

Supplementary Material (ESI) for New Journal of Chemistry

## Supporting information

### **High $T_g$ Fluoranthene-Based Electron Transport Materials for Organic Light-Emitting Diodes**

**Shiv Kumar, Satish Patil\***

Solid State and Structural Chemistry Unit (SSCU), Indian Institute of Science, Bangalore  
560012, INDIA

Corresponding Author

\*Prof. Satish Patil

Solid State and Structural Chemistry Unit

Indian Institute of Science, Bangalore 560012 INDIA

E-mail: [satish@sscu.iisc.ernet.in](mailto:satish@sscu.iisc.ernet.in)

Phone: +91 80 2293-2651

# Contents

1.  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectras
2. Mass spectras
3. Energy level diagram of electron-only and hole-only devices
4. CIE 1931 chromaticity plot

## TPFDPS

$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.71 (d,  $J = 8.2$  Hz, 4H), 7.30 (dt,  $J = 8.0, 4.7$  Hz, 24H), 6.90 (d,  $J = 3.2$  Hz, 10H), 6.76 (d,  $J = 8.2$  Hz, 4H), 6.66 (d,  $J = 7.1$  Hz, 2H), 6.62 (d,  $J = 7.1$  Hz, 2H), 6.55 (d,  $J = 8.2$  Hz, 4H).

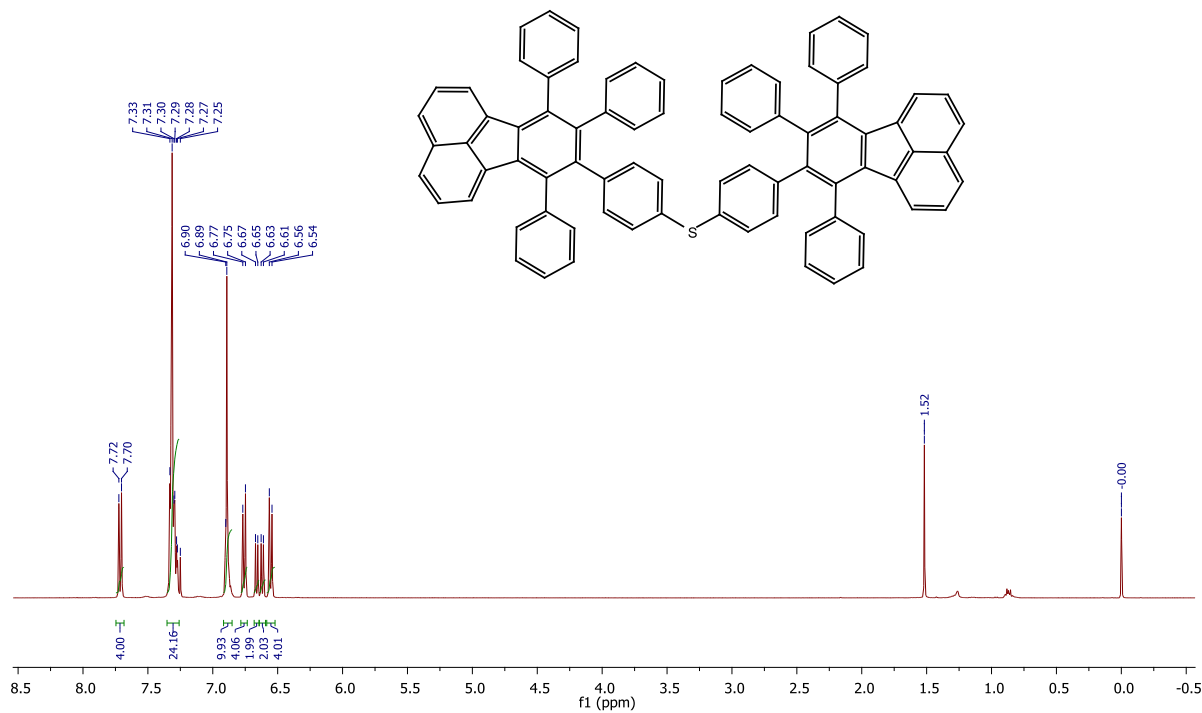


Figure S1.  $^1\text{H}$  NMR of TPFDPS.

# TPFDPS

$^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ )  $\delta$  140.59, 139.99, 139.72, 139.64, 138.67, 137.20, 137.08, 136.71, 136.53, 136.41, 136.38, 133.27, 132.80, 131.89, 131.28, 130.09, 130.07, 129.64, 129.22, 128.23, 128.19, 127.64, 126.96, 126.72, 126.58, 125.46, 123.25, 123.23.

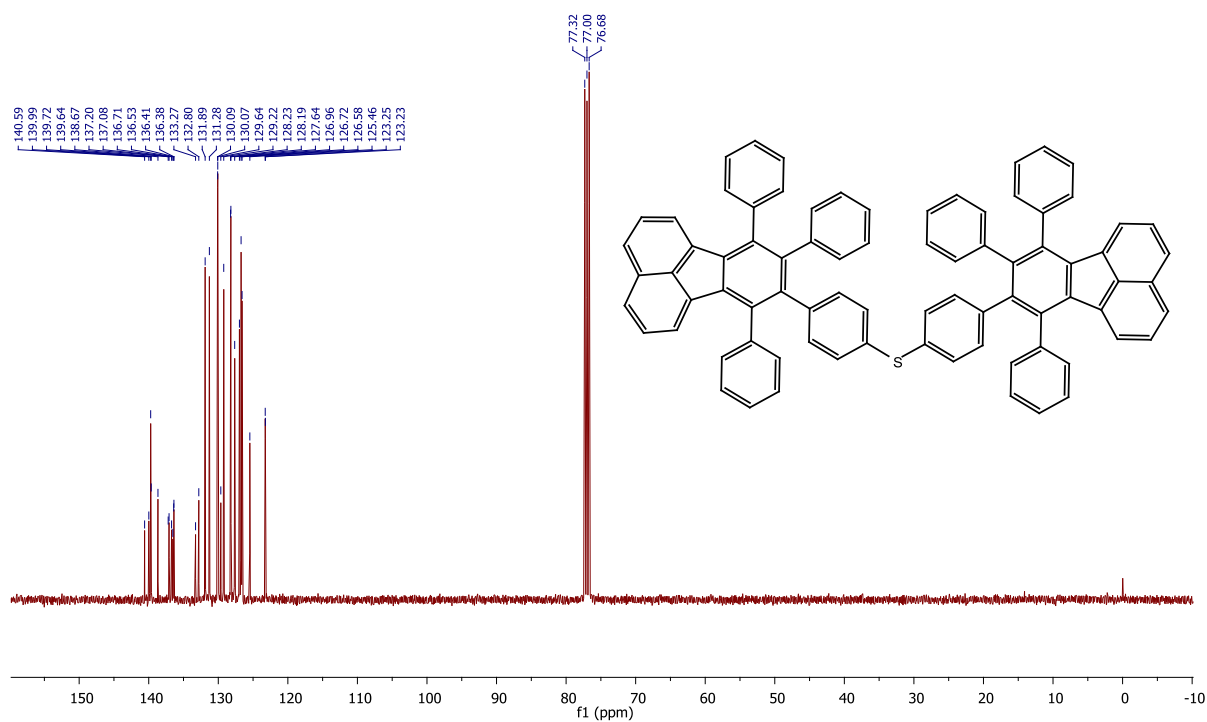


Figure S2.  $^{13}\text{C}$  NMR of TPFDPS.

### TPFDBT

$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  7.70 (d,  $J = 8.1$  Hz, 4H), 7.45 (d,  $J = 1.2$  Hz, 2H), 7.40 – 7.18 (m, 26H), 6.91 (dd,  $J = 8.2, 1.6$  Hz, 6H), 6.83 (t,  $J = 12.6$  Hz, 6H), 6.61 (dd,  $J = 10.2, 7.1$  Hz, 4H).

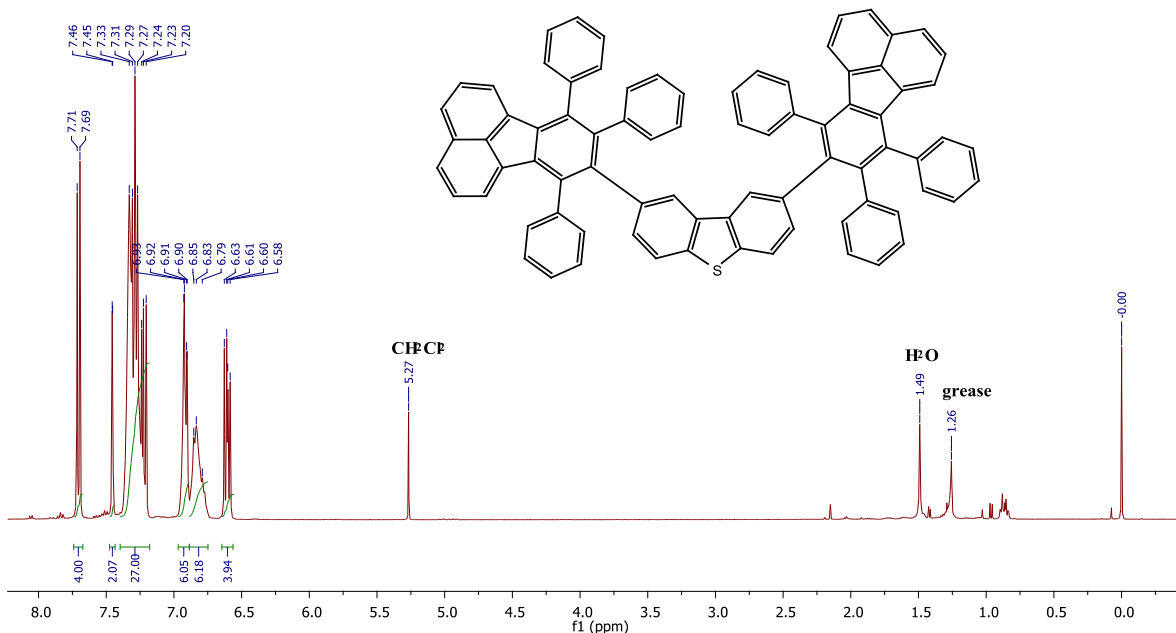


Figure S3.  $^1\text{H}$  NMR of TPFDBT.

### TPFDBT

$^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ )  $\delta$  140.94, 140.32, 139.80, 139.76, 137.43, 137.29, 136.74, 136.63, 136.45, 135.98, 134.31, 133.29, 131.31, 131.14, 130.03, 129.63, 129.60, 128.27, 128.17, 127.66, 126.93, 126.71, 126.56, 125.44, 124.16, 123.23, 120.79.

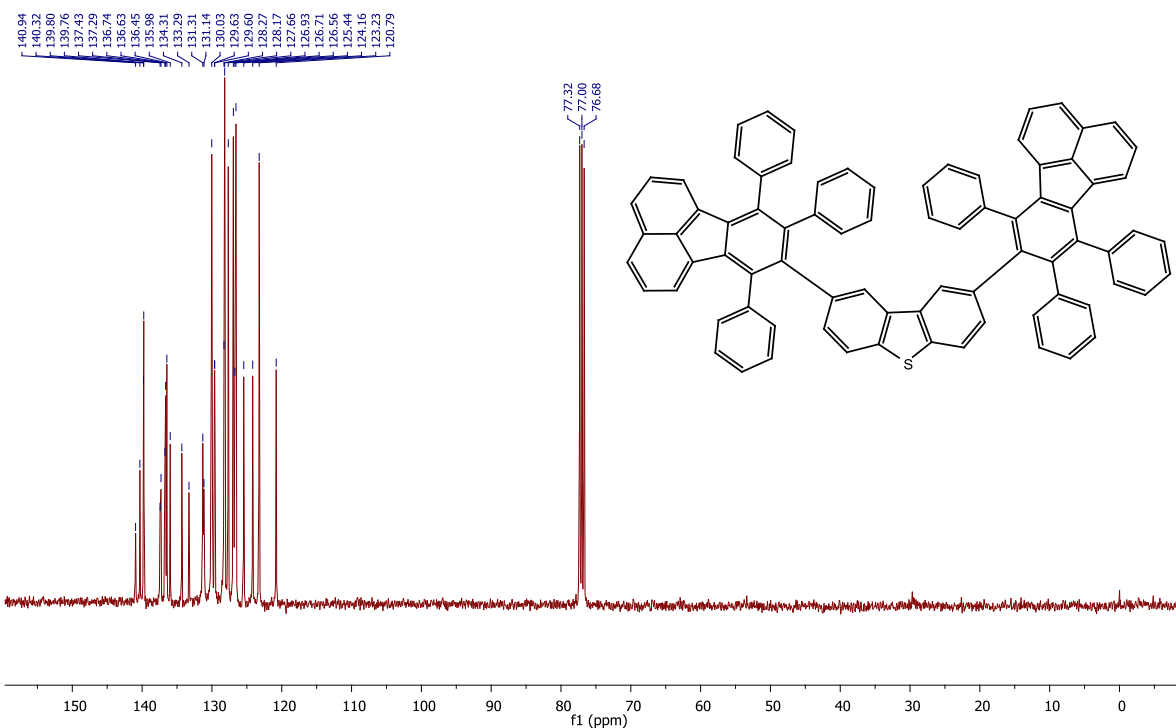
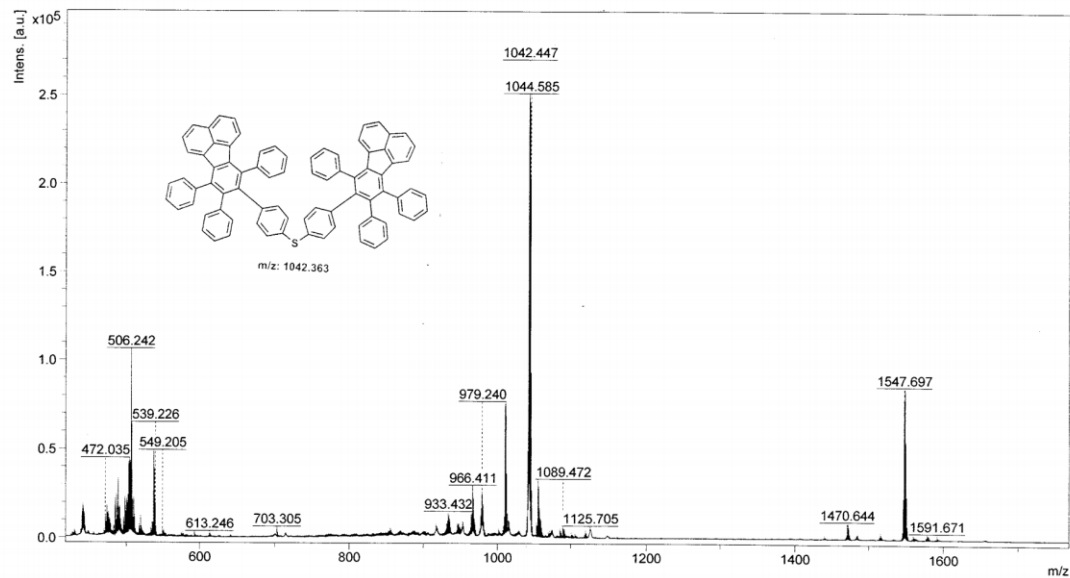


Figure S4.  $^{13}\text{C}$  NMR of TPFDBT.

Comment 1

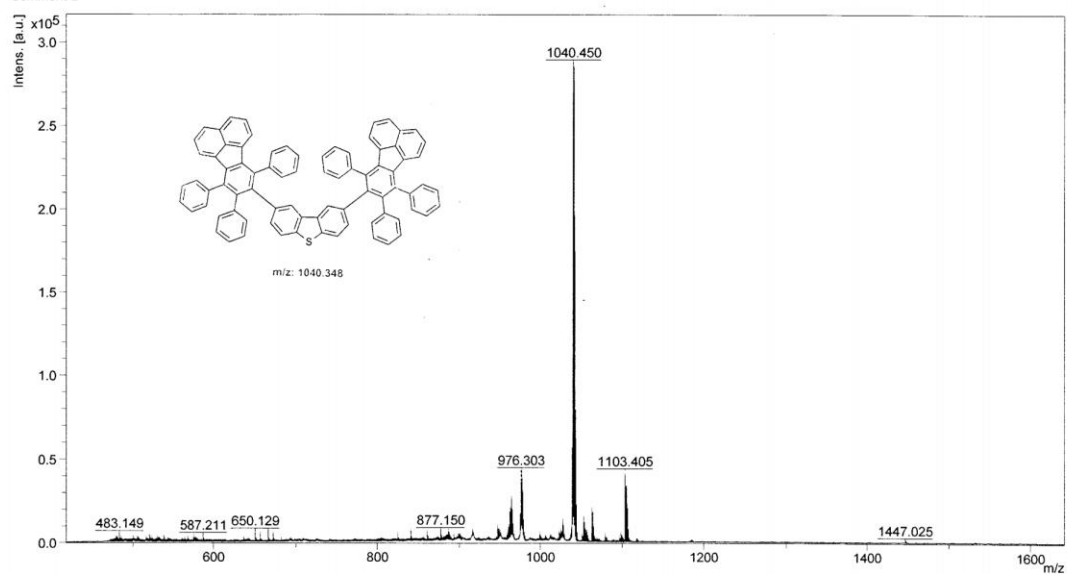
Comment 2



printed: 10/23/2013 10:48:08

**Figure S5. MS-MALDI-TOF spectra of TPFDPs.**

Comment 1  
Comment 2



printed: 10/23/2013 10:51:06

Figure S6. MS-MALDI-TOF spectra of TPFDBT.

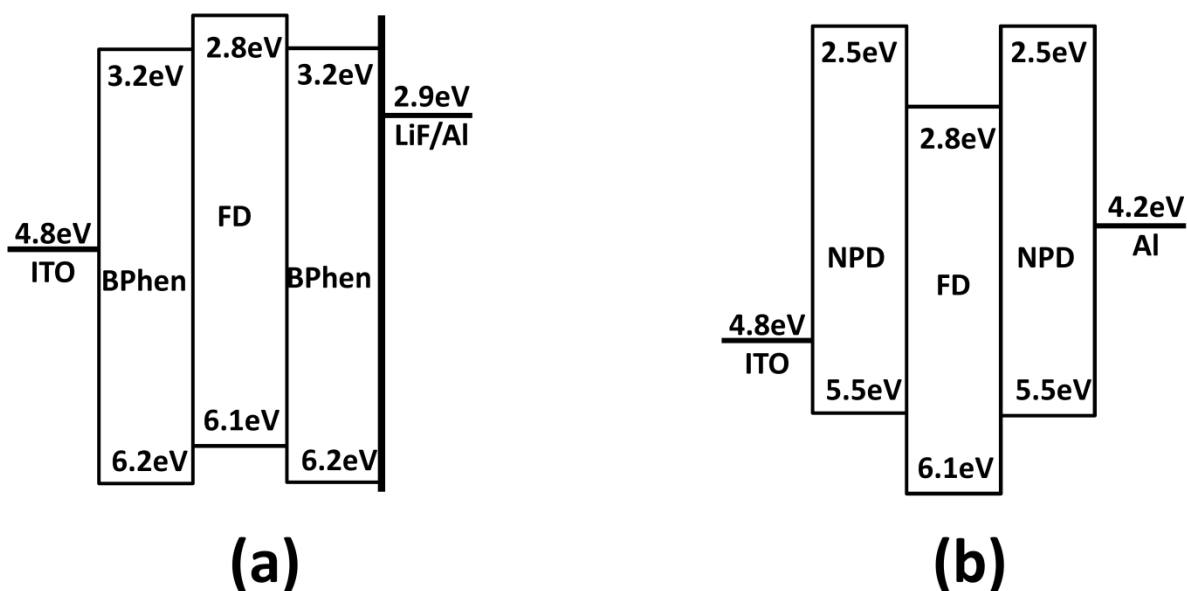


Figure S7. Energy level diagram of (a) electron-only device, and (b) hole-only device. BPhen: 4,7-Diphenyl-1,10-phenanthroline; NPD: *N,N'*-di(1-naphthyl)-*N,N'*-diphenyl-(1,1'-biphenyl)-4,4'-diamine; FD: fluoranthene derivatives.

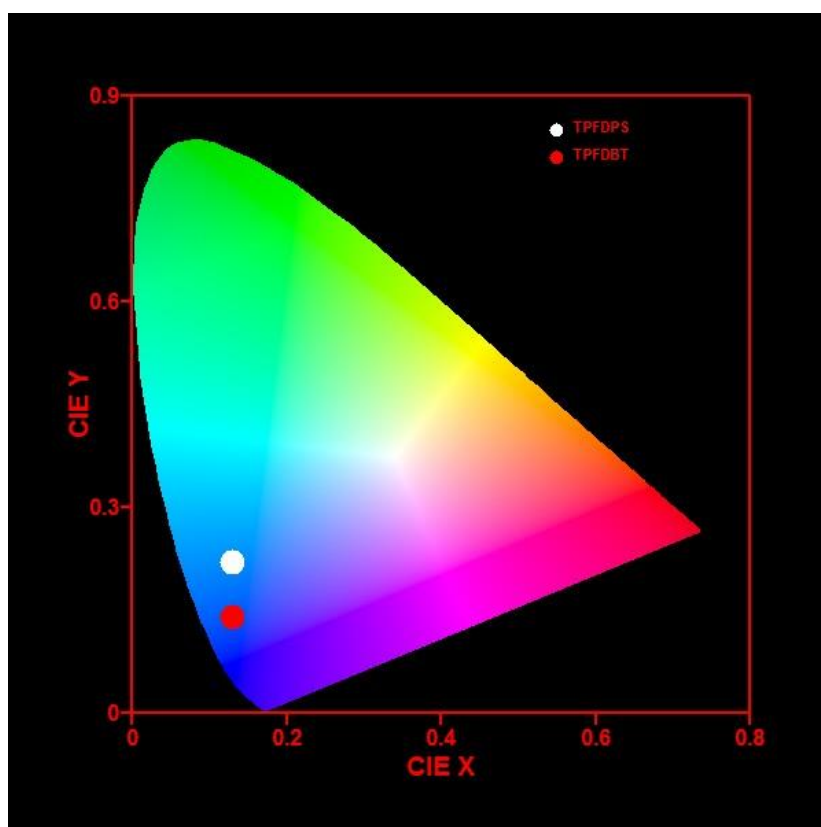


Figure S8. CIE 1931 chromaticity plot..