Supporting Information for

Perylene bisimide with diphenylacrylonitrile on side-chain: Strong fluorescence liquid crystal with large pseudo Stokes shift based on AIE and FRET effect

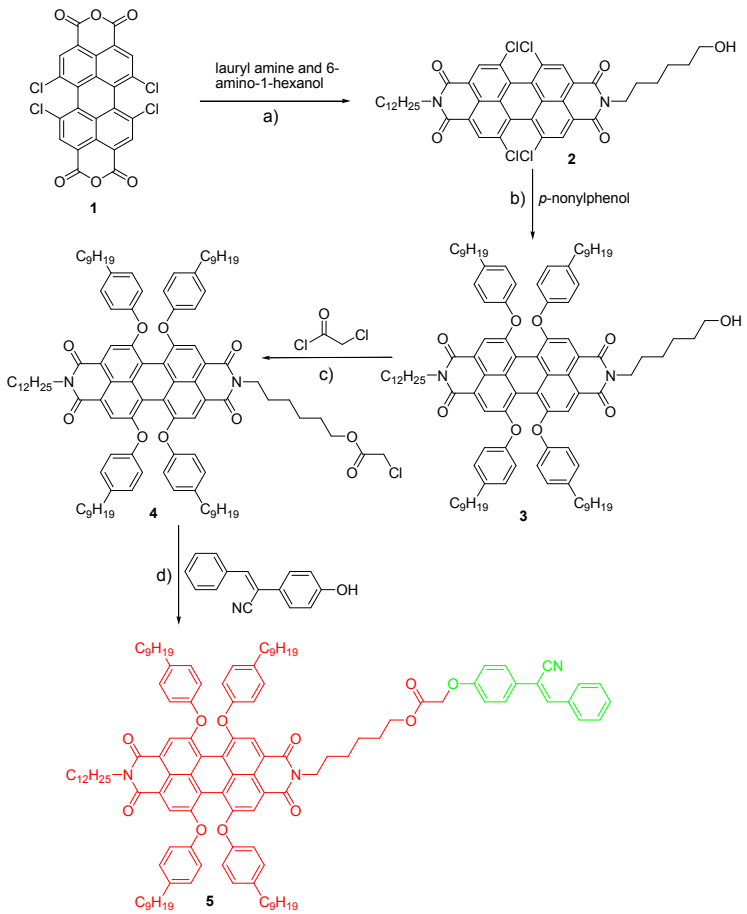
Mingguang Zhu,[a] Yunxiang Chen,[a] Xiaoyi Zhang,[a] Meihui Chen,[a] Hongyu Guo,*[a,b] and Fafu Yang,*[a,c]

[a] *College of Chemistry and Chemical Engineering, Fujian Normal University, Fuzhou 350007, P.R.China; E-mail: yangfafu@fjnu.edu.cn*

[b]*Fujian Key Laboratory of Polymer Materials, Fuzhou 350007, P.R. China*

[c]*Fujian provincial Key Laboratory of Advanced Materials Oriented Chemical Engineering, Fuzhou 350007, China*

1. The synthetic route of title compound



Scheme 1 Synthetic route of title compound: a) isopropanol, reflux, 8h, yield: 28%; b) *N*-methyl-2-pyrrolidone (NMP), K_2CO_3, 130 °C, overnight, yield: 78%; c) DCM, 35 °C, 6h, yield: 86%; d) anhydrous MeCN, K_2CO_3, reflux, overnight, yield: 75%.

2. Analytical Data

2.1. ^{1}H NMR and ^{13}C NMR Spectroscopy

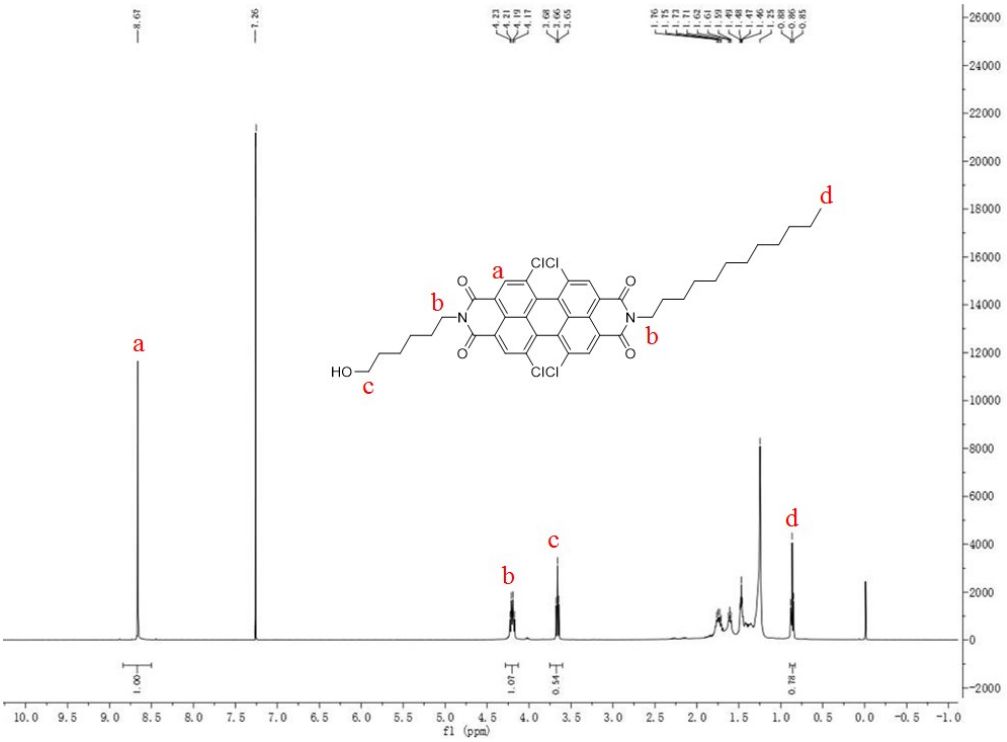


Fig.S1 ^{1}H NMR spectrum of PBI **2**.

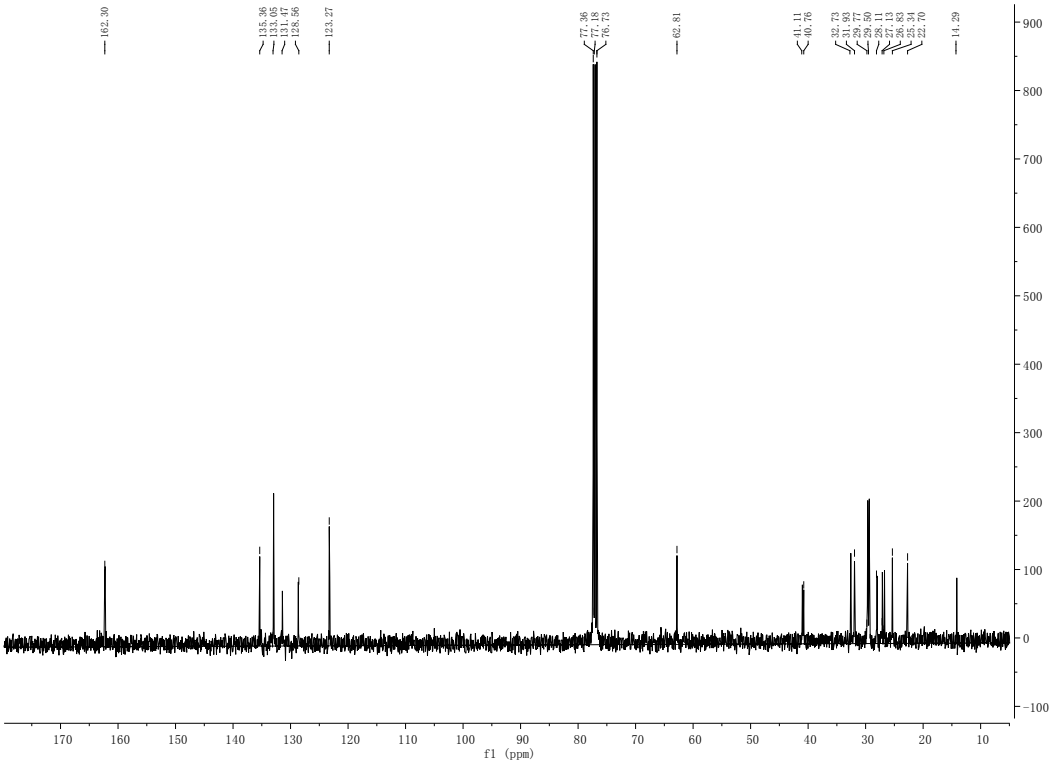


Fig.S2 ^{13}C NMR spectrum of PBI **2**.

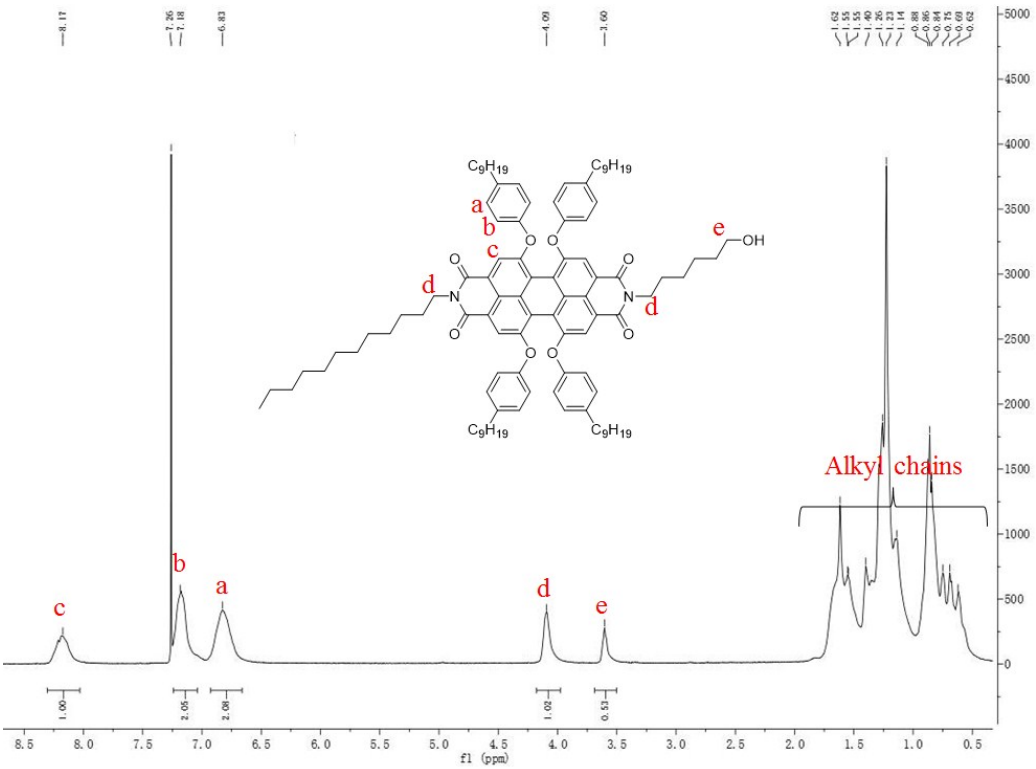


Fig.S3 ^{1}H NMR spectrum of PBI **3**.

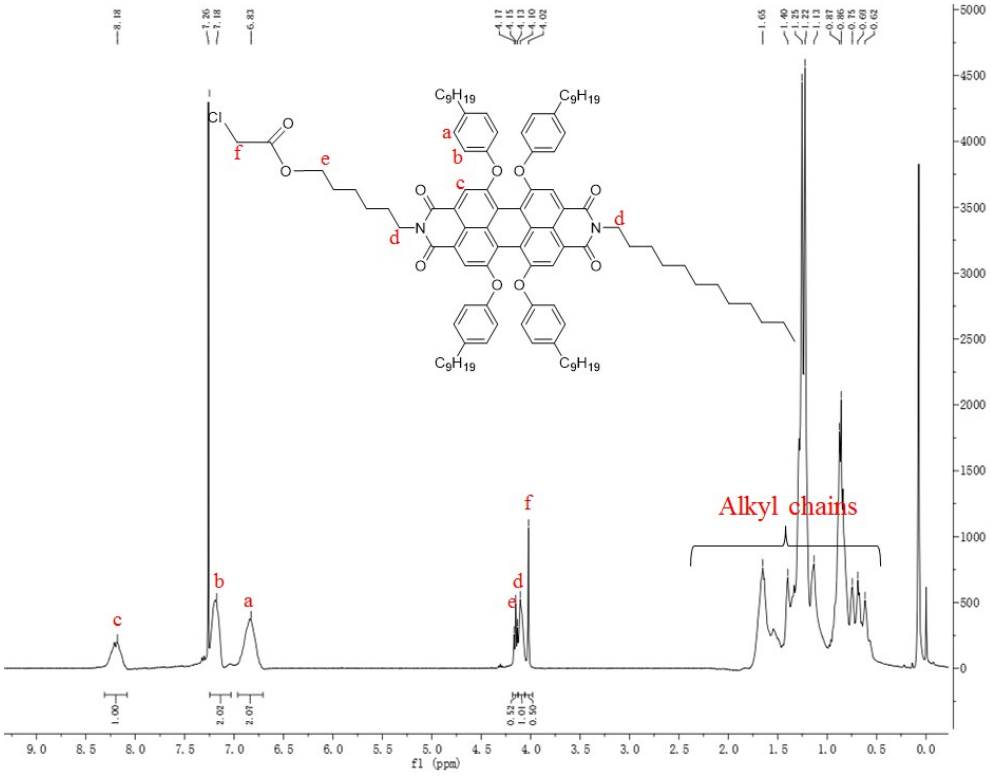


Fig.S4 ^{1}H NMR spectrum of PBI **4**.

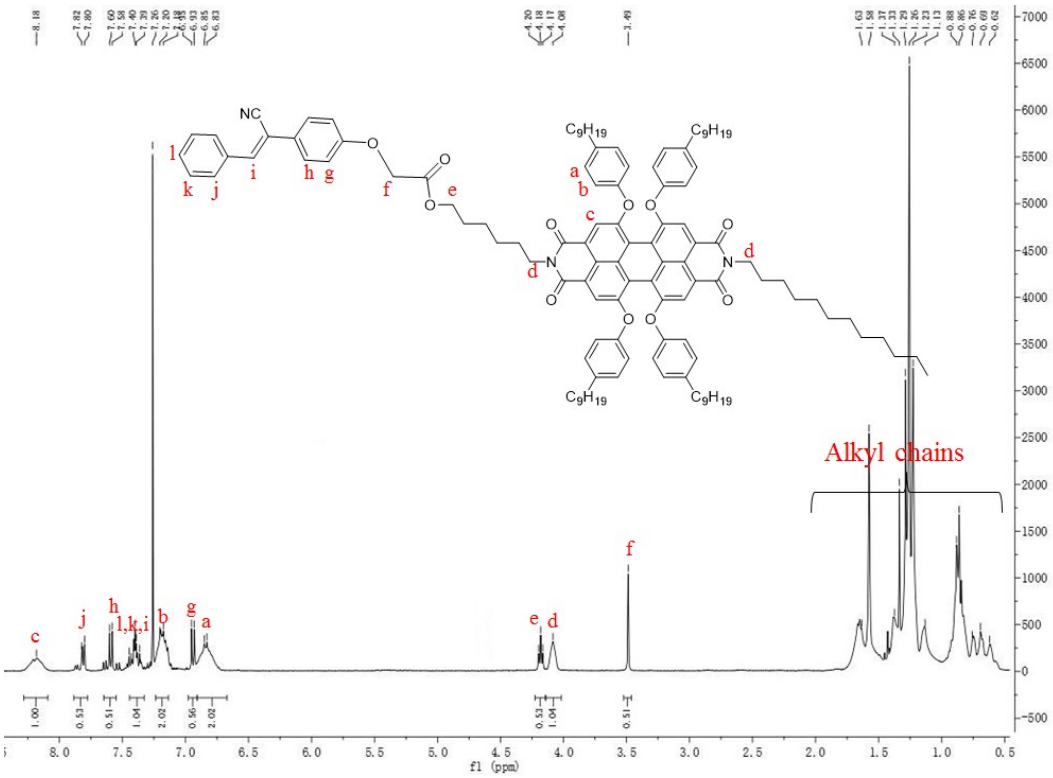


Fig.S5 ^{1}H NMR spectrum of PBI **5**.

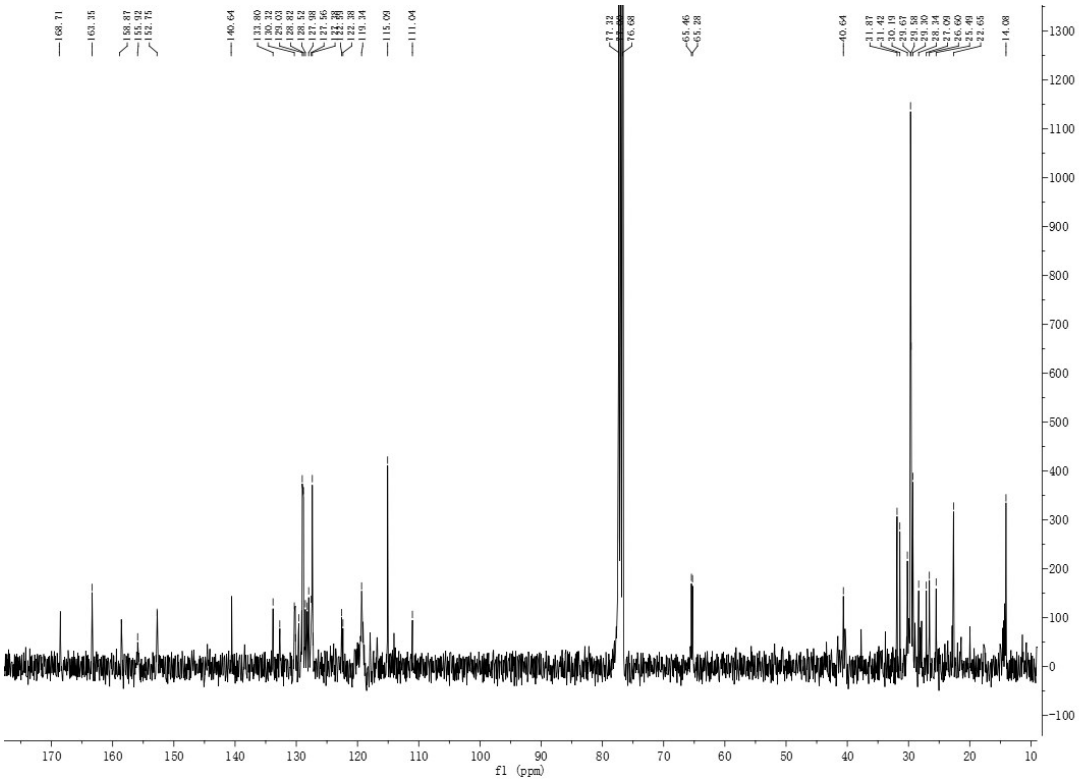


Fig.S6 ^{13}C NMR spectrum of PBI **5**.

2.2. MALDI-TOF Mass spectrometry

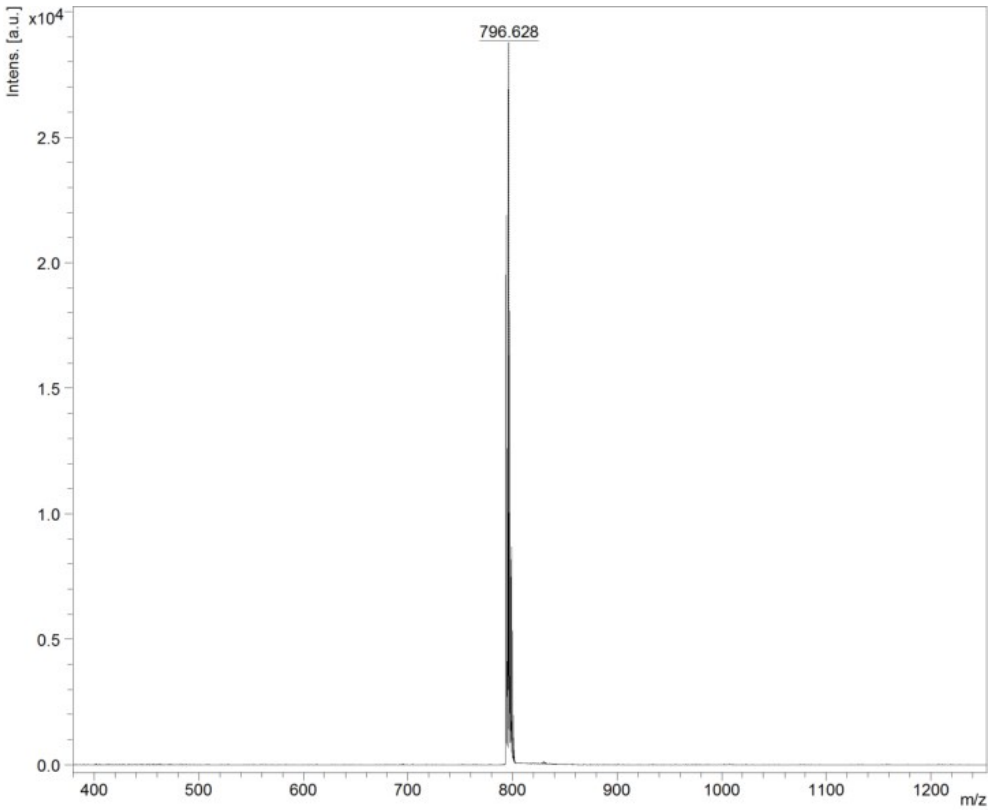


Fig. S7: MALDI-TOF mass spectrum of PBI **2**.

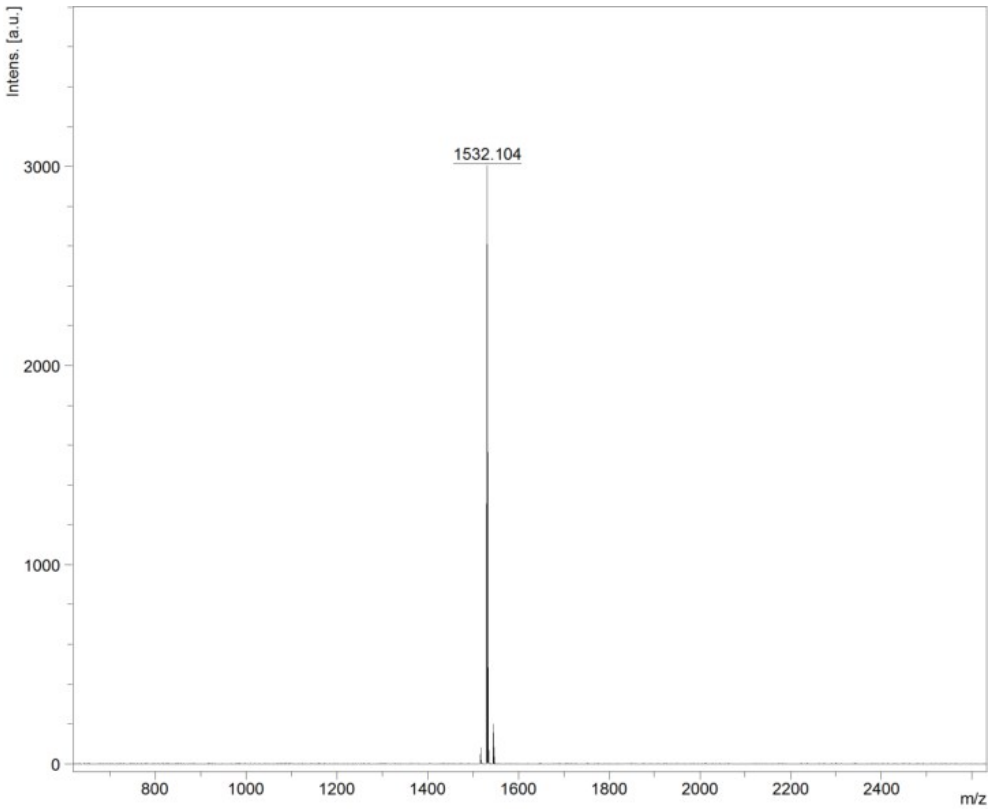


Fig. S8: MALDI-TOF mass spectrum of PBI **3**.

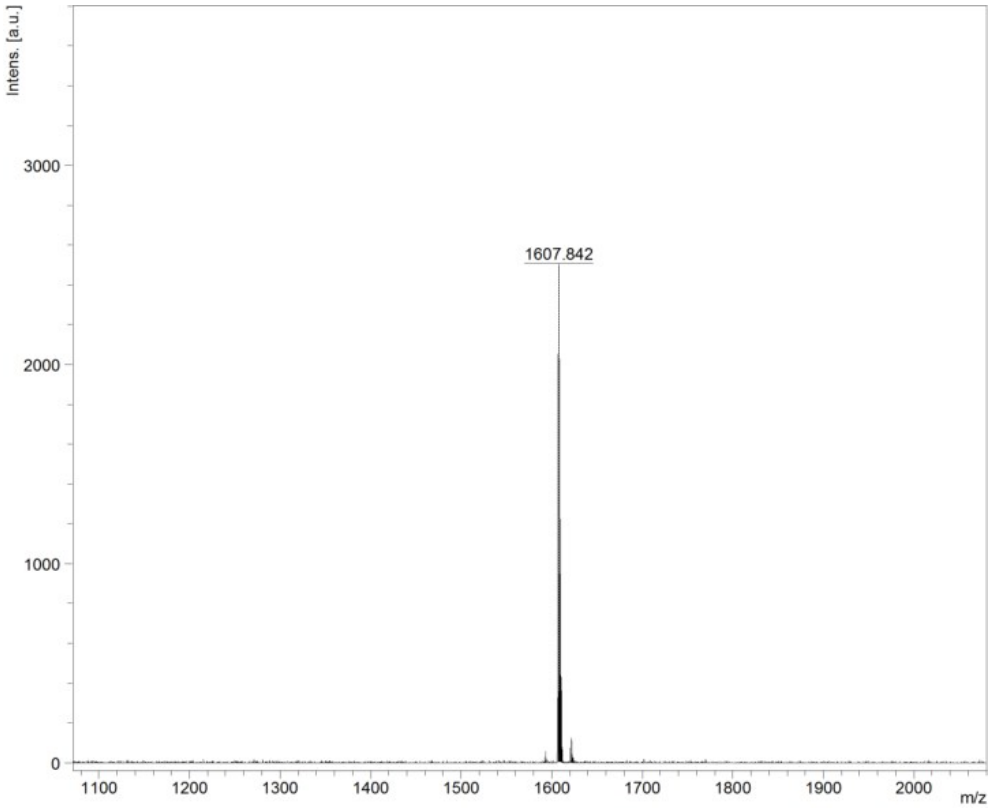


Fig. S9: MALDI-TOF mass spectrum of PBI **4**.

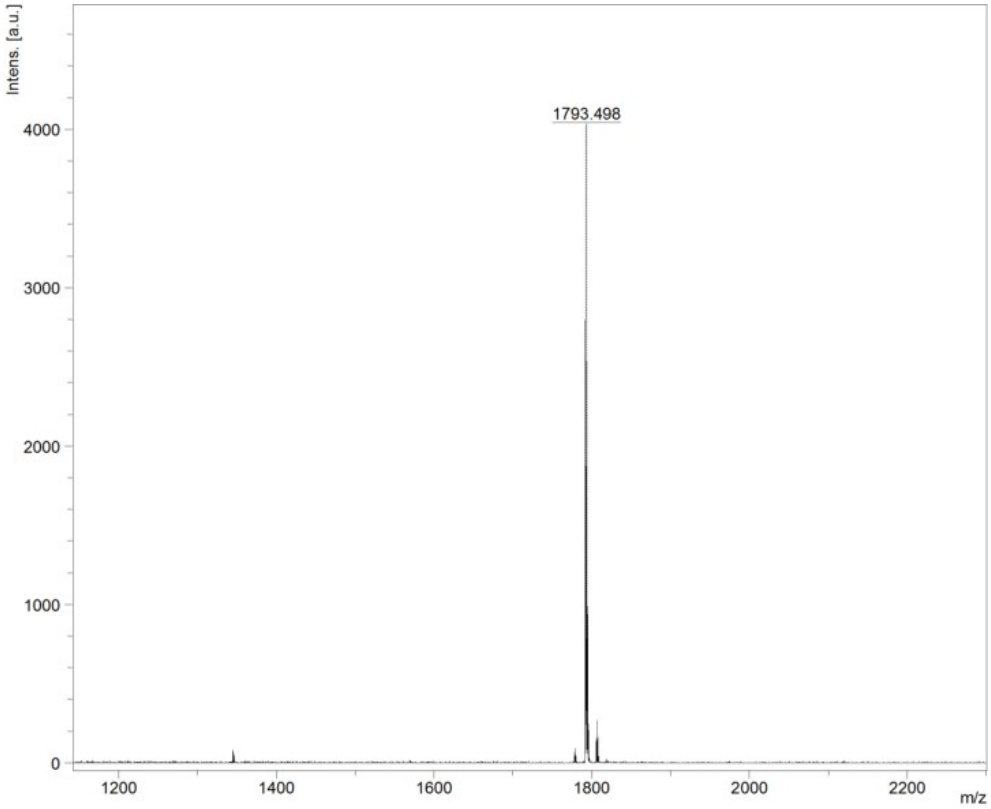


Fig. S10: MALDI-TOF mass spectrum of PBI **5**.

2.3 Photophysical properties

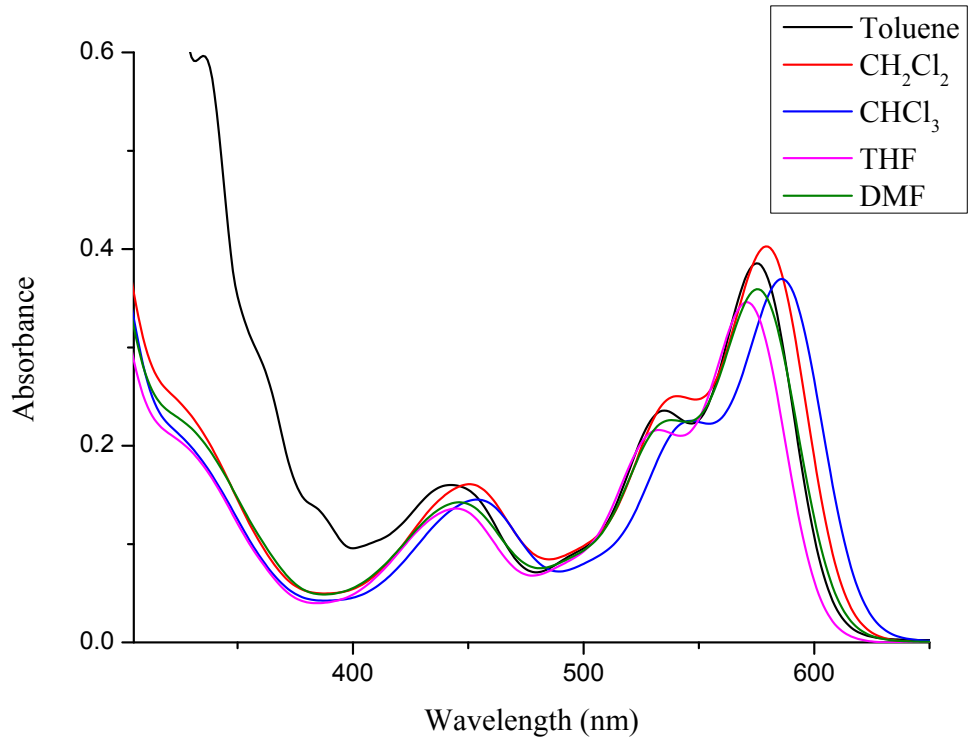


Fig. S11 The UV-Vis absorption spectra of PBI **5** in different solvents (10 μM).

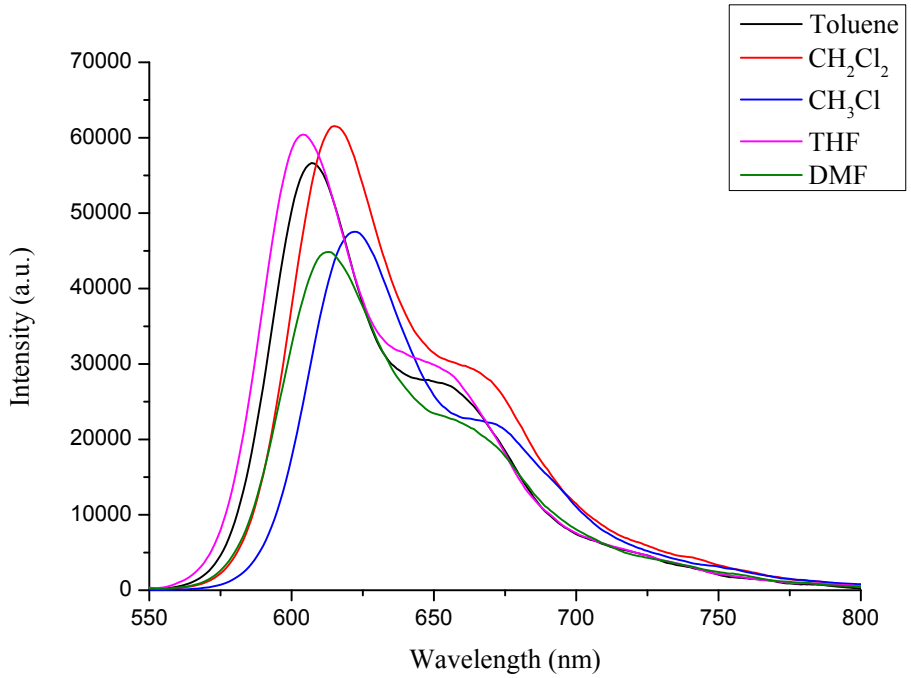


Fig. S12 Fluorescence emission spectra of PBI **5** in different solvents (10 μM, λ_{ex} = 530 nm).

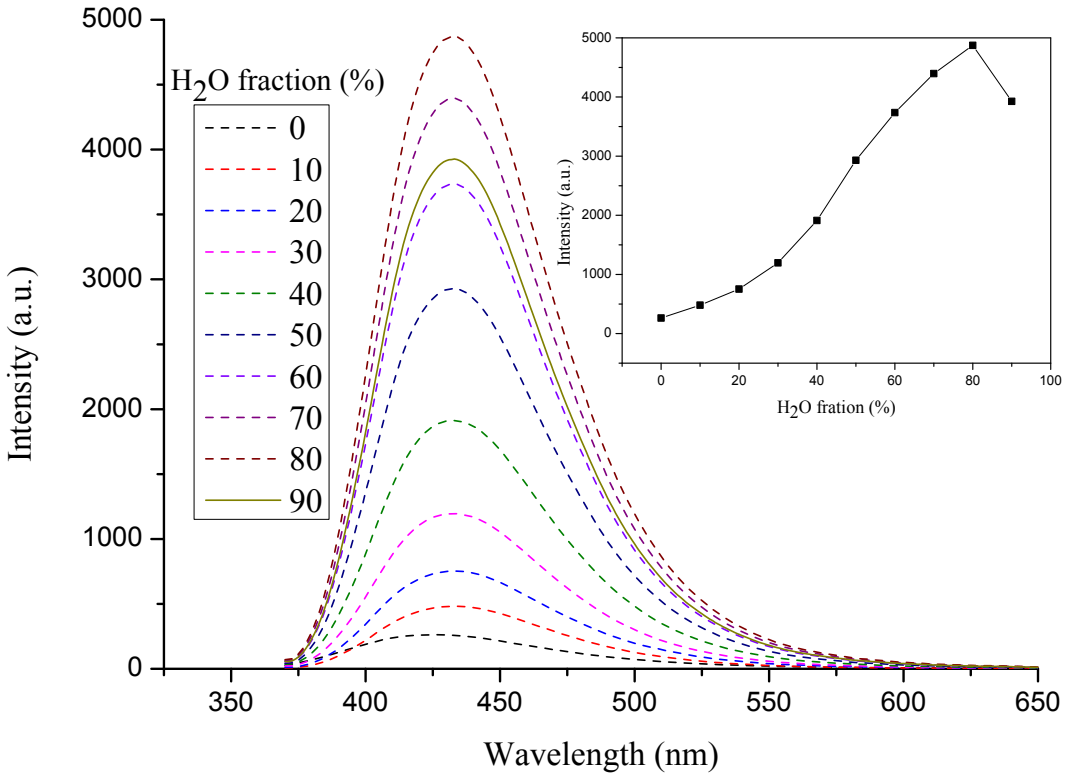


Fig. S13 Emission spectra of the hydroxyl-diphenylacrylonitrile in THF-water system (10 μM) with different water fractions (f_w), excited at λ_{ex} = 330 nm. (The inset: Variations in intensity with f_w).

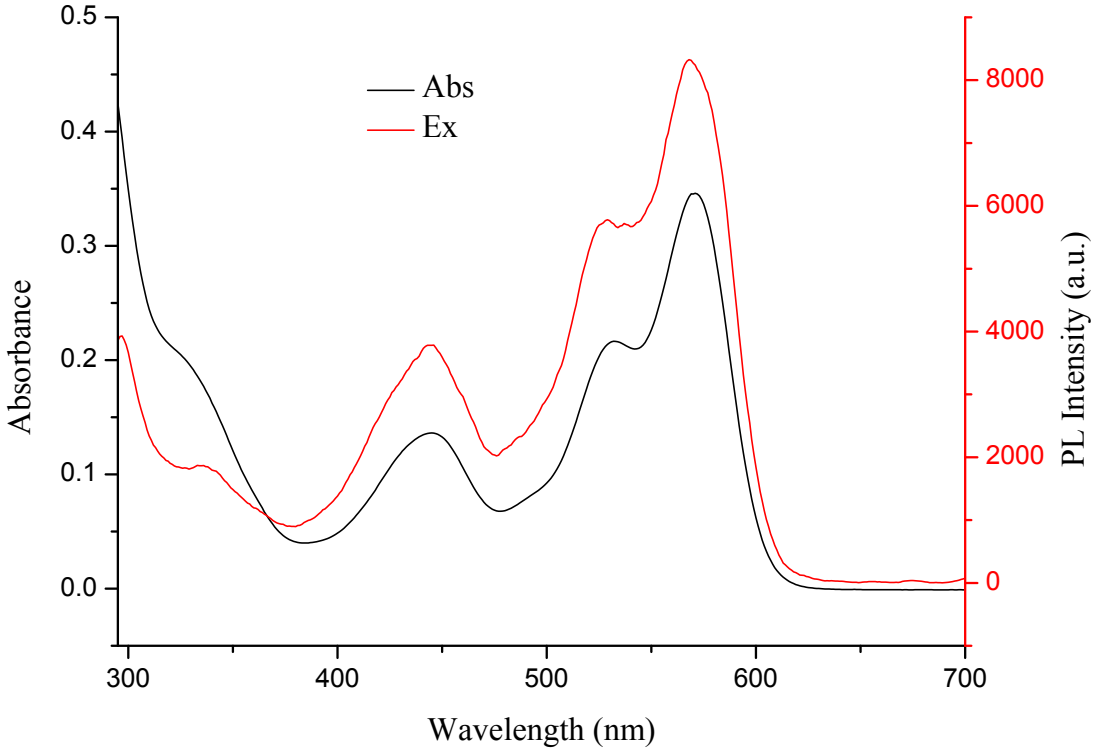


Fig. S14 The absorption and excitation spectra of PBI **5** in THF solution. (10 μM, λ_{em} = 604 nm was used to record the excitation spectrum).

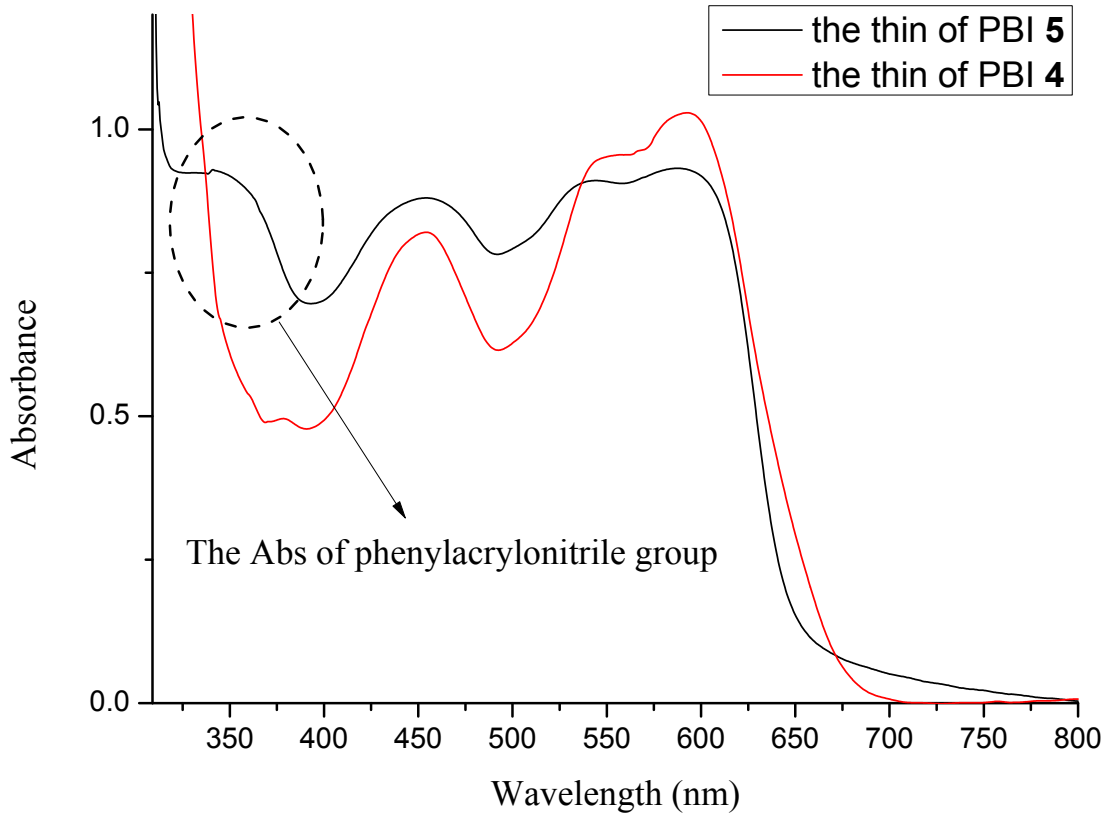


Fig. S15 The thin film absorption spectra of PBIs **4** and **5**.