Contribution ID: **61** Type: **On-site planned, but remote also possible**

Charge collection studies in HV-CMOS

HV-CMOS sensors are a promising technology for new silicon pixel sensors and advanced to a high level of complexity during more than a decade of developments. These pixel sensors profit from the HV capabilities of the manufacturing process and allow for large depletion zones of above 50um at moderate substrate resistivity. This approach is complementary to the usage of imaging sensors and features intrinsic radiation tolerance and good timing. Extensive laboratory and test beam campaigns have been carried out to understand the performance in detail. TCAD studies have been carried out to understand the breakdown, but have not yet been combined with Monte-Carlo simulations to systematically study the charge collection and compare it to the testing results. The student will perform Allpix2 based simulations of a sensor called TelePix that is envisioned to serve as a timing layer at the DESY II testbeam. The required electrostatic potentials will be provided by colleagues from Heidelberg. The student will get the chance to compare his results with measurements from recent campaigns and will possibly be in exchange with students measuring at the test beam.

Field

B1: Particle physics analysis (software-oriented)

DESY Place

Hamburg

DESY Division

FH

DESY Group

FTX-TBT and ATLAS

Special Qualifications:

Prerequisites: Basics in linux, root, shell
Nice to have: simulation/silicon experience, Geant4 basics

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