

## Electrophosphorescence from a PVK / Ir(ppy)<sub>3</sub> double-layer system

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The performance of organic and polymer light-emitting diode (OLEDs and PLEDs) has improved dramatically in recent years. In these devices, the electron and hole are injected from opposite electrodes and combine to form either singlet or triplet excitons. Since radiative decay of the triplet of forbidden (triplet emission is weakly allowed in the presence of spin-orbit coupling), 100% efficiency of the singlet emission results in a maximum internal quantum efficiency of 25% for electroluminescence. By utilizing phosphorescent dyes, such as platinum and iridium organometallic emitters, the internal quantum efficiency can be, in principle, increased to 100% the organometallic emitters enhanced the efficiency of intercrossing system from the first singlet excited state to the lowest lying triplet state the thereby enable phosphorescence from the triplet states.

In this report, we make the double-layer system using poly(vinylcarbazole) and Ir(ppy)<sub>3</sub>. In double-layer system, we expect decreasing of turn-on voltage and high electroluminescence compared with that of the PVK : Ir(ppy)<sub>3</sub> blended system.