Physikalisches Kolloquium Universität Kiel
Wintersemester 2019/2020

Dienstag, 21. Januar 2020

Prof. Dr. Harald Brune

Head of Institute of Physics, Ecole Polytechnique Fédérale de Lausanne

The Magnetism of Single Surface Adsorbed Atoms – Recent Achievements and Future Perspectives

The ultimate size limit of a magnetic bit is a single atom. Despite long lasting research efforts of several groups, and despite the spectacularly large orbital moments and anisotropy energies reported on single surface adsorbed atoms, all investigated systems were paramagnetic down to lowest temperatures. This changed in 2016, where two systems with magnetic remanence were identified. We report on these systems where indeed single atoms are stable magnets. We show how their magnetization can be read and written and we elaborate on the mechanisms that limit their stability. These involve electron and phonon scattering, but also the interaction between electron and nuclear spins. Our results show that single atom magnetic information storage is feasible with coercitive fields and temperatures that outperform the best molecular magnets. We discuss the features that need to be met for single atom magnetic quantum bits, *i.e.*, for single atoms that enable coherent manipulation of the wave function describing their magnetic quantum state.

Der Vortrag beginnt um **16:15 Uhr** im **Hans-Geiger-Hörsaal (LS13-R.52)** des Physikzentrums.

Ab **16:00 Uhr** werden **Kaffee** und **Tee** angeboten

Bitte Becher mitbringen!

Prof. Dr. Berndt

Prof. O. Magnussen
für die Dozenten der Physik