

Chapter 11

Summary

The LHCb experiment has been described as it will be operational at the start up of the LHC, including the detector, its interface to the machine, the hardware-based first level and software-based high level triggers, and the online system. The intrinsic performance of all detector components, as studied in the laboratory and with test-beam measurements, corresponds to expectations. The overall performance for event reconstruction has also been presented, including tracking, vertexing and particle identification, as determined through detailed simulation.

The LHCb experiment will be operational at the time of the very first collisions of the LHC. The first data will be used to measure the real performance of the detector, the trigger behaviour, the reconstruction capabilities and the event selections, and to ensure that the design resolutions have been achieved. This will permit interesting results to be produced in the domain of heavy flavour physics, even with the first period of stable beams in the LHC. The experiment and its associated computing tools will allow a search to be made for the effects of new physics, through high precision measurements of CP violation and rare decays in the b- and c-physics sectors.