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Effective organic-based connection unit for stacked organic light-emitting devices

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A bilayer connection unit of Mg-doped Alq₃ and F₄-TCNQ-doped m-MTDATA was investigated for application in stacked organic light-emitting device. This connection unit led to a stacked OLED with a luminous efficiency twice that of a single-unit OLED. Electronic structures, including relevant electron energy levels, of the various interfaces in the stacked OLED were studied by using ultraviolet photoemission spectroscopy and used to discuss the working mechanisms of the stacked OLED. The *p*-type dopant F₄-TCNQ was shown to induce a large band bending of 1.36 eV and facilitates efficient carrier injection from the connection units into the carrier-transporting layers.

Topics

[HOMO and LUMO](#), [P-N junctions](#), [Current-voltage characteristic](#), [Electric measurements](#), [Thin films](#), [Optical metrology](#), [Ultraviolet photoelectron spectroscopy](#), [Organic light emitting devices](#), [Ozone](#)

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