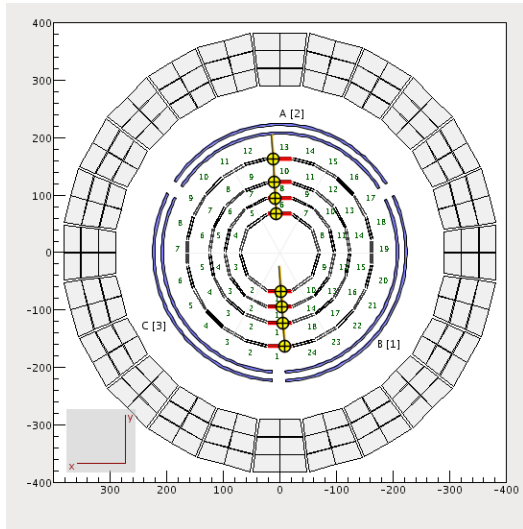


CLAS12 SVT Geometry Alignment

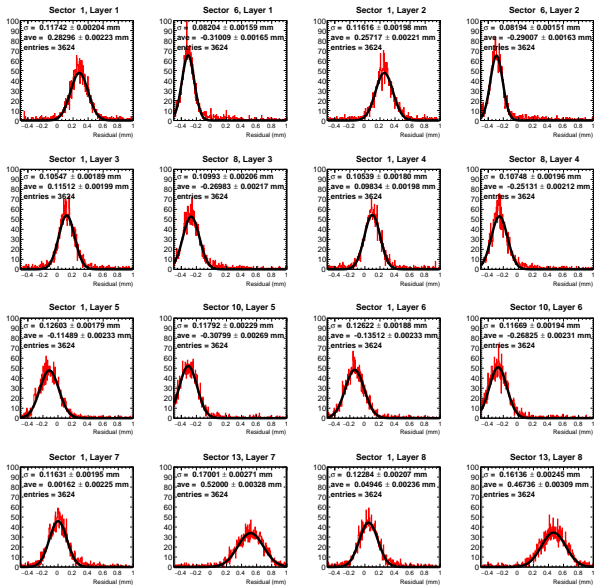


3624 Type 1 events found.

- 1 Goal: Correct mis-alignments of SVT to reach design resolution of $\approx 65 \mu\text{m}$.
- 2 Use millepede to do linear least-squares for large numbers of geometry parameters.
- 3 Code works for gemc cosmic ray simulated Type 1 events - reproduces simulated region 1 shift in x from $2 \mu\text{m}$ to $500 \mu\text{m}$.
- 4 SVT cosmic ray data Set 1 (REAL DATA!). Data collected May 11 - May 18, 2016.

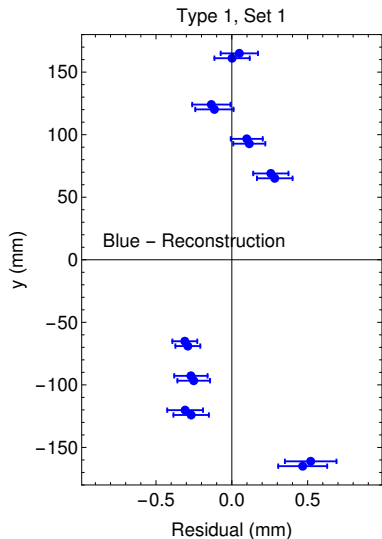
Run	Raw size (B)	Events
390.0	42826560	39974
391.0	2084516740	1943137
391.1	508684920	470770
392.0	2086105336	1893528
392.1	685182612	636408
393.0	462058480	464200
394.0	436896936	440531
6.3 GB		5.9M

CLAS12 SVT Cosmic Data - Residuals

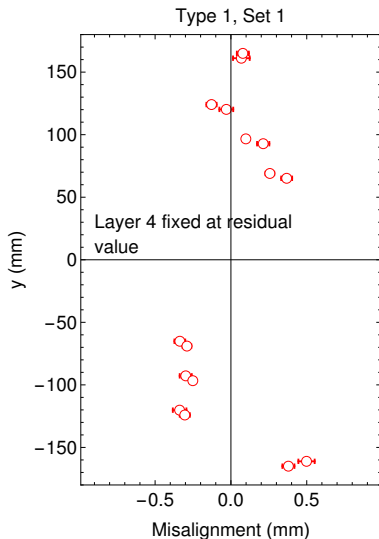
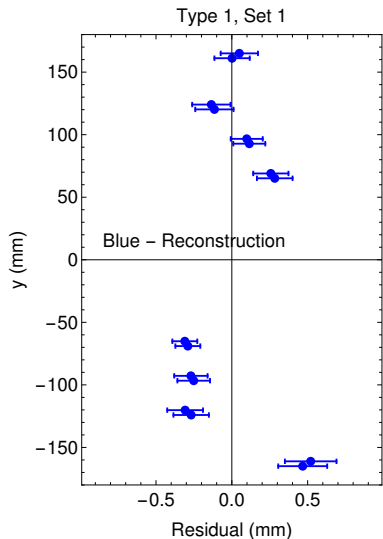


- 1 Each row is a region.
- 2 Horizontal scale: $-0.5 - 1.0$ mm.
- 3 Vertical scale: 100 for all histograms.
- 4 $\sigma = 80 - 120$ μm

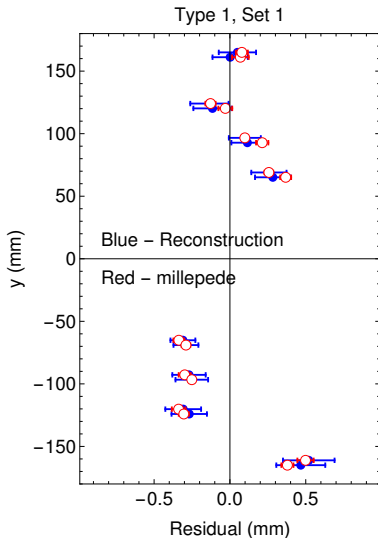
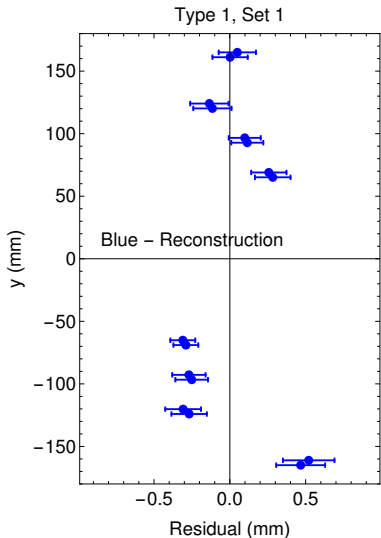
CLAS12 SVT Cosmic Data - Residuals and Misalignments



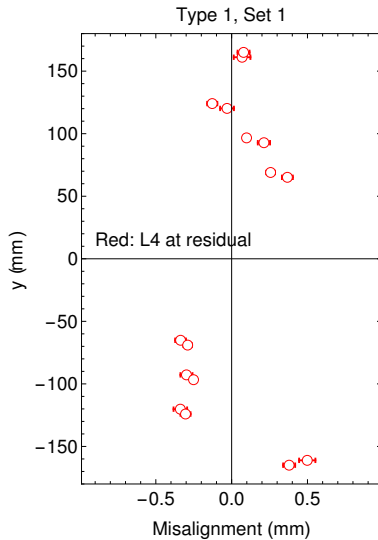
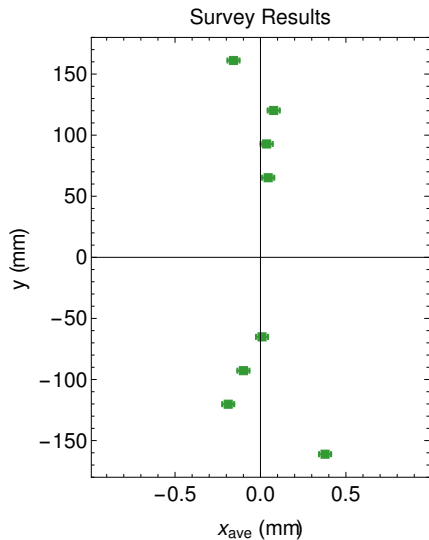
CLAS12 SVT Cosmic Data - Residuals and Misalignments



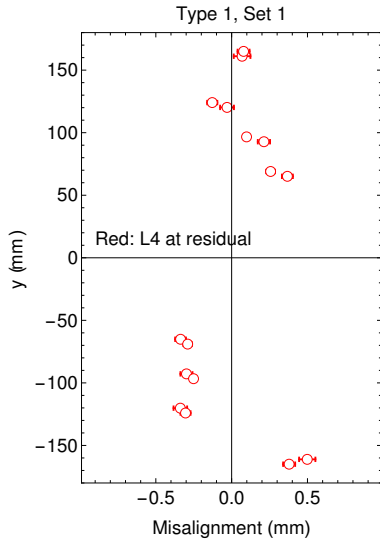
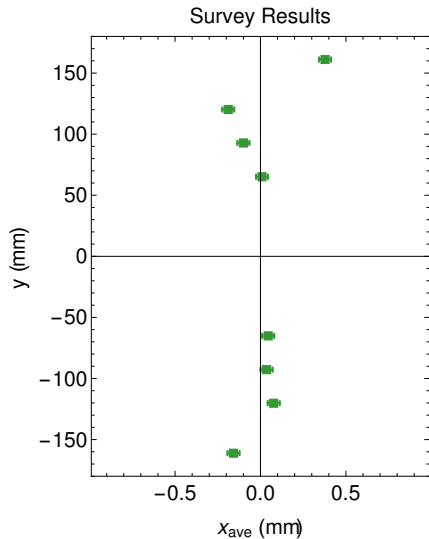
CLAS12 SVT Cosmic Data - Residuals and Misalignments



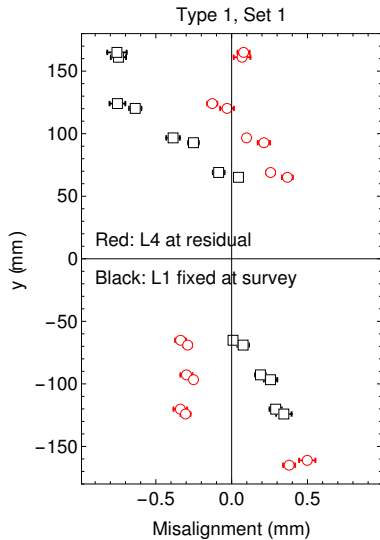
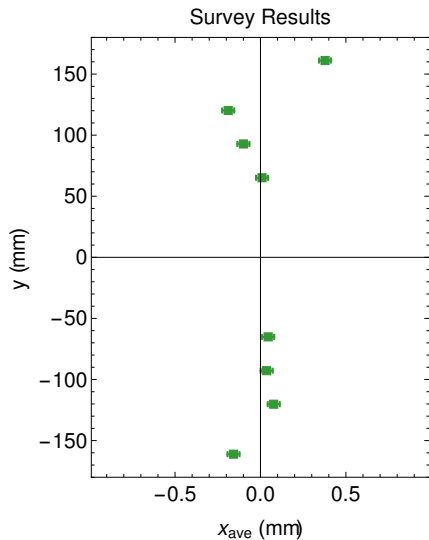
CLAS12 SVT Cosmic Data - Impact of Fixed Layers



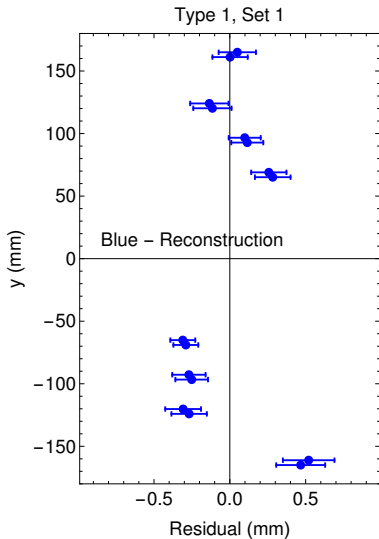
CLAS12 SVT Cosmic Data - Impact of Fixed Layers



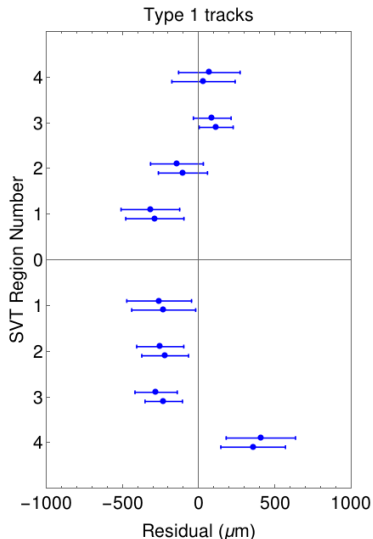
CLAS12 SVT Cosmic Data - Impact of Fixed Layers



CLAS12 SVT Cosmic Data - Residuals Past and Present



July 10, 2016 (3624 events)



January 29, 2016 (415 events)