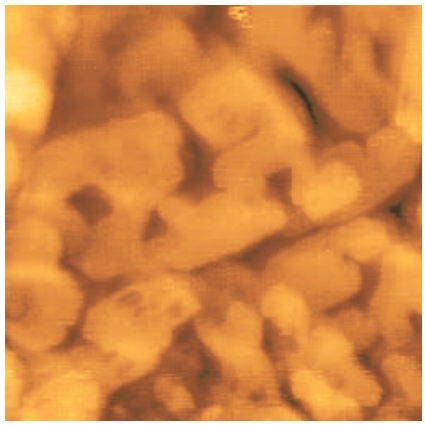
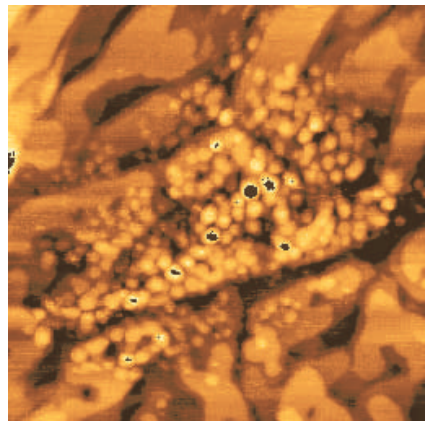
Modification of Gold surface by voltage pulses

Nanosurf® STM Application Note

On (111) oriented gold thin films it is possible to locally modify the surface by applying a voltage pulse (see eg. T. Schaub, Nanotechnology 3 (1991) p77-83). Depending on the polarity of the pulse it is possible to field evaporate tip material onto the surface. In the subsequent series of images the evolution of the deposit can be seen:



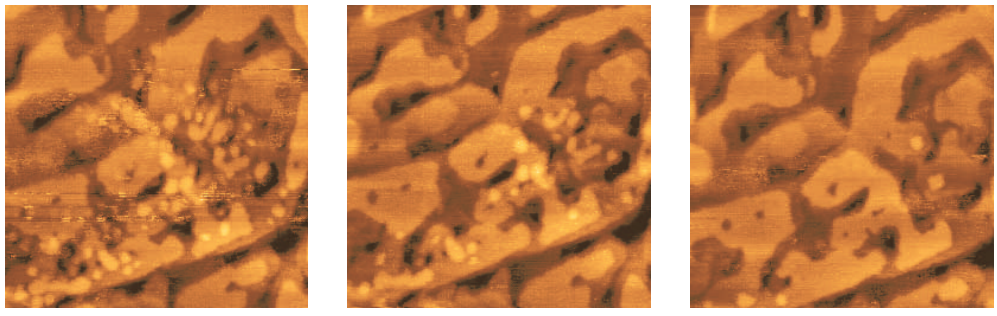
scan size: 127 nm
z-range: 1.0nm



scan size: 127 nm
z-range: 1.0nm

After applying several pulses using the spectroscopy feature of the easyScan software (0-4V) a deposit is visible in the second image. After scanning the same location several times the deposit seems to spread and accumulate at the step fronts.

Sequence of images taken in 3 minute intervals



all images: scan size: 110 nm and z-range: 1.0nm

Nanosurf AG
Grammetstr. 14
CH-4410 Liestal
Tel +41 (0)61 927 56 46 Fax +41 (0)61 927 56 47
www.nanosurf.com