Electronic Supplementary Information

Dibenzo[*b*,*d*]furan and Dibenzo[*b*,*d*]thiophene Molecular Dimers as Hole Blocking Materials for High-Efficiency and Long-Lived Blue Phosphorescent Organic Light-Emitting Diodes

Seokhoon Jang,[a] Kyung Hyung Lee,[b] Jun Yeob Lee,*[b] and Youngu Lee*[a]

[a] Department of Energy Science & Engineering, DGIST, 333, Techno Jungang-daero, Hyeonpung-eup, Dalseong-gun, Daegu, 42988, Republic of Korea.
E-mail: youngulee@dgist.ac.kr; Tel: +82-53-785-6414; Fax: +82-53-785-6409.

[b] School of Chemical Engineering, Sungkyunkwan University, 2066, Seobu-ro, Jangan-gu, Suwon-si, Gyeonggi-do, 16419, Republic of Korea.
E-mail: leej17@skku.edu.

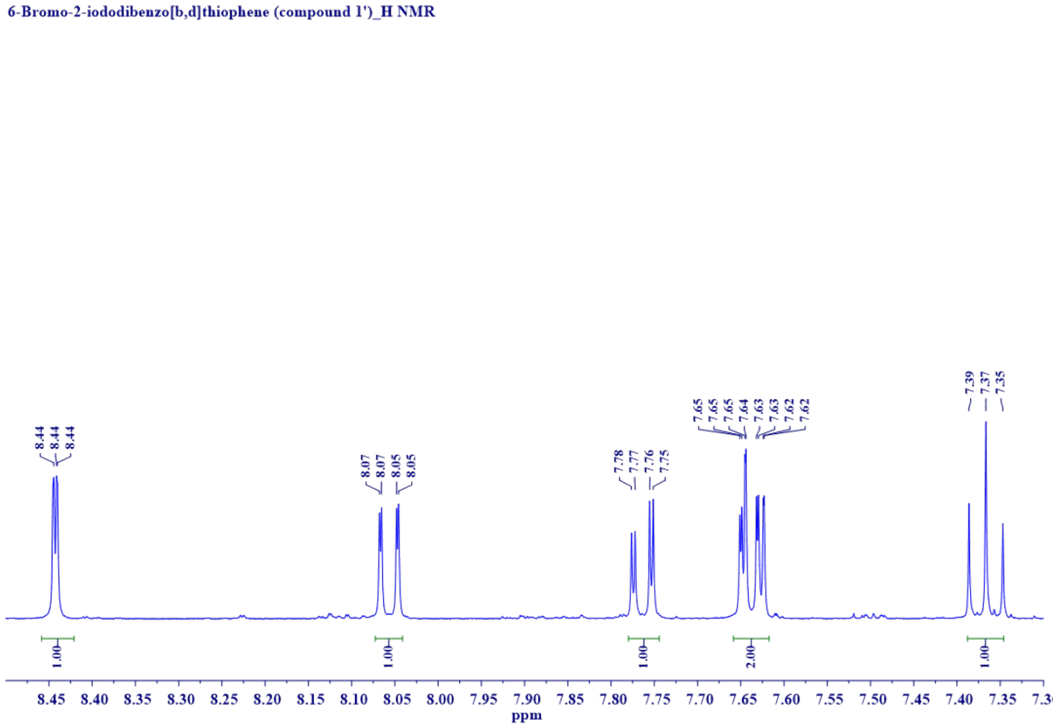

Fig. S1 ^{1}H NMR spectrum of compound 1′.

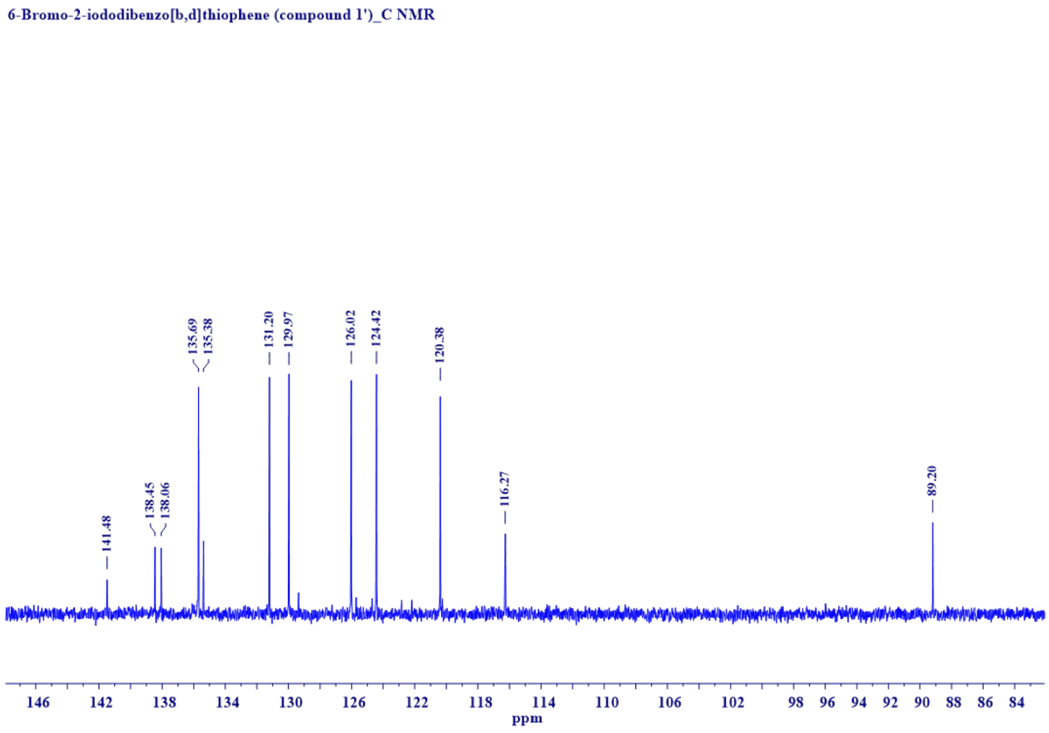

Fig. S2 ^{13}C NMR spectrum of compound 1′.

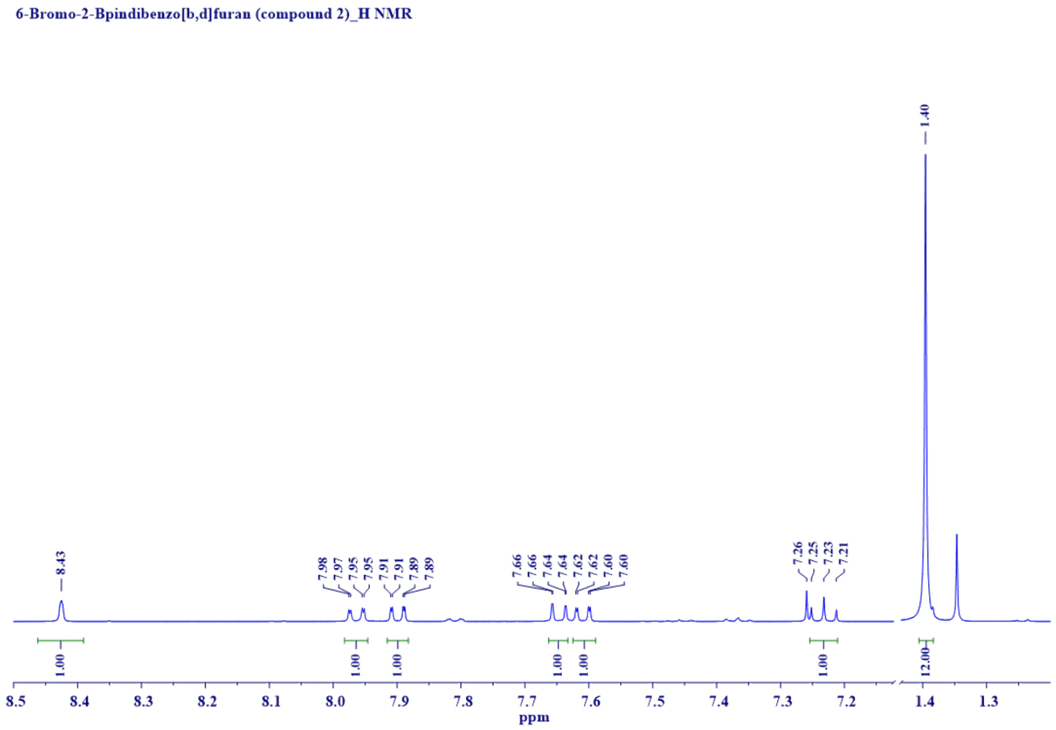

Fig. S3 [1]H NMR spectrum of compound 2.

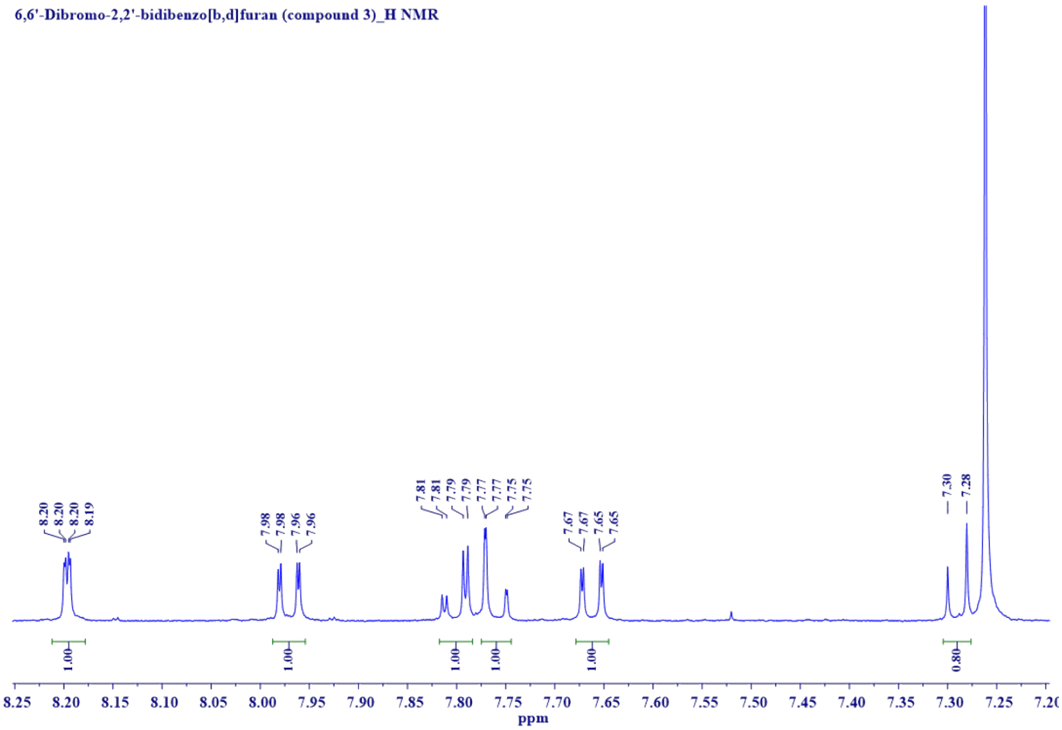

Fig. S4 [1]H NMR spectrum of compound 3.

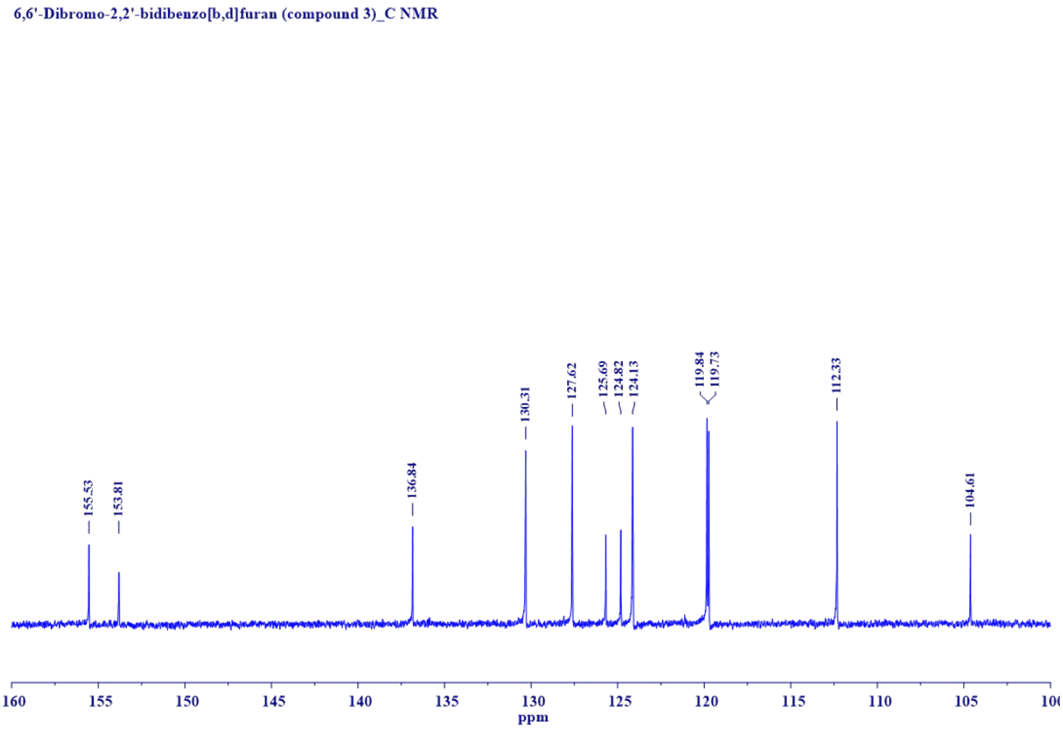

Fig. S5 ^{13}C NMR spectrum of compound 3.

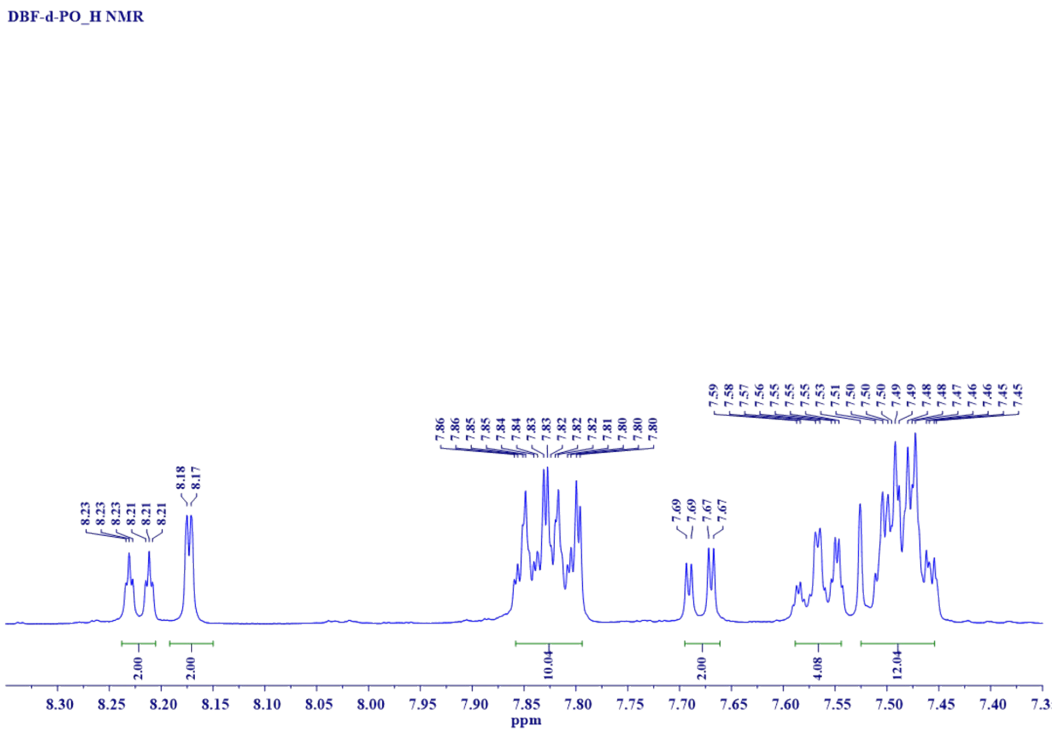

Fig. S6 ^{1}H NMR spectrum of DBF-d-PO.

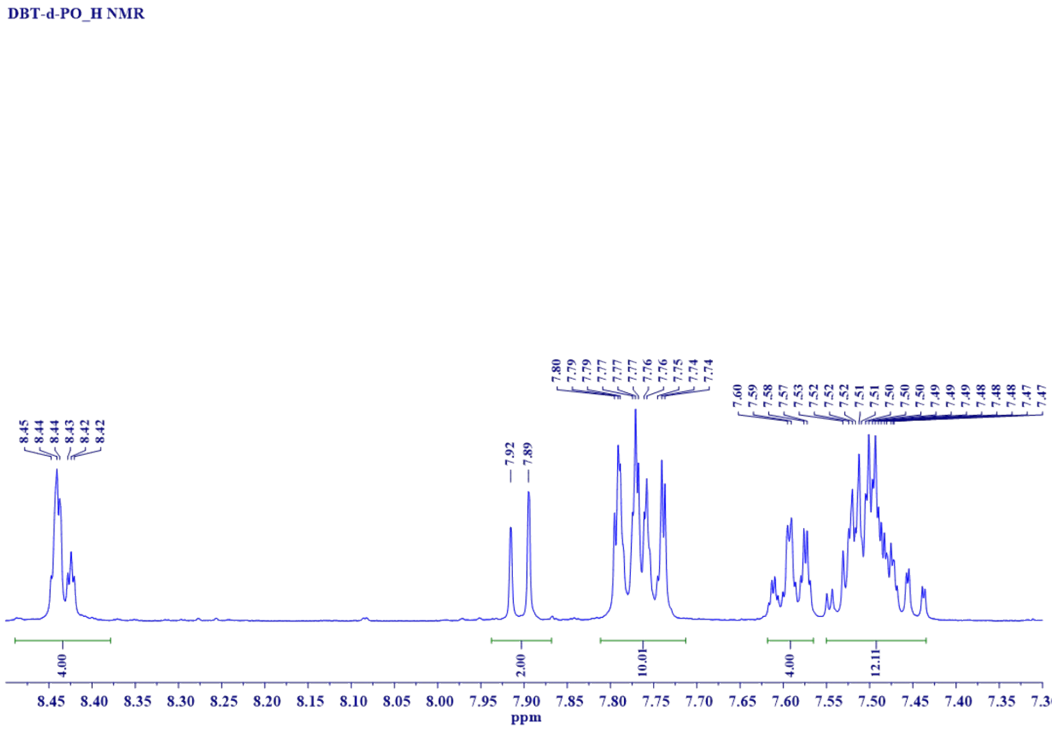

Fig. S7 ^{1}H NMR spectrum of DBT-d-PO.

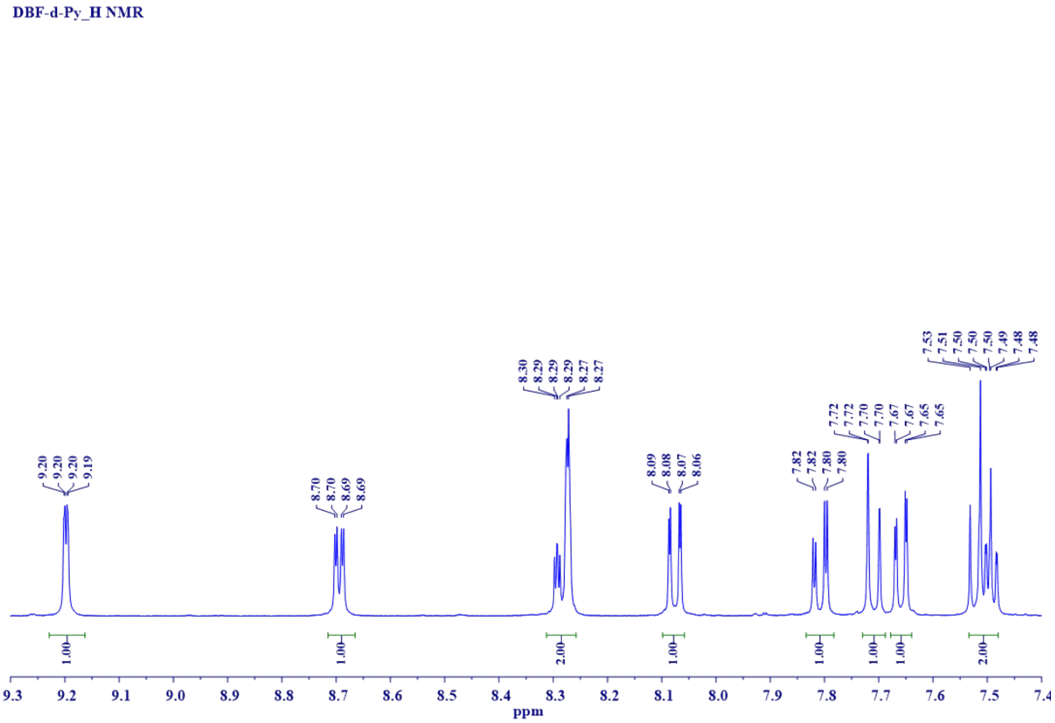

Fig. S8 ^{1}H NMR spectrum of DBF-d-Py.

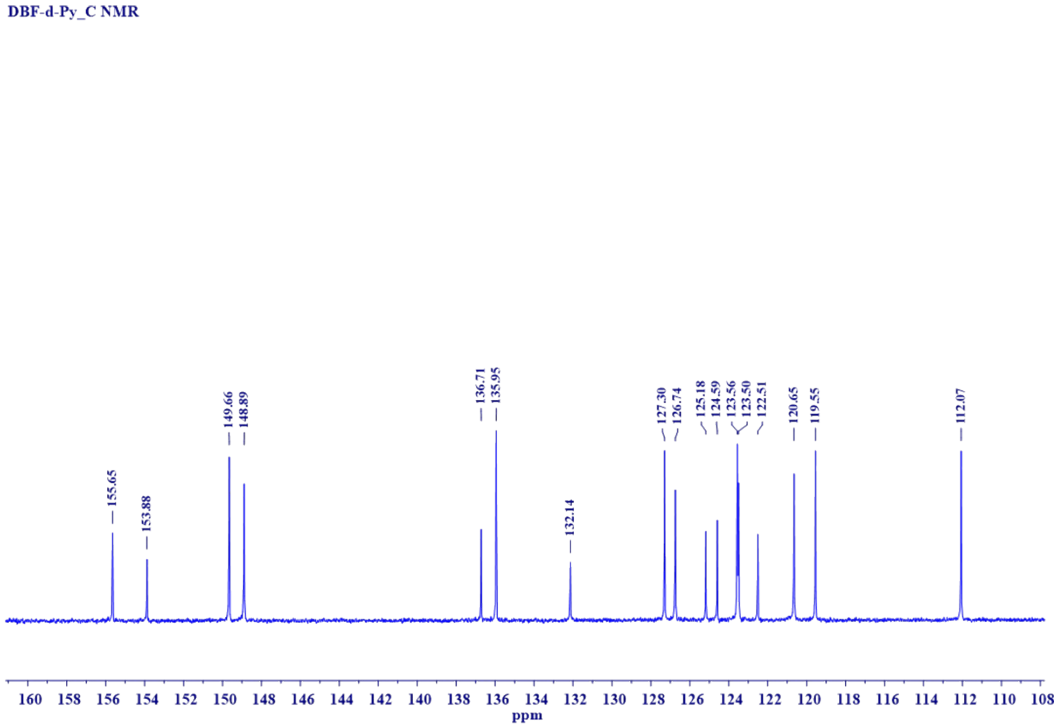

Fig. S9 ^{13}C NMR spectrum of DBF-d-Py.

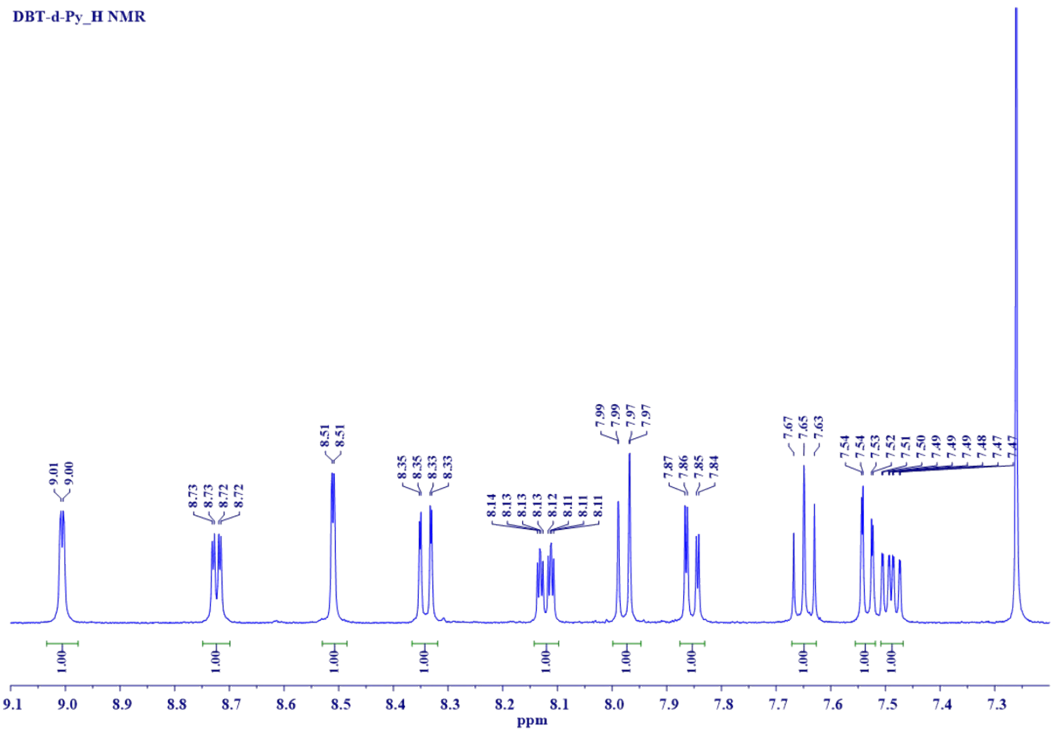

Fig. S10 ^{1}H NMR spectrum of DBT-d-Py.

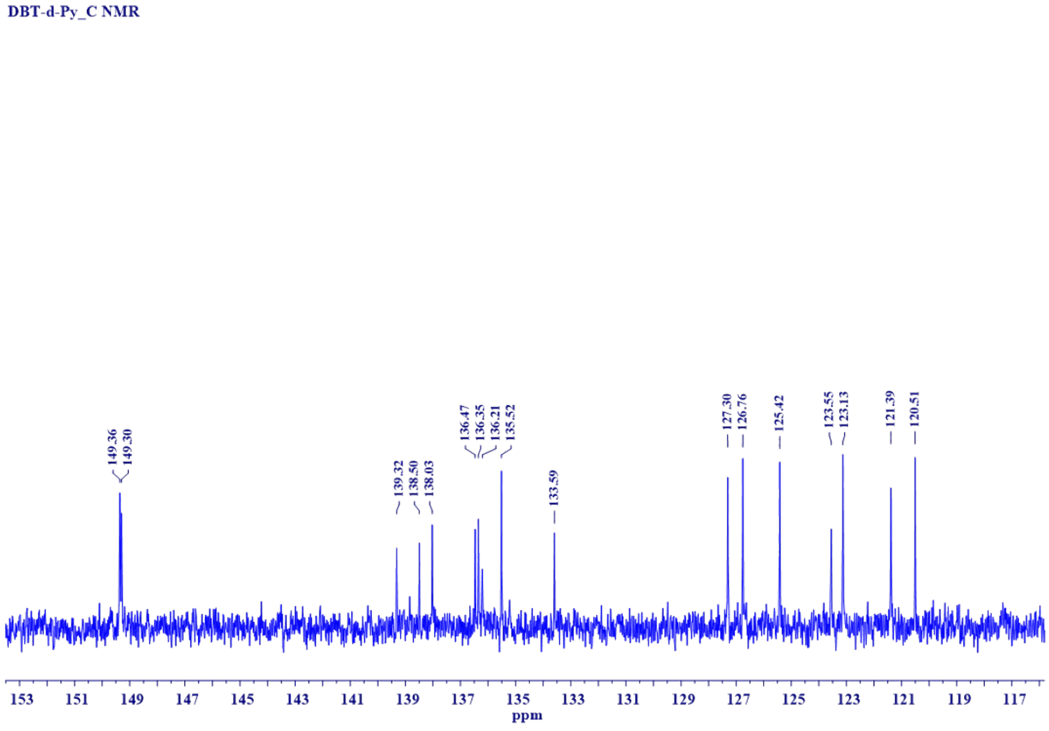

Fig. S11 ^{13}C NMR spectrum of DBT-d-Py.

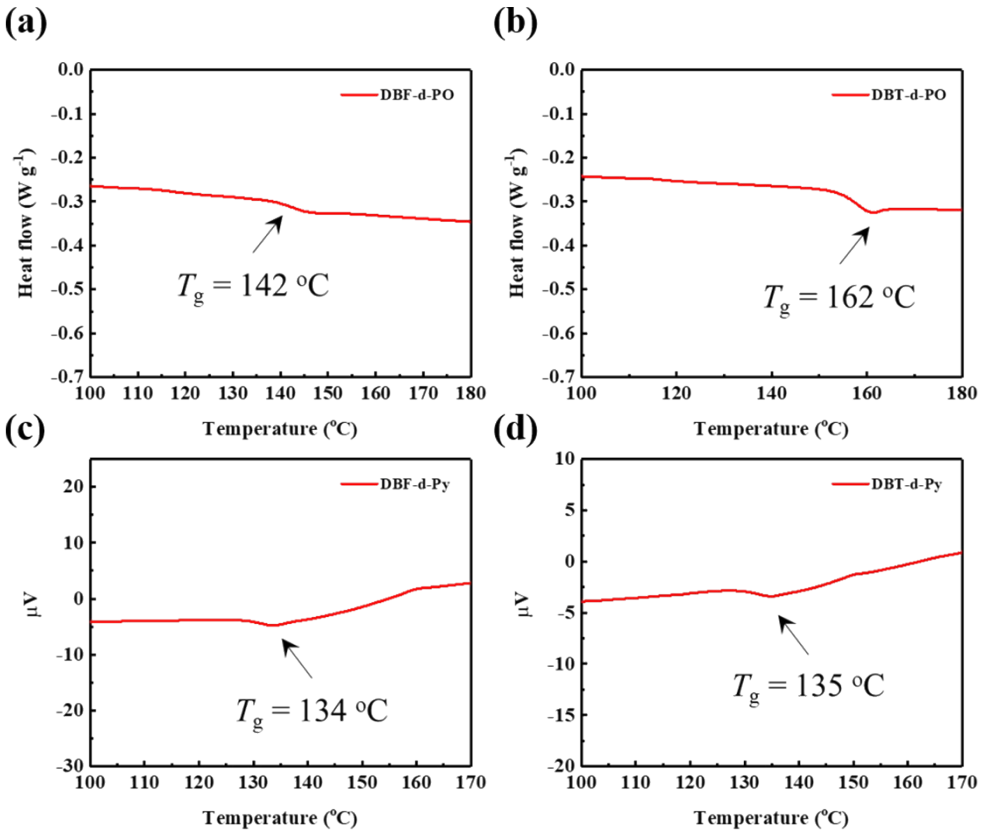

Fig. S12 (a, b) DSC traces of DBF-d-PO and DBT-d-PO and (c, d) DTA traces of DBF-d-Py and DBT-d-Py.

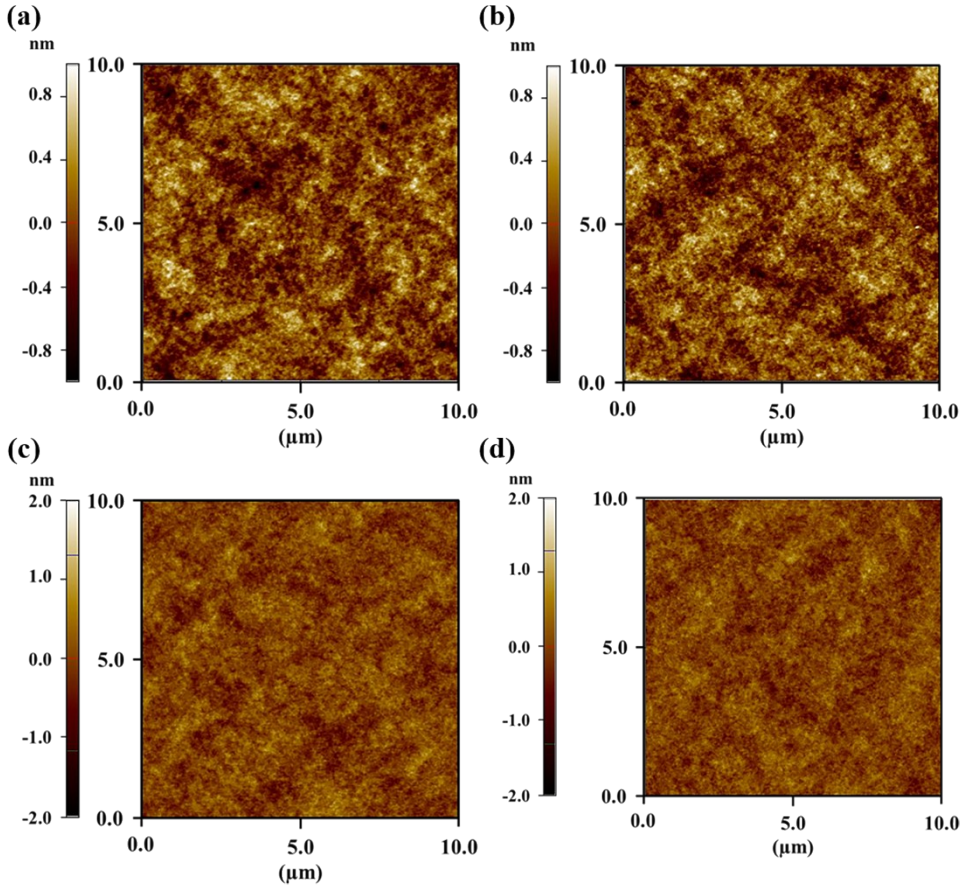

Fig. S13 AFM topographic images of DBF-d-PO, DBT-d-PO, DBF-d-Py, and DBT-d-Py before thermal annealing treatment.

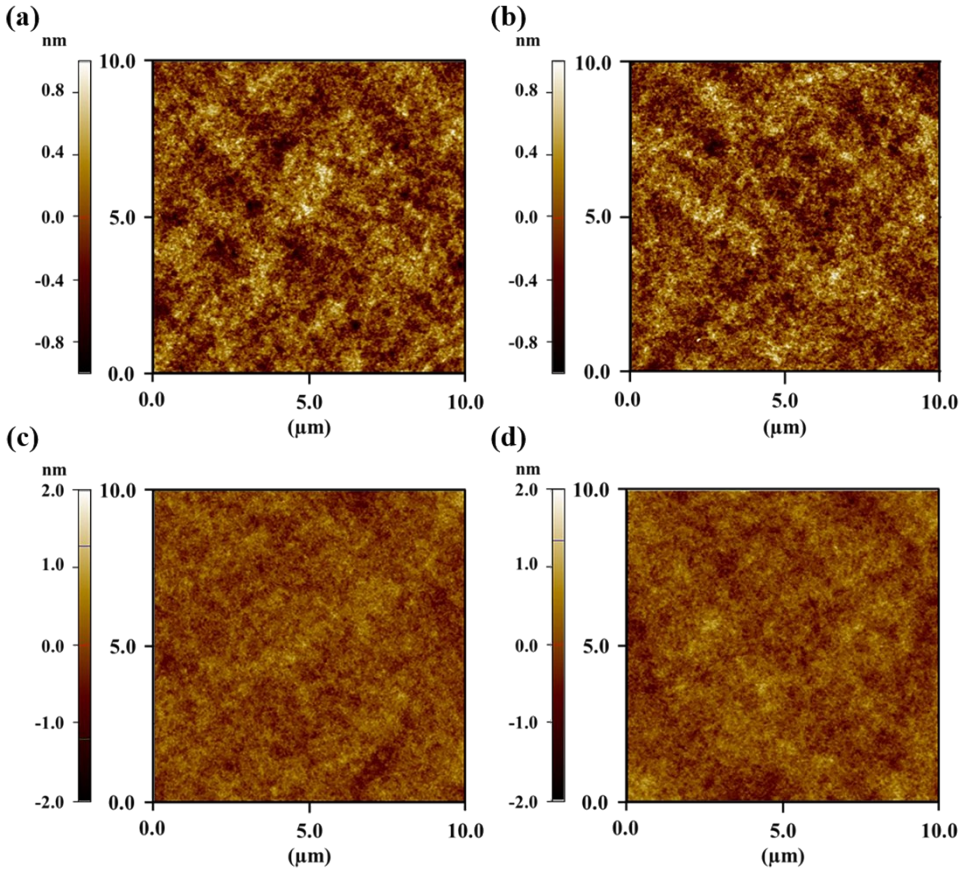

Fig. S14 AFM topographic images of DBF-d-PO, DBT-d-PO, DBF-d-Py, and DBT-d-Py after thermal annealing treatment (85 ^{o}C, 24 h).

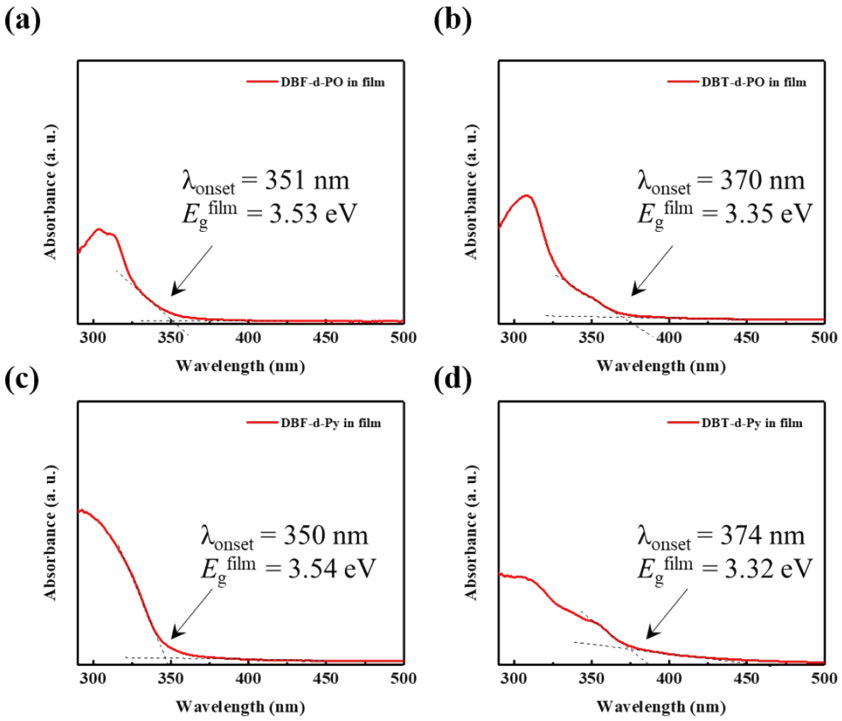

Fig. S15 UV-vis absorption spectra of DBF-d-PO, DBT-d-PO, DBF-d-Py, and DBT-d-Py in film.

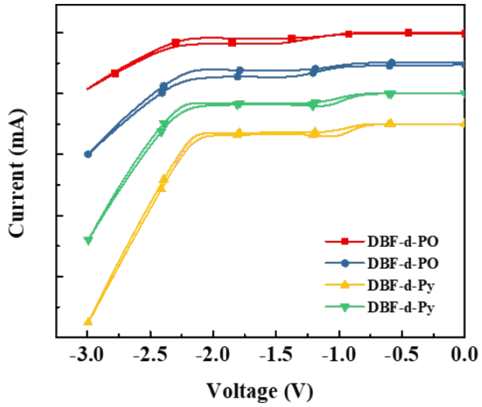

Fig. S16 Reduction traces of DBF-d-PO, DBT-d-PO, DBF-d-Py, and DBT-d-Py in CV.