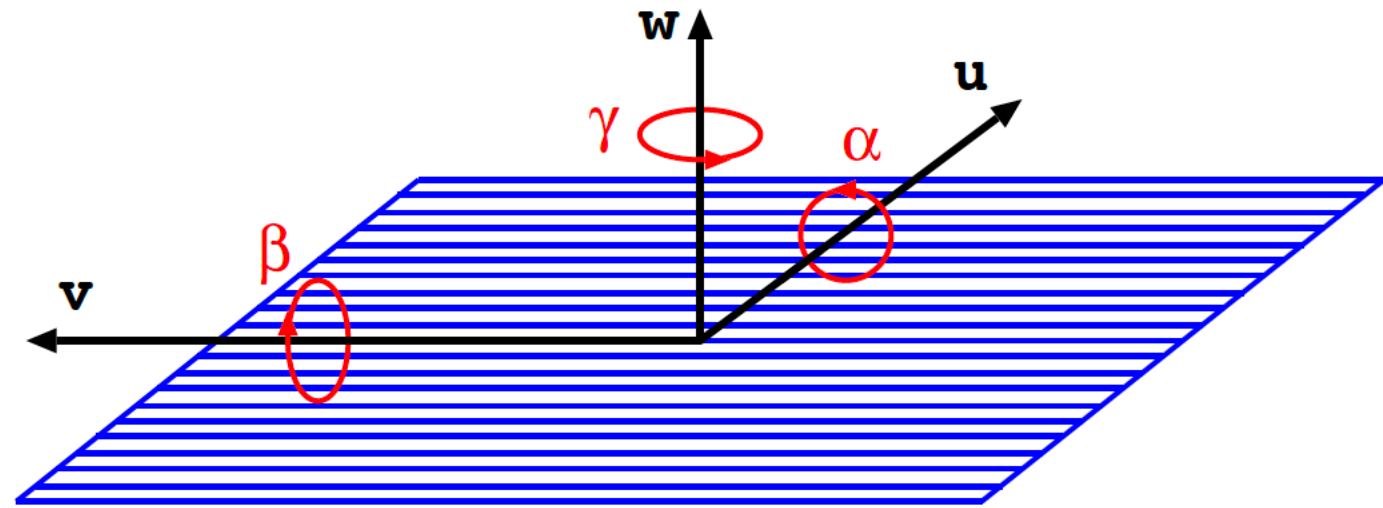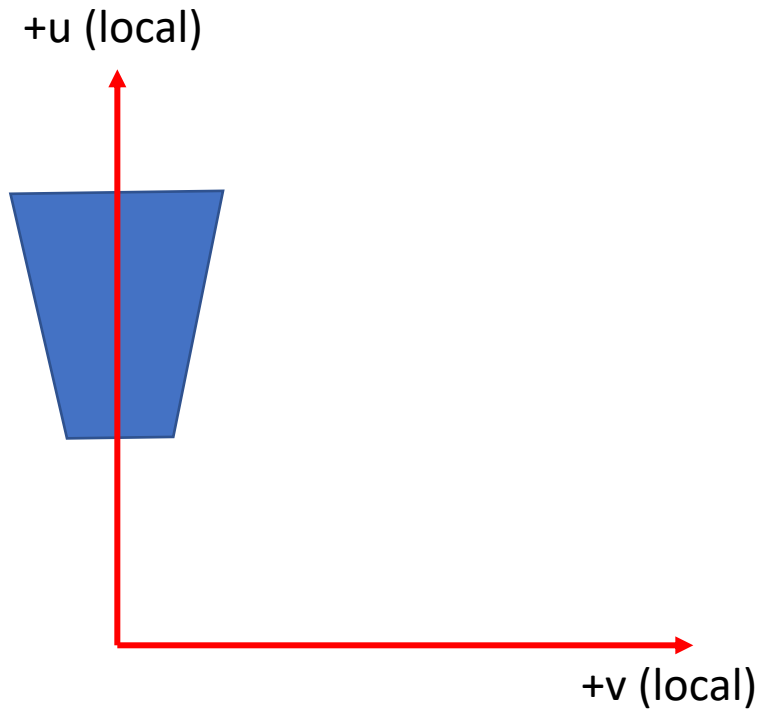# Update on Forward Alignment

Gavin Wilks

09/22/2022

Coordinates

+u (local)

+v (local)

CMS, doi:10.1088/1748-0221/9/06/P06009.

Single sensor alignment

No B field, no misalignment

Parameter	Value	Error
Δu (um)	1.9	2.2
Δv (um)	-0.5	1.2
Δγ (mrad)	-0.003	0.013

No B field, misalignment of Δv=100um

Parameter	Value	Error
Δu (um)	-0.7	2.3
Δv (um)	-0.9	1.2
Δγ (mrad)	-0.0084	0.014

No B field, misalignment Δγ=50mrad

Parameter	Value	Error
Δu (um)	-0.2	2.5
Δv (um)	1.3	1.2
Δγ (mrad)	-0.0084	0.014

No B field, misalignment Δγ=50mrad restrict other parameters

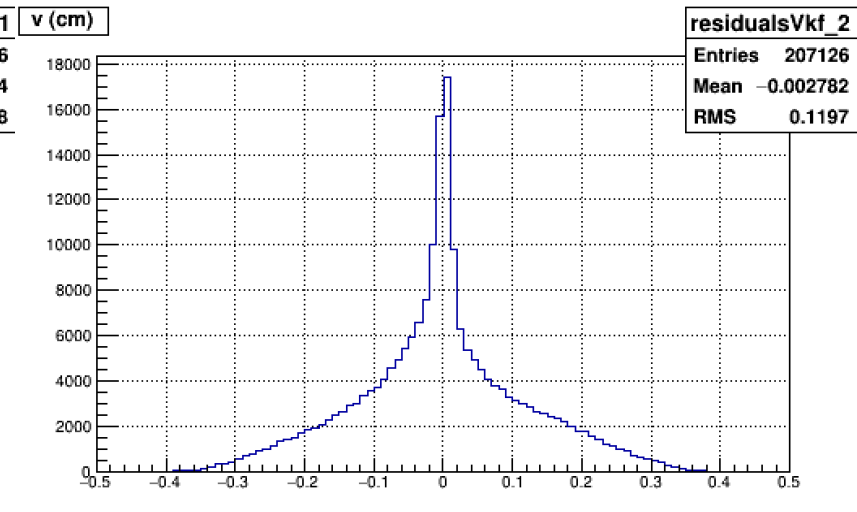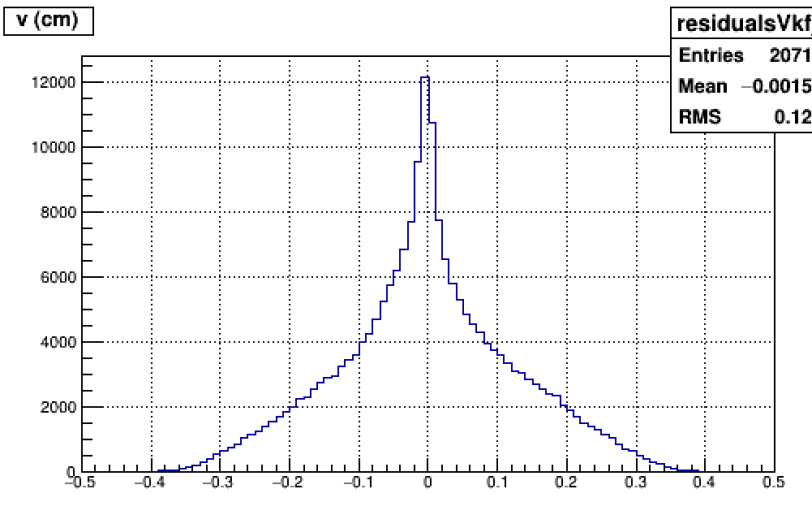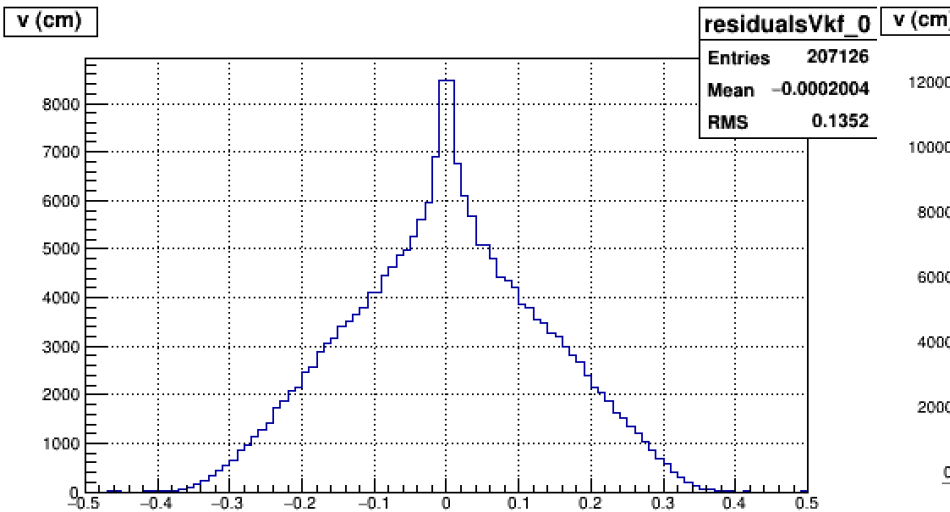| Parameter	Value	Error
Δu (um)	--	--
Δv (um)	--	--
Δγ (mrad)	-0.0007	0.0040

Residuals (no misalignment, B=0)

Sensor 0 (disk closest to IP)   Sensor 36   Sensor 72 (disk farthest from IP)
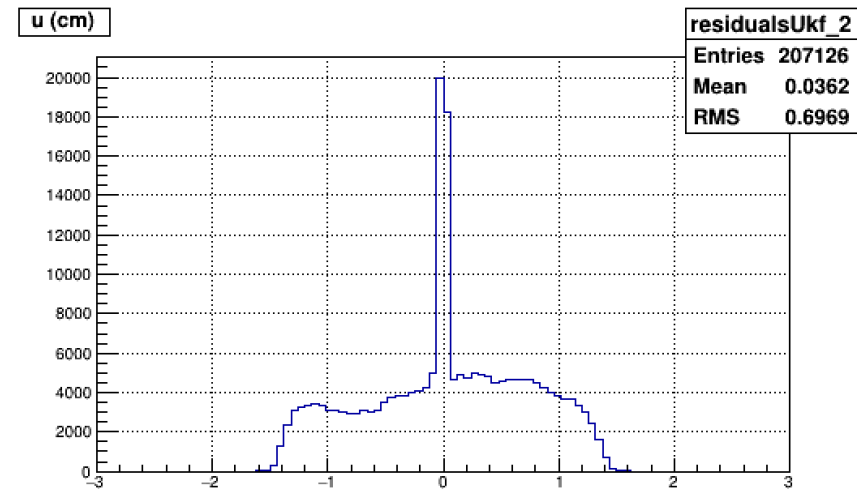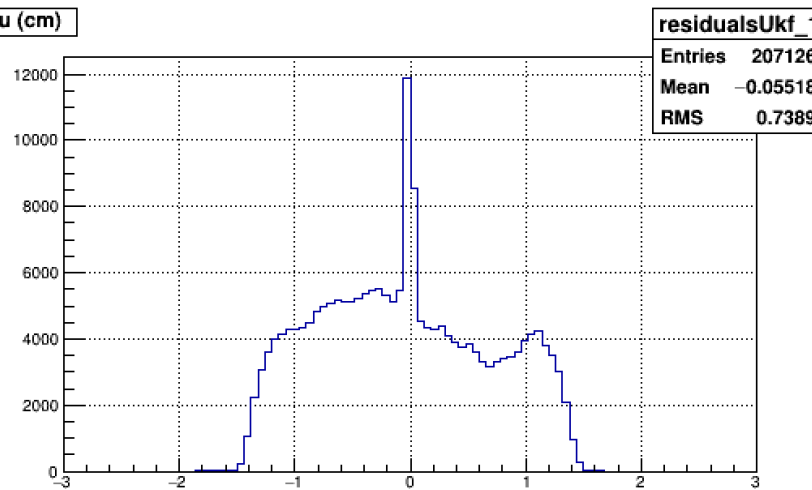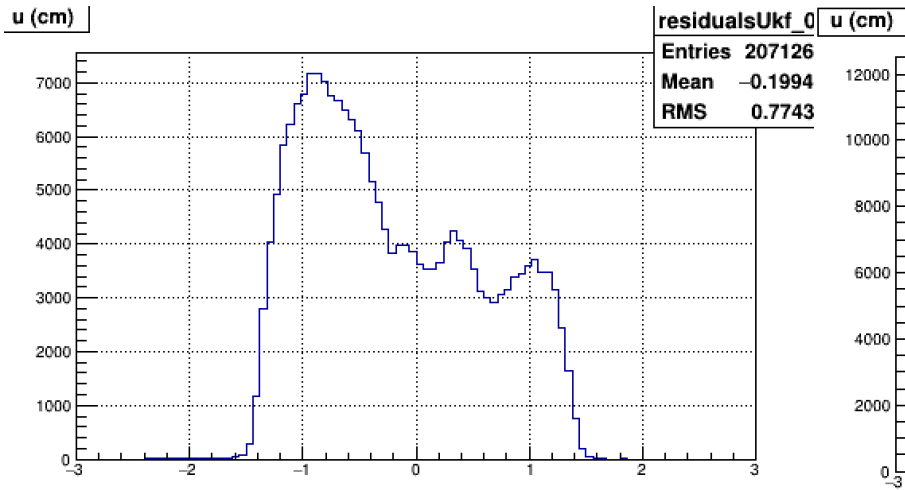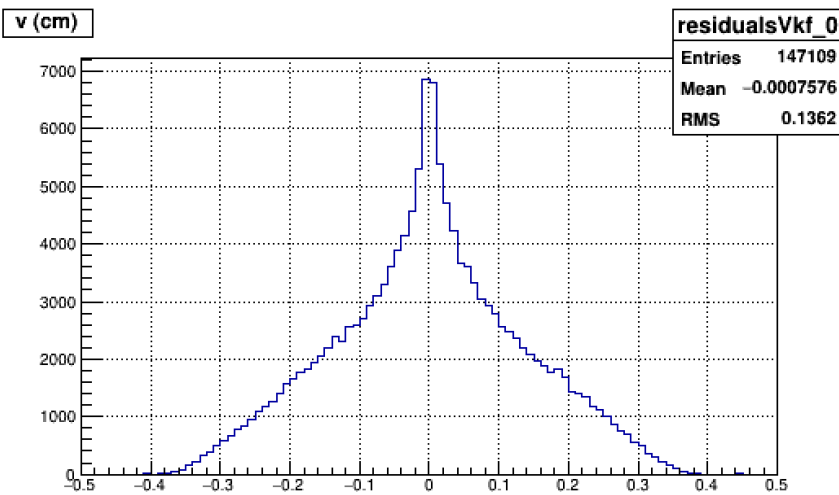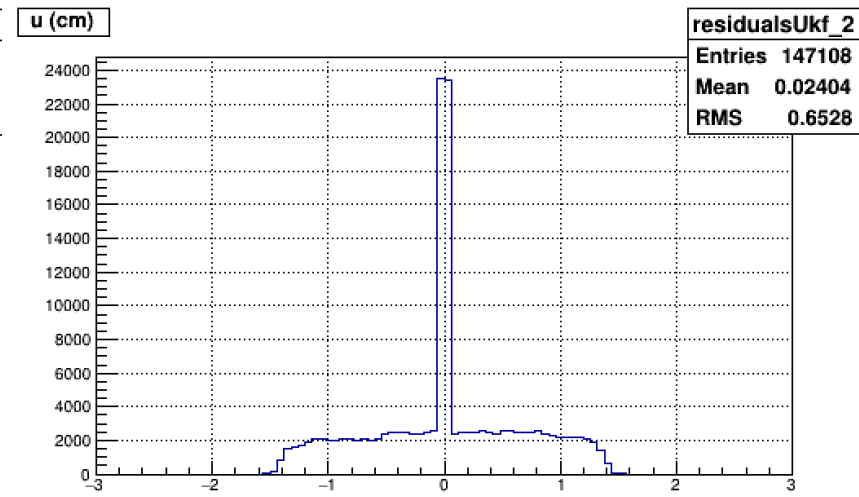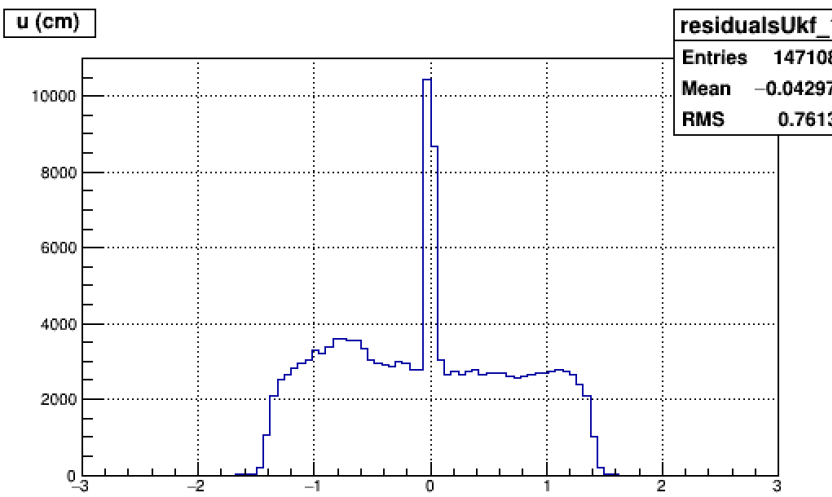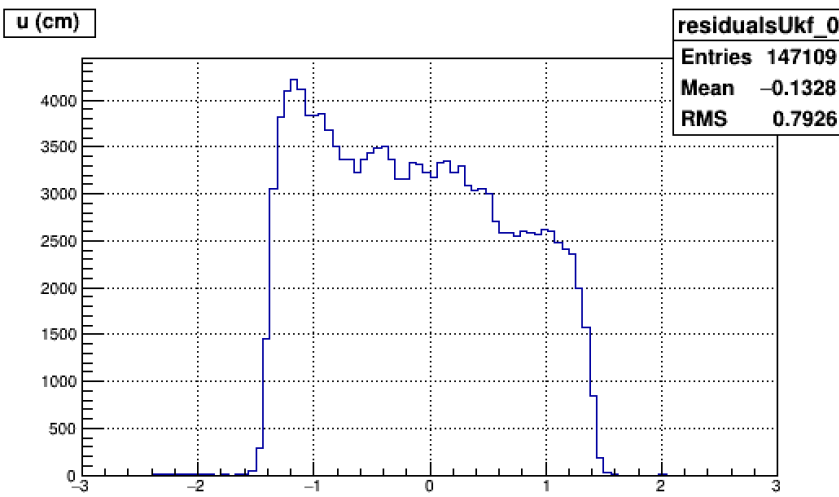

fit - measured

These are from the Kalman filter fit

Residuals (no misalignment, with B-field)

Sensor 0 (disk closest to IP)　　　　　Sensor 36　　　　　Sensor 72 (disk farthest from IP)

fit – measured

These are from the Kalman filter fit