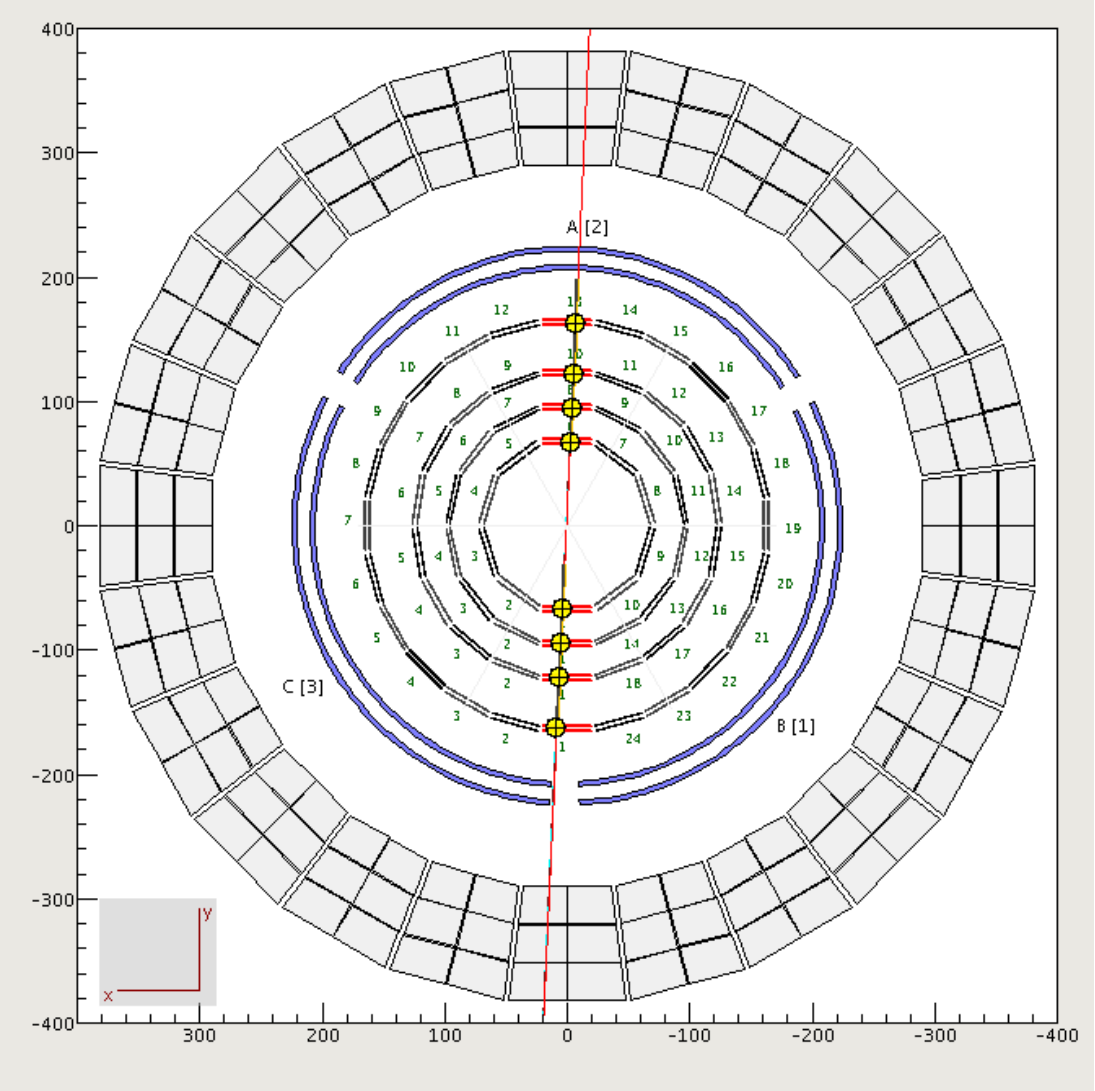
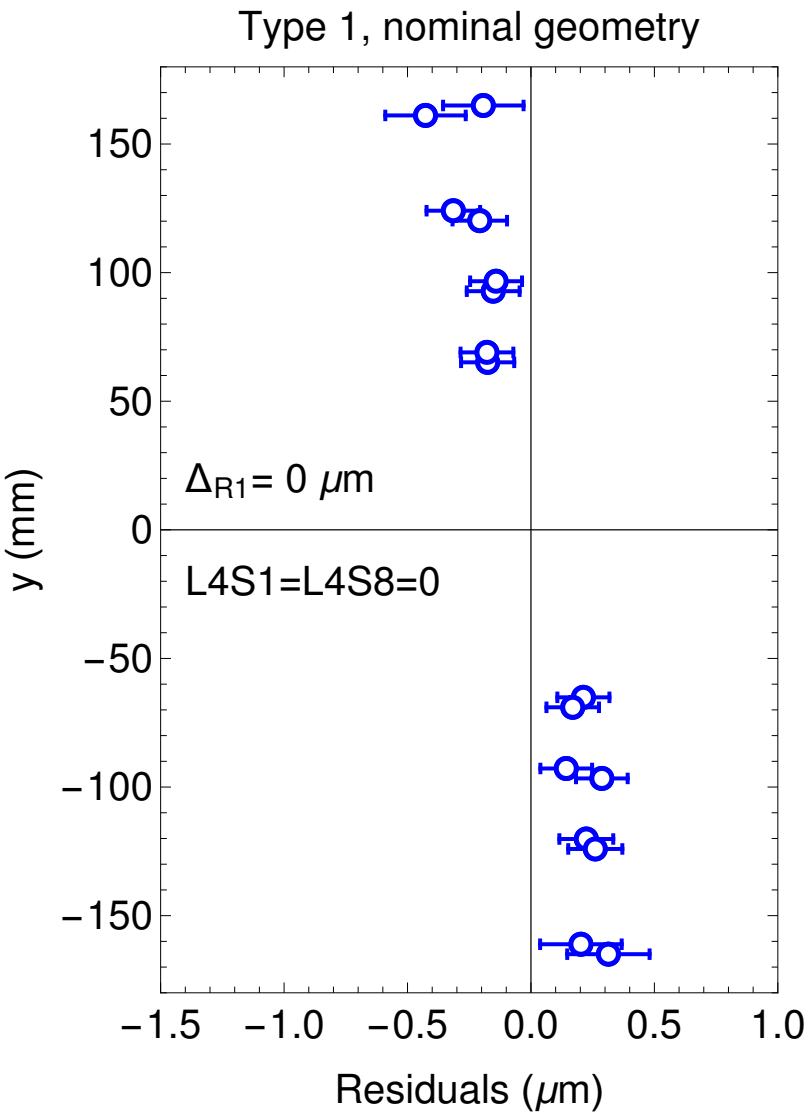
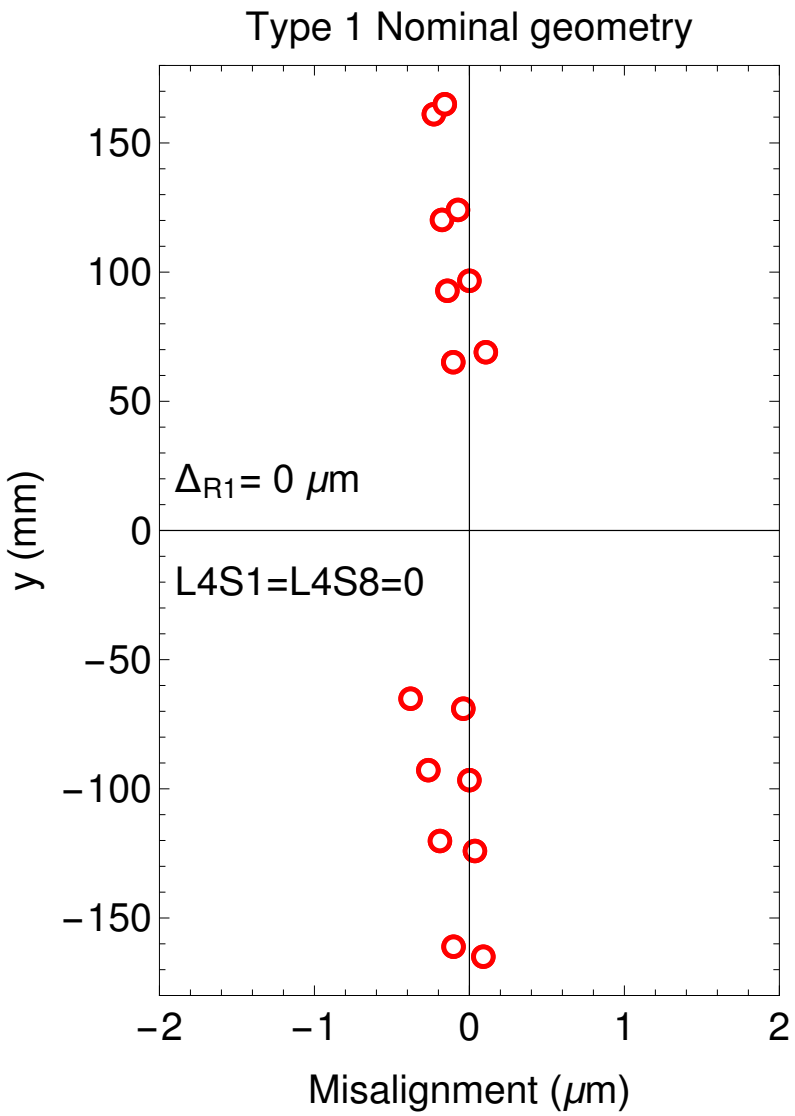
CLAS12 SVT Geometry



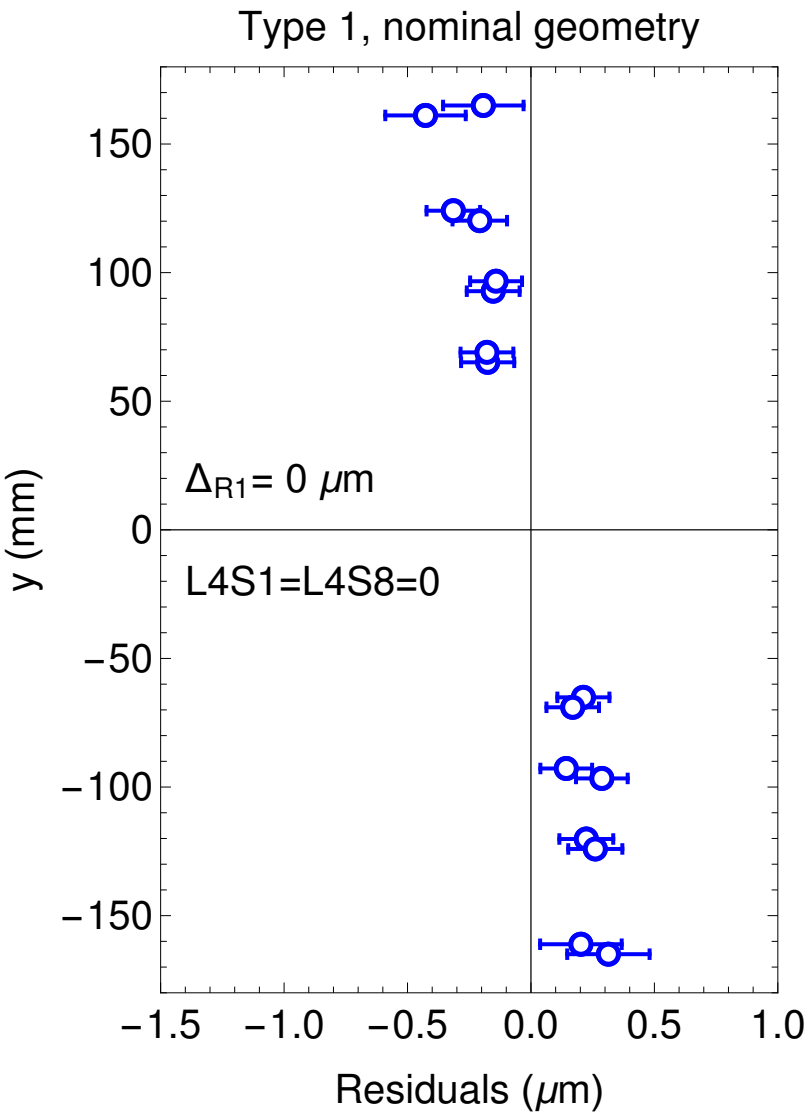
1. Goal: Correct mis-alignments of SVT to reach design resolution of $\approx 65\ \mu m$.
2. Use `millepede` which does linear least-squares for large numbers of global parameters.
3. Requires calculation of track residuals with respect to SVT strips.
4. Using Type 1 *gemc* tracks.
5. Compare results with residuals from clas12-reconstruction.

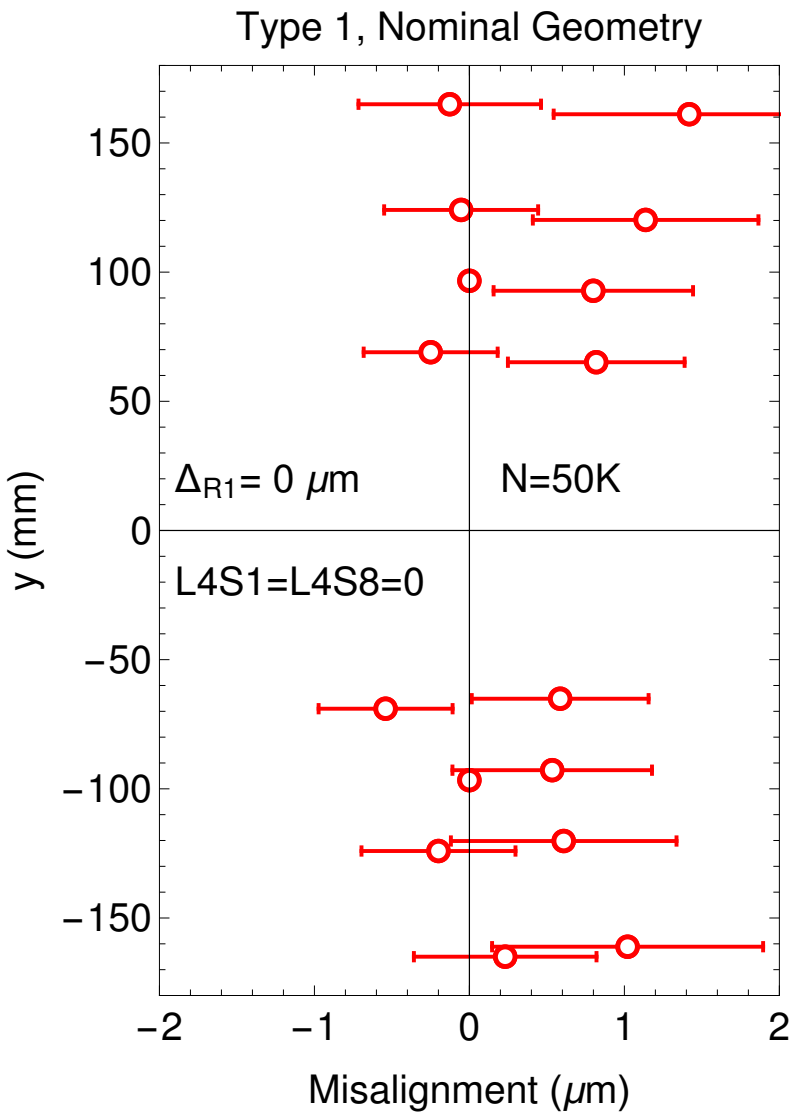
CLAS12 SVT Nominal Geometry



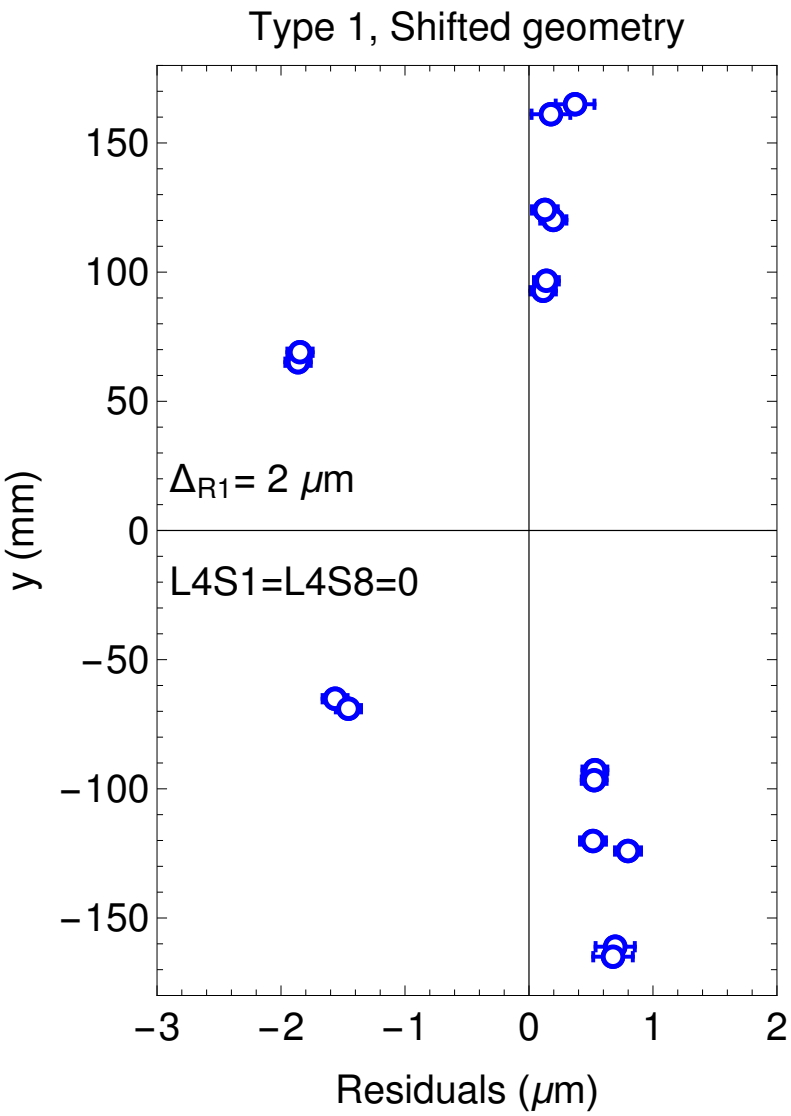


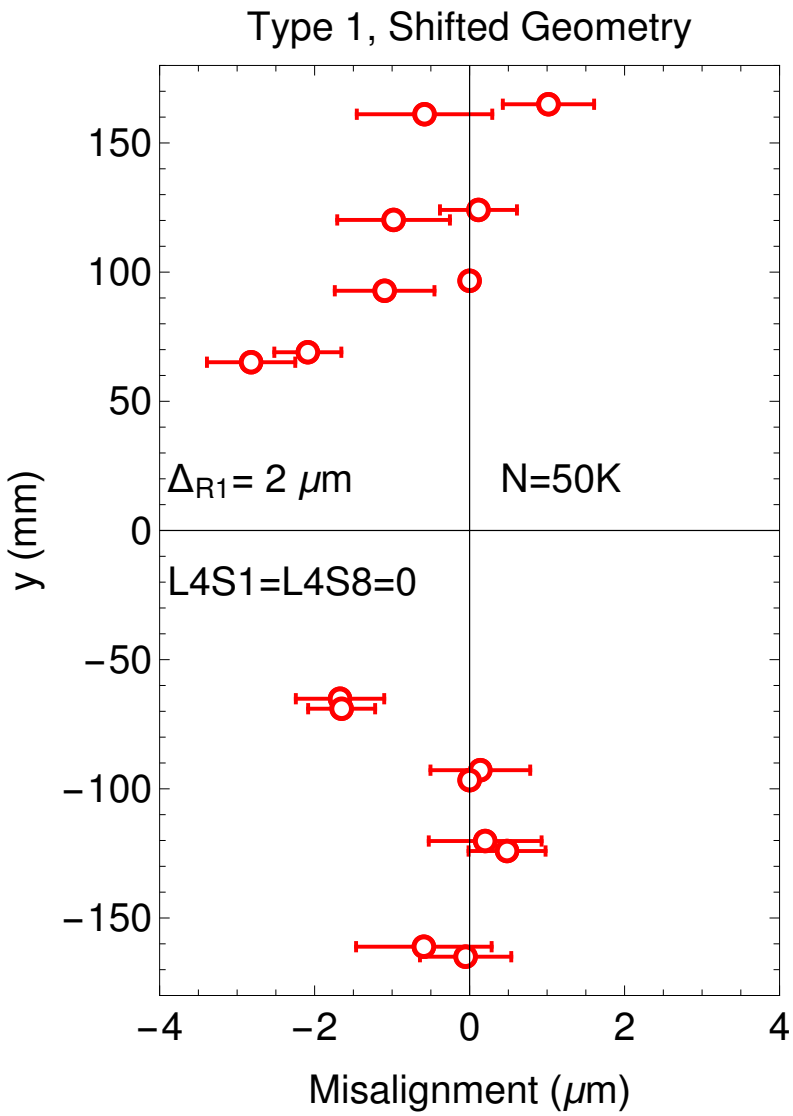
CLAS12 SVT Nominal Geometry



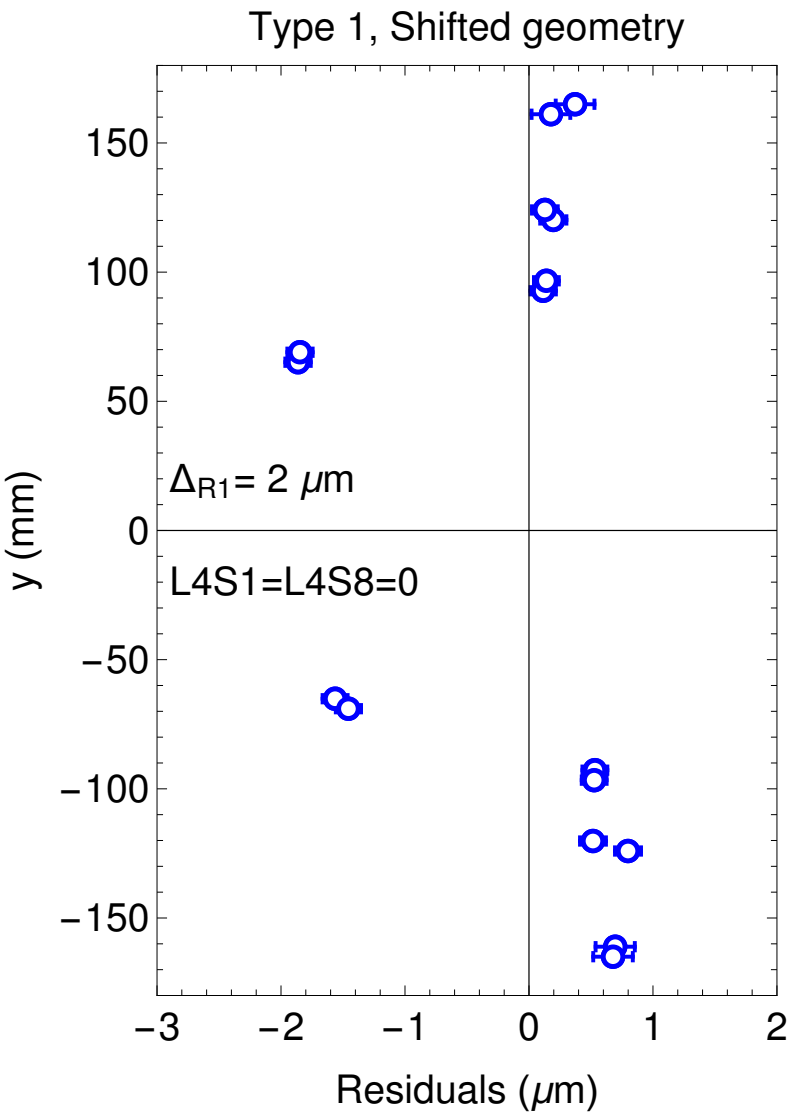


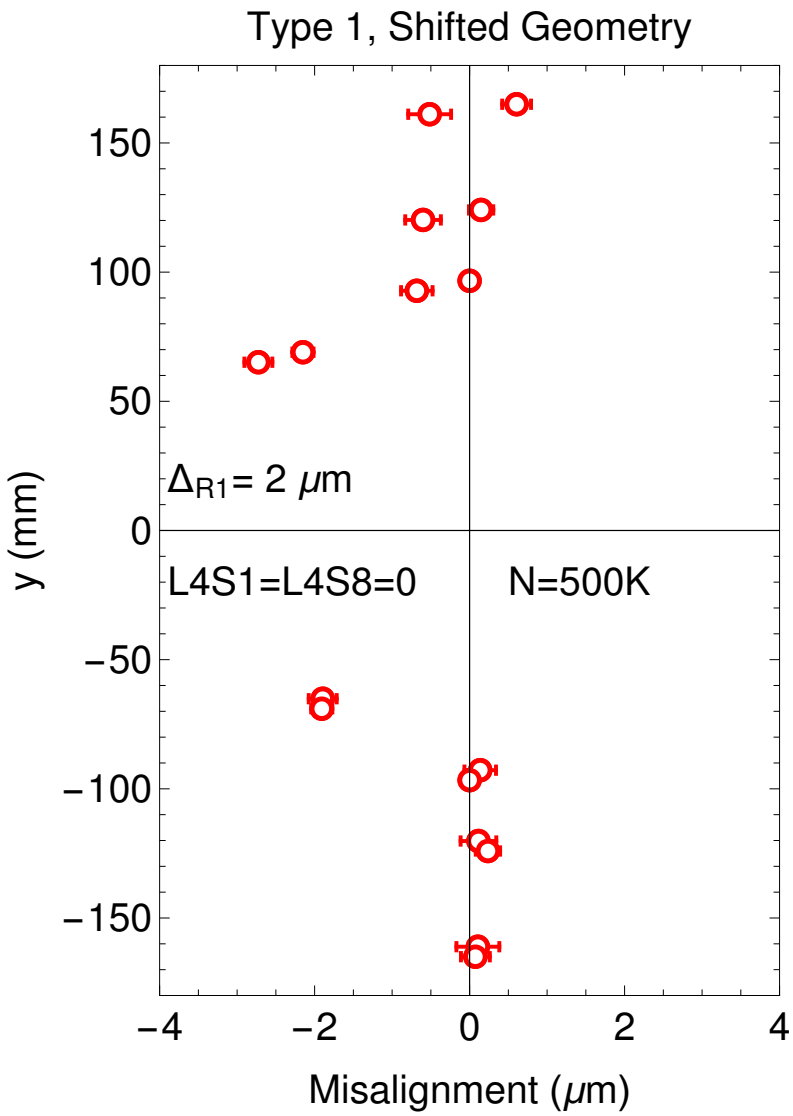
CLAS12 SVT Shifted Geometry (2 μm)



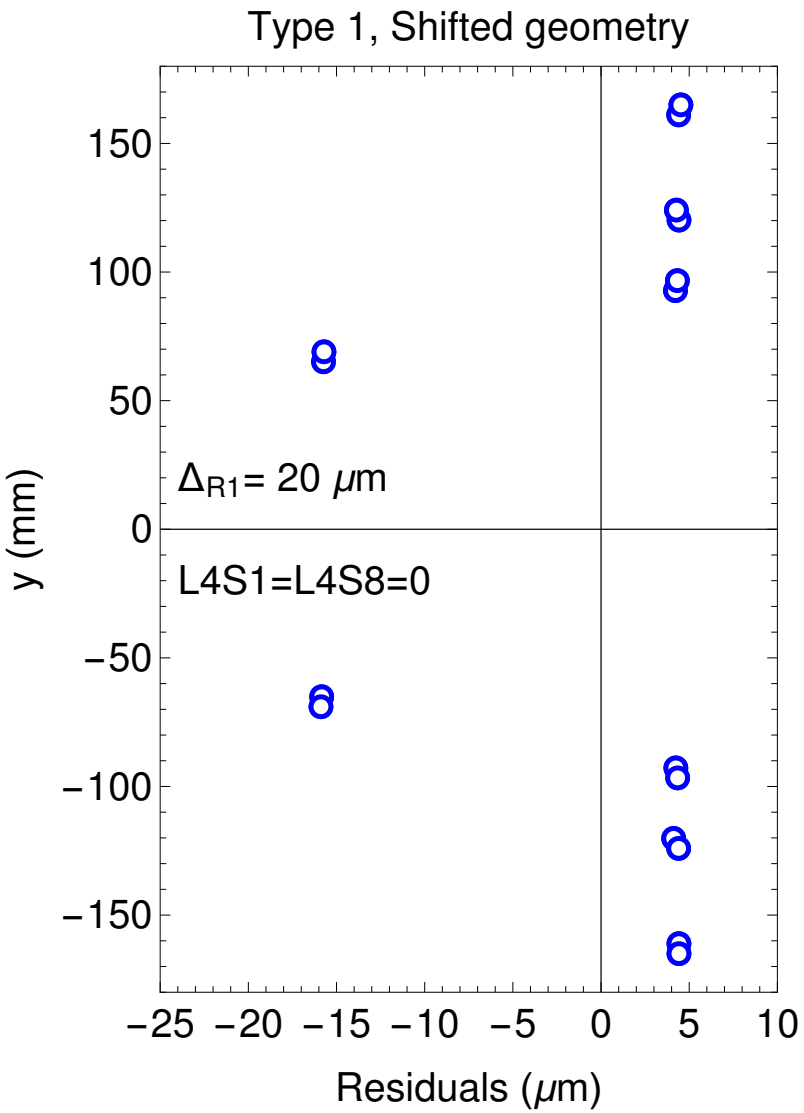


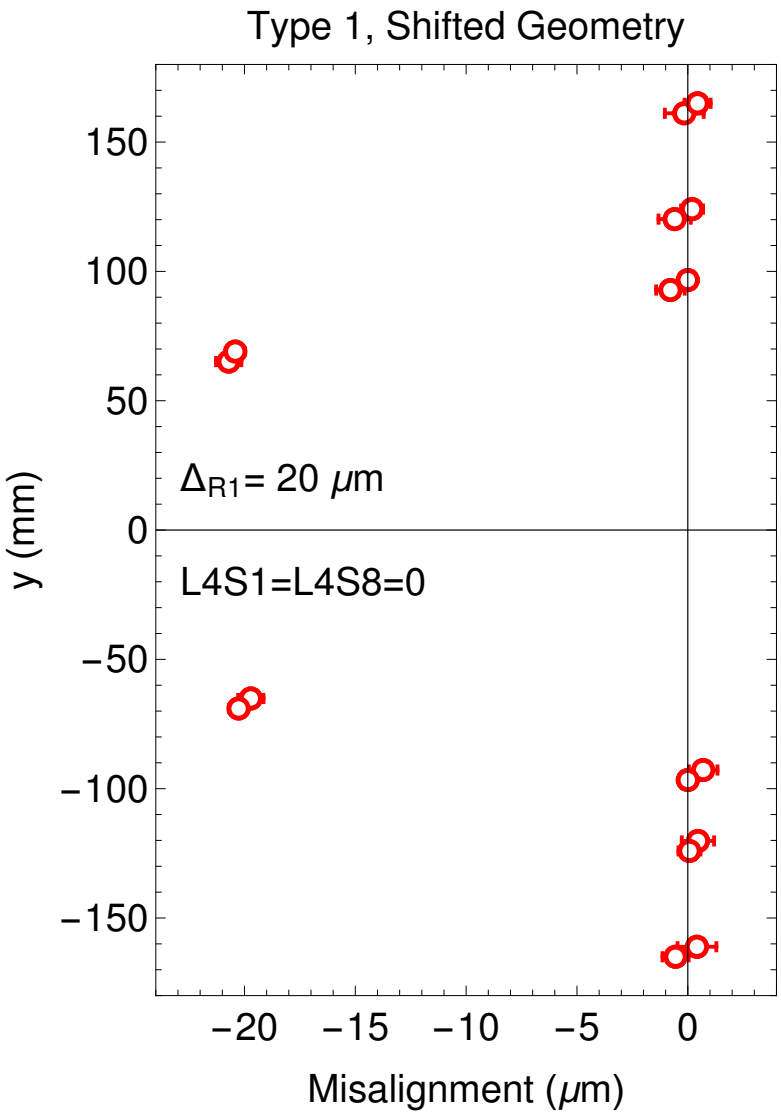
CLAS12 SVT Shifted Geometry (2 μm)



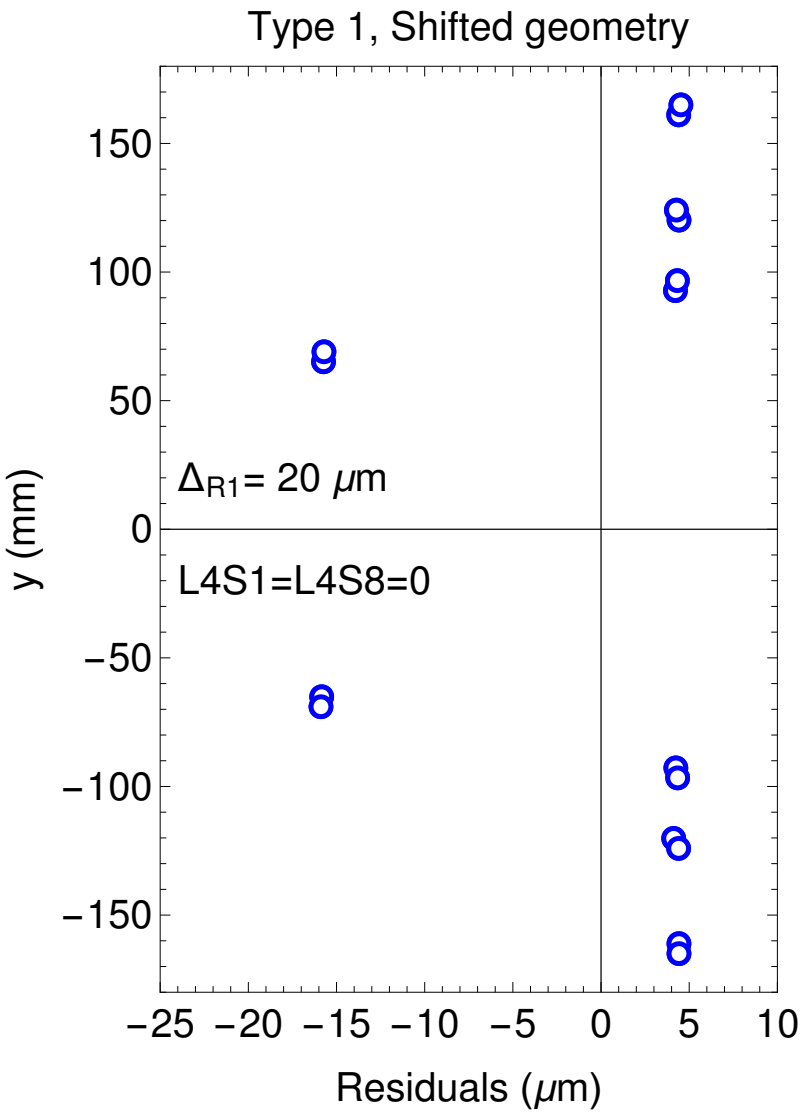


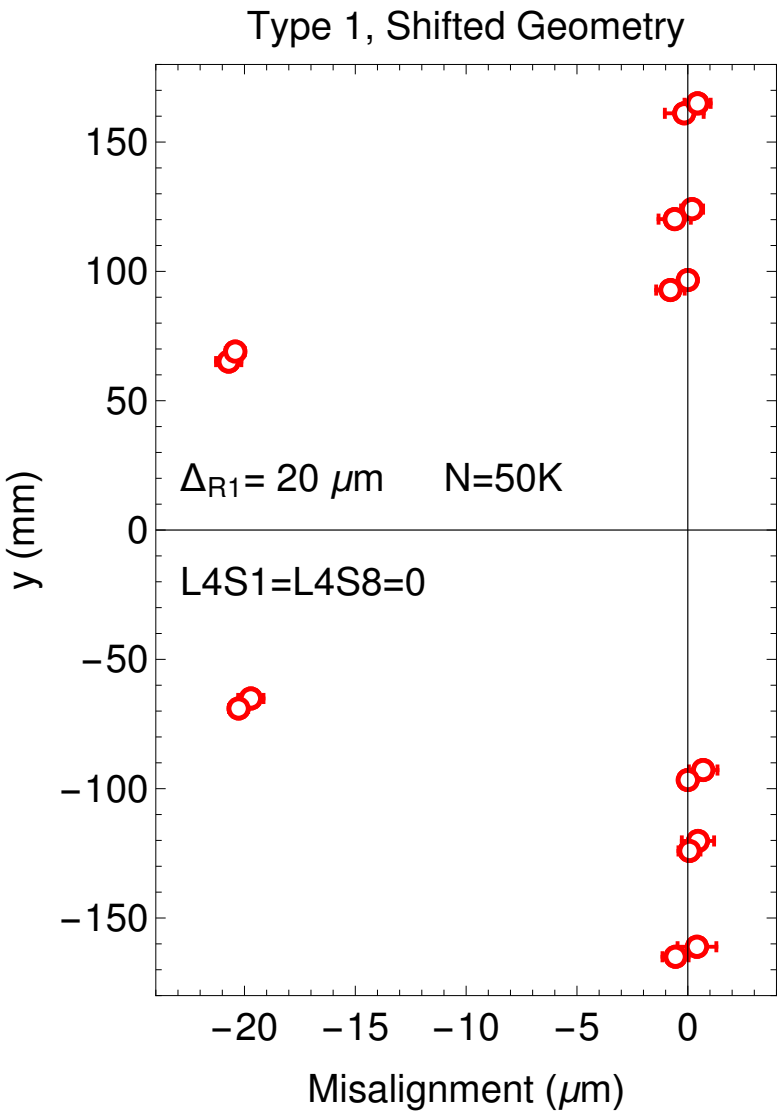
CLAS12 SVT Shifted Geometry (20 μm)



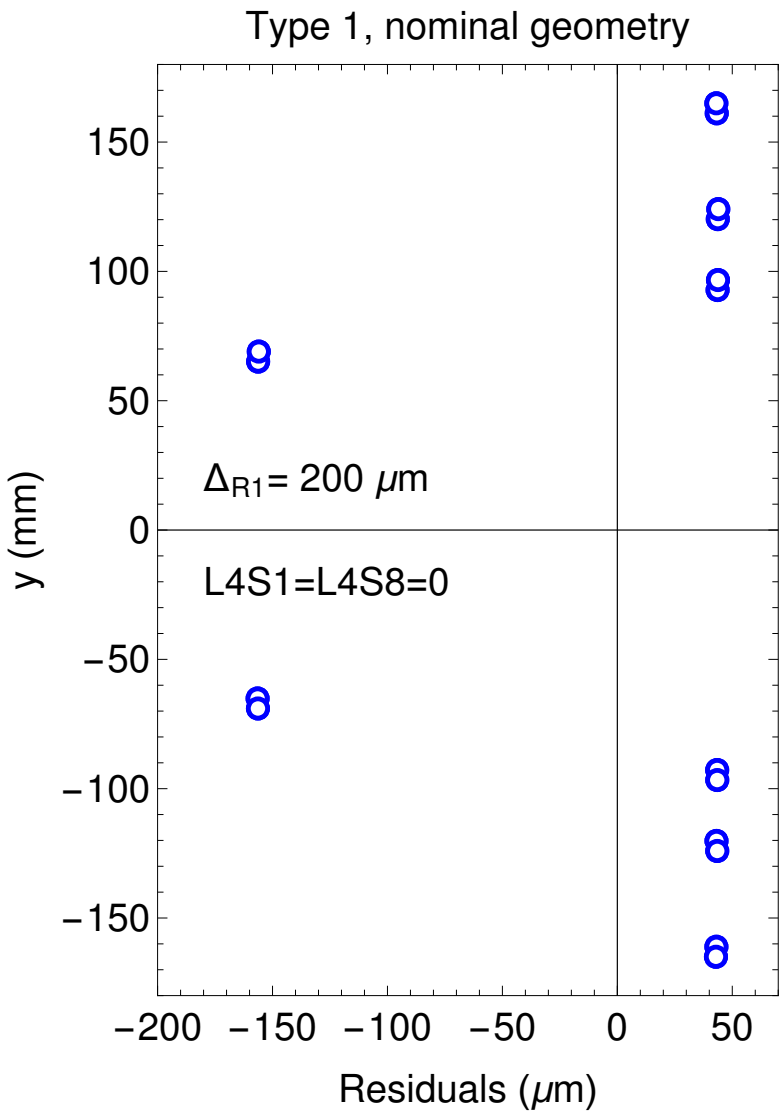


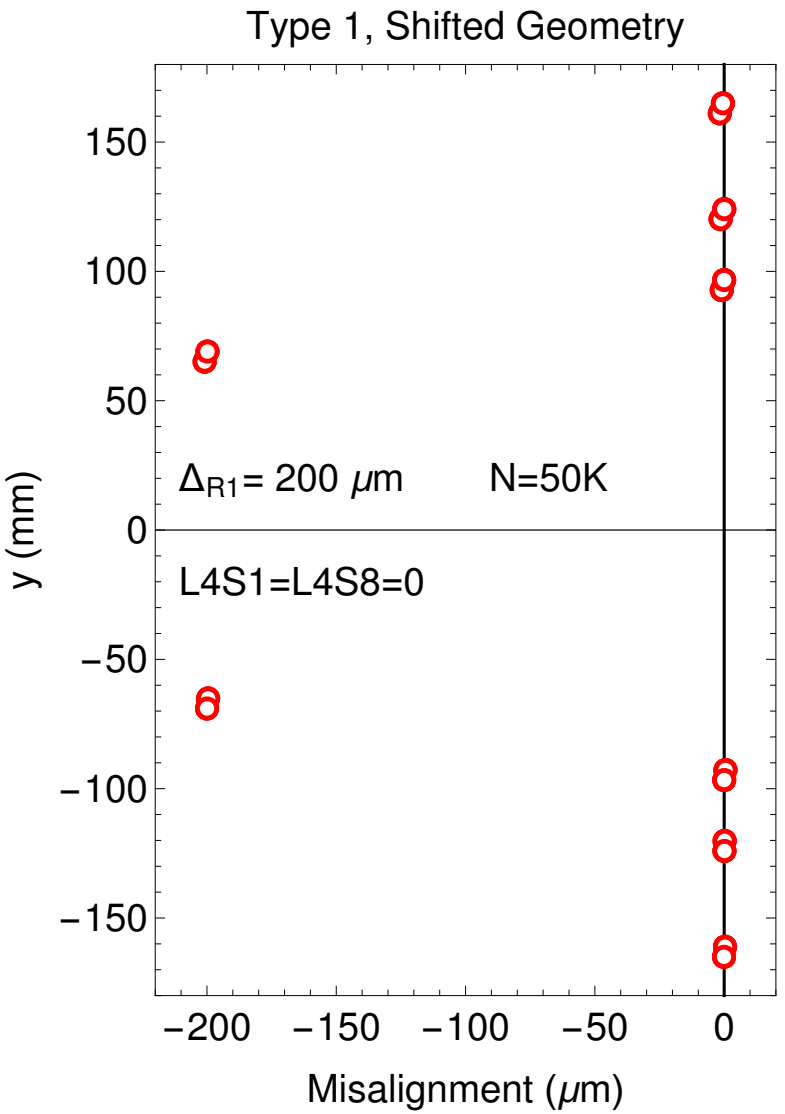
CLAS12 SVT Shifted Geometry (20 μm)





CLAS12 SVT Shifted Geometry (200 μm)





CLAS12 SVT Misalignment Uncertainties

- How many events are need to get adequate precision from the millepede misaligment calculations?
- Use the $20 - \mu m$ Region 1 shift simulation and different sample sizes.
- Even with only 10,000 events the millepede precision is already below $2\ \mu m$.