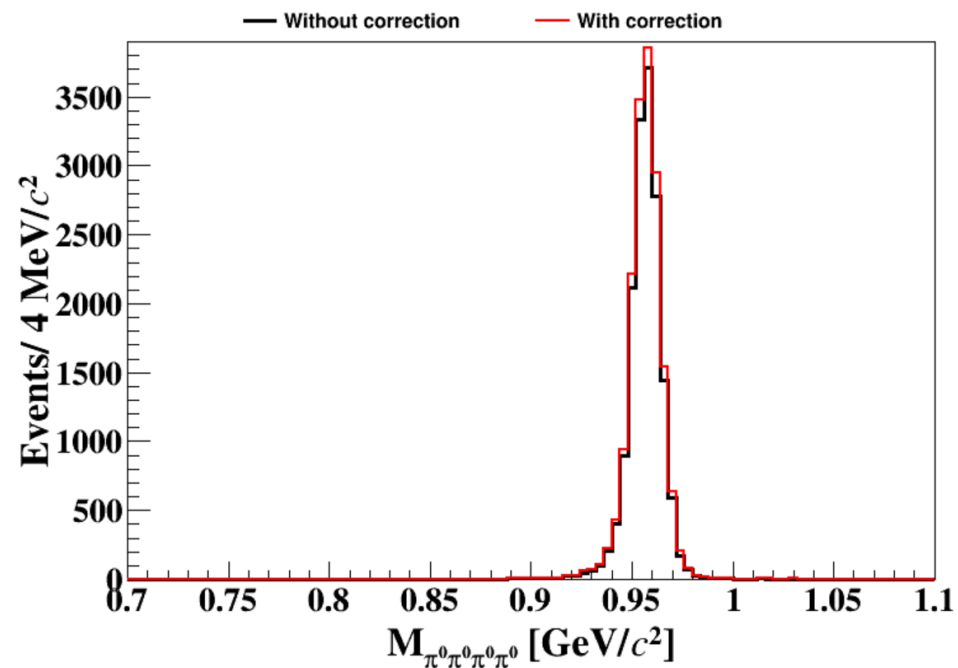


运动学拟合的系统误差



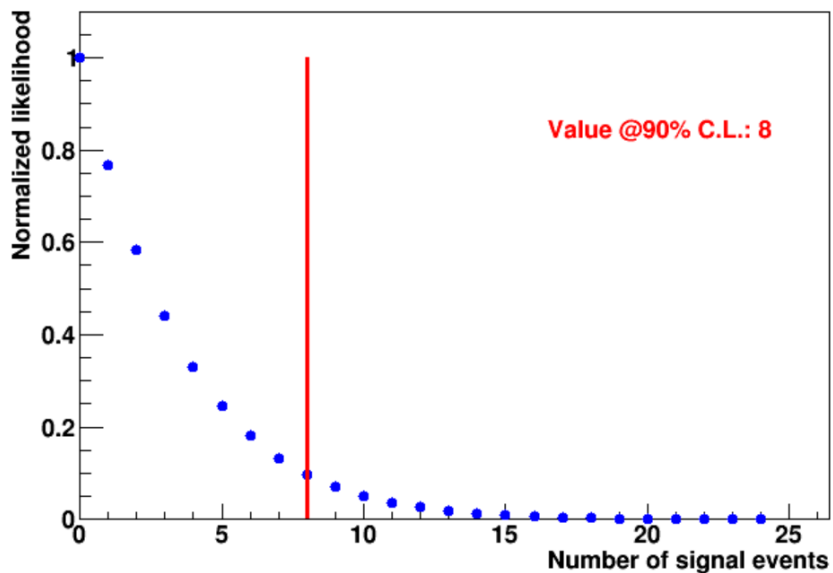
	总的事例数	剩余事例数	选择效率	运动学拟合系统误差
修正前的样本	9000000	125767	1.40	5.7
修正后的样本	9000000	133024	1.48	

MC产生子模型的系统误差

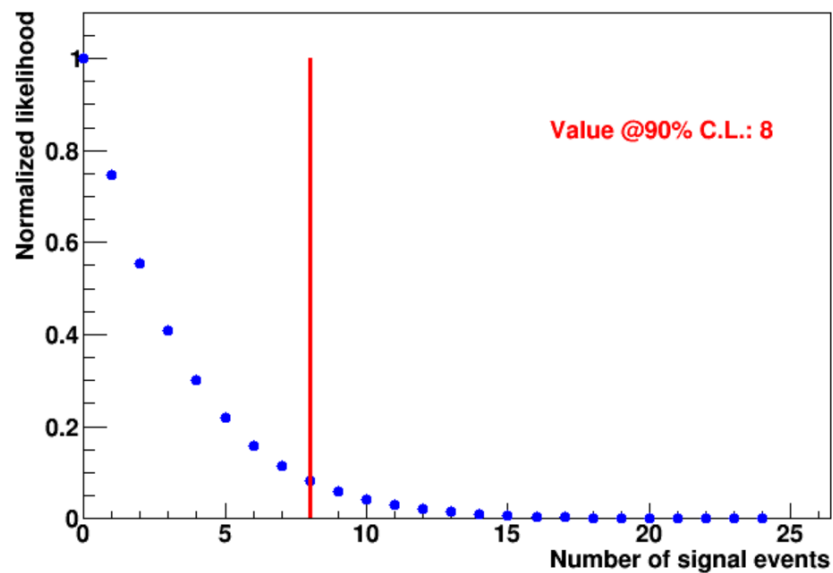
	总事例数	剩余事例数	效率 (%)	误差 (%)
New Generator	9000000	125767	1.40	1.43
PHSP	9000000	127965	1.42	

质量窗的系统误差

Graph



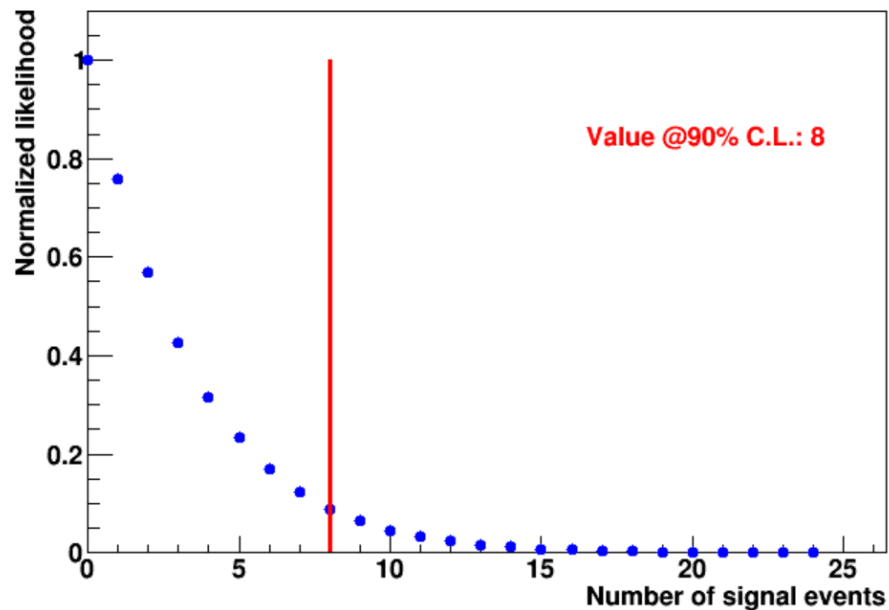
Graph



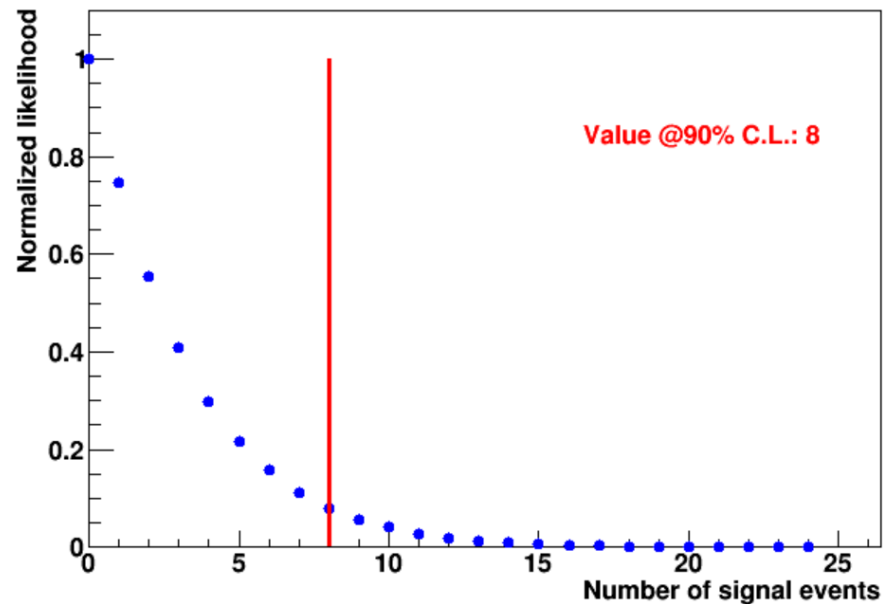
Veto $\eta \rightarrow \pi^0 \pi^0 \pi^0$	$N_{UL}(@90\% \text{ C.L.})$	效率 (%)	$B^{UL} \times 10^{-5}$	系统误差 (%)
$ M_{\pi^0 \pi^0 \pi^0} - m_\eta > 0.022$	8	1.36	1.20	4.3
$ M_{\pi^0 \pi^0 \pi^0} - m_\eta > 0.018$	8	1.44	1.14	0.8

质量窗的系统误差

Graph



Graph



Veto $\omega \rightarrow \gamma\pi^0$	$N_{UL}(@90\% \text{ C.L.})$	效率 (%)	$B^{UL} \times 10^{-5}$	系统误差 (%)
$ M_{\gamma\pi^0} - m_\omega > 0.042$	8	1.39	1.18	2.6
$ M_{\gamma\pi^0} - m_\omega > 0.038$	8	1.41	1.16	0.9

总系统误差

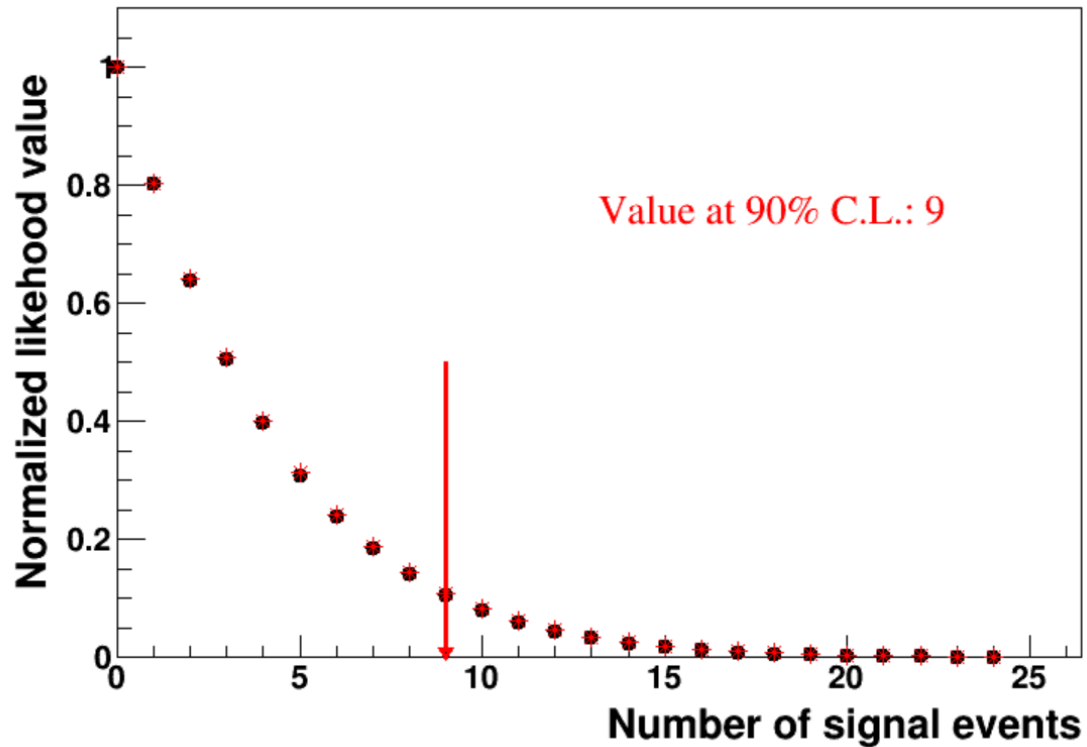
➤ 可加性系统误差

误差来源	上限产额	$B^{UL} \times 10^{-5}$
0.7 - 1.095	8	1.15
0.7 - 1.105	8	1.15
0.705 - 1.1	8	1.15
0.705 - 1.095	8	1.15
0.705 - 1.105	8	1.15
信号形状	8	1.15
连续本底形状	8	1.15
峰状本底形状	9	1.30
峰状本底数目(1404)	8	1.15
峰状本底数目(1529)	7	1.01

➤ 可乘性系统误差

误差来源	系统误差 (%)
光子探测效率	4.5
$B(\pi^0 \rightarrow \gamma\gamma)$	0.03
$B(J/\psi \rightarrow \gamma\eta')$	1.3
J/ψ 总事例数	0.44
运动学拟合	5.7
蒙特卡洛产生子模型	1.43
Veto $\eta \rightarrow 3\pi^0$	4.3
Veto $\omega \rightarrow \gamma\pi^0$	2.6
总共	9.1

Upper Limit of $\eta' \rightarrow 4\pi^0$



$$L(B) = \int L'\left(\frac{\varepsilon}{\bar{\varepsilon}}B\right) \exp\left(-\frac{\varepsilon - \bar{\varepsilon}^2}{2\sigma_\varepsilon}\right) d\varepsilon$$

$$\mathcal{B}^{UL} = \frac{N_{UL}}{N_{J/\psi} \cdot \mathcal{B}(J/\psi \rightarrow \gamma\eta') \cdot \varepsilon \cdot (\mathcal{B}(\pi^0 \rightarrow \gamma\gamma))^4}$$

➤ **Upper Limit:** $\mathcal{B}(\eta' \rightarrow \pi^0\pi^0\pi^0\pi^0) < 1.32 \times 10^{-5}$