
$\Lambda/\bar{\Lambda}$ Reconstruction at 11.5 GeV

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Analysis Cuts

Basic Info

- AuAu 11.5 GeV Year 2020
- Production tag: P23ia, Library: SL23a, TFG23a
- Trigger ID: 71000, 710010, 710020(minbias)
- Bad run from Fan Si

Event Cuts:

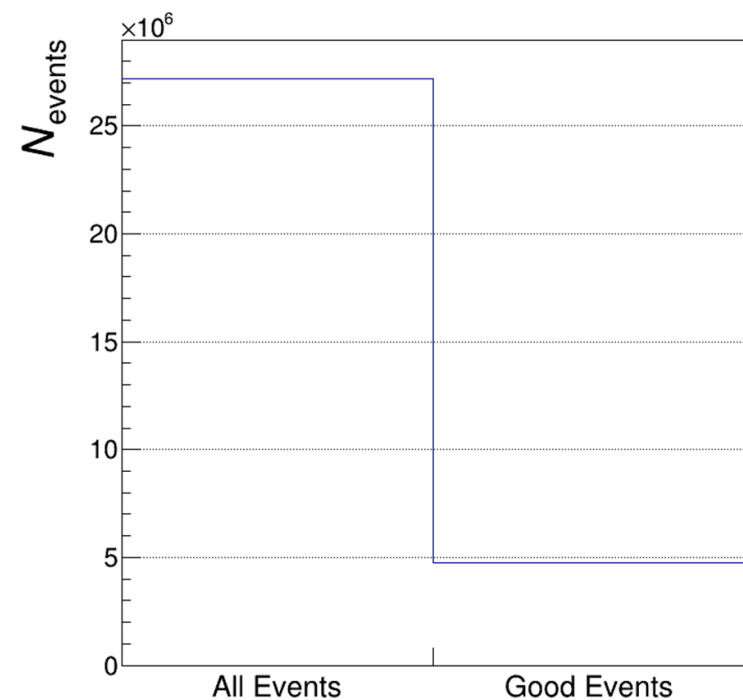
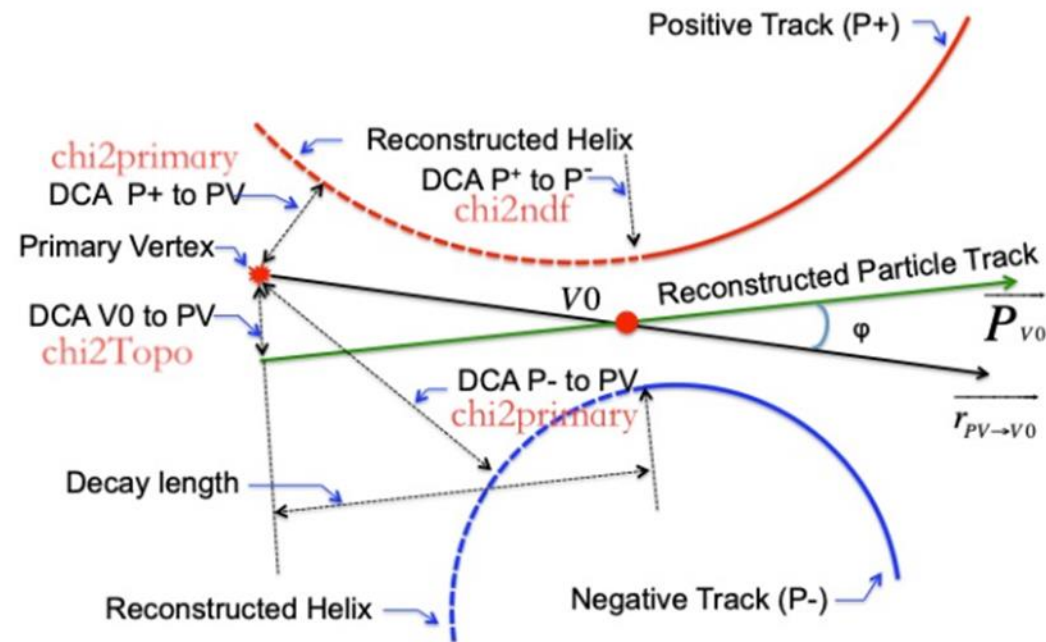
- $-50 < V_z < 50$ cm
- $V_r = |V - V_{center}|_{r\phi} < 1$ cm

PID Cuts(no TOF applied)

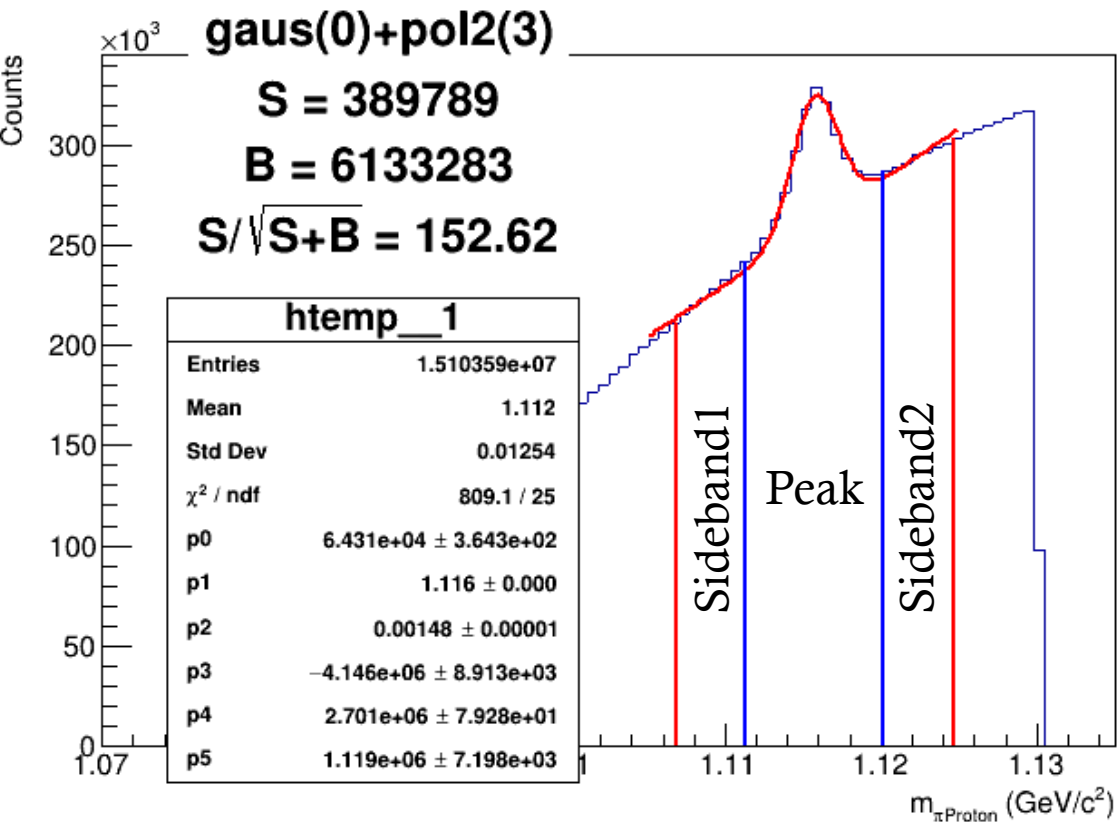
- $|\sigma| < 3$ (peak re-centered)

Track Cuts:

- Primary
- $DCA < 1$ cm
- $N_{HitsFit} > 20$
- $N_{hitsDeDx} > 5$
- $N_{HitsRatio} > 0.52$



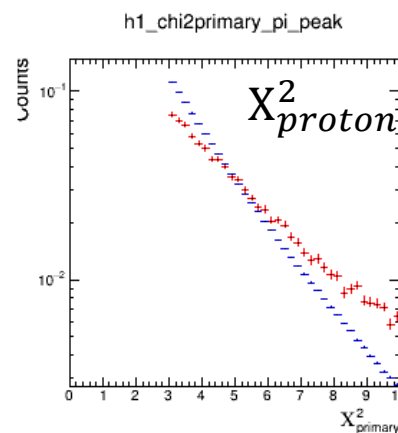
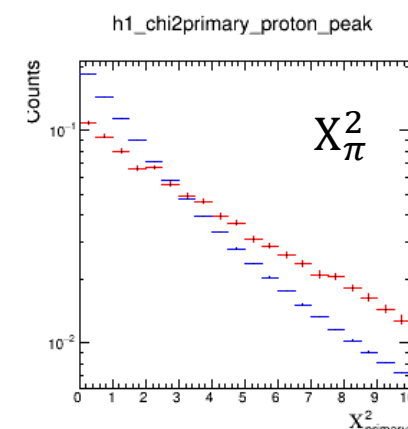
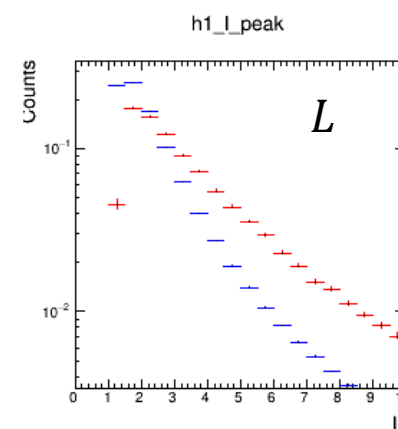
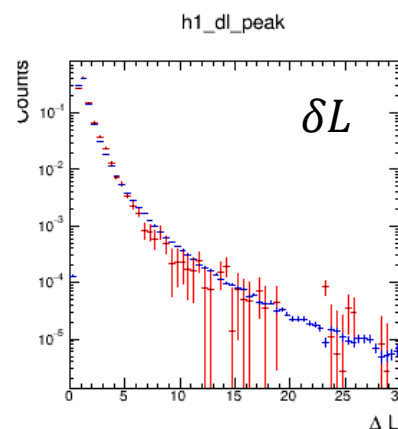
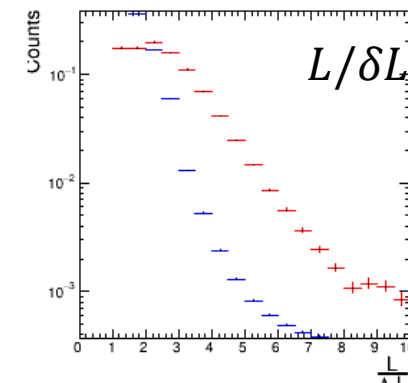
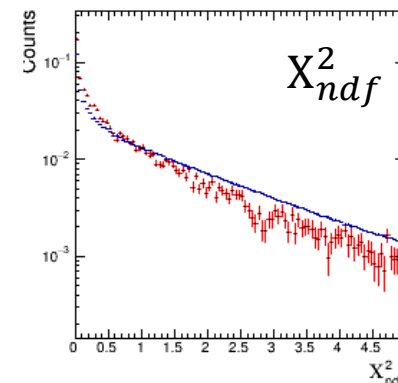
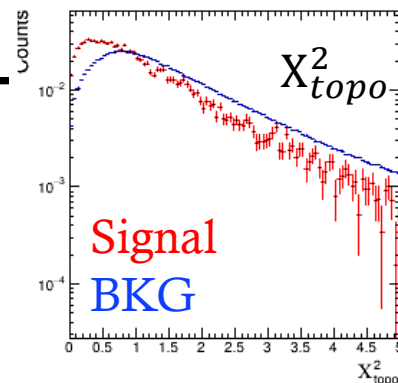
Raw Distribution



Peak: [mean - 3*sigma, mean+3*sigma]

Sideband1: [mean - 6*sigma, mean-3*sigma]

Sideband2: [mean + 3*sigma, mean+6*sigma]



Significance Scan

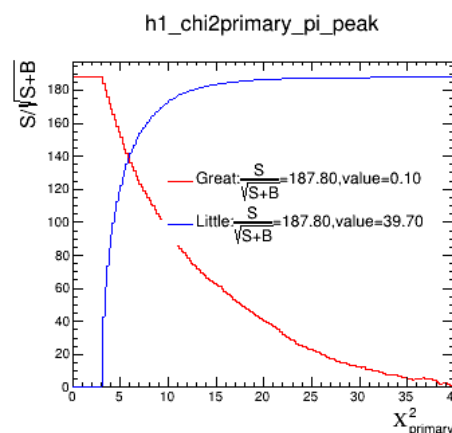
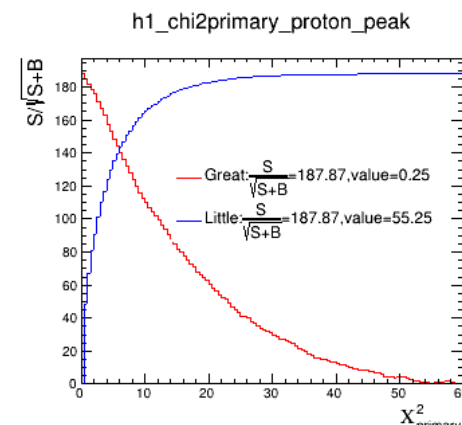
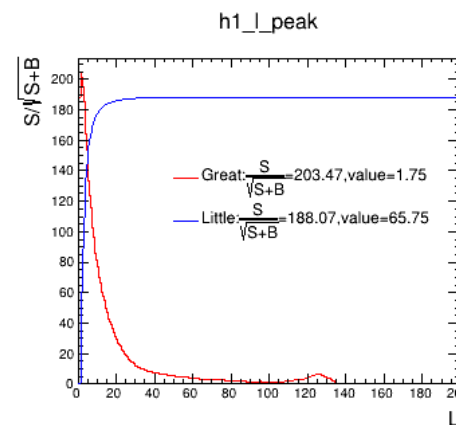
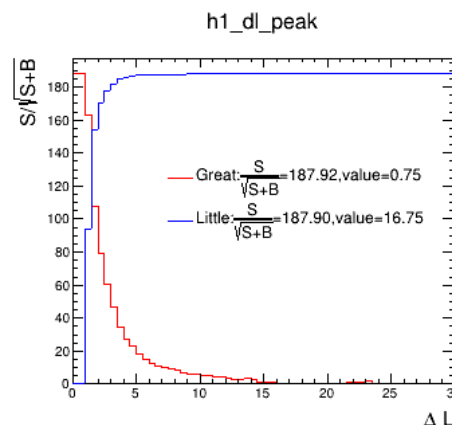
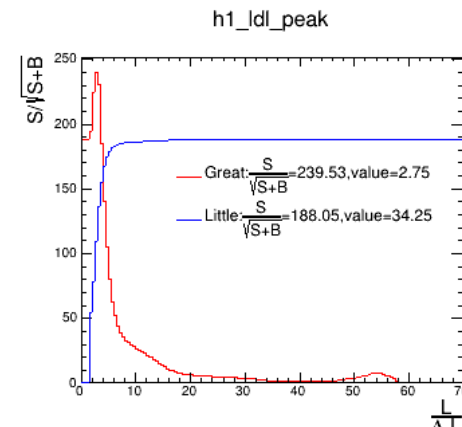
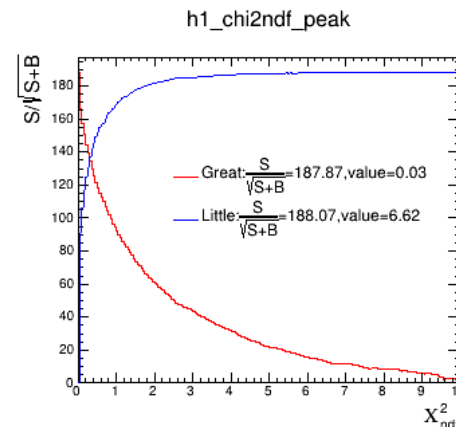
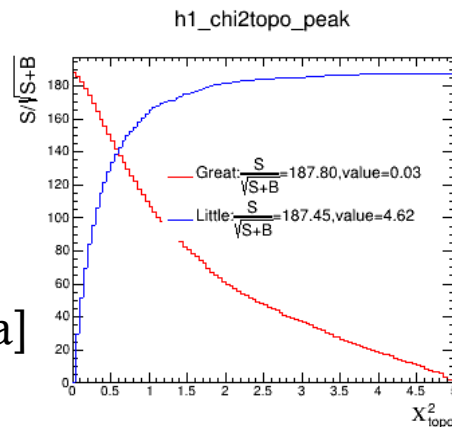
Peak: [mean - 3*sigma, mean+3*sigma]

Sideband1: [mean - 6*sigma, mean-3*sigma]

Sideband2: [mean + 3*sigma, mean+6*sigma]

$$S = N_{peak} - N_{sideband1} - N_{sideband2}$$

$$B = N_{sideband1} - N_{sideband2}$$



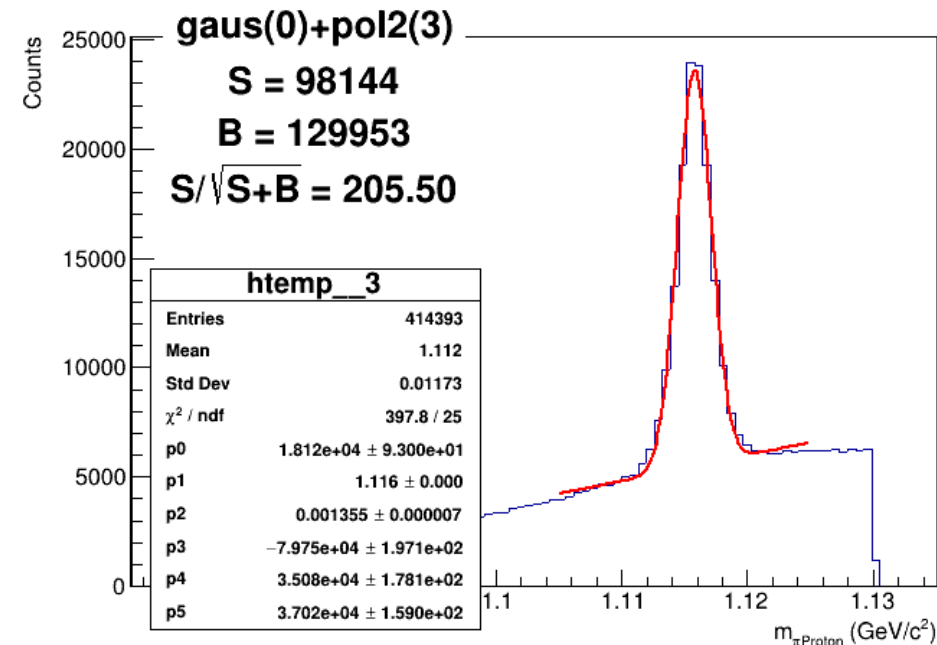
Final Cuts

$$l/\delta l > 2.65$$

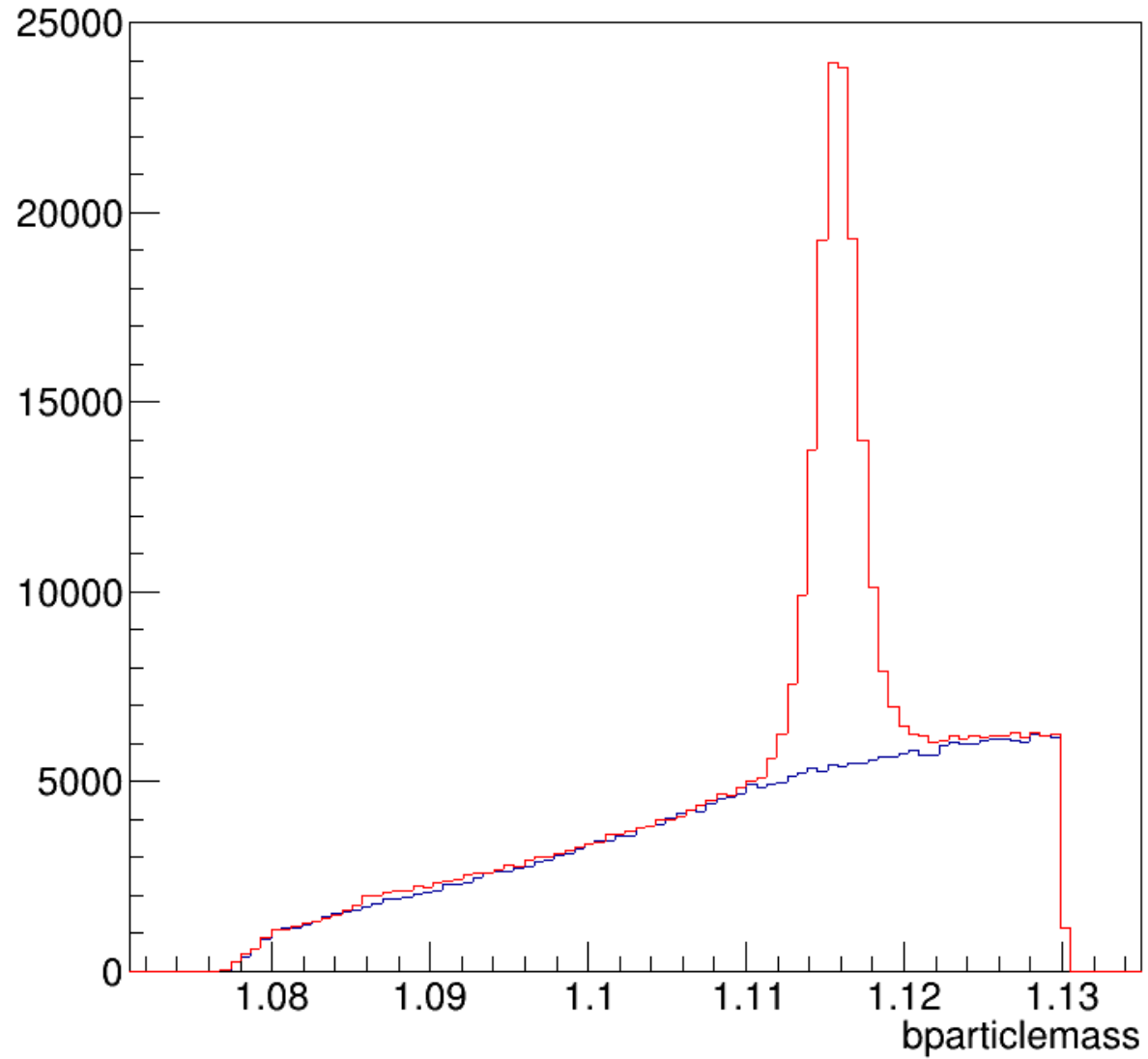
$$l > 2.35$$

$$X_{ndf}^2 < 4.28$$

$$X_{topo}^2 < 2.88$$



Rotation Background



π^+, π^- rotate 180°

To-do

- Acceptance determination: π, p, Λ
- π, p efficiency