Electronic Supplementary Material (ESI) for Polymer Chemistry.

Ultra-Sensitive Detection of Explosive in Solution and Film as well as the Development of Thicker Film Effectiveness by Tetraphenylethene Moiety in AIE Active Fluorescent Conjugated Polymer

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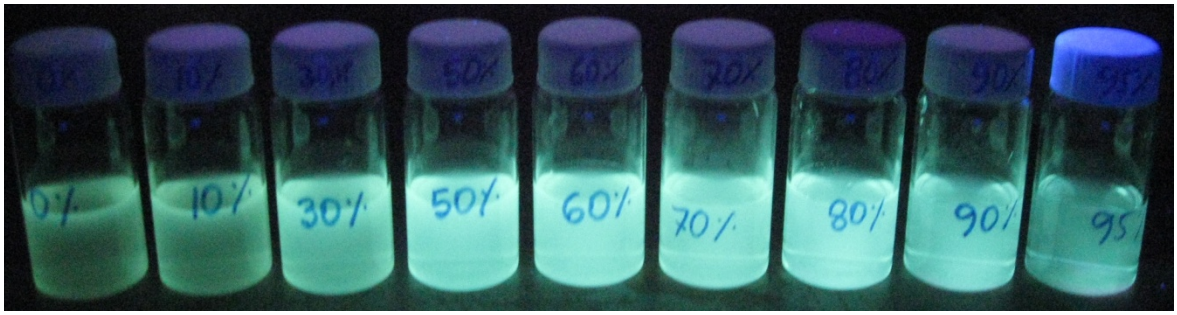

Fig. **S1:** Photographs of polymer **P1** in H_2O/THF mixtures with different fractions of water (f_w) taken under UV illumination.

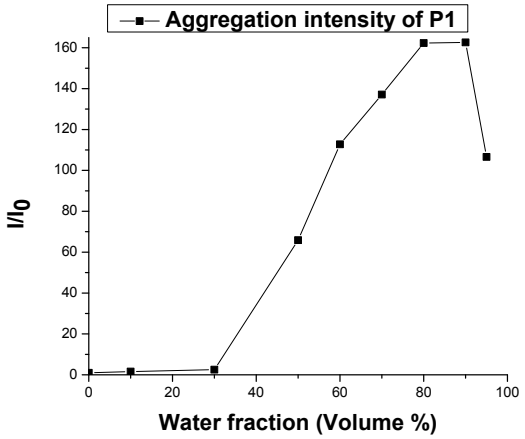

Fig. S2: Plot of (I/Io) values versus the compositions of the aqueous mixtures. I_o is the emission intensity in pure THF solution.

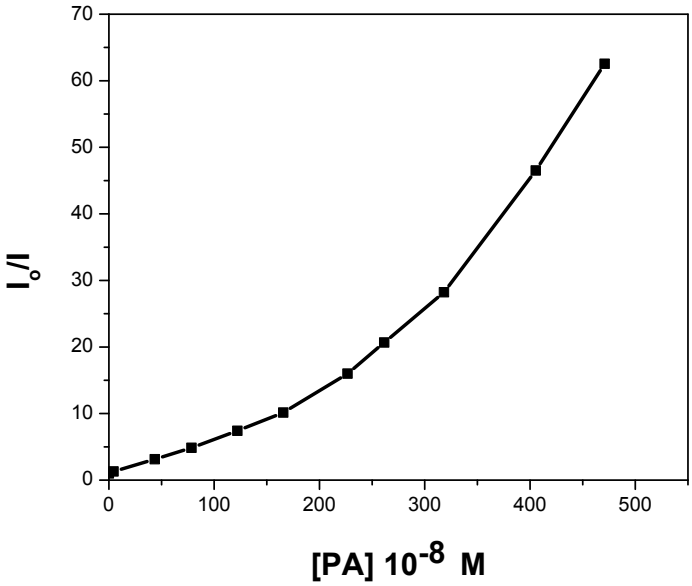

Fig S3. Stern-Volmer plots of polymer **P1** corresponding to PA. I_o is the emission intensity in H_2O/THF mixture containing 90% of water.

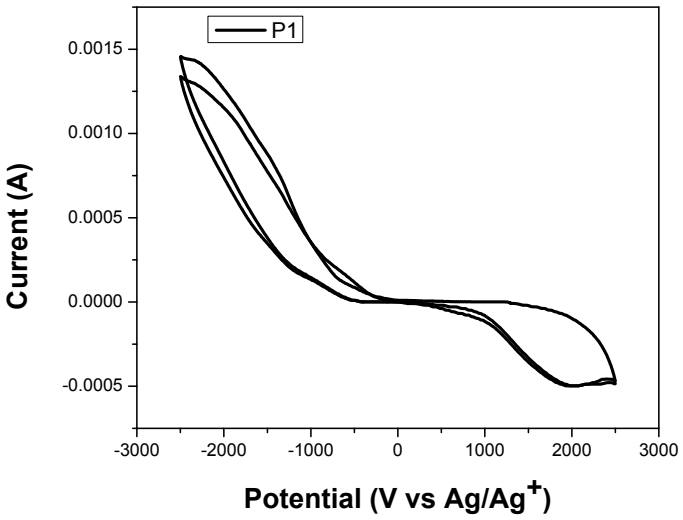

Fig S4. Cyclic voltammograms of the polymer films (**P1**) on Pt electrode in 0.1 mol/L Bu_4CF_6, CH_3CN solution with a scan rate of 100 mV/s.

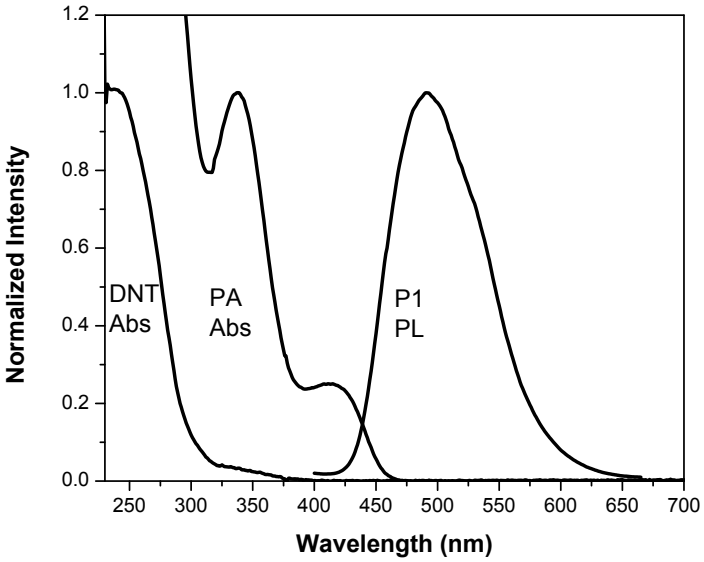

Fig S5.Normalized absorption of DNT, PA and normalized PL of polymer **P1**

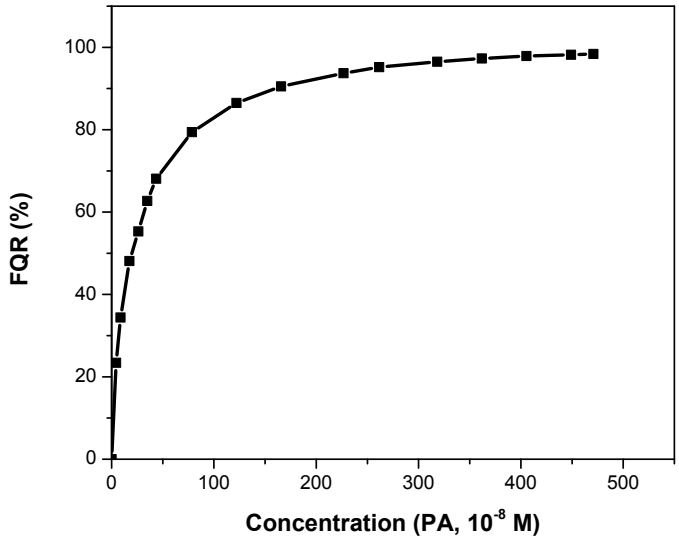

Fig S6. Fluorescence quenching response of polymer **P1** in 90% H_2O/THF mixture with respect to PA at different concentration

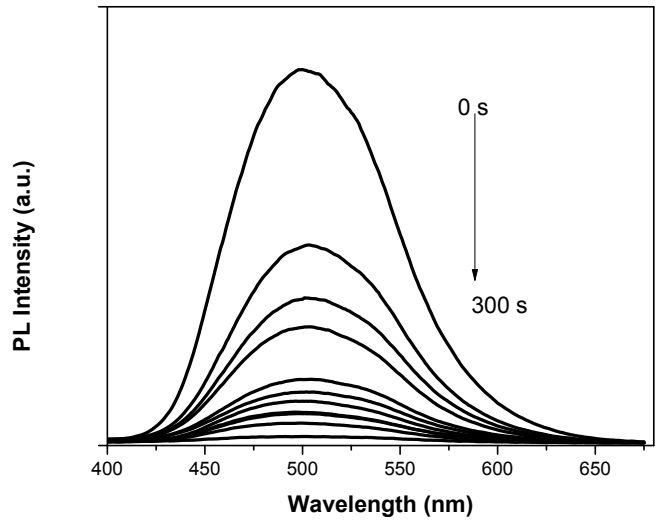

Fig S7. Time-dependent PL spectra of the spin-coating film of **P1** upon exposure to DNT vapor at room temperature for 0 to 360 seconds. Film thickness: 4 nm; Excitation wavelength: 375 nm

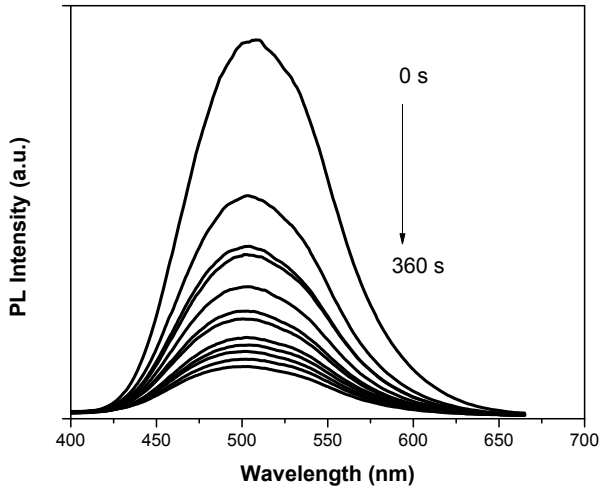

Fig S8. Time-dependent PL spectra of the spin-coating film of **P1** upon exposure to DNT vapor at room temperature for 0 to 360 seconds. Film thickness: 22 nm; Excitation wavelength: 375 nm.

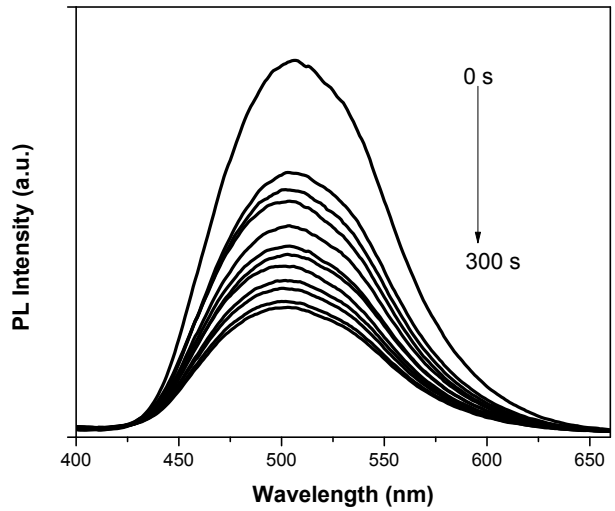

Fig S9. Time-dependent PL spectra of the spin-coating film of **P1** upon exposure to DNT vapor at room temperature for 0 to 360 seconds. Film thickness: 75 nm; Excitation wavelength: 375 nm