

Electronic supplementary information

Synthesis, Properties and Photo-responsive Behavior of Luminescent Side Chain Polymers Containing D- π -A α -Cyanostilbene Units

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Chemical structures of monomers and polymers

M8PVPCN: ^1H NMR (δ , ppm, CDCl_3): 7.92-7.96 (d, 2H, Ph-H); 7.72-7.74 (d, 2H, Ph-H); 7.61-7.63 (d, 2H, Ph-H); 7.41 (s, 1H, -CH=); 6.95-6.97 (d, 2H, Ph-H); 6.10 (s, 1H, =CH₂); 5.55 (s, 1H, =CH₂); 4.13-4.16 (m, 2H, -OCH₂-); 3.99-4.02 (m, 2H, -OCH₂-); 1.95 (s, 3H, -CH₃); 1.77-1.73 (m, 2H, -CH₂-); 1.65-1.70 (m, 2H, -CH₂-); 1.38-1.57 (m, 8H, -CH₂-). Mass Spectrometry (MS) (m/z) [M] Calcd for C₂₈H₃₀BrN₂O₃, 442.23; found 442.13.

M4PVPCN: ^1H NMR (δ , ppm, CDCl_3): 7.93-7.95 (d, 2H, Ph-H); 7.73-7.75 (d, 2H, Ph-H); 7.61-7.64 (d, 2H, Ph-H); 7.41 (s, 1H, -CH=); 6.95-6.98 (d, 2H, Ph-H); 6.11 (s, 1H, =CH₂); 5.56 (s, 1H, =CH₂); 4.22-4.25 (m, 2H, -OCH₂-); 4.05-4.08 (m, 2H, -OCH₂-); 1.88-1.96 (m, 5H, -CH₃ and -CH₂-); 1.55-1.57 (m, 2H, -CH₂-). Mass Spectrometry (MS) (m/z) [M] Calcd for C₂₄H₂₄BrN₂O₃, 386.16; found 386.29.

M2PVPCN: ^1H NMR (δ , ppm, CDCl_3): 7.93-7.95 (d, 2H, Ph-H); 7.73-7.75 (d, 2H, Ph-H); 7.63-7.63 (d, 2H, Ph-H); 7.42 (s, 1H, -CH=); 6.97-7.01 (d, 2H, Ph-H); 6.15 (s, 1H, =CH₂); 5.61 (s, 1H, =CH₂); 4.51-4.54 (m, 2H, -OCH₂-); 4.27-4.30 (m, 2H, -OCH₂-); 1.96 (s, 3H, -CH₃). Mass Spectrometry (MS) (m/z) [M] Calcd for C₂₂H₂₁BrN₂O, 358.13; found 358.41.

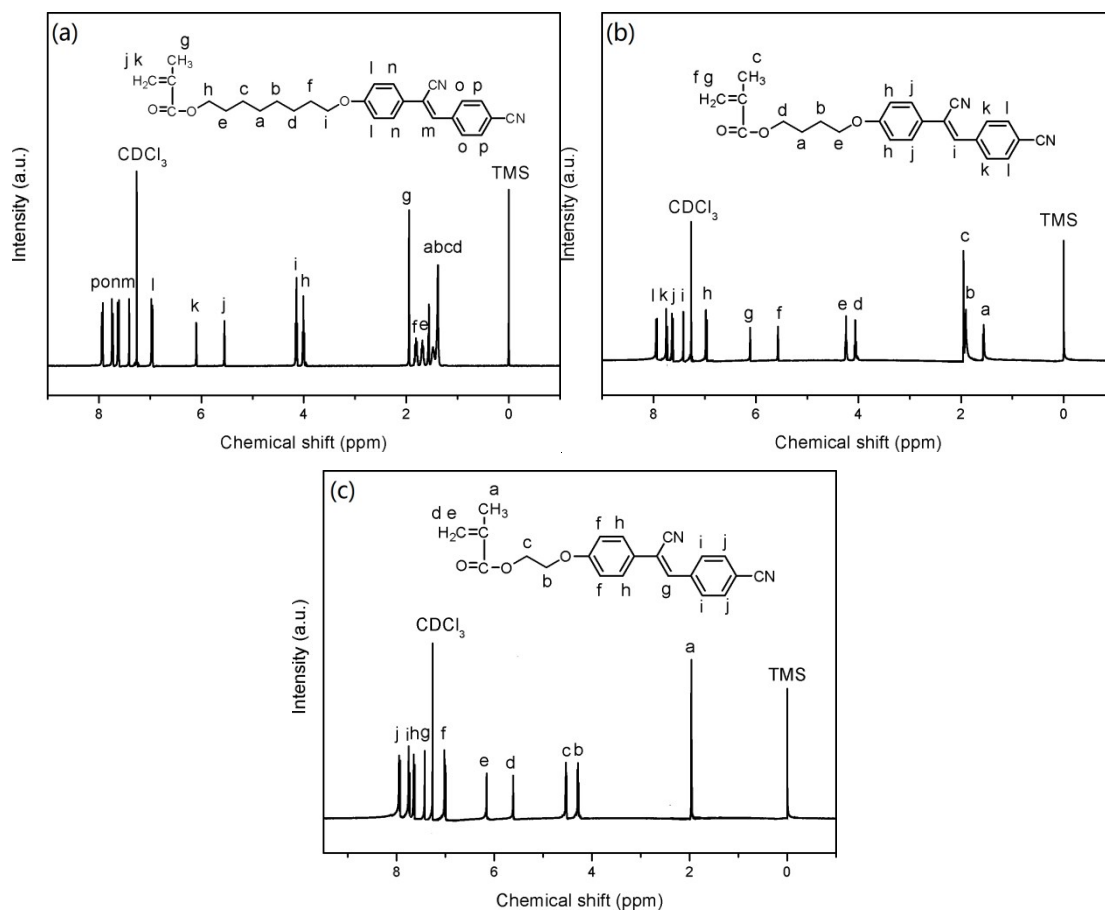


Fig. S1 ^1H NMR spectra of M8PVPCN (a), M4PVPCN (b) and M2PVPCN (c) in CDCl_3 .

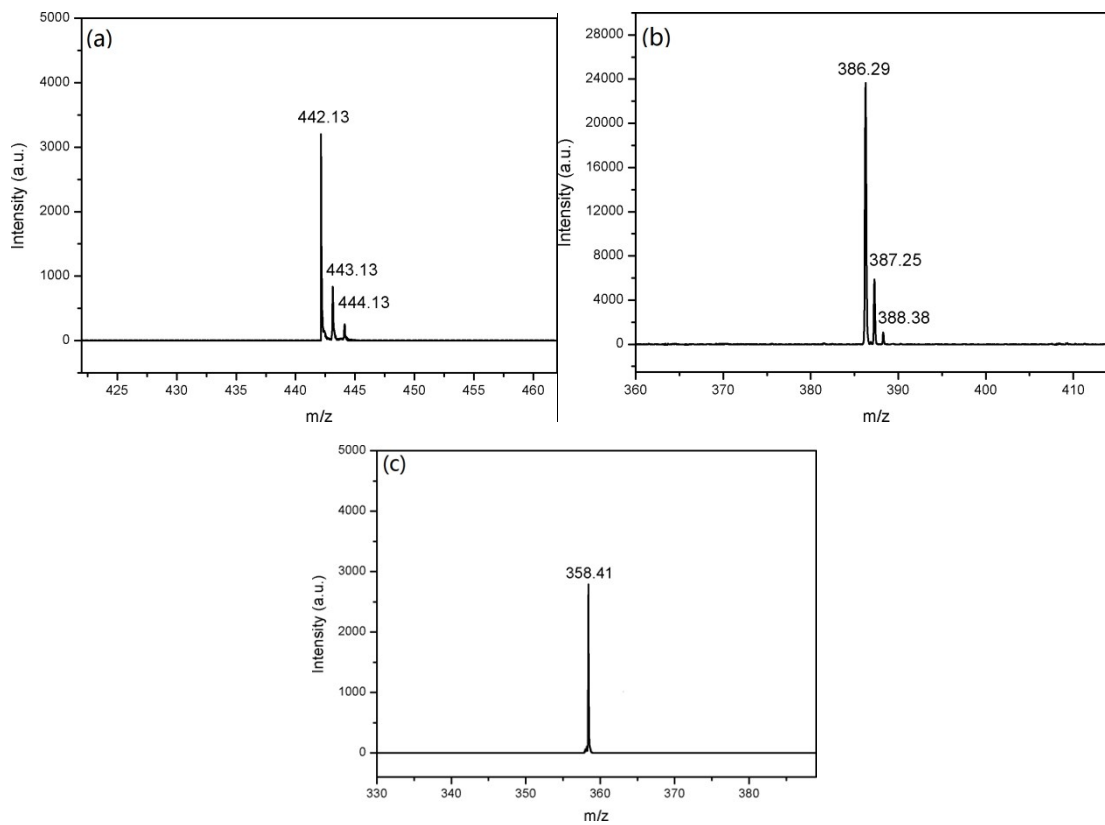


Fig. S2 Mass spectra of M8PVPCN (a), M4PVPCN (b) and M2PVPCN (c) in CDCl_3 .

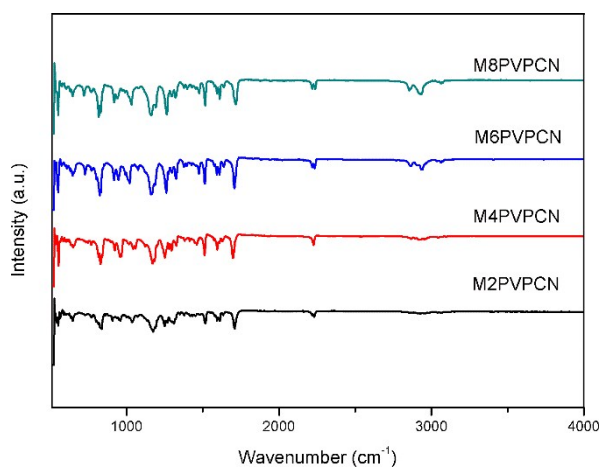


Fig. S3 FT-IR spectra of monomers MmPVPCN.

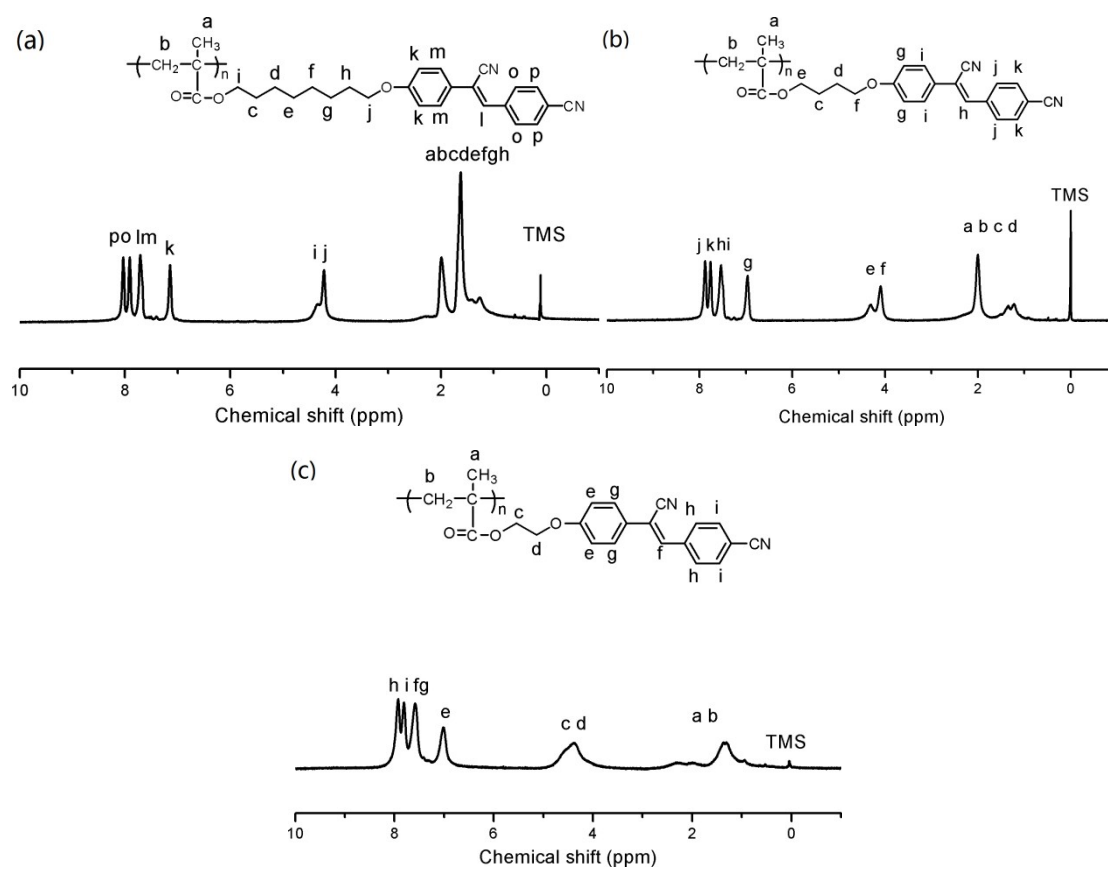


Fig. S4 ^1H NMR spectra of PM8PVPCN (a), PM4PVPCN (b) and PM2PVPCN (c) in CF_3COOD .

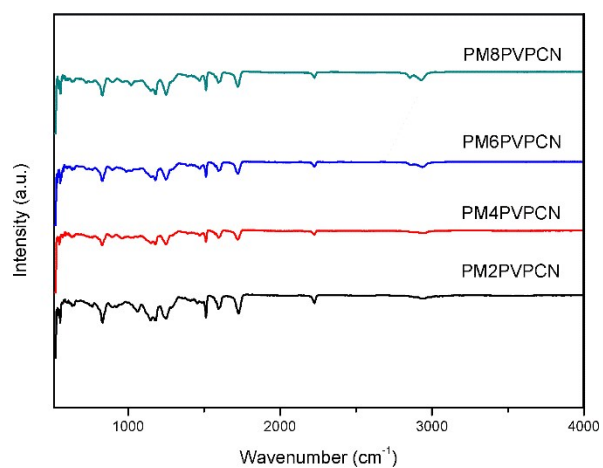


Fig. S5 FT-IR spectra of polymers PMmPVPCN.

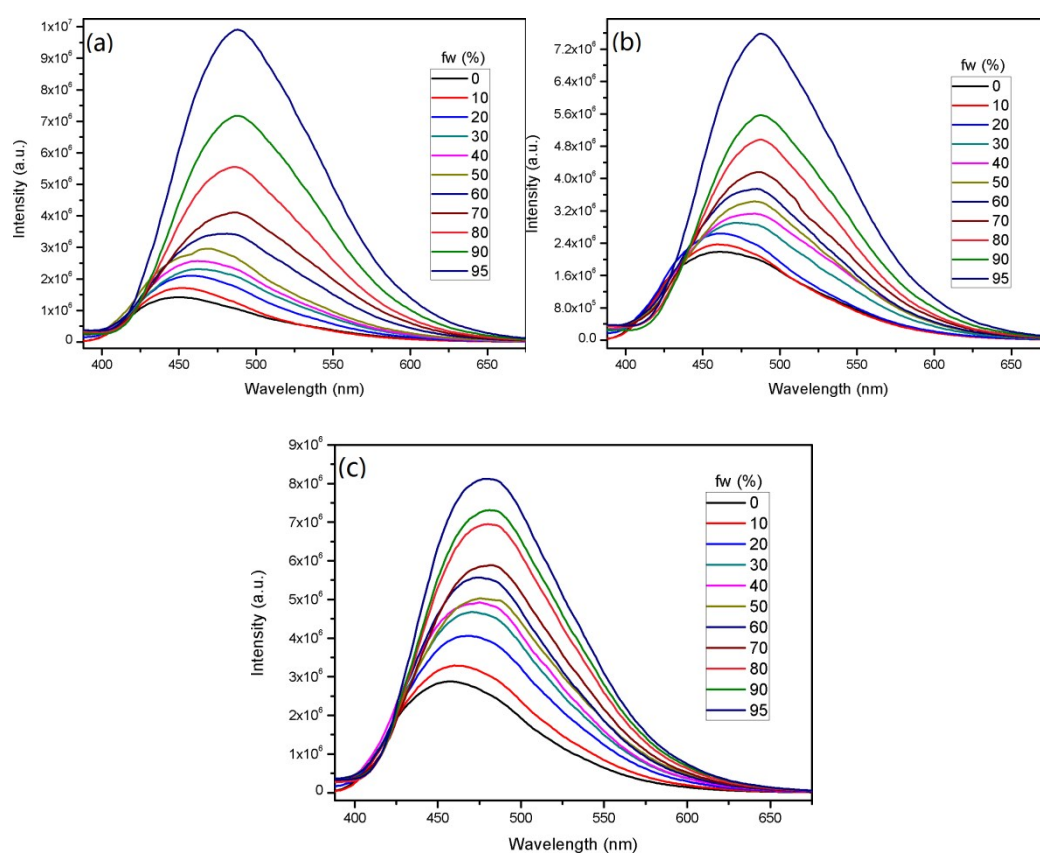


Fig. S6 Emission spectra of PM8PVPCN (a), PM4PVPCN (b) and PM2PVPCN (c) in THF/H₂O mixtures.

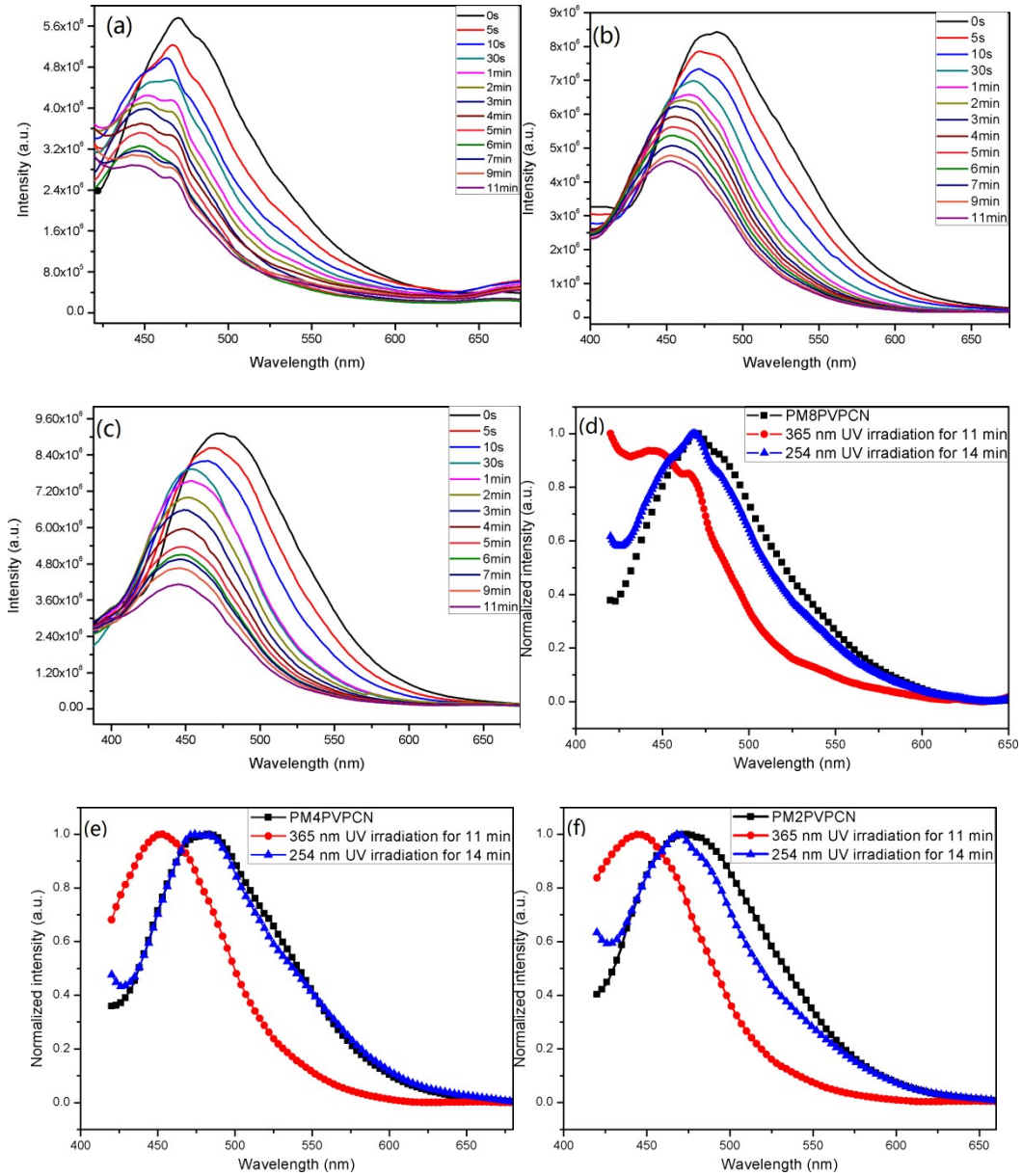


Fig. S7 Emission spectra of PM8PVPCN film (a), PM4PVPCN film (b) and PM2PVPCN film (c) with different exposure time under 365 nm UV light; Reversible fluorescence photo-responsive properties of PM8PVPCN film (d), PM4PVPCN film (e) and PM2PVPCN film (f). Excitation wavelength= 365 nm.