

Daniel Pitzl: "The CMS Pixel Upgrade"

Abstract:

The LHC is expected to reach twice the design luminosity towards the end of the decade. The pixel detectors, operating closest to the interaction region, have to cope with increased particle occupancy and require new readout chips to maintain high efficiency. In CMS, it is planned to exchange the entire 3-layer pixel detector with a 4-layer version of lower mass around a smaller beam pipe offering higher tracking efficiency and resolution. German groups are preparing to build and calibrate the 4th layer comprising 512 modules of hybrid pixel detectors, half of which will be done at DESY and Hamburg University. Preparations towards chip testing, bump bonding, module construction and final calibration will be presented.