

**Electronic Supplementary Information (ESI) for: -**

**ESIPT-Active Columnar Liquid Crystal: Organic Dyes and Quantum Dots  
Assisted Fluorescence Modulation**

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**Figure S1.** 1D intensity vs  $2\theta$  profiles obtained for the  $Col_h/p6mm$  phase of PBSAN-14 as a function of temperature.

**Table S1.** Periodic parameter of host PBSAN-14 at two different temperatures

**Figure S2.** Molecular structure of (a) methyl red dye and (b) rubrene.

**Figure S3.** Room-temperature absorption and photoluminescence emission spectrum of different organic and inorganic dopants used in the study; (a) MRC dye, (b) rubrene, (c) carbon QDs and (d) perovskite QDs.

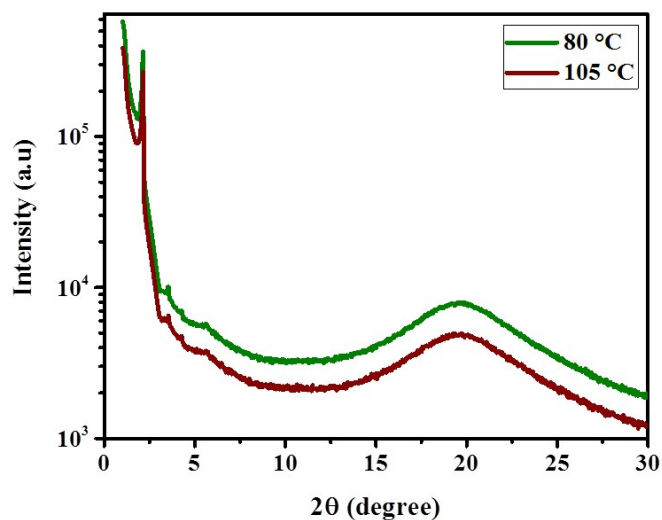


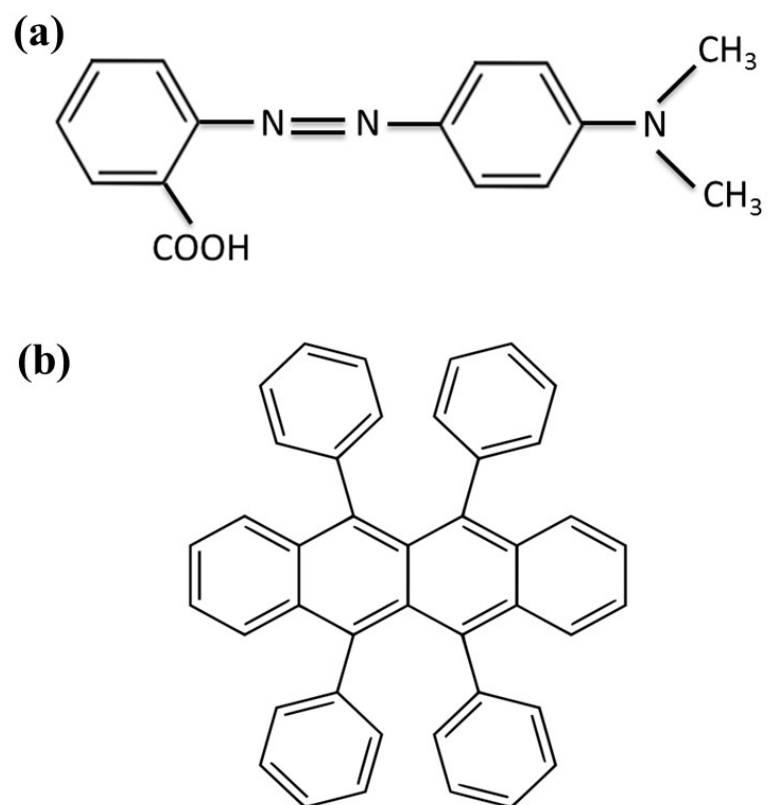
Figure S1: 1D intensity vs  $2\theta$  profiles obtained for the  $\text{Col}_h/\text{p6mm}$  phase of PBSAN-14 as a function of temperature.

Table S1: Periodic parameter of host PBSAN-14 at two different temperatures derived using XRD plot shown above <sup>1</sup>.

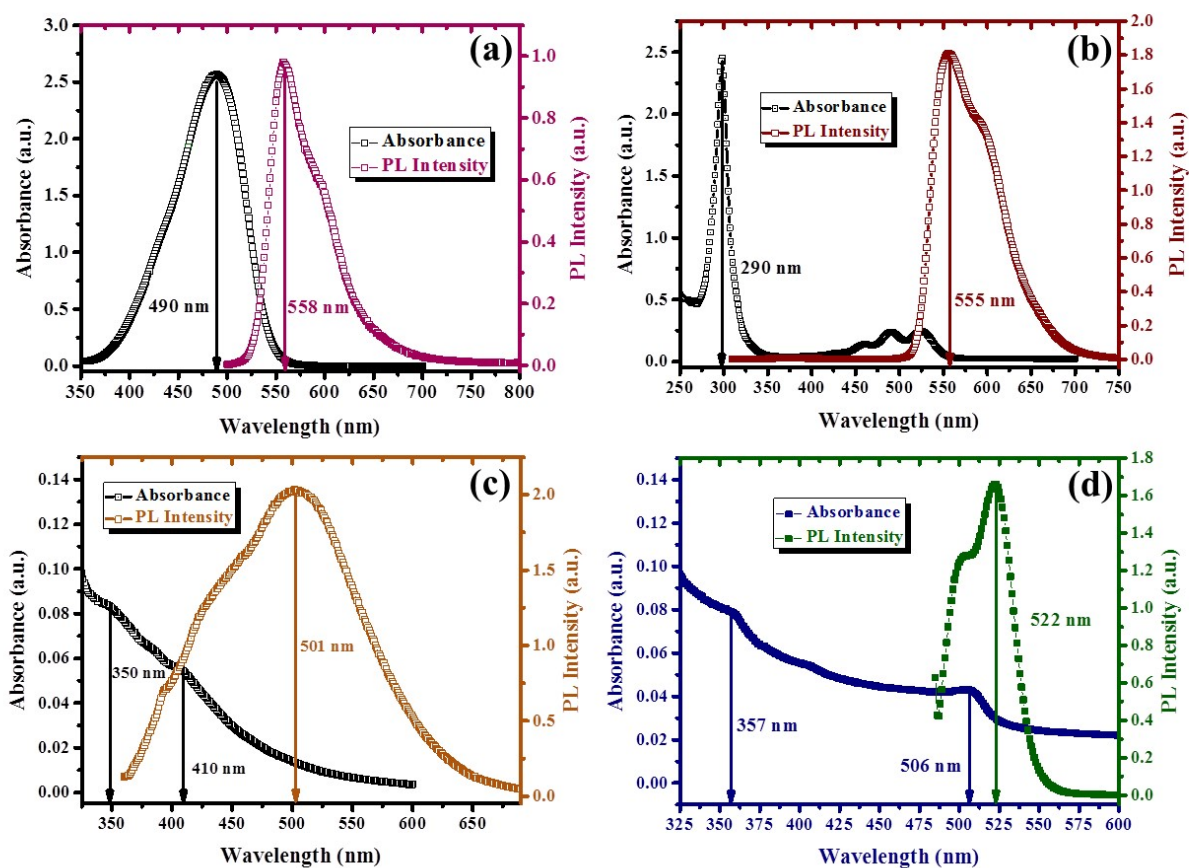
Temperature (°C)	Spacing Observed $d_{obs}$ (Å)	Spacing Calculated $d_{cal}$ (Å)	Miller Indices $hkl$	Periodic Parameters
80 °C	41.03	41.02	100	$a = 47.37$
	24.79	23.68	110	$S = 1943.20$
	20.56	20.51	200	$V = 8647.63$
	15.60	15.52	210	$Z = 2.70$
105 °C	41.10	41.09	100	$a = 47.45$
	24.20	23.72	110	$S = 1949.85$
	20.61	20.54	200	$V = 8891.35$
	15.61	15.53	210	$Z = 2.73$

$a$  - Lattice Parameter (Å);  $S$  - Lattice Area (Å<sup>2</sup>);  $V$  - Molecular Volume (Å<sup>3</sup>);

$Z$  - Number of molecules per column slice



**Figure S2:** Molecular structure of (a) methyl red dye and (b) rubrene.



**Figure S3:** Room-temperature absorption and photoluminescence emission spectrum of different organic and inorganic dopants used in the study; (a) MRC dye, (b) rubrene, (c) carbon QDs and (d) perovskite QDs. The dopants have been dispersed in dichloromethane (concentration: 0.01 mg/mL).

## References-

1. M. B. Kanakala and C. V. Yelamaggad, *Journal of Molecular Liquids*, 2021, **332**, 115879.