Supporting Information

Surface-Initiated Growth of Conjugated Polymers for Functionalization of Electronically Active Nanoporous Networks: Synthesis, Structure and Optical Properties

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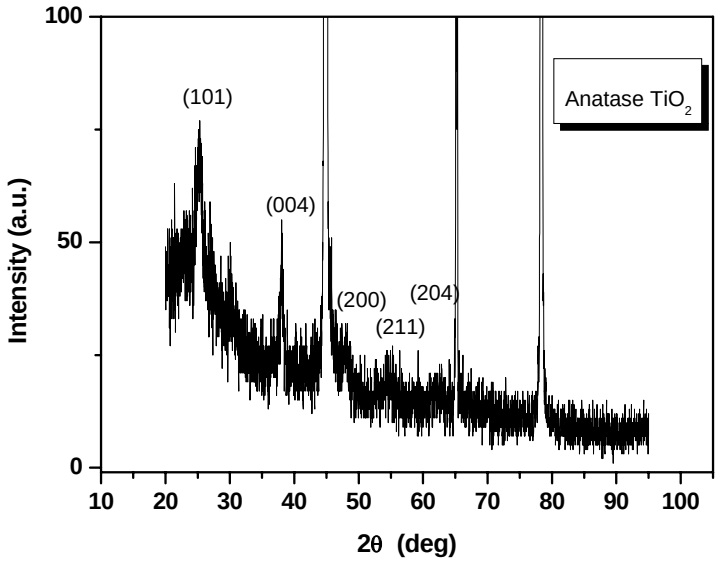

Figure S1. X-ray diffraction (XRD) pattern of titania nanotubes on AAO/Al templates. The three sharp peaks correspond to Al diffractions.

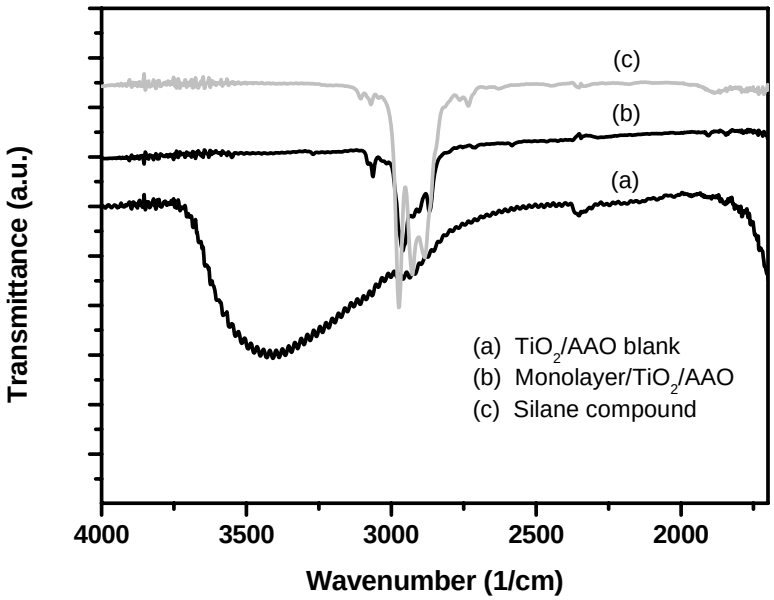

Figure S2. Infrared spectra of (a) TiO_2/AAO template before attaching initiator monolayer on the nanoporous surface, (b) TiO_2/AAO template after attaching initiator monolayer on the nanoporous surface and (c) pure initiator compound **2**, 2-(3-triethoxysilyl)propylthiophene. The IR spectra are offset vertically for clarity.

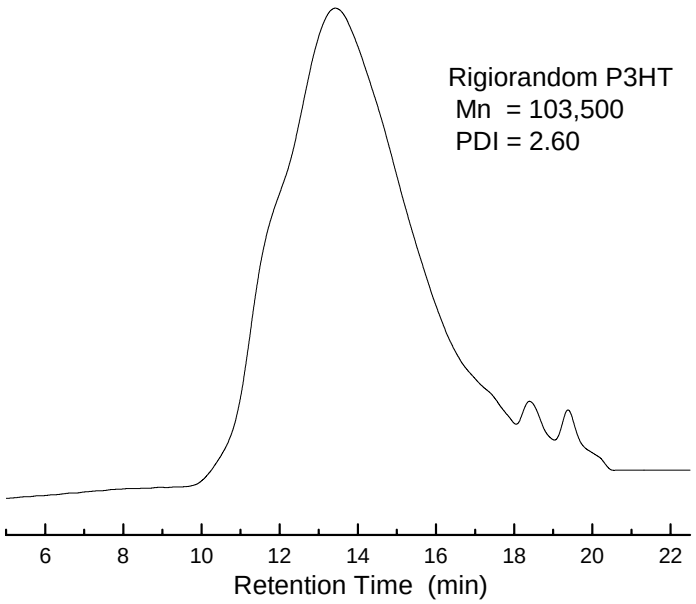

Figure S3. Gel permeation chromatography (GPC) analysis of regiorandom P3HT formed in chloroform solution, using polystyrene as standards.

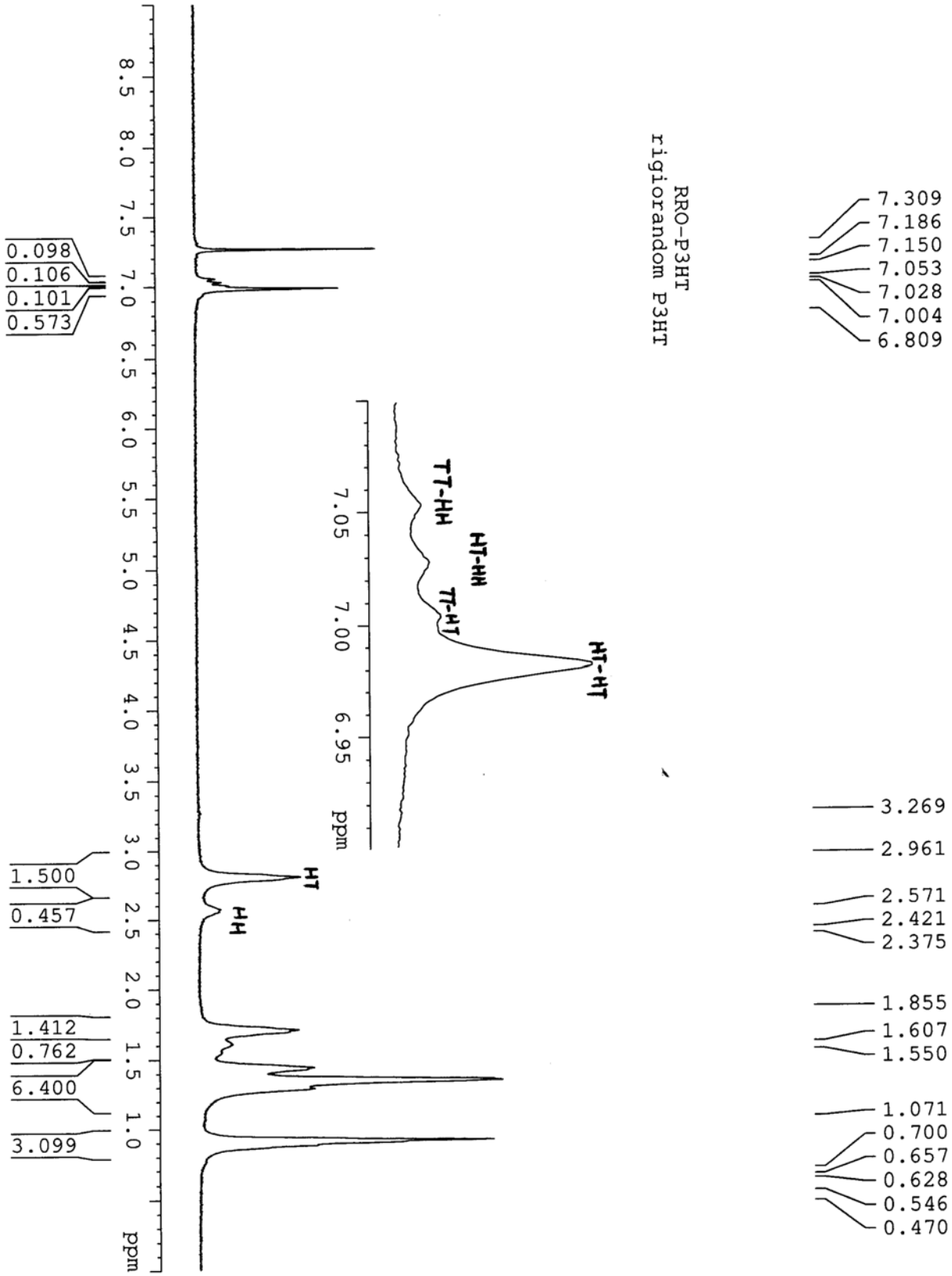

Figure S4. ^{1}H NMR spectrum (taken in $CDCl_3$) of regiorandom P3HT formed in chloroform solution.

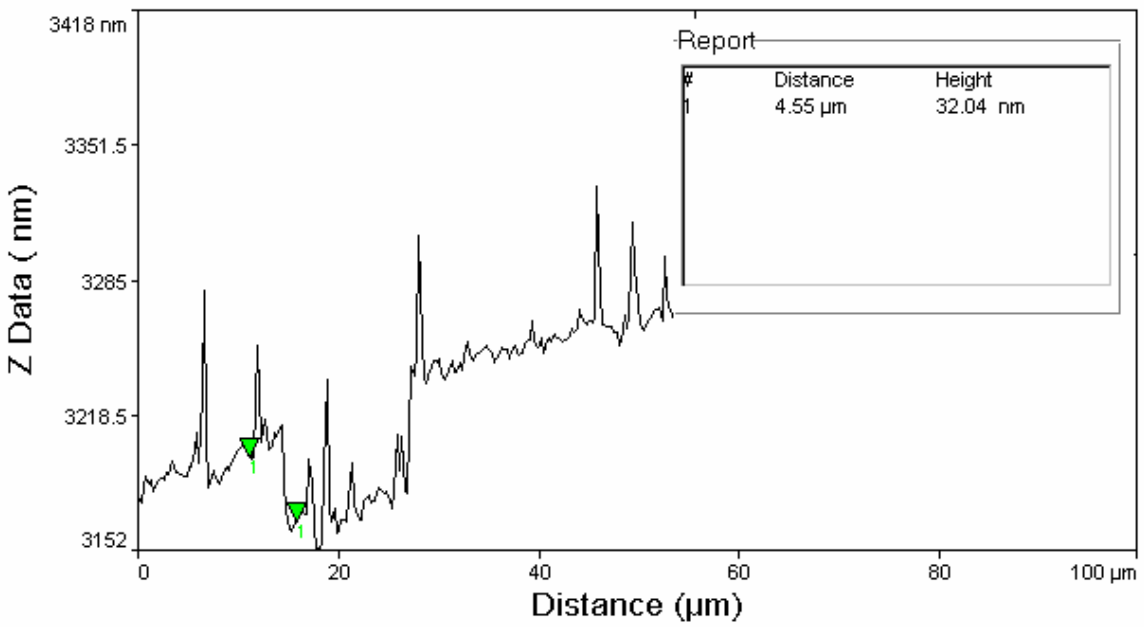

Figure S5. A cross-sectional AFM image of polythiophene that has been in-situ grown onto flat SiO_2/Si wafer by the surface-initiated polymerization method. The height profile (along the Z direction) is shown as a function of distance across the surface. A polymer overlayer has been mechanically removed from the SiO_2 surface, creating a step that is highlighted by the green markers in the figure. The difference in height as indicated by the two green markers provides an estimate for the thickness of the polymer thin film, which is experimentally determined to be 32 nm.