

The CMS Pixel Luminosity Telescope

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The Pixel Luminosity Telescope is one of the newest additions to a number of sub-detectors dedicated to measuring the luminosity provided to the CMS experiment by the LHC. The PLT, as an independent luminometer, consists of eight 3-layer telescopes based on silicon pixel detectors placed at a high eta around the beam pipe on each end of CMS. All 16 telescopes view the interaction point under a small angle. A fast cluster counting signal from the front-end chips is used to form 3-fold coincidences in the telescopes when a particle passes all three planes. By applying the zero-counting method a bunch-by-bunch online measurement of the delivered luminosity is produced. Tracking information is used in offline analysis methods to derive corrections to the measured data by distinguishing collision products from beam halo and other accidental events caused by albedo, multiple scattered and other stray particles. The tracking information also provides an alignment of the installed telescopes. Using the CMSSW simulation framework and the experience gained during the 2015 running period, the PLT operating configuration was prepared for the high luminosity running period in 2016. The performance of the detector will be presented.

Author: KORNMAYER, Andreas (CERN)

Presenter: KORNMAYER, Andreas (CERN)

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