Status of IFR/LST Teststand

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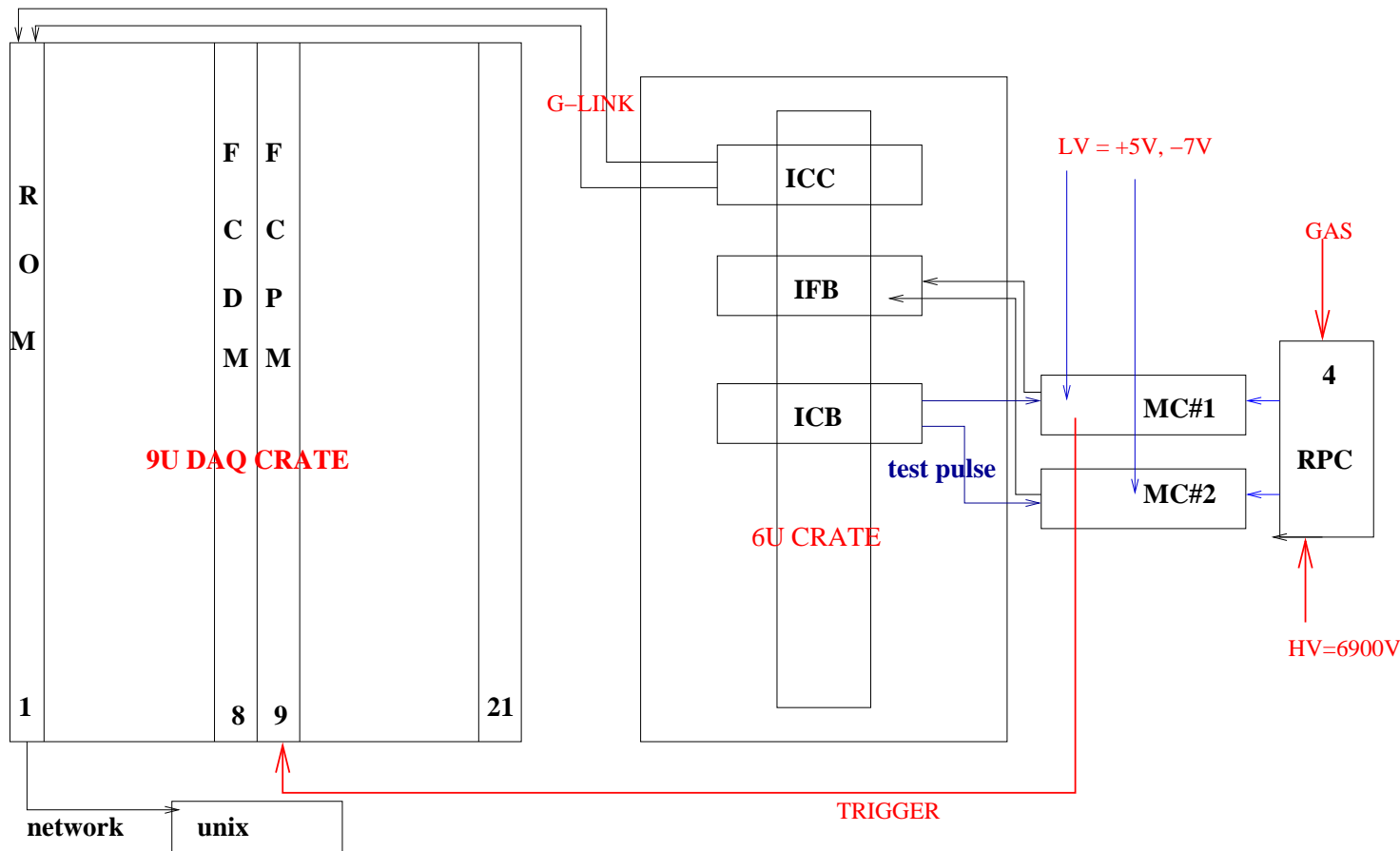
University of Oregon

Outline

- Current Status: Schematic setup

- Current Status: Online DAQ

- Current status: Cosmic data analysis

- Summary and Plans

The Schematic Setup

ROM = Read Out Module   ICC = IFR Control Card   MC = MiniCrate

FCDM = Fast Contrl Distribution Module   IFB = IFR FIFO Board   LV = Low Voltage

FCPM = Fast Contrl Partition Module   ICB = IFR Calibration Board   HV = High Voltage
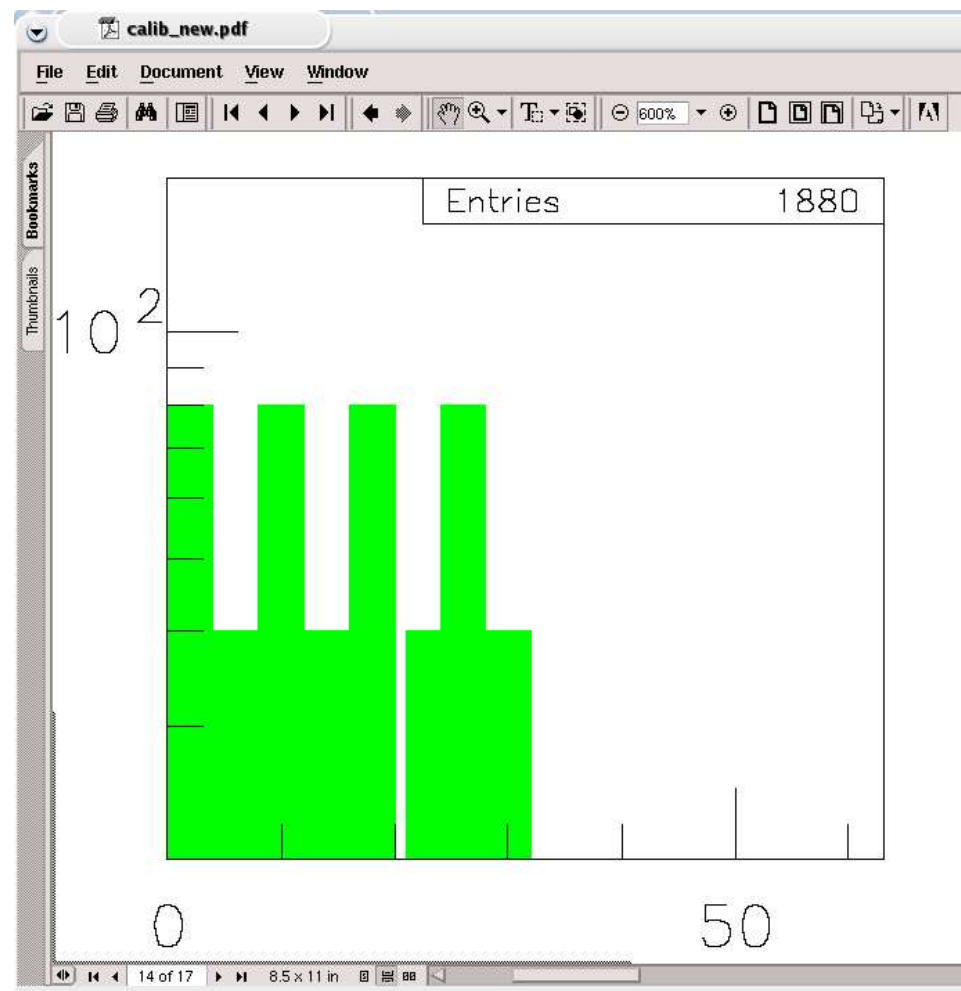
Online DAQ

- First Calibration run was taken on Jan.26

- First Cosmic run was taken on Jan.28

- Trigger delay was set at 10.5 μs

- 1 dead FEC in layer 3, view y

Offline Cosmic Analysis

- Built test federation CDB
- Write Cabling map, geometry file, and alignment file for test stand
- Load them into test CDB
- Analyze cosmic data to verify the validity of the test CDB

Offline Cosmic Analysis

- 10,000 events were analyzed

- Four RPC layers in the stack

- We only have one group of trigger, i,e, N>1

- Any one of the layers can be triggered

- Scatter plots to show if the hits show up at the expected position

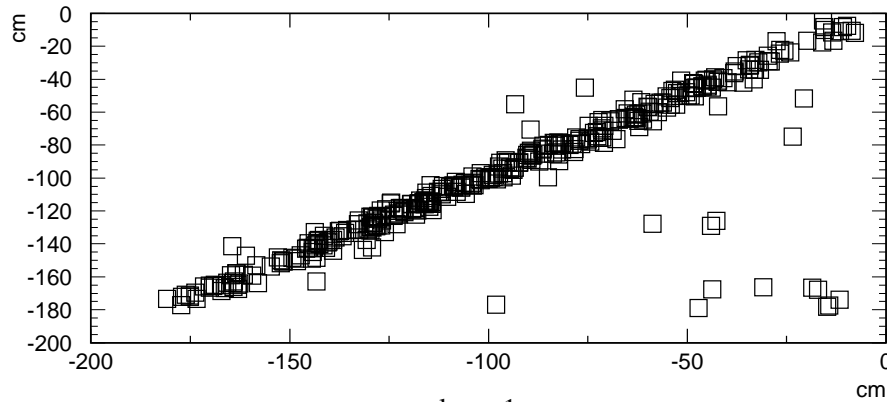- Residual plots to show the final alignment
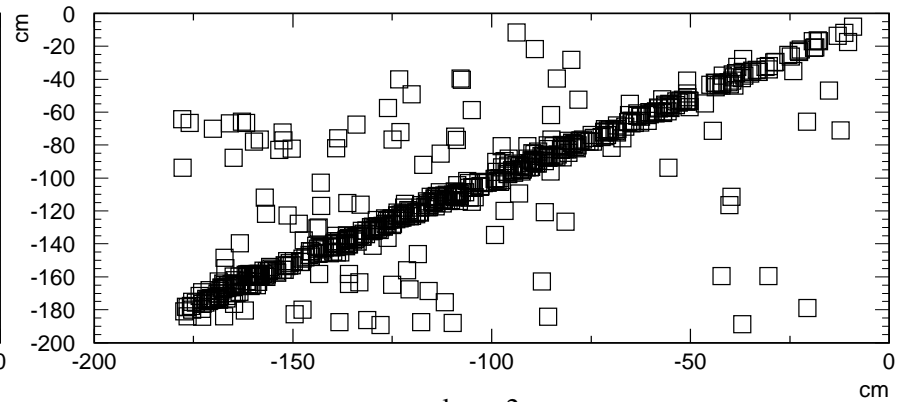
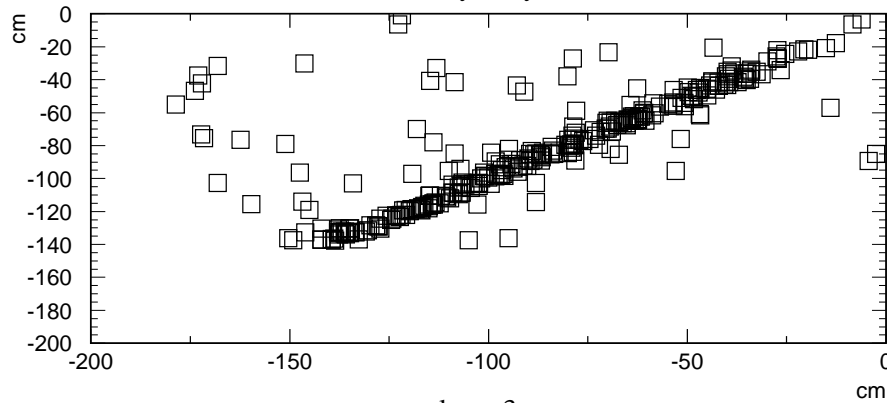# Scatter Plot in x View

x extrapolated vs hit

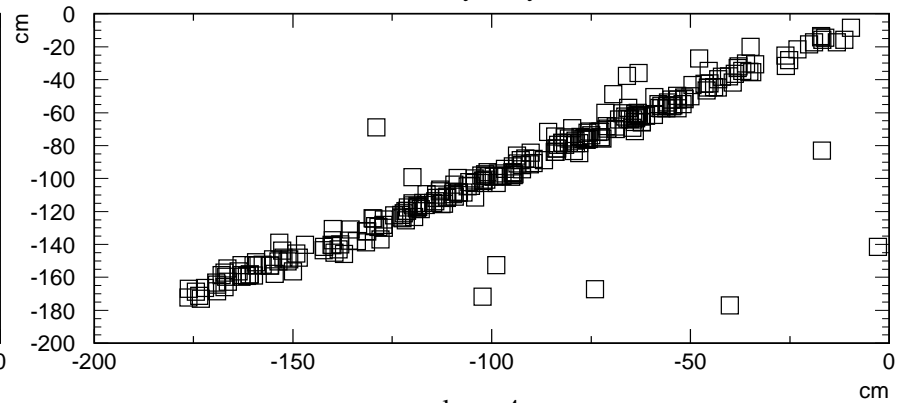

layer 1 x

layer 2 x
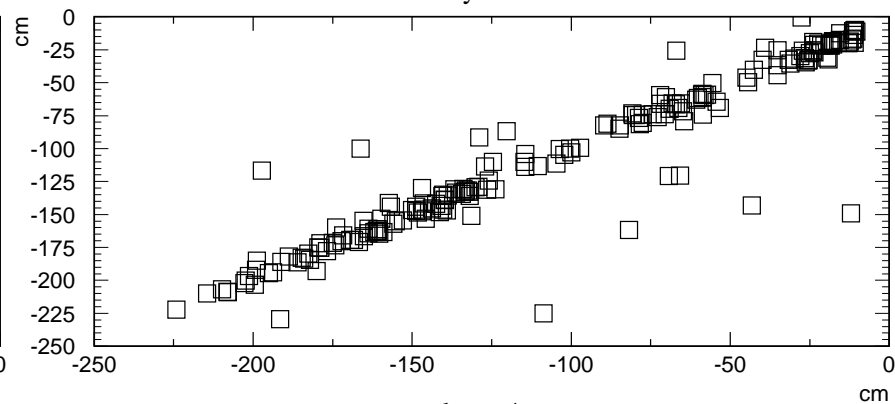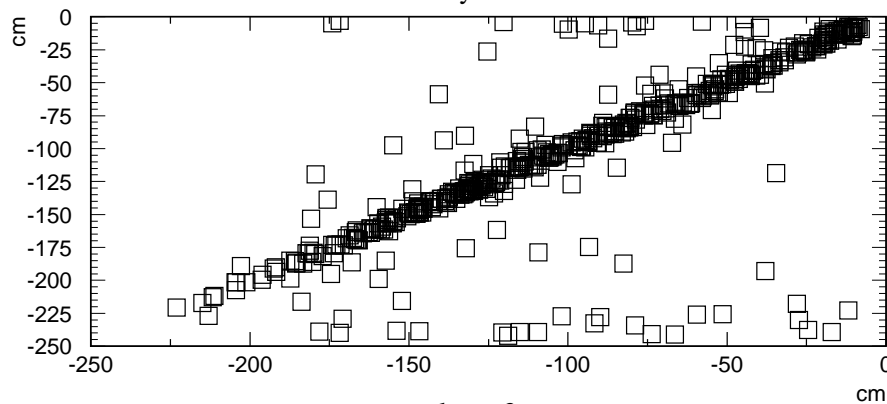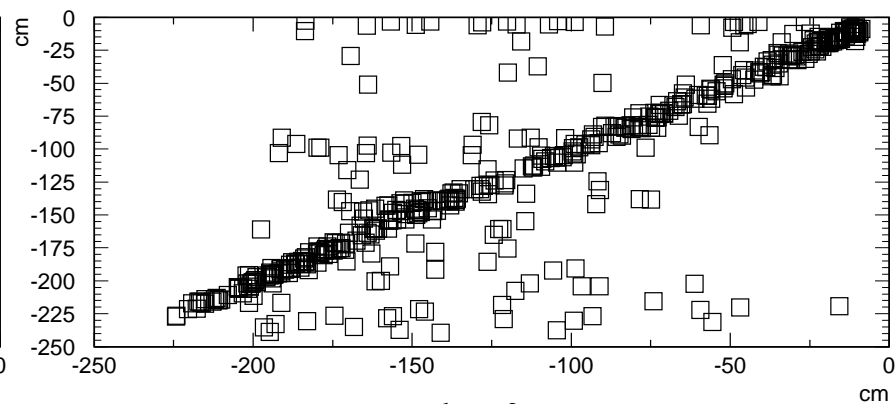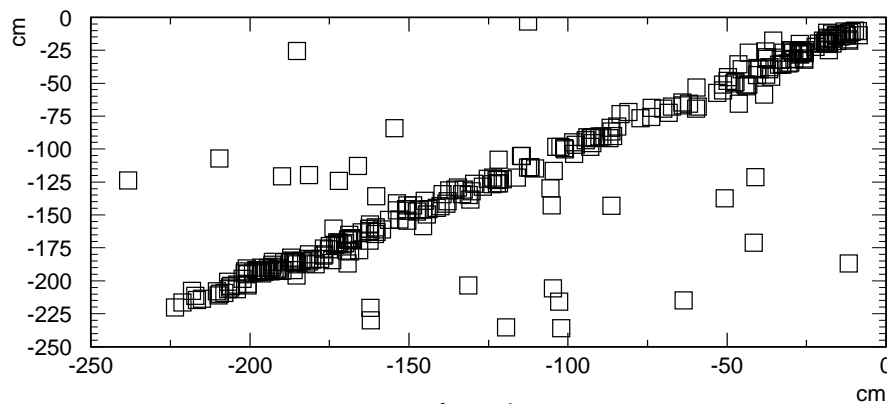
layer 3 x

layer 4 x

Scatter plot in y view
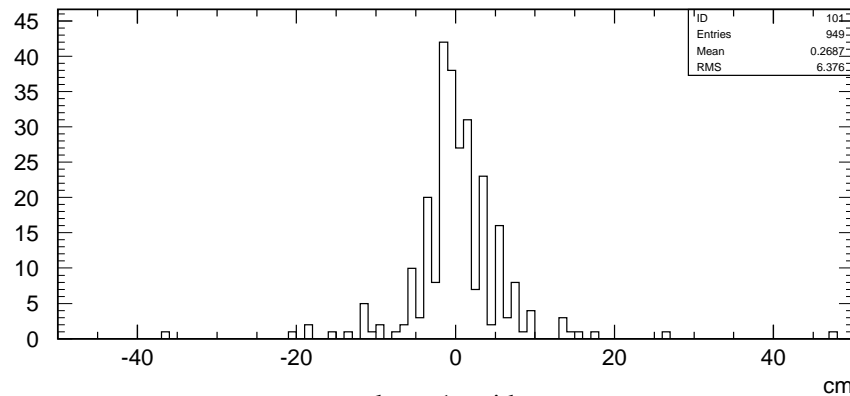
y extrapolated vs hit

Some observations

- Most hits showed up on the expected positions

- The hits which are not on the diagonal line may come from events with only two layers having hits

- layer 2 has more hits because of its shift of about 9cm in the x direction
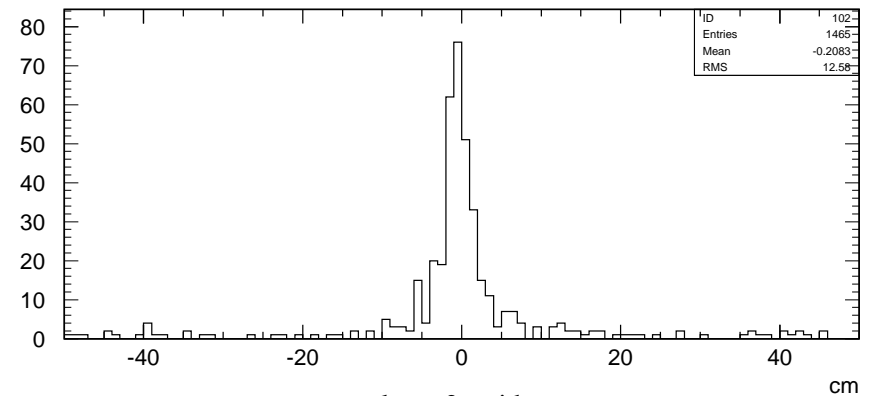
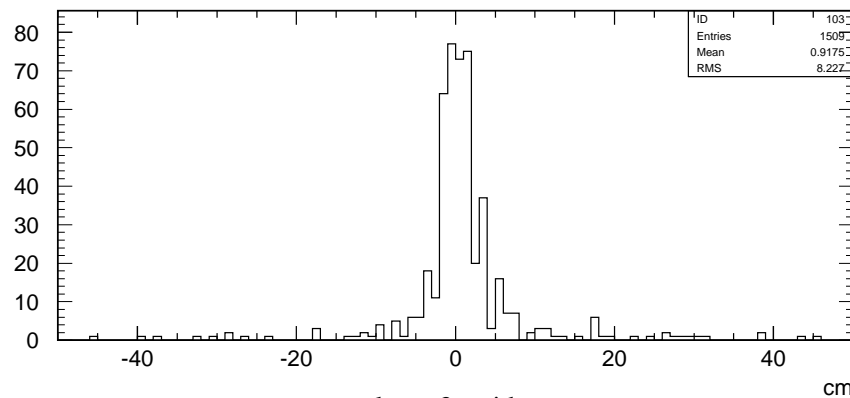- on the layer3, y view, the dead FEC
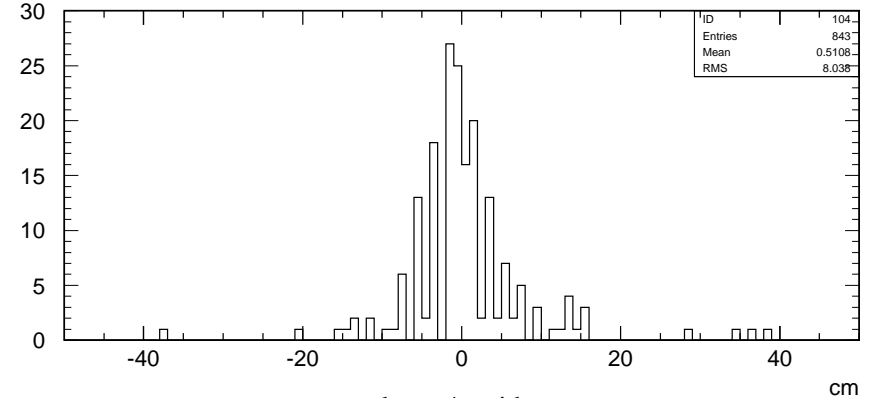
Residuals in x View

x residules

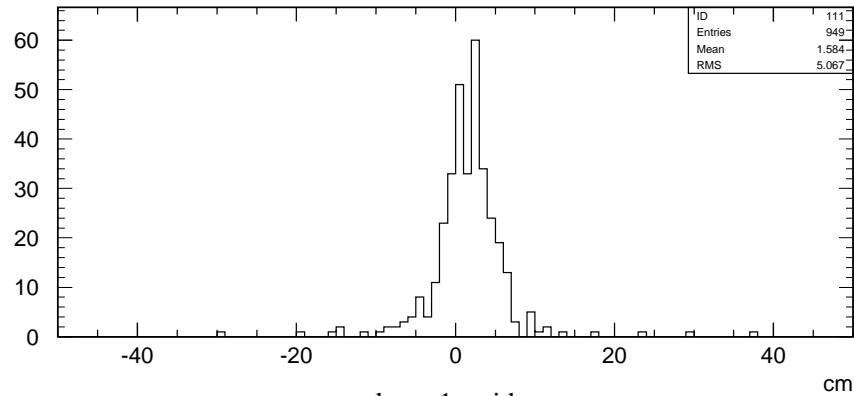layer 1 resid x

layer 2 resid x

layer 3 resid x
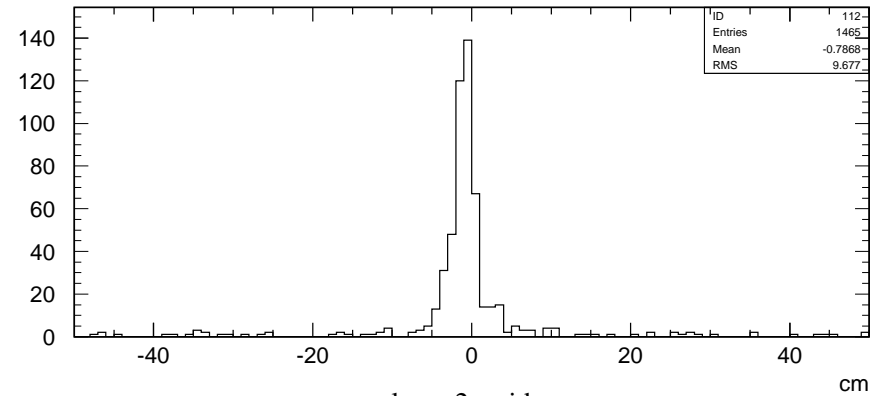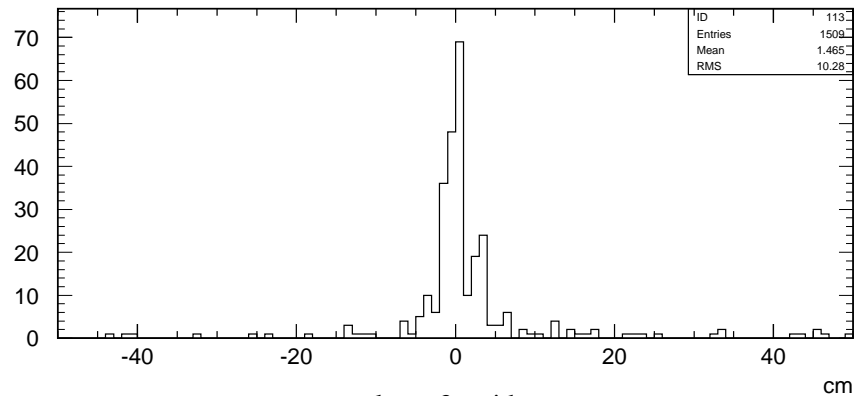

layer 4 resid x

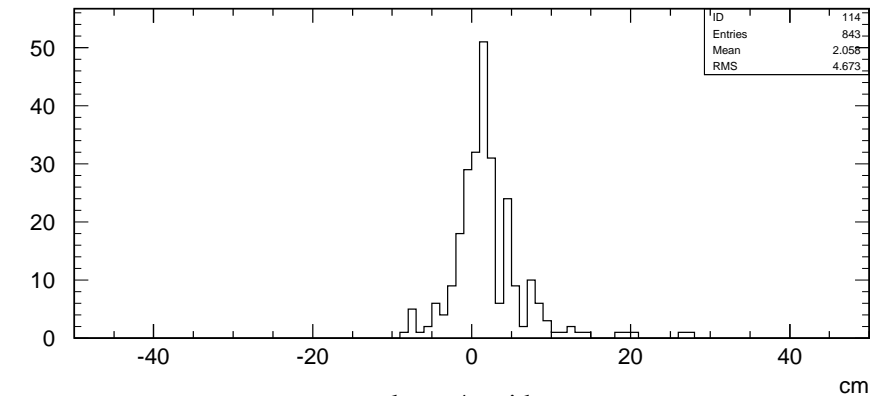# Residuals in y View

y residules

layer 1 resid y

layer 2 resid y

layer 3 resid y

layer 4 resid y

Some observations

- The hits are lined up pretty well in all 4 layers

- More hits in layer 2 due to the offset

- Big fluctuation in layer 1 and 4 due to limited statistics and not perfect lineup

Summary and Plans

- Both Online DAQ and Offline Analysis package are working now

- RPC efficiency study, needs more input from David Lange

- Repeat the whole procedure to make sure that we can get the consistent results

- Jan will help do some analysis work

- Will build LST test CDB with Matteo