

## Supporting Information

for

### **Self-assembly induced ferromagnetic interaction in magnetic polymer with terphenyl linkers**

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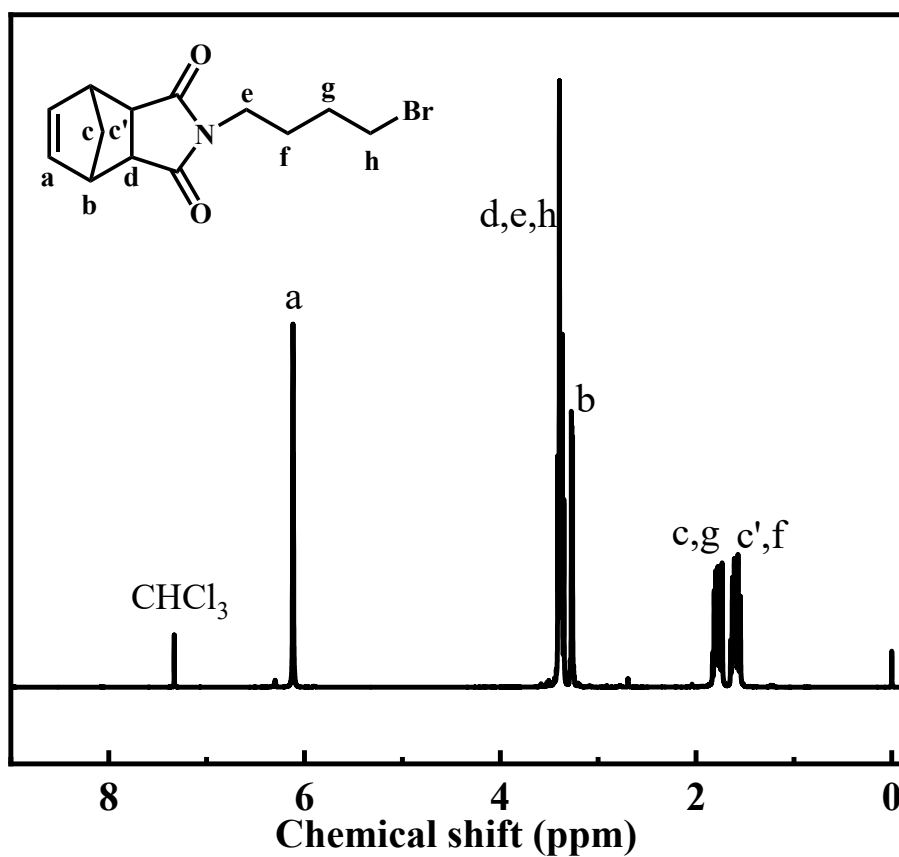


Figure S1. <sup>1</sup>H NMR spectra of Nor-N-bromobutyl in CDCl<sub>3</sub>.

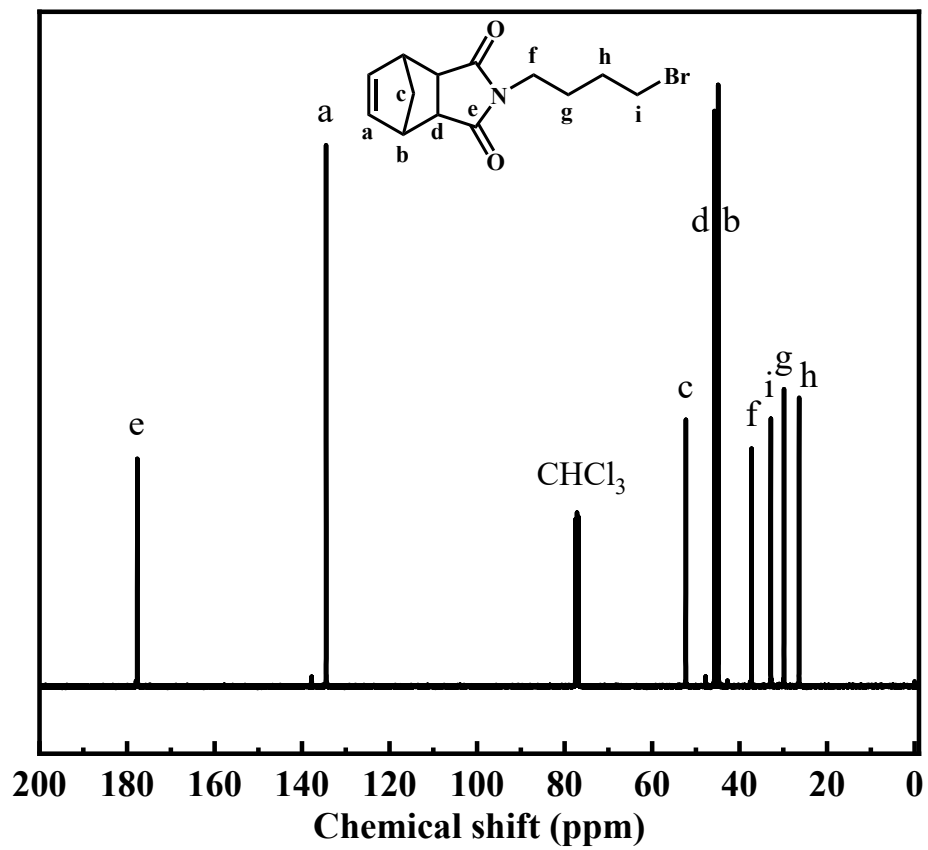


Figure S2.  $^{13}\text{C}$  NMR spectra of Nor-*N*-bromobutyl in  $\text{CDCl}_3$ .

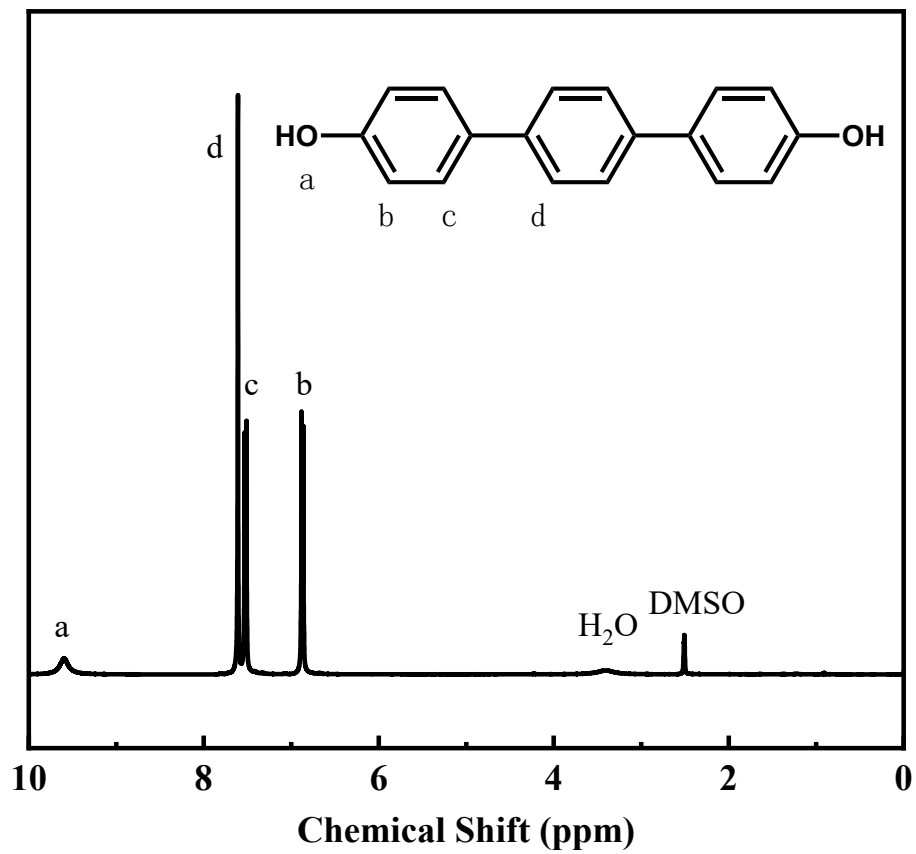


Figure S3. <sup>1</sup>H NMR spectra of 4,4''-diol-terphenyl in DMSO-*d*<sub>6</sub>.

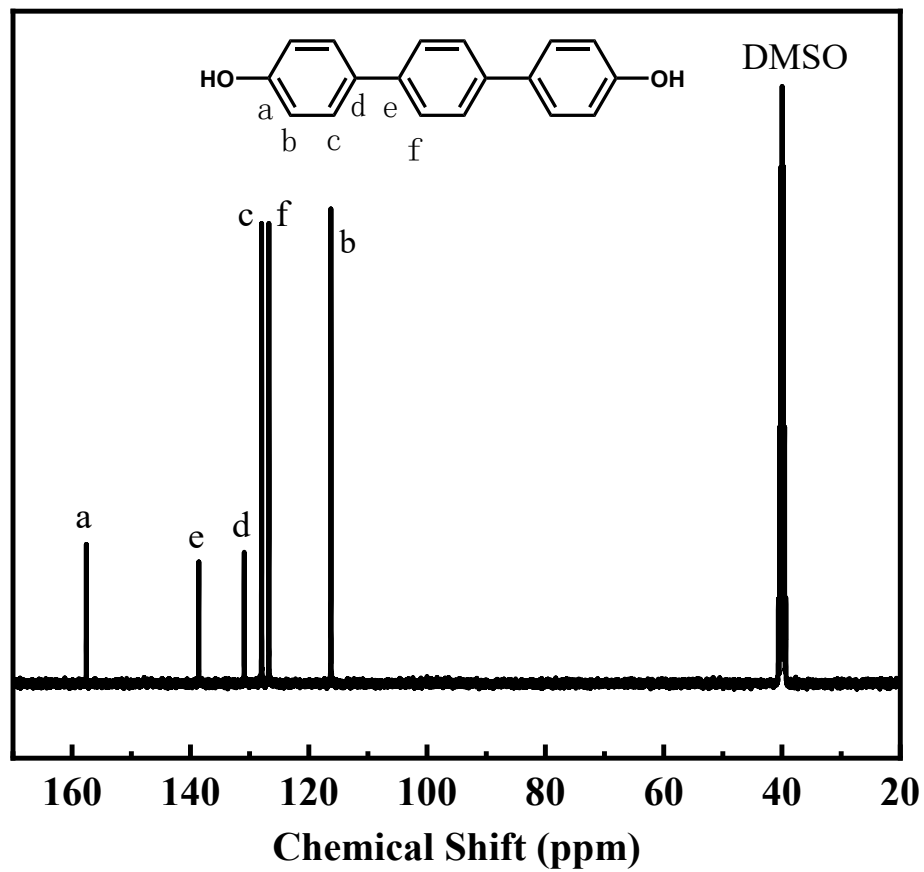


Figure S4.  $^{13}\text{C}$  NMR spectra of 4,4''-diol-terphenyl in  $\text{DMSO-}d_6$ .

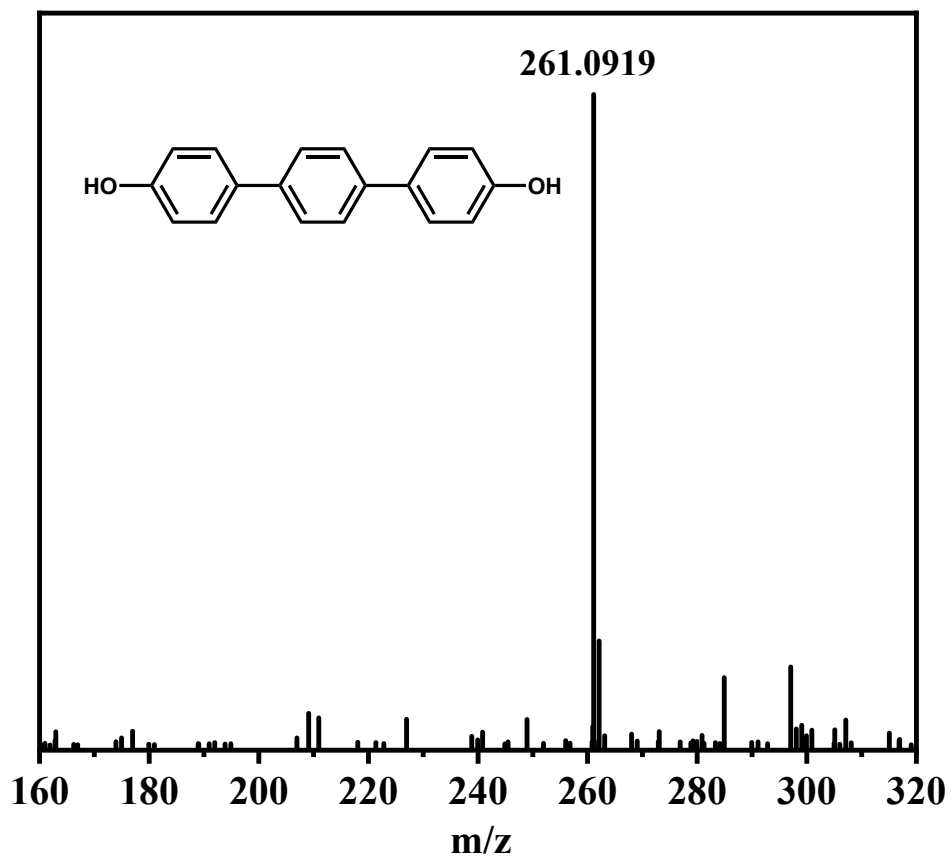


Figure S5. Mass spectrum of 4,4''-diol-terphenyl.

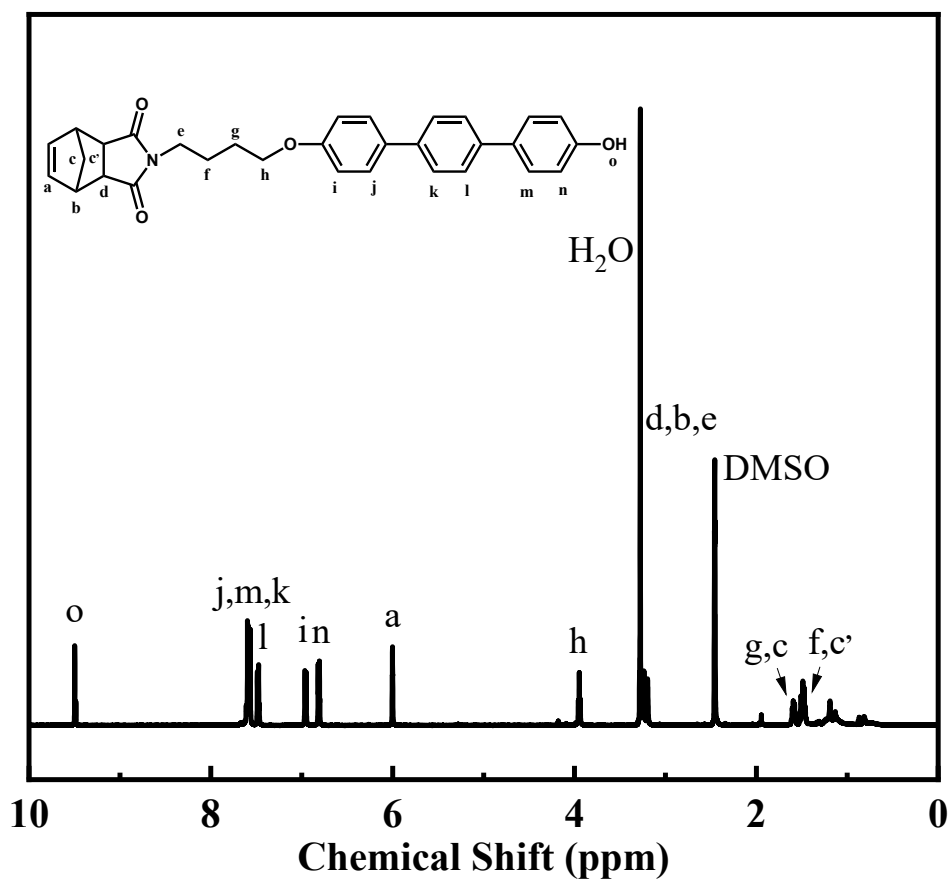


Figure S6.  $^1\text{H}$  NMR spectra of Nor-terph in  $\text{DMSO-}d_6$ .



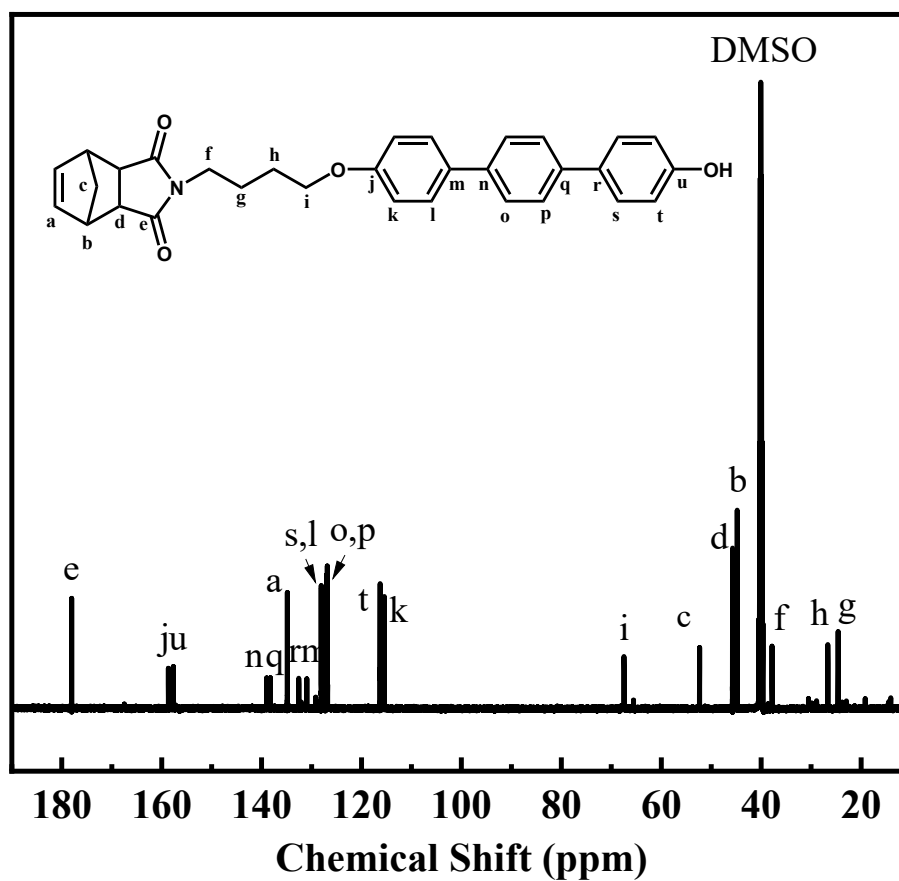


Figure S7.  $^{13}\text{C}$  NMR spectra of Nor-terph in  $\text{DMSO-}d_6$ .

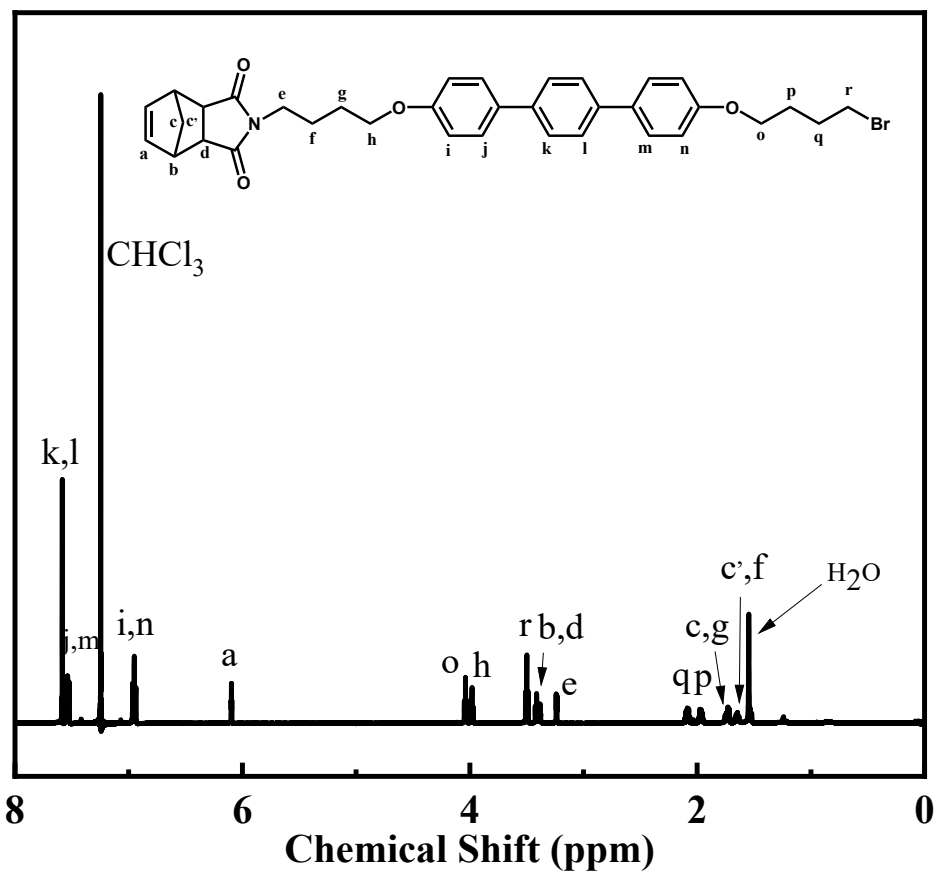


Figure S8.  $^1\text{H}$  NMR spectra of Nor-terph-bromobutyl in  $\text{CDCl}_3$ .

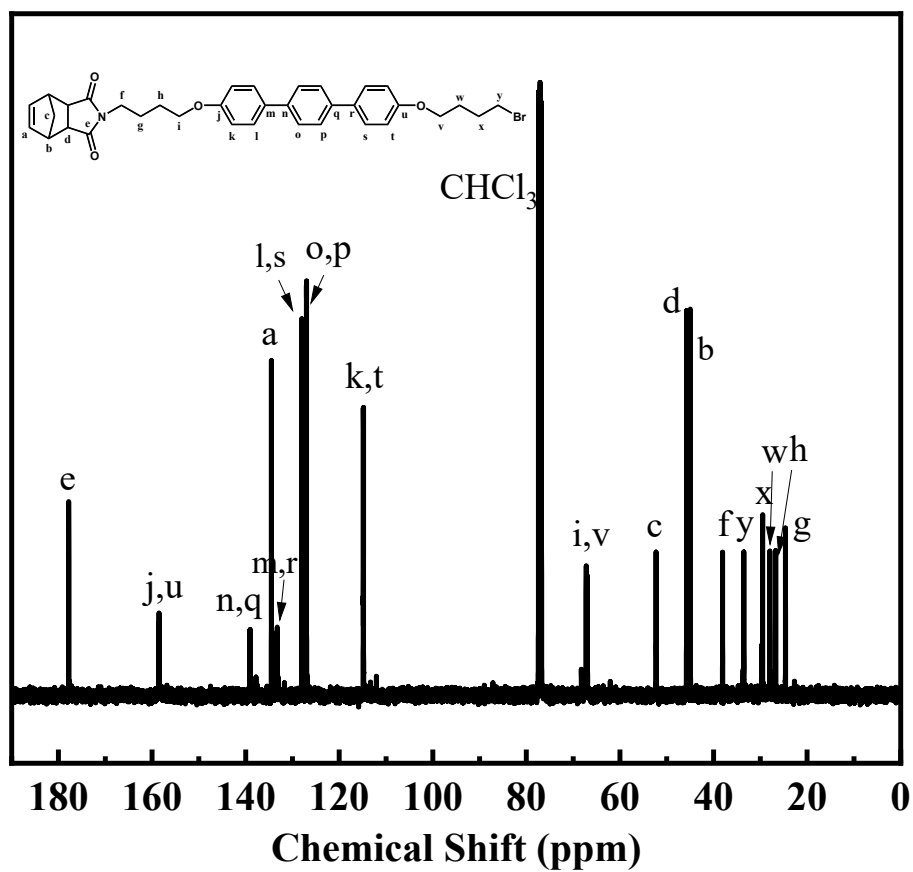


Figure S9.  $^{13}\text{C}$  NMR spectra of Nor-terph-bromobutyl in  $\text{CDCl}_3$ .

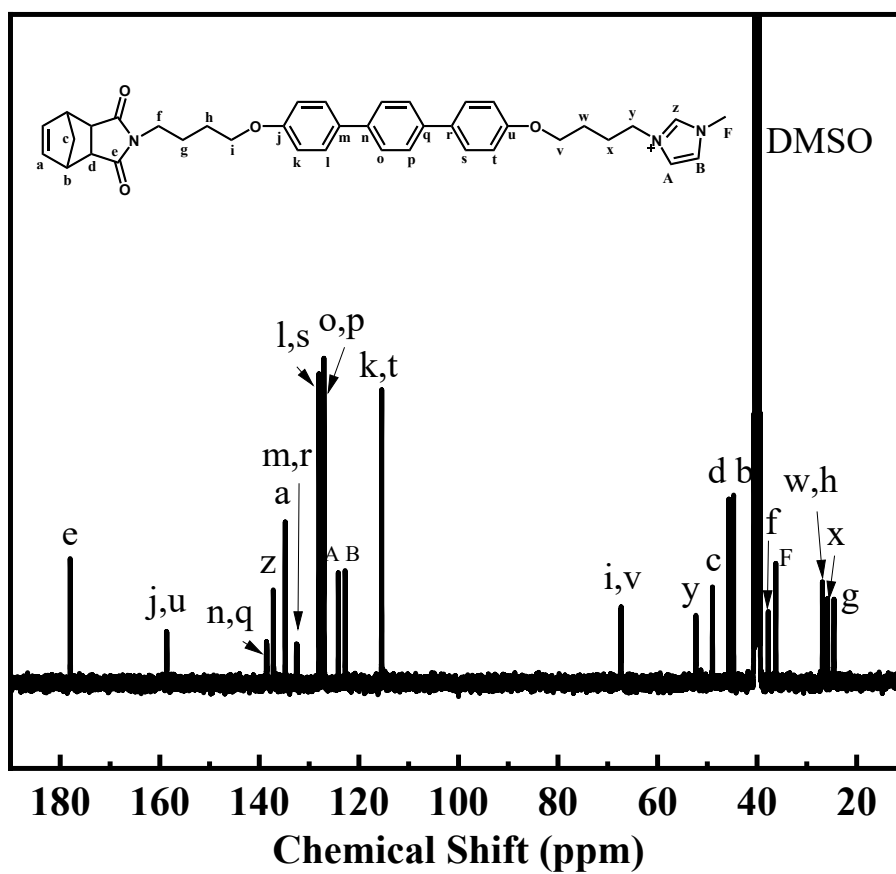


Figure S10.  $^{13}\text{C}$  NMR spectra of TMTBDI[Cl] in  $\text{DMSO-}d_6$ .

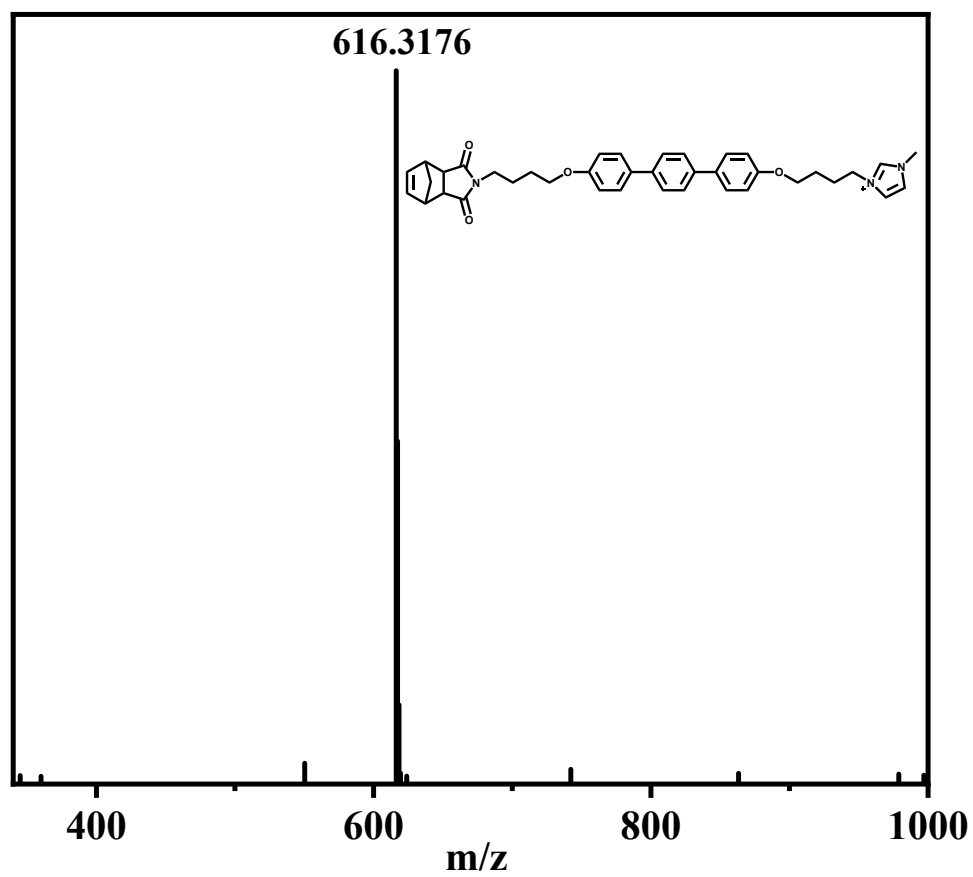


Figure S11. Mass spectrum of TMTBDI[Cl].

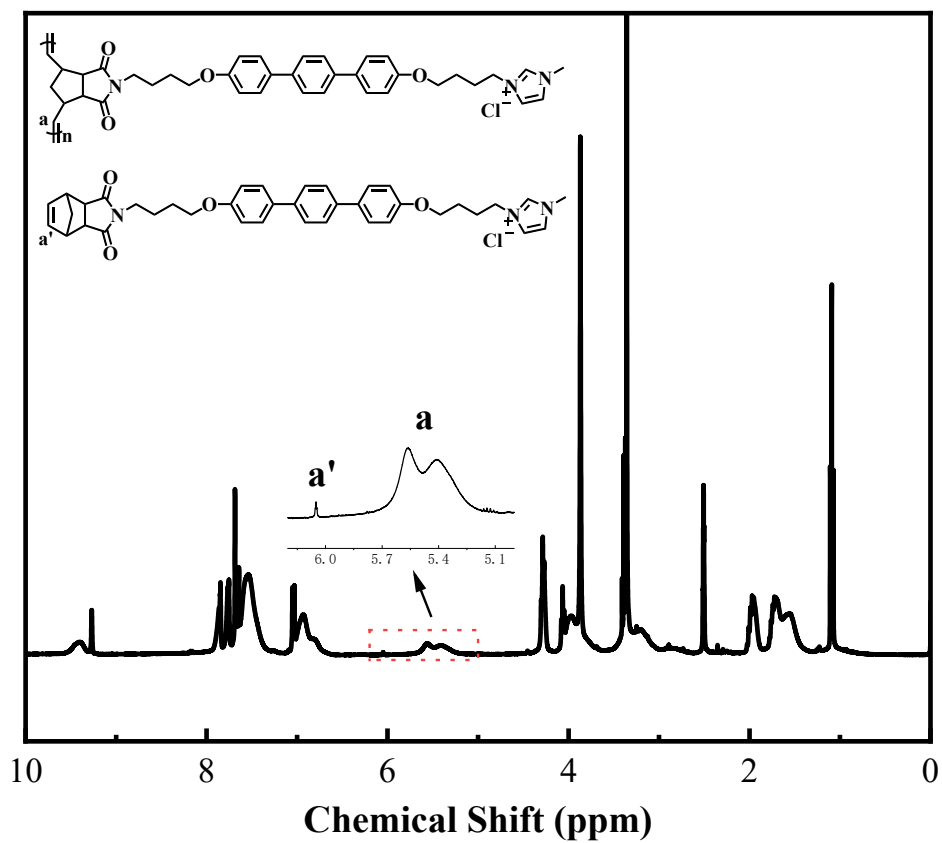


Figure S12.  $^1\text{H}$  NMR spectra of polymerization reaction solution in  $\text{DMSO-}d_6$ .

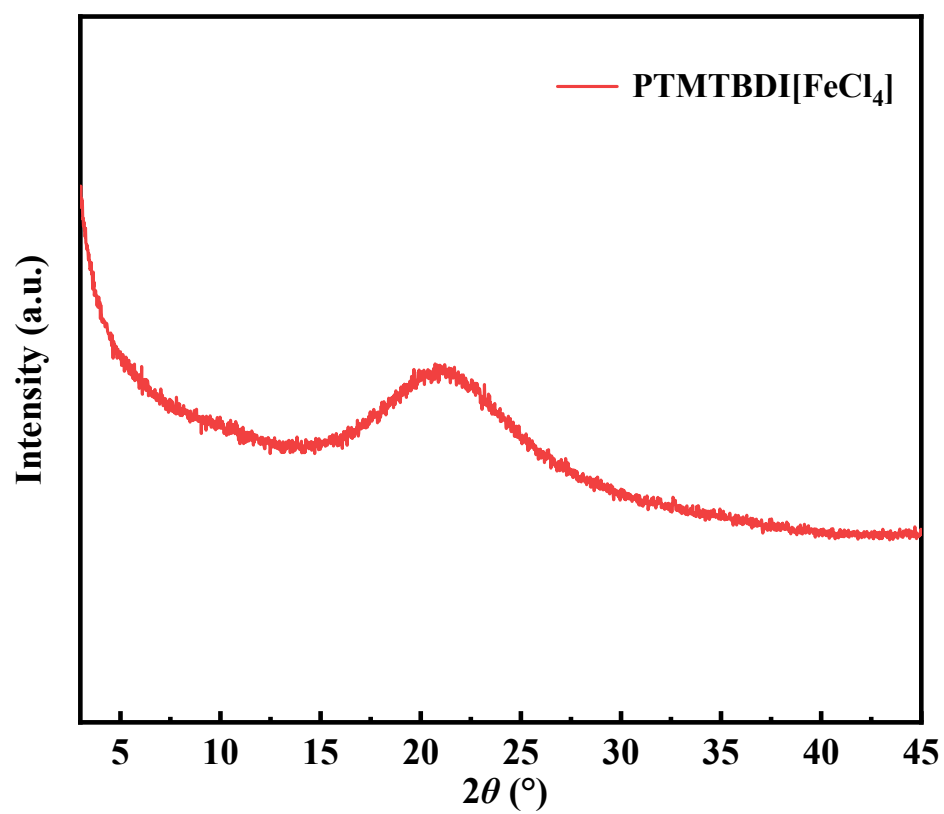


Figure S13. XRD pattern of PTMTBDI[FeCl<sub>4</sub>] before self-assembly.

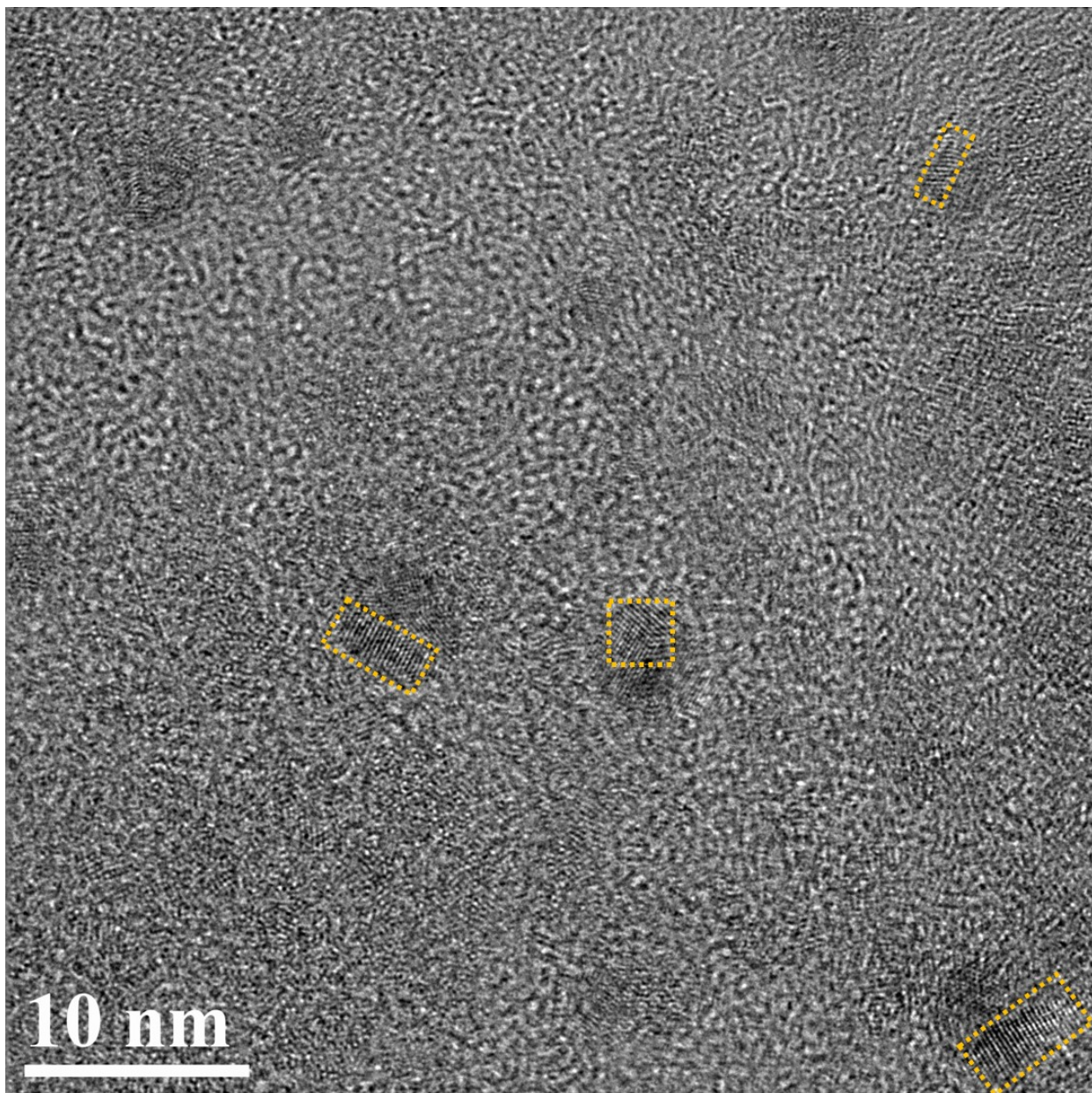


Figure S14. HR-TEM image of self-assembled PTMTBDI[FeCl<sub>4</sub>].



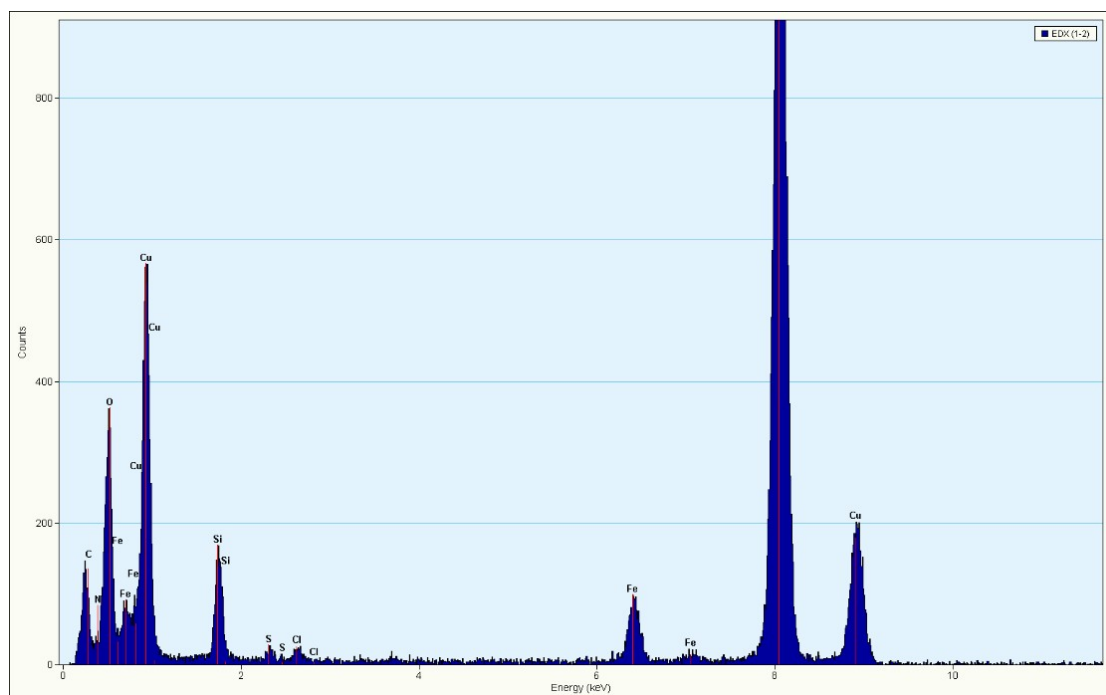


Figure S15. Energy spectra of self-assembled PTMTBDI[FeCl<sub>4</sub>].

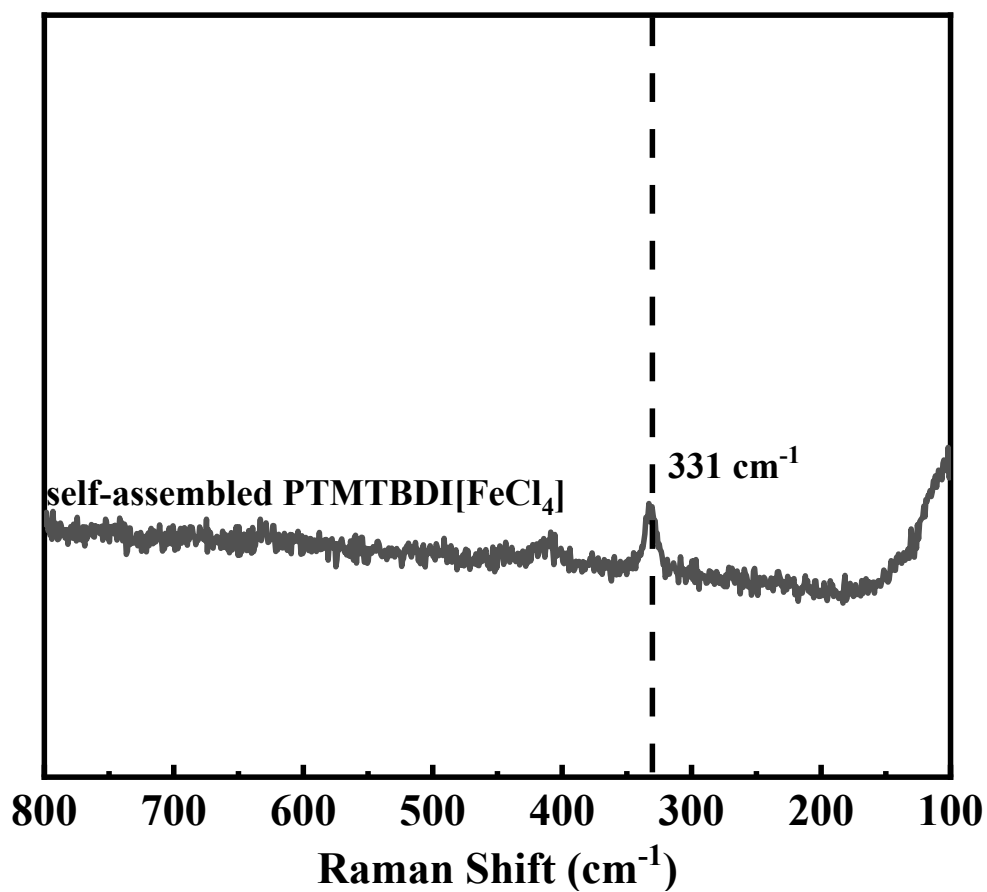


Figure S16. Raman spectra of self-assembled PTMTBDI[FeCl<sub>4</sub>].

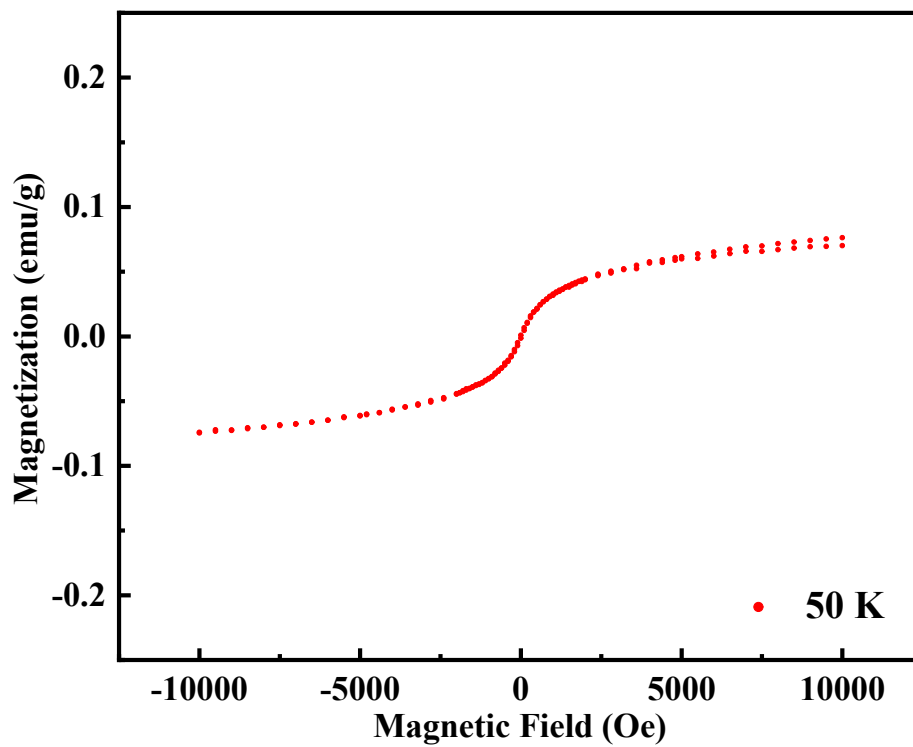


Figure S17. Magnetic field dependence of the magnetization at 50 K for self-assembled PTMTBDI[FeCl<sub>4</sub>].