## Contribution submission to the conference Berlin 2015

Probing single donor-acceptor molecules on thin insulating films — •TOBIAS MEIER<sup>1</sup>, RÉMY PAWLAK<sup>1</sup>, SHIGEKI KAWAI<sup>1</sup>, SHI-XIA LIU<sup>2</sup>, SILVIO DECURTINS<sup>2</sup>, ERNST MEYER<sup>1</sup>, and THILO GLATZEL<sup>1</sup> — <sup>1</sup>Department of Physics, University of Basel, Switzerland — <sup>2</sup>Department of Chemistry and Biochemistry, University of Bern, Switzerland

Fused Donor-Acceptor molecules have attracted a broad interest due to their potential applications for example in organic solar cells. The intrinsic electronic properties of such organic compounds determine the device performance, notably the intramolecular charge transfers (CT) between the donor and acceptor parts. However, the CT is still poorly understood at the single molecular scale.

In this work we used the TTF-dppz [1], a planar and and piconjugated molecule with size of less than 2 nm, adsorbed on thin layers of NaCl on Cu(111). By combining STM and AFM, we spatially characterized the separation of the HOMO and LUMO with respect to the chemical structure of the TTF-dppz molecule observed by AFM. We further investigated with force and current based spectroscopic techniques [2,3] the electronic properties of the molecule and its charge redistribution. To gain more insights into the charge transfer of a single molecule under illumination, we further performed such spectroscopic measurements under illumination.

[1] C. Jia et al., Chemistry 13, 3804 (2007). [2] R. Pawlak et al., Nano Lett. 13, 5803 (2013). [3] S. Kawai et al., ACS Nano 7, 9098 (2013).

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