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Flavour Physics at the High Luminosity LHC: LHCb Upgrade II

Thursday, 28 May 2020 17:12 (18 minutes)

The LHCb Collaboration is planning an Upgrade II, a flavour physics experiment for the high luminosity era. This will be installed in LS4 (2030) and targets an instantaneous luminosity of 1.5×10^{34} cm^{-2} s^{-1}, and an integrated luminosity of at least 300 fb^{-1}. Physics goals include probing new physics scenarios in lepton flavour universality, obtaining unprecedented precision on CKM tests, and expanding the LHCb programme. The detector design options include the introduction of timing information with tens of pico-sec resolution across multiple sub-detectors. Opportunities for novel detector development are available across 4D vertexing, MAPS and scintillating fibre tracking, 5D electromagnetic calorimetry, hadron particle identification, DAQ and triggering. Following the issue of a physics case and accelerator note in 2018, the collaboration was approved by the LHCC to proceed to the preparation of a TDR and R&D programmes are underway across all sub-detectors.

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