

### Electrical Properties of Dynamic p-n Junction Light-emitting Electrochemical Cells using PEDOT:PSS/Ruthenium(II) Complex Blend

강용수, 조영란, 박수진, 채현희, 최영선\*

부산대학교

(choe@pusan.ac.kr\*)

Light-emitting electrochemical cells (LEECs) have been drawn attention for possessing easy-to-fabricate light-emitting characteristics. In the present study, we have investigated the performance characteristics of LEECs based on transition metal complex, which is Tris (2,2'-bipyridyl)Ruthenium(II) hexafluorophosphate and PEDOT:PSS sublayer, as a buffer, was introduced to LEECs. Performance characteristics include carrier mobility, current density-voltage, light intensity-voltage, response time and turn-on voltages. The devices were fabricated as sandwiched structure and light-emitting layer was deposited approximately 40nm thickness by spin coating. Relationship between film thickness and electrical properties of device was investigated. Electrical properties were measured using optical spectrometer, and morphology changes of the luminous layer were observed using XRD and AFM varying contents of PEDOT:PSS in the thin film. Enhanced ionic conductivity at the interface of PEDOT:PSS and luminous layer improved the performances and stability of LEECs in this study.