Analysis Progress

for the d_2^n analysis meeting

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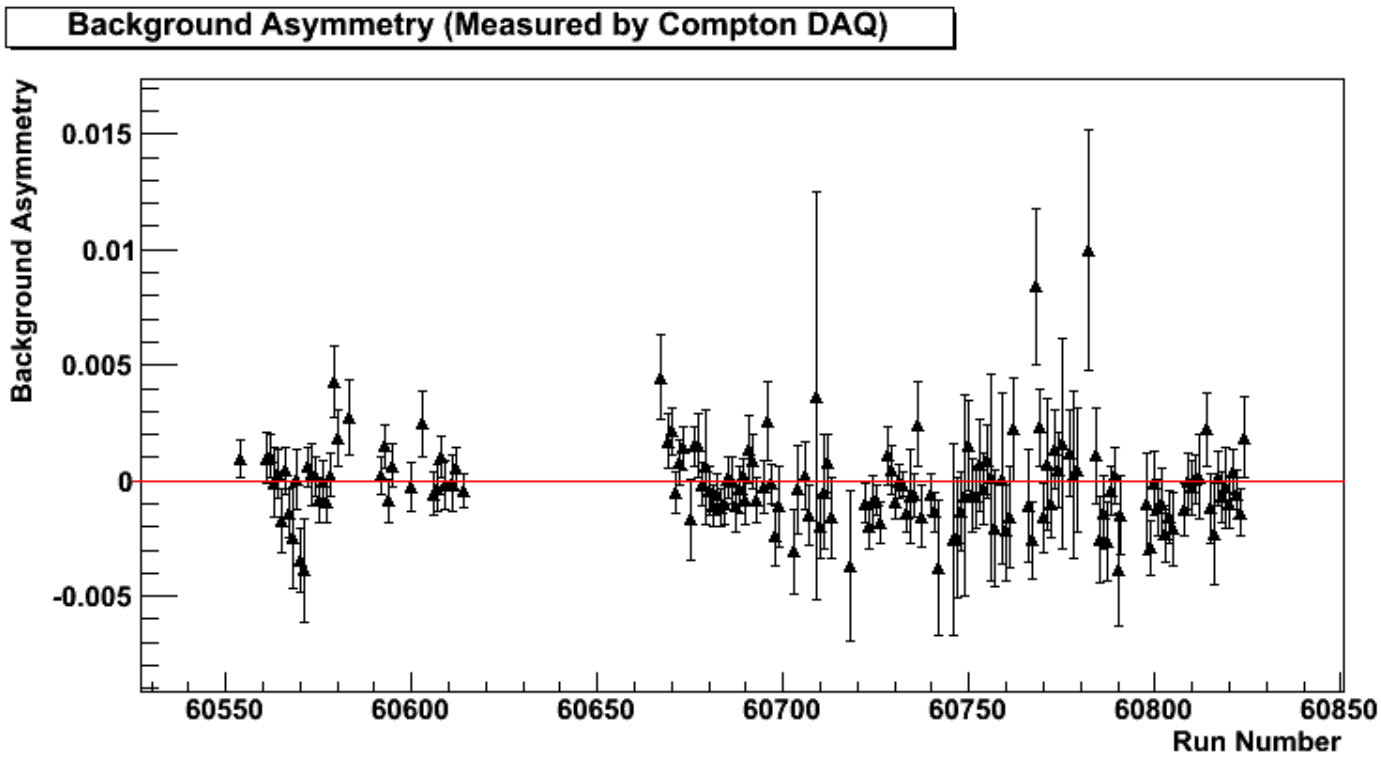
January 19, 2010

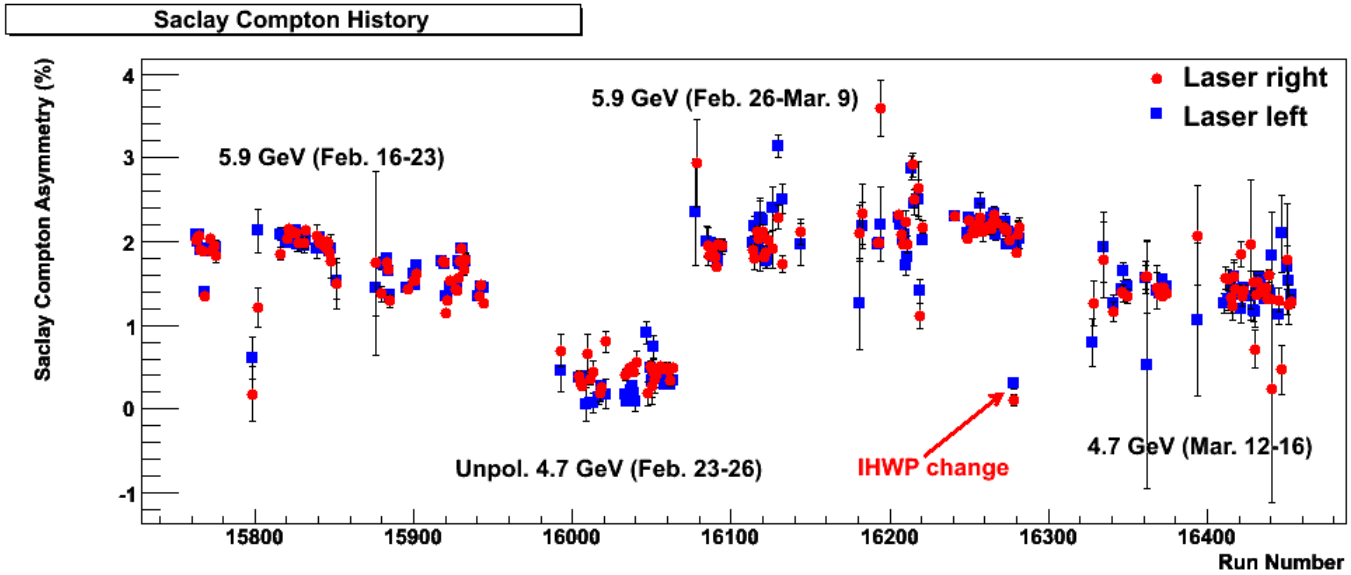
1. Compton Sanity Checks
   - Background Asymmetries
   - Comparison to Saclay Results
2. BigBite Optics
   - No Magnetic Field
   - No Sieve
3. What's Next?

Background Asymmetries

- With a polarized electron beam, we expect to measure a nonzero asymmetry only when the Compton laser is on
- When the Compton laser is off, we detect only background, which should have no asymmetry



Results from the Two DAQs



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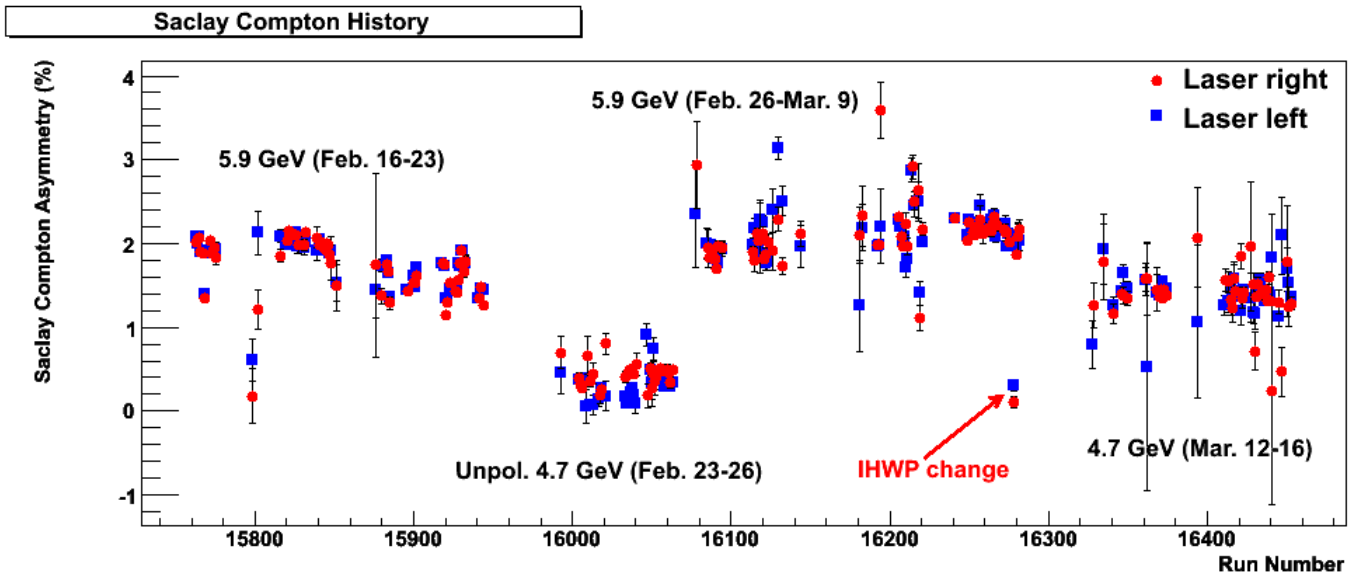
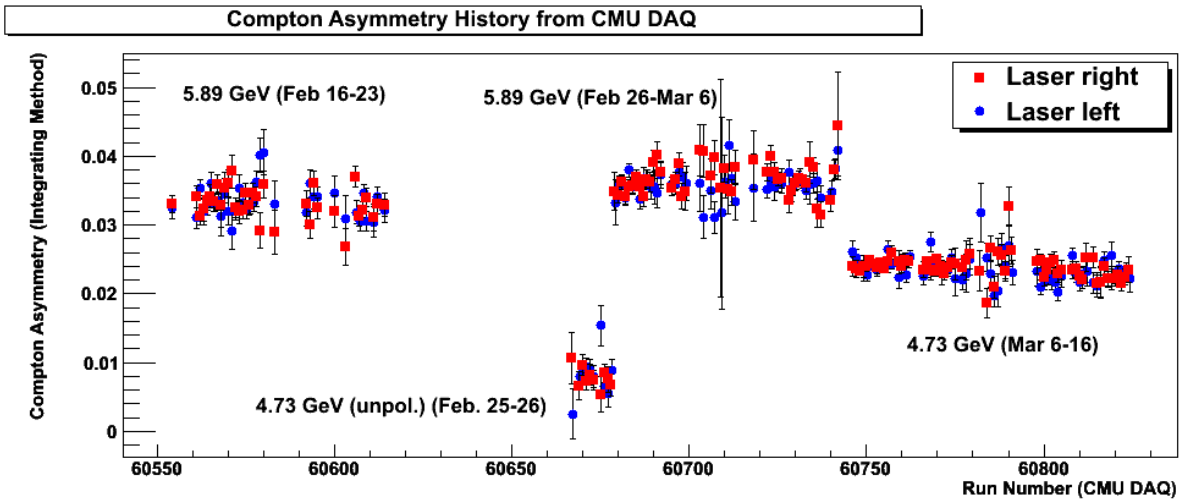
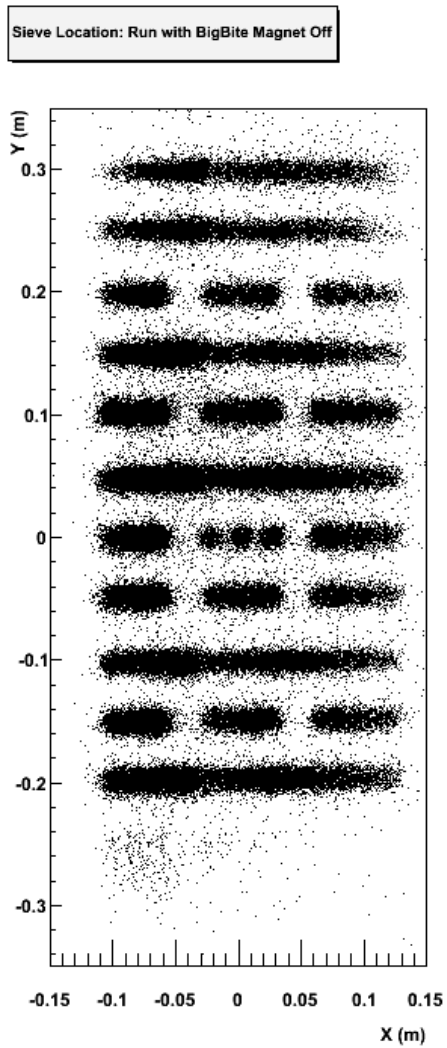




Reconstructing the Sieve

- A BB run with the magnet turned off serves several purposes:
  - Confirm that we know the correct positions of chambers, sieve
  - Test geometrical calculations, frame transformations
- We are fortunate that most of this initial work has been done by Xin
- Look at the tracks for our detected particles
- The plot shows the particle position as the track crosses the sieve plane



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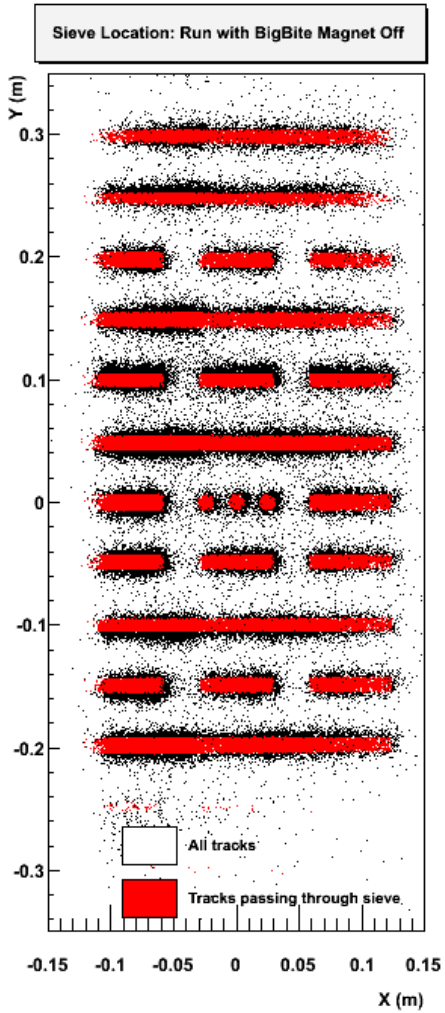
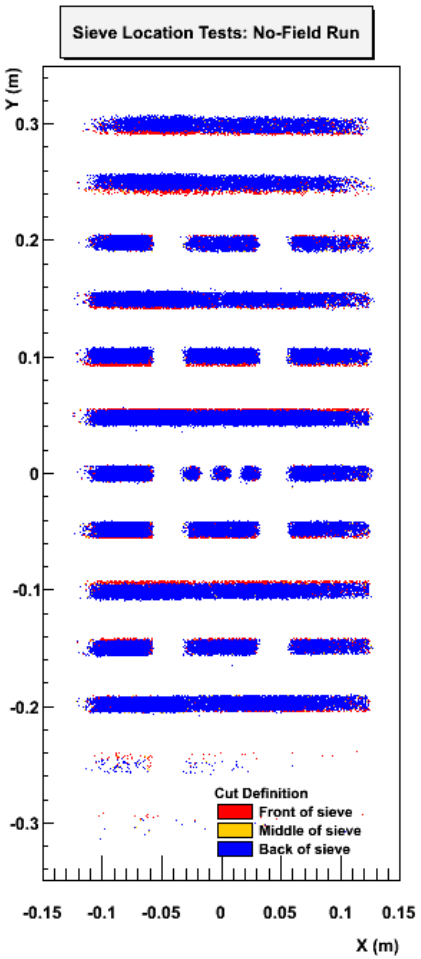


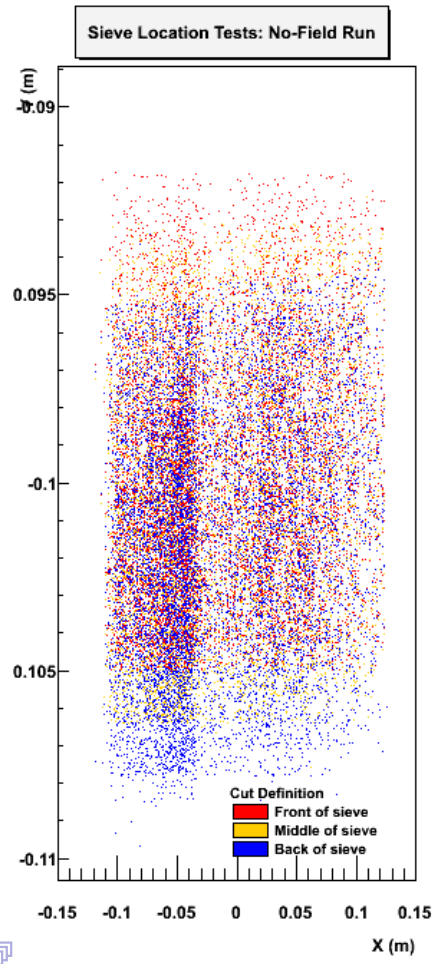
Sieve Thickness

- The sieve is 1.5 in thick
- An angled track might pass through the plate at the front and a slot at the back (or vice versa)
- Choosing a different plane for the sieve cut leads to a slightly different footprint for each slot
- Test 3 planes parallel to sieve surface: at front, center, and back of sieve

Overall Pattern



Single Slot



No-Sieve Runs

- The next step in the optics is to start correcting the optics' dependence on the track position
- Relevant runs:
  - BB magnetic field: ON (negative polarity)
  - Sieve: OUT
  - Target: BeO
- I am beginning to look at Run 1254 (Feb. 10)

What's Next?

- BB Optics
  - Examination of no-sieve run
  - Next steps:
    - Carbon target with sieve (more B-field corrections)
    - Hydrogen target (momentum corrections)
- Compton
  - Quantitative comparison of Saclay data to CMU data
  - Analyzing power
  - Systematics
- Beamline calibrations
  - Beam charge calibrations
  - BPM calibrations