

Indirect luminosity measurements with LHCb

We report on studies of indirect luminosity measurements, using events containing muon final states, in LHCb. The first method exploits elastic two photon dimuon production in LHCb. The process has a theoretical uncertainty of less than 1%, making it an ideal choice for use in performing an indirect luminosity measurement. Strategies for triggering, selection and background rejection are discussed. Our studies indicate that a measurement precision of 1.5% can be obtained with 2 fb^{-1} of data. Prospects for further reducing the uncertainty (which is dominated by the rate of dimuons produced from double pomeron exchange), by examining the rate of exclusive dilepton, diphoton and dijet events in data, will be discussed. These results are compared to measurements which can be obtained using electroweak bosons.

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