Contribution ID: **12** Type: **not specified**

ITk System Test / Endcap Integration

Context of the project

The ATLAS detector is one of the four LHC experiments and will be upgraded for the upcoming high luminosity runs. The inner detector is going to be entirely replaced by an all-silicon tracker (ITk). The System Test is the main testbench for detector modules. The goal is to have a realistic environment close the the real detector in terms of electrical noise, atmosphere, cooling and detector systems.

Scope of work

The student will have the opportunity to work on the cooling, powering and readout systems of the System Test. This includes work on topics such as performing noise scans on petals, study of the CO2 cooling performance and measuring the performance of the powering chain of the detector. Students should already have some basic experience with Python as well as basic electronics. Also, there will be an opportunity to test the first silicon detector elements once they arrive at DESY.

Depending on the project state at their arrival, they can also perform one or more of the following studies:

1. Measuring pedestals & noise in different detector positions and mapping the electrical noise environment of the ST
2. Simulation of cosmic muon measurements with the ST structure
3. In-detail tests on the detector safety system regarding HV, CO2 cooling and atmospheric safety
4. CO2 cooling measurements (e.g. maximum power, lowest temperature, cooling cycle times, ...)

Field

B3: Development of experimental particle physics equipment (hardware-oriented)

DESY Place

Hamburg

DESY Division

FH

DESY Group

ATLAS

Special Qualifications:

Python, basic experience in Hardware / Lab work / electronics

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