Supporting information

Experimental

Characterization techniques

The structural analysis of FPMI was carried out for a selected sample of approximately 0.35 x 0.30 x 0.30 mm$^3$ using a BRUKER AXS (Kappa APEXII) X-ray diffractometer. Single crystal XRD data were collected on a diffraction system that employs graphite monochromated Mo Kα radiation ($\lambda = 0.71073$ Å). The powder XRD analysis was performed using a Philips X’pert Pro Triple axis X-ray diffractometer using a wavelength of 1.540 Å with a step size of 0.008 Å and the samples were examined with Cu Kα radiation in 2θ range of 10–50°. FT–IR spectra were recorded using an NICOLET IS5 FT–IR instrument using the KBr pellet technique in the spectral range of 650–4000 cm$^{-1}$ and FT–Raman spectra were recorded by BRUKER RFS 100/S Instrument. The NMR spectra were recorded on BRUCKER AVIII 400 MHz NMR spectrometer operating at 400.13 MHz for $^1$H and 100.61 MHz for $^{13}$C using standard parameters. The FPMI is dissolved in 0.5 ml of CDCl3 solvent and TMS (tetramethylsilane) was used as an internal standard. Mass spectrum of FPMI was recorded on a VARIAN SATURN 2000 GC–MS/MS spectrometer using electron impact technique by dissolving about 1 mg of compound in 5 ml of spectral grade methanol. A CARY–5E UV–vis spectrophotometer was used for the UV–vis studies. Thermogravimetry and differential thermal analyses were recorded on NETZSCH STA 449F3 thermal analyzer in nitrogen atmosphere. The sample was scanned in the temperature range 20–500 °C at a rate of 10 °C min$^{-1}$.

Supplementary Figure captions

Fig S1. FT–IR spectra of FPMI (a) experimental and (b) theoretical
Fig S2. FT–Raman spectra of FPMI.
Fig S3. Tauc plot of FPMI (a) direct and (b) indirect
Fig S4. TG–DTA spectrum of FPMI.
Fig. S1
Fig. S2
Fig. S3

Photon Energy (eV)

3.21 eV

2.96 eV

[\mathcal{F}(Rh\nu)]^2

(a)

(b)
Fig. S4

Temperature/°C

TG/%

DTA (mW/mg)

0 100 200 300 400 500

0 2 4 6

0 20 40 60 80 100

Fig. S4