

### Electroluminescent Properties of Yellow and Green Light-Emitting Electrochemical Cells Based on cationic Iridium Complexes

수네쉬 CD, 옥순성, 미둔, 최영선\*  
부산대학교 화학공학과  
(choe@pusan.ac.kr\*)

Heteroleptic cationic iridium complexes,  $[\text{Ir}(\text{ppz})_2(\text{dmphen})]\text{PF}_6$  (1) and  $[\text{Ir}(\text{dfppy})_2(\text{mphen})]\text{PF}_6$  (2) with 1-phenylpyrazole (ppz), 2-(2,4-difluorophenyl)pyridine (dfppy) as cyclometalated ligands and 5-methyl-1,10-phenanthroline (mphen) as ancillary ligand, were synthesized for their potential applications in display and lighting devices. Light-emitting electrochemical cells (LECs) based on these complex were fabricated and resulted in yellow and green electroluminescences with the Commission Internationale de L'Eclairage (CIE) coordinates of (0.42, 0.55) and (0.26, 0.58) for complex 1 and 2 respectively. Furthermore, imidazolium based ionic liquid (IL), 1-butyl-3-methylimidazolium hexafluorophosphate ( $\text{BMIMPF}_6$ ) was incorporated into the active layer and their electroluminescent properties were studied and compared with pristine device without IL. The luminance and the current density of the devices were found to be enhanced by the addition of IL due to its high intrinsic ionic conductivity.