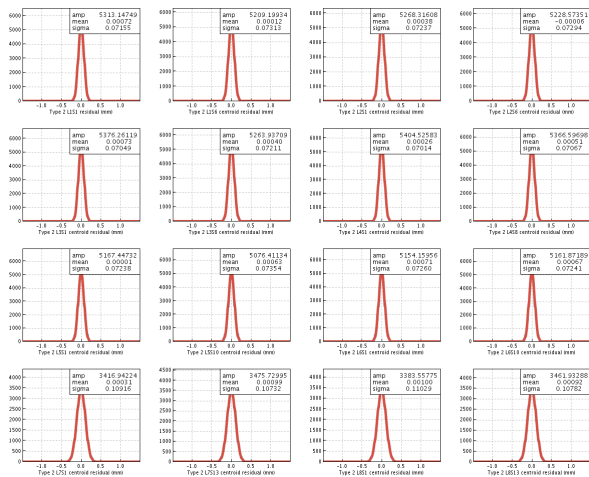
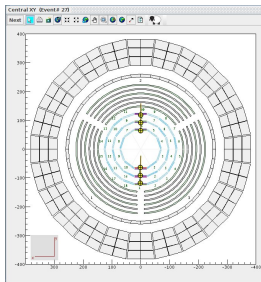


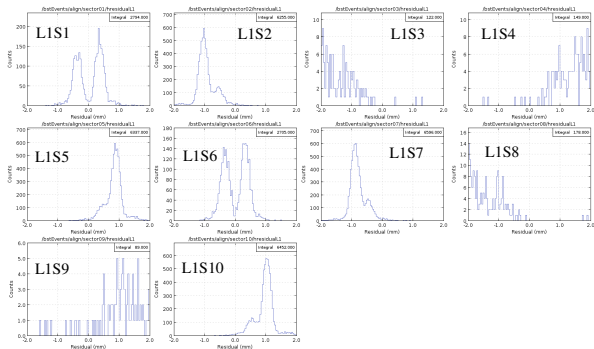
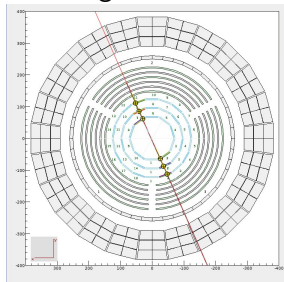
SVT Track-Based Alignment - "The Good"

Early results with simulated, type-1, cosmic events (see below) with ideal geometry in simulation show residuals close to zero and widths near specifications.



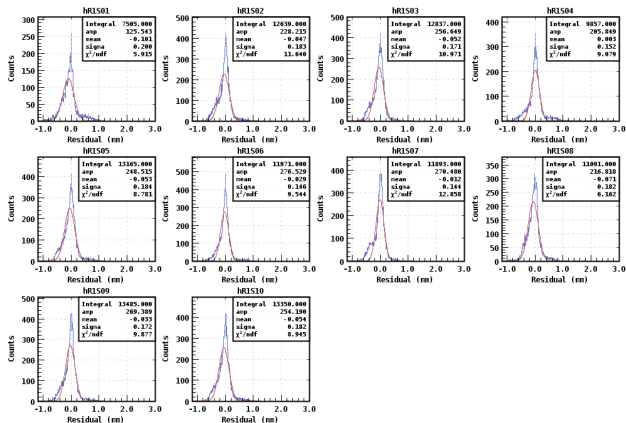
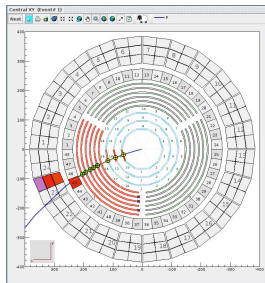
SVT Track-Based Alignment - "The Not-So Good"

Simulated, Type-2, cosmic events (see below) with ideal geometry in simulation show large residuals with large widths.



SVT Track-Based Alignment - "More Not-So Good"

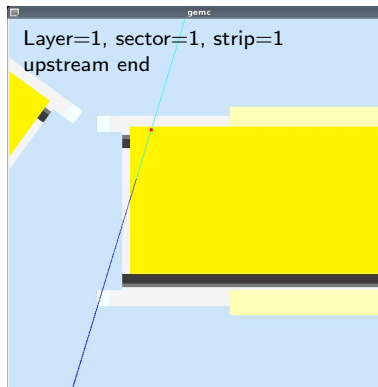
Simulated, Type-3, events originating from the target (see below) with ideal geometry in simulation show large residuals and widths.



SVT Diagnostics: Shooting at Strips

Test consistency of *gemc* and the SVT reconstruction geometry.

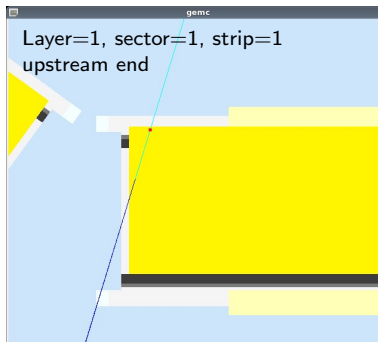
- 1 Calculate θ and ϕ for strip mid-points and endpoints using the reconstruction code.
- 2 Run *gemc* with those values of θ and ϕ .
- 3 Is the hit in the right place?



SVT Diagnostics: Shooting at Strips

Test consistency of *gemc* and the SVT reconstruction geometry.

- 1 Calculate θ and ϕ for strip mid-points and endpoints using the reconstruction code.
- 2 Run *gemc* with those values of θ and ϕ .
- 3 Is the hit in the right place?



***** EVENT # 4 *****

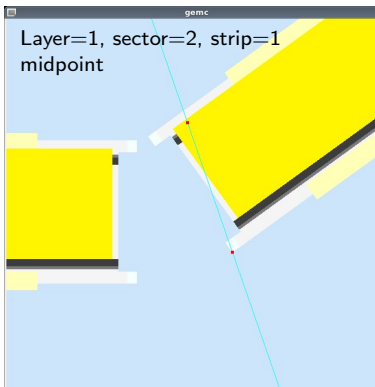
	bank	nrows	ncols
	BST::dgtz	2	6
	GenPart::header	1	4
	GenPart::true	1	8

Choose (n=next,p=previous, q=quit), Type Bank Name or id : BST::dgtz

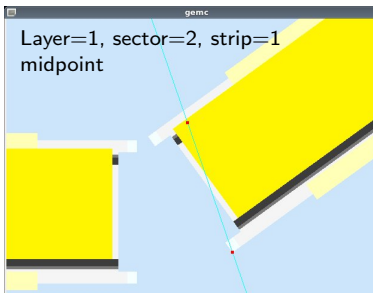
*****>>>> BANK BST::dgtz >>>> SIZE = 6

layer (int) :	1	1
sector (int) :	1	1
strip (int) :	1	-5
ADC (int) :	7	7
bco (int) :	80	1
hitn (int) :	1	2

SVT Diagnostics: More Shooting at Strips



SVT Diagnostics: More Shooting at Strips



***** EVENT # 2 *****

bank	nrows	ncols
BST::dgtz	9	6
GenPart::header	1	4
GenPart::true	1	8

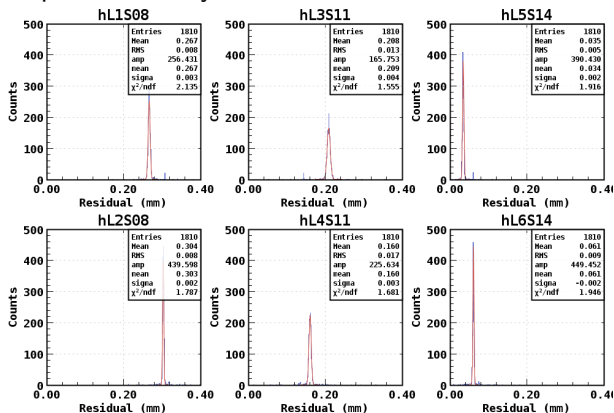
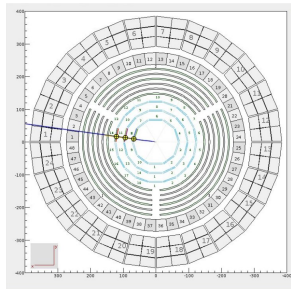
Choose (n=next,p=previous, q=quit), Type Bank Name or id : BST::dgtz

*****>>> BANK BST::dgtz >>> SIZE = 6

layer (int) :	1	2	3	3	4	4	5	6
sector (int) :	2	2	2	2	2	2	2	2
strip (int) :	1	-5	52	51	177	176	109	134
ADC (int) :	2	7	2	2	1	1	7	2
bco (int) :	253	62	236	63	138	135	61	250
hitn (int) :	1	2	3	4	5	6	7	8

SVT Diagnostics: Single $\theta - \phi$ Events

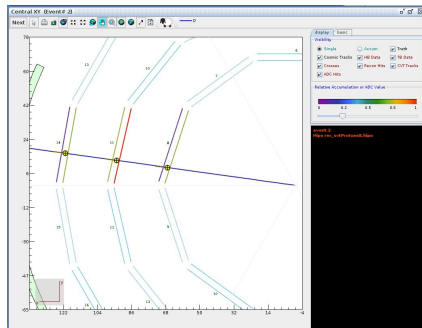
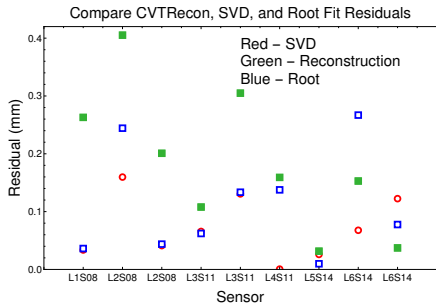
Use the *gemc* particle gun to repeatedly fire protons at the midpoint of a particular strip (center of layer 5, sector 14, strip 128) and histogram the reconstruction results. The peaks are very narrow, but far from zero.



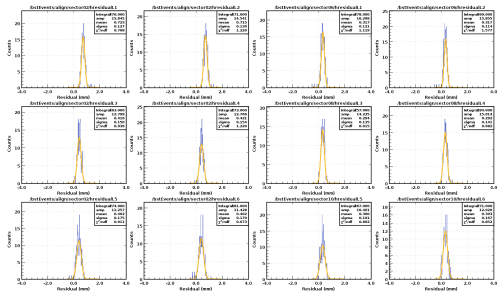
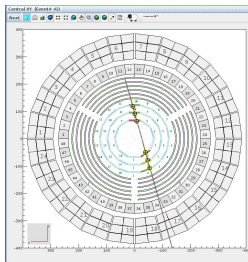
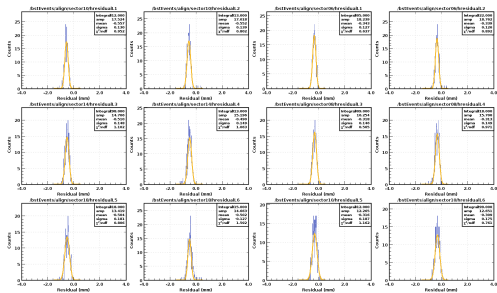
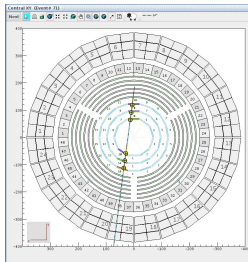
SVT Diagnostics: Test the fitting of cosmic-ray tracks

Compare the reconstruction results (three crosses in the SVT) for protons on the previous slide (center of layer 5, sector 14, strip 128) with other fitting methods.

	recon	SVD	root
myx	7.327	7.15063	7.093 ± 13.187
byx	-0.352	0.00749	0.083 ± 17.825
myz	1.269	1.50052	1.220 ± 2.9241
byz	0.294	0.03846	0.407 ± 3.9526

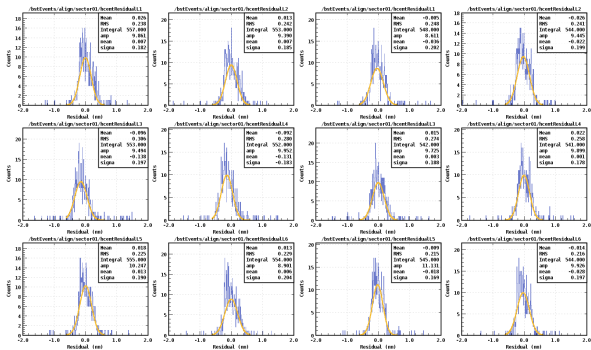
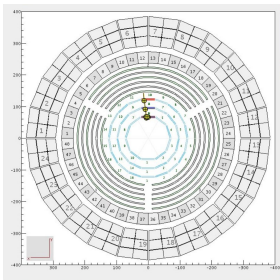


SVT Diagnostics: Single Topology Events



SVT Track-Based Alignment - "First Data"

Type-3 events from the alignment run (2467) and restricted to the horizontal sections (see below) with ideal+survey geometry show large widths mostly centered on zero.



SVT Track-Based Alignment - "First Data"

Type-3 events from the alignment run (2467) and restricted to the horizontal sections (see below) with ideal+survey geometry show large widths mostly centered on zero.

