

Electroluminescent properties of light-emitting electrochemical cells using iridium complexes containing of cyclometallated ligands

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Light-emitting electrochemical cells(LECs) are a promising type of electroluminescent device. In this study, preparation and electrical properties of ionic transition metal complex (ITMC) light-emitting electrochemical cells (LECs) using metal complexes containing different type of cyclometallated ligands are investigated. Two new iridium (III) complexes with phenanthroline based ancillary ligands, [Ir(dfppy)₂(dibutyl-phen)]PF₆ and [Ir(ppz)₂(dibutyl-phen)]PF₆, (dfppy is 2-(2,4-difluorophenyl)pyridine, ppz is 1-phenylpyrazole, dibutyl-phen is 2,9-dibutyl-1,10-phenanthroline and PF₆ is hexafluorophosphate) have been synthesized and characterized. These synthesized complexes were used for the fabrication of light-emitting electrochemical cells (LECs). The electroluminescent devices were evaluated on the basis of electroluminescence properties. Our work suggests that the light emission of cationic iridium complexes can be easily tuned by substituting attached groups on cyclometalated ligands.