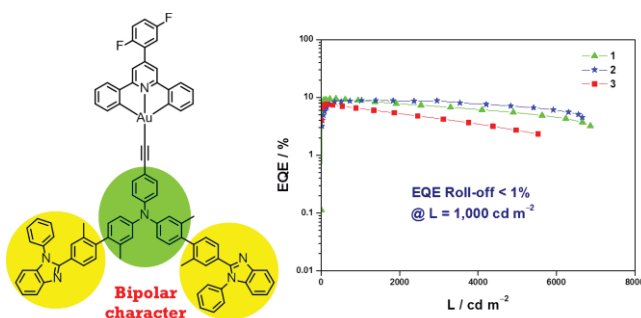


Bipolar Gold(III) Complexes for Solution-Processable Organic Light-Emitting Devices with a Small Efficiency Roll-Off

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A new class of bipolar alkynylgold(III) complexes containing triphenylamine and benzimidazole moieties has been synthesized, characterized, and applied as phosphorescent dopants in the fabrication of solution-processable organic light-emitting devices (OLEDs). The incorporation of methyl groups in the central phenyl unit has been found to rigidify the molecule to reduce nonradiative decay, yielding a high photoluminescence quantum yield of up to 75% in spin-coated thin films. In addition, the realization of highly efficient solution-processable OLEDs with an extremely small external quantum efficiency (EQE) roll-off has been demonstrated. At practical brightness level of 1000 cd m^{-2} , the optimized devices exhibited a high EQE of up to 10.0% and an extremely small roll-off of less than 1%.¹



1. M.-C. Tang, D. P.-K. Tsang, Y.-C. Wong, M.-Y. Chan, V. W.-W. Yam, *J. Am. Chem. Soc.*, **2014**, *136*, 17868.