Phosphorescent Triarylboron Compounds for Optoelectronics

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Abstract:
Triarylboranes have recently emerged as a powerful class of electron acceptors with applications in a wide array of functional materials. The empty p orbital on the boron centre promotes strong charge-transfer luminescence, making these compounds ideal for use as chemical sensors, electron-transport materials, and emitters for organic light-emitting diodes. Only recently, however, have organometallic triarylboron compounds been closely investigated, and have been shown to have fascinating properties inaccessible to their fluorescent organic counterparts. In this lecture I will describe how triarylboron-containing platinum phosphors may be prepared with colours spanning the visible spectrum. I will also describe how these materials may be used to fabricate highly efficient electroluminescent devices, and the development of new synthetic methods to prepare these compounds in high yield under mild conditions.