Supplementary Data

High Performance Fluorescent Organic Electroluminescent Devices Benefit from Sensitization of Thermally Activated Delayed Fluorescence

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Experiments

The materials used in devices were purchased. Based on 10 Ω/sq ITO substrates, devices were fabricated by evaporating organic materials under vacuum condition (≤ 3.0×10^{-5} Pa). The deposition rates of organic materials were 0.1 nm/s, while the deposition rates of LiF and Al were 0.01 and 1.0 nm/s, respectively, in another vacuum chamber (≤ 8.0×10^{-5} Pa). Current density-brightness-voltage (*J-B-V*) curves, efficiencies, EL spectra and Commission Internationale de l'Eclairage coordinates ($CIE_{x,\ y}$) were performed with a constant source (Keithley 2635B) and a CS-2000 spectroradiometer. The PL spectra were taken under calibrated Hitachi F-7000 fluorescence spectrophotometer, while absorption spectra were measured under TU 1901 UV-visible spectrophotometer.

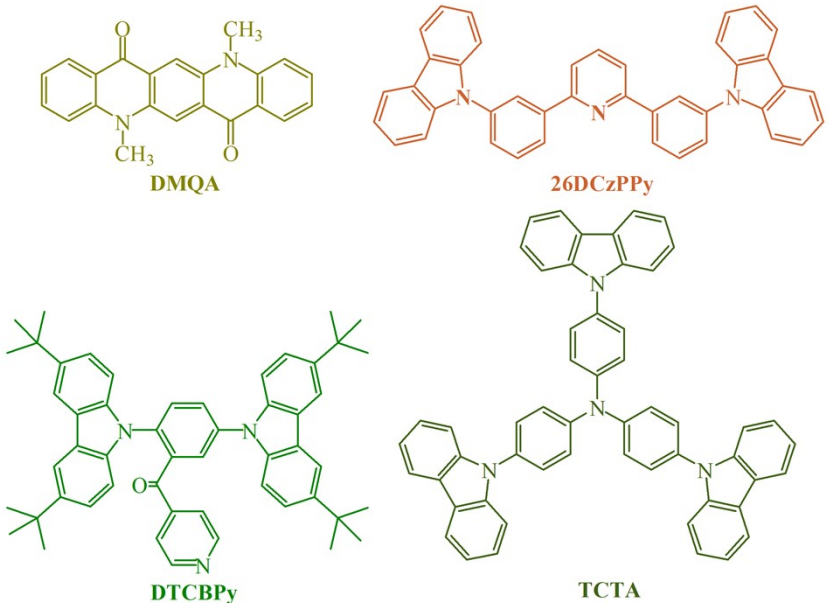

Fig. S1 Molecular structures of DMQA, 26DCzPPy, DTCBPy and TCTA.

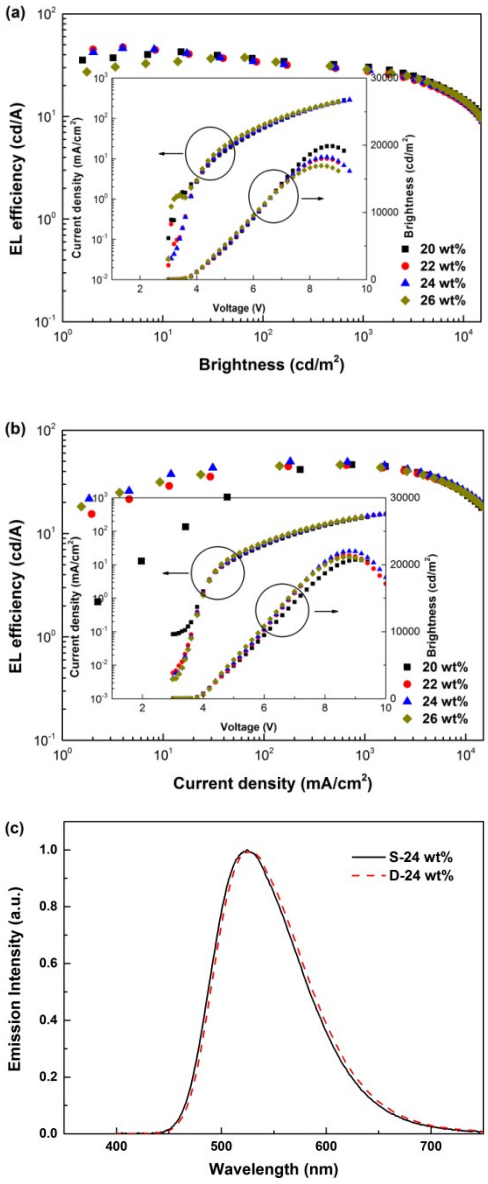

Fig. S2 **(a)** Current efficiency-brightness (η-B) characteristics of single-EML devices with DTCBPy at different doping concentrations. Inset: Current density-brightness-voltage (J-B-V) characteristics of single-EML devices with DTCBPy at different doping concentrations. **(b)** Current efficiency-brightness (η-B) characteristics of double-EMLs devices with DTCBPy at different doping concentrations. Inset: Current density-brightness-voltage (J-B-V) characteristics of double-EMLs devices with DTCBPy at different doping concentrations. **(c)** Normalized EL spectra of single- and double-EML(s) devices with 24 wt% DTCBPy.

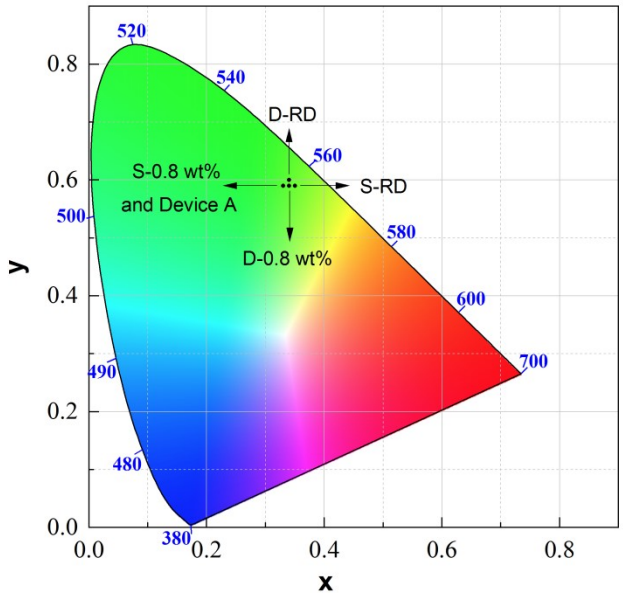

Fig. S3 Commission Internationale de l'Eclairage coordinates ($CIE_{x, y}$) diagram of S-RD, D-RD, S-0.8 wt%, D-0.8 wt% and device A.

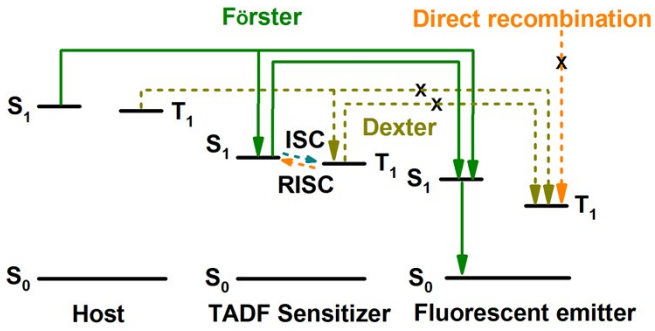

Fig. S4 Schematic illustration of energy transfer process.