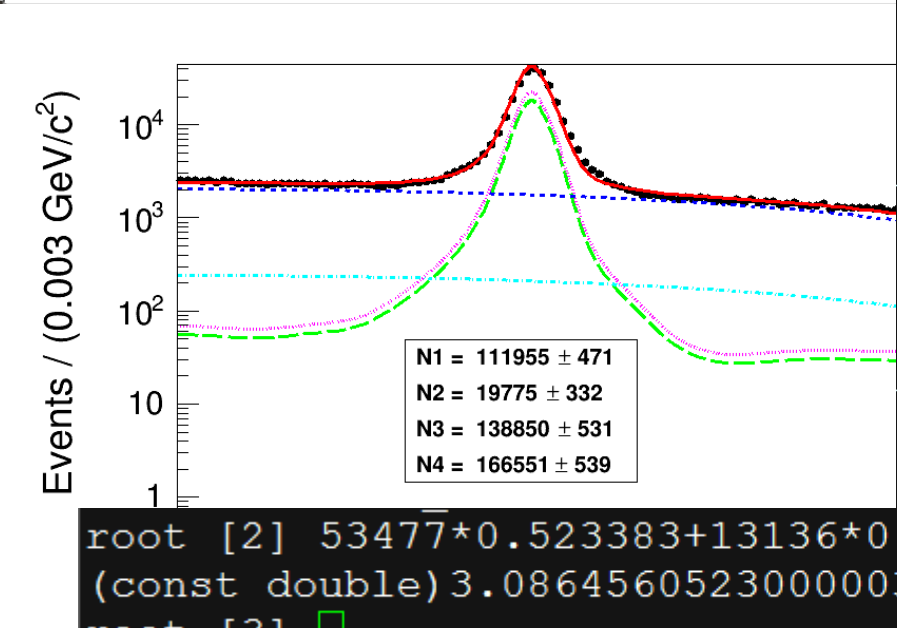
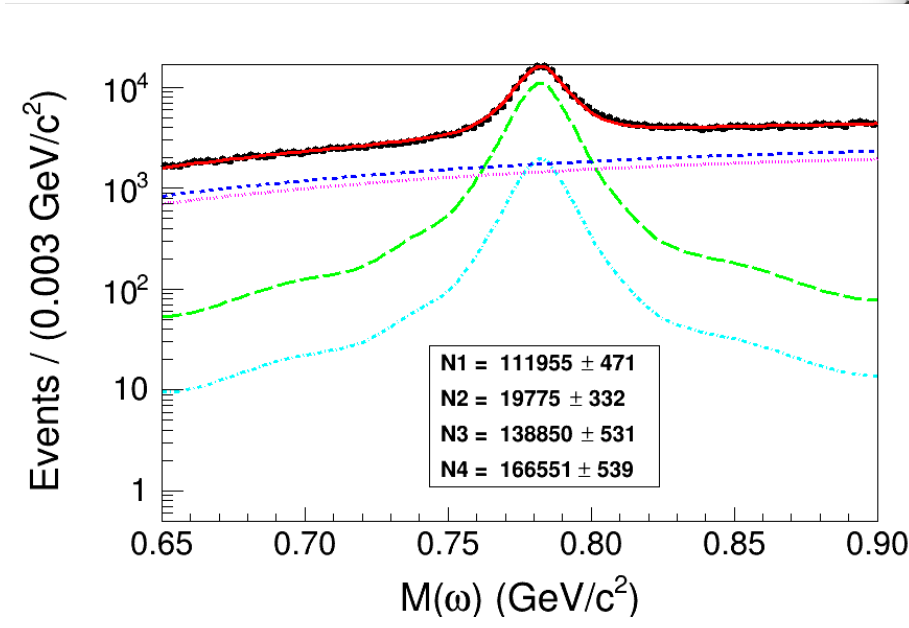
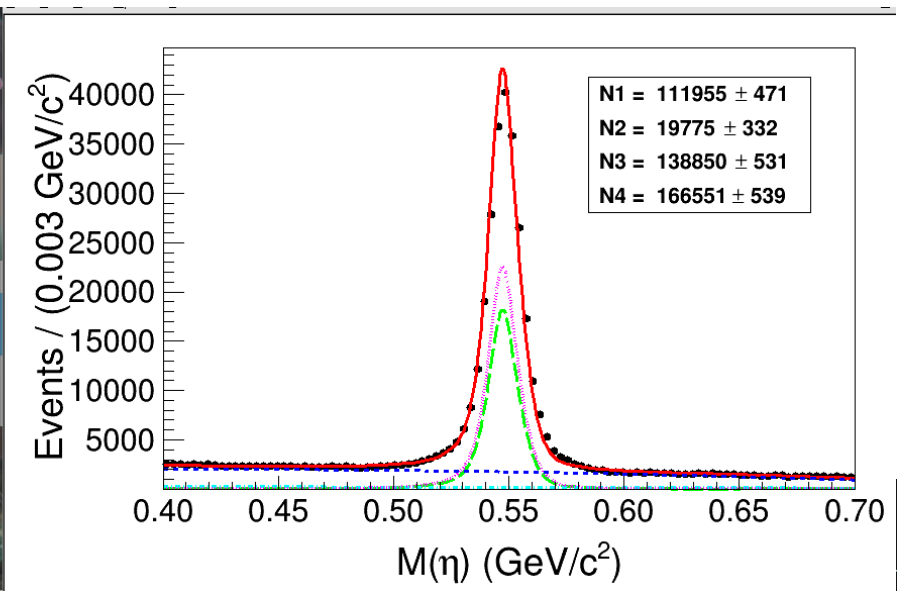
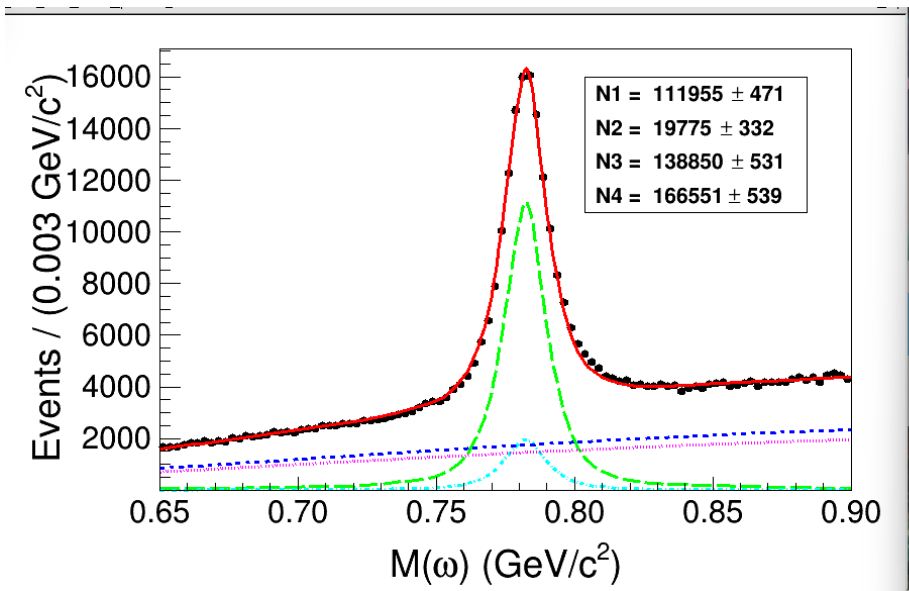
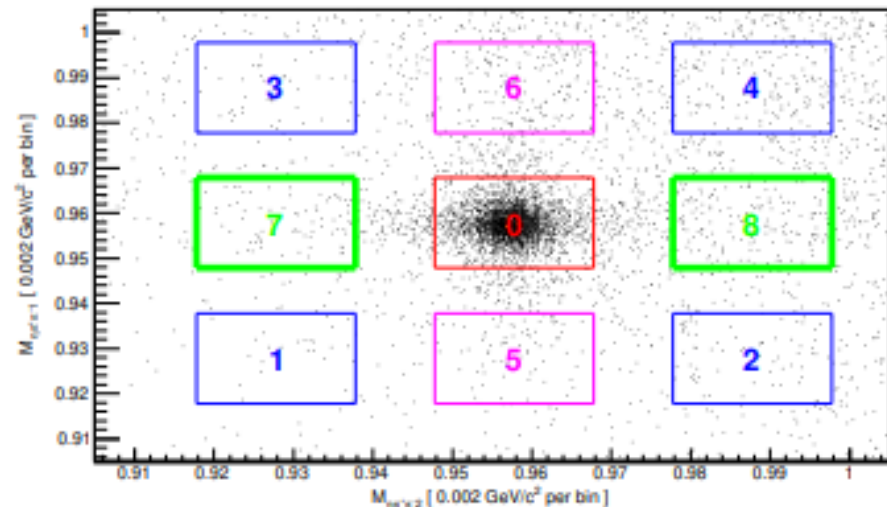
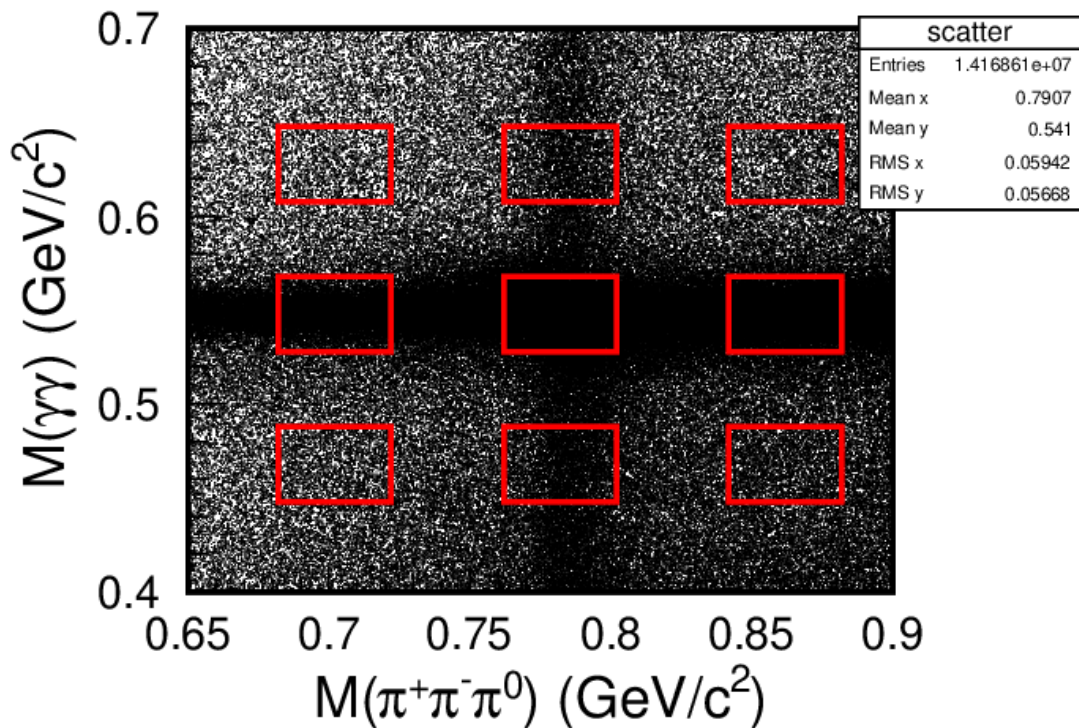


FCM=0.7610e100 FROM HESSE EDM=0.0261647

EXT NO.	PARAMETER NAME	VALUE
1	N1	1.11955e+05
2	N2	1.97750e+04
3	N3	1.38850e+05
4	N4	1.66551e+05
5	p0_eta4	2.25872e+02
6	p0_ome4	-6.94040e+00
7	p1_eta4	-2.81233e+02
8	p1_ome4	1.29844e+01
9	p2_ome4	-6.38367e+00



```
[liulu_707p01][10:36pm si
root [0]
Attaching file D.root as
root [1] h4->GetEntries()
(const Long64_t) 14407
root [2] .q
[liulu_707p01][10:37pm si
root [0]
Attaching file H.root as
root [1] h4->GetEntries()
(const Long64_t) 53477
root [2] .q
[liulu_707p01][10:37pm si
root [0]
Attaching file V.root as
root [1] h4->GetEntries()
(const Long64_t) 13136
root [2] 53477*0.523383+13136*0
(const double) 3.086456052
root [2] 53477*0.523383+13136*0
(const double) 3.08645605230000037e+04
root [3]
```



$$\omega_H = \frac{f(1,0)}{f(1,7) + f(1,8)} \quad (3)$$

$$\omega_V = \frac{f(2,0)}{f(2,5) + f(2,6)} \quad (4)$$

$$\omega_D = \frac{f(3,0) - \omega_H \cdot (f(3,7) + f(3,8)) - \omega_V \cdot (f(3,5) + f(3,6))}{f(3,1) + f(3,2) + f(3,3) + f(3,4)} \quad (5)$$

$$N_{bkg} = \omega_H \cdot N_H + \omega_V \cdot N_V + \omega_D \cdot N_D \quad (6)$$

13 According to the fit results and entry counting, the weighting factors and the numbers of backgrounds
 14 from data can be obtained as follows, while the estimated backgrounds in $M_{\eta'\eta'}$, $M_{\gamma\eta'}$, $M_{\gamma\eta'_2}$ are shown
 15 in Fig. 19(a~c). The background level is estimated to be 5.68%.

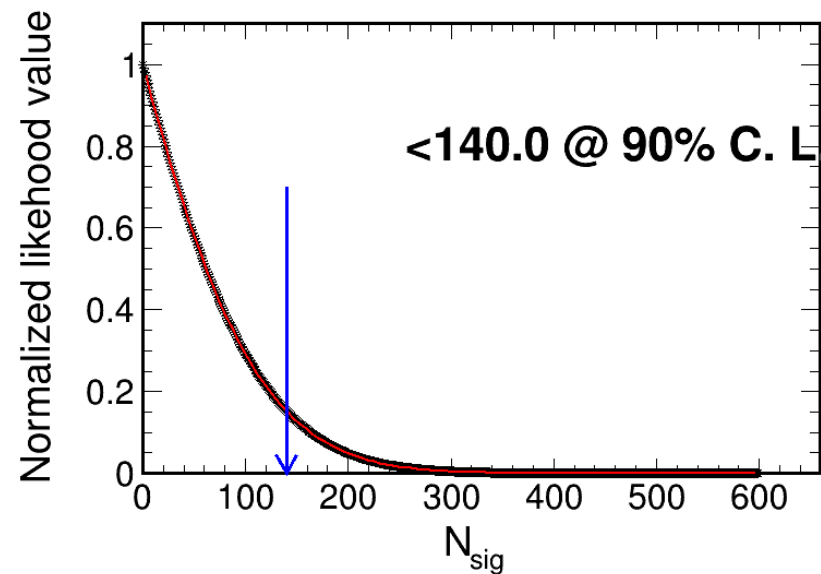
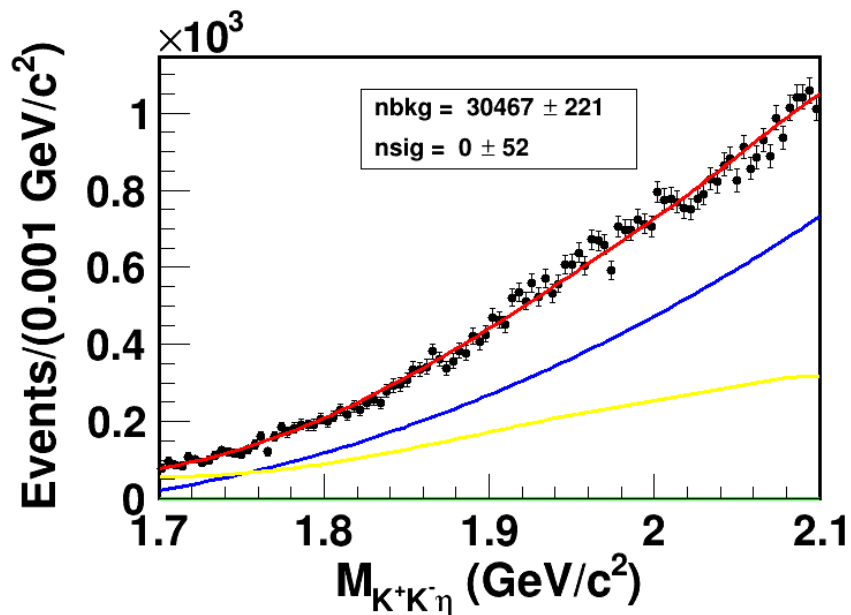
$$\omega_H = 0.487, N_H = 248 \pm 16$$

$$\omega_V = 0.500, N_V = 250 \pm 16$$

$$\omega_D = -0.244, N_D = 289 \pm 17$$

$$N_{bkg} = 175 \pm 12$$

$K^+K^-\eta$



Sig: BW (mean fixed to 1.87 and sigma fixed to 0.057)

Bkg function: 2 order Chebychev

Bkg sideband: RookeysPdf (固定事例数 : 17564)

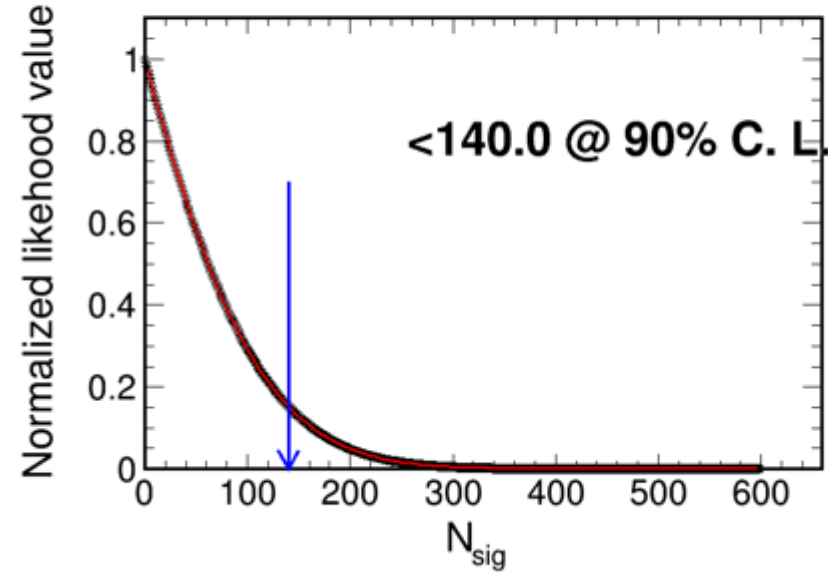
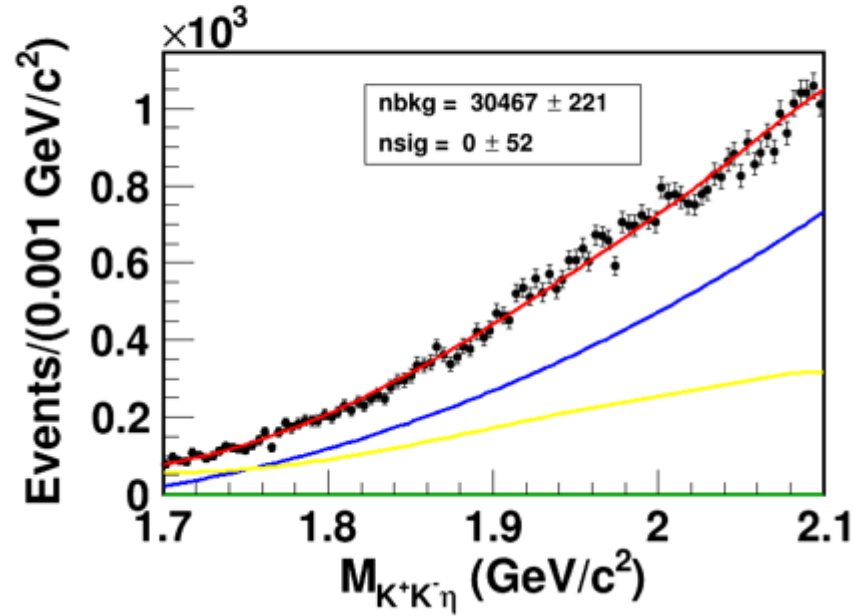
1.7-2.1GeV范围内的kketa下sideband评估下的本底事例数 : 17564

2 order Chebychev 固定得到

效率 : 6.61%

```
[liulu_708][6:48pm sideband]$r1 cutSMC.root  
root [0]  
Attaching file cutSMC.root as _file0...  
root [1] h4->GetEntries()  
(const Long64_t) 33033  
root [2] 33033/500000.  
(const double) 6.6065999999999997e-02
```

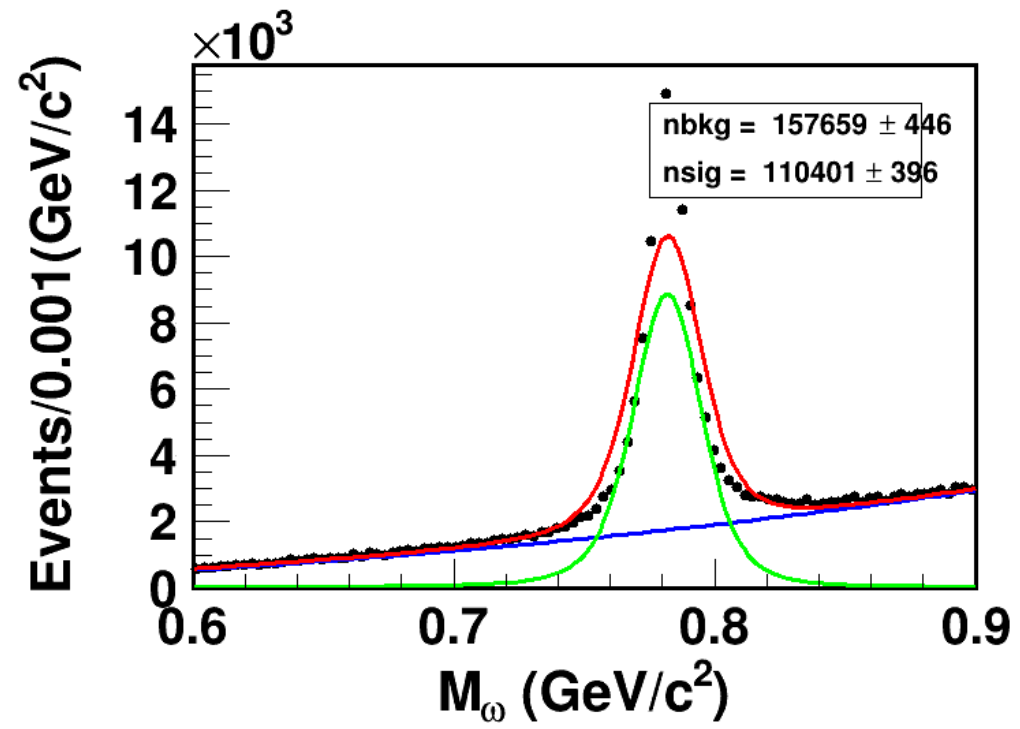
$K^+K^-\eta$



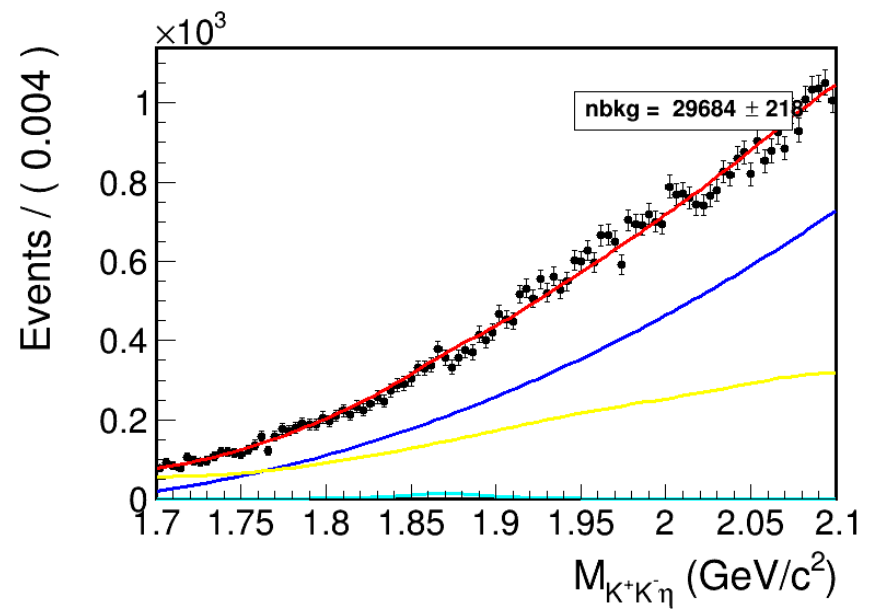
$$B(J/\psi \rightarrow \omega X(1870) \rightarrow \omega K^+ K^- \eta) < \frac{N_{UL}}{N_{J/\psi} \cdot \epsilon \cdot B(\omega \rightarrow \pi^+ \pi^- \pi^0) \cdot B(\pi^0 \rightarrow \gamma\gamma) \cdot B(\eta \rightarrow \gamma\gamma)} = \frac{140}{10086.5 \times 10^6 \times 0.0661 \times 0.892 \times 0.989 \times 0.394} = 6.05 \times 10^{-7}$$

nominal result	140	10086500000	6.61%	89.20%	39.36%	98.82%	6.05E-07	
The 4C Kinematic Fit			6.50%					1.7%
omega mass window								
eta mass window								
veto phi+2MeV	164	10086500000	6.55%	89.20%	39.36%	98.82%	7.15E-07	-18.2%
veto phi-2MeV	165	10086500000	6.66%	89.20%	39.36%	98.82%	7.08E-07	-17.0%
veto phi+5Mev	164	10086500000	6.47%	89.20%	39.36%	98.82%	7.24E-07	-19.7%
veto etap+2MeV	173	10086500000	6.60%	89.20%	39.36%	98.82%	7.49E-07	-23.8%
veto etap-2MeV	170	10086500000	6.61%	89.20%	39.36%	98.82%	7.35E-07	-21.4%
Fitting range (1.7+0.01,2.1-0.01)	171	10086500000	6.57%	89.20%	39.36%	98.82%	7.44E-07	-22.9%
Fitting range (1.7-0.01,2.1+0.01)								
Signal shape (BW变成MCshape)	241							
Background shape	166							

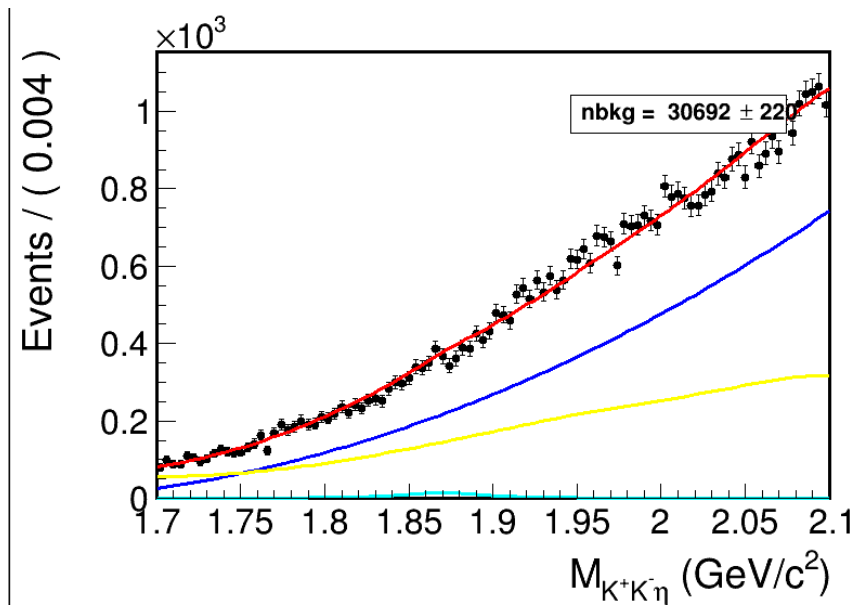
1 omega mass window



Veto phi

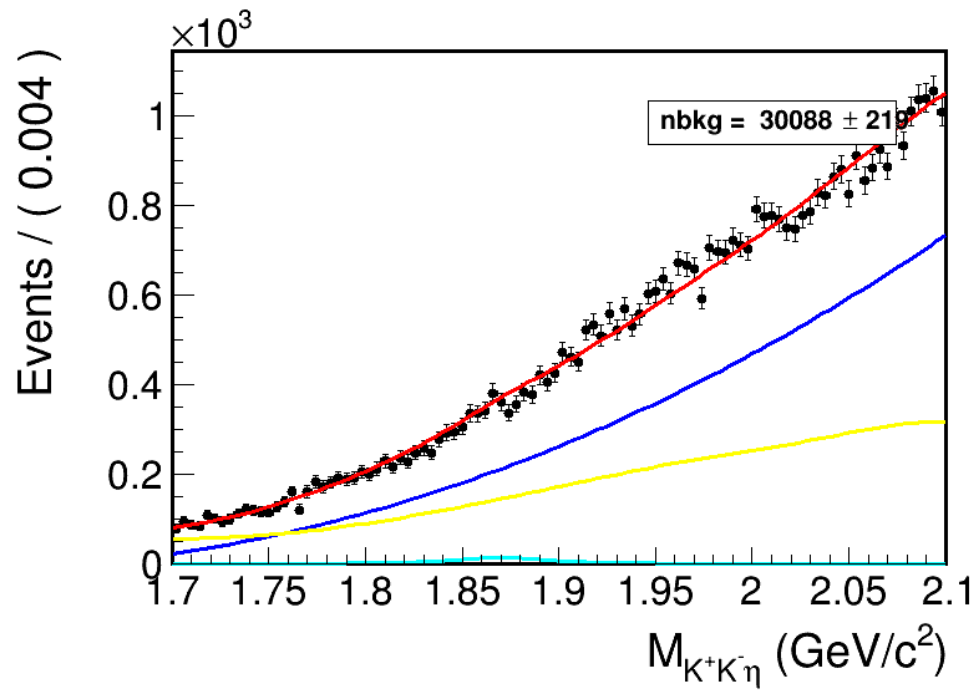


Plus 2

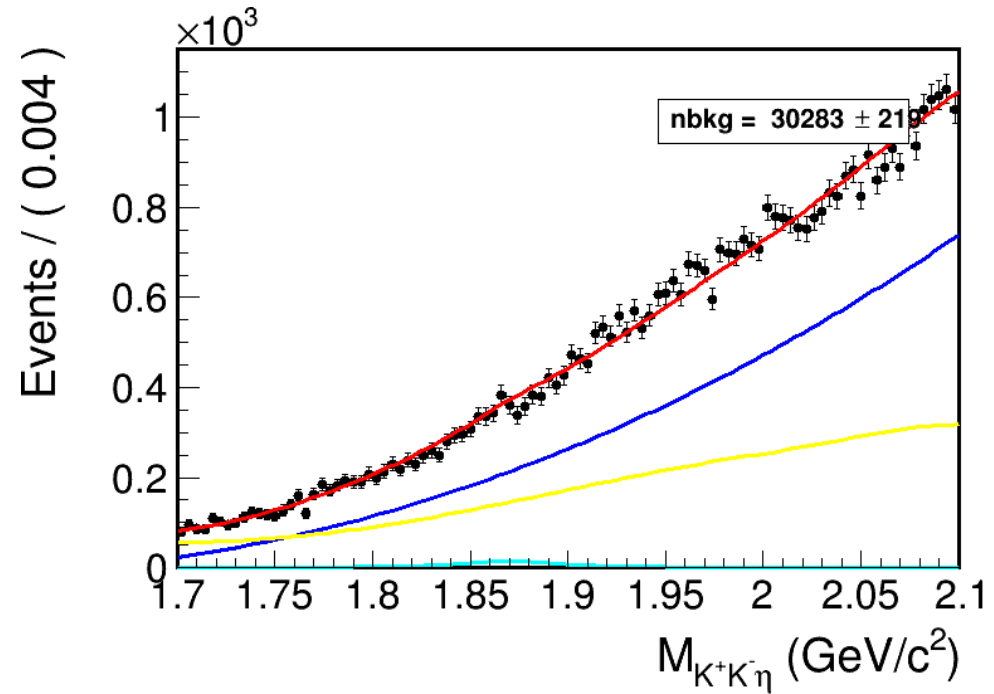


minus 2

Veto etap

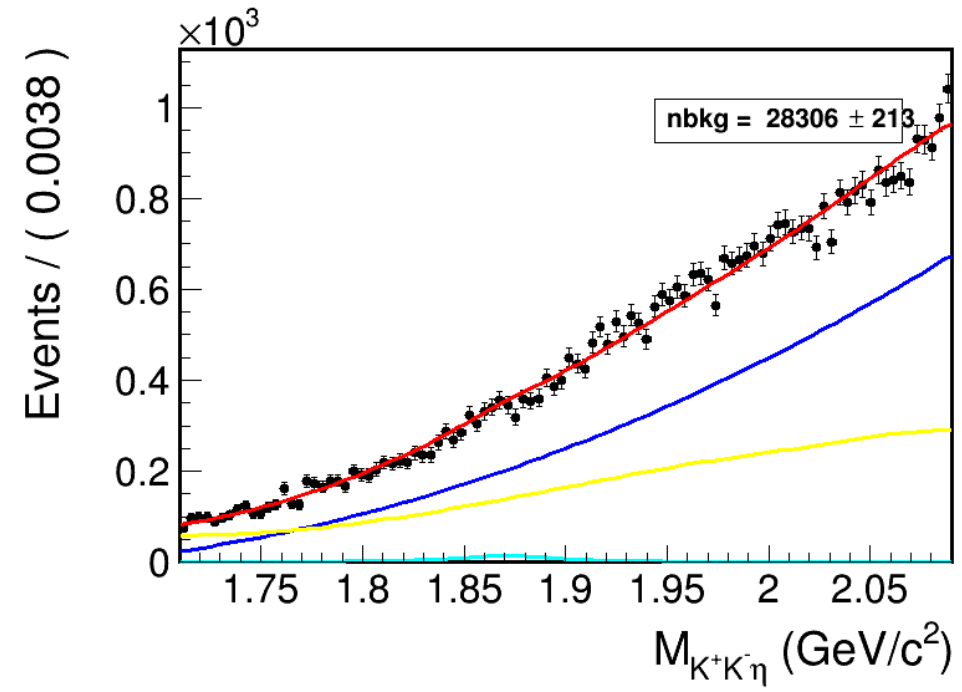


Plus 2

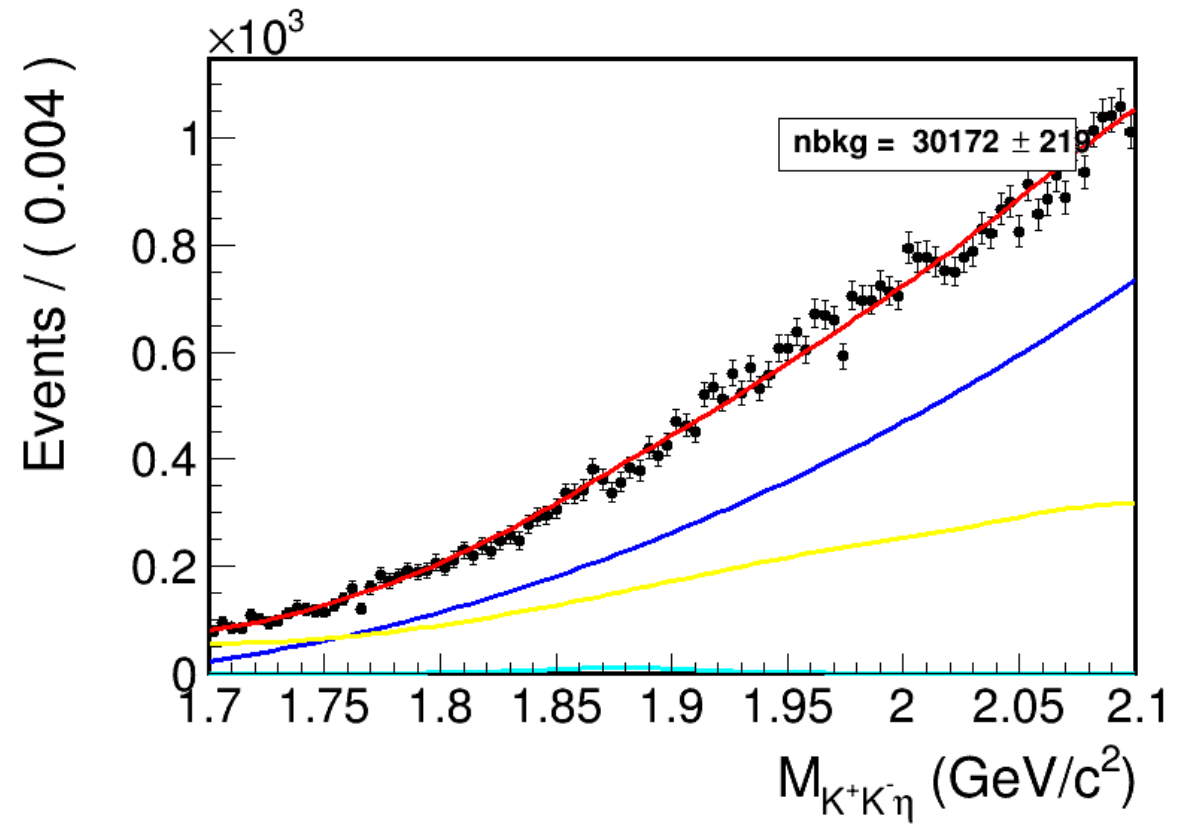


minus 2

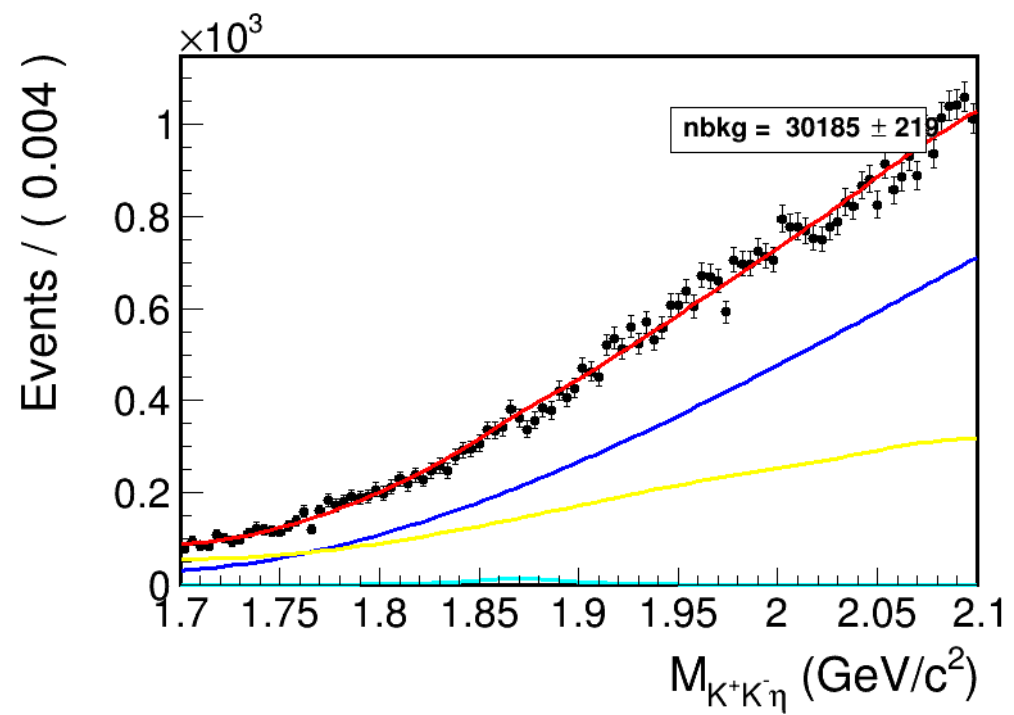
Fit range



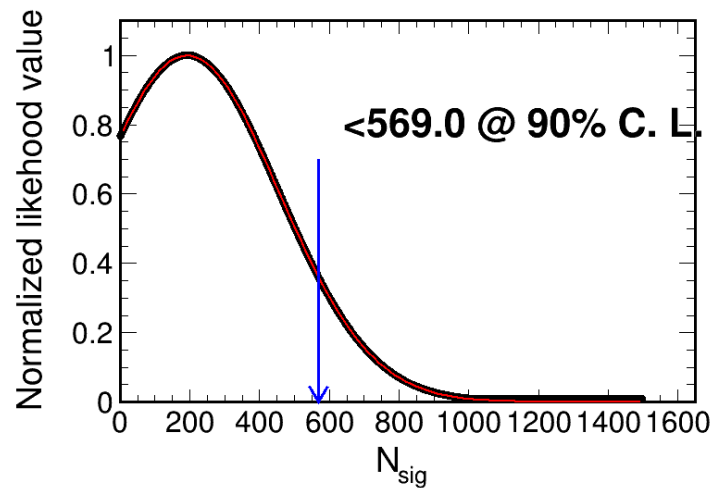
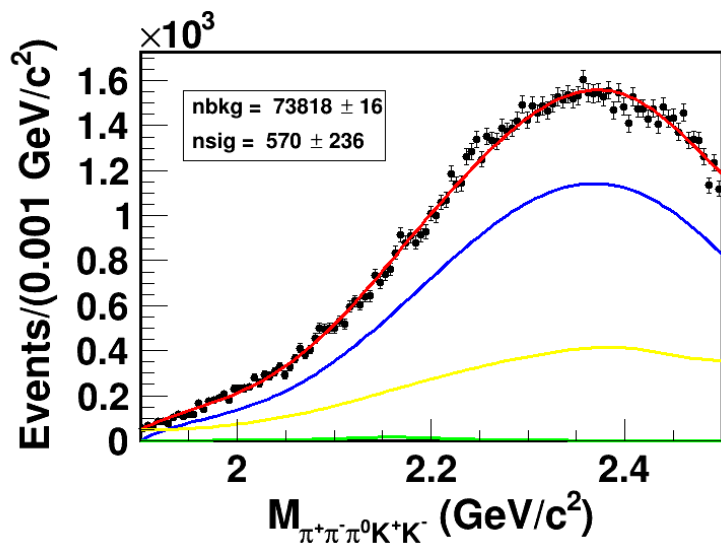
Signal shape



bkgshape



$\omega K^+ K^-$



5 order Chebychev 固定得到

Sig: BW (mean fixed to 2.159 and sigma fixed to 0.137)

Bkg_function: 5 order Chebychev

Bkg_sideband: RookeysPdf (固定事例数 : 13511)

1.9-2.3GeV范围内的wkk下sideband评估下的本底事例数 : 13511

一般拟合的拟合结果 :

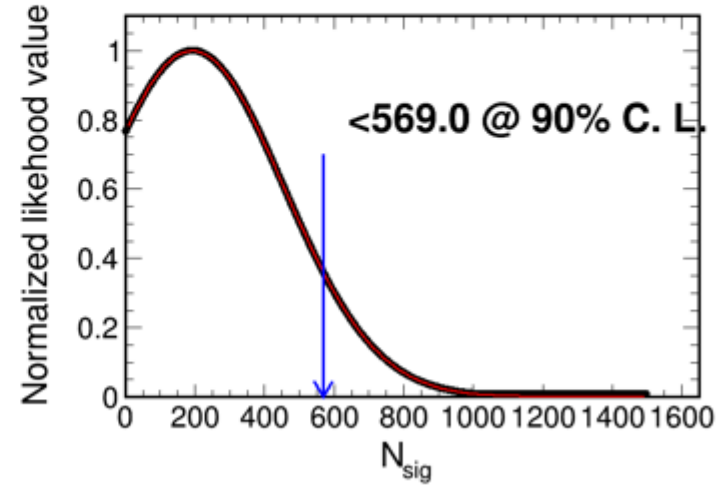
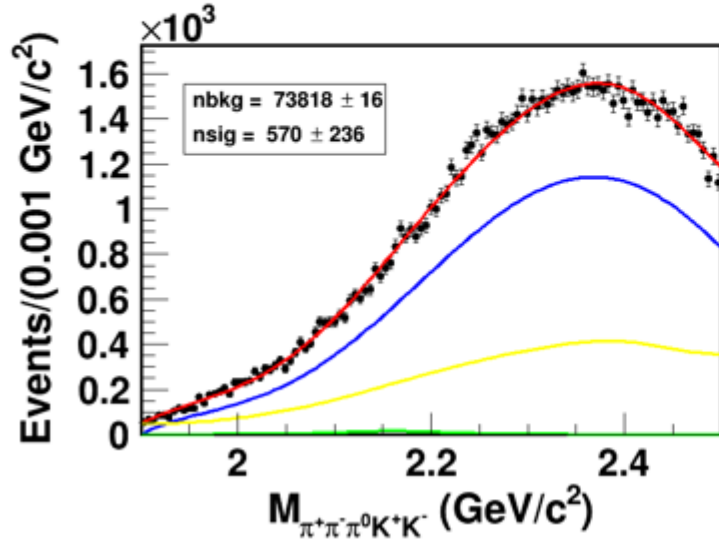
```
FCN=-1.16179e+06 FROM HESSE STATUS=NOT POSDEF 62 CALLS 529 TOTAL
EDM=0.310722 STRATEGY= 1 ERR MATRIX NOT POS-DEF
```

EXT NO.	PARAMETER NAME	VALUE	APPROXIMATE ERROR	INTERNAL STEP SIZE	INTERNAL VALUE
1	nbkg	7.38178e+04	1.64869e+01	6.83515e-03	6.95014e-01
2	nsig	5.6957e+02	2.2603e+02	2.11307e-01	2.50700e+01

效率 : 7.14%

```
[liulu_708][11:04am wkk]$rl
root [0]
Attaching file cutSMC.root as _file0...
root [1] h4->GetEntries()
(const Long64_t)15715
root [2] 15715/500000.
.14299999999999999
[liulu_708][9:01pm wkk]$rl cutSMC.root
root [0]
Attaching file cutSMC.root as _file0...
root [1] h4->GetEntries()
(const Long64_t)25714
```

$\omega K^+ K^-$



$$B(J/\psi \rightarrow \eta\phi(2170) \rightarrow \eta\omega K^+ K^-) < \frac{N_{UL}}{N_{J/\psi} \cdot \epsilon \cdot B(\omega \rightarrow \pi^+ \pi^- \pi^0) \cdot B(\pi^0 \rightarrow \gamma\gamma) \cdot B(\eta \rightarrow \gamma\gamma)} = \frac{569}{10086.5 \times 10^6 \times 0.0714 \times 0.892 \times 0.989 \times 0.394} = 2.28 \times 10^{-6}$$