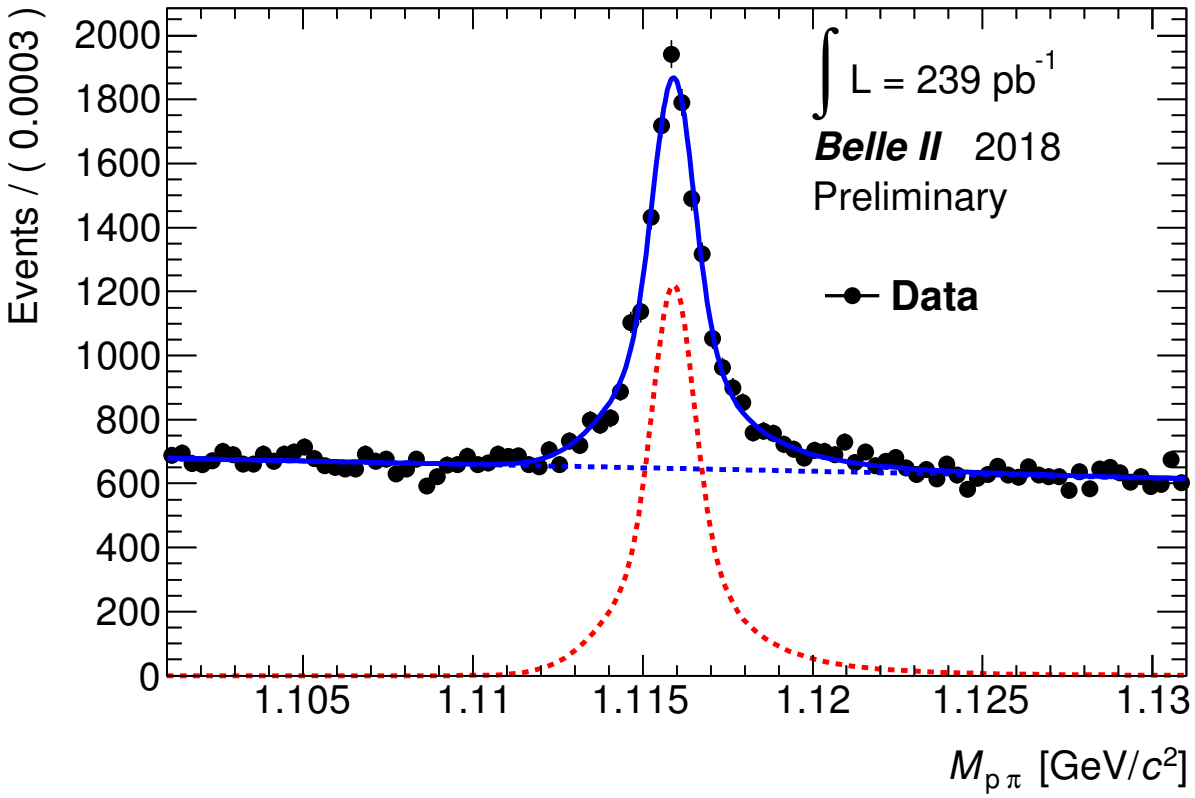

FIG. 1: This figures shows the $p\pi$ invariant mass without any PID selection. For fit, sum of gaussian and Crystal ball function is used as the signal p.d.f., where common means are used and the ratio of the Gaussian sigma and the Crystal-Ball sigma is fixed by the fit result for MC. 2nd-order chevyshev function is used as background p.d.f.. Further detail is described in BELLE2-NOTE-PH-2018-036.

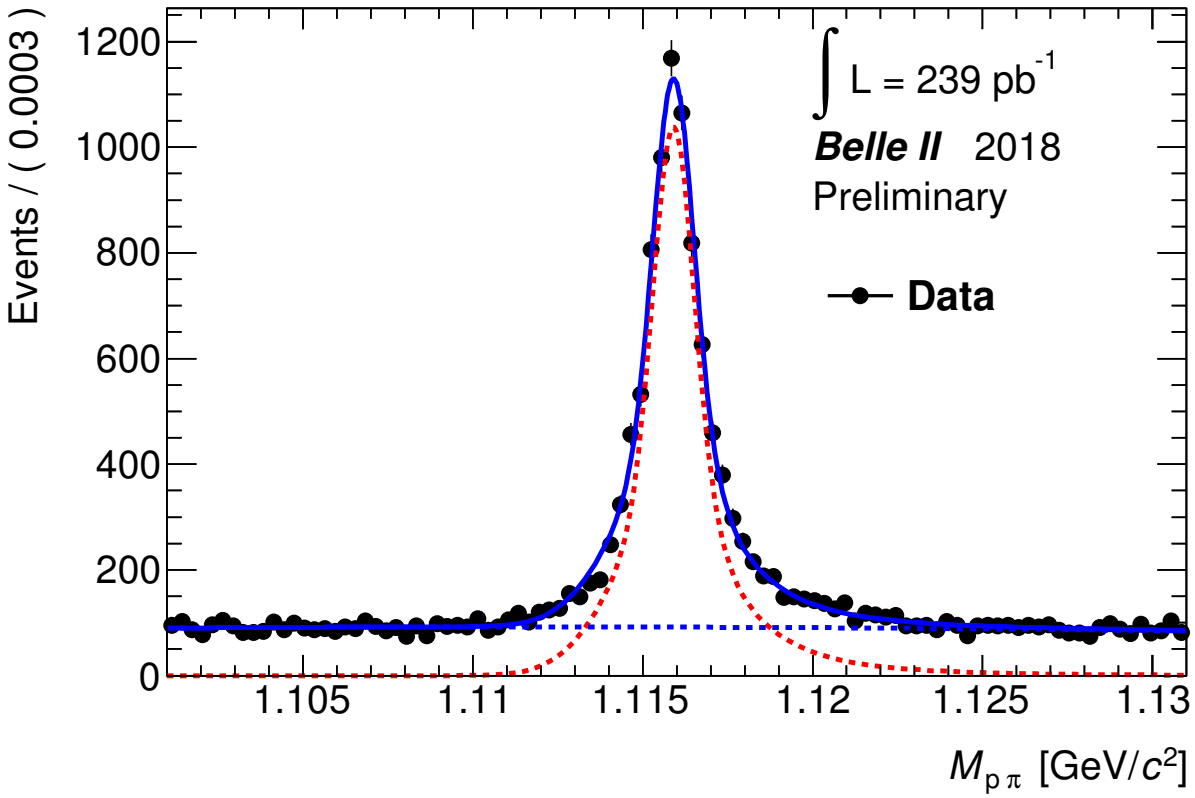

FIG. 2: This figures shows the $p\pi$ invariant mass after a track assumed proton requires proton ID for data. The proton-ID requirements are $\mathcal{L}_{p/\pi} > 0.6$ and $\mathcal{L}_{p/K} > 0.6$. For fit, the same p.d.f. as above are used. Here all parameters of the signal p.d.f. except number of the signal are fixed. Further detail is described in BELLE2-NOTE-PH-2018-036.

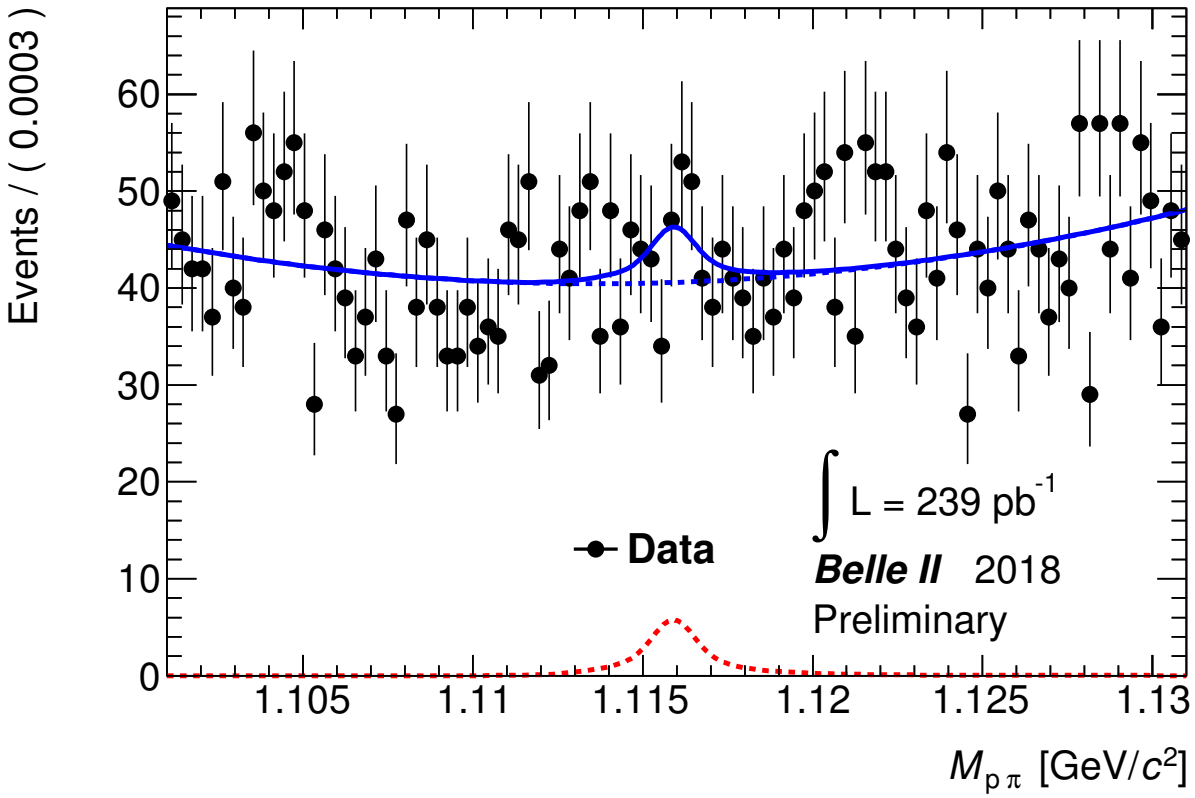

FIG. 3: This figures shows the $p\pi$ invariant mass after a track assumed pion requires proton ID (right). The proton-ID requirements are $\mathcal{L}_{p/\pi} > 0.6$ and $\mathcal{L}_{p/K} > 0.6$. For fit, the same p.d.f. as above are used. Here all parameters of the signal p.d.f. except number of the signal are fixed. Further detail is described in BELLE2-NOTE-PH-2018-036

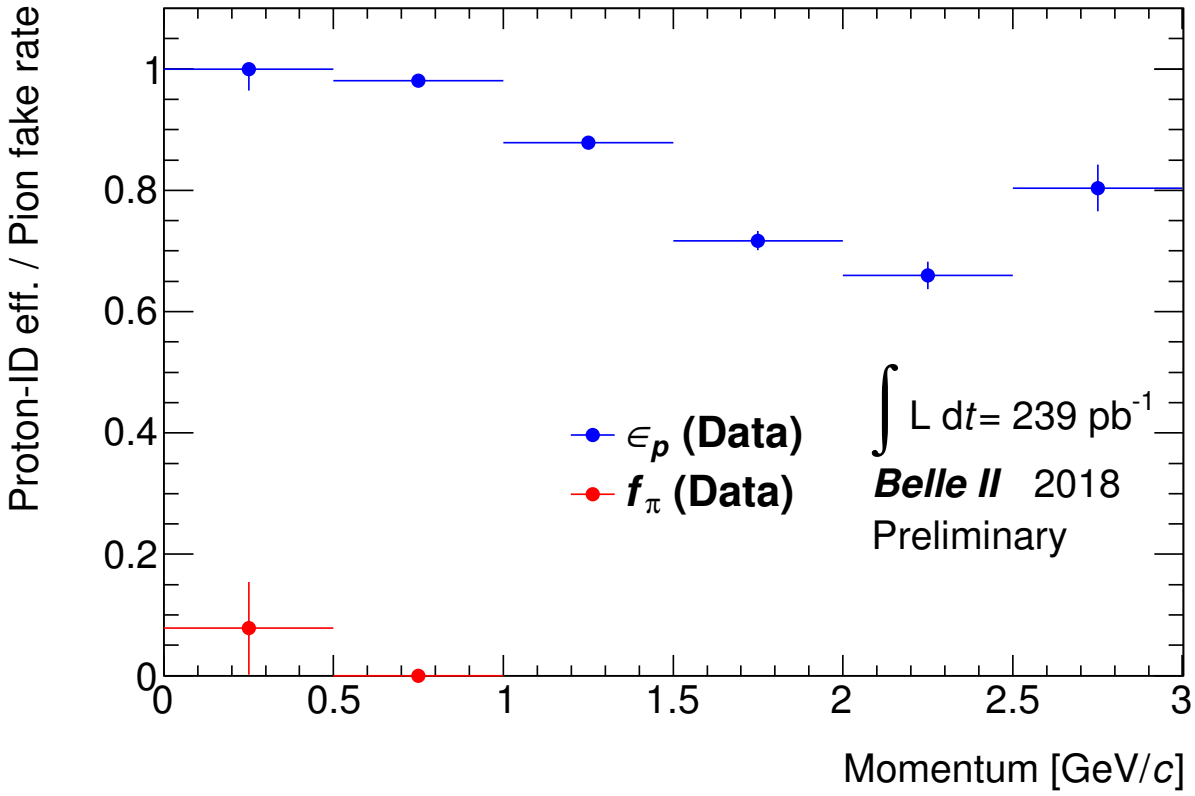

FIG. 4: This figures shows the proton-ID efficiency and the pion fake rate as a function of momentum by using combined PID for data. The proton-ID requirements are $\mathcal{L}_{p/\pi} > 0.6$. and $\mathcal{L}_{p/K} > 0.6$.Further detail is described in BELLE2-NOTE-PH-2018-036.

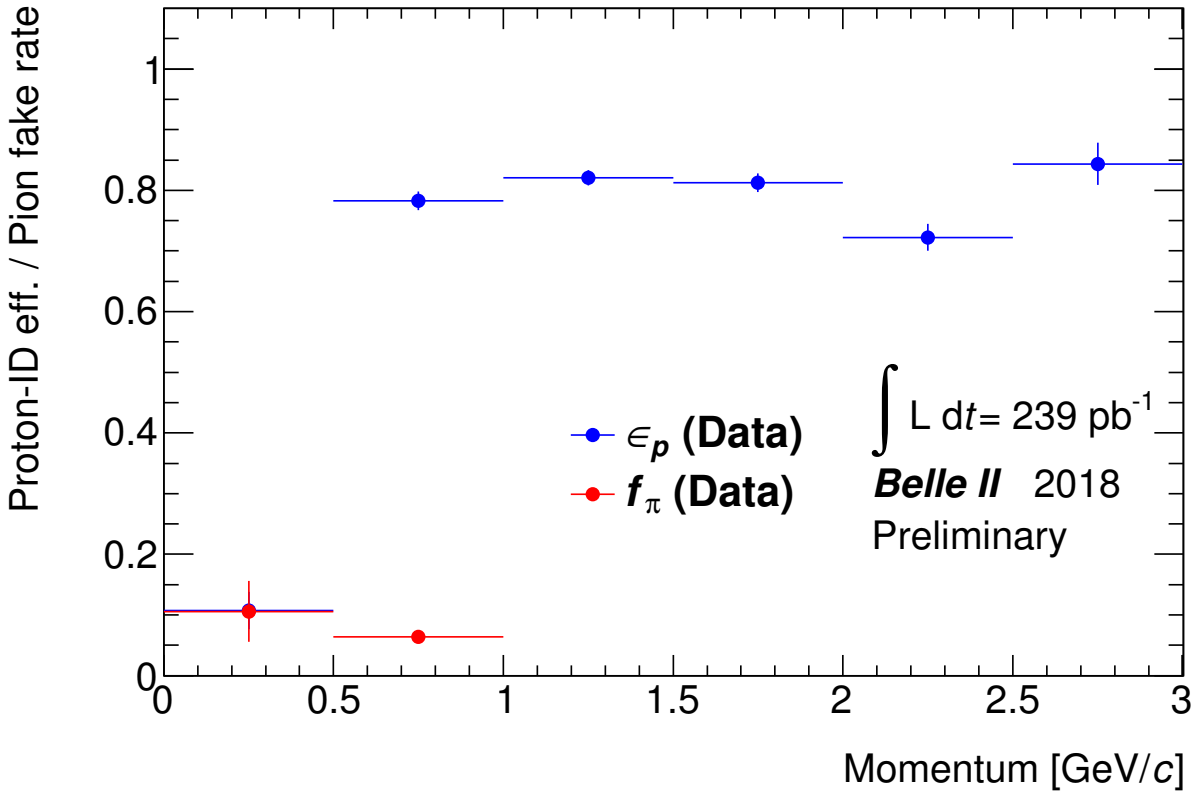

FIG. 5: This figures shows the proton-ID efficiency and the pion fake rate as a function of momentum by using TOP likelihood only for data. The proton-ID requirements are $\mathcal{L}^{\mathrm{TOP}}_{p/\pi} > 0.6$ and $\mathcal{L}^{\mathrm{TOP}}_{p/K} > 0.6$. Further detail is described in BELLE2-NOTE-PH-2018-036.

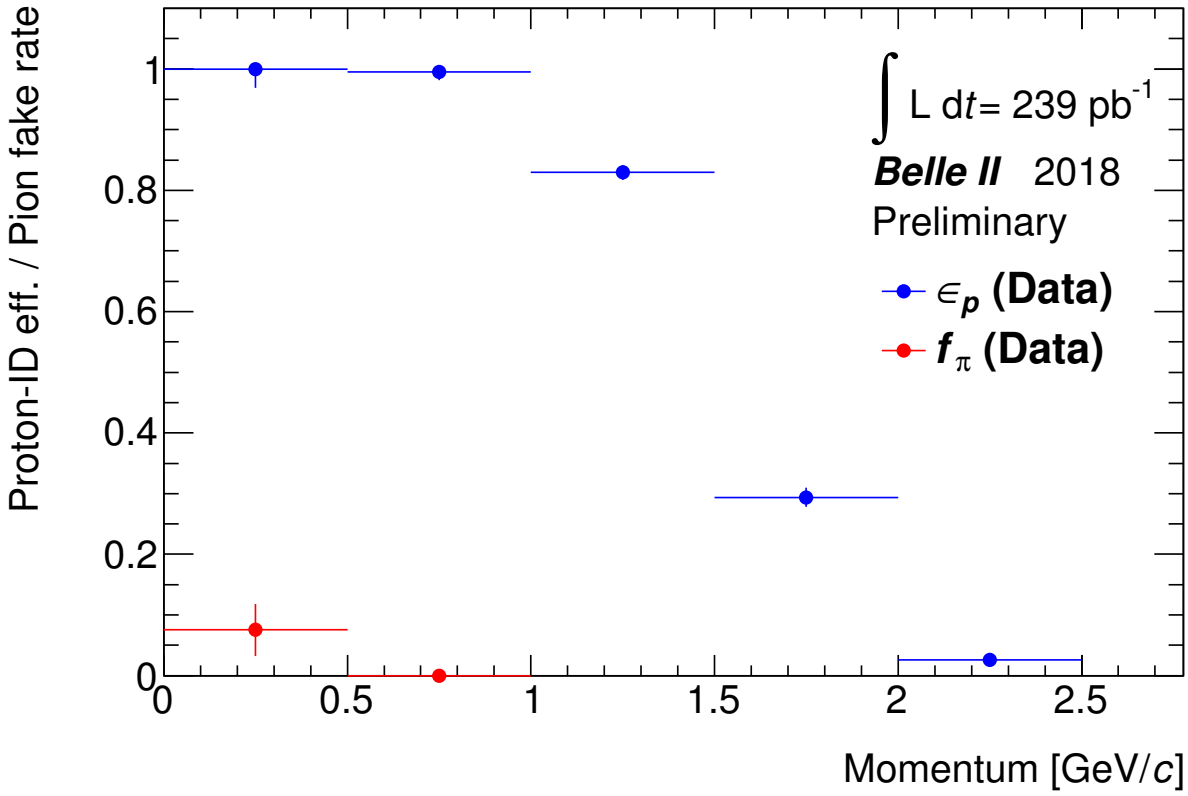

FIG. 6: This figures shows the proton-ID efficiency and the pion fake rate as a function of momentum by using CDC likelihood only for data. The proton-ID requirements are $\mathcal{L}^{\mathrm{CDC}}_{p/\pi} > 0.6$ and $\mathcal{L}^{\mathrm{CDC}}_{p/K} > 0.6$. Further detail is described in BELLE2-NOTE-PH-2018-036.