International Workshop on Semiconductor Pixel Detectors for Particles and Imaging (PIXEL2014)



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New Concept For Forward Tracking In LHC Experiments

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Extensive discussions are underway to refine the physics goals and scope of detector upgrades for the future LHC runs, following the Higgs boson discovery. New opportunities for improving performance of the ATLAS and CMS tracking detectors in the very forward region are of particular interest to future Higgs and other measurements, which are central to the ATLAS and CMS physics programs. We propose a new concept for Pixel detectors for very forward tracking in LHC experiments, which consists of two (or more) closely spaced Pixel layers placed very close to the beam line. This design relies on the fact that a length of the pixel cluster depends on the particle's incidence angle and can be used to determine particle's origin and angle respect to the beam-line. We will discuss how availability of this information from the very first pixel layer can be used to improve tracking performance.

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