Contribution ID: **10** Type: **not specified**

Measurement of the Lorentz angle in CMS pixel detector modules

Monday 30 January 2017 17:10 (20 minutes)

For the upgrade of the CMS experiment, the previous pixel detector is replaced by a new, four layer pixel detector during the extended 2016/17 shutdown. By using a new readout chip the detector will be able to operate at instantaneous luminosities of up to 2 x 10^34 cm^-2 s^-1 without significant efficiency losses.

In the pixel detector barrel the 3.8 T magnetic field of the CMS solenoid will, due to deflection of the drifting charge carriers in the 285 um thick silicon sensor, cause charge sharing along the short side of the 150 um 100 um pixel cells and thus improve the intrinsic resolution of the detector modules. The Lorentz angle in the CMS barrel pixel detector modules was measured at the DESY Test Beam Facility using a 1.3 T magnetic field. Furthermore, simulations of the setup based on the AllPix framework and the pixelav package were performed.

In this contribution the experimental setup is presented, measurement and simulation results are shown and compared.

Primary author: Mr SCHUETZE, Paul (CMS)

Presenter: Mr SCHUETZE, Paul (CMS)

Session Classification: Scientific Talks 3: The different topics PhD students are working on within Matter and Technology