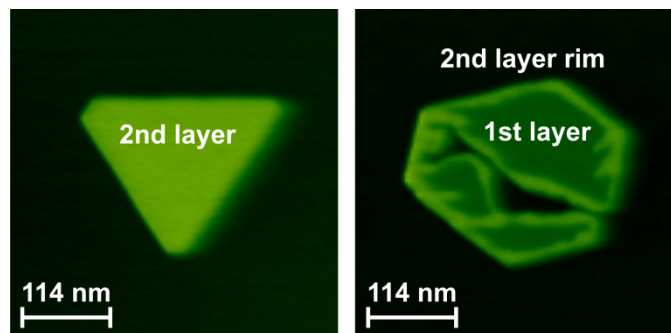


Diffusion and island formation of C₆₀ molecules on CaF₂(111)

Felix Loske and Angelika Kühnle

Johannes Gutenberg-University Mainz (Germany)

In this talk, diffusion and island formation of C₆₀ molecules on large, atomically flat terraces of the CaF₂(111) surface under ultra-high vacuum conditions are presented. The island densities and the island size distributions are studied at various coverages and temperatures below room temperature using non-contact atomic force microscopy. Applying the so-called onset method, we determine the two significant parameters of diffusion: the diffusion barrier and the hopping rate [1]. Besides the quantitative discussion of the diffusion parameters, we take a closer look at the inner structure and dynamics of individual islands. In particular, we observe a dewetting process, which yields a coexistence of triangular shaped, two-layer high islands and hexagonal shaped, one-layer high island with a second layer rim (see figure). A qualitative model is presented, describing a possible origin of these islands.



- [1] F. Loske, J. Lübke, J. Schütte, M. Reichling, A. Kühnle, Quantitative description of C₆₀ diffusion on an insulating surface, Phys. Rev. B **82** (2010) 155428