组会报告

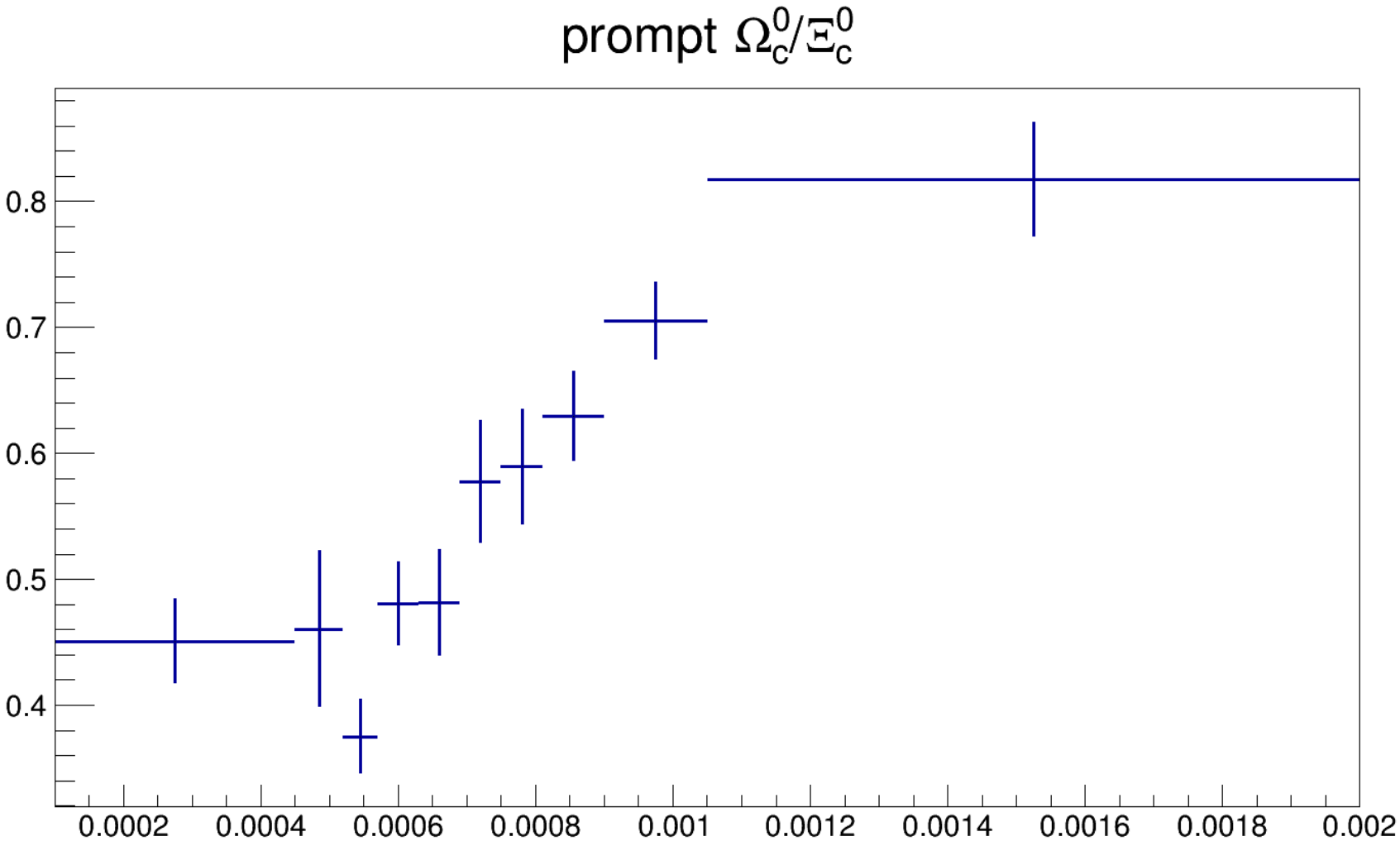
敖冬

Fix some parameters of IPCHI2 model

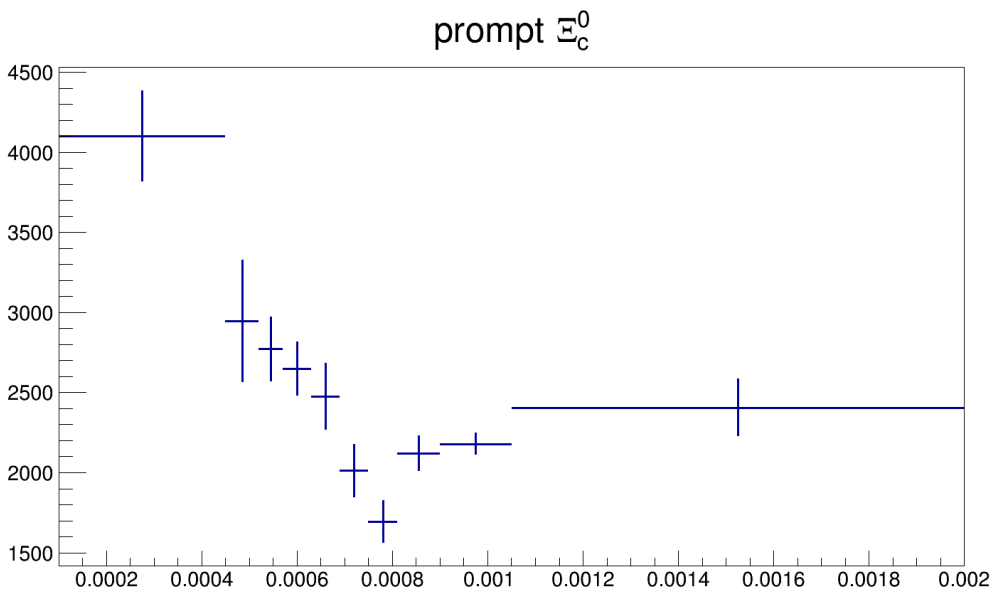
	Prompt	Secondary
μ	Float	Float
σ	Fixed	Float
ξ	Fixed	Fixed
ρ_1	Fixed	Fixed
ρ_2	Fixed	Fixed

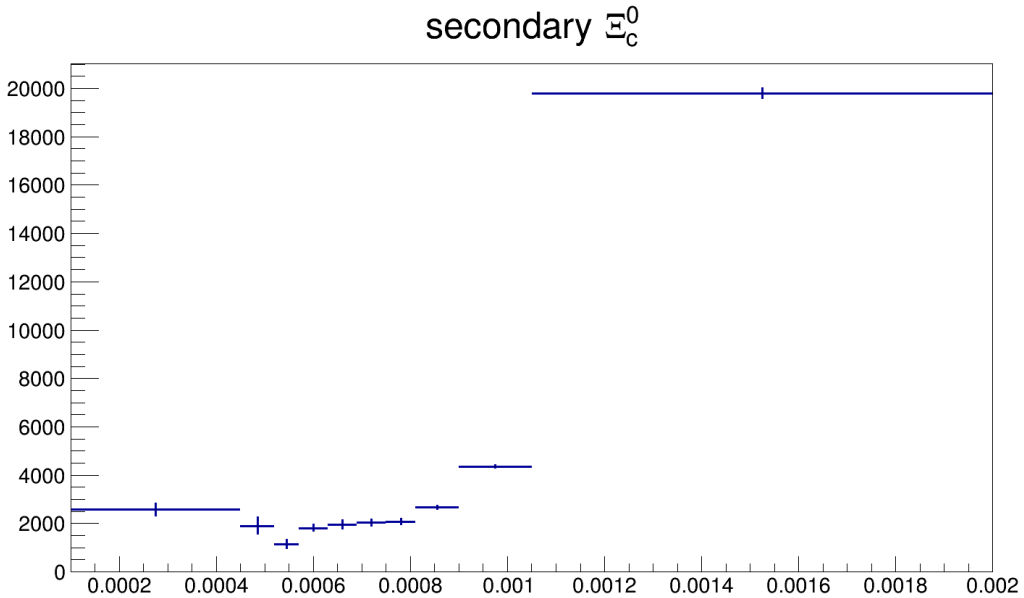
- 用之前不含IPCHI2的拟合脚本的结果固定部分参数：
- $SF_{\sigma}, bias_{\sigma}, meandiff$
- 在各个bin中单独拟合
- 通过参数固定，实现各个bin中没有migrad和error matrix的问题

Fit result

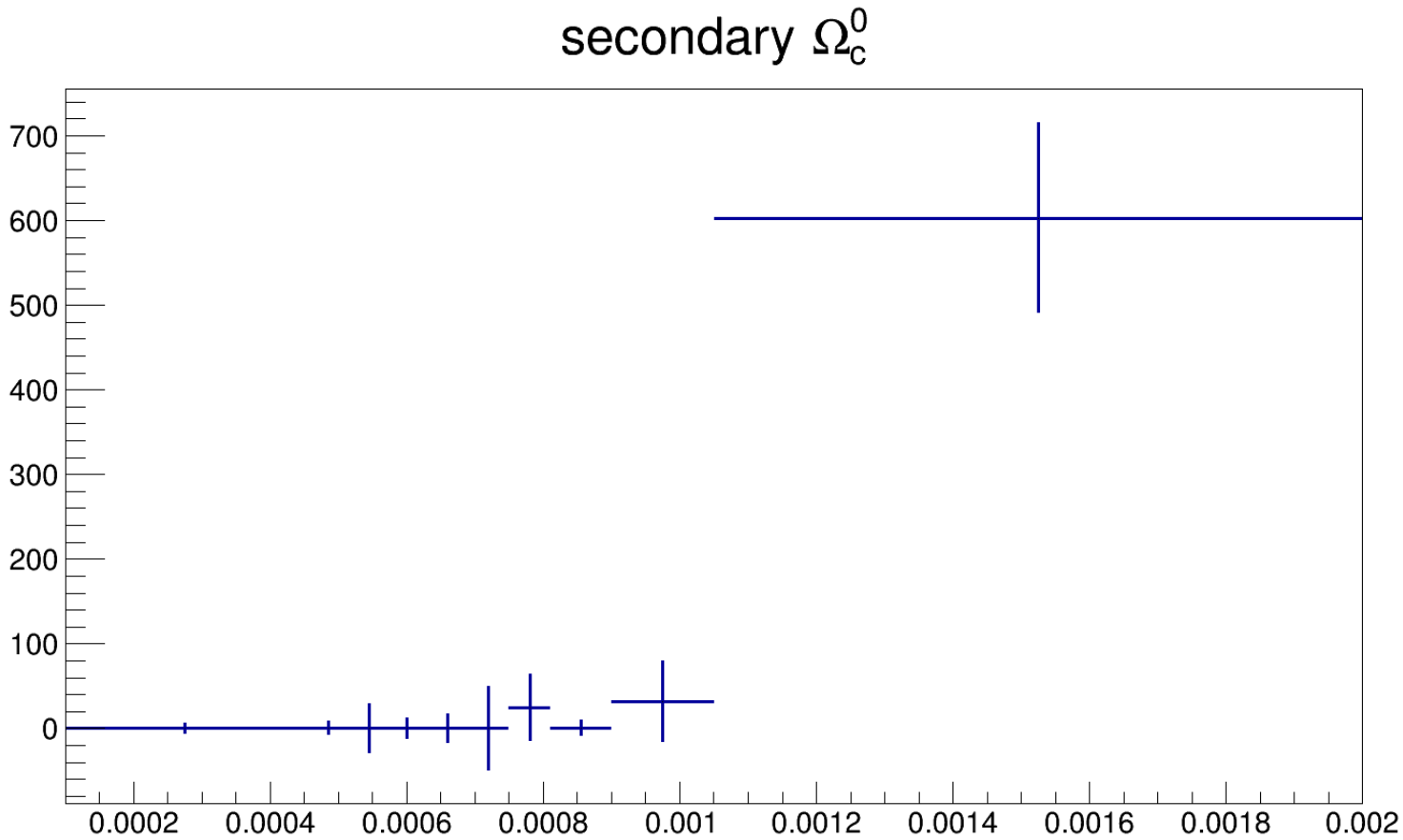

prompt Ω_c^0/Ξ_c^0
0.8
0.7
0.6
0.5
0.4
0.0002
0.0004
0.0006
0.0008
0.001
0.0012
0.0014
0.0016
0.0018
0.002

Fit result

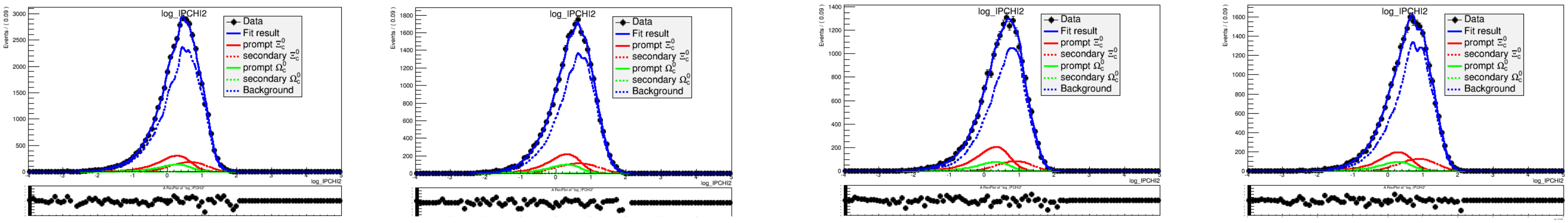

prompt Ξ_c^0
4500
4000
3500
3000
2500
2000
1500
0.0002
0.0004
0.0006
0.0008
0.001
0.0012
0.0014
0.0016
0.0018
0.002

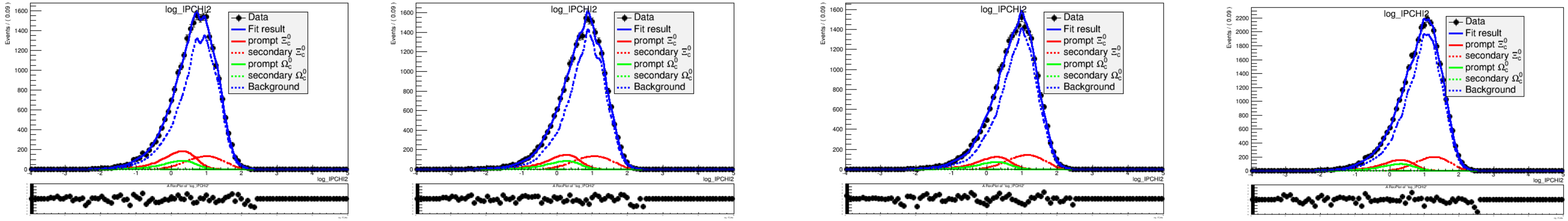

secondary Ξ_c^0
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
0.0002
0.0004
0.0006
0.0008
0.001
0.0012
0.0014
0.0016
0.0018
0.002

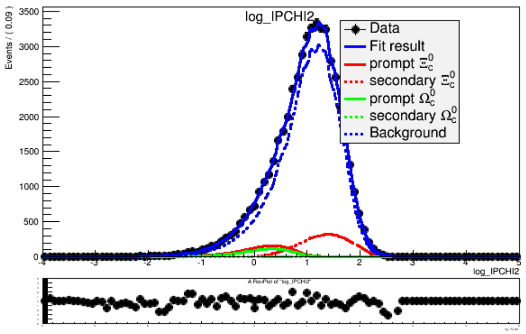
Fit result

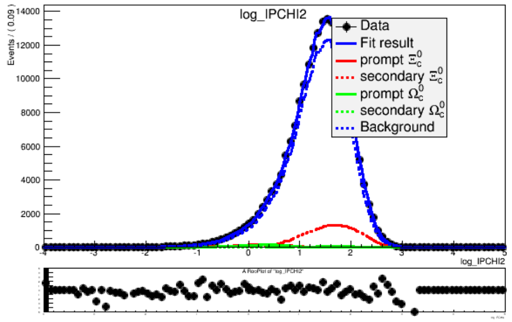

secondary Ω_c^0
700
600
500
400
300
200
100
0
0.0002
0.0004
0.0006
0.0008
0.001
0.0012
0.0014
0.0016
0.0018
0.002

Xic0 IPCHI2

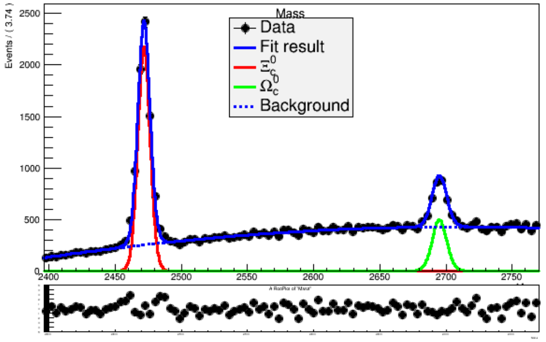

log_IPCHI2
Data
Fit result
prompt Ξ_c^0
secondary Ξ_c^0
prompt Ω_c^0
secondary Ω_c^0
Background
Events / (0.09)
log_IPCHI2

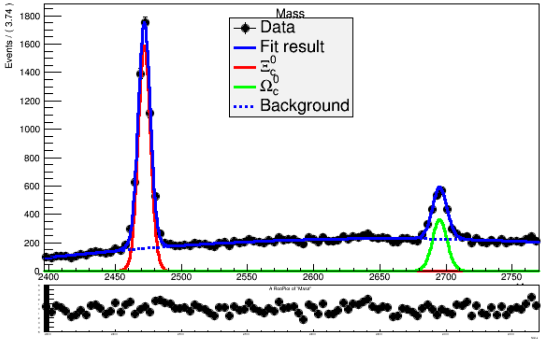

log_IPCHI2
Data
Fit result
prompt Ξ_c^0
secondary Ξ_c^0
prompt Ω_c^0
secondary Ω_c^0
Background
Events / (0.09)
log_IPCHI2

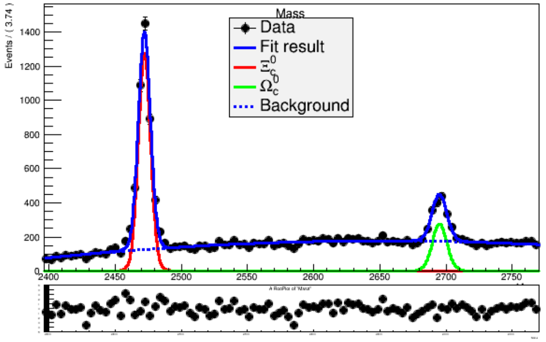

log_IPCHI2
Data
Fit result
prompt Ξ_c^0
secondary Ξ_c^0
prompt Ω_c^0
secondary Ω_c^0
Background
Events / (0.09)
log_IPCHI2

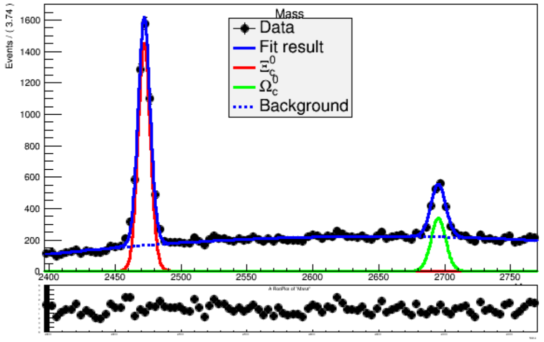

log_IPCHI2
Data
Fit result
prompt Ξ_c^0
secondary Ξ_c^0
prompt Ω_c^0
secondary Ω_c^0
Background
Events / (0.09)
log_IPCHI2

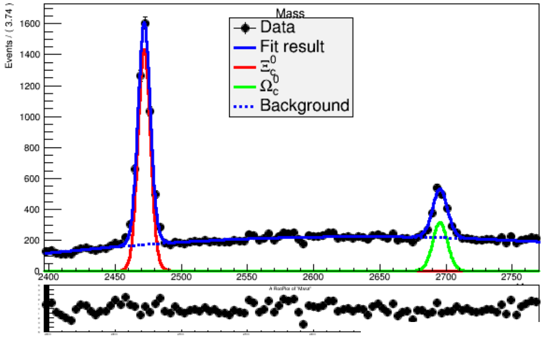
Xic0 mass

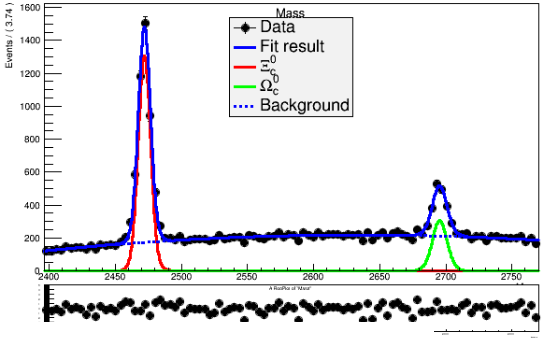

Mass
Data
Fit result
Ξ_c^0
Ω_c^0
Background

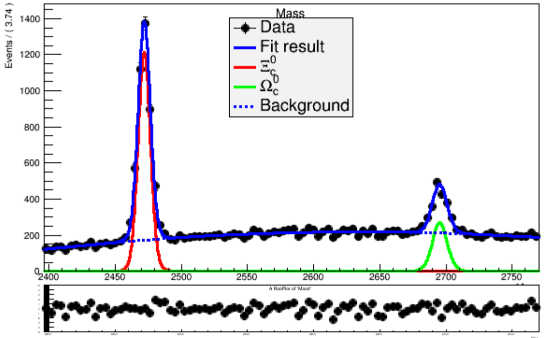

Mass
Data
Fit result
Ξ_c^0
Ω_c^0
Background

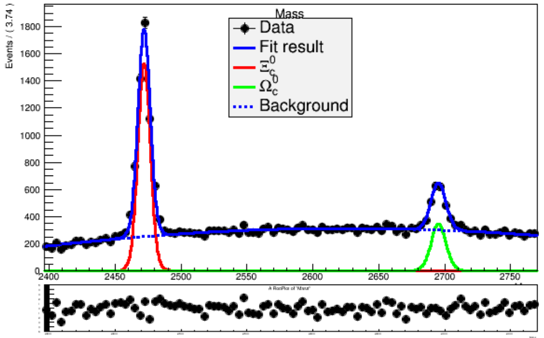

Mass
Data
Fit result
Ξ_c^0
Ω_c^0
Background

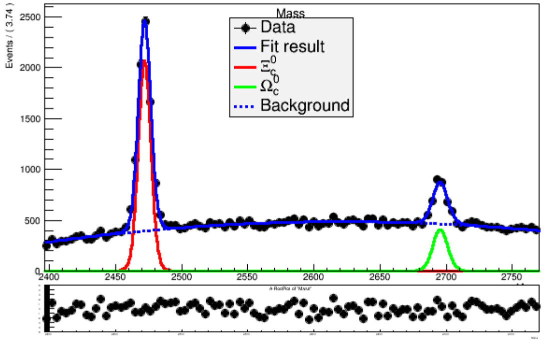

Mass
Data
Fit result
Ξ_c^0
Ω_c^0
Background

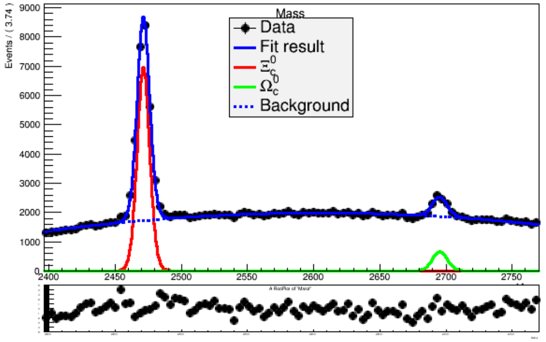

Mass
Data
Fit result
Ξ_c^0
Ω_c^0
Background


Mass
Data
Fit result
Ξ_c^0
Ω_c^0
Background

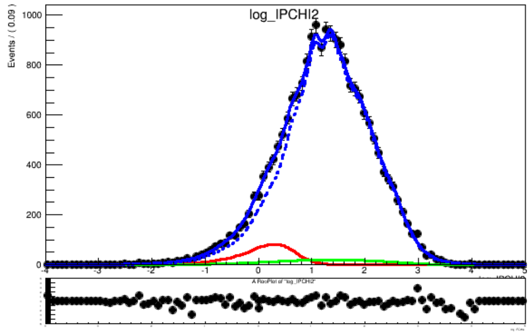

Mass
Data
Fit result
Ξ_c^0
Ω_c^0
Background

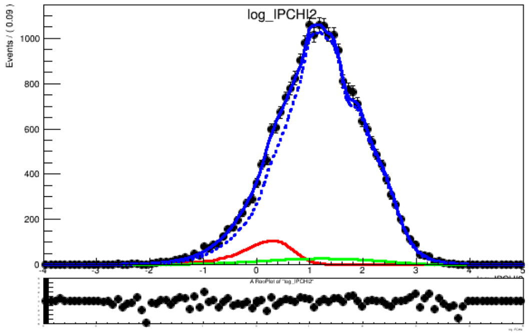

Mass
Data
Fit result
Ξ_c^0
Ω_c^0
Background

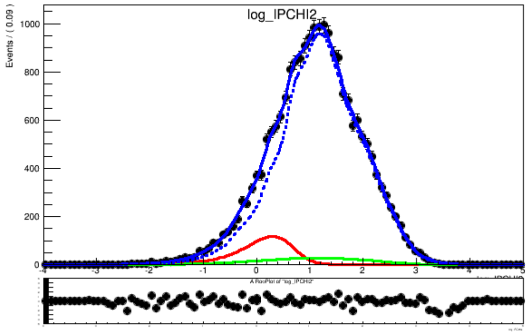

Mass
Data
Fit result
Ξ_c^0
Ω_c^0
Background

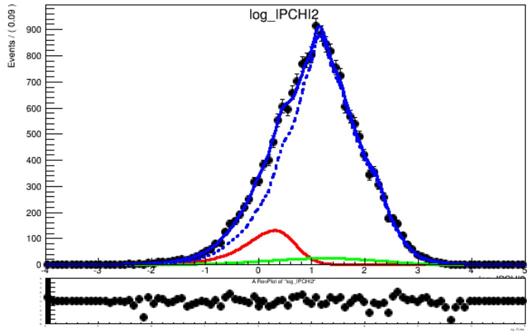

Mass
Data
Fit result
Ξ_c^0
Ω_c^0
Background

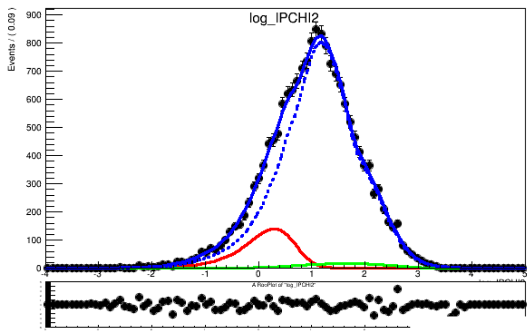
Check for D0

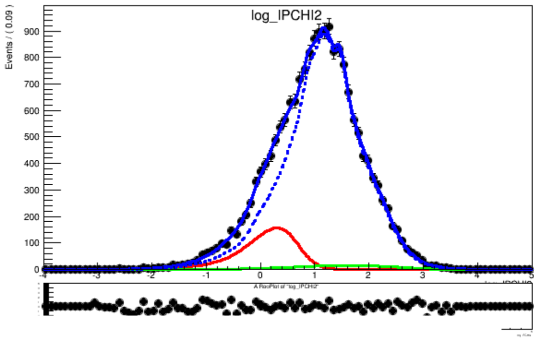

log_IPCHI2
Events / (0.09)

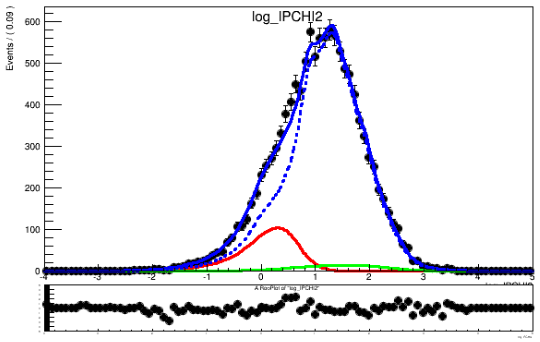

log_IPCHI2
Events / (0.09)

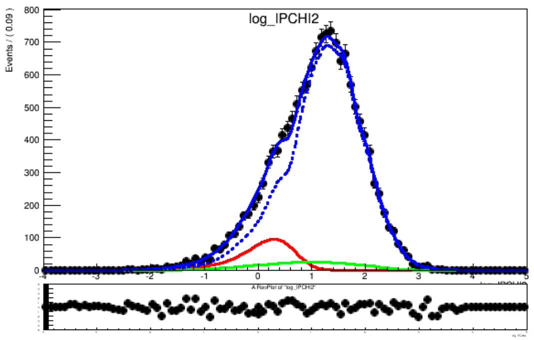

log_IPCHI2
Events / (0.09)

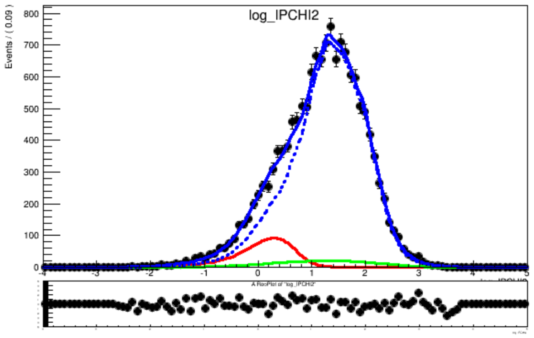

log_IPCHI2
Events / (0.09)

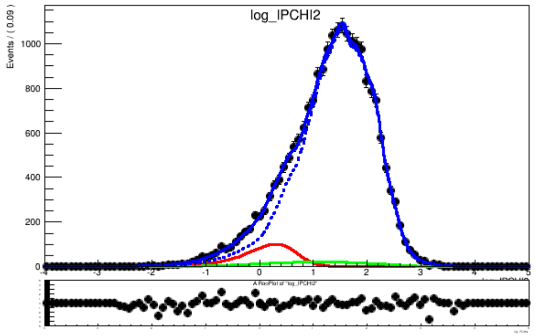

log_IPCHI2
Events / (0.09)


log_IPCHI2
Events / (0.09)


log_IPCHI2
Events / (0.09)


log_IPCHI2
Events / (0.09)


log_IPCHI2
Events / (0.09)


log_IPCHI2
Events / (0.09)

$\log(\chi^2_{IP})$ modeling

- Bukin function, a modified Novosibirsk function with extended tail parameters

$$\mathcal{P}(x;\mu,\sigma,\xi,\rho_1,\rho_2) = \begin{cases} \exp\left\{ \dfrac{(x-x_1)\xi\sqrt{\xi^2+1}\sqrt{2\ln 2}}{\sigma\left(\sqrt{\xi^2+1}-\xi\right)^2 \ln\left(\sqrt{\xi^2+1}+\xi\right)} + \rho_1\left(\dfrac{x-x_1}{\mu-x_1}\right)^2 - \ln 2 \right\} & x \le x_1, \\ \exp\left\{ -\left[\dfrac{\ln\left(1+2\xi\sqrt{\xi^2+1}\dfrac{x-\mu}{\sigma\sqrt{2\ln 2}}\right)}{\ln\left(1+2\xi^2-2\xi\sqrt{\xi^2+1}\right)} \right]^2 \times \ln 2 \right\} & x_1 < x < x_2, \\ \exp\left\{ \dfrac{(x-x_2)\xi\sqrt{\xi^2+1}\sqrt{2\ln 2}}{\sigma\left(\sqrt{\xi^2+1}-\xi\right)^2 \ln\left(\sqrt{\xi^2+1}+\xi\right)} + \rho_2\left(\dfrac{x-x_2}{\mu-x_2}\right)^2 - \ln 2 \right\} & x \ge x_2. \end{cases}$$

where

$$x_1 = \mu + \sigma\sqrt{2\ln 2}\left(\frac{\xi}{\sqrt{\xi^2+1}} - 1\right)$$

$$x_2 = \mu + \sigma\sqrt{2\ln 2}\left(\frac{\xi}{\sqrt{\xi^2+1}} + 1\right)$$

Turbo selection for $\Omega_c^0 \to p\ K^-\ K^-\ \pi^+$

Items	Cuts
Daughter p	(TRCHI2DOF<3)
	(PT>500.)
	(P > 10000.)
	(PIDp > 10.0) & ((PIDp-PIDK) > 5.0)
	(MIPCHI2DV(PRIMARY) > 4.0)
Daughter K	(TRCHI2DOF<3)
	(PT>500.)
	(P>1000.)
	(PIDK>10.)
	(MIPCHI2DV(PRIMARY) > 4.0)
Daughter π	(TRCHI2DOF<3)
	(PT>500.)
	(P>1000.)
	(PIDK<0.)
	(MIPCHI2DV(PRIMARY) > 4.0)
MotherCut	(VFASPF(VCHI2PDOF) < 10.0)
	(BPVDIRA > cos(0.01))
	(BPVLTIME() > 0.0001)
	(BPVVDCHI2 > 10.0)
CombinationCut	(in range(2386.0, AM, 2780.0))
	((APT1+APT2+APT3+APT4) > 3000.0)
	(AHASCHILD(PT > 1000.0))
	(ANUM(PT > 500.0) >= 2)
	(AHASCHILD((MIPCHI2DV(PRIMARY)) > 8.0))
	(ANUM(MIPCHI2DV(PRIMARY) > 6.0) >= 2)