

Unconventional OLEDs With High Performance

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The performance of an organic light emitting diode has been improved continuously through last 20 years, and we have witnessed some commercial success in OLED-based displays, more specifically in small size passive matrix driving OLEDs. Although the improvements in both power consumption and device lifetime have been dramatic in last 20 years, still the application of OLEDs is limited due to lack of device longevity.

Active matrix-based OLEDs from SKD for DSCs opened up the era of the high-end OLEDs, and recent commercialization of OLED-based PDAs from SONY proved the potential of the OLEDs. Especially, the use of top-emitting structure for the SONY's PDA was an unexpected surprise considering the complexity of top-emitting device structures.

In this presentation, we provide new materials and device structures to obtain high performance OLEDs having device longevity and low driving voltages. Also, we provide simplified device structures for top-emitting OLEDs. Unlike conventional top-emitting OLEDs, our cell structure provides highly transparent top-electrode and highly reflective bottom electrode system.