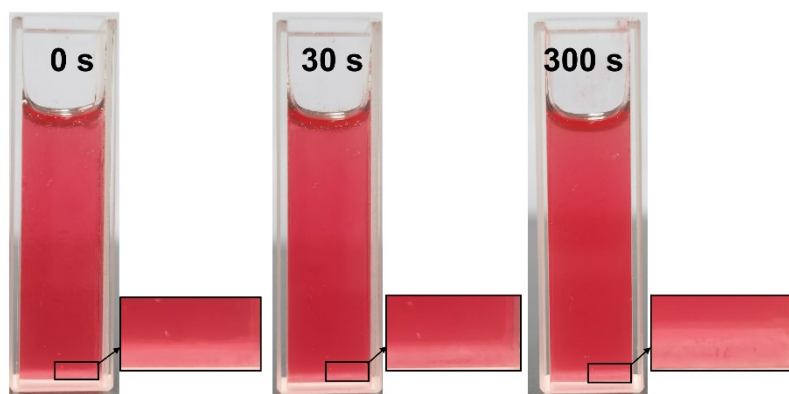


Figure S11. Photos of **F3** in THF/water ($f_w=80\%$) mixture at different time. Note: after 300s, precipitation can be clearly found at the bottom of sample cell.

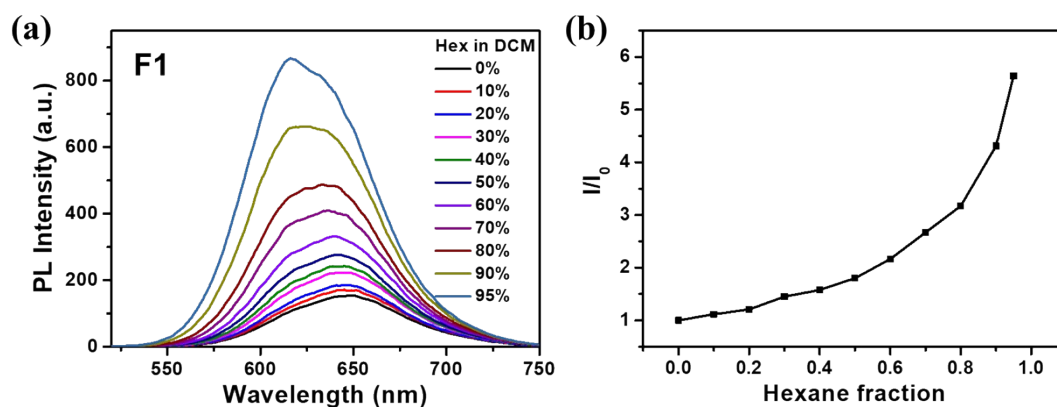


Figure S12. (a) The fluorescent spectra of **F1** in dichloromethane/hexane excited at 470 nm; (b) Plots of (I/I_0) vs. f_w in dichloromethane/hexane mixtures.

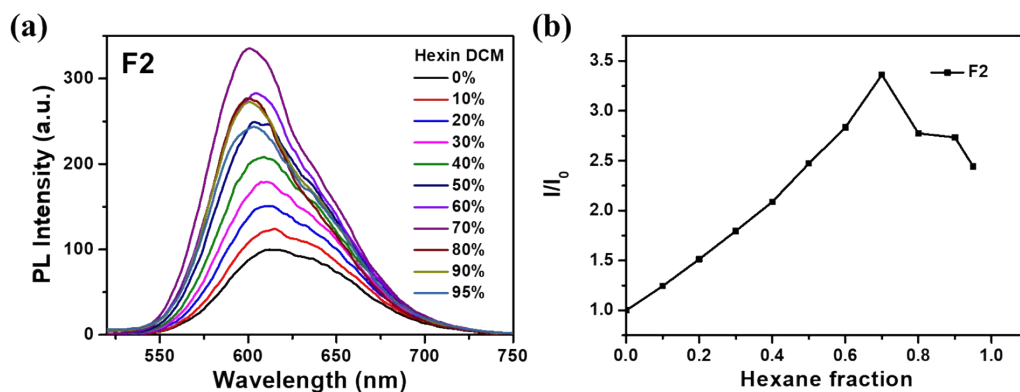


Figure S13. (a) The fluorescent spectra of **F2** in dichloromethane/hexane excited at 470 nm; (b) Plots of (I/I_0) vs. f_w in dichloromethane/hexane mixtures.

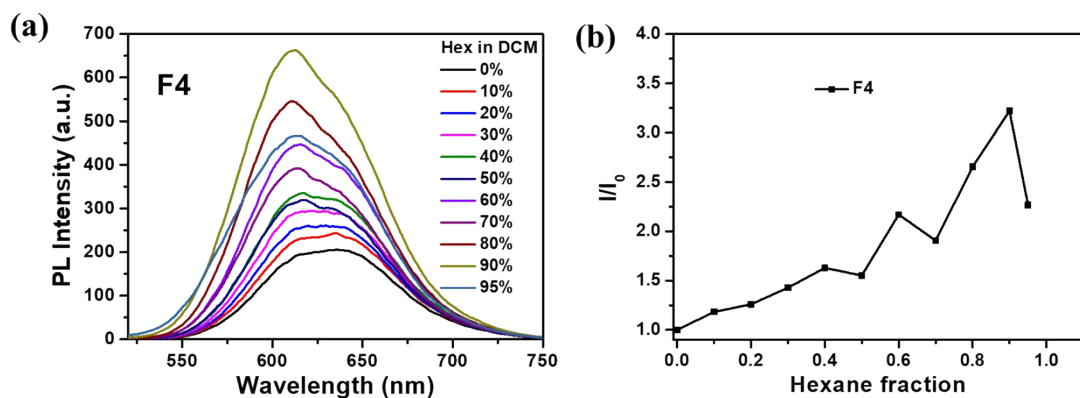


Figure S14. (a) The fluorescent spectra of **F4** in dichloromethane/hexane excited at 470 nm; (b) Plots of (I/I_0) vs. f_w in dichloromethane/hexane mixtures.

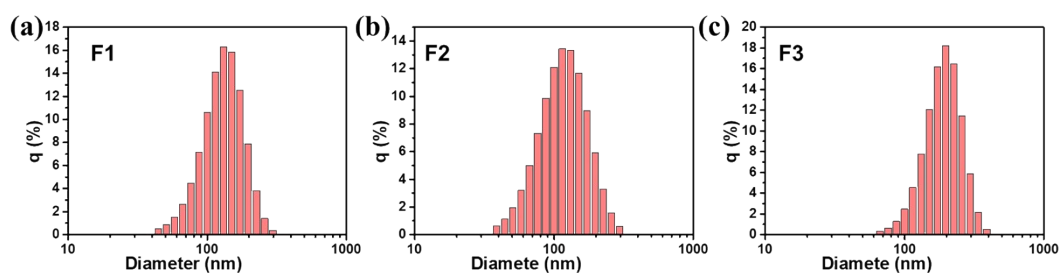


Figure S15. DLS results of **F1**(a), **F2** (b) and **F3** (c) in THF/water ($f_w=95\%$) mixture.

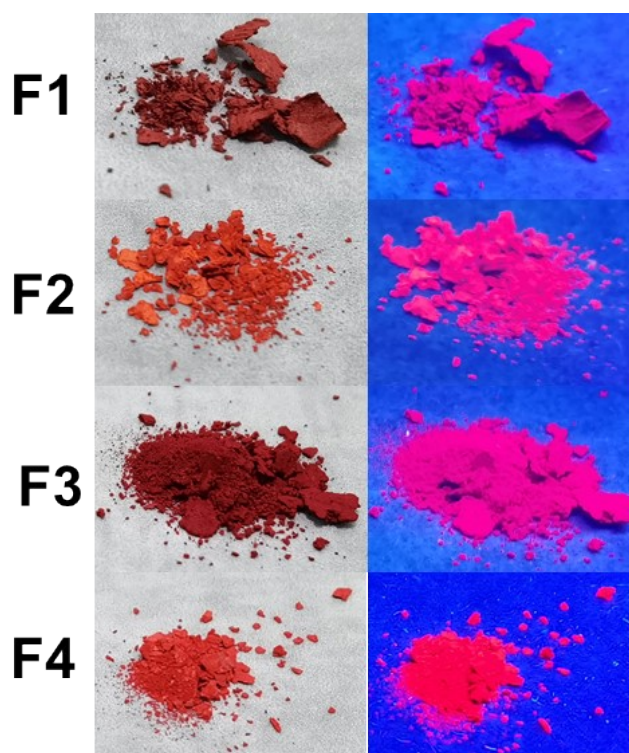


Figure S16. Photographs of the **F1-F4** under daylight and 365 nm UV light irradiation.

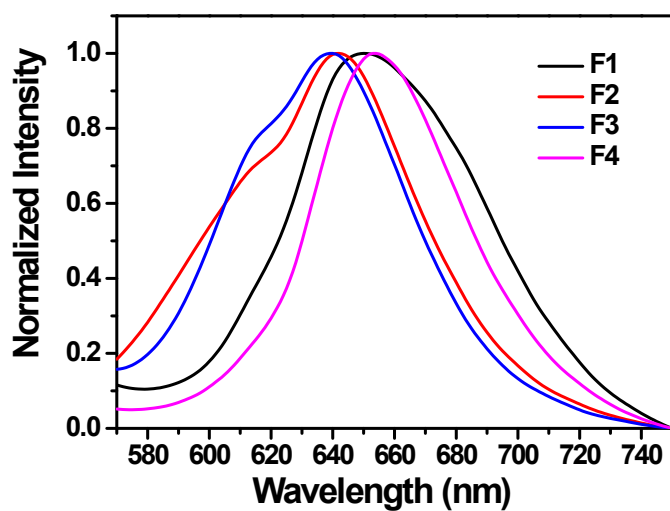


Figure S17. PL spectra of F1-F4 in solid powder state excited at 470 nm.

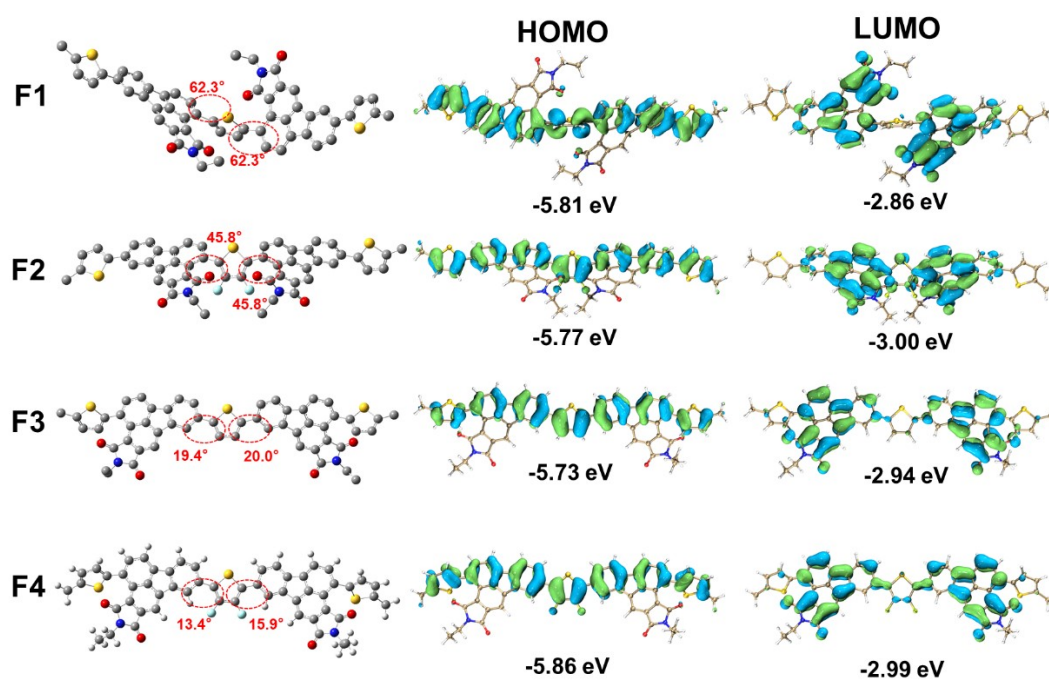


Figure S18. Optimized geometries and DFT-calculated frontier molecular orbitals of F1-F4.

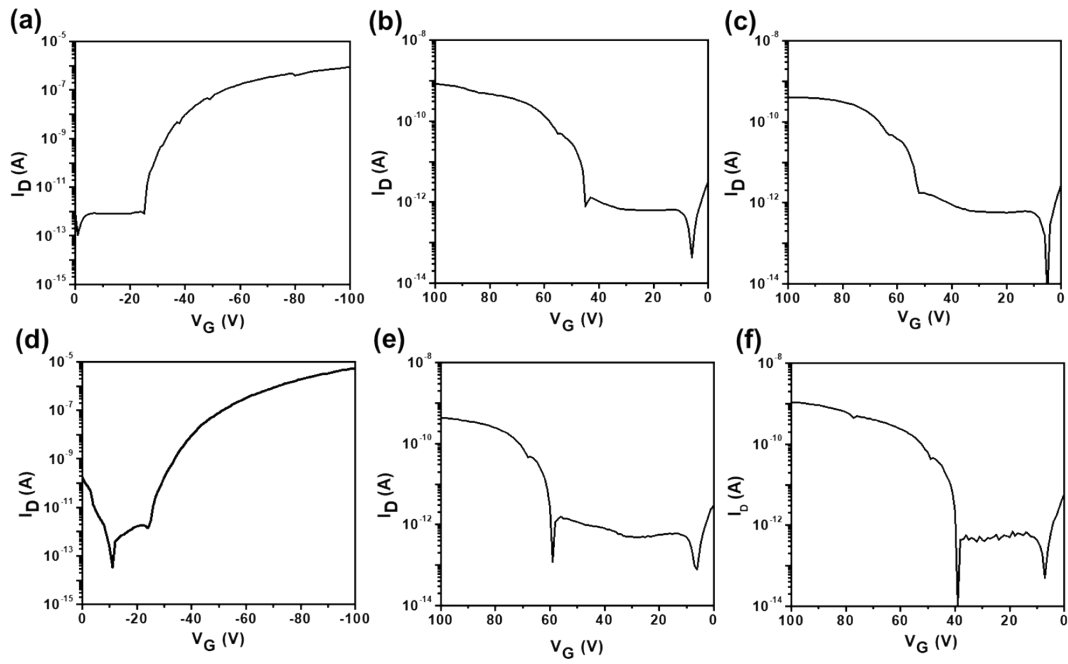


Figure S19. Transfer curves of FET devices based on films of (a, d) **F3**, (b, e) **F2**, and (c, f) **F4** annealed at (a, b, c) 180 °C and (d, e, f) 250 °C.

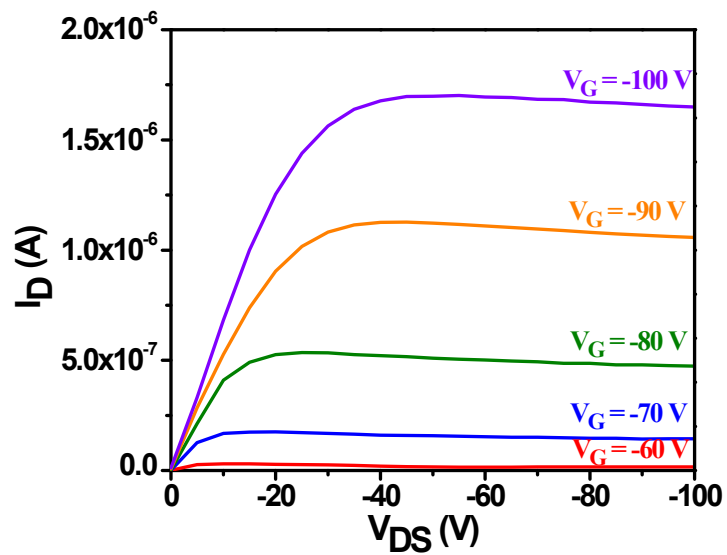


Figure S20. Output curves of FET device based on **F3** film annealed at 200 °C.

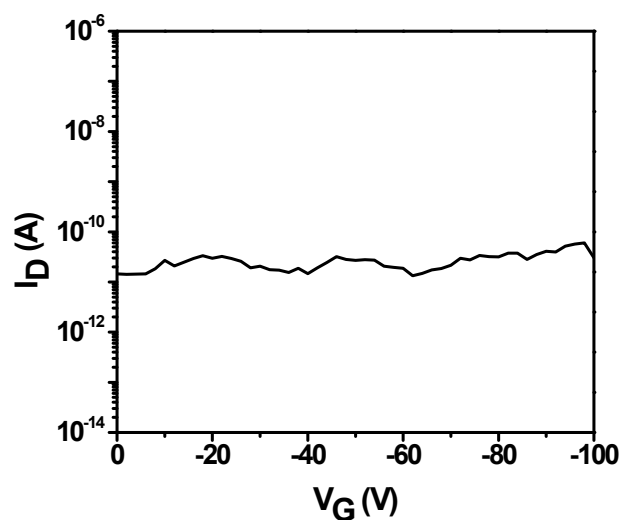


Figure S21. FET device based on as-cast **F3** film without annealing.

Table S1. Charge mobilities of representative fluoranthene derivatives.

Molecular structure	μ_{th} ($\text{cm}^2 \text{V}^{-1} \text{s}^{-1}$)	μ_{e} ($\text{cm}^2 \text{V}^{-1} \text{s}^{-1}$)	Method ^a (Processing)	Reference
	/	1.4×10^{-4}	OFET (Spin-Coating)	This Work
	2.6×10^{-2}	/	OFET (Spin-Coating)	This Work
	1.6×10^{-4}	3×10^{-6}	SCLC (Spin-Coating)	<i>Chem. Commun.</i> , 2013 , 49, 5802.
	/	4.8×10^{-8}	SCLC (Spin-Coating)	<i>Chem. Commun.</i> , 2014 , 50, 1591- 1594
	/	2.0×10^{-8}	SCLC (Spin-Coating)	<i>Chem. Commun.</i> , 2014 , 50, 1591.
	1.7×10^{-3}	/	OFET (Vapor-Deposited)	<i>Electrochemistry</i> , 2008 , 76, 865-867
	8.3×10^{-2}	/	OFET (Vapor-Deposited)	<i>J. Org. Chem.</i> 2008 , 73, 5328.

^a OFET is organic field-effect transistor, while SCLC is space-charge-limited-current (SCLC).

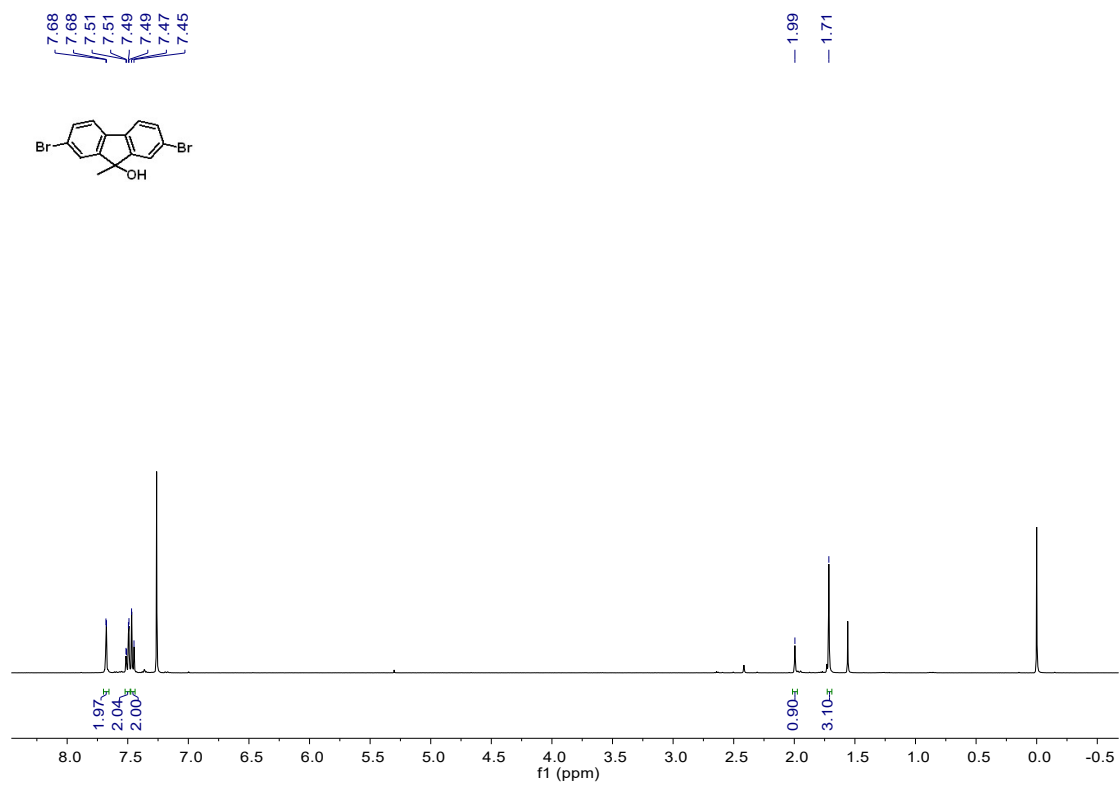


Figure S22. The ¹H NMR spectrum of **2**, conducted in Chloroform-*d*.

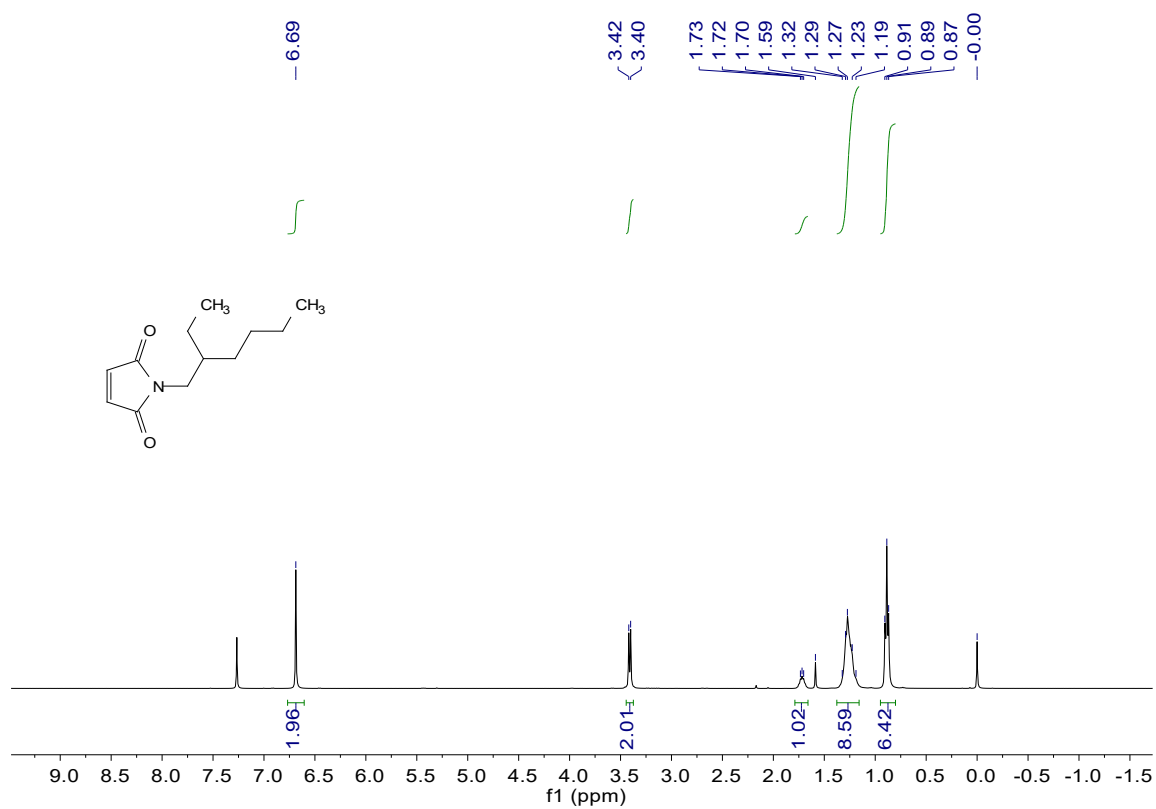


Figure S23. The ^1H NMR spectrum of **3**, conducted in Chloroform-*d*.

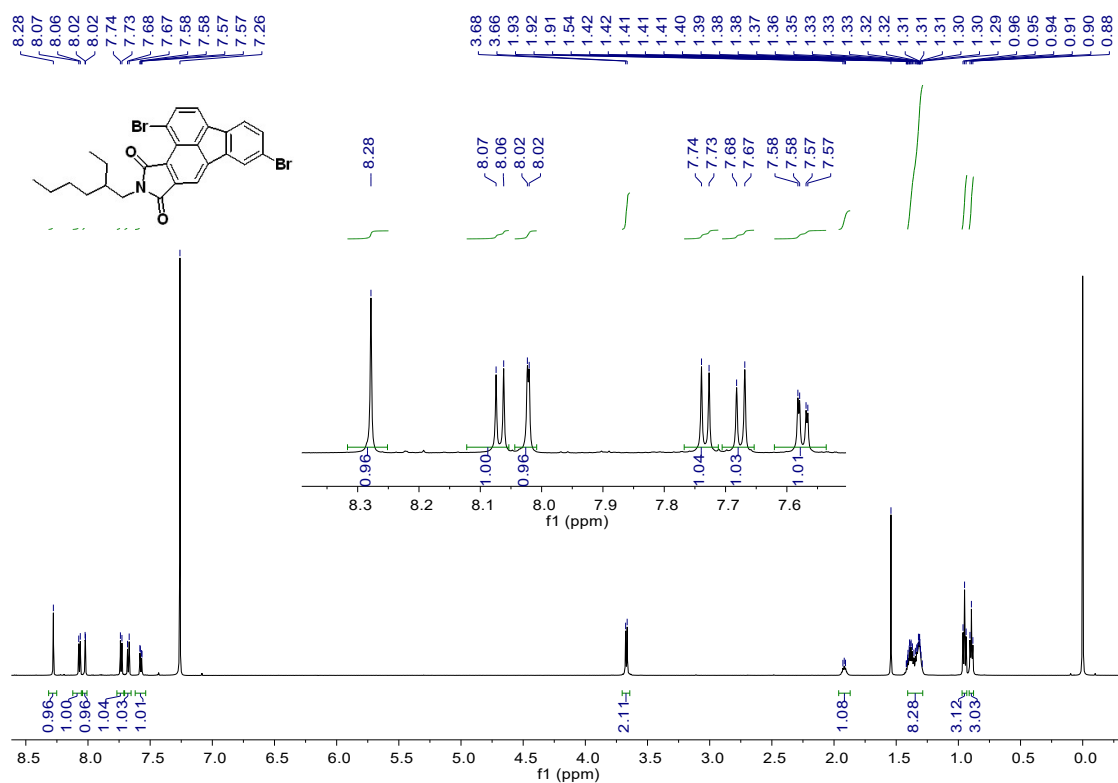


Figure S24. The ^1H NMR spectrum of **4**, conducted in Chloroform-*d*.

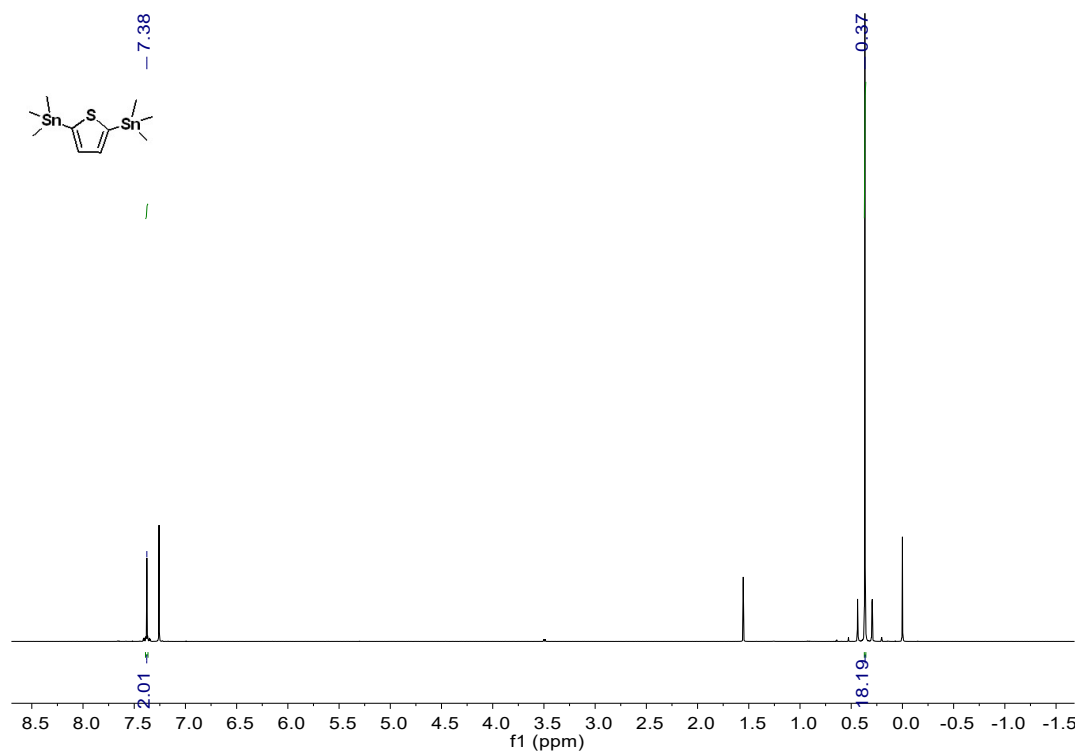


Figure S25. The ^1H NMR spectrum of **5**, conducted in Chloroform-*d*.

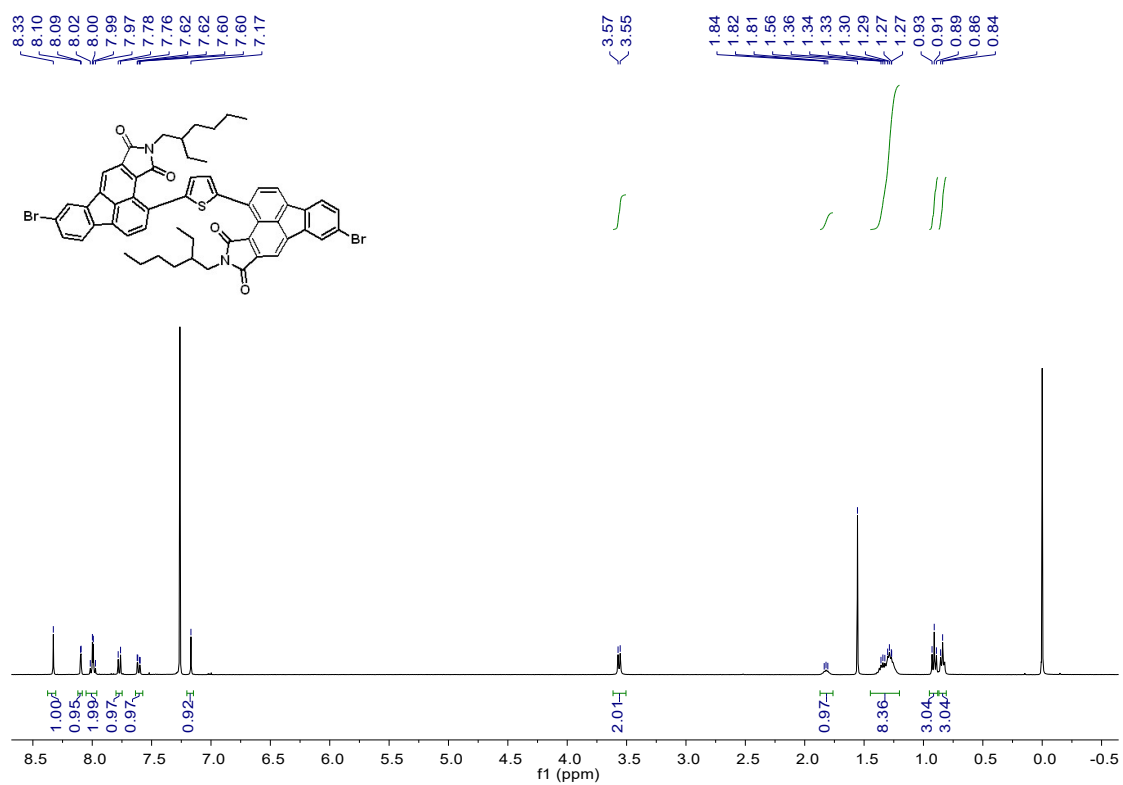


Figure S26. The ^1H NMR spectrum of 7, conducted in Chloroform- d .

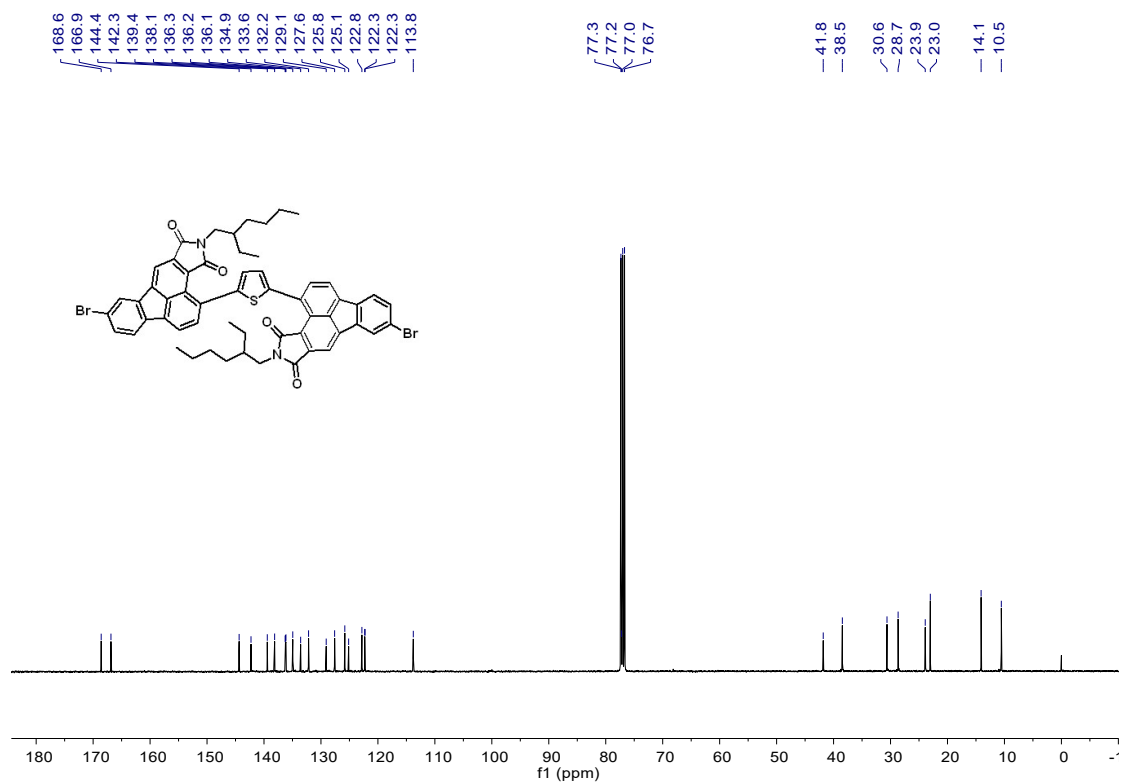


Figure S27. The ^{13}C NMR spectrum of 7, conducted in Chloroform- d .

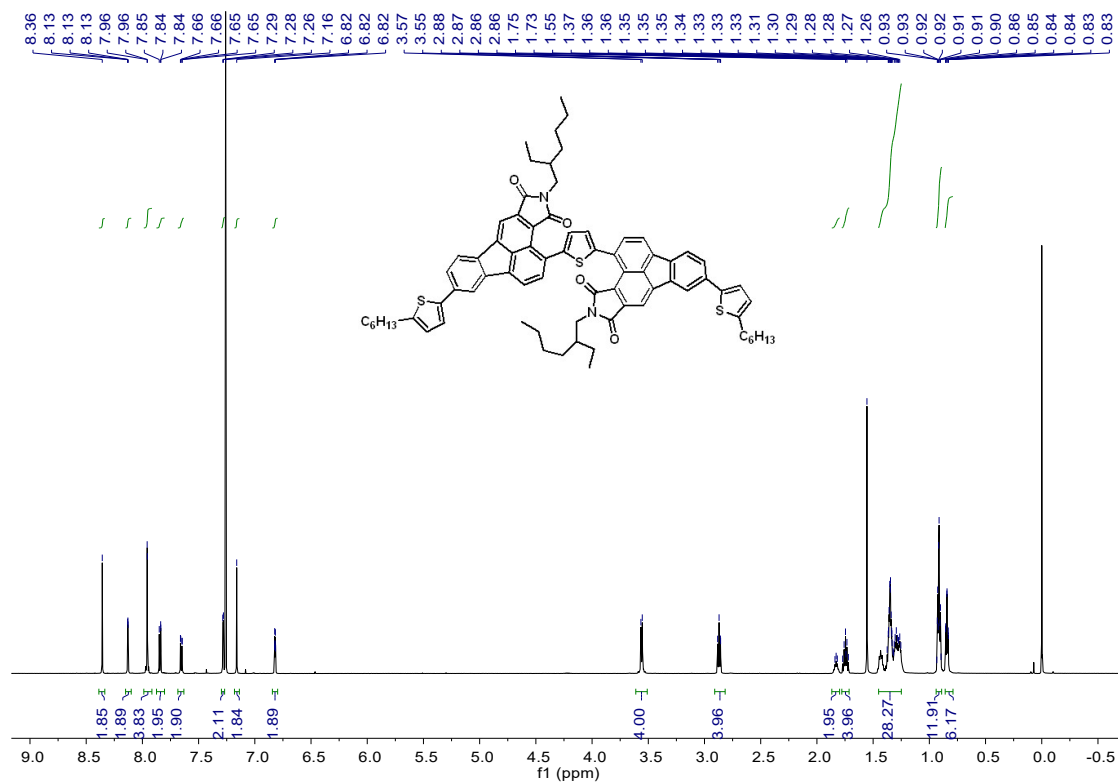


Figure S28. The ¹H NMR spectrum of F1, conducted in Chloroform-*d*.

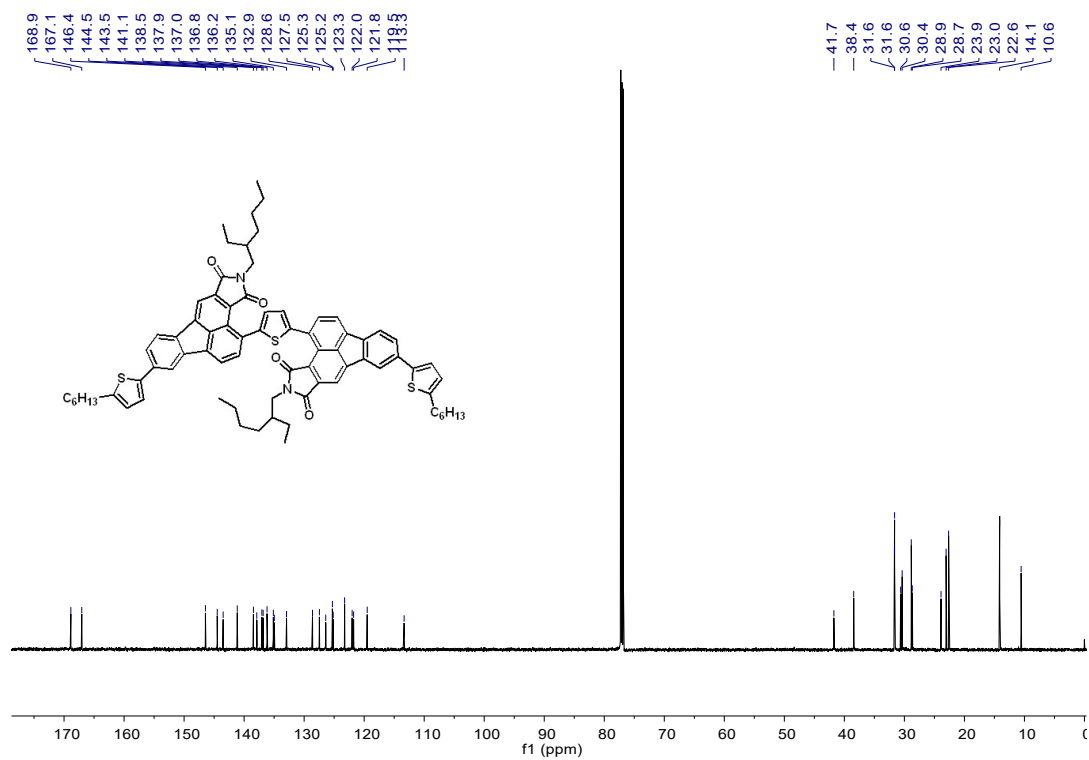


Figure S29. The ¹³C NMR spectrum of F1, conducted in Chloroform-*d*.

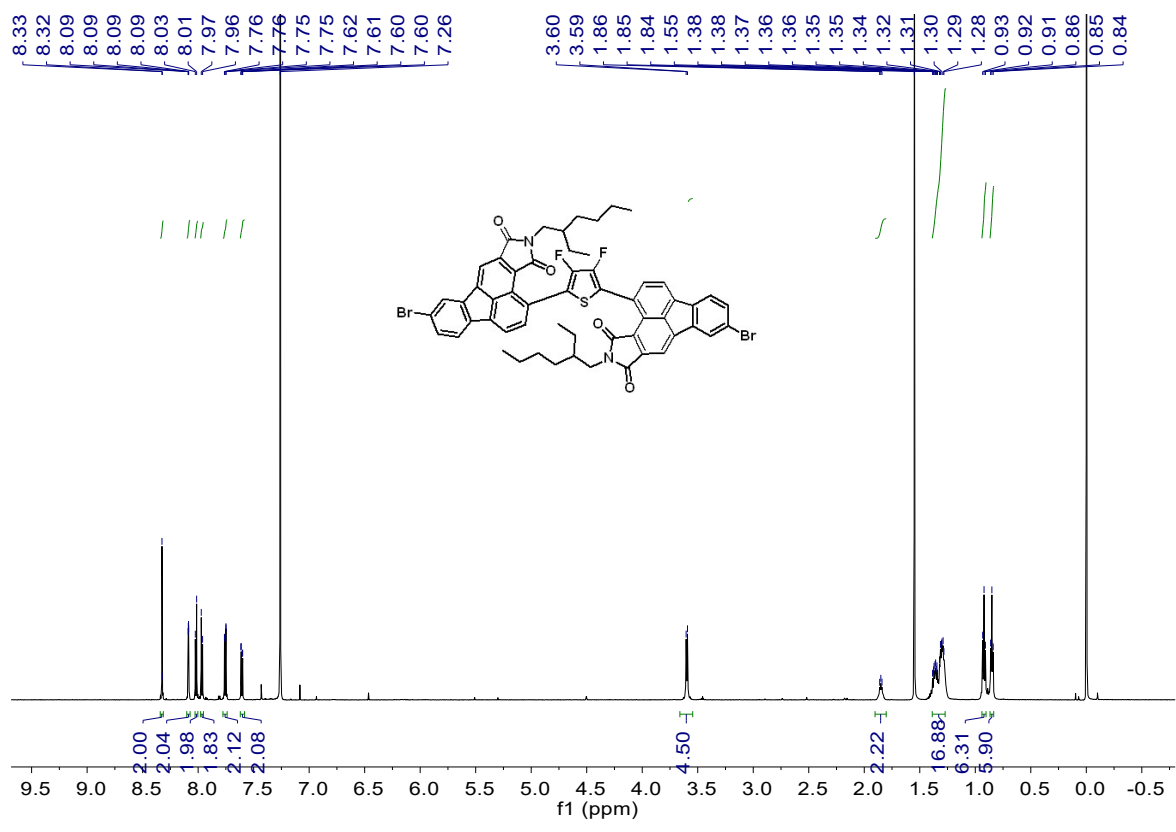


Figure S30. The ^1H NMR spectrum of **8**, conducted in Chloroform-*d*.

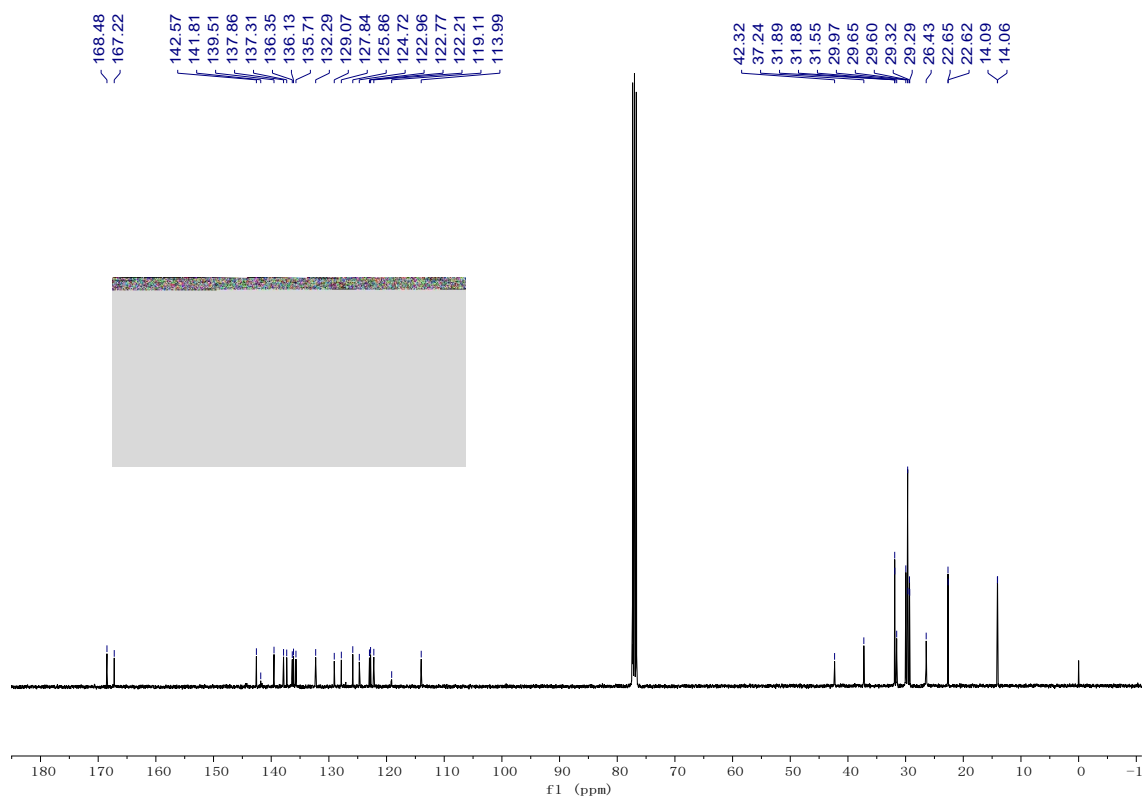


Figure S31. The ^{13}C NMR spectrum of **8**, conducted in Chloroform-*d*.

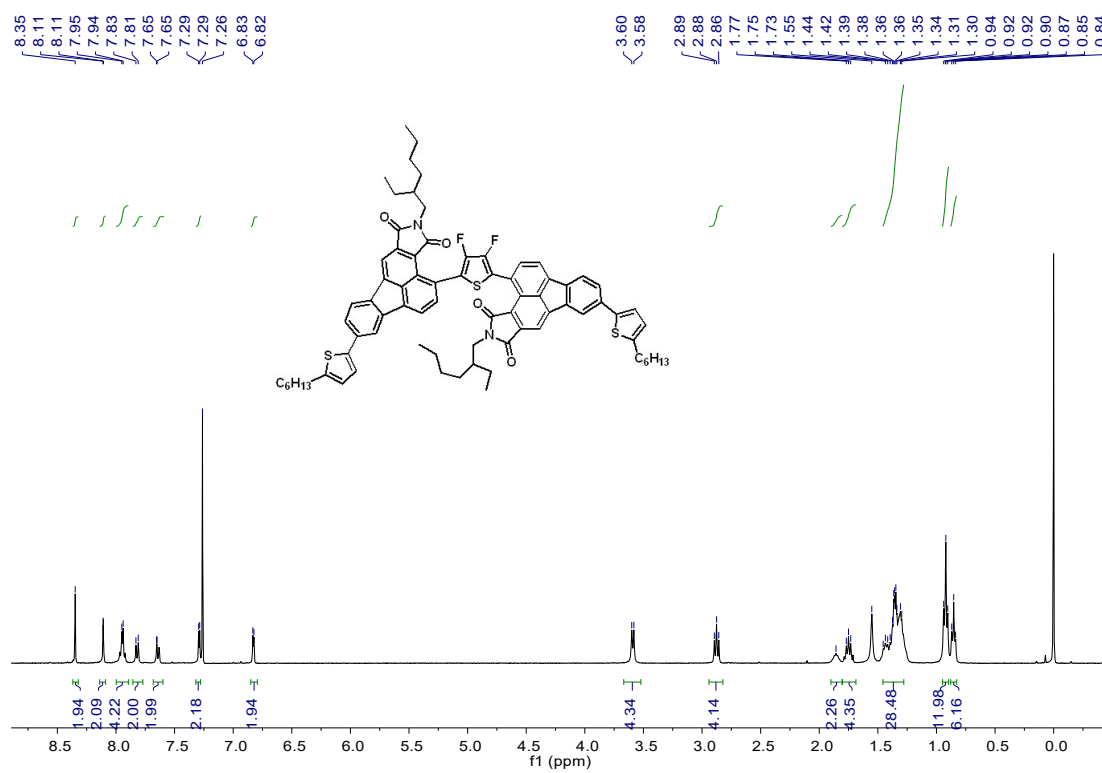


Figure S32. The ^1H NMR spectrum of **F2**, conducted in Chloroform-*d*.

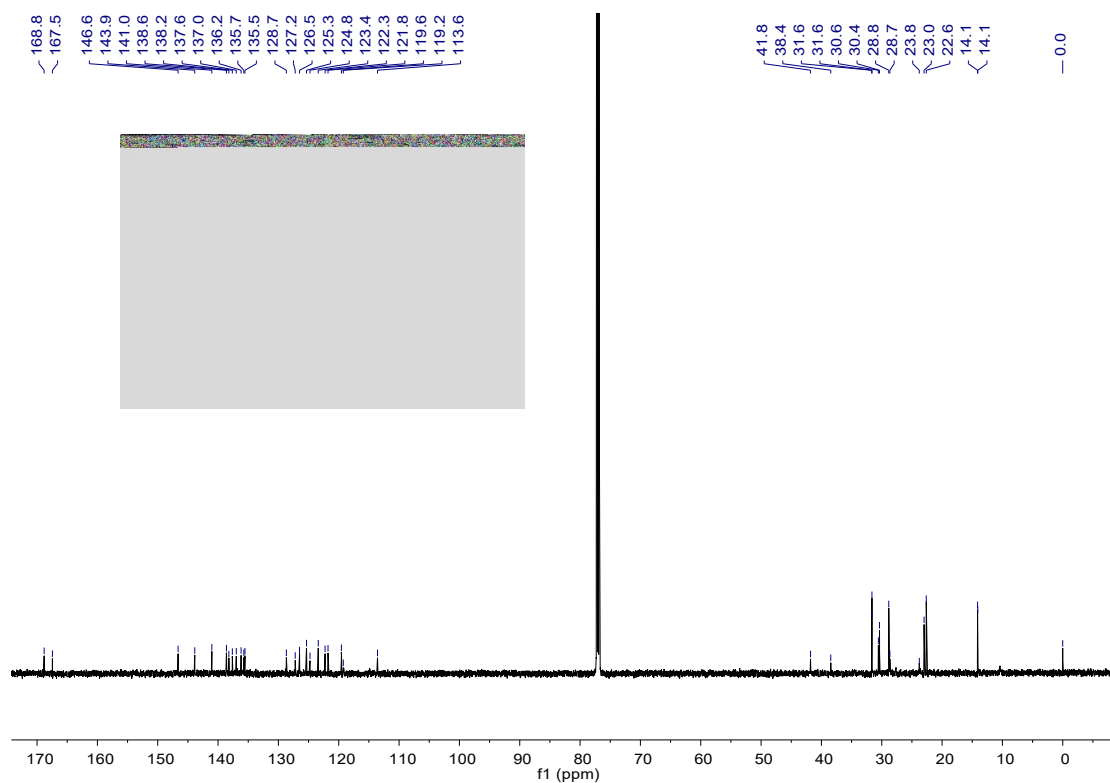


Figure S33. The ^{13}C NMR spectrum of **F2**, conducted in Chloroform-*d*.

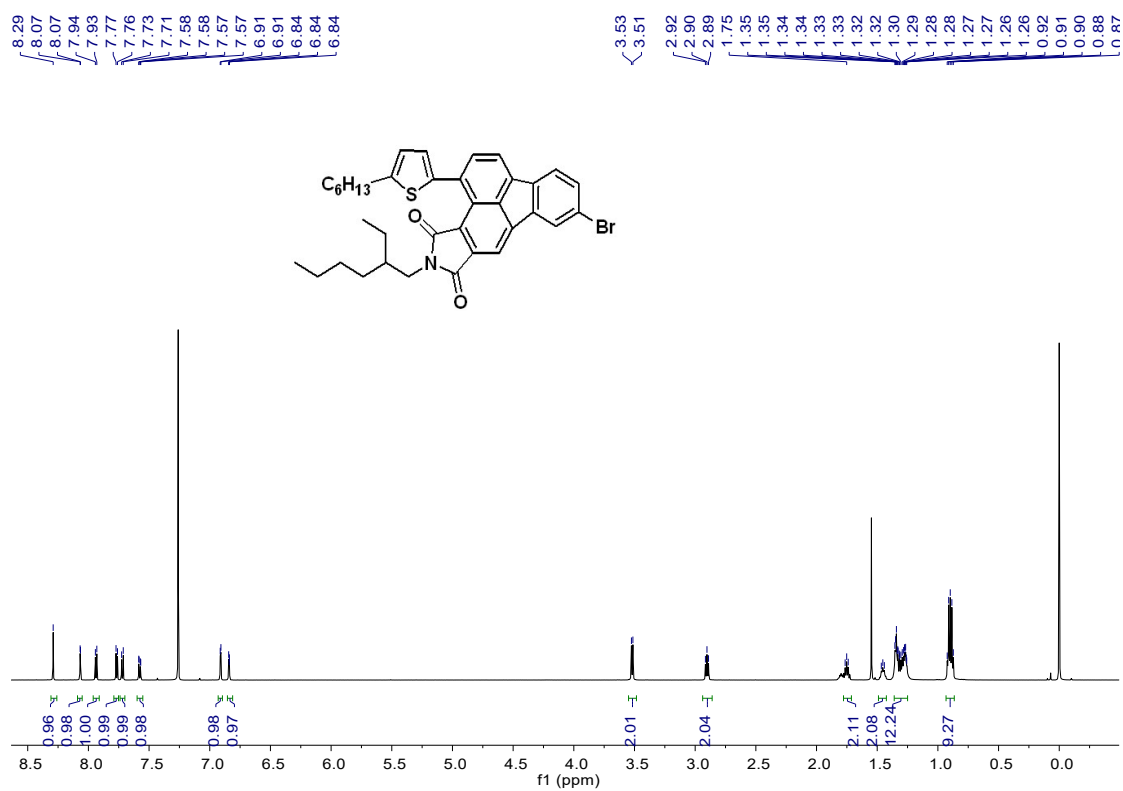


Figure S34. The ^1H NMR spectrum of **10**, conducted in Chloroform-*d*.

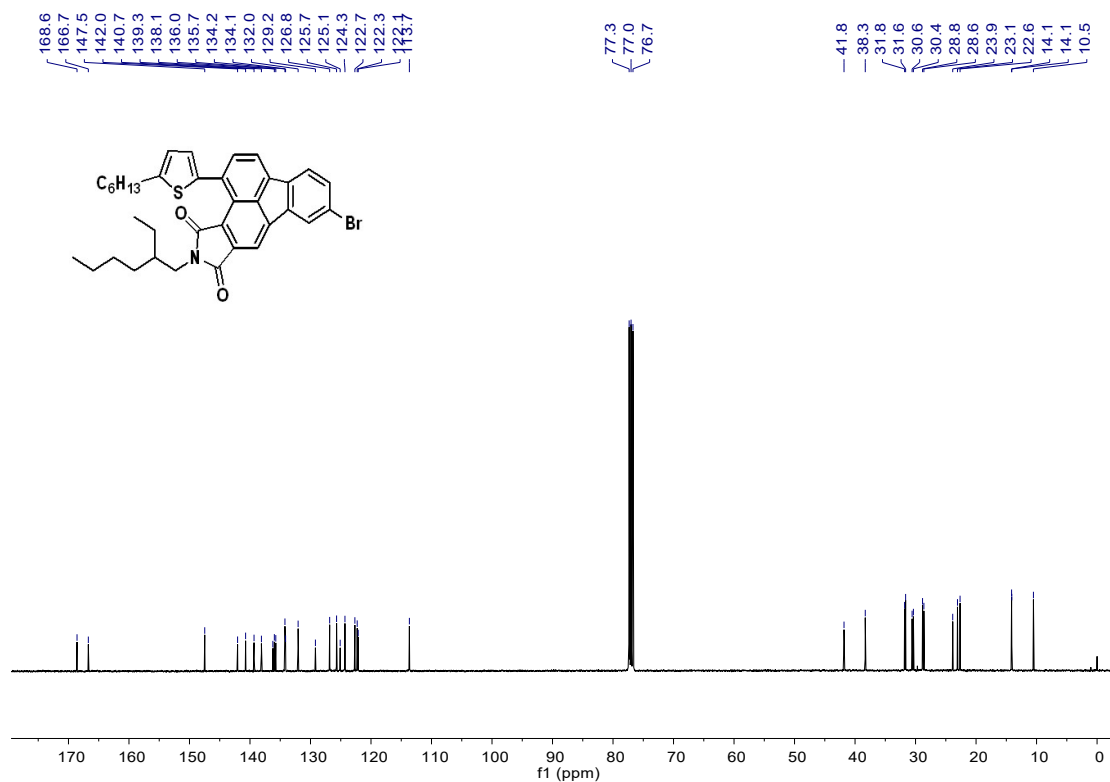


Figure S35. The ¹³C NMR spectrum of 10, conducted in Chloroform-*d*.

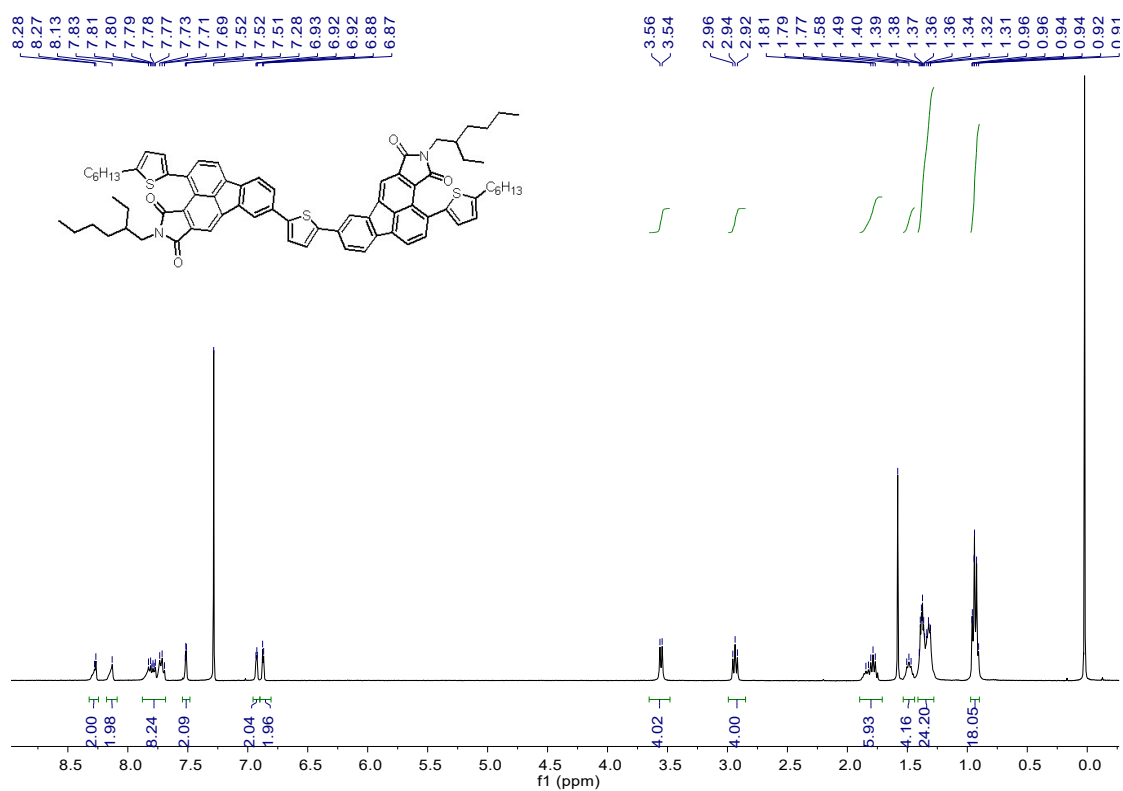


Figure S36. The ^1H NMR spectrum of **F3**, conducted in Chloroform-*d*.

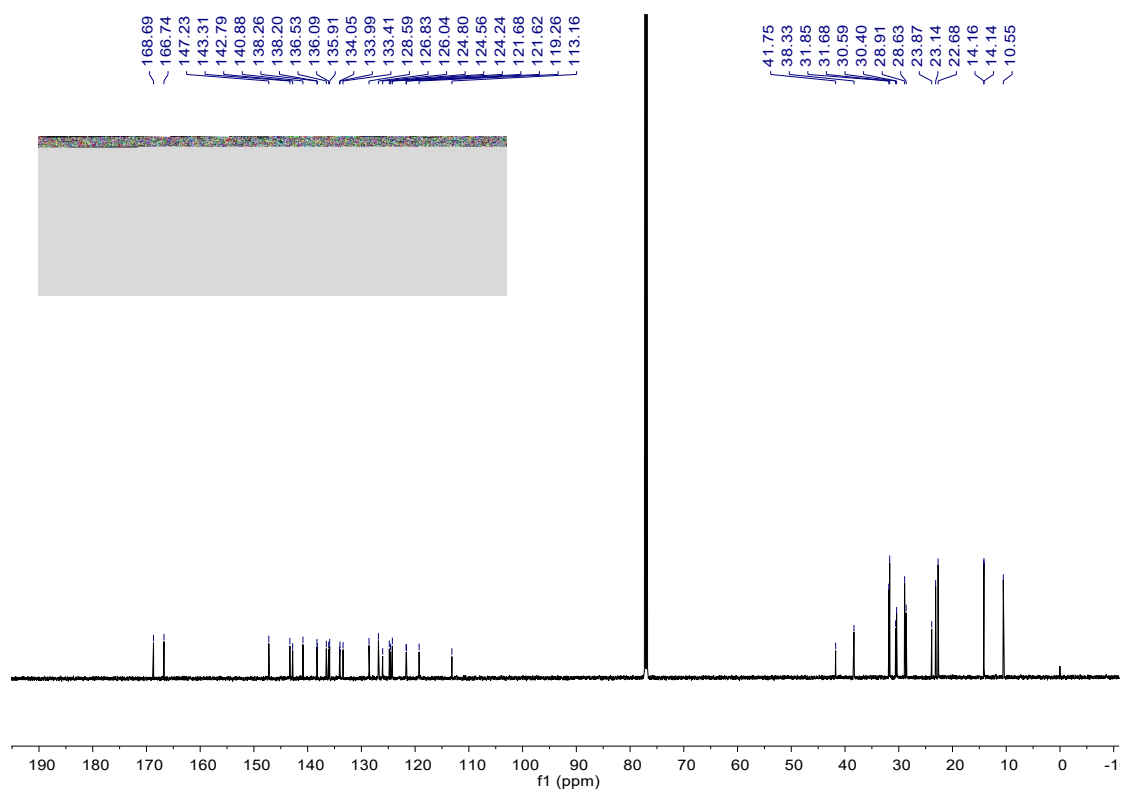


Figure S37. The ^{13}C NMR spectrum of **F3**, conducted in Chloroform-*d*.

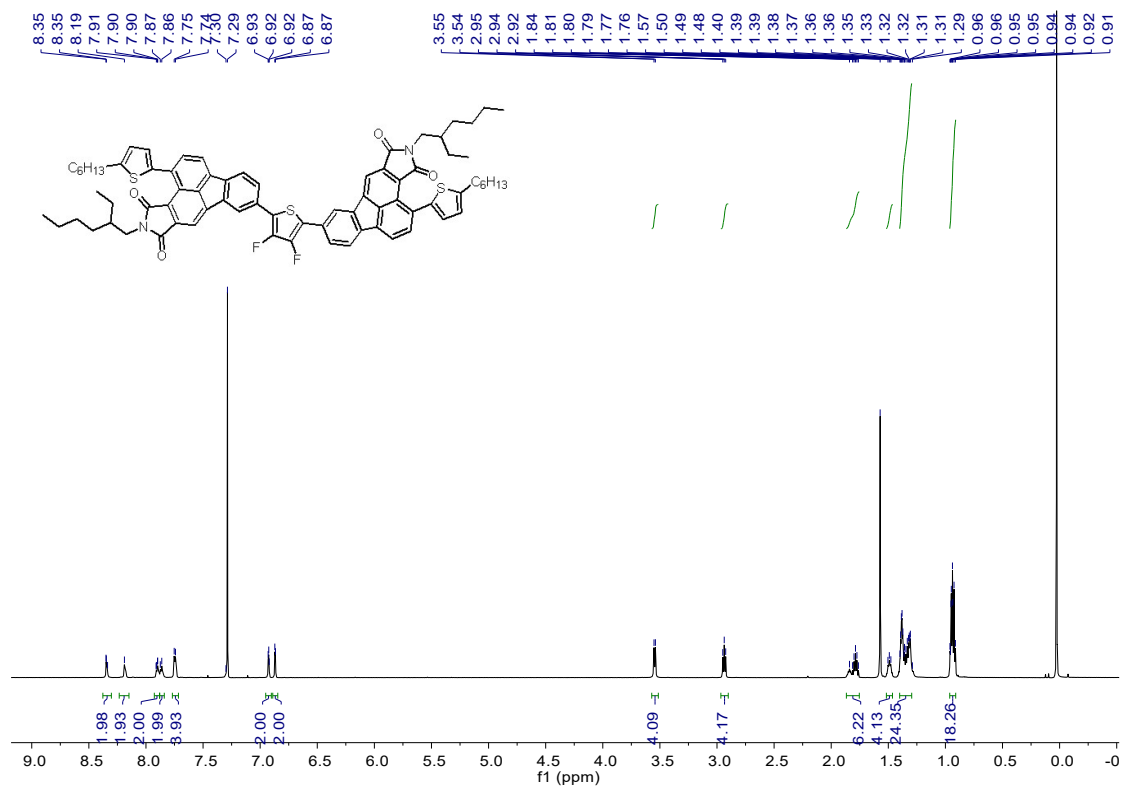


Figure S38. The ¹H NMR spectrum of F4, conducted in Chloroform-*d*.

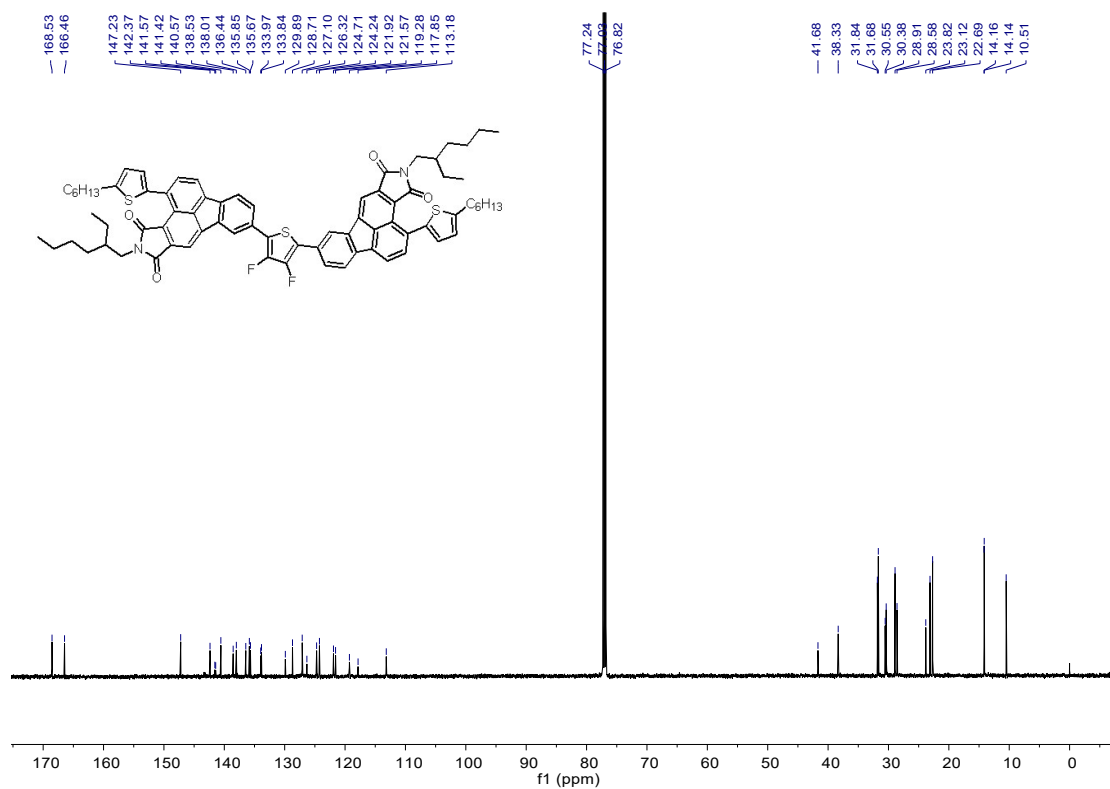


Figure S39. The ^{13}C NMR spectrum of **F4**, conducted in Chloroform-*d*.

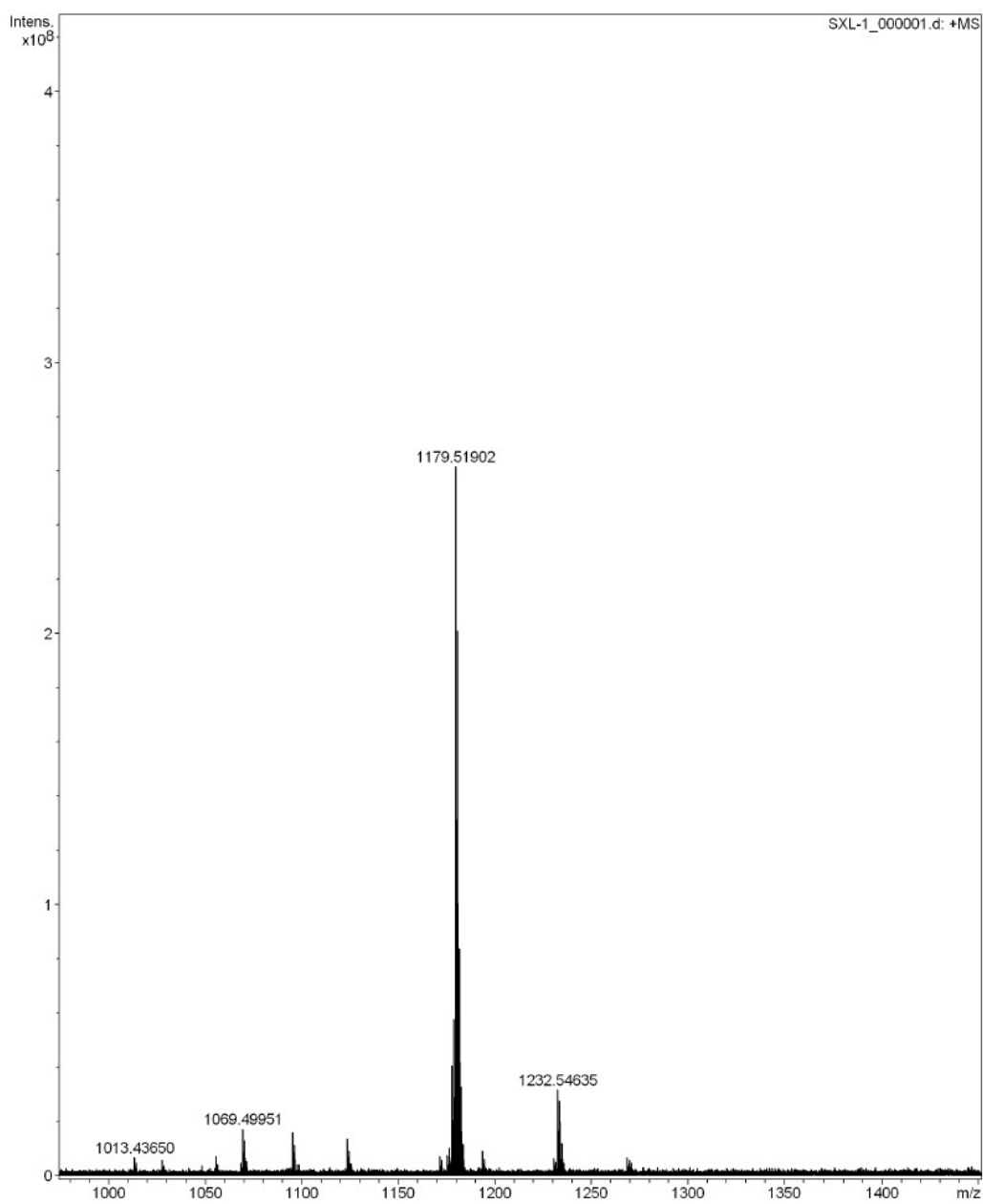


Figure S40. HR-Mass spectrum of **F1**.

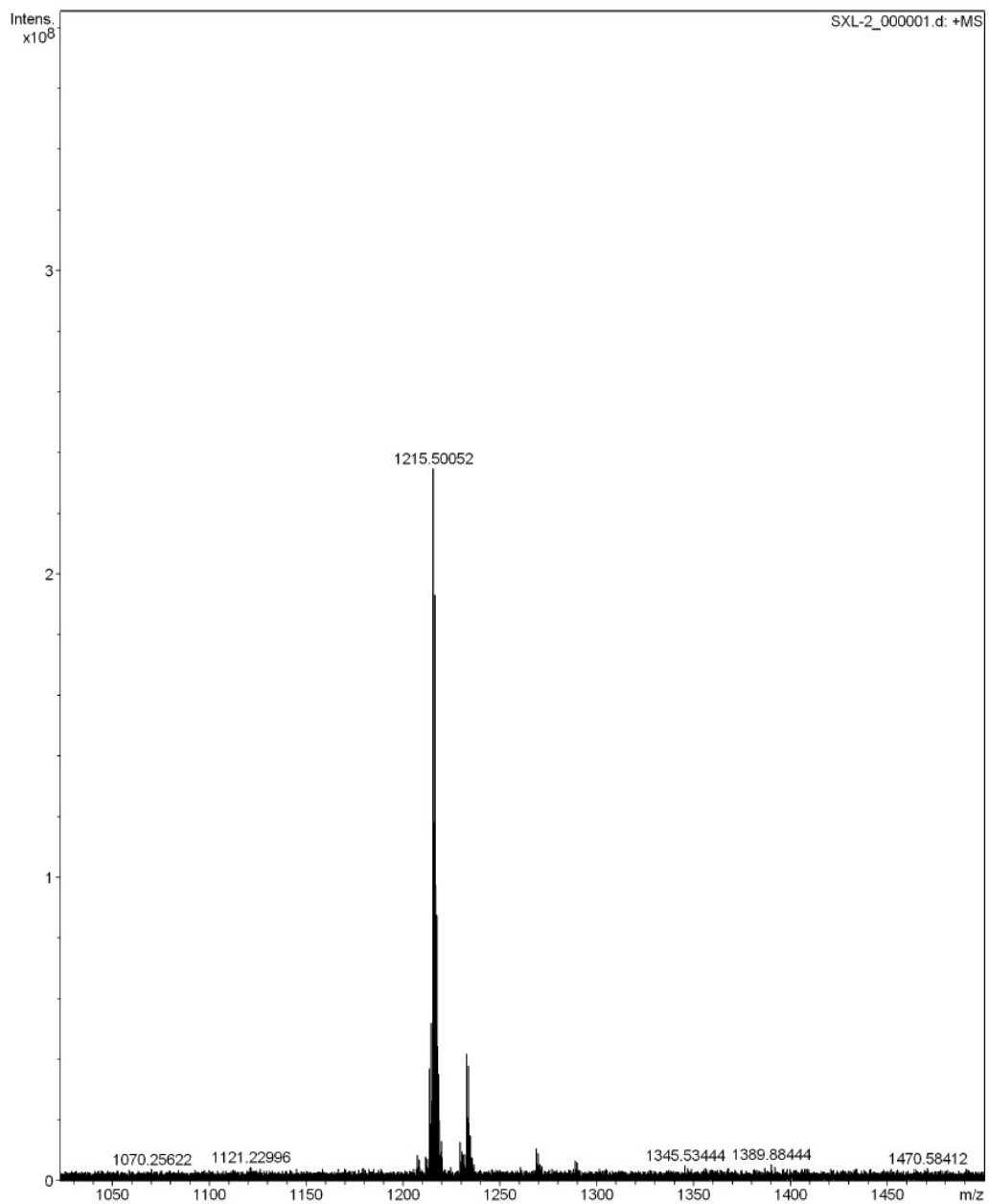


Figure S41. HR-Mass spectrum of **F2**.

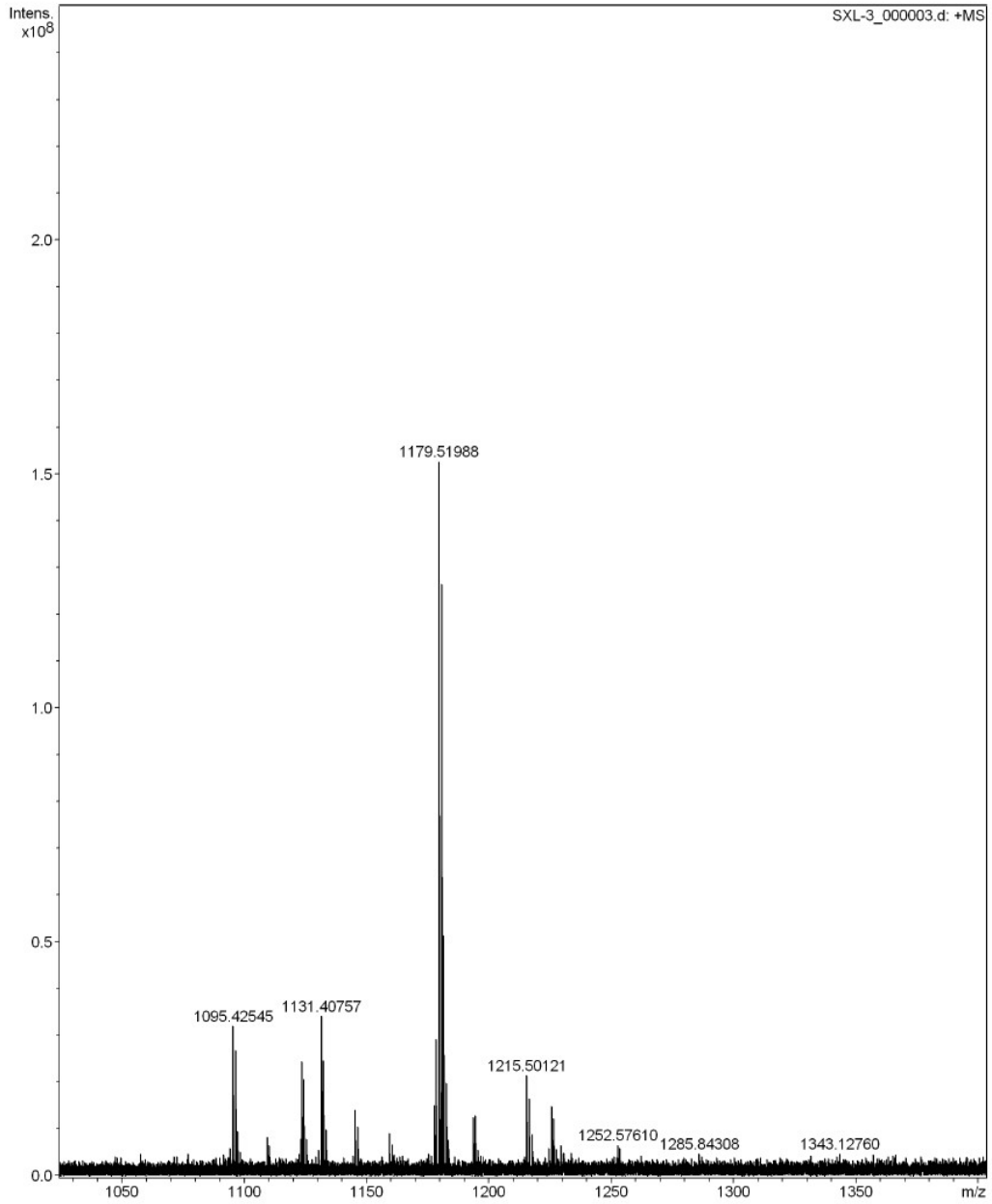


Figure S42. HR-Mass spectrum of **F3**.

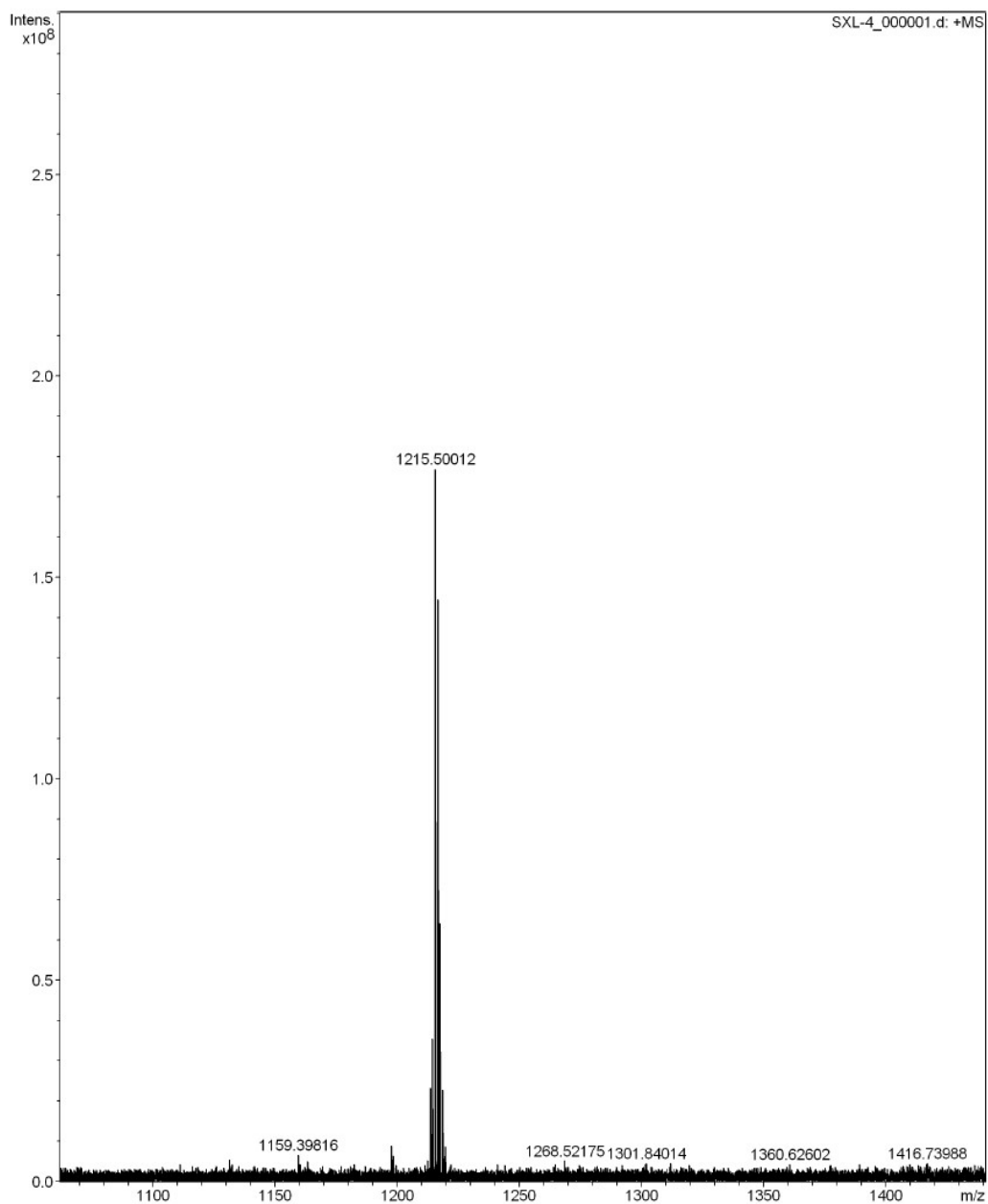


Figure S43. HR-Mass spectrum of **F14**.

Reference

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- [2] Y. Yoshida, T. Endo, *Poly. Chem.* 2016, **7**, 6770-6778.
- [3] A. C. J. Heinrich, B. Thiedemann, P. J. Gates, A. Staubitz, *Org. Lett.* 2013, **15**, 4666-4669.