



# TRR 80 Sonderseminar

Am Dienstag, den 31. Mai um 16:00 Uhr

spricht

**Dr. Cecilia Holmqvist**

**Universität Konstanz**

über das Thema

## *Non-equilibrium effects in nanoscale superconducting hybrid junctions*

Recently, superconducting-ferromagnetic hybrid devices have received increased attention due to their potential as spintronics devices. Information can be stored in the magnetization direction of a small ferromagnet. The state of the ferromagnet can then be read out or manipulated by currents through a nano-scaled contact coupled to the ferromagnet. In the case of superconducting junctions, the interplay between ferromagnetism and superconductivity taking place at the interface regions is crucial in the understanding of such nano-scaled devices. In my talk, I will discuss the coupling between the magnetization dynamics of a nanomagnet or single molecular magnet and Josephson currents through a nano-scaled junction. If an external magnetic field is applied, the spin of the nanomagnet starts to precess with the Larmor frequency. The magnetization dynamics constitutes a time-dependent spin-active boundary condition which is solved using non-equilibrium Green's functions in the quasiclassical approximation. The coupling between tunneling quasiparticles and the precessing magnetization leads to the appearance of superconducting spin-triplet correlations as well as ac spin Josephson currents and spin-transfer torques. [1] C. Holmqvist, S. Teber, and M. Fogelström, Phys. Rev. B 83, 104521 (2011)

Gäste sind herzlich willkommen!

Der Vortrag findet im S-288/ Physikgebäude Süd, Universität Augsburg statt.

Gastgeber: Prof. Dr. Ulrich Eckern, Prof. Dr. Thilo Kopp  
[www.trr80.de](http://www.trr80.de)