

MDST Level Studies



The Script

- data: /ghi/fs01/belle2/bdata/users/harat/Data/Raw/0003/*/beam.0003.*.HLT*.f000*.root
- Script “freely inspired” by Nils’s script
- final MDSTs contain ONLY tracking related information
- Branches:
 - EventMetaData
 - TrackFitResults
 - Tracks
 - V0ValidationVertexs
 - V0s

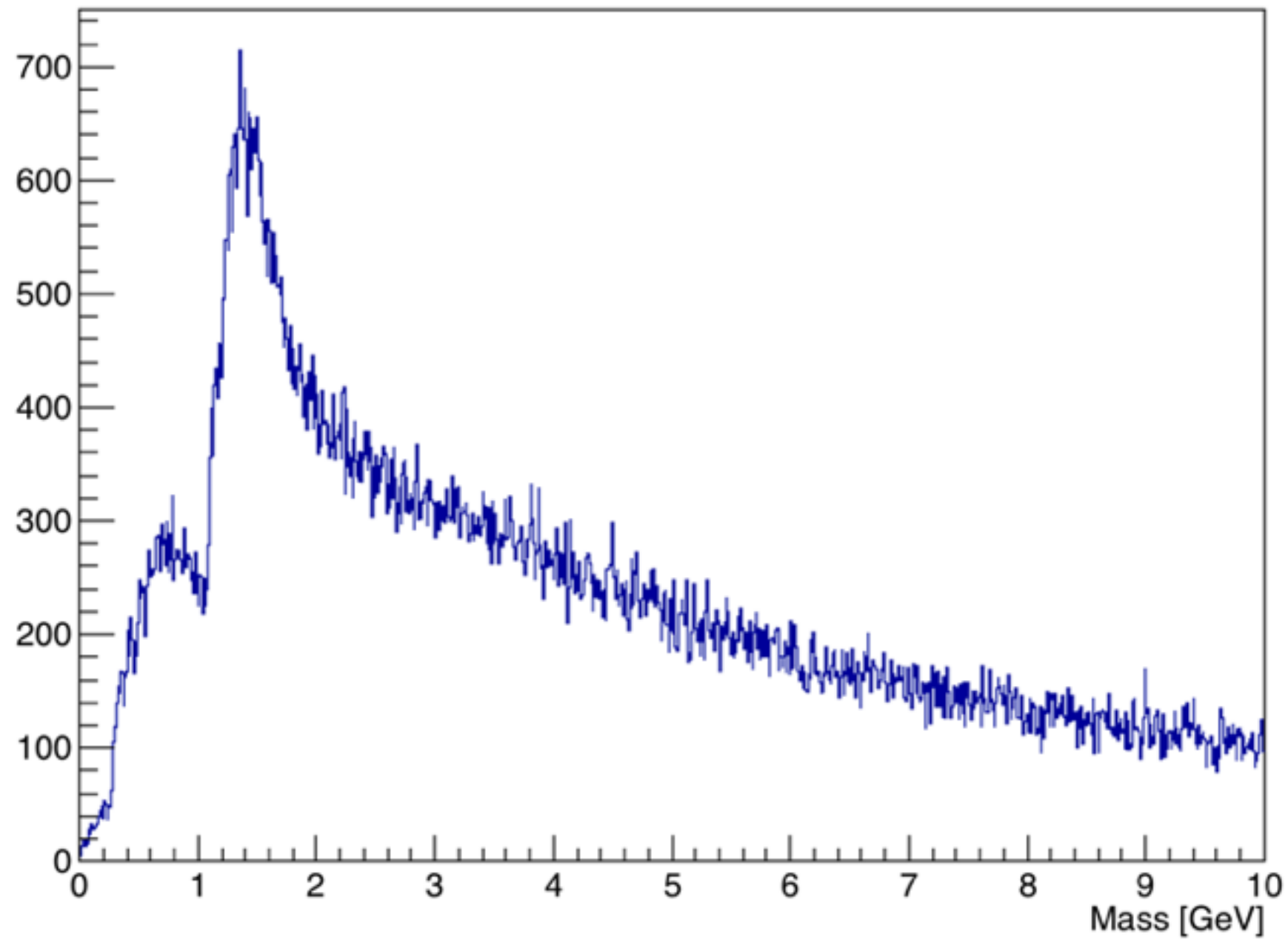
First Results

- release-01-02-01
- GT: GT_gen_data_004.43_gcr2b-reprocessing
- “Tracking” studies:
 - plots from mdst branches
 - focus on the V0ValidationVertexs branch
 - *caveat*: no modifications to the V0Finder module
(cut inside the beam pipe ($R < 1\text{cm}$) and cut on fit χ^2)
- “Analysis” studies:
 - mdst used to fill Λ particleList
 - pro: direct access to daughters’ informations
 - (just started, very preliminary)

1. Tracking studies

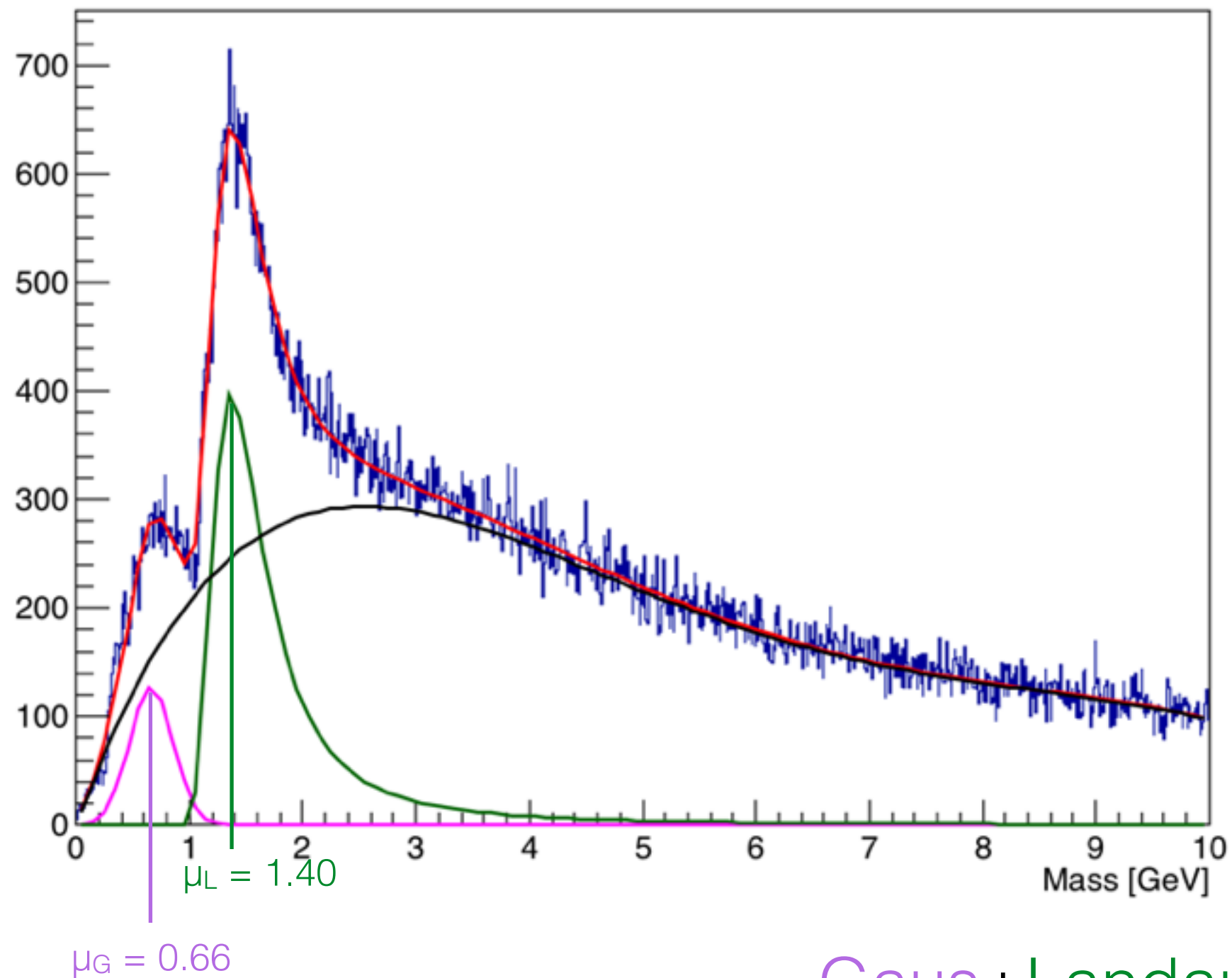
V0 Mass Distribution

branch: V0ValidationVertexs



V0 Mass Distribution

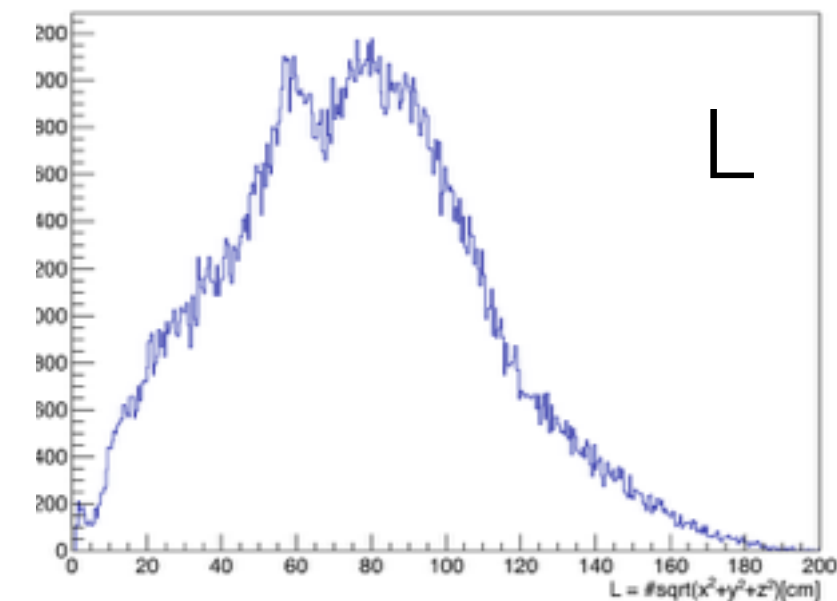
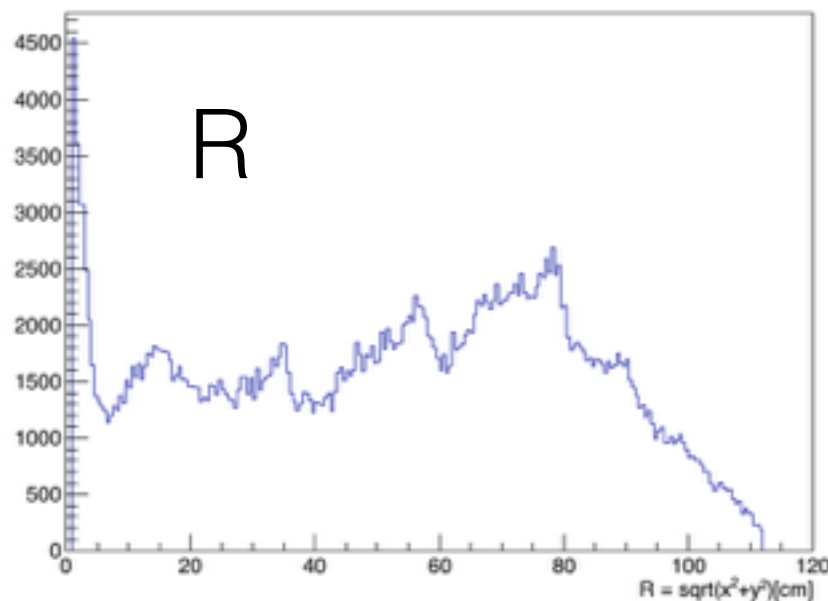
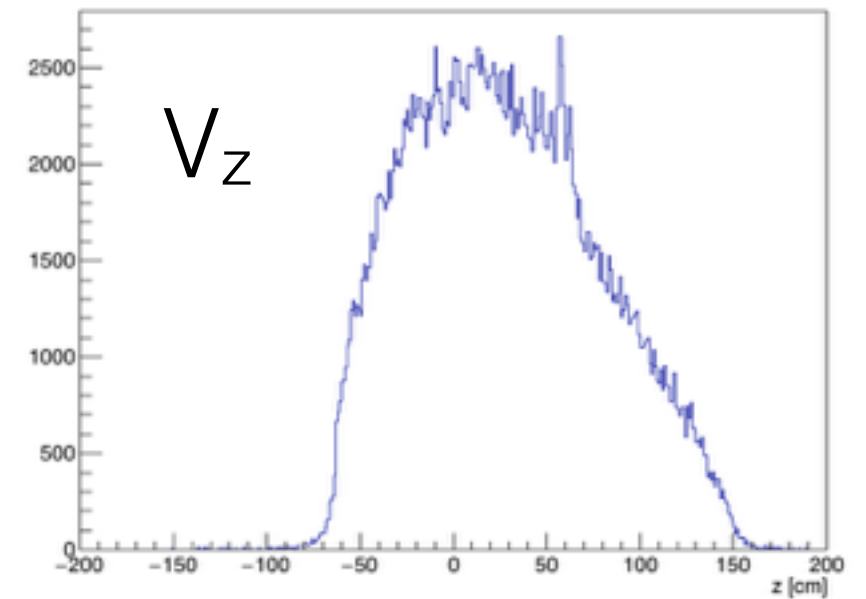
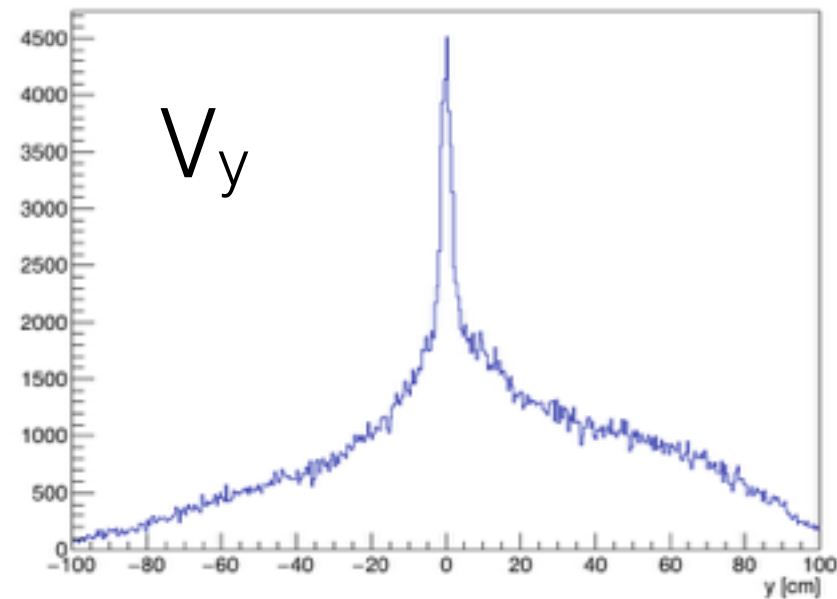
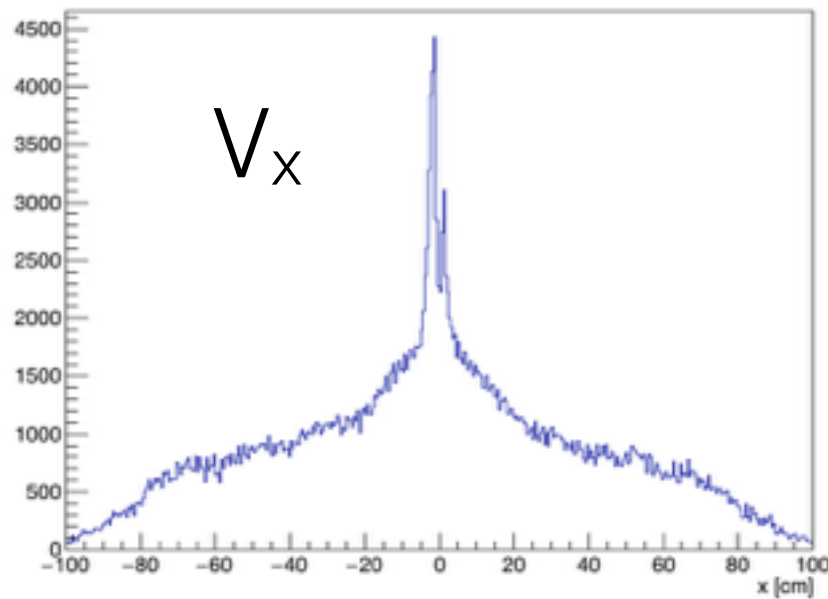
branch: V0ValidationVertexs



Gaus+Landau+pol5

V0 Vertex Position I

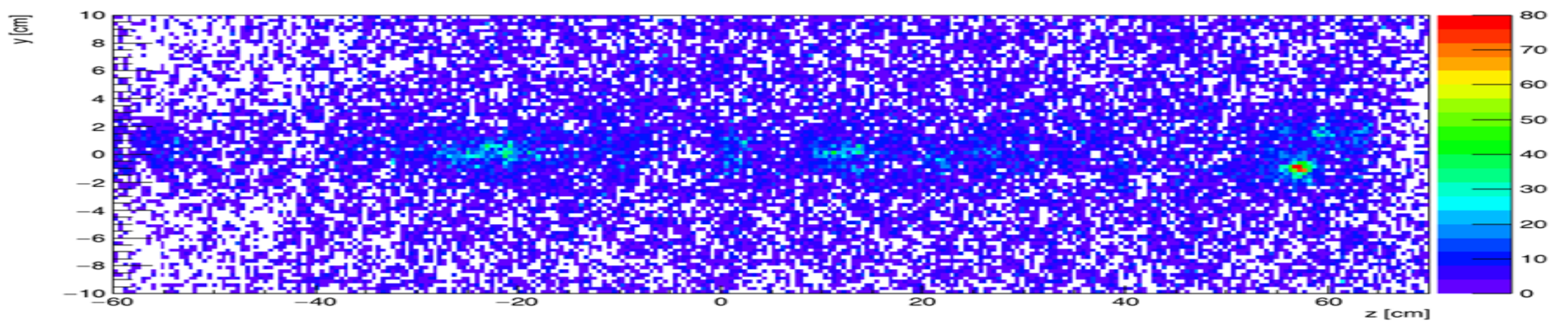
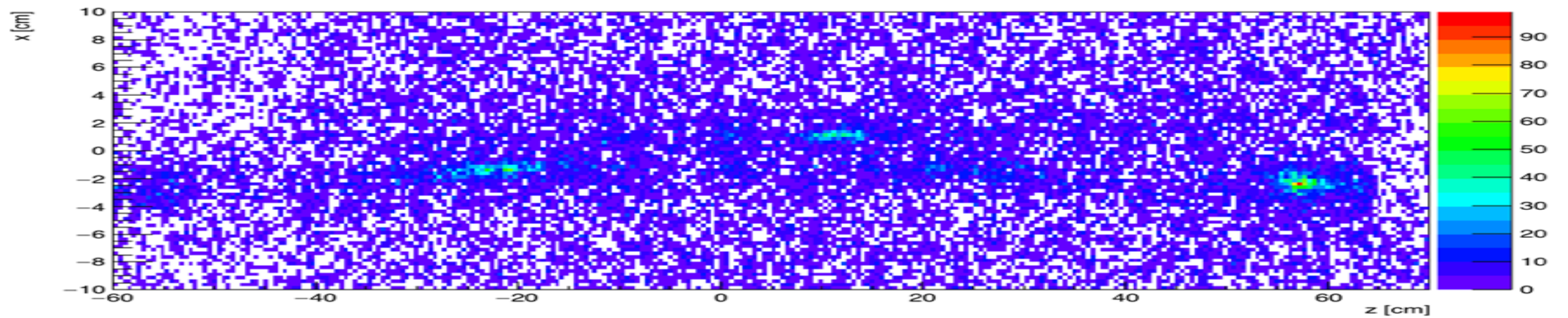
branch: V0ValidationVertexs



$$R = \sqrt{x^2 + y^2}$$
$$L = \sqrt{x^2 + y^2 + z^2}$$

V0 Vertex Position II

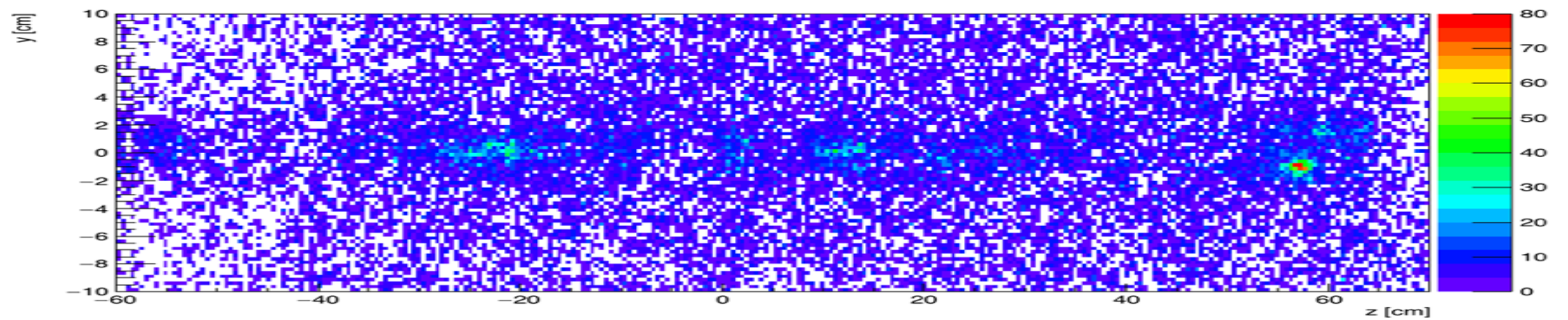
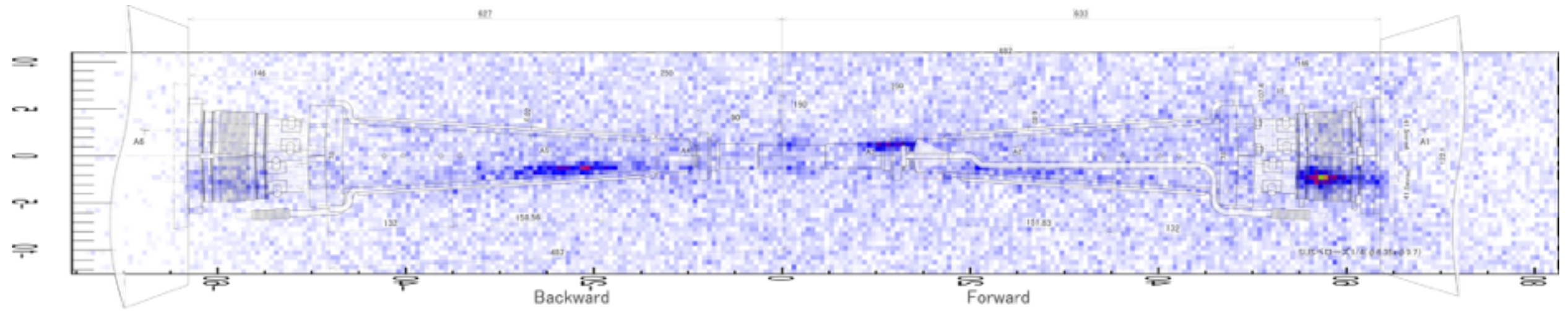
branch: V0ValidationVertexs



V0 Vertex Position II

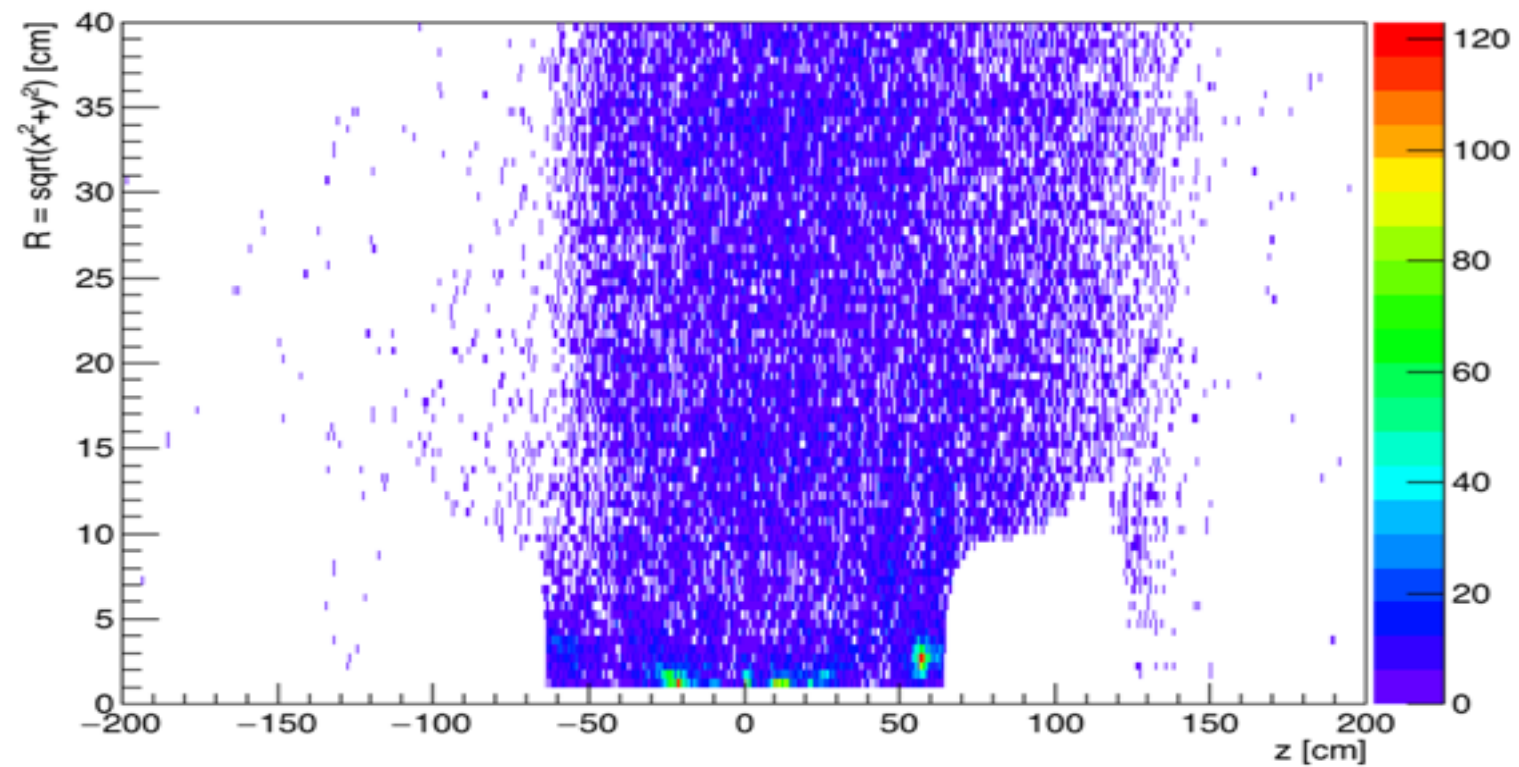
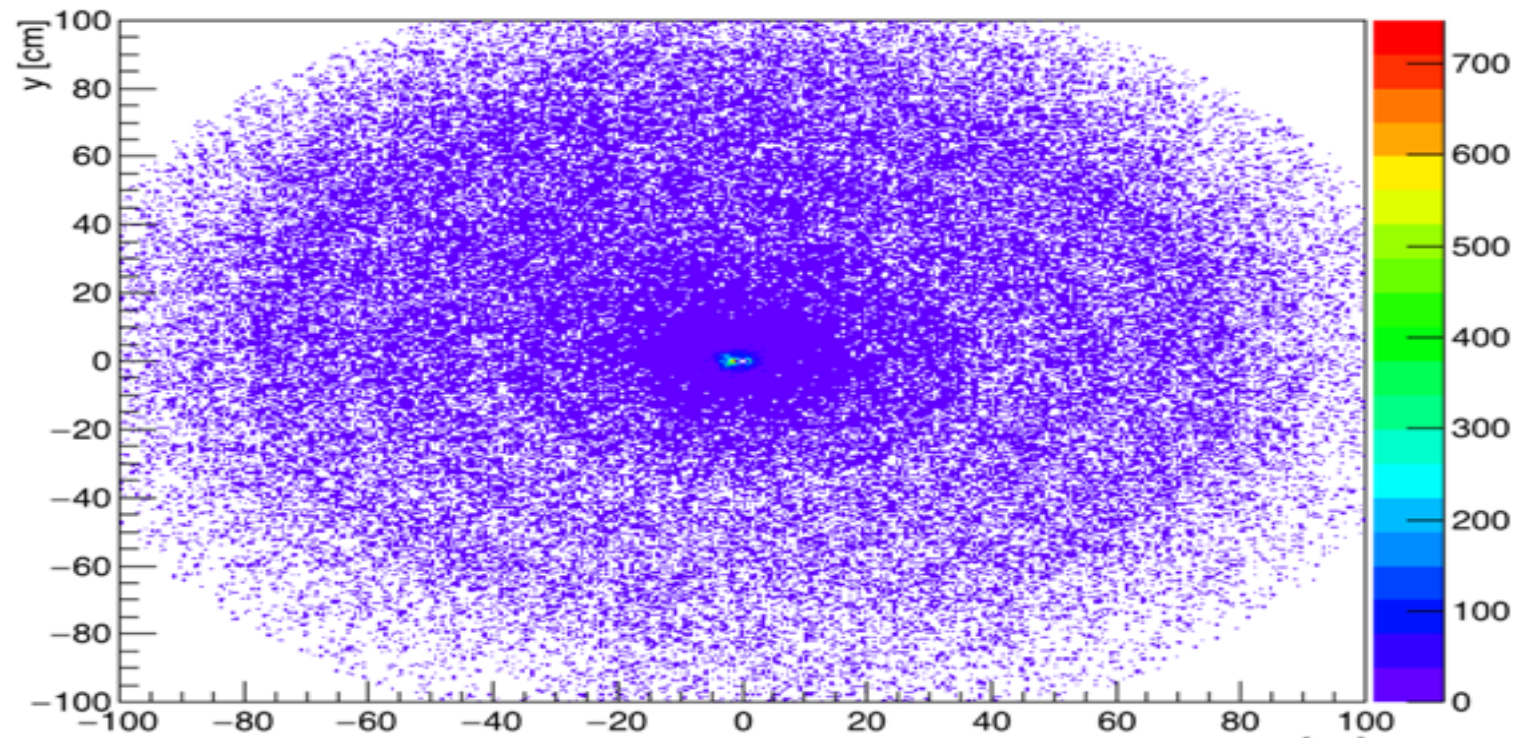
branch: V0ValidationVertexs

Thanks to Bjorn



V0 Vertex Position III

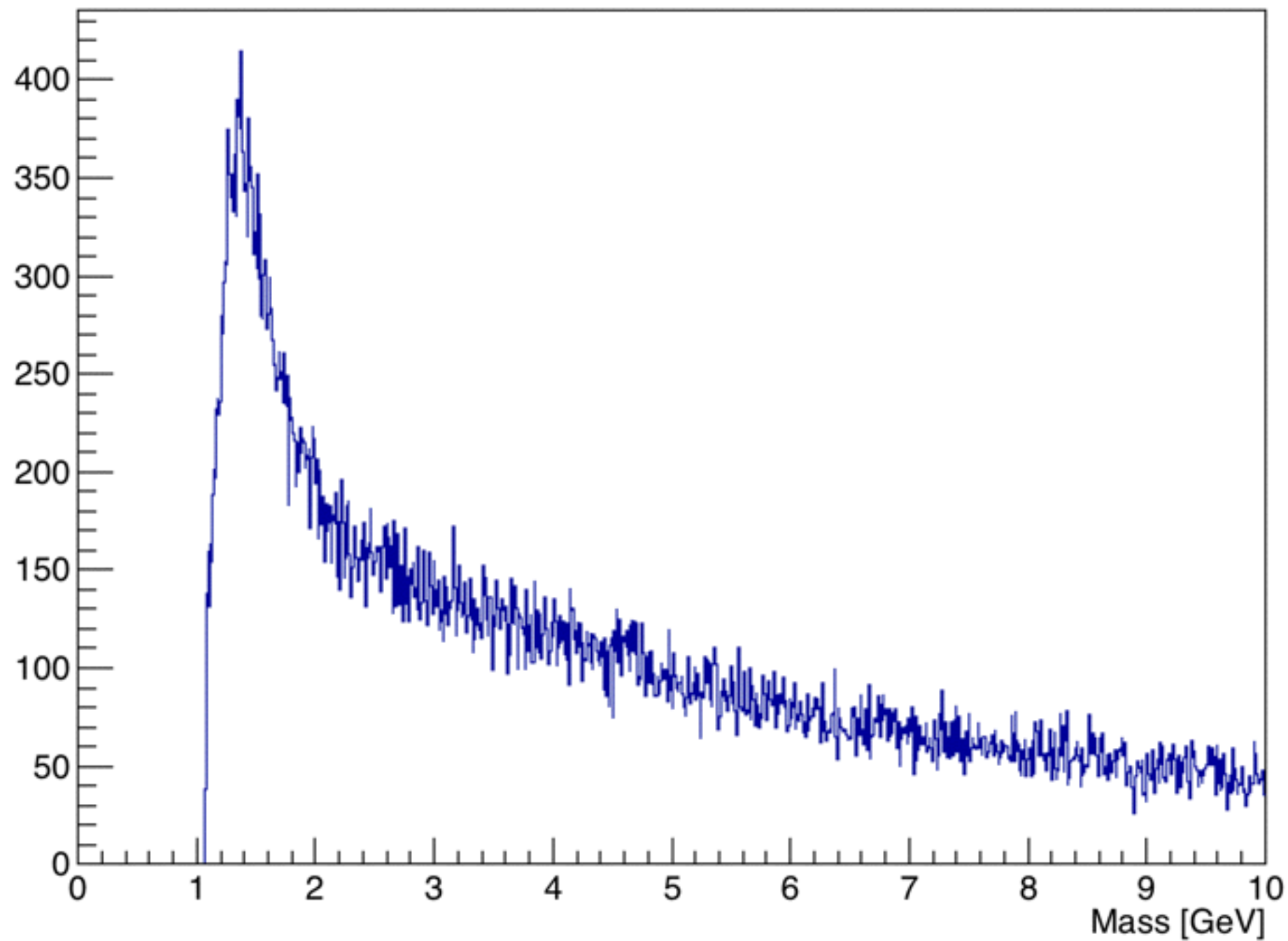
branch: V0ValidationVertexs



2. Analysis Studies

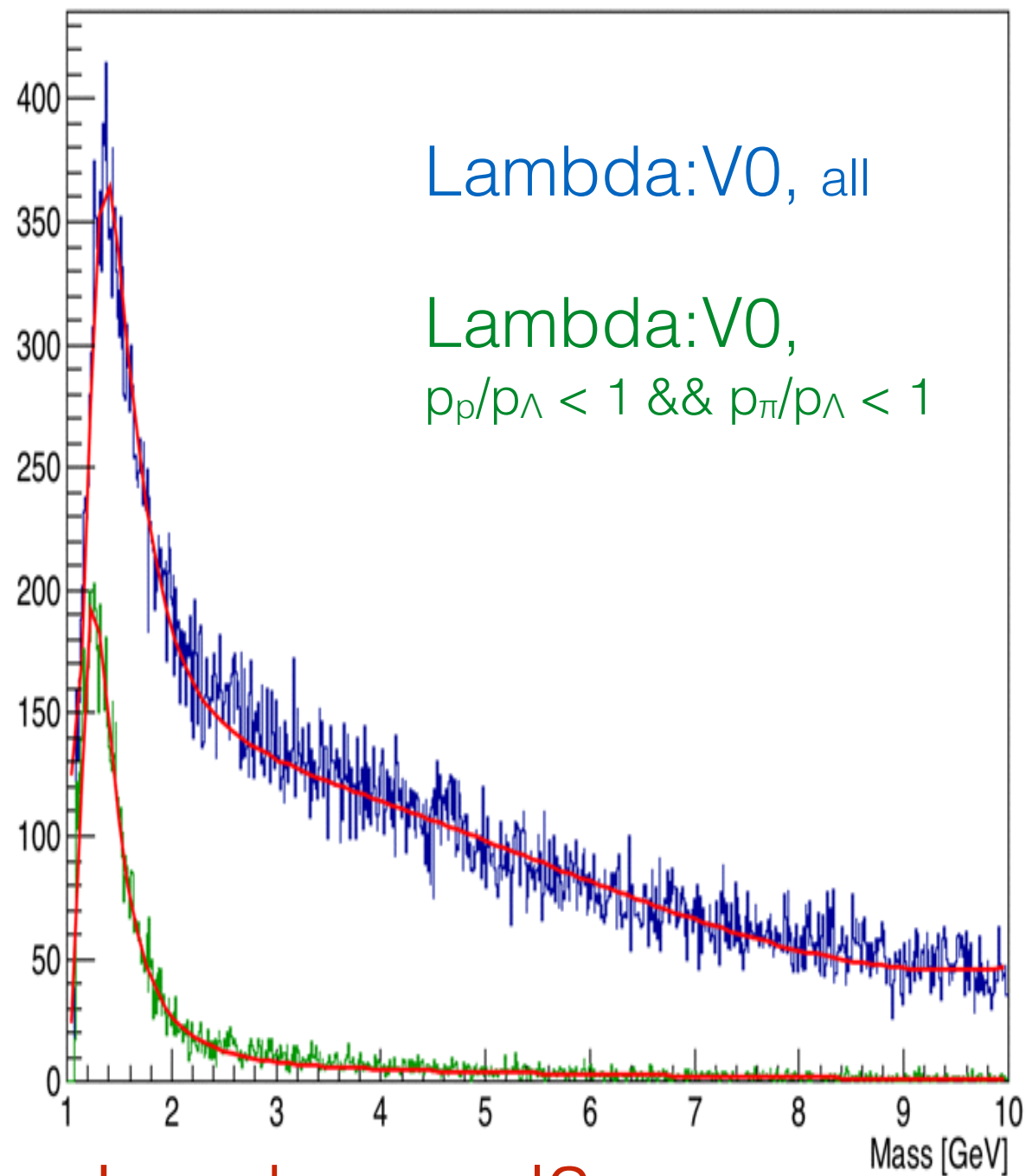
Lambda:V0 Mass Distribution

particle list
Lambda:V0

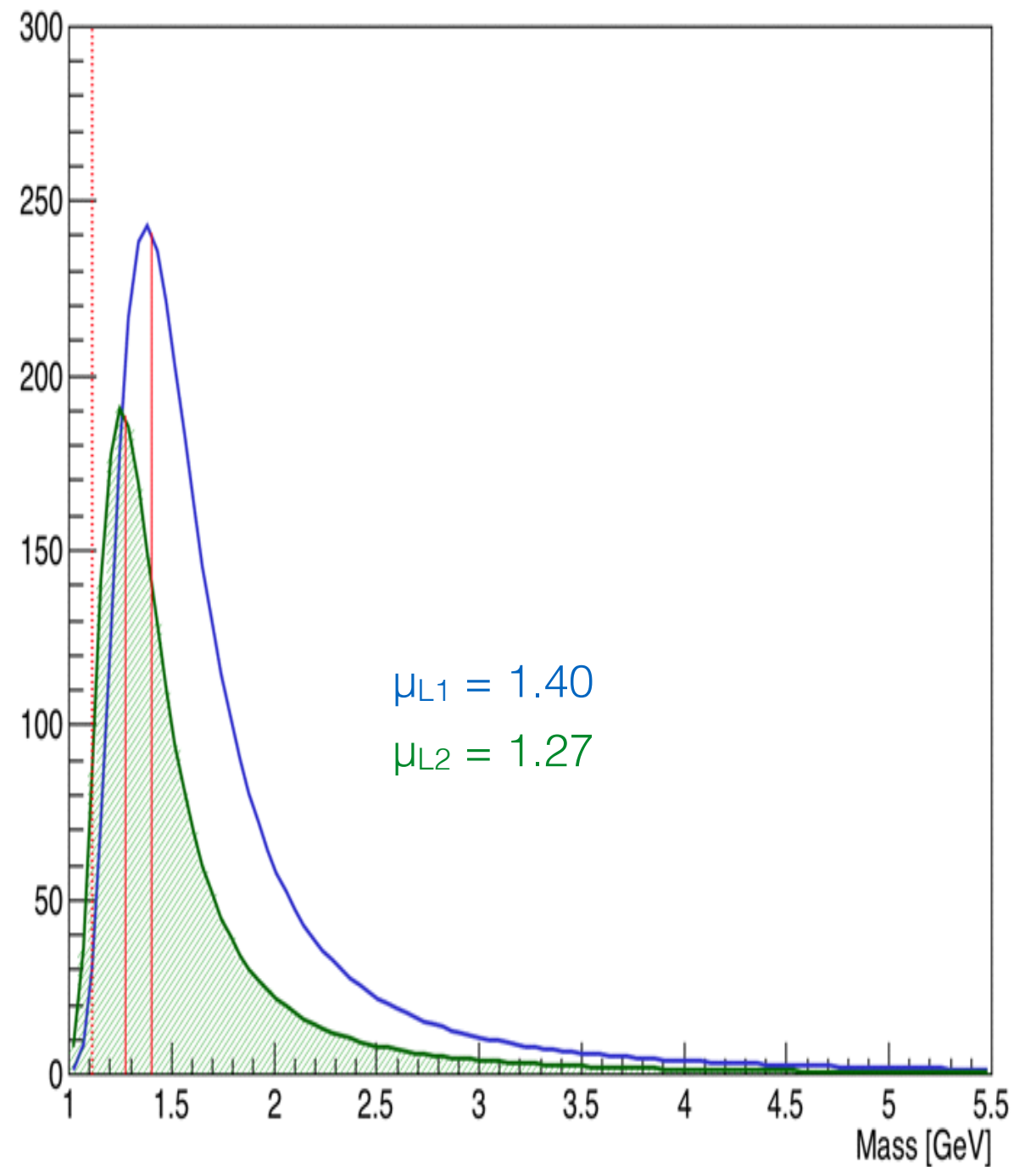


Lambda:V0 Mass Distribution

particle list
Lambda:V0

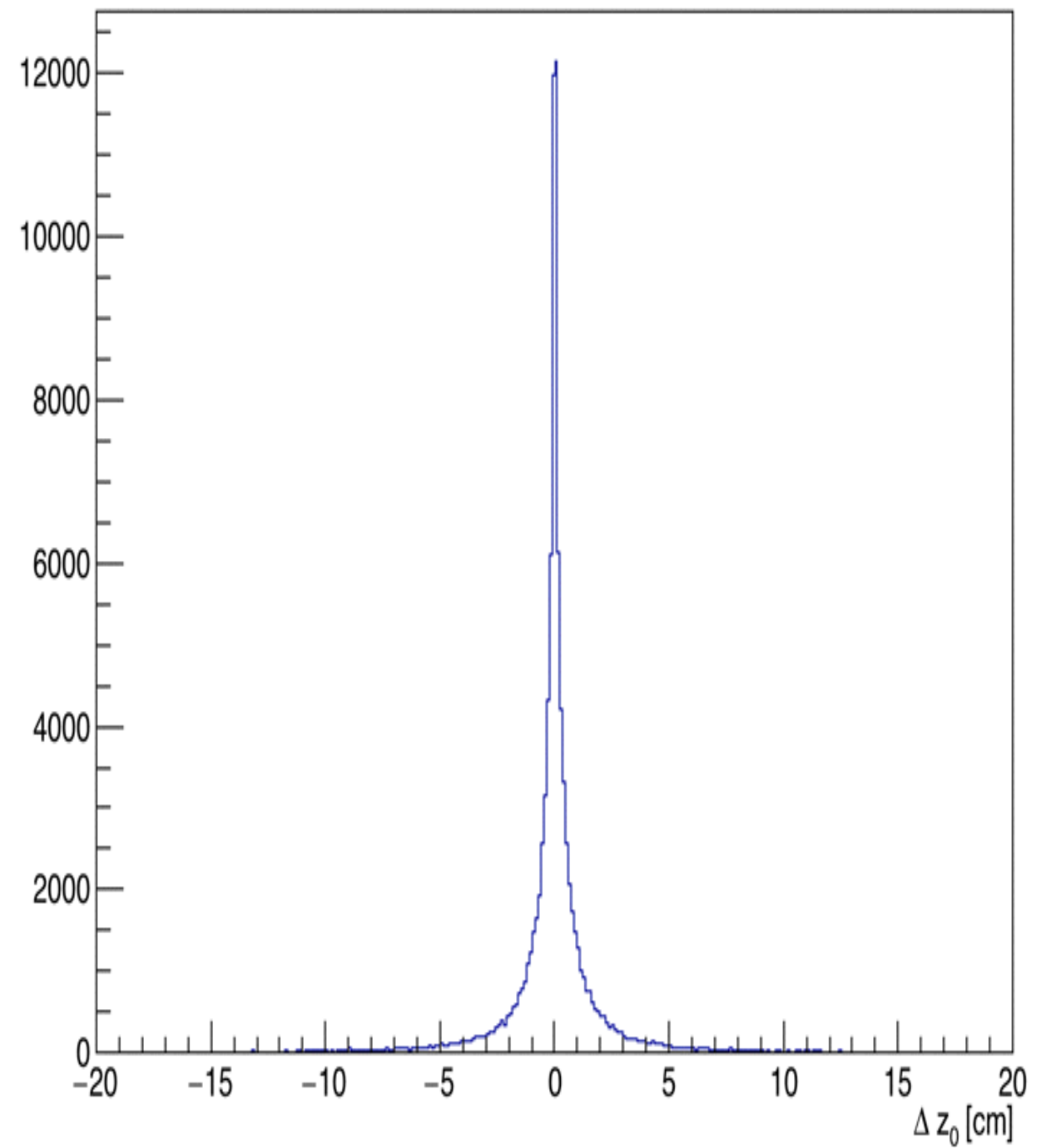
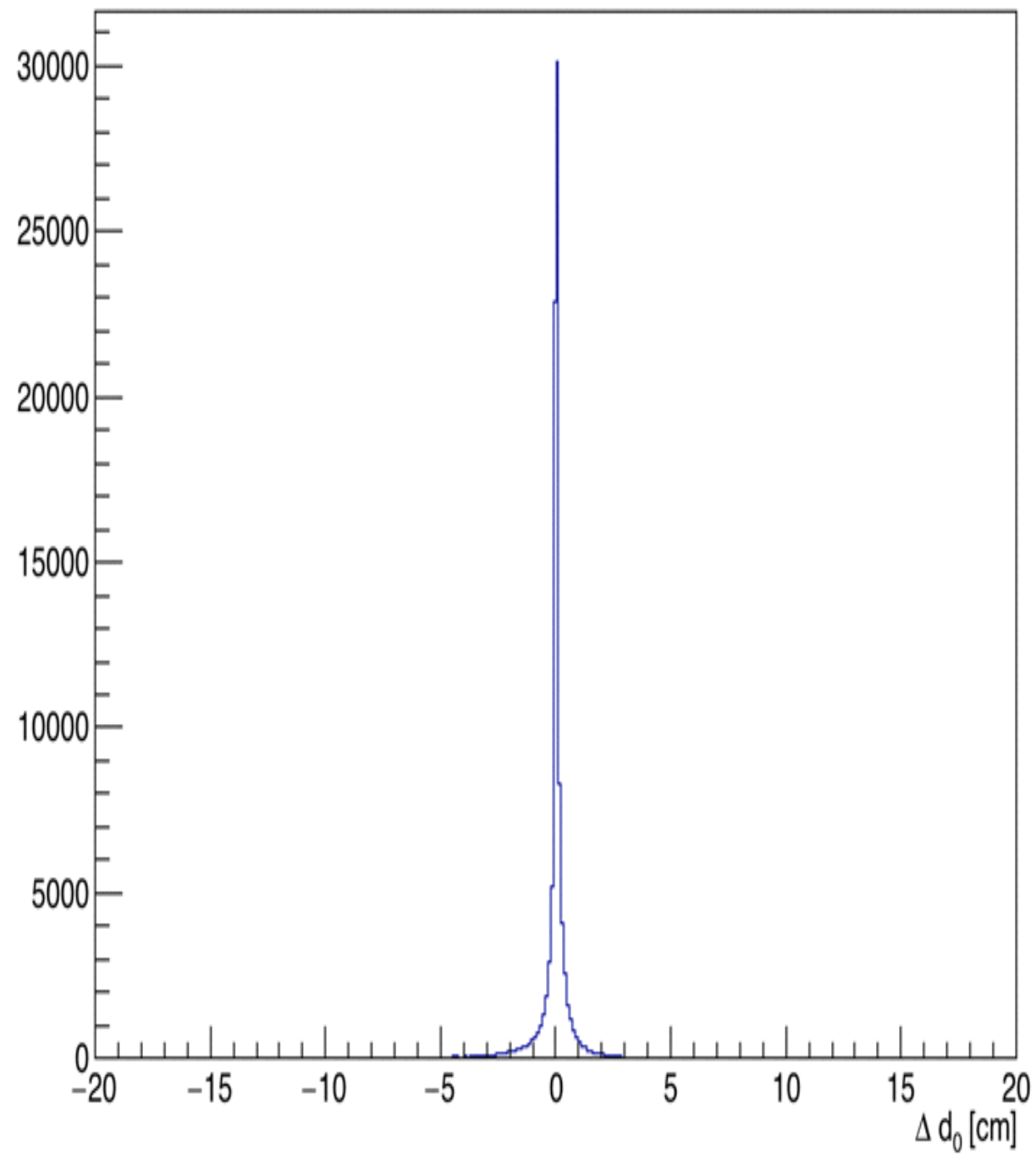


Landau+pol3



$\Delta d_0, \Delta z_0$ Lambda's daughters

particle list
Lambda:V0



Plans

- “Tracking” studies:
 - produce vertex plots for single runs (conditions not stable for different runs, maybe poor statistics)
- “Analysis” studies:
 - exploit daughters’ info
 - modify the script and reprocess in order to have “real” mdst (not only tracking info)
- Suggestions?