

Supplementary Information

Instantaneous Detection of Explosive and Toxic Nitroaromatic Compounds via Donor-Acceptor Complexation

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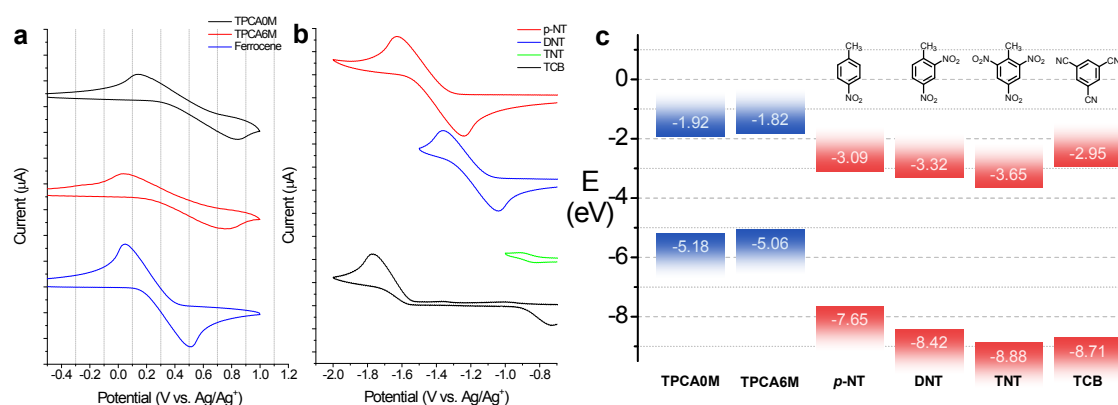


Fig. S1 (a) Oxidation potential of obtained TPCAs, (b) reduction potential of nitroaromatic compounds including TCB, and (c) summary of determined energy levels for all compounds examined in this study.

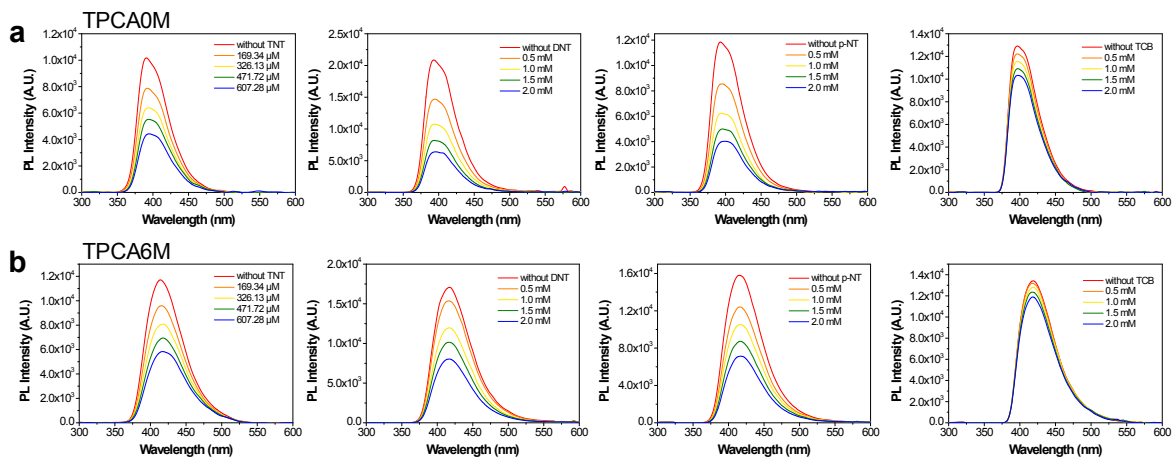


Fig. S2 Change in emission-quenching behavior of (a) TPCA0M and (b) TPCA6M with concentration of nitroaromatic compounds including TCB.

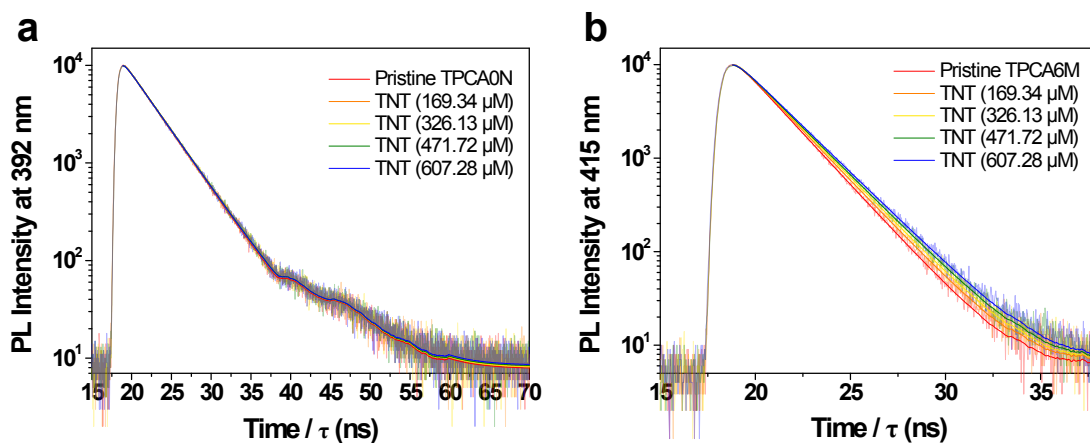


Fig. S3 Change in time-resolved emission spectra of (a) TPCA0M and (b) TPCA6M with TNT concentration.

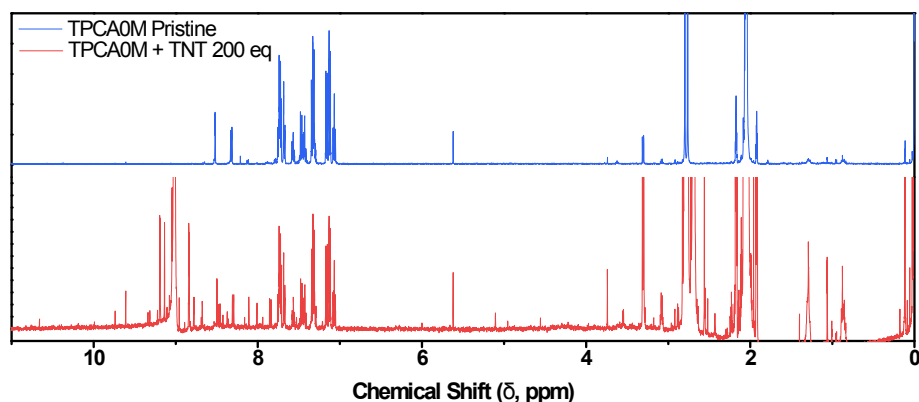


Fig. S4 $^1\text{H-NMR}$ spectra of TPCA0M and TPCA0M/TNT mixture in a full range.

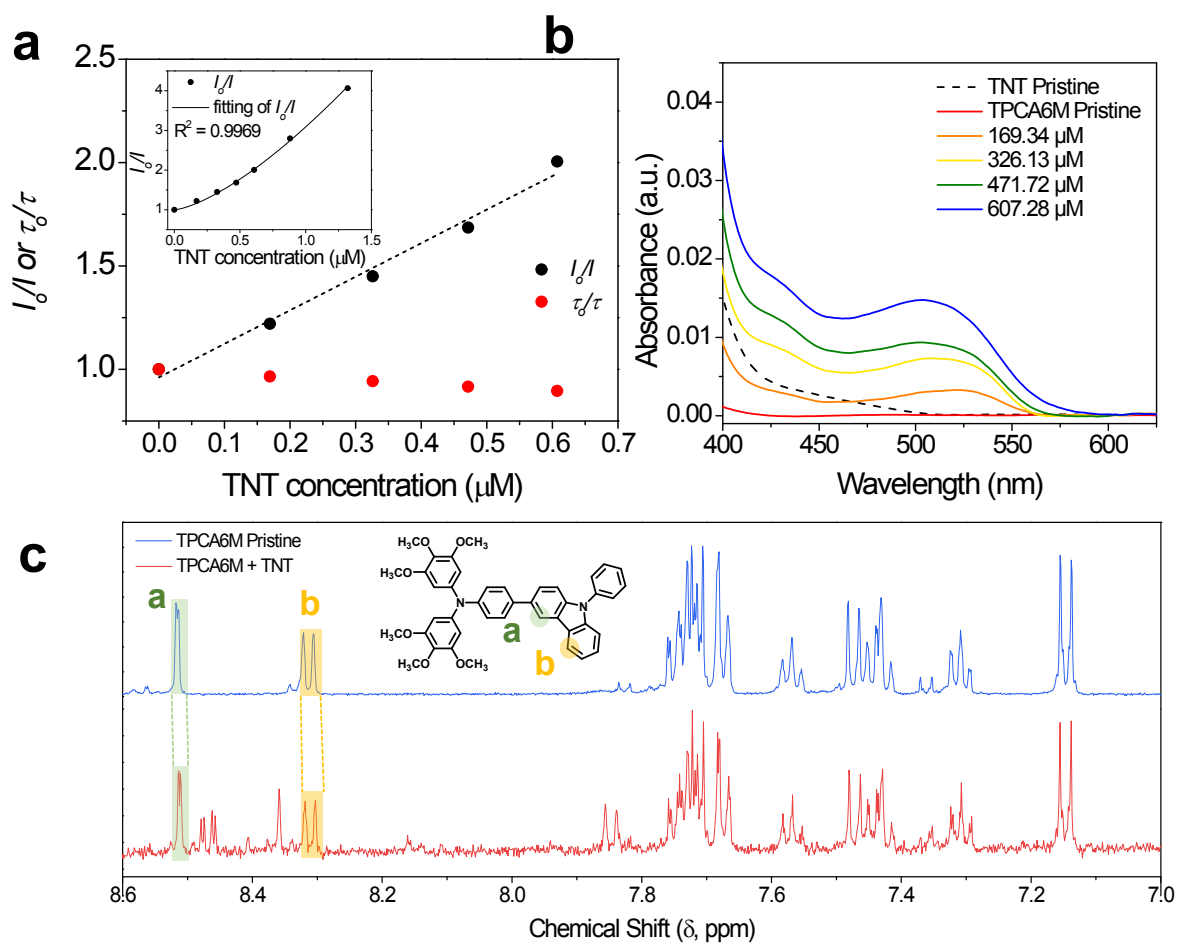


Fig. S5 (a) Correlation between emission intensity and lifetime, (b) UV-vis. absorption change depending on TNT concentration, and (c) comparison of chemical shift before and after TNT detection in **TPCA6M**.

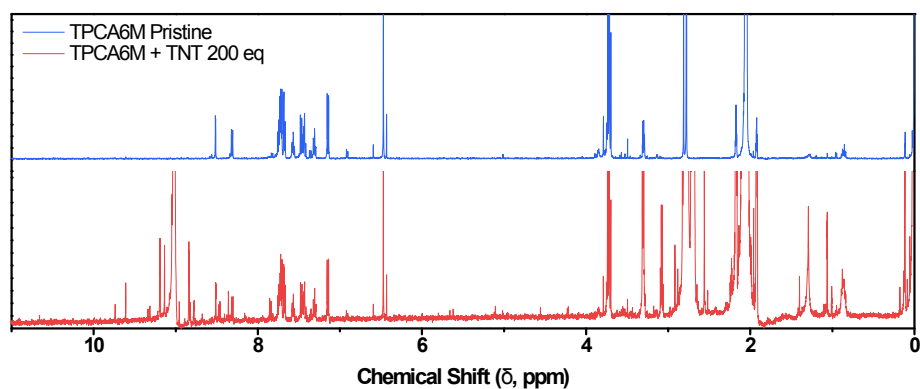


Fig. S6 ^1H -NMR spectra of **TPCA6M** and **TPCA6M/TNT** mixture in a full range.

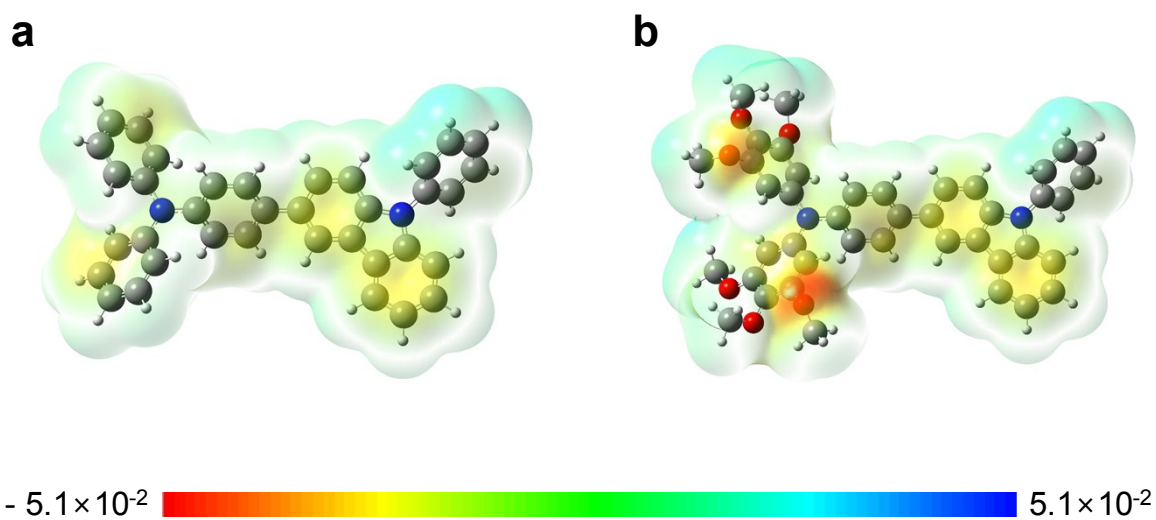


Fig. S7 Electrostatic potential (ESP) maps of (a) **TPCA0M** and (b) **TPCA6M**.

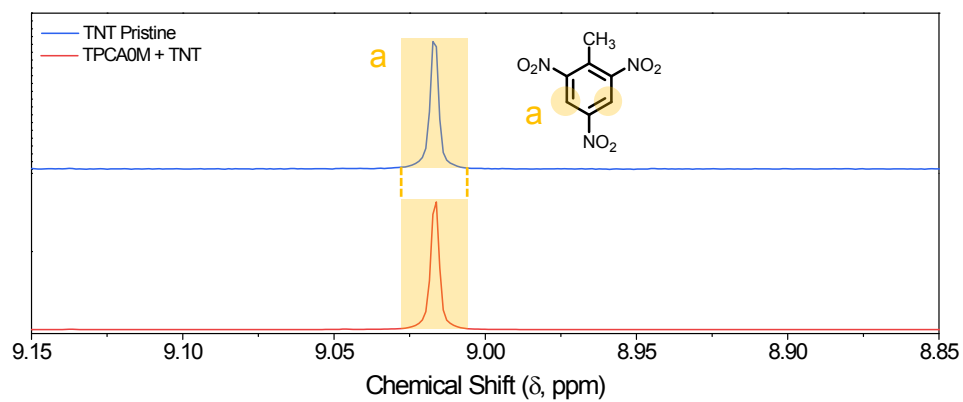


Fig. S8 $^1\text{H-NMR}$ spectra of TNT before and after complexation with **TPCA0M**.

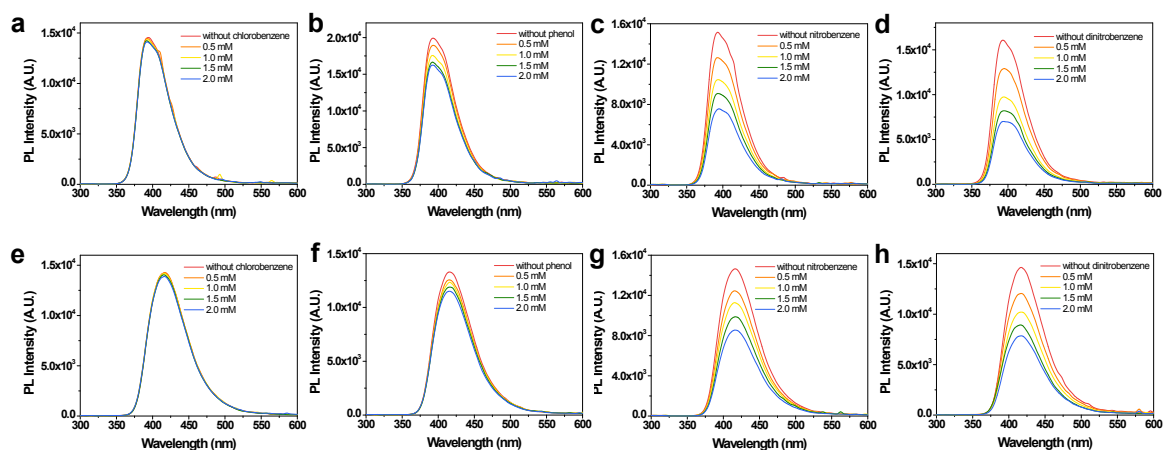


Fig. S9 Change in emission-quenching behavior of (a-d) TPCA0M and (e-h) TPCA6M with concentration of chlorobenzene, phenol, nitrobenzene and dinitrobenzene, respectively.

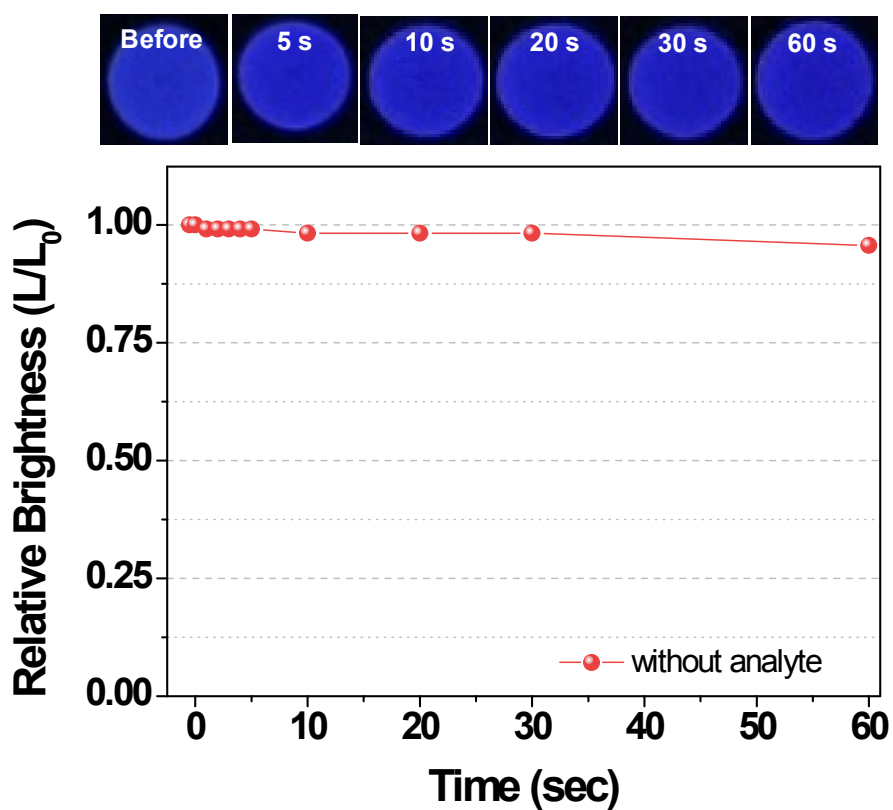


Fig. S10 Emission stability of TPCA0M-coated membrane with exposure time in pure water

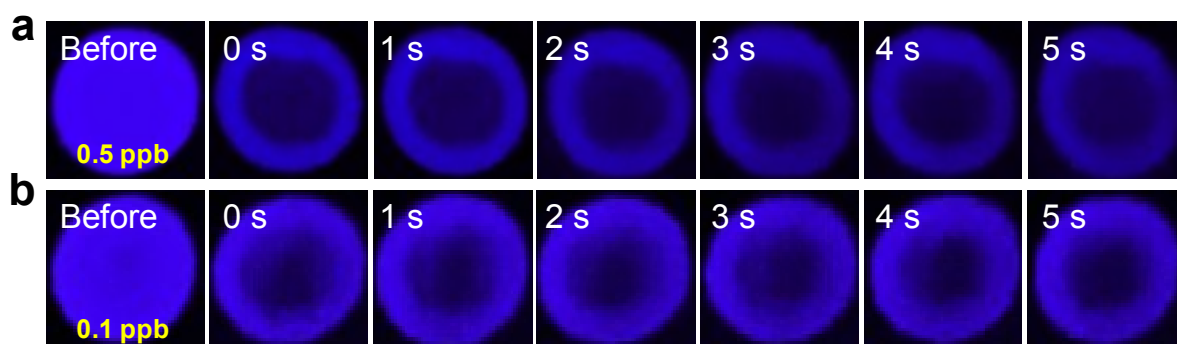


Fig. S11 Emission-quenching tendency of TPCA0M-membrane over exposure time for extremely diluted TNT concentration.

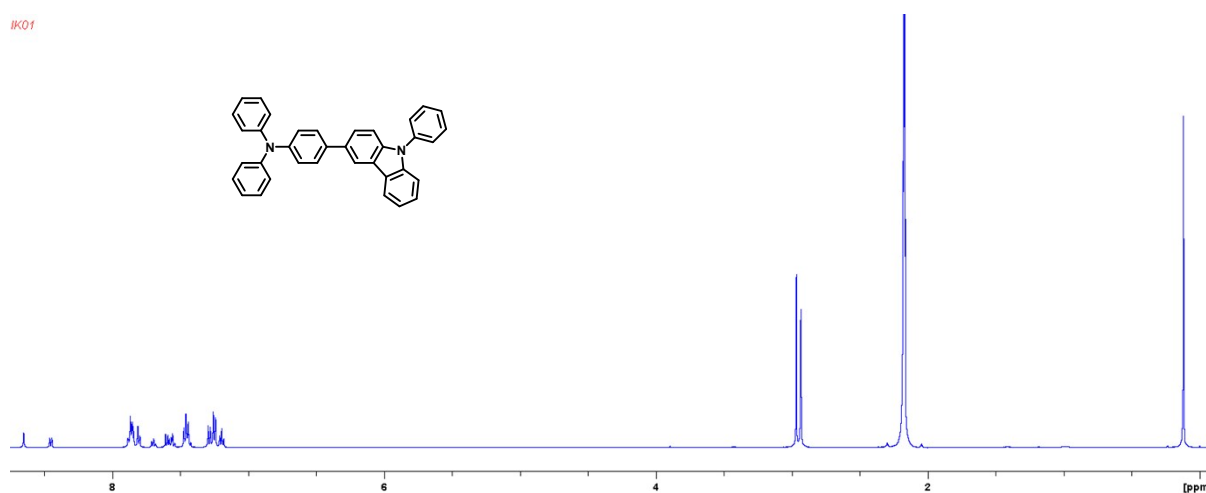


Fig. S12 $^1\text{H-NMR}$ spectrum of TPCA0M

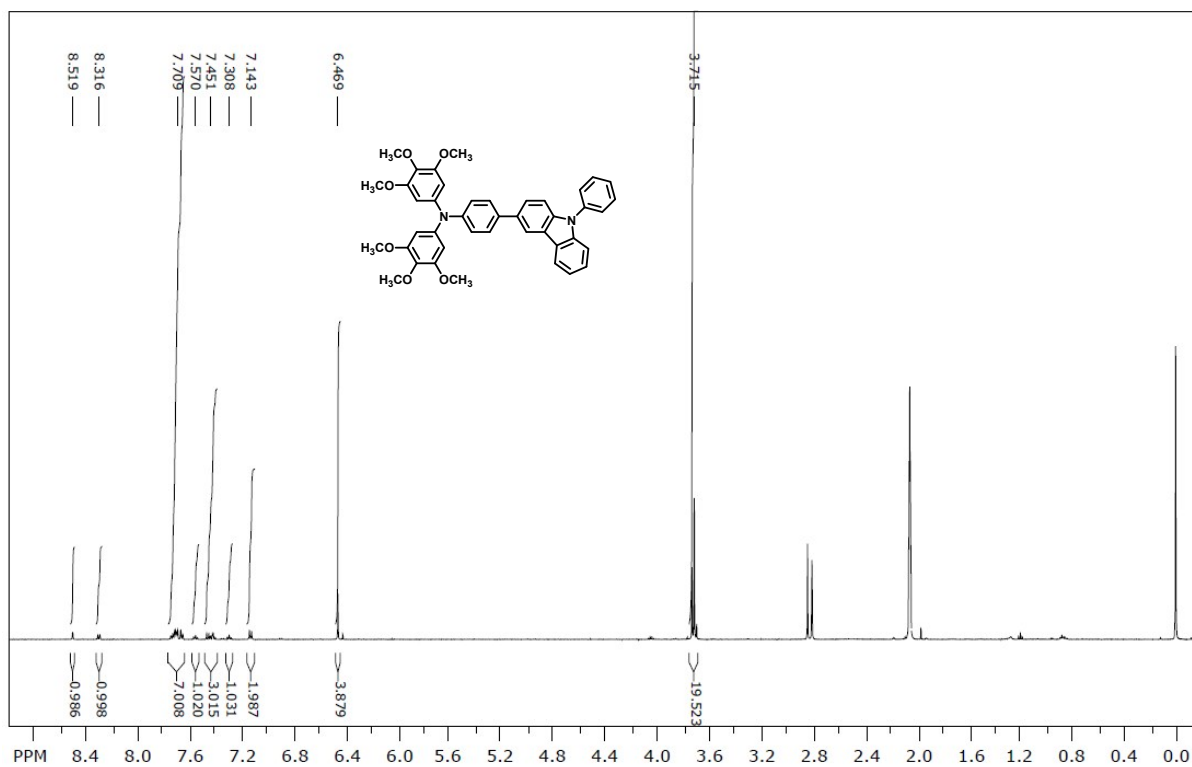


Fig. S13 $^1\text{H-NMR}$ spectrum of TPCA6M

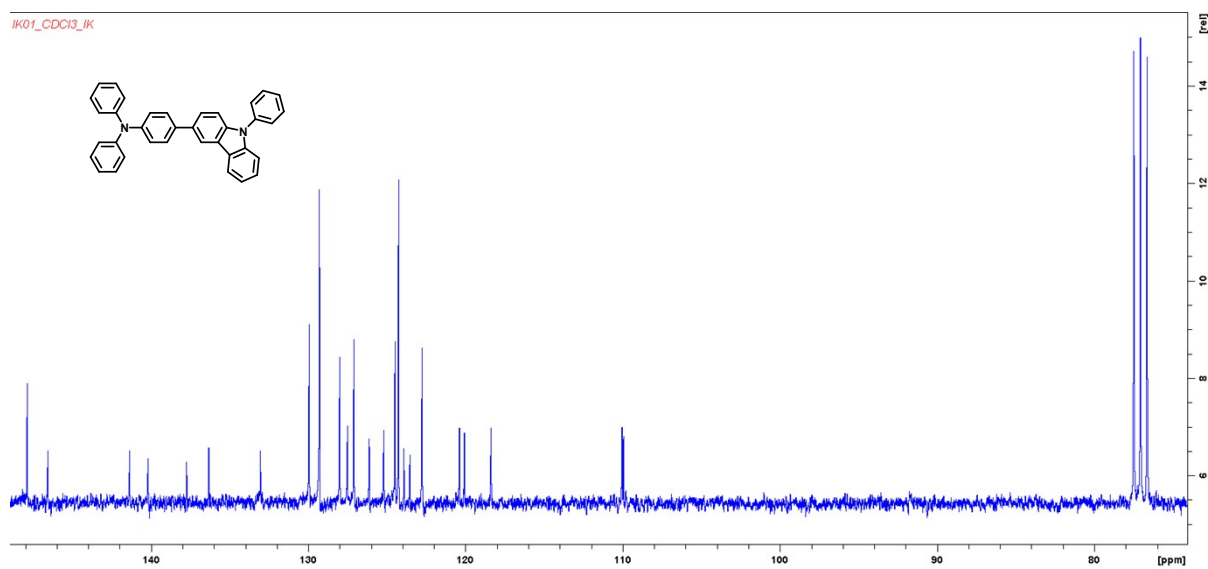


Fig. S14 $^{13}\text{C-NMR}$ spectrum of TPCA0M

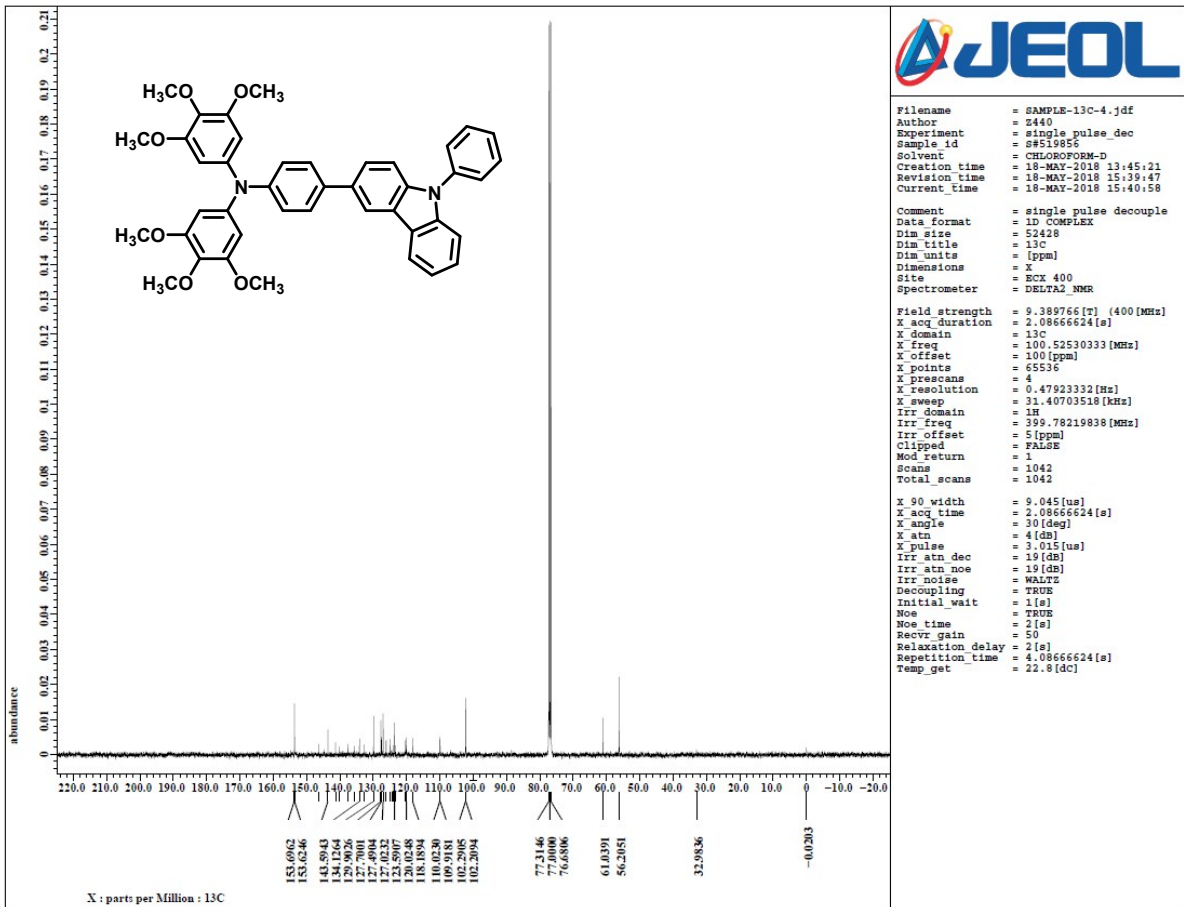


Fig. S15 ¹³C-NMR spectrum of TPCA6M

1_LeelK #27-49 RT: 1.0-1.6 AV: 12 NL: 5.74E7
T: + p ESI Full ms [100.00-2000.00]



Fig. S16 High resolution mass spectrum of TPCA0M

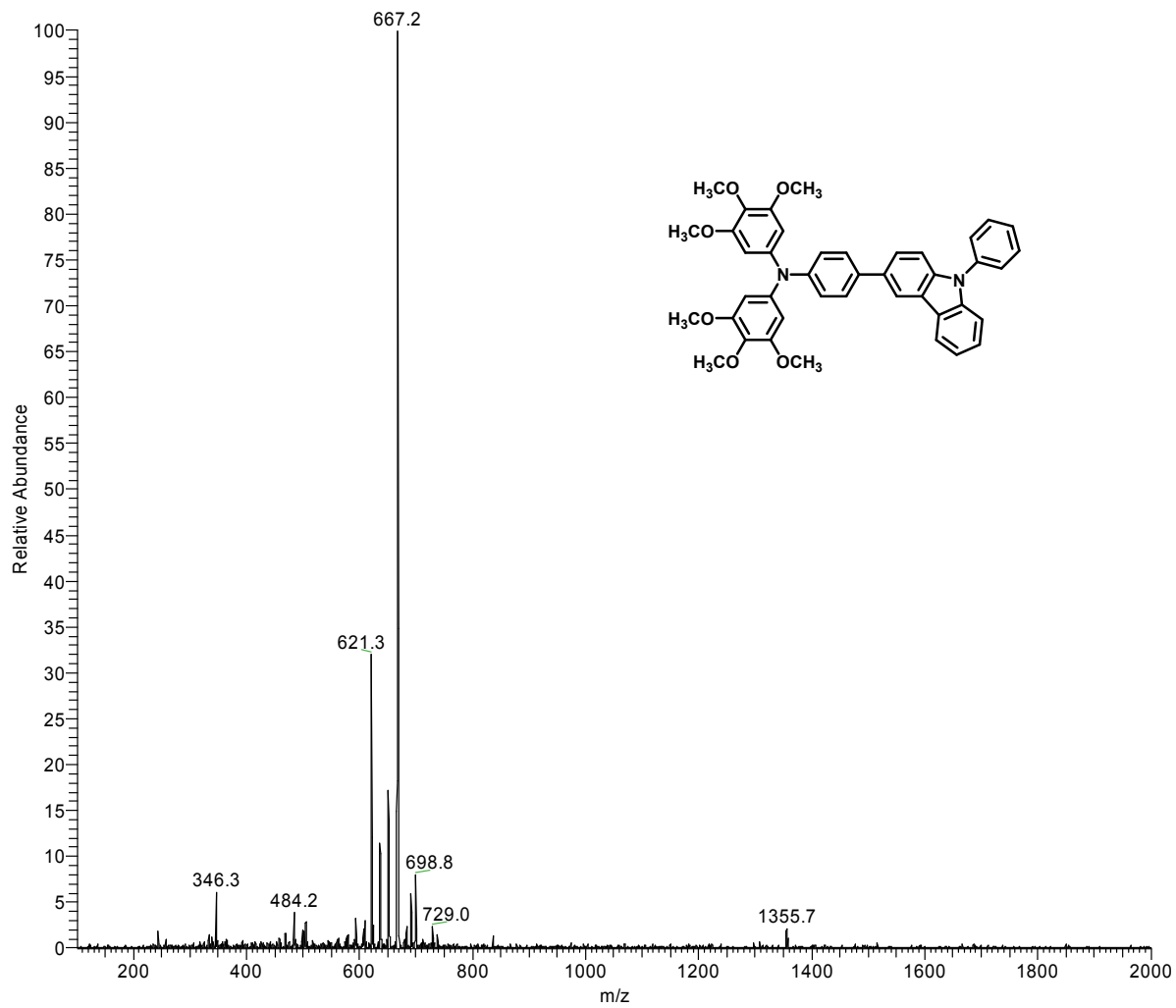


Fig. S17 High resolution mass spectrum of TPCA6M