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The LHCb Muon Detector Upgrades

Saturday, 9 July 2022 15:50 (20 minutes)

After three years of shutdown (LS2), the LHC restarted in April 2022 and the plan is to run at an average instantaneous luminosity of 2.0 x 1033cm-2s-1 at the LHCb interaction point, a factor 5 higher than the previous runs. In order to cope with the increased luminosity and to take data at the full bunch crossing frequency (30MHz visible interaction rate) in trigger-less mode, the LHCb detector has just undergone a major upgrade, which will allow LHCb to collect ~ 50 fb-1 in the next 10 years. The LHCb Muon Detector has performed exceptionally well in the last ten years, providing Muon track detection efficiency of 99% in Run1 and 97.4% in Run2. Its main upgrade consists in the new off detector and control electronics, able to cope with the full LHC bunch crossing frequency in trigger-less mode. A phase 2 upgrade of the LHCb detector has also been proposed, for the further increase of the instantaneous luminosity foreseen by LHC (High Lumi LHC). In the proposed talk we will present the upgraded Muon detector, with particular focus on the installation and commissioning activities, the results of the functional tests performed during the LS2 and the very first and preliminary performance studies with new data. An overview of the proposed upgrade 2 Muon detector will be also presented.

In-person participation

Yes

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