

GMP Run in Fall 2014

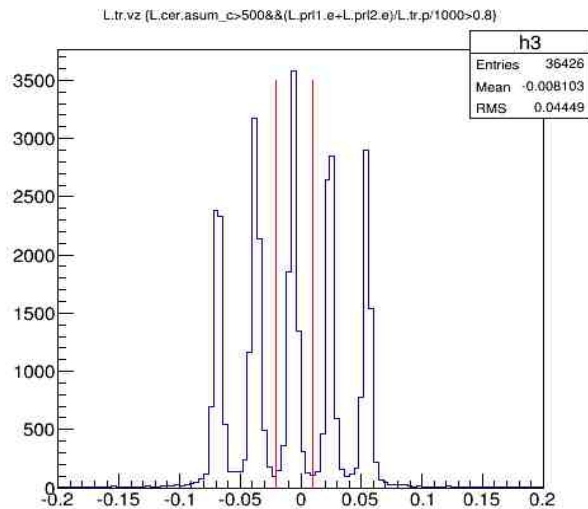
Kalyan Allada (MIT)
for GMP Collaboration

Hall A Weekly meeting, Jan 6th 2015

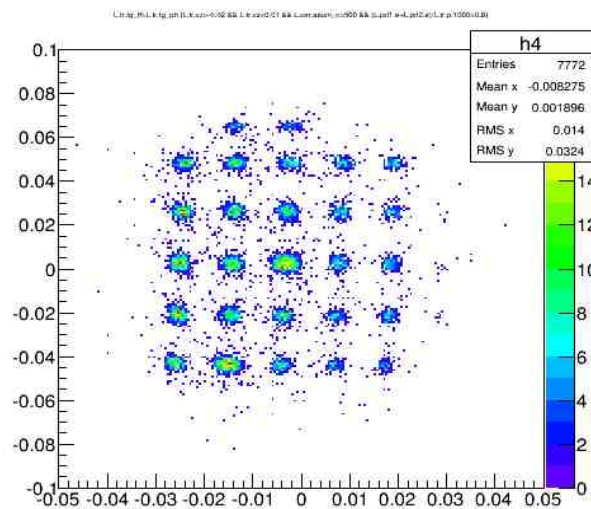
GMP Run in Fall 2014

- GMP run was about 3 shifts long
- Data taken: HRS optics and one elastic setting ($Q^2 = 7.7 \text{ GeV}^2$)

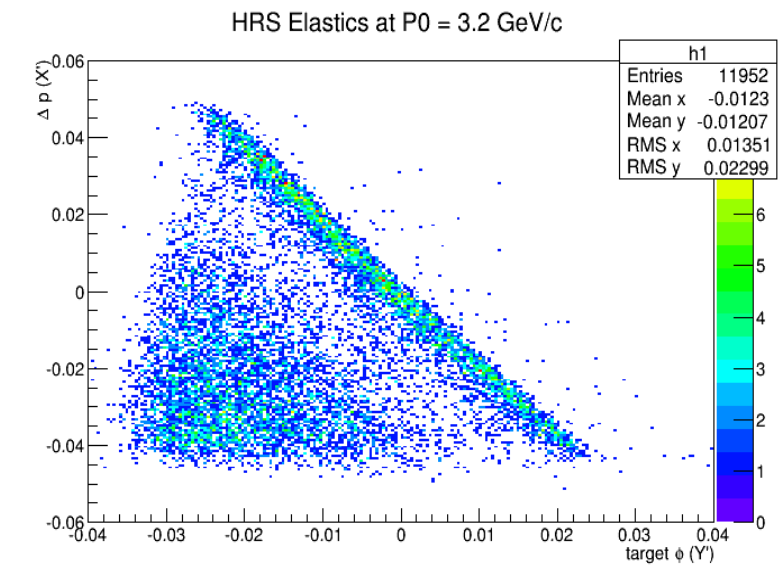
Optics target



Sieve pattern



H₂ elastics



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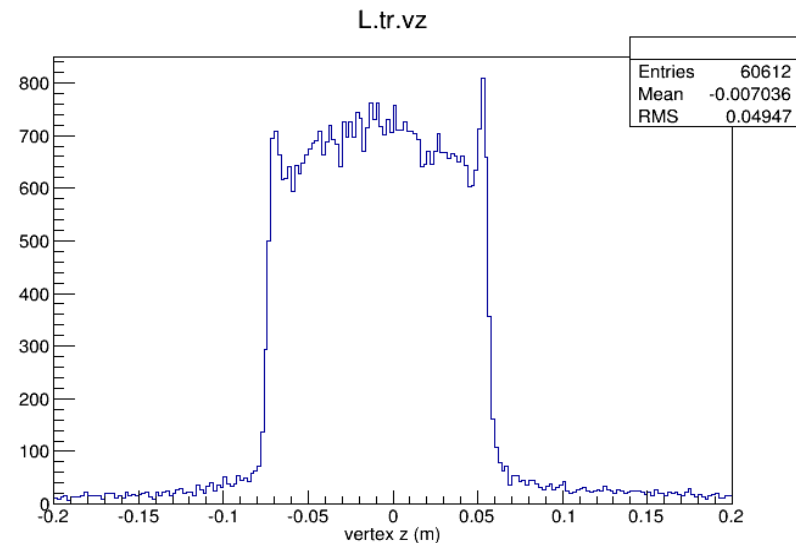
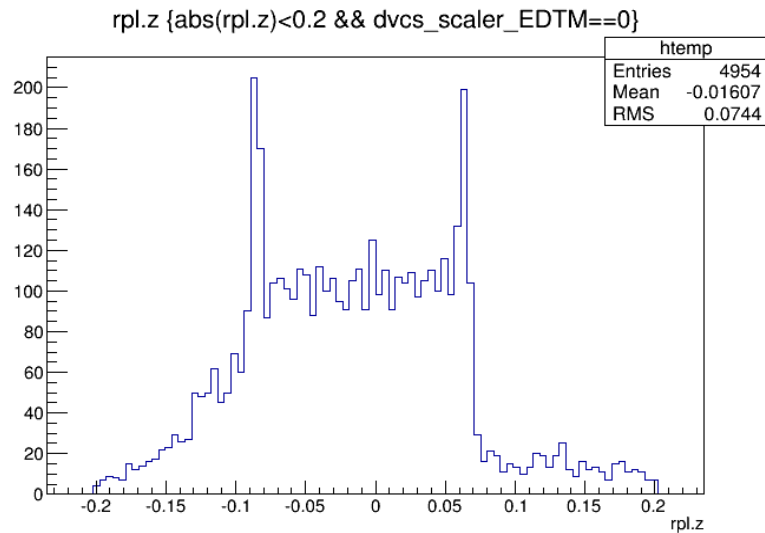
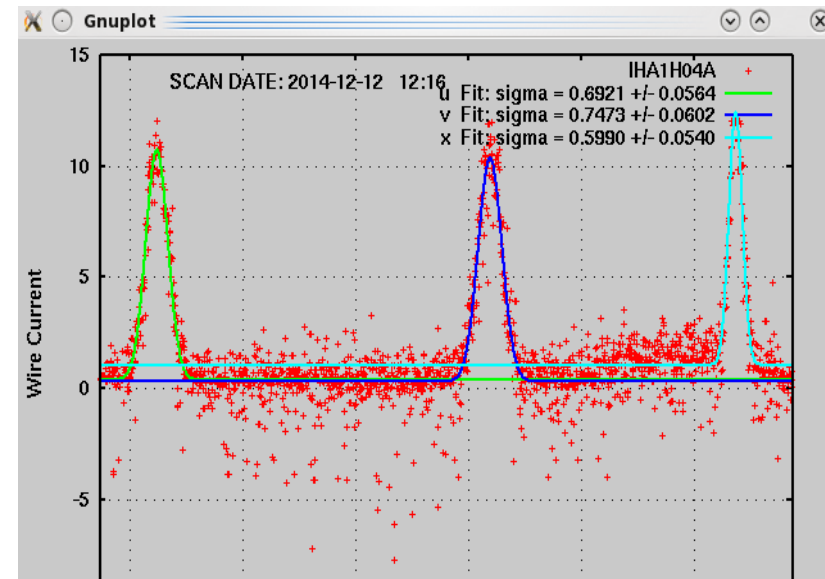
- All HRS detectors performed very well
- Some sub-systems are ready to be tested
 - Wire-target
 - Straw chamber (data obtained, require analysis)
 - Electronic deadtime (commissioned, need some more checks)
- **Items of concern** (related to beam/Hall infrastructure):
 - Large beam halo
 - Beam trips (for high current $> 10 \mu\text{A}$)
 - Beam energy uncertainties
 - Ion chamber calibrations (eg: dummy target not calibrated)
 - Target leaks
 - HRS collimator box removed (vacuum issue)
 - HRS magnets run only below 3.2 GeV

Items of concern

Beam size seems to be too large

Need to pay attention in the initial beam setup
(beam recovery procedure) after down

Bad vertex reconstruction observed



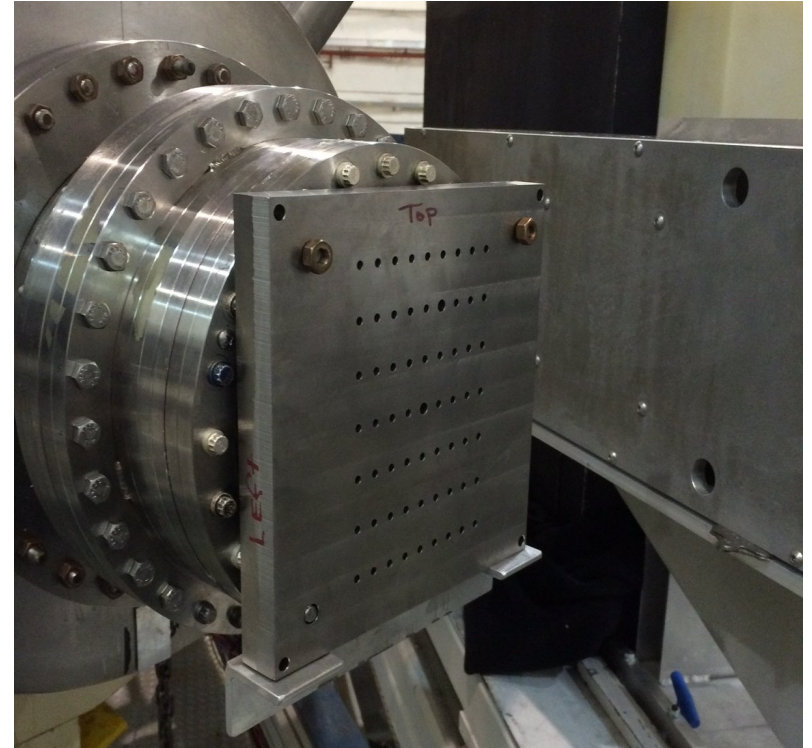
Items of Concern

Sieve mounting:

Currently uses four screws
Doesn't fit properly – concerns due to
Non-repeatability

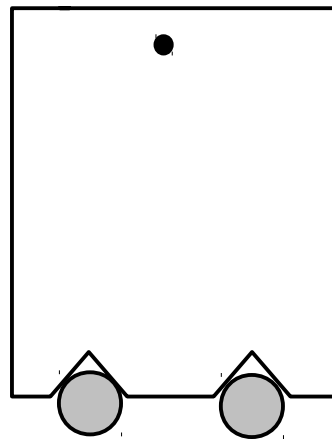
Need to redesign the sieve to mount in
accurate and reproducible way

One possibility : use only one screw



Easy mounting:

A trained expert should
be able to mount it



(Bogdan's suggestion)

To-do Items for Spring 2015 Run

- Need accurate beam energy measurement and energy lock in Hall A
- Beam has huge halo – manpower should be invested in investigation of this issue
- Beam charge calibration not finished (done up to 20 μA , need a cross-check method)
- Restore the standard HRS sieve (collimator box)
- GMP team should have access to control the wire-target once it is put in place by the target group
- A single-hole collimator for wire target data taking is needed
- HRS angle TV monitor quality is extremely low – readout on the back of the dipole should be restored
- Implement EDTM setup in the right arm
- A detailed step-by-step run-plan needs to be ready before data-taking starts