
Oral Presentation

[OLED3]OLED Display

Chair: Taishi Tsuji (NIPPON STEEL Chemical &Material)

Co-Chair: Masaya Adachi (Japan Display Inc)

Wed. Nov 27, 2019 5:00 PM - 6:25 PM Room 204 (2F)

6:10 PM - 6:25 PM

[OLED3-6L]Significance of Energy-Level Alignment in 3D Perovskite ELs Significance of Energy-Level Alignment in 3D Perovskite ELs

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Keywords: Metal Halide Perovskite, Perovskite light-emitting diode (PeLED), Electron Transport layer (ETL), Exciton Confinement Effect, Charge Balance

In this study, we report a significant phenomenon that EL performances for 3D materials, such as CsPbX₃, are governed by adjacent charge transport layers, which is possibly due to nonradiative recombination resulting from the small exciton binding energy. To overcome this issue, we developed a new electron transport layer (ETL) that enhances exciton confinement effect in 3D CsPbX₃. Consequently, we achieved ultra-high brightness of 500,000 cd/m² at a very small operating voltage of 5V.