

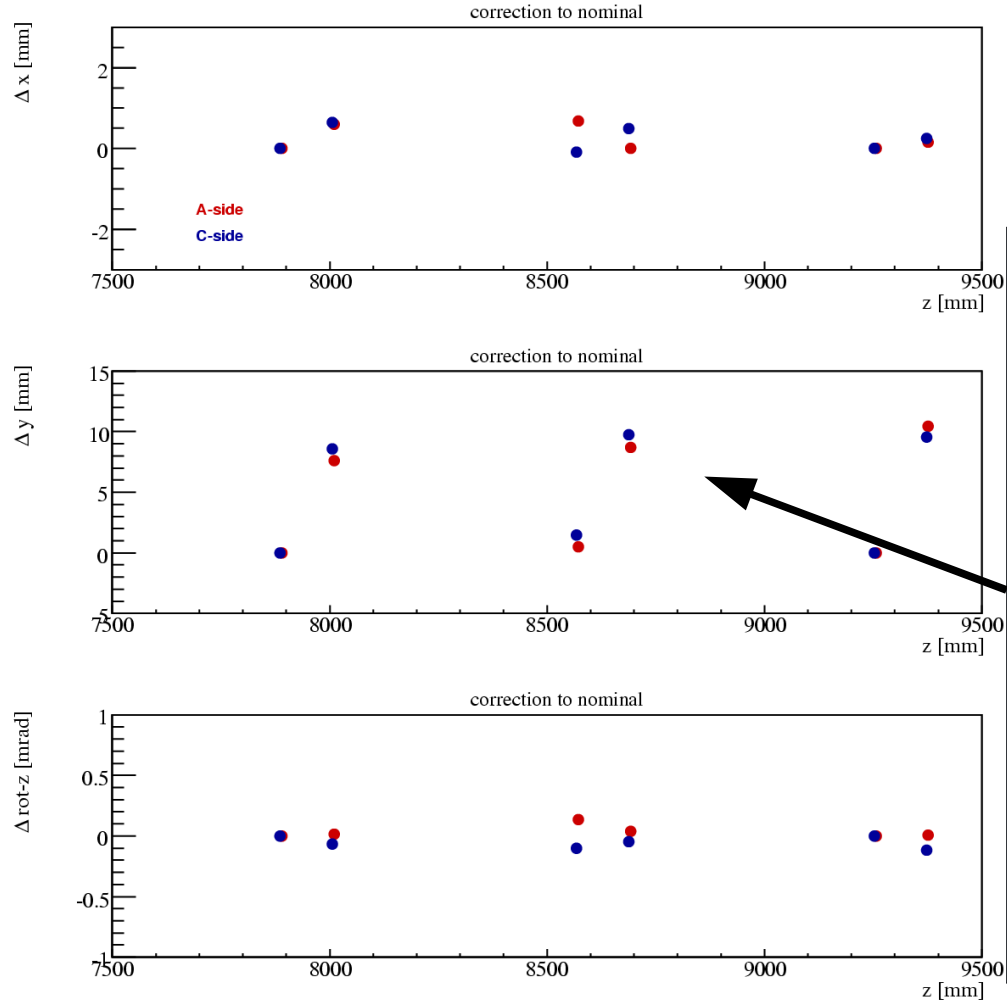
C-Frame Alignment

Jan Amoraal

- Before and After bug fixes in geometry
- Aligning C-Frames for all dofs
- Comparing 2 runs
- Comparing Nikhef Heidelberg
-

NIKHEF Before and After Bug Fixes in Geom

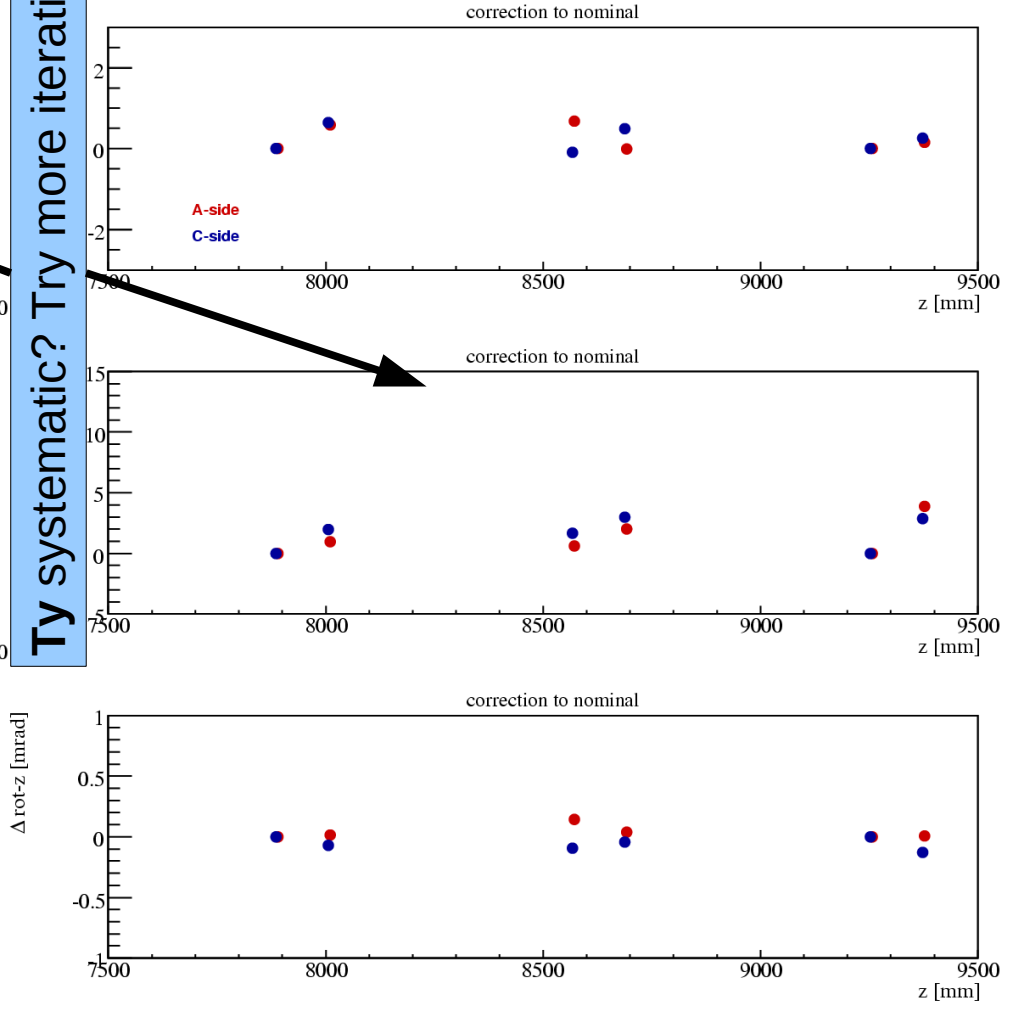
Before



- ~15k Tracks
- Fix 1st and last {XU}
- 1 iteration (All that's needed to see an effect)

Ty systematic? Try more iterations

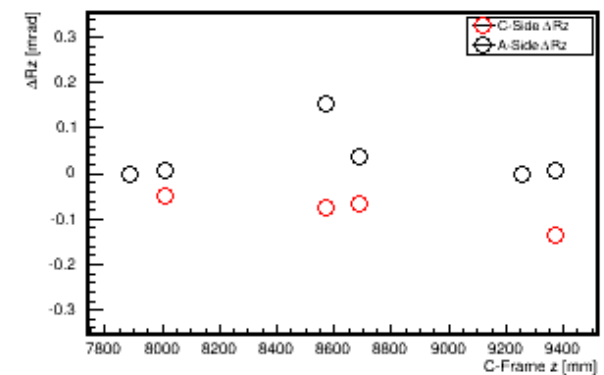
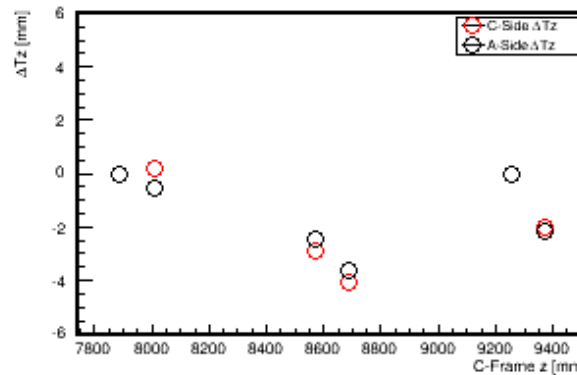
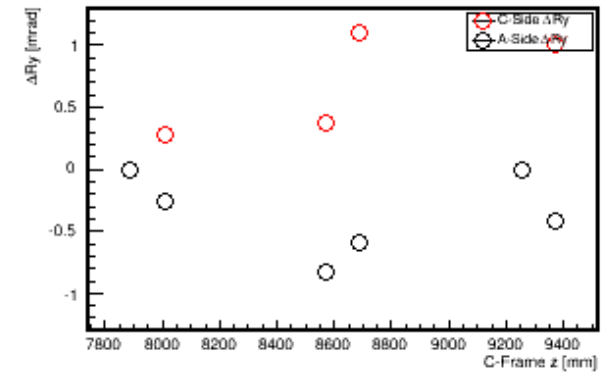
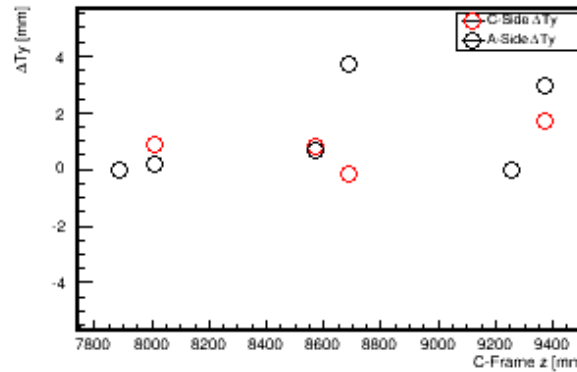
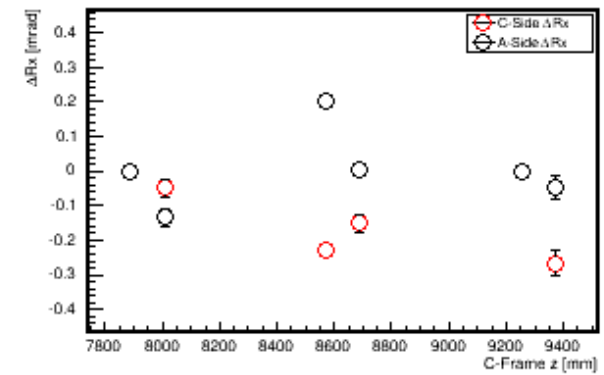
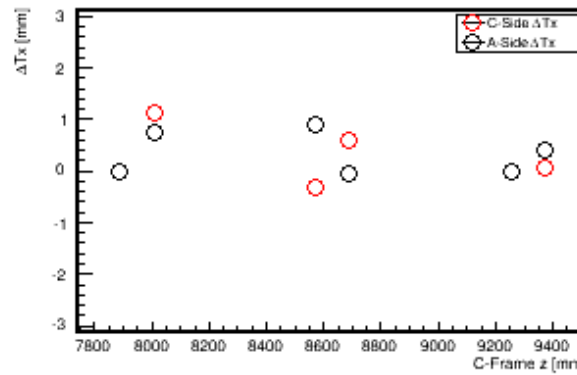
After



- Tx & Rz unchanged
- Ty cm misalignments → mm misalignments
- This was all due to relative positions of X and U being wrong (2mm effect in y)
- Other bugs give a few microns in y

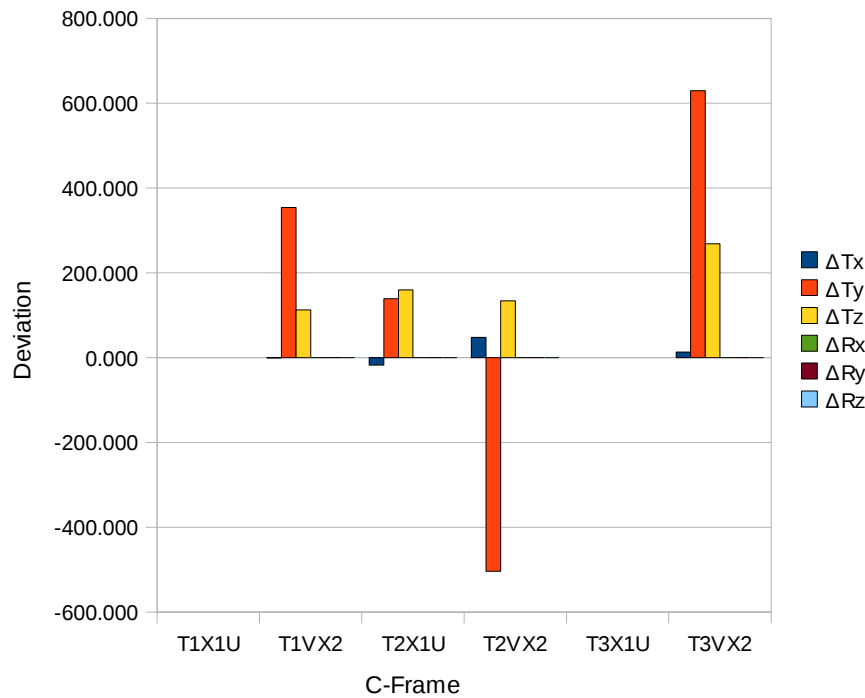
- Align for all DOFs
- Four iterations → converges in 3
- Runs 31225, 31557, 34083, 34117, 34120
 - 31865 events
 - 32569 → 32288 tracks
- Tz correspond to “deliberate deviations” from Z introduced by Antonio :)

| A-Side Tz | C-Side Tz | Survey Tz |
|-----------|-----------|-----------|
| 0.000 | 0.000 | 0 |
| -523.974 | 229.099 | -500 |
| -2424.680 | -2902.200 | -2500 |
| -3627.960 | -4034.500 | -3500 |
| 0.000 | 0.000 | 0 |
| -2182.790 | -2042.670 | -2500 |

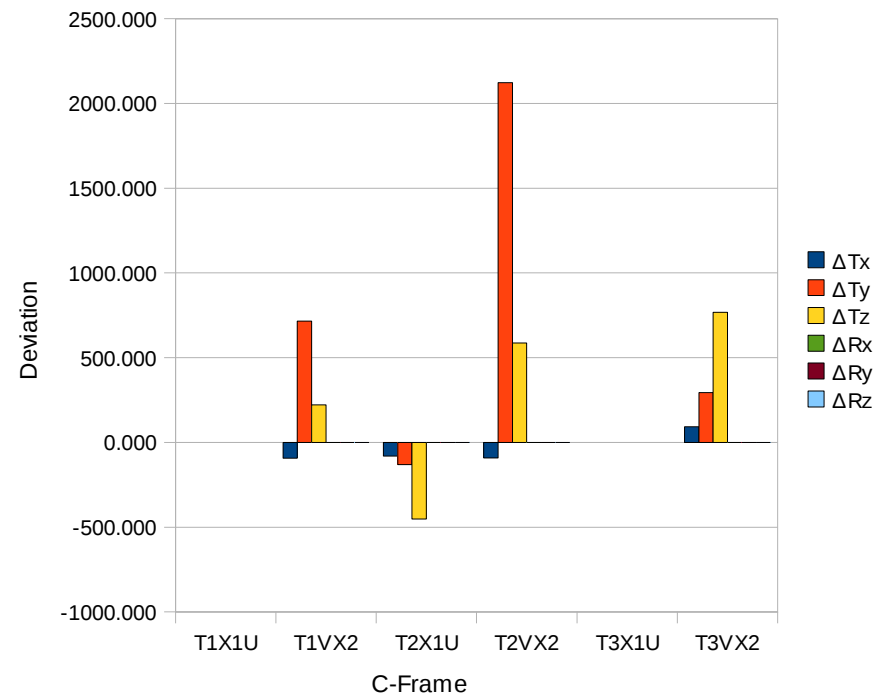


- Runs 34083, 34117, 34120 vs 31225, 31557
 - ~10k tracks
- Fix first XU (T1XU) and last XU (T3XU)
- Units are microns for translations and mrad for rotations
- Decoding problems in runs 31225, 31557 (3 quarter of a layer gone)

Deviations A-Side

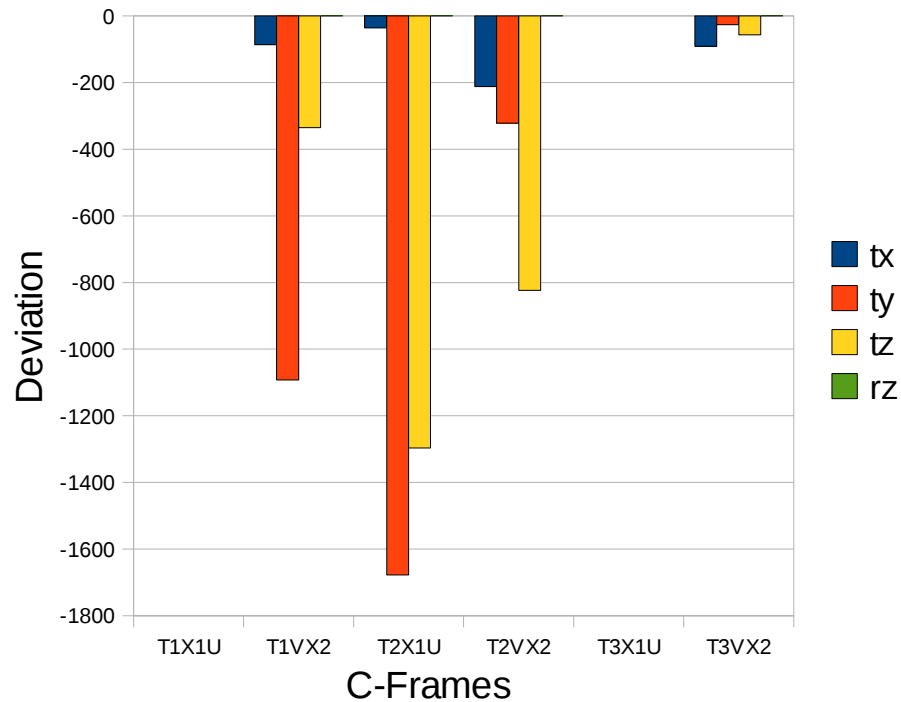


Deviations C-Side

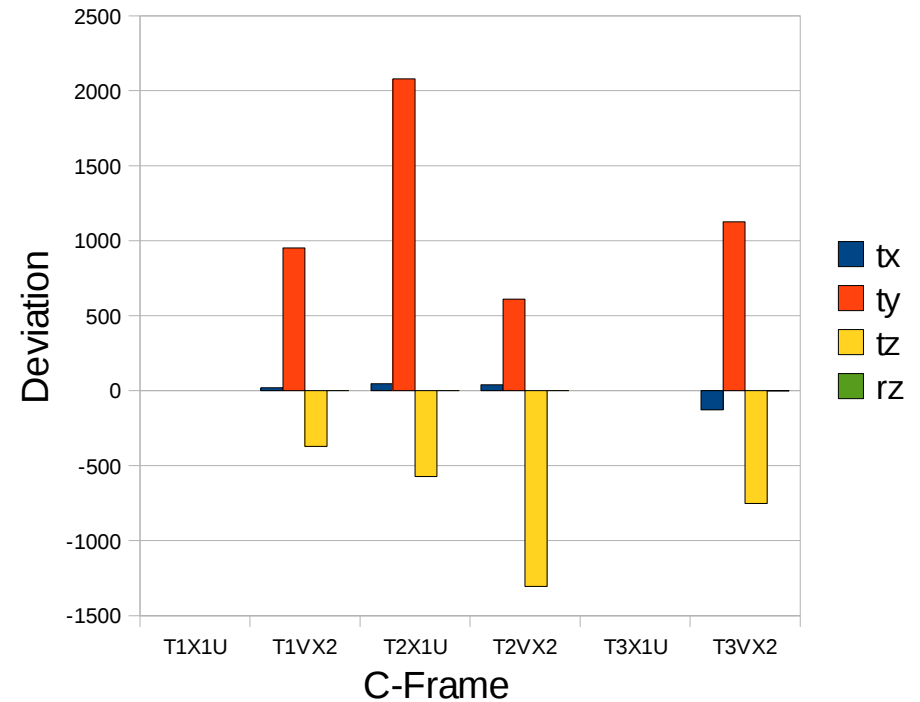


- Heidelberg aligned half-layers
- Can “extract” from stereo

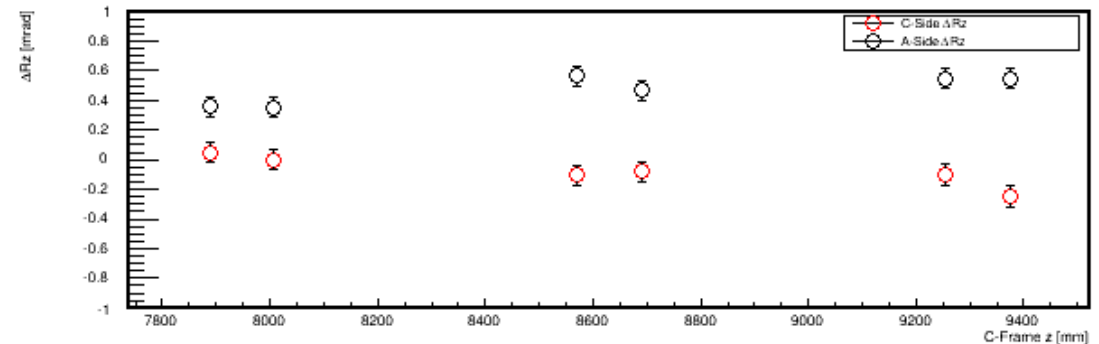
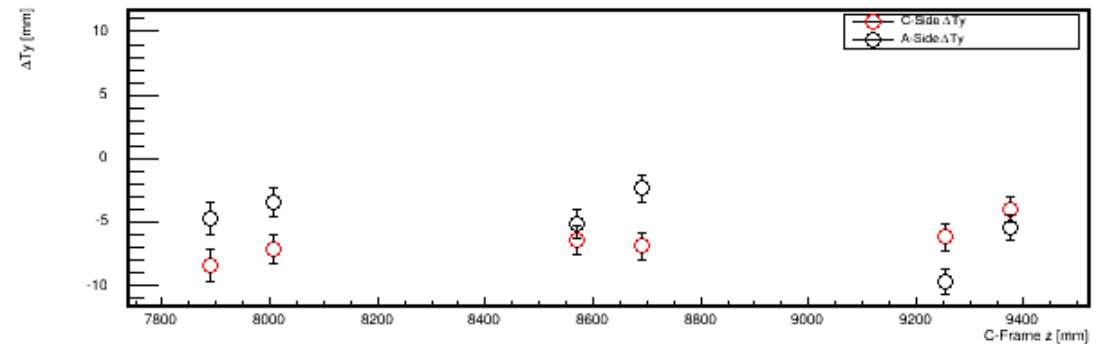
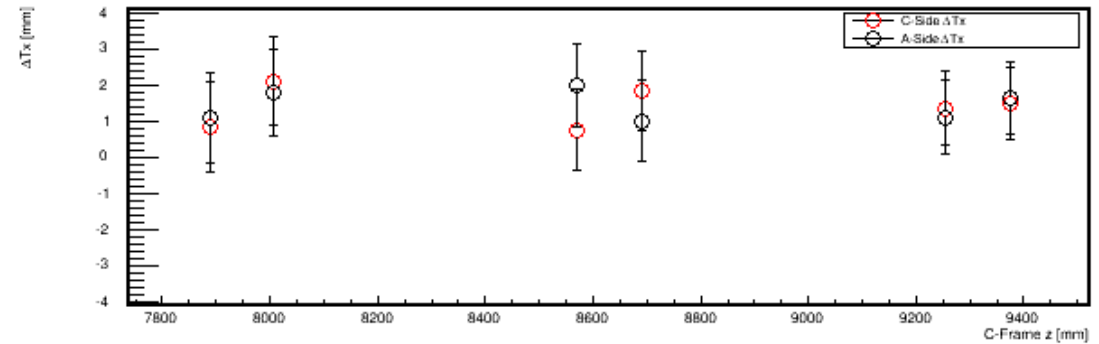
Comparison Nikhef-Heidelberg A-Side



Comparison Nikhef-Heidelberg C-Side



- -5 mm in **Ty** w.r.t. Muons
- Note should be equivalent to previous, only an (global) offset
- What's going on?



- Eat some croissants
- With drift times
- Study Module alignment
- Understand OT-Muon

