



**Donnerstag, 23.04.2026, 15:30 Uhr**

Ort: Reichenhainer Str. 90;  
Zentrales Hörsaal- und Seminargebäude, Raum C10.013

**Prof. Dr. Chithra H. Sharma**

Felix Bloch Institute, Universität Leipzig

## Exploring spin-valley flavours from transport spectroscopy and electron spin resonance in MoS<sub>2</sub> moiré superlattices

Electron spin resonance (ESR) is an important tool to probe and control spin states in solid-state systems. It is used to obtain the g-factor which is the measure of spin splitting in magnetic field. In small scale devices where conventional ESR cannot be used, resistively detected ESR (RD-ESR) is helpful to produce local spin excitations. This resonant excitation of electron spins and its resistive detection is a possible path to harness the spins on quantum devices and their utilization in quantum technologies. [1,2] Van der Waals (vdW) materials such as graphene and MoS<sub>2</sub> provide an excellent platform to fabricate future quantum devices. They provide a possibility of tuning the material properties to the need by heterostructure fabrication and moiré superlattice fabrication [3]. In this talk, I will be discussing the RD-ESR studies on devices based on MoS<sub>2</sub> and its moiré superlattices – schematic in Fig.1.

### References

- [1] Sharma, et al. J. Phys: Cond. Mat.37, 185502 (2025).
- [2] Sharma, et al. AIP Adv 12, 035111 (2022).
- [3] Sharma, et al. Phys. Rev. B 109, 195106 (2024).

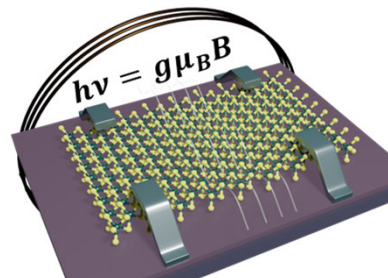


Figure 1: Schematic showing electron spin resonance in an MoS<sub>2</sub> device



Alle Zuhörer sind ab 15:15 Uhr zum Kaffee vor dem Hörsaal eingeladen.