

# Performance Evaluation of Stitched Passive CMOS Strip Sensors

The next generation of tracking detectors for future particle physics experiments will be mostly all-silicon detectors. For their realization, apart from the physics specifications, also the cost effectiveness will play an important role. Here, the commercial CMOS technology is a prime candidate, which allows the use of large and high-resistivity wafers and also provides the advantage of widely established industrial production processes. In the ATLAS group at DESY, we are exploring passive CMOS silicon strip sensors produced in a 150nm technology using a stitching of individual reticles to form strip sensors in 2 and 4 cm in length and with currently three different strip designs under study.

The student will contribute to the characterization measurements performed on non-irradiated and irradiated sensors to compare the different designs and determine the important physical properties (e.g. charge collection efficiency). The measurements are conducted either in the lab using radioactive source tests and a probe station for characterizing electrical properties; or at the DESY test beam to determine the sensor performance with several GeV electron beams and using a telescope for particle tracking.

## Field

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

## DESY Place

Hamburg

## DESY Division

FH

## DESY Group

ATLAS

## Special Qualifications:

C++/python programming, lab work experience

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