

## The LHCb Upgrade Detector

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The Letter of Intent of the LHCb upgrade has recently been submitted. Flavour physics probes beyond the energy frontier (a few TeV at the LHC), since it is sensitive to the effects of virtual quantum loop diagrams associated with particles that can be far heavier than those which can be produced directly. To exploit fully the flavour-physics potential of the LHC will require an LHCb upgrade. This will allow LHCb to operate the detector at higher luminosity and to collect 50 fb<sup>-1</sup> of data integrated over around ten years of operation. A key feature of the upgrade will be to equip LHCb with 40MHz readout of all sub-detectors and a fully flexible software trigger. This will allow the selection of hadronic, as well as leptonic, final states in B and D decays at high luminosity and provide the flexibility for LHCb to serve as a general-purpose detector in the forward region. Detector upgrades such as a 50x50um pixel based vertex detector system, and a fibre tracking system and augmenting the RICH particle identification with a time-of-flight system are being considered. The relevant experience for the upgrade recently gained by operating the current detector at high luminosity will also be discussed.

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