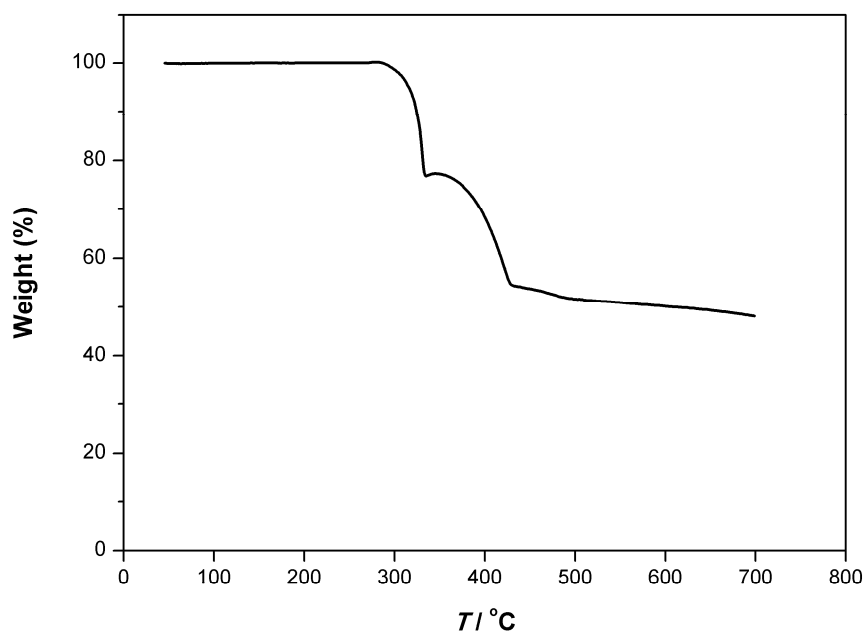


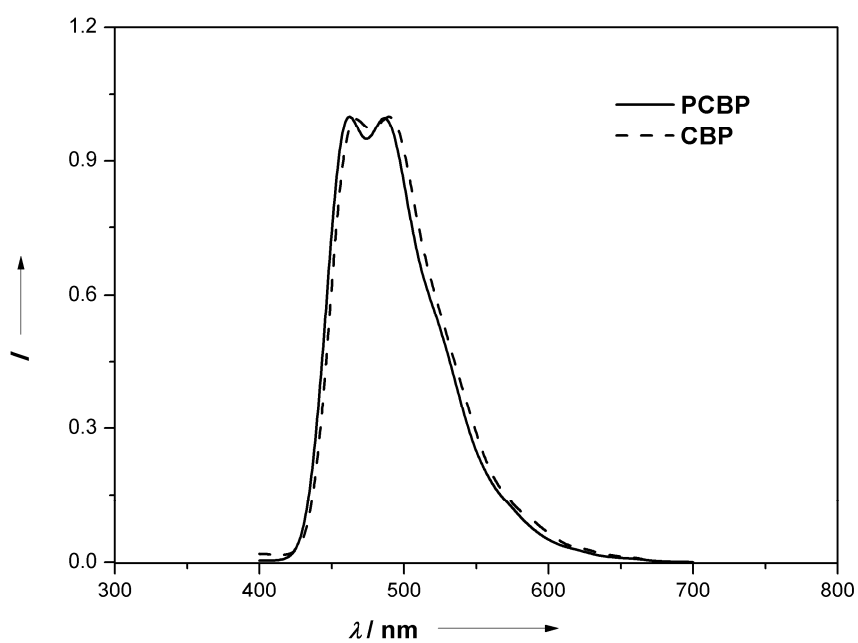
## Supporting Information

# Phosphonate Substituted 4,4'-Bis(*N*-carbazolyl)biphenyl with Dominant Electron Injection/Transport Ability for Tuning the Single-Layer Device Performance of Self-Host Phosphorescent Dendrimer

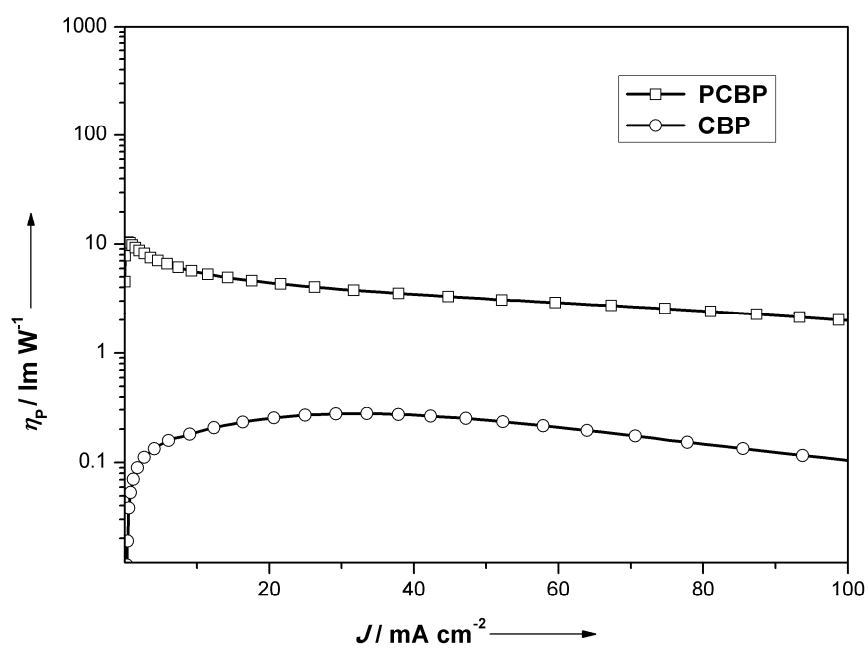
Bo Chen,<sup>a,b</sup> Junqiao Ding,<sup>\*a</sup> Lixiang Wang,<sup>\*a</sup> Xiabin Jing<sup>a</sup> and Fosong Wang<sup>a</sup>



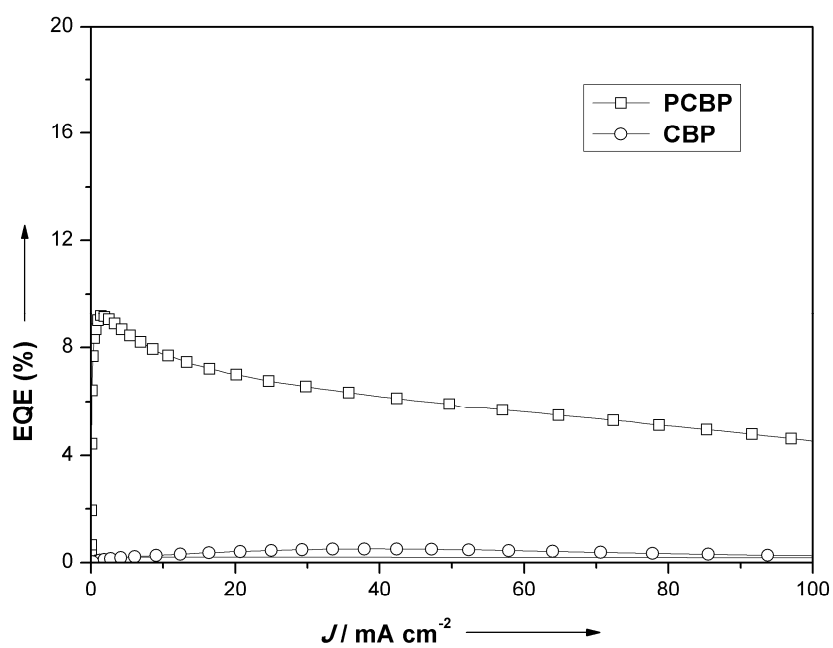
**Fig. S1** TGA spectrum for PCBP, at a heating rate of 10 °C/min under nitrogen atmosphere.



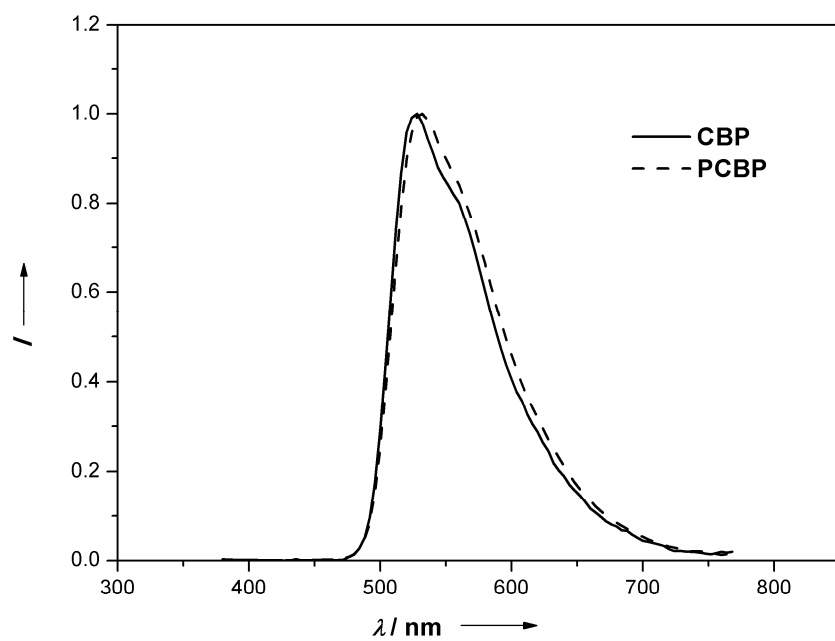
**Fig. S2** Normalized phosphorescence spectra of PCBP and CBP in  $10^{-3}$  M toluene solution at 77K.



**Fig. S3** The power efficiency-current density characteristics of the devices.



**Fig. S4** The EQE-current density characteristics of the devices.



**Fig. S5** Normalized EL spectra of the devices at a driving voltage of 15 V.

**Table S1.** Crystallographic Parameters and Refinement Results for PCBP.

Compound	PCBP
Empirical formula	$C_{52}H_{60}N_2O_{12}P_4 \cdot 2CH_2Cl_2$
Formula weight	1198.75
Temperature	185(2) K
Wavelength	0.71073 Å
Crystal system	Monoclinic
Space group	$P2_1/c$
Unit cell dimensions	$a = 13.204(2)$ Å, $\alpha = 90^\circ$ $b = 10.4398(15)$ Å $\beta = 99.421(2)^\circ$ $c = 21.992(3)$ Å $\gamma = 90^\circ$
Volume, Z	$2990.6(8)$ Å <sup>3</sup> , 2
Theta range for data collection	1.56 to $26.07^\circ$
Limiting indices	$-11 \leq h \leq 16$ , $-12 \leq k \leq 12$ , $-27 \leq l \leq 27$
Density (calculated)	1.331 Mg/m <sup>3</sup>
Absorption coefficient	0.364 mm <sup>-1</sup>
F(000)	1252
Crystal size (mm <sup>3</sup> )	$0.42 \times 0.35 \times 0.10$
Reflections collected	18740
Independent reflections	5887 [ $R(\text{int}) = 0.0317$ ]
Max. and min. transmission	0.9645 and 0.8622
Data / restraints / parameters	5887/0/383
Goodness-of-fit on F <sup>2</sup>	1.008
Final R indices [ $I \geq 2\sigma(I)$ ]	$R1 = 0.0625$ , $wR2 = 0.1601$
R indices (all data)	$R1 = 0.0851$ , $wR2 = 0.1772$
Largest diff. peak and hole	0.800 and $-0.775$ e/Å <sup>-3</sup>