Quantitative imaging of electric surface potentials with single-atom sensitivity

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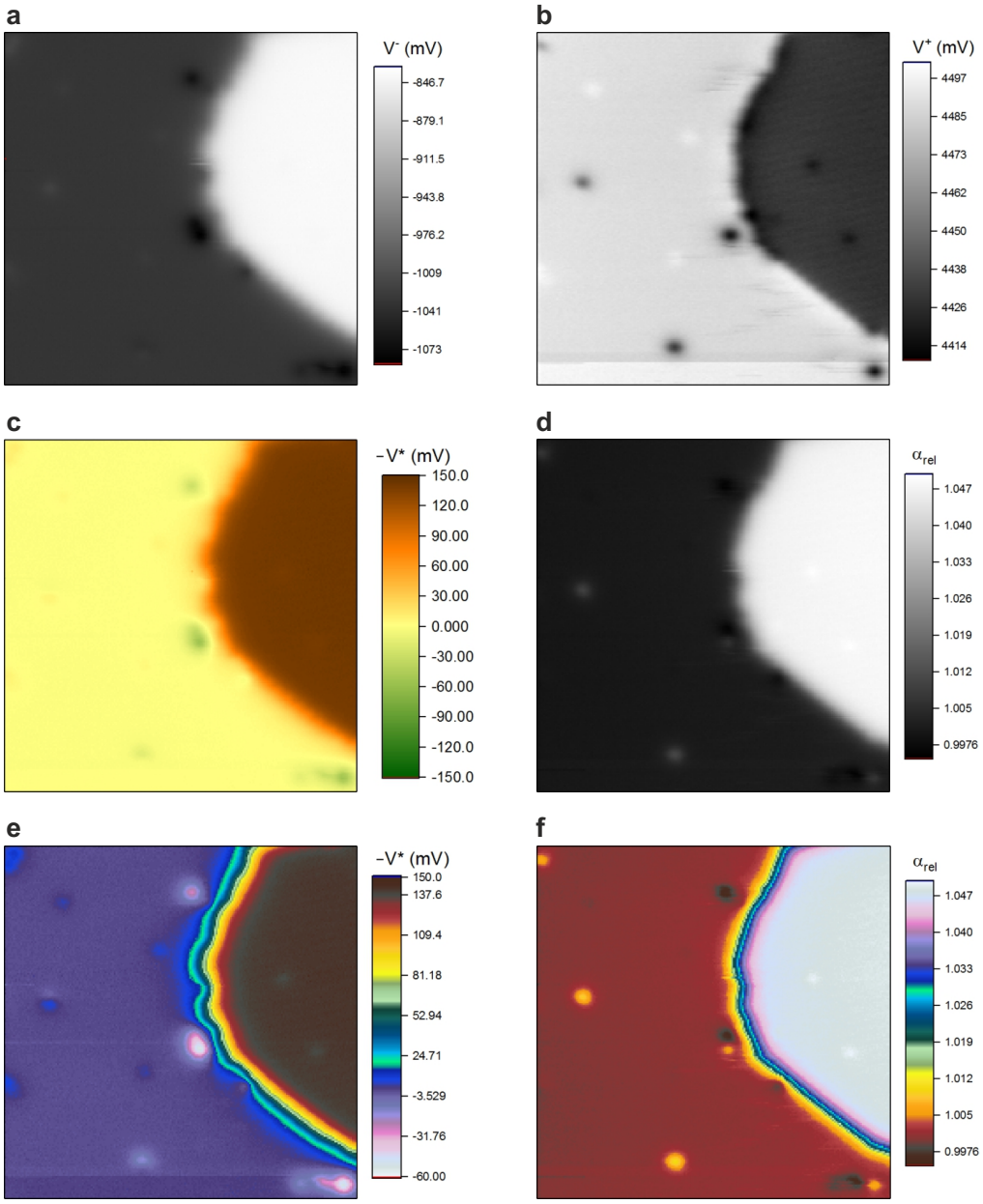
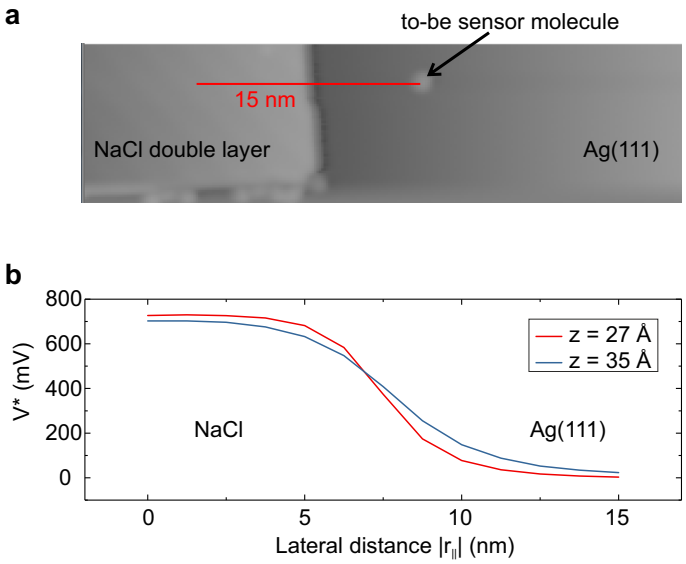
1 Raw SQDM images



Supplementary Figure 1: **Raw SQDM images. a, b** SQDM V^+ and V^- images as recorded with the slope tracking controller. Forward and backward scan direction have been averaged to optimize the signal-to-noise ratio. **c, d** V^* and α_{rel} images as calculated from V^+ and V^- via Eqs. 5 and 6 of the main paper. **e, f** Same as Panels c and d but with a colour scale that reveals weak contrast variations.

2 SQDM on NaCl



Supplementary Figure 2: **SQDM data for a NaCl bilayer on Ag(111). a** STM image of a NaCl island edge and a PTCDA molecule which is subsequently used as quantum dot for SQDM. **b** $V^*(\mathrm{r}_{||})$ profile (location indicated in red in Panel a) across the NaCl island edge recorded at two different tip heights. The work function change of $-0.73\,\mathrm{eV}$ which we determine from SQDM for the NaCl bilayer on Ag(111) corresponds well to the value of $-0.63\,\mathrm{eV}$ obtained with KPFM for NaCl on Au(111) [1]. The salt film was prepared by thermal evaporation [2].

References and Notes

[1] Loppacher, C., Zerweck, U. & Eng, L. M. Kelvin probe force microscopy of alkali chloride thin films on Au(111). Nanotechnology **15**, S9–S13 (2004). URL stacks.iop.org/Nano/15/S9.

[2] Repp, J., Meyer, G. & Rieder, K. H. Snell's Law for Surface Electrons: Refraction of an Electron Gas Imaged in Real Space. Physical Review Letters **92**, 036803 (2004). URL https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.92.036803. 0311415.