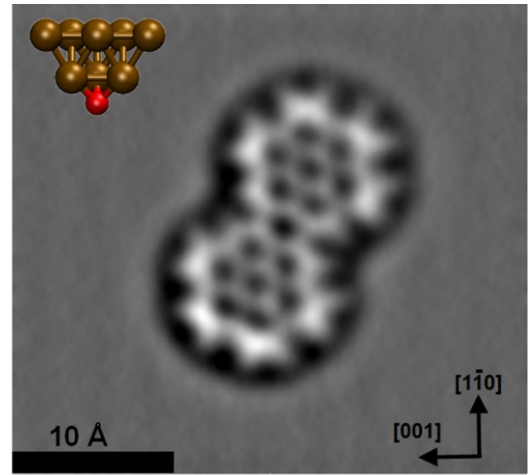


AFM/STM UHV system

NC-AFM data of dicoronylene / Cu oxide tip  
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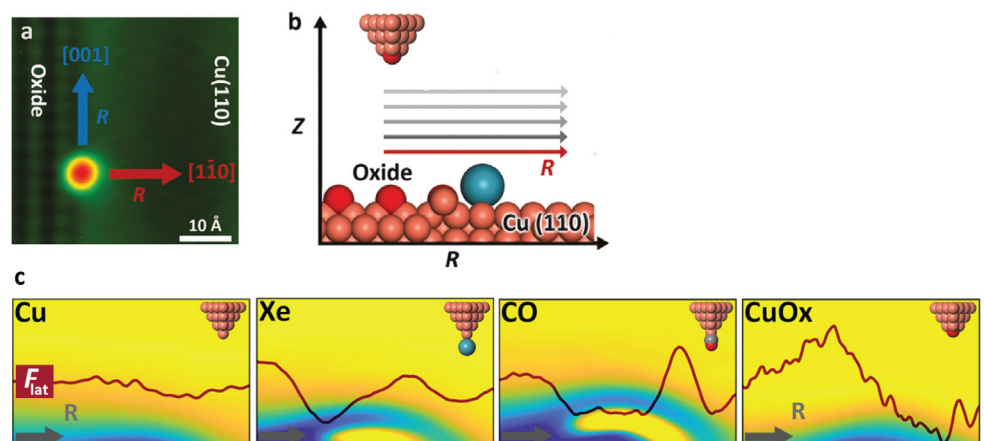
## PhD, Master, and Bachelor Projects:

### High-Resolution NC-AFM Imaging and Force Spectroscopy

In our group *Nanoscale Interface Analytics*, we offer various projects on the PhD-, Master-, and Bachelor level. The projects involve force measurements with highest sensitivity and imaging experiments with atomic resolution. Organic and inorganic nanostructures are prepared on single crystalline surfaces, which are investigated by noncontact atomic force microscopy and scanning tunneling microscopy (NC-AFM/STM). The research topics focus on the atomic scale control of the probe tips in these experiments, which allows imaging the bonding structure of the molecules with a resolution in the picometer regime. Central questions concern the mechanisms leading to self-assembled surface structures, which aim for the development of novel functional nano-materials. The NC-AFM/STM experiments are performed under **ultrahigh vacuum conditions (UHV) and at low temperatures** (78 K, and 5 K) on a variety of sample systems and are complemented by photoelectron spectroscopy (XPS/UPS).

Students have access to state-of-the-art laboratories, which are located at the Center for Nanotechnology (CeNTech) in Münster. The international and interdisciplinary environment at the Physics Institute and CeNTech provides an excellent infrastructure allowing dynamic scientific exchange across the traditional disciplines.

Force measurements during tip-induced lateral manipulations of single surface Xe atoms nucleated at an oxide boundary. Here we investigated effects due to different atoms at the tip apex. Detected lateral forces  $F_{\text{lat}}$  range between 4 and 45 pN (© Wiley-VCH Small 17, 2101637 (2021)).



If you are interested in joining the group please contact Dr. Harry Mönig  
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