2008년 추계 학술대회
연구논문 초록집

2008년 4월 10일(목) - 11일(금)
대전컨벤션 센터

한국고분자학회
The Polymer Society of Korea
Effect of Solubility and Volatility of Annelling Solvents on Performance of Poly(3-hexylthiophene) Methanofullerene Solar Cells

In recent years, organic solar cells (OSCs) have reported power conversion efficiencies of 5% in this area. So, the OSCs have more possibilities move down the industrial road-map. As for film deposition method in the current activities of polymer based OSCs, the spin coating method is mainly used. But spin coating method is hard to fabricate large area and also difficult to use the roll-to-roll system. Deposition of organic films by a simple spray method is a promising method for the high-throughput roll-to-roll processing on large area that will drive the cost of OSCs down. We have already reported that performances of OSCs made by a spray deposition method. In this presentation, we will demonstrate various concentration effects of blend solutions on the changed of the morphologies in the sprayed films with various viscosities. And we will discuss about the effect of boiling point of solvents on optical, electrical properties of the sprayed OSCs.

relation between host properties and device performance of white phosphorescent organic light emitting diodes

We fabricated color tunable double layer white organic light emitting device by different red host composition. Device employed N,N-dicarbazoyl-3,5-benzene(mCP) with doped Ir(ppy)3 with iridium (III)bis(2-methylquinolinato-N,C2')acetylacetonate(lpq)2acac) for blue emitting layer, and 1,3,5-tri(9H-carbazol-9-yl)benzene(TCTA) and 1,3,5-tri(phenyl-1H-benzol[a]carbazol-9-yl)benzene(TCTA) and 1,3,5-tri(phenyl-1H-benzol[a]carbazol-9-yl)benzene(TCTA) with iridium (III)bis(2-methylquinolinato-N,C2')acetylacetonate(lpq)2acac) for red emitting layer. As the change of TCTA-lpq host ratio, the Commission Internationale de l’Eclairage coordinates changed from (0.31,0.35) to (0.30,0.36) and external quantum efficiency achieved from 7.6% to 10.1% at 1000 cd/m2.

Enhanced optical and electrical properties of top emission organic light emitting devices with Ca base multi-layer semitransparent cathode

Semitransparent cathode of TEOLED (Top Emission Organic Light Emitting Devices) is known to be directly related to optical and electrical properties of TEOLED because of the TEOLED characteristics that the generated light is emitted through the top cathode. For improved device property, low work function and high transmittance of top cathode are essential. Ca is a low work function metal (2.9 eV) and relatively higher transmittance compared with Ag, Al. But additional protecting layer is required because Ca is very reactive metal. In this research, multi-layer structures of Ca base cathode are tested for semitransparent top cathode. Relatively stable metals such as Ag, Al and inorganic material layers are applied as protecting cathode. And optical and electrical properties of cathode structure are investigated by using transmission measurement and analyzing I-V characteristics of TEOLED.