



PHYSIKALISCHES KOLLOQUIUM

Wintersemester 2011/2012

Montag, 12.12.2011, 12 Uhr c.t. H-NB

Towards Molecular Electronics: Electronic Transport through Individual Molecules

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Molecular electronics aim at the development of nano-electronic circuits, the functional units of which are formed by molecules. The basic components of electronics are switches, wires, capacitors, transistors and diodes. Transistors can work as mere switches or as amplifiers with variable gain. Diodes are discussed as rectifying elements, i.e. for transforming an alternate current into a directed one. After a brief overview over the history of molecular electronics we will concentrate in this talk on transport through single molecules contacted with metallic electrodes.

We will first address the problem of contact formation between the single molecule und the metal electrodes. We will present a study in which we systematically vary the linking groups between the metal and the molecule [1]. Finally we will address selected examples of functional molecules the transport properties of which change upon stretching [2], application of high bias voltage or under light irradiation [3].

- [1] L. A. Zotti et al., *Small* **6**, 1529 (2010)
- [2] Y. Kim et al, *ACS Nano* **5**, 4104 (2011), Y. Kim et al., *Phys. Rev. Lett.* **106**, 196804 (2011), Y. Kim et al., *Nano Letters* **11**, 3734 (2011).
- [3] D. Sysoiev et al., *Chem. Eur. J.* **17**, 6663(2011).

Einführung: Prof. Dr. Dr. h. c. H. Zabel

Die Fakultät lädt alle Interessierten herzlich ein.

Ab 11.45 Uhr Kaffee/Tee im Hörsaal