

Imaging and manipulating different supramolecular assemblies of acetylbiphenyl with a four-probe scanning tunneling microscope

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The controlled manipulation of nanostructures is of importance for the construction of molecular devices. Here, we use a low temperature ultrahigh vacuum four-probe scanning tunneling microscope to study acetylbiphenyl (ABP) molecules on Au(111). ABP forms different supramolecular assemblies via hydrogen bonds on the surface. The tetrameric structure and a trimeric structure can be controllably moved several nanometers by voltage pulses. [1, 2] In this work, we discuss the dependency of the movement on the polarity and location of the applied voltage pulse on the different assemblies. Scanning and manipulating with all other tips at the same time is possible without influencing this manipulation.

References

- [1] F. Eisenhut, C. Durand, F. Moresco, J.-P. Launay, C. Joachim, *Eur. Phys. J. Appl. Phys.*, 76 1 (2016) 10001
- [2] A. Nickel, R. Ohmann, J. Meyer, M. Grisolia, C. Joachim, F. Moresco, G. Cuniberti, *ACS Nano* 7, 191 (2013)

Figures

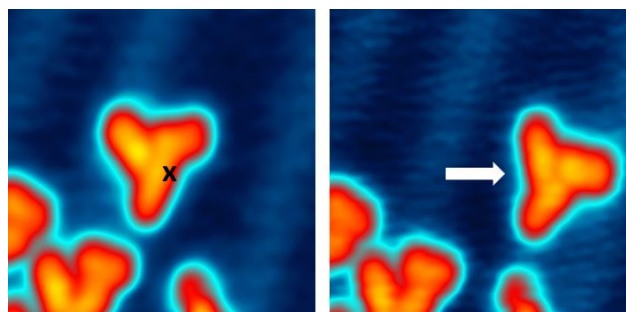


Figure 1. An ABP-trimer controllably moved on Au(111) by using a voltage pulse. The assembly laterally moved and rotated after the pulse.