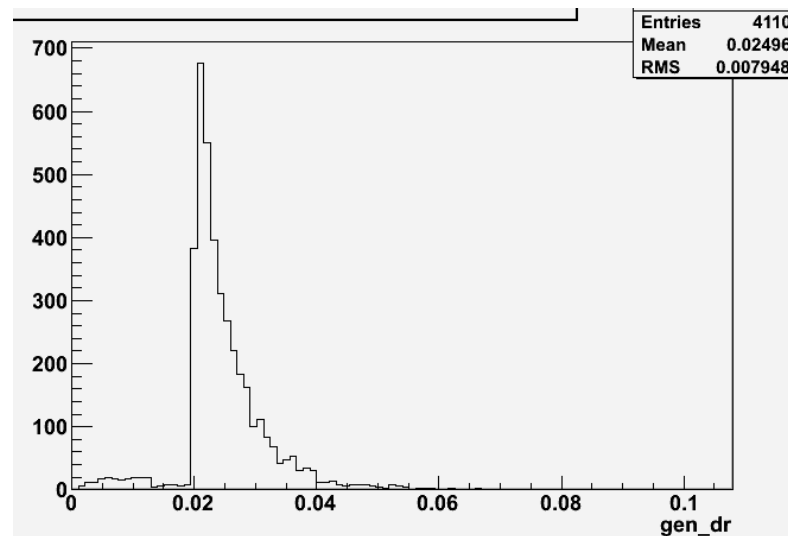


# K0s gen issue

Problem with unmatched K0s solved.

The deltaR cut for keeping the closest gen particle of any ID around selected K0s is 0.3. Now, looking at the DeltaR distribution (below) for those gen K0s found around “gen-unmatched” K0s, there is a significant contribution above dR of 0.02.

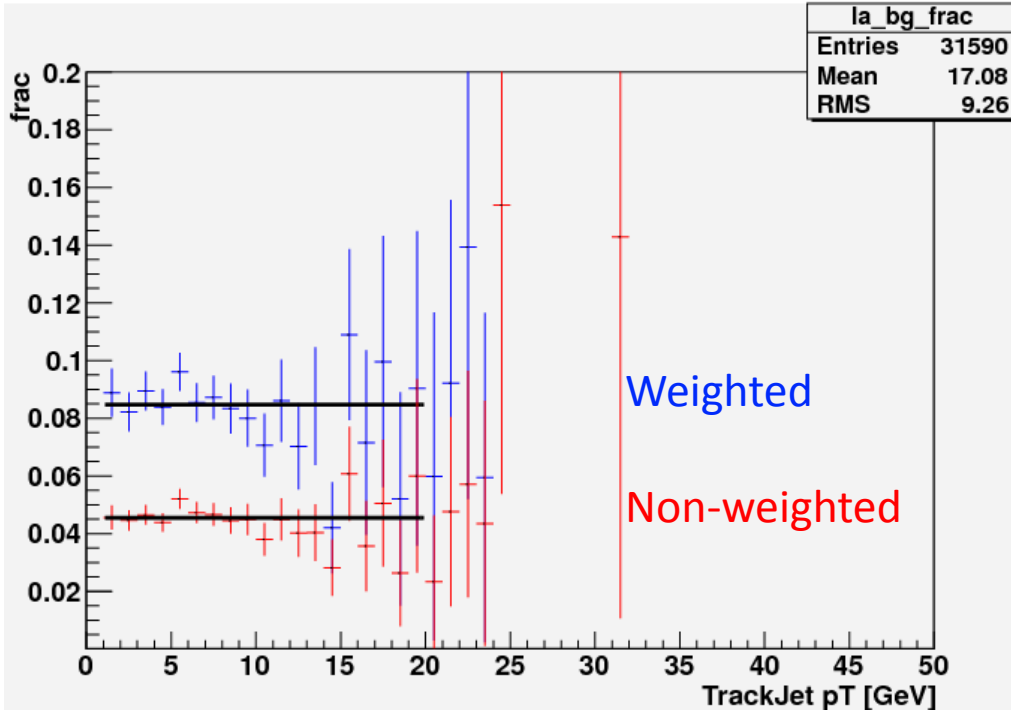


0.02 is precisely the dR cut for the present gen-matching requirement, so all this issue means is that dR of 0.02 is simply too tight and we still see closest gen K0s at dR of 0.04 and above.

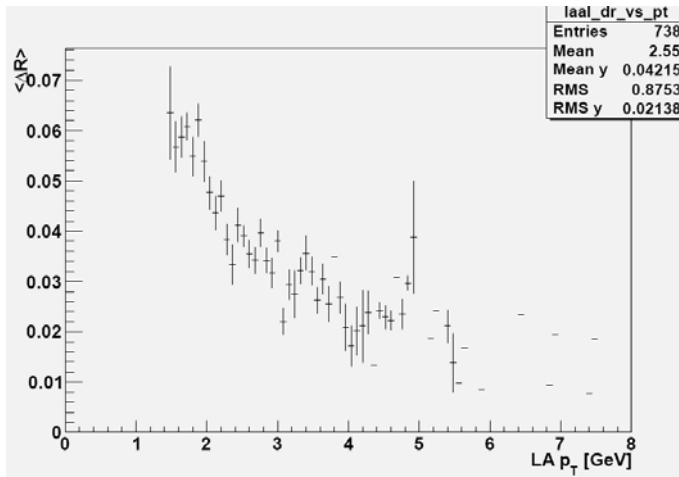
When I look at the gen particles within  $dR < 0.02$  from rec K0s (to match the gen-matching requirement), only  $\sim 10\%$  of total K0s background shows that gen K0s is still around.

- Now I will put back the dR for gen-matching to 0.1, as written in the analysis note.

# Lambda Background using GEN-matching



Mean distance of gen cascade:



$\Delta R < 0.02$   
 $\Delta p_T < 0.1$

## Identified Lambdas

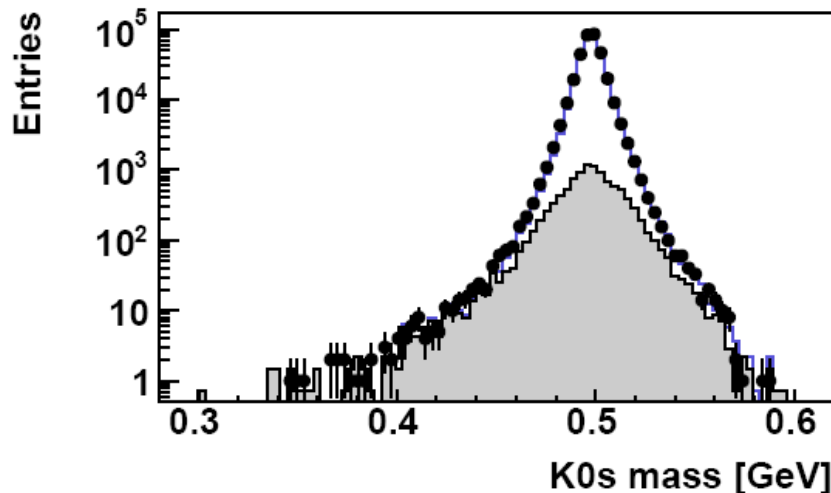
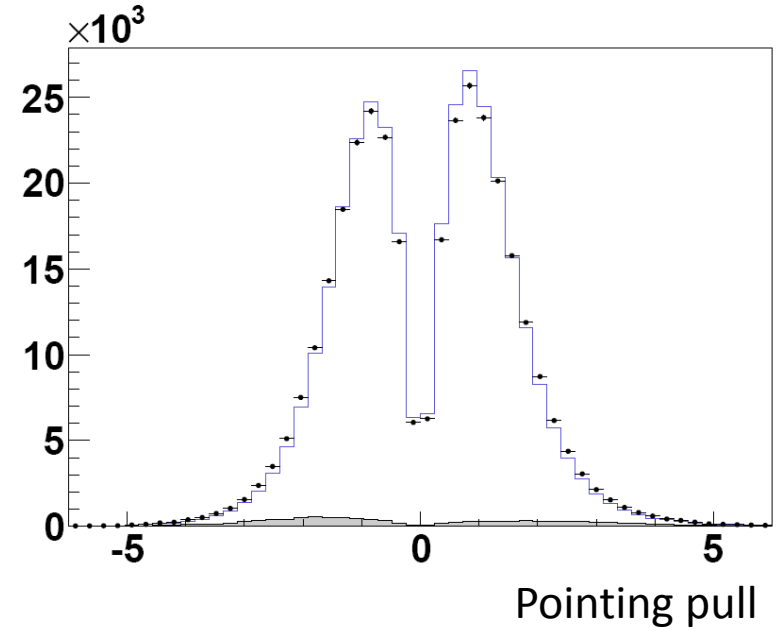
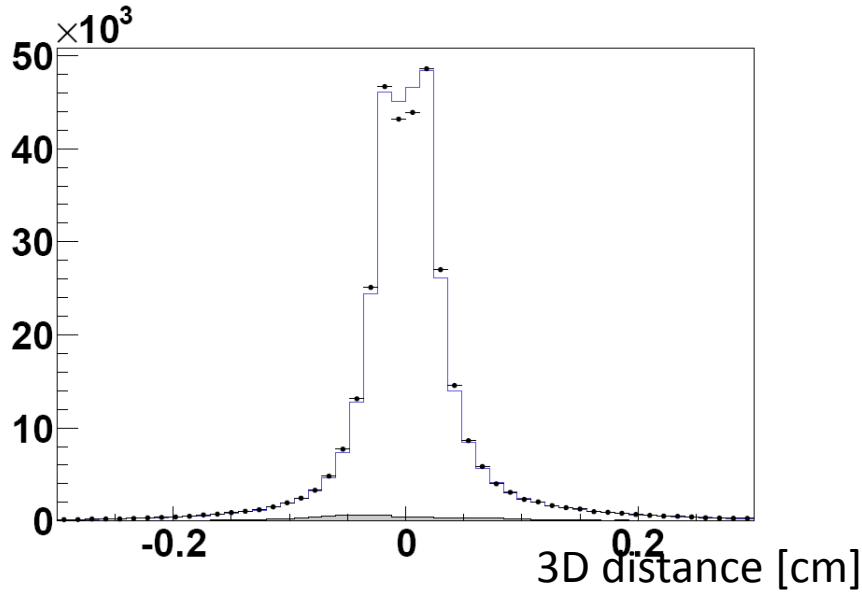
- 5% non-matched Lambdas

Reweighting bg contribution by QCD-10-007 numbers:

- cascades identified at gen level ( $\chi$ ,  $\omega$ ,  $\sigma$ )
  - $\Delta R < 0.3$
  - Default contribution to bkg = 50%
  - Weight = 2.67
- K0s identified at gen-level
  - Default contribution to bg = 20%
  - Weight = 1.39

# Mass & Pulls (K0s)

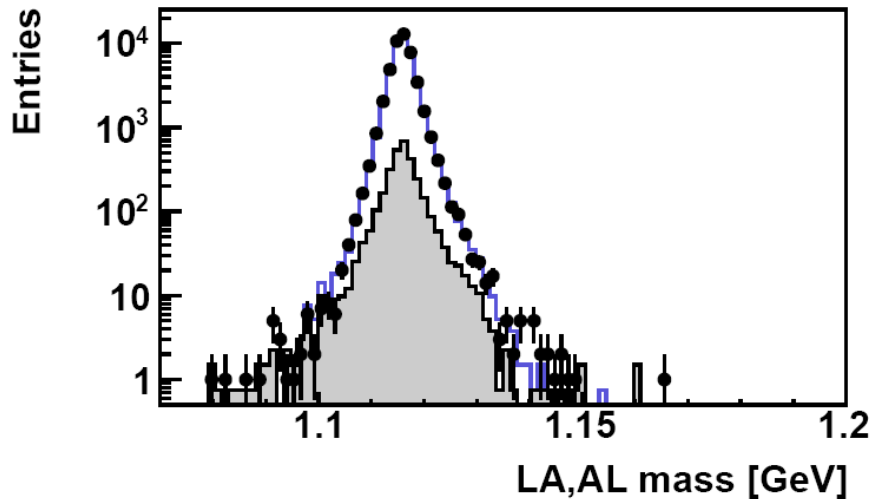
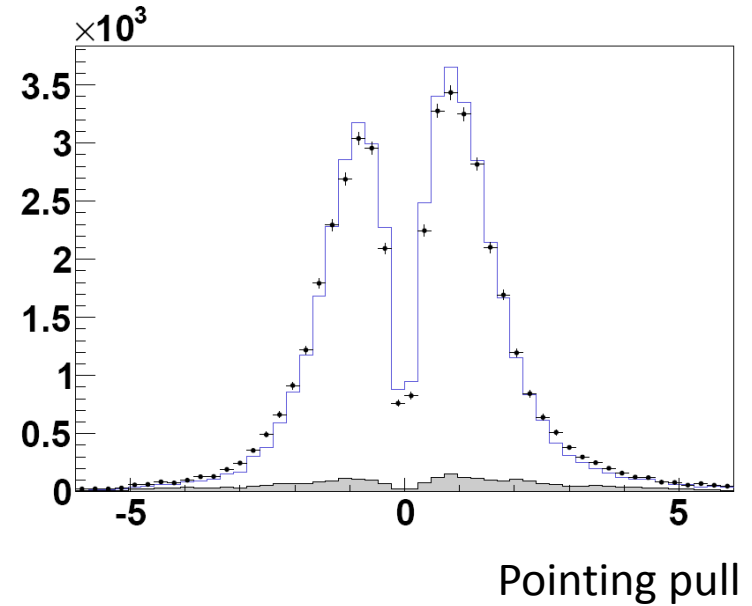
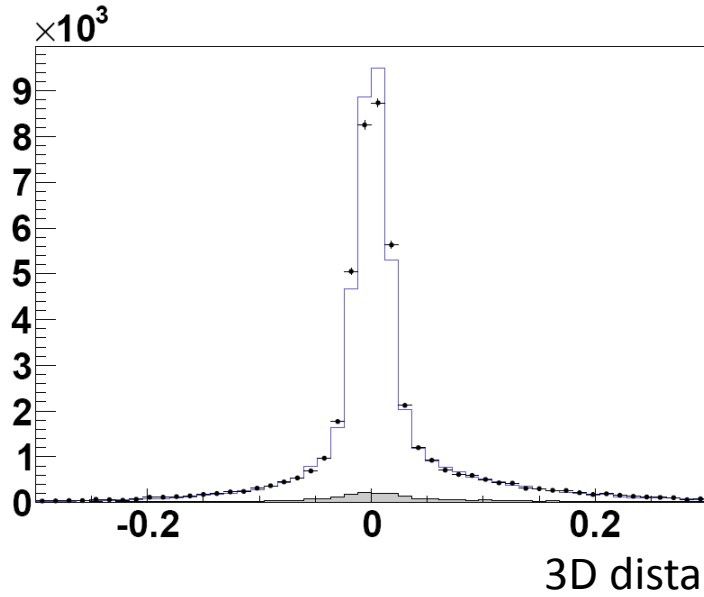
- Pointing pulls before the full fit: absolute distance to PV (left), pull (right)



Mass distribution before the full fit

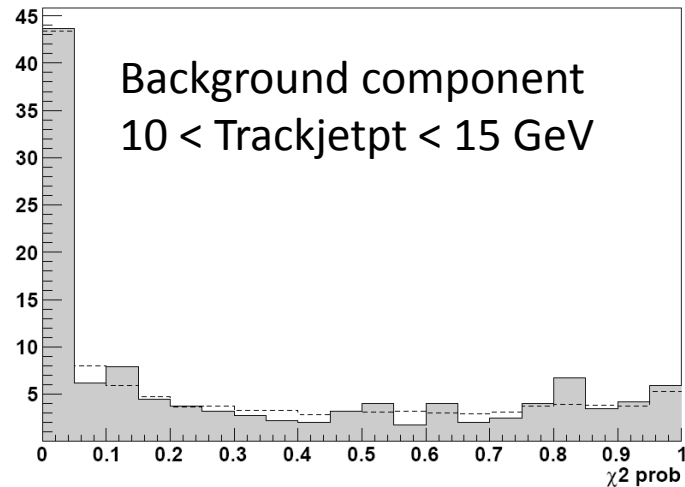
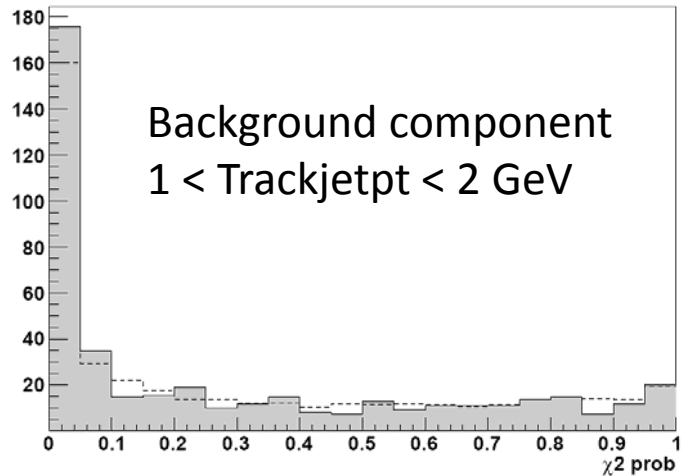
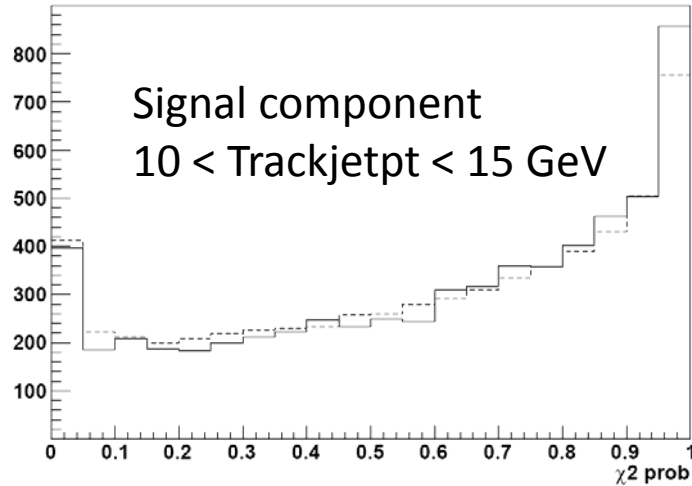
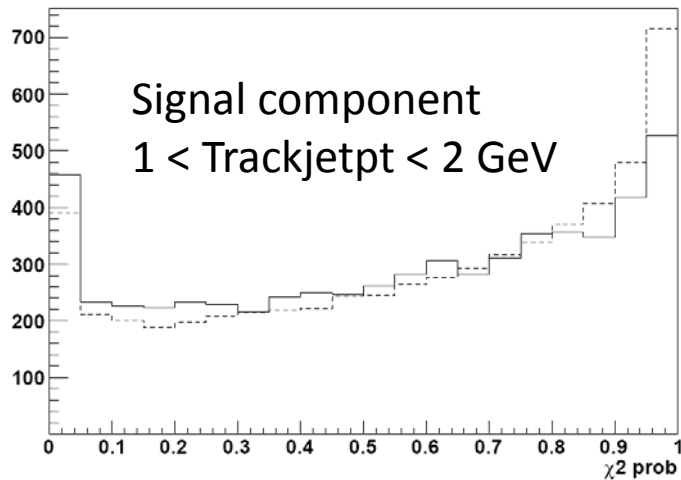
# Mass & Pulls (LA+AL)

- Pointing pulls before the full fit: absolute distance to PV (left), pull (right)



Mass distribution before the full fit

# Background from DATA – chi2prob distributions



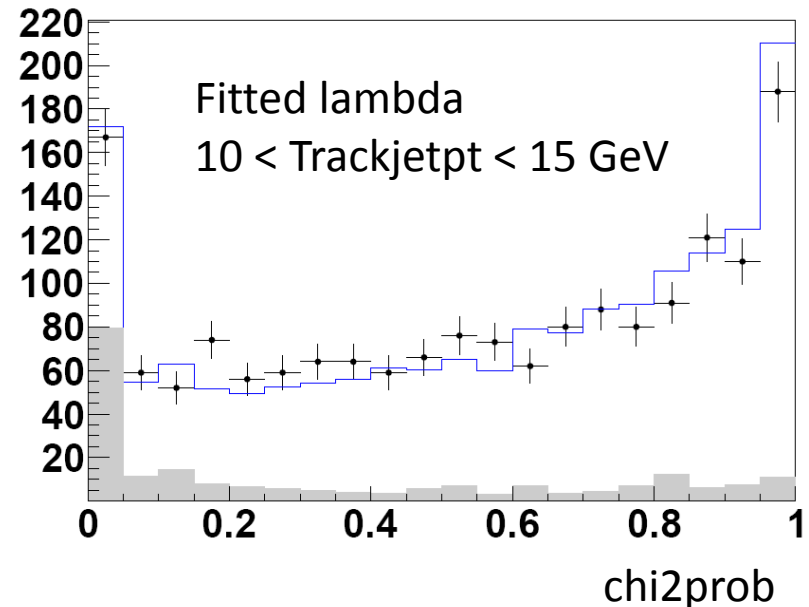
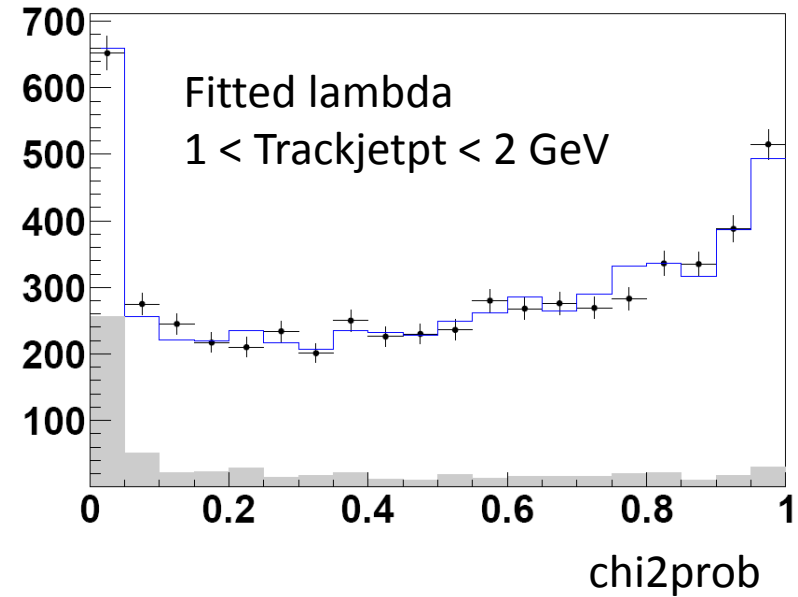
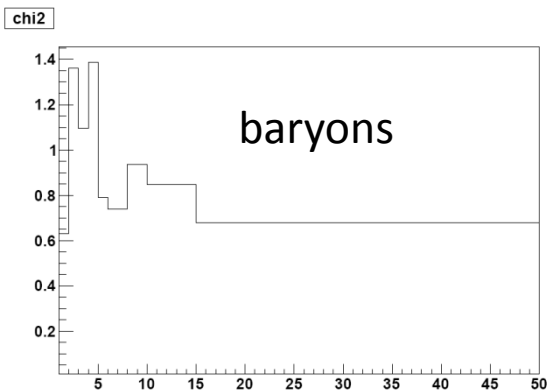
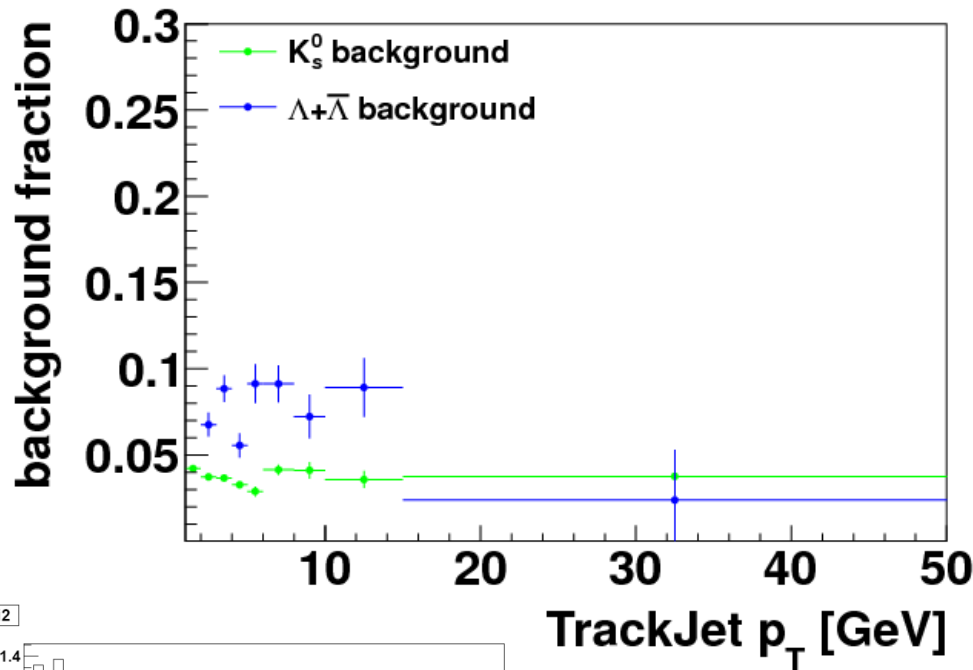
## Identified Lambdas+Antilambda

- Dotted line = shape averaged over trackjet pt range
- Shapes vary between trackjetpt bins

# Background from DATA – shape fit

Identified V0s

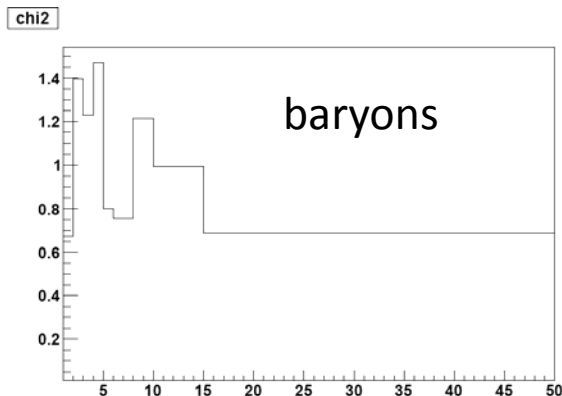
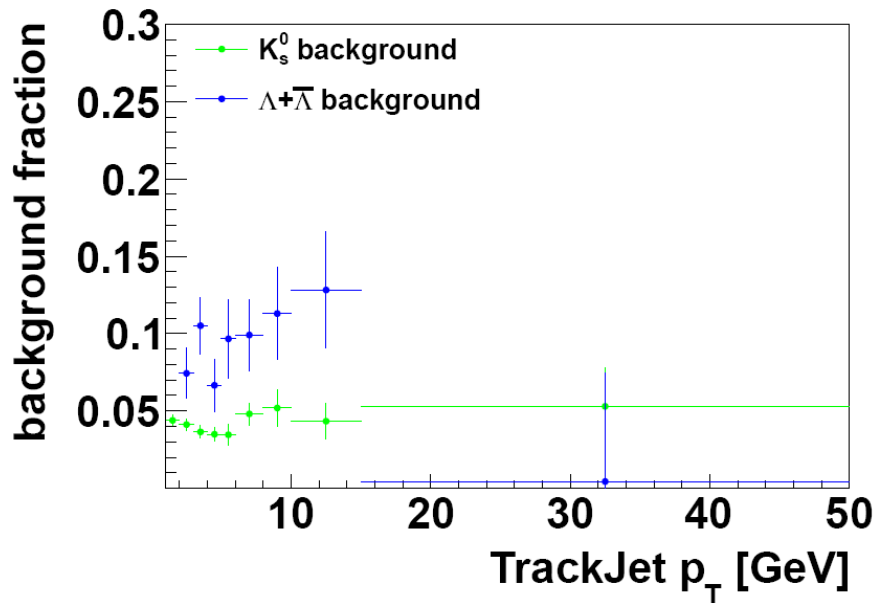
- Here signal+BG MC shape fit in trackjet pt bins, between chi2prob of 0.0 and 1.0



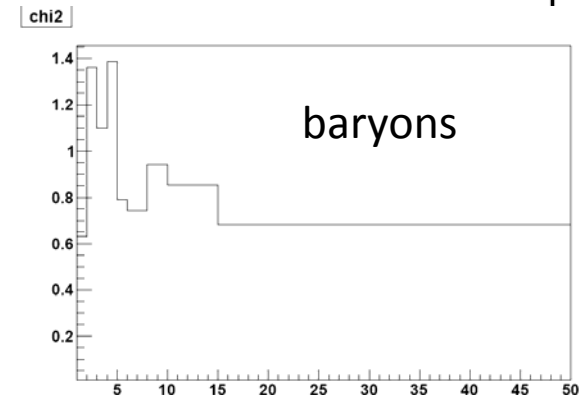
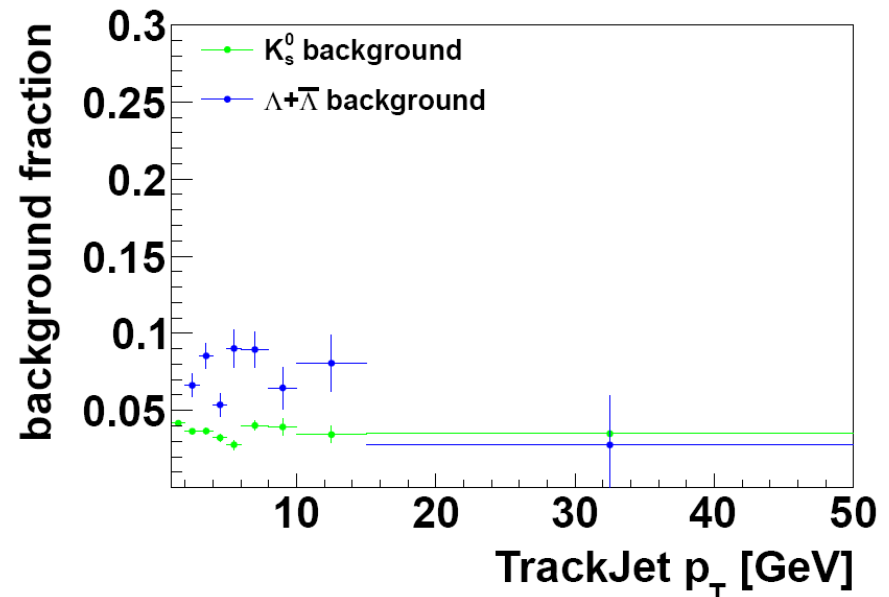
# Background from DATA – shape fit (2)

Identified V0s

- Here signal+BG MC shape fit in trackjet  $p_T$  bins, **between chi2prob of 0.3 and 1.0:**



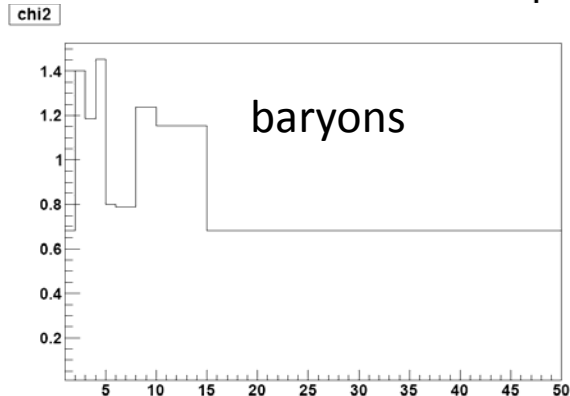
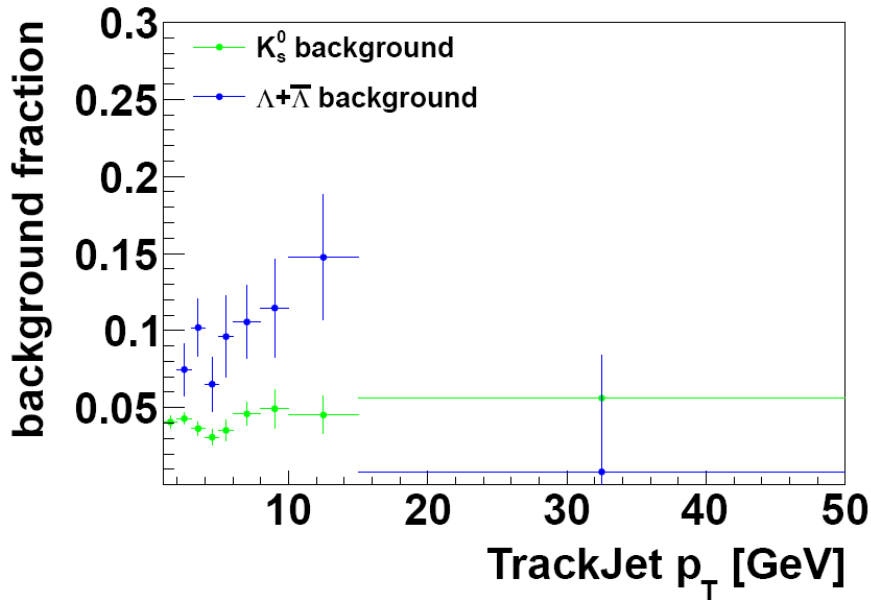
- Here signal+BG MC shape fit in trackjet  $p_T$  bins, **between chi2prob of 0.0 and 0.3:**



# Background from DATA – shape fit (3)

Identified V0s

- Here signal+BG MC shape fit in trackjet  $p_T$  bins, **between chi2prob of 0.5 and 1.0**:



- Here signal+BG MC shape fit in trackjet  $p_T$  bins, **between chi2prob of 0.0 and 0.5**:

