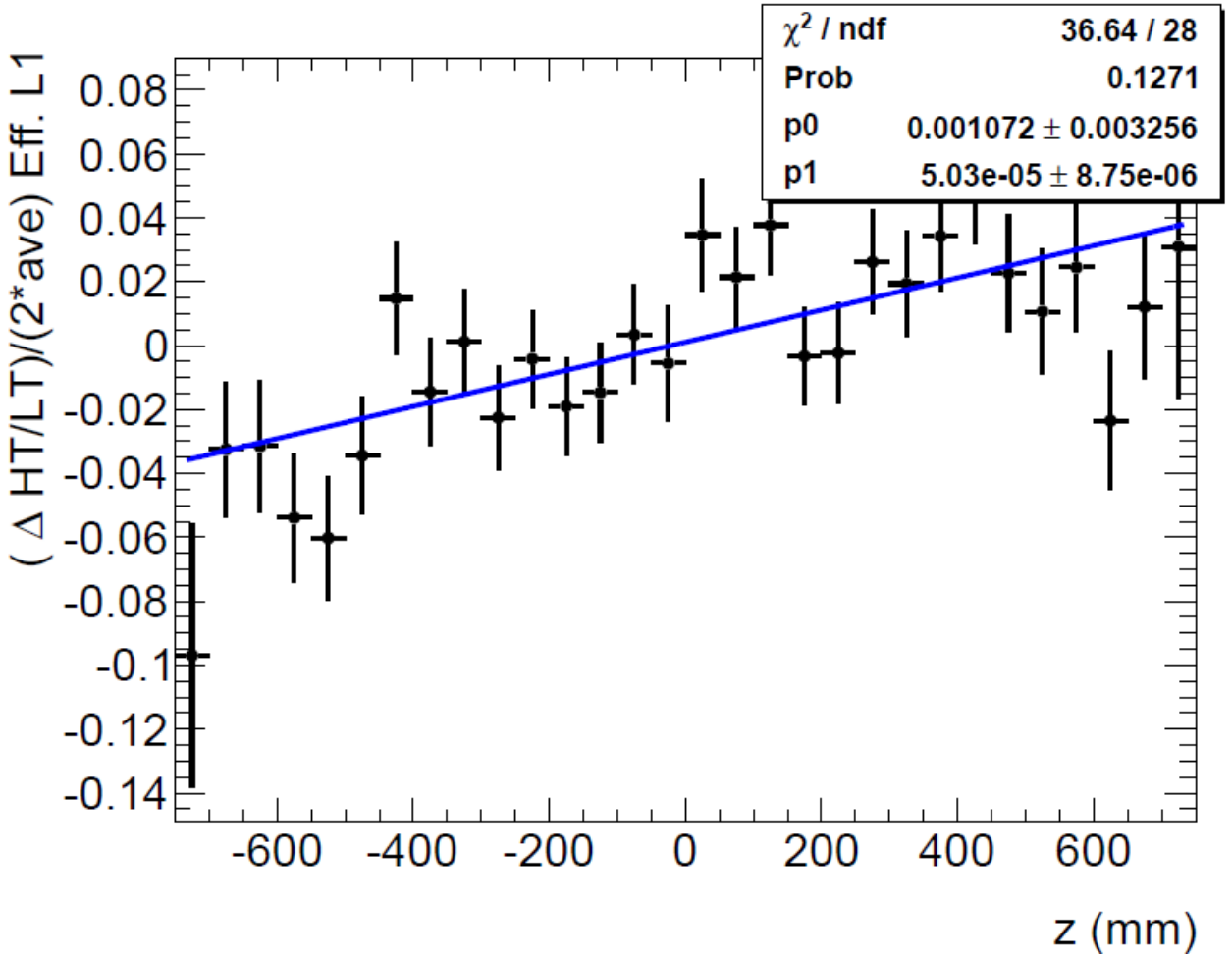
TRT Aging: Single Run

Goal

- We wanted to look at the aging plots for a single run of the data period.
- If there are enough statistics, we can presumably use our plots in the TRT calibration plots.
- For a single run we can cut on the Luminosity bins, which is directly related to instantaneous luminosity.

PERIOD E 2012 DATA:
RUN 209269

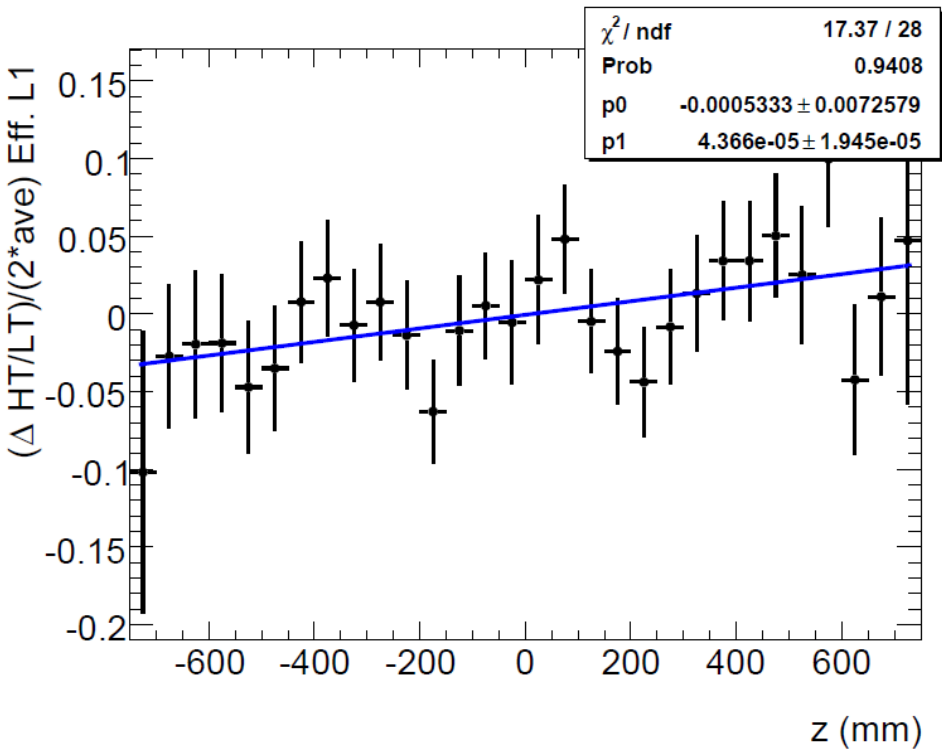
Δ(HT/LT)/(2*Ave(HT/LT)) Layer 1 Long



Slope: 5.03*10^-5
+/- .875*10^-5

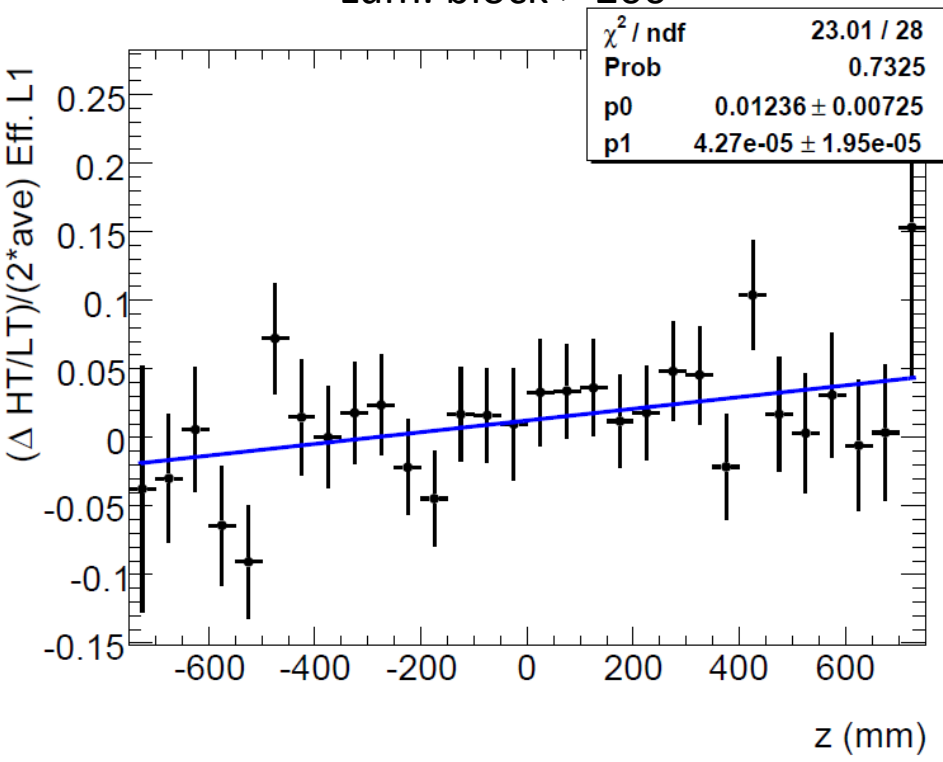
Δ(HT/LT)/(2*Ave(HT/LT)) Layer 1Long: Early and Late Lum. Blocks

Lum. block <100



Slope: 4.366*10^-5 +/- 1.945*10^-5

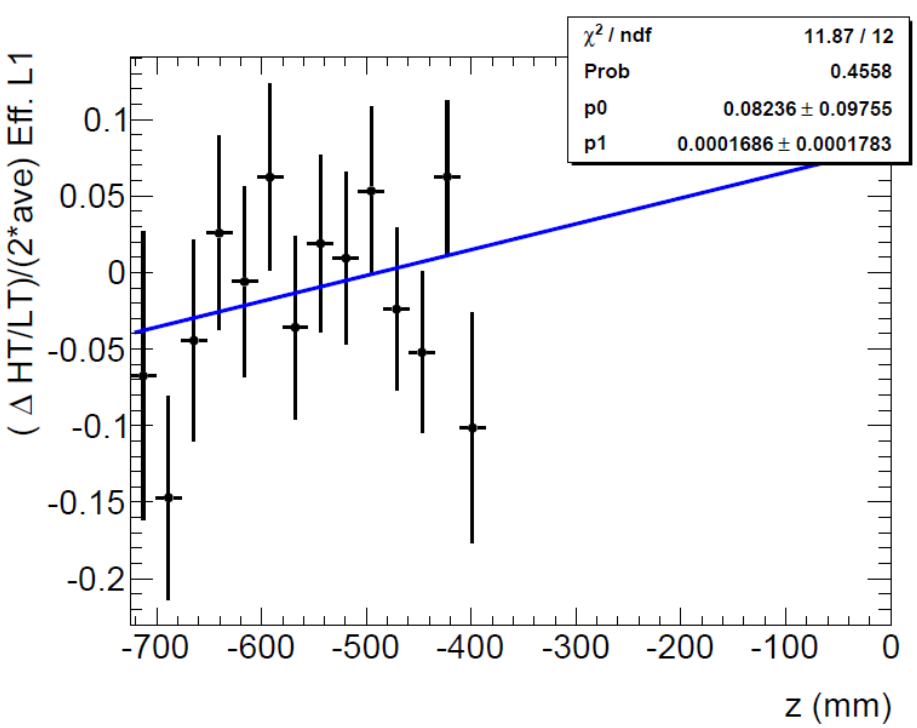
Lum. block > 200



Slope: 4.27*10^-5 +/- 1.95*10^-5

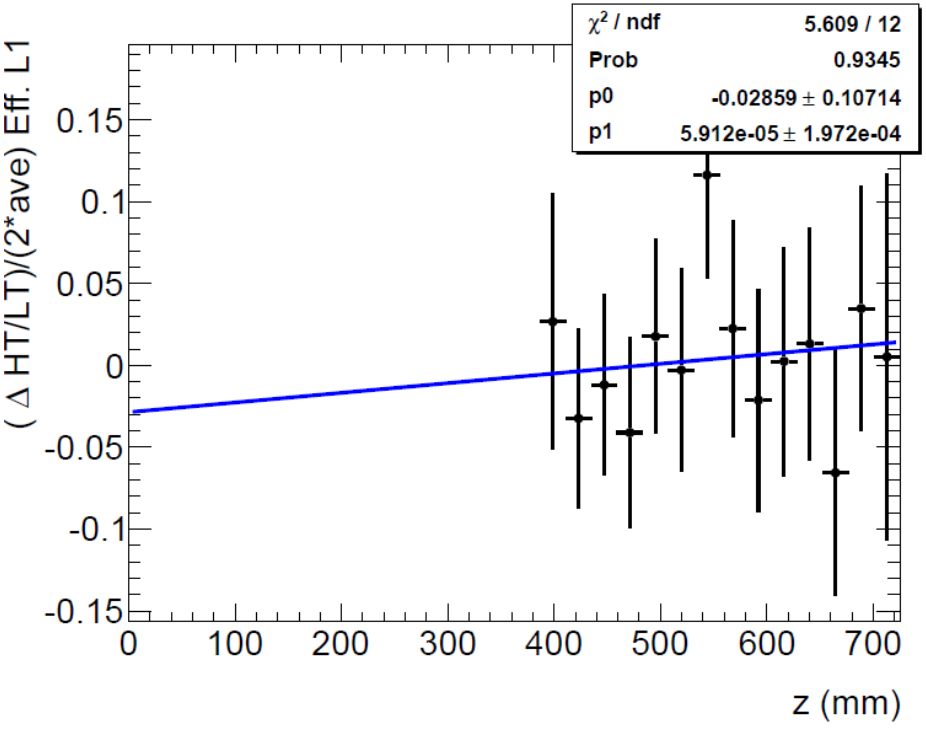
Δ(HT/LT)/(2*Ave(HT/LT)) Layer 1 Short

Track z < 0



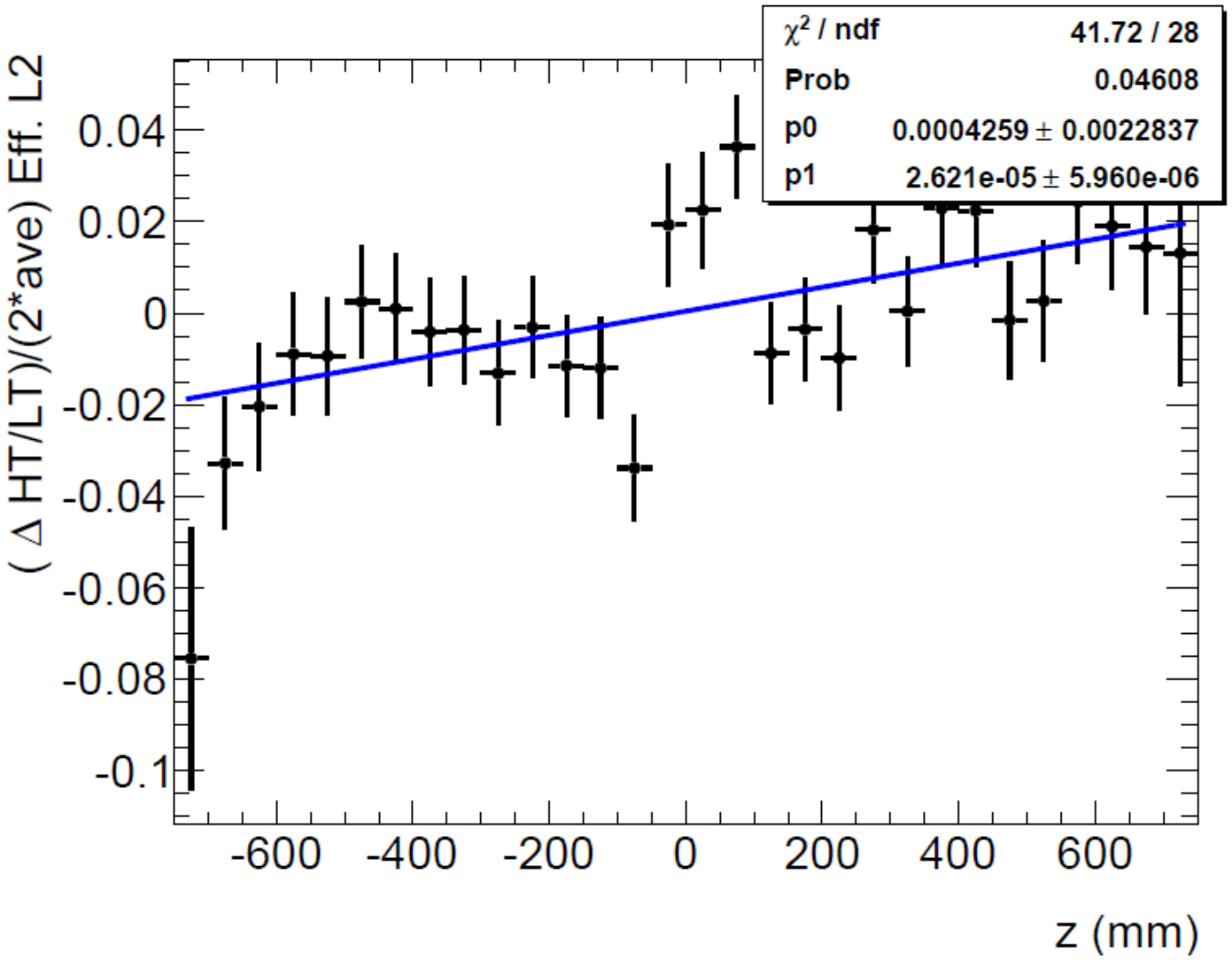
Slope: 16.86*10^-5 +/- 17.83*10^-5

Track z > 0



Slope: 5.912*10^-5 +/- 19.72*10^-5

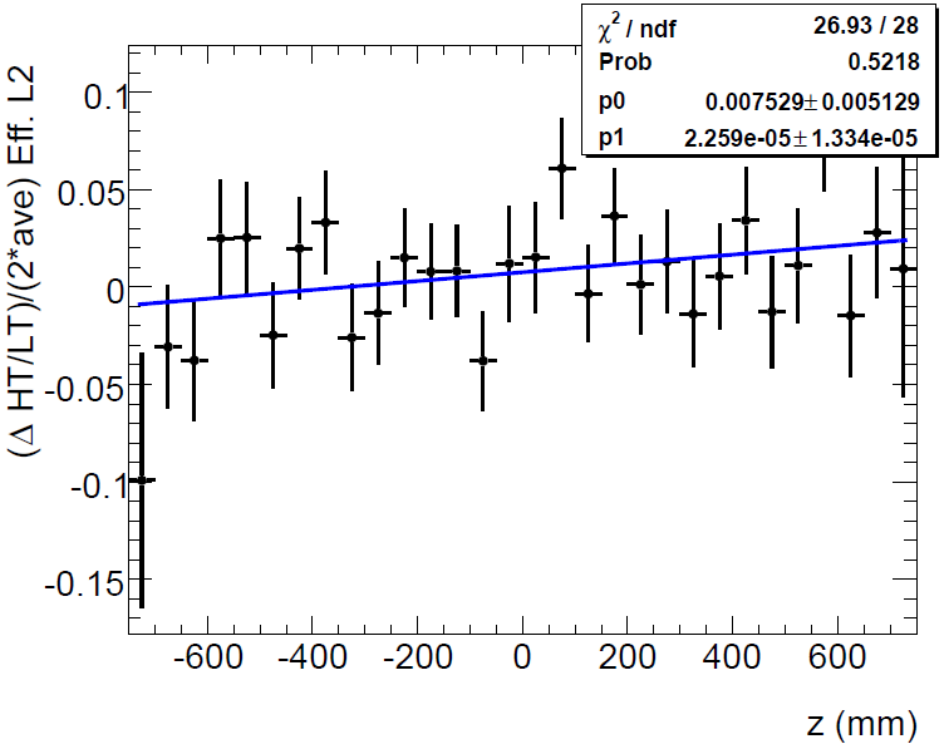
Δ(HT/LT)/(2*Ave(HT/LT)) Layer 2



Slope: 2.261*10^-5
+/- .596*10^-5

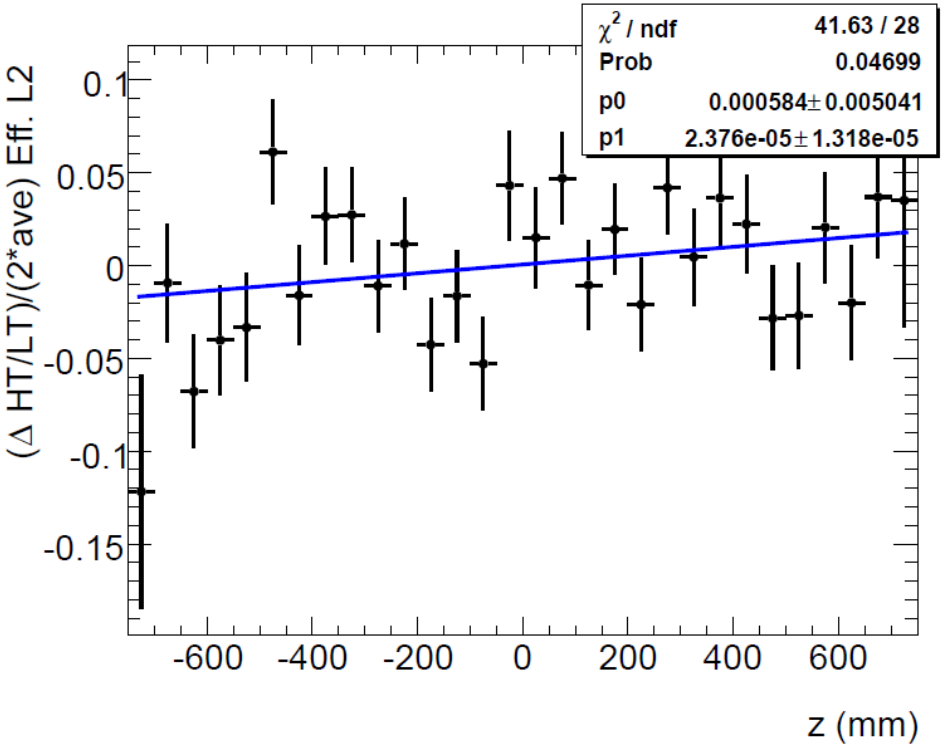
Δ(HT/LT)/(2*Ave(HT/LT)) Layer 2: Early and Late Lum. Blocks

Lum. block <100



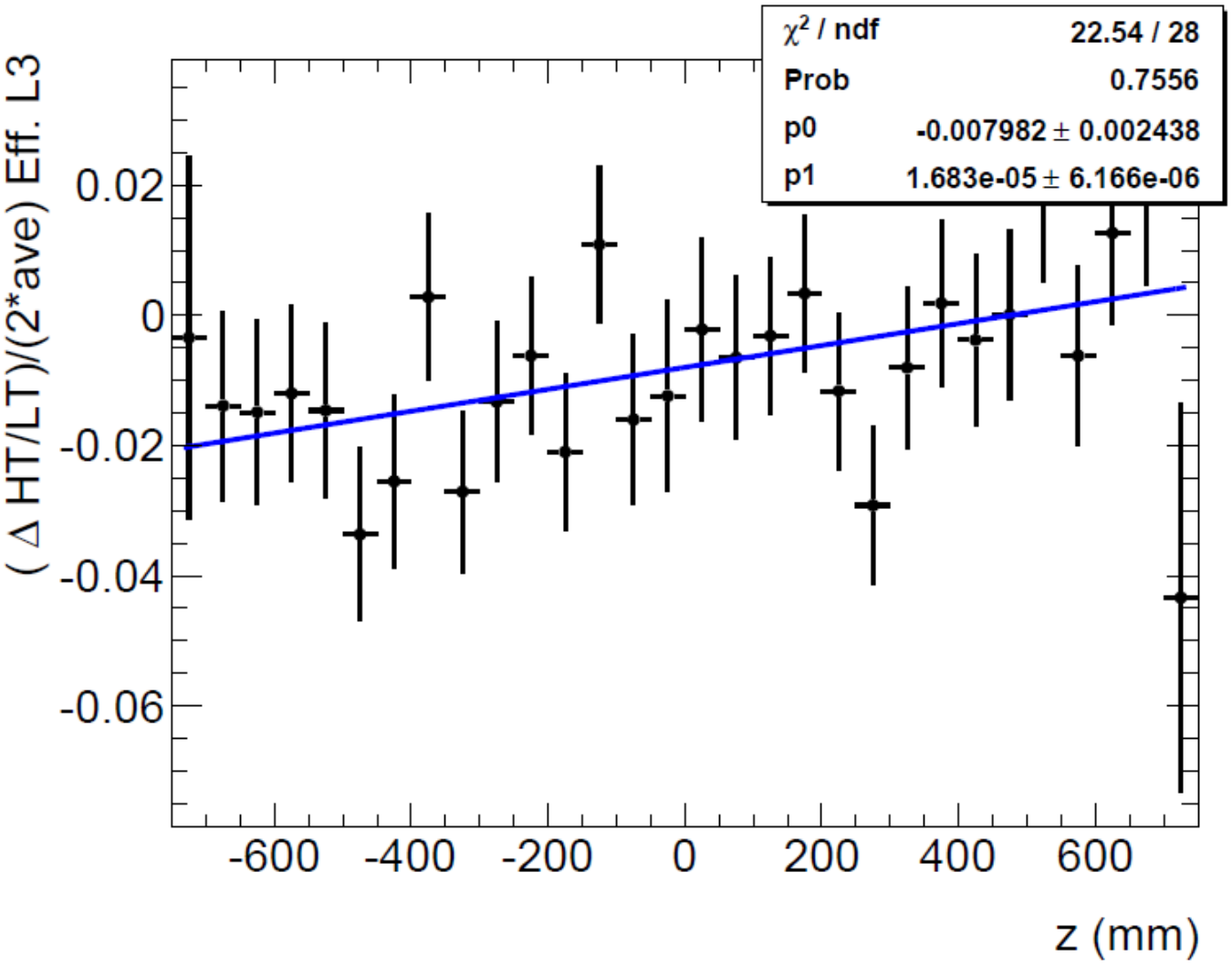
Slope: 2.259*10^-5 +/- 1.334*10^-5

Lum. block > 200



Slope: 2.376*10^-5 +/- 1.318*10^-5

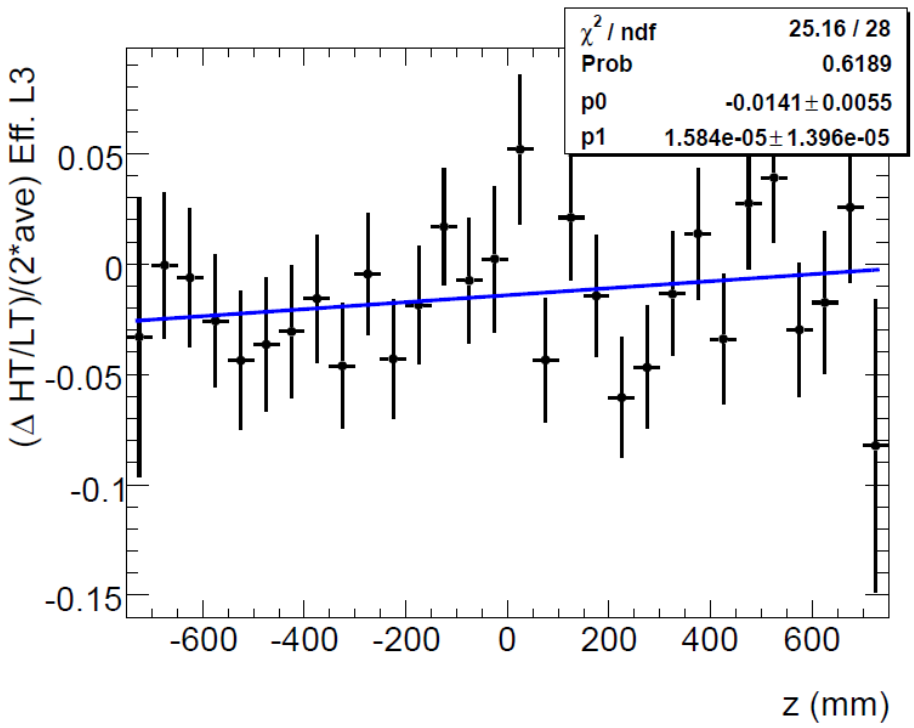
Δ(HT/LT)/(2*Ave(HT/LT)) Layer 3



Slope: 1.683*10^-5
+/- .6166*10^-5

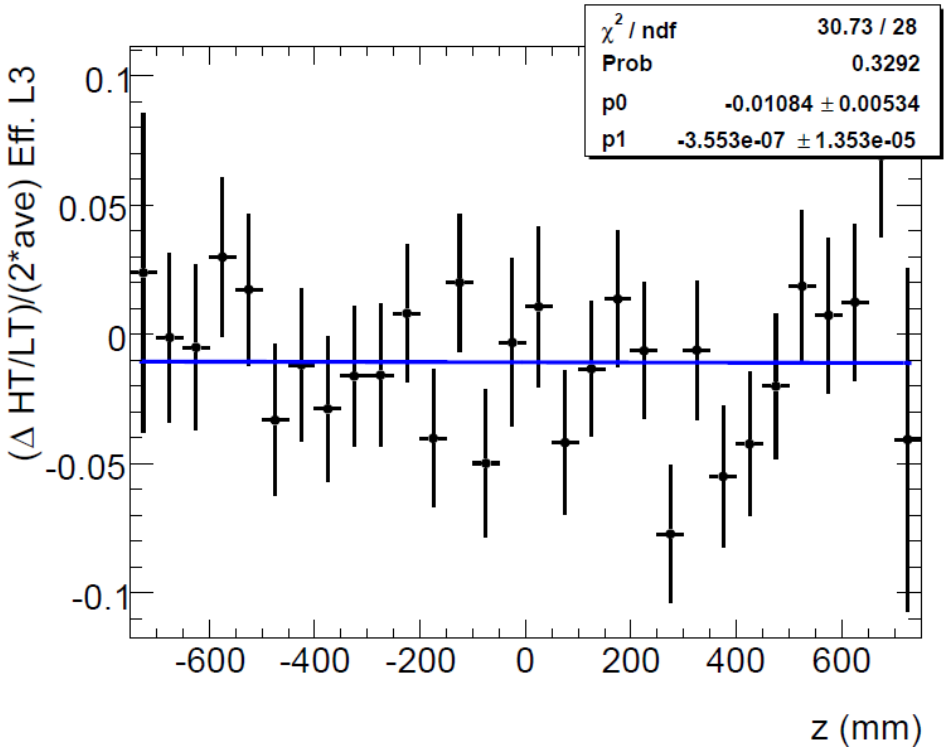
Δ(HT/LT)/(2*Ave(HT/LT)) Layer 3: Early and Late Lum. Blocks

Lum. block <100



Slope: 1.584*10^-5 +/- 1.396*10^-5

Lum. block > 200



Slope: -.003553*10^-5 +/- 1.353*10^-5

Summary

	Total (10^-5)	Lum. Bin <100 (10^-5)	Lum. Bin >200 (10^-5)
Layer 1 (Long)	5.03 +/- .875	4.366 +/- 1.945	4.27 +/- 1.95
Layer 1 (short z<0)	16.86 +/- 17.83	N/A	N/A
Layer 1 (short z>0)	5.912 +/- 19.72	N/A	N/A
Layer 2	2.261 +/- .596	2.259 +/- 1.334	2.376 +/- 1.318
Layer 3	1.683 +/- .6166	1.584 +/- 1.396	-.003553 +/- 1.353

- It does look like there are enough statistics to measure the effect for a single run.
  - This means that it is plausible to include the histograms in the calibration plots.
  - There might not be enough statistics to look at the short straws for a single run.
- There is a significant decrease in the slop with distance from the beam (Layer 1 to Layer 3) as seen in column 1.
- Because we are using one run, we can cut on luminosity blocks, this has a direct relationship to instantaneous luminosity. There does not seem to be a strong difference between the early and late luminosity bins, this is evidence against ozone production.
  - We can compare this to full period runs using cuts on <μ> instead of luminosity bins.