TECHNISCHE UNIVERSITÄT DRESDEN

Institut für Festkörper- und Materialphysik

IFMP Institut für Festkörper- & Materialphysik

IFMP Seminar

Date Monday, June 08, 2026, at 14:50

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Zoom: 633 2801 2201, Passcode: IFMP2025-6

Speaker **Jan Friedrichsen**
IFMP, TU Dresden

Title **Ongoing Mössbauer spectroscopy at the IFMP: Investigation of magnetism in $FeNb_4S_8$ and *TM*$Sn(OH)_6$**

Abstract Mössbauer spectroscopy (MBS) is a nuclear local-probe methods which can be used to study magnetic and electronic hyperfine interactions of the probe nucleus and its surroundings. In this talk I will introduce the fundamentals of MBS as applied in solid-state physics, and give an overview of the experiments I carried out as part of my 6-month masters studies ("Wissenschaftliches Arbeiten") at the IFMP. One focus is the proposed altermagnetic compound $FeNb_4S_8$. This intercalated transition metal dichalcogenide was investigated using ^{57}Fe MBS to confirm the magnetic structure and the orientation of the local electric field gradient. I will discuss the implications of our findings on the temperature-dependent magnetic and electronic structure of this material. Additionally, as a first in our local laboratory, ^{119}Sn MBS measurements have been performed on the tin-based hydroxide materials *TM*$Sn(OH)_6$ (*TM* = Fe, Co, Cu, Mn, Ni). Here I will discuss the challenges to quantify possible small magnetic effects with MBS and the experimental advantages of employing a reference sample (in this case $SnCl_2$) measured simultaneously to increase measurement precision.

Host: H.-H. Klauss

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