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## Synthesis of an ionic small molecules and tuning electroluminescence in light-emitting electrochemical cells

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Light-emitting electrochemical cells are considered one of the most attractive lighting sources and flat-panel displays. Compared to conventional solid-state lighting device such as Organic Light-Emitting Diode (OLED), Light-emitting Electrochemical Cell (LECs) possess simple device architecture and a low cost, solution based scalable process 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 organic small derivative 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.

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