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(54) **Title:** PROGRAMMABLE DEPOSITION OF THIN FILMS OF A USER-DEFINED PROFILE WITH NANOMETER SCALE ACCURACY

(57) **Abstract:** An inkjet-based process for programmable deposition of thin films of a user-defined profile. Drops of a pre-cursor liquid organic material are dispensed at various locations on a substrate by a multi-jet. A superstrate that has been bowed due to a backside pressure is brought down such that a first contact of the drops is made by a front side of the superstrate thereby initiating a liquid front that spreads outward merging with the drops to form a contiguous film captured between the substrate and the superstrate. A non-equilibrium transient state of the superstrate, the contiguous film and the substrate then occurs after a duration of time. The contiguous film is then cured to crosslink it into a polymer. The superstrate is then separated from the polymer thereby leaving a polymer film on the substrate. In such a manner, non-uniform films can be formed without significant material wastage in an inexpensive manner.

