*Electronic Supplementary Information with the article:*

# Charge transfer in the weak driving force limit in blends of MDMO-PPV and dithienylthiazolo[5,4-*d*]thiazoles towards organic photovoltaics with high $V_{OC}$

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**Table S1** Profilometer thickness measurements of the spin-cast films.

| | thickness (nm) | error (nm) |
|---|---|---|
| **MDMO-PPV** | 256 | 35 |
| **4-CN-Ph-DTTzTz** | 84 | 9 |
| **4-CN-Ph-DTTzTz:MDMO-PPV** 1:1 | 228 | 28 |
| **4-$CF_3$-Ph-DTTzTz** | 60 | 11 |
| **4-$CF_3$-Ph-DTTzTz:MDMO- PPV** 1:1 | 169 | 29 |
| **Th-DTTzTz** | 53 * | 12 |
| **Th-DTTzTz:MDMO- PPV** 1:1 | 173 | 20 |

* at the lower limit of the detection range of the instrument.

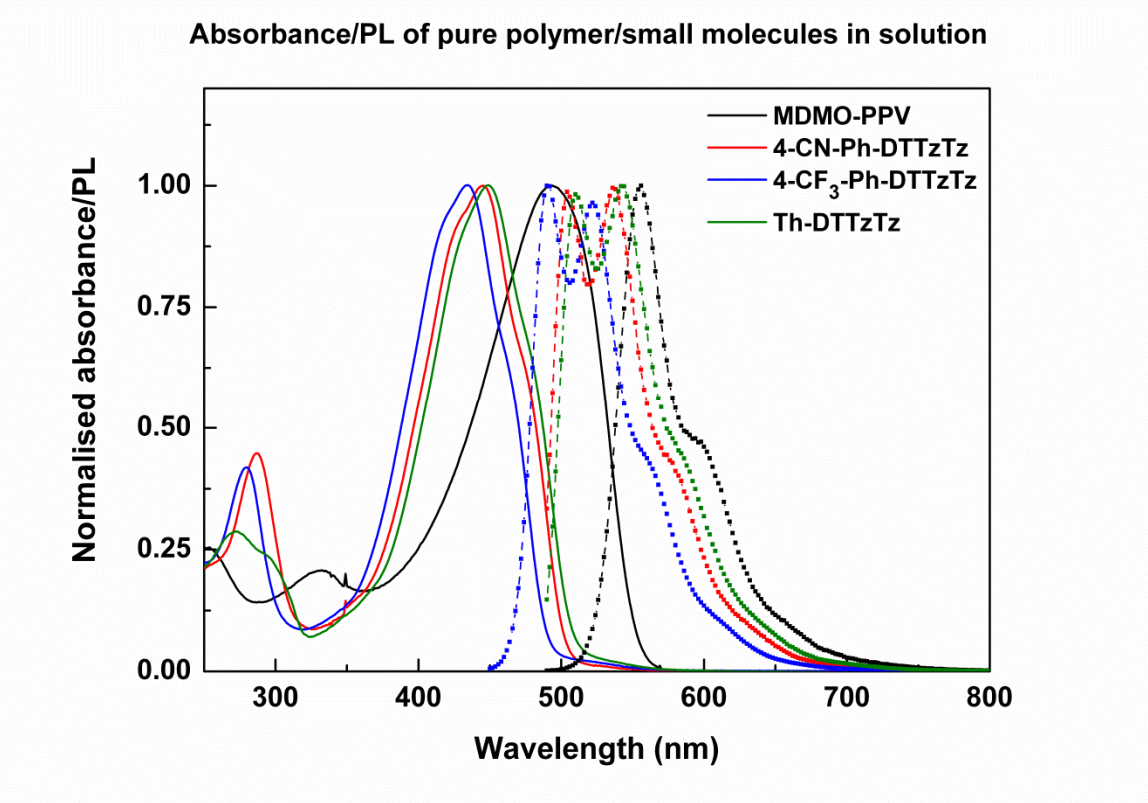


**Fig S1** Normalized UV-vis absorption (solid curves) and PL spectra (symbols) of **MDMO-PPV** (black), **4-CN-Ph-DTTzTz** (red), **4-$CF_3$-Ph-DTTzTz** (blue) and **Th-DTTzTz** (green) in $CHCl_3$ solutions ($10^{-5}$ M). PL measured for $\lambda_{exc}$ = 474 nm, except for **4-$CF_3$-Ph-DTTzTz** for which $\lambda_{exc}$ = 430 nm.

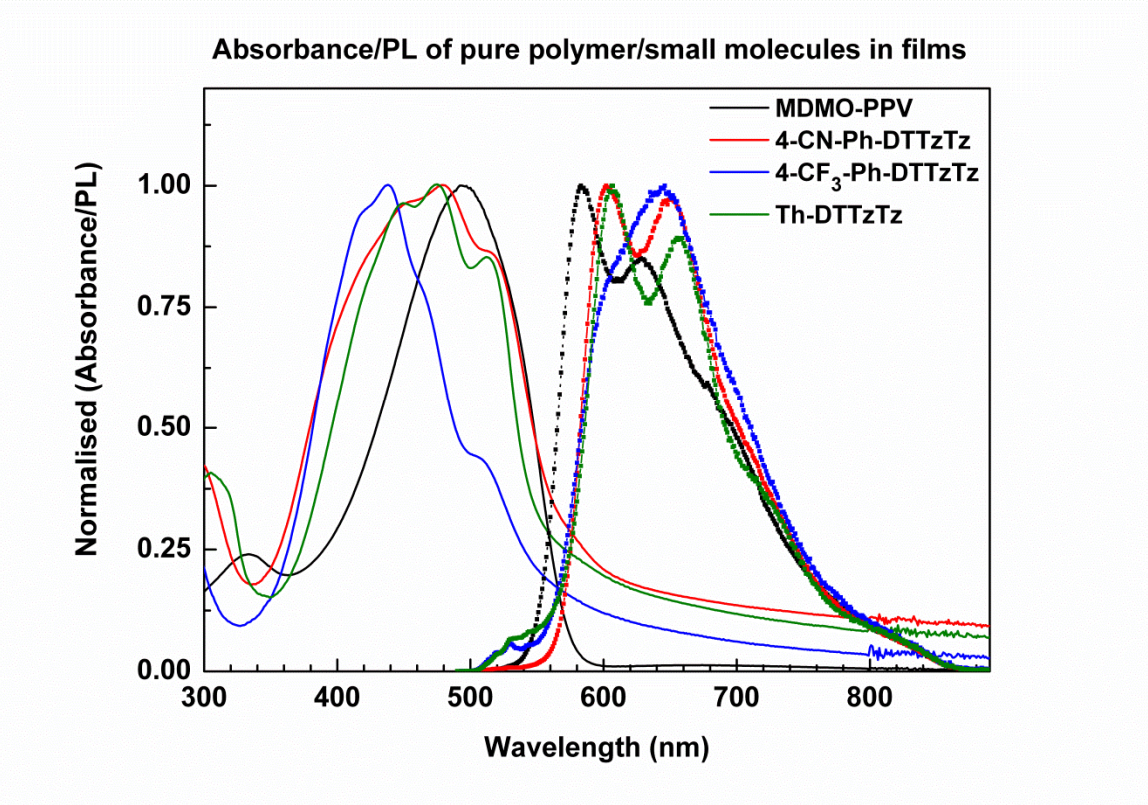


**Fig. S2** Normalized UV-vis absorption (solid curves) and PL spectra (symbols, $\lambda_{exc}$ = 474 nm) of spin-coated films of the pure compounds **MDMO-PPV** (black), **4-CN-Ph-DTTzTz** (red), **4-$CF_3$-Ph-DTTzTz** (blue) and **Th-DTTzTz** (green).

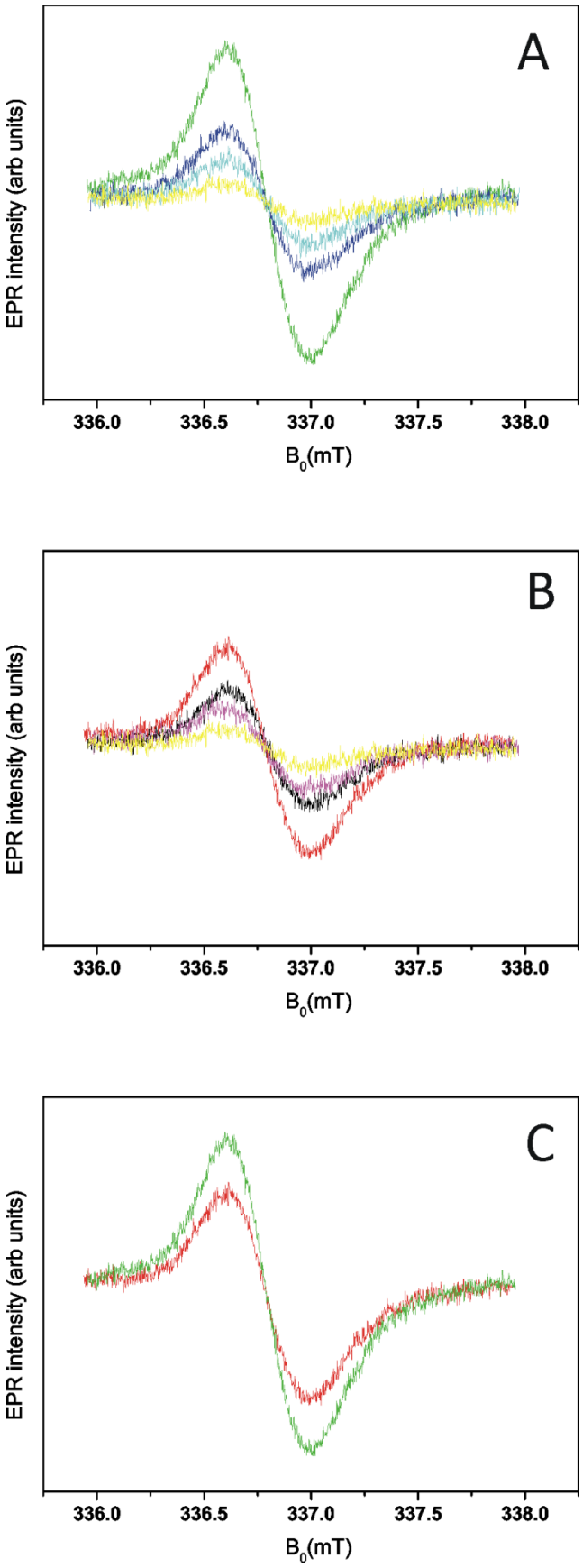


**Fig. S3** (A) X-band CW LI-EPR spectra of films of pristine **MDMO-PPV** (yellow) and 1:1 blends of **MDMO-PPV**:**Th-DTTzTz** (cyan), **MDMO-PPV**:**4-CF$_3$-Ph-DTTzTz** (dark blue) and **MDMO-PPV**:**4-CN-Ph-DTTzTz** (green); (B) X-band CW LI-EPR spectra of films of pristine **MDMO-PPV** (yellow) and 4:1 blends of **MDMO-PPV**:**Th-DTTzTz** (purple), **MDMO-PPV**:**4-CF$_3$-Ph-DTTzTz** (black) and **MDMO-PPV**:**4-CN-Ph-DTTzTz** (red); (C) Relative comparison of the X-band LI-EPR spectra of a 1:1 (green) and 4:1 blend (red) **MDMO-PPV**:**4-CN-Ph-DTTzTz**.

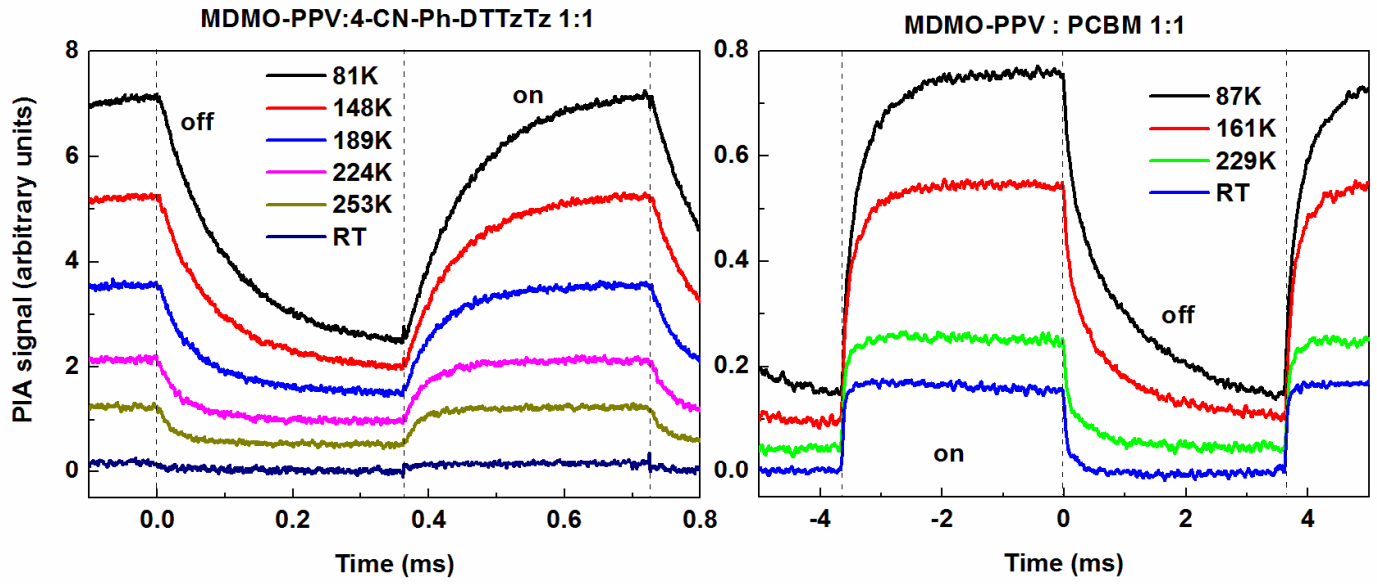


**Fig. S4** Time-dependent PIA signals measured at λ = 930 nm and and at different temperatures in spin-coated films of 1:1 donor:acceptor blends of **MDMO-PPV** with **4-CN-Ph-DTTzTz** (left) and **PCBM** (right) (note the different time scales).