Detectors Calibration for x>2 experiment

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Outline:

- 1, General Status
- 2, VDC, Scintillators & Timing
- 3, PID Detectors
- 4, Optics
- 5, To Do

1, General Status

- Data:

  Check x>2 wiki for data we have taken:

  https://hallaweb.jlab.org/wiki/index.php/E08-014_Run_Plan

  Or EPICS info gathered by Patricia:

  https://hallaweb.jlab.org/wiki/index.php/Runlist

- Detectors:

  All detectors were working well durling our experiment, except one noisy shower counters (#66), which is outside our acceptance.

- Optics

  LHRS Optics is already good and needed minimum work. RHRS Optics is twisted due to RQ3 problem.

2, VDC, Scintillators & Timing

- VDC

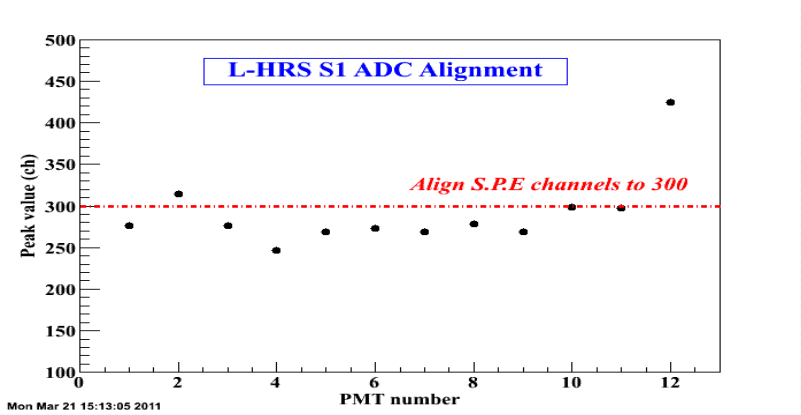
  T0 of VDCs on both arm have been calibrated.

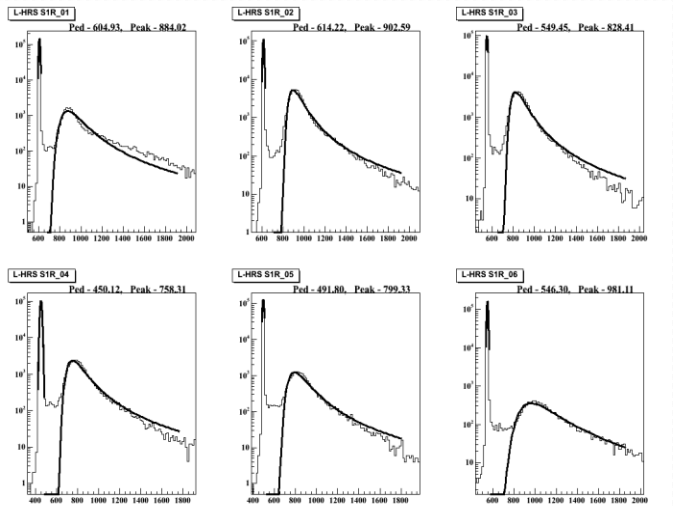
- S1 & s2m ADC

  S1 ADC on both R- and L- had been calibrated roughly during SRC experiments but have not been calibrated using our data.

  S2m ADC are not needed to be calibrated.

  In general, ADCs are only used for time work correction, so we don't need a good calibration on them.





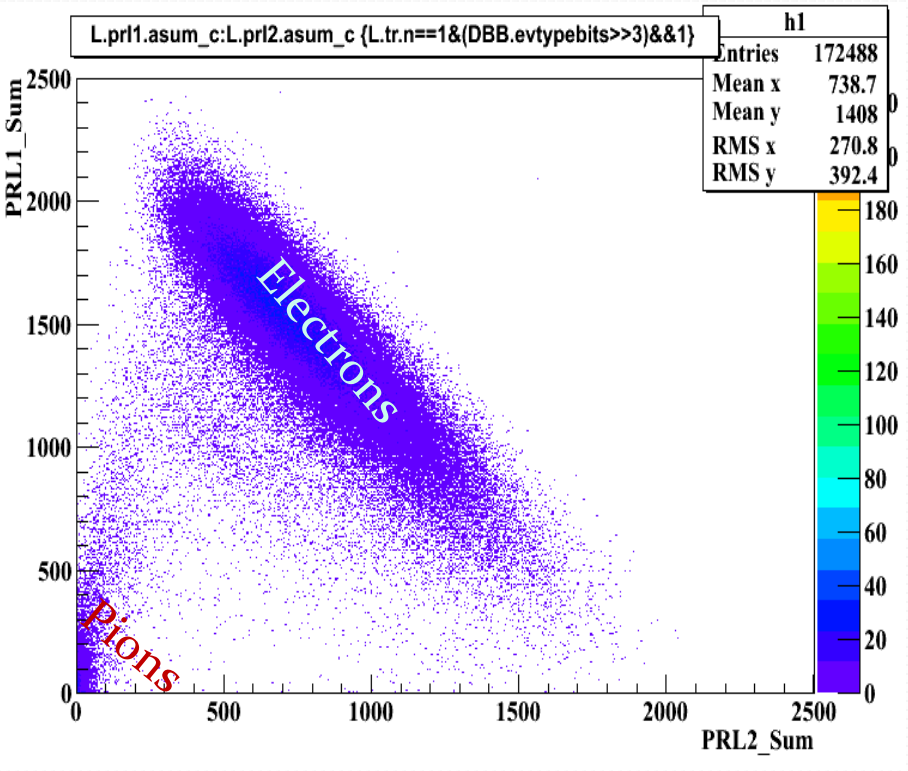
- S1 & S2m timing:

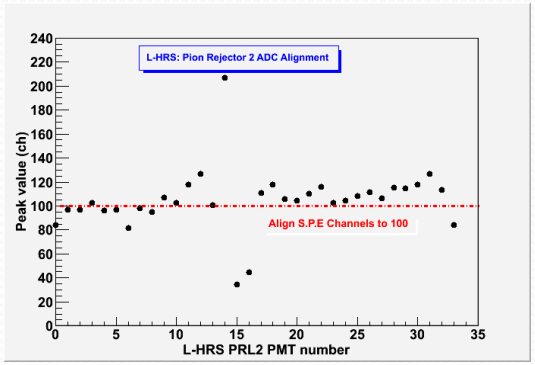
Timing on both arm are needed to work. Paul and his student is working on this.

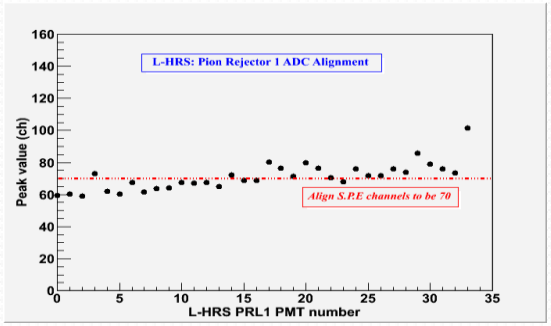
3, PID detectors

- Pion Rejectors 1&2 on LHRS

I used cosmic ray data to basically align all ADCs of Pion Rejectors detectors, but will do fine calibration with elelctrons energy when studying PID efficiency.





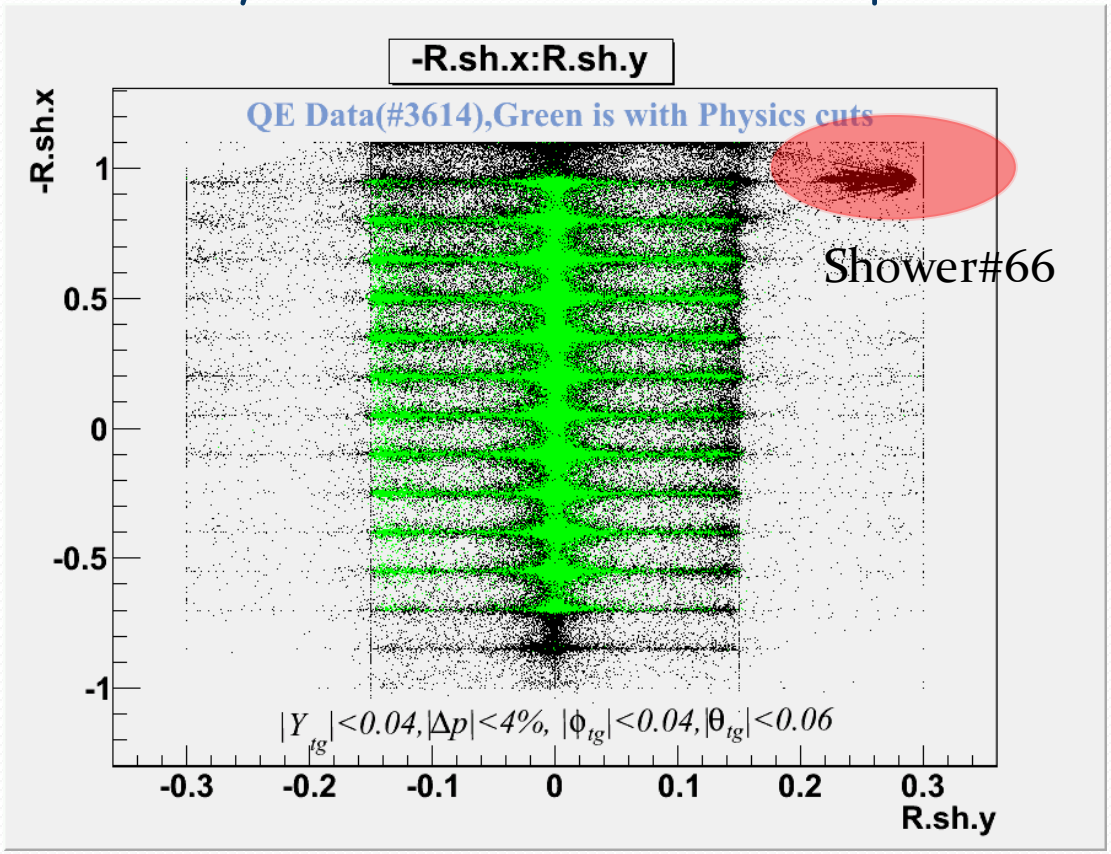


There are two Pion Rejectors layers with 48 PMT tubes on each.

- Shower and Preshower on RHRS

Finally understand the map of the shower counters. Paul and his student will work on the Shower and PreShower calibration.

Shower#66 is noisy but it is outside our acceptance.



4, Optics

- LHRS Optics:

  JinGe's matrix is already very good for LHRS:

- RHRS Optics:

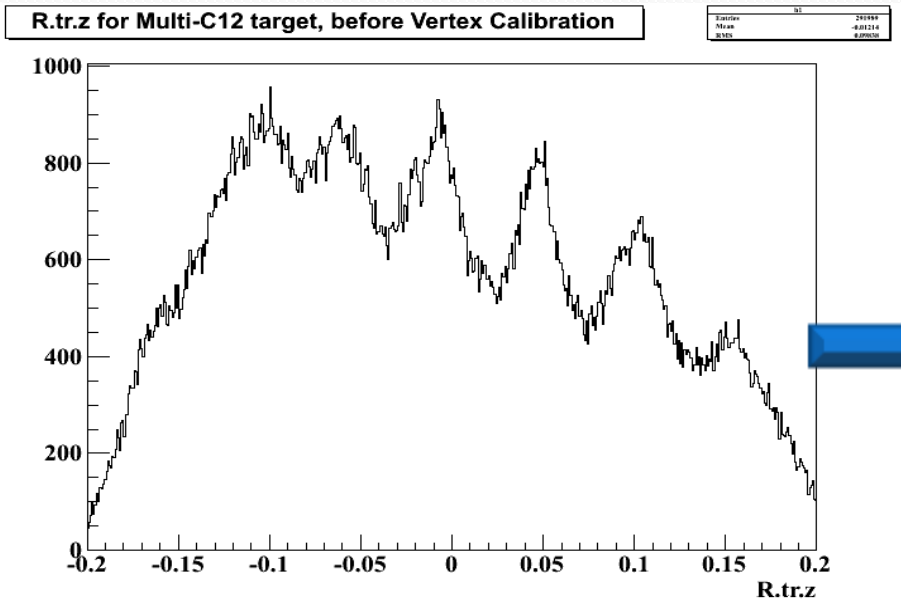
  We scaled down momentum setting of RQ3 with the factor of 2.8273/3.155, where 3.155 GeV is the maximum momentum we need and 2.8273 is the highest value RQ3 can archieve.

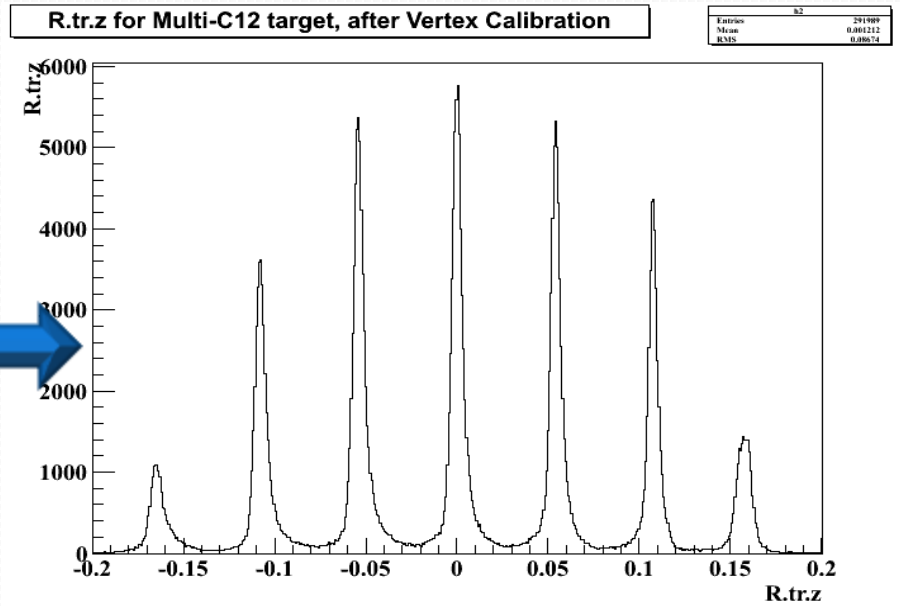
- Optics Calibration Data we took:

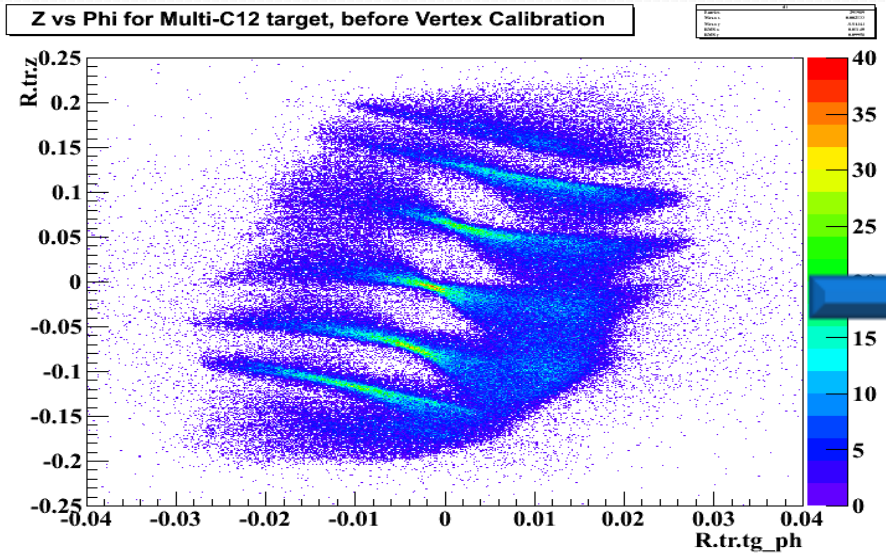
https://hallaweb.jlab.org/wiki/index.php/Optics_Run_Plan

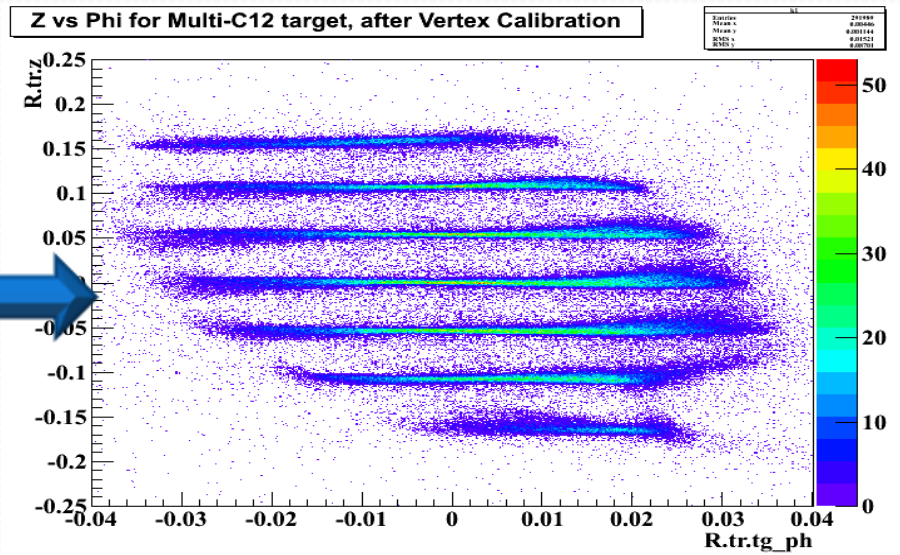
- RHRS Optics Calibration

a) Vertex (Loop1)

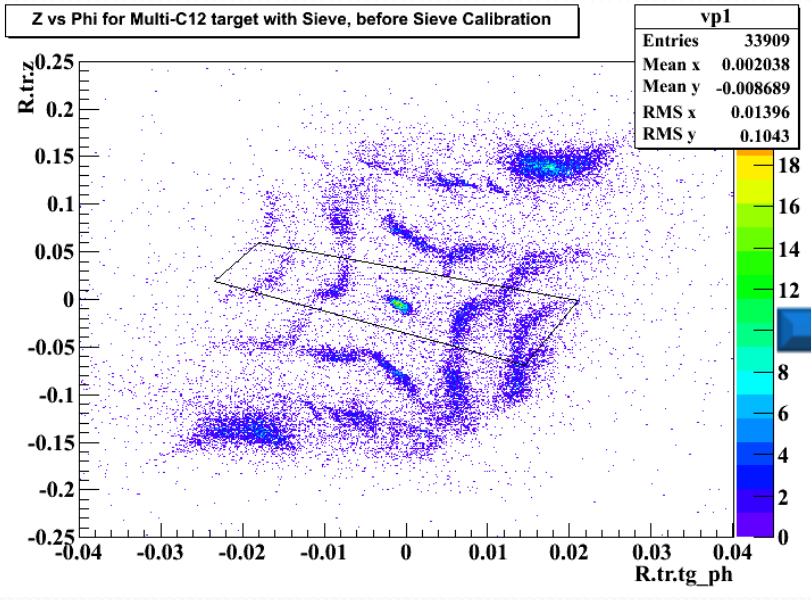


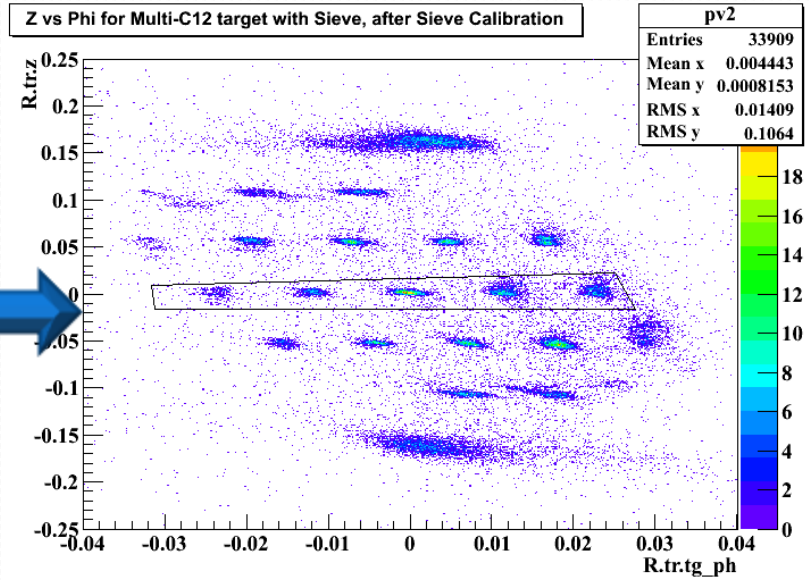


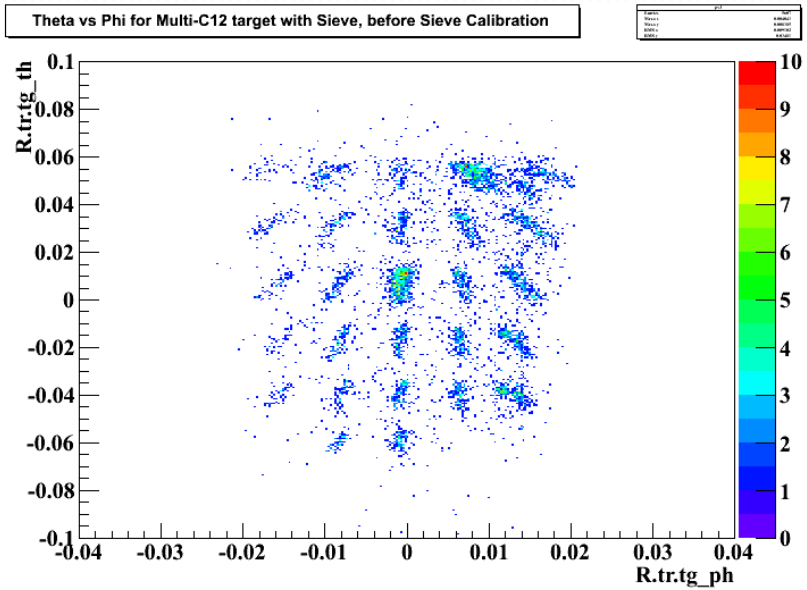


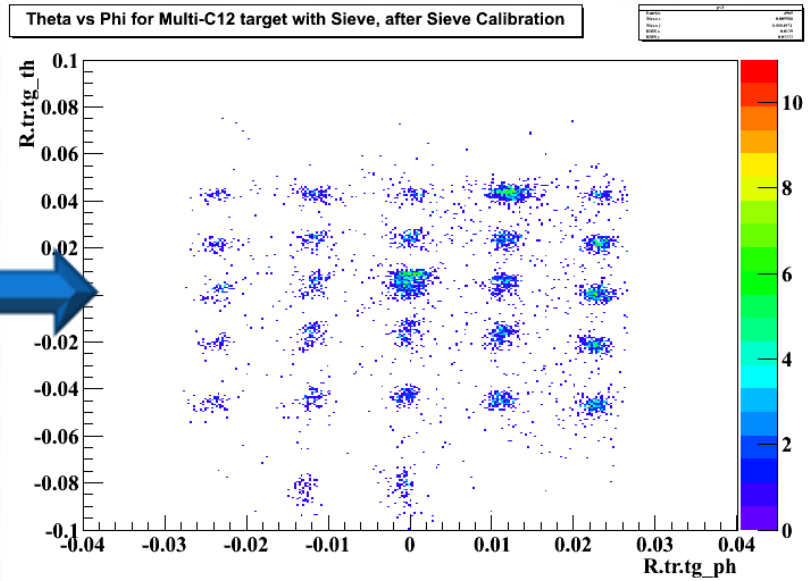


b) Sieve – (Loop1)









c) Delta P (momentum scan):

Still working on it …

5, To Do:

- RHRS Optics Calibration up to certain resolution.
- Timing Calibration (Then final Optics Calibration)
- Shower Calibration
- tracking efficiency study
- PID efficiency study
- Mysql data base?