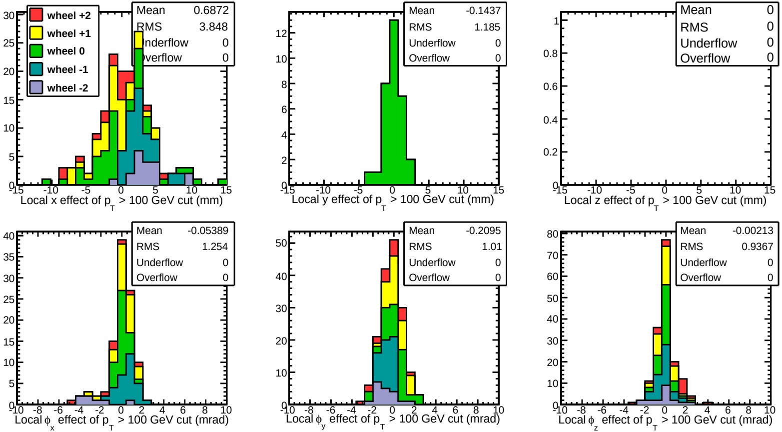
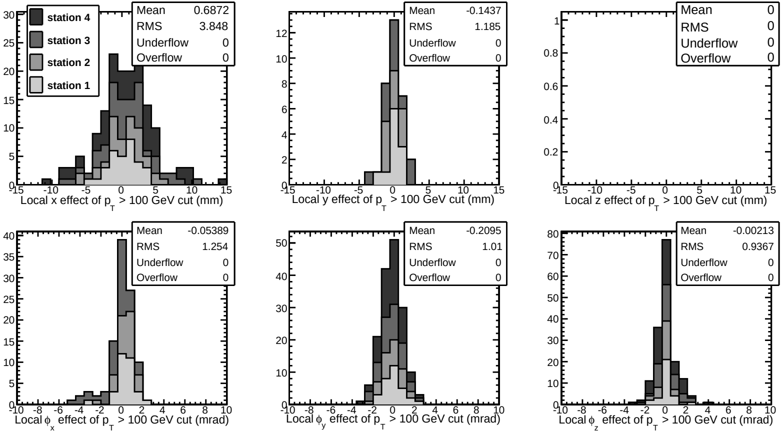
Effect of $p_T > 100$ GeV on alignment

- Production alignment used only tracks with $20 < p_T < 100$ GeV
- Starting from the above, we re-aligned with $100 < p_T < 200$ GeV
- These are the differences between the low-momentum alignment and the high-momentum alignment
- (Converged after 2 iterations, as expected, and only showing "σ" < 1 mm, 1 mrad)



Effect of $p_T > 100$ GeV on alignment

- Here it is again, split up by station instead of wheel
- Even though these are 5–10 mm displacements, we *have not* returned to CRAFT_ALL_V4 (before first global alignment). This is a new configuration.



Effect of $p_T > 100$ GeV on alignment

- And now in global $\Delta\phi$ around beamline and global $r\phi$
- Yes, we see a rotation (0.34 mrad) and a twist (0.04 mrad/m)
- But it is a p_T-dependent effect— rotation *relative to low-p_T!*
- Hypothesis: curl in tracker causes p_T-dependent apparent rotation in the other direction (spread could be statistical)

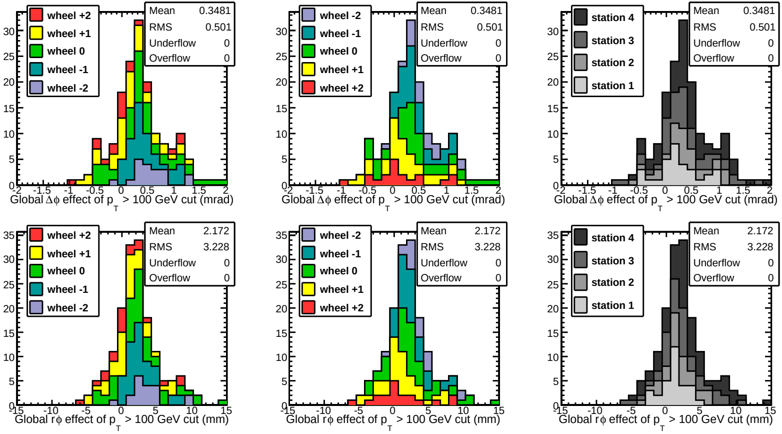


Diagram of curl hypothesis