

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Interlayer effect with Poly(N-vinylcarbazole) (PVK) as a carrier-blocking layer on performance of a hybrid OLED JOOWON LEE, JUNGSOO PARK, JAIKYEONG KIM, OptoElectroMaterials Research Center, KIST, SEOUL, JIN JANG, Dept. of Physics, Kyunghee University, Seoul, YOUNGSOO YOON, 3Dept. of Advanced Technology Fusion, Konkuk University — We demonstrate high efficiency organic light-emitting devices (OLEDs) by incorporating of polymeric interfacial layer for carrier blocking effect. To prove the effect of interposition layer, we used an poly(*N*-vinylcarbazole) (PVK) between a hole-conducting layer (PEDOT: PSS, poly(styrenesulfonate)) and an emitting layer (Alq₃). OLEDs with simple structure were controlled by a small molecule layers as a function of thickness and a polymer layer as a function of weight percent. The characteristics of hybrid structure with interfacial layer showed a peak efficiency of 8.56 cd/A, 2.30 lm/W in performance compared the device without interfacial layer of 0.31cd/A, 0.11 lm/W. The inserted PVK can efficiently enhance the hole-electron balance for achieve high recombination efficiency. Also, it showed the possibility of hybrid type to OLEDs production process.

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Date submitted: 26 Nov 2006

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