

# Flavour Physics at the High Luminosity LHC: LHCb Upgrade II

*Saturday 7 July 2018 11:12 (12 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  $1 \text{ to } 2 \times 10^{34} \text{ cm}^{-2} \text{ s}^{-1}$ , and an integrated luminosity of at least  $300 \text{ fb}^{-1}$ . Modest consolidation of the current experiment will also be introduced in LS3 (2025). Physics goals include probing new physics scenarios in lepton flavour universality, obtaining unprecedented precision on CKM tests, and expanding the LHCb programme into new measurement areas such as Higgs decays to charm. The detector design options include the introduction of timing information, with opportunities in vertexing and tracking, electromagnetic calorimetry, and RICH particle identification. Preliminary studies for the LHC suggest that the luminosity goals will be achievable. The collaboration produced an Expression of Interest in 2017 and will issue a physics case document in May 2018, with Technical Design Reports planned for 2020.

**Authors:** MUELLER, Katharina (Universitaet Zuerich (CH)); PARKES, Chris (University of Manchester (GB))

**Presenter:** PARKES, Chris (University of Manchester (GB))

**Session Classification:** Detector: R&D for Present and Future Facilities

**Track Classification:** Detector: R&D for Present and Future Facilities