

FTS benchmark study

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The Menu:

- pandaroot_apr13
- 10000 events simulated
- momentum 4 GeV/c
- channels:
- $p\bar{p} \rightarrow \lambda^0 \lambda^{\bar{0}}$
- Full Panda geo & no FTS case
- reco_complete used

1st case full geo

- decay chain

Decay pbarpSystem

1.0 Lambda0 anti-Lambda0 PHSP;

Enddecay

Decay Lambda0

1.0 anti-p- pi+ HELAMP .906 0. .423 0.;

Enddecay

Decay anti-Lambda0

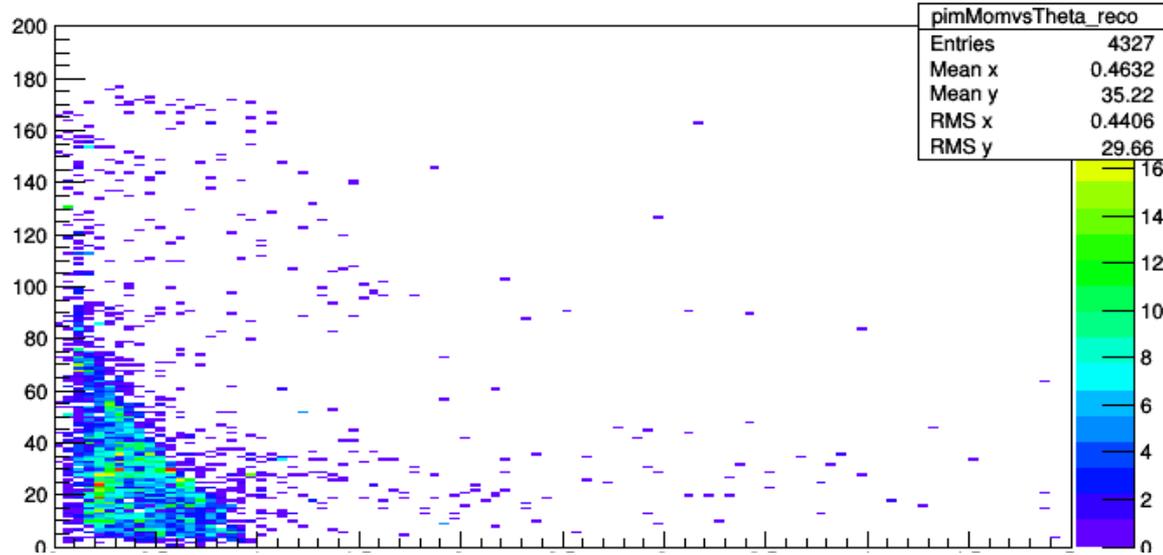
1.0 p+ pi- HELAMP .906 0. .423 0.;

Enddecay

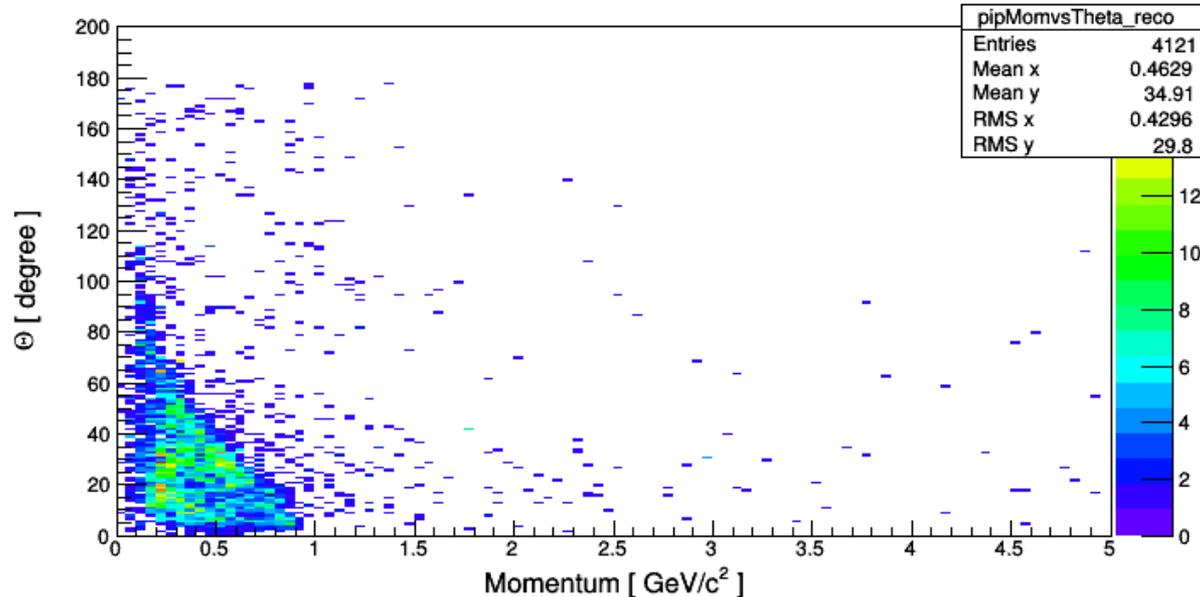
End

Reconstructed pions

Mom vs Theta for π^- reconstructed



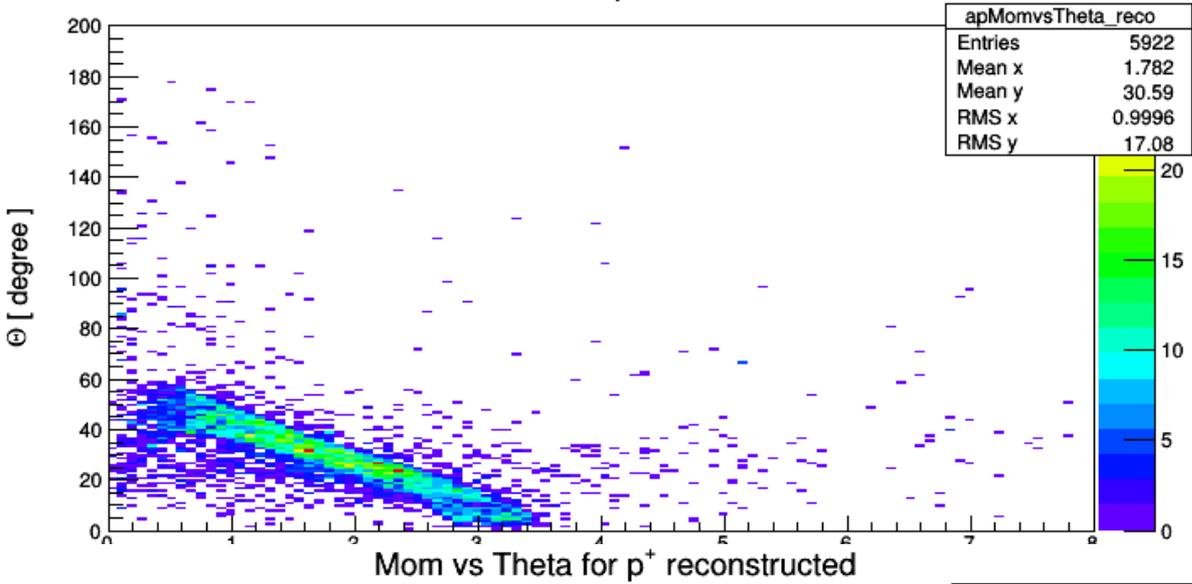
Mom vs Theta for π^+ reconstructed



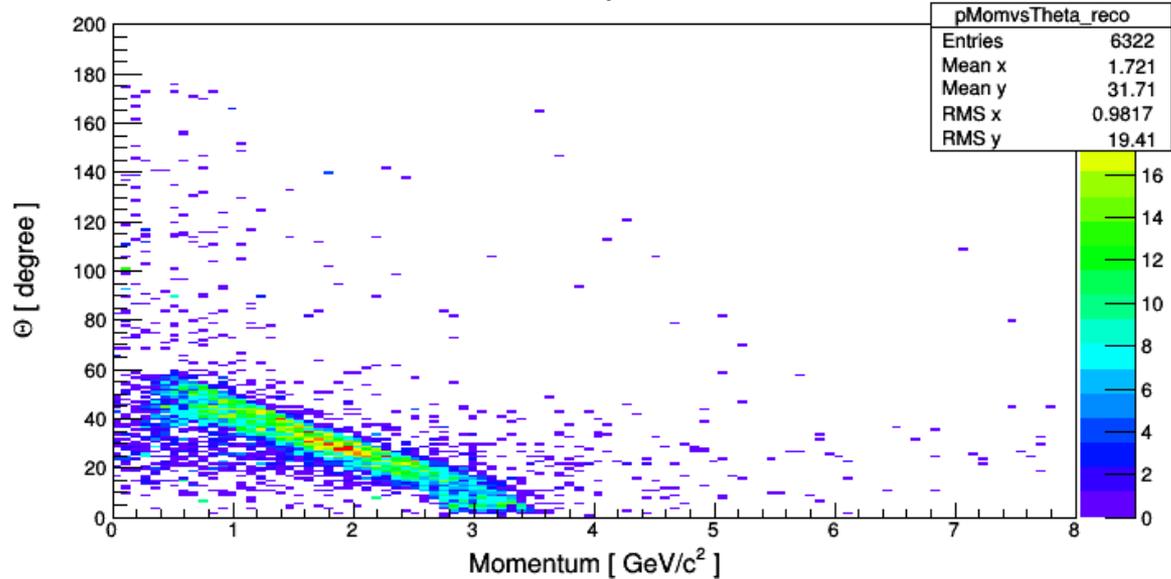
40% of
reconstructed pions

Reconstructed protons

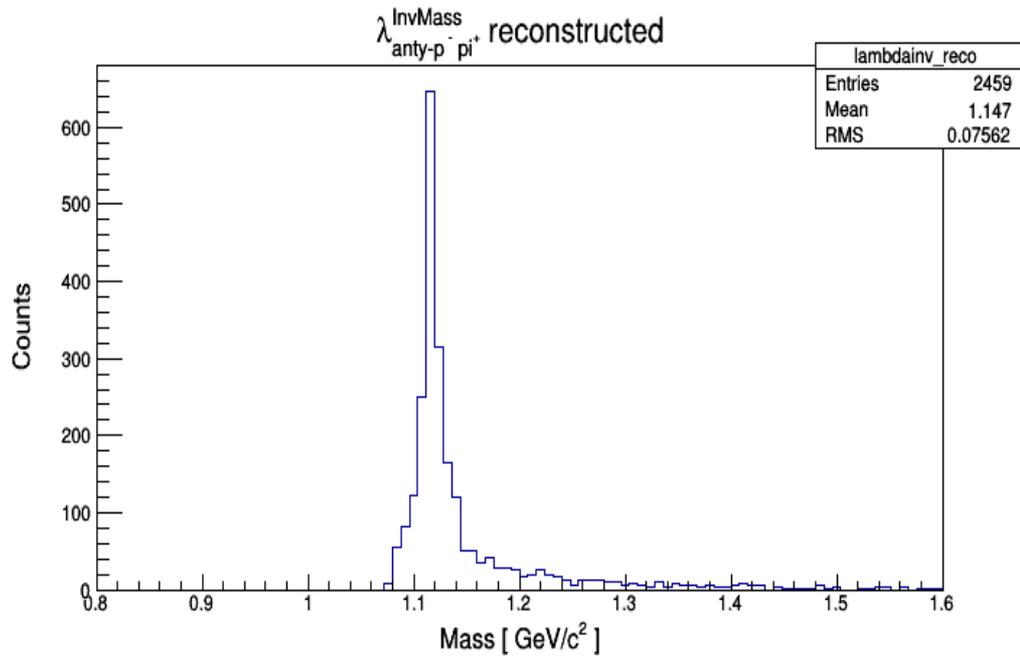
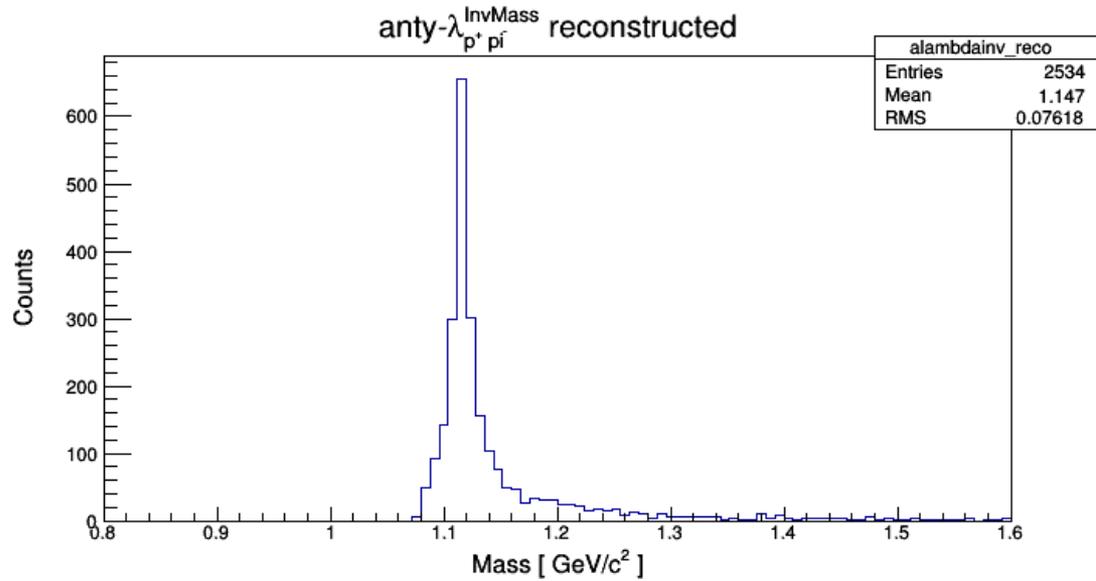
Mom vs Theta for p⁻ reconstructed



60% reconstructed protons



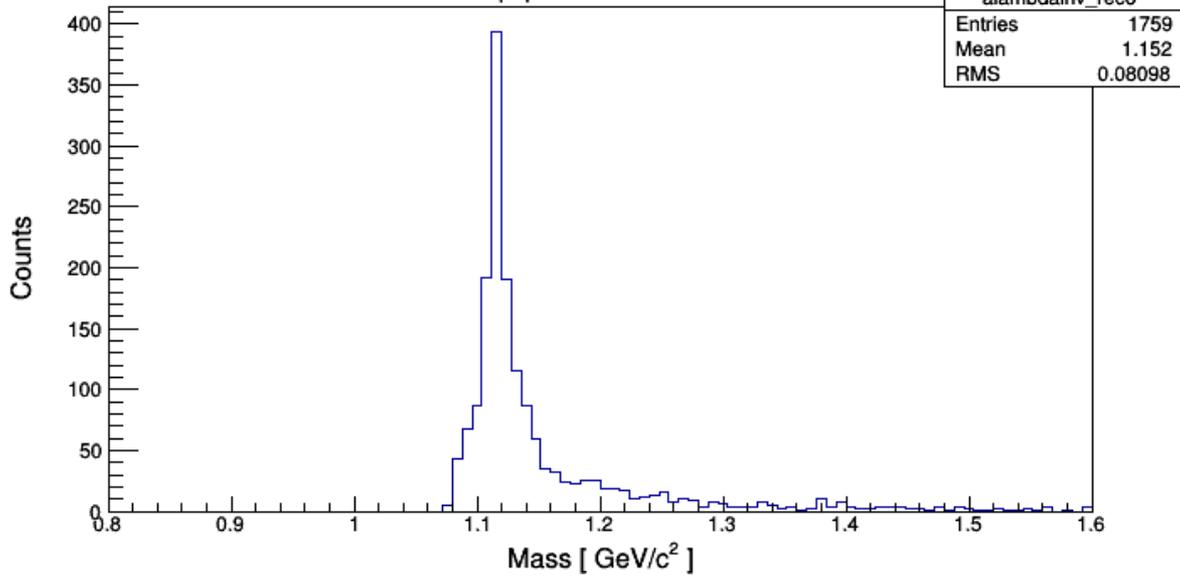
Lambdas



25% of reconstructed
lambdas / anti-lambdas

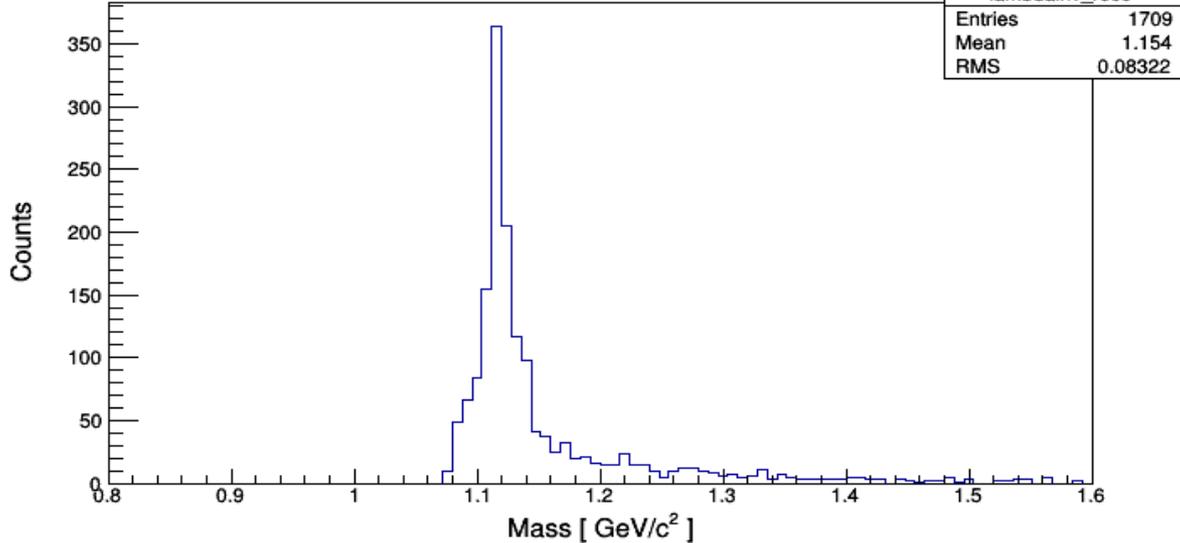
no FTS included

anti- λ λ $\text{InvMass}_{p^+ \pi^-}$ reconstructed



17% of reconstructed
lambdas

λ $\text{InvMass}_{\text{anti-}p^+ \pi^-}$ reconstructed



Conclusions

- unrealistic kinematics (symmetric distributions)
- good reconstruction efficiency
- big impact on reconstruction if FTS not included

2nd case

- decay chain

noPhotos

Decay pbarpSystem

1.0 anti-Lambda0 Lambda0 LambdaLambdaBar 4.0;

Enddecay

Decay Lambda0

1.0 p+ pi- PHSP;

Enddecay

Decay anti-Lambda0

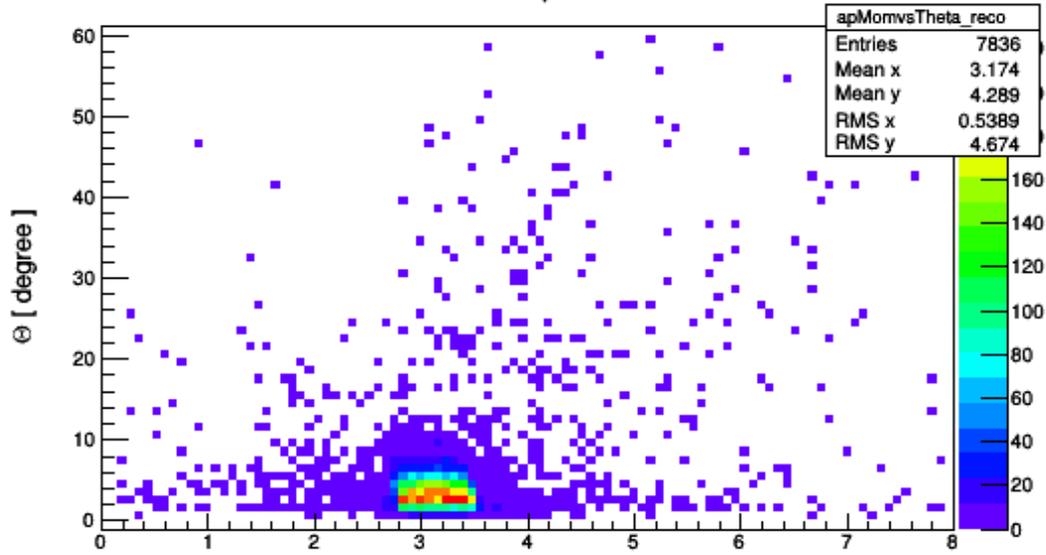
1.0 anti-p- pi+ PHSP;

Enddecay

End

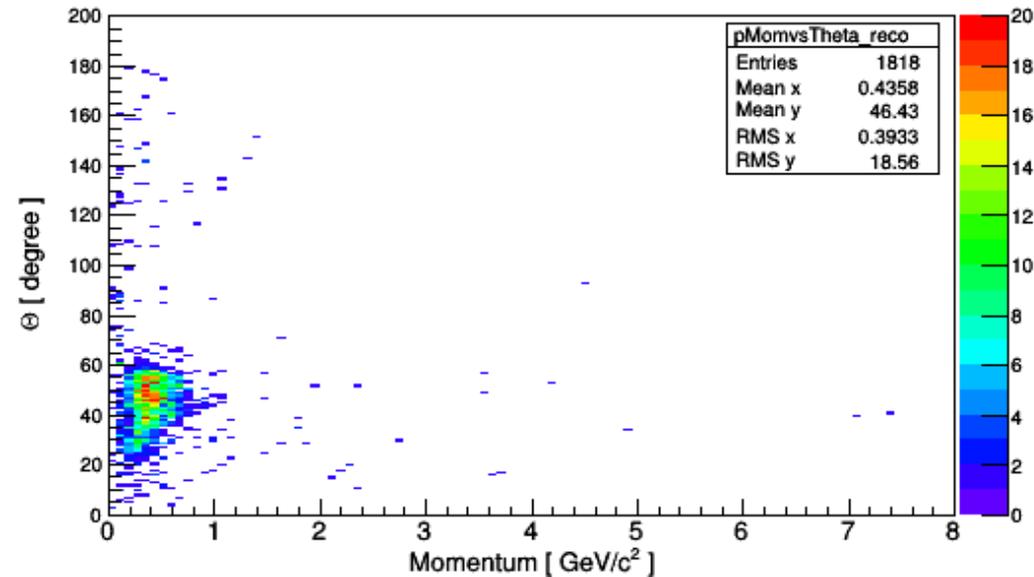
Full Panda geo protons

Mom vs Theta for p^- reconstructed



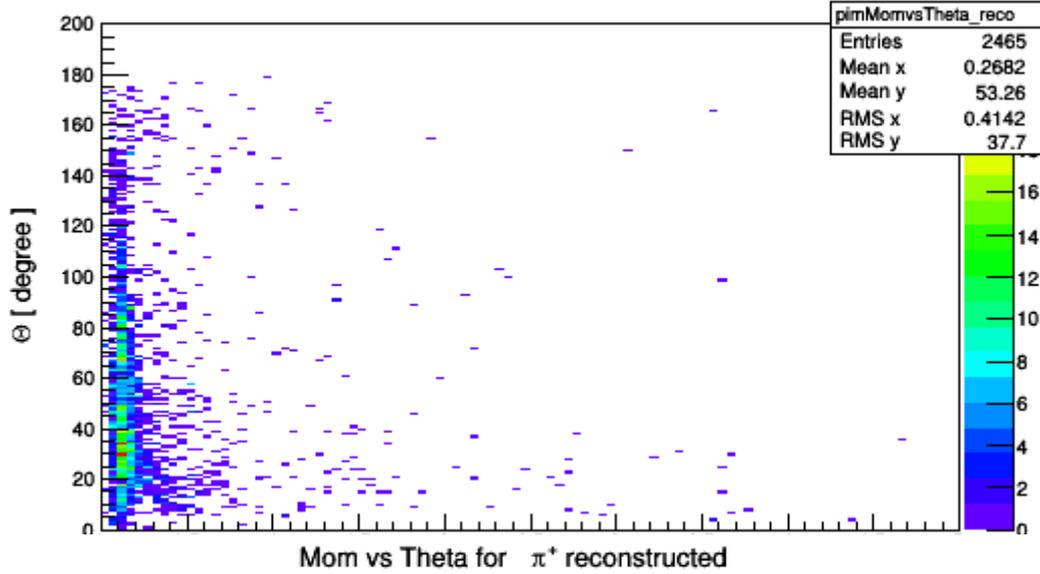
78% of $pbar$ & 18% of p
reconstructed

Mom vs Theta for p^+ reconstructed



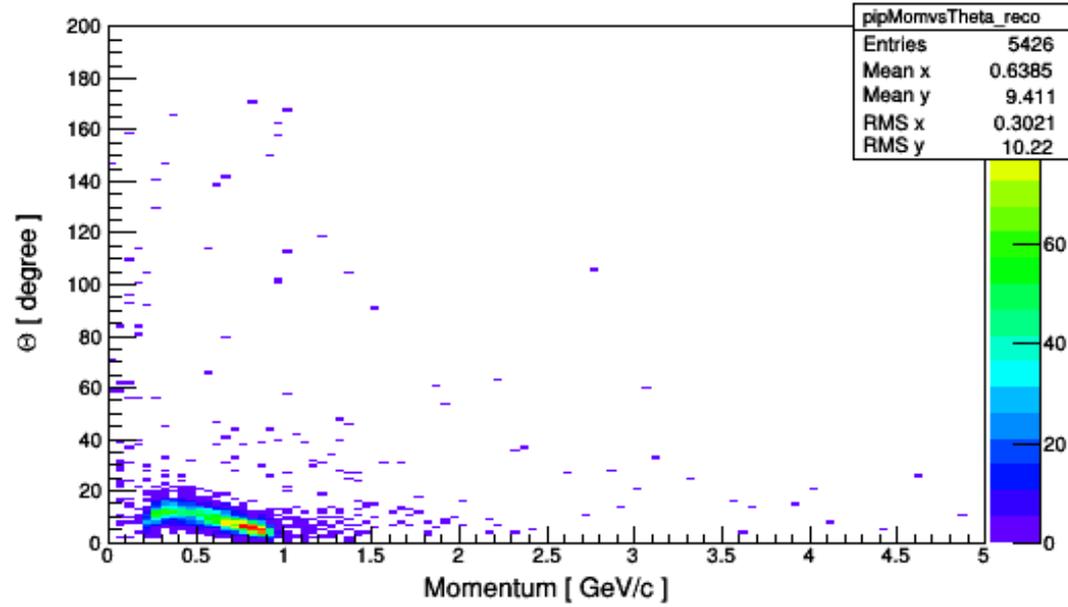
pions

Mom vs Theta for π^- reconstructed

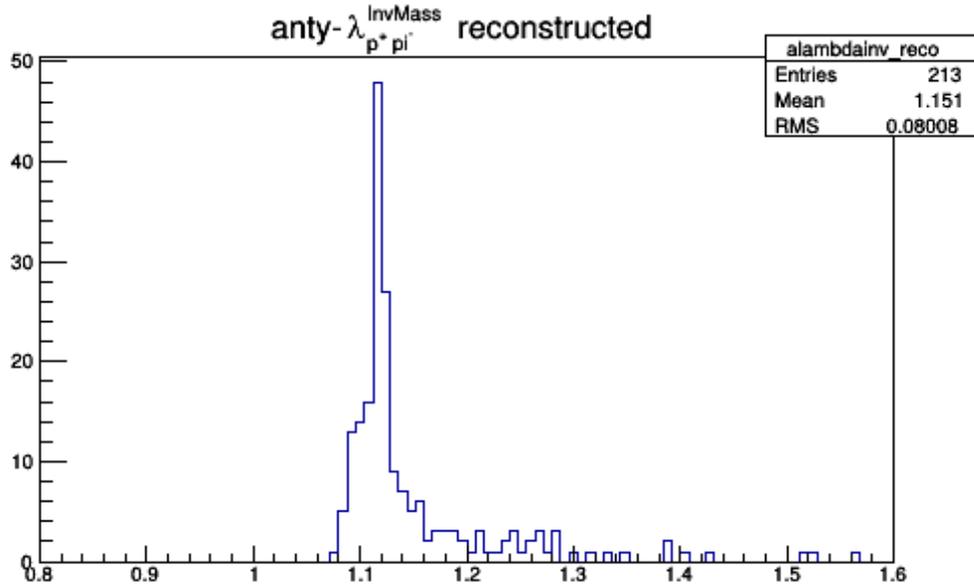


pip 54% & pim 24 %
reconstructed

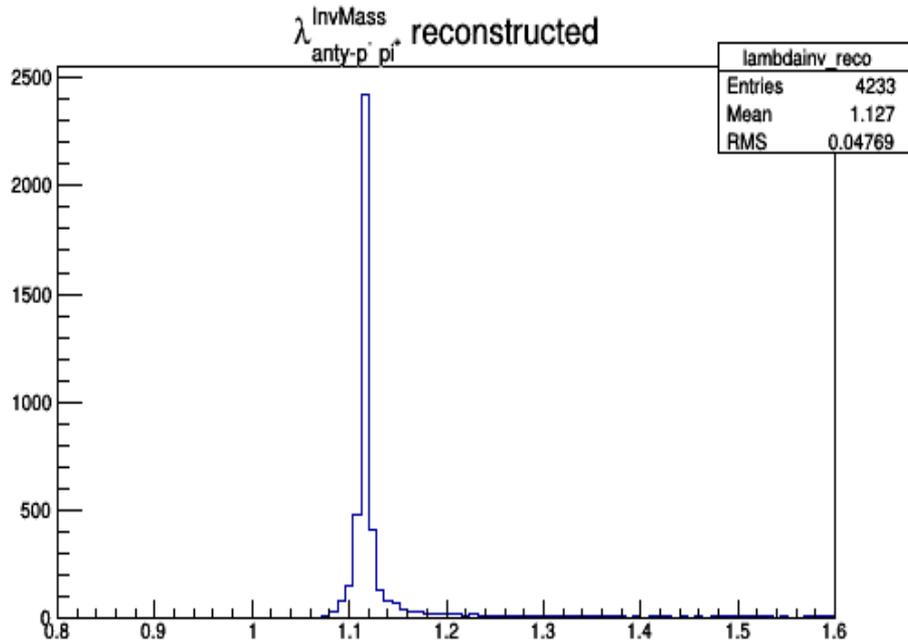
Mom vs Theta for π^+ reconstructed



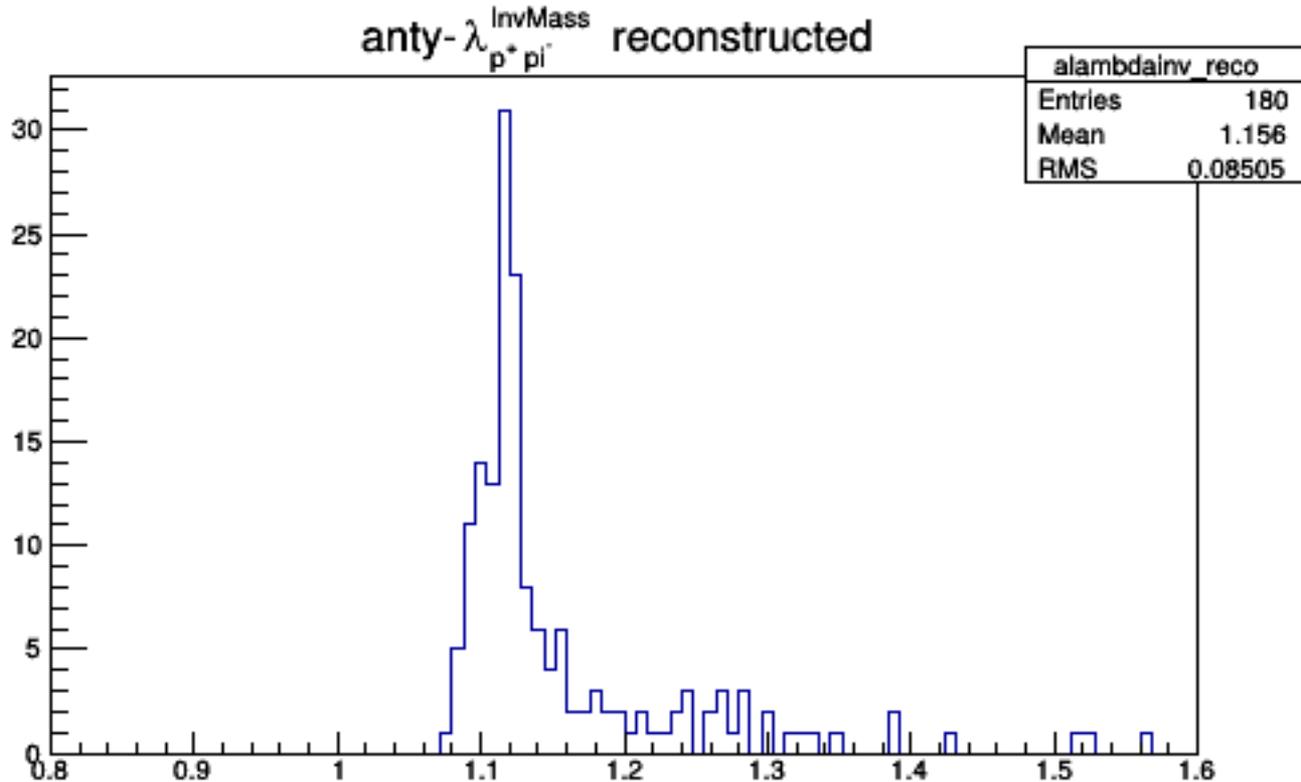
lambda



42% of lambdas & 0.21% of anti-lambdas



Lambda NoFts



0.18% of
lambdabar
0% of
lambda

To Do list

- simulate more channels [χ , Ω ..]
- study more physics of this channel