



Pass 2 Preparations



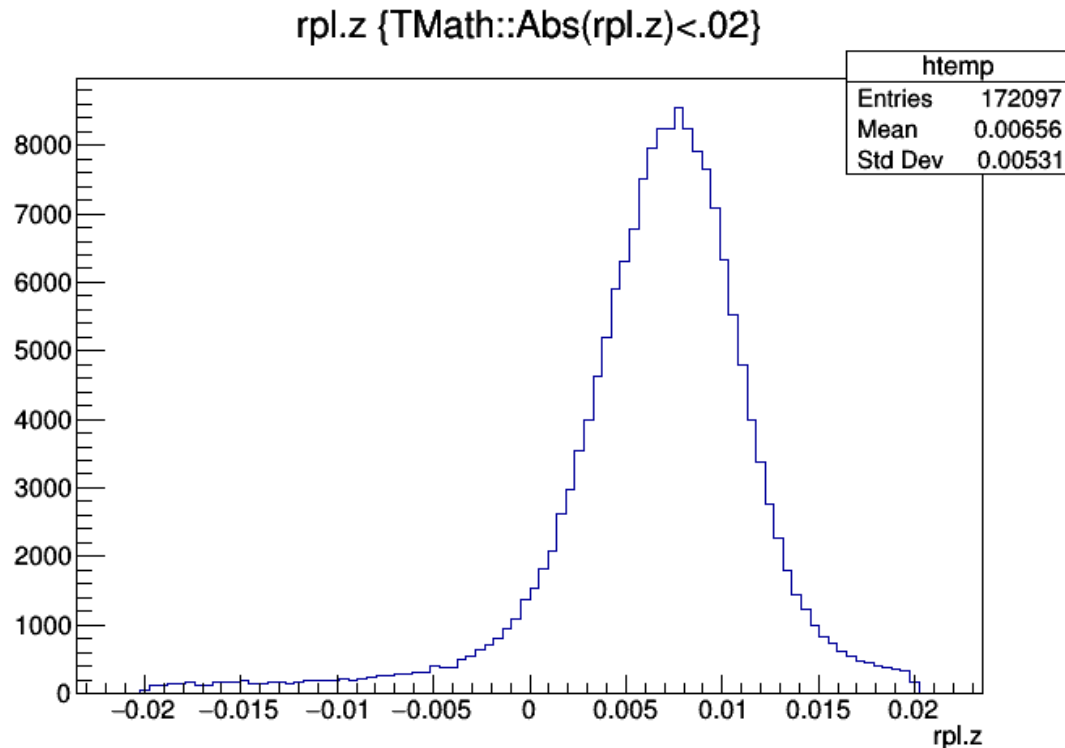
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What Has Changed?

- ▶ Hand Curated Runlists
 - ▶ Omit runs that are bad
- ▶ Found runs that are incorrectly labeled
- ▶ Updated BPM and Raster calibrations
 - ▶ Should improve z-resolution
- ▶ Updated Optics Matrix

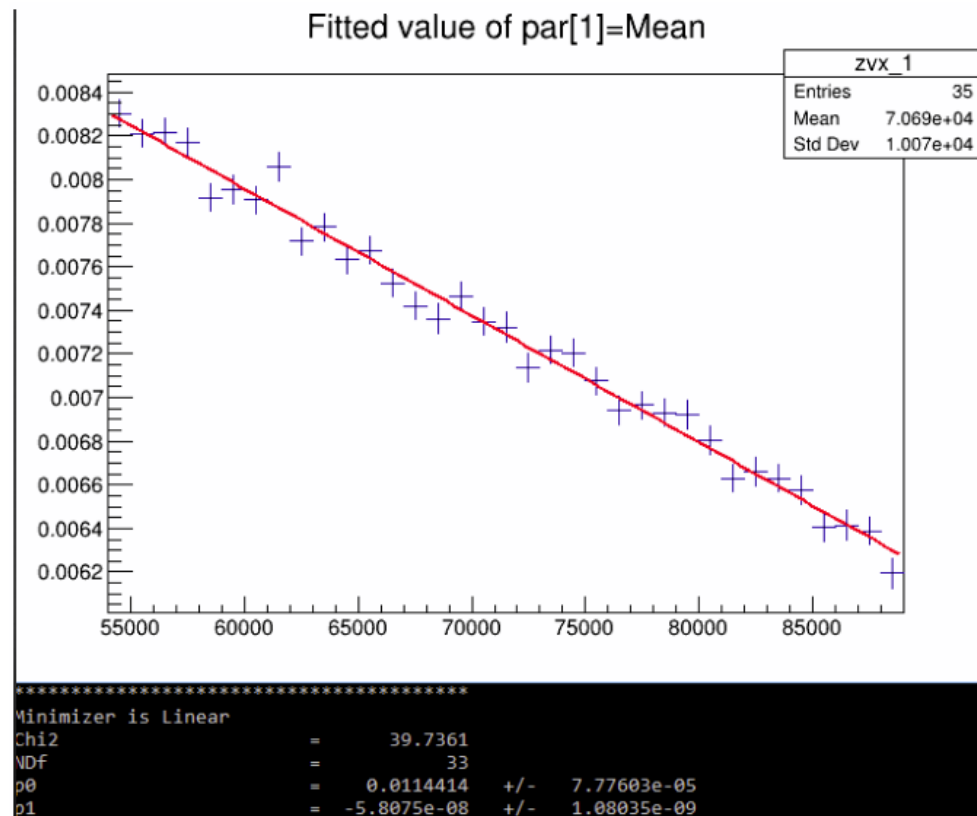
How much of an improvement do we see with the new raster calibration?

- ▶ We can test the “goodness” of the calibration by looking at the z-vertex on a thin target, such as the carbon foil



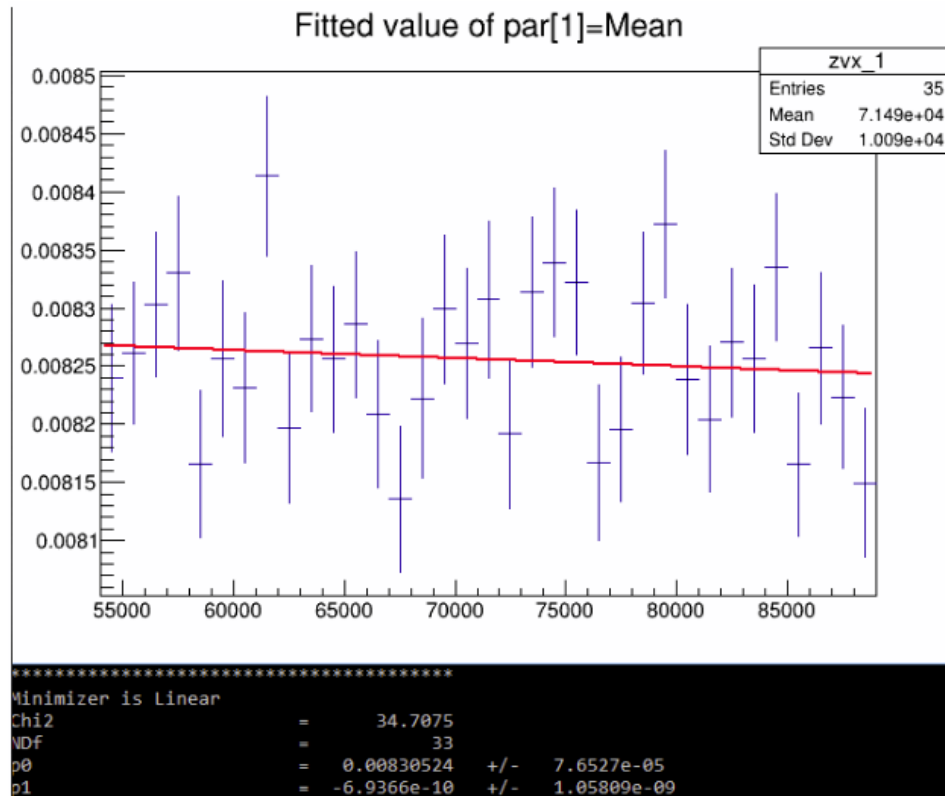
How much of an improvement do we see with the new raster calibration?

- ▶ Using the old calibration method
 - ▶ The reconstructed z shifts by 2mm over the raster range!



How much of an improvement do we see with the new raster calibration?

- ▶ Using the new calibration method
 - ▶ Now it only shift by $\sim 0.02\text{mm}$



What Has Changed?

- ▶ Hand Curated Runlists
 - ▶ Omit runs that are bad
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 - ▶ Should *slightly* improve z-resolution
- ▶ Updated Optics Matrix
- ▶ db_run.dat fix

Huh? What was wrong with db_run?

- ▶ Last week, Mike and I discovered that many timestamps in db_run were slightly off from when the run happened.
- ▶ Most of the time, the timestamp would be 5-10 seconds after the run began. This causes the analyzer to use the db_run settings from the previous run.
- ▶ This is *typically* not an issue, the settings didn't change.
- ▶ This is only an issue when the previous run was a cosmic run due to a dipole crash. In this case, the momentum is set to 0 and no events are reconstructed. This *did* happen.
- ▶ Over the weekend, I wrote a script that sets the timestamps to 1 second before the run started, this will ensure that the replays use the correct settings.

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- ▶ All of these changes should yield an improvement in data quality.

One last consideration

- ▶ Rey wrote a class for the analyzer that applies ionization energy losses to the beam and to the track.
- ▶ Hanjie looked into the EXTERNALS code and found that it does not include ionization losses.

One last consideration

- ▶ Rey wrote a class for the analyzer that applies ionization energy losses to the beam and to the track.
- ▶ Hanjie looked into the EXTERNALS code and found that it does not include ionization losses.
- ▶ It seems that it is in our best interest to include these classes in Pass 2.
- ▶ Using the classes allows us to output the data both before and after these corrections, so we are not at risk if there is an issue.
- ▶ I have not fully implemented it into our code yet, but plan to soon assuming we decide to move forward with it.

Pass 2?

- ▶ Are we ready for pass 2?
- ▶ Am I overlooking anything that needs done?