I. LIST OF APPROVED PLOTS

- Figure 1
- Figure 2

Details of the analysis procedure are described in BELLE2-NOTE-PH-2019-038.

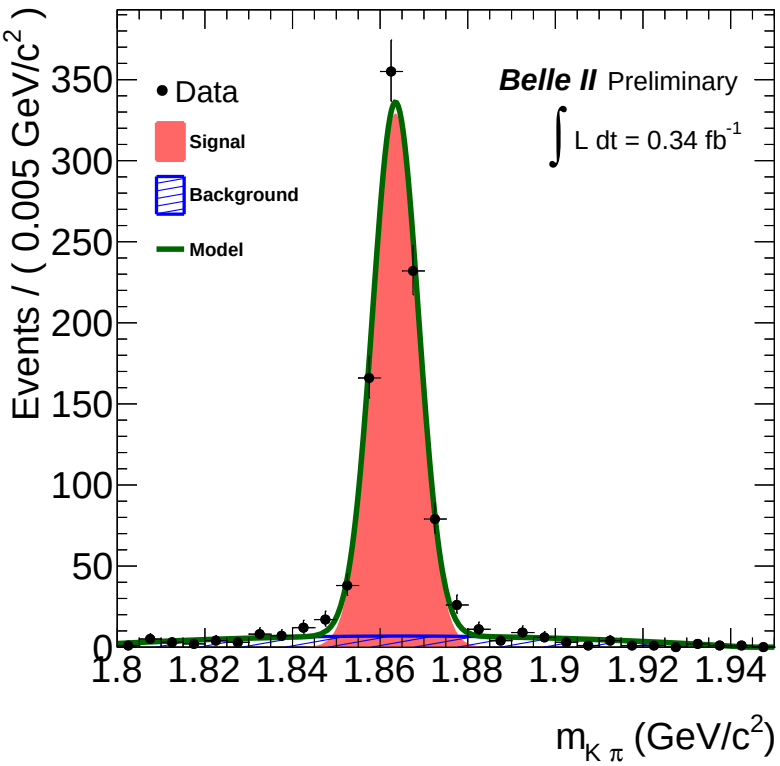

FIG. 1: Fit to the reconstructed mass of D^0 candidates from the decay chain $D^{*\pm} \to (D^0 \to K^{\mp}\pi^{\pm})\pi^{\pm}$ with $5.346 < Q(\mathrm{MeV}/c^2) < 6.353$. The red shaded region represents the signal candidates, while the blue region represents the background candidates. The model function is defined in (1) and the values of the parameters extracted from the fit are reported in Table I.

The mass distribution is fitted with a Gaussian (signal) plus a first-order polynomial (background):

$$M_{PDF}(m) = N_{sig} \times Gauss(m|\mu, \sigma) + N_{bkg} \times pol_1(m|c_0, c_1). \quad (1)$$

parameter	extracted value
N_{sig}	$(86 \pm 3) \cdot 10$
μ (MeV/c^2)	1863.5 ± 0.2
σ (MeV/c^2)	5.22 ± 0.17
N_{bkg}	140 ± 15
c_0 (MeV/c^2)$^{-1}$	-0.46 ± 0.12
c_1 (MeV/c^2)$^{-2}$	-0.85 ± 0.17

TABLE I: Parameters extracted from the unbinned maximum likelihood fit to the reconstructed D^0 mass.

parameter	extracted value
N^1_{sig}	$(81 \pm 6) \cdot 10$
μ_1 (fs)	31 ± 16
σ_1 (fs)	127 ± 15
N^2_{sig}	$(10 \pm 5) \cdot 10$
μ_2 (ps)	(0.48 ± 0.17)
σ_2 (ps)	(0.73 ± 0.13)
τ (fs)	(370 ± 40)

TABLE II: Parameters extracted from the unbinned maximum likelihood fit to the reconstructed proper time distribution.

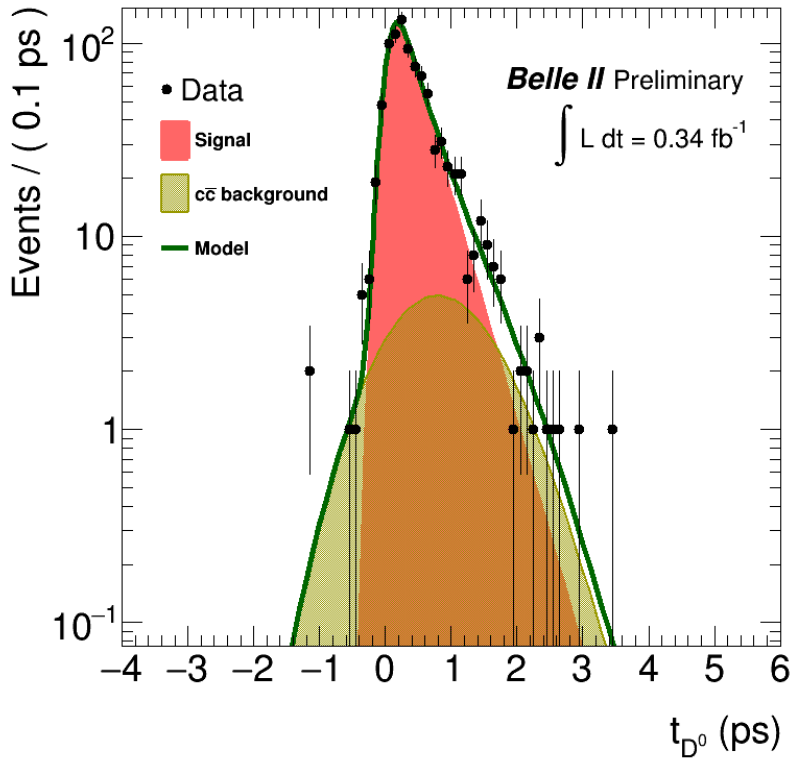

FIG. 2: Fit to the reconstructed proper time for D^0 candidates belonging to the signal region $5.346 < Q(\mathrm{MeV}/c^2) < 6.353$ and $1.848 < M(\mathrm{GeV}/c^2) < 1.879$. The model function is defined in (2) and the value of the parameters extracted from the fit are reported in Table II.

The proper time distribution is fitted with two Gaussian contributions both convolved with the exponential:

$$T_{PDF}(t) = N^1_{sig} \times Gauss(t|\mu_1, \sigma_1) * Exp(t|\tau) + N^2_{sig} \times Gauss(t|\mu_2, \sigma_2) * Exp(t|\tau)\ ; \qquad (2)$$

the choice is due to considerations on background composition, entirely related to mis-reconstructed D^0s ($c\bar{c}$ background).