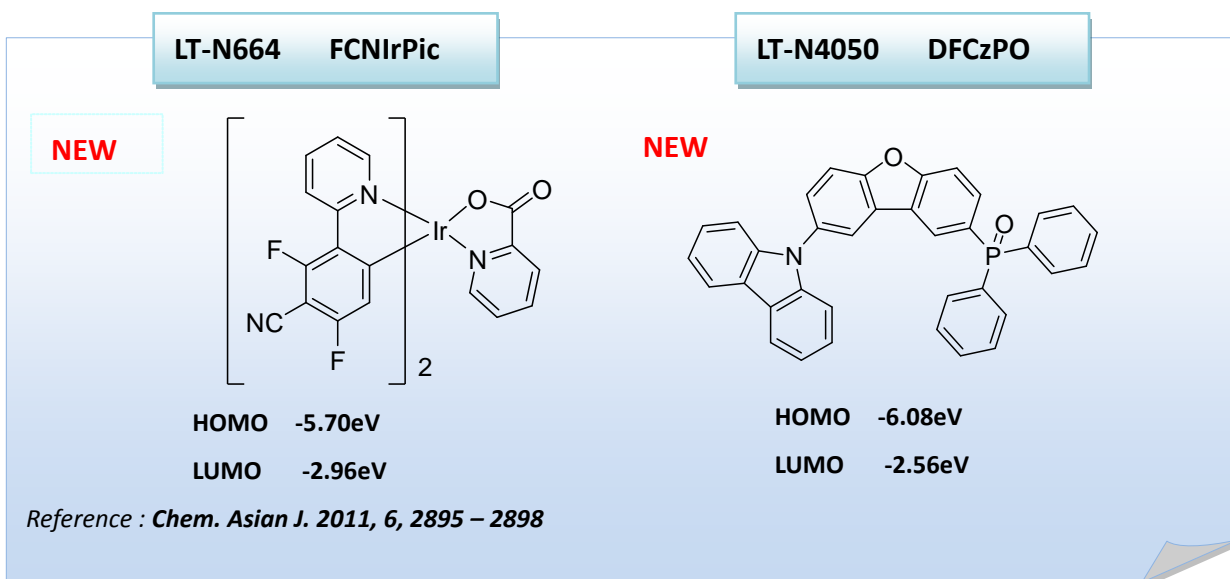




## New Deep-Blue Phosphorescent Materials for OLEDs



FCNIrPic was designed as a deep blue phosphorescent dopant because a strong electron withdrawing group in phenyl unit of main ligand can induce a blue shift of emission spectrum. The PL emission peak of FCNIrPic was observed at 460 nm with a vibrational peak at 485 nm.

A bipolar host material with dibenzofuran core was coupling with a hole-transport 9H-carbazole group and an electron-transport diphenylphosphine-oxide unit. The DFCzPO showed high triplet energy (3.0eV) and is suitable as the host material for deep-blue PHOLEDs.

- The device structure of the blue PHOLEDs was ITO(150nm)/DNTPD(60nm)/NPB(5nm)/mCP(10nm)/DFCzPO:(FCNIrpic)(30nm,3%)/TSPO1(20nm)/LiF(1nm)/Al(200nm).
- The color coordinate of the device was (0.14, 0.18).
- The maximum quantum efficiency and quantum efficiency at 1,000  $\text{cdm}^{-2}$  of the device were (21.4%, 17.5%).
- The maximum current efficiency and current efficiency at 1000  $\text{cdm}^{-2}$  of the DFCzPO device were (26.4  $\text{cdA}^{-1}$ , 21.5  $\text{cdA}^{-1}$ ) respectively.
- The maximum power efficiency and power efficiency at 1000  $\text{cdm}^{-2}$  of the DFCzPO device were (22.6  $\text{LmW}^{-1}$ , 10.0  $\text{LmW}^{-1}$ ) respectively.

Materials are used by qualified for testing and research only, there are not guaranteed in patent contention by customer use.

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