

## Supporting information

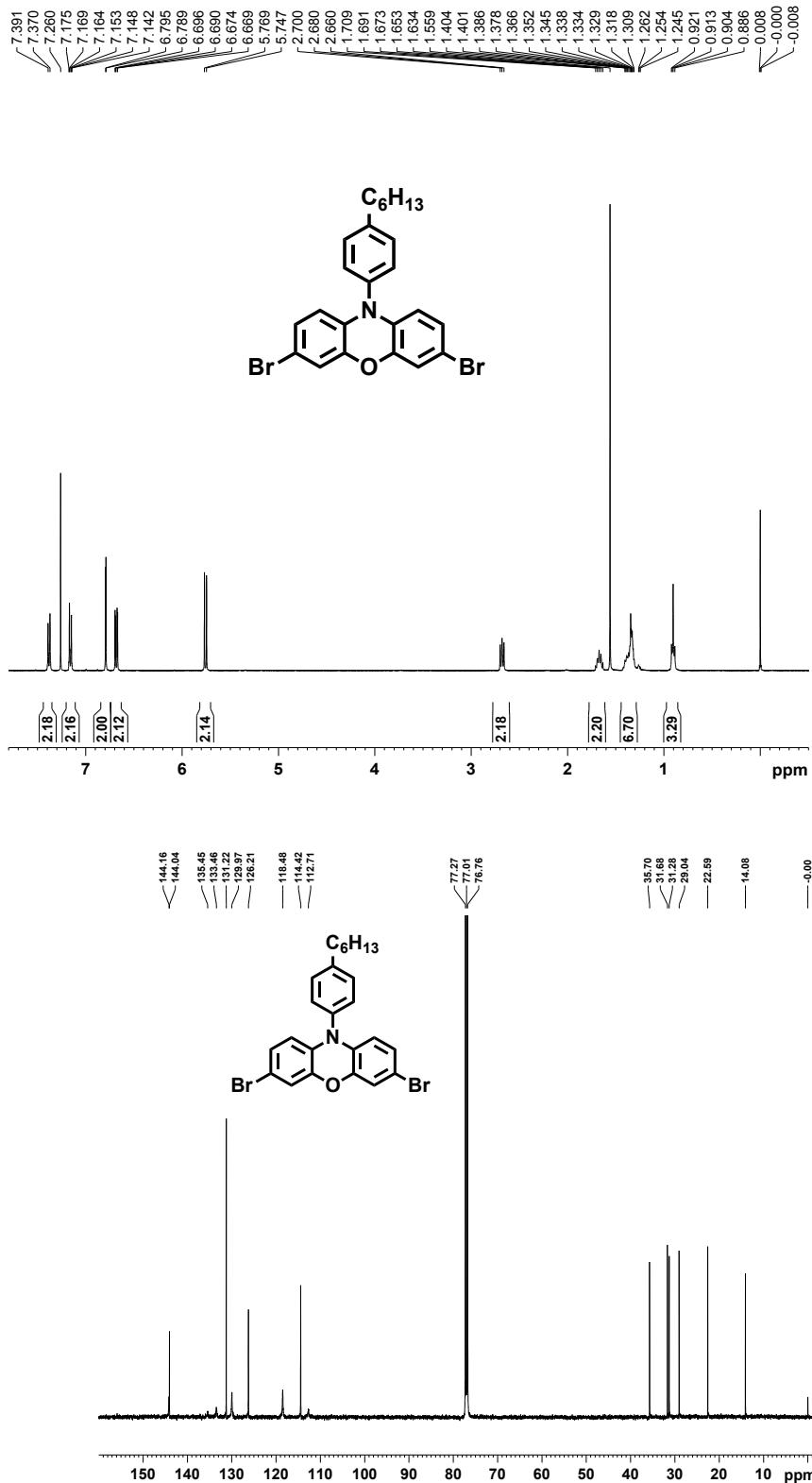
# Highly efficient deep-blue light-emitting copolymers containing phenoxazine: enhanced device efficiency and lifetime by blending a hole transport molecule

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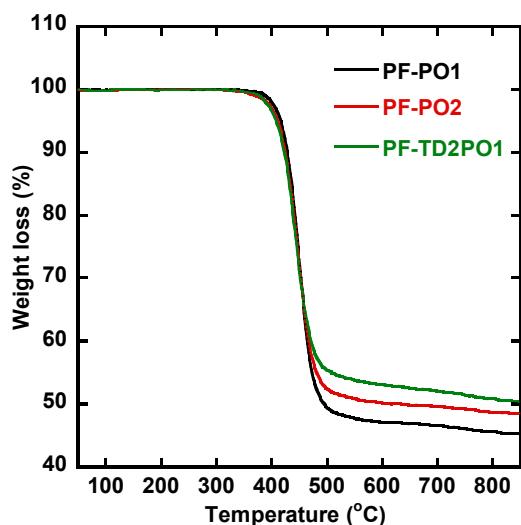
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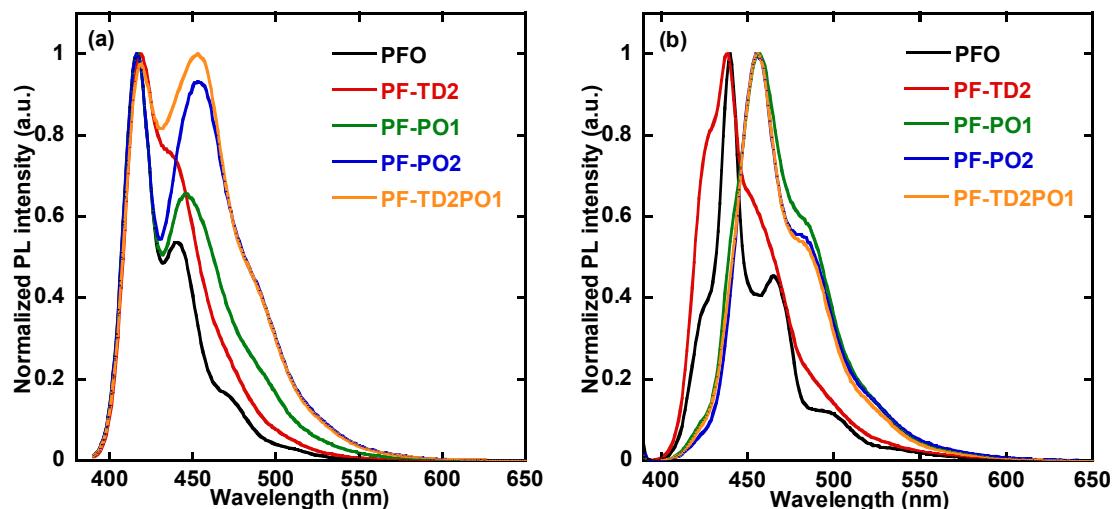
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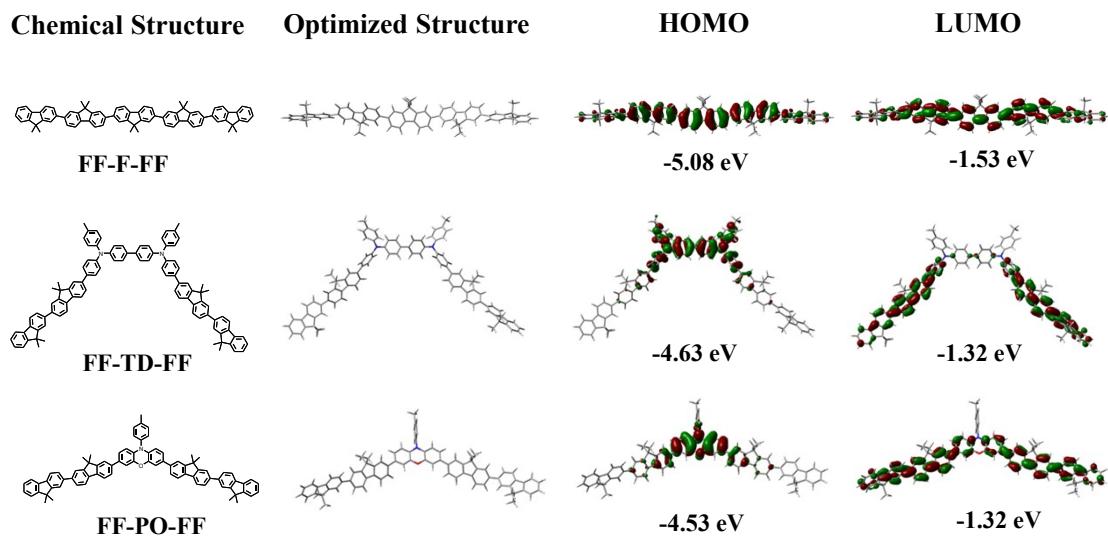
**Fig. S1**  $^1\text{H}$  NMR and  $^{13}\text{C}$  NMR spectra of monomer  $\text{PO-Br}_2$ .



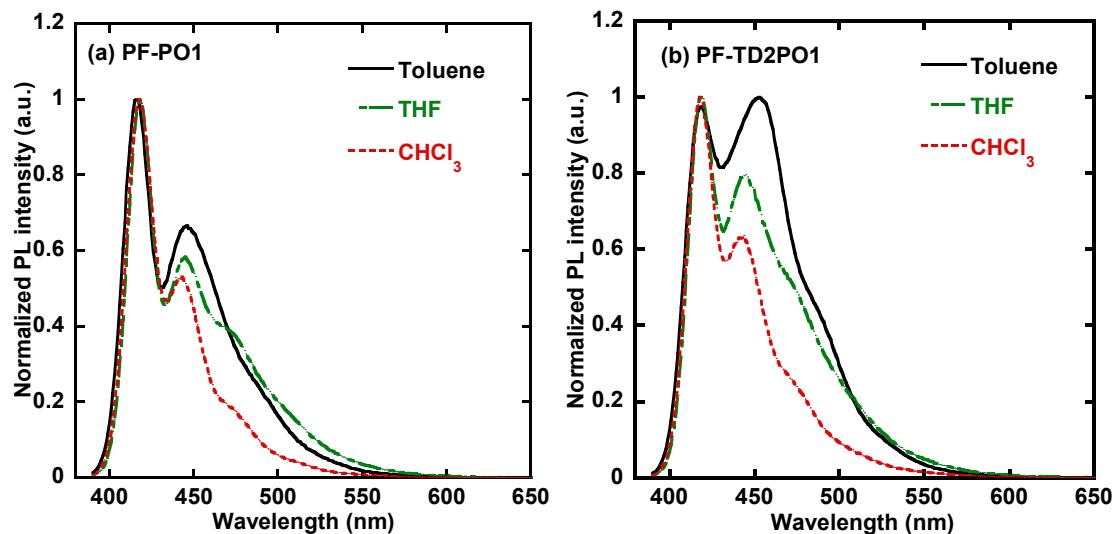
**Fig. S2** TGA curves of copolymers.



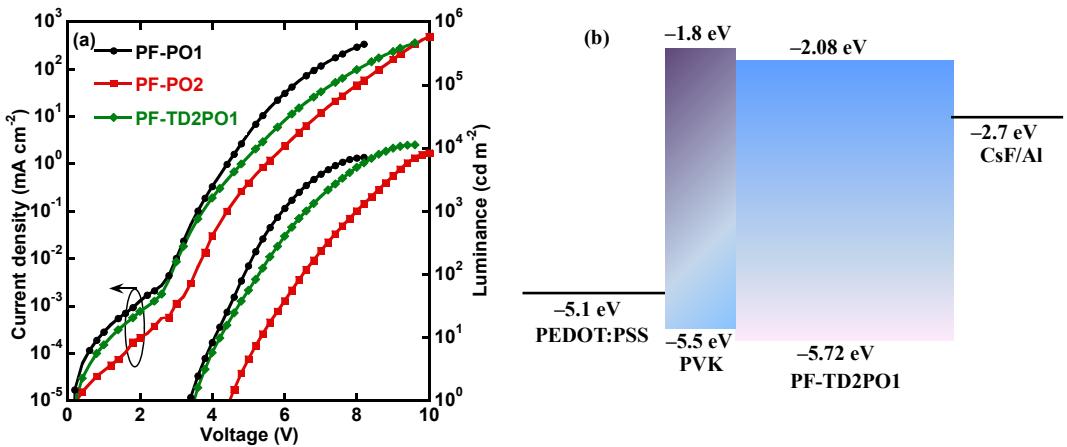
**Fig. S3** PL spectra of copolymers in (a) toluene and (b) solid films.



**Fig. S4** DFT calculation of model molecules.

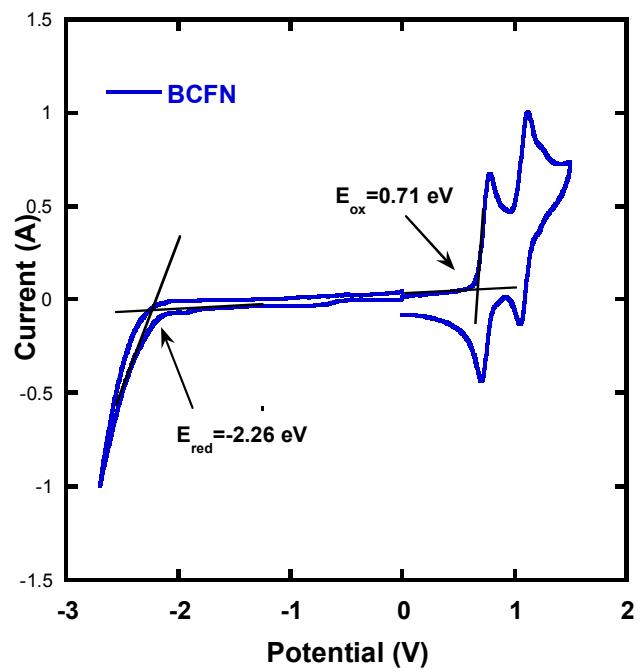


**Fig. S5** PL spectra of copolymers in various solvents.

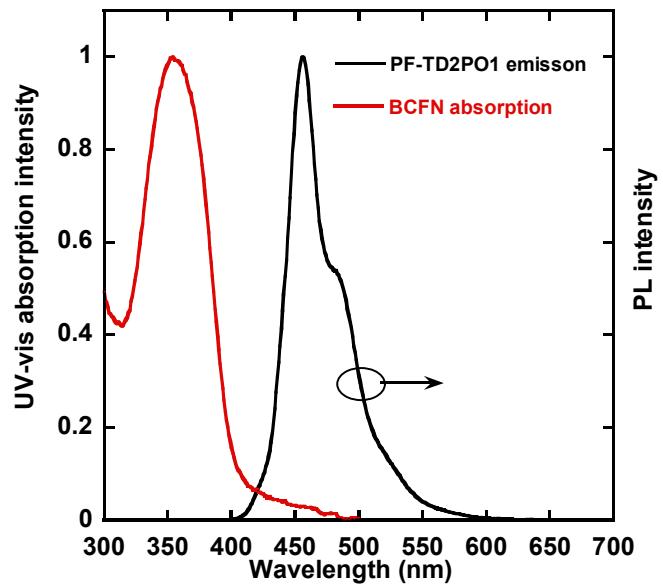


**Fig. S6** (a)  $J$ - $V$ - $L$  curves and (b) the energy level alignment of double-layer device II

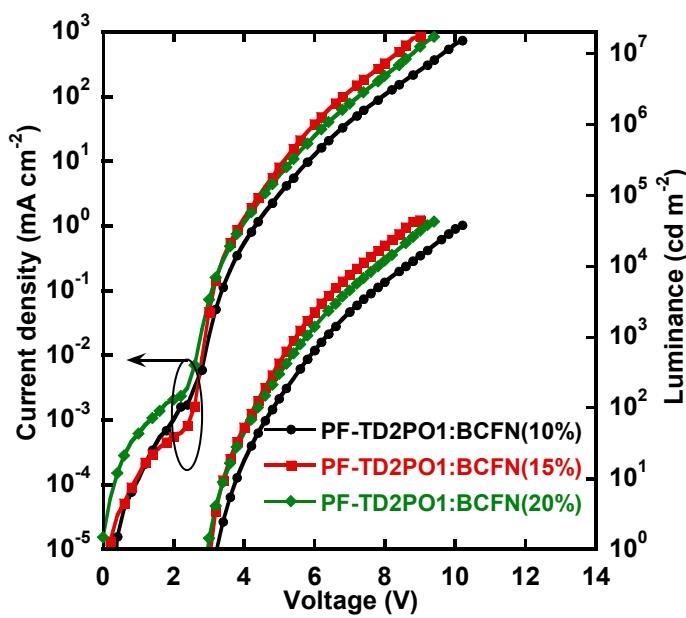
with the structure of ITO/PEDOT:PSS/PVK/EL/CsF/Al.



**Fig. S7** CV curves of BCFN.



**Fig. S8** UV-vis absorption of BCFN and PL emission of PF-TD2PO1.



**Fig. S9** *J-V-L* curves of blended emitters based devices III with the structure of ITO/PEDOT:PSS/PVK/PF-TD2PO1:BCFN/CsF/Al.

**Table S1** Photophysical data of copolymers.

Polymer	$\lambda_{\text{abs, toluene}}$ (nm)	$\lambda_{\text{abs, film}}$ (nm)	$\lambda_{\text{PL, toluene}}$ (nm)	$\lambda_{\text{PL, film}}$ (nm)	FWHM <sup>a</sup> (nm)	FWHM <sup>b</sup> (nm)
PF-PO1	387	380	417, 446	455	56	45
PF-PO2	387	380	417, 454	456	72	50
PF-TD2PO1	387	381	419, 453	456	73	46

<sup>a</sup>Evaluated from the PL spectra in toluene solution

<sup>b</sup>Evaluated from the PL spectra in solid film.