

Online track fit for the ALICE TPC detector in Online-Offline framework

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The upcoming LHC Run 3 brings new challenges for the ALICE online reconstruction which will be used also for the offline data processing in the O2 (combined Online-Offline) framework. To improve the accuracy of the existing online algorithms they need to be enhanced with all the necessary offline features, while still satisfying speed requirements of the synchronous data processing.

Here we present our enhancements to the track fit algorithm which is currently used in the ALICE High Level Trigger (HLT) for the online reconstruction. The algorithm is based on the Kalman filter method. The fit is applied at the final stage of the track reconstruction in order to improve parameters of the trajectories found by the combinatorial track finder.

We describe various features of the track fit, such as trajectory parameterisation, strategy of linearisation of equations, correction of the track model due to minor magnetic field components and parameterisation of the magnetic field for efficient computation. Finally we demonstrate the quality of the fit.

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