

High-Luminescence Non-Doped Green OLEDs Based on a 9,9-Diarylfuorene-Terminated 2,1,3-Benzothiadiazole Derivative

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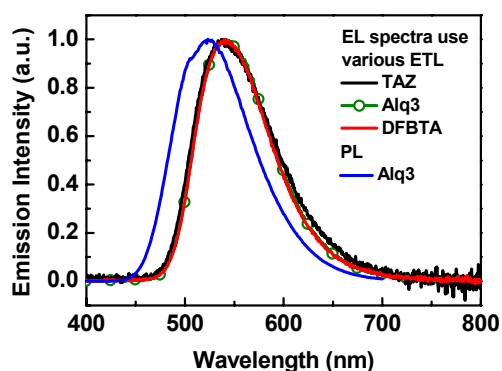
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Electronic Supplementary Information

After optimizing the device configurations, we concluded that the device incorporated with **DPAInT2** as the hole injection and **DPAInF** as the hole transportation layers give the best results. The optimized device structure is: [ITO/ **DPAInT2** (20 nm)/ **DPAInF** (20 nm)/TCTA (10 nm)/**DFBTA** (30 nm)/ETL (30 nm)/LiF (0.5 nm)/Al (150 nm)]. We used **DFBTA**, Alq3, and TAZ as the electron transporting layer (ETL), respectively. By comparison of the EL spectra of devices incorporated with different ETLs (**DFBTA**, Alq3, and TAZ) to the PL spectrum of Alq3 (Fig. S-1), in addition, the PL of **DFBTA** thin film nicely fits to the device EL spectrum (Fig. 2 in the main text), thus the EL from Alq3 can be clearly excluded.



However, the device with 3-(biphenyl-4-yl)-4-phenyl-5-(4-tert-butylphenyl)-1,2,4- triazole (TAZ), instead of Alq3, as the ETL in the optimized device configuration: [ITO/ **DPAInT2** (20 nm)/ **DPAInF** (20 nm)/TCTA (10 nm)/**DFBTA** (30 nm)/ETL (30 nm)/LiF (0.5 nm)/Al (150 nm)] gave relatively

lower maximum η_{ext} (3.13%) as compared to that of the parent device. Fig. S-2 depicts the comparisons of the device characteristics of these two devices.

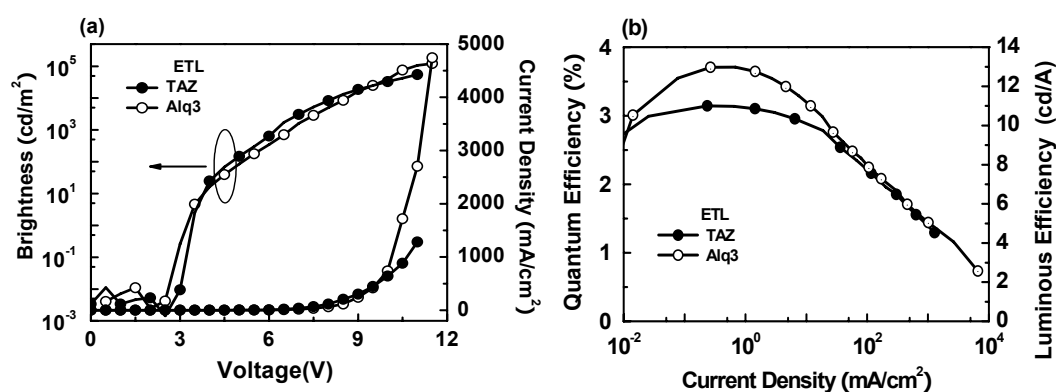


Fig. S-2. Performances of devices using TAZ and Alq3 as the ETL in device of ITO/ **DPAlnT2** (20 nm)/ **DPAlnF** (20 nm)/TCTA (10 nm)/**DFBTA** (30 nm)/ETL (30 nm)/LiF (0.5 nm)/Al (150 nm): (a) current density–voltage–brightness (I – V – L) characteristics; (b) external quantum efficiency and luminance efficiency plotted with respect to current density.

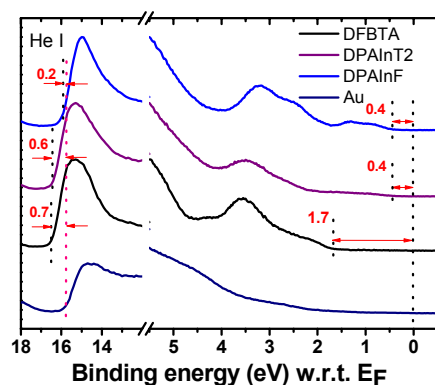


Fig. S-3. Ultraviolet photoelectron spectroscopy (UPS) measurements of **DFBTA**, **DPAlnT2** and **DPAlnF**.

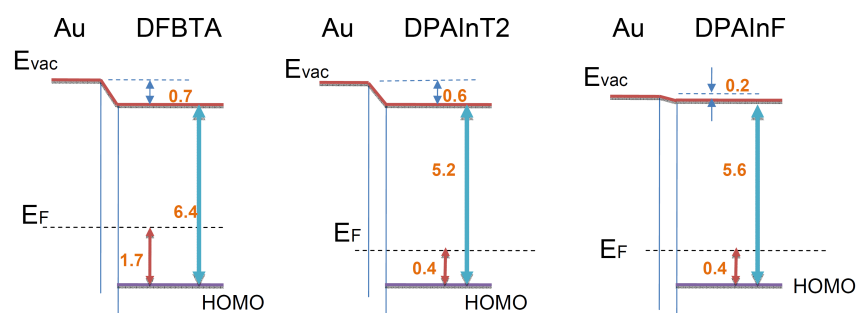


Fig. S-4. The energy band diagrams of **DFBTA**, **DPAlnT2** and **DPAlnF** can be obtained from the UPS data as illustrated.