



Experimentelle
Physik 2

Seminar Festkörperphysik (CMP Seminar)

Aktuelle Probleme der Festkörperphysik für Studenten und Mitarbeiter
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Characterizing the phase transitions in magnetic 2D materials using optical interferometry and nanomechanical resonators

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Magnetic two-dimensional materials offer an exciting platform for exploring magnetic phases at the two-dimensional limit. However, their small sample volumes present challenges for conventional characterization techniques.

In this talk, I will discuss how nanomechanical drum resonators provide a powerful approach for probing magnetic phase transitions in van der Waals antiferromagnets, specifically MPS_3 ($\text{M} = \text{Fe}, \text{Co}, \text{Ni}$) and CrPS_4 . By leveraging purely optical methods, we actuate and detect the motion of these resonators. I will demonstrate how magnetostrictive coupling in these materials enables the extraction of critical exponents, providing insights into their magnetic phase behavior.