New Workflow

1. CDC time-to-distance × 3

   4 M events

2. BCAL calibrations

   35 M events

3. CDC dE/dx

   4 M events

4. CDC time-to-distance

   4 M events

CDC-to-BCAL Workflow Details

Start w/ up-to-date CCDB and software, revert tables to constants day before run taken:

- `/CDC/drift_parameters`
- `/CDC/digi_scales`
- `/BCAL/tdiff_u_d`
- `/BCAL/z_track_parms`

(1) CDC time-to-distance:

- CDC_TimeToDistance plugin
- ttodfit.C (produces new ccdb constants)
- Update `/CDC/drift_parameters`
- $\times 4$ iterations per global loop

(2) BCAL timing:

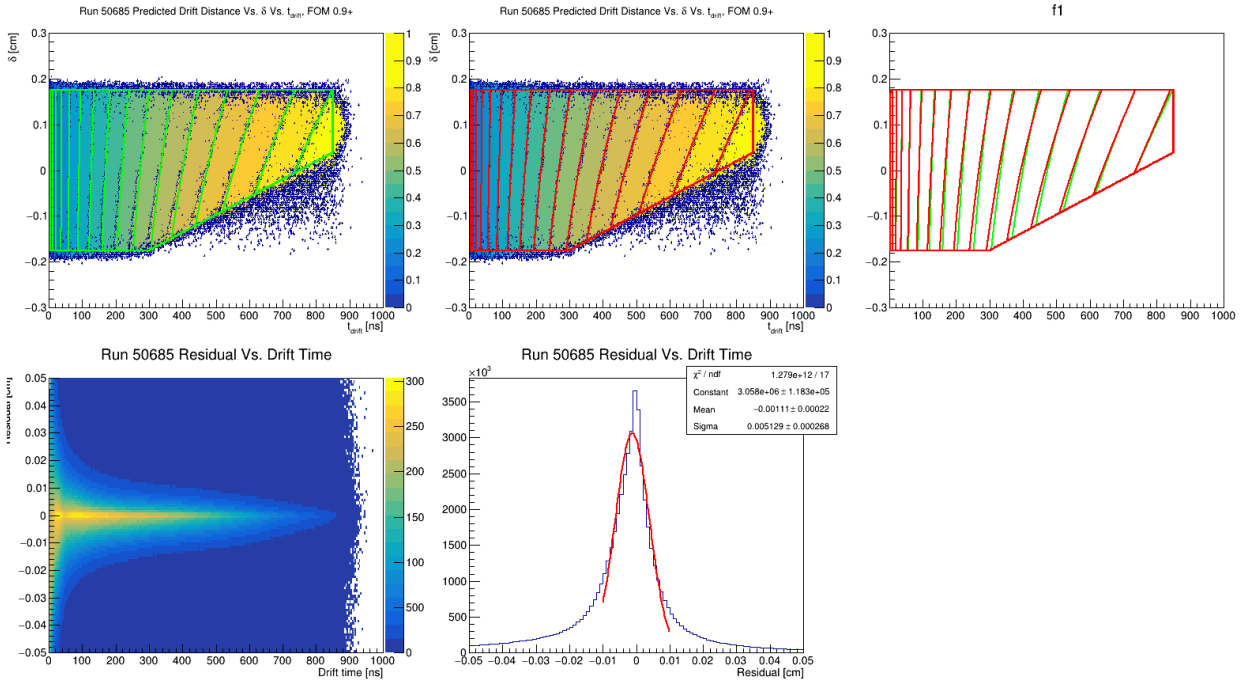
- z_point_vs_tracking.C (first)
- z_point_pol2.C (second)
- Update `/BCAL/tdiff_u_d`
- Update `/BCAL/z_track_parms`

(3) CDC dE/dx:

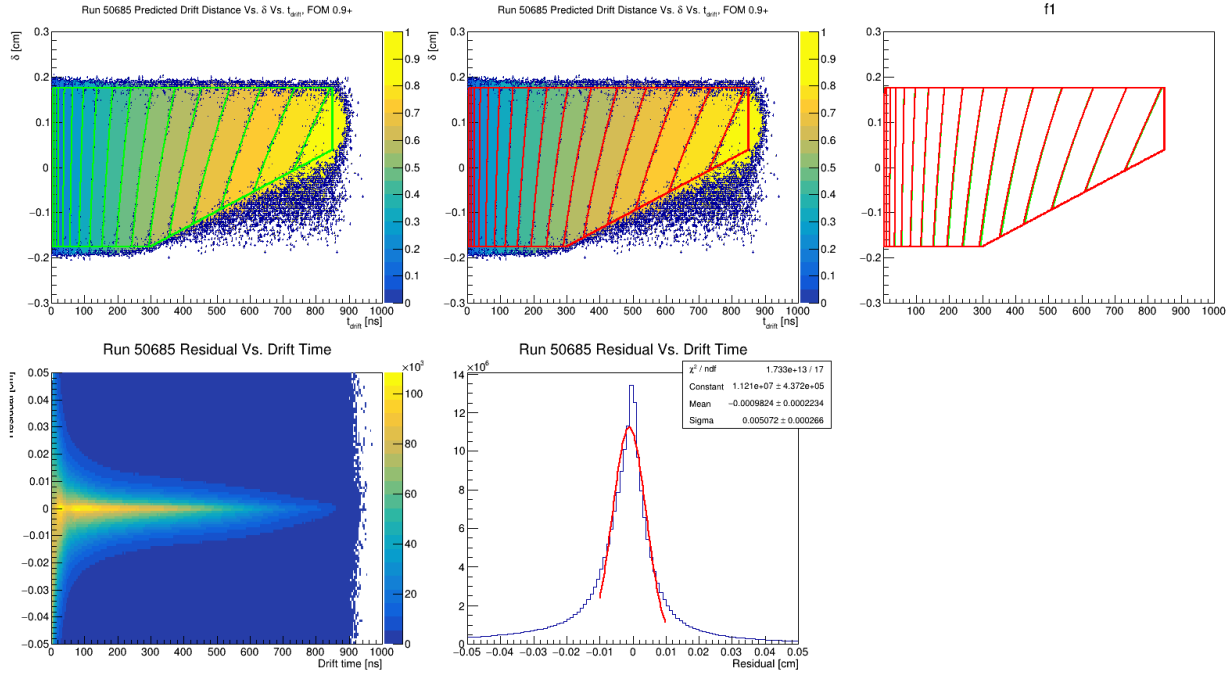
- CDC_dedx plugin
- fit_dedx.C produces new ccdb constants
- Update `/CDC/digi_scales`

CDC-ttod Results

No calibration applied yet

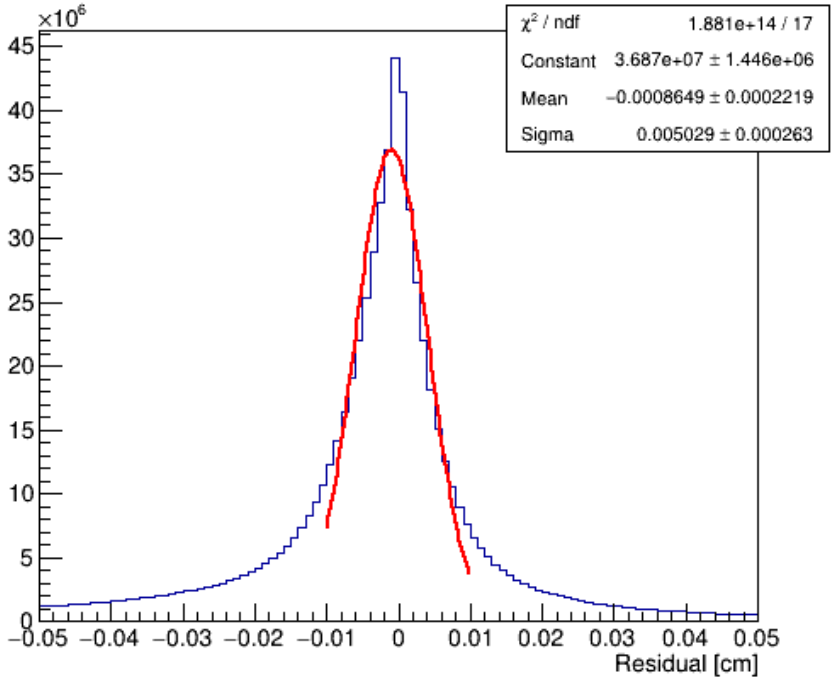


Two iterations applied

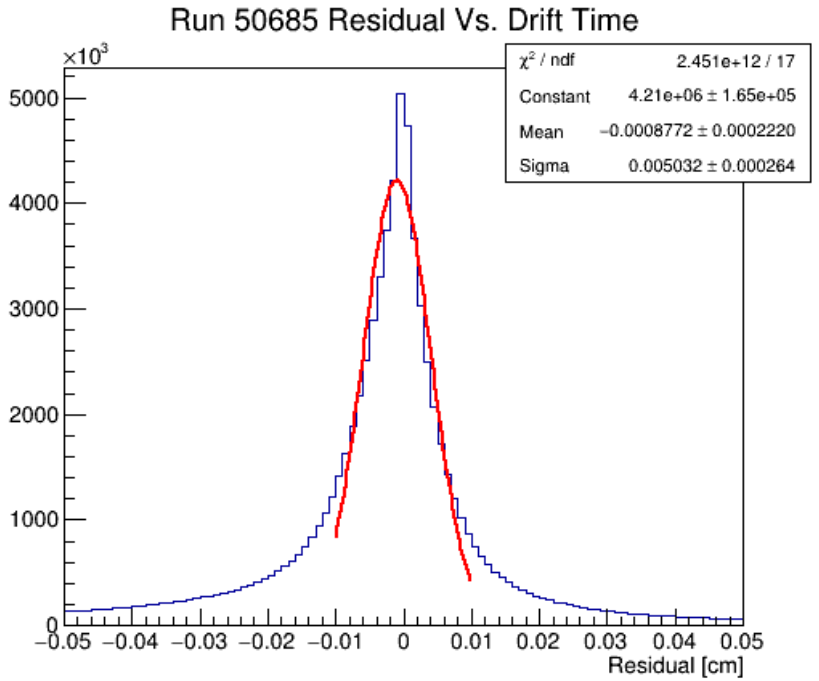


CDC-ttod Results

Right before first BCAL calib

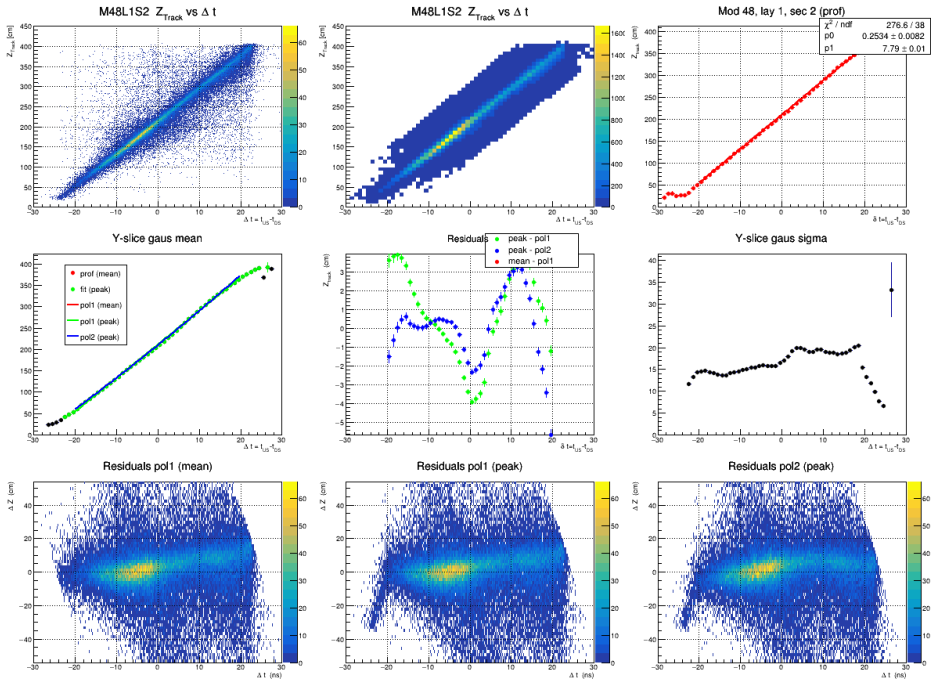


Right after first BCAL calib



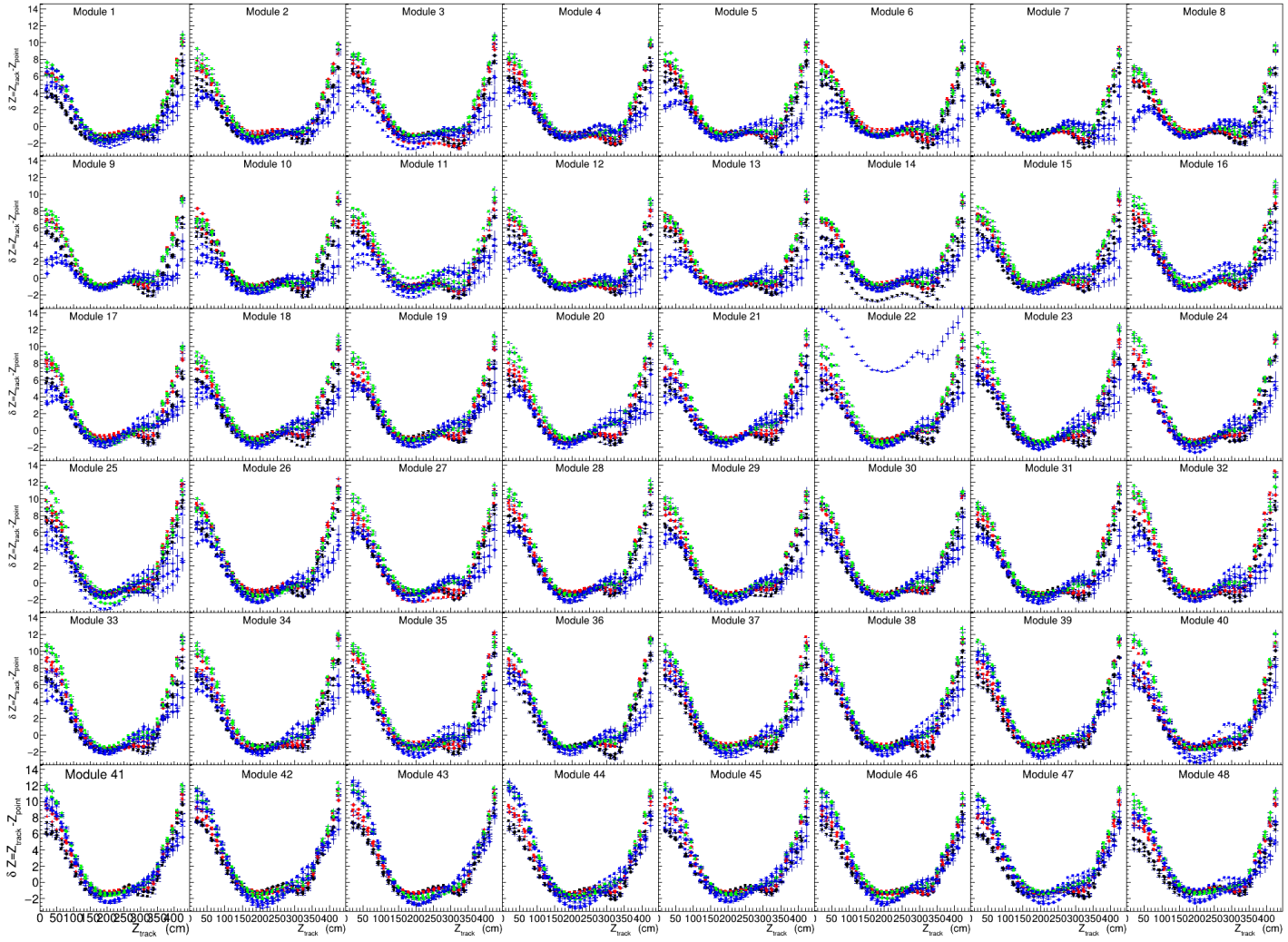
Before Applying BCAL Calibrations

Single Channel



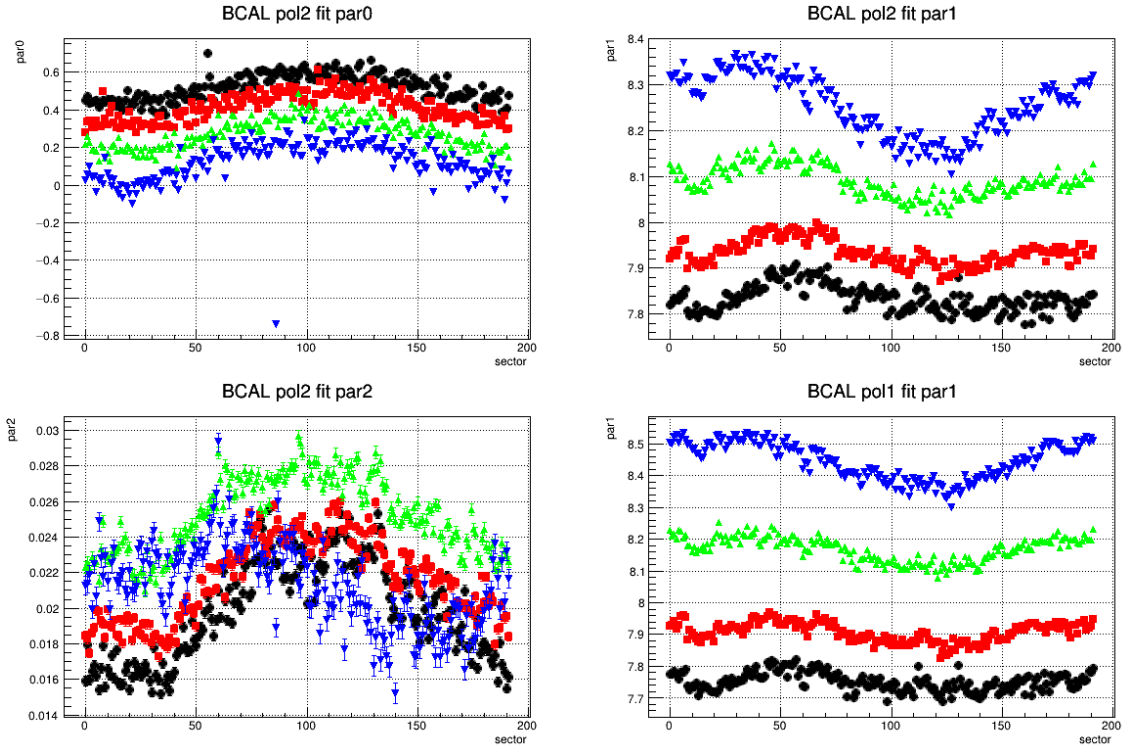
All Channels

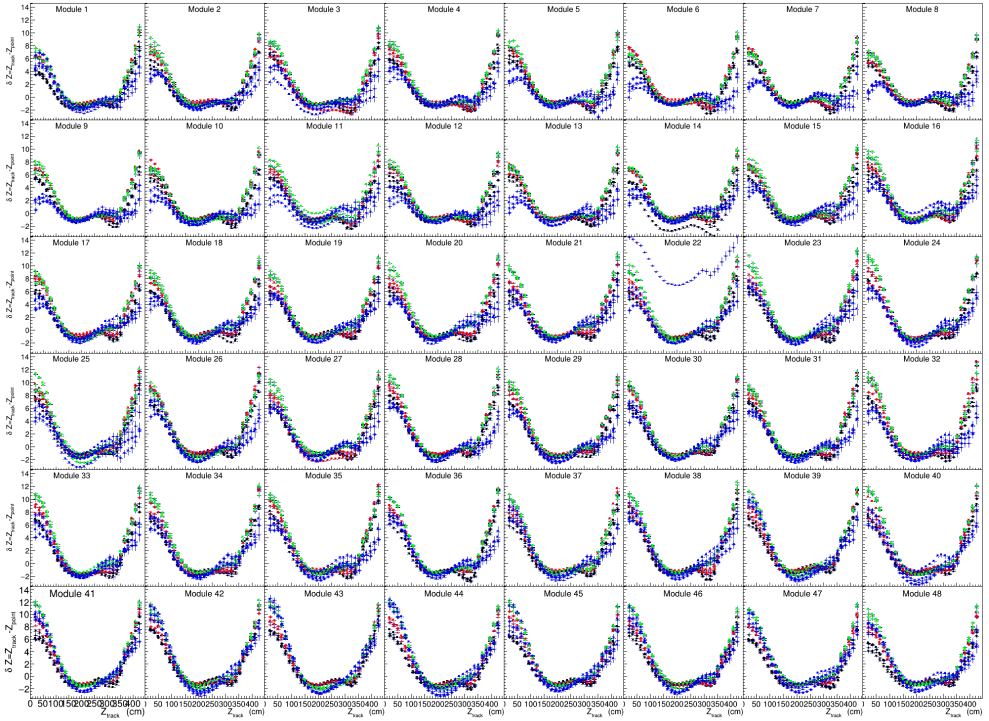
A module = 4 sectors × 4 layers



Jefferson Lab

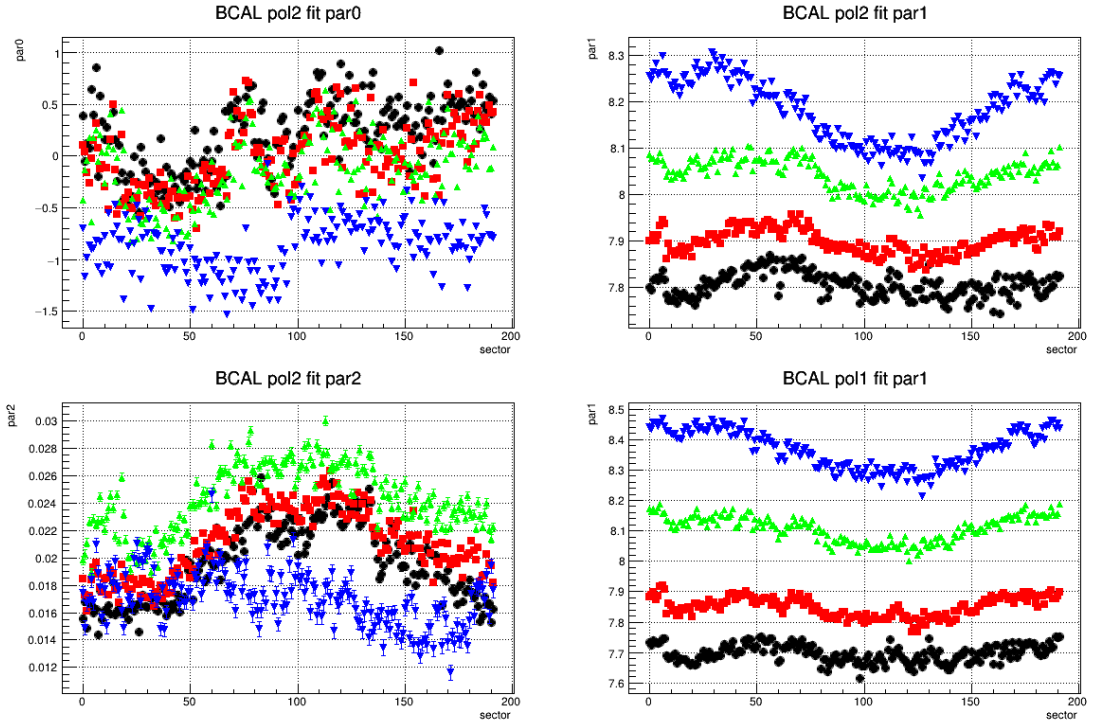
1st Iteration BCAL



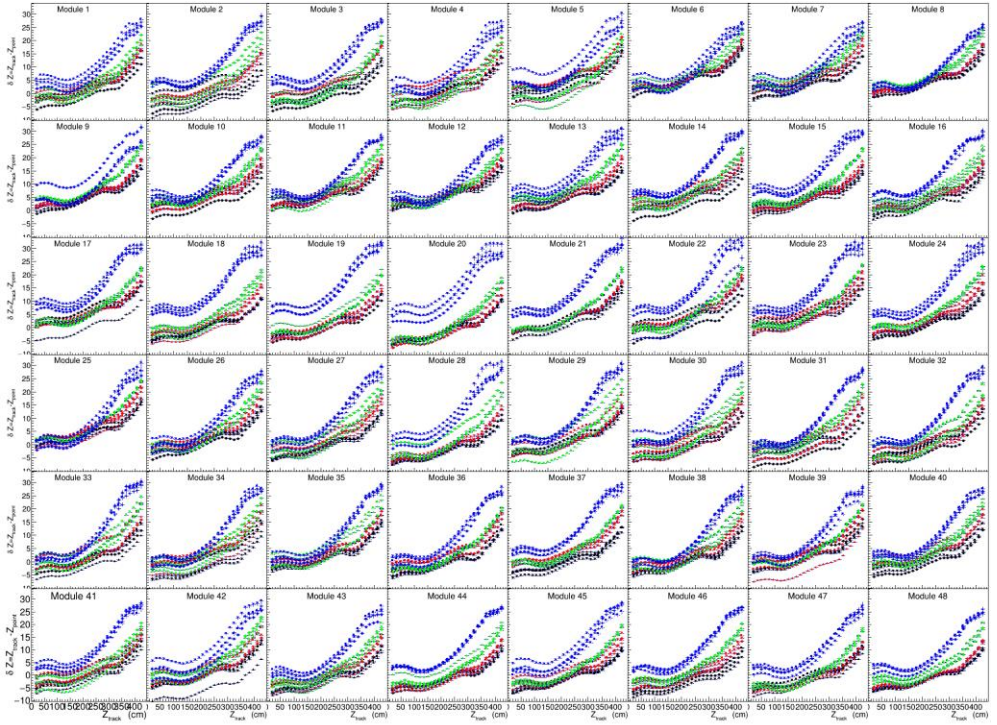


2nd Iteration BCAL

Constants to apply @ next iter

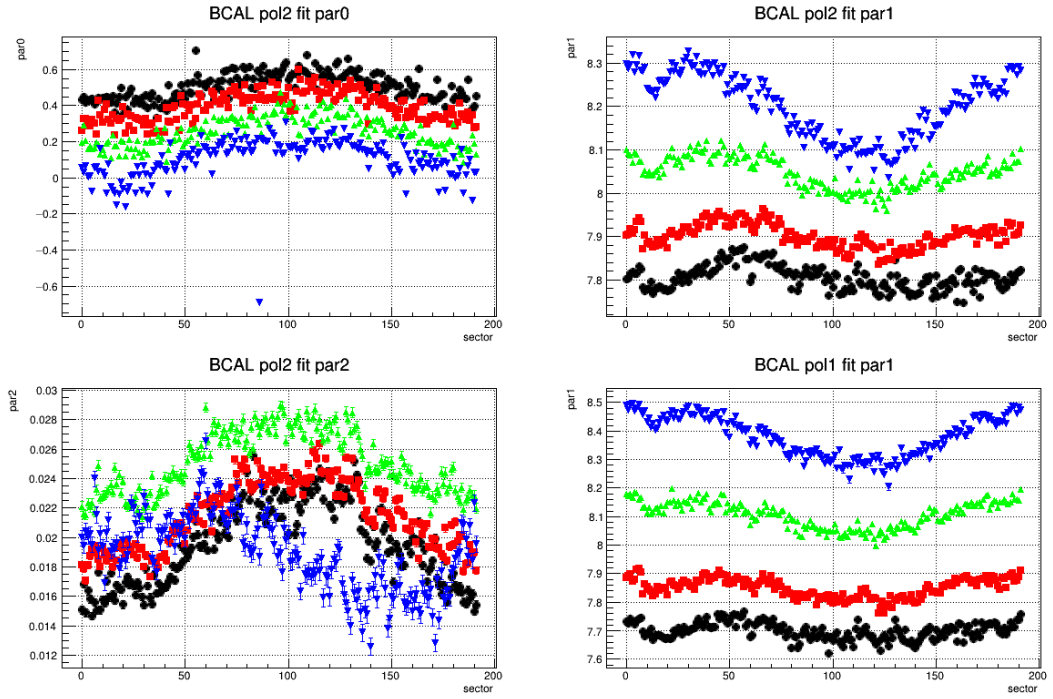


Residuals

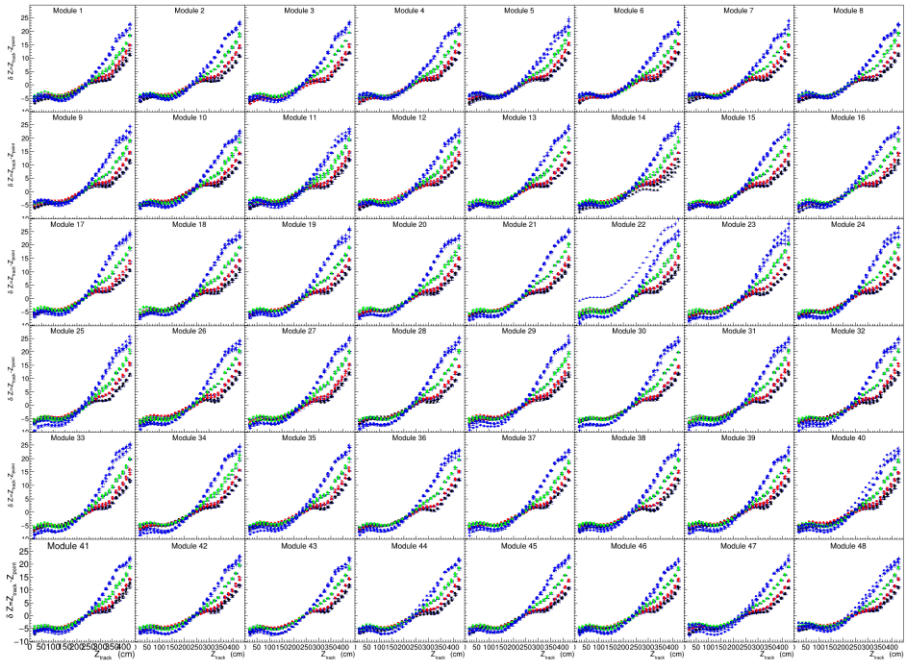


3rd Iteration BCAL

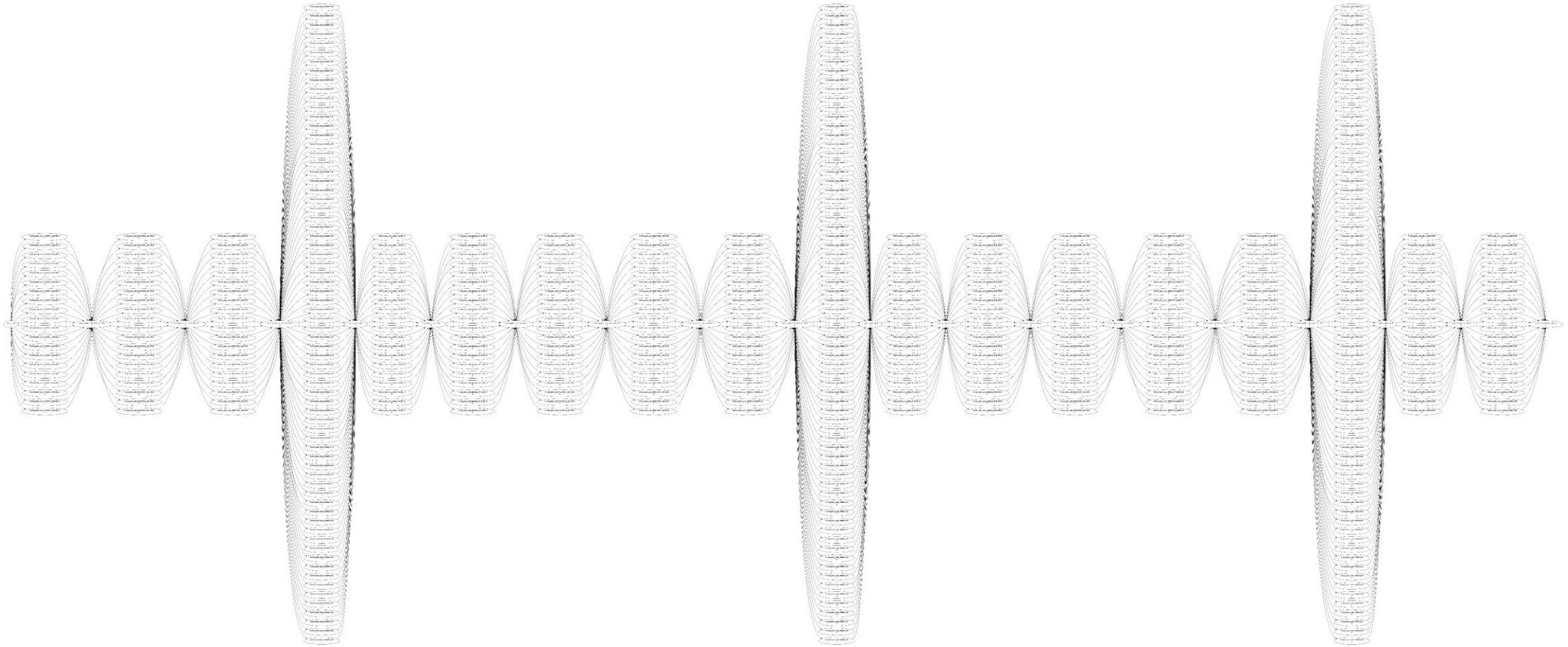
Constants to apply @ next iter



Residuals



Workflow (ugly)



Checking Global Improvements

1. Fewer events, single iteration of CDC-TTOD => BCAL (running)
   FOM: CDC residual
2. BCAL δz
   FOM: BCAL δz residual across layers 1-3
3. Flatness of BCAL constants across sector_num?