Contribution ID: **7** Type: **not specified**

ATLAS ITk Strips EC System Test Instrumentation

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 interlock & monitoring system of the system test. This includes work on topics such as CO2 cooling, environmental monitoring and personnel safety switches. Students should already have some basic experience with Python, since this is the language all PLCs, GUIs and data servers are written in. Also, there will be an opportunity to test the first silicon detector elements once they arrive at DESY.

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

1. Measurement of coldbox atmosphere under the influx of dry air supply, determination of an ideal flow rate for flushing and atmosphere maintainance
2. Measuring pedestals & noise in different detector positions and mapping the electrical noise environment of the ST.
3. Simulation of cosmic muon measurements with the ST structure.
4. Determination and implementation of interlock rules for the coldbox, HV system and cooling plant.
5. 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:

Some knowledge of Python and Basic Electronics

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