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# New Journal of Chemistry

### ELECTRONIC SUPPLEMENTARY INFORMATION

## Benzophenone-imbedded benzoyltriptycene with high triplet energy for application as a universal host material in phosphorescent organic light-emitting diodes (PhOLEDs)

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#### **EXPERIMENTAL SECTION**

**General Aspects.** <sup>1</sup>H NMR spectrum was recorded on a JEOL (500 MHz) spectrometer in CDCl<sub>3</sub> as a solvent. <sup>13</sup>C NMR spectrum was recorded on a JEOL-Lambda (125 MHz) spectrometer with complete proton decoupling. ESI mass spectrum analysis was carried out on a Waters <sup>Q</sup>TOF mass spectrometer. IR spectrum was recorded on an Agilent FT-IR spectrophotometer. The TGA and DSC measurements were carried out using a Mettler Toledo instrument at a scan rate of 10 °C/min under a nitrogen gas atmosphere. UV-vis absorption spectrum was recorded on a Shimadzu UV-1800 spectrophotometer. Fluorescence and phosphorescence measurements were carried out using a FluoroMax-4, FM4-3000 spectrofluorimeter, Horiba Scientific. UPS spectrum was recorded in a photoelectron spectrometer (AC2 instrument, Riken Keiki). Solvents were distilled prior to use and HPLC grade solvents used for UV-vis and PL measurements were procured from commercial sources (Merck). Column chromatography was conducted with silica-gel of 100-200μ mesh. The progress of the reaction was monitored by analytical thin layer chromatography using commercial aluminum sheets pre-coated with silica gel (Merck).



Fig. S1. TGA (a) and DSC (b) plots for TRP-BP.



Fig. S2. UPS spectrum for TRP-BP.



**Fig. S3.** Plots of external quantum efficiency vs. current density (a), external quantum efficiency vs. luminance (b), luminous efficiency vs. current density (c), luminous efficiency vs. luminance (d), power efficiency vs. current density (e) and power efficiency vs. luminance (f) for the devices of configurations B, G, Y and R, refer to text.



Fig. S4. <sup>1</sup>H (500 MHz) and <sup>13</sup>C NMR (125 MHz) spectra of TRP-BP in CDCl<sub>3</sub>.