Abstract:

Using 6,13-bis(triisopropyl-silylethynyl) pentacene (TIPS-Pentacene), we have made solution processed thin film transistor by hollow rectangular capillary with 5 mm width. The thickness of the thin film is well controlled by the substrate speed *v* and weight percentage of the solution *C* under room temperature in the range of 10-200nm. We found two distinct regimes of the thin film deposition depending on the substrate speed. In the slow speed regime, the evaporation effect dominates, while in fast regime, the viscous force effect dominates. The experimental data is explained by a simple film thickness model. At fast speed regime, the results are in close agreement with the Landau-Levich-Derjaguin (LLD) theory. Large grain size can be achieved at slow speed regime which can be 1mm wide and more than 10mm long along with the writing direction routinely.