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Tuning the electroluminescence of an ionic small molecules in light-emitting electrochemical cells

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Light-emitting electrochemical cells have becoming attractive in thin-film applications. Compared to conventional solid state lighting device such as Organic Light-Emitting Diode (OLED), Light-Emitting Electrochemical Cell (LECs) possess simple device architecture and air stable electrodes makes LECs more impressive. Mainly LECs are two types, p-LECS and Ir-ITMCs. Polymer light-emitting electrochemical cells are tri-component blend containing emitting polymer, an ion-conducting polymer and an inorganic salt. Currently much research has been focused on cationic iridium complexes due to the phosphorescent, color tuning and an ionic nature of Ir-ITMCs. However, the source and expensive nature of iridium demands new emitters in LECs. Recently non-ionic small molecule light-emitting electrochemical cell containing the device structure as same as the p-LEC were reported by Tang et al. The molecule which is an ionic apart from Ir-ITMCs has great attentions. We designed and synthesized an ionic phenothiazine derivatives in multi-step synthetic procedure for light-emitting electrochemical cells. A complete structural, photo physical, electrochemical and electroluminescent properties were investigated. The emissions color-tuning of compounds, were covering blue and region achieved by applying the target compound in a LEC device.

Biography

Shanmugasundaram Kanagaraj was born in Tirupattur, Tamilnadu, India. He completed his B.Sc., and M.Sc., in Chemistry at Sacred Heart College Tirupattur, Tamilnadu. He worked as a Research Associate at Biocon Bristol Myers Squibb Research and Development Center (BBRC) a global biopharmaceutical company during 2011-2013 in Bengaluru, India. He joined PhD under Prof. YoungsonChoe at Pusan National University, Republic of Korea, to develop novel organic materials for light-emitting electrochemical cells.

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