

Polymer Thin-Film Transistors Fabricated by Dry Transfer of Polymer Semiconductor

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A dry transfer technique is applied to the semiconductor layer formation in fabricating polymer thin-film transistors (TFTs). This method removes the solvent compatibility problem that is typically encountered in solution processing of polymer semiconductor and polymer gate dielectric such that any pair of the two polymers can be admitted to the fabrication of polymer TFTs. When the technique is used in place of spin-coating of the active layer, the mobility increases by almost an order of magnitude, primarily because the deleterious effects are removed that a solvent can have on the underlying dielectric layer. Annealing of the active layer is also made possible by the method, which results in a significant improvement in the on/off ratio of the device.