

Abstract Submitted
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Controlled evaporative self-assembly of hierarchically structured regioregular conjugated polymers MYUNGHWAN BYUN, ROBYN L. LASKOWSKI, MING HE, FENG QIU, MALIKA JEFFRIES-EL, ZHIQUN LIN, FUNCTIONAL POLYMERIC NANOCOMPOSITES TEAM — A toluene solution of the semiconducting conjugated polymer regioregular poly (3-hexylthiophene) (rr-P3HT) was confined in a sphere-on-flat geometry, forming an axially symmetric, capillary-held microfluid, from which the consecutive “stick-slip” motion of the contact line of the solution via solvent evaporation was effectively regulated. As a result, hierarchical “snake-skin” like structures of high regularity were obtained where each microscopic ellipsoid within the “snake-skin” was composed of bundles of rr-P3HT nanofibers. This facile, one-step deposition technique based on controlled evaporative self-assembly opens up a new avenue for organizing semicrystalline conjugated polymers into two-dimensional ordered patterns in a simple, cost-effective, and controllable manner.

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