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The LHCb Upgrade

The primary goal of the LHCb experiment at the LHC is to search for new physics beyond the Standard Model. Results obtained from data collected in the last three years show that the detector is robust and functioning well. A limit of 1–2/fb of data per nominal year cannot be overcome without upgrading the detector to read out at 40MHz, which will allow the experiment to collect 5/fb per year. A highly flexible software-based triggering strategy will lead to increased trigger efficiencies, especially in decays to hadronic final states. It will also be possible to change triggers to explore different physics as LHC discoveries point to the most interesting channels. The physics scope extends beyond that of flavour, and includes searches for Majorana neutrinos, exotic Higgs decays and precision electroweak measurements. The proposed detector changes are discussed for the upgrade of LHCb to be ready in 2019 for the further exploration of new phenomena in the forward region of proton-proton collisions at the LHC.

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