

Bachelor-/Master-/Diploma Theses Available !

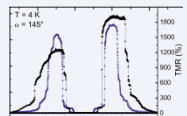
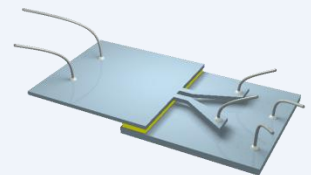
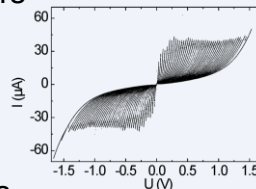
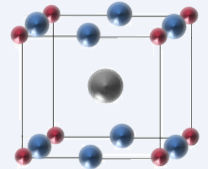
Dear students in physics, we run various interesting research projects within which we offer theses. The thesis topics can be adjusted to your individual interests.

Just look for us!

To name a few keywords, we cover e.g. the following ...

...research topics:

- basic superconducting properties of new, unconventional materials
high- T_c superconductors, ferromagnet-superconductor hybrids, ...
- ultrasensitive superconducting quantum devices
„nanoSQUIDs“ for molecular spin systems
- superconductor/cold atom hybrid systems
magnetic microtraps, resonators & SQUIDs for the manipulation and control of Bose-Einstein condensates
- intrinsic Josephson effect in layered superconductors
basics of THz-electronics devices
- fractional fluxons in Josephson junctions
new elements for quantum bits?
- spin-polarized tunneling in magnetic layer structures
basics of magnetoelectronics for a new generation of ultrafast memories



In addition to working on a physics topics, there's a lot to learn during the application of the following ...

...techniques:

- preparation techniques for thin films and single crystals
vacuum techniques, thin film deposition, photo & electron beam lithography, micro & nano patterning
- thin film analytics
crystal structure via x-ray & electron diffraction, surface morphology & material analysis via atomic force, scanning tunneling & scanning electron microscopy
- cryotechnology, electric measurement techniques, electric transport & noise
very low temperatures down to 10 mK, strong magnetic fields up to 12 T, ultra sensitive voltage detection in the pV range, ...
- radio frequency- & microwave techniques
- imaging techniques at low temperatures (LT)
LT scanning electron microscopy, LT scanning laser microscopy
- model calculations via numerical simulation tools

