



Title	Bipolar gold(III) complexes for solution-processable organic light-emitting devices with a small efficiency roll-off
Author(s)	Tang, MC; Tsang, DPK; Wong, YC; Chan, MY; Wong, KMC; Yam, VWW
Citation	The 11th International Conference on Optical Probes of Conjugated Polymers and Organic Nanostructures (OP 2015), the Hong Kong University of Science and Technology (HKUST), Hong Kong, 14-19 June 2015. In Conference Booklet, 2015, p. 108, poster no. 12
Issued Date	2015
URL	http://hdl.handle.net/10722/213751
Rights	Creative Commons: Attribution 3.0 Hong Kong License

[Poster#12]

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

Man-Chung Tang¹, Daniel Ping-Kuen Tsang¹, Yi-Chun Wong¹, Mei-Yee Chan¹, Keith Man-Chung Wong^{1,2} and Vivian Wing-Wah Yam¹

¹*Department of Chemistry, The University of Hong Kong, Hong Kong*

²*Department of Chemistry, South University of Science and Technology of China, Shenzhen. P. R. China*

E-mail: kobetang@hku.hk

A new class of bipolar alkynylgold(III) complexes containing triphenylamine and benzimidazole moieties has been synthesized and fully characterized. The incorporation of methyl groups in the central phenyl unit has been found to rigidify the molecule to reduce non-radiative decay, yielding a high photoluminescence quantum yield of up to 75 % in spin-coated thin films. More importantly, this class of alkynylgold(III) complexes exhibits excellent solubility in various organic solvents and is capable of serving as phosphorescent dopants in the fabrication of solution-processable organic light-emitting devices (OLEDs). Efficient solution-processable OLEDs with high external quantum efficiency (EQE) of up to 10 % and an extremely small efficiency roll-off of less than 1 % at a practical brightness of 1000 cd m⁻² have been demonstrated.

References

- [1] M.-C. Tang, D. P.-K. Tsang, Y.-C. Wong, M.-Y. Chan, K. M.-C. Wong, V. W.-W. Yam. *J. Am. Chem. Soc.*, **2014**, *136*, 17861.