

Supporting Information

On-Surface coordination chemistry: Direct imaging of the conformational freedom of an axial ligand at room-temperature

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Tip-artifact

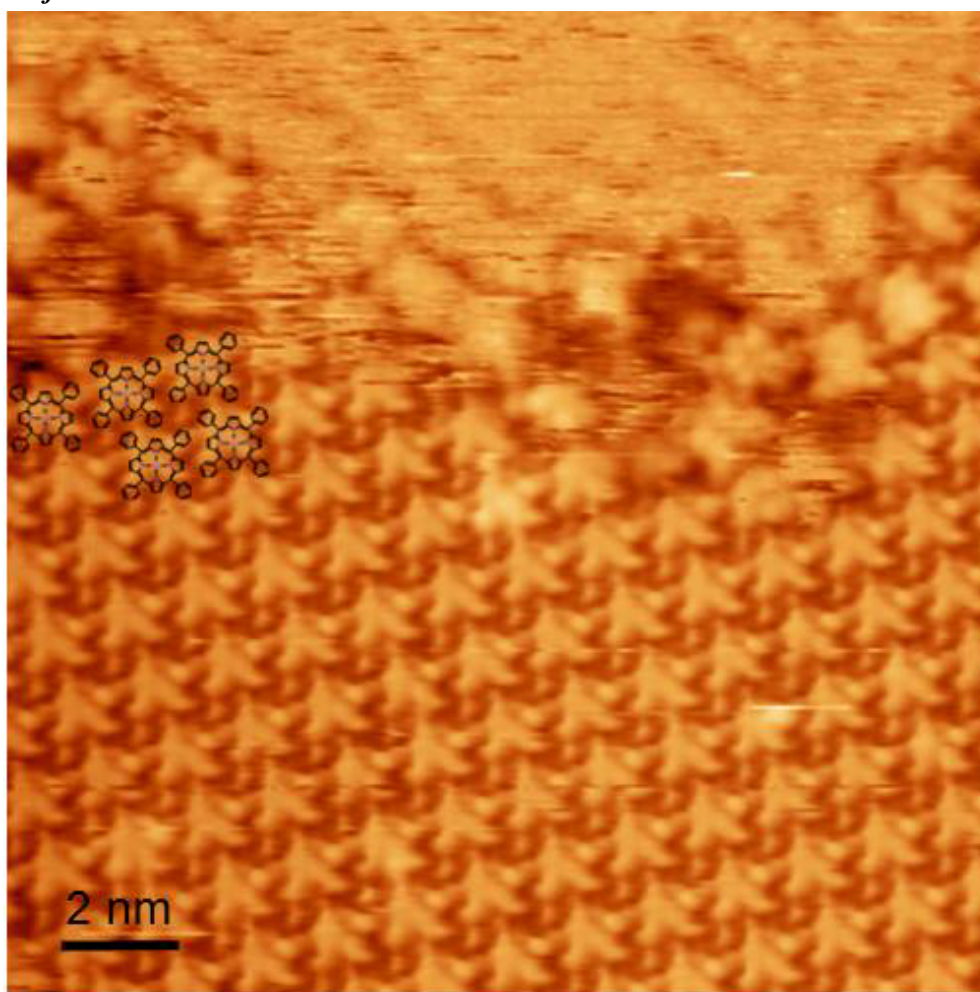


Figure S1: STM data of ~ 1 ML of CoTPP on O/Ni(001) showing a distinct tip-artifact.

It is important to note that one should take special care while assigning the molecular features in an STM image. In Fig. S1 we show the a monolayer of CoTPP on O/Ni(001), but with some tip-associated artifact (probably a CoTPP molecule attached to the STM tip). The molecules resemble stars and their lobe assignment differs now

completely from the previous data. This image shows that STM data should be carefully recorded and interpreted.

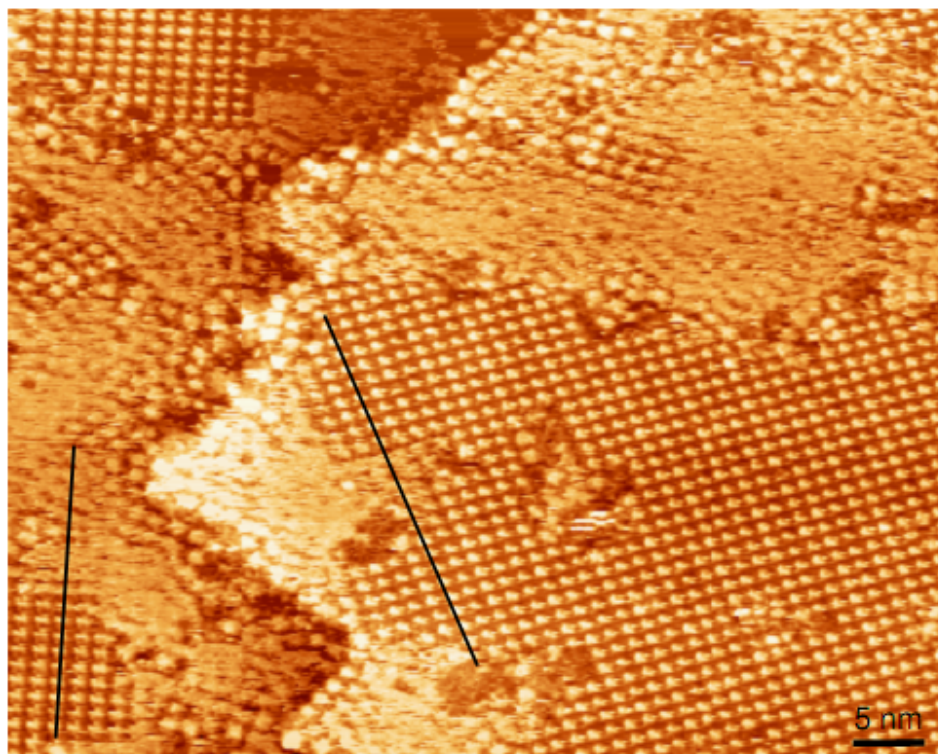


Figure S2: Large-scale STM data on CoTPP/O/Ni exhibiting both mirror-domains in the CoTPP-adlayer. In the disordered areas the ad-molecules are mobile due to the locally lower coverage (2D gas phase).

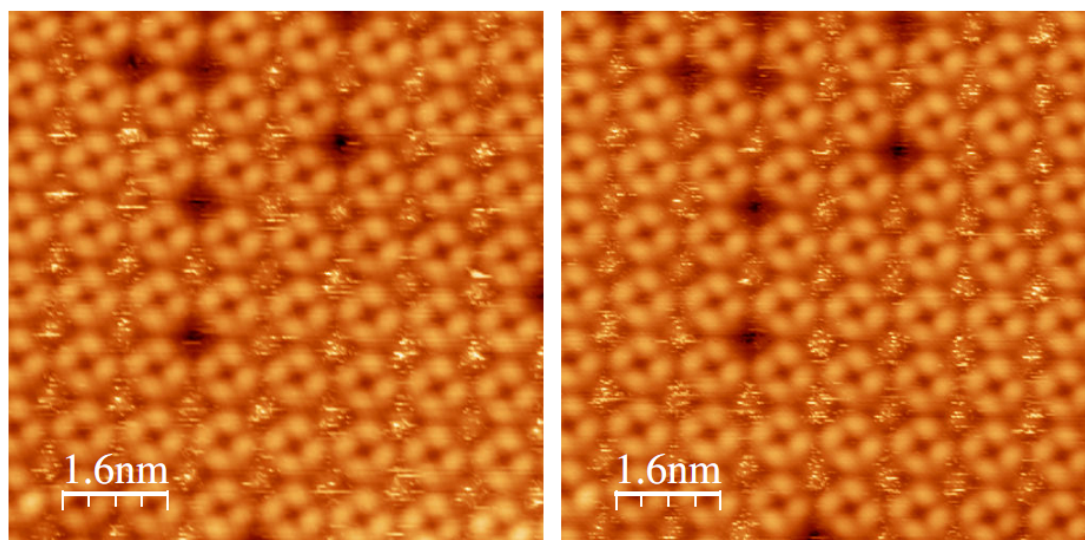


Figure S3: STM data obtained at the same place on the sample before (left, 2V, 40pA) and after (right, 2V, 30pA) taking bias-dependent image-series.

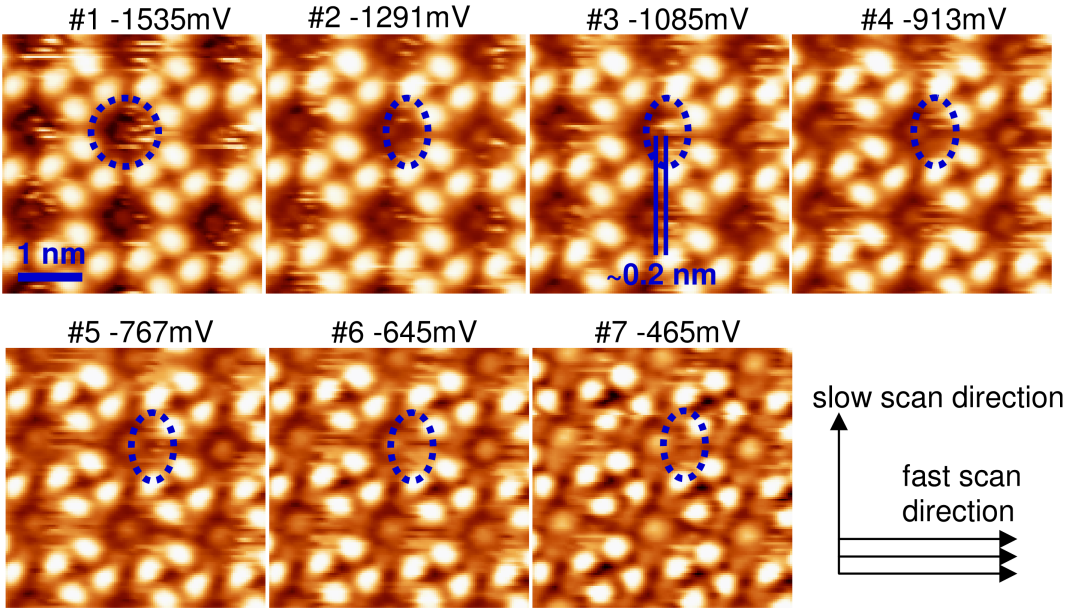


Figure S4: STM data on CoTPP/O/Ni ($I_s = 50 \dots 60 \text{ pA}$). Independent series of bias-dependent images. Here, the streaks at low-bias are clearly visible. Furthermore, it is apparent that the streaks are shifted to the right (i.e. along the fast scan direction) for bias voltages $< -1100 \text{ mV}$.