EINLADUNG ZUM SONDERSEMINAR
IM RAHMEN DES LASER- UND QUANTENOPTIKSEMINARS

Am Donnerstag, 14.06.2012, um 17:00 Uhr
Raum 46/387-388

Es spricht: Andrea Droghetti
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Thema:

“Electric control and readout of the magnetic moment of Fe(II) and Co-dioxolene complexes”

Recent experiments have demonstrated that fully molecular spin-valve devices can be practically realized [1]. Unfortunately, however, the operation of such devices is limited to temperatures below 1 K, as it relies on the magnetic anisotropy of the molecules acting as spin-polarizers. We here propose a different device design strategy, namely we propose to use molecules, which can be switched between a non-magnetic and magnetic state through some external perturbations. Example of such molecules are various Fe(II) and Co-dioxolene compounds [2, 3]. Then, based on diffusion Monte Carlo and density functional theory calculations, we will argue that a direct control over the molecule spin through an external electric field is, in principle, possible [4]. Finally, we will discuss several results of quantitative transport simulations, which demonstrate that the molecule magnetic moment can be inferred by an electrical readout. In fact, the current-voltage characteristic curve depends drastically on the molecule magnetic moment [5].


Der Gast wird betreut von Dr. M. Cinchetti

GÄSTE SIND HERZLICH WILLKOMMEN!