



Contribution ID: 99

Type: **Poster**

The CMS Pixel Detector for the High Luminosity LHC

Tuesday, 24 May 2022 09:11 (1 minute)

The High Luminosity Large Hadron Collider (HL-LHC) at CERN is expected to collide protons at a centre-of-mass energy of 14 TeV and to reach the unprecedented peak instantaneous luminosity of $5 - 7.5 \times 10^{34} \text{ cm}^{-2} \text{ s}^{-1}$ with an average number of pileup events of 140-200. This will allow the CMS experiment to collect integrated luminosities up to $3000\text{-}4000 \text{ fb}^{-1}$ during the project lifetime. The current CMS Pixel Detector will not be able to survive the HL-LHC radiation conditions and thus CMS will need completely new Inner Tracker in order to fully exploit the highly demanding conditions and the delivered luminosity. The new pixel detector will feature increased radiation hardness, higher granularity and capability to handle higher data rate and longer trigger latency. The design choices for the Inner Tracker Phase-2 upgrade are discussed along with some highlights on the technological approaches and R&D activities.

Collaboration

CMS Collaboration

Primary author: CASSESE, Antonio (Istituto Nazionale di Fisica Nucleare)

Presenter: CASSESE, Antonio (Istituto Nazionale di Fisica Nucleare)

Session Classification: Solid State Detectors - Poster session