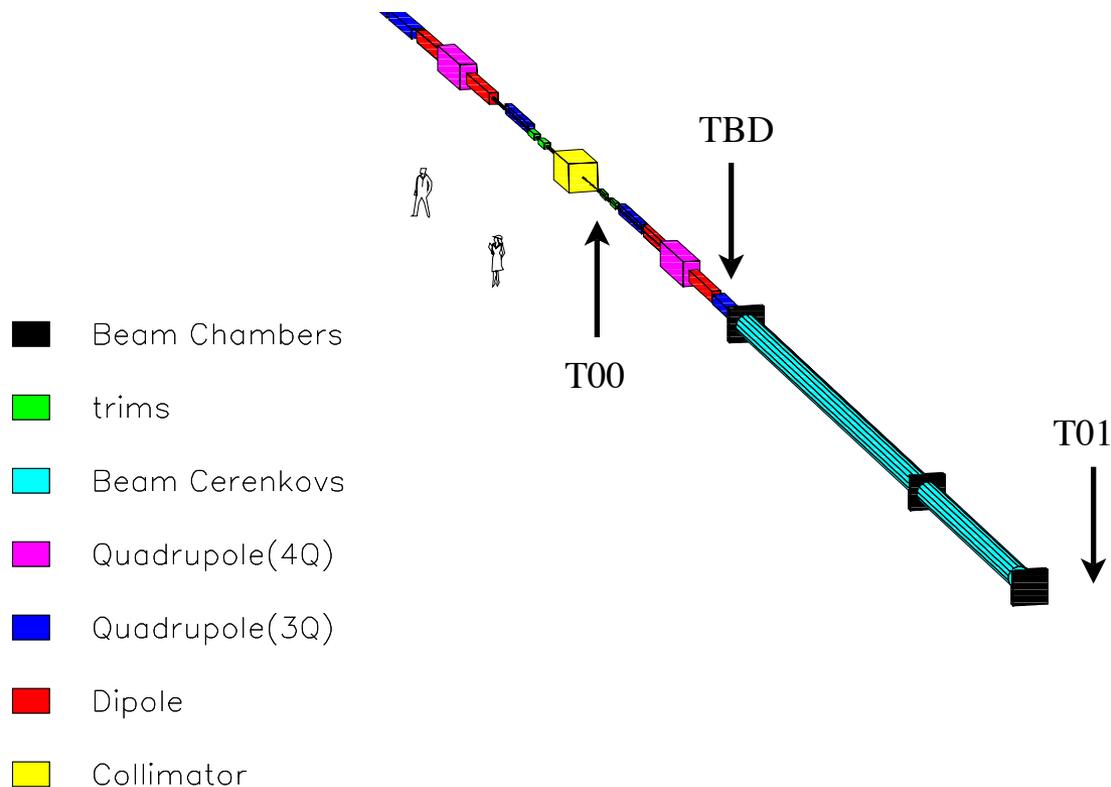
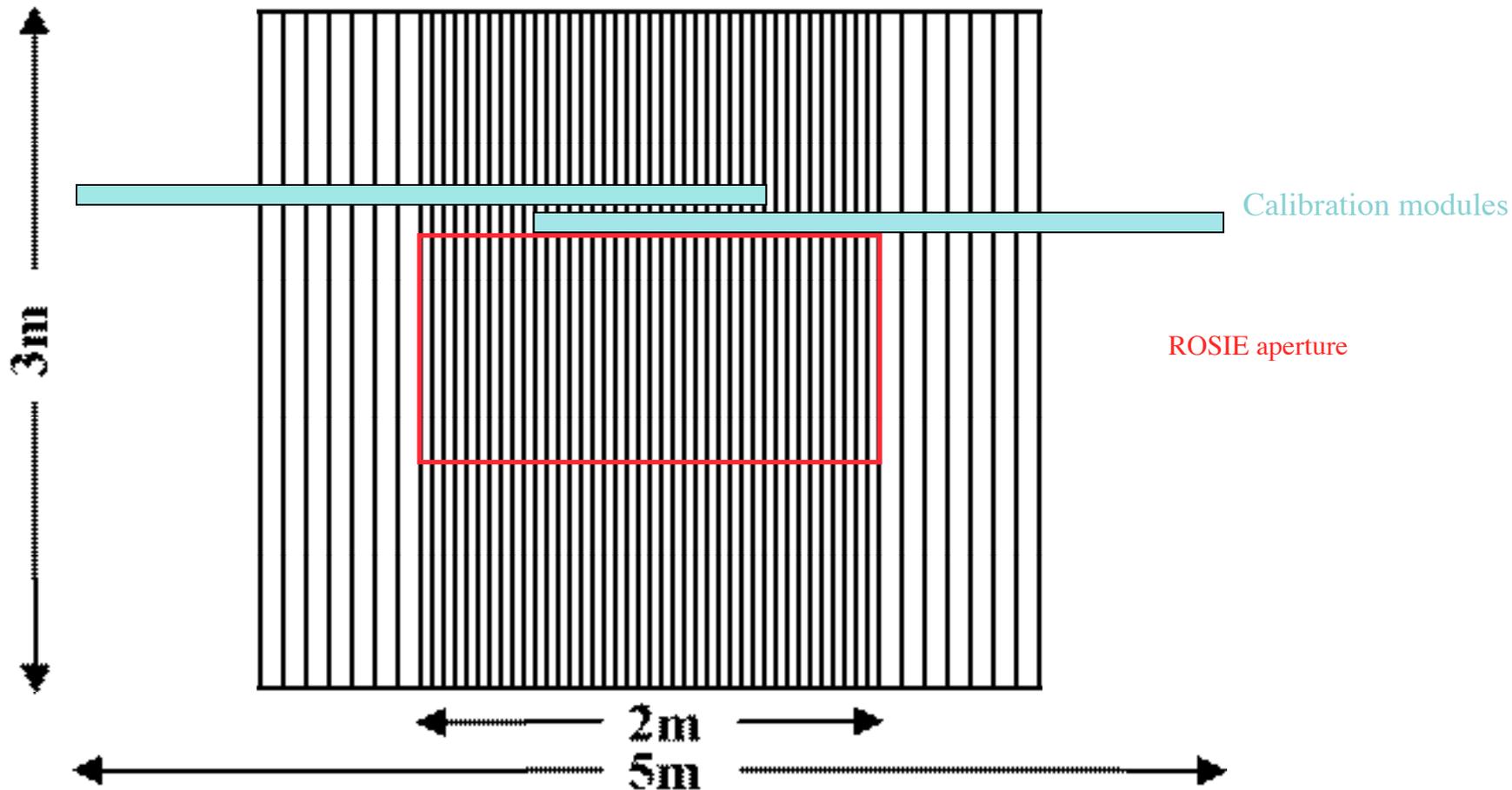


TOF Report, 22 July 2005

Results from the Workshop



TOF Wall



TOF Report, 22 July 2005

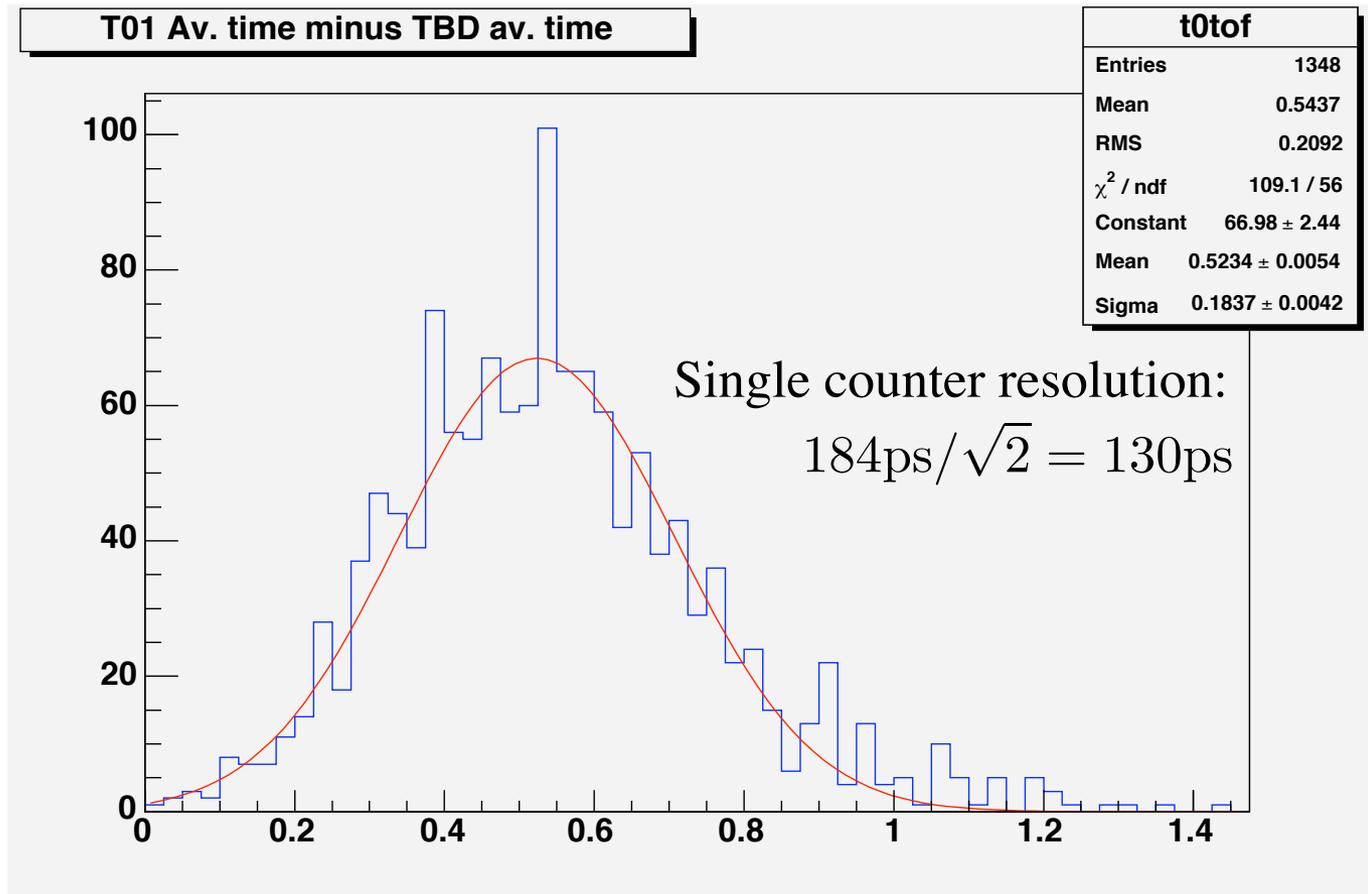
Results from the Workshop

TOF workshop objectives:

- A. Beam track time of flight from TBD to T01
(J. Hendrickson)
- B. Beam track time of flight from T01 to one
central bar of the TOF wall (K. Wilson)
- C. Estimate of the yield in min-bias triggers of
halo muons that hit the TOF calibration bars
(?)

Beam track TOF, TBD->T01

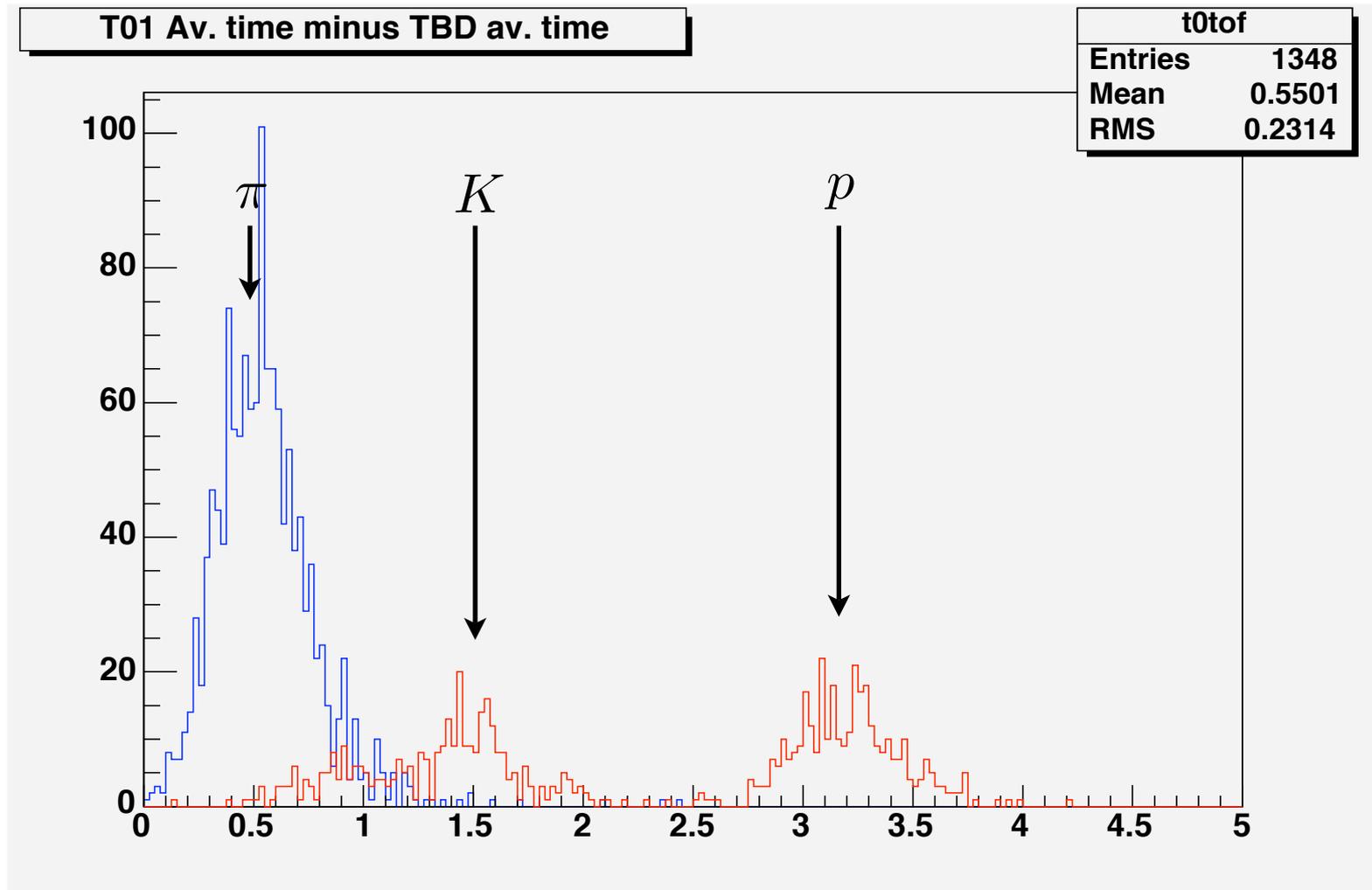
5 GeV run,
Events with large pulse height in T01 deleted,
 π signal in BCKOV.



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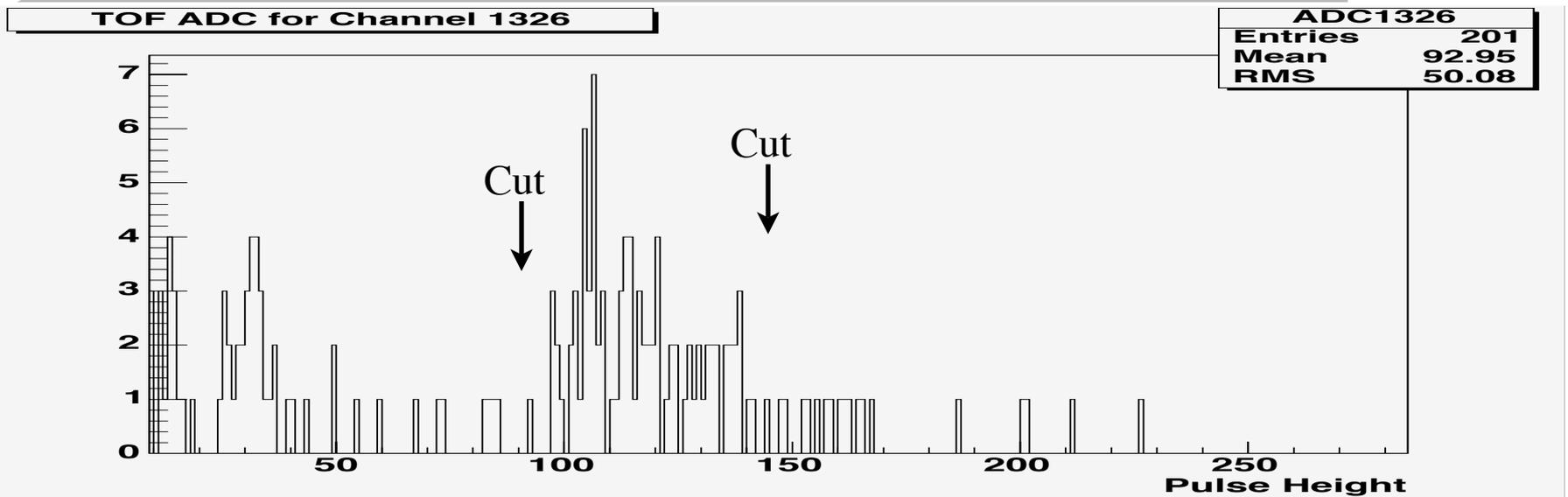
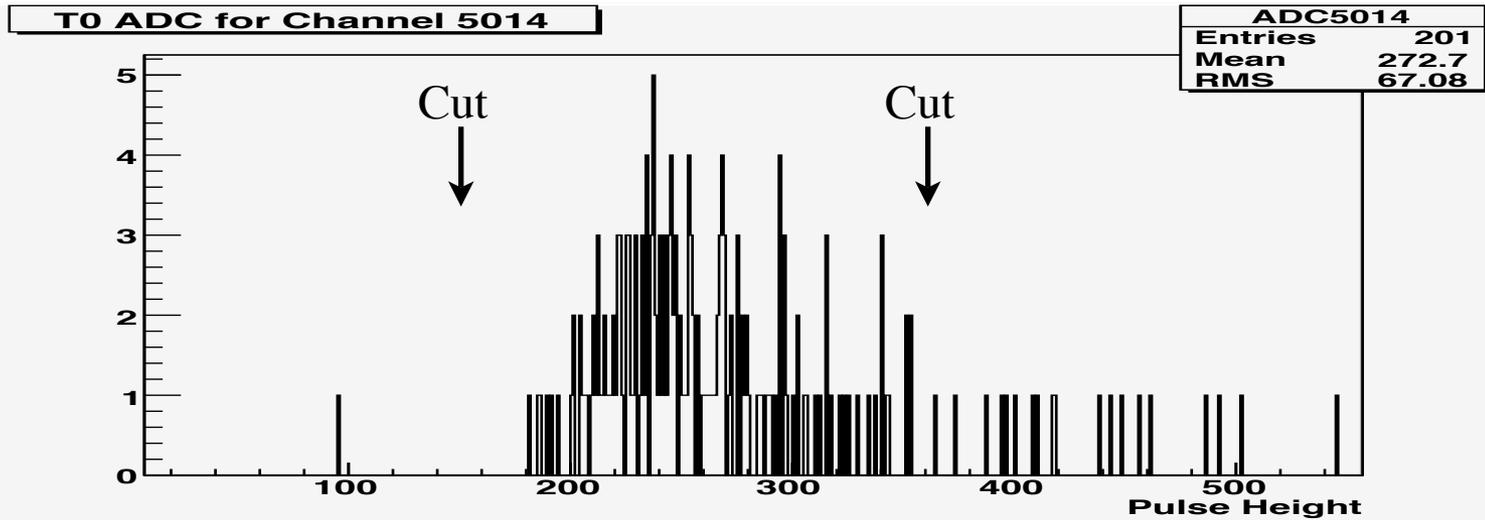
Beam track TOF, TBD->T01

5 GeV run

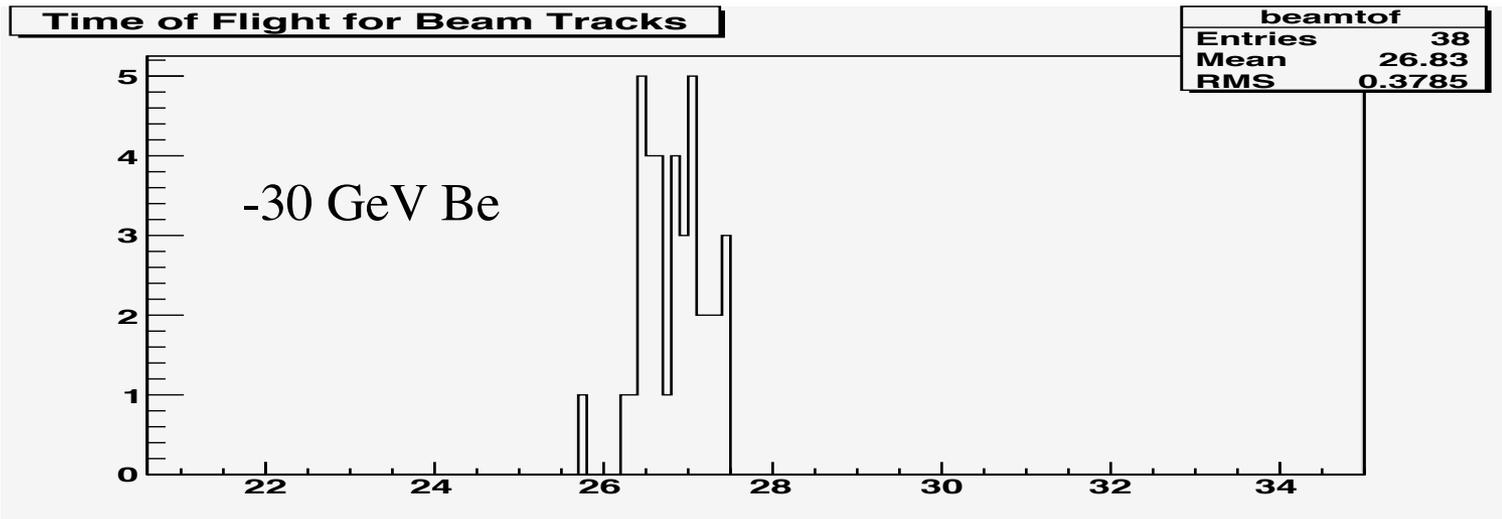
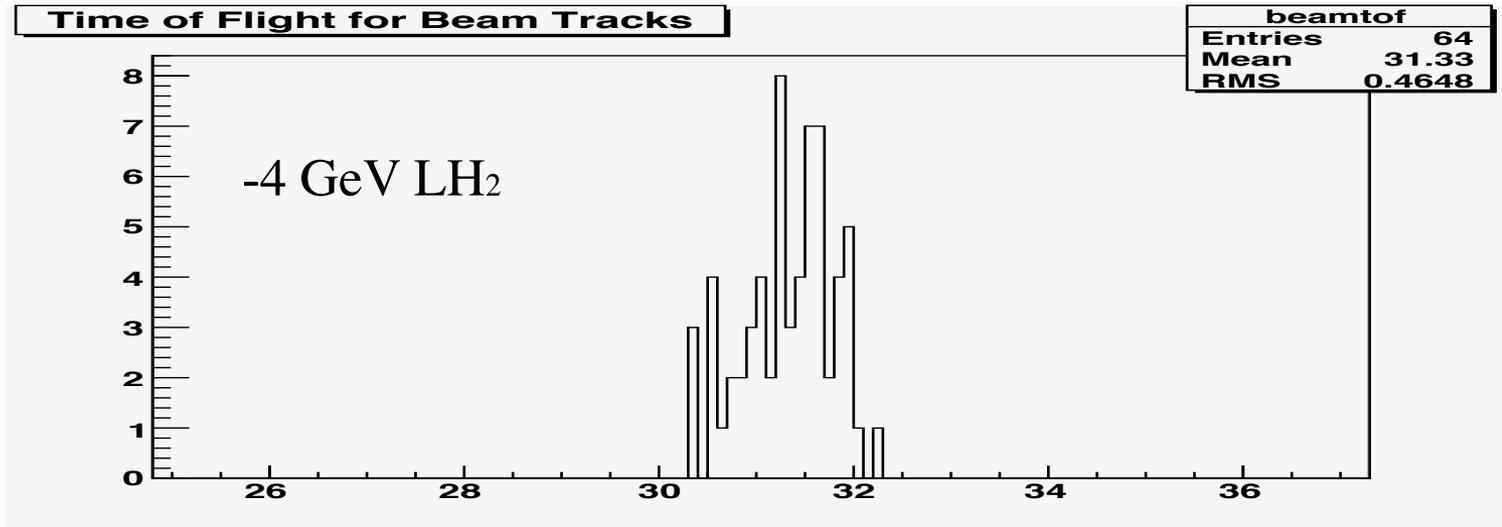


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Beam track TOF, T01->Wall



Beam track TOF, T01->Wall



Summary

- TOF of beam tracks measured for
 - TBD \rightarrow T01, resolution is ~ 130 ps
 - T01 \rightarrow TOF wall, resolution is ~ 400 ps
- But resolution of T01 \rightarrow TOF wall is poor.
 - How much improvement will we get when we include a time-walk correction?
- No progress on halo muon estimate.
- Much work on TOF still ahead of us.
- But much of the work ahead of us depends critically on tracking. (Mark has heard us.)

Finis

New Calibration Scheme

- Central vertical modules (near the beamline) receive a high rate of c -speed tracks. These modules are self-calibrating.
- Calibration modules will be referenced to the central vertical modules. Tracks of any velocity are useful.
- Vertical modules in the wings will be referenced to the calibration modules. Tracks of any velocity are useful.
- Procedure depends critically on having an accurate position-delay map for the calibration modules. Map to be created using cosmic rays at Carolina and checked with a mobile auxiliary T_0 counter in MIPP.

New Calibration Scheme

- A “calibration interval” should produce enough data to fix the offset of a channel with a sigma of 10 ps ($\sim 5\%$ of the resolution). Requires about 500 tracks per 5cm x 10cm “pixel.”
 - 8 tracks/trigger \times 60 triggers/spill \Rightarrow 500 tracks/spill.
 - 500 tracks/spill \div 3000 pixels \Rightarrow 0.15 tracks/pixel/spill.
 - 500 tracks/pixel/calibration interval \div 0.15 tracks/pixel/spill \Rightarrow 3000 spills/calibration interval, i.e. < 3 hrs.

New Calibration Scheme

- The new calibration scheme is not intended to supplant entirely the scheme that utilizes a mobile auxiliary T_0 counter. The mobile counter will travel along a calibration module, and it will serve as a redundant check on the stability of the calibration modules.
- The mobile auxiliary T_0 counter is quite small. In the context of a calibration system independent of the calibration modules, it would have a sufficient data rate only if the DAQ continues to accept triggers during TPC readout. Can we make the DAQ do that without heroic efforts?