



BELLE2-NOTE-PL-2020-016

Version 1.0

July 24, 2020

Reconstruction of decays

$D_s^+ \rightarrow \phi[K^+K^-]\pi^+, K_s^0[\pi^+\pi^-]K^+, \bar{K}^{*0}[K^-\pi^+]K^+$ **using proc11 data**

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Abstract

This document contains the D_s^+ mass plots reconstructed in the decays to following final states, $D_s^+ \rightarrow \phi[K^+K^-]\pi^+, K_s^0[\pi^+\pi^-]K^+, \bar{K}^{*0}[K^-\pi^+]K^+$. The plots were obtained using the data collected by Belle II during 2019 corresponding to integrated luminosity of 8.8 fb^{-1} . For detailed description of the analysis see: BELLE2-NOTE-PH-2020-049

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1. PLOTS FOR APPROVAL:

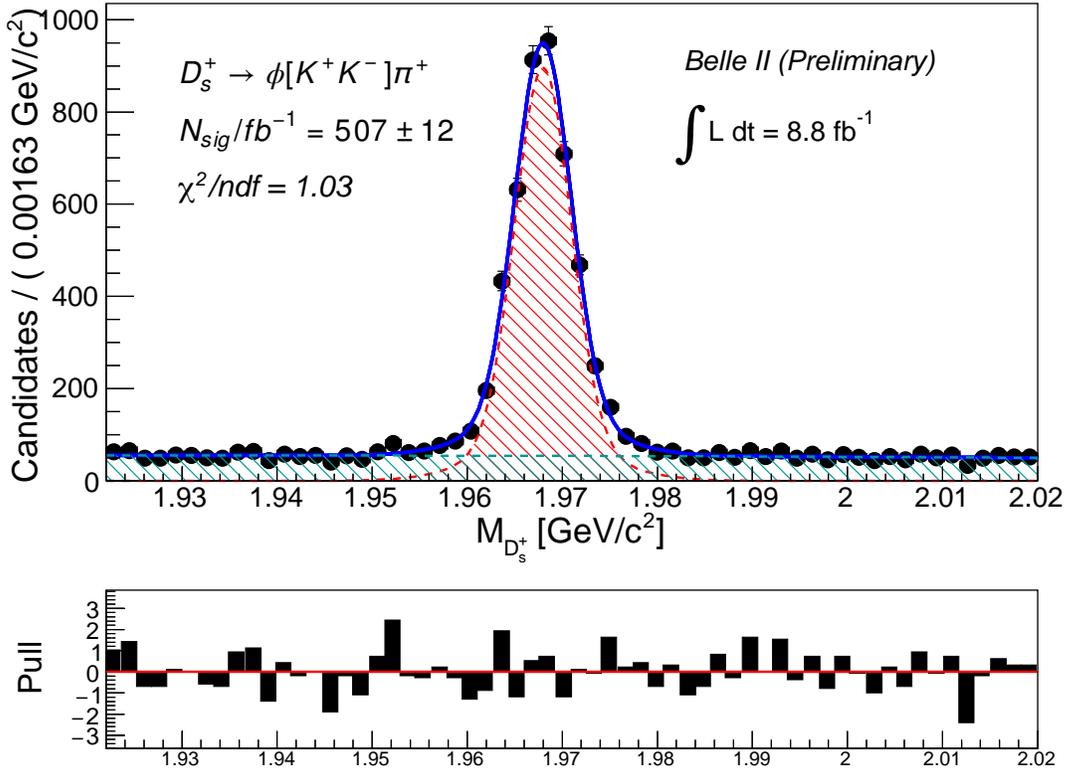


FIG. 1: $M_{D_s^+}$ fit in the decay mode $D_s^+ \rightarrow \phi[K^+K^-]\pi^+$. For above plot we have used the data collected by Belle II during 2019 (proc11, exp7,8,10). The data corresponds to an integrated luminosity of 8.8 fb^{-1} . We performed an unbinned extended maximum likelihood fit. Sum of two symmetric gaussian are used for signal fit and a 2nd order chebychev polynomial is used for background fit. From the fit we get $N_{\text{sig}}/\text{fb}^{-1} = 507 \pm 12$.

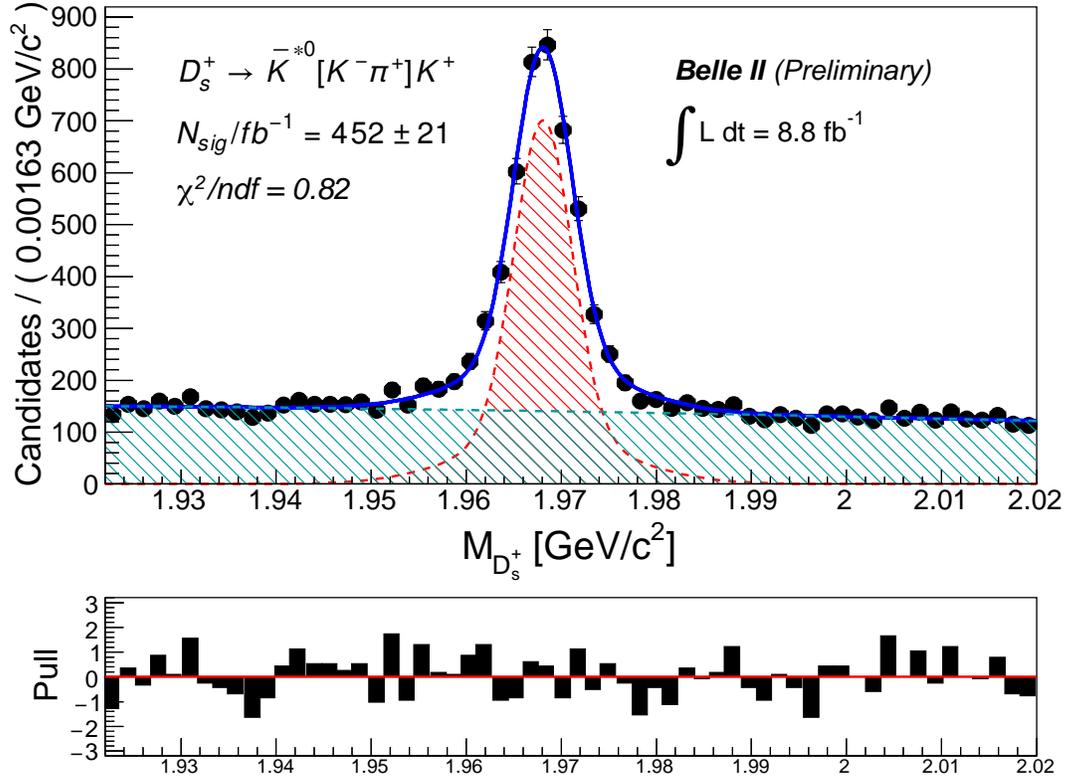


FIG. 2: $M_{D_s^+}$ fit in the decay mode $D_s^+ \rightarrow \bar{K}^{*0} [K^- \pi^+] K^+$. For above plot we have used the data collected by Belle II during 2019 (proc11, exp7,8,10). The data corresponds to an integrated luminosity of $8.8 fb^{-1}$. We performed an unbinned extended maximum likelihood fit. Sum of two symmetric gaussian are used for signal fit and a 2nd order chebychev polynomial is used for background fit. From the fit we get $N_{sig}/fb^{-1} = 452 \pm 21$.

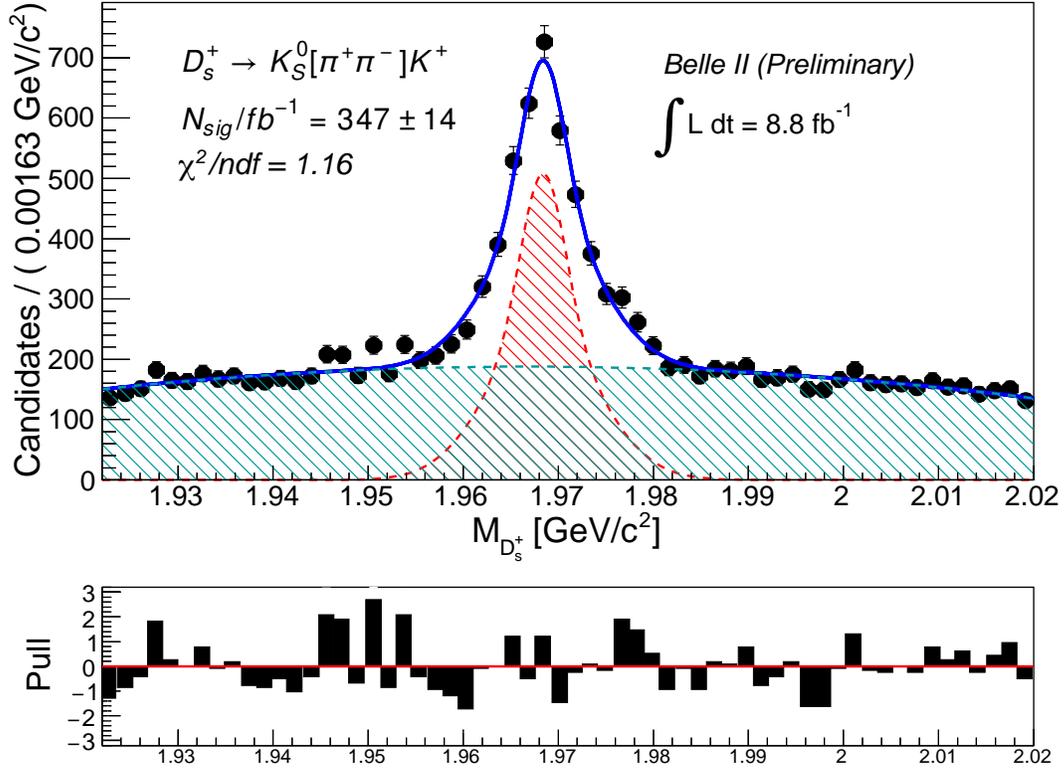


FIG. 3: $M_{D_s^+}$ fit in the decay mode $D_s^+ \rightarrow K_S^0[\pi^+\pi^-]K^+$. For above plot we have used the data collected by Belle II during 2019 (proc11, exp7,8,10). The data corresponds to an integrated luminosity of $8.8 fb^{-1}$. We performed an unbinned extended maximum likelihood fit. Sum of two symmetric gaussian are used for signal fit and a 2nd order chebychev polynomial is used for background fit. From the fit we get $N_{sig}/fb^{-1} = 347 \pm 14$.