

Supporting Information

Quantitative Estimation of Exciton Quenching Strength at Interface of Charge Injection layers and Organic Semiconductor

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This file includes the following information:

Figures S1 to S7 and Table S1.

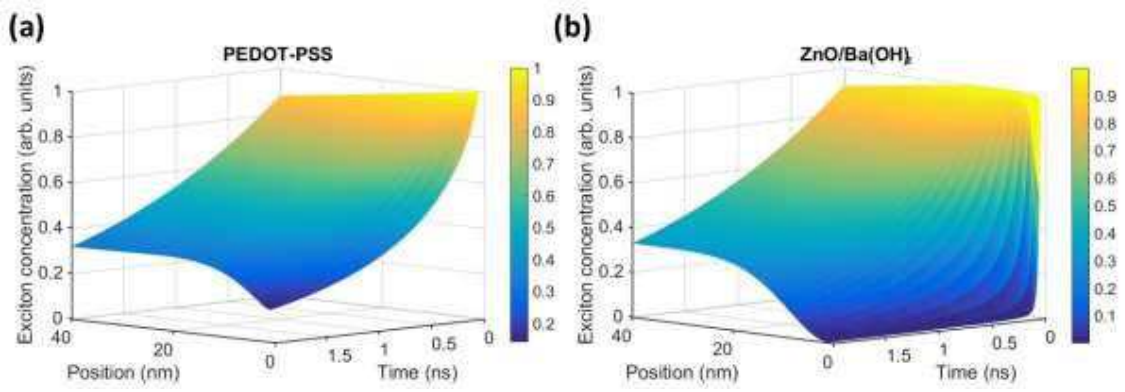


Figure S1 Simulated normalized spatio-temporal profile of exciton density inside F8BT layer with (a) PEDOT:PSS and (b) ZnO/Ba(OH)₂ as injection layer.

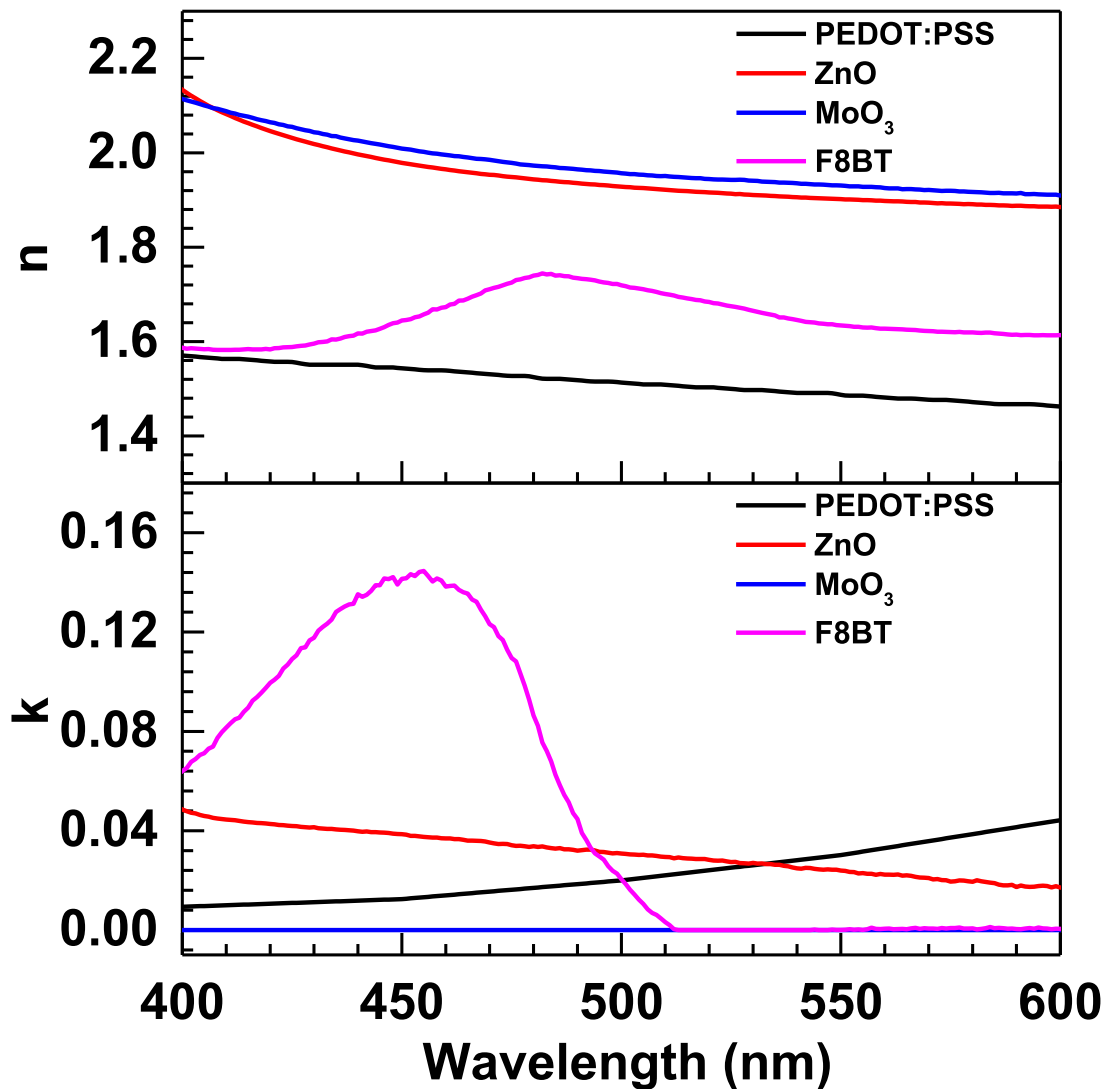


Figure S2 (a) Real (n) and (b) imaginary (k) parts of refractive index versus wavelength for PEDOT:PSS (black solid line), ZnO (Red solid line), MoO₃ (blue solid line) and F8BT (pink solid line) layer.

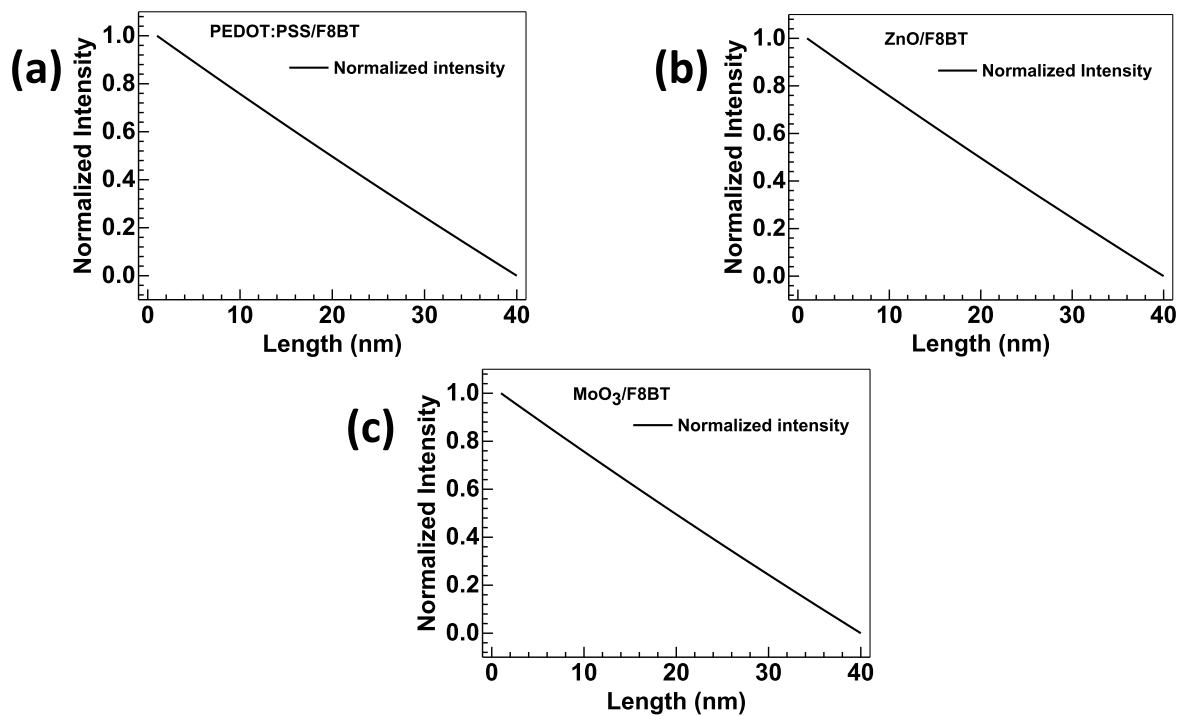


Figure S3 Initial spatial normalized exciton concentration profile for (a) PEDOT:PSS/F8BT, (b) ZnO/F8BT and (c) MoO₃/F8BT layer system with excitation wavelength of 440nm.

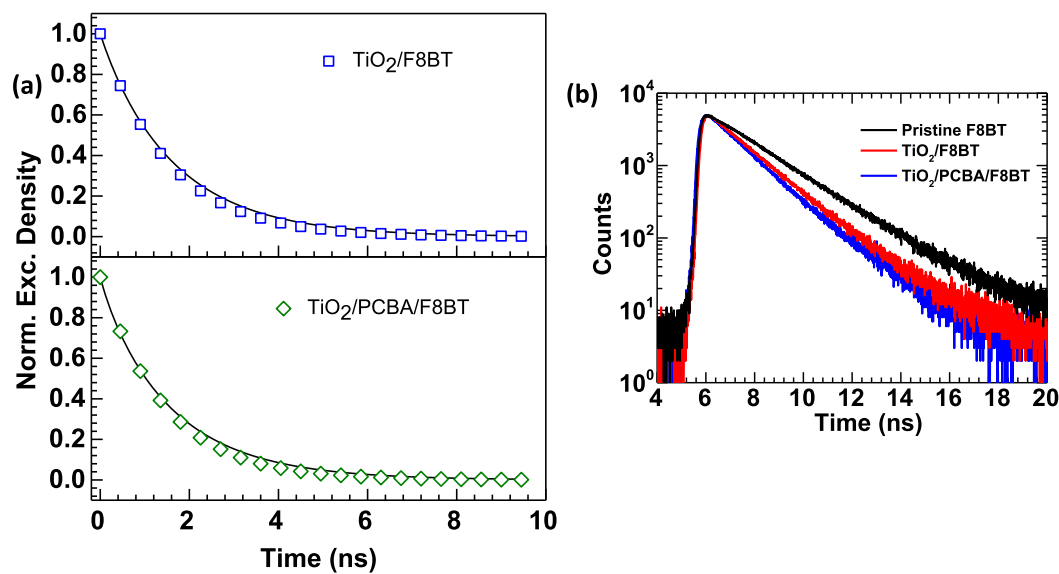


Figure S4: Transient PL decay for (a) TiO₂/F8BT and TiO₂/PCBA/F8BT system at emission wavelength of 540nm. Excitation wavelength is 440nm pulsed diode laser. Solid line is fit to experimental data using Eq.4. (b) TCSPC data in semi-log style for pristine F8BT, TiO₂/PCBA/F8BT and TiO₂/F8BT films on quartz substrates.

Table S1: PL Decay time and corresponding capture radii (x_0) for TiO₂/F8BT, TiO₂/PCBA/F8BT interfaces.

Quencher	Decay time (ns)	x_0 (nm)
TiO ₂ /F8BT	1.5	3.02
TiO ₂ /PCBA/F8BT	1.42	3.56

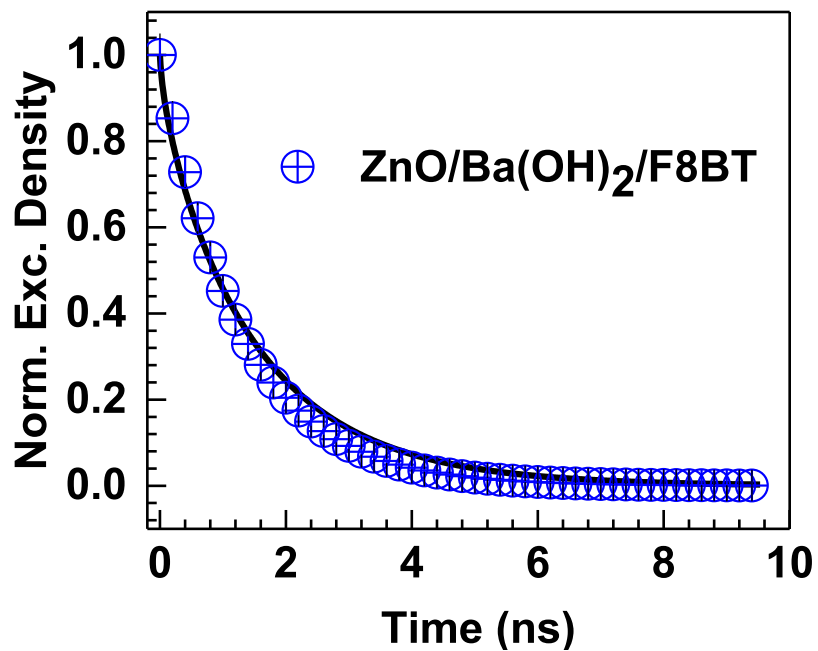


Figure S5: Transient PL decay for ZnO/Ba(OH)₂/F8BT at peak emission wavelength of 540nm. Excitation wavelength is 440nm pulsed diode laser. Solid line is fit to experimental data using Eq.4.

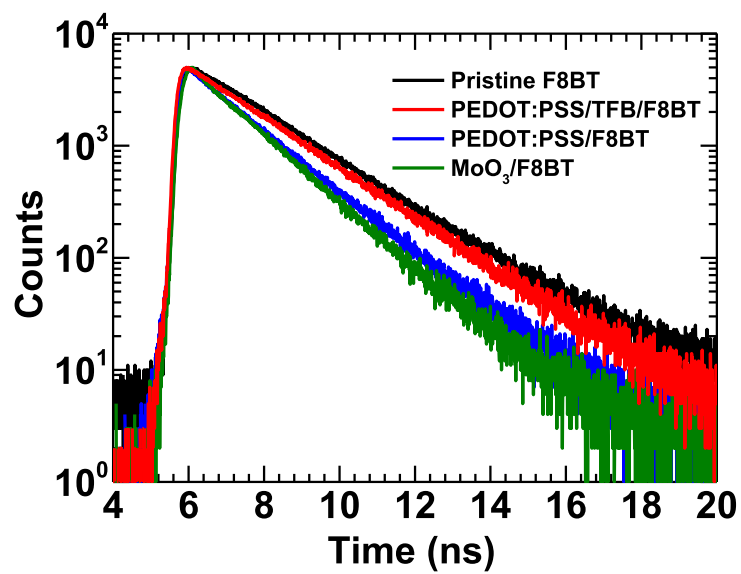


Figure S6. TCSPC data for pristine F8BT, PEDOT:PSS/F8BT, PEDOT:PSS/TFB/F8BT and MoO₃/F8BT films on quartz substrates.

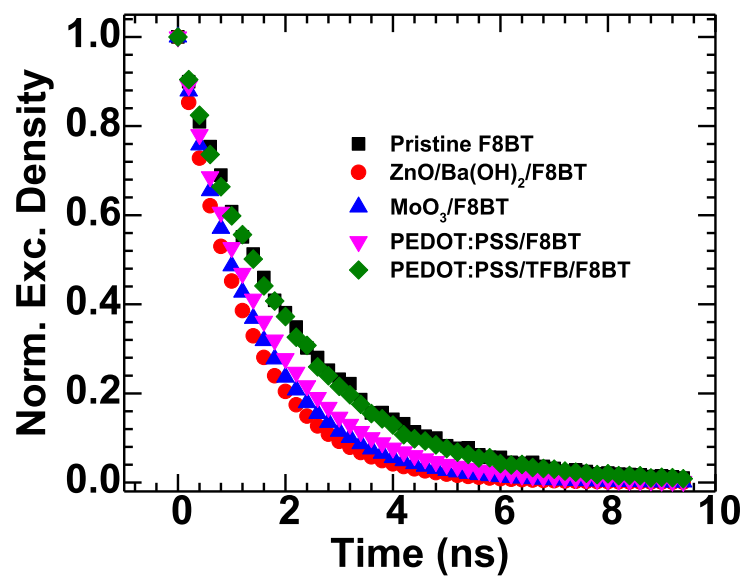


Figure S7. Normalized Excitonic Density profiles for Pristine F8BT and F8BT with Charge injection layers.