

Supporting Information

Naphthalene Flanked Diketopyrrolopyrrole Based Organic Semiconductors for High Performance Organic Field Effect Transistors

Qian Liu,^a Huabin Sun,^b Chula Blaikie,^a Chiara Caporale,^c Sergei Manzhos,^d Krishna Feron,^{e,f}
Jennifer M. MacLeod,^a Massimiliano Massi,^c Steven E. Bottle,^a John Bell,^a Yong-Young
Noh*^b and Prashant Sonar*^a

^a School of Chemistry, Physics and Mechanical Engineering (CPME), Queensland University of Technology (QUT), Brisbane, QLD 4000, Australia.

^b Department of Energy & Materials Engineering, Dongguk University, Seoul 04620, Republic of Korea.

^c Department of Chemistry, Curtin University, GPO Box U1987, Perth 6845, Western Australia.

^d Department of Mechanical Engineering, Faculty of Engineering, National University of Singapore Block EA #07-08, 9 Engineering Drive 1 117576, Singapore.

^e CSIRO Energy Centre, 10 Murray Dwyer Circuit, Mayfield West, NSW 2304, Australia.

^f Centre for Organic Electronics, University of Newcastle, Callaghan, NSW 2308, Australia.

Yong-Young Noh: yynoh@hotmail.com

Prashant Sonar: sonar.prashant@qut.edu.au

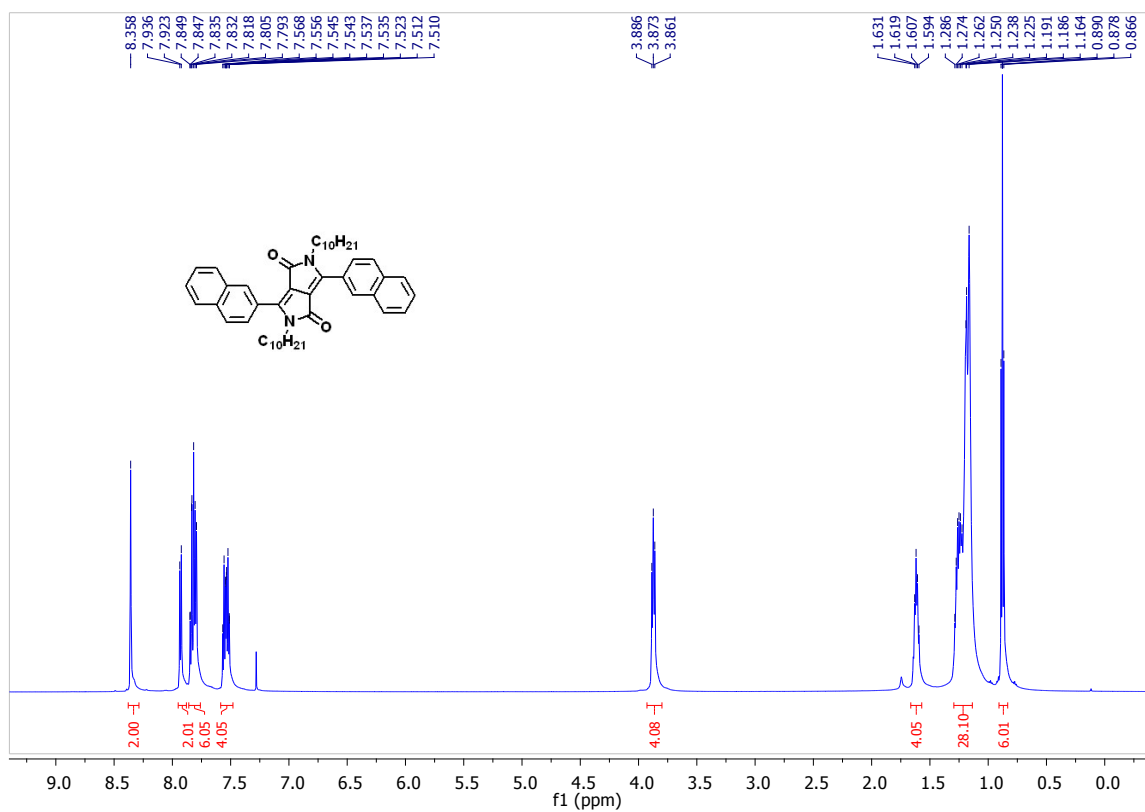


Figure S1. ^1H NMR spectrum of D-DPPN.

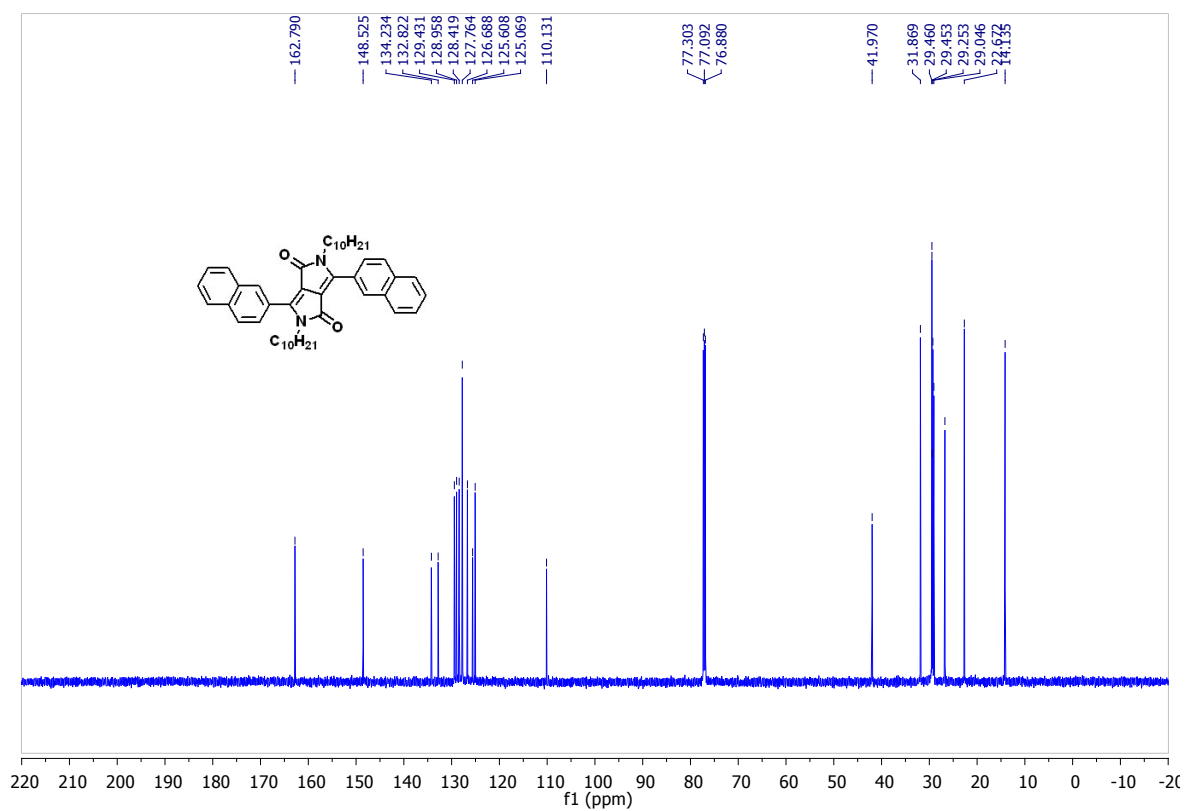


Figure S2. ^{13}C NMR spectrum of D-DPPN.

D:\Service\Nail Liu\C10_FTMS_Lock609 06/01/17 09:31:55 1.3 uM C10 in 99:1 MeOH:CHCl3
Nanomate. Resolution 120k
C10_FTMS_Lock609 #1-80 RT: 0.0-0.6 AV: 80 NL: 1.78E5
T: FTMS + p NSI Full ms [120.00-2000.00]

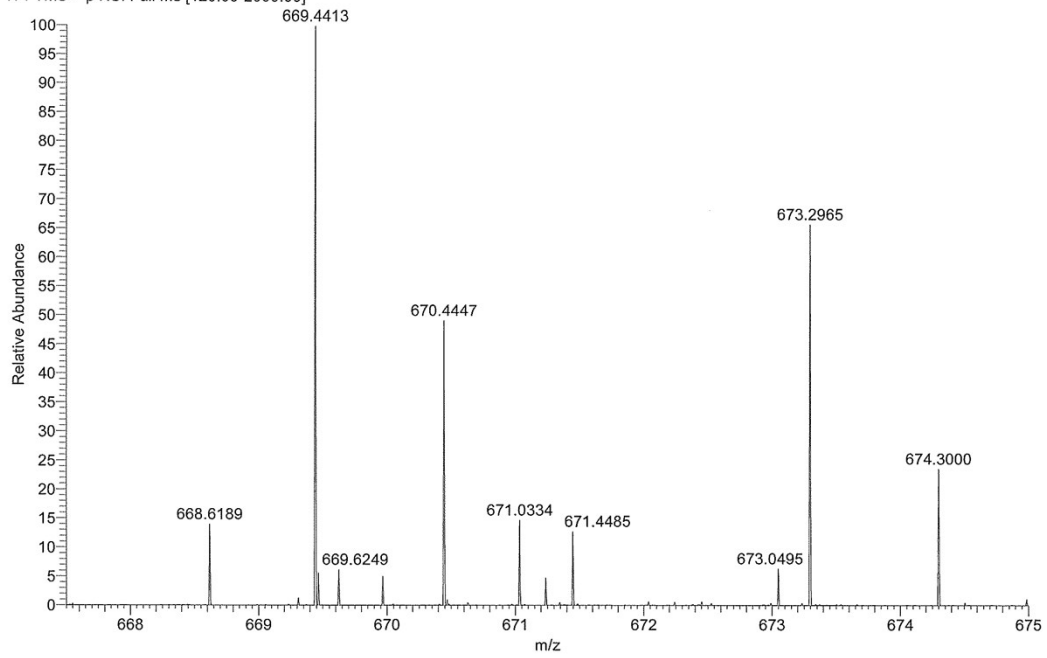


Figure S3. HRMS spectrum of D-DPPN.

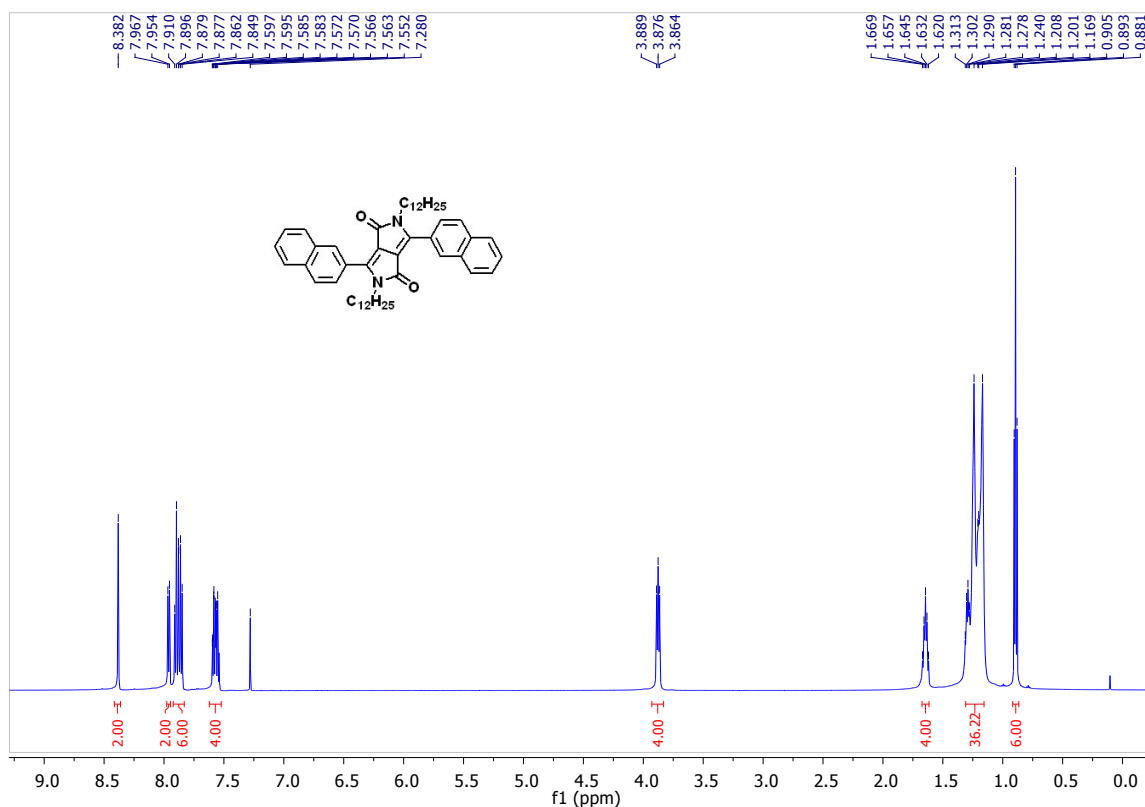


Figure S4. ^1H NMR spectrum of DD-DPPN.

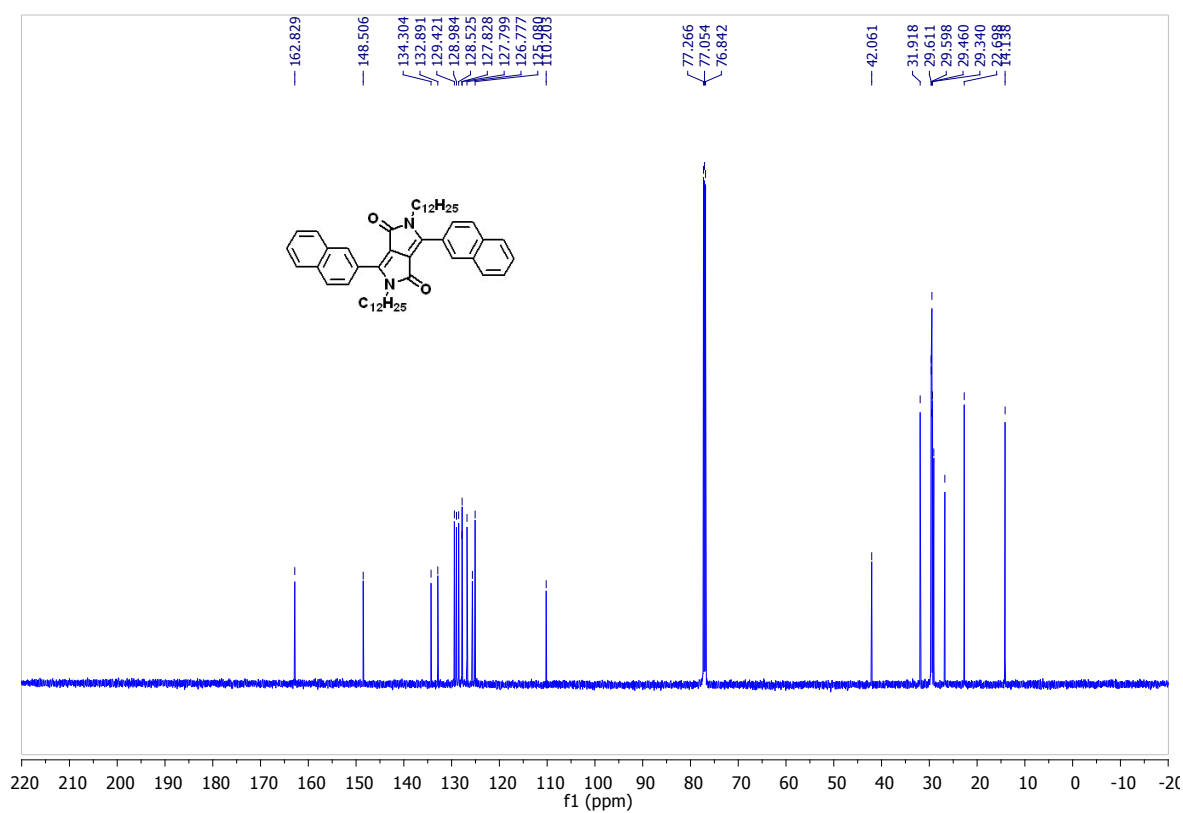


Figure S5. ^{13}C NMR spectrum of DD-DPPN.

D:\Service\Nail Liu\C12_FTMS_Lock609 06/01/17 09:47:07 1.3 uM C12 in 99:1 MeOH:CHCl3
Nanomate. Resolution 120k
C12_FTMS_Lock609 #1-81 RT: 0.0-0.6 AV: 81 NL: 2.39E4
T: FTMS + p NSI Full ms [120.00-2000.00]

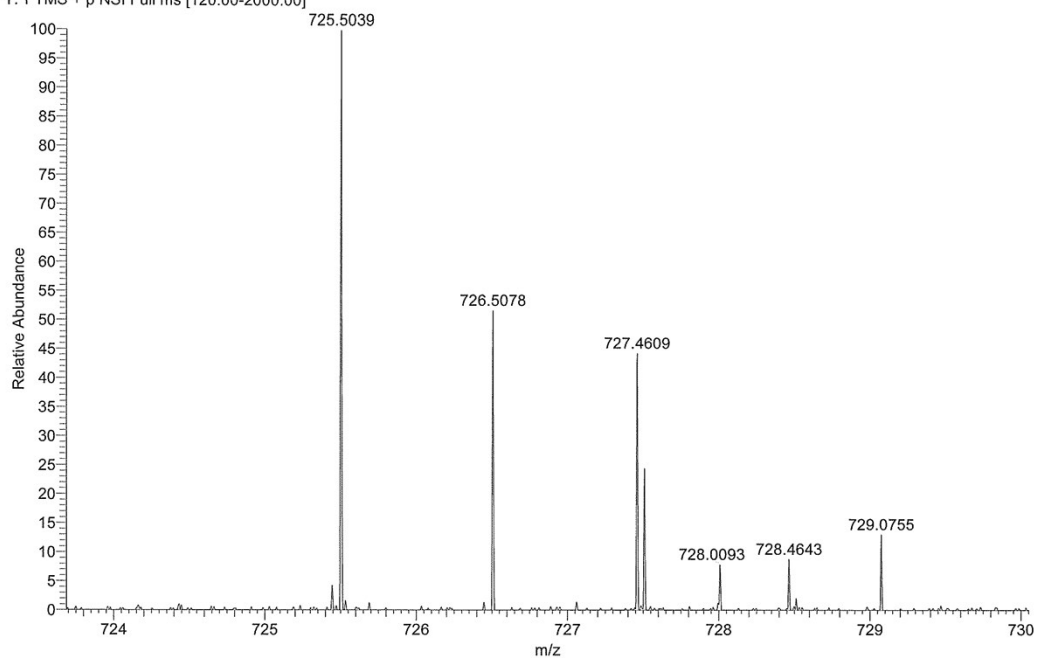


Figure S6. HRMS spectrum of DD-DPPN.

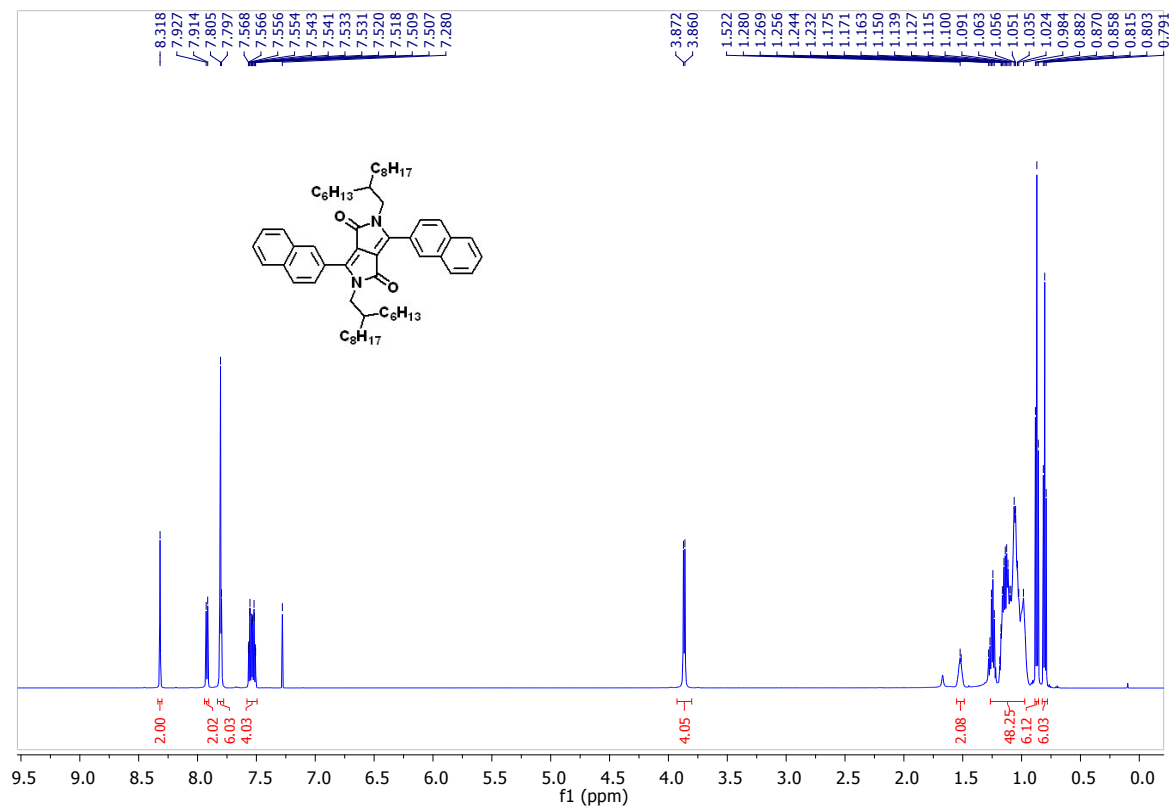


Figure S7. 1H NMR spectrum of HD-DPPN.

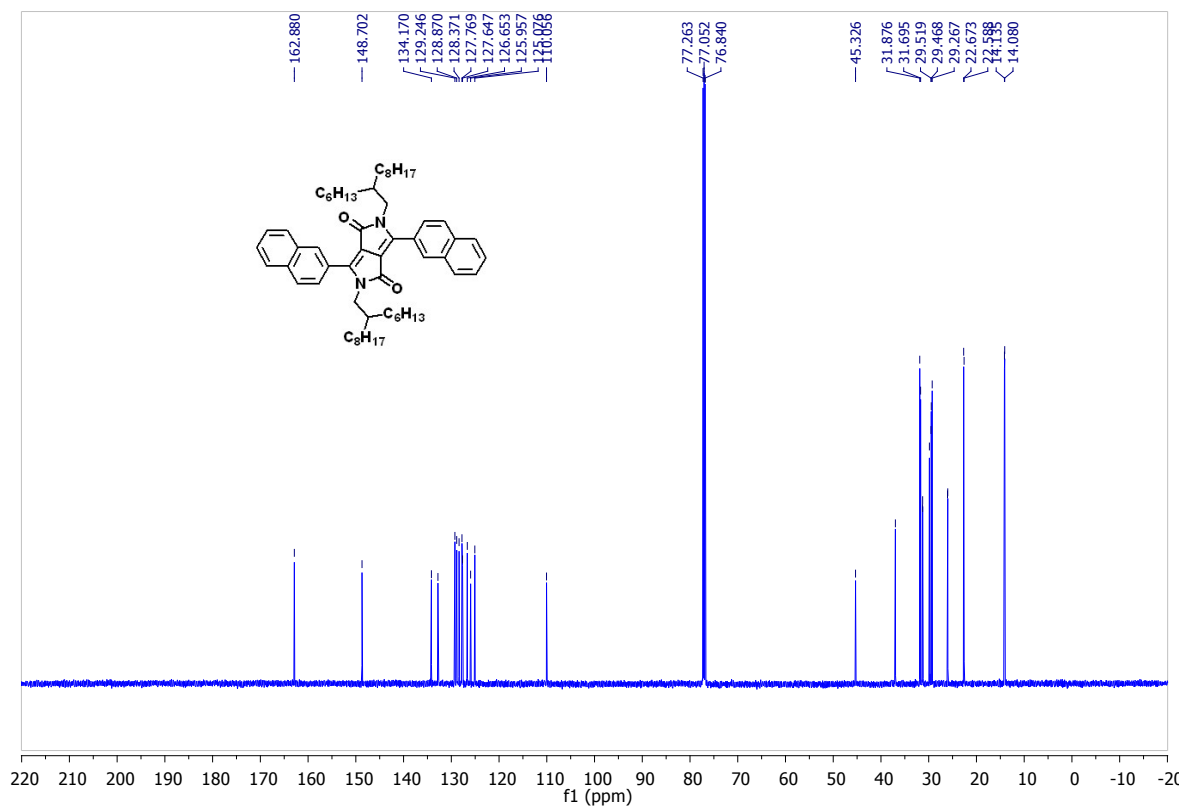


Figure S8. ^{13}C NMR spectrum of HD-DPPN.

D:\Service\Nail Liu\C106_Lock609

06/01/17 09:59:12

1.3 uM C106 in 99:1 MeOH:CHCl3

Nanomate, Resolution 120k

C106_Lock609 #1-80 RT: 0.0-0.6 AV: 80 NL: 4.91E4

T: FTMS + p NSI Full ms [195.00-1000.00]

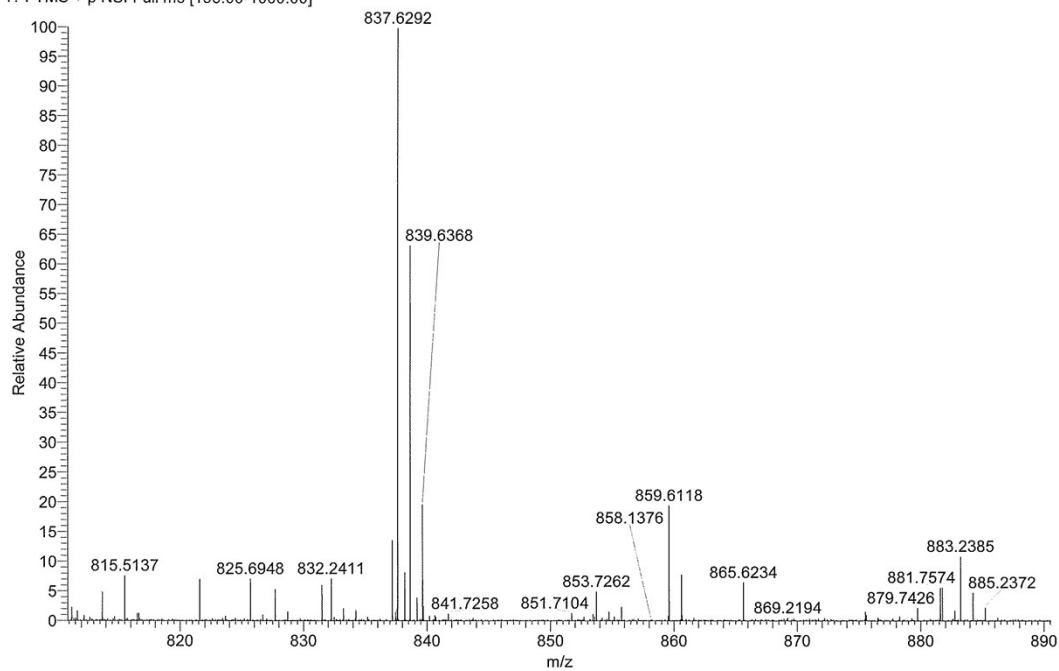


Figure S9. HRMS spectrum of HD-DPPN.

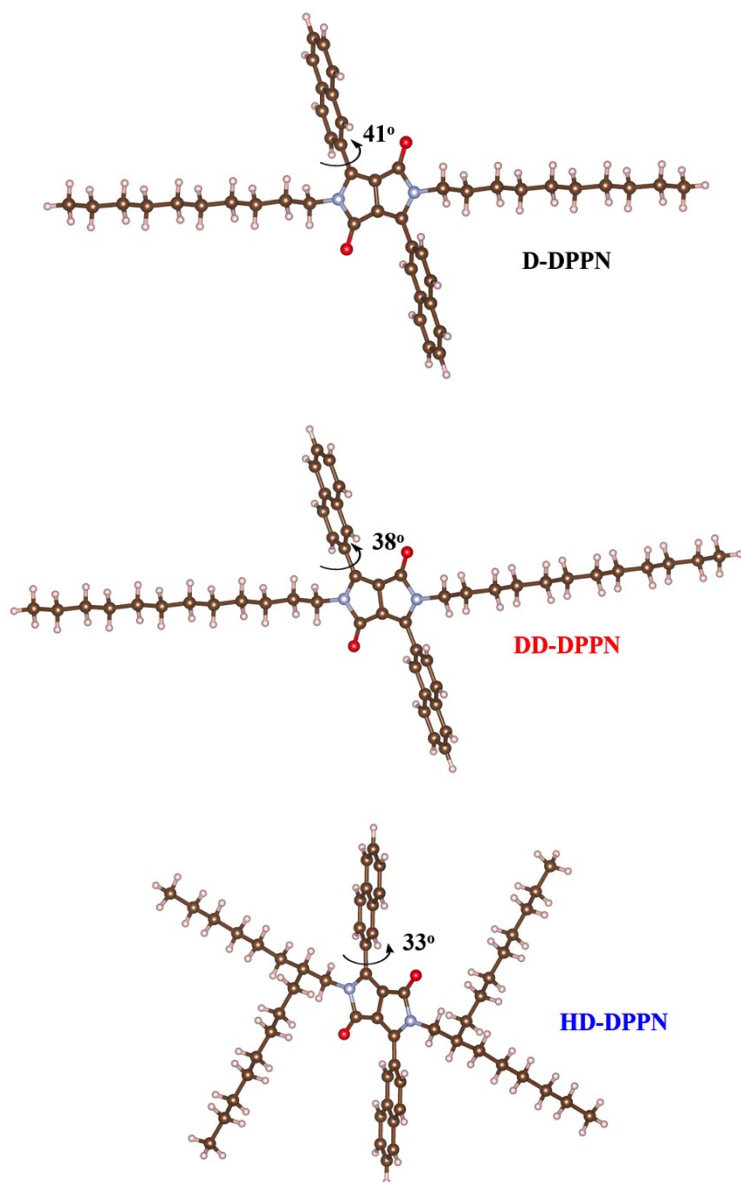


Figure S10. Side view of D-DPPN, DD-DPPN and HD-DPPN.

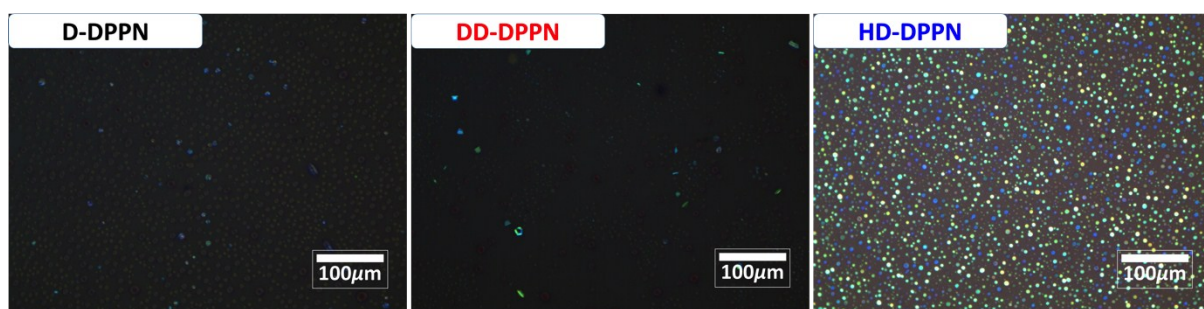


Figure S11. Polarized microscope images of D-DPPN, DD-DPPN and HD-DPPN thin films after 150 °C annealing.