

Supporting Information

Efficient orange-red phosphorescent organic light-emitting diode using *in situ* synthesized copper(I) complex as the emitter

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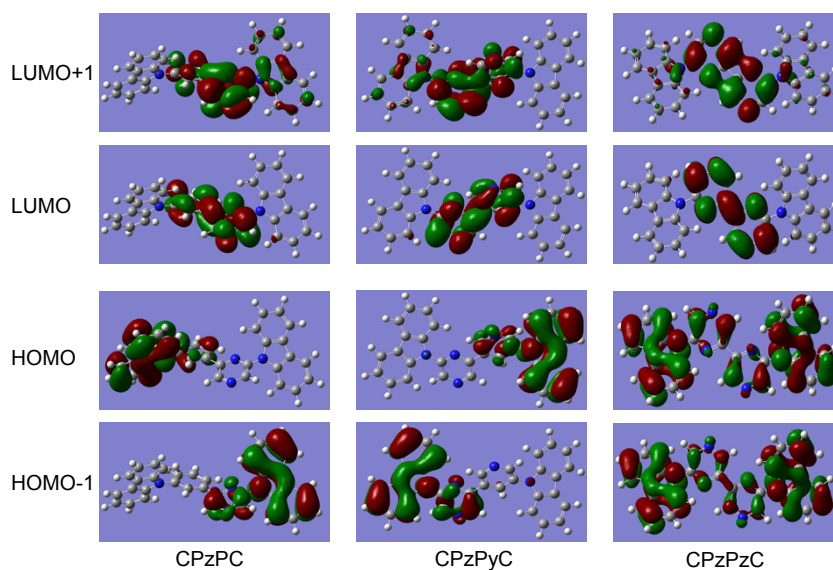


Fig. S1. DFT calculations of the spatial distributions of the HOMO-1, HOMO, LUMO and LUMO+1 level for CPzPC, CPzPyC, and CPzPzC.

Table S1. DFT calculated energy levels of CPzPC, CPzPyC, and CPzPzC.

Compound	HOMO [eV]	LUMO [eV]	E _g [eV]	T ₁ -S ₀ [eV]
CPzPC	5.80	2.26	3.54	2.60
CPzPyC	5.94	2.42	3.52	2.56
CPzPzC	6.04	2.65	3.39	2.40

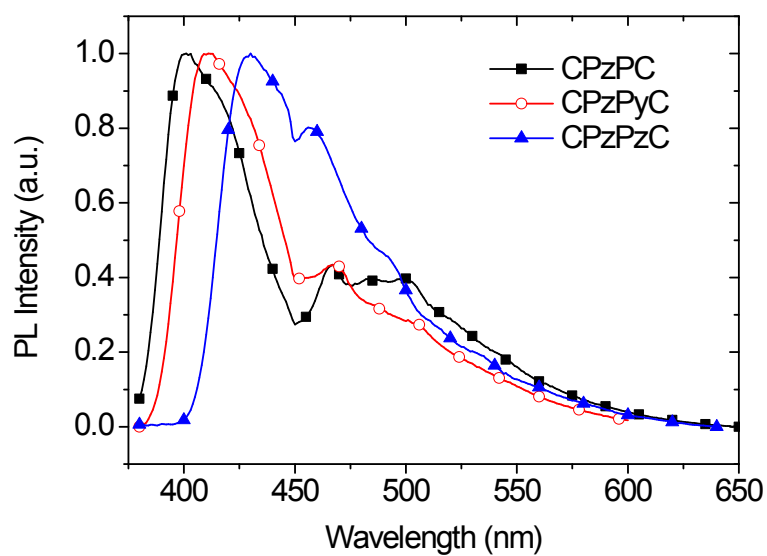


Fig. S2. PL spectra of CPzPC, CPzPyC, and CPzPzC in a frozen 2-MeTHF matrix at 77 K.

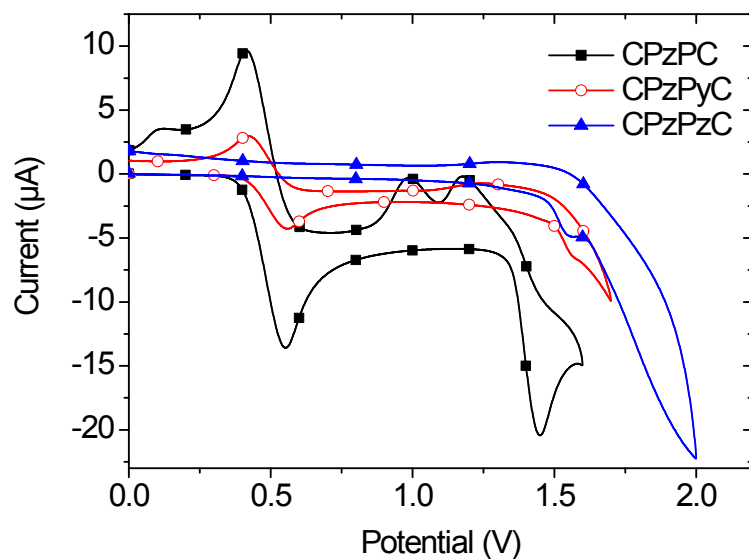


Fig. S3. Cyclic voltammogram of CPzPC, CPzPyC, and CPzPzC using ferrocene as an internal/external standard.

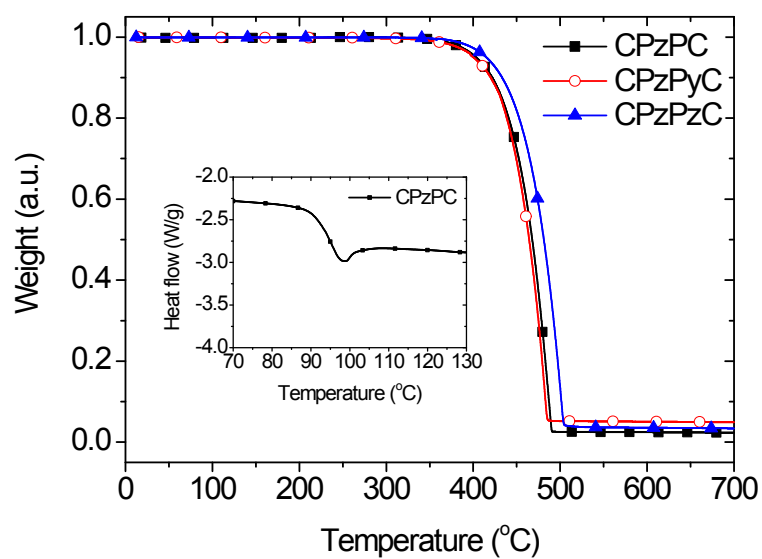


Fig. S4. TGA of CPzPC, CPzPyC, and CPzPzC. Insert: DSC of CPzPC.

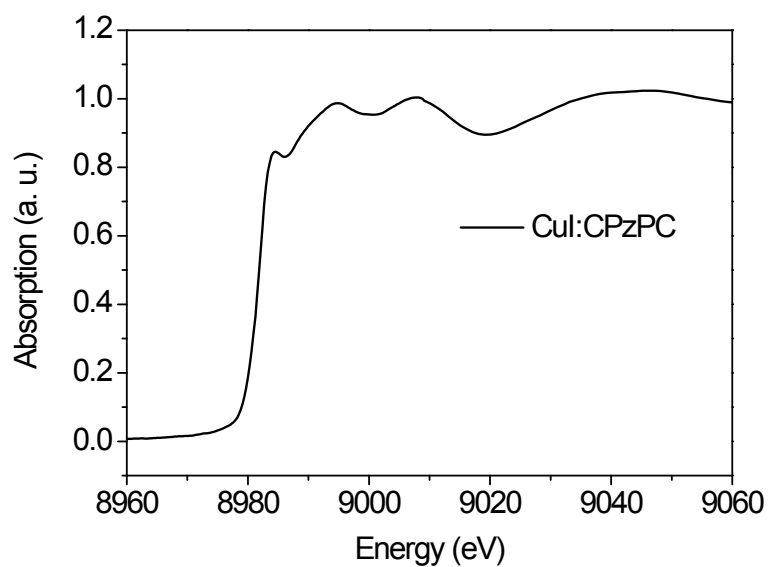


Fig. S5. Cu K-edge of codeposited CuI:CPzPC film (CuI:CPzPC = 1:5).

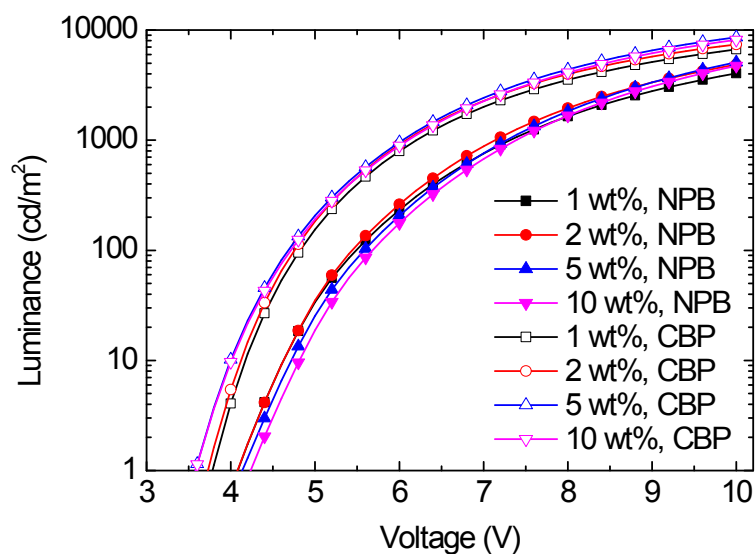


Fig. S6. Luminance – voltage characteristics of OLEDs **1-8**. The device structure is ITO/ MoO₃ (1 nm)/ HTL (35 nm)/ CuI:CPzPC (*x* wt%, 20 nm)/ TPBi (65 nm)/ LiF (1 nm)/ Al, where the HTL is NPB or CBP, *x* = 1, 2, 5, or 10.

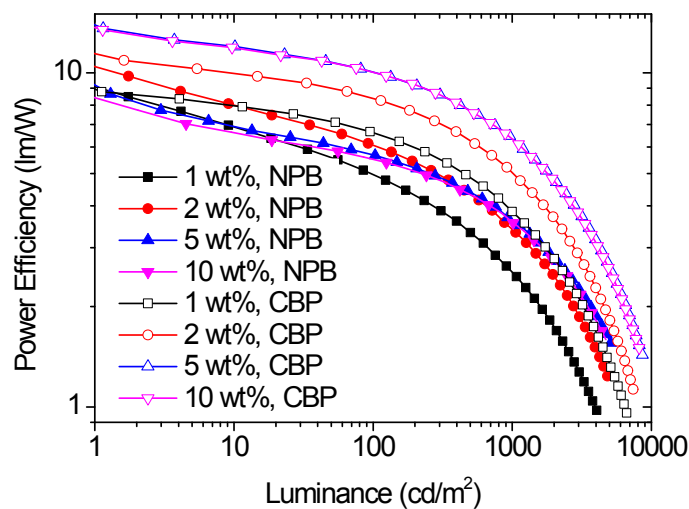


Fig. S7. Power efficiency – luminance characteristics of OLEDs **1-8**

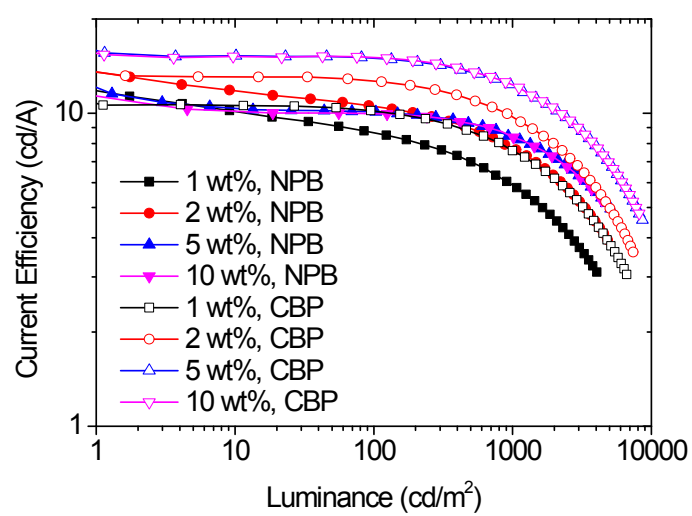


Fig. S8. Current efficiency – luminance characteristics of OLEDs **1-8**.