

Figure S1. $^1\text{H-NMR}$ of three polymers

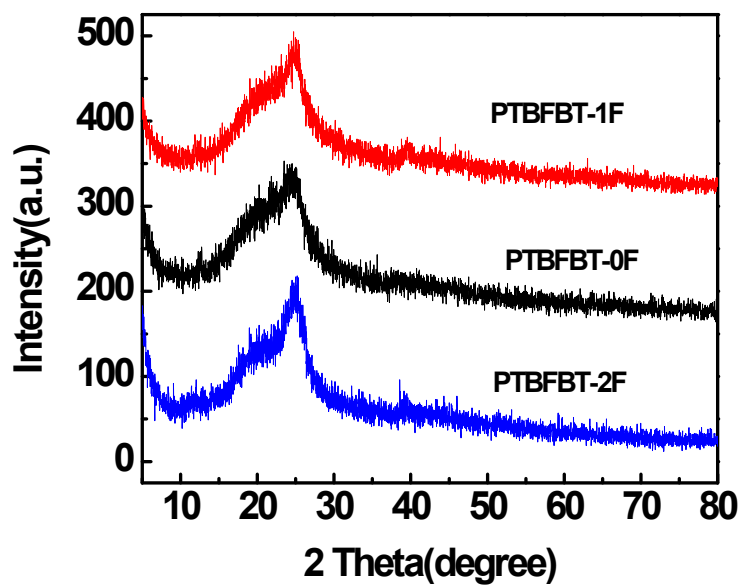


Figure S2. X-ray diffraction patterns of three polymers

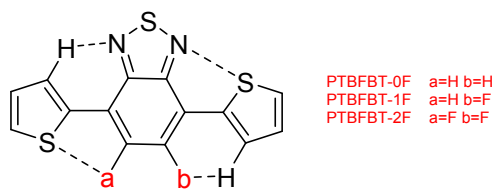


Figure S3. Noncovalent attractive interactions within the polymer chain

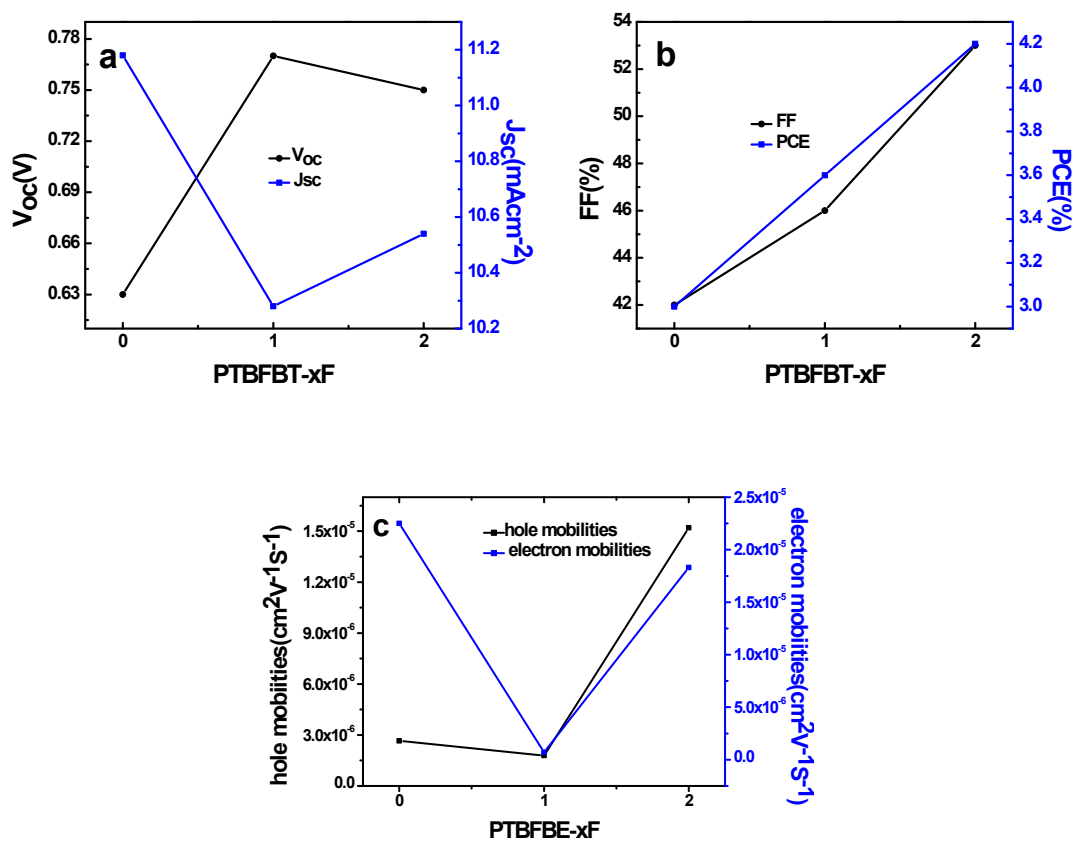


Figure S4. The correlation between PTBFBT-xF and (a) V_{oc} , J_{sc} (b) FF , PCE (c) hole and electron mobilities

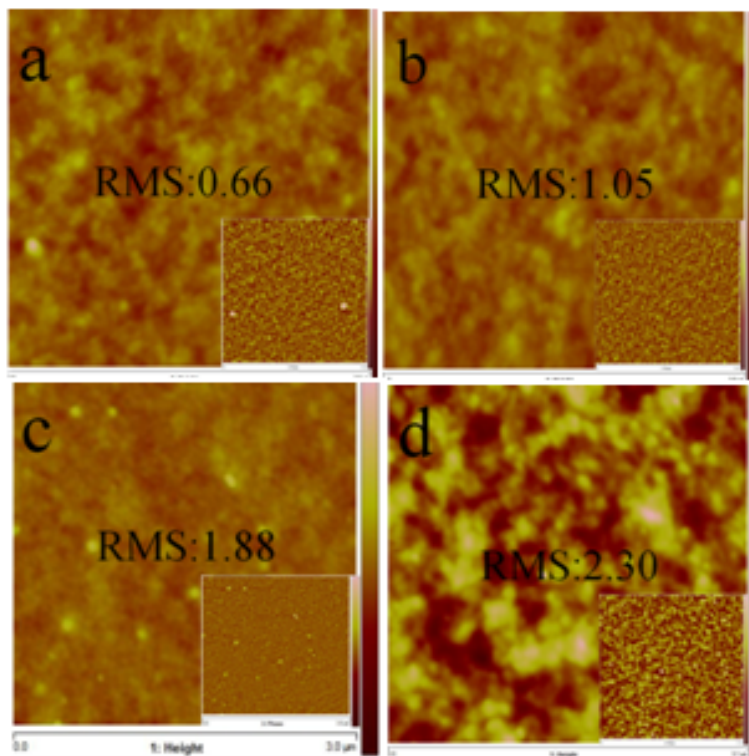


Figure S5. AFM images ($3\mu\text{m} \times 3\mu\text{m}$) of TBFBT-0F/PC₇₁BM films (a), PTBFBT-1F/PC₇₁BM films (b), PTBFBT-2F/PC₇₁BM films without ZrAcac (c) and with ZrAcac (d). Inserts are phase images.