



TRR 80 Sonderseminar

Am Mittwoch, den 20. Juli um 11:00 Uhr

spricht

Dr. Ivan Rungger

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über das Thema

Quantum transport simulations for novel molecule-electrode device setups and resistive switching memories

The understanding of electron transport phenomena at the atomic scale is essential for the design of new nanoscale devices. In this talk we address a number of open questions with first principle electron transport simulations using the *Smeagol* code [1]. With a combined theoretical and experimental study of the lifetime of electrons at molecule/metal interface layers we provide a model for charge and spin injection in organic electronic devices. We then present the emergence of new molecular device characteristics stable at room temperature by using electrodes based on layered graphene systems. We conclude by addressing open questions regarding the resistance changes and quantized conductance in resistive switching random access memories (ReRAM) [2].

[1] A. Rocha *et al.*, Phys. Rev. B **73**, 085414 (2006); I. Rungger *et al.*, Phys. Rev. B, **78**, 035407 (2008).

[2] X. Zhong, I. Rungger, P. Zapol, H. Nakamura, Y. Asai, and O. Heinonen, Phys. Chem. Chem. Phys. **18**, 7502 (2016).

Gäste sind herzlich willkommen.

Der Vortrag findet im Seminarraum S-439, Institut für Physik, Universität Augsburg statt.

Gastgeber: Prof. Dr. Liviu Chioncel

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