Light emitting electrochemical cells based on phenanthroimidazole derivatives

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Recently, small molecule fluorescent materials are attracting much attentions as a capable materials to replace conventional fluorescent and phosphorescent emitters due to its simple synthetic procedure and cost efficiency. When blended with an ion transporting polymer and lithium triflate, small molecule based organic materials can be used as an emissive material in LECs. Inexpensive nature, high purity and easy synthesis make this type of materials impressive when compared to iTMC and conjugated polymers. Herein, two new phenanthroimidazole derivatives have been synthesised, and characterized by various spectroscopic methods. Photophysical and electrochemical studies of the compounds have been carried out and successfully applied these materials as emissive layer in LEC. The high luminescence, excellent stability and good film forming ability render them promising materials for electroluminescent devices.