

Organic Light Emitting Diodes (OLED) with Electrostatic spray deposition (ESD)

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Organic light emitting diodes (OLED) thin films were fabricated by Electrostatic spray deposition (ESD). In this study, we reported the thickness, morphology, current efficiency, luminescence of OLED fabricated by ESD. These results were compared with the spin coating method, and showed that also ESD is a good fabrication method for OLED because of its characteristics similar with the results using spin coating. The active layer consists of organic blends with Poly(N-vinylcarbazole) (PVK), 2-(4-Biphenyl)-5-(4-tert-butylphenyl)-1,3,4-oxadiazole (PBD), N,N'-Bis(3-methylphenyl)-N,N'-bis(phenyl)-benzidine (TPD), Tris(2-phenylpyridine)iridium(III) (Ir(ppy)₃), and the structure of OLED consists of aluminum (Al), lithium fluoride (LiF), organic blends, PEDOT:PSS and Indium-tin-oxide (ITO), which was used as the top cathode, cathode interfacial layer, emitting layer and bottom anode, respectively. The results suggest that Electrostatic spray deposition is a promising method for the next generation of OLED fabrication since it has a probability fabricating large-area thin films.