Supporting Information

Synthesis and Electroluminescence Properties of Highly Efficient Blue Fluorescence Emitters Using Dual Core Chromophores

By Beomjin Kim, Youngil Park, Jaehyun Lee, Daisuke Yokoyama, Ji-Hoon Lee, Junji Kido and Jongwook Park*
Fig. S1 $^1$H NMR spectrum of TP-P-TP.
Fig. S2 $^{13}$C NMR spectrum of TP-P-TP.
Fig. S3 $^1$H NMR spectrum of Ph-AP-Ph.
Fig. S4 $^{13}$C NMR spectrum of Ph-AP-Ph.
Fig. S5 $^1$H NMR spectrum of TP-AP-TP.
Fig. S6 $^{13}$C NMR spectrum of TP-AP-TP.
**Fig. S7** Chemical structures with the lowest excitation energies for the dual core chromophore materials used in this study. The structures were optimized by DFT B3LYP/6-31G(d) calculations.
**Fig. S8** Optical anisotropy of the TP-P-TP film: anisotropic refractive indices $n$ and extinction coefficients $k$. The solid lines ($n_o$ and $k_o$) and dotted lines ($n_e$ and $k_e$) indicate the horizontal (ordinary) and vertical (extraordinary) components of the optical constants, respectively. MAM data was described in ref. 16.
Fig. S9 Transient electroluminescence responses of a ITO/2-TNATA (60nm)/NPB (15m)/Synthesized materials (35nm)/Alq3 (20nm)/LiF (1nm)/Al (200nm) device with various excitation pulse voltages. (a) TP-TP, (b) Ph-AP-Ph, and (c) TP-AP-TP. MAM data was described in ref. 16.
Fig. S10 Angular distribution patterns of the radiance from the devices.