

Investigation of ALQ3 Thin-films Using Spin Coating Technique

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We investigate the optical and electrical properties of Tris-(8-hydroxyquinoline)aluminum (Alq3), which has been used as the sole electron-transport material in various optoelectronic applications. The compound is highly emissive both in solution and thin-film configurations. Alq3 dissolved in CHCl₃ reveals two absorption bands at ~259 and 388nm. When the solution endures reduction to millimolar concentrations, two vibronic progressions are resolved at ~334 and ~319nm. The thin-films were fabricated by depositing Alq3 onto borosilicate glass using the spin-coating method to achieve varying degrees of thickness. In thin-film samples, it is found that a prominent narrow absorption peak emerges at ~259 nm with a broad band at ~360 nm. The film fabrication method and optoelectronic properties are presented in detail.