Approved plots: Preliminary analysis of $D^{*+} \to D^0(\pi^+\pi^-\pi^0)\pi^+$

The Belle II Collaboration

Abstract

We construct $D^{*+} \to D^0(\pi^+\pi^-\pi^0)\pi^+$ decays in the Moriond 2021 dataset ($72\,\mathrm{fb}^{-1}$). We perform a yield fir on the ΔM variable to determine the number of signal events per fb^{-1}. This note contains the public plot associated with internal note BELLE2-NOTE-PH-2020-047.
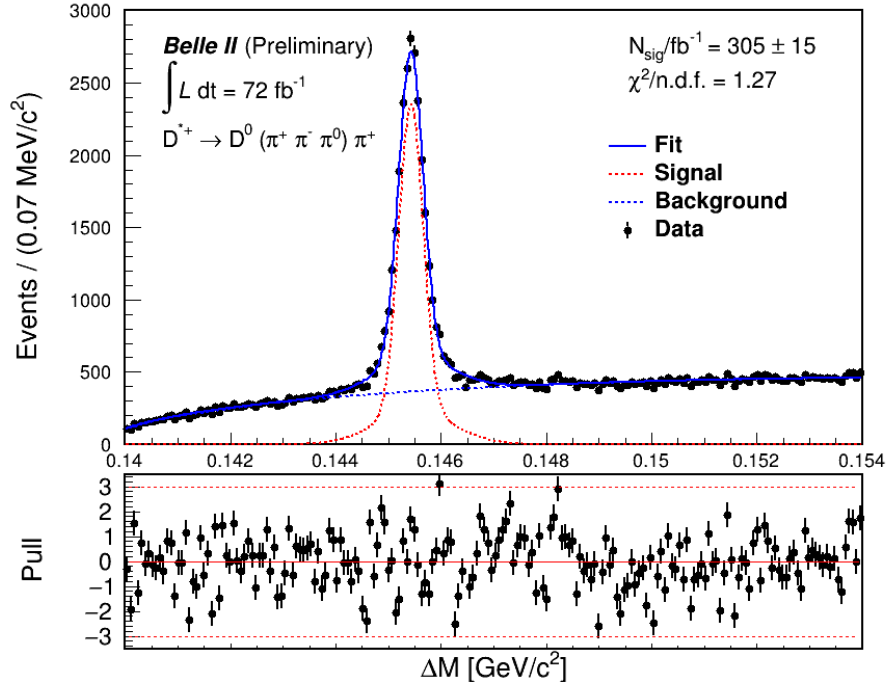
FIG. 1: ΔM peak for the decay $D^{*+} \to D^0 \, (\pi^+\pi^-\pi^0) \, \pi_s^+$ in $72\,\text{fb}^{-1}$ of early *Belle II* data. The yield fit and its signal (double Gaussian) and background (threshold function) components are overlaid. $\chi^2/\text{d.o.f.} = 1.27$, and the raw yield estimate is $N_{\text{sig},fit}/\text{fb}^{-1} = 326.5 \pm 4.2$. Estimating the effect from the peaking background using MC, the final yield is estimated to be $N_{\text{sig}}/\text{fb}^{-1} = 305 \pm 15$.