# Supporting Information for:

# Thermodynamic Features of Perfectly Crystalline Poly(3-hexylthiophene) Revealed Through Studies of Imperfect Crystals

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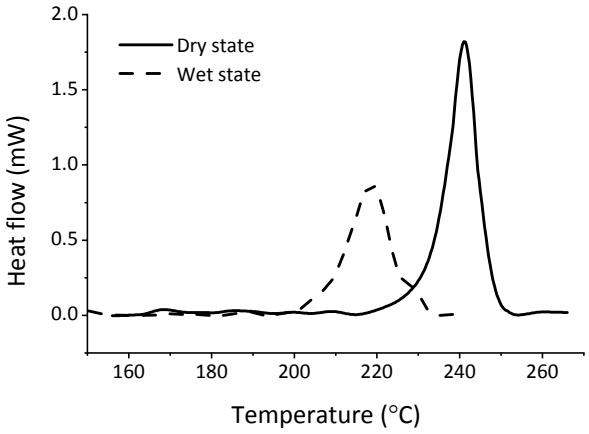


**Figure S1.** DSC heating curves for P3HT crystals prepared in the presence of 13 vol% 3HT. The samples were crystallized by cooling from the solution state (at 260 °C) to 25 °C at a cooling rate of (2 °C/min). Then, (dashed curve) the crystalized sample was directly heated (with the rate of 20 °C/min) to determine the "wet melting temperature" or (solid curve) the DSC pan was opened and the diluent was evaporated by heating at 100 °C for 30 min, the crystalline film was then transferred to a new DSC pan. The pan was sealed ant heated (with the rate of 20 °C/min) to determine the "dry melting temperature" of the P3HT crystals. The curves are baseline subtracted. The mass of P3HT was 4 mg for both cases.

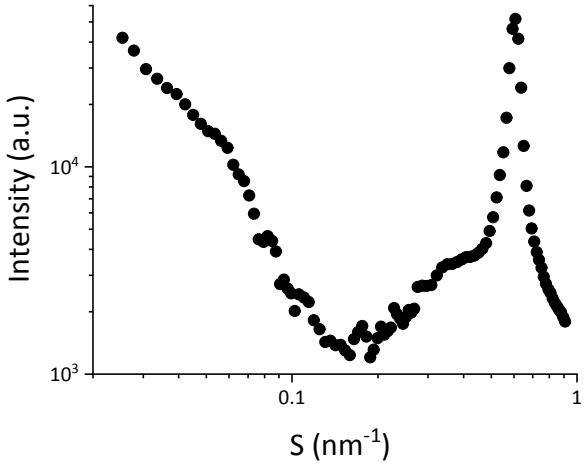


**Figure S2.** SAXS pattern of P3HT crystallized by cooling the sample slowly at 1 °C/min from the melt at 260 °C to room temperature (slowly cooled sample in Table 2). The sharp peak at around ($S = 0.6\ nm^{-1}$) represents the (100) Bragg peak, associated with the layers of π-stacked polythiophene backbones separated by layers of 3-hexyl side chains (period of $d_{100} = 1.67$ nm in the a-direction).