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Self-assembly of methanethiol on cluster arrays of Co/Au(111)[1]
GEORGI NENCHEV, BOGDAN DIACONESCU, KARSTEN POHL, University of New Hampshire — Self-assembly on strained metallic interfaces is an attractive option for growing highly ordered multi-functional nanopatterns. We present a Variable Temperature STM and Auger Electron Spectroscopy study of selective adsorption of sulfur-terminated CH_3SH molecules on the lattice of Co clusters on Au(111). We investigate the growth of a uniform network of Co on the reconstructed Au(111) surface, the temperature evolution of the island height and the termination, and the onset of surface alloying. Further we will show the evolution of morphology of the CH_3SH film on Au (111) as a function of coverage and temperature, and the importance of the herringbone reconstruction for the SAM formation and orientation. Successful combination and control of these two processes leads to the creation of an ordered, stable patterned Co/CH_3SH heterostructure with nanometer-sized unit cell.

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Georgi Nenchev
University of New Hampshire

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