



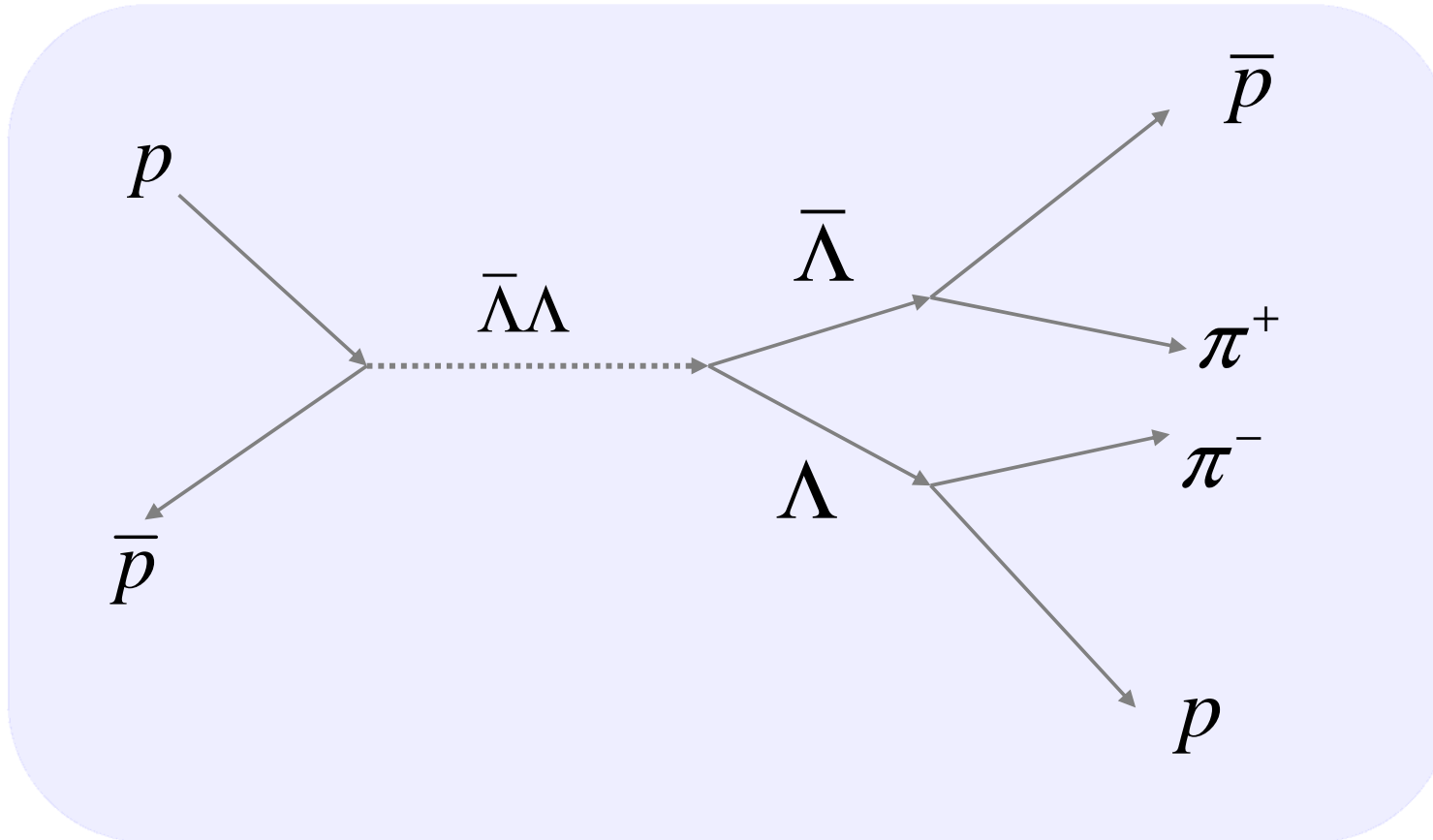
$\bar{\Lambda}\Lambda$ study w. central tracking @ PANDA cross-check

Donghee Kang

Helmholtz Institut Mainz, Universität Mainz



Benchmark channel : $p\bar{p} \rightarrow \bar{\Lambda}\Lambda \rightarrow \bar{p}\pi^+ p\pi^-$



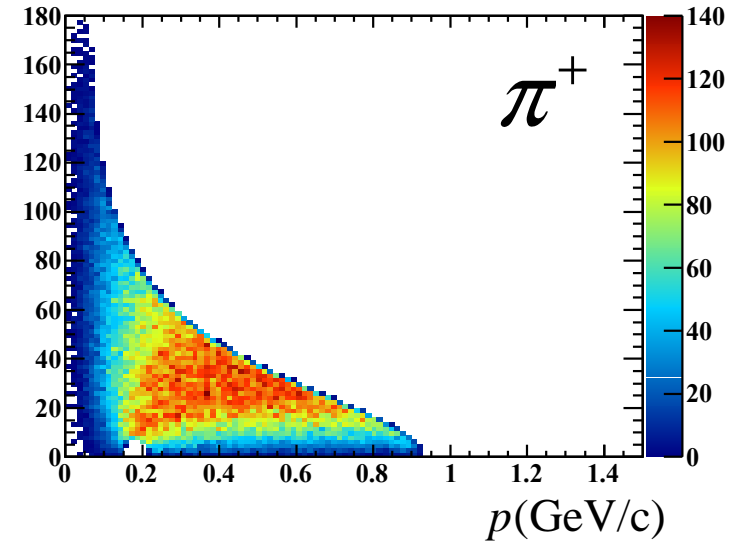
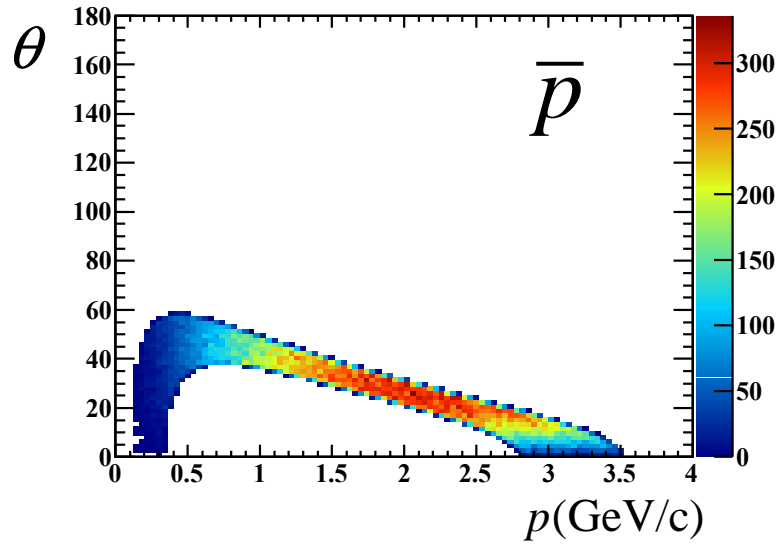
MC simulation on the PandaGrid :

- TPC mode : run994 (pandaroot ver. August11)

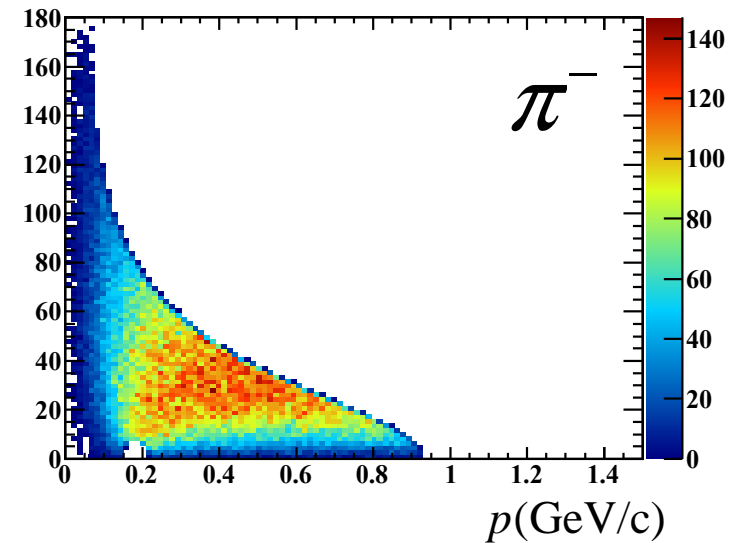
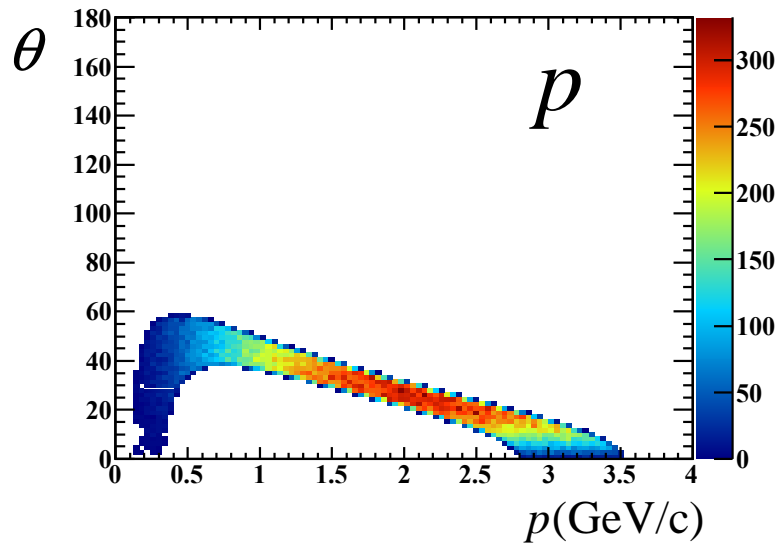


- Generated event : Momentum and Theta distribution for $\bar{\Lambda}$ and Λ decay

$\bar{\Lambda}$



Λ

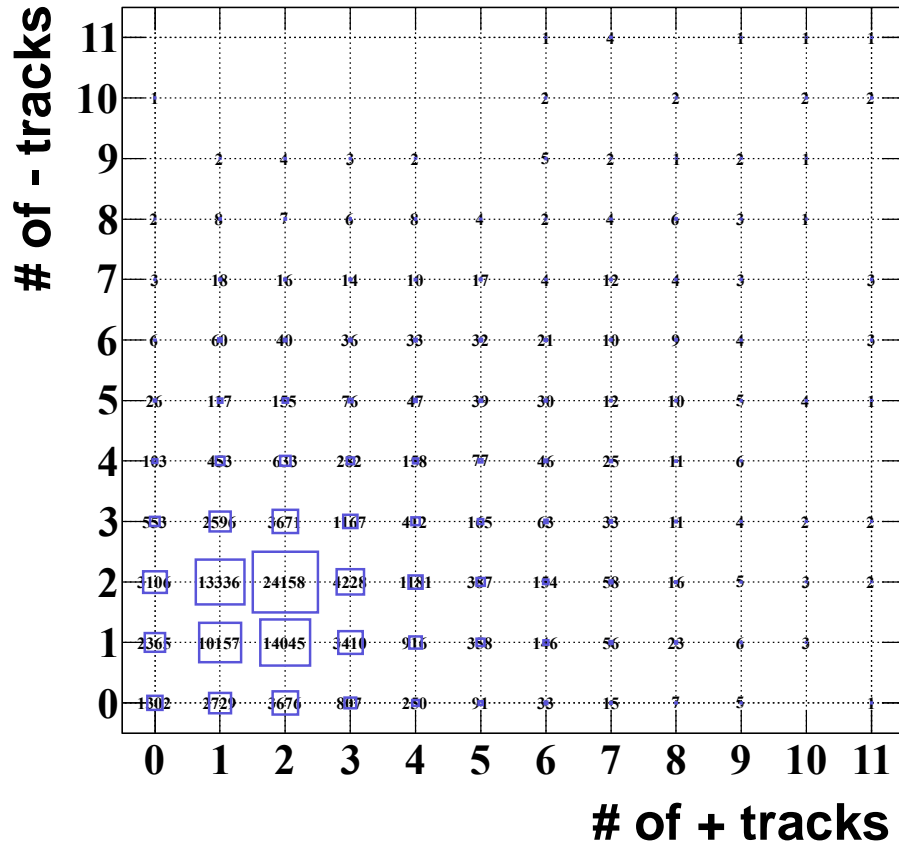




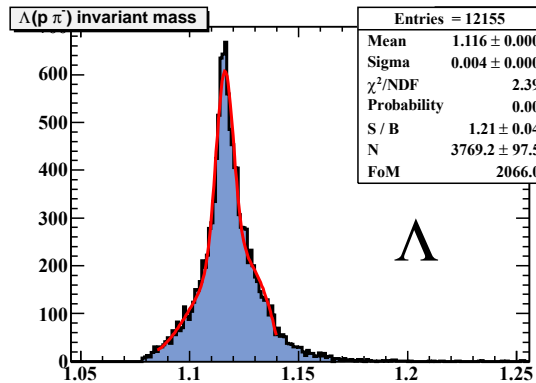
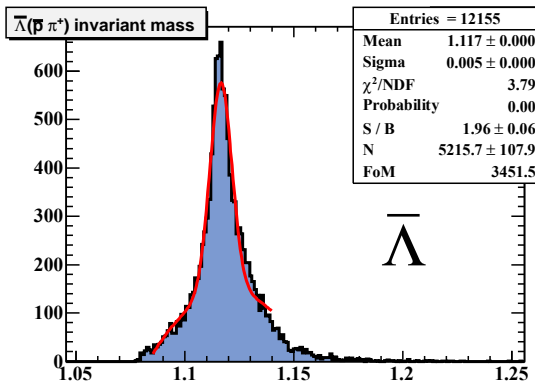
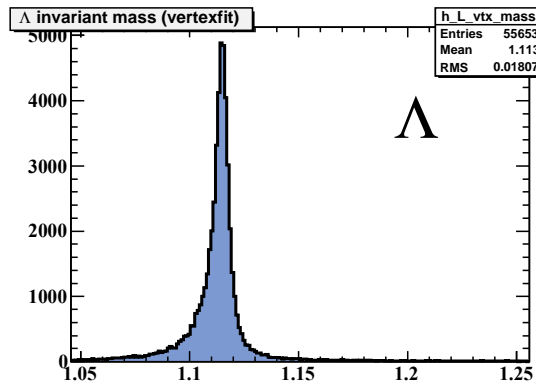
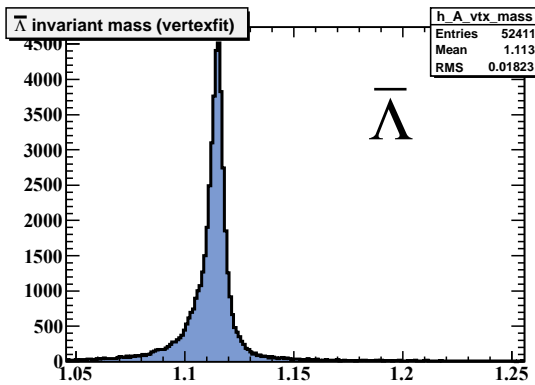
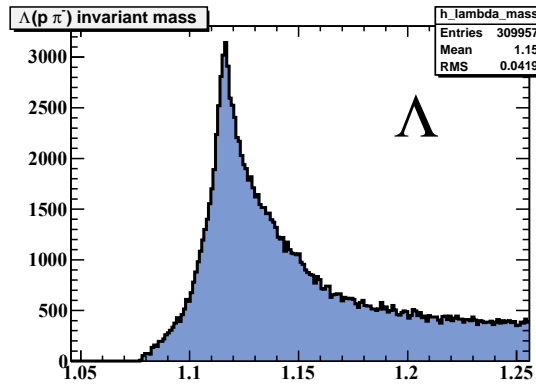
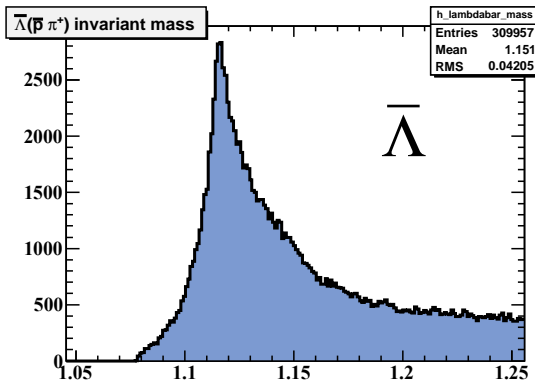
Event selection I

Reconstruction of charged tracks by TPC

TPC(run994) : 98500 evt.



Event selection II



- Lambdabar and Lambda hyperon after combination of + and - track



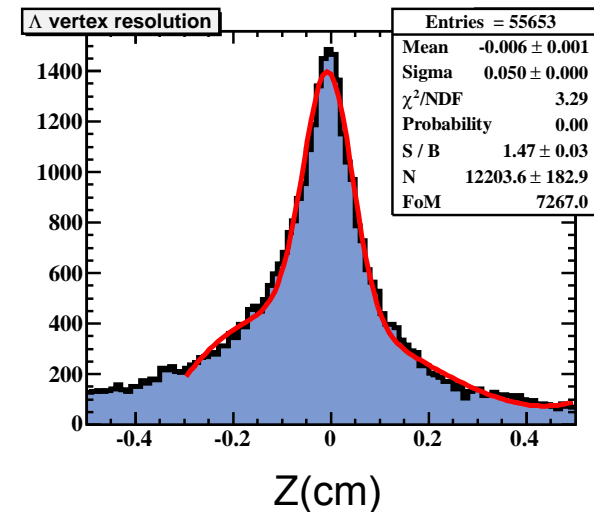
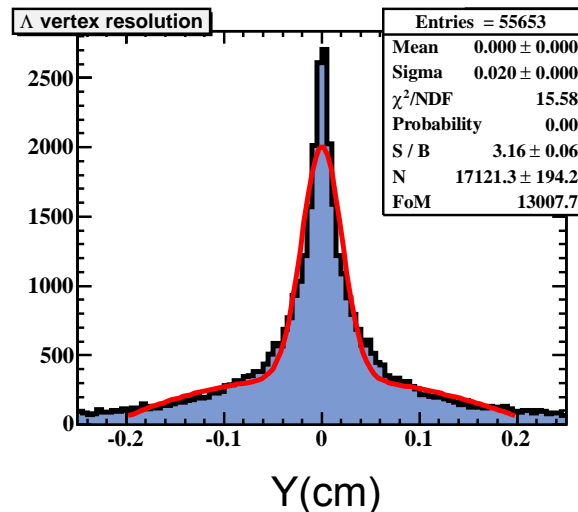
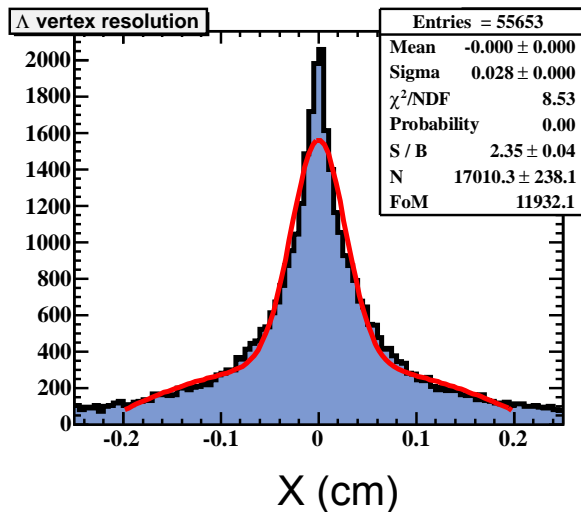
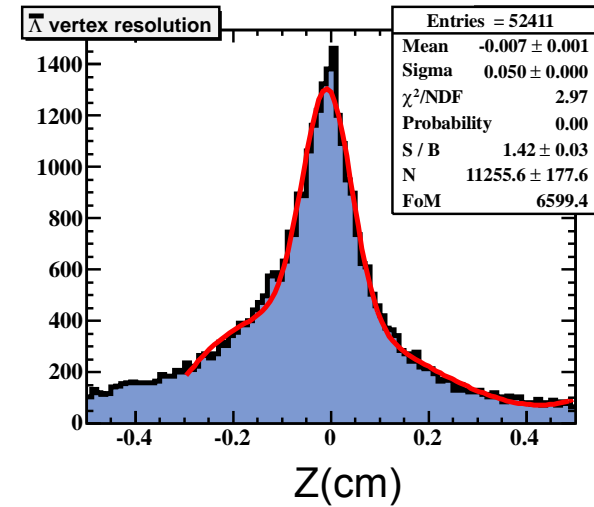
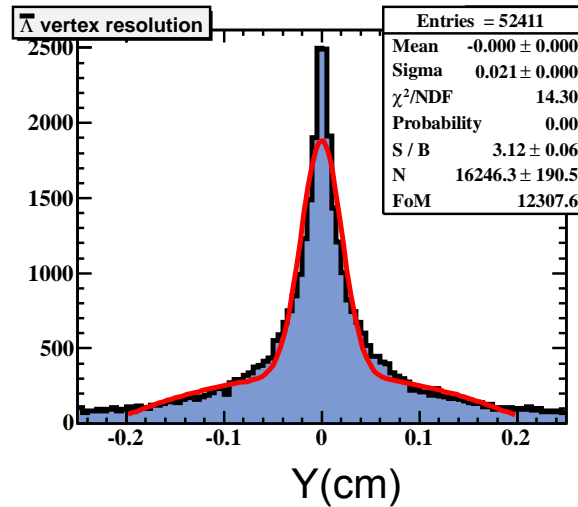
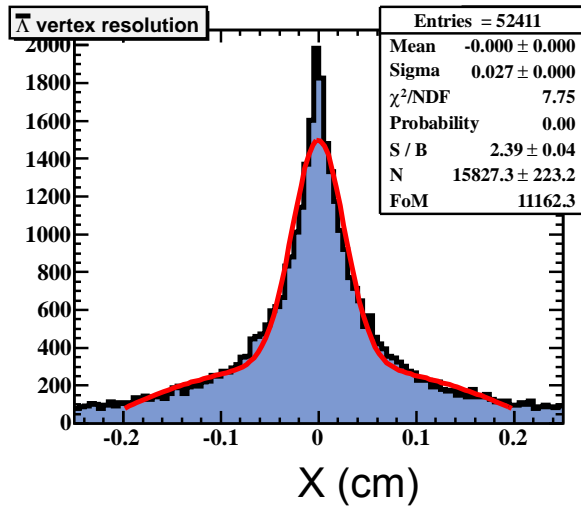
- MC true matched and vertex fitted single hyperon (MC index matching)



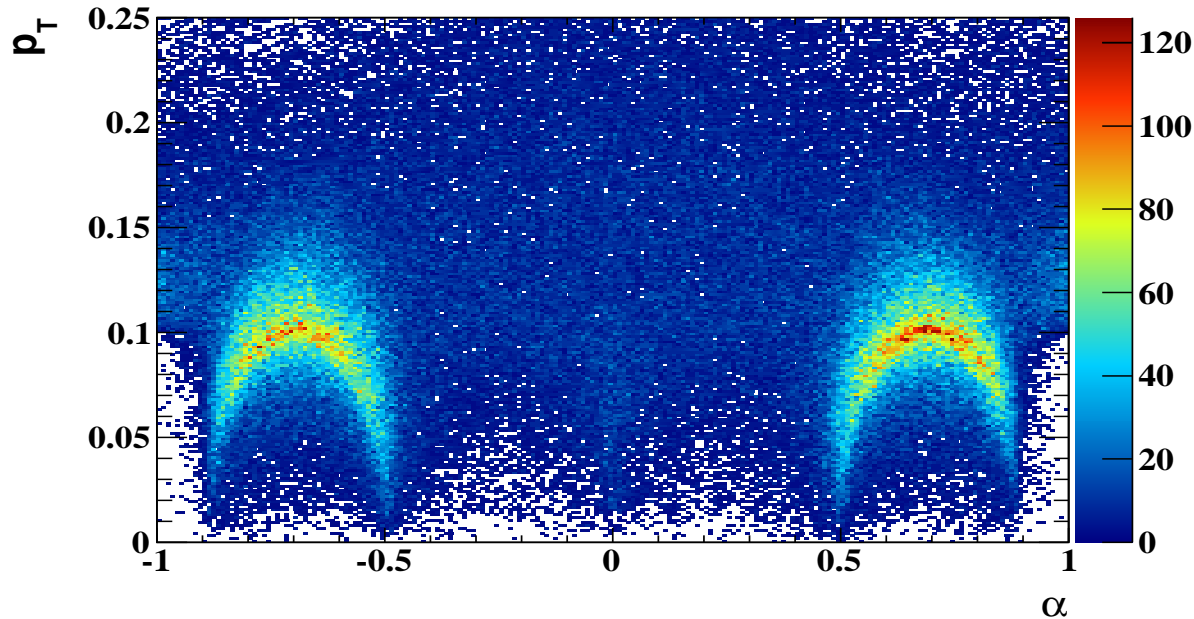
- Final sample for $\bar{\Lambda}\Lambda$ MC true matching & within TPC volume & $\bar{\Lambda}\Lambda$ vertex fitting only 1 best candidate

Event selection II

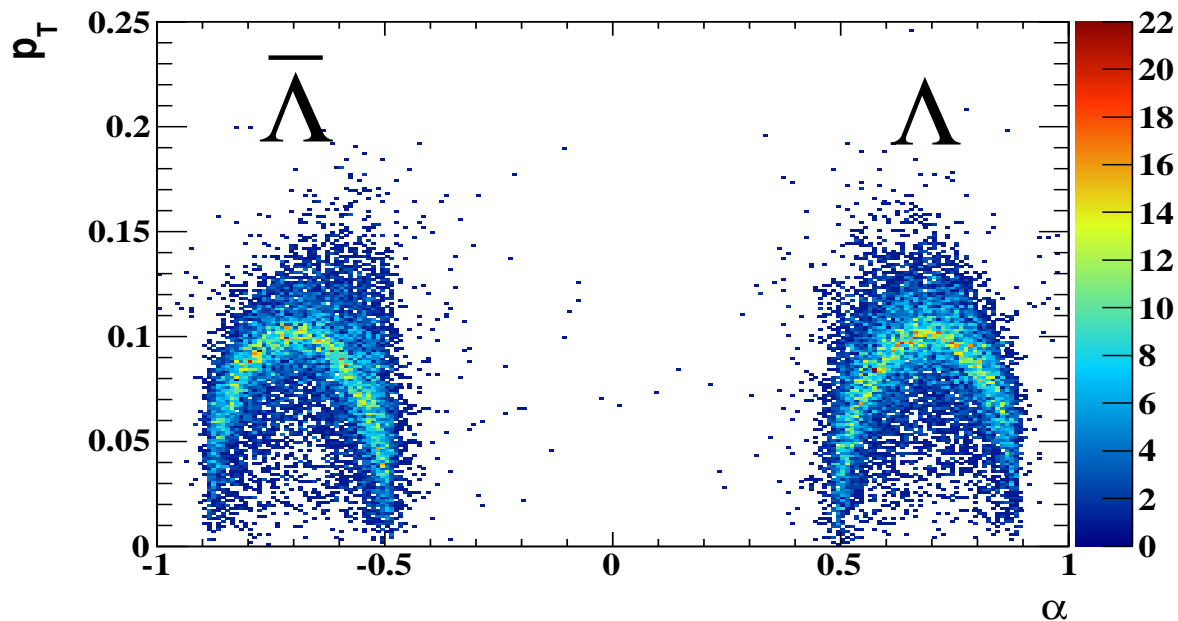
- Vertex resolution for MC true matched and vertex fitted single hyperon (MC index matching)



Event selection II



- Lambdabar and Lambda hyperon
after combination of + and - track

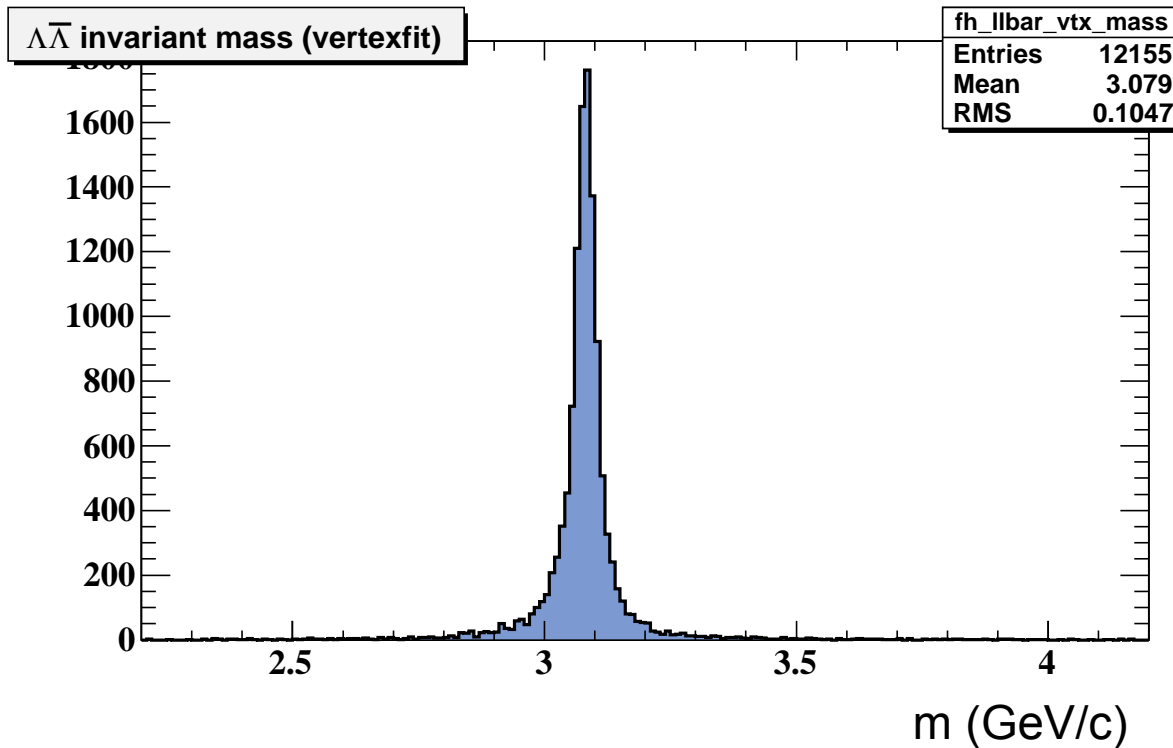


- Final sample for $\bar{\Lambda}\Lambda$
MC true matching & within TPC
volume & $\bar{\Lambda}\Lambda$ vertex fitting
only 1 best candidate



Event selection for $\bar{\Lambda}\Lambda$

TPC $\bar{\Lambda}\Lambda$ mass distribution



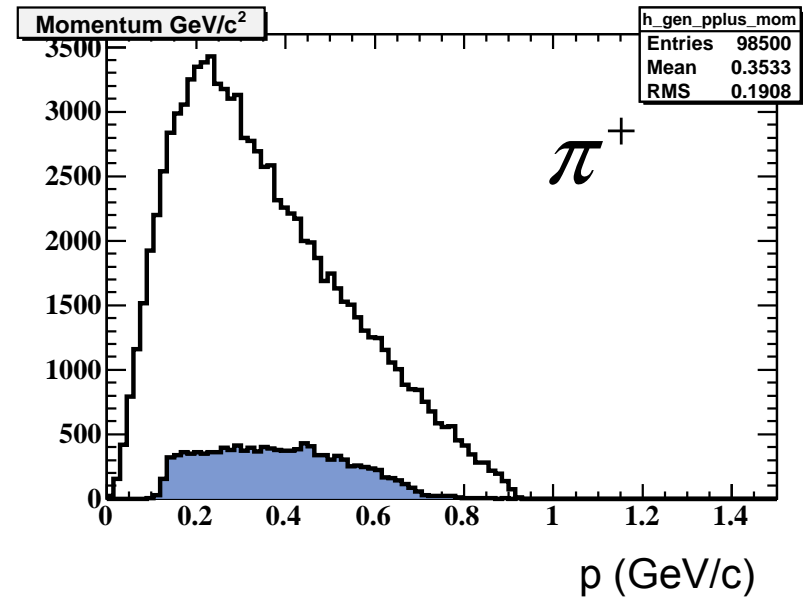
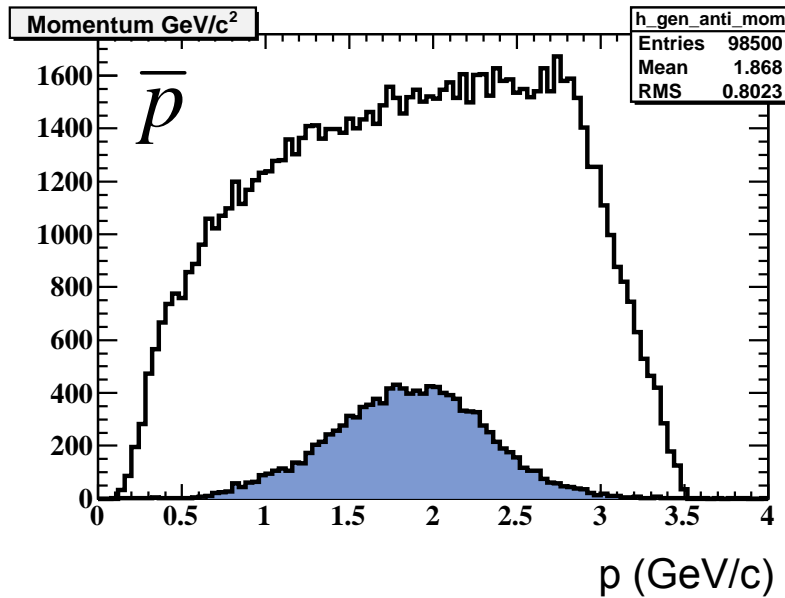
global efficiency
 $\varepsilon = \text{rec.} / \text{gen.}$
 $= 12155 / 98.5\text{K}$
 $= 12.34 \%$



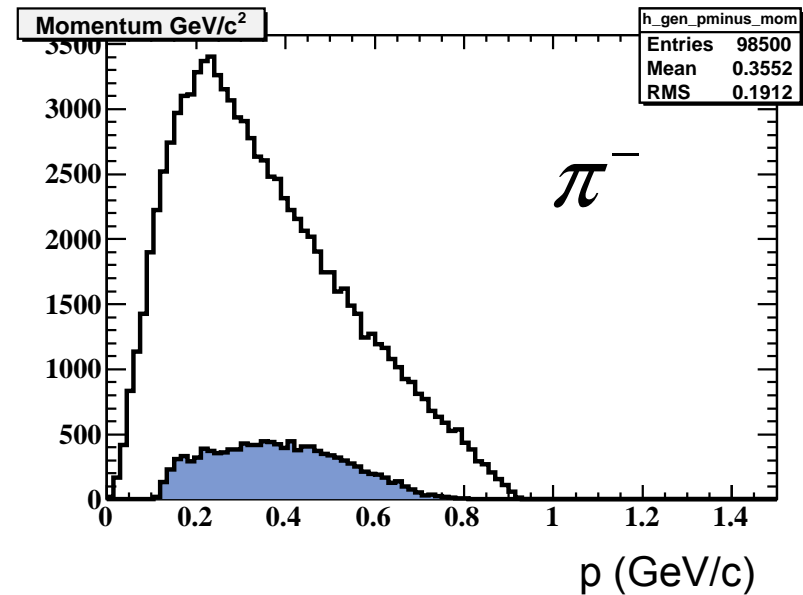
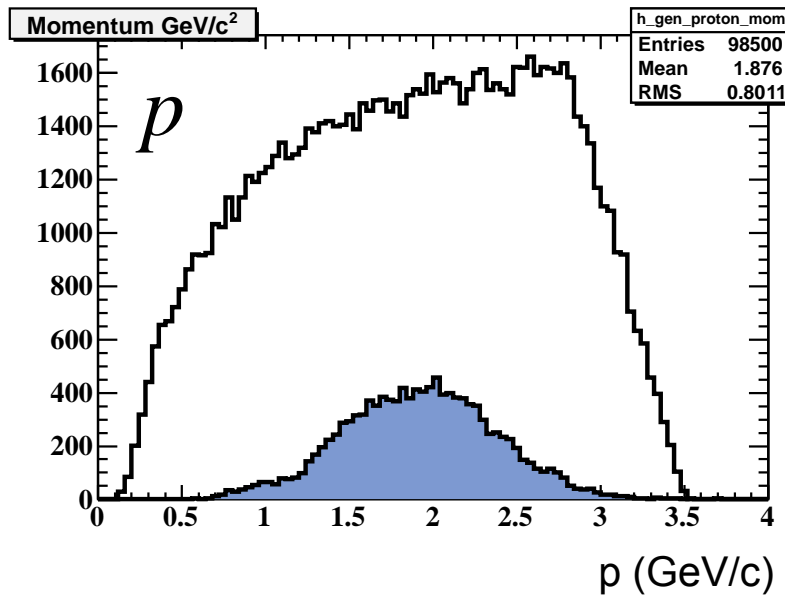
Event selection for $\bar{\Lambda}\Lambda$

TPC mode : momentum p generated vs reconstructed (rec. is not scaled)

$\bar{\Lambda}$



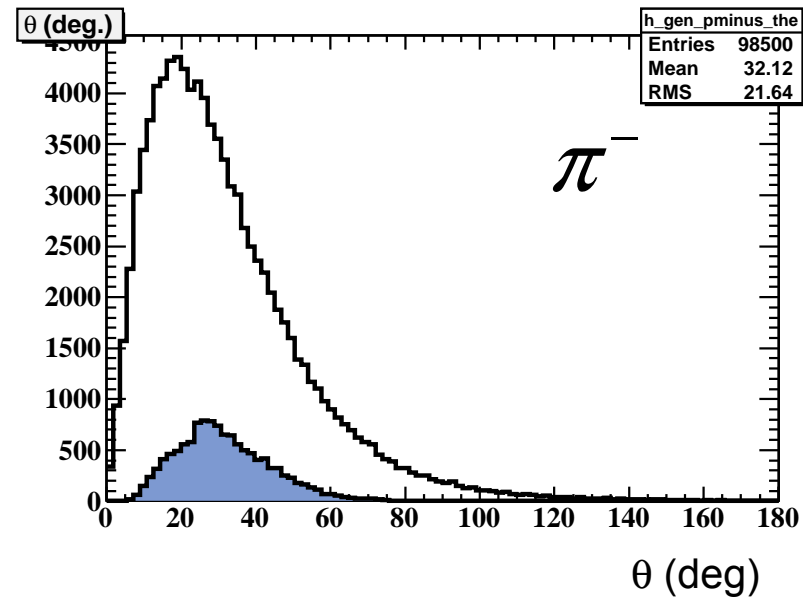
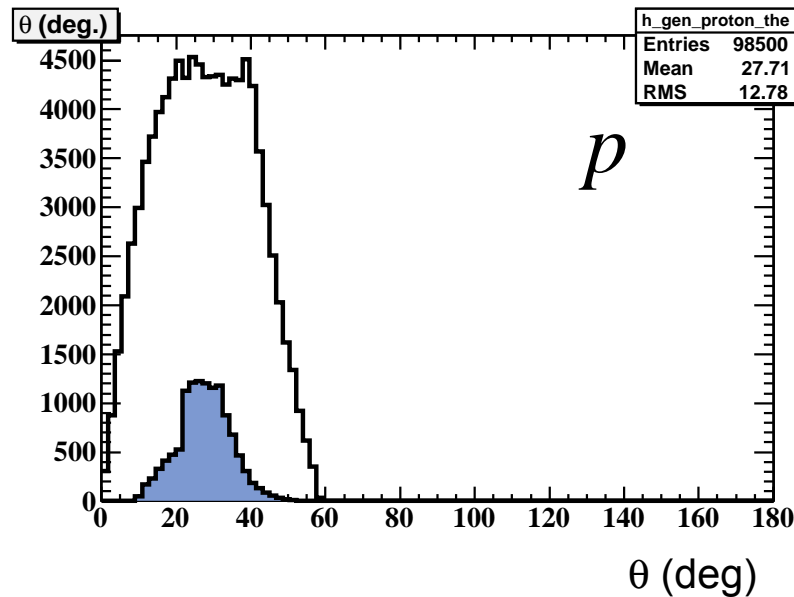
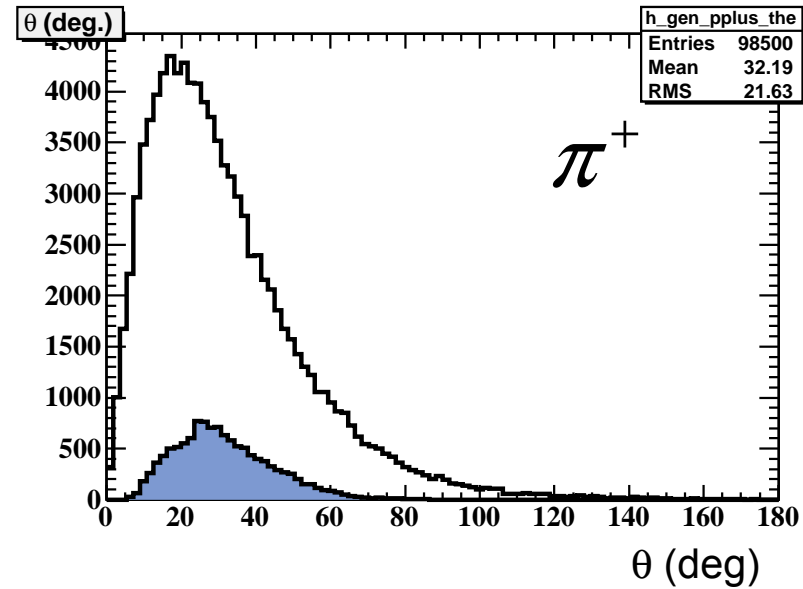
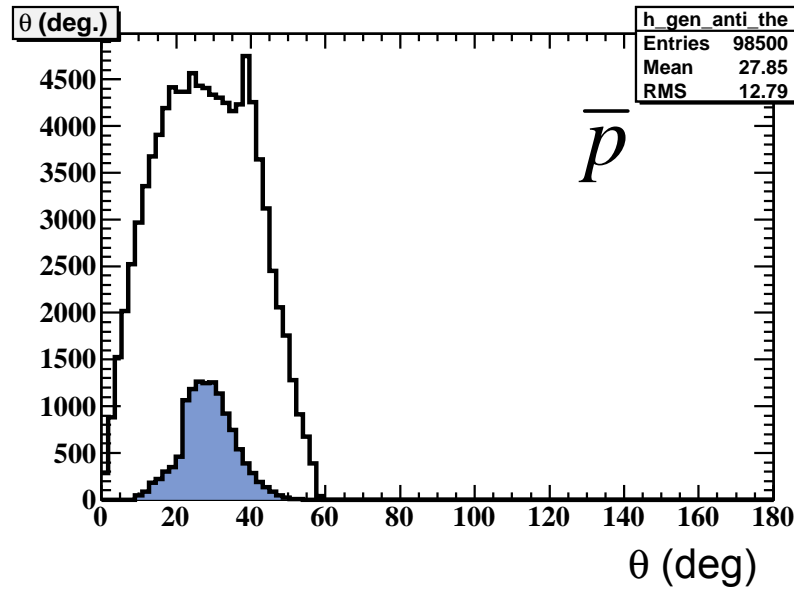
Λ





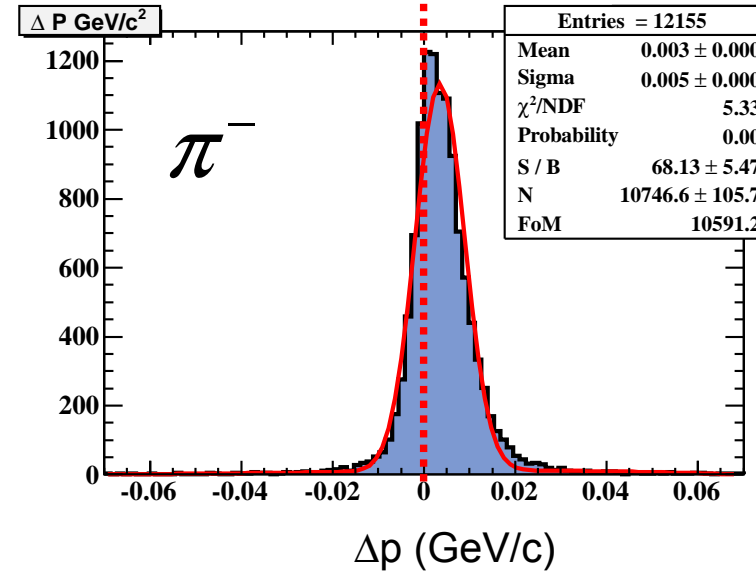
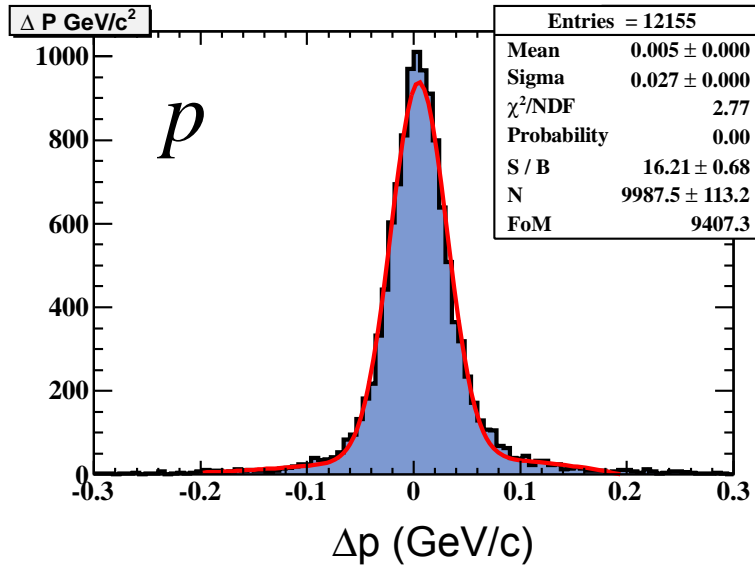
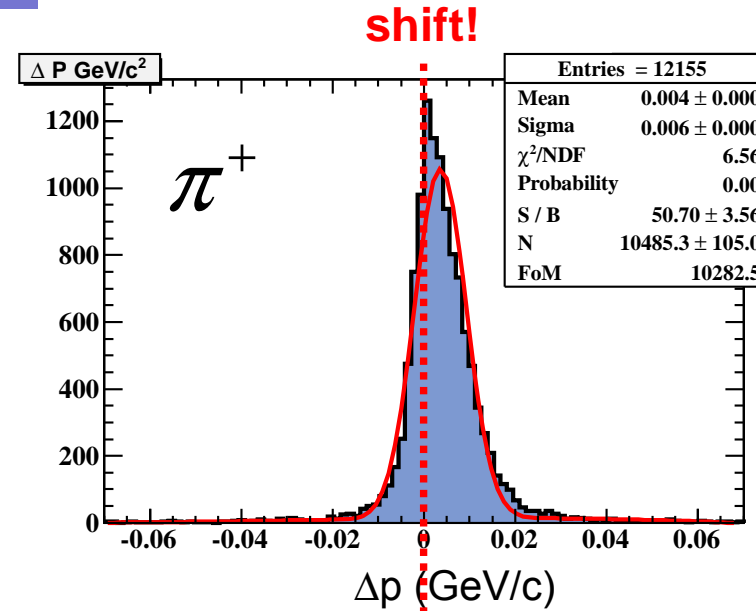
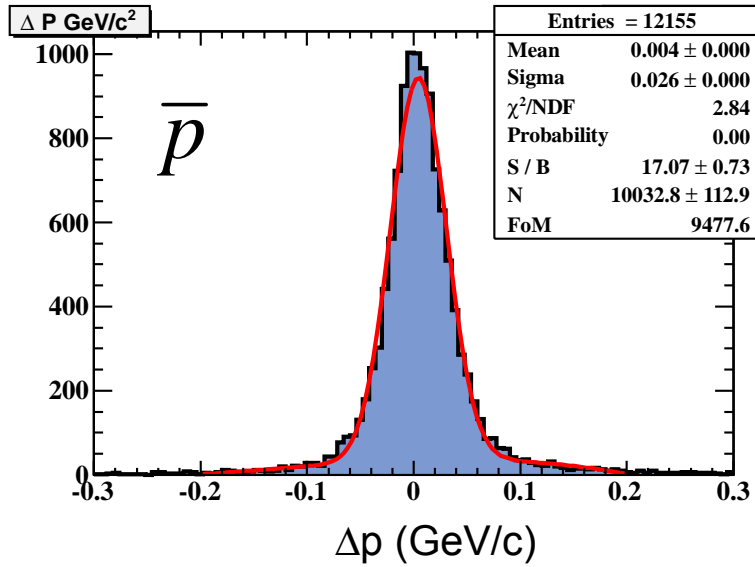
Event selection for $\bar{\Lambda}\Lambda$

TPC mode : momentum p generated vs reconstructed (rec. is not scaled)





TPC mode : momentum resolution





TPC mode : theta resolution

