Georg H. Endress Research Seminar Announcement

Speaker: **Lorena Niggli (Poggio, Schätz)**

Date: **Tuesday, January 13, 2026**

Location: **University of Freiburg, SR I, Physics-High-Rise Building**

Title: **Imaging vdW magnets and magnetic devices in the 2D limit**

Magnetic van der Waals materials, which can be exfoliated down to the monolayer limit, serve as an ideal platform for exploring how the number of spatial dimensions affects magnetism and phase transitions in general. Moreover, they can be incorporated into vdW heterostructures, which allows the magnetic state to be controlled through external perturbations such as strain, light, gating, proximity and moiré patterns. However, the same properties that make these materials so tuneable also make them sensitive to disorder and inhomogeneities necessitating sensitive nanoscale magnetometry to understand the behaviour of real vdW magnets. In this Endress seminar, I discuss how imaging 2D vdW magnets with two specialized techniques – scanning superconducting quantum interference device microscopy and nanowire magnetic force microscopy – allows us to investigate the mechanisms stabilizing long-range magnetic order in the two dimensional limit. Stray field imaging will provide insight into the role of disorder and the parameters determining the function of magnetic vdW devices essential for their improvement and the tailoring of new functionalities.