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器件制备技术及器件物理

2-TNATA 对蓝与黄二基色分离的堆叠式白色有机发光器件性能的影响

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摘要:

研究了2-TNATA 厚度对蓝与黄二基色分离的堆叠式白色有机发光器件性能的影响。器件结构为: 2-TNATA(x nm)/NPB(25 nm)/ADN(30 nm):TBPE(2%):DCJTb(1%)/Alq₃(20 nm)/LiF(1 nm)/Al(100 nm)。根据实验结果, 2-TNATA的厚度对载流子的注入、色稳定性、热稳定性影响明显。发光器件的颜色可以通过改变加入的2-TNATA层的厚度来改变。这种器件使用2-TNATA作为空穴注入层显示出了色纯度高的白光发射。CIE色坐标 $x=0.3197$, $y=0.3496$ 。亮度能够达到 $12\ 230\text{ cd/m}^2$ 。

关键词: 2-TNATA 白色有机发光器件 发光特性

Effects of 4, 4', 4'' -Tris Triphenylamine on Characteristics of Stacked White Organic Light-Emitting Devices Consisting of Separate Blue and Yellow Elements

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Abstract:

This paper systematically investigated the effect of the thickness of 2-TNATA on the characteristics of stacked white organic light-emitting devices consisting of separate blue and yellow elements. The device structure was 2-TNATA(x nm)/NPB(25 nm)/AND(30 nm):TBPE(2%):DCJTb(1%)/Alq₃(20 nm)/LiF(1 nm)/Al(100 nm). According to the experimentation result, it was found the effects of thickness of 2-TNATA on carrier injection, color and thermal stability was very significant. The color of the white device can be adjusted by changing the thickness of 2-TNATA inserted. The device using 20 nm 2-TNATA as a hole injection layer showed pure-white light emitting with 1931 CIE chromaticity coordinates $x=0.3197$, $y=0.3496$, and the luminance of $12\ 230\text{ cd/m}^2$.

Keywords: 4, 4', 4''-tris triphenylamine; white organic light-emitting devices; luminance characteristics

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