

ATLAS ITk Pixel Detector Overview

Thursday, May 27, 2021 6:24 AM (18 minutes)

For the HL-LHC upgrade the current ATLAS Inner Detector is replaced by an all-silicon system. The Pixel Detector will consist of 5 barrel layers and a number of rings, resulting in about 14 m² of instrumented area. Due to the huge non-ionizing fluence (1e16 neq/cm²) and ionizing dose (5 MGy), the two innermost layers, instrumented with 3D pixel sensors (L0) and 100µm thin planar sensors (L1) will be replaced after about 5 years of operation. All hybrid detector modules will be read out by novel ASICs, implemented in 65nm CMOS technology, with a bandwidth of up to 5 Gb/s. Data will be transmitted optically to the off-detector readout system. To save material in the servicing cables, serial powering is employed for low voltage. Large scale prototyping programs are being carried out by all sub-systems. The talk will give an overview of the layout and current status of the development of the ITk Pixel Detector.

TIPP2020 abstract resubmission?

Yes, this would have been presented at TIPP2020.

Funding information

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