

Supporting information

Anion-induced ionic liquid crystals of diphenyl viologens

Ren-Tzong Wang^a, Gene-Hsiang Lee^b and Chung-Kung Lai^{a*}

^aDepartment of Chemistry, National Central University, Taiwan, ROC

^bInstrumentation Center, National Taiwan University, Taipei 10660, Taiwan, ROC

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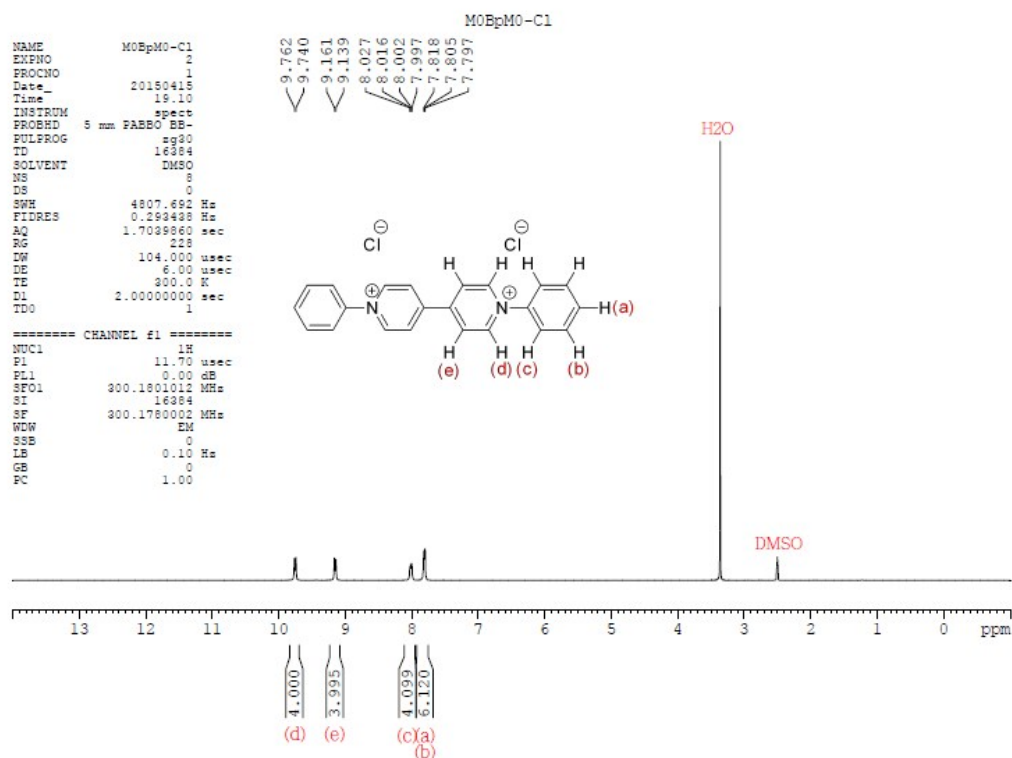


Fig. S1 The ^1H -NMR spectrum of compound 1-Cl

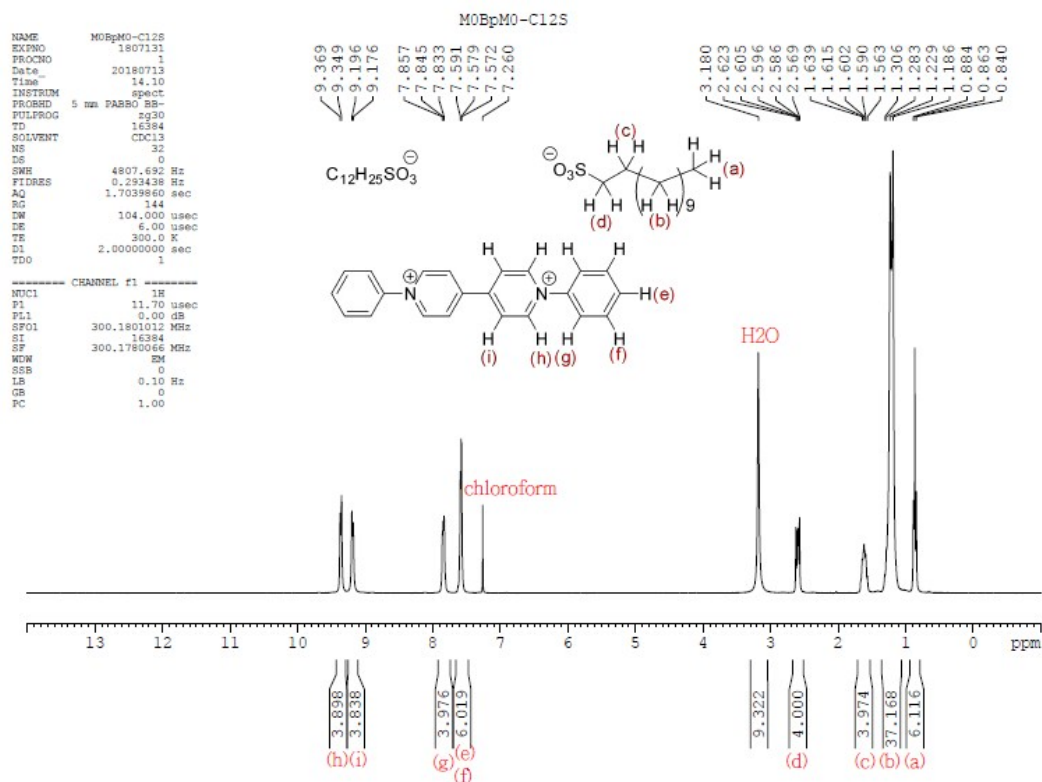


Fig. S2 The ^1H -NMR spectrum of compound 1-RSO₃ (n = 12)

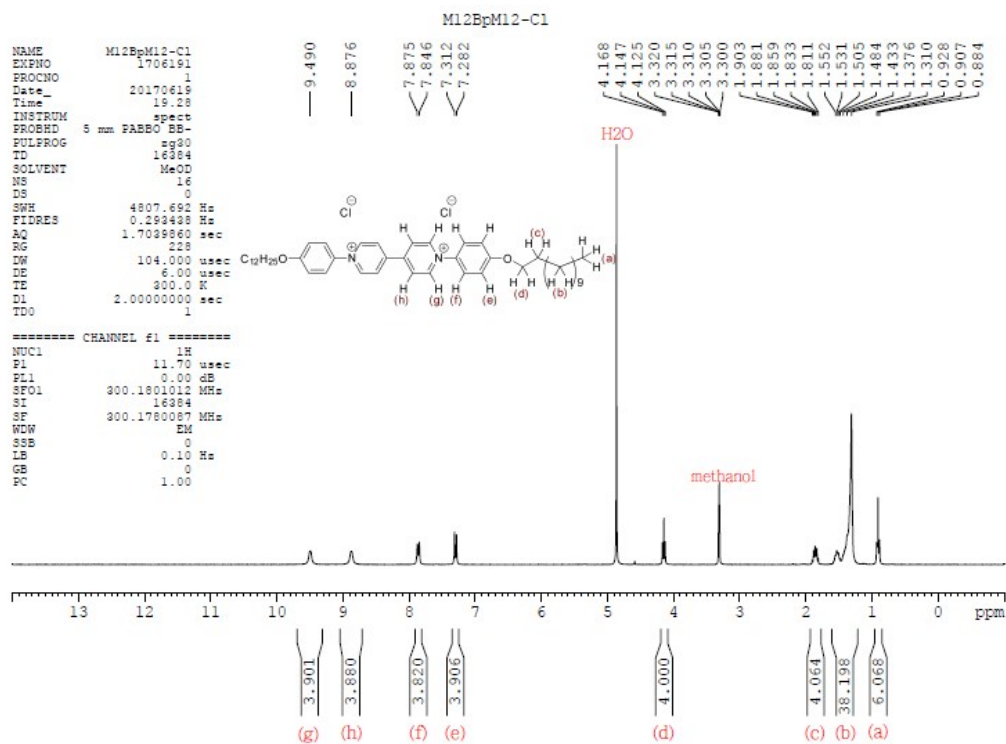


Fig. S3 The ^1H -NMR spectrum of compound **2-Cl** ($n = 12$)

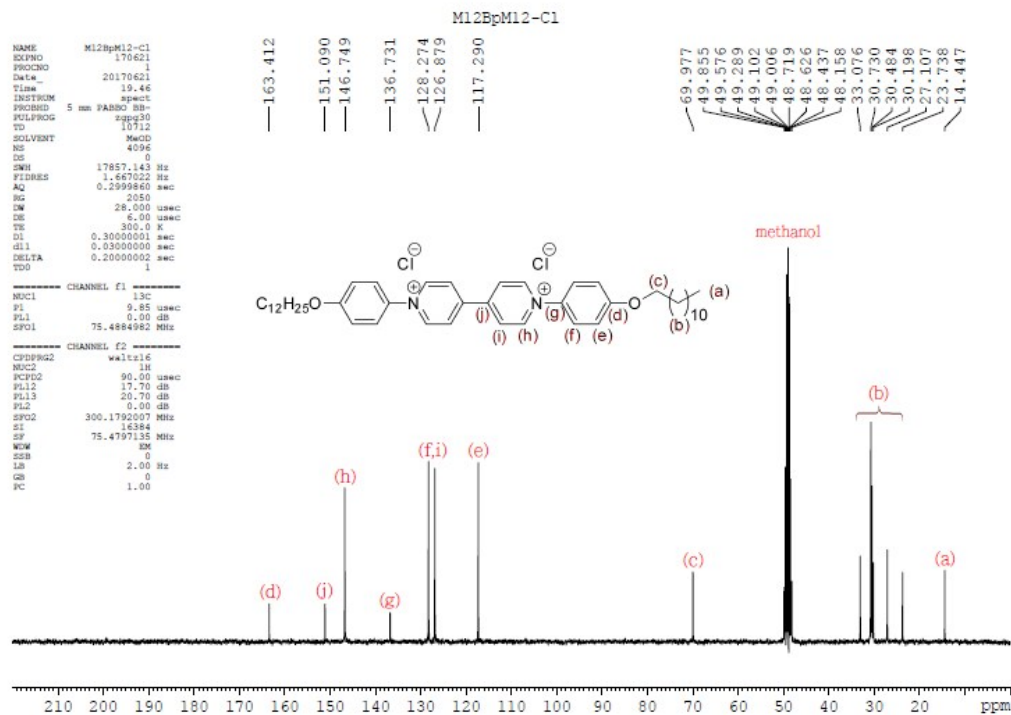


Fig. S4 The ^{13}C -NMR spectrum of compound **2-Cl** ($n = 12$)

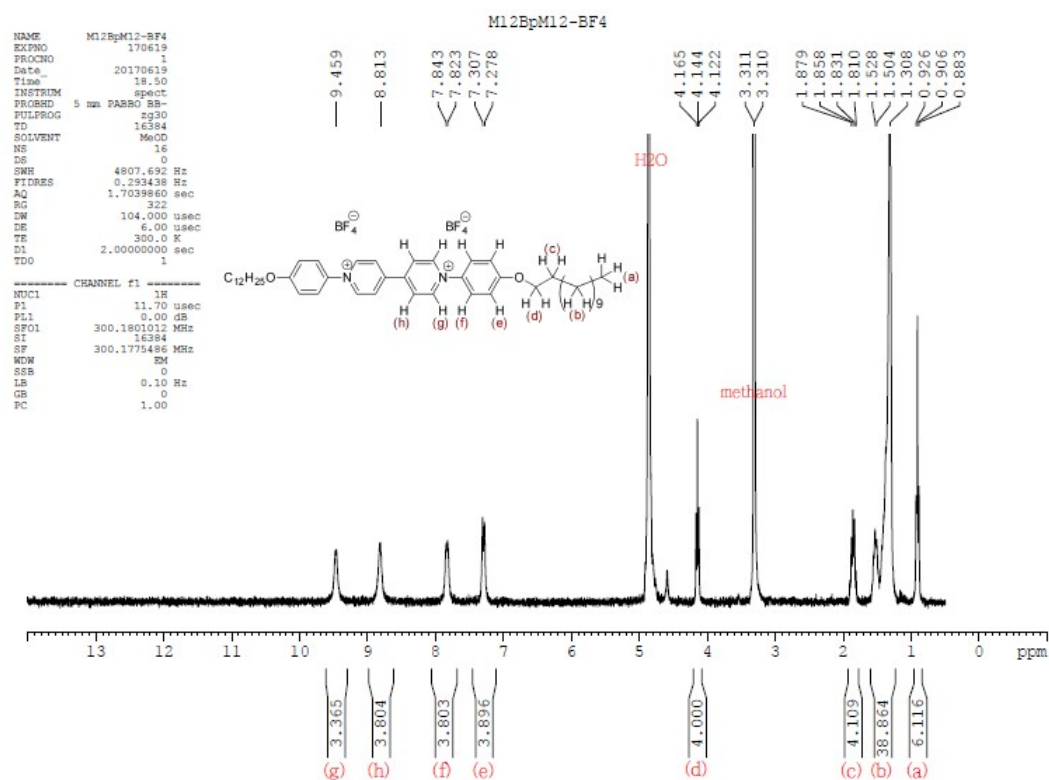


Fig. S5 The ¹H-NMR spectrum of compound **2-BF₄** (*n* = 12)

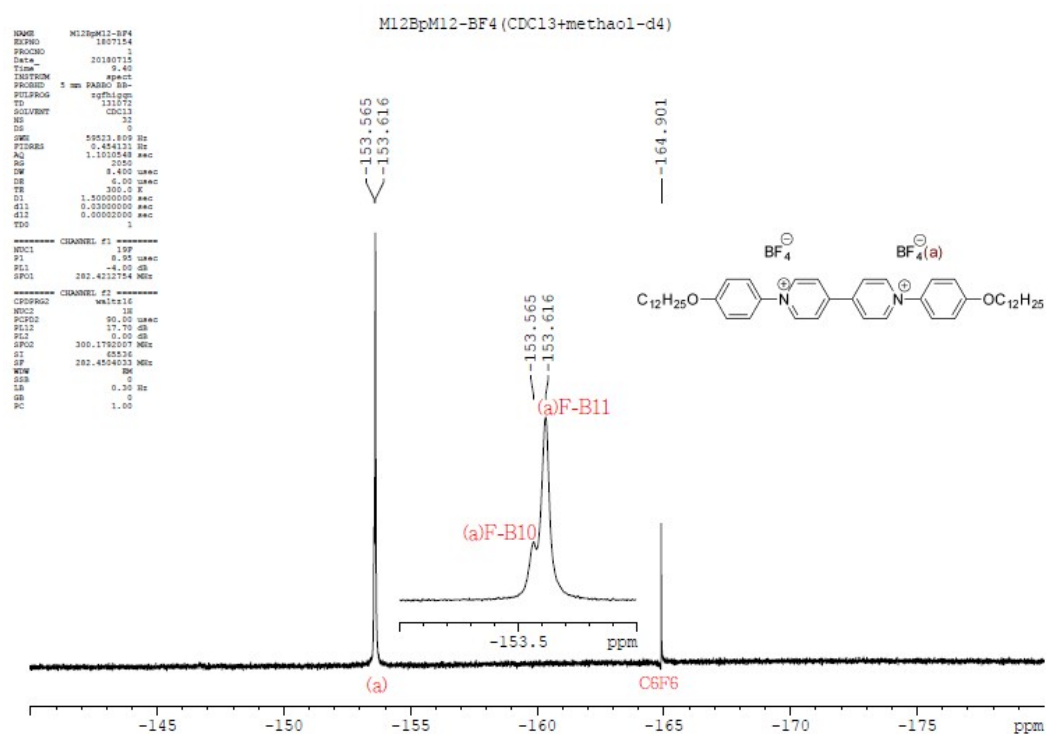


Fig. S6 The ¹⁹F-NMR of compound **2-BF₄** (*n* = 12)

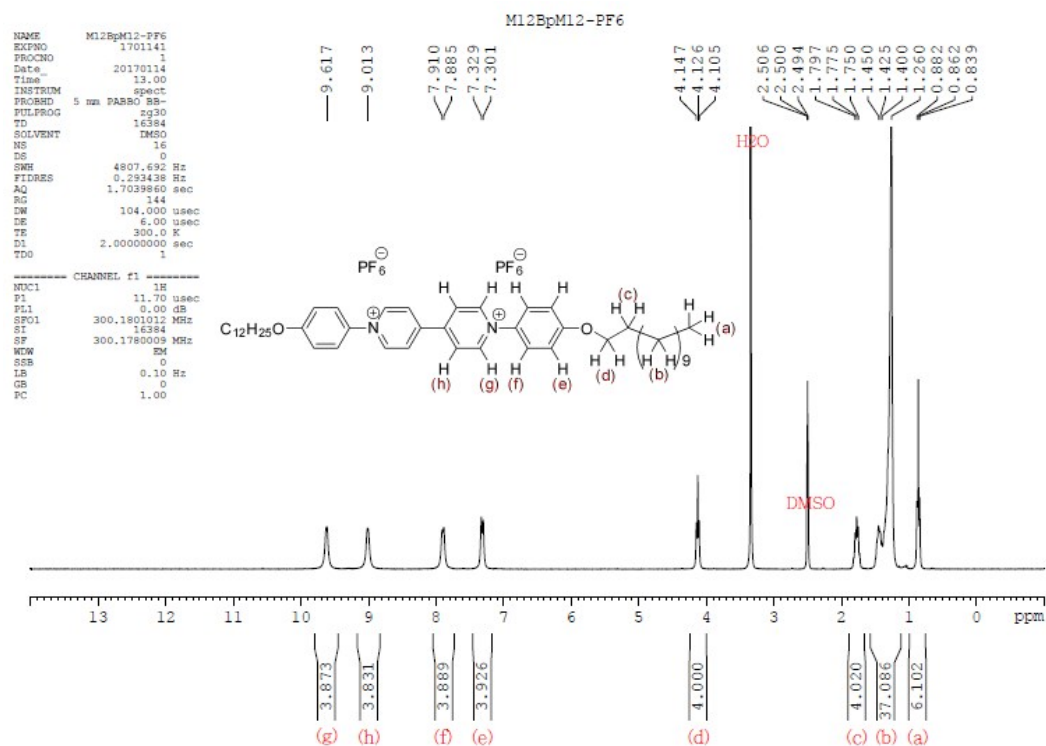


Fig. S7 The ^1H -NMR spectrum of compound **2-PF₆** ($n = 12$)

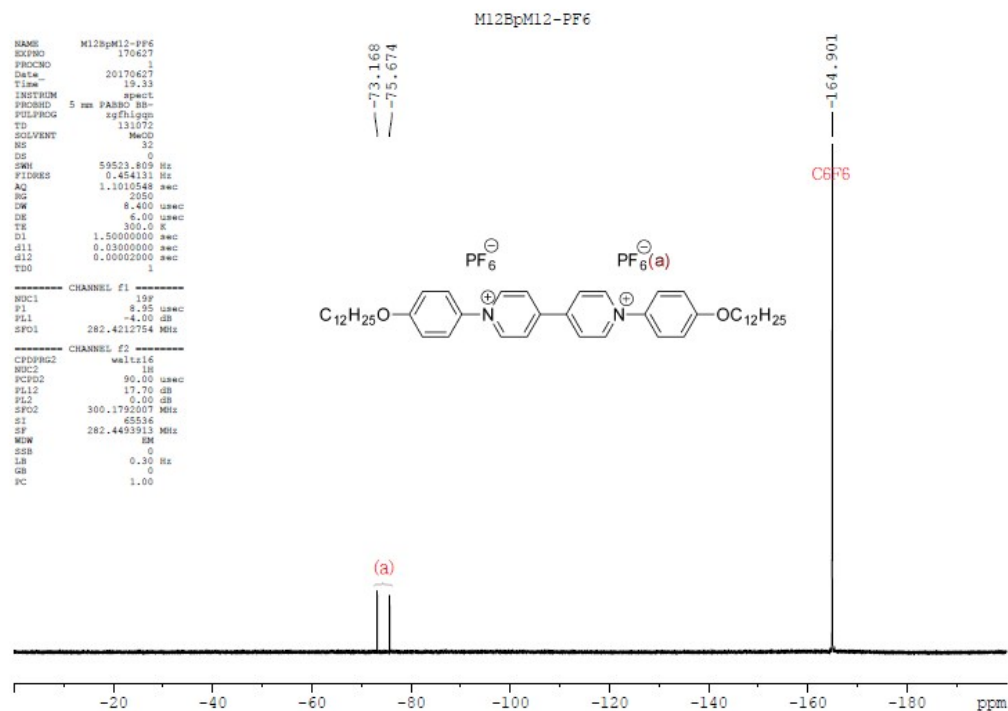


Fig. S8 The ^{19}F -NMR spectrum of compound **2-PF₆** ($n = 12$)

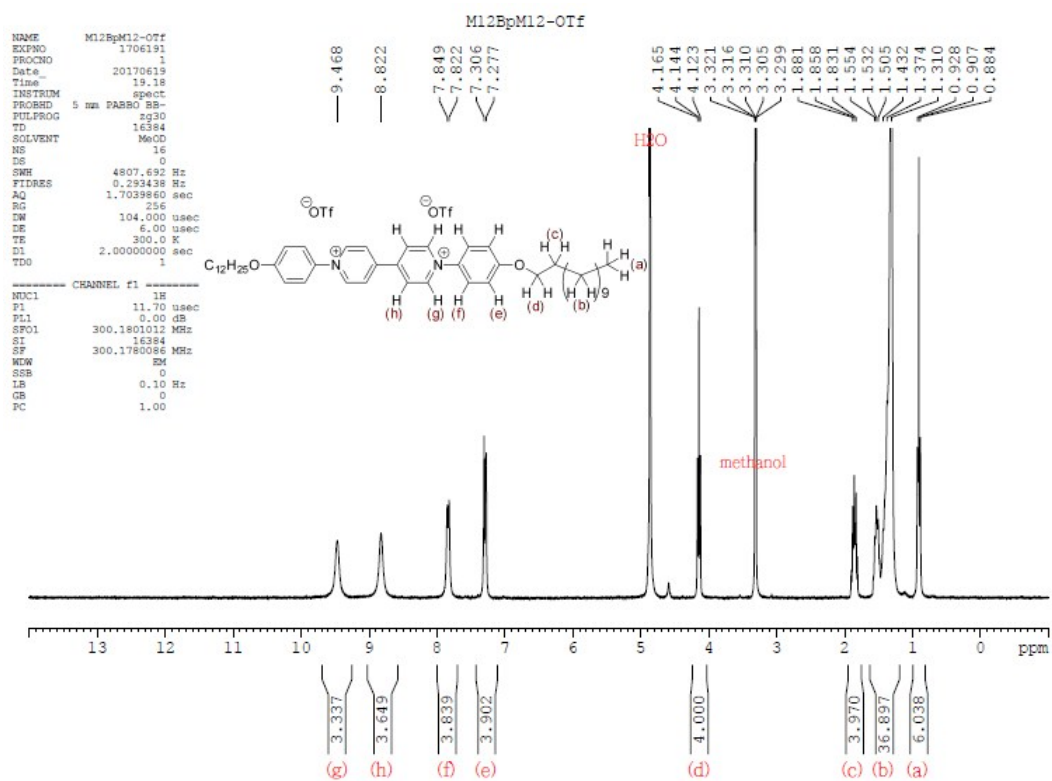


Fig. S9 The ^1H -NMR spectrum of compound **2-OTf** ($n = 12$)

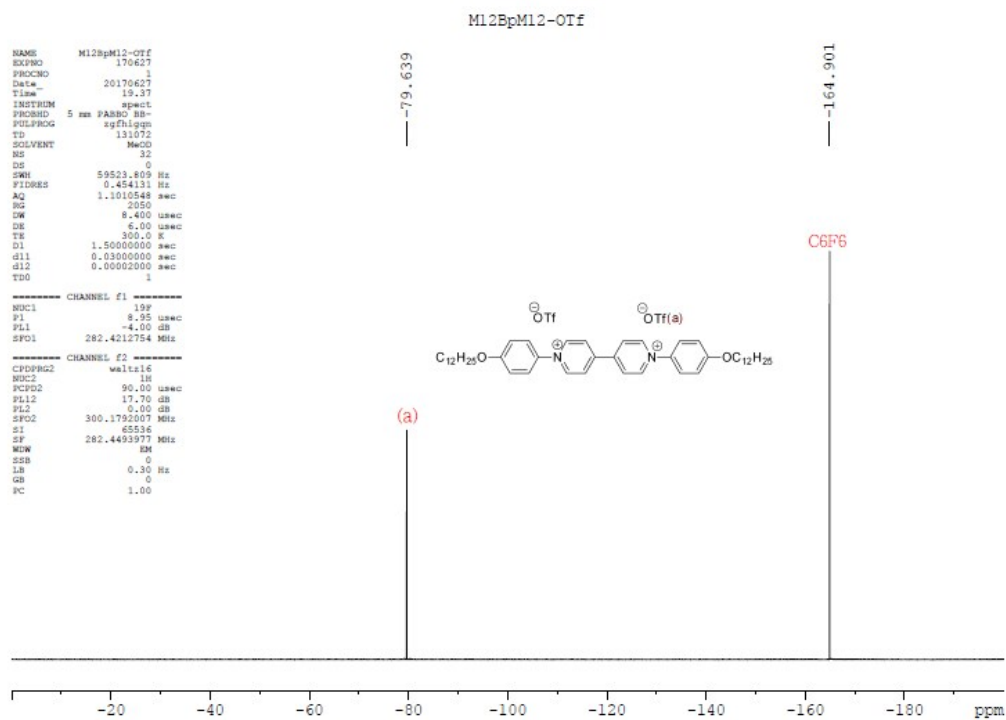


Fig. S10 The ^{19}F -NMR spectrum of compound **2-OTf** ($n = 12$)

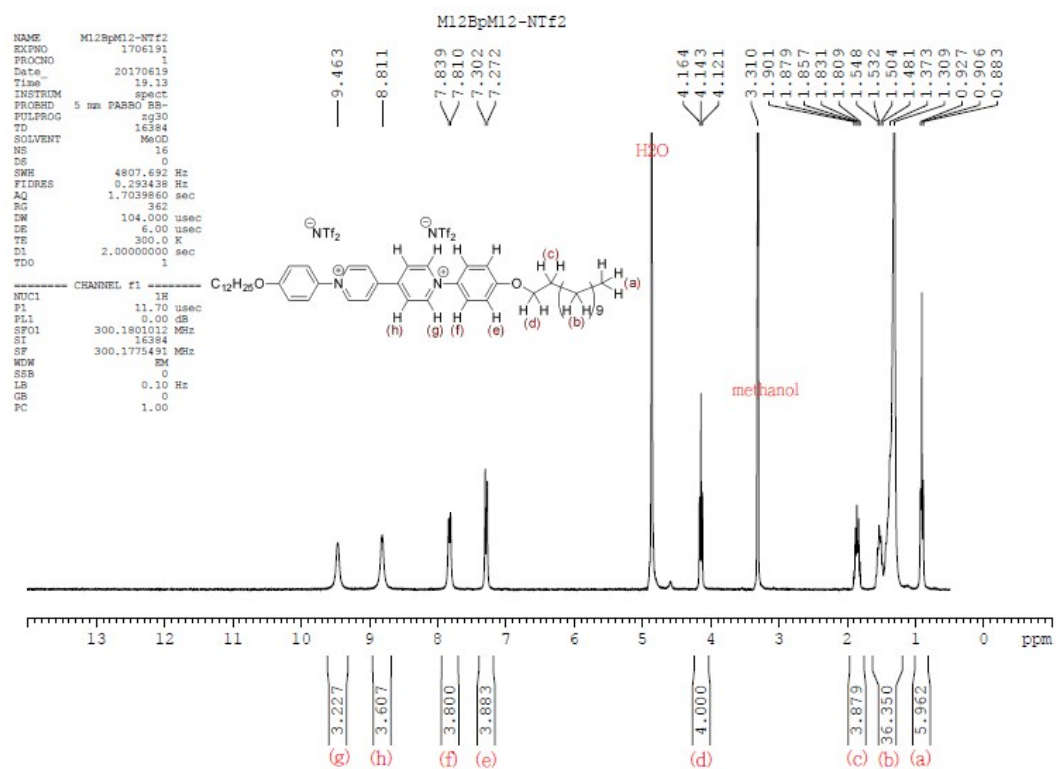


Fig. S11 The ¹H-NMR spectrum of compound 2-NTf₂ (n = 12)

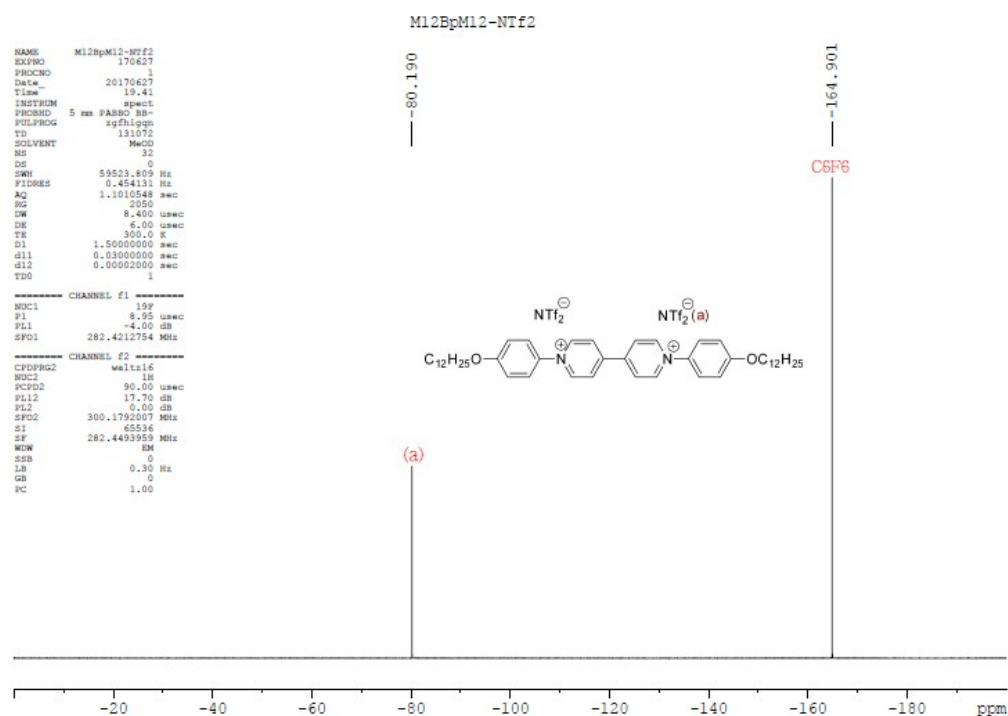


Fig. S12 The ¹⁹F-NMR spectrum of compound 2-NTf₂ (n = 12)

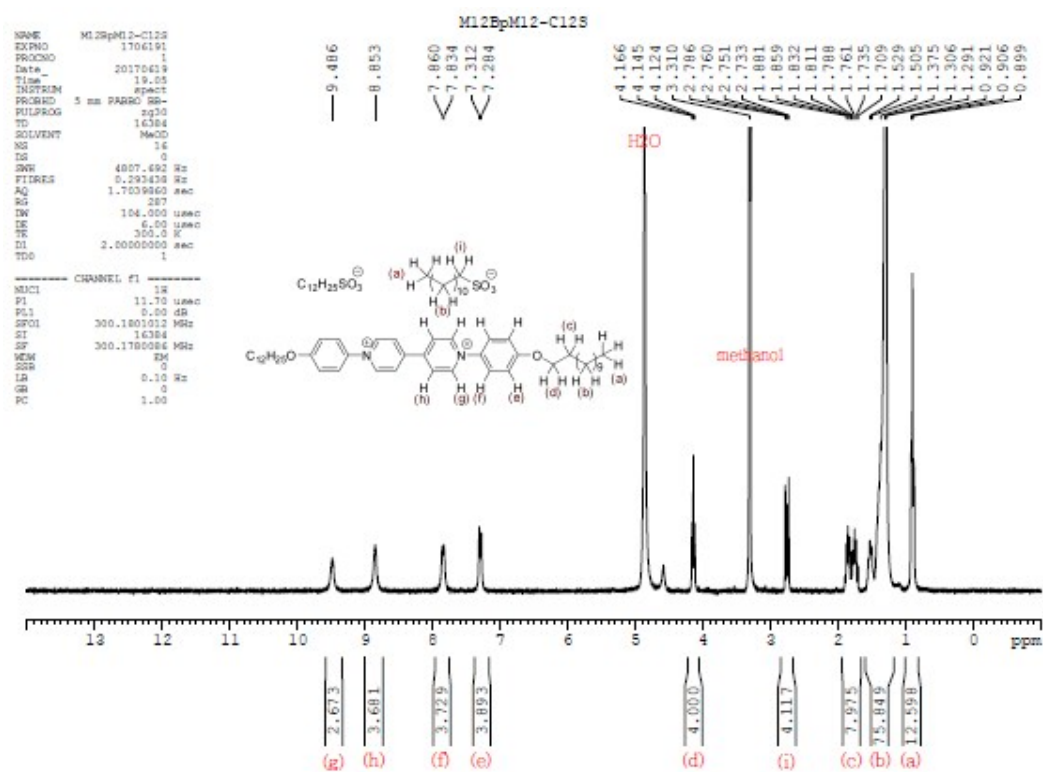


Fig. S13 The ¹H-NMR spectrum of compound 2-RSO₃ (n = 12)

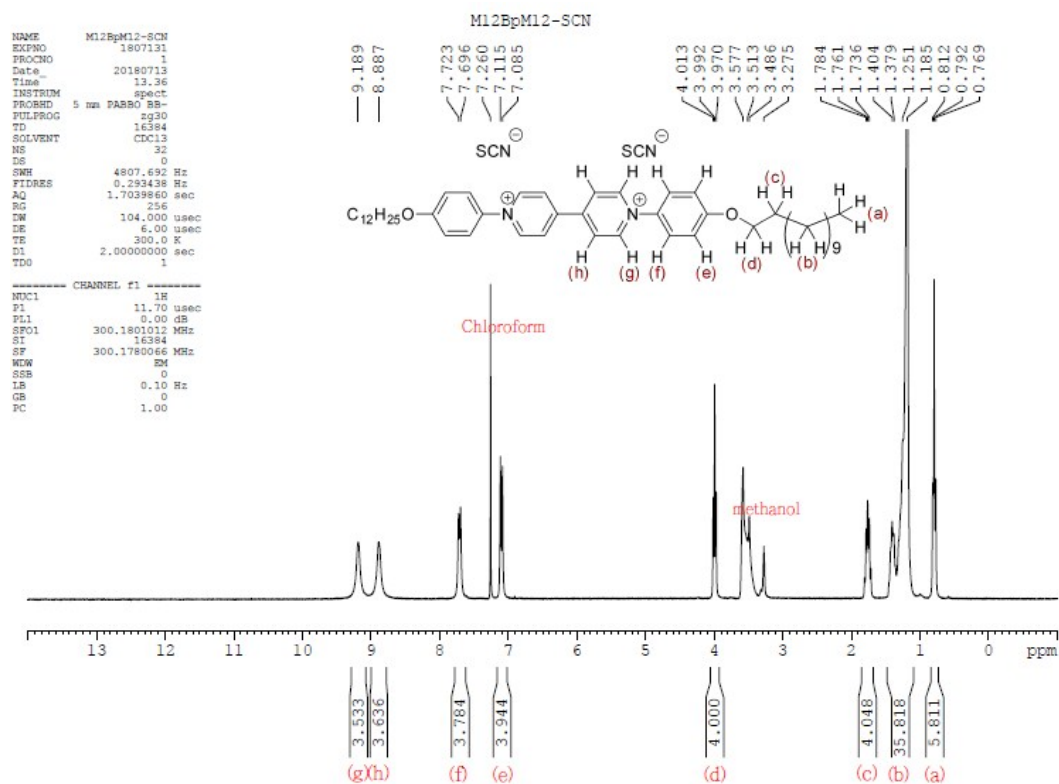


Fig. S14 The ¹H-NMR spectrum of compound 2-SCN (n = 12)

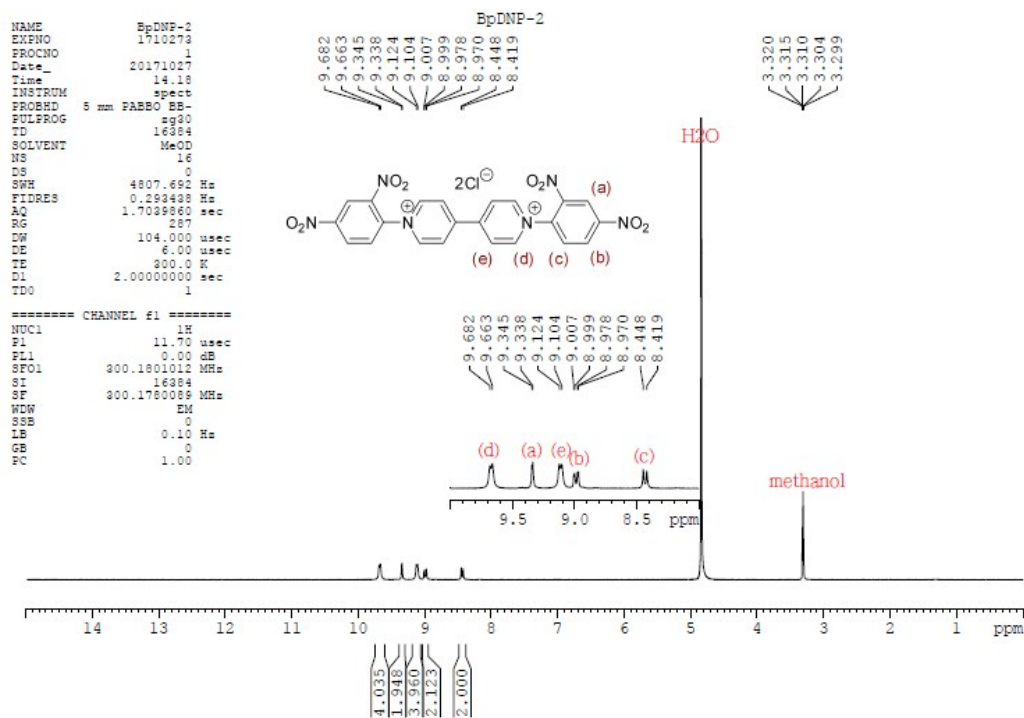


Fig. S15 The ¹H-NMR spectrum of compound 3

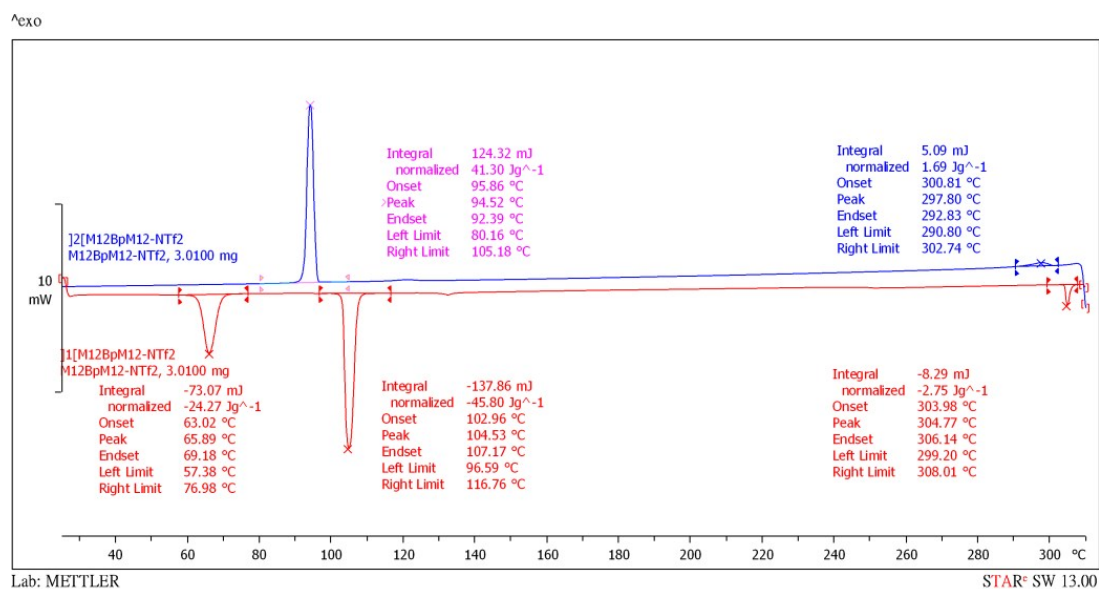


Fig. S16 The DSC thermograph of compound 2-NTf₂ (n = 12)

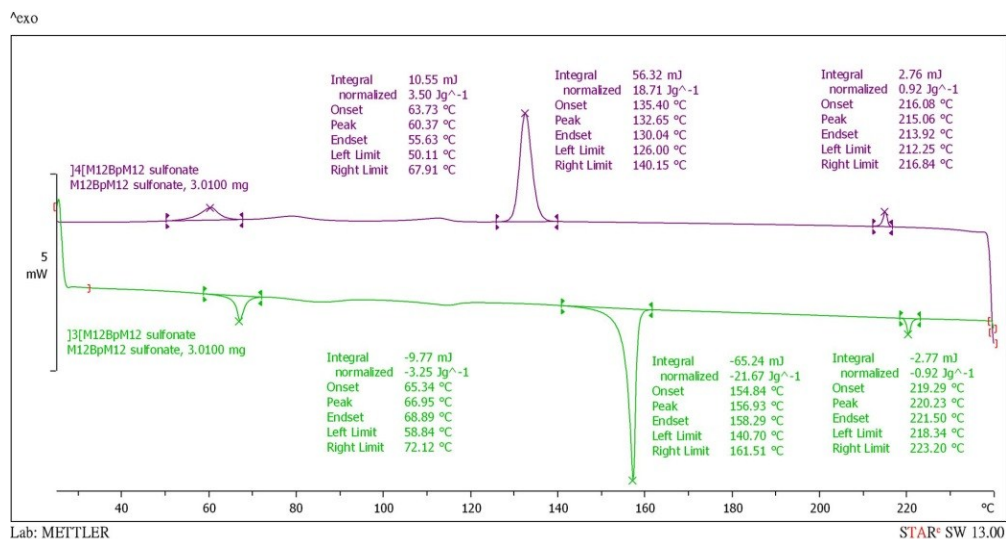


Fig. S17 The DSC thermograph of compound **2-RSO₃** ($n = 12$)

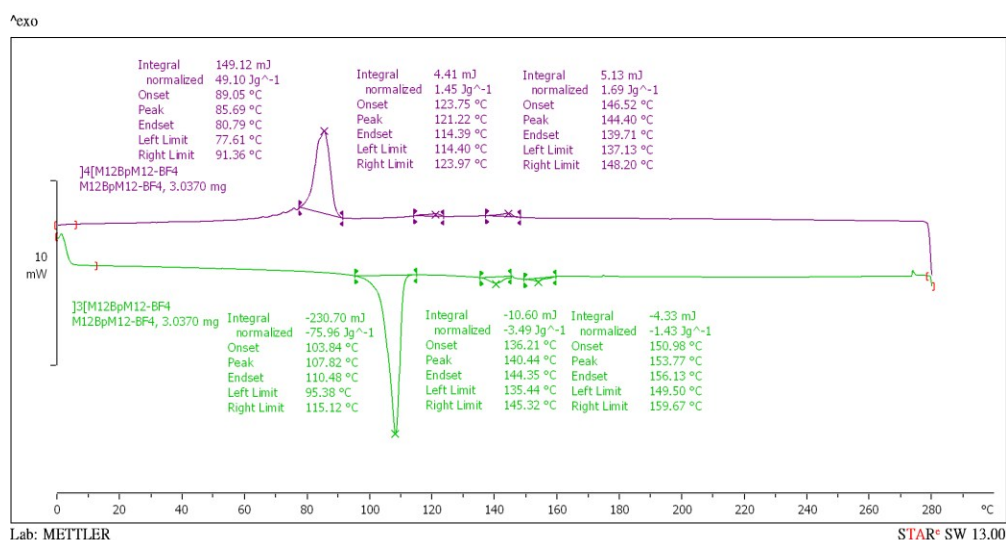


Fig. S18 The DSC thermograph of compound **2-BF₄** ($n = 12$)

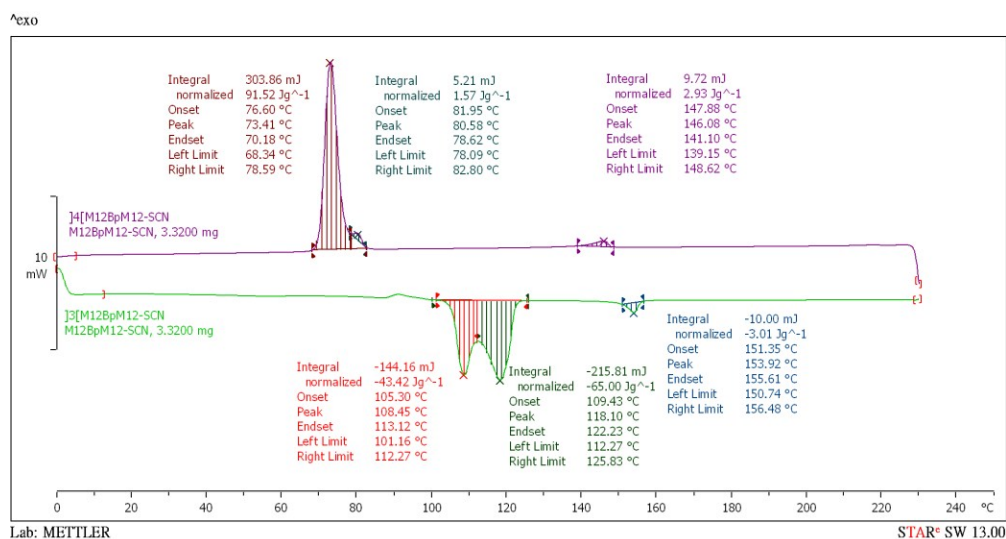


Fig. S19 The DSC thermograph of compound **2-SCN** ($n = 12$)

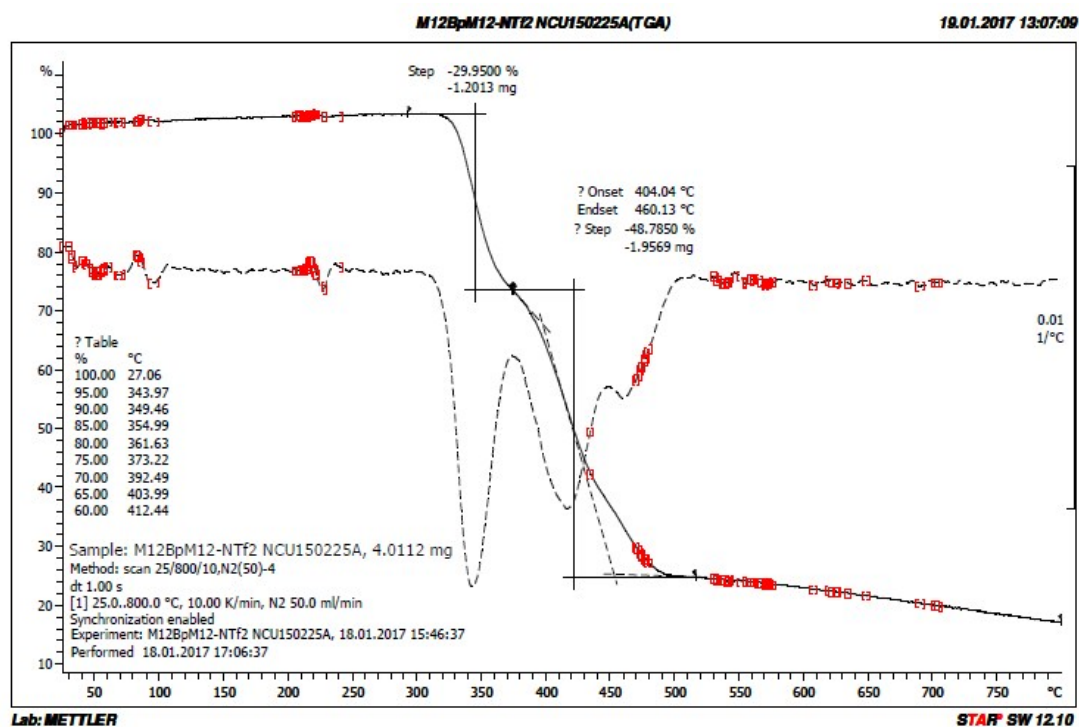


Fig. S20 The TGA thermograph of compound **2-NTf₂** ($n = 12$)

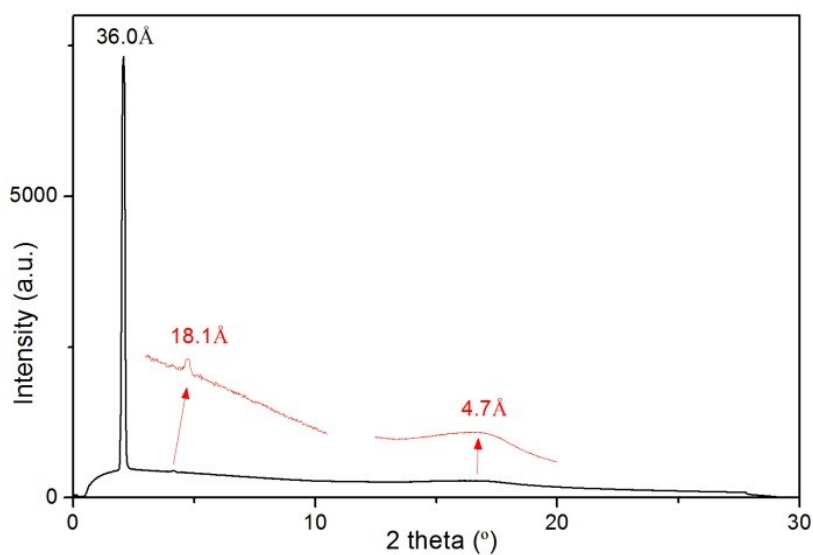


Fig. S21 The powder XRD plot of compound **2-BF₄**: SmX phase at 150 °C

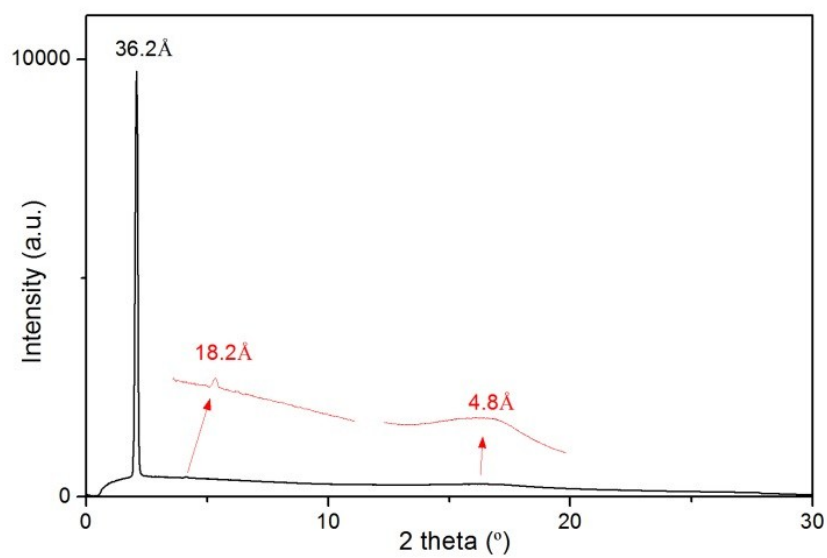


Fig. S22 The powder XRD plot of compound **2-BF₄**: SmA phase at 160°C

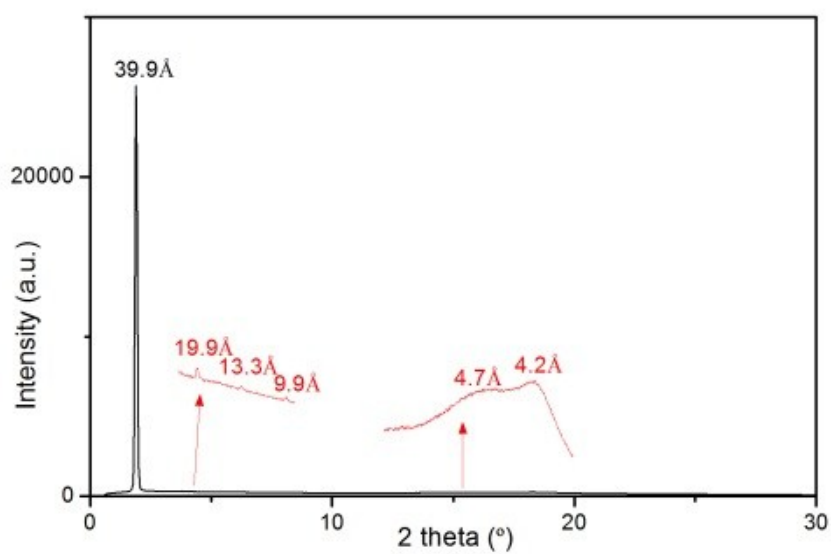


Fig. S23 The powder XRD plot of compound **2-SCN**: SmX phase at 140°C

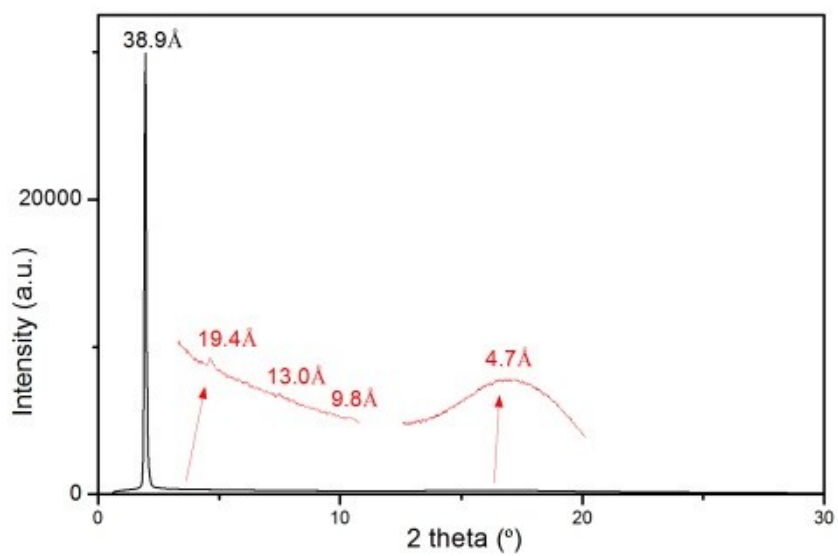


Fig. S24 The powder XRD plot of compound **2-SCN**: SmA phase at 160°C

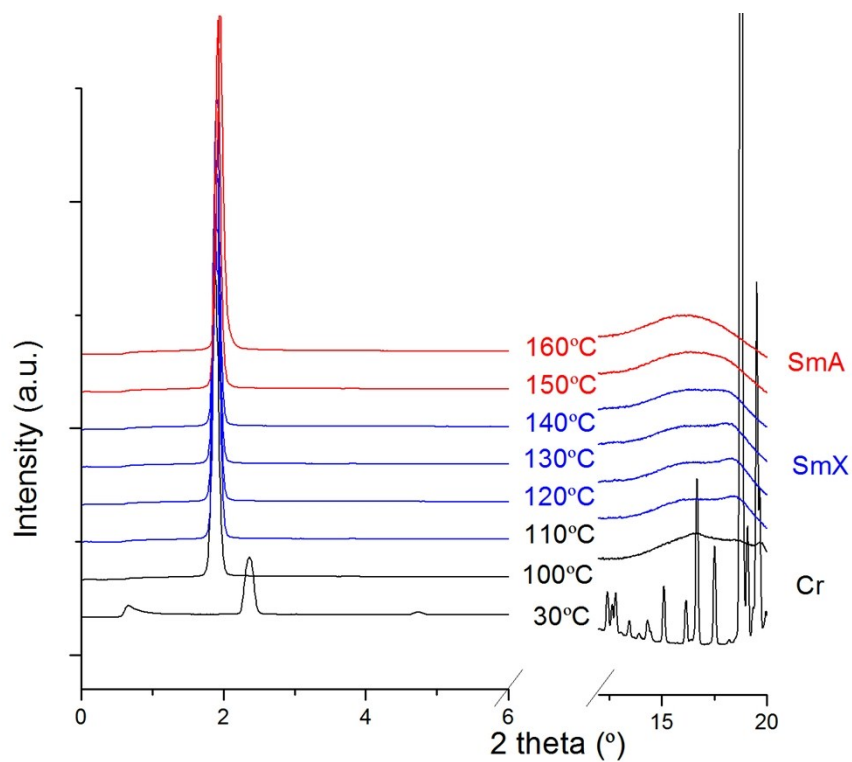


Fig. S25 The XRD plots of crystal, SmX and SmA phases of compound **2-SCN**

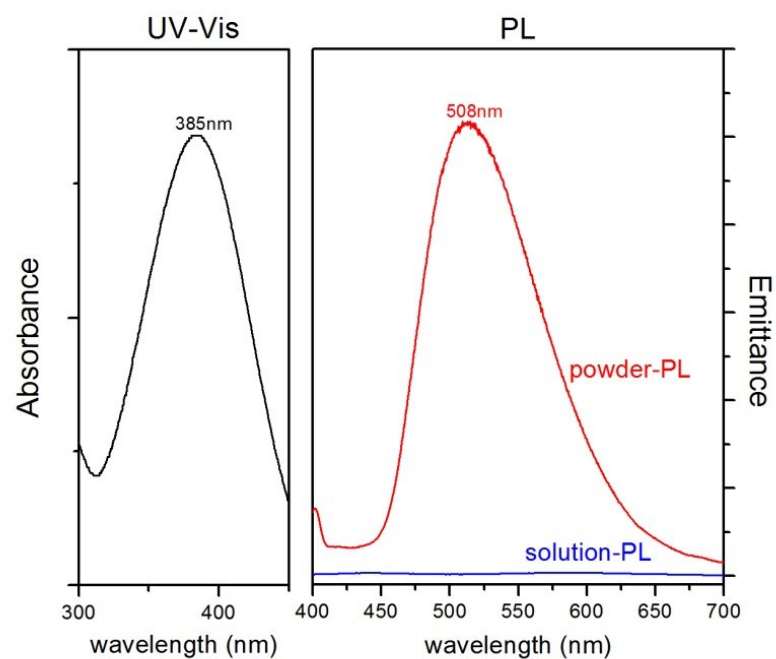


Fig. S26 The UV-Vis spectra and PL of compound **2-NTf₂**

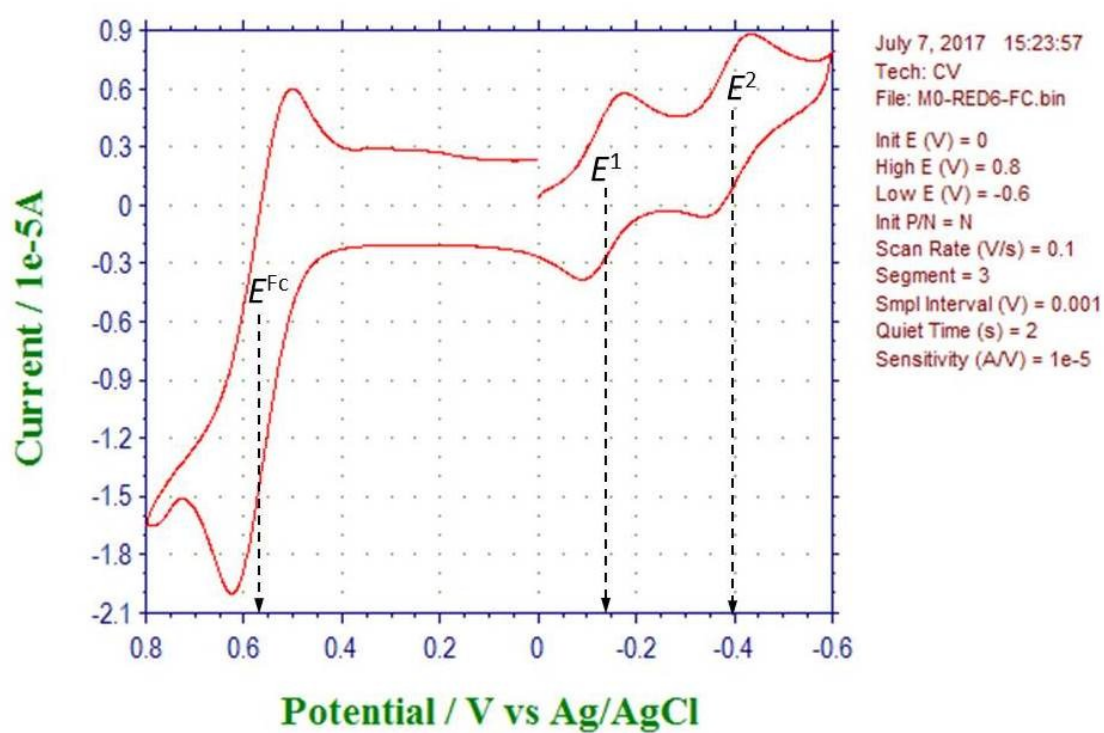


Fig.S27 The cyclic voltammogram of compound **1-RSO₃** ($n = 12$)

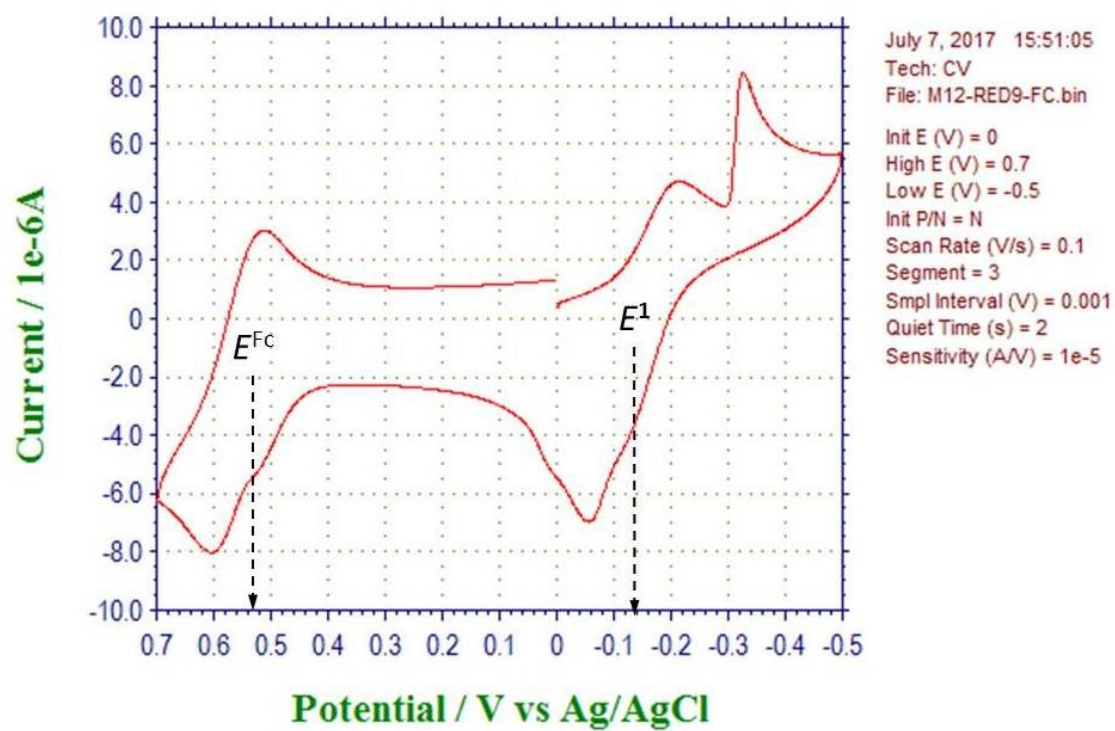


Fig. S28 The cyclic voltammogram of compound **2-RSO₃** ($n = 12$)