Supplementary Information for

Selective Saturation of Step-Edges as a Tool to Control the Growth of Molecular Fibres

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Table of Contents

1. Ag(111)/mica substrates

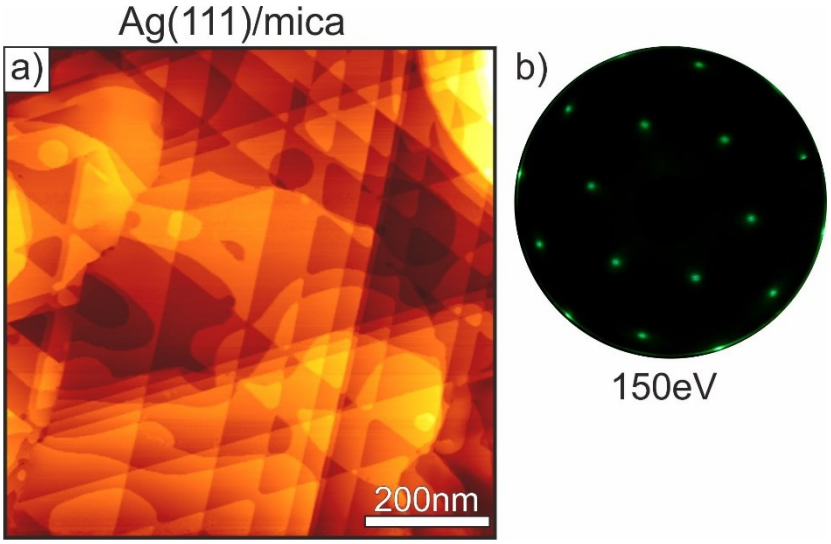


Fig. S1 a) STM image of a long range ordered Ag(111)/mica surface (I_t = 70nA), which exhibits large, flat (111) terraces separated by straight steps indicating the $\langle 1\bar{1}0\rangle_{Ag}$ directions together with b) the corresponding LEED pattern (E = 150 eV).

2. Correlation of azimuthal alignment between substrate and fibre directions

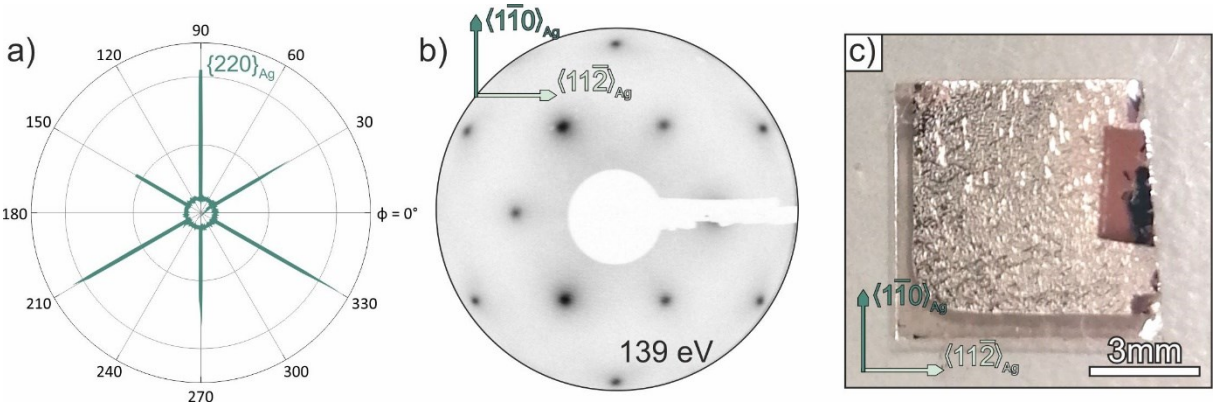


Fig. S2 a) Phi-Scan of a Ag(111)/mica sample measured at the $\{220\}_{Ag}$ plane. Discrete peaks indicate the high-symmetry $\langle 1\bar{1}0\rangle_{Ag}$ direction, which we used to correlate the azimuthal directions of substrate and fibres. b) Corresponding LEED image of the Ag(111)/mica sheet at E=139 eV. c) Photograph of a typical Ag(111)/mica sheet with a deposited p-4p film (corresponding micrograph in Fig. 4b in the main paper).

3. Statistical analysis of the azimuthal fibre orientation

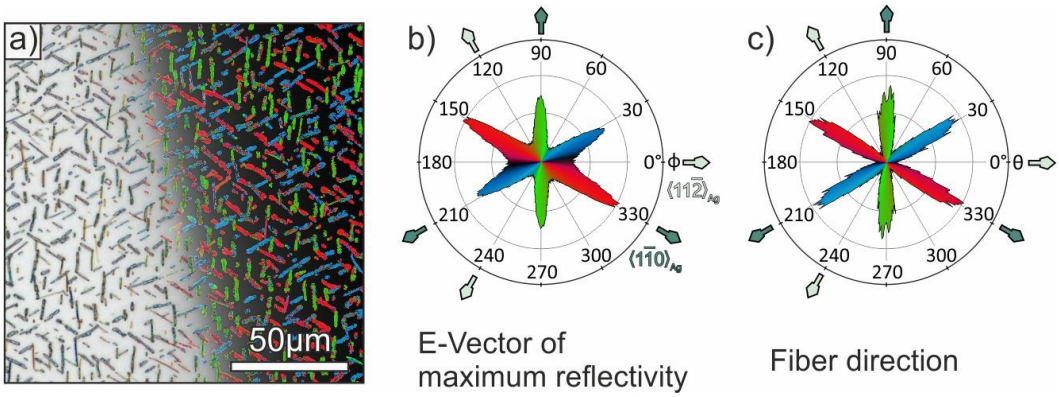
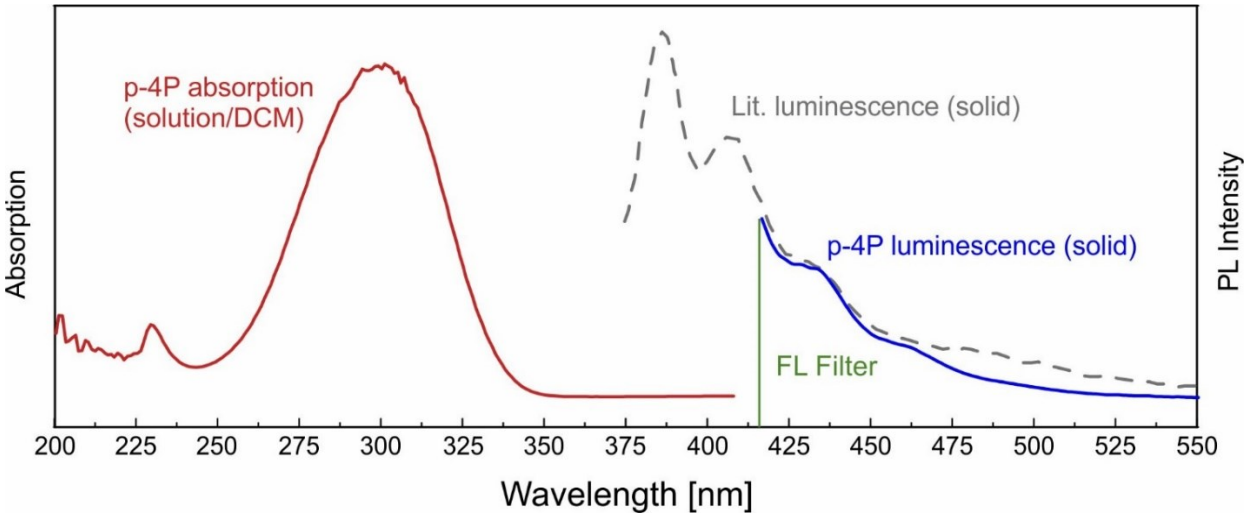


Fig. S3 a) Optical micrograph of a p-4P film with a nominal thickness of 30 nm on Ag(111)/mica, which was brought back to ambient conditions for some seconds before deposition (cf. Fig. 2e in the main paper). The false color plot on the right hand side displays the E-vector orientation of the linear polarized light, at which the corresponding pixel exhibits the maximum intensity. b) Histogram of the false color plot in a). c) Statistical analysis of the fibre directions with respect to the substrate high symmetry directions.



4. Absorption and photoluminescence spectrum of p-4P thin films

Fig. S4 Absorption spectrum of p-4P solved in DCM (left). Photoluminescence spectrum (blue) of a p-4P/Ag(111) thin film (see. Fig. 5a in the main paper) with a nominal thickness of 30 nm, compared to literature spectra (cf. Ref. 30) in dashed grey lines. Note, that the used fluorescence filter cuts out light with a wavelength below 415 nm.

5. Surface quality of Ag(111) after air contact

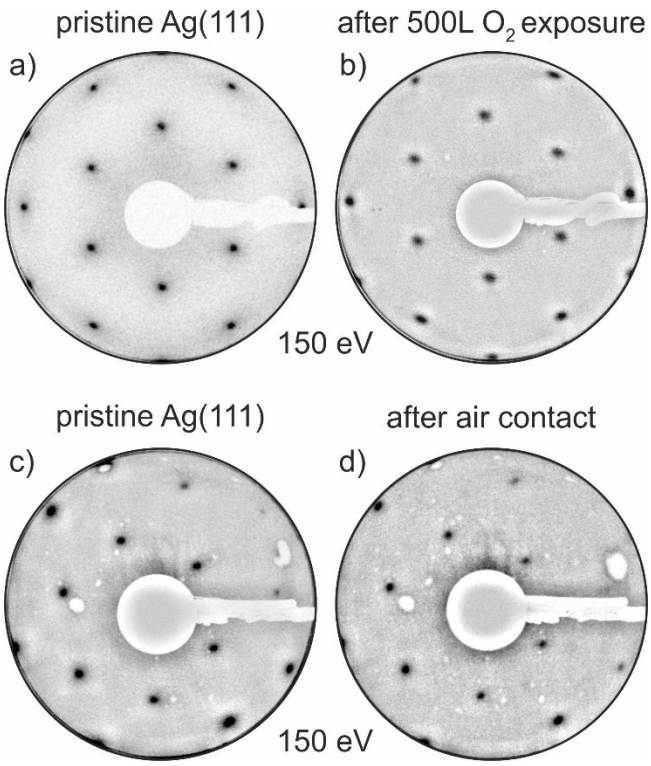


Fig. S5 LEED images (E_{kin} = 150 eV) of Ag(111) surfaces after several cycles of sputtering/annealing und UHV conditions (as describes in Experimental Section) in (a,c) and the same samples after an oxygen exposure of 500 L in (b) and after a brief air contact of one minute (yielding a dosage of about $5 \cdot 10^{10}$ L) in (d).