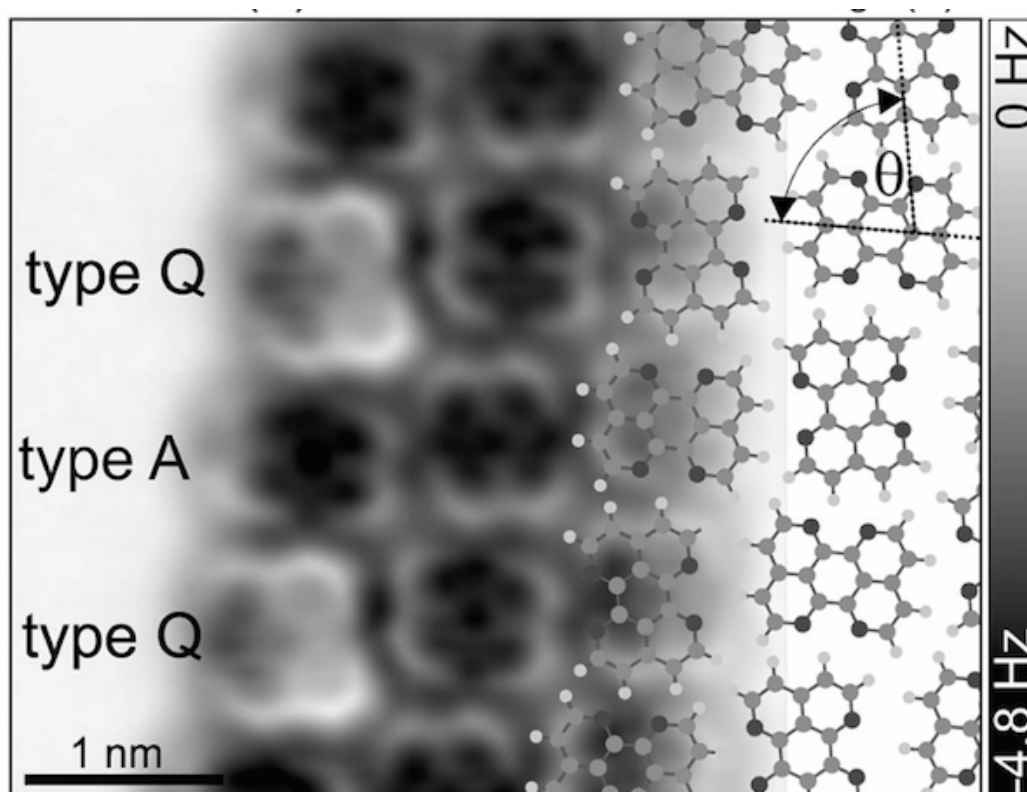


## Periodic charging of individual molecules and charge patterns of an assembly of aromatic heterocyclic molecules on the surface

S. Liu<sup>2</sup>, N. Kocić<sup>3</sup>, X. Liu<sup>2</sup>, P. Weiderer<sup>3</sup>, S. Decurtins<sup>2</sup>, J. Repp<sup>3\*</sup>

<sup>1</sup>Department of Chemistry and Biochemistry, University of Bern, 3012 Bern, Switzerland, <sup>2</sup>Department of Chemistry and Biochemistry, University of Bern, 3012 Bern, Switzerland, <sup>3</sup>Institute of Experimental and Applied Physics, University of Regensburg, 93053 Regensburg, Germany

Single-electron charging is critical for many areas of nanoscience. Charging and discharging events can be detected, i.e. in the force and in the frequency shift in atomic force microscopy. In a combined STM/FM-AFM study, the periodic charging of individual molecules assembled on a Ag(111) substrate was investigated [1]. The molecule under investigation, 1,6,7,12-tetraazaperylene (**tape**), is a planar heterocyclic compound (Figure 1). The incorporated hydrogen bonding capacity stabilizes on surface a two-dimensional molecular assembly. Interestingly, different charge patterns on the 1 nm scale can be created and addressed in a controlled way on the Ag(111) substrate.



[1] Nemanja Kocić, Peter Weiderer, Stefan Keller, Silvio Decurtins, Shi-Xia Liu, Jascha Repp, Nano Letter, 2015, 15, 4406-4411.