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High efficiency organic light-emitting devices with Al/NaF cathode.

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We present the high efficiency organic light-emitting devices with the Al/NaF cathode. An organic light-emitting device (OLED) with an Al/NaF (1.5 nm) cathode exhibited a highly enhanced performance comparable to the one with the best Al/LiF cathode. This suggests that NaF can be an alternative to commonly used LiF interlayer for improved OLED performance. The electronic structures of the interface were studied with core level and valence band photoelectron spectroscopy. Photoelectron spectroscopy studies revealed that the intensity of the gap states and the amount of the valence band shift at Al/NaF/Alq₃ interface surpassed those of Al/LiF/Alq₃ interface, suggesting that the observed performance improvement is directly related with these features.