Update on Analysis

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GlueX Physics Meeting
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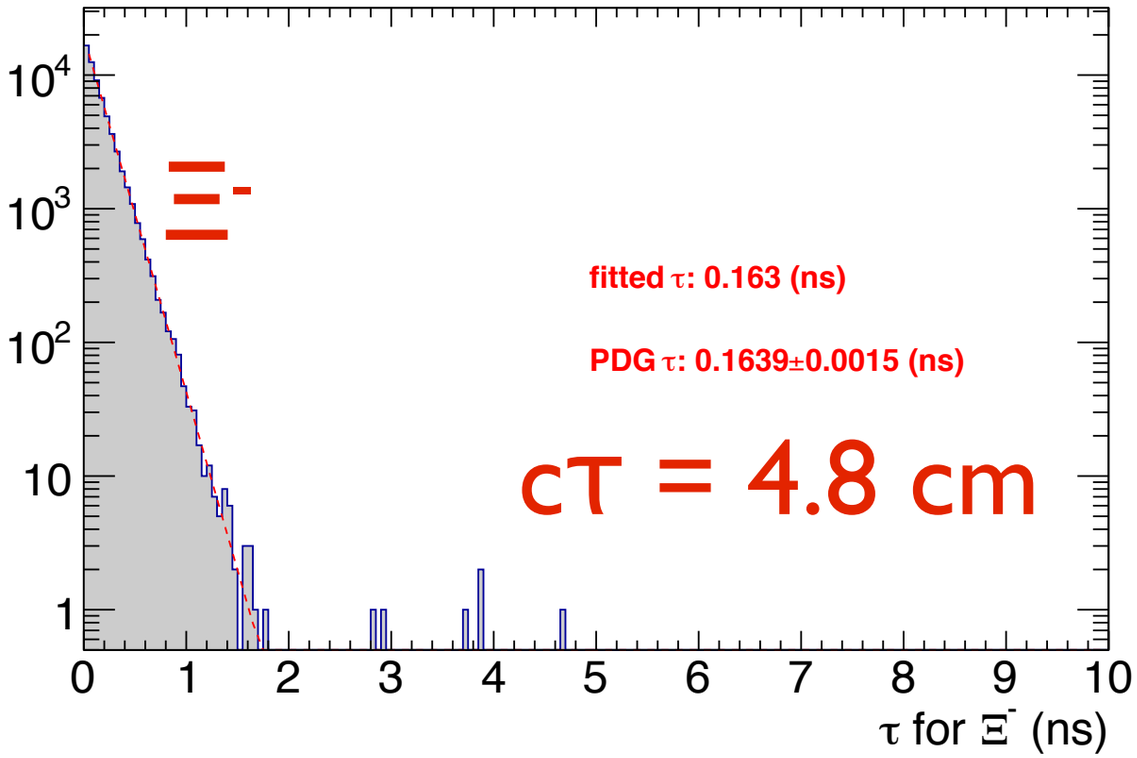
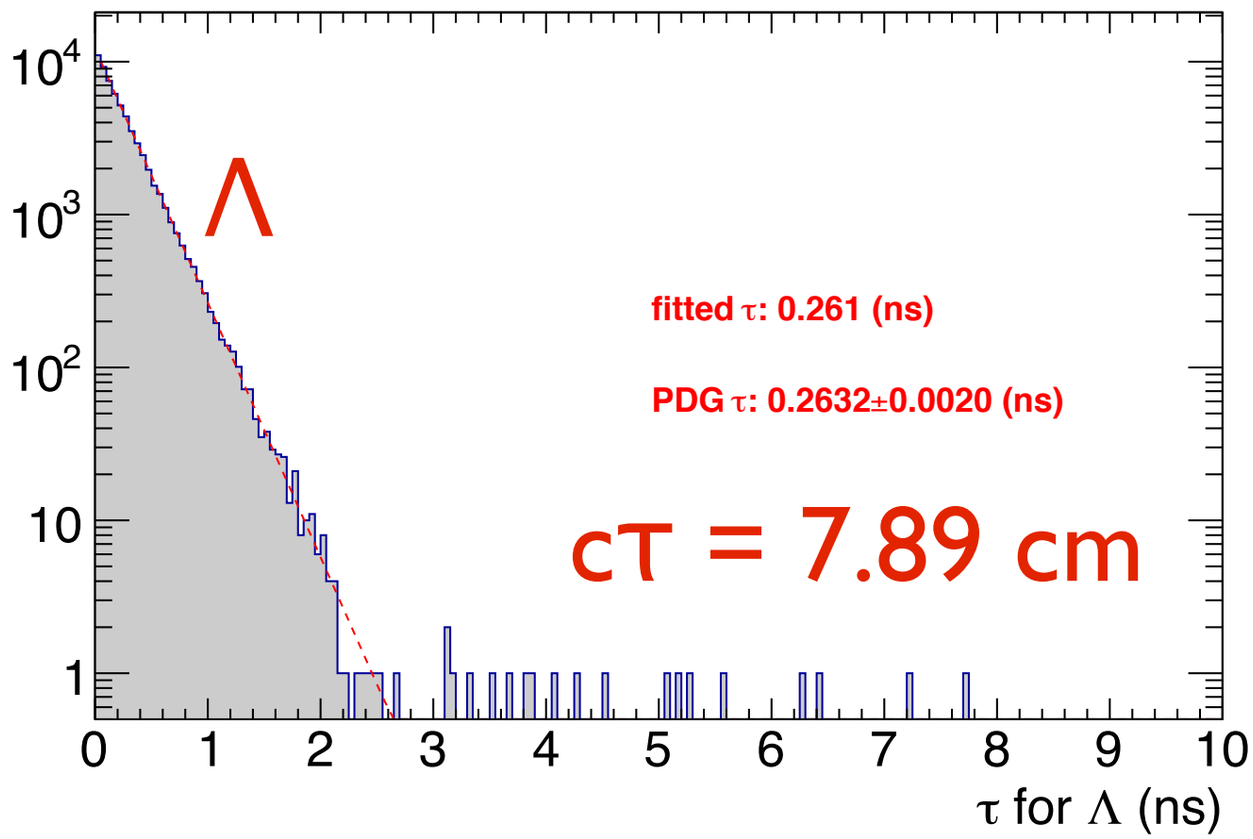
- generated vertex of Ξ, Λ
- composition of Data Challenge files
- p π^+ π^- events

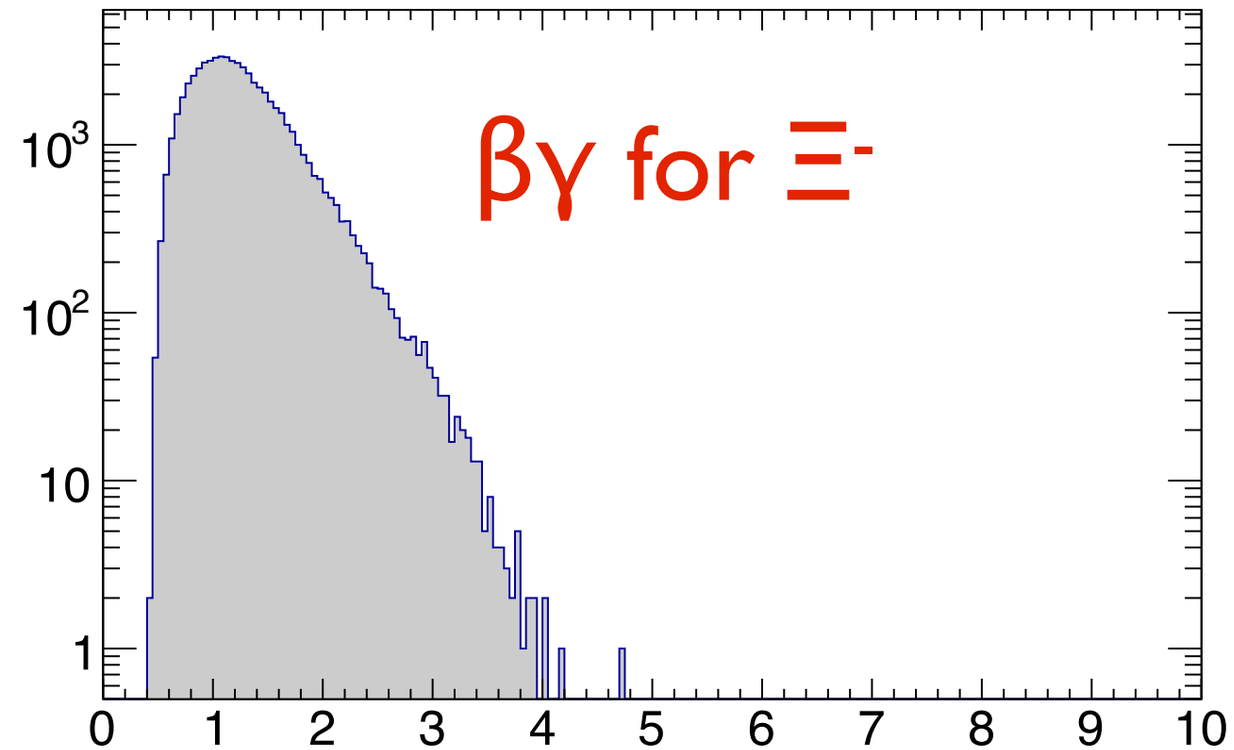
vertex of Ξ events

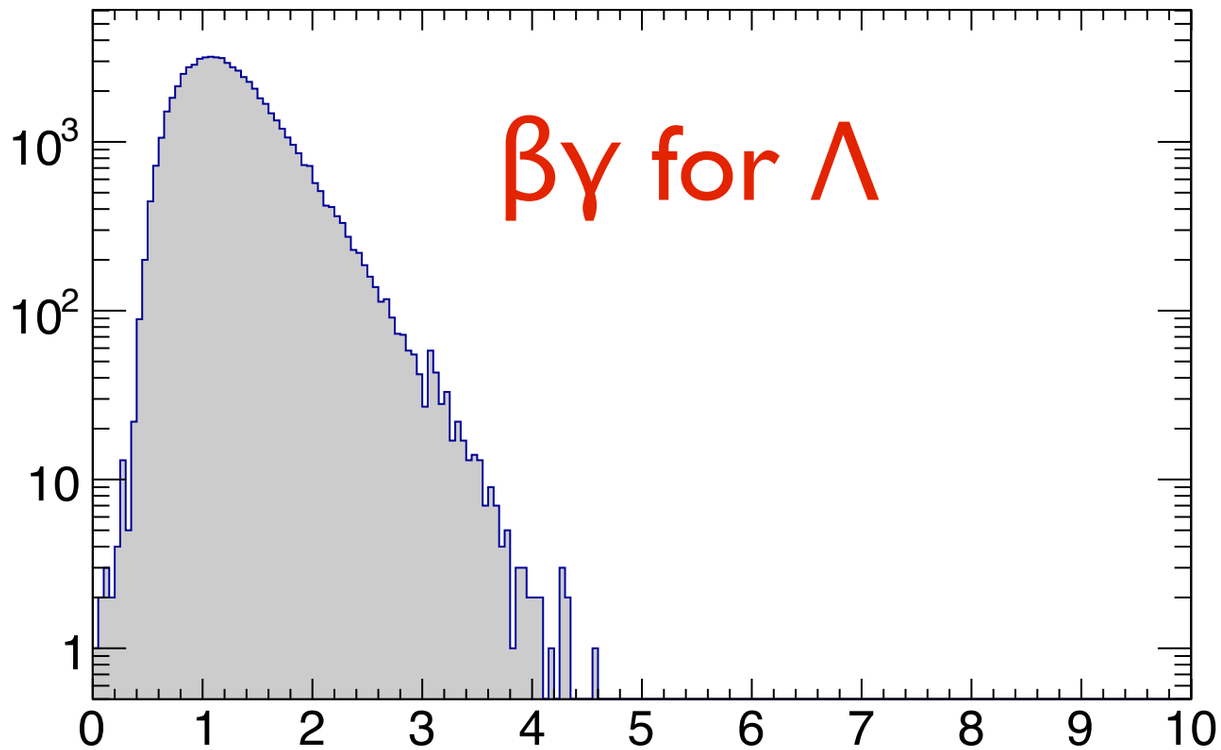
- use reaction $\gamma + p \rightarrow K^+ K^+ \Xi^-$, $\Xi^- \rightarrow \Lambda \pi^-$
- Use intermediate Y*(1960), t-slope is 0.05
- Primary vertex for $K^+ K^+$, secondary vertex from Ξ^-, tertiary vertex from Λ

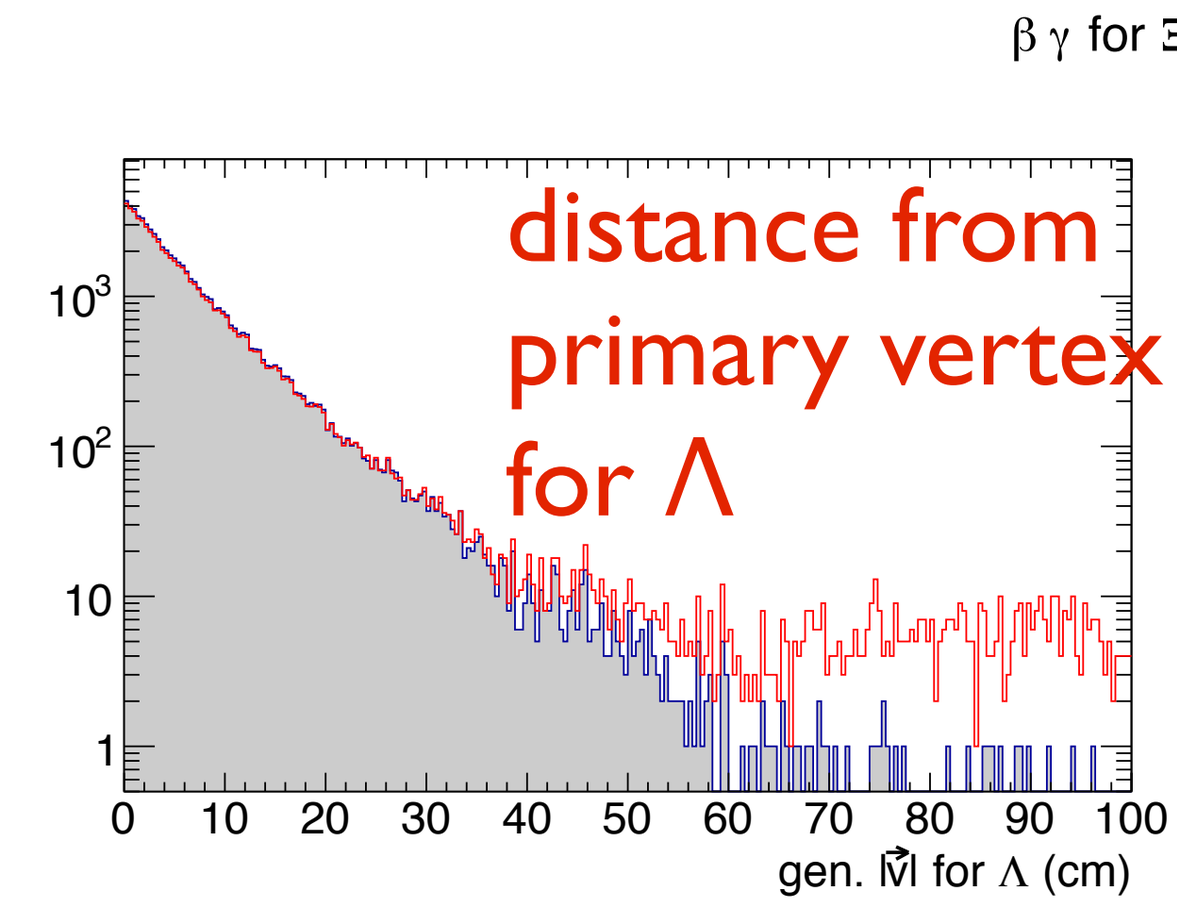


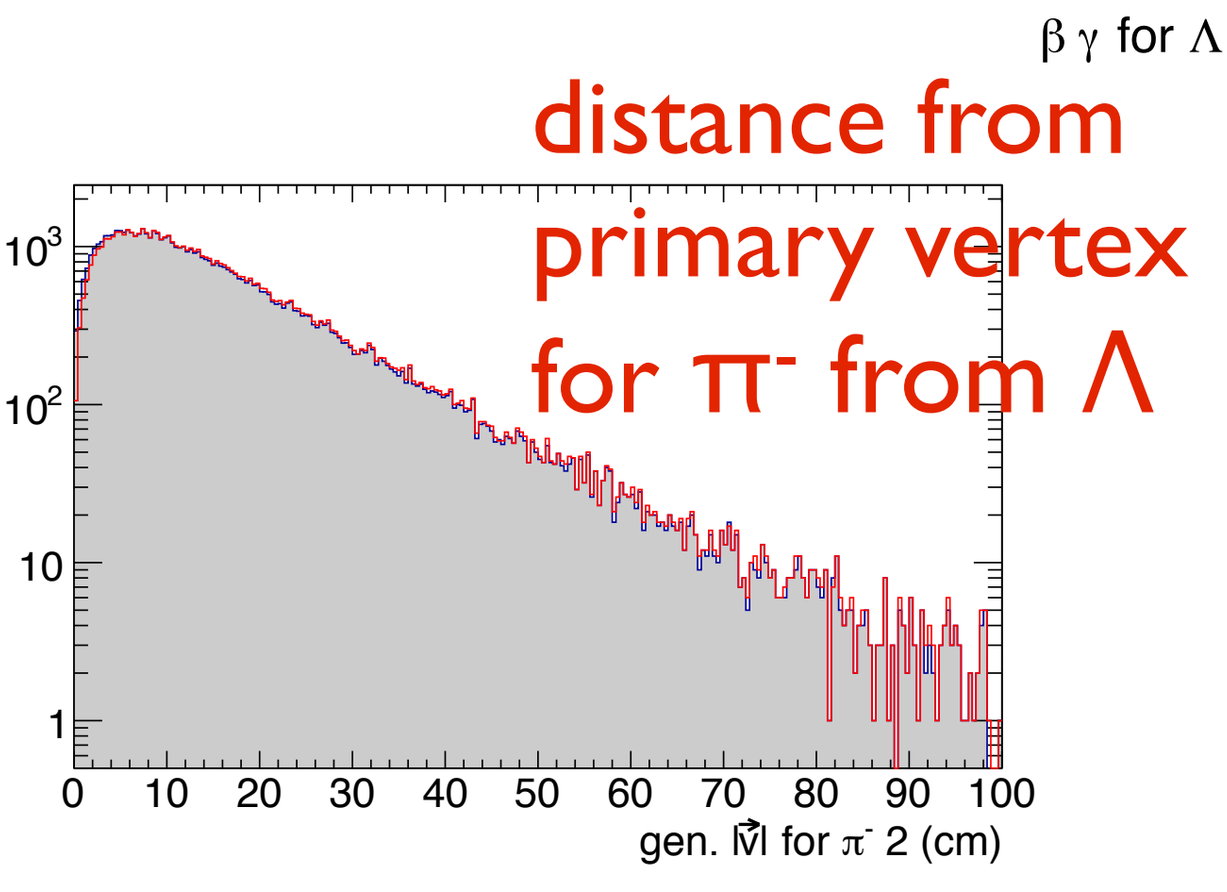


βγ factors, total displacement





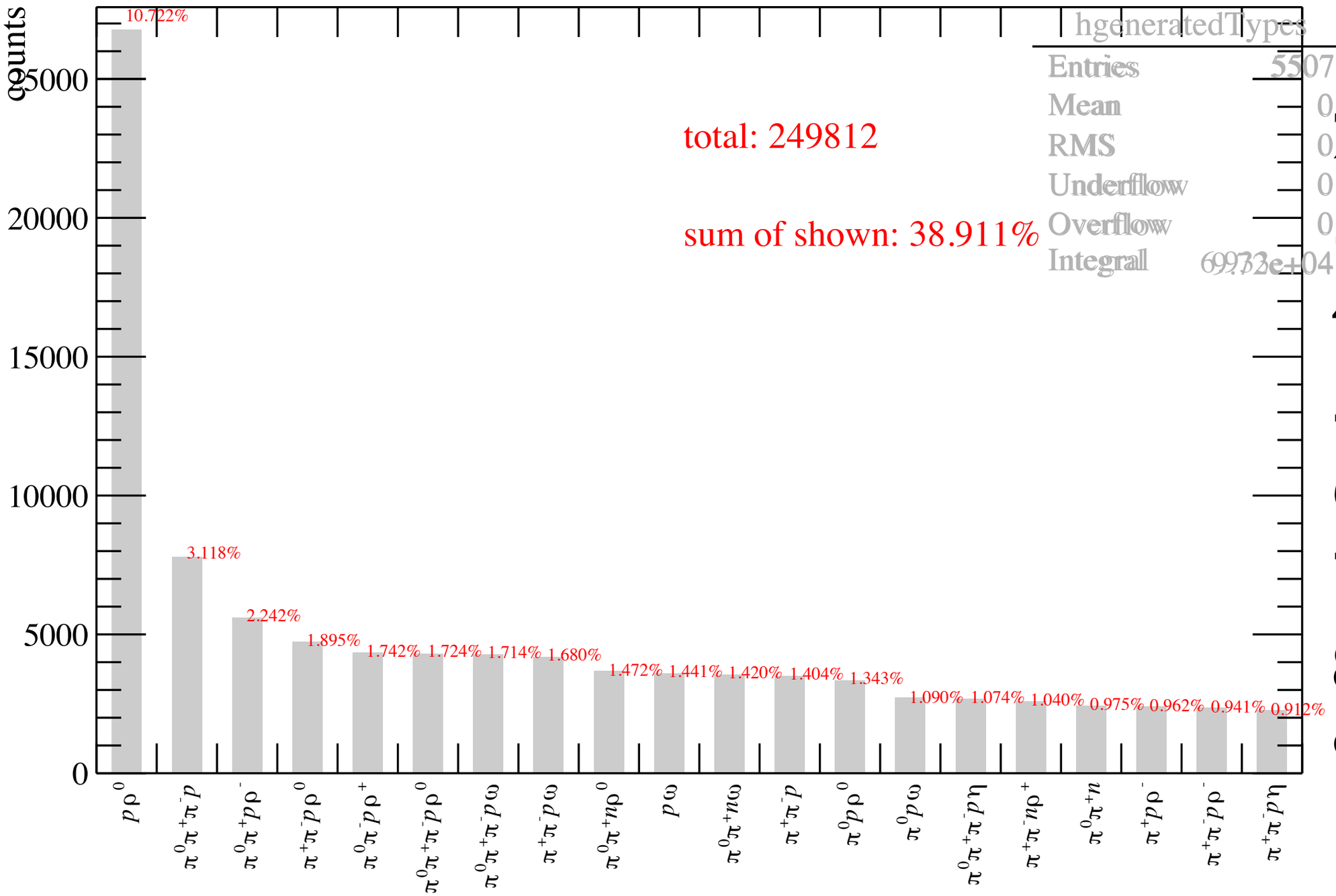




Data Challenge Files

- Paul has new function that allows for reconstructing primary generated information:
  DAnalysisUtilities::Get_ThrownParticleSteps
- I imported this code into my event processor and ran over the Data Challenge files to figure out the rates of different reactions
- Ran over 10 files, ~500k events locally

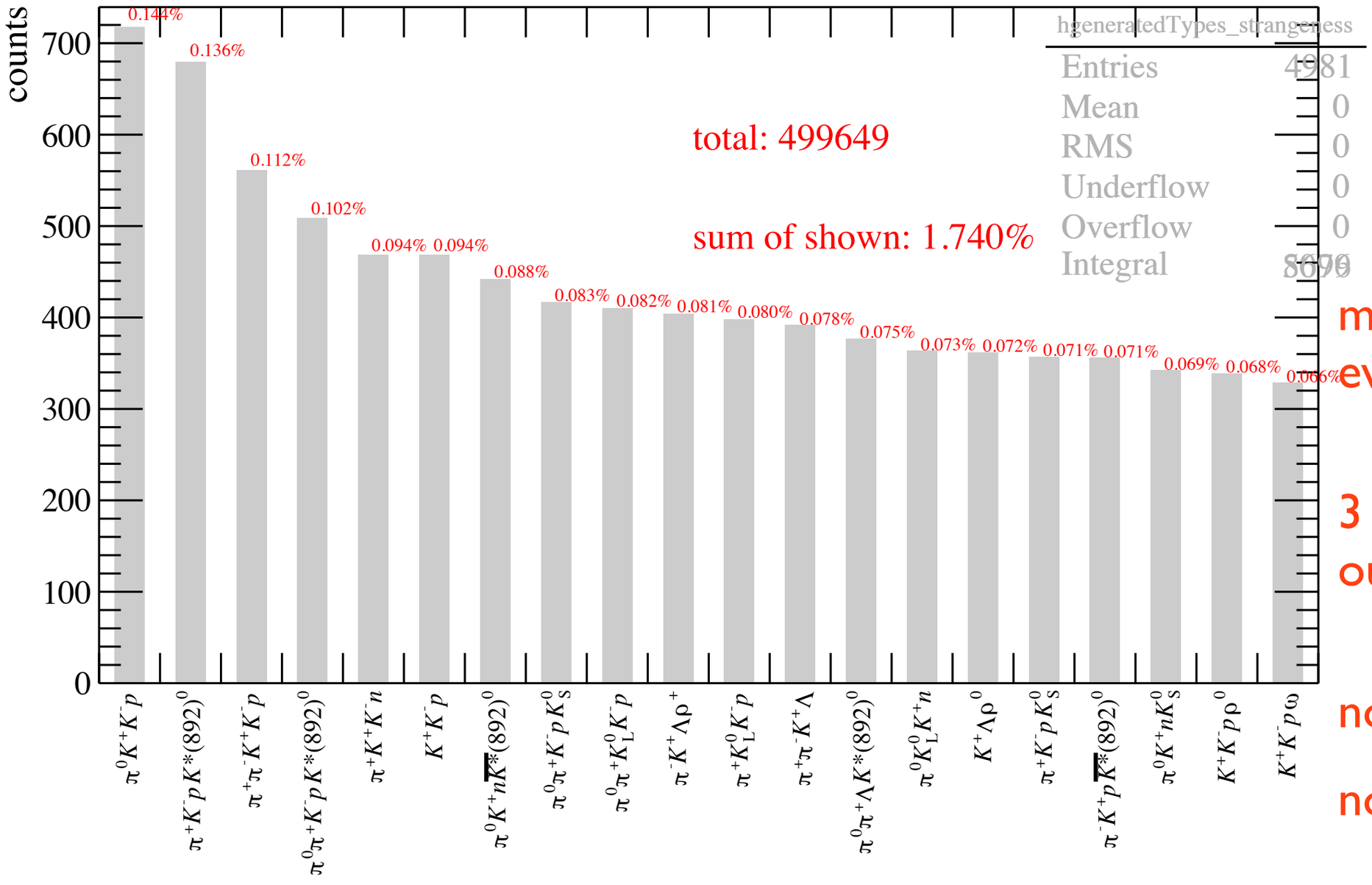
Data Challenge Files most frequent reactions



1. $p\rho^0$
2. $\pi^0\pi^+\pi^- p$
3. $\pi^0\pi^+\rho^- p$
4. $\pi^+\pi^-\rho^0 p$
5. $\pi^0\pi^-\rho^+ p$
6. $\pi^0\pi^+\pi^-\rho^0 p$
7. $\pi^0\pi^+\pi^-\omega p$
8. $\pi^+\pi^-\omega p$
9. $\pi^0\pi^+ n\rho^0$
10. $p\omega$

Data Challenge Files strangeness reactions

list created by tagging events with K, Λ, Σ, Ξ, Ω



most frequent strangeness event is 0.148%

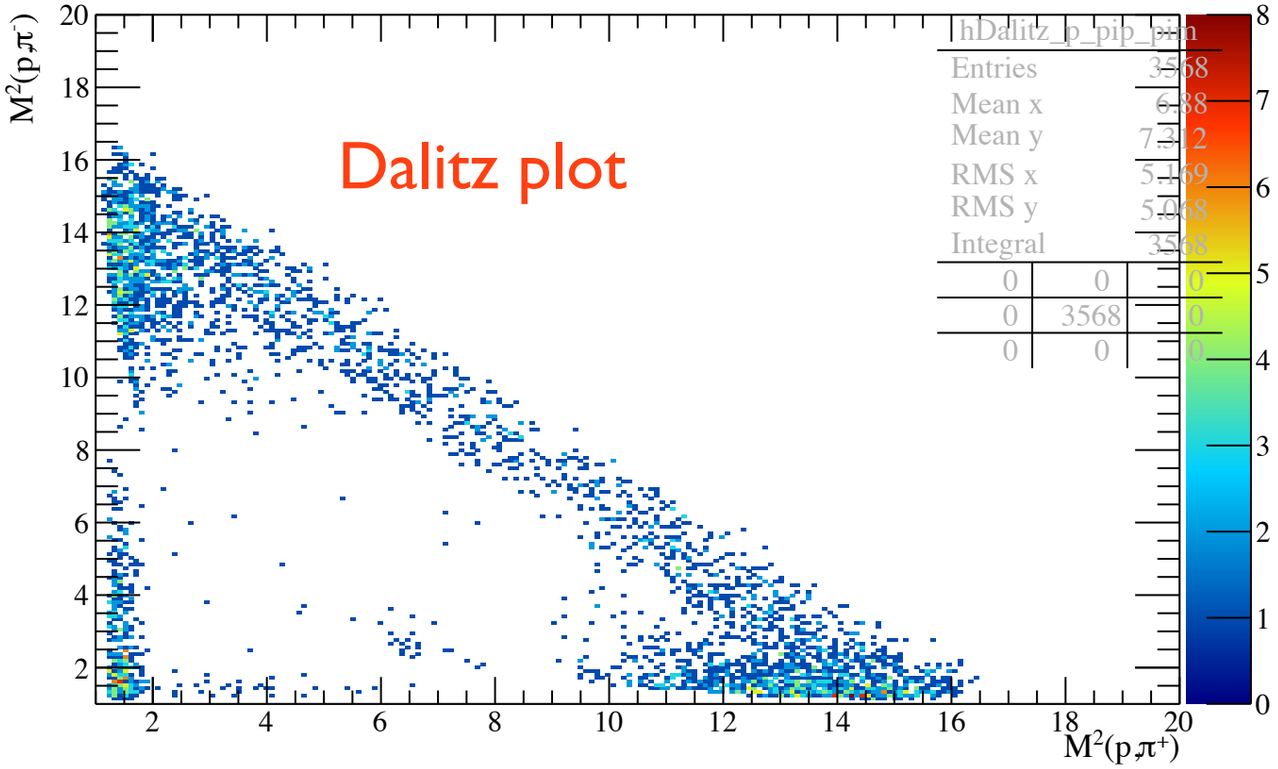
3 Ξ events, no Ω events out of 500k events

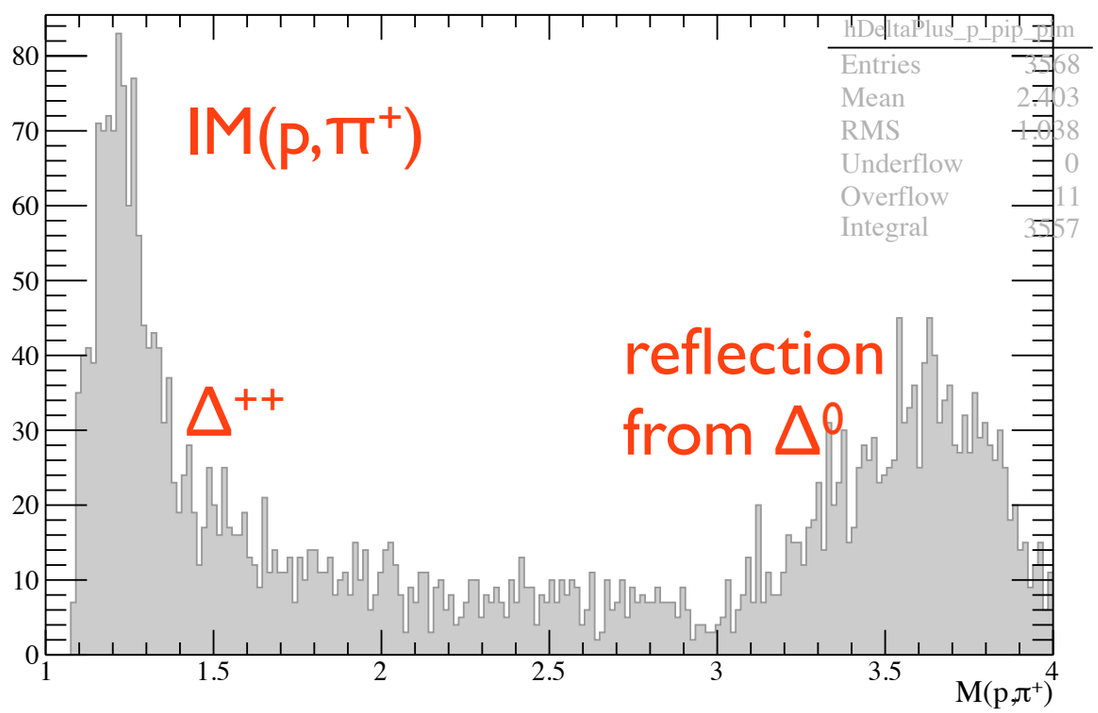
no $K^+ \Lambda$, $K \Sigma$ events?

no resonances? Λ(1520)?

p π+ π- events

- Look at p π^+ π^- events from Data Challenge
- These are distinguished from p ρ^0 events





Conclusions

- Continue to work on GlueX analysis
- Next step is reconstruction of Ξ events
- Analysis of Data Challenge files
- Refine cuts on $\pi^+\pi^+\pi^-n$, $p\pi^+\pi^-$, work on $\eta'\pi N$ channels