Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.


**Supporting information**

# High triplet energy exciplex host for improved efficiency and lifetime in blue phosphorescent organic light-emitting diodes

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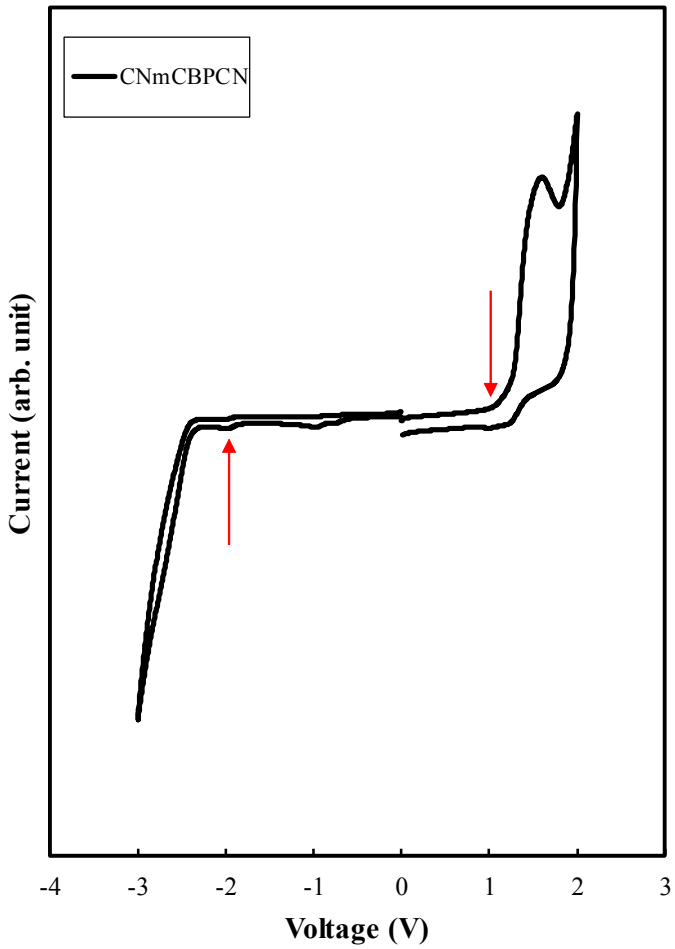


**Figure S1**. CV curves for the oxidation and reduction of CNmCBPCN.

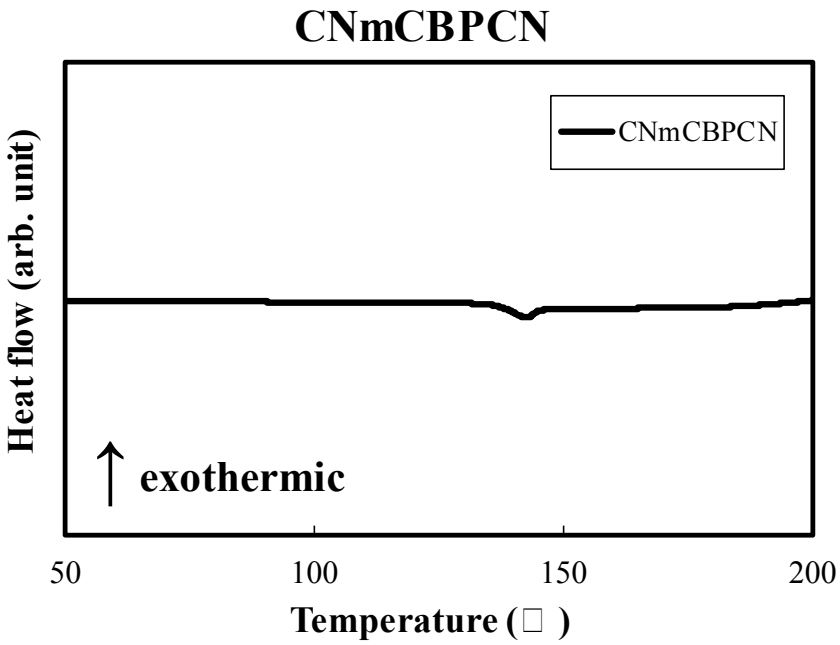


**Figure S2**. DSC thermograms of CNmCBPCN at a heating rate of 10 °C/min in nitrogen atmosphere.

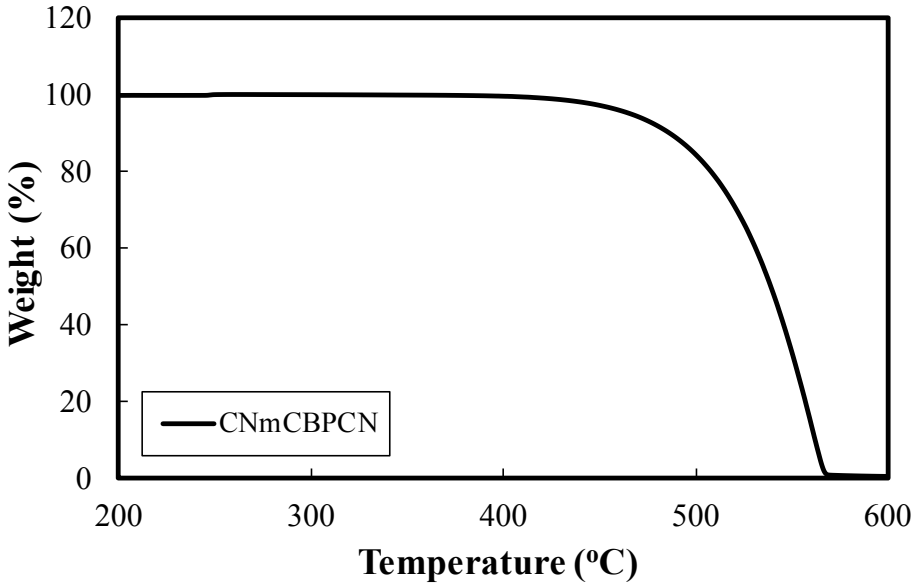


**Figure S3**. Thermogravimetric analysis data of CNmCBPCN at a heating rate of 10 ℃/min in nitrogen atmosphere.

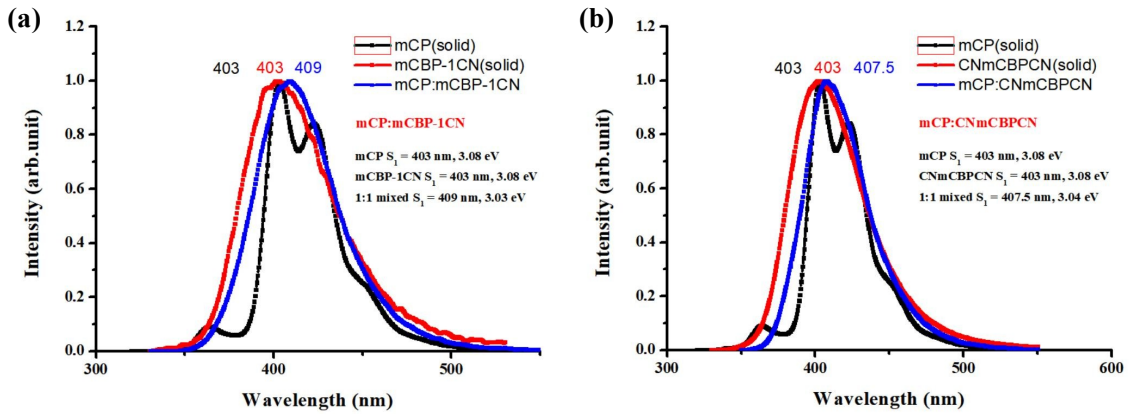


**Figure S4.** The PL emission spectra of each host and mixed hosts in (a) mCP:mCBP-1CN, (b) mCP:CNmCBPCN.

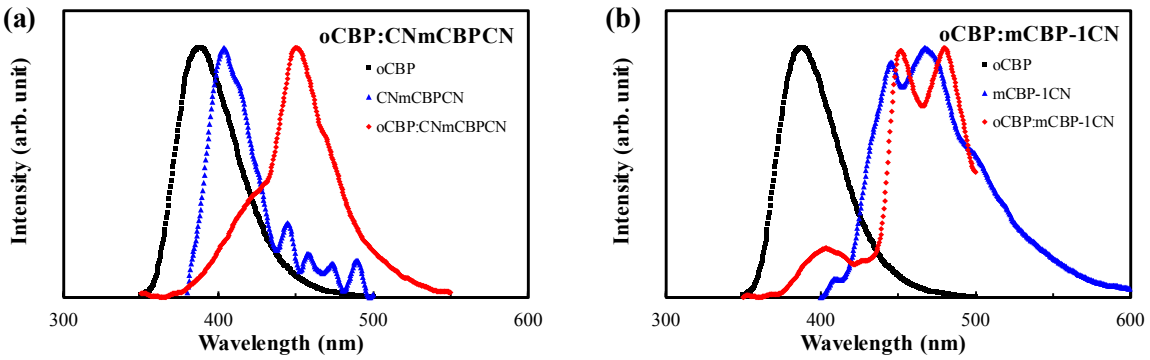


**Figure S5.** Each host was made into a solid film state, and the low temperature PL emission spectrum at 77K was observed to obtain the triplet energy value, (a) oCBP:CNmCBPCN, (b) oCBP:mCBP-1CN.

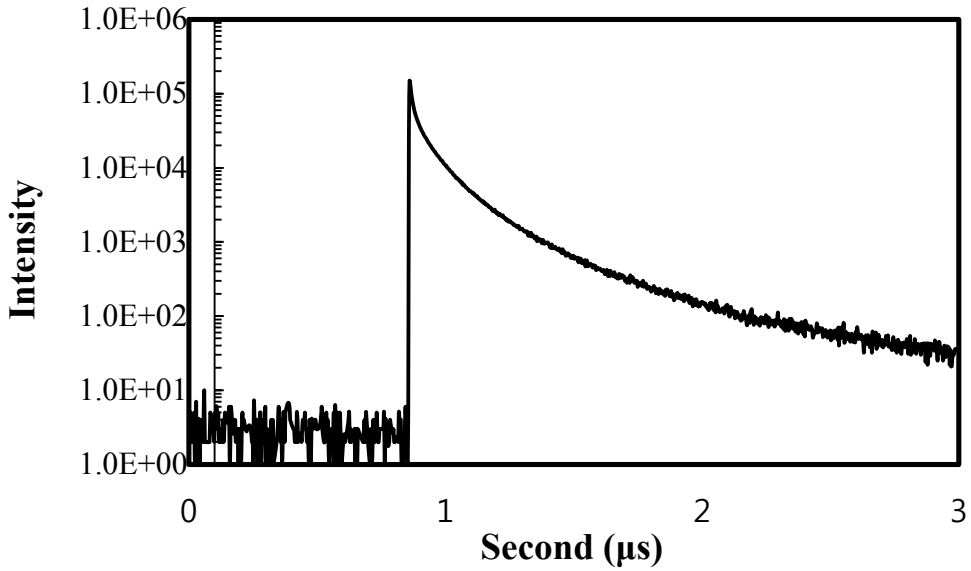


**Figure S6**. Transient PL decay curves of oCBP:CNmCBPCN film.

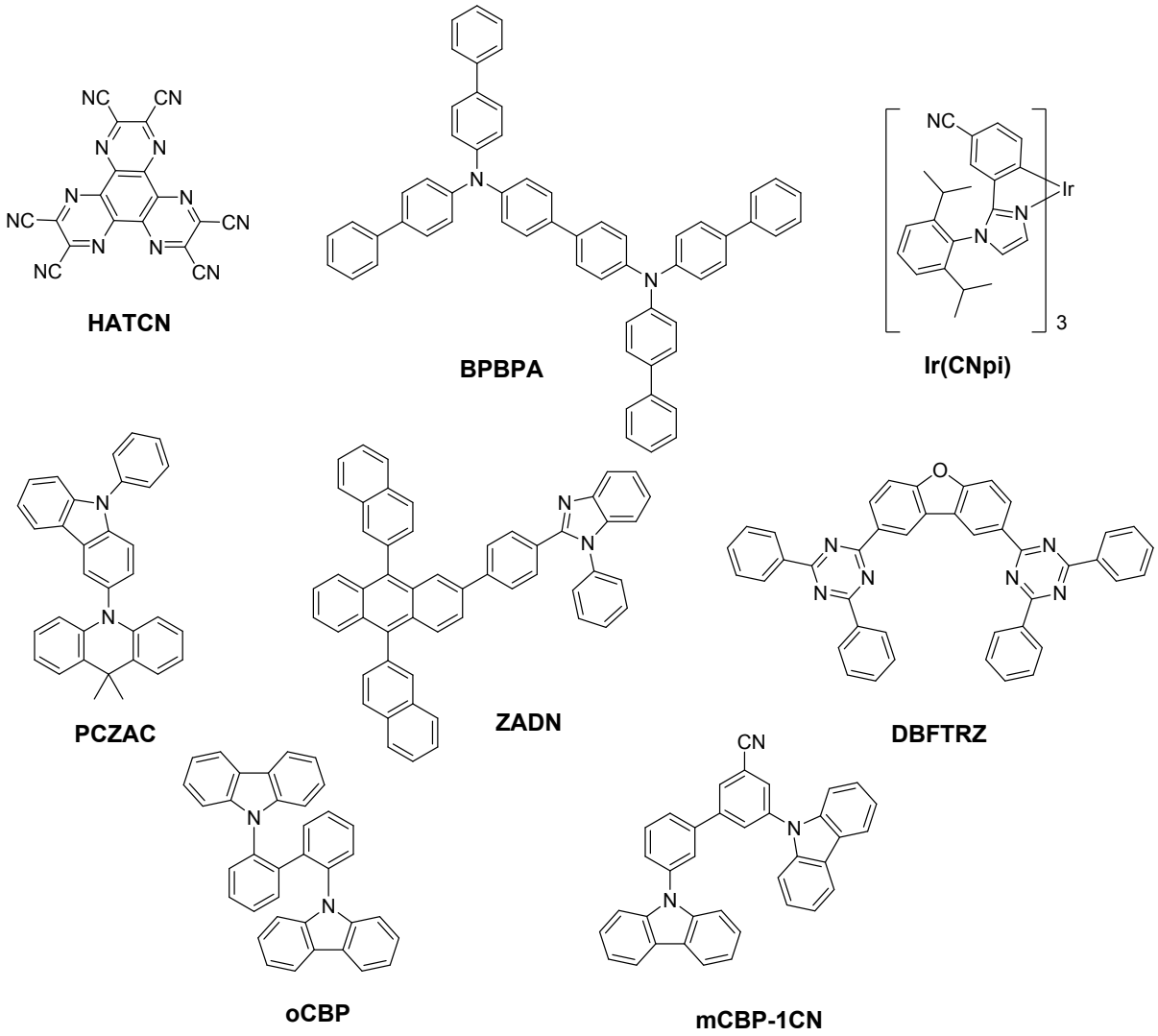


**Figure S7**. Chemical structures of materials in the blue OLED devices.

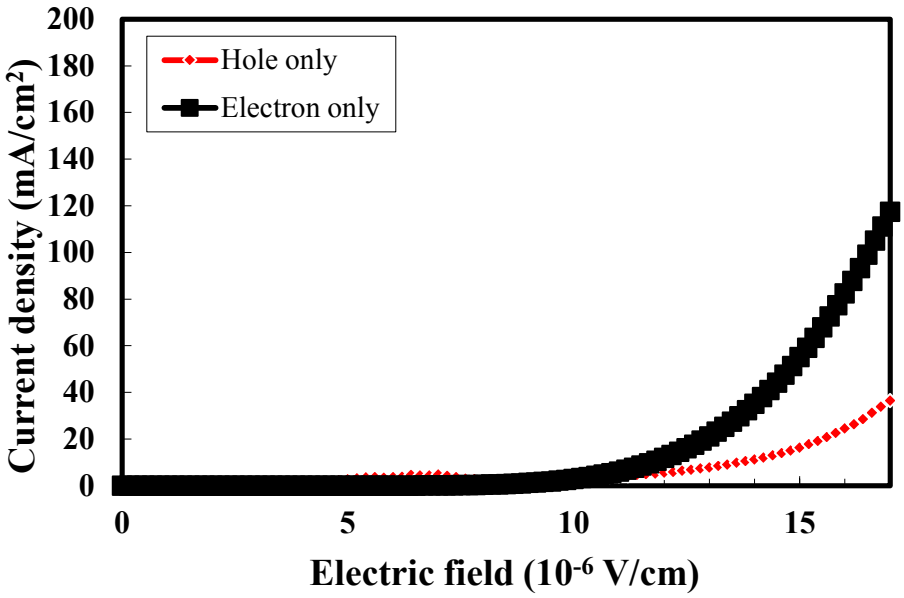


**Figure S8**. Current density-voltage curves of the hole only devices and electron only devices of CNmCBPCN.