

### Pixel patterning by inkjet printing in solution-processed small molecule phosphorescent organic light-emitting diodes

권재택<sup>1,2,\*</sup>, 이승현<sup>1,2</sup>, 김미영<sup>1</sup>, 이범주<sup>1</sup>, 이정노<sup>1</sup>, 최대혁<sup>3</sup>,  
신진국<sup>1</sup>, 이수형<sup>2</sup>  
<sup>1</sup>전자부품연구원; <sup>2</sup>전북대학교; <sup>3</sup>덕산하이메탈  
(taegi0913@keti.re.kr\*)

Recently, to develop low cost and large area patterning techniques desired in the full-color organic light-emitting diodes (OLEDs), printing techniques have attracted more attention because they usually use solution based processes which are more simple and have lower material usage than conventional vacuum deposition process. Among several printing technologies, inkjet printing is well-known and suitable for fabricating high-resolution pixelated OLEDs. In this study, we prepared inkjet-printable inks using newly synthesized small phosphorescent molecules with different solvent conditions such as boiling point of solvents, additives and mixing ratios. Inkjet printing conditions such as jetting speed, the number of droplet and nozzle were varied to optimize the shape of patterned-pixel and morphology of emissive layer with different ink formulations. The experimental results of solution-processed OLEDs will be also presented in detail.