

The LHCb track fitting concept and its performance

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The reconstruction of charged particles in the LHCb tracking systems consists of two parts. The pattern recognition links the signals belonging to the same particle. The track fitter running after the pattern recognition extracts the best parameter estimate out of the reconstructed tracks. A dedicated Kalman-Fitter is used for this purpose. The track model employed in the fit is based on a trajectory concept originally introduced by the BaBar collaboration, which has been further developed and improved. To cope with various applications on trigger level and in the offline reconstruction software the fitter has been designed to be very flexible to be adapted to the individual requirements in CPU time and resolution. E.g. a simplified geometry model has been introduced which speeds up the computation time of the fitter significantly, obtaining almost identical resolution than the full geometry description. We will report on the LHCb fitting concept and present its current performance in various applications based on the latest simulation.

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