Supplementary information

Island shape and aggregation steered by the geometry of the substrate lattice

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Experimental details

The measurements were performed at the SMART (Spectro-Microscope with Aberration correction for many Relevant Techniques) an aberration-corrected spectromicroscope, installed at the UE49-PGM-b-SMART at BESSY (Berlin, Germany). This instrument allows to investigate the film growth in-situ and in real time quasi-simultaneously by imaging, diffraction, and spectroscopy of the emitted photoelectrons. A clean Au(111) single crystal was prepared by several cycles of Ar+ ion bombardment, followed by annealing in ultra high vacuum (UHV), which gave the well known herringbone pattern[1] (visible by low energy electron microscopy (LEEM) because of the high lateral resolution of the experiment: 6 nm[2], see inset in Figure 1). Thin films of DIP were prepared in-situ by organic molecular beam deposition (evaporation rate = 3 Å/min) keeping the substrate at room temperature. No degradation of the samples was observed on the time scale of all presented results.

References

1 J. V. Barth, H. Brune, G. Ertl and R. J. Behm, *Phys. Rev. B*, 1990, **42**, 9307.

2 Th. Schmidt, H. Marchetto, P. L. Levesque, U. Groh, F. Maier, D. Preikszas, P. Hartel, R. Spehr, G. Lilienkamp, W. Engel, R. Fink, E. Bauer, H. Rose, E. Umbach and H. J. Freund, *Ultramicroscopy*, 2010, **110**, 1358.

Table 1

	Au(100)	Au(110)	Au(111)
Surface atom densities (related to Au(111))[29]	0.866	0.612	1.000
Surface energy (J/m^2)[30]	1.627	1.700	1.283

Surface atom densities and surface energy for Au(100), Au(110) and Au(111) surfaces.

Ref 29 and 30 as in the Communication:

29 K. W. Kolasinski, Surface Science, Wiley, England, 2008.

30 L. Vitos, A.V. Ruban, H. L. Skriver and J. Kollár, Surf. Sci. 1998, **411**, 186.