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论文

基于N-苯基咔唑的红色有机电致发光材料

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摘要 设计合成了一种N-苯基咔唑的衍生物：3-2-(3，3-二腈基亚甲基-5，5-二甲基-1-环己烯基)乙烯基-N-苯基-咔唑（PNCa-2CN）。PNCa-2CN的甲醇溶液光致发光光谱和固体膜光致发光光谱峰值分别位于598nm和660nm。以PNCa－2CN作为红色发光材料掺杂在Alq3中，制备了结构为ITO/NPB/ Alq3: PNCa-2CN(5%)/ Alq3/Mg: Ag/Ag的具有较高发光效率的红色有机电致发光器件，器件的发光峰值为600nm，在外加20V直流电压时达到2372cd·m-2的发光亮度，100mA·cm-2和20mA·cm-2其亮度分别为323cd·m-2和64cd·m-2，器件最大流明效率达到1.3lm·W-1。

关键词 有机电致发光 红色发光 N-苯基咔唑

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N-phenyl-carbazole derivative as red dopant in organic electroluminescent device

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Abstract A New N-phenyl-carbazole based red dopant 3-2-(3,3-dicyanomethylene- 5,5-dimethyl-1-cyclohexylidene) vinyl-N-phenyl-carbazole(PNCa-2CN) was designed and synthesized for use in red OLED. The photoluminescence and electroluminescence properties were examined. PNCa-2CN shows red photoluminescence with a peak wavelength at 660nm in the solid film and 598nm in solution. Red organic light emitting device (OLED) with PNCa-2CN was fabricated. OLED has a configuration of ITO/NPB/ Alq3: PNCa-2CN(5%)/ Alq3/Mg: Ag/Ag. The electrical and optical properties of the devices were studied.

Key words organic light emitting diodes red light emission n-phenyl-carbazole

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