



TECHNISCHE UNIVERSITÄT
CHEMNITZ

Institut für Physik Physikalisches Kolloquium



Mittwoch, 13.11.2019, **um 11:15 Uhr**

Ort: Reichenhainer Str. 90;
Zentrales Hörsaal- und Seminargebäude,
Raum 2/N013

Dr. Alexander Weismann

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Inducing and controlling magnetism through atomic manipulation

Controlling orbital energies relative to the Fermi level of a metal substrate allows tuning many physical effects including transport and ground state properties as well as magnetic anisotropy. We arranged diamagnetic, closed shell molecules into well-defined supramolecular arrays on Pb(100) with a scanning tunneling microscope. We show, that the energies of molecular orbitals can be shifted and paramagnetism can be induced by interactions with the surrounding molecules. This leads to a Yu-Shiba-Rusinov bound state in the superconducting gap, whose energy can further adjusted by precise tuning of the interactions between the molecules. The nature of the interaction is identified using DFT calculations.

In another experiment we studied, how the Kondo effect of single Co adatoms on Cu(111) surfaces can be modified by attaching them to long chains of Cu atoms. Here we observe distinctly different amplitudes, widths and line shapes of the Kondo resonance from atoms on pristine terraces, at chains, and the end of chains. DFT calculation reveal, that the crystal field splitting of the Co d-levels and their hybridization with the substrate varies strongly between the three different atomic environments. We compare the experimentally observed spectra to the results of multi-orbital many-body calculations.

Alle Zuhörer sind ab 11:00 zu Kaffee und Tee vor dem Hörsaal eingeladen.



Informationen zum Vortrag erteilt:
Prof. Dr. Christoph Tegenkamp, Tel. 0371 531 33103

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