# 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**

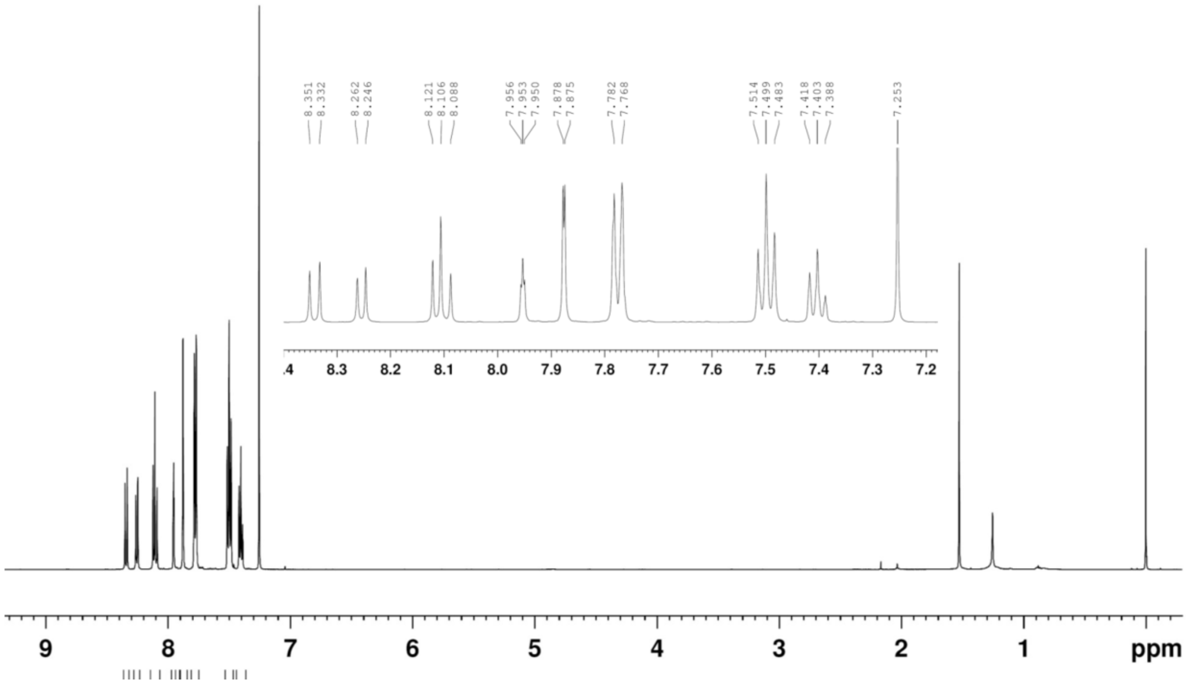



**Fig. S1** $^{1}$H NMR spectrum of TP-P-TP.

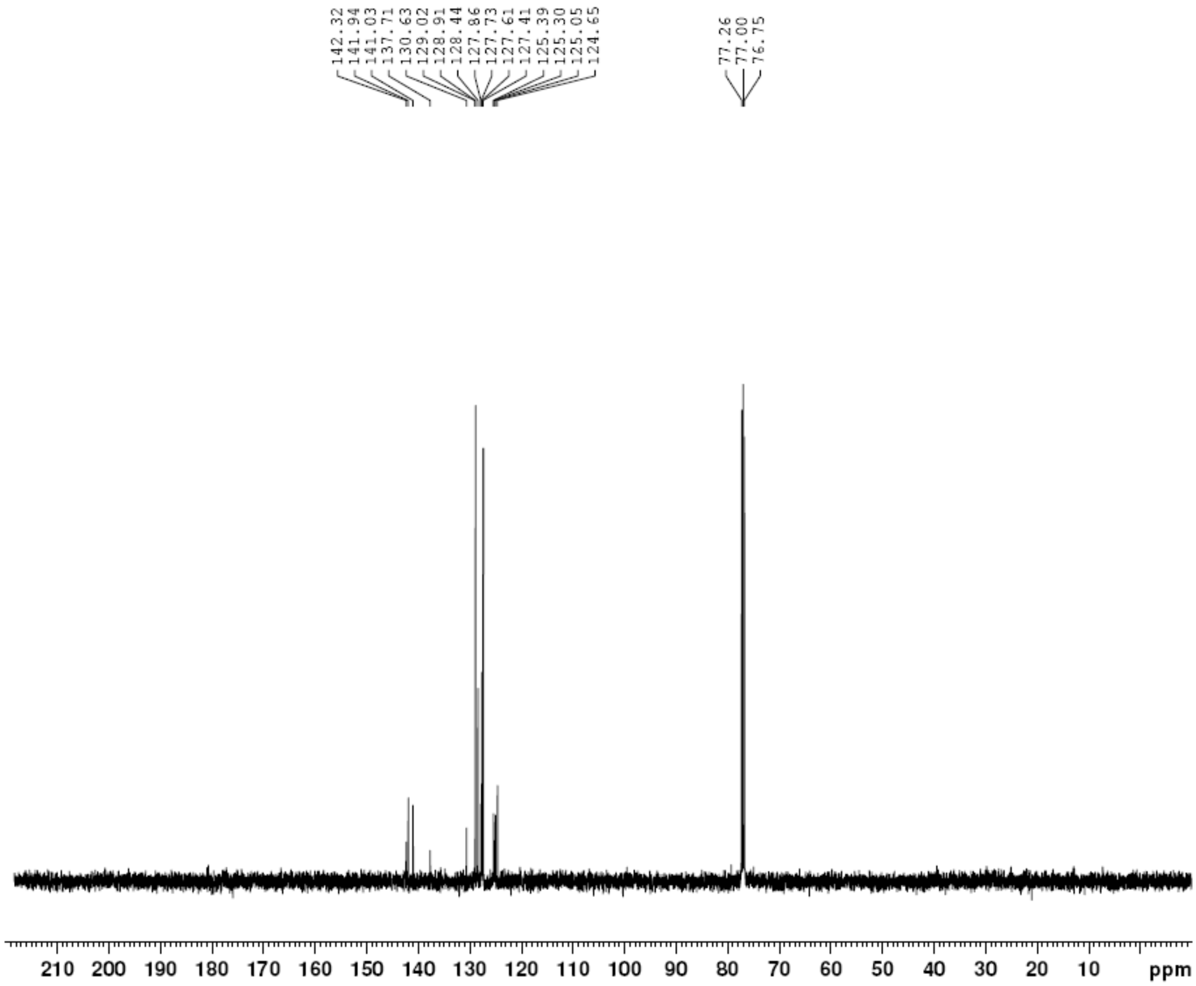



**Fig. S2** $^{13}$C NMR spectrum of TP-P-TP.

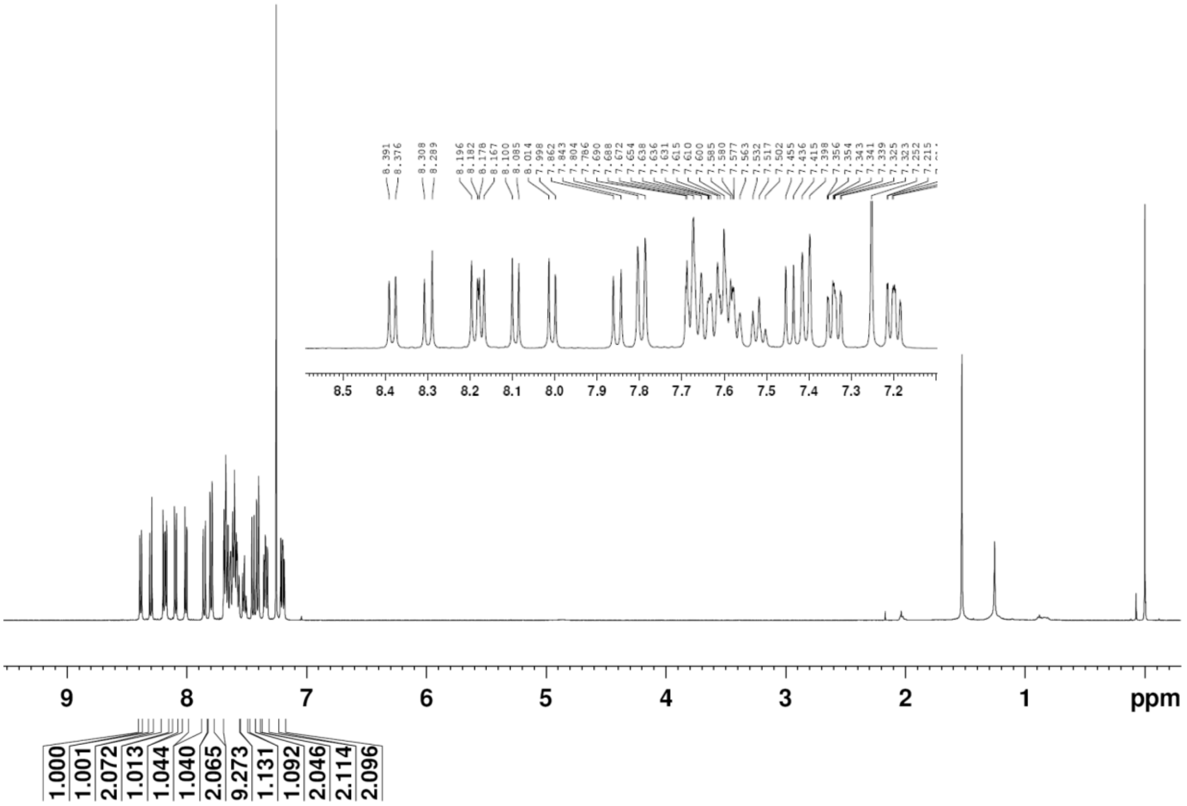


**Fig. S3** $^{1}$H NMR spectrum of Ph-AP-Ph.

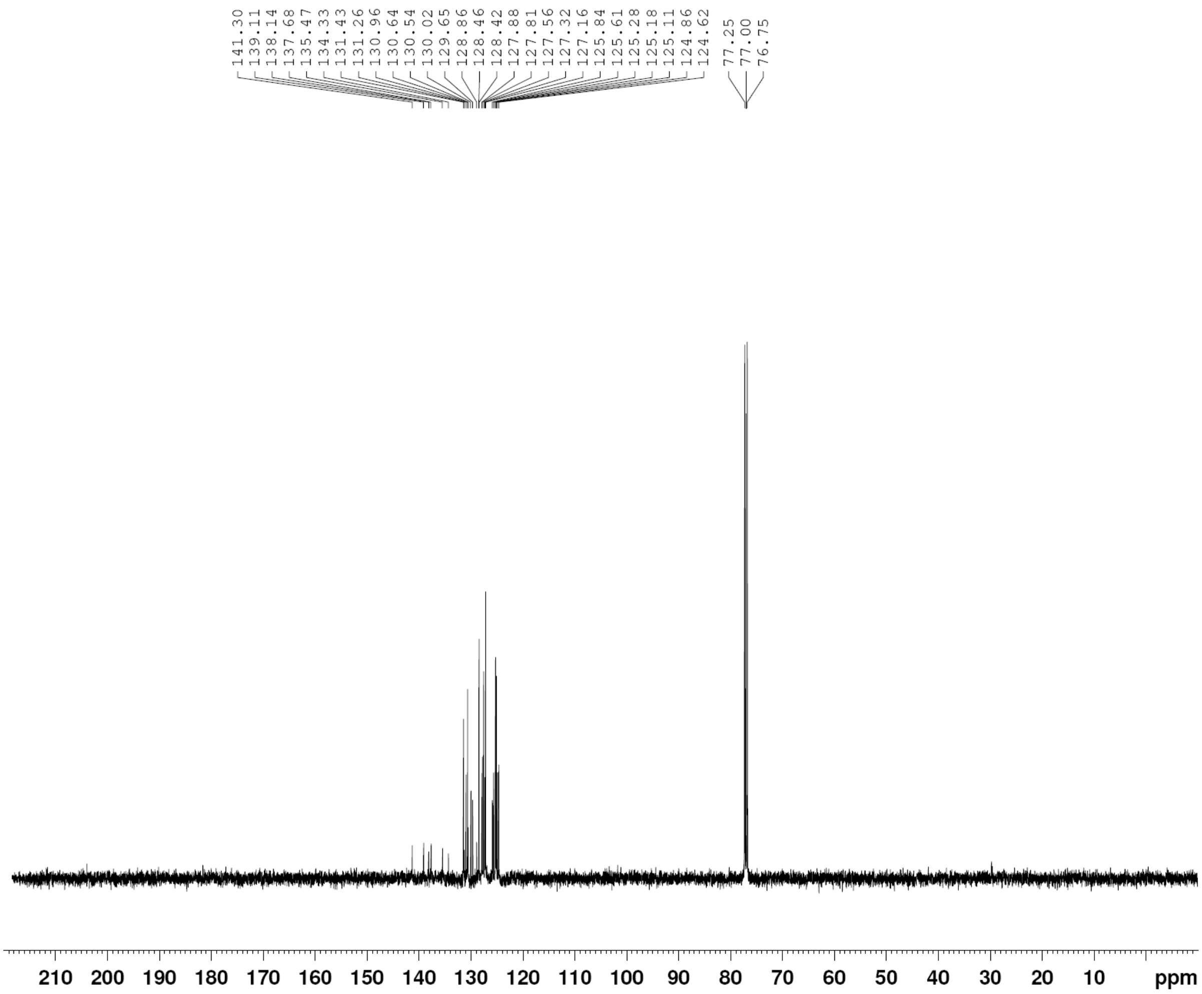



**Fig. S4** $^{13}$C NMR spectrum of Ph-AP-Ph.

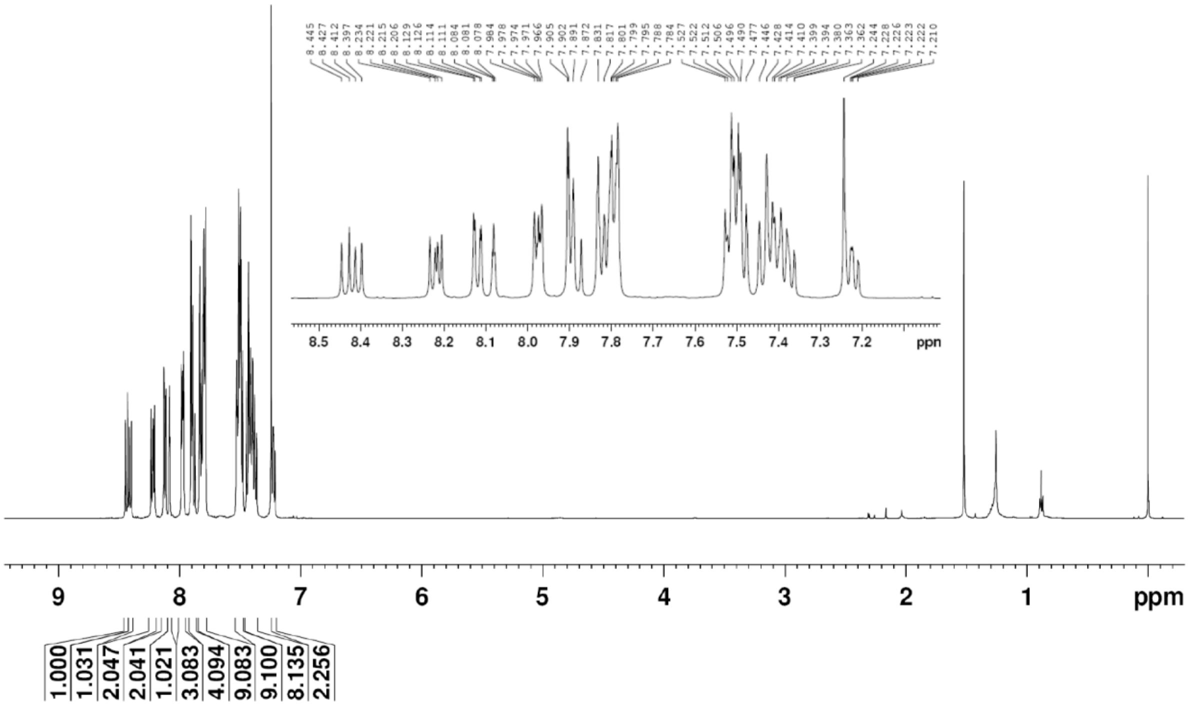


**Fig. S5** $^{1}$H NMR spectrum of TP-AP-TP.

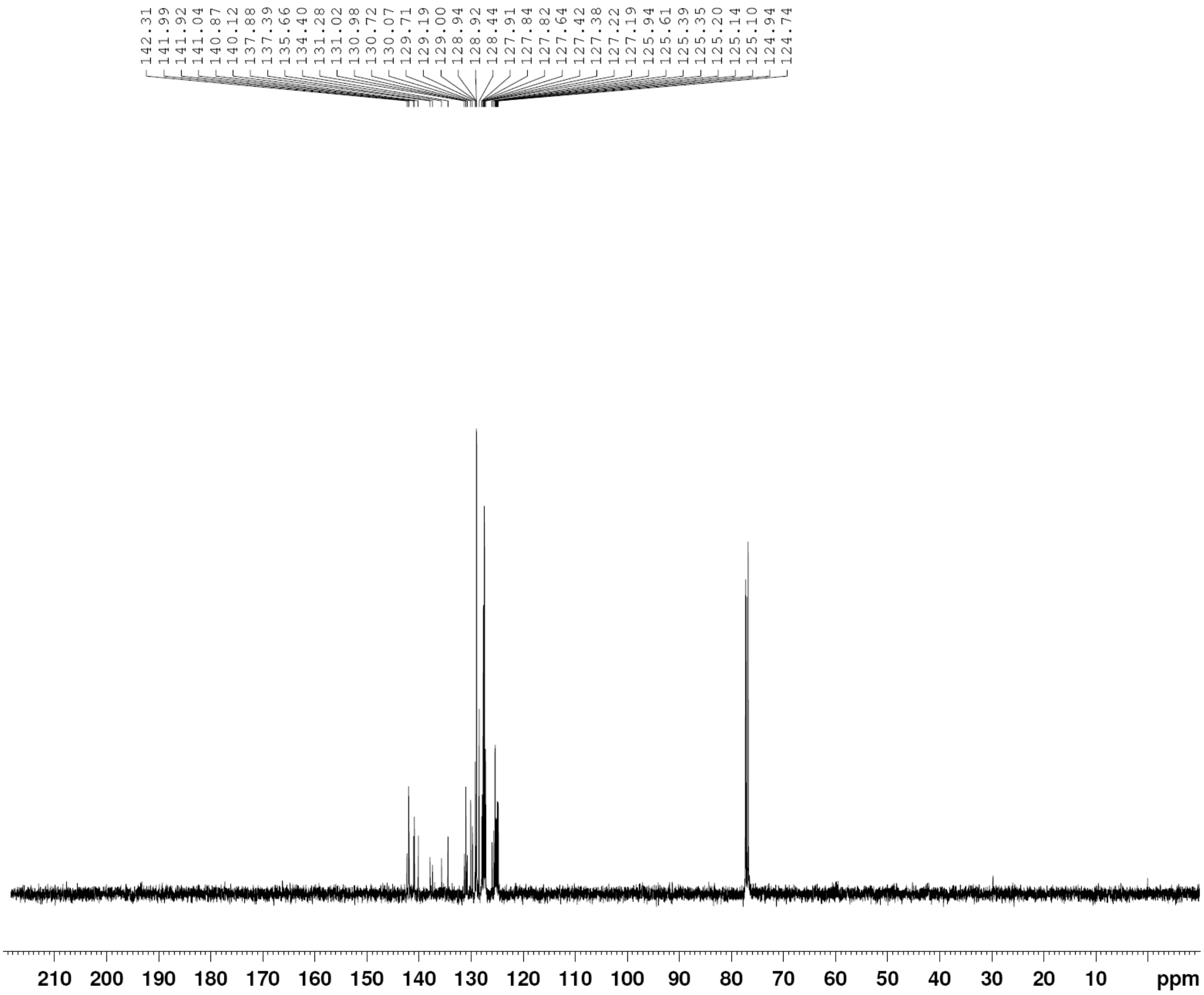



**Fig. S6** $^{13}$C NMR spectrum of TP-AP-TP.

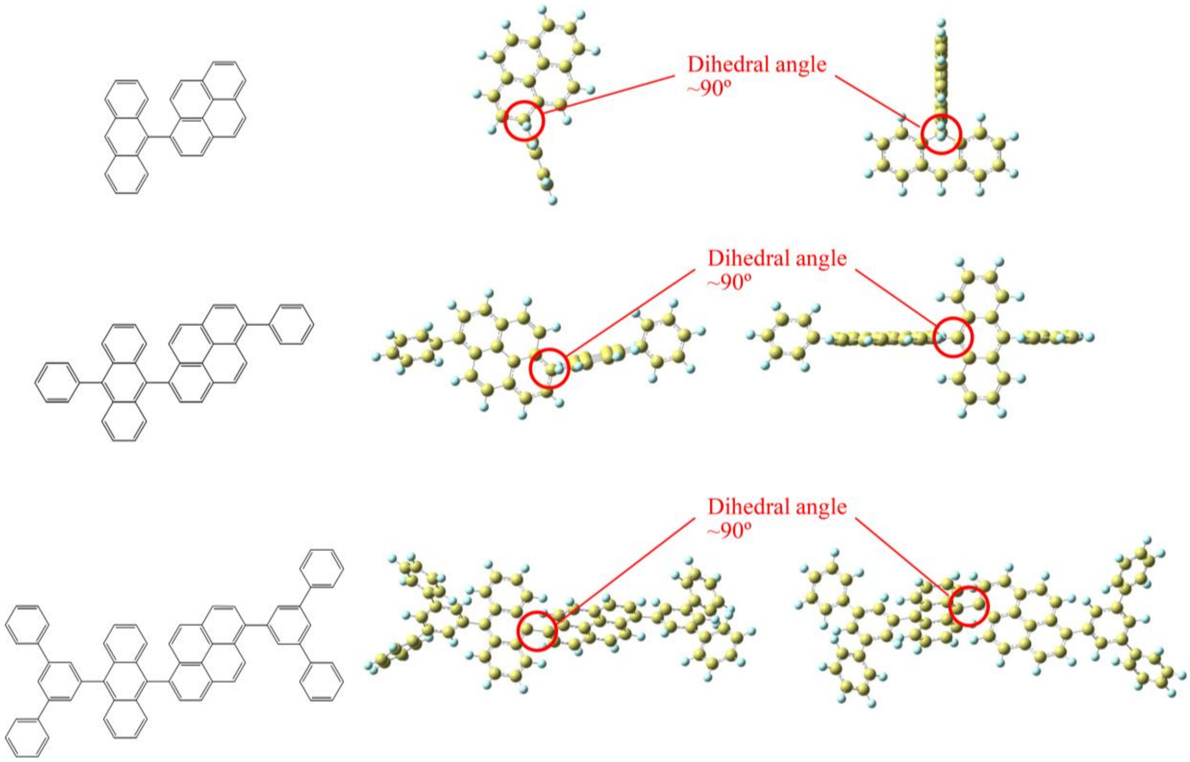



**Fig. S7** Chemical structures with the lowest excitation energies for the dual core chromophore materials used in this study. The structures were optimized by DFT B3LYP/6-31G(d) calculations.

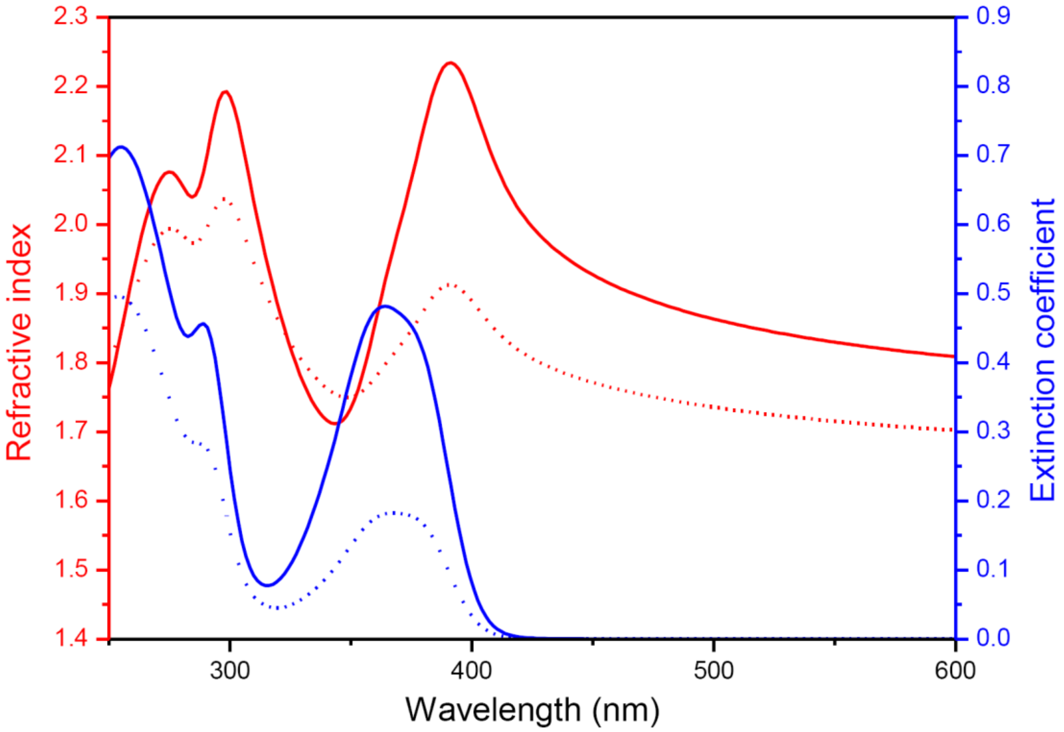
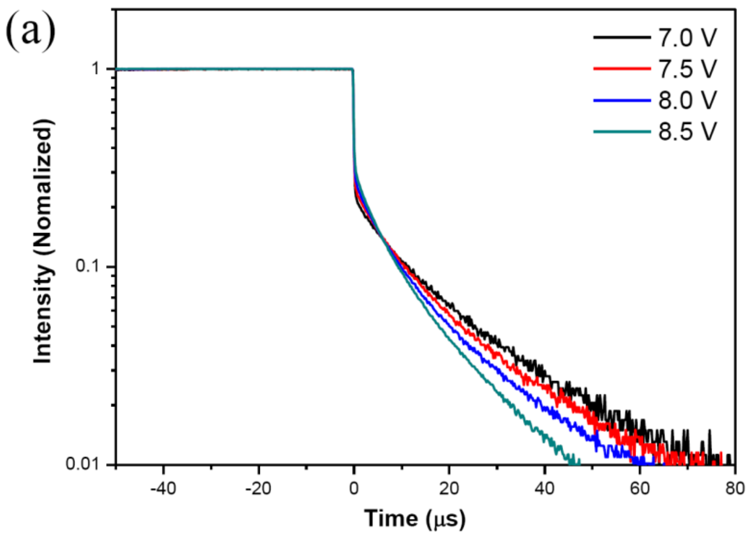
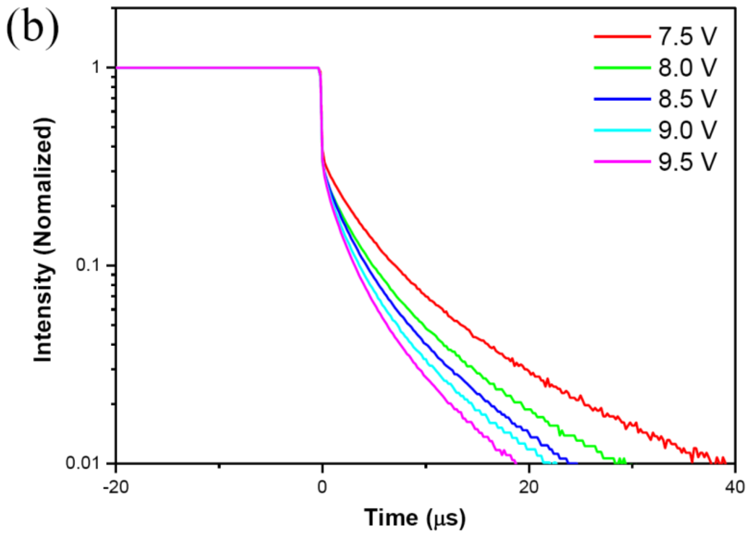



**Fig. S8** Optical anisotropy of the TP-P-TP film: anisotropic refractive indices n and extinction coefficients k. The solid lines ($n_o$ and $k_o$) and dotted lines ($n_e$ and $k_e$) indicate the horizontal (ordinary) and vertical (extraordinaly) components of the optical constants, respectively. MAM data was described in ref. 16.



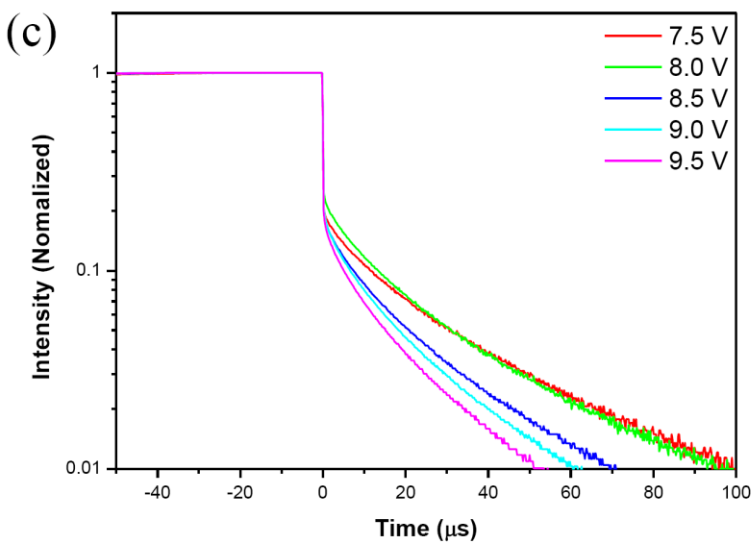




**Fig. S9** Transient electroluminescence responses of a ITO/2-TNATA (60nm)/NPB (15m)/ Synthesized materials (35nm)/$Alq_3$ (20nm)/LiF (1nm)/Al (200nm) device with various excitation pulse voltages. (a) TP-P-TP, (b) Ph-AP-Ph, and (c) TP-AP-TP. MAM data was described in ref. 16.

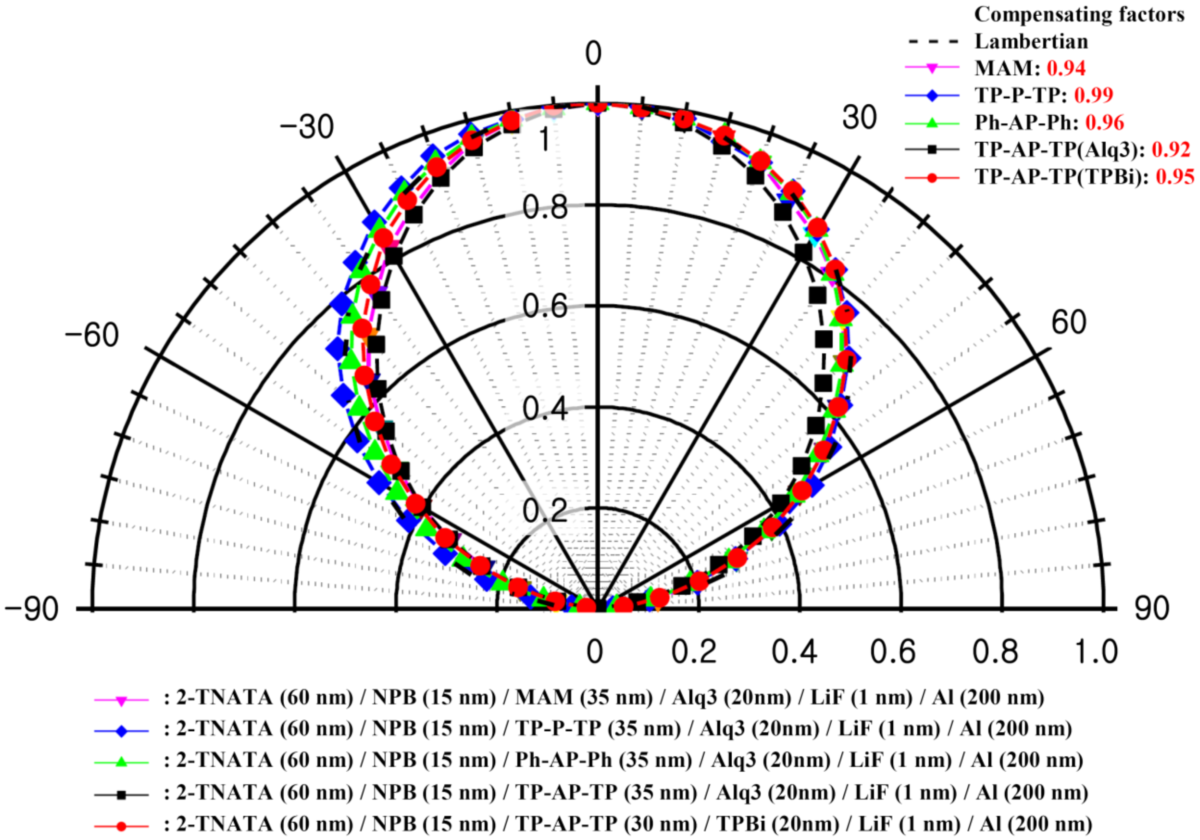



**Fig. S10** Angular distribution patterns of the radiance from the devices.