

## Design and Synthesis of a New Class of Alkynylplatinum(II) Complexes for Solution-Processable Organic Light-Emitting Devices

F. K.-W. Kong, M.-C. Tang, Y.-C. Wong, M.-Y. Chan\*, V. W.-W. Yam\*  
Department of Chemistry, The University of Hong Kong, Pokfulam Road, Hong Kong,  
PR China  
wwyam@hku.hk; chanmym@hku.hk

A novel class of luminescent cyclometalated platinum(II) 1,3-bis-(*N*-alkylbenzimidazol-2'-yl)benzene (bzimb) complexes has been designed and synthesized.<sup>1-3</sup> The emission color can be readily tuned by the introduction of various substituents to the anionic phenyl rings of the bzimb ligand.<sup>2,3</sup> Their photophysical, electrochemical and electroluminescence properties have been investigated. Efficient organic light-emitting devices (OLEDs) have been fabricated based on this class of complexes using vacuum deposition and solution-processing techniques.<sup>2,3</sup>

To further improve the solution-processable device performance, dendritic pendants have been successfully incorporated into the platinum(II) complexes. The dendritic platinum(II) complexes show remarkable photoluminescence quantum yields of up to 80 % in spin-coated thin films. The solution-processable OLEDs show remarkable performances with high EQEs, suggesting a promising class of dendritic platinum(II) complexes for solution-processable OLEDs.

- 1 A. Y.-Y. Tam, D. P.-K. Tsang, M.-Y. Chan, N. Zhu, V. W.-W. Yam, *Chem. Commun.*, **2011**, 47, 3383.
- 2 E. S.-H. Lam, D. P.-K. Tsang, W. H. Lam, A. Y.-Y. Tam, M.-Y. Chan, W.-T. Wong, V. W.-W. Yam, *Chem. Eur. J.*, **2013**, 19, 6385.
- 3 E. S.-H. Lam, A. Y.-Y. Tam, M.-Y. Chan, V. W.-W. Yam, *Isr. J. Chem.*, **2014**, 54, 986.