

## Preparation and Electrical Properties of Cationic Iridium-based Light-emitting Electrochemical Cells

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Light-emitting electrochemical cells(LECs) are a promising type of electroluminescent device. Especially, iridium complexes which are also used as a dopant in organic light-emitting diodes(OLEDs) are striking candidate for luminous layer. In this study, preparation and electrical properties of ionic transition metal complex (iTMC) light-emitting electrochemical cells (LECs) using phenanthroline based-ancillary ligands in metal complexes are investigated. Two devices have been fabricated with structures of ITO/poly(3,4-ethylenedixythionphene)- poly(styrenesulfonate)(PEDOT:PSS)/[iridium(phenylpyridine)2(5-methyl-1,10-phenathroline)]PF6/Al and ITO/poly(3,4-ethylenedixythionphene)-poly(styrenesulfonate) (PEDOT:PSS)/[iridium(2-phenylpyridine)2(5,6-dimethyl-1,10-phenathroline)]PF6/Al. Both devices presented yellow color emission. The device based on [Ir(ppy)2(5-methyl-1,10-phenathroline)]PF6 showed low turn-on voltage which is less than 3V and both devices showed high luminance. Thin films using phenathroline ancillary ligands were characterized by UV-visible absorption and photoluminescence spectra.