Contribution ID: **398** Type: **Parallel session talk**

The LHCb VELO Upgrade

Thursday, May 27, 2021 6:06 AM (18 minutes)

The Vertex Locator (VELO), surrounding the interaction region of the LHCb experiment, reconstructs the collision points (primary vertices) and decay vertices of long-lived particles (secondary vertices). The upgraded VELO will be composed of 52 modules placed along the beam axis divided into two retractable halves. The modules will each be equipped with 4 silicon hybrid pixel tiles, each read out with by 3 VeloPix ASICs, glued onto a thin silicon plate with embedded micro-channels that allow the circulation of liquid CO_2. The silicon sensors must withstand an integrated fluence of up to 8×10^{15} 1 MeV n_{eq}/cm^2, a roughly equivalent dose of 400 MRad. The highest occupancy ASICs will have pixel hit rates of 900 Mhit/s and produce an output data rate of over 15 Gbit/s.

The design of the VELO upgrade will be presented with the results from the latest R\&D and detector construction.

TIPP2020 abstract resubmission?

Yes, this would have been presented at TIPP2020.

Funding information

Primary authors: CARVALHO AKIBA, Kazuyoshi (Nikhef); COLLINS, Paula (CERN); FRANCO LIMA, Vinicius (University of Liverpool (GB))

Presenter: FRANCO LIMA, Vinicius (University of Liverpool (GB))

Session Classification: Experiments: Trackers

Track Classification: Experiments: Experiments: Trackers