Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Terahertz Short-Range Mobilities in Neat and Intermixed Regions of Polymer:Fullerene Blends with Controlled Phase Morphology

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Supporting Information

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1. Molecular structure and phase morphology of pBTTT:PCBM blends

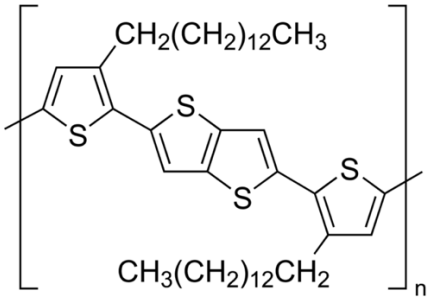

Figure S1a. Chemical structure of pBTTT.

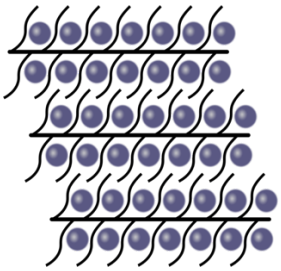

Figure S1b. Schematic representation of the co-crystal formed in 1:1 blends of pBTTT:PCBM

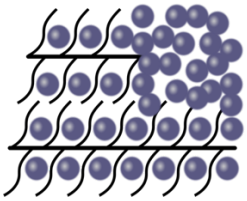

Figure S1c. Schematic representation of the local phases in a 1:4 blend of pBTTT:PCBM comprising the co-crystalline phase (as in Figure S2b) and the PCBM-rich phase.

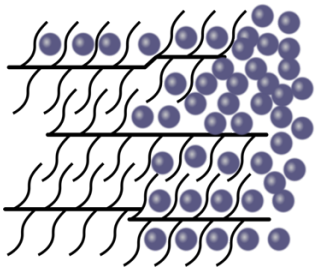

Figure S1d. Schematic representation of the local phases in a 1:1 blend of pBTTT:PCBM with added Me7 comprising the co-crystalline phase and PCBM-rich phase (as in Figure S2c) and an additional polymer-rich phase.

2. Fluence dependence for THz photoconductivity measurements

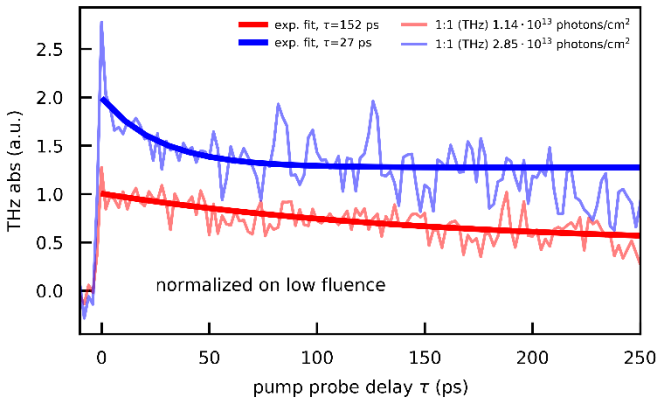

Figure S2. Fluence dependence of the THz photoconductivity signal for a pBTTT:PCBM one-phase co-crystalline sample excited with 400 nm pulses. The higher fluence of 2.85×10^{13} photons/cm² is sufficient to drive bimolecular recombination leading to the shorter decay time.

3. TA dynamics of the charge population in the 1:1 blend

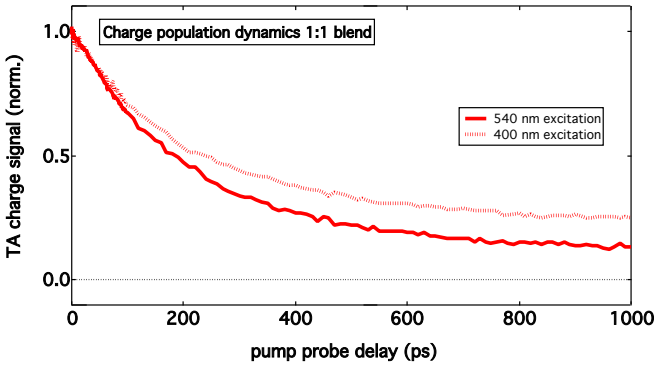

Figure S3. Charge population dynamics extracted from the TA data of the 1:1 pBTTT:PCBM blend (single co-crystal phase) following excitation at 540 nm or 400 nm.