



Seminarankündigung

**Dienstag, 24. Januar 2017
17:15 Uhr**

WSI, Seminarraum S 101

“TEERs for DEERs – Advanced spectroscopy of correlated spins in molecules using a single spin sensor”

Defects in the solid state are potentially suitable candidates for nanoscale sensing and imaging. Among these, the nitrogen-vacancy (NV) center in diamond has gained wide publicity due to its long coherence time, stability and wide temperature and frequency ranges of operation. With recent reports on the sensing of electron spins and nuclear spins from single proteins, we attempt to go one step further to the realm of correlated spins. We present measurements of electron spins in spin-labeled molecules both at room temperature and at low temperature. We show that it is possible to detect the dipolar coupling between two spin labels in a doubly-labeled homopolymer using a scheme we call "triple electron-electron resonance". This is a necessary step towards sensing of spins in correlated-electrons systems. Together with quantum-assisted schemes and improvements in signal readout, we offer methods with which we can tackle some long-standing questions in condensed matter physics.

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