Synthesis, Characterization and phospholuminiscent properties of of Iridium(III) complexes

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Abstract

Phosphorescent materials have been extensively studied during the past decade and continue to be the focus of intense interest in materials chemistry owing to their applications for organic light-emitting diodes (OLEDs) with high performances. Many research groups have focused on the development of heavy metal (Pt, Pd, Rh, Ir) complexes as phosphorescent materials since strong spin-orbit coupling induced by the heavy metal ion promotes inter system crossing. There have been several reports about using 2-arylimidazo[1,2-*a*]pyridines as chelating ligands for iridium complexes but not much work has been done so far in the analogous complexes using 2-arylbenzothiazoles. In view of this, we have prepared the Ir[N^C] complexes by reacting IrCl₃.H2O with 2-phenylbenzothiazole in the presence of ethoxyethanol. The product, ([(C^N)2IrCl2]) obtained is yellow orange powder and has been characterized on the basis of IR, 1HNMR and 13CNMR. The complex so obtained is reacted with acetylacetone to give the final hexa co-ordinated Iridium (III) complexes. The work is in progress.

