ADVANCED FUNCTIONAL MATERIALS

Supporting Information

for

Advanced Functional Materials, adfm.200600825

Supporting Materials

Manuscript number: adfm.200600825
Title: "Nanostructure-dependent Vertical Charge Transport in MEH-PPV Films"

To verify that self-absorption does not play significant role in the current experimental configuration, the absorption and PL spectra of Rhodamine B (also called Rhodamine 610) was taken at three concentrations varying over 2 orders of magnitude (Fig. S1). Rhodamine was chosen as it shows a large spectral overlap between its absorption and PL spectra and the fact that it does not aggregate in the concentration range of interest.

The normalized absorption spectra of all three Rhodamine solutions are similar, and only one concentration, C2R, is shown in Fig. S1. In addition, the normalized PL spectra for the two more diluted solutions are identical. Even in the case of C2R (a concentration ten times that of C1R) the only change in the spectrum is a slight red-shift (~3 nm). This indicates that both self-absorption and inner filter-induced spectral distortion is negligible for increasing concentration, as only slight changes are observed at concentrations greater than C1R.

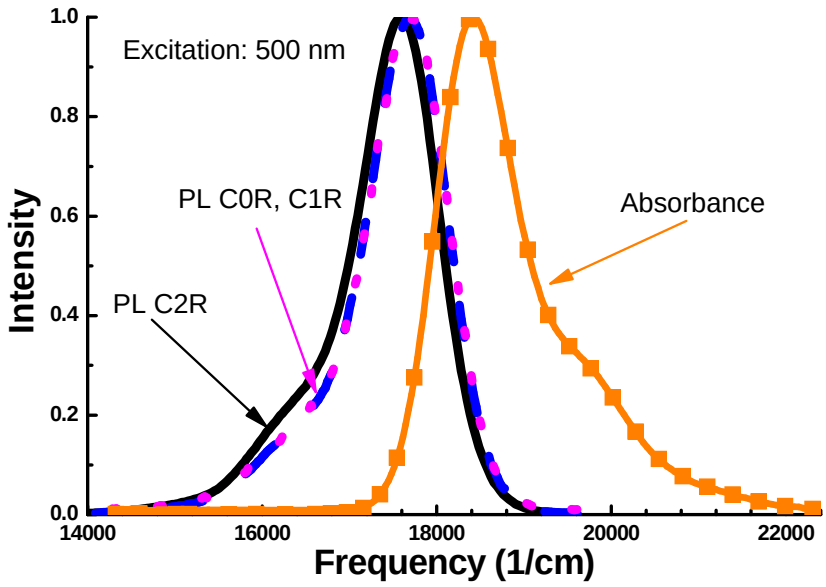

Figure S1. Peak normalized absorption and PL spectra of Rhodamine B diluted in ethanol at three concentrations. C0R (OD=0.016), C1R (OD=0.16) and C2R (OD=1.6) The PL spectra were taken using the front face geometry.

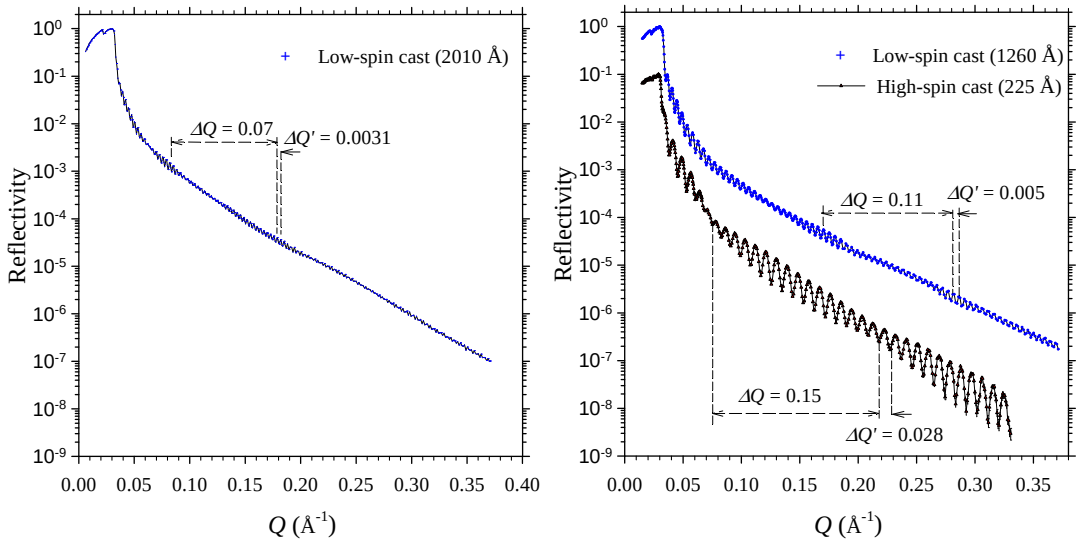

Figure S2. X-ray reflectivity profiles of MEH-PPV films with different thickness spin-cast from chlorobenzene solutions: $\Delta Q'$ is for the period of the Kiessig fringes (from which film thickness is determined) whereas ΔQ is the period of amplitude modulation of the Kiessig fringes reflecting layered structure within the films.

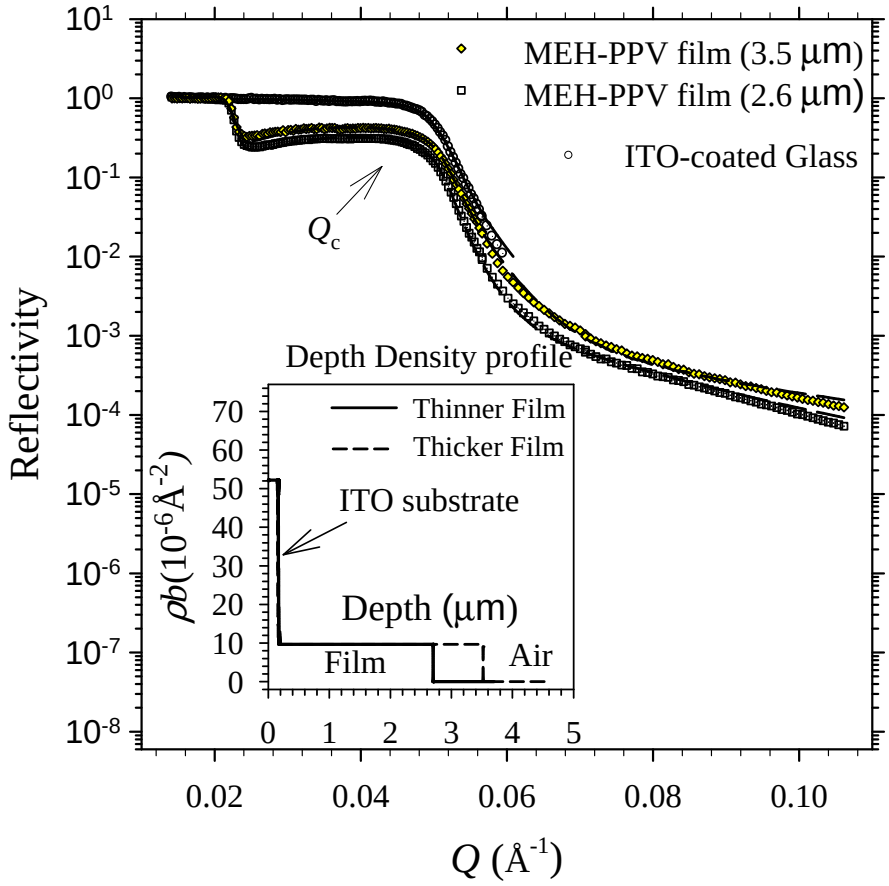

Figure S3. X-ray reflectivity profiles of drop-cast MEH-PPV films with thickness of 3.5 and 2.6 μm. The profiles were fitted using the scattering length density profiles shown in the inset. Both the reflectivity profiles can be described well by the Fresnel curves, corresponding to uniform films sitting on the ITO glass substrates.