Supporting Information

for

Optical properties and electrical transport of thin films of terbium(III) bis(phthalocyanine) on cobalt

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Ellipsometry and AFM analysis

Ellipsometry data and modelling

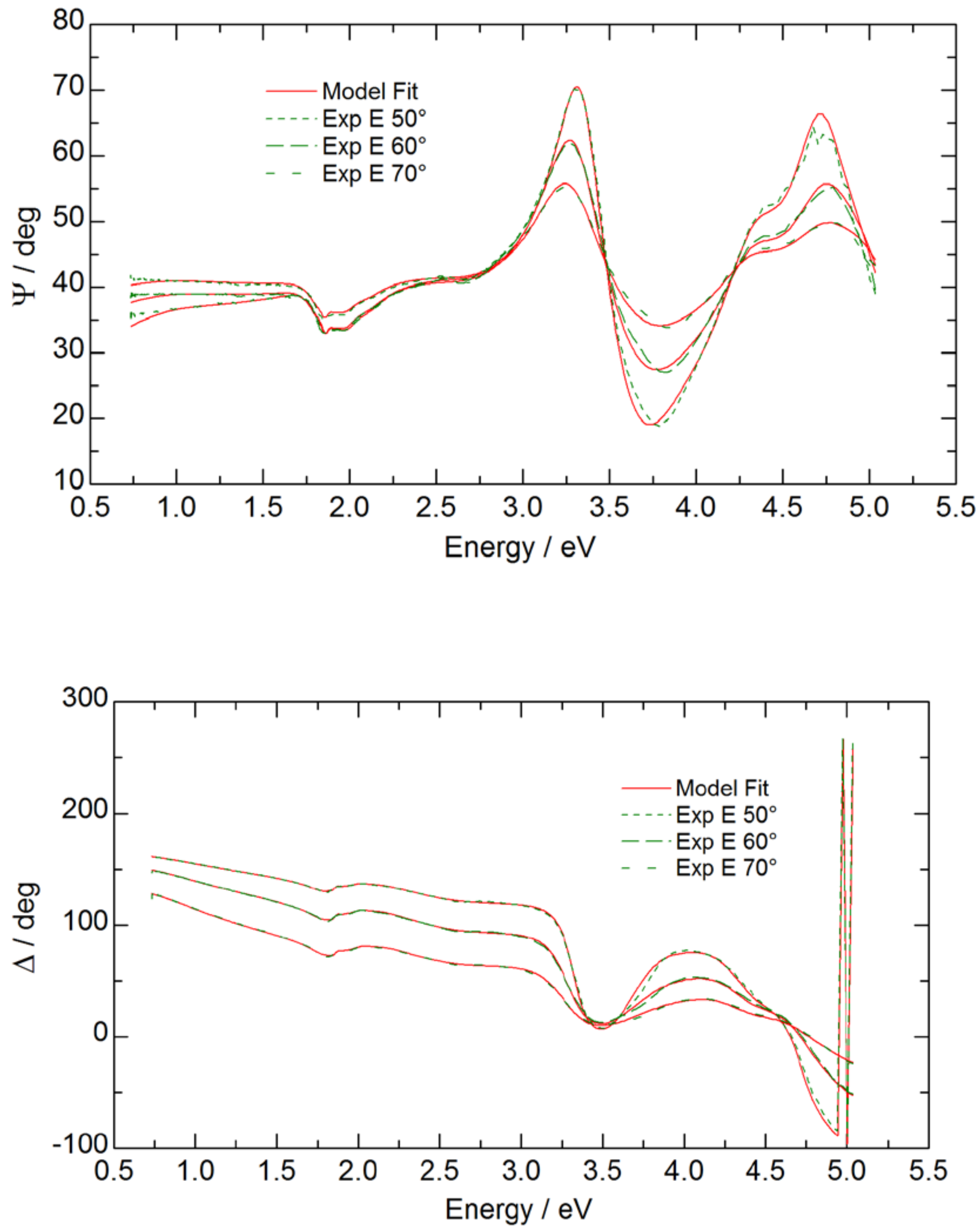

Figure S1: Ellipsometry data of the 41 nm $TbPc_2$ on Co sample (green dashed lines) and the corresponding model fit (red solid lines).

AFM analysis

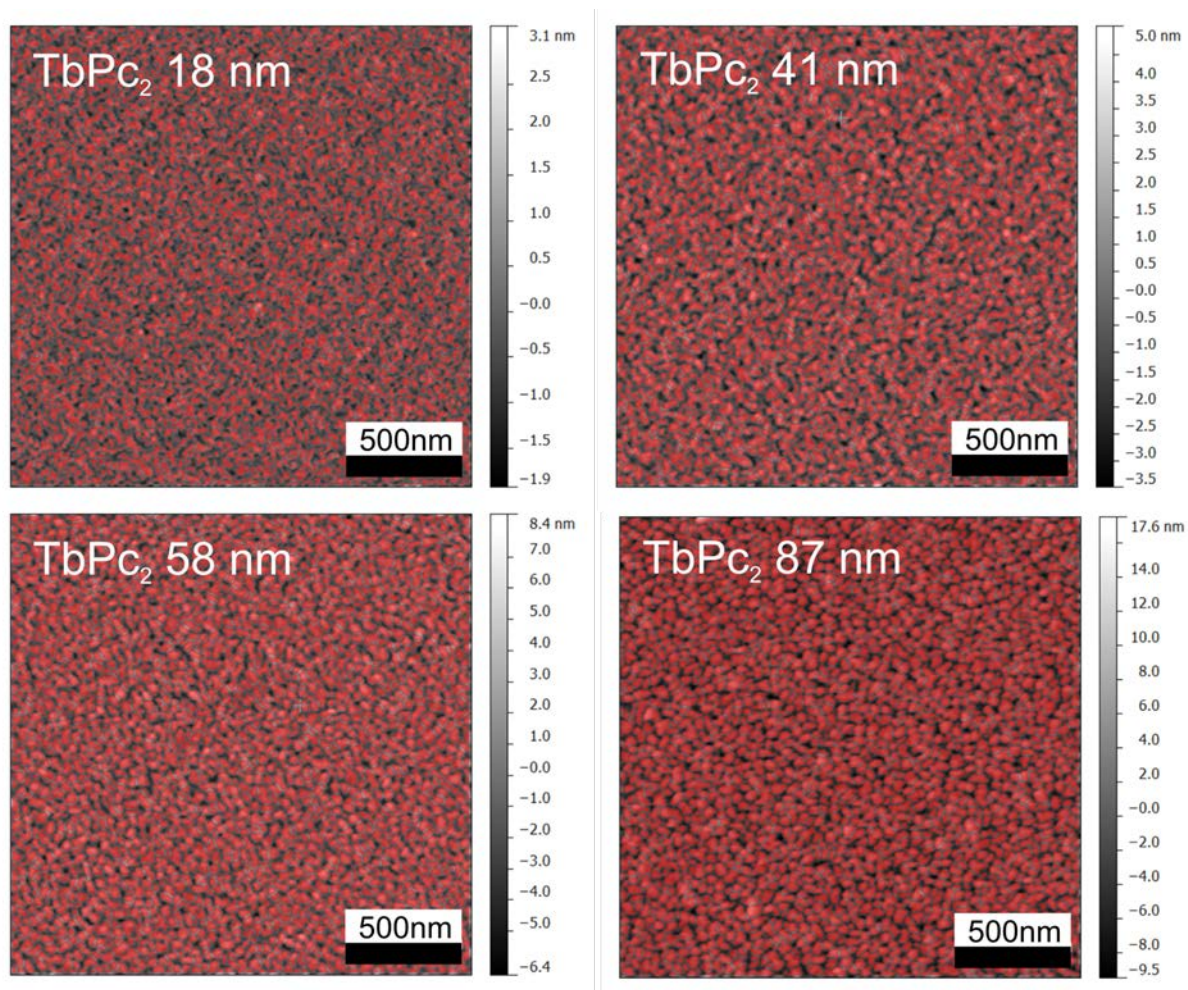

Figure S2: AFM topography images for statistical analysis of $TbPc_2$ grain size evolution as a function of film thickness. Gray-scaled images correspond to the original AFM images shown in Figure 4. Red-colored areas correspond to the analysis grain definition, each red area represent a grain over the organic surface. Statistical analysis allows quantifying parameters such as the number of grains, height and diameter.

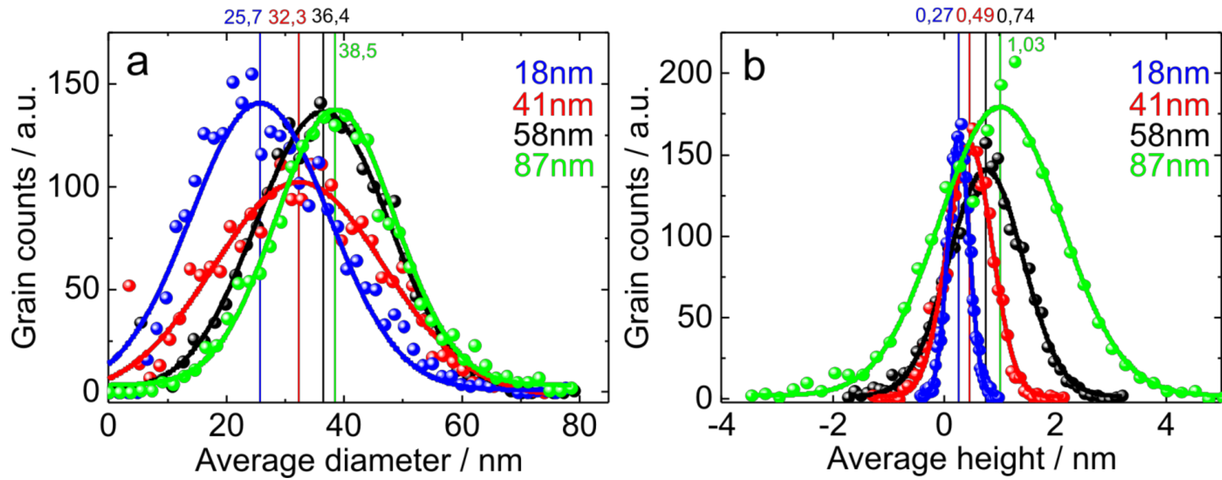

Figure S3: Statistical analysis of grain height and diameter as a function of the thickness of $TbPc_2$. Histograms are obtained from the grain definition shown in Figure S2.

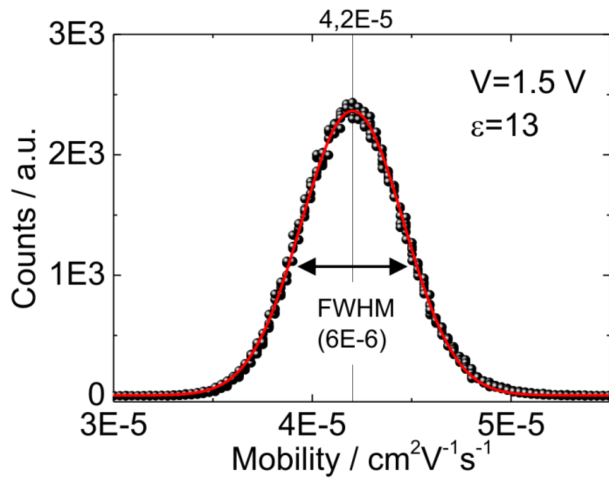

Figure S4: Statistical error estimation for charge carrier mobility given a dielectric constant of 13. Analysis is performed from a current map at 1.5 V. The error is defined as the FWHM value of a Gaussian fit showing the mobility value for all the 512 × 512 data points of the current map.

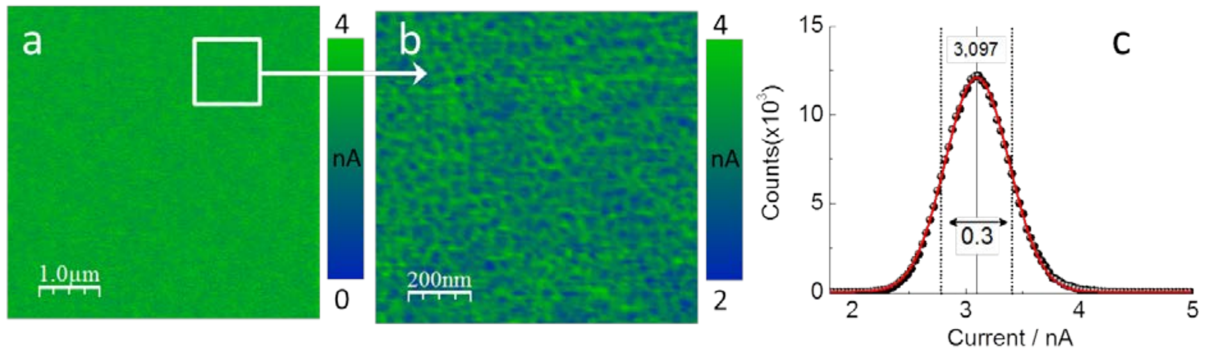

Figure S5: (a) Current map obtained at 1.5 V on an 80 nm thick $TbPc_2$ sample. (b) Higher magnification of current map in (a) for a 1 × 1 μm^2 area as indicated in (a). (c) Electrical current dispersion considering all of the 512 × 512 data points of current map shown in (a).