Contribution ID: **1432** Type: **Parallel session talk**

How to upgrade a pixel detector: lessons from Phase-1 being applied to Phase-2 CMS Pixel Upgrade

Thursday 18 July 2024 09:57 (18 minutes)

The High Luminosity Large Hadron Collider at CERN is expected to produce proton collisions at a center-of-mass energy of 14 TeV, aiming to achieve an unprecedented peak instantaneous luminosity of 7 x 10ˆ34 cmˆ-2 sˆ-1, implying an average pileup of 200. To cope with these running conditions, the CMS detector will undergo an extensive upgrade: Phase-2. This upgrade includes the complete replacement of the CMS silicon pixel detector, introducing improvements such as increased radiation resilience, finer granularity, and capability to manage increased data rates among other changes. This is, however, the second time CMS has replaced their pixel detector. We will outline the differences and similarities between the Phase-1 and Phase-2 upgrade of the inner tracker of CMS. We will highlight specific lessons learned from operating the Phase-1 detector and how this experience has informed our approach in design and assembly or the Phase-2 inner tracker as we approach preproduction of modules.

Alternate track

I read the instructions above

Yes

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