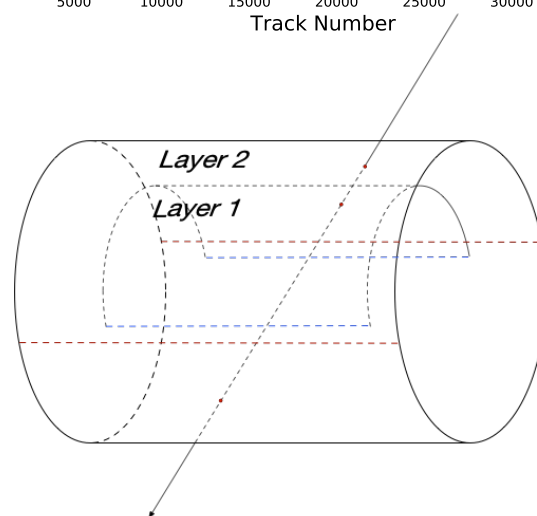
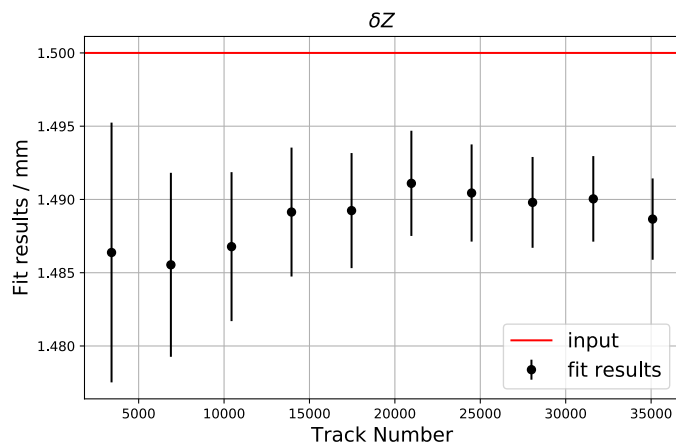
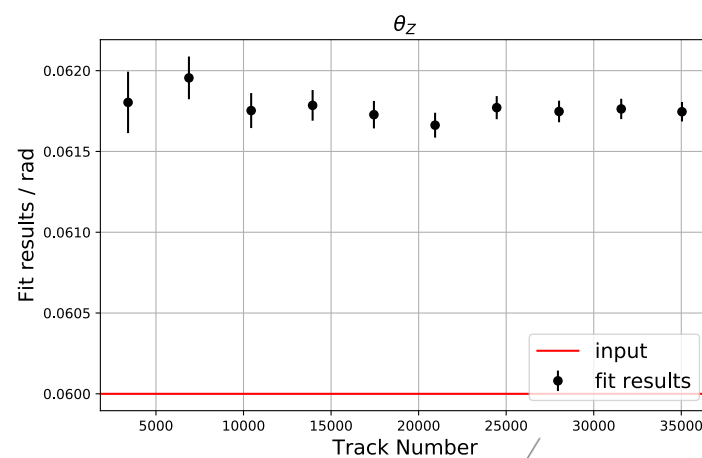
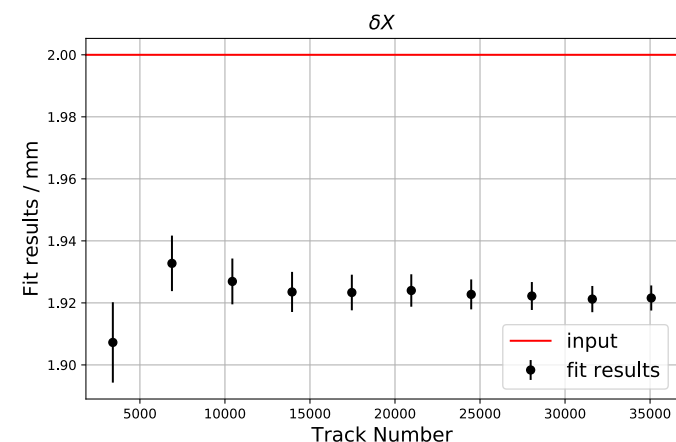


News from Cgem alignment

A. Guo, R. Mitchell, L. Wu, L. Wang, H. Wang

Alignment validation 6.6.5.d MC

- Using full 2nd layer and half 1st layer
- Fix 2nd layer and dy alignment parameter



Alignment validation 6.6.5.f (MC)

- Using full 2nd layer and half 1st layer

Result of fit for global parameters						
=====						
I	initial	final	differ	lastcor	Error	gcor

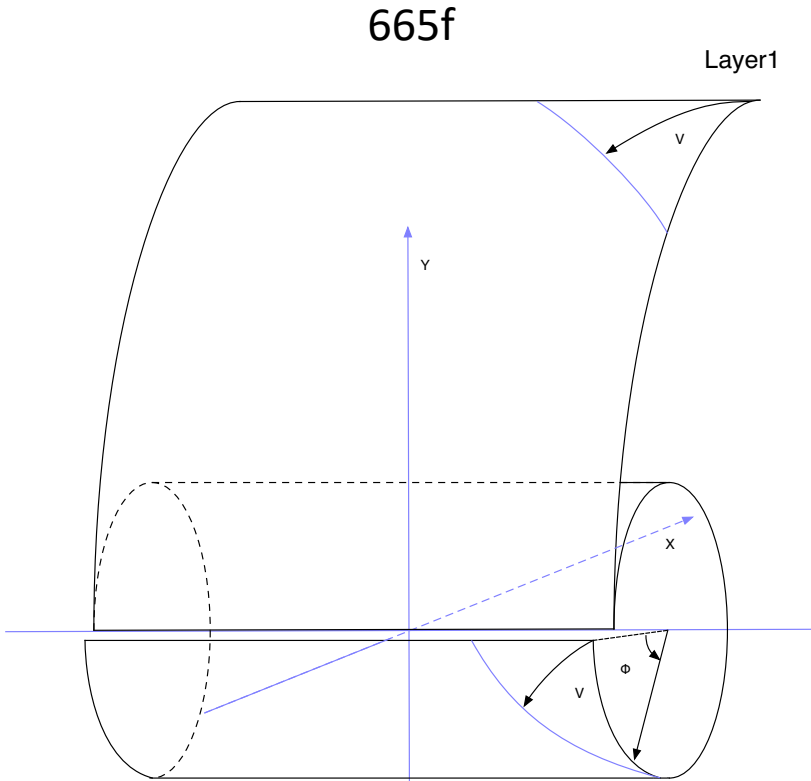
0	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF
1	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF
2	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF

3	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF
4	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF
5	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF

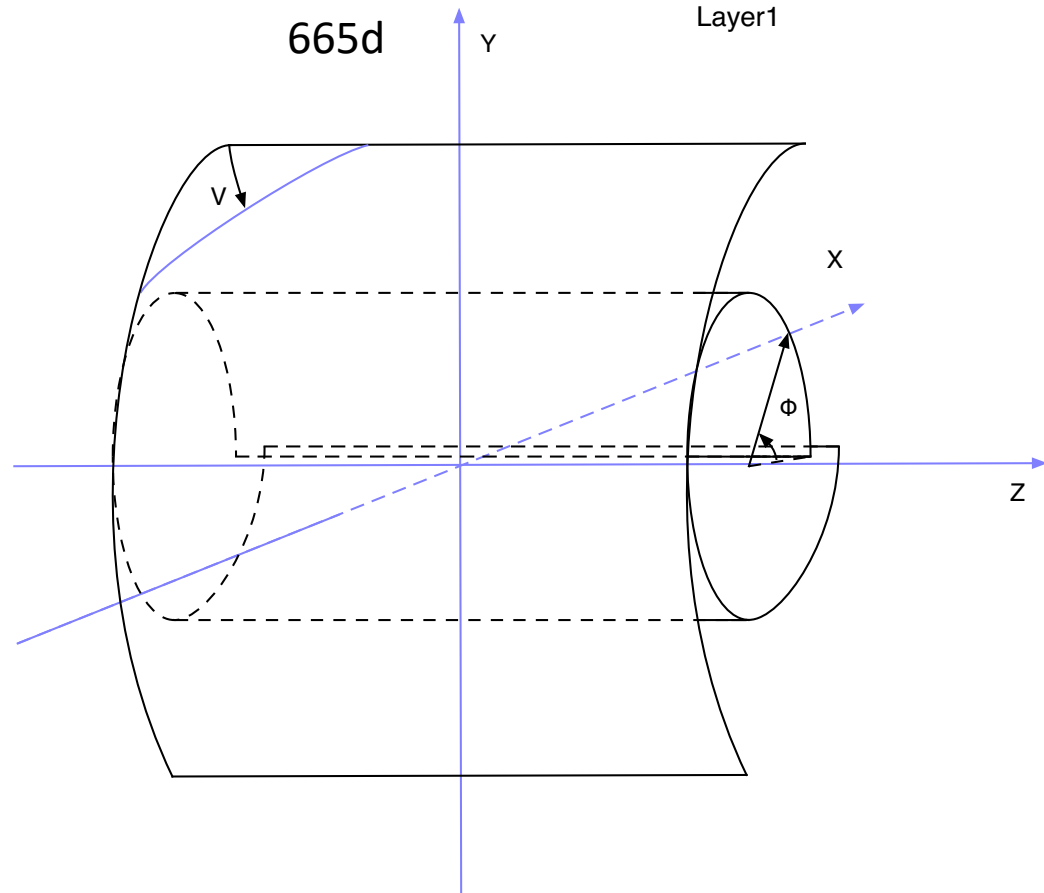
6	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF
7	/ 0.0000	/ 0.0000	/ 0.0000	/ -0.0000	/ 0.00000	/ 132907867943398.23438
8	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF

9	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF
10	/ 0.0000	/ -0.0000	/ -0.0000	/ 0.0000	/ 0.00000	/ 7366157.94743
11	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF	/ OFF

Geometry under 665d and 665f

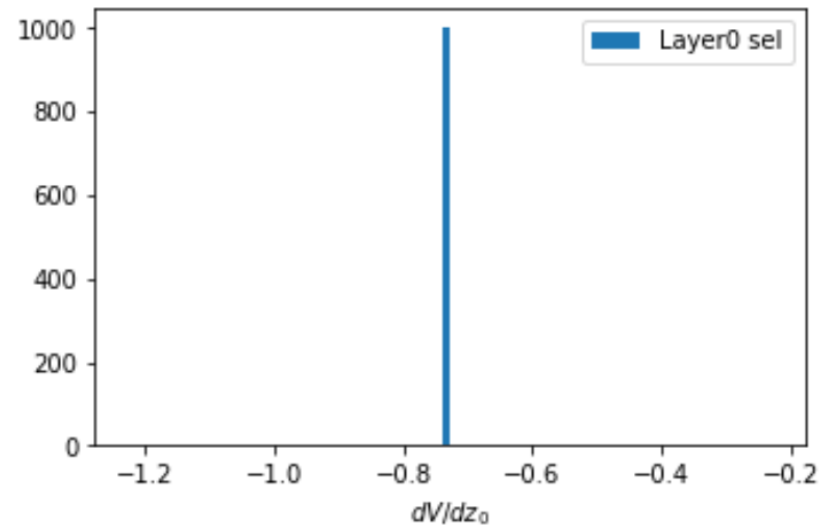
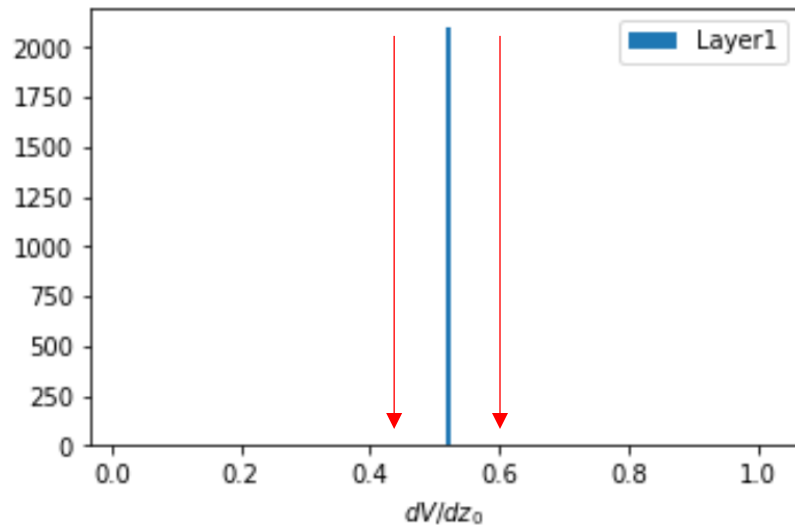


V direction is layer dependent

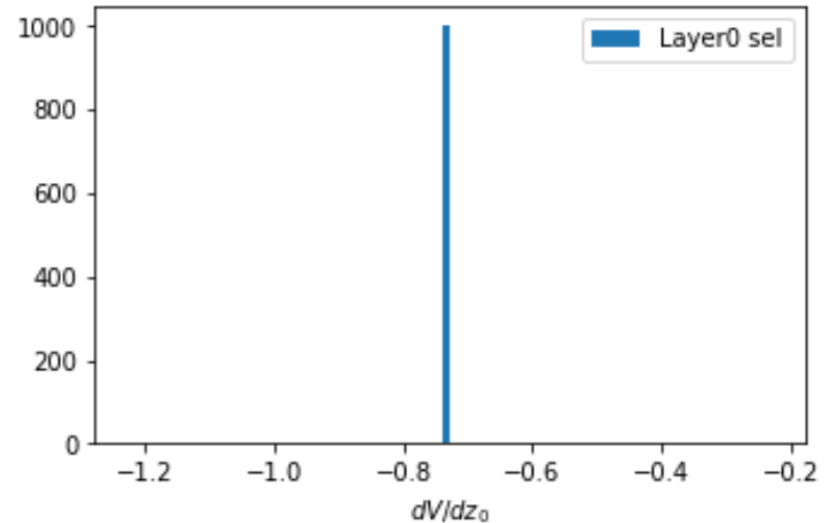
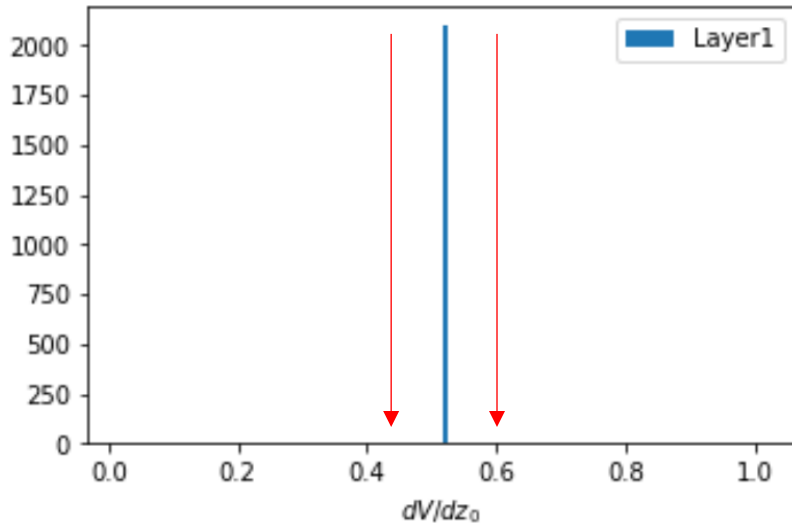


Same for all 3 layer

dV/dz_0 at layer1 and layer2 (665f)



dV/dz_0 at layer1 and layer2 (665f)



Input / output check under 665f after changing the criteria

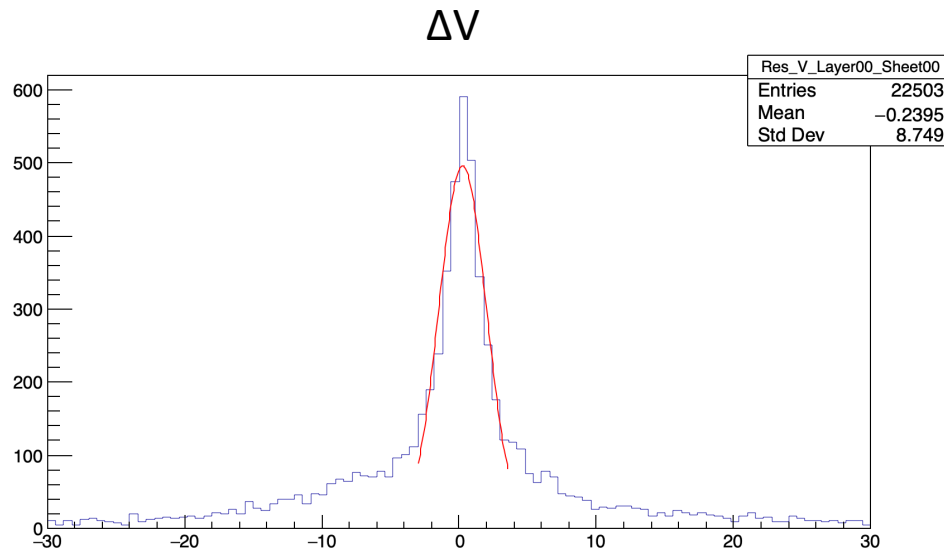
Input: $Dz = 1.5$ mm

Output: $Dz = 1.495$ mm

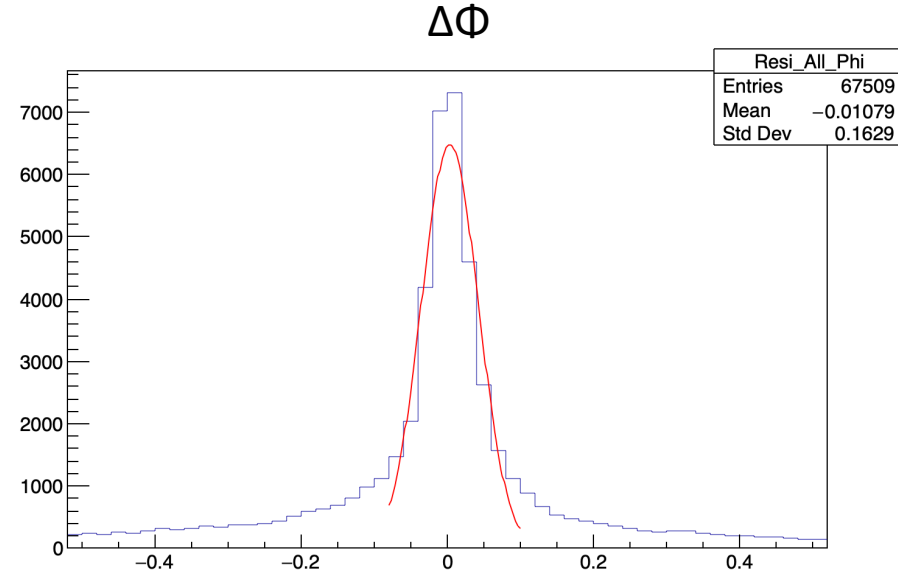
Elements	DeltaX(mm)	DeltaY(mm)	DeltaZ(mm)	RX(rad)	RY(rad)	RZ(rad)
layer1	0.1320645	0.0000000	1.4950900	0.0000000	0.0000000	-0.0016870
layer2	-0.0000000	-0.0000000	0.0000000	0.0000000	0.0000000	-0.0000000
layer3	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Perform the alignment to data

- Get the proper resolution for $\Delta\Phi$ and ΔV
- Data run4



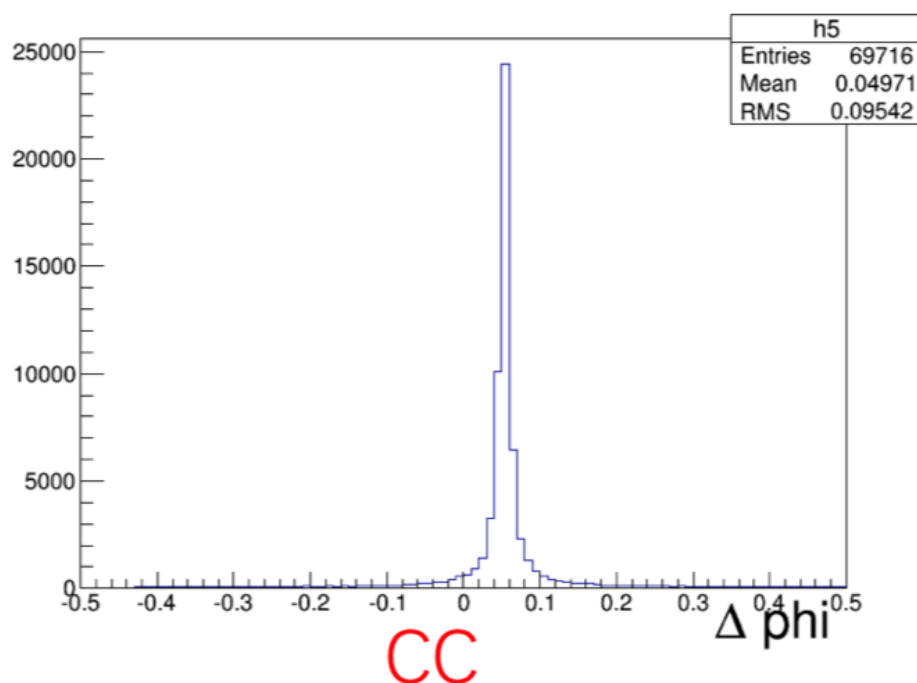
$\sigma(\Delta V) \sim 1.7 \text{ mm}$



$\Sigma(\Delta\Phi) \sim 0.04 \text{ rad}$

Preliminary alignment results for run4

Elements	DeltaX(mm)	DeltaY(mm)	DeltaZ(mm)	RX(rad)	RY(rad)	RZ(rad)
layer1	-0.0000069	-0.0000000	0.0000028	0.0000000	0.0000000	-0.0472972
layer2	-0.0000000	-0.0000000	-0.0000000	0.0000000	0.0000000	-0.0000000
layer3	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000



```
Total : 22344 local fits, 0 rejected.  
Iteration 9 with cut factor 3  
...using 22344 tracks...  
Final coeff is -0.007331064635  
Final NDOFs = 12  
dparm[0] = -6.850702863e-06  
dparm[1] = -1.366119601e-37  
dparm[2] = 0  
dparm[3] = -1.18284015e-23  
dparm[4] = -7.739513387e-38  
dparm[5] = 0  
dparm[6] = 2.802505757e-06  
dparm[7] = -5.797404088e-38  
dparm[8] = 0  
dparm[9] = -0.04729720533  
dparm[10] = -2.163329276e-38  
dparm[11] = 0
```

- Consistent with the results obtained by hongpeng.
- Further study is necessary