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The LHCb Upgrades

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During the LHC Run-1 the LHCb experiment has successfully performed a large number of world's class precision measurements in heavy flavour physics, and is now further increasing the datasets in Run-2. However, most of the LHCb measurements will remain limited by statistics. LHCb will therefore undergo a major upgrade in the Long Shutdown 2 (LS2) of LHC aimed at collecting an order of magnitude more data during Run-3 and Run-4. The upgrade consists of a new full readout at the LHC bunch crossing rate (40 MHz) with the ultimate flexibility of a pure software trigger. In order to increase the instantaneous luminosity up to 2×10^{33} cm⁻²s⁻¹, several sub-detector upgrades are also underway, in order to cope with the expected higher occupancies and radiation dose. The architecture of the upgraded detector will be presented along with physics goals. Furthermore, the LHCb collaboration is planning a further upgrade to be installed during LS4 that aims at raising the instantaneous luminosity by another factor 10, in order to collect order of 300 fb⁻¹ by the end of the Run-5. Conceptual design and physics reach will be also discussed.

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