

Compton Analysis Progress

for the d_2^n analysis meeting

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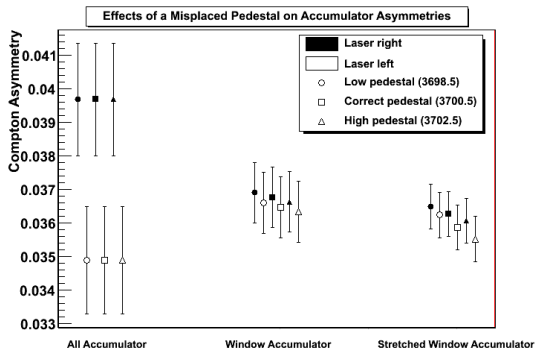
September 15, 2009

1 FADC Pedestal Studies

2 What's Next?

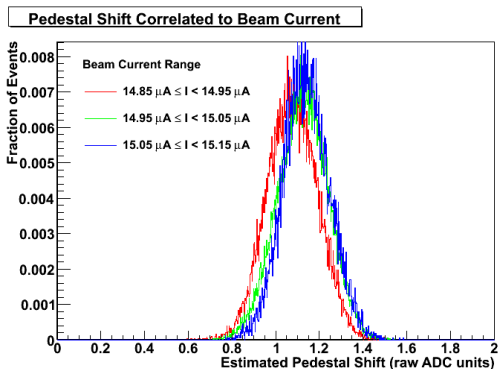
The FADC Pedestal

- The FADC signal includes a baseline level – a pedestal – as well as pulses
- Forming an accurate Compton asymmetry demands accurate knowledge of the pedestal
- Our window asymmetries are sensitive to a pedestal shift



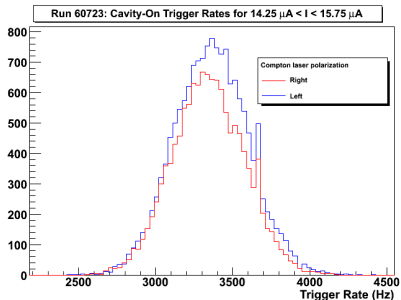
Pedestal Drift

- What if pedestal shifts aren't random?
- In one run with L/R disagreement (60723) we see a striking beam-current-dependent pedestal drift, even in our beam current acceptance range
- This might lead to systematic errors in our window asymmetries.

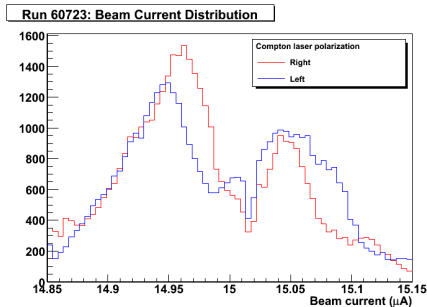


L/R Rate Discrepancies

- Ideally, rates should be the same for left/right laser polarizations
- In the real world, discrepancies can arise
 - Polarization-dependent laser steering change \rightarrow cavity power change?
 - $\sim 1\%$ during HAPPEX-III (different laserhead)
 - Runs are finite (~ 2 hrs); beam trips and ramp-ups might affect one state more than the other



Rate: Discrepancy of ~ 20 Hz



Beam Current Distribution

What's Next?

- Compton
 - HAPPEX obligations winding down
 - Work on strategy to account for pedestal drift
- BB optics
 - Finally returning to it this week