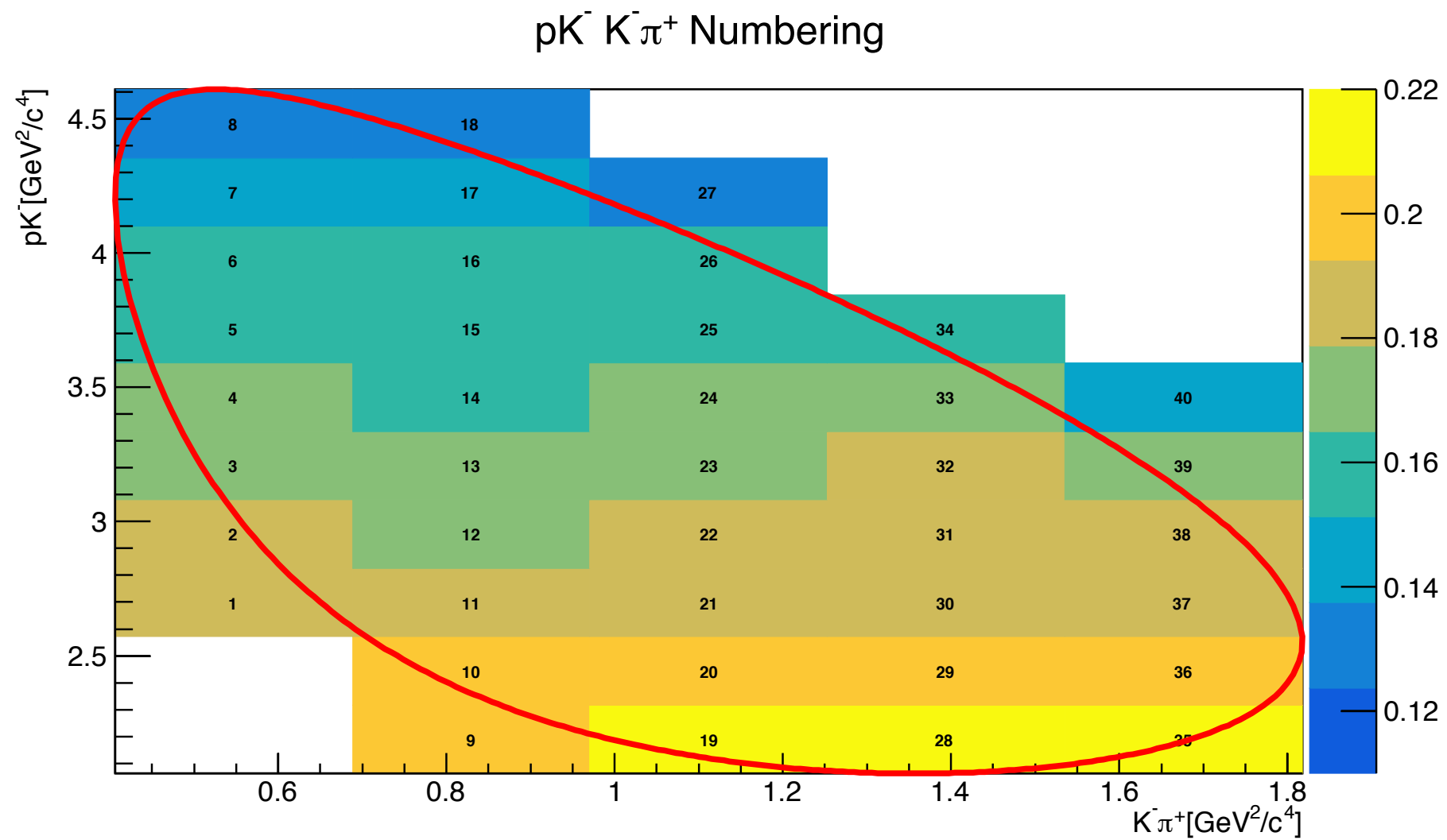


A new possible resonance at Belle

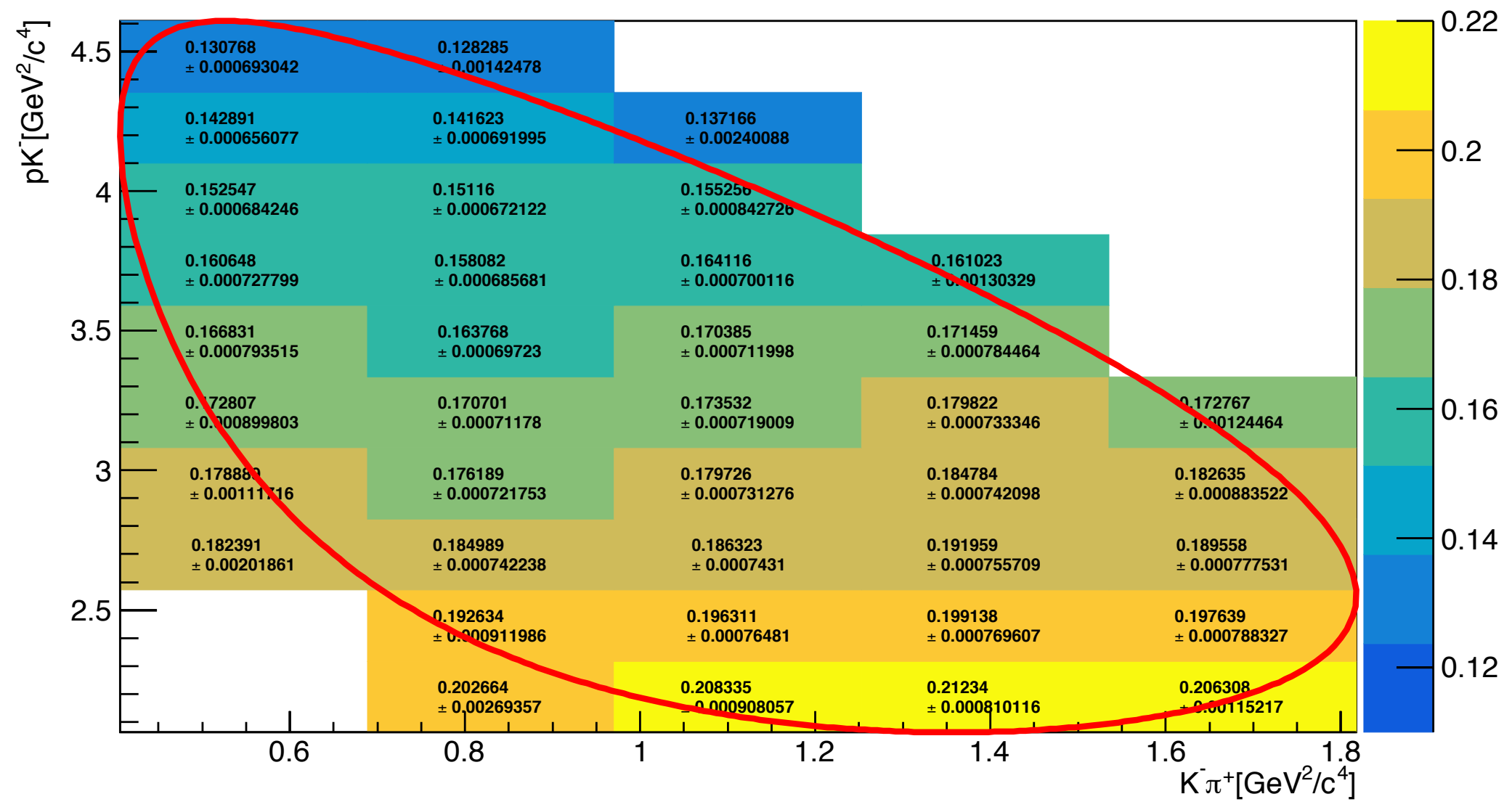
2018. 05. 21.
Jaeyong Lee

pkpi Pixel Numbering



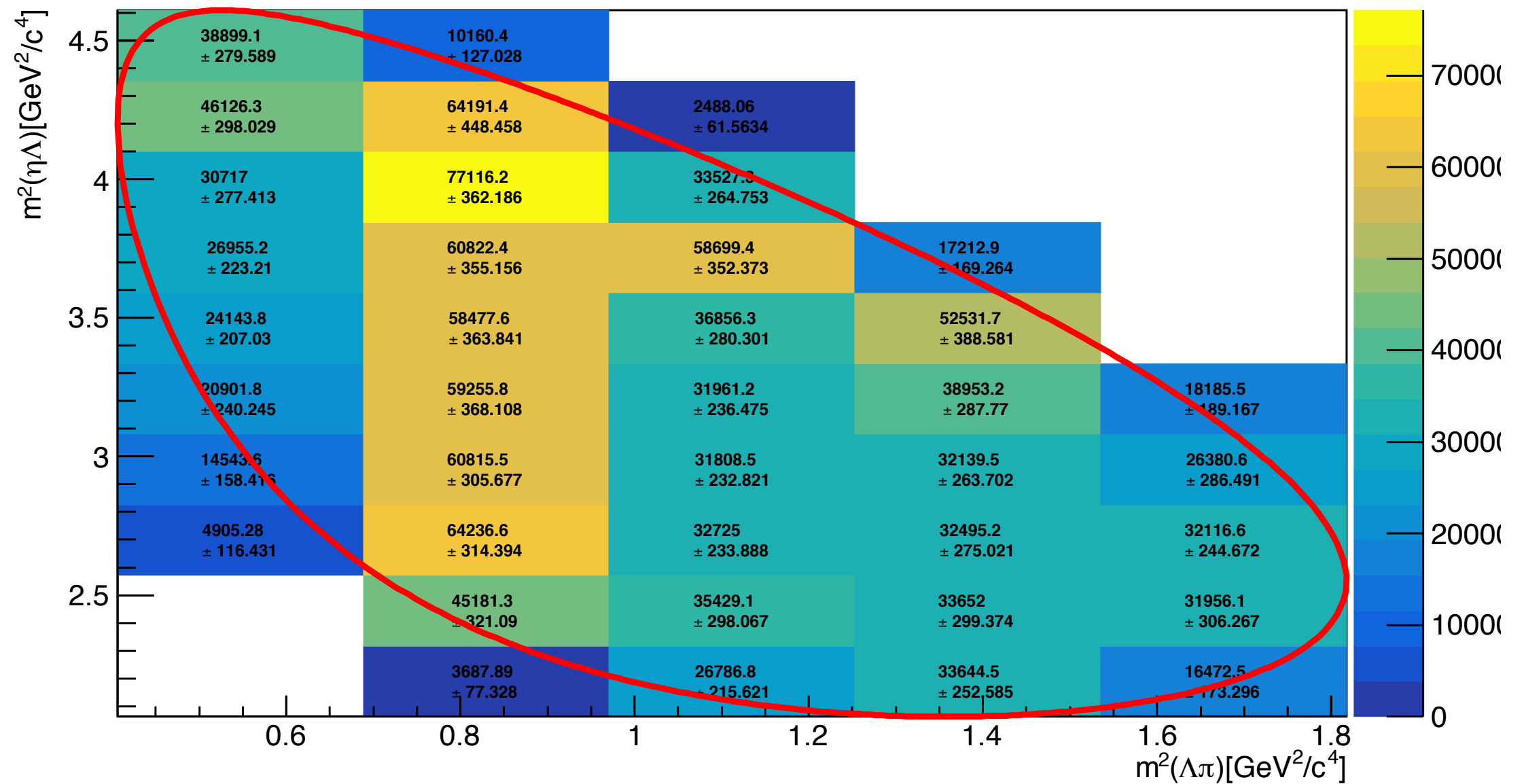
pkpi eff.

$pK^- K^- \pi^+$ eff



Generic MC pkpi eff.

Generic MC Yield Fitting Result

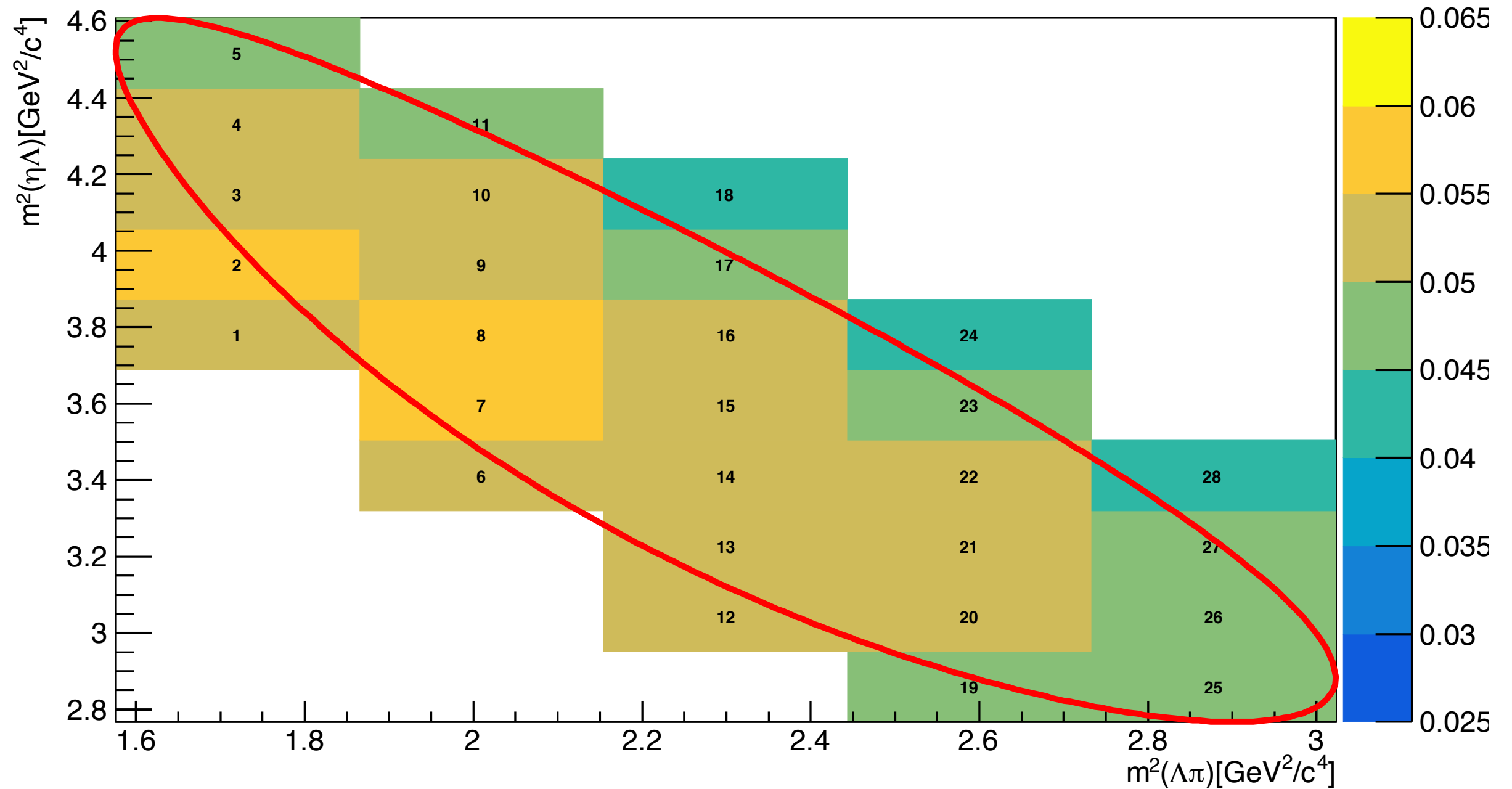


PKPi channel (GMC)

- Total Yield: 6.2524×10^6 (GMC)
- Total Yield Error: 6436.67 (GMC)

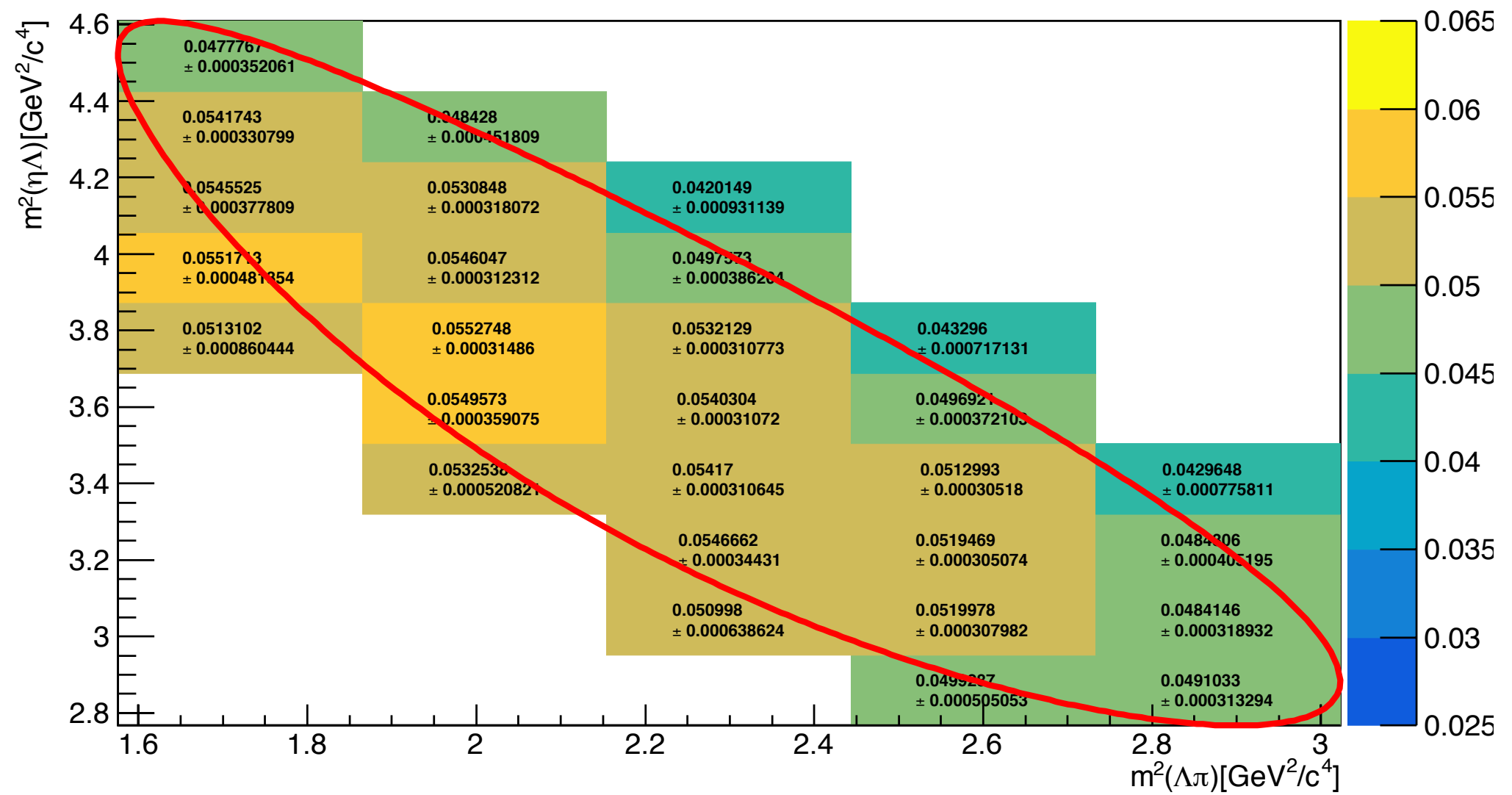
elpi Pixel Numbering

pixel number



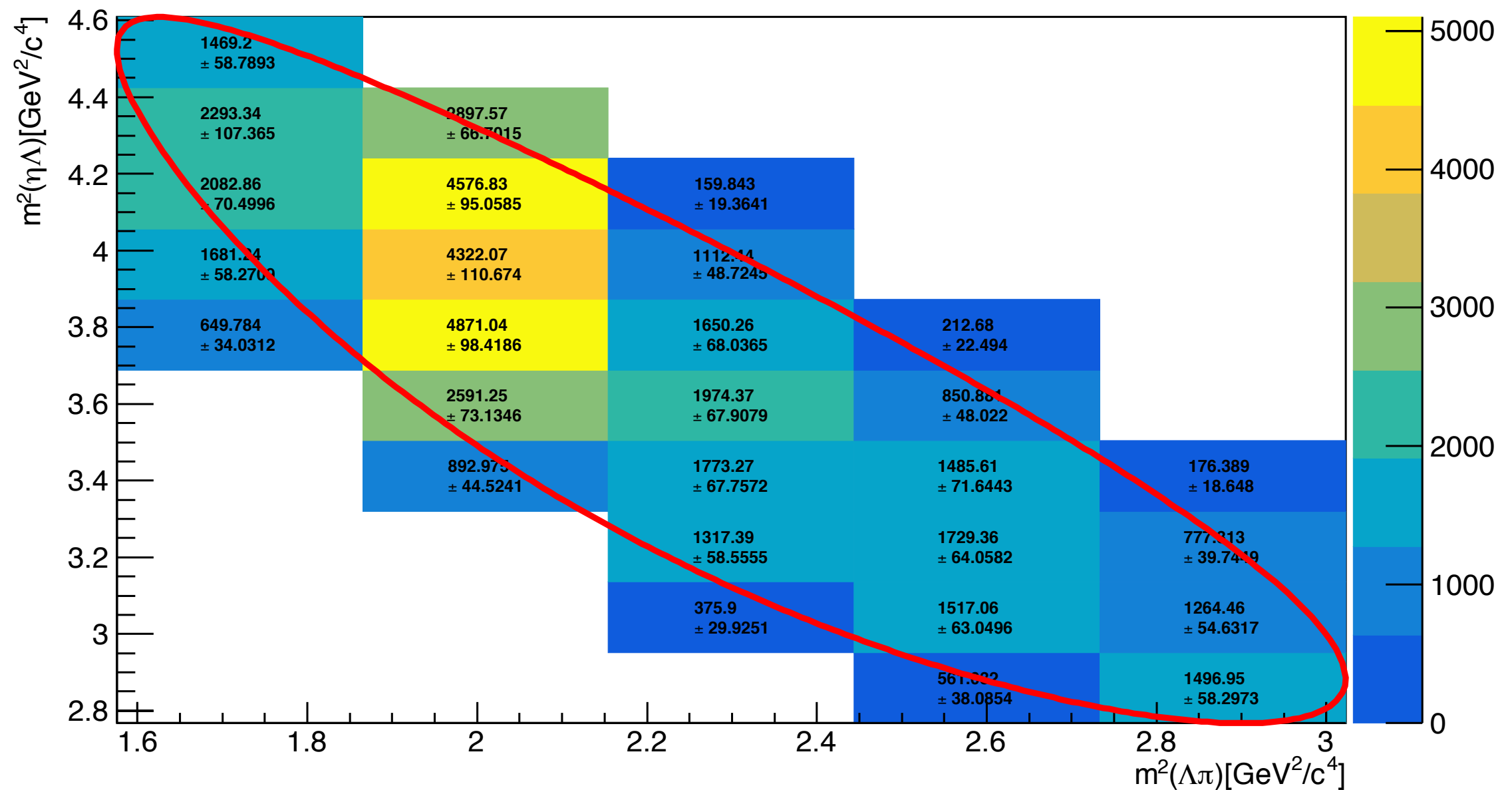
elpi eff.

ellpi eff



Generic MC $\eta\Lambda\pi$ yield

Generic MC Data Yield Fitting Result



elpi channel (GMC)

```
total_yield: 891024  
total_error: 6274.25  
  
taking decay branching fraction of eta (0.3941) and lambda (0.639) into account:  
  
total_yield: 3.5382e+06  
total_error: 24914.6
```

- Total Yield: 3.5382e+6 (GMC)
- Total Yield Error: 24914.6 (GMC)

Compare with decay table of Generic MC

Decays from DE GAY DEC table					
$\Lambda_c^+ \rightarrow p K^- \pi^+$	0.0307				
$p K^{0*}$	0.0160	$K^{0*} \rightarrow K^- \pi^+$	0.6651	$\Rightarrow 0.0499416$	
$\Delta^{++} K^-$	0.0086	$\Delta^{++} \rightarrow p^+ \pi^+$	1.00	$\Rightarrow \text{relative BR: } 0.361021673$	
$\Lambda \pi^+ \eta$	0.0106			$\Rightarrow 0.0808$	
$\Sigma^{*+} \eta$	0.0085	$\Sigma^{*+} \rightarrow \Lambda \pi^+$	0.88		

Obtained relative BR: $0.566 > 0.361$ from the decay table

```
#
0.06963      Lambda0 u   anti-d   PHOTOS PYTHIA      11;
0.03133      Lambda0 u   anti-d   u   anti-u   PHOTOS PYTHIA      13;
0.03133      Lambda0 u   anti-d   d   anti-d   PHOTOS PYTHIA      13;
0.01038      Lambda0 u   anti-s   s   anti-d   PHOTOS PYTHIA      13;
#
```

This table generates a lot of eta lambda pi+ decays

Discussion

- Generic MC doesn't seem good for Lc signals (Mass input error and not realistic branching ratio input, etc.)
- It's better to make a new data set (Backgrounds from GMC and Signals from SMC)