

Supporting Information for

Anion-Assisted Supramolecular Polymerization of Luminescent Organic π -Conjugated Chromophore in Moderately Polar Solvent: Tunable Nanostructures and Corresponding Effect on Electronic Property

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Materials and Methods: All the reagents were purchased from commercial source and used as such without further purification. ^1H NMR spectra were recorded on a Bruker DPX-300 MHz and 400 MHz NMR spectrometer and all the spectra were calibrated against TMS. UV-Vis spectra were recorded in a Labtronics LT-291 UV/Vis spectrophotometer. MASS spectra were recorded on using Qtof Micro YA263 mass spectrometer. TEM, SEM and AFM images were collected using a 200 KV Transmission Electron Microscope (MODEL: JEOL JEM 2100 HR with EELS), JEOL Scanning Microscope-JSM-6700F and Bruker Innova-S2 instrument in the tapping mode respectively. Fluorescence spectra were recorded on HORIBA scientific Fluoromax-4 fluorescence spectrophotometer. Cyclic voltammetry was recorded on CH Instrument (MODEL: CHI600E, Electrochemical Analyzer) and current - voltage measurements were recorded on Keithley 2611B source meter.

UV-visible spectroscopic studies: For fluoride variable experiment, Stock solution of NMI-2 (1.0 mM) was prepared in THF solvent and kept it to equilibrate at room temperature for 2 h. Then, an aliquot (100 μl) was taken from stock solution and diluted to the final concentration at 0.1 mM. Then solutions were allowed to equilibrate at room temperature for 1 h before spectral measurements were carried out.

To prepare 1 Equivalent TBAF to NMI (NMI.1F), 0.1 microliter of 1(M) TBAF solution was added in 1 ml of 0.1 mM THF solution of NMI-2. Here the final concentration of both TBAF and NMI is 0.1 mM. Hence, the solution contains 1 equivalent NMI and 1 equivalent TBAF.

The ratio of NMI and TBAF = 1:1. Similarly, for 5 (NMI:TBAF = 1:5), 10 (NMI:TBAF = 1:10), 25 (NMI:TBAF= 1:25) and 50 (NMI:TBAF = 1:50) equivalents of TBAF the individual concentration was maintained accordingly.

For BF_3 addition experiment, 50 equiv of TBAF was added in THF solution of NMI-2 (0.1 mM) and then the solution was equilibrated at room temperature for 1 h. Next, the spectra were recorded with the gradual addition of BF_3 to the NMI.50F⁻ solution. Exactly the similar procedure was followed for methanol addition experiment.

FT-IR Characterization: At first the sample was mixed with KBr to make a pellet, then it was placed in the chamber inside the instrument and spectrum was recorded at room temperature.

Job's plot to determine the binding ratio: At first nine sets of Sample solution (1 ml) containing NMI-2 and TBAF were prepared with varying the mole fraction of NMI-2 or TBAF from 0.1 to 0.9, but the final concentration of all the solution was maintained at 1 mM. The solutions were allowed to equilibrate at room temperature for 1 h and then the UV-vis spectral data were recorded at room temperature.

Atomic Force Microscopic (AFM) Experiment: In a typical AFM experiment, 20 μl of NMI.F⁻ adducts in variable ratio of NMI and F⁻(concentration = 0.1 mM) were placed on a microscopic cover glass and allowed to air dry overnight before the images were taken.

Time Correlated Single Photon Counting (TCSPC) experiment: In a typical experiment, 0.5 mM solutions of NMI.F⁻adducts in variable ratio of NMI and F⁻were used for the measurement. Samples were excited at 420 nm and emissions were monitored at 515 nm for all the solution.

Measurement of Fluorescence quantum yield: Fluorescence quantum yield at room temperature was estimated at a single excitation wavelength(420nm) using quinine sulphate

in Sulfuric acid (0.1M) aqueous solution ($\Phi = 0.546$) as the reference according to the equation:

$$\Phi_X = \Phi_{ST} [\text{Grad}_X / \text{Grad}_{ST}] [\eta^2 X / \eta^2_{ST}].$$

Where the subscripts ST and X indicate standard and test, respectively, Φ is the fluorescence quantum yield, Grad is the gradient from the plot of integrated fluorescence intensity vs. absorbance and η the refractive index of the solvent.

In this method, the average quantum yields of NMI-2, NMI-2 with 0.5 equiv. TBAF and NMI-2 with 50 equiv. TBAF in THF were estimated to be 0.48, 0.44 and 0.15 respectively.

Electrochemical measurements: Cyclic voltammetry of fluoride variable NMI-2 was performed in THF solvent (concentration = 1.0 mM) at a scan rate 100 mVs⁻¹ using Tetra-n-butylammonium perchlorate as a supporting electrolyte. A three-electrode cell consisting of a glassy carbon working electrode, a platinum wire as the counter electrode and Ag/AgCl was used as pseudo reference electrode. Reference electrode was ferrocene/ferrocenium couple ($E_{Fc/Fc}^+ = 0.40V$). The HOMO and LUMO energy levels were calculated using following equations.

$$E_{HOMO} = - (E_{Ox \text{ onset}} - E_{Fc/Fc}^+ \text{onset}) - 4.80 \text{ eV}.$$

$$E_{LUMO} = - (E_{Red \text{ onset}} - E_{Fc/Fc}^+ \text{onset}) - 4.80 \text{ eV}.$$

$$E_{gap} = E_{LUMO} - E_{HOMO}.$$

For Current – voltage measurements, fluoride variable NMI-2 solution (concentration = 1.0 mM) was spin coated on microscopic glass slide and kept under vacuum overnight. Silver paste was used at connection points. The conductivity(G) was measured using the following equation.

$$G = (1/R) [\ln 2 / (\pi t)].$$

Where t is the film thickness measured by digital micrometer (average film thickness 42 micrometer).

Synthesis of the Napthalimide Derivative (NMI-2): The synthetic procedure of NMI-2 is outlined below:

Compound NMI-C1: At first, Compound A (0.632g, 1.15 mmol) (synthesis is followed from the previous report)¹ and 4-Nitro 1,8 Napthalic Anhydride (0.27g, 1.09 mmol) were taken in 35 ml dried Toluene in a round bottle flask and the solution was stirred at 100°C for 24h under Argon atmosphere. Then reaction was stopped and allowed cooling until reaches to room temperature and then the solution was evaporated to get the crude product. Then it was purified by column chromatography using silica gel as stationary phase and 20%ethyl acetate in hexane as eluent to get the compound NMI-C1 as a light -yellow solid in 60% of yield.¹H-NMR (400 MHz, CDCl₃, TMS): δ (ppm) = 8.90 (d, 1H), 8.72 (d, 1H), 8.70 (d, 1H), 8.40 (d, 1H), 7.98 (t, 1H), 6.90 (s, 2H), 3.5 (t, 4H), 3.95 (t, 6H), 1.74 (m, 6H), 1.34 (m, 6H), 1.30 (m, 24H), 0.90 (t, 9H).

ESI-MS: m/z calculated for [C₄₅H₆₃N₃O₈Na] (M+Na)⁺ = 796.4615, Found-796.4511.

Compound NMI-2: At first, ethyl acetate was degassed and then Compound NMI-C1 (0.41g, 0.53mmol) was dissolved and Pd/C was added carefully to the solution. The reaction mixture was stirred under H₂ atmosphere at room temperature for 24h. Next, Pd/C was filtered off using celite 545 as filtering agent and then ethyl acetate was evaporated to get the brown color crude product. It was then washed with ethyl acetate to get the pure product as a yellow solid in 93% yield.¹H-NMR (300MHz, CDCl₃ TMS): δ (ppm) = 8.56 (d, 1H), 8.40 (d, 1H), 8.20 (d, 1H), 7.50 (t, 1H), 7.05 (t, 2H), 6.8 (d, 1H), 4.00 (t, 6H), 3.5 (t, 4H), 1.74 (m, 6H), 1.34 (m, 6H), 1.30 (m, 24H), 0.90 (m, 9H).

ESI-MS: m/z calculated for [C₄₅H₆₅N₃O₆Na](M+Na)⁺ = 766.4873, Found-766.5182.

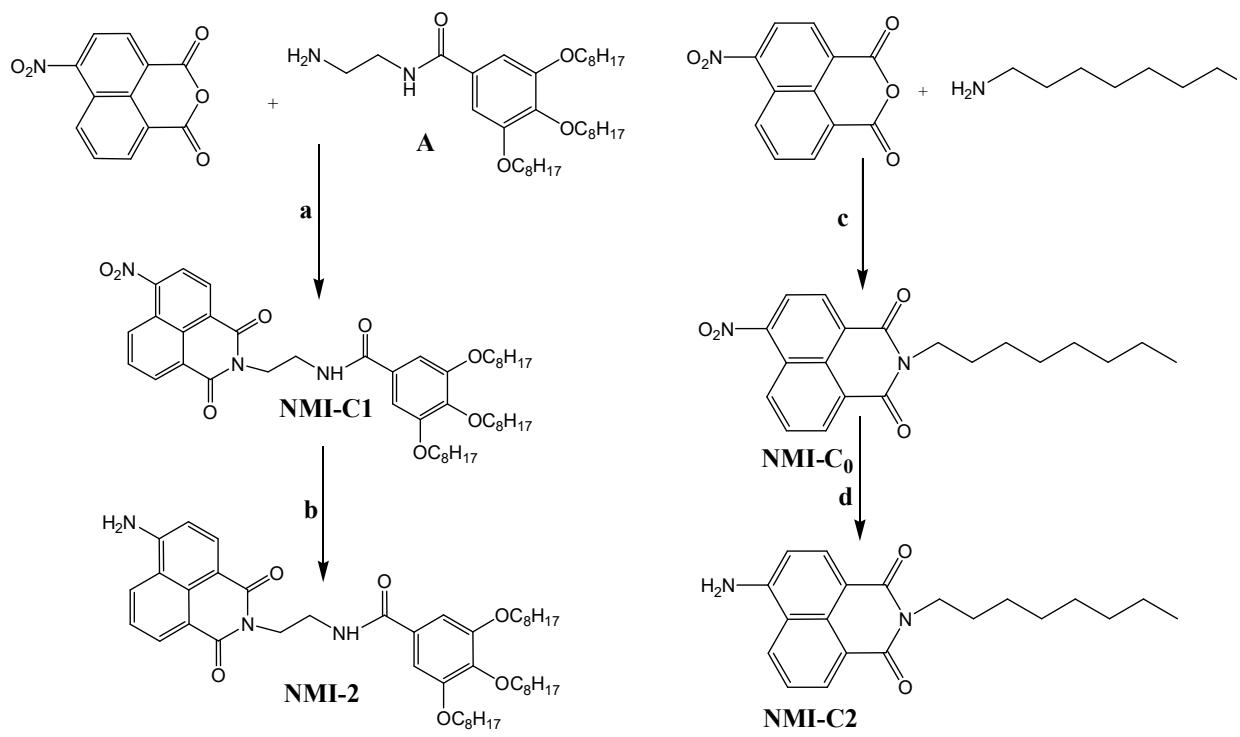
Synthesis of the Napthalimide Derivative (NMI-C2): The synthetic procedure of compound NMI-C is same as compound NMI-2 which is outlined below:

Compound NMI-C₀: 4-Nitro 1,8 Napthalic Anhydride(0.55g ,2.26 mmol) and n-Octyl amine (0.3g, 2.32 mmol) were taken in 30 ml of dried toluene and the solution was refluxed at 100°C for 24h under Argon atmosphere. Then the reaction was stopped to allow cool and the solvent was evaporated to get the crude product. It was purified by column chromatography using silica gel as stationary phase and 20%ethyl acetate in hexane as eluent to get the compound as a light -yellow solid in 75% yield.¹H-NMR (300MHz, CDCl₃ TMS): δ (ppm) = 8.79 (d, 1H), 8.68 (d, 1H), 8.70 (d, 1H), 8.36 (d, 1H), 7.95 (t, 1H), 4.11 (t, 2H), 1.30-1.65 (m, 12H), 0.90 (t, 3H).

ESI-MS: m/z calculated for [C₂₀H₂₂N₂O₄](M+H)⁺ = 355.1580, Found-355.1572.

Compound NMI-C2: The compound NMI-C₀ (0.4g, 1.13 mmol) was dissolved in degassed ethyl acetate and then Pd/C was added carefully to this the solution. The reaction mixture was stirred under H₂ atmosphere at room temperature for 24h. Then Pd/C was filtered off using celite 545 as filtering agent. Then ethyl acetate was evaporated to get the pure product as yellow solid in 97% yield.¹H-NMR (300MHz, CDCl₃ TMS): δ (ppm) = 8.55 (d, 1H), 8.36 (d, 1H), 8.05 (d, 1H), 7.62 (t, 1H), 6.83 (d, 1H), 4.07 (t, 2H), 1.30-1.65 (m, 12H), 0.90 (t, 3H).

ESI-MS: m/z calculated for [C₂₀H₂₄N₂O₂] (M+H)⁺ = 325.1838, Found-325.9832.



Reagents and conditions: a) Toluene, 100°C, 24h ,60%, b) Ethyl acetate, Pd/C, rt, 24h, 93%,
 c) Toluene, 100°C, 24h ,75%, d) Ethyl acetate, Pd/C, rt, 24h, 97%.

Scheme 1: Schematic representation of the synthesis of **NMI-2** and **NMI-C2**.

Additional Figures:

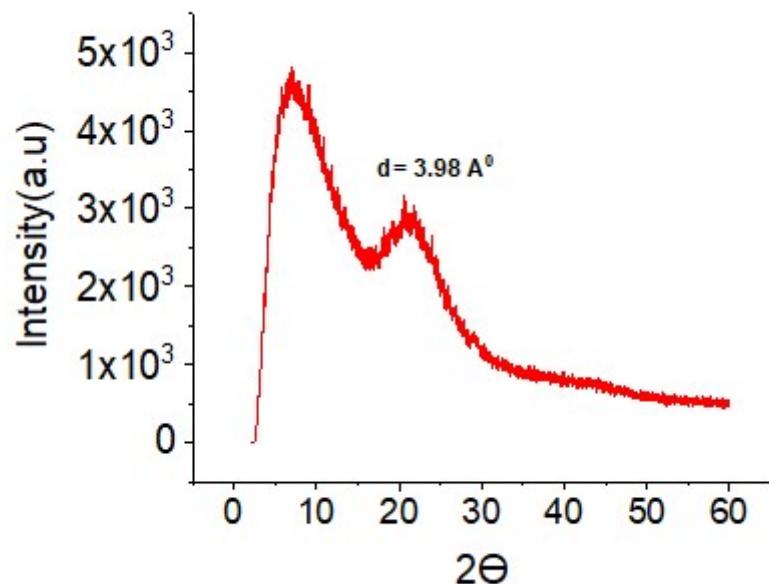


Figure S1: Powder X-RD plot of NMI-2 in presence of 0.5equiv. of F^- anion.

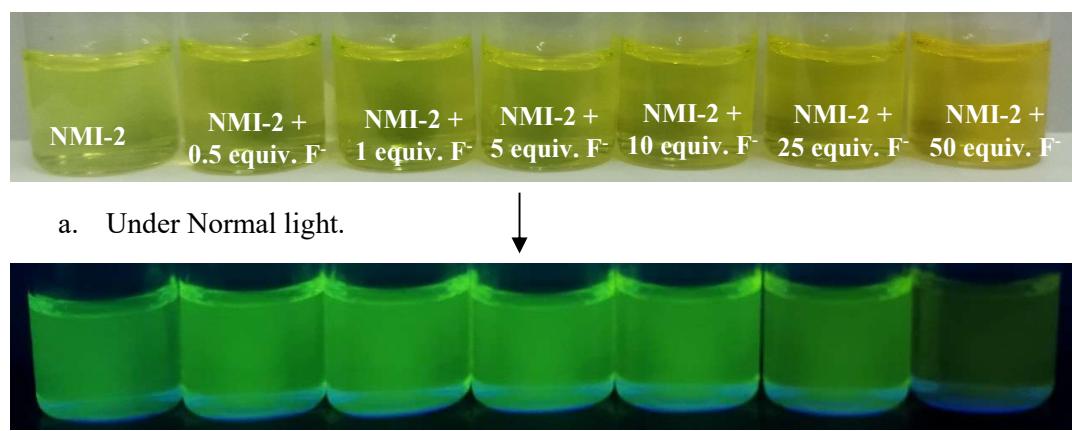


Figure S2: Images of fluoride NMI. F^- adducts at variable NMI-2 and F^- ratio. a)Under normal light b) Under UV light.

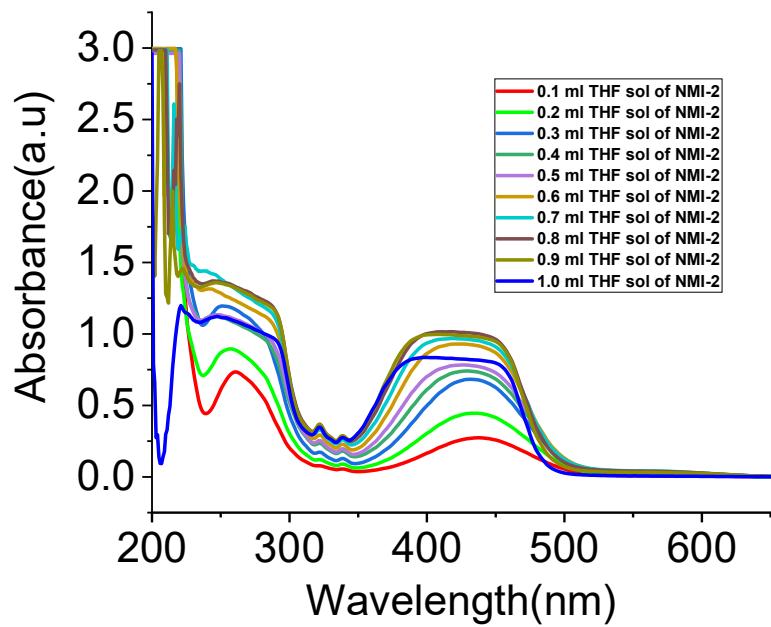


Figure S3: UV-vis spectra for Job's plot diagram to know the binding ratio of NMI and F⁻ anion and binding constant.

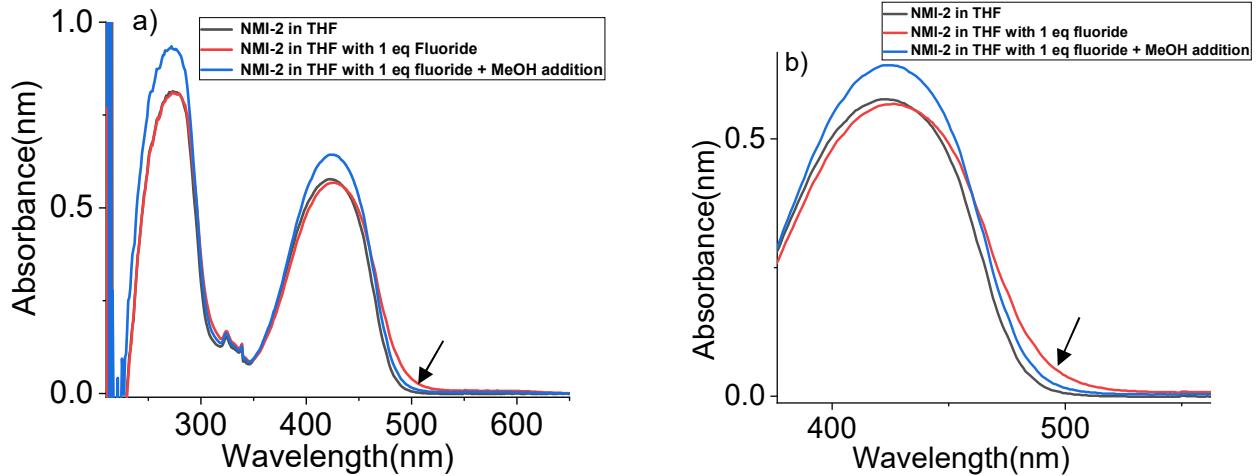


Figure S4: Methanol additions to NMI.1F- adduct, a) full spectrum b) zoomed spectrum.

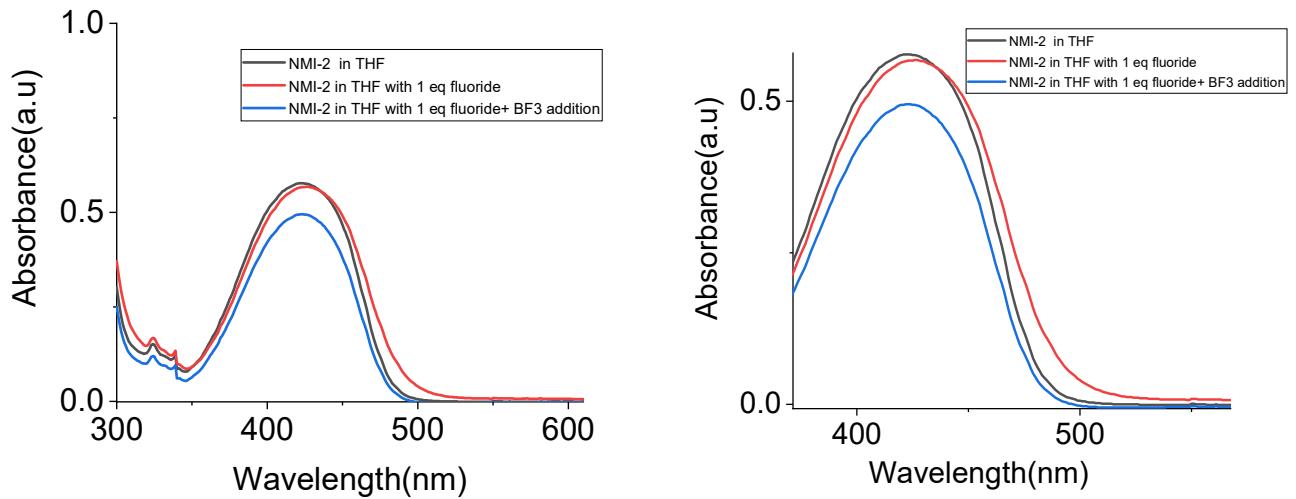


Figure S5: BF₃ additions to NMI.1F⁻ adduct, a) Full spectrum b) Zoomed spectrum.

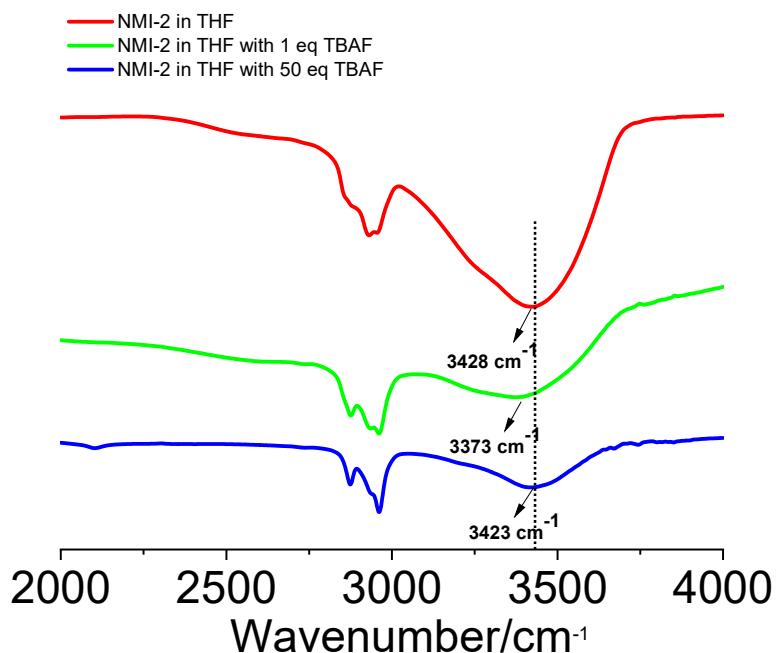


Figure S6: Combined IR plot of NMI-2 in THF, NMI.1F⁻ (NMI-2: F⁻ = 1:1) and NMI.50 F⁻ (NMI-2: F⁻ = 1:50) adducts.

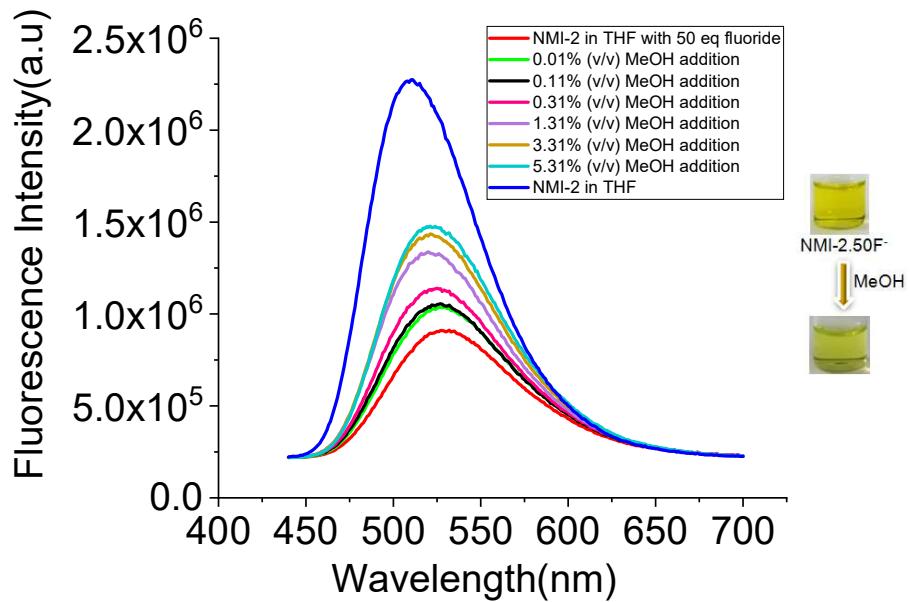


Figure S7: Monitoring emission spectra upon addition of MeOH to NMI.50 F⁻ (NMI:F⁻ = 1:50) solution.

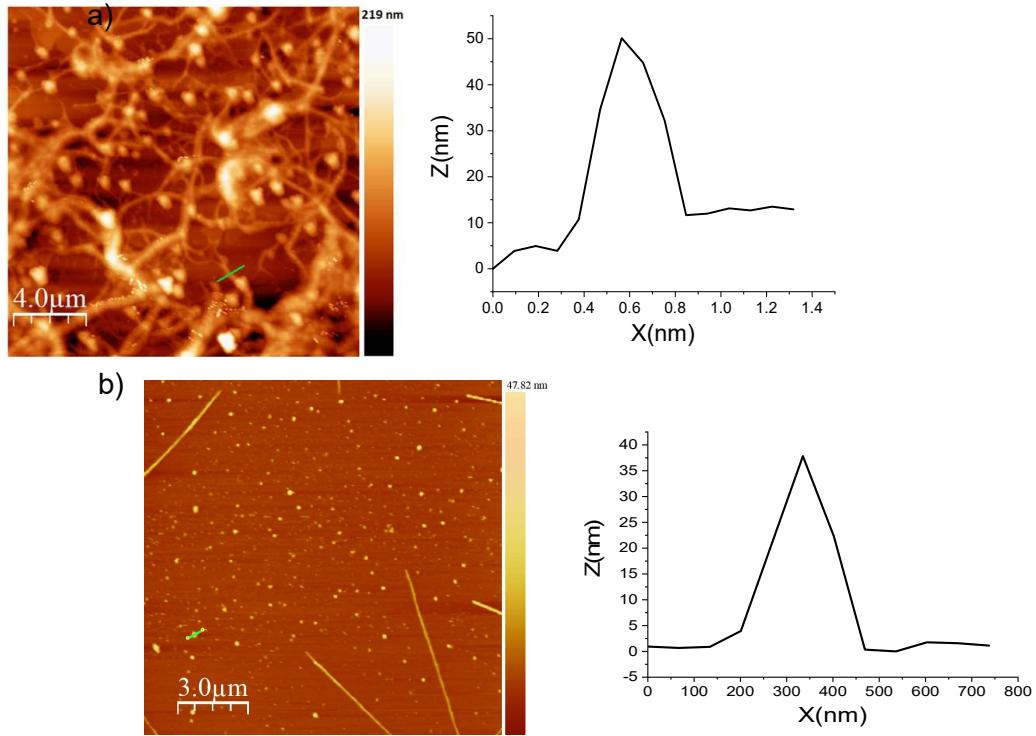


Figure S8: AFM images of a) NMI.0.5F⁻ (NMI: F⁻ = 1:0.5) b) NMI.50 F⁻ (NMI:F⁻ = 1:50) solution in THF. Figure a shows incomplete polymerization in presence of 0.5 equiv. of F⁻ and figure b shows completely depolymerized structure.

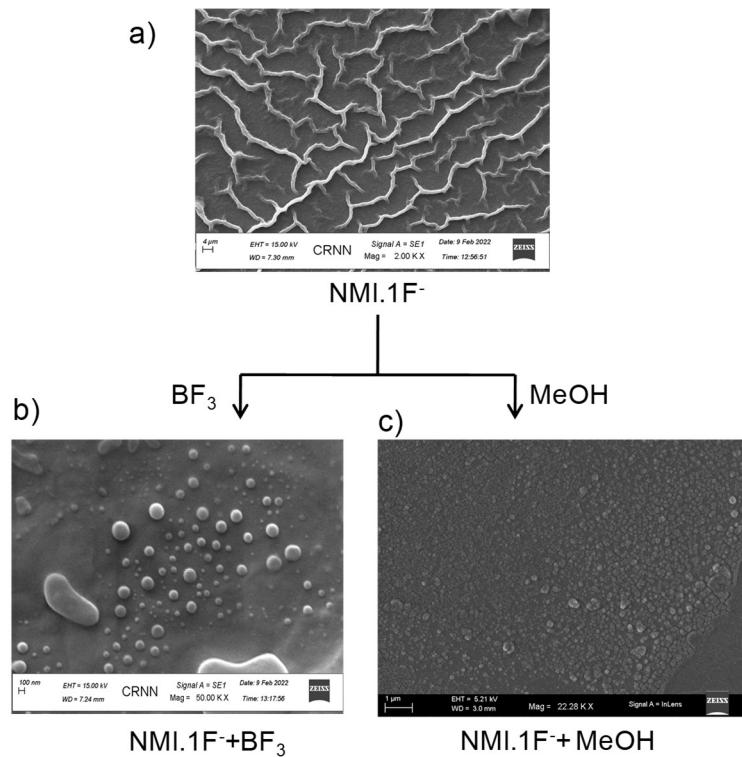


Figure S9: SEM images of a) NMI-2 upon addition of 1 equiv. of F^- anion; b) BF_3 addition to NMI.1F⁻(NMI-2: F^- = 1:1) solution; c) MeOH addition to NMI.1F⁻ solution. Nanofiber to nanoparticle transformation indicates depolymerization of supramolecular polymer upon addition of BF_3 or MeOH.

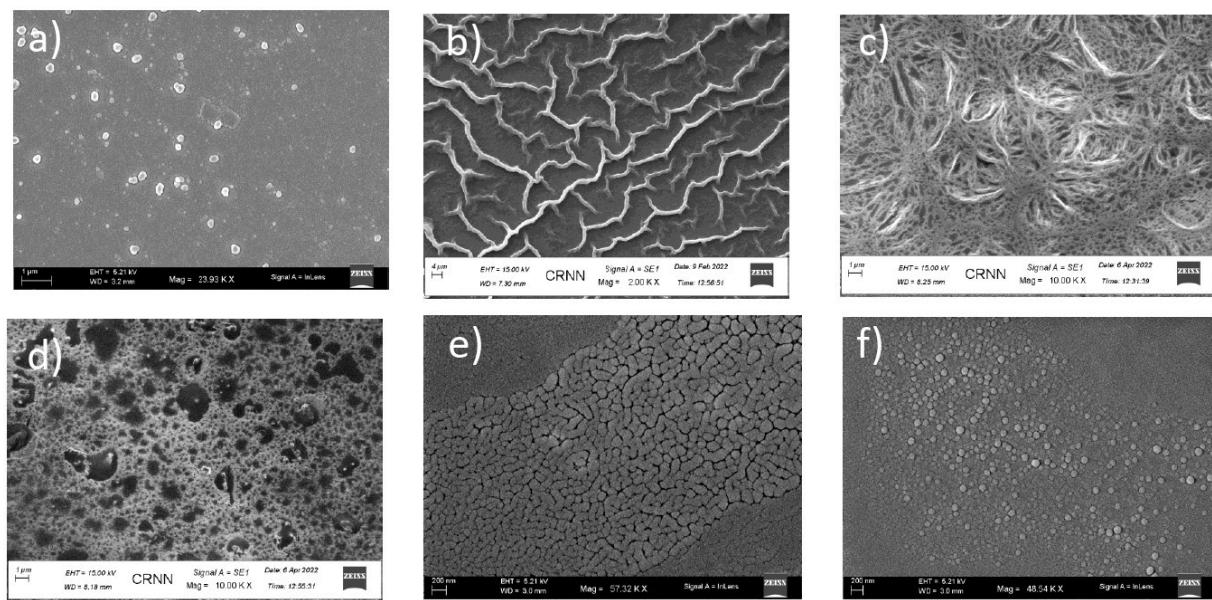


Figure S10: Morphology tuning by varying NMI-2 and F^- anion ratio in the solution. SEM images of a) NMI-2,b) NMI.1 F^- (NMI-2: F^- = 1:1), c) NMI.5 F^- (NMI-2: F^- = 1:5),d) NMI.10 F^- (NMI-2: F^- = 1:10),e) NMI.25 F^- (NMI-2: F^- = 1:25),and f) NMI.50 F^- (NMI-2: F^- = 1:50) adduct.

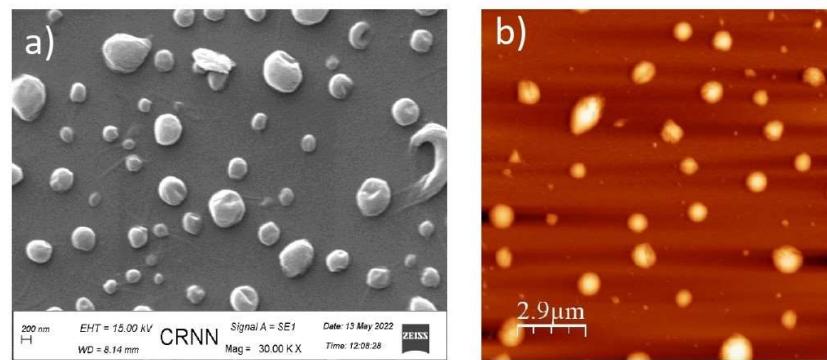


Figure S11:a) SEM image of NMI-C1 without F^- anion and b) AFM of NMI-C1 in presence of 1 equiv. of F^- anion.

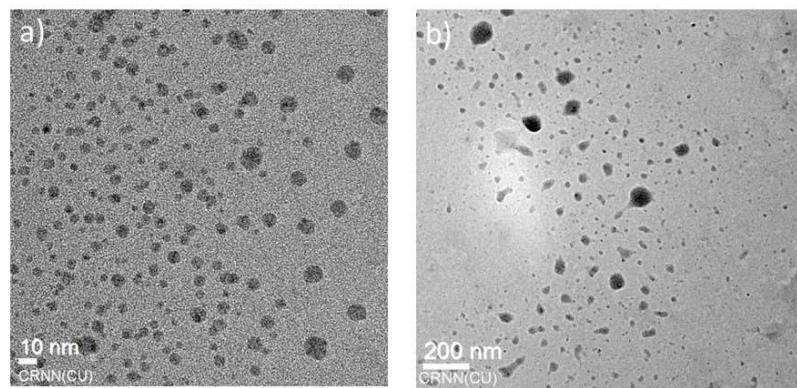


Figure S12: TEM image of NMI-C2; a) without F^- anion and b) with 1 equiv. of F^- anion.

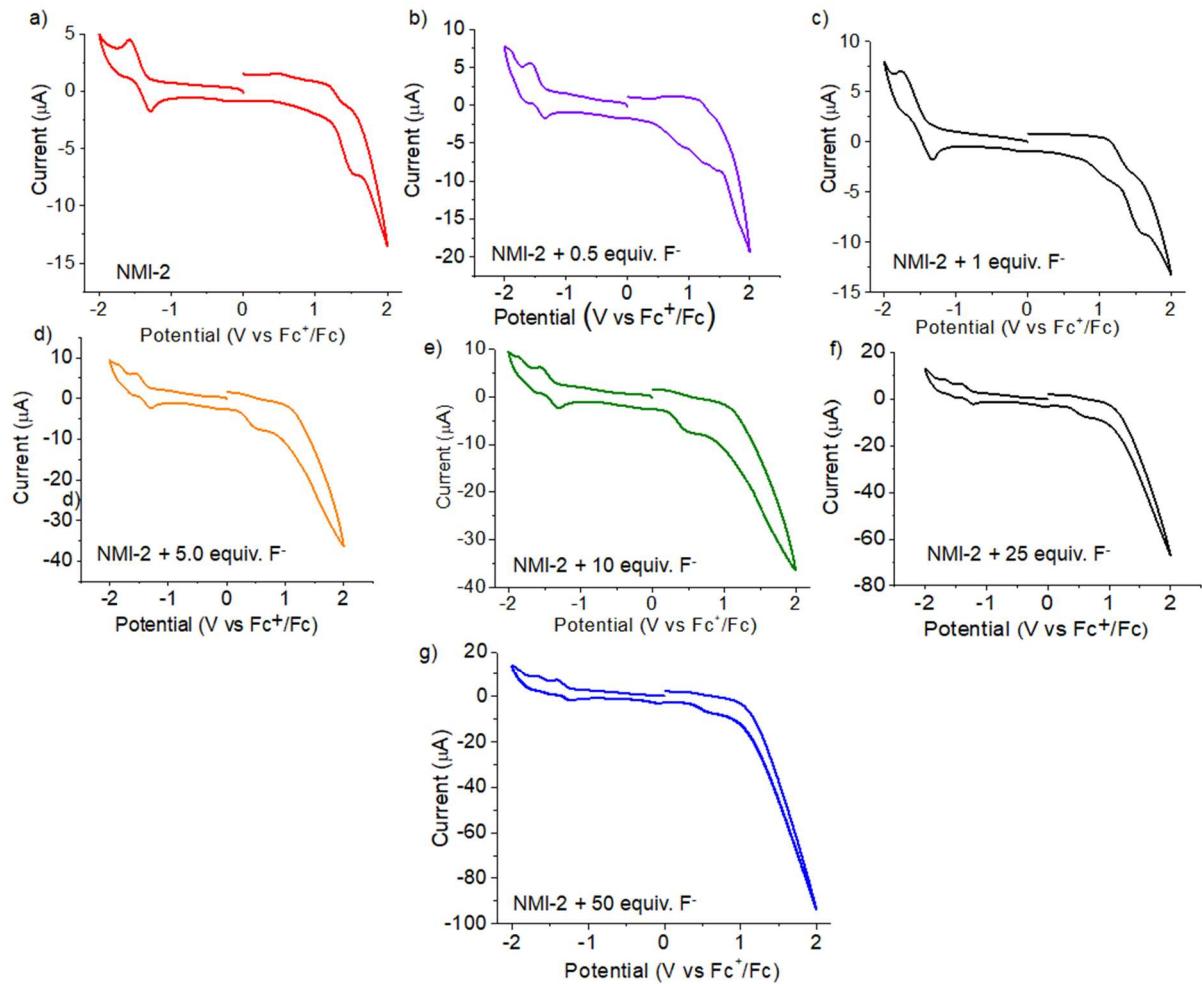


Figure S13: Cyclic Voltamogramsplot of NMI-2 in presence a) in absence and in presence of b) 0.5equiv, c) 1equiv. d) 5 equiv., e) 10 equiv., f) 25 equiv. and g) 50equiv. F^- anion. Solvent = THF, supporting electrolyte = TBAP (Tetrabutyl ammonium perchlorate). Potentials are internally referenced to the ferrocene/ferrocenium (Fc/Fc^+) couple.

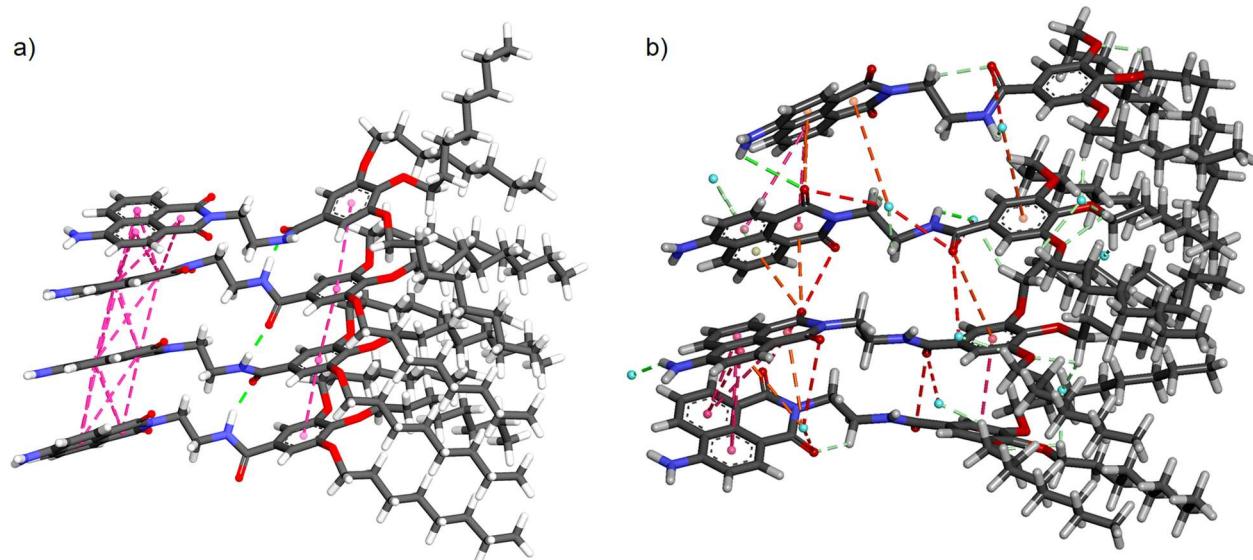


Figure S14: Computational tetramer of NMI-2 a) in absence of F^- anion and b) in presence of excess of F^- anion. Excess anions destroyed the ordered structure as shown in the picture. Pink and green dotted line indicates π - π stacking and H-bonding respectively. Light green point represents F^- anion.

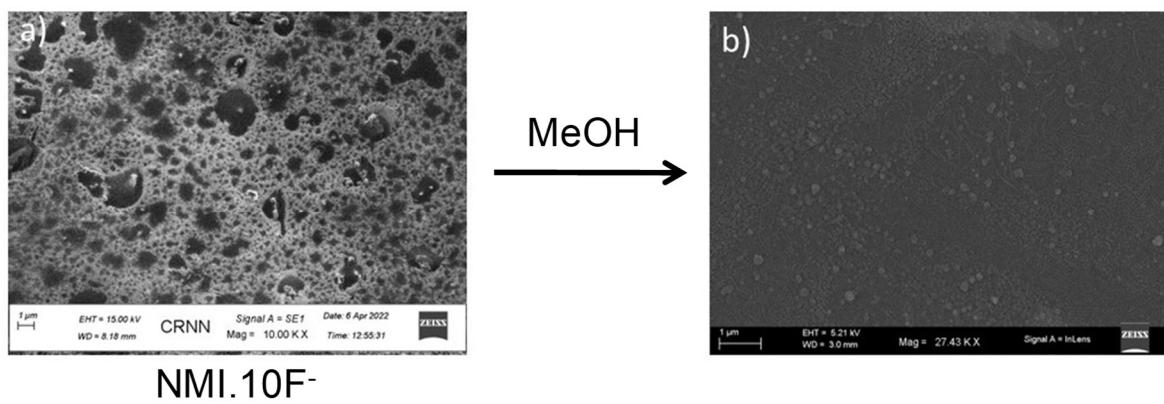


Figure S15: SEM image of NMI-2.10F⁻ (NMI-2: F⁻ = 1:10) adduct a) before and b) after methanol addition.

Table S1:Fluorescence lifetime data.

Sample	Component Lifetimes(ns) ^a		
	τ_1	τ_2	τ_{avg}
0 eqv fluoride in 100% THF	3.55(4.39%)	10.36(95.61%)	10.06
0.5 eqv fluoride in 100% THF	3.22(4.39%)	9.96(95.61%)	9.66
1 eqv fluoride in 100% THF	2.89(4.31%)	9.73(95.69%)	9.44
5 eqv fluoride in 100% THF	1.95(6.73%)	8.11(93.27%)	7.70
10 eqv fluoride in 100% THF	1.51(11.65%)	6.56(88.35%)	5.97
25 eqv fluoride in 100% THF	1.22(15.61%)	5.56(84.39%)	4.88
50 eqv fluoride in 100% THF	0.91(24.86%)	4.11(75.14%)	3.31

Values in parenthesis shows the decay contribution corresponding to each lifetime. Average lifetimes (τ_{avg}) were calculated using the following equation: $\tau_{avg} = a_1\tau_1 + a_2\tau_2$.

Table S2: HOMO-LUMO energy level from UV/Vis and CV experiments

System	E_g^{opt} [eV]	E_{ox} [V]	E_{red} [V]	E_{HOMO} [eV]	E_{LUMO} [eV]	E_g^{CV} [eV]	Conductivity (S.cm ⁻¹)
NMI.0F ⁻	2.57	1.37	-1.43	-5.77	-2.97	2.80	1.76x10 ⁻⁸
NMI.0.5F ⁻	2.53	1.31	-1.47	-5.71	-2.93	2.78	1.29x10 ⁻⁶
NMI.1F ⁻	2.52	1.18	-1.55	-5.58	-2.86	2.72	1.36x10 ⁻⁶
NMI.5F ⁻	2.44	0.55	-1.58	-4.95	-2.82	2.13	6.69x10 ⁻⁶
NMI.10F ⁻	2.38	0.46	-1.58	-4.86	-2.82	2.04	1.45x10 ⁻⁴
NMI.25F ⁻	2.37	0.58	-1.31	-4.98	-3.09	1.89	6.7x10 ⁻⁵
NMI.50F ⁻	2.32	0.57	-1.31	-4.97	-3.09	1.88	1.6x10 ⁻⁵

NMI.0F⁻ (NMI: F⁻ = 1:0), NMI.0.5F⁻ (NMI: F⁻ = 1:0.5), NMI.1F⁻ (NMI: F⁻ = 1:1), NMI.5F⁻ (NMI: F⁻ = 1:5), NMI.10F⁻ (NMI: F⁻ = 1:10), NMI.25F⁻ (NMI: F⁻ = 1:25), NMI.50F⁻ (NMI: F⁻ = 1:50).

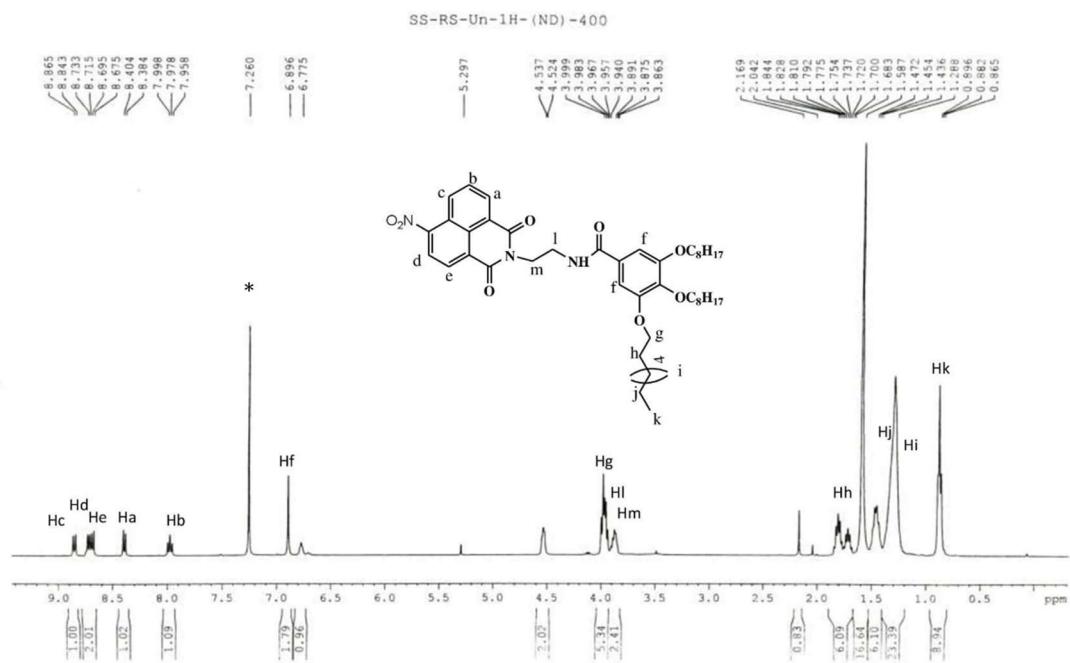


Figure S16: ^1H -NMR spectrum of Compound NMI-C1. Solvent- CDCl_3 *indicates solvent peak.

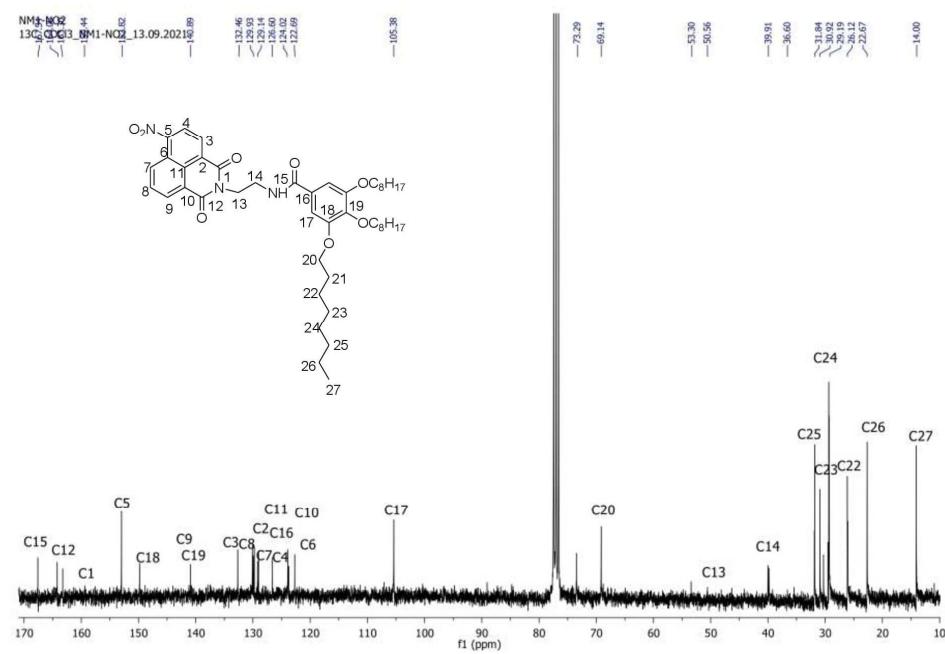


Figure S17: ^{13}C -NMR spectrum of Compound NMI-C1. Solvent- CDCl_3 . *indicates solvent peak

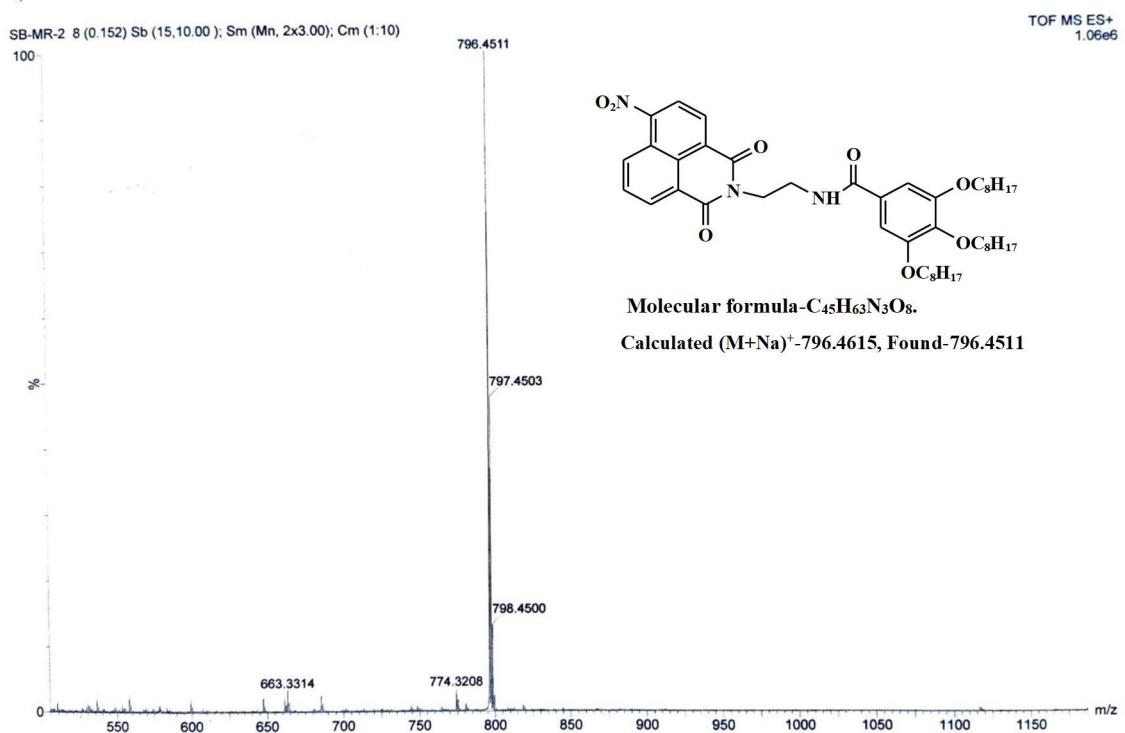


Figure S18: ESI-MS spectrum of Compound **NMI-C1**.

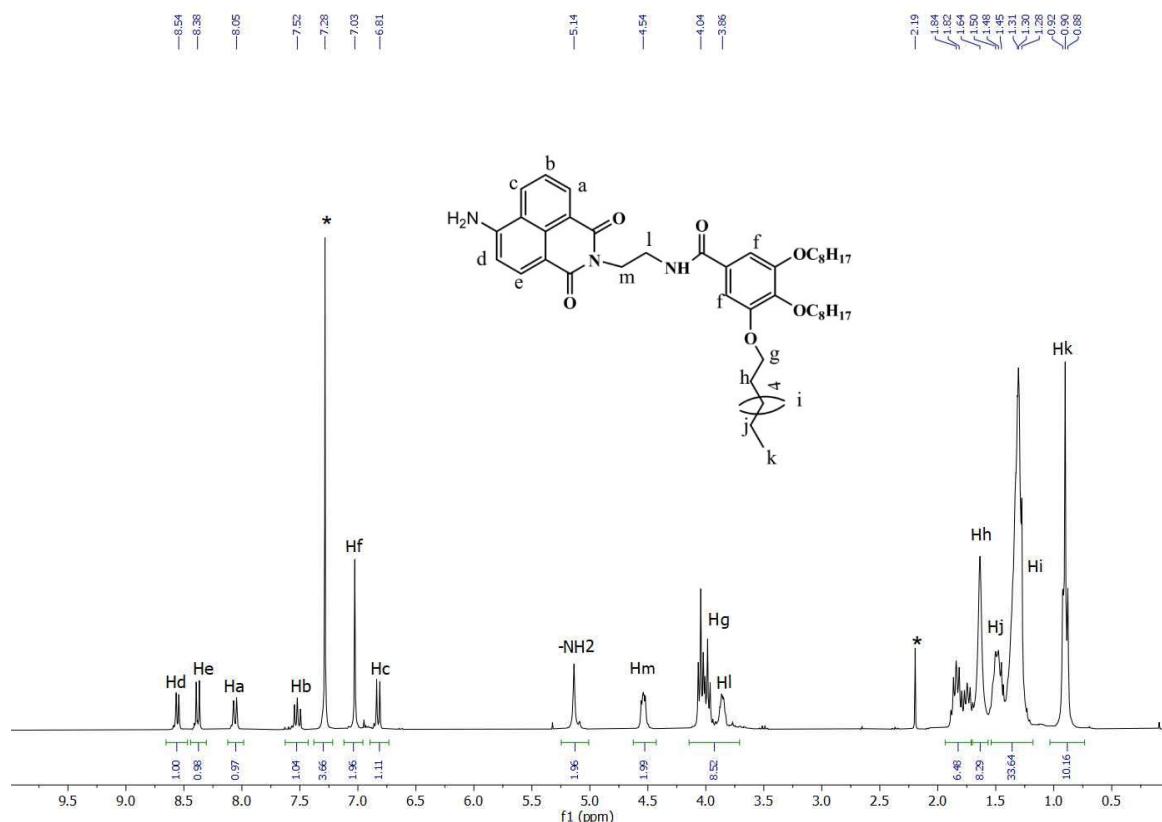


Figure S19: ^1H - NMR spectrum of Compound **NMI-2**. Solvent- CDCl_3 *indicates solvent peak

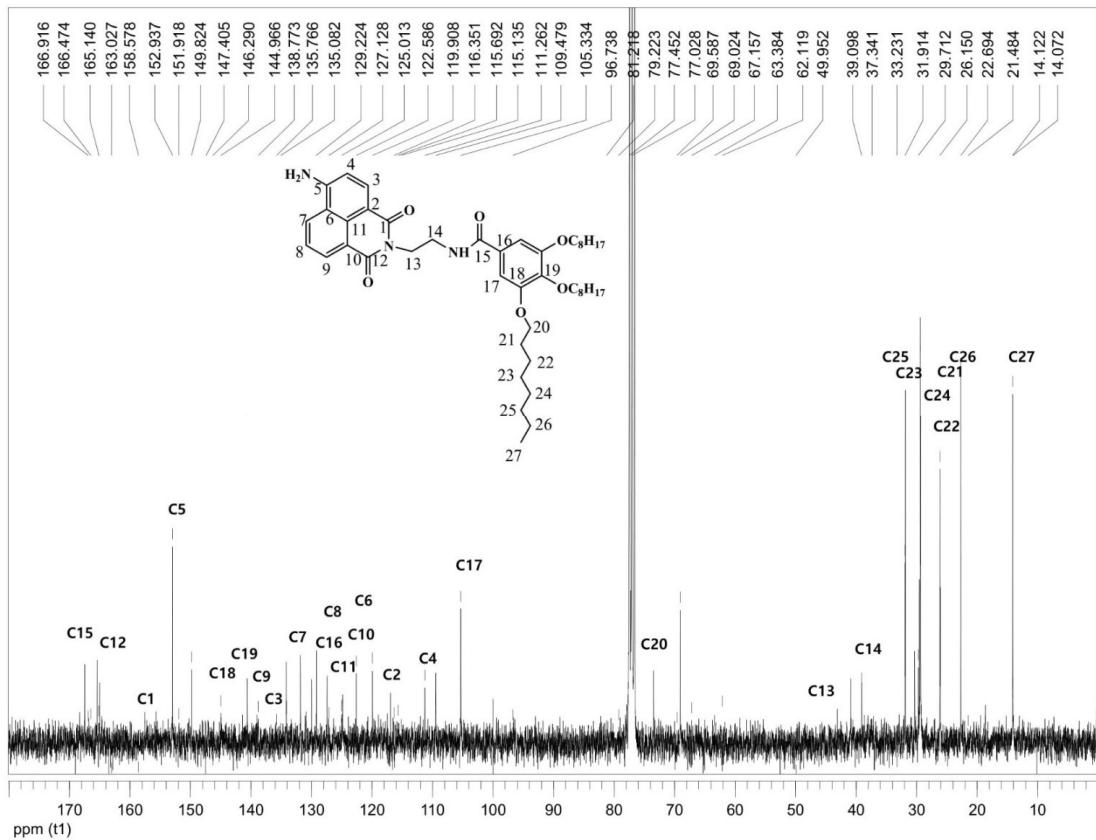


Figure S20: ^{13}C - NMR spectrum of Compound **NMI-2**. Solvent- CDCl_3 .

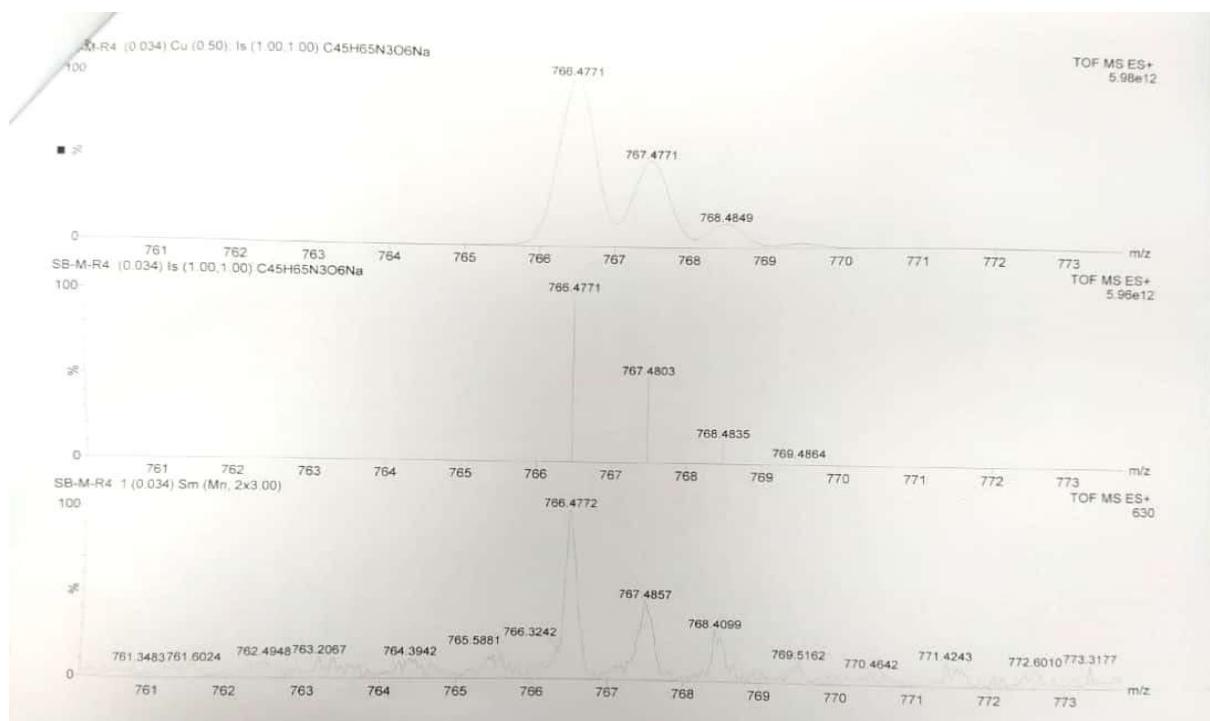
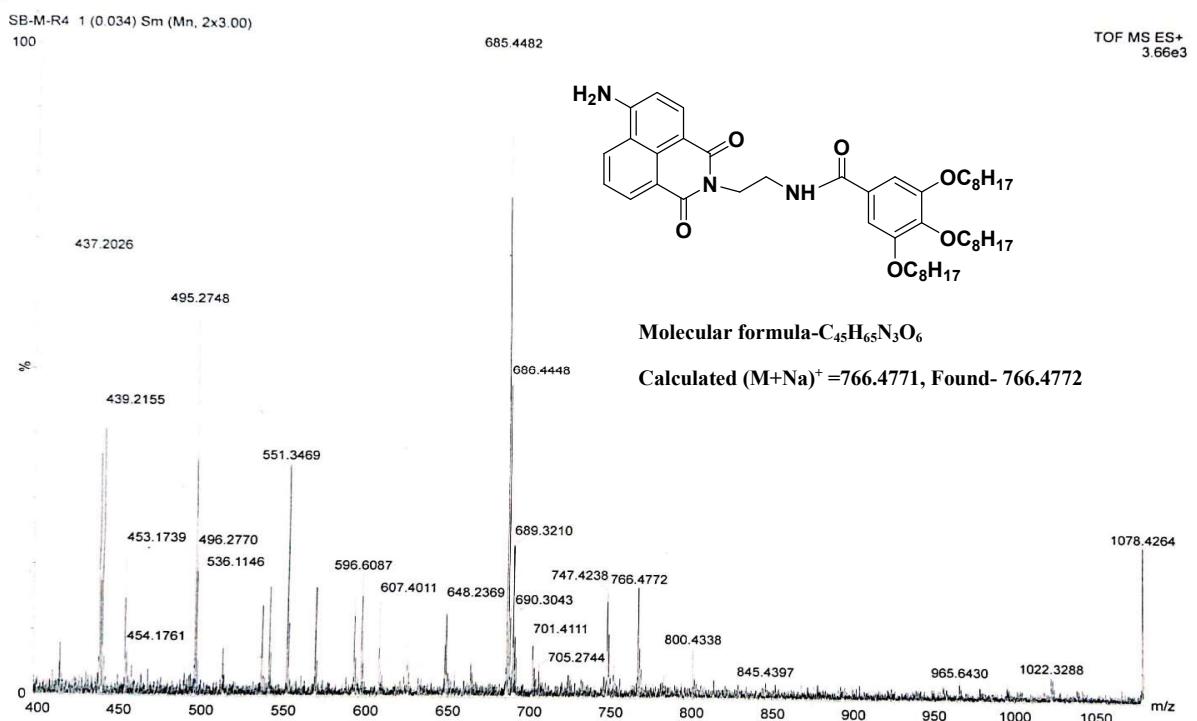
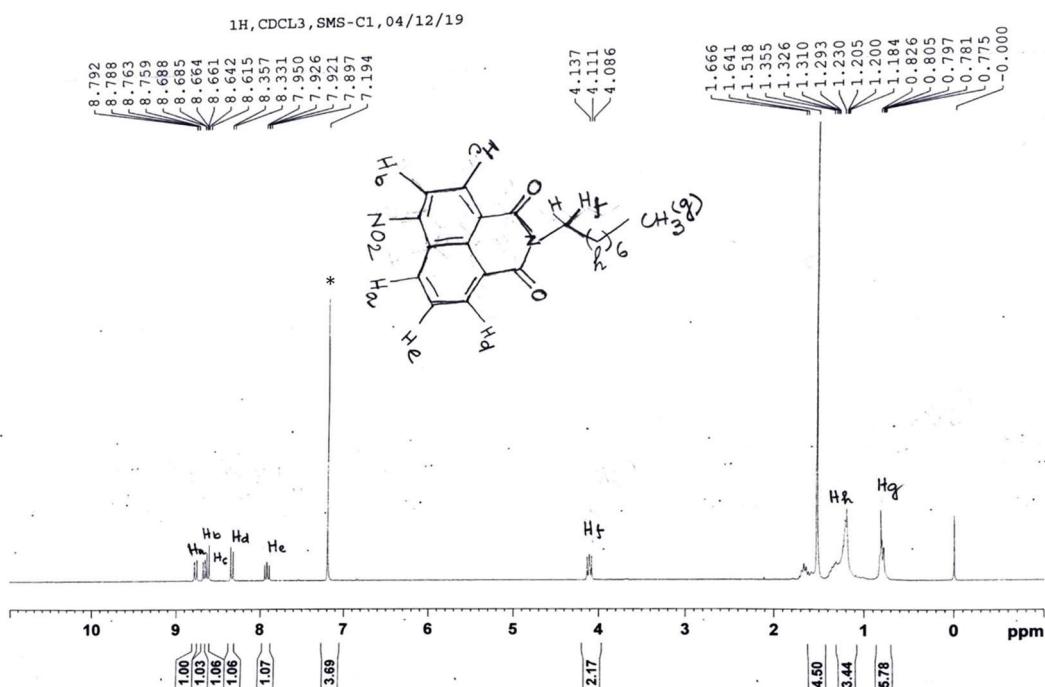
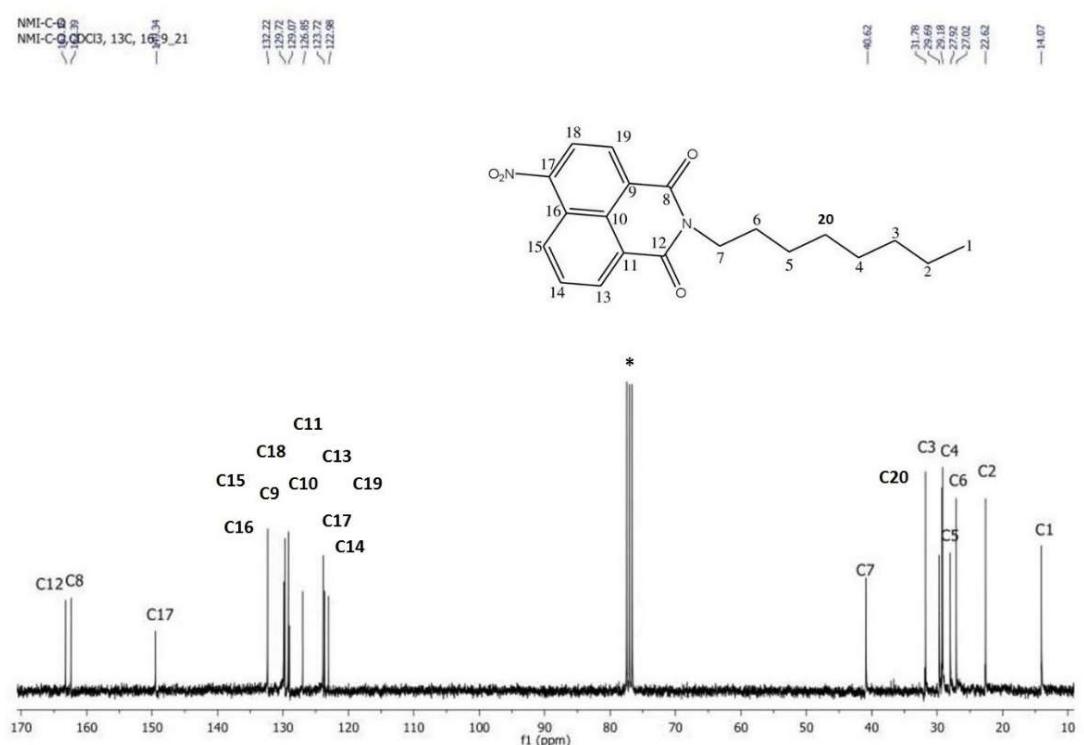


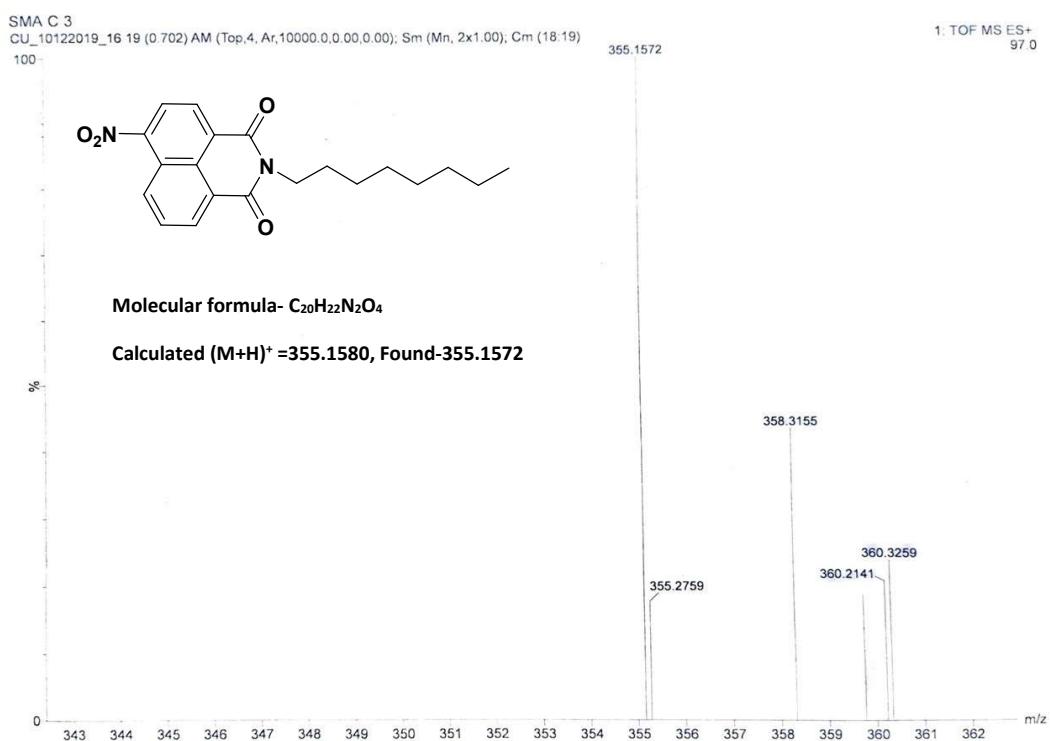
Figure S21: ESI-MS spectrum of Compound **NMI-2**.



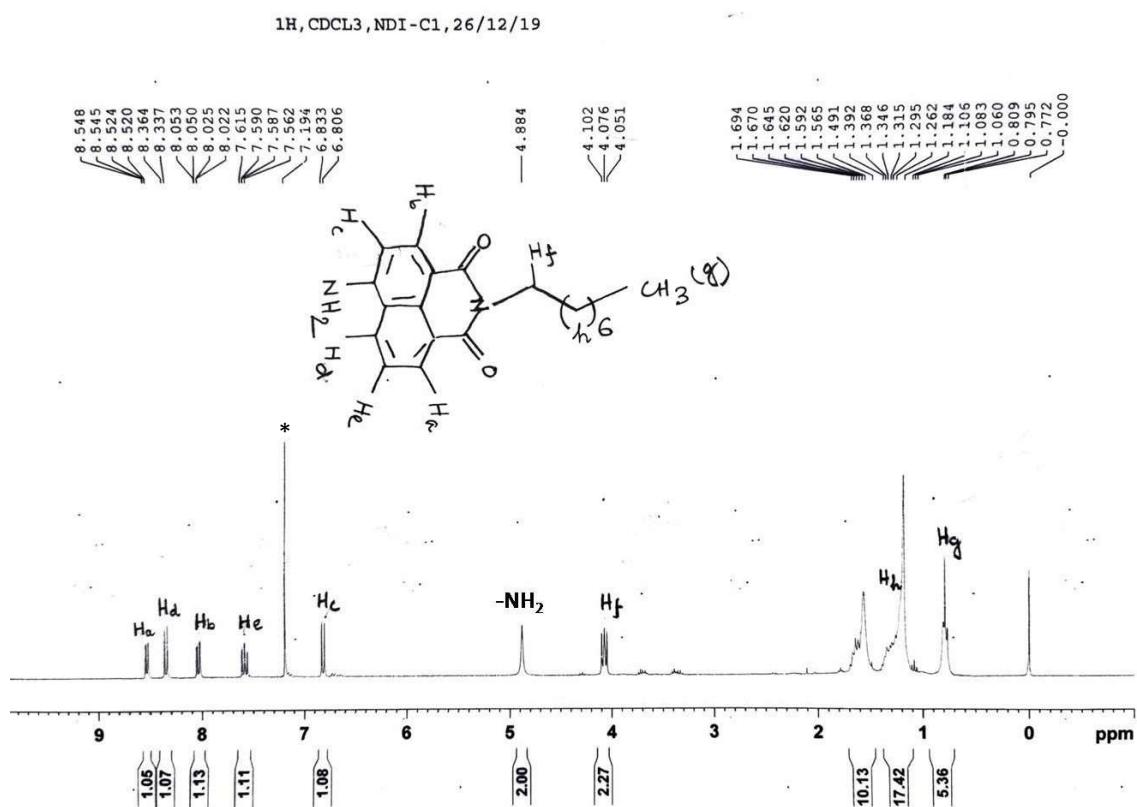
FigureS22: ¹H-NMR spectrum of Compound NMI-C₀. Solvent-CDCl₃. *indicates solvent peak



FigureS23: ¹³C-NMR spectrum of Compound NMI-C₀. Solvent-CDCl₃. *indicates solvent peak



FigureS24:ESI-MSspectrumofNMI-C0



FigureS25:¹H-NMRspectrumofCompoundNMI-C2.Solvent-CDCl₃.*indicates solventpeak.

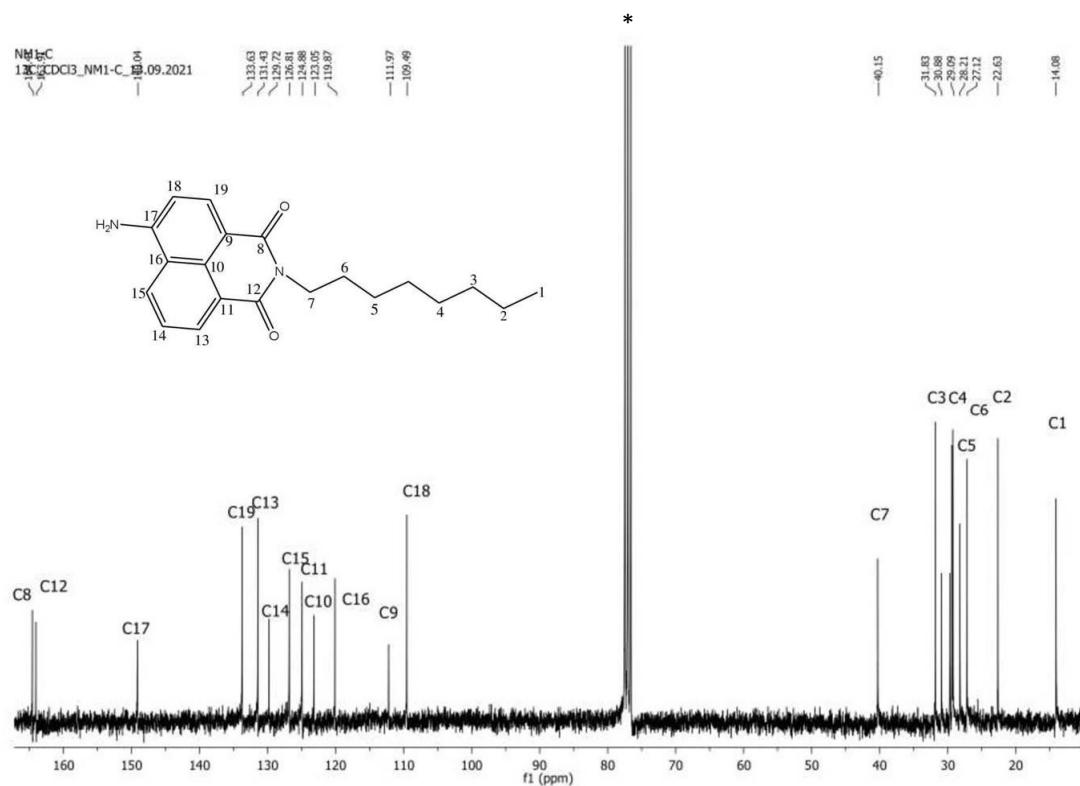


Figure S26: ¹³C-NMR spectrum of Compound NMI-C2. Solvent-CDCl₃. *indicates solvent peak

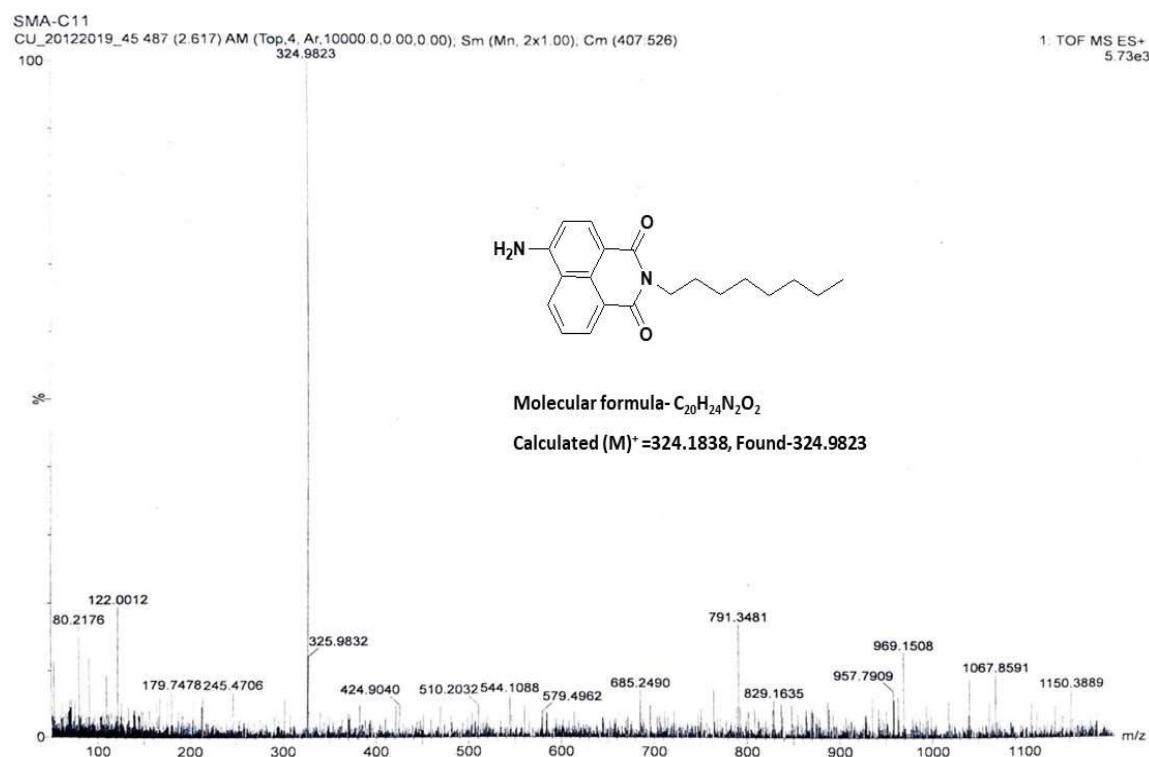


Figure S27: ESI-MS spectrum of NMI-C2.

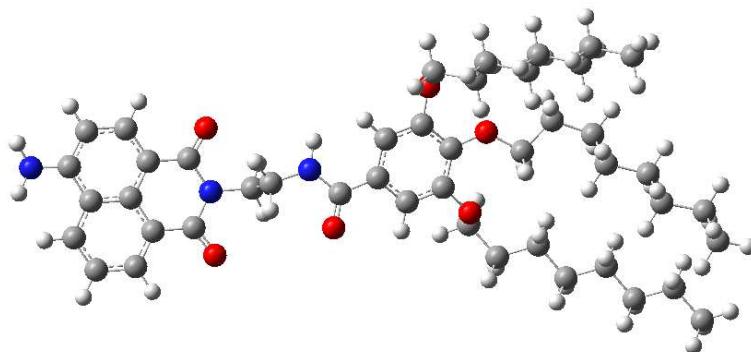
Computational

The compound NMI-2 and its assembly in the presence of F- ion with different amount was investigated using DFT method.^{2,3} Gaussian 09W D1 revision⁴using the ωB97XD functional and 6-311G(d,p)basis set to optimize the geometry of the molecule. The 6-31G (d,p) basis set has been employed for the molecular electrostatic potential map (MEP) generation. HOMO, LUMO, and MEP were visualized using GaussView 5 software.⁵

NCI Plot

NCIPILOT Version 4.0 was utilized for the calculations of NCI Plot of interactions between 2 and amino acids present in the vicinity of the molecule using standard procedure.⁶

Coordinates of the energy minimized compound

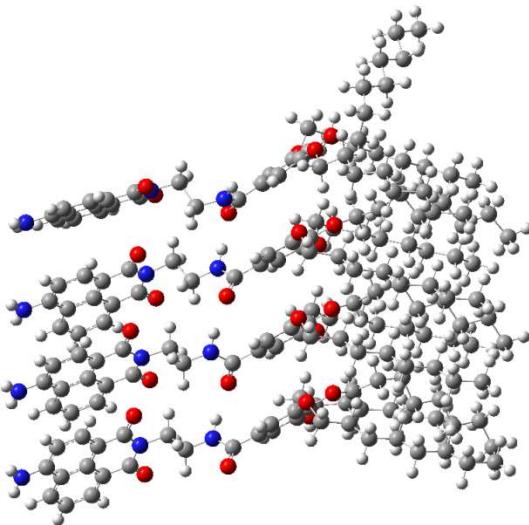


Energy = -2385.32486 Hartree

C	9.95110000	5.43420000	-12.45800000
C	10.30480000	4.14790000	-12.82810000
C	10.66210000	3.16870000	-11.84960000
C	10.61280000	3.54330000	-10.48250000
C	10.23710000	4.86180000	-10.11380000
C	9.91780000	5.78600000	-11.10660000
C	11.06450000	1.85100000	-12.18390000
C	11.38270000	0.94010000	-11.20090000
C	11.31780000	1.30990000	-9.84890000
C	10.94140000	2.59420000	-9.47960000
C	10.87960000	2.98560000	-8.07650000
N	10.53640000	4.29250000	-7.72580000
C	10.18910000	5.22510000	-8.70790000
O	9.83720000	6.33690000	-8.31510000
O	11.11700000	2.20450000	-7.16270000
N	10.29840000	3.83540000	-14.16860000
C	10.50720000	4.69770000	-6.29210000
C	9.04610000	4.55440000	-5.82740000
N	8.94020000	5.27700000	-4.55020000
C	9.18640000	4.69940000	-3.33220000

C	9.08920000	5.50500000	-2.10950000
O	9.49790000	3.51640000	-3.33120000
C	9.59790000	4.99570000	-0.90370000
C	9.53190000	5.74390000	0.26790000
C	8.94410000	7.01910000	0.26870000
C	8.42860000	7.51960000	-0.93190000
C	8.49590000	6.78010000	-2.10760000
O	7.83810000	8.76510000	-0.97790000
O	8.83520000	7.82380000	1.39990000
O	10.05970000	5.17720000	1.40440000
C	11.49440000	5.18540000	1.57370000
C	11.78090000	4.28970000	2.78630000
C	11.14860000	4.82060000	4.08390000
C	11.51230000	3.92690000	5.27580000
C	10.79490000	4.41080000	6.54250000
C	11.17260000	3.53440000	7.74390000
C	10.40630000	3.97960000	8.99490000
C	10.79560000	3.12520000	10.20480000
C	8.96040000	7.41300000	2.77390000
C	8.37950000	8.57160000	3.58870000
C	8.54950000	8.38680000	5.10550000
C	7.77050000	7.18110000	5.65410000
C	7.86310000	7.13810000	7.18540000
C	7.07210000	5.94910000	7.74650000
C	7.11330000	5.95050000	9.28030000
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C	5.91620000	8.77000000	0.42540000
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C	3.95330000	8.82940000	1.99770000
C	2.43400000	9.00600000	2.11890000
C	1.98860000	8.86530000	3.58060000
C	0.46880000	9.03670000	3.70030000
C	0.02220000	8.89580000	5.15870000
H	11.12720000	1.56140000	-13.20020000
H	9.84540000	4.49020000	-14.82370000
H	10.30950000	2.84270000	-14.44220000
H	9.70520000	6.15090000	-13.19810000
H	9.64290000	6.77410000	-10.83370000
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H	11.56390000	0.59580000	-9.10280000
H	11.12700000	4.05340000	-5.68150000
H	10.81000000	5.73210000	-6.19830000
H	8.37040000	5.00670000	-6.55500000
H	8.79850000	3.49630000	-5.71380000
H	8.79580000	6.29420000	-4.58740000
H	10.03400000	4.02970000	-0.88270000
H	8.09040000	7.19220000	-2.99280000
H	11.98160000	4.77600000	0.68730000
H	11.84710000	6.20180000	1.75550000
H	11.39560000	3.28980000	2.58010000
H	12.86170000	4.22230000	2.91590000
H	11.50070000	5.83600000	4.27390000
H	10.06290000	4.83780000	3.97270000
H	11.21120000	2.89900000	5.06360000
H	12.59230000	3.95280000	5.43420000

H	11.07300000	5.44630000	6.74770000
H	9.71600000	4.36160000	6.38450000
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H	11.86250000	3.22810000	10.40750000
H	10.56480000	2.07660000	10.01170000
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H	8.39100000	6.49890000	2.94550000
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H	7.32090000	8.67870000	3.34850000
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H	8.19110000	9.29260000	5.59840000
H	6.72250000	7.26410000	5.35900000
H	8.18010000	6.25630000	5.24520000
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H	4.12990000	9.95460000	0.16350000
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H	2.15360000	9.99390000	1.74860000
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H	2.27140000	7.87850000	3.95210000
H	2.48740000	9.62470000	4.18600000
H	0.18190000	10.02370000	3.33140000
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H	-1.05930000	9.02230000	5.22350000
H	0.50500000	9.65730000	5.77280000
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Energy = -9541.13681 Hartree

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C	5.36600000	4.47600000	4.71600000
C	5.94900000	3.75100000	5.80100000
C	5.73600000	4.23600000	7.11700000
C	4.96100000	5.40600000	7.33500000
C	4.42200000	6.08200000	6.24200000
C	6.71300000	2.56900000	5.62300000
C	7.23200000	1.89500000	6.70600000
C	7.02100000	2.37900000	8.00500000
C	6.28800000	3.53800000	8.22200000
C	6.06300000	4.04200000	9.57200000
N	5.31000000	5.20200000	9.77700000
C	4.74700000	5.88000000	8.69300000
O	4.09500000	6.89200000	8.95600000
O	6.52200000	3.48200000	10.56400000
N	5.54259800	4.00347000	3.43217100
C	5.10000000	5.71900000	11.15800000
C	3.67500000	5.32000000	11.60000000
N	3.58300000	5.67700000	13.03000000
C	4.11200000	4.88500000	14.01500000
C	4.41300000	5.45700000	15.32900000
O	4.36100000	3.71800000	13.72300000
C	5.40800000	4.85400000	16.10800000
C	5.75300000	5.37200000	17.34800000
C	5.10500000	6.51400000	17.84800000
C	4.12300000	7.13600000	17.06000000
C	3.76200000	6.60000000	15.82200000
O	3.52800000	8.31300000	17.48500000
O	5.44900000	6.98800000	19.10300000
O	6.72200000	4.65600000	18.03000000
C	7.81600000	5.19500000	18.81800000
C	7.91100000	4.29400000	20.05400000
C	6.71900000	4.51500000	20.99500000
C	6.84500000	3.67000000	22.26700000
C	5.71800000	4.02500000	23.24500000
C	5.84300000	3.19800000	24.53100000

C	4.72800000	3.57400000	25.51200000
C	4.82800000	2.74800000	26.79700000
C	4.55500000	7.43200000	20.17300000
C	4.92900000	8.89500000	20.46700000
C	6.40700000	9.14300000	20.83400000
C	6.80800000	8.60400000	22.21900000
C	8.32400000	8.82700000	22.36300000
C	8.67000000	8.25000000	23.74700000
C	10.16700000	8.59000000	23.80500000
C	10.59000000	8.09200000	25.18800000
C	2.12900000	8.58800000	17.25400000
C	1.71600000	9.56500000	18.35800000
C	0.19600000	9.79000000	18.32500000
C	-0.32900000	10.24900000	19.69200000
C	-1.85800000	10.38500000	19.65700000
C	-2.41300000	10.62400000	21.06800000
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H	7.79900000	1.01000000	6.56400000
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H	-2.12500000	9.78700000	21.70800000
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H	-5.59200000	10.95800000	22.40800000
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C	3.60100000	0.13200000	4.49200000
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C	3.70800000	-0.27200000	6.89700000
C	3.49900000	1.11400000	7.12000000
C	3.27500000	1.95300000	6.03100000
C	3.85600000	-2.18900000	5.39300000
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C	4.00900000	-2.51100000	7.77800000
C	3.87700000	-1.14700000	8.00000000
C	3.89800000	-0.59800000	9.35000000
N	3.80800000	0.78000000	9.55000000
C	3.53300000	1.63400000	8.47600000
O	3.35100000	2.82100000	8.74500000
O	3.98000000	-1.30100000	10.35200000
N	3.66770100	-0.30139600	3.20515200
C	3.88500000	1.33000000	10.93300000
C	2.44000000	1.28400000	11.44500000
N	2.35000000	2.01500000	12.70500000
C	1.15500000	2.49400000	13.15600000
C	1.13000000	3.21200000	14.42400000
O	0.16200000	2.30100000	12.45800000
C	1.71900000	2.66100000	15.57200000
C	1.68700000	3.35000000	16.78100000
C	1.08500000	4.61600000	16.86100000
C	0.51200000	5.16400000	15.70500000
C	0.51800000	4.46800000	14.50300000
O	-0.06000000	6.41900000	15.72000000
O	1.00500000	5.36900000	18.02400000
O	2.23300000	2.71600000	17.87100000

C	3.63800000	2.86700000	18.16900000
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C	3.10400000	2.12100000	20.54500000
C	3.44200000	1.11400000	21.64900000
C	2.53400000	1.35500000	22.86000000
C	2.85000000	0.35700000	23.98100000
C	1.94200000	0.60600000	25.18900000
C	2.22100000	-0.40900000	26.30100000
C	1.50900000	5.16900000	19.37100000
C	0.83100000	6.25400000	20.21900000
C	1.57000000	6.30400000	21.58100000
C	0.79500000	5.26100000	22.40100000
C	1.32700000	5.40200000	23.83300000
C	0.51500000	4.42200000	24.69700000
C	0.89400000	4.53600000	26.17800000
C	0.03500000	3.59400000	27.02900000
C	-1.50400000	6.53800000	15.77800000
C	-1.89400000	6.26200000	17.23200000
C	-3.32000000	6.72500000	17.55100000
C	-3.60400000	6.50700000	19.04300000
C	-5.01700000	6.98000000	19.40500000
C	-5.26000000	6.81100000	20.91000000
C	-6.67000000	7.28100000	21.28700000
C	-6.90800000	7.10900000	22.79000000
H	3.82900000	-2.59800000	4.41600000
H	3.52681100	0.34997300	2.45454600
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H	3.19900000	2.13700000	3.91000000
H	3.07300000	2.98200000	6.19700000
H	4.08400000	-4.07800000	6.32800000
H	4.11700000	-3.17300000	8.60100000
H	4.51000000	0.71500000	11.56600000
H	4.23000000	2.35200000	10.91700000
H	1.78400000	1.74700000	10.70400000
H	2.14800000	0.24700000	11.61200000
H	3.21400000	2.40000000	13.14300000
H	2.17800000	1.70800000	15.52500000
H	0.06500000	4.89000000	13.64500000
H	4.23800000	2.64000000	17.28800000
H	3.85100000	3.87800000	18.51300000
H	3.73100000	0.85300000	18.91200000
H	4.99700000	1.93000000	19.53200000
H	3.29400000	3.13600000	20.90300000
H	2.04300000	2.03800000	20.30500000
H	3.29200000	0.09900000	21.27800000
H	4.48600000	1.23900000	21.94500000
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H	2.69700000	-0.65900000	23.61300000
H	3.89300000	0.47100000	24.28300000
H	2.11500000	1.61400000	25.57100000
H	0.89900000	0.52400000	24.88300000
H	1.54800000	-0.22600000	27.13900000
H	3.25200000	-0.31300000	26.64400000
H	2.06100000	-1.42100000	25.92900000
H	2.58600000	5.31700000	19.40400000

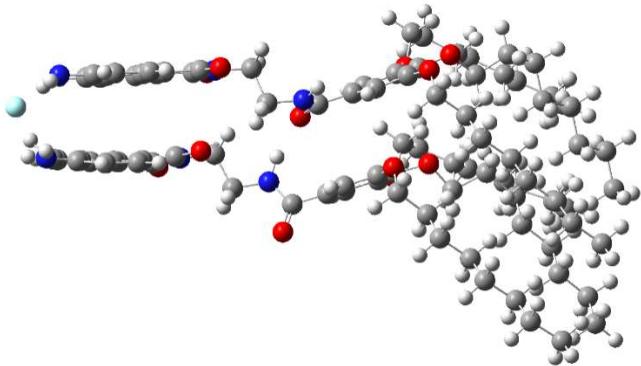
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H	0.17200000	2.56300000	26.70300000
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H	-1.98200000	5.81800000	15.11200000
H	-1.80200000	5.19200000	17.41800000
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H	-5.12700000	8.03200000	19.13600000
H	-5.74900000	6.39500000	18.84800000
H	-5.14100000	5.75900000	21.17800000
H	-4.52200000	7.39600000	21.46300000
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H	-6.19400000	7.71300000	23.35100000
H	-6.79100000	6.06100000	23.06900000
C	0.13000000	-0.77800000	3.67500000
C	0.35300000	-2.12200000	3.42500000
C	0.53600000	-3.05200000	4.49500000
C	0.51600000	-2.55100000	5.82200000
C	0.33900000	-1.16500000	6.06100000
C	0.13300000	-0.30300000	4.98700000
C	0.72900000	-4.44200000	4.29400000
C	0.87800000	-5.29600000	5.36400000
C	0.84800000	-4.79700000	6.67500000
C	0.67100000	-3.44100000	6.91600000
C	0.62000000	-2.91700000	8.27600000
N	0.42500000	-1.55300000	8.49800000
C	0.38800000	-0.66500000	7.42100000
O	0.43300000	0.53400000	7.69100000
O	0.74300000	-3.63600000	9.26200000
N	0.36065600	-2.56158400	2.14463900
C	0.27300000	-1.02200000	9.88000000
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N	-1.29300000	-0.02100000	11.41900000
C	-1.57200000	-0.74400000	12.54300000
C	-1.62000000	-0.03500000	13.82300000
O	-1.73900000	-1.95700000	12.41800000
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C	-1.04700000	0.08200000	16.17800000
C	-1.61300000	1.36500000	16.26800000
C	-2.21600000	1.91600000	15.13100000

C	-2.22900000	1.22600000	13.92400000
O	-2.79800000	3.17100000	15.17700000
O	-1.60900000	2.13800000	17.42100000
O	-0.50900000	-0.56100000	17.27000000
C	0.91900000	-0.58000000	17.47000000
C	1.16400000	-1.58600000	18.60400000
C	0.45200000	-1.20100000	19.91300000
C	0.76300000	-2.21200000	21.02400000
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C	-1.66300000	2.98500000	19.60600000
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C	-2.11400000	1.72900000	21.78500000
C	-1.85600000	1.73800000	23.29600000
C	-2.70400000	0.66300000	23.98800000
C	-2.48900000	0.68900000	25.50700000
C	-3.36100000	-0.37000000	26.19000000
C	-4.23000000	3.30700000	15.36300000
C	-4.48900000	3.08600000	16.85800000
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C	-7.47000000	3.61900000	19.28200000
C	-7.60100000	3.34600000	20.78700000
C	-8.99600000	3.73500000	21.29000000
C	-9.12600000	3.45800000	22.79000000
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H	-1.85900000	-1.46000000	9.96500000
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H	1.42600000	-0.90800000	16.56100000
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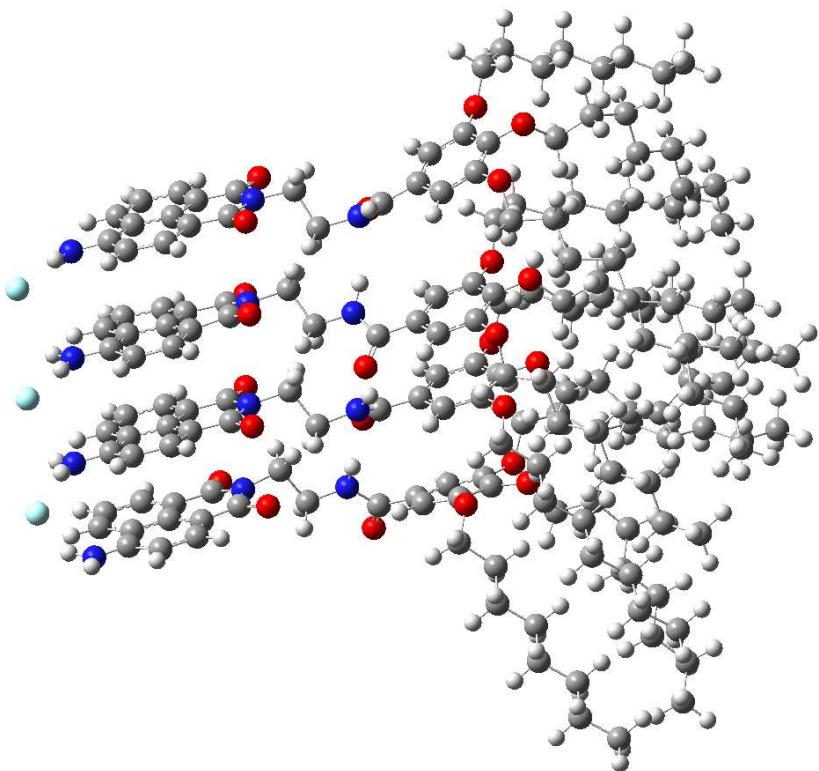
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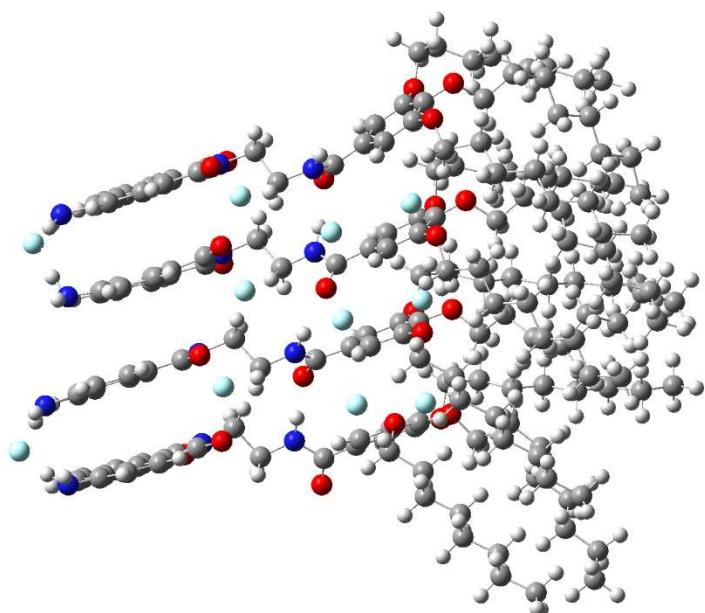
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C	-0.82000000	2.15700000	-0.02100000
C	-2.22800000	2.64000000	-0.38600000

C	-3.17300000	2.37600000	0.79300000
C	-4.58600000	2.89100000	0.49800000
C	-5.51100000	2.59600000	1.68500000
C	-6.93000000	3.10700000	1.41000000
C	-7.85400000	2.77500000	2.58600000
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H	3.82700000	-1.26900000	-15.33100000
H	4.42900000	-2.82300000	-14.83200000
H	3.32900000	0.45500000	-13.83000000
H	3.12000000	1.22900000	-11.52000000
H	6.66900000	-4.96500000	-11.67700000
H	6.49600000	-4.14800000	-9.37600000
H	5.31300000	-0.64400000	-6.24600000
H	4.67300000	0.89900000	-6.88600000
H	2.39900000	0.07200000	-6.73600000
H	2.97400000	-1.55100000	-6.31500000
H	3.37700000	0.92400000	-4.56600000
H	4.60300000	-1.89600000	-1.56900000
H	1.83100000	1.06400000	-2.85900000
H	6.64100000	-0.49800000	0.85600000
H	5.48300000	0.64000000	1.59200000
H	6.06100000	-2.10300000	2.78200000
H	6.99500000	-0.65800000	3.21200000
H	4.92600000	0.49200000	3.94800000
H	3.97700000	-0.95000000	3.54800000
H	5.21700000	-2.27600000	5.20800000
H	6.27400000	-0.89800000	5.56100000
H	4.35800000	0.40000000	6.40900000
H	3.25400000	-0.93000000	6.01500000
H	4.42500000	-2.41900000	7.59300000
H	5.62100000	-1.15800000	7.93800000
H	3.84200000	0.29600000	8.86900000
H	2.63100000	-0.94500000	8.50100000
H	3.30200000	-1.03900000	10.88000000
H	4.99400000	-1.28900000	10.40700000
H	3.77400000	-2.52900000	10.03700000
H	1.90600000	-0.03100000	2.97900000
H	0.95400000	0.58200000	1.60300000
H	2.34800000	2.27900000	3.73200000
H	1.56500000	2.91300000	2.28500000
H	-0.08300000	3.18000000	3.95300000
H	-0.58600000	1.77100000	3.04600000
H	-0.94000000	1.16700000	5.28000000
H	0.57900000	0.34900000	4.89200000
H	1.85600000	2.15400000	6.00900000
H	0.35000000	3.05700000	6.27000000
H	-0.51900000	1.22500000	7.69400000
H	1.00100000	0.33800000	7.46400000
H	2.26000000	2.17600000	8.53100000
H	0.77300000	3.12600000	8.70100000
H	1.36200000	1.99700000	10.82600000
H	1.28100000	0.41700000	10.02300000
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H	-0.83500000	1.08600000	0.18200000

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H	-2.79000000	2.87400000	1.68500000
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H	-5.12000000	3.08100000	2.58100000
H	-6.90700000	4.18900000	1.26400000
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H	-7.89000000	1.69600000	2.74000000
C	6.99100000	1.30900000	-10.95200000
C	7.75200000	0.20000000	-11.27800000
C	8.31800000	-0.63500000	-10.26900000
C	8.16200000	-0.24600000	-8.91900000
C	7.49600000	0.96600000	-8.60500000
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C	9.00500000	-1.83800000	-10.56000000
C	9.48300000	-2.64000000	-9.54700000
C	9.30700000	-2.26200000	-8.20700000
C	8.66800000	-1.07200000	-7.88300000
C	8.50800000	-0.64700000	-6.49700000
N	7.99400000	0.62100000	-6.21100000
C	7.50000000	1.43500000	-7.23600000
O	7.09100000	2.54900000	-6.91400000
O	8.81900000	-1.34700000	-5.53800000
N	7.99500000	-0.05800000	-12.59900000
C	7.98500000	1.12300000	-4.80800000
C	6.53400000	0.99900000	-4.31700000
N	6.41400000	1.79500000	-3.09700000
C	5.25100000	2.40900000	-2.72800000
C	5.20500000	3.08700000	-1.43200000
O	4.30100000	2.35500000	-3.51000000
C	6.00600000	2.64800000	-0.36200000
C	5.95200000	3.29500000	0.86700000
C	5.12800000	4.40800000	1.04500000
C	4.28900000	4.81200000	0.00200000
C	4.33600000	4.17000000	-1.23300000
O	3.36000000	5.81100000	0.20600000
O	5.13700000	5.09400000	2.23400000
O	6.68600000	2.77400000	1.91100000
C	7.90900000	3.40900000	2.31400000
C	8.48600000	2.52900000	3.42700000
C	7.68000000	2.61700000	4.73100000
C	8.28300000	1.66800000	5.77400000
C	7.54100000	1.76700000	7.11200000
C	8.10700000	0.74300000	8.10400000
C	7.41400000	0.85400000	9.46800000
C	7.92000000	-0.23400000	10.41900000
C	4.18800000	4.71300000	3.24200000
C	4.25500000	5.86400000	4.24300000
C	3.36200000	5.70200000	5.47900000
C	1.86800000	5.80800000	5.14600000

C	1.05400000	5.86600000	6.44500000
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C	1.99000000	5.35400000	0.17700000
C	1.20400000	6.27400000	1.11100000
C	-0.20100000	5.69800000	1.32400000
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C	-2.41300000	5.92300000	2.47300000
C	-3.32300000	6.81800000	3.32200000
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C	-5.59200000	7.01100000	4.40300000
H	9.14500000	-2.12000000	-11.57500000
H	7.53900000	0.55900000	-13.27800000
H	9.04500000	-0.08500000	-12.84000000
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H	6.33000000	2.57500000	-9.37800000
H	9.98400000	-3.54900000	-9.77700000
H	9.67400000	-2.89600000	-7.43900000
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H	8.27600000	2.16200000	-4.79600000
H	5.85900000	1.39800000	-5.07200000
H	6.29200000	-0.04900000	-4.12400000
H	7.28000000	2.14600000	-2.64300000
H	6.64100000	1.81000000	-0.47800000
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H	8.60100000	3.42000000	1.47600000
H	7.72200000	4.42200000	2.67300000
H	8.51200000	1.49600000	3.07700000
H	9.51100000	2.85000000	3.61800000
H	7.70600000	3.64100000	5.10500000
H	6.64200000	2.33500000	4.54000000
H	8.22100000	0.64400000	5.40200000
H	9.33400000	1.91800000	5.93000000
H	7.66000000	2.77300000	7.51600000
H	6.47800000	1.57200000	6.95700000
H	7.96100000	-0.26200000	7.70400000
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H	7.62000000	1.83100000	9.90500000
H	6.33600000	0.74700000	9.34300000
H	7.42000000	-0.13700000	11.38400000
H	8.99600000	-0.13200000	10.56700000
H	7.70500000	-1.22100000	10.00700000
H	3.19000000	4.62900000	2.81400000
H	4.48900000	3.77200000	3.70500000
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H	3.99500000	6.78700000	3.72900000
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H	3.61800000	6.49900000	6.17900000
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H	-0.73600000	5.10800000	5.49300000
H	-1.07700000	4.88500000	7.92700000

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H	-3.08500000	5.23100000	6.46800000
H	-2.95400000	6.98500000	6.74200000
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H	1.71600000	6.33000000	2.07100000
H	1.14400000	7.27100000	0.67300000
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H	-1.19800000	7.56300000	1.75600000
H	-2.89800000	5.72800000	1.51400000
H	-2.26200000	4.97300000	2.98900000
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H	-5.77900000	7.95200000	3.88300000
H	-5.13400000	7.22100000	5.37100000
F	10.41600000	0.43200000	-13.20700000
C	8.86400000	4.55600000	-11.32500000
C	9.62400000	3.40100000	-11.39900000
C	10.14500000	2.78600000	-10.21800000
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C	11.35200000	1.01600000	-9.07400000
C	11.11700000	1.64600000	-7.84300000
C	10.40400000	2.83600000	-7.77900000
C	10.15600000	3.49500000	-6.50300000
N	9.43200000	4.69000000	-6.45300000
C	8.92200000	5.25800000	-7.62500000
O	8.31900000	6.32500000	-7.50200000
O	10.56300000	3.03900000	-5.43800000
N	9.87100000	2.87300000	-12.64600000
C	9.22200000	5.38300000	-5.14900000
C	7.76500000	5.13600000	-4.70000000
N	7.66100000	5.70800000	-3.34400000
C	8.07300000	5.03400000	-2.22400000
C	8.25100000	5.77300000	-0.97400000
O	8.31500000	3.83500000	-2.33400000
C	9.25900000	5.37200000	-0.08400000
C	9.45400000	6.04600000	1.11500000
C	8.65600000	7.15000000	1.44300000
C	7.65400000	7.55500000	0.55800000
C	7.44300000	6.87400000	-0.64000000
O	6.86100000	8.63300000	0.89100000
O	8.80500000	7.81700000	2.64100000
O	10.41300000	5.53400000	1.96500000
C	11.52100000	6.31900000	2.46600000
C	12.15600000	5.46700000	3.57500000
C	11.23400000	5.37400000	4.80100000
C	11.81800000	4.50400000	5.91900000

C	10.87100000	4.52800000	7.12800000
C	11.34500000	3.57400000	8.23000000
C	10.40300000	3.65400000	9.43800000
C	10.83800000	2.67200000	10.53000000
C	8.19300000	7.21600000	3.79600000
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C	7.07600000	6.72600000	6.57700000
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C	5.85600000	4.55400000	9.55000000
C	4.69700000	3.55900000	9.66800000
C	5.42600000	8.51100000	0.85400000
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C	3.40100000	9.22700000	2.15700000
C	2.87300000	9.68800000	3.52200000
C	1.33900000	9.64000000	3.53800000
C	0.79500000	9.87500000	4.95200000
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H	11.05900000	1.08900000	-11.16700000
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H	9.88500000	4.98900000	-4.39000000
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H	9.87100000	4.54000000	-0.32100000
H	6.66500000	7.18300000	-1.28700000
H	12.24000000	6.48900000	1.66400000
H	11.18500000	7.27500000	2.86700000
H	12.36000000	4.46800000	3.18700000
H	13.09900000	5.92700000	3.87300000
H	11.05800000	6.38100000	5.18000000
H	10.28300000	4.93800000	4.49700000
H	11.93000000	3.48000000	5.55900000
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H	7.97400000	5.57600000	8.16400000
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H	5.76300000	5.31500000	10.32800000
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H	4.78700000	2.78900000	8.90200000
H	3.74500000	4.07900000	9.55000000
H	5.02900000	8.97200000	-0.05100000
H	5.13400000	7.46100000	0.90900000
H	5.34500000	8.74900000	2.98200000
H	5.28900000	10.27900000	2.08500000
H	3.00300000	9.86900000	1.36900000
H	3.06200000	8.20800000	1.97600000
H	3.26500000	9.03100000	4.30000000
H	3.20900000	10.70800000	3.72200000
H	0.94800000	10.40300000	2.86200000
H	1.00400000	8.66300000	3.18900000
H	1.16500000	9.09000000	5.61500000
H	1.14600000	10.84100000	5.32300000
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H	9.52100000	0.58300000	-12.69900000
F	0.76624600	-0.79668100	-3.02748000
F	5.33460000	4.59245000	-3.27227000
F	3.21183000	1.58658000	-3.09681000
F	5.53414000	1.49607000	-6.32415000
F	3.20099000	-1.29047000	-7.64330000
F	8.18856000	4.06544000	-5.93417000
F	4.15041000	7.26088000	-0.81002600
F	2.07880000	3.51861000	-0.50707200
F	0.01121590	-0.52637500	-0.47066300

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