

Abstract Submitted
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Examining the Role of Structure on Charge Transport of Polymer Semiconductors KIARASH VAKHSHOURI, Chemical Engineering Department, The Pennsylvania State University, ENRIQUE GOMEZ — Charge carrier mobility in conjugated semi-crystalline polymers depends critically on the crystallinity, orientation of the crystals, and connectivity between ordered regions. However, the complex interplay between these morphological parameters is not fully understood. By varying the thermal annealing parameters and casting solvents, we have systematically studied charge transport within poly(3-hexylthiophene) and poly(2,5-bis(3-alkylthiophen-2-yl) thieno[3,2-b]thiophene) as a function of the crystallinity. It is found that the crystallinity itself does not always correlate with the charge mobility. Our hypothesis is that the crystallization kinetics can alter the number of tie chains, thereby affecting charge transport in semi-crystalline polymer semiconductors.

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