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Flavour Physics at the High Luminosity LHC: LHCb Upgrade II

Thursday, 7 July 2022 09:35 (18 minutes)

The Upgrade II of the LHCb experiment is proposed for the long shutdown 4 of the LHC. The upgraded detector will operate at a maximum luminosity of $1.5x10^{34}\mathrm{cm}^{-2}\mathrm{s}^{-1}$, with the aim of integrating ~300 fb^{-1} through the lifetime of the high-luminosity LHC (HL-LHC). The collected data will allow to fully exploit the flavour-physics opportunities of the HL-LHC, probing a wide range of physics observables with unprecedented accuracy. The accomplishment of this ambitious programme will require that the current detector performance is maintained at the maximum expected pile-up of ~40, and even improved in certain specific domains. To meet this challenge, it is foreseen to replace all of the existing spectrometer components to increase the granularity, reduce the amount of material in the detector and to exploit the use of new technologies including precision timing of the order of a few tens of picoseconds. In this talk the physics goals of the project will be reviewed, as well as the detector design and technology options which will allow to meet the desired specifications.

In-person participation

Yes

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Session Classification: Operation, Performance and Upgrade (Incl. HL-LHC) of Present Detectors

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