Electronic supplementary information

4,4′-Di(pyren-1-yl)-1,1′-biphenyl as an efficient material for organic light-emitting diodes and thin-film transistors

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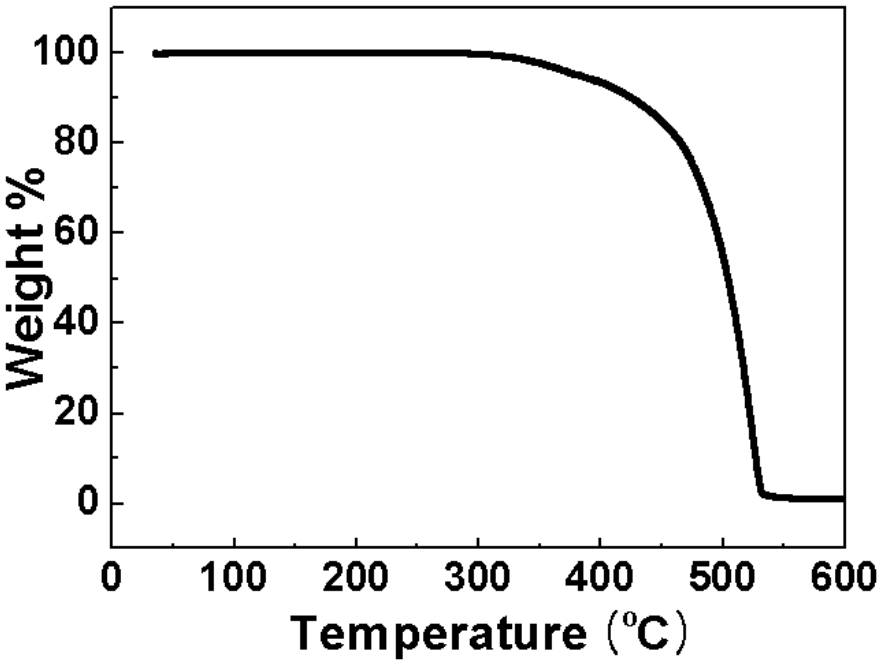

Fig. S1. TGA data of **DBP**.

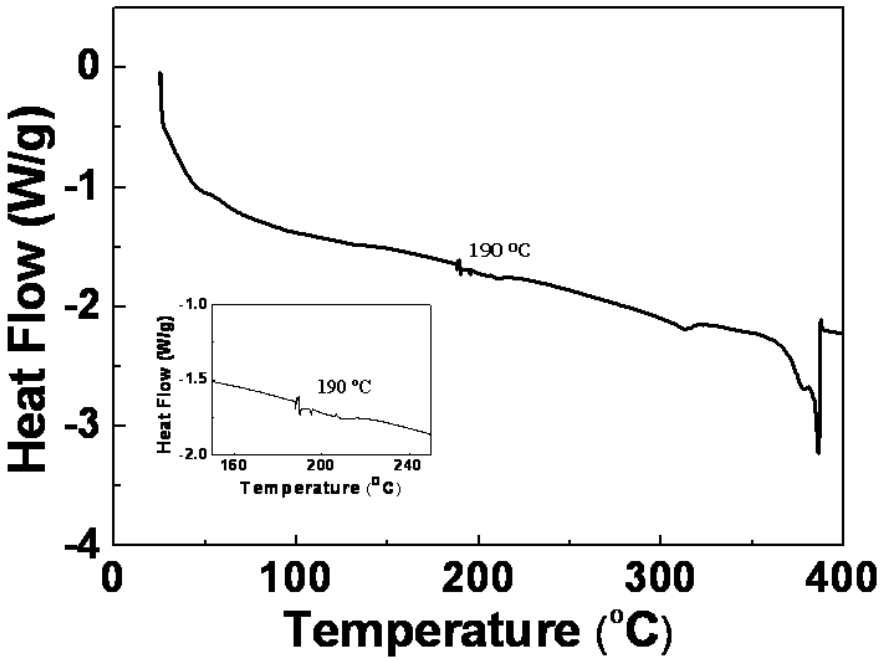

Fig. S2. DSC data of **DBP**.

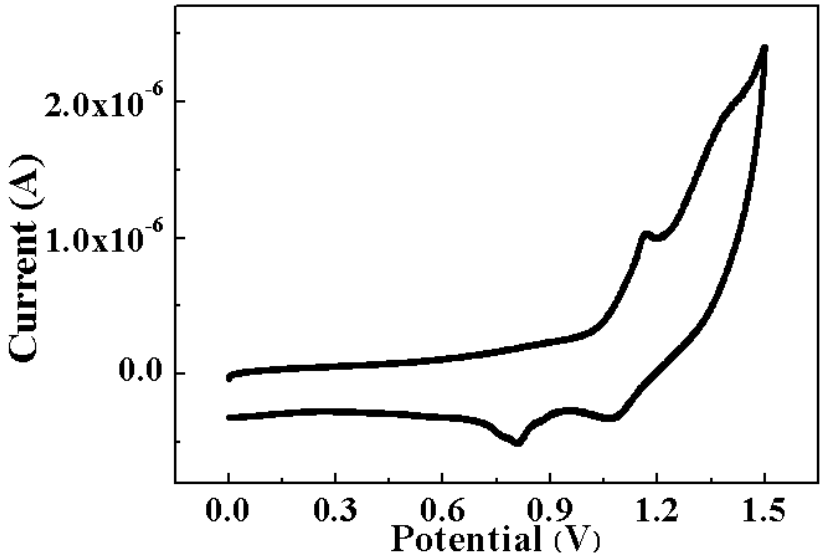

Fig. S3. Cyclic voltammogram of **DBP**.

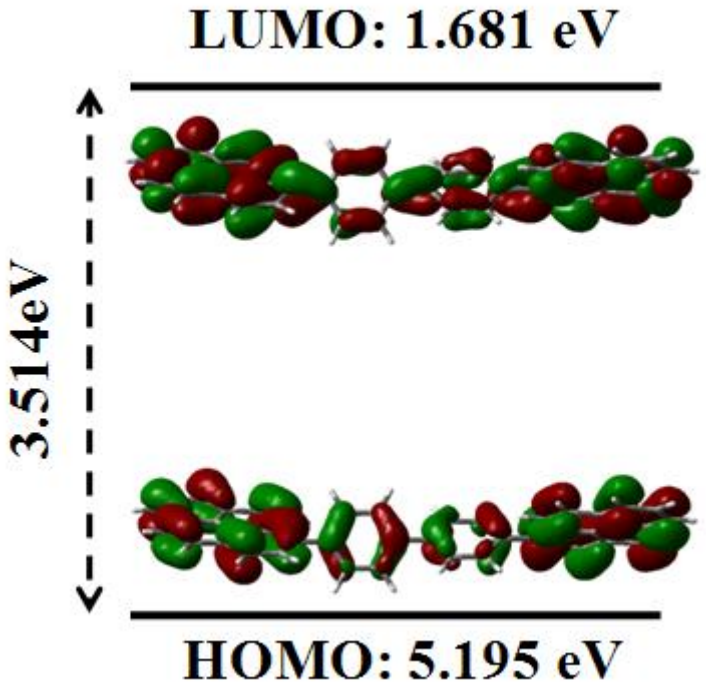

Fig. S4. HOMO and LUMO energy levels of **DBP** obtained using DFT calculations.

Blue emitting OLED device data

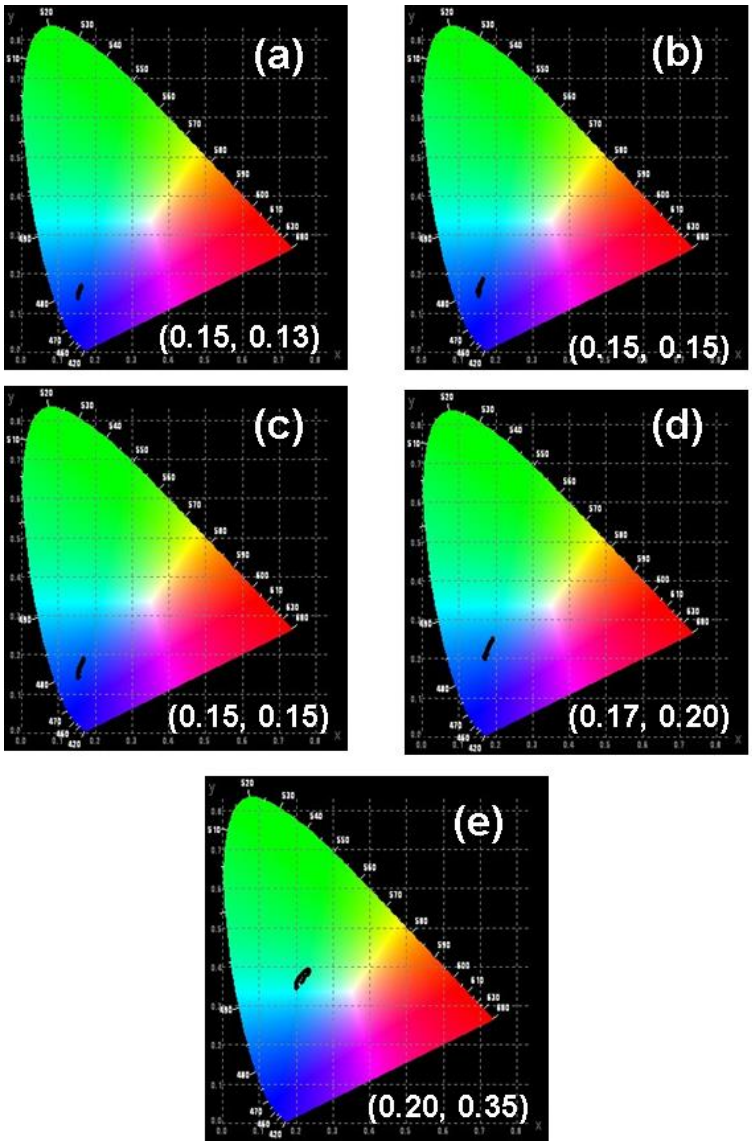

Fig. S5. CIE coordinates of (a) device **A**, (b) device **B**, (c) device **C**, (d) device **D**, and (e) device **E** with a configuration of ITO/CuPc (10 nm)/NPD (60 nm)/EML (50 nm)/Balq (20 nm)/LiF (1 nm)/Al (100 nm).

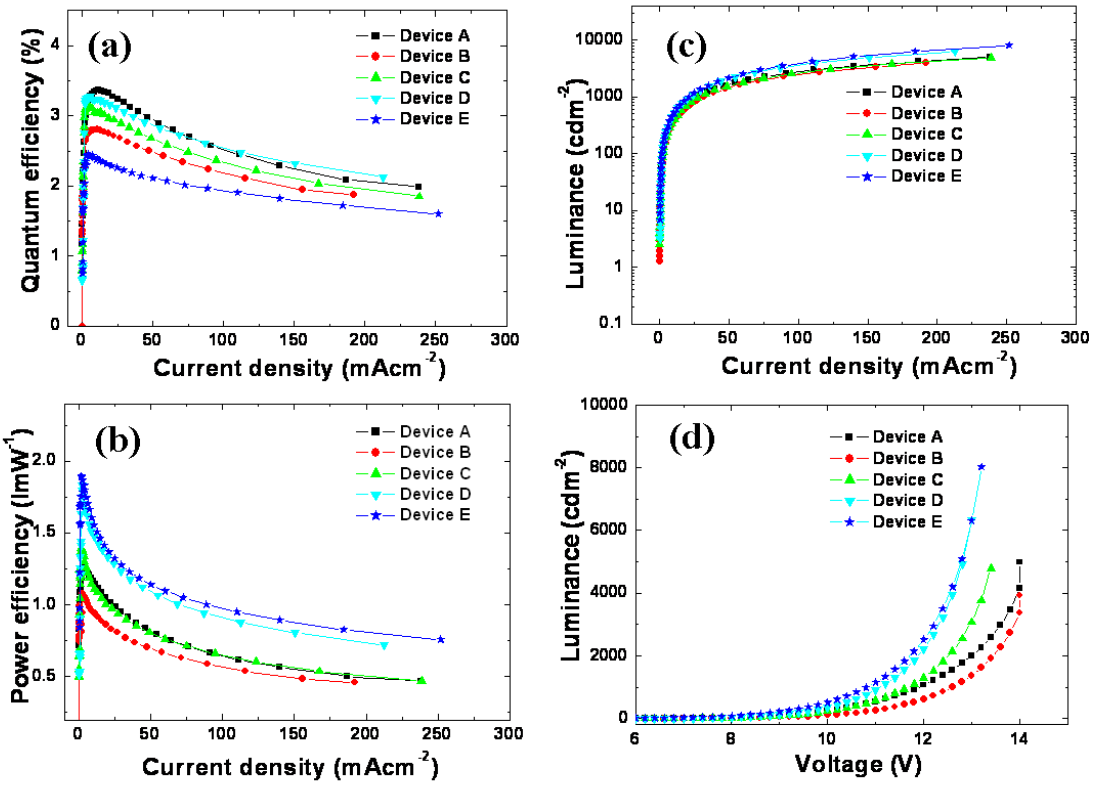

Fig. S6. Blue-emitting EL devices with a configuration of ITO/CuPc (10 nm)/NPD (60 nm)/EML (50 nm)/Balq (20 nm)/LiF (1 nm)/Al (100 nm). (a) current density *J* (mAcm^{-2}) *vs.* quantum efficiency (%), (b) current density *J* (mAcm^{-2}) *vs.* power efficiency (lmW^{-1}), (c) current density *J* (mAcm^{-2}) *vs.* luminance (cdm^{-2}), (d) voltage (V) *vs.* luminance (cdm^{-2}).

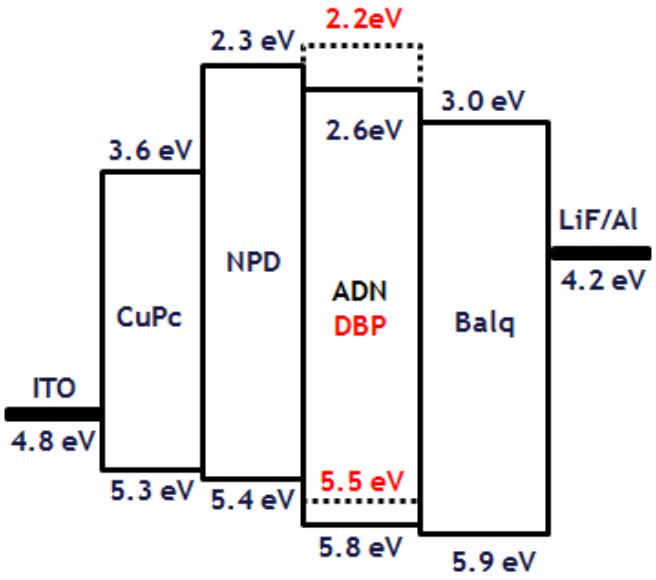

Fig. S7. Energy level diagram of OLEDs tested in the present study.

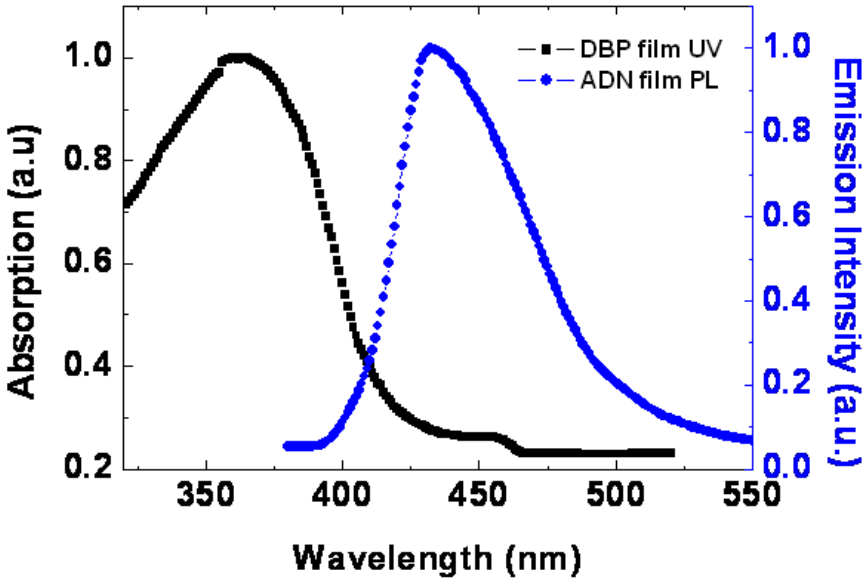

Fig. S8. UV and PL spectra of ADN and **DBP** in the solid film.

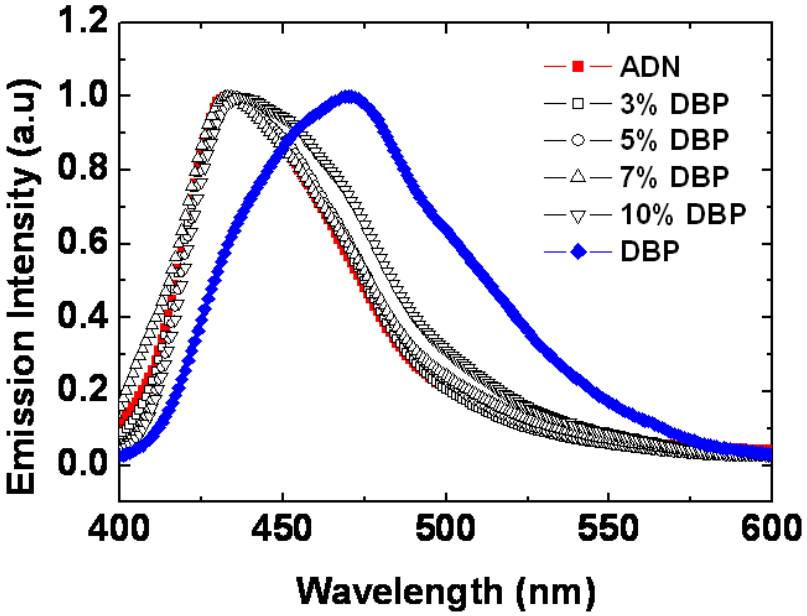

Fig. S9. Film PL spectra of the ADN doped with **DBP** at doping concentrations of 3%, 5%, 7%, 10%, and 100%.

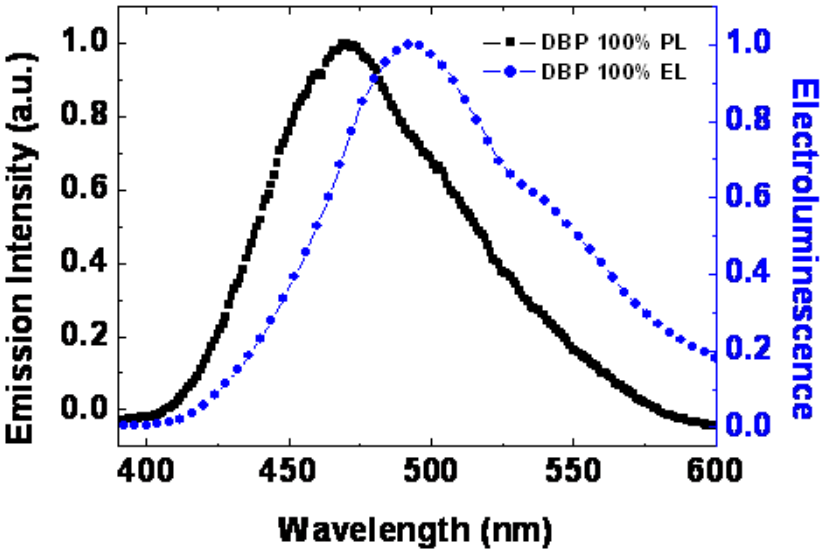

Fig. S10. Film PL spectra of the **DBP** and Blue-emitting EL devices with the configuration: ITO/CuPc (10 nm)/NPD (60 nm)/EML (**DBP** = 50 nm)/Balq (20 nm)/LiF (1 nm)/Al (100 nm).