

Control Calibration & RICH PID

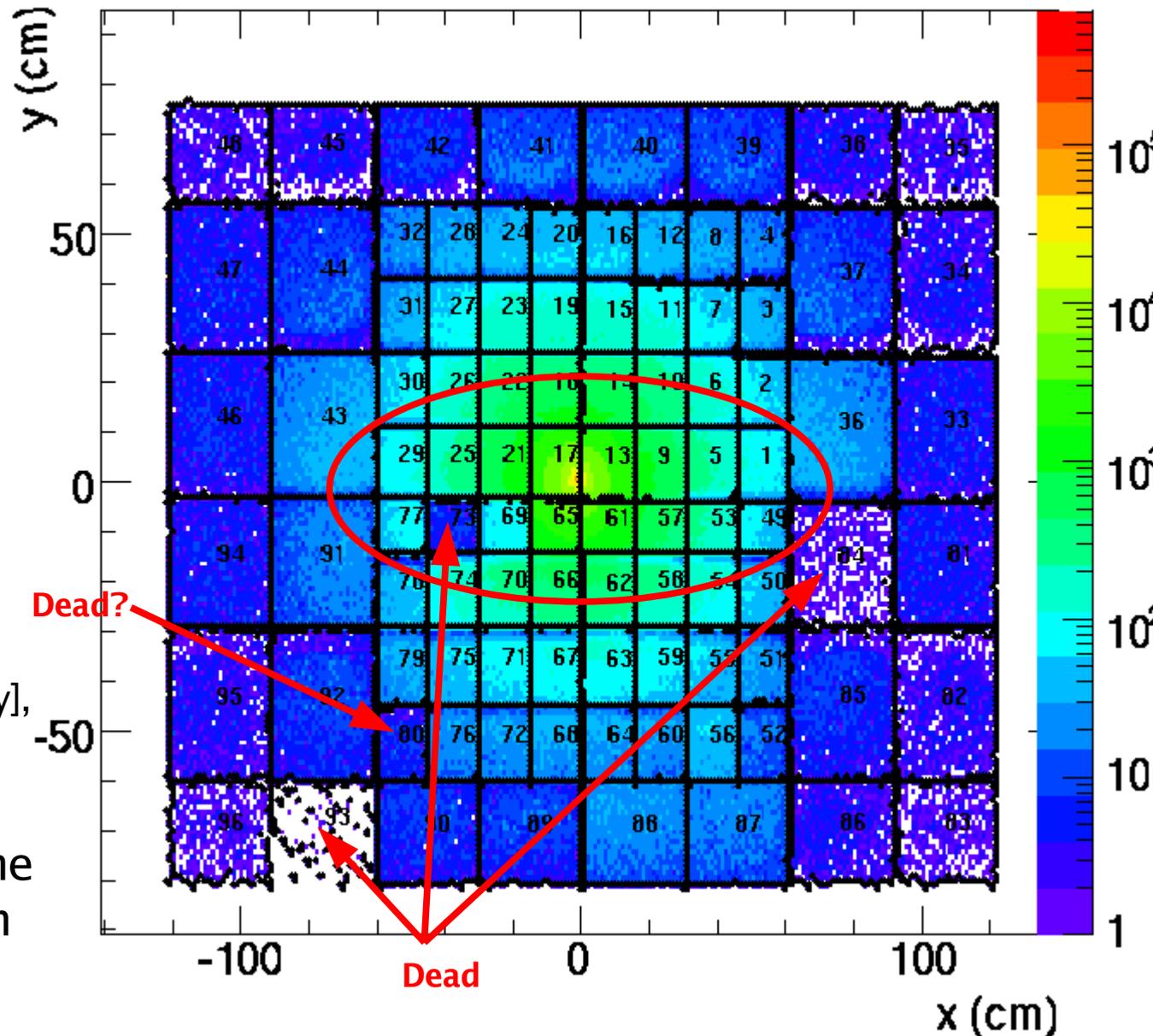
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Ckov Mirror Alignment

- To check the alignment/geometry of the Ckov mirrors, I generated (x,y) profile histograms for each of the 96 mirrors.
 - (x,y) are obtained by projecting the track from the face of the Ckov detector to the point of intersection on the mirror plane as determined from the reconstruction.
 - Black dots are the “edges” of each (x,y) profile histogram. Edges are determined by projecting the 2D scatter plot onto the y[x] axis in slices of x[y], and searching for the first and last bin with non-zero entries.
- Slight asymmetry between the middle two rows (intersection of the two mirror planes)?

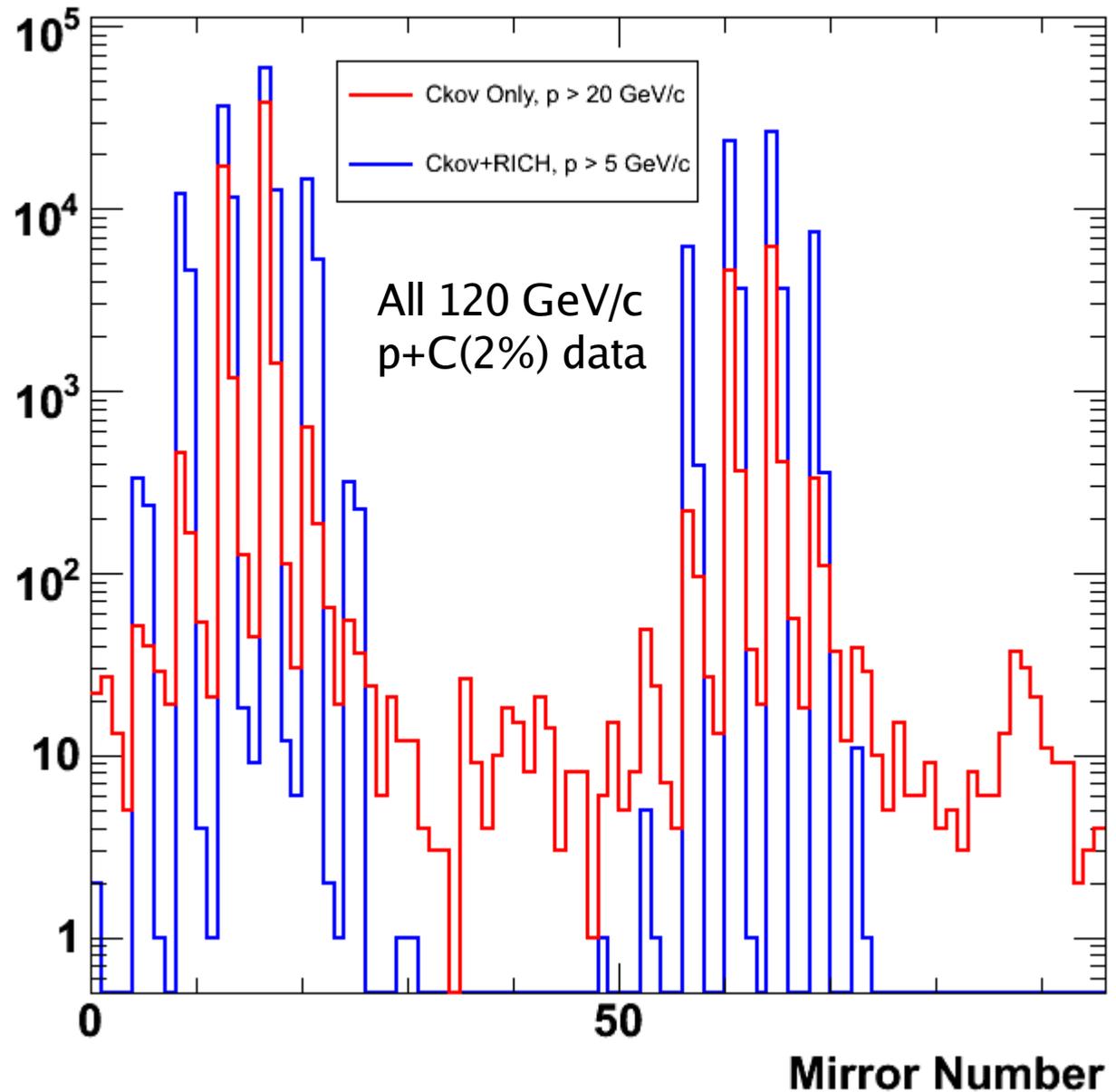
(x,y) of all Tracks Projected onto DCkov Mirrors



Ckov Calibration Approach

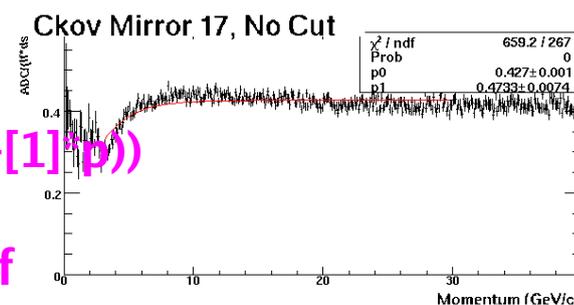
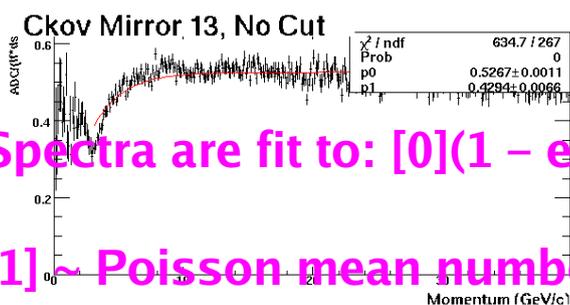
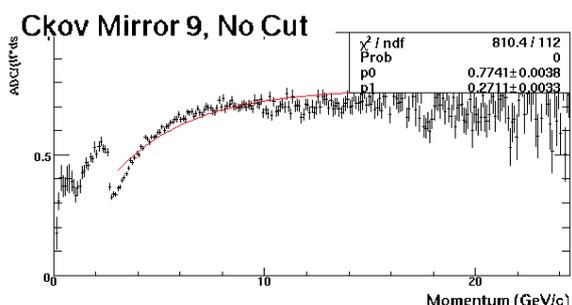
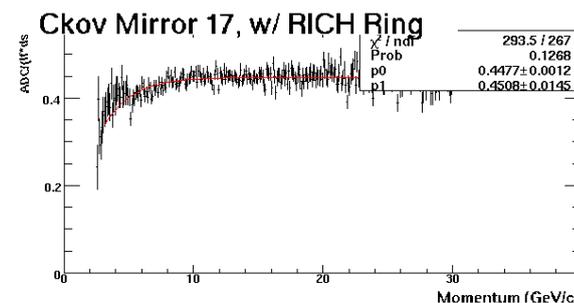
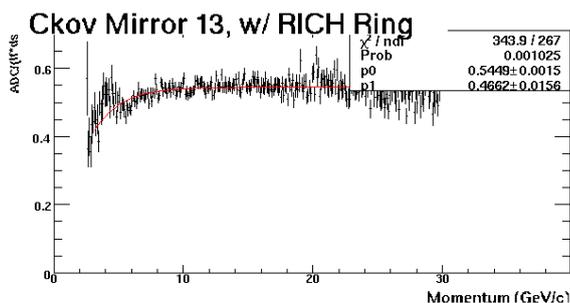
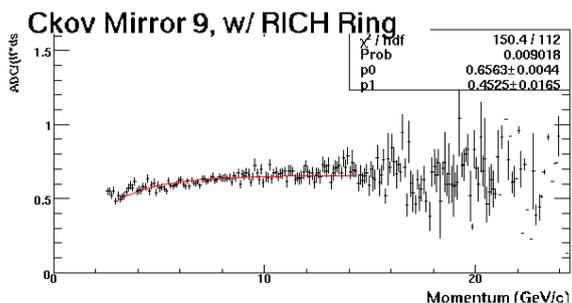
- As I showed previously, we should be able to get a cleaner signal and increase the statistics in a few mirrors by using tracks at lower momentum that are tagged by the RICH.
 - pion threshold in the RICH is ~ 5 GeV/c.
 - Unambiguous PID from RICH in most cases
- Want to compare calibration constants we get from the previous method to the constants we get from this method.

Number of Clean Tracks vs. Ckov Mirror



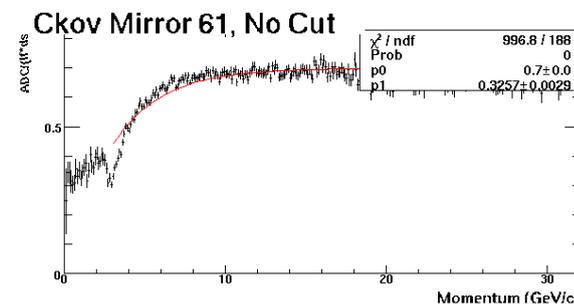
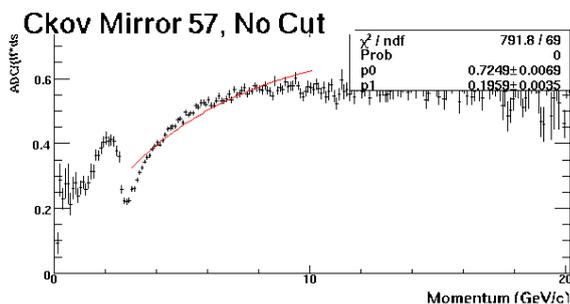
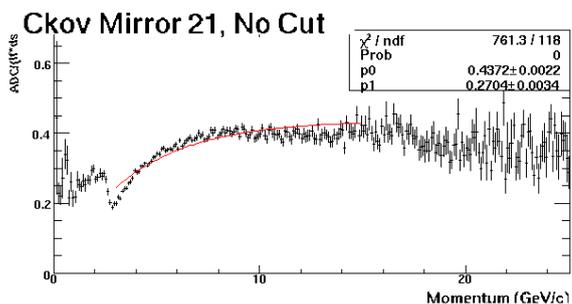
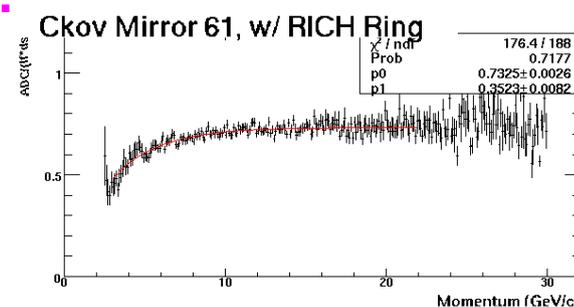
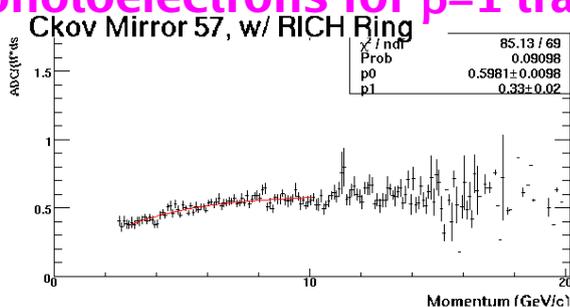
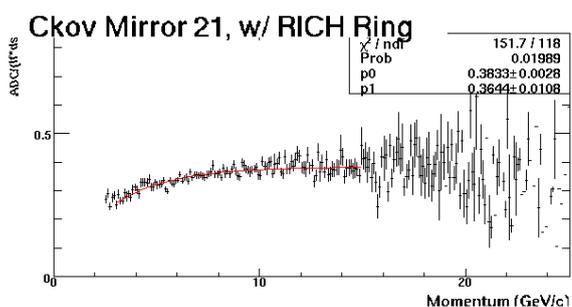
Ckov-RICH Comparison

ADC/(If*ds)



Spectra are fit to: $[0](1 - \exp(-[1]p))$

[1] ~ Poisson mean number of photoelectrons for $\beta=1$ tracks.



Momentum (GeV/c)

To-do

- Spectra using RICH give cleaner determination of $N_{\text{p.e.}} (\beta=1)$. Compare $N_{\text{p.e.}}$ from both RICH+Ckov and Ckov-only adc distributions... perhaps renormalize Ckov-only plots to RICH+Ckov.
- Relative calibration of remaining mirrors will be done w.r.t. mirror 17.
- Absolute calibration will come from ADC distribution of mirror 17.
- Just a few days away until I am finished, but this realistically translates into at least 1 week (sorry, lots of meetings coming up)