Supplementary Information for

A self-assembling amphiphilic perylene bisimide and its application for WORM memory device

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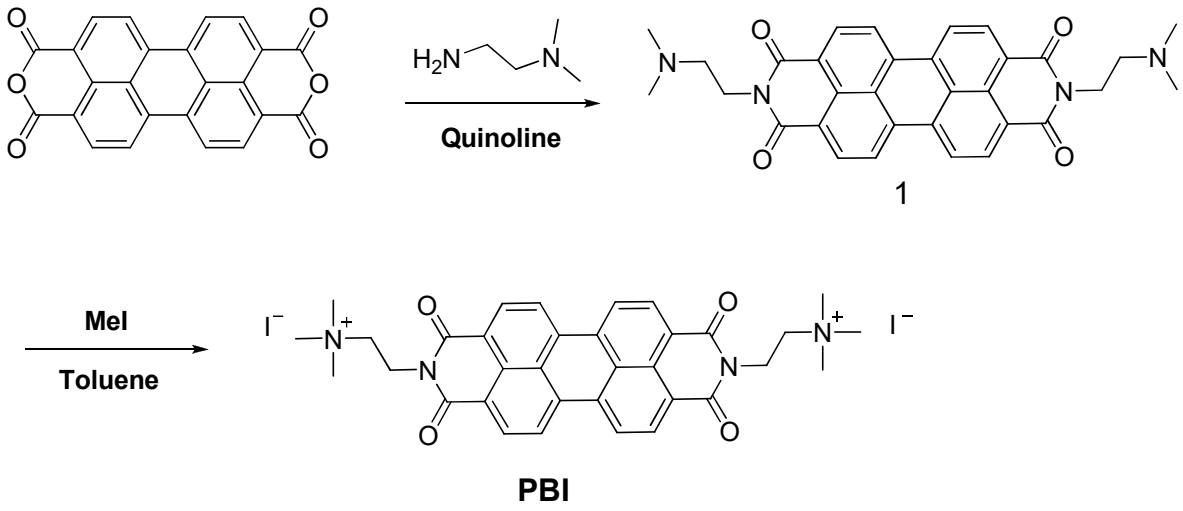
Table of Contents

SI 1. Synthesis Procedures



Scheme 1. Synthesis procedures for **PBI**.

SI 2. Thermo-gravimetric Analysis of PBI

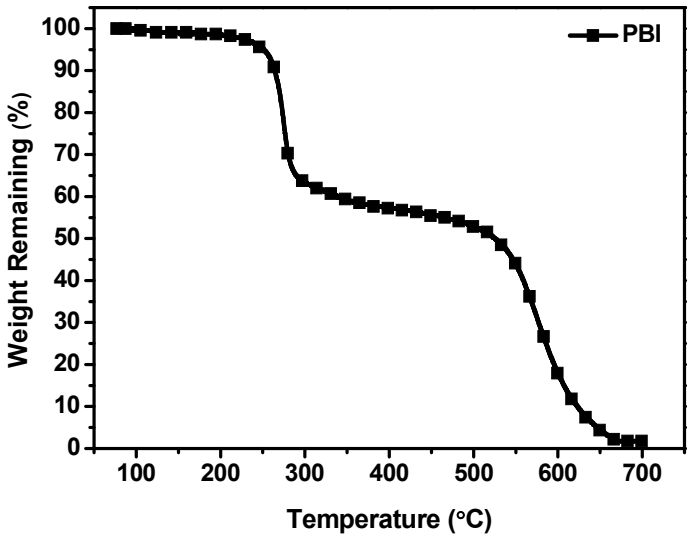


Fig. S1 TGA curve of **PBI**.

SI 3. UV-vis and FL Spectra of PBI

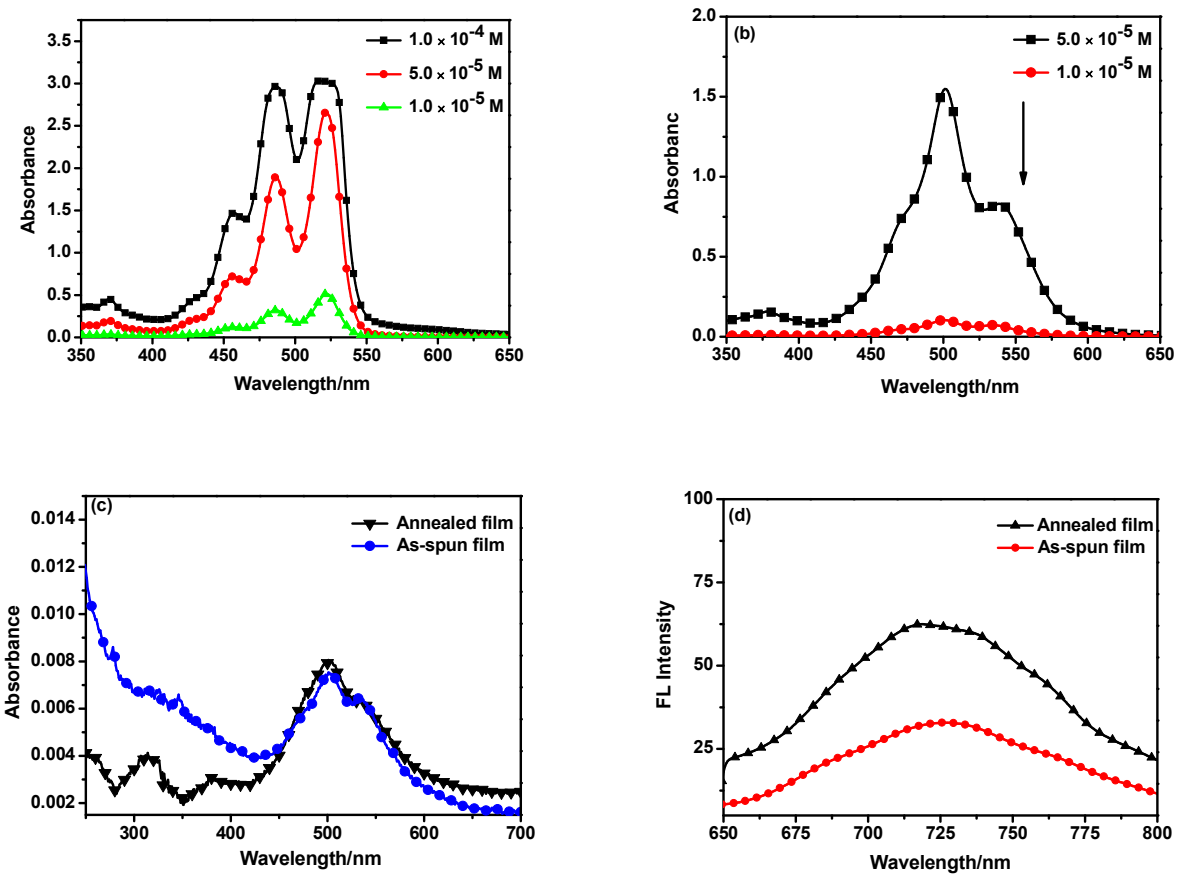


Fig. S2 Changes in UV-vis absorption spectra of **PBI** (a) in methanol and (b) in water at different concentrations; (c) UV-vis spectra of **PBI** in annealed film and as-spun film; (d) Emission spectra of **PBI** in annealed film and as-spun film.

SI 4. Dynamic Light Scattering (DLS) of PBI

Nanoparticle sizes were determined by dynamic light scattering (DLS) using a 90 Plus particle size analyzer (Brookhaven Instruments). The nanoparticle sizes of **PBI** were measured from the prepared aqueous solution after one hour.

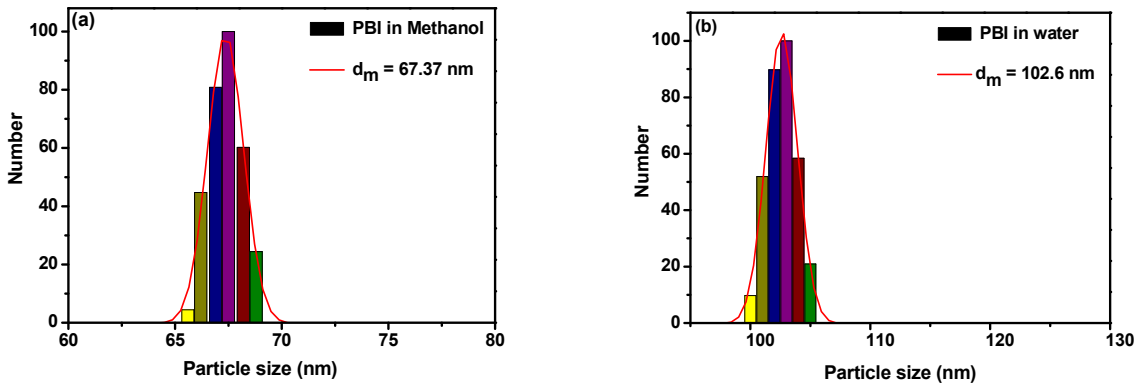


Fig. S3 (a) Particle size distribution of **PBI** in methanol water (1×10^{-5} M); (b) Particle size distribution of **PBI** in water (1×10^{-5} M).

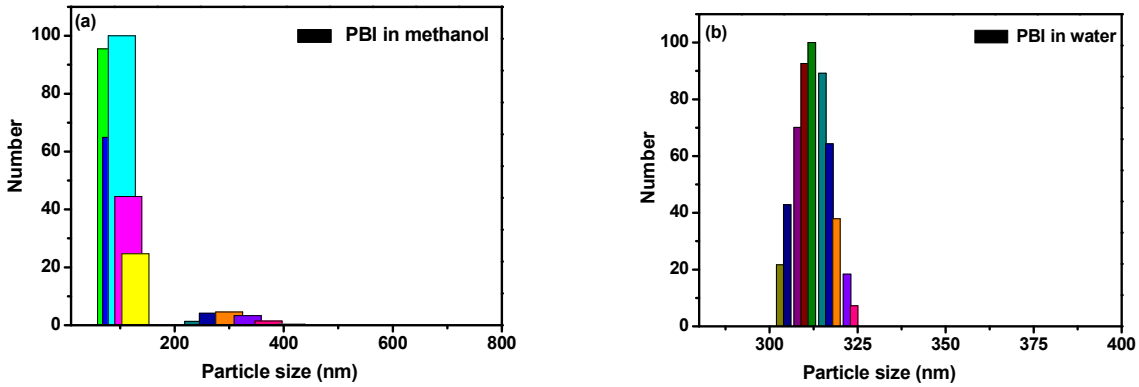


Fig. S4 (a) Particle sizes distribution of **PBI** in methanol solution (1×10^{-4} M); (b) Particle sizes distribution of **PBI** in water solution (1×10^{-4} M).

SI 5. Scanning Electron Microscopy (SEM)

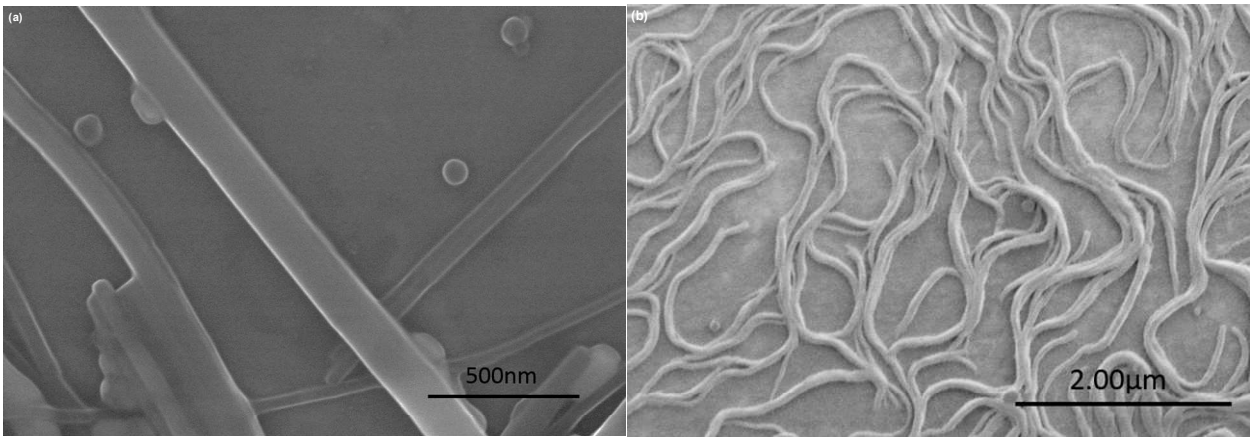


Fig. S5 (a) SEM image of the nanorods assembled from **PBI** for 4 days in methanol (1×10^{-4} M); (b) SEM image of nanofibers assembled from **PBI** for 4 days in water (1×10^{-4} M).

SI 6 Transmission Electron Microscopy (TEM)

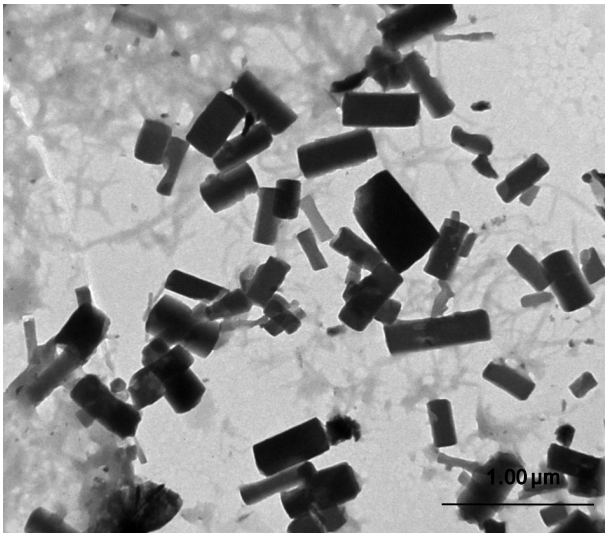


Fig. S6 TEM image of the nanorods assembled from **PBI** for 4 days in methanol (1×10^{-4} M).

SI 7. X-Ray Diffraction (XRD)

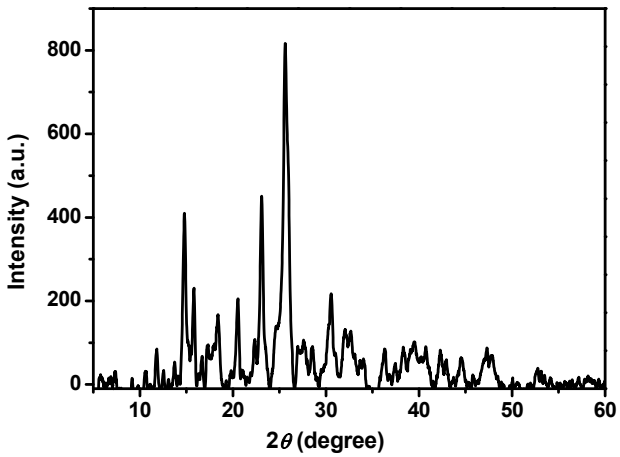


Fig.S7 XRD patterns of **PBI** nanorods.

SI 8. Morphology Properties

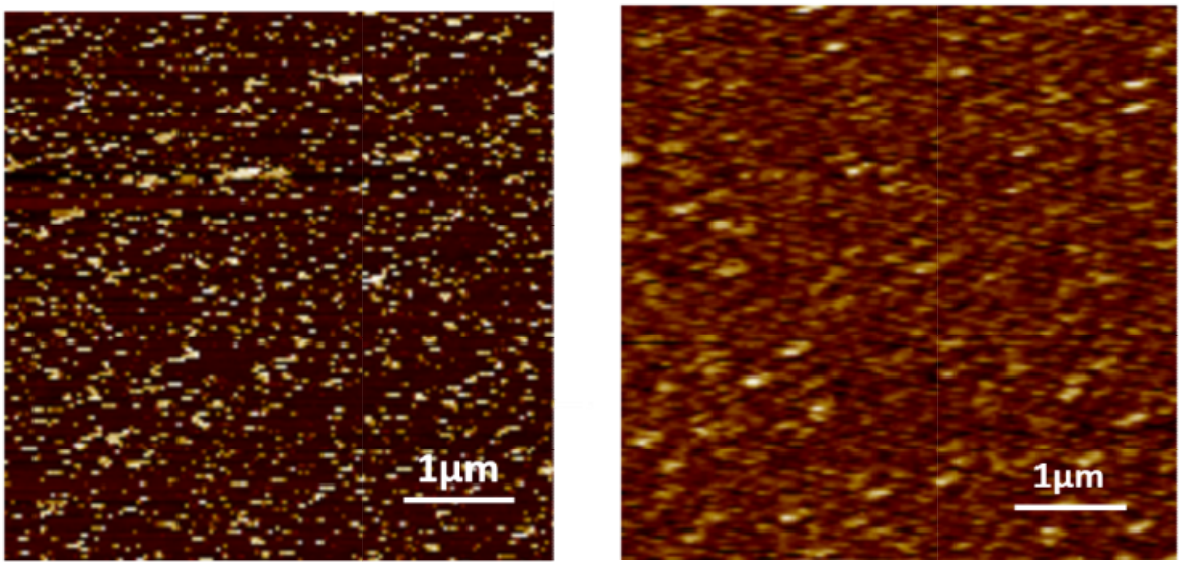


Fig. S8 AFM topographic images of the solution processed **PBI** films (a) before and (b) after annealed at 80 ˚C for 1 h. Scan size (5 × 5 μm^2).

SI 9. Solution NMR Spectra of PBI

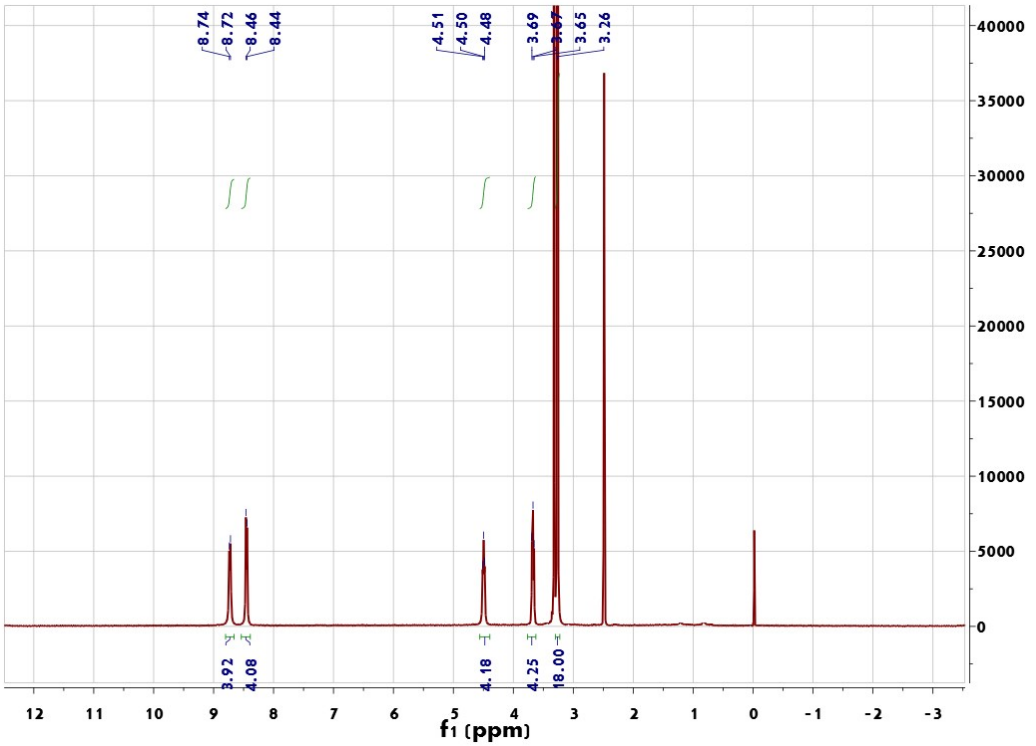


Fig. S9 ^{1}H NMR of **PBI** in $CDCl_3$.

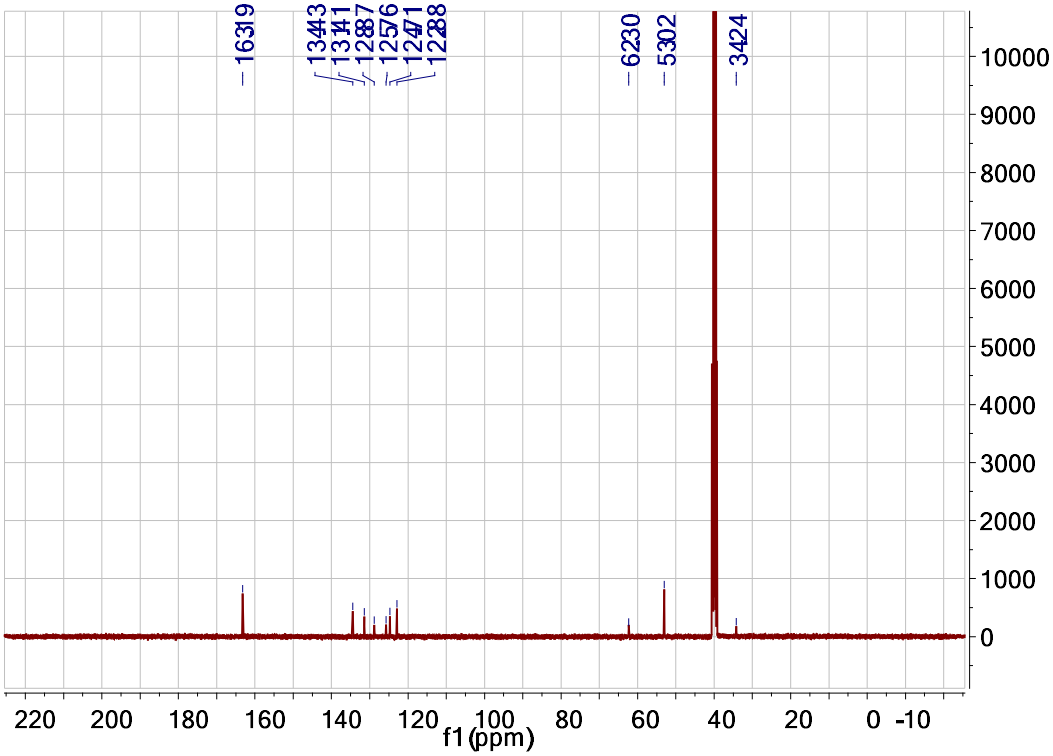


Fig. S10 ^{13}C NMR of **PBI** in $CDCl_3$.