Status Report

- x_p cut scan summary -

Taejin Moon

Jun 22 2017

x_p cut scan summary

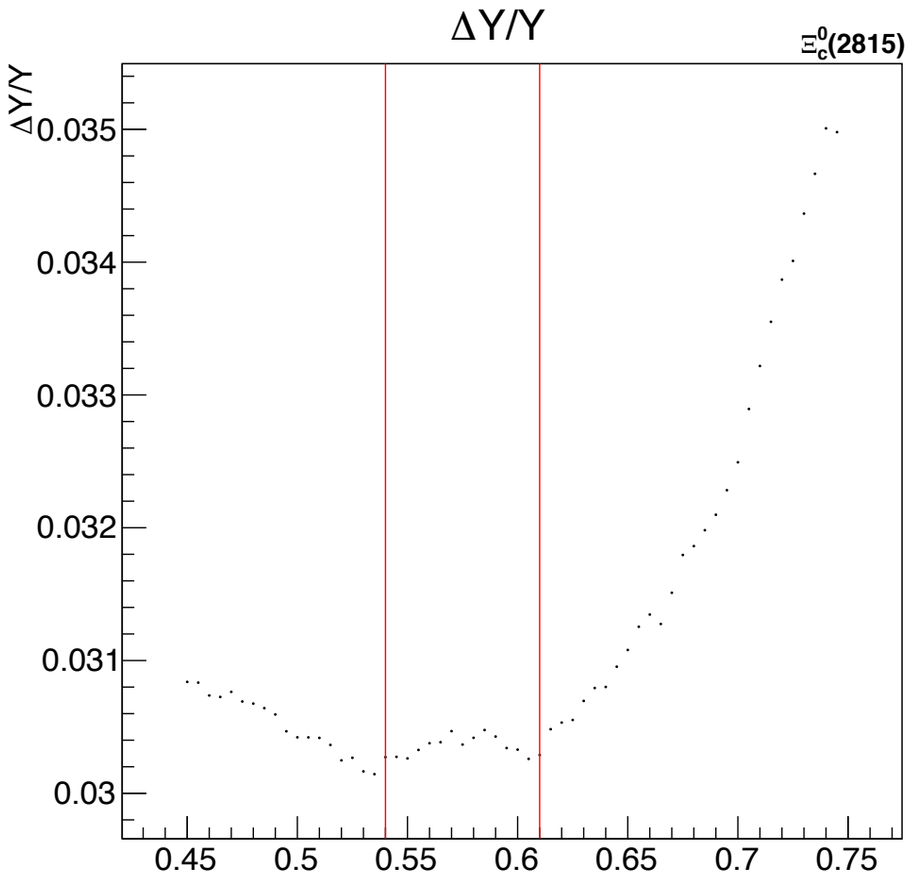
- Purpose
  - To obtain high yield with low uncertainty in yield
- Following 4 values are checked
  - ΔY/Y (Y: signal yield)
  - Signal yield and background yield
  - S/N ratio
  - Chi square

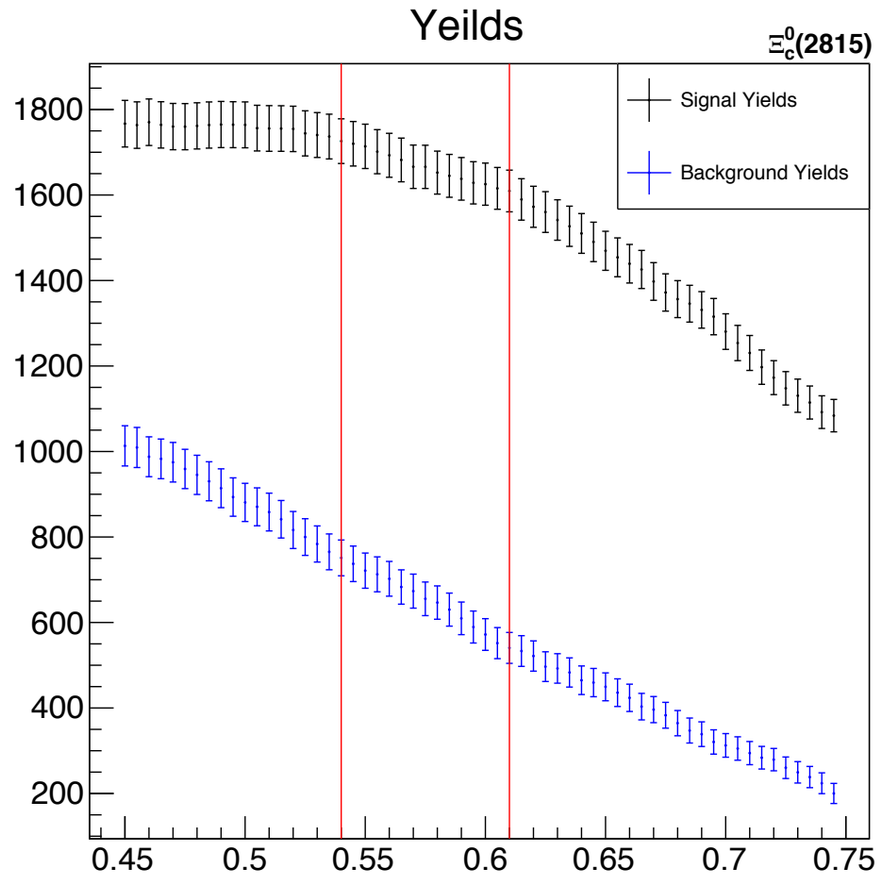
Contents & Layout

- Page 4 : $\Xi_c^0(2815)$
- Page 5 : $\Xi_c^+(2815)$
- Page 6 : $\Xi_c^0(2970)$
- Page 7 : $\Xi_c^+(2970)$

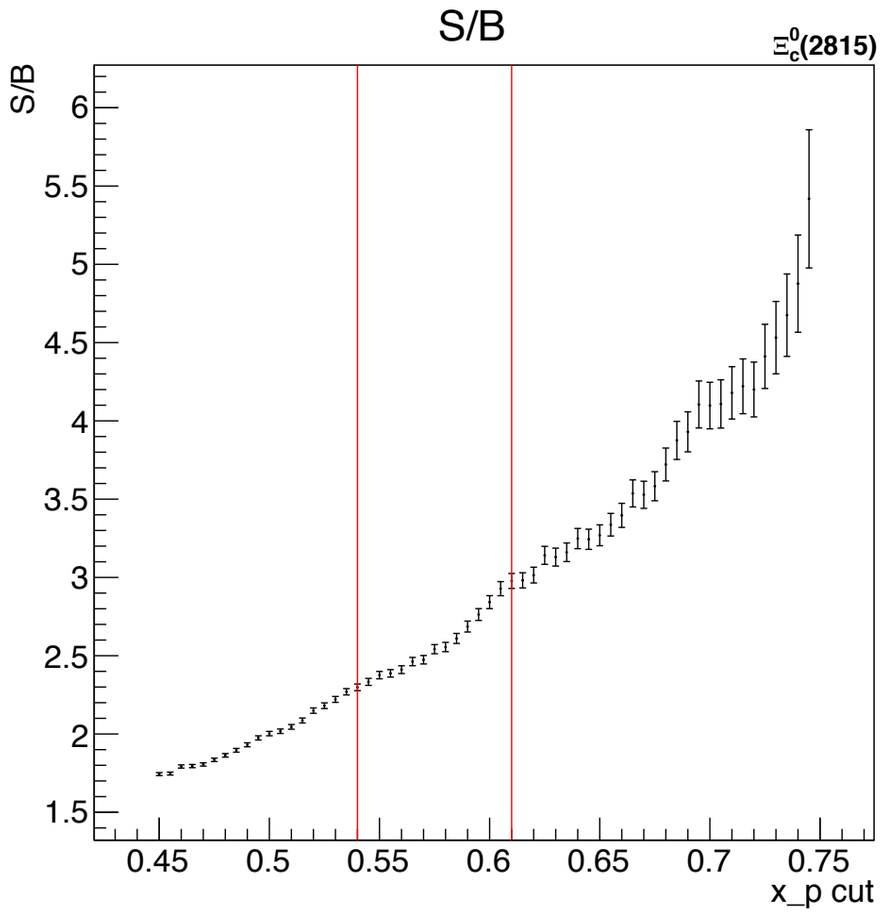
In each page,

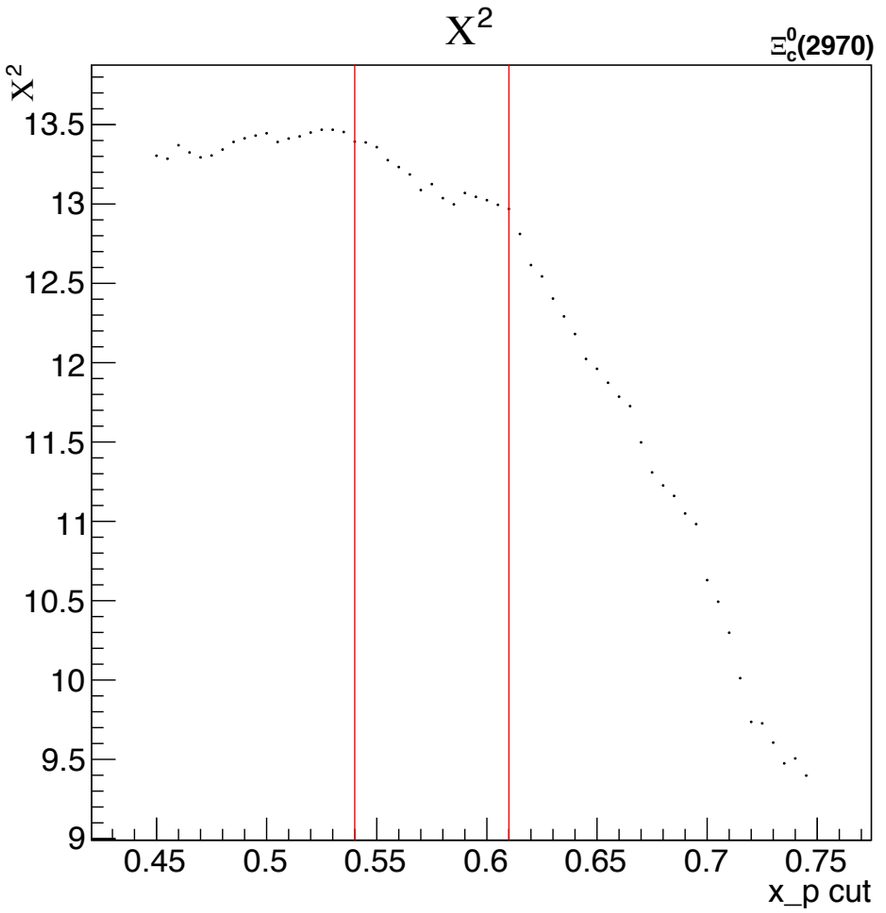
ΔY/Y	Signal & Background
SN ratio	X^2

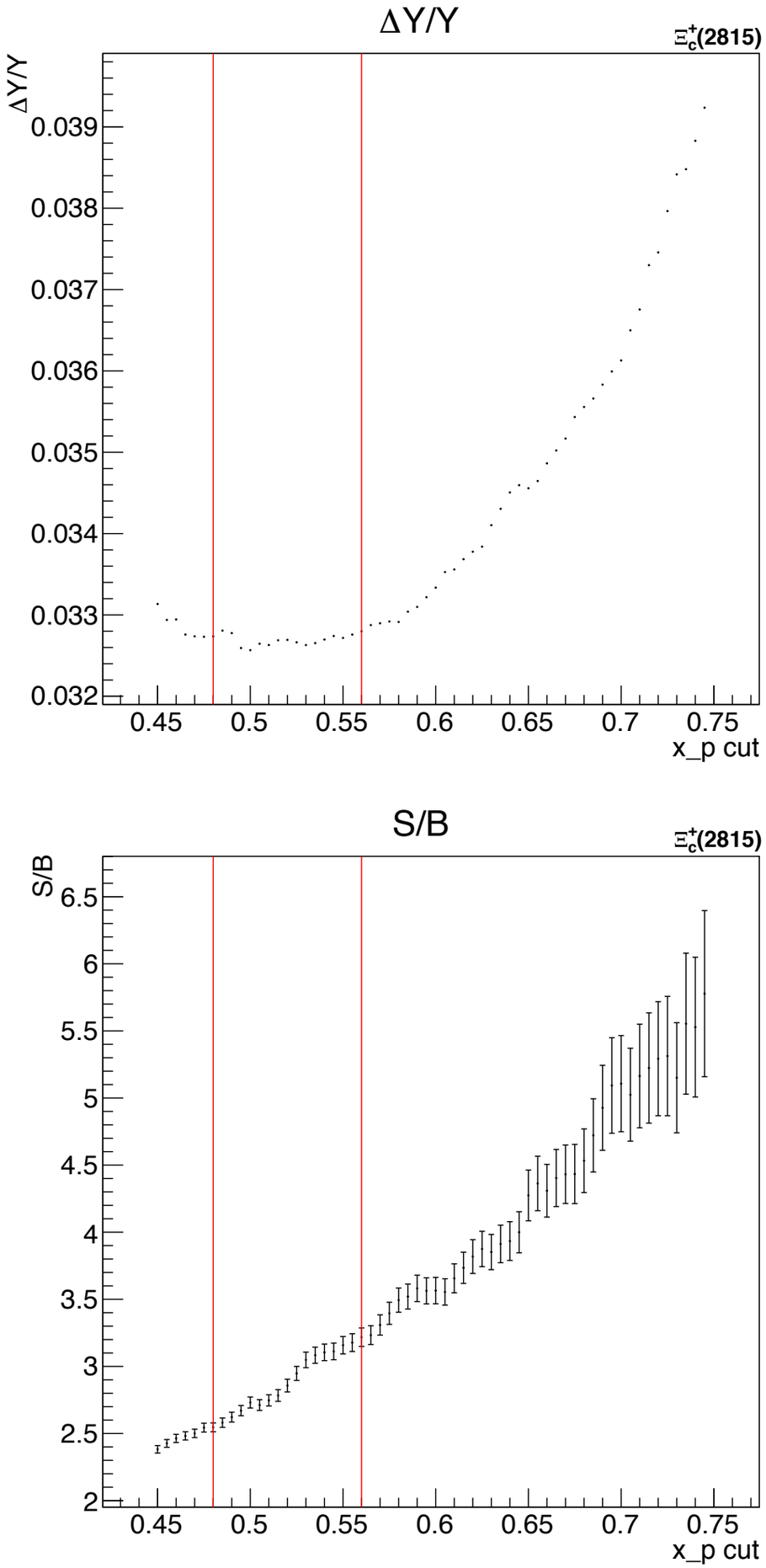

ΔY/Y
$\Xi_c^0(2815)$
ΔY/Y
0.035
0.034
0.033
0.032
0.031
0.03
0.45
0.5
0.55
0.6
0.65
0.7
0.75
x_p cut

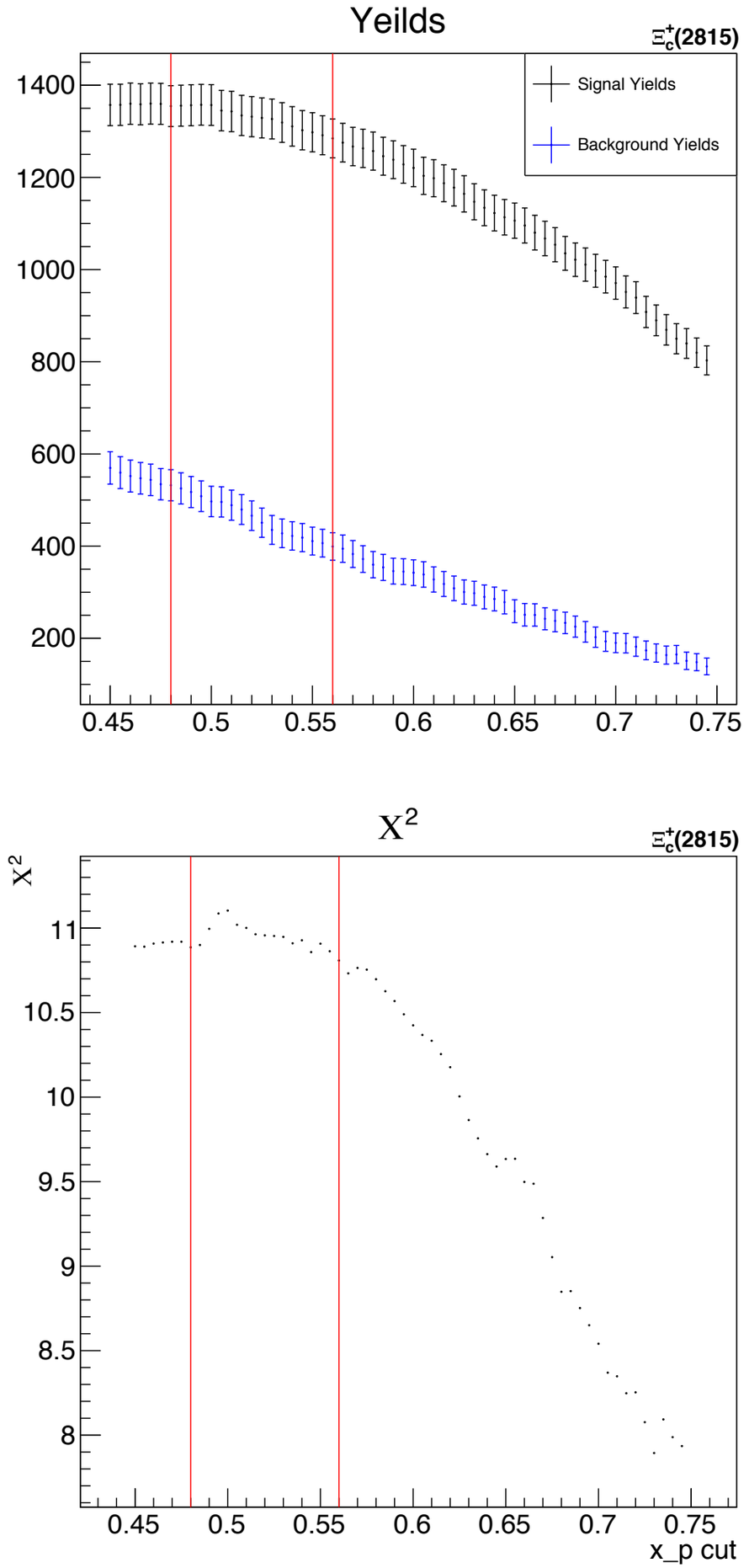

Yeilds
$\Xi_c^0(2815)$
Signal Yields
Background Yields
1800
1600
1400
1200
1000
800
600
400
200
0.45
0.5
0.55
0.6
0.65
0.7
0.75

$\Xi_c^0(2815)$


S/B
$\Xi_c^0(2815)$
S/B
6
5.5
5
4.5
4
3.5
3
2.5
2
1.5
0.45
0.5
0.55
0.6
0.65
0.7
0.75
x_p cut


X^2
$\Xi_c^0(2970)$
X^2
13.5
13
12.5
12
11.5
11
10.5
10
9.5
9
0.45
0.5
0.55
0.6
0.65
0.7
0.75
x_p cut

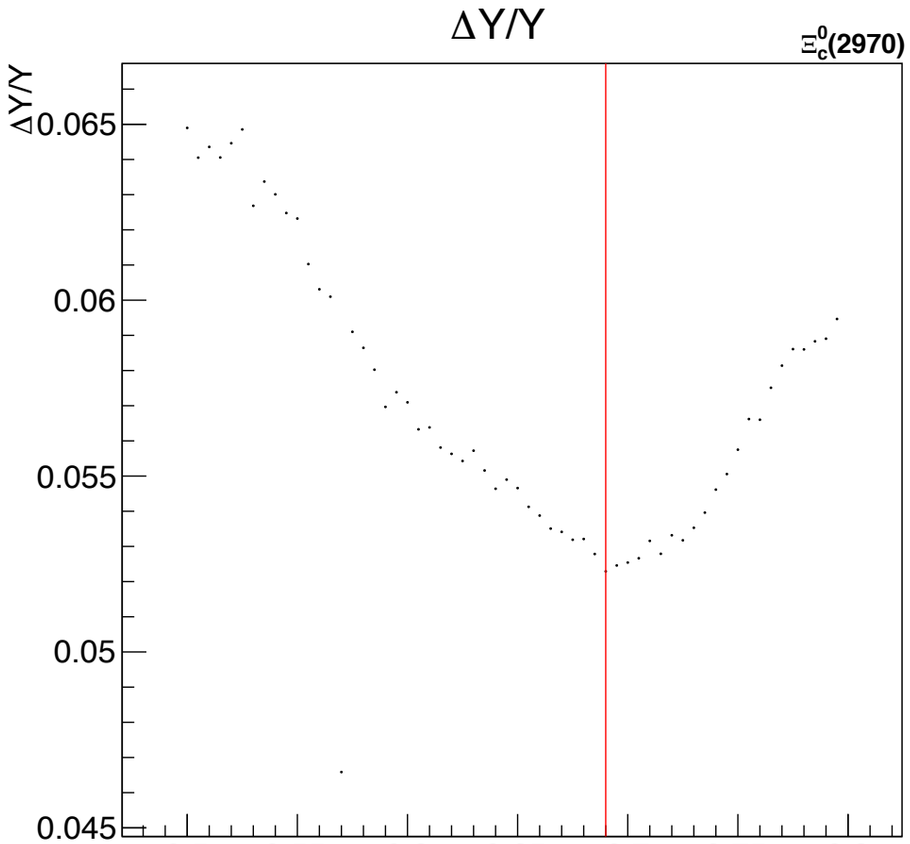

ΔY/Y
$\Xi_c^+(2815)$
ΔY/Y
0.039
0.038
0.037
0.036
0.035
0.034
0.033
0.032
0.45
0.5
0.55
0.6
0.65
0.7
0.75
x_p cut

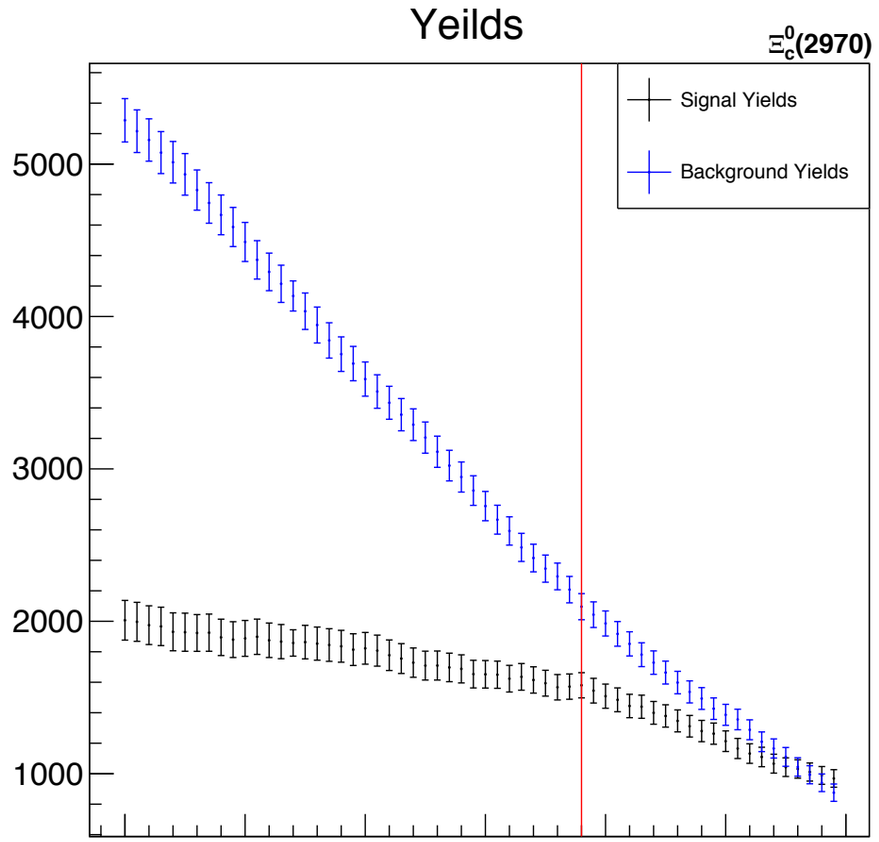

Yeilds
$\Xi_c^+(2815)$
Signal Yields
Background Yields
1400
1200
1000
800
600
400
200
0.45
0.5
0.55
0.6
0.65
0.7
0.75
x_p cut

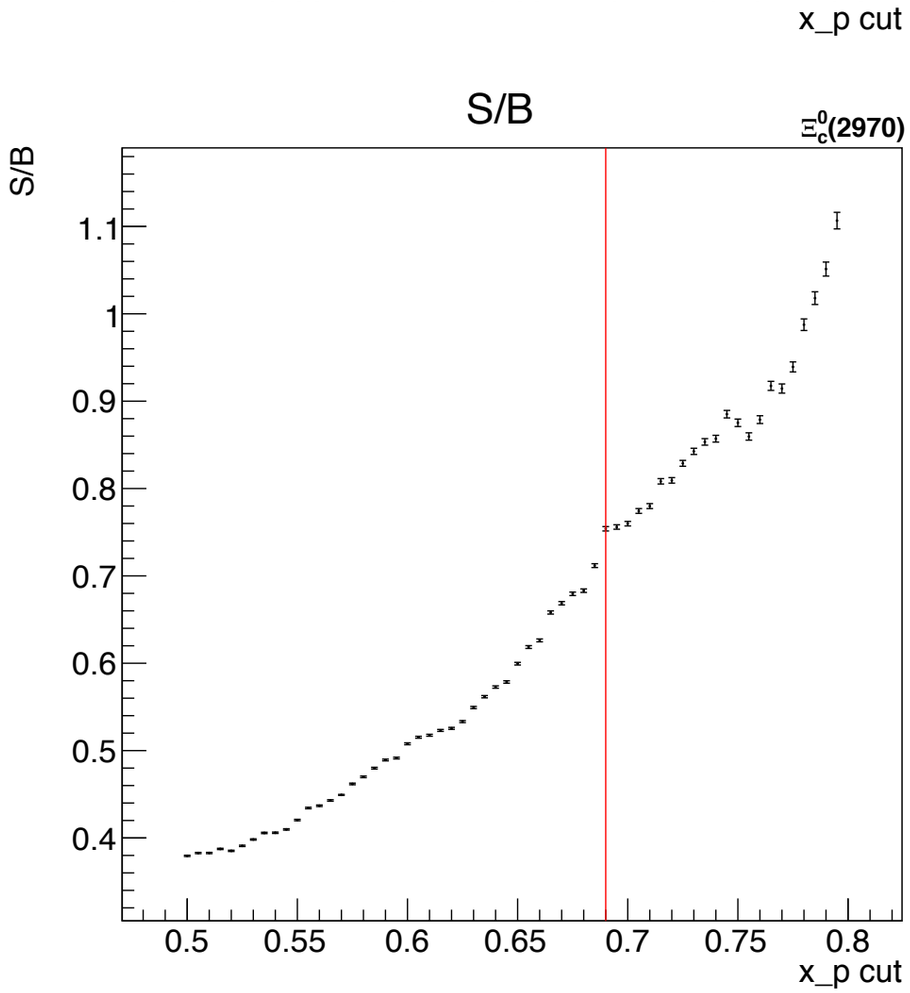
$\Xi_c^+(2815)$

S/B
$\Xi_c^+(2815)$
S/B
6.5
6
5.5
5
4.5
4
3.5
3
2.5
2
0.45
0.5
0.55
0.6
0.65
0.7
0.75
x_p cut

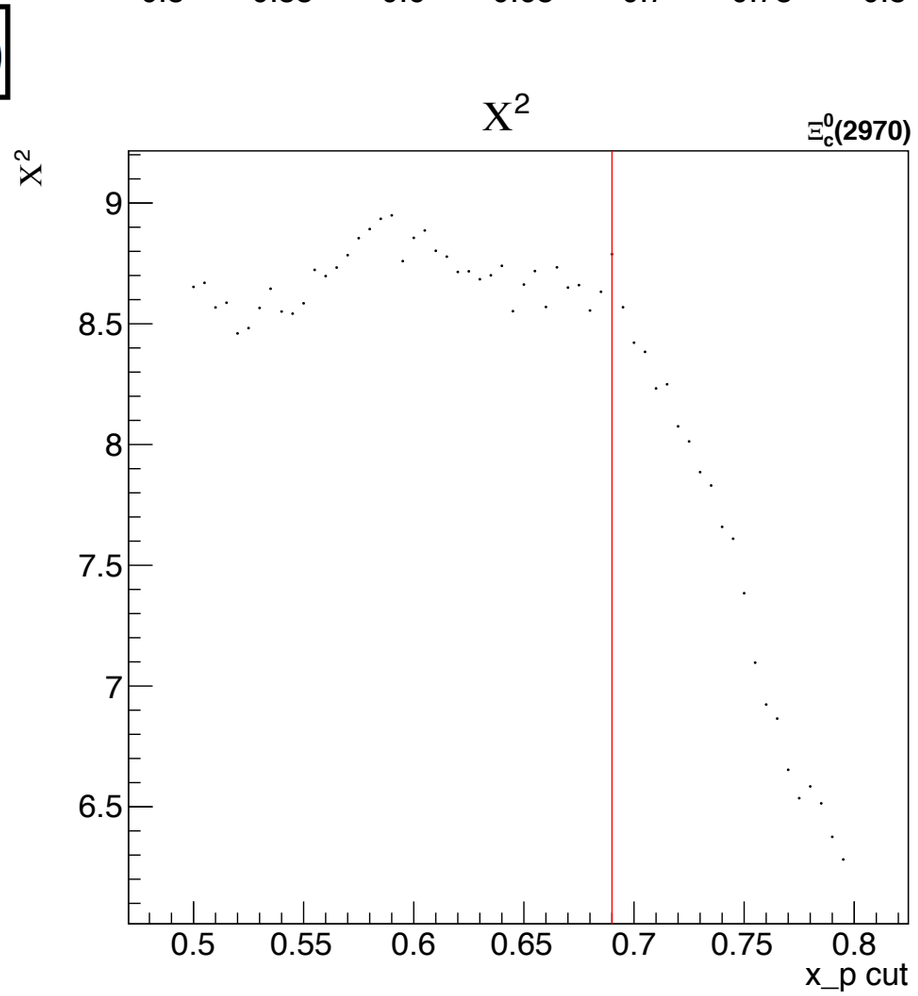
X^2
$\Xi_c^+(2815)$
X^2
11
10.5
10
9.5
9
8.5
8
0.45
0.5
0.55
0.6
0.65
0.7
0.75
x_p cut

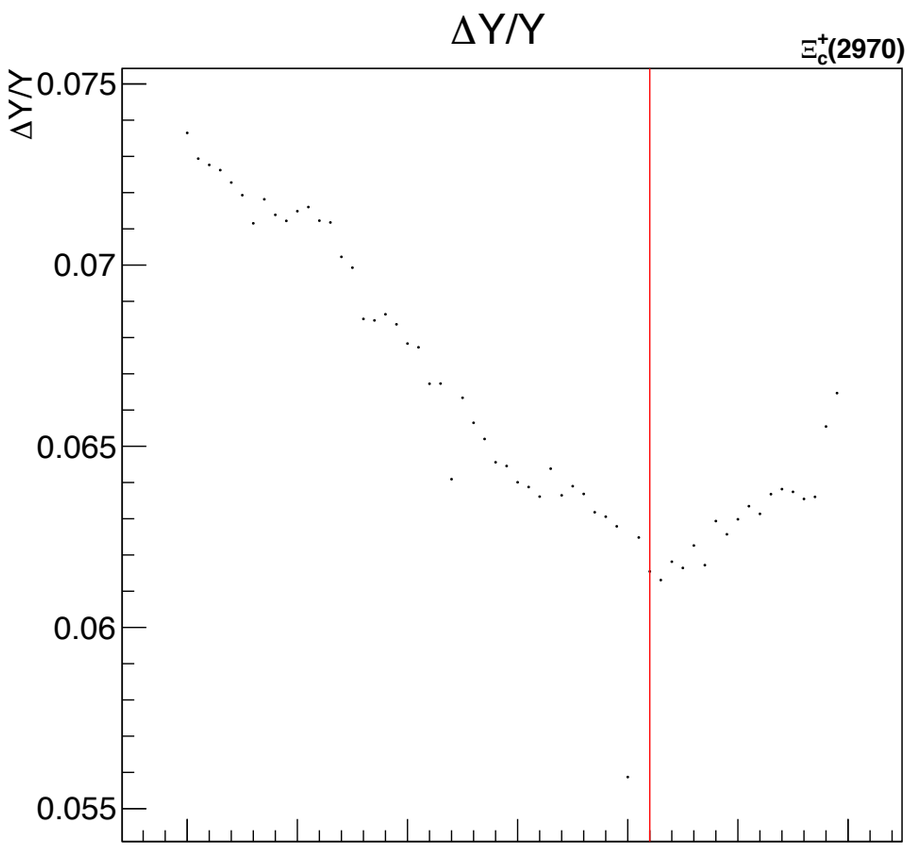

ΔY/Y
$\Xi_c^0(2970)$
ΔY/Y
0.065
0.06
0.055
0.05
0.045
0.5
0.55
0.6
0.65
0.7
0.75
0.8

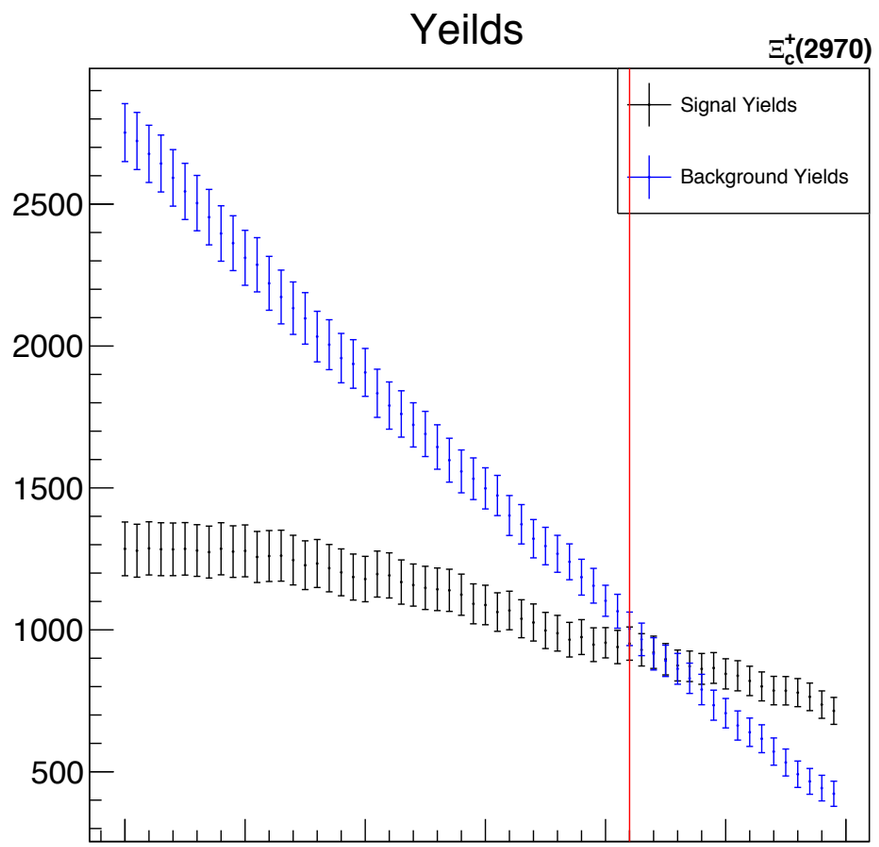

Yeilds
$\Xi_c^0(2970)$
Signal Yields
Background Yields
5000
4000
3000
2000
1000
0.5
0.55
0.6
0.65
0.7
0.75
0.8


S/B
$\Xi_c^0(2970)$
S/B
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.5
0.55
0.6
0.65
0.7
0.75
0.8
x_p cut

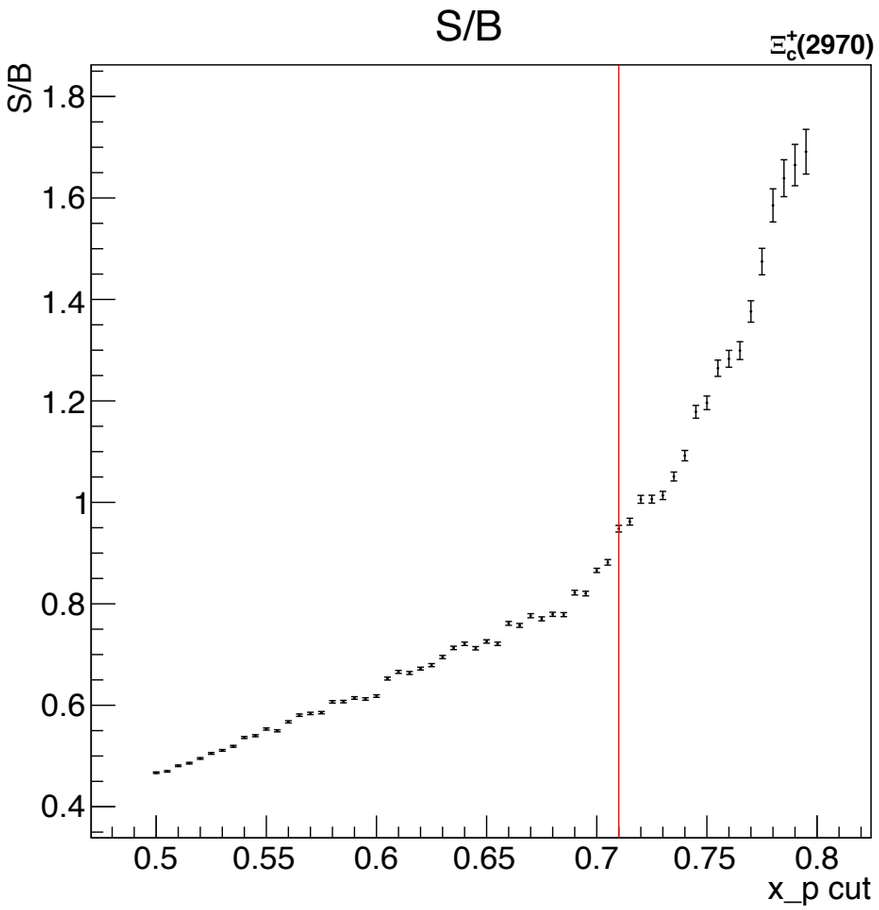
$\Xi_c^0(2970)$

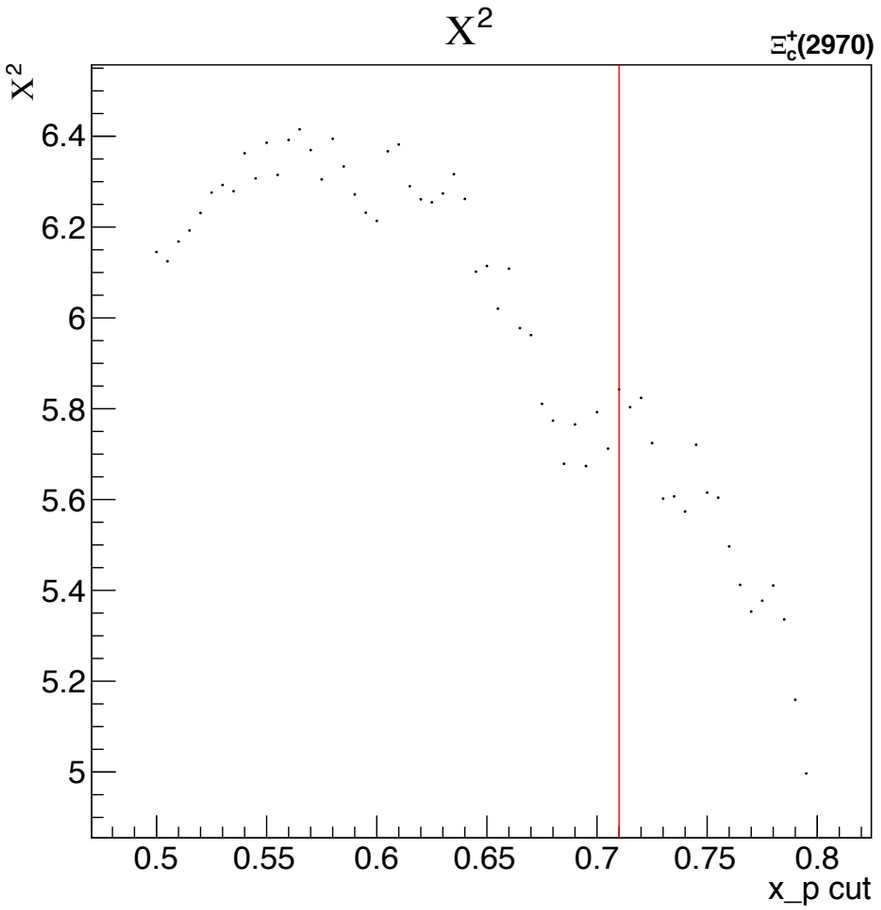

X^2
$\Xi_c^0(2970)$
X^2
9
8.5
8
7.5
7
6.5
0.5
0.55
0.6
0.65
0.7
0.75
0.8
x_p cut


ΔY/Y
$\Xi_c^+(2970)$
ΔY/Y
0.075
0.07
0.065
0.06
0.055
0.5
0.55
0.6
0.65
0.7
0.75
0.8
x_p cut


Yeilds
$\Xi_c^+(2970)$
Signal Yields
Background Yields
2500
2000
1500
1000
500
0.5
0.55
0.6
0.65
0.7
0.75
0.8

$\Xi_c^+(2970)$


S/B
$\Xi_c^+(2970)$
S/B
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.5
0.55
0.6
0.65
0.7
0.75
0.8
x_p cut


X^2
$\Xi_c^+(2970)$
X^2
6.4
6.2
6
5.8
5.6
5.4
5.2
5
0.5
0.55
0.6
0.65
0.7
0.75
0.8
x_p cut

Conclusion

- xp cut scan is finished.
- xp cut value is fixed.
  - For $\Xi_c(2815)$, xp cut = 0.55
  - For $\Xi_c(2970)$, xp cut = 0.7

To do

- I am working for signal MC to study angle dependency of efficiency and mass resolution.