

Bachelor and Master Theses on ATLAS ITk Pixel Detector Development

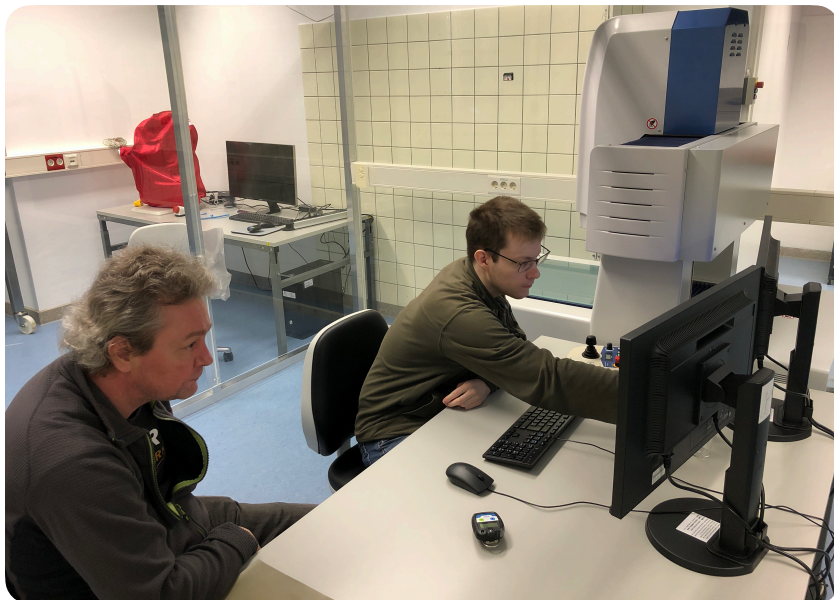
Working group of Prof. Dr. Markus Cristinziani

The ATLAS experiment at CERN will be upgraded in order to explore the fundamental laws of nature. The new electronic components of the ATLAS experiment will be integrated into the ATLAS detector by 2027. The Large Hadron Collider will be upgraded to a maximum luminosity of $5 \times 10^{35} \text{cm}^{-2}\text{s}^{-1}$, which corresponds to an average of 200 inelastic proton-proton collisions per beam crossing. The experimental particle physics group in Siegen has committed itself to building pixel modules for the new ATLAS pixel detector. Siegen takes actively part in the development, testing and production of Inner Tracker (ITk) pixel modules.

We offer motivated bachelor and master students to join the group and the unique opportunity to work in the context of one of the world's largest scientific collaborations.

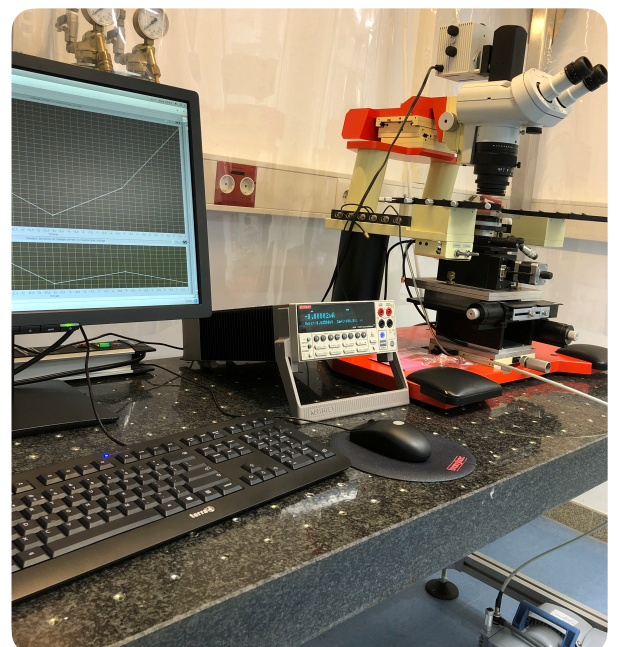
Current topics:

- Development of a cooling system for the ITk module test system
- Testing and assembly of ATLAS pixel modules
- Development of a monitoring system for the ITk module test system
- Reconstruction algorithm for the surface measurement of the ITk modules



Requirements:

- Basic understanding of particle physics
- Interest in working with Linux operating systems



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