The CMS Pixel Luminosity Telescope







What is the CMS Pixel Luminosity Telescope (PLT)?

16 telescope build from 3 planes of CMS Pixel sensors and PSI46 readout chips placed around the beam pipe, close to the interaction point

What does the PLT do?

The used PSI46 ROC has a special readout mode, called Fast-OR. Whenever a hit is detected on the pixelated chip this Fast-OR signal is sent out on a 40MHz basis. A particle track in a telescope creates a triple coincidence. The count rate of these triple coincidences can be translated to a luminosity value.

Does the PLT work?

The detector has been installed successfully. A first set of calibrations for the readout chips has been obtained. During the first non-stable collisions after LS1 tracks could be seen in all telescopes. The triple coincidence rate measured with the PLT scales well with the luminosity measured by the BCM and HF lumi system.



One half of the fully assembled PLT



Comparison of the triple coincidence rate measured by the PLT, compared to the established luminometers of CMS