

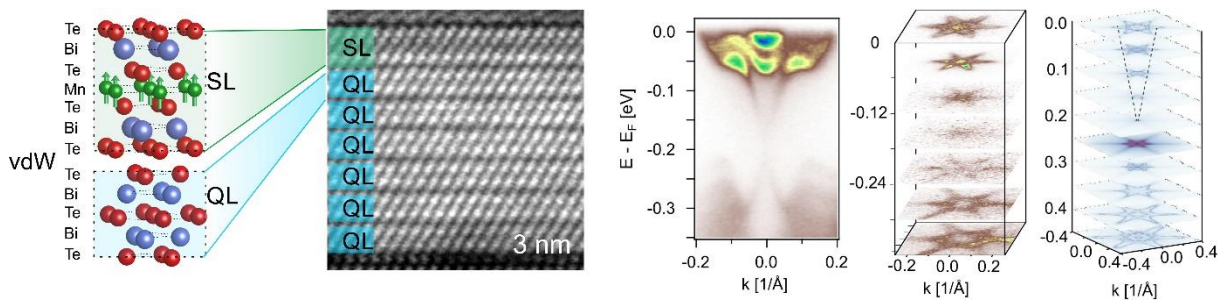
Bachelor Research

At the *Experimental Physics VII* (Prof. Dr. F. Reinert) within the *Center of Excellence ct.qmat* is now open two bachelor positions, with the theme

“Growth and electronic structure of epitaxial MnBi_2Te_4 layers”

Description of project:

This project aims to explore superconducting and magnetic proximity effects on the topological surface state in epitaxial heterostructures of the intrinsic magnetic topological insulator MnBi_2Te_4 . We have recently established the molecular beam epitaxial growth of high-quality MnBi_2Te_4 films down to a single septuple-layer (SL) on the trivial insulator BaF_2 .



Your task is to establish the molecular beam epitaxial growth of high-quality Bi_2Te_3 and MnBi_2Te_4 films on two different classes of substrates:

- (i) Superconducting substrates (e.g. NbSe_2)
- (ii) Magnetic substrates (e.g. Fe_3GeTe_2 , $\text{Cr}_2\text{Ge}_2\text{Te}_6$)

These layers will be investigated *in-situ* by ARPES, LEED and RHEED and *ex-situ* by AFM and X-ray diffraction.

This work will pave the way to study the impact of superconducting and high-temperature ferromagnetic substrates on the magnetic and topological electronic properties of thin MnBi_2Te_4 films.

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