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## Electroluminescence performance of the blue, white and green-red organic light emitting diodes treated by in-situ heating

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### Abstract

White light phosphorescent organic light emitting diodes (W-PHOLED) together with the blue light (B-PHOLED) and green-red light phosphorescent OLED (GR-PHOLED) equipped with the same blue and green-red emission layer were fabricated, and remarkable in-situ heating effects on their electroluminescence (EL) performance were observed. For the B-PHOLED, the in-situ heating increased the peak power efficiency (PE) by more than 30% with the increasing heating temperature from the room temperature to 100°C accompanying with negligible effects on the blue light color stability. However, the optimal in-situ heating temperature of 100°C for B-PHOLED was not beneficial to the PE of the W-PHOLED, but greatly facilitated the white light color stability. Such opposite impact on the W-PHOLEDs PE and color stability might be ascribed to the effects of the in-situ heating on the organic materials inter-diffusion and excitons decaying dynamic. The GR-PHOLED revealed the similar PE dependence on the in-situ heating as those of the W-PHOLED as well as

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