



第28回 未来化学創造センター セミナー

“Improving the performance of PHOLED by using dual doping”

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Since the discovery of phosphorescent organic light emitting devices (PHOLEDs), the technology has demonstrated record high efficiencies and long operational stability. Here we report on the introduction of an additional charge transporting stability dopant (SD) into the device emissive layer to further improve the luminous efficiency and device lifetime. The performance enhancement is attributed to the separation of polarons and excitons in the device emissive layer, which results in reduced triplet-triplet and triplet-polaron interactions as well as minimizing self quenching and re-absorption. Specifically we report a 50% improvement in the luminous efficiency of a red PHOLED and a 3 fold improvement of the device lifetime due to the use of dual doping. A dual doped RGB red device with 28 cd/A and the lifetime over 300,000h at 1,000 nits is demonstrated.

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