Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C

Supporting information for the paper:

"Perfluoroalkyl-substitution versus electron-deficient building blocks in design of oligothiophene semiconductors"

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NMR Spectra

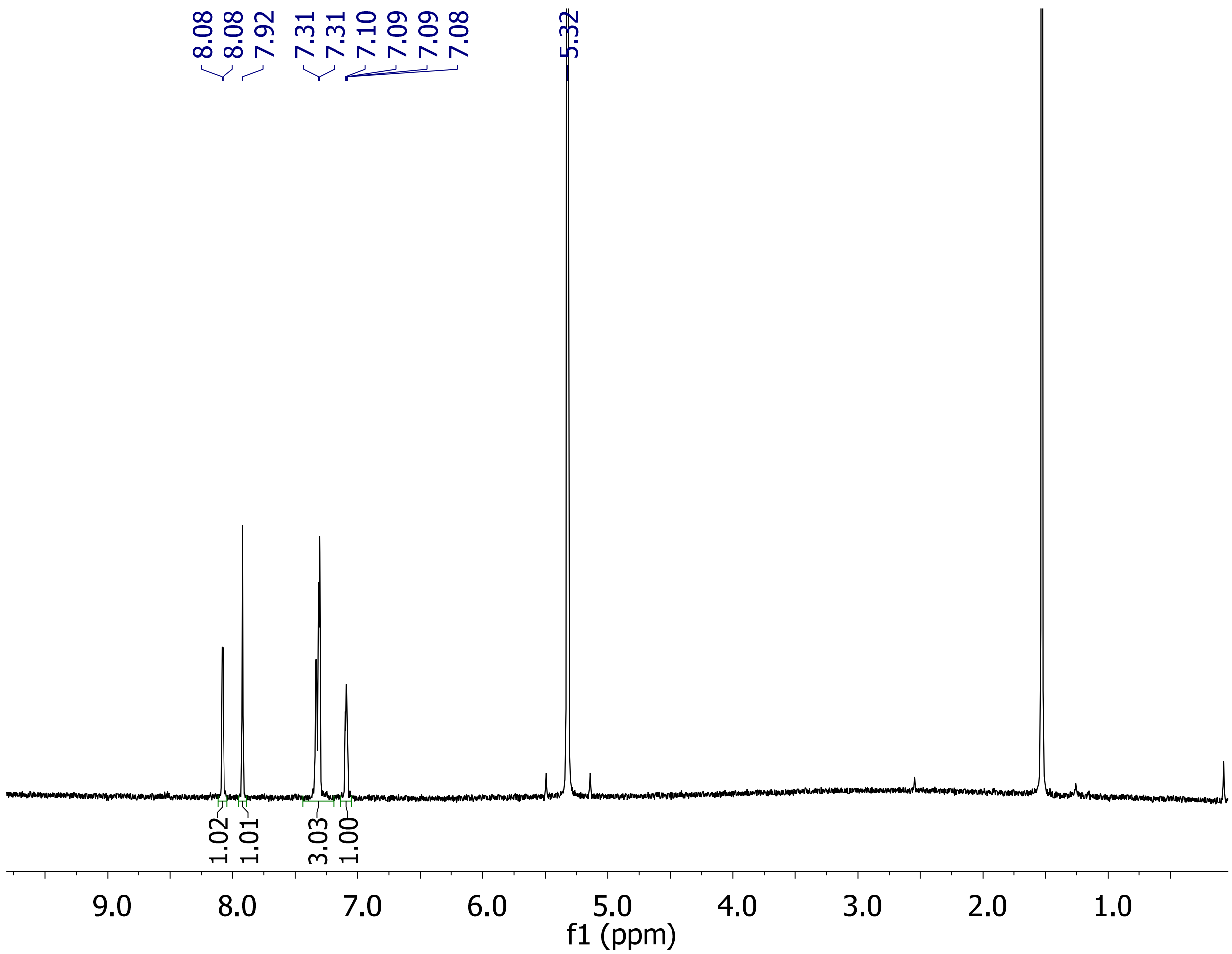

Figure S1. ^{1}H NMR of 4T-BTD in CD_2Cl_2 (500 MHz)

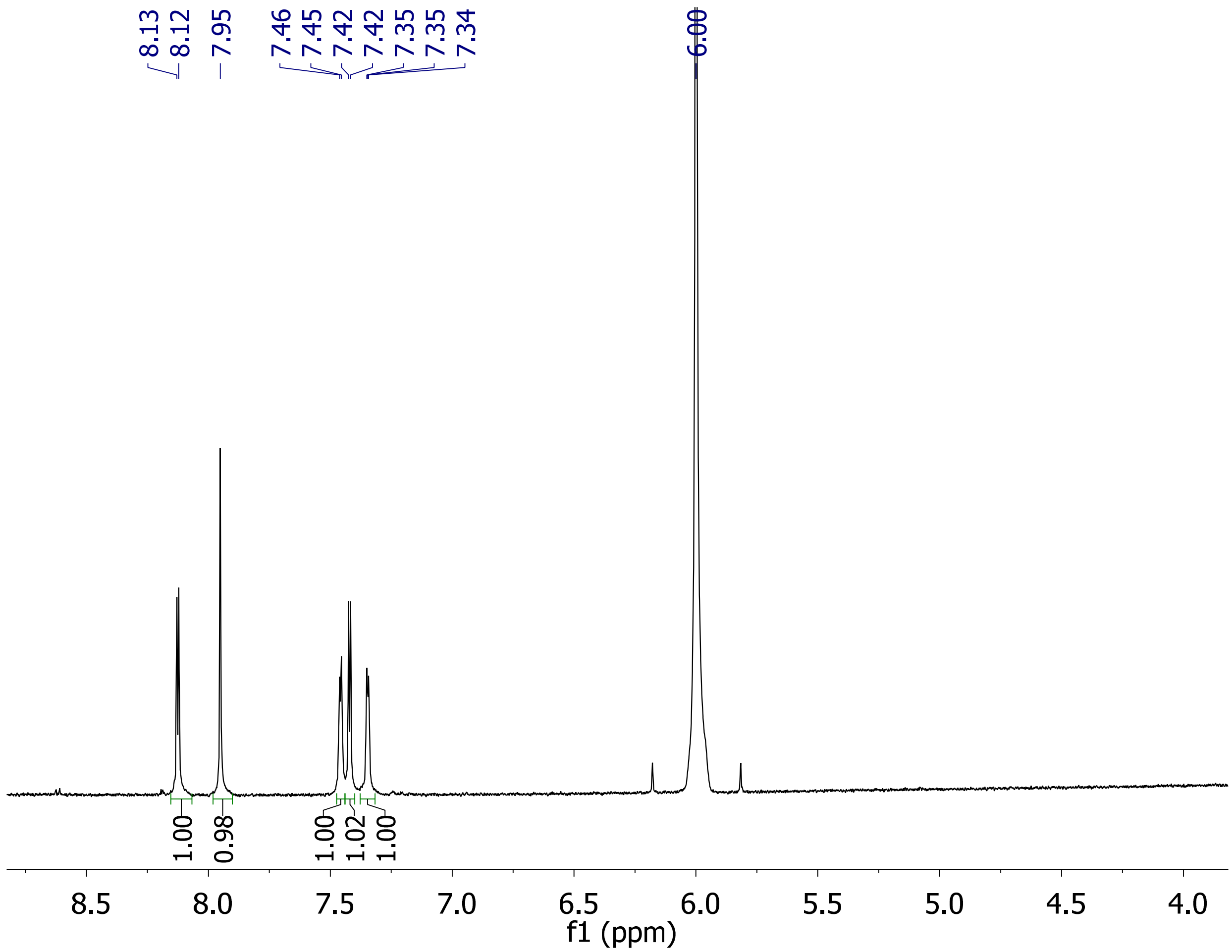

Figure S2. ^{1}H NMR of DFH-4T-BTD in $C_2D_2Cl_4$ (500 MHz, 110 °C)

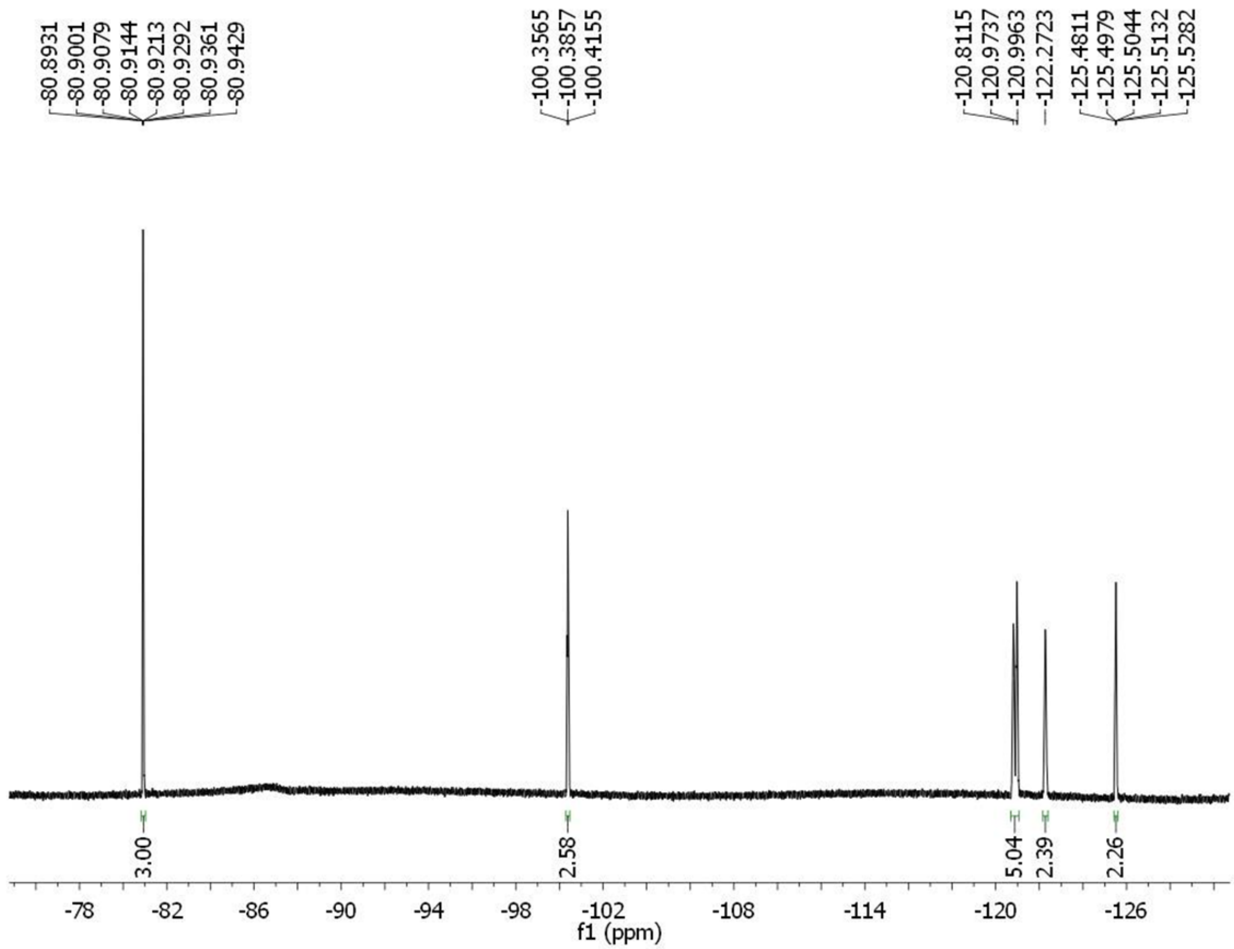

Figure S3. ^{19}F NMR of DFH-4T-BTD in $C_2D_2Cl_4$ (500 MHz, 110 °C)

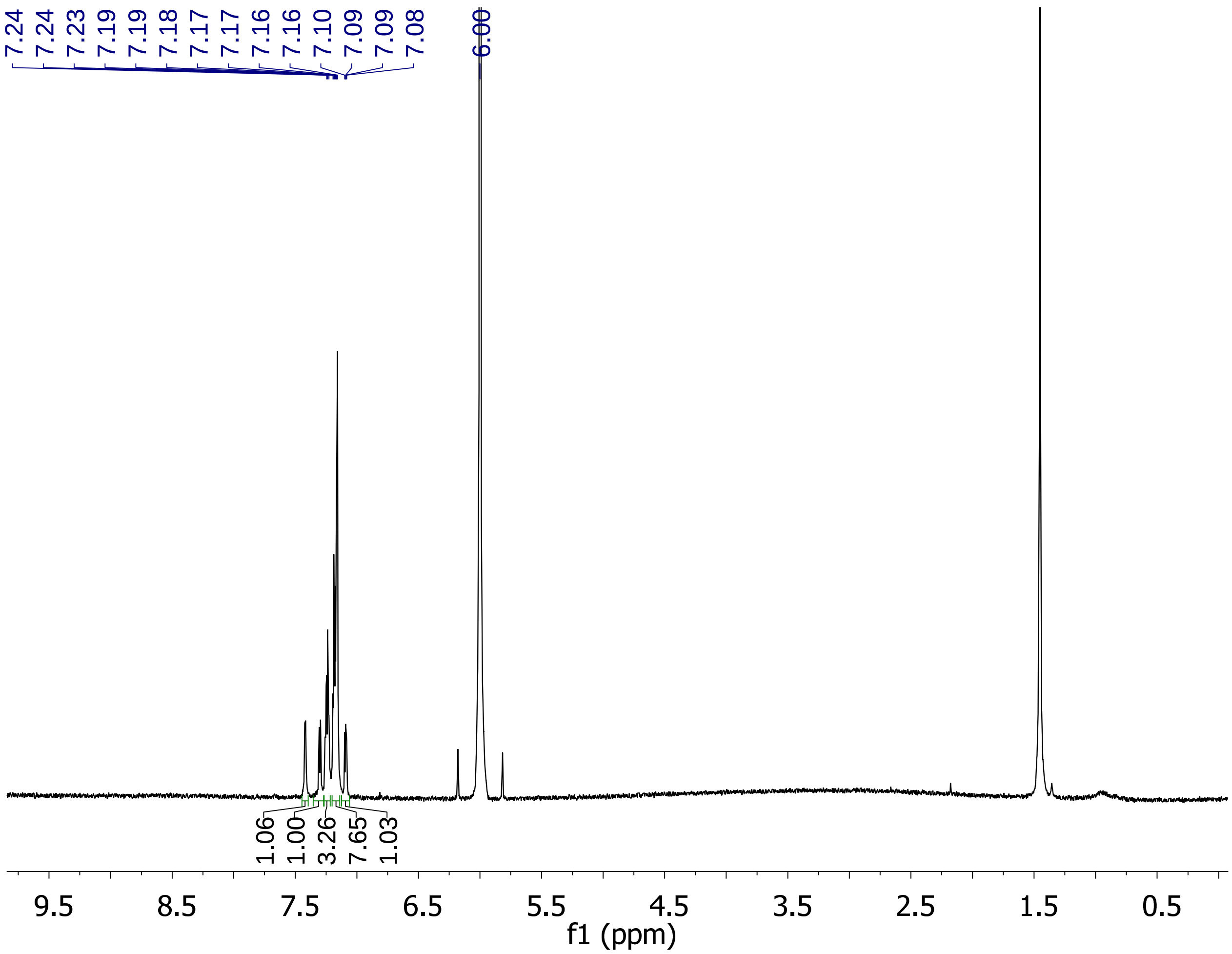

Figure S4. ^{1}H NMR of FH-6T in $C_2D_2Cl_4$ (500 MHz, 110 °C)

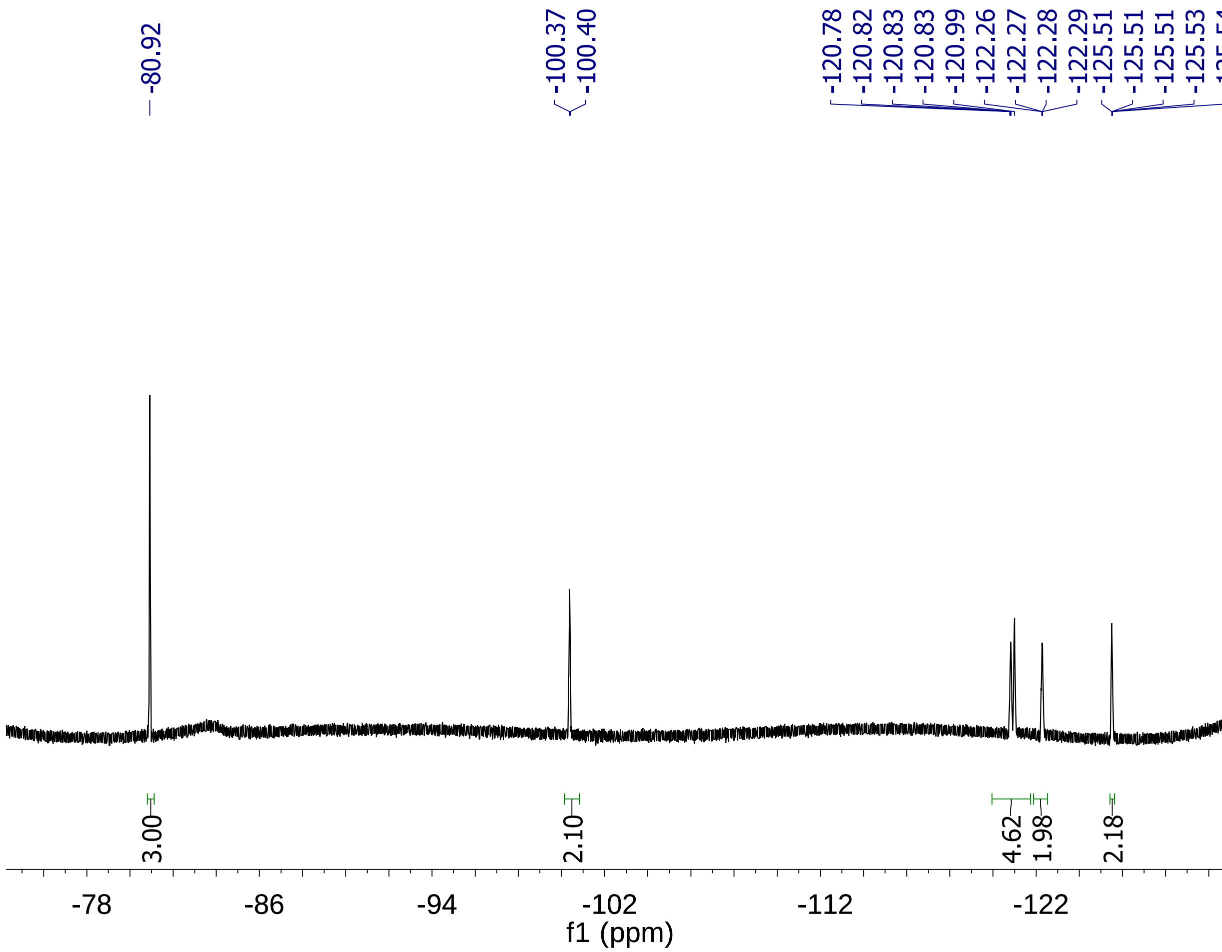

Figure S5. ^{19}F NMR of FH-6T in $C_2D_2Cl_4$ (500 MHz, 110 °C)

Polarized Micrographs

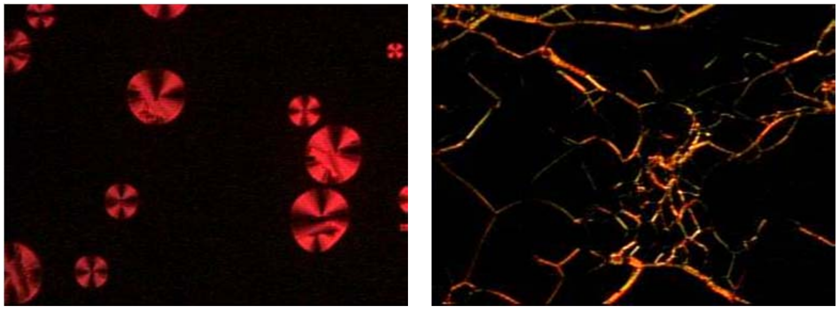

Figure S6. Mesophases of DFH-4T-BTD (left, cooling @ 225 °C) and FH-6T (right, heating @ 316 °C)

AFM Images of DFH-4T-BTD Films

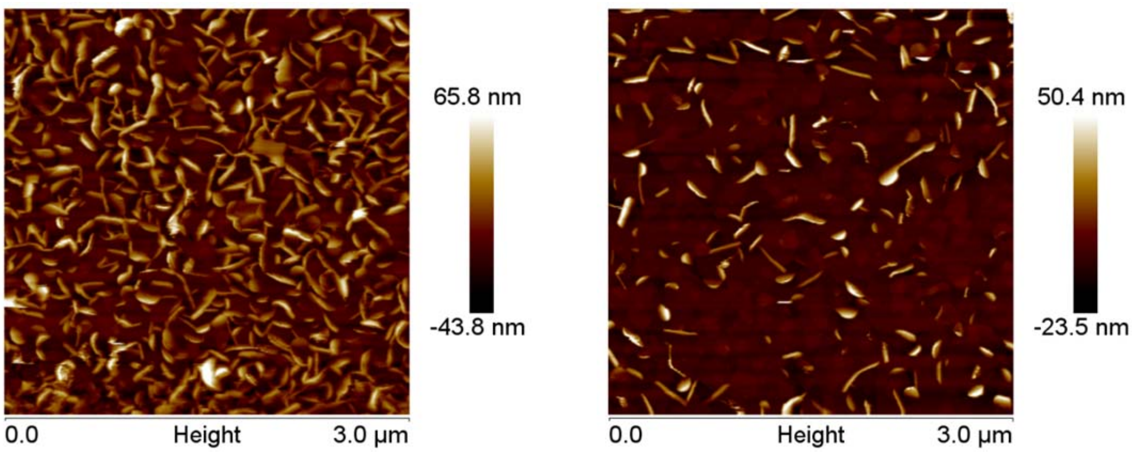

Figure S7. AFM images of 50 nm thin films of DFH-4T-BTD evaporated onto OTS treated Si wafer kept at rt (left) and 70 °C (right)

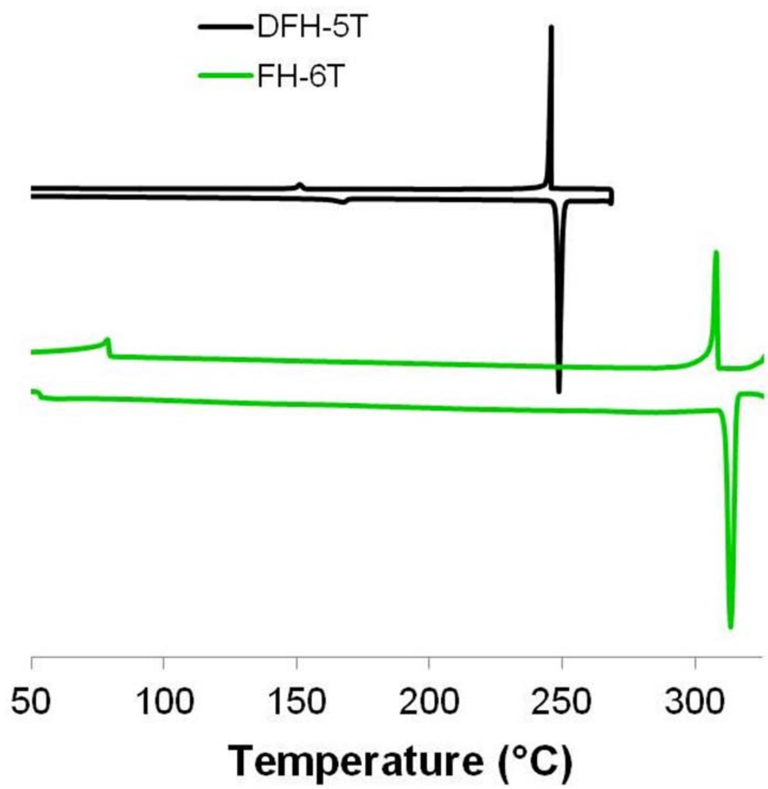

Figure S8. Differential Scanning calorimetry thermograms of DFH-5T and FH-6T.

Table S1. Melting points and melting enthalpies of DFH-5T, FH-6T, 4T-BTD, DFH-4T-BTD

Compound	*Melting point (°C)*	*ΔH_m (kcal/mol)*
DFH-5T	249	12.2
FH-6T	314	6.4
4T-BTD	199	5.9
DFH-4T-BTD	237	14.2

Electrochemistry

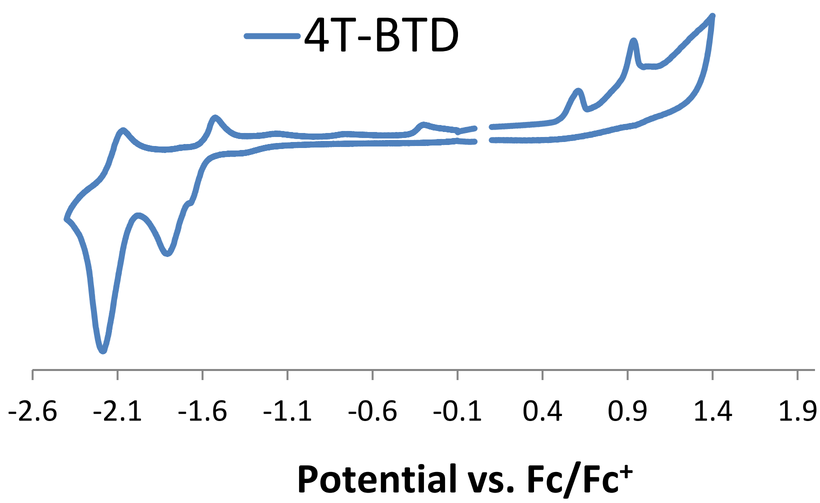

Figure S8. Cyclic voltammogram of evaporated thin film of 4T-BTD in anhydrous acetonitrile. The electrochemical signal is likely complicated by instability (polymerization) of radical-ions, infamous for (oligo)thiophenes without substituents in α,ω-positions.