Physikalisches Kolloquium — Physics Colloquium

Einladung — **Invitation**

Monday, 11 November 2024

Lecture Hall N24/H13, at 16:15
Coffee and cookies will be served in front of the lecture hall from 16:00

Spin Resonance Spectroscopy with an Electron Microscope

Prof. Philipp Haslinger

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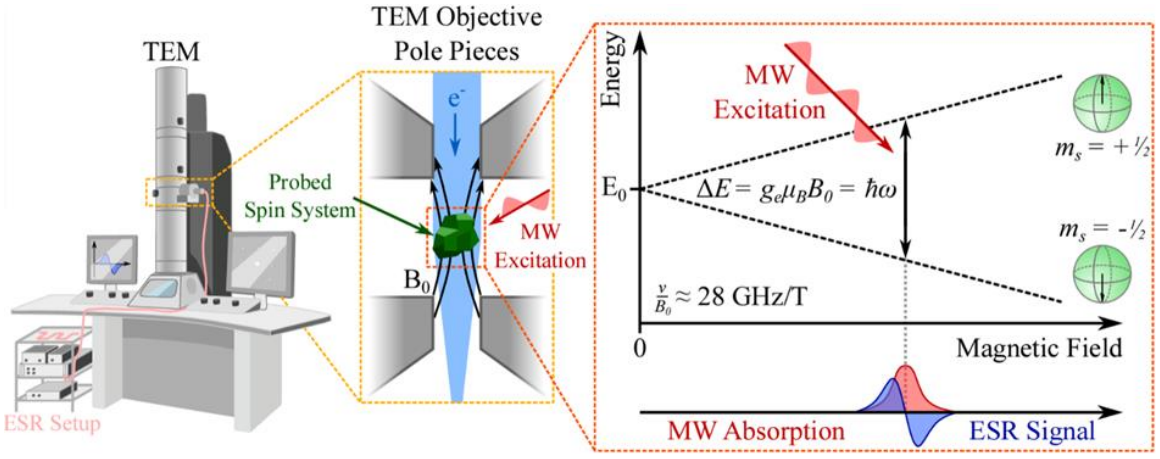
https://www.tuwien.at/forschung/facilities/ustem/mitarbeiter/haslinger

Coherent spin resonance methods such as nuclear magnetic resonance and electron spin resonance spectroscopy have led to spectrally highly sensitive, non-invasive quantum imaging techniques [1]. Here, I will present a spin resonance spectroscopy approach developed for electron microscopy and will explain different techniques to pump and probe with electrons spin states of the sample [2]. This could enable state-selective observation of spin dynamics on the nanoscale [3] and indirect measurement of the environment of the spin systems, providing information on, for example, atomic structure, local chemical composition and neighboring spins.



[1] A. Jaroš, J. Toyfl, A. Pupić, B. Czasch, G. Boero, I. C. Bicket, and P. Haslinger, *Electron Spin Resonance Spectroscopy in a Transmission Electron Microscope*, 1 (2024).

[2] P. Haslinger, S. Nimmrichter, and D. Rätzel, *Spin Resonance Spectroscopy with an Electron Microscope*, Quantum Sci. Technol. **9**, 035051 (2024).

[3] D. Rätzel, D. Hartley, O. Schwartz, and P. Haslinger, *Controlling Quantum Systems with Modulated Electron Beams*, Phys. Rev. Res. **3**, 023247 (2021).

Host: Prof. Benjamin Stickler, Institute of Complexe Quantum Systems

Organisation: Prof. Dr. Jens Michaelis, Institute of Biophysics, jens.michaelis@uni-ulm.de, +49-731-50-23050