

Status of  
the primary vertex estimation

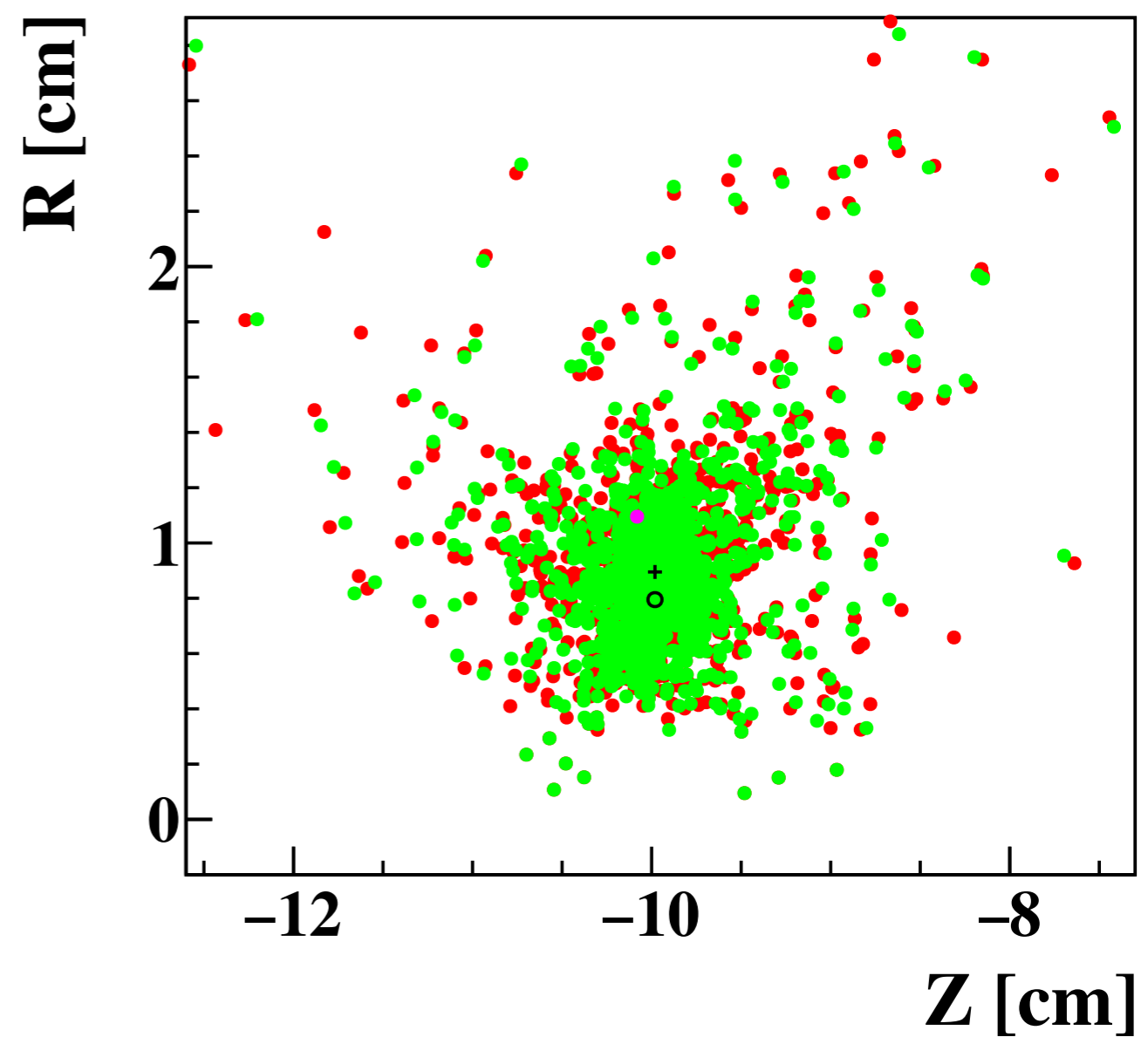
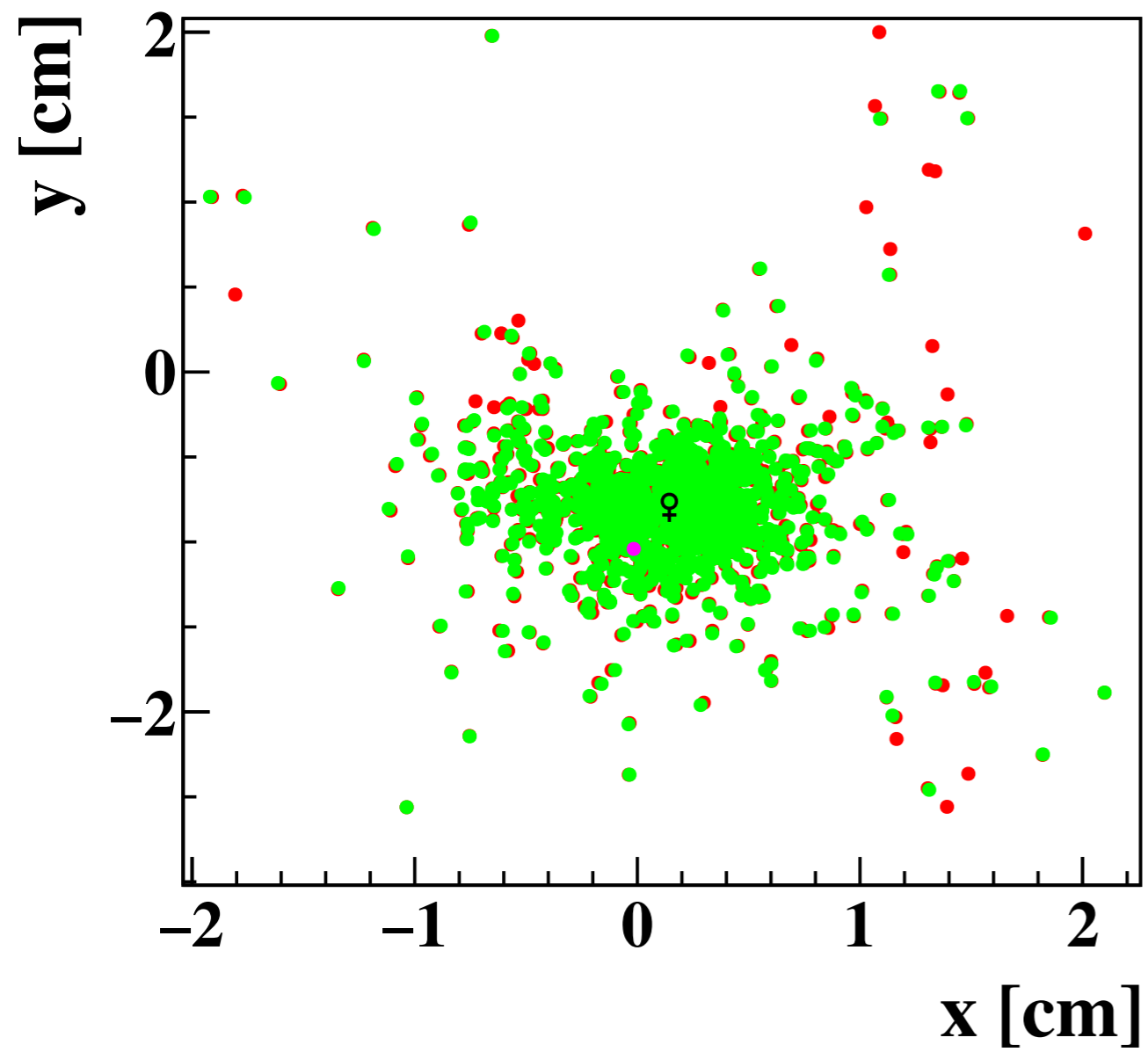
V.Akishina, I.Kisel, M.Zyzak

BNL, 17.12.15

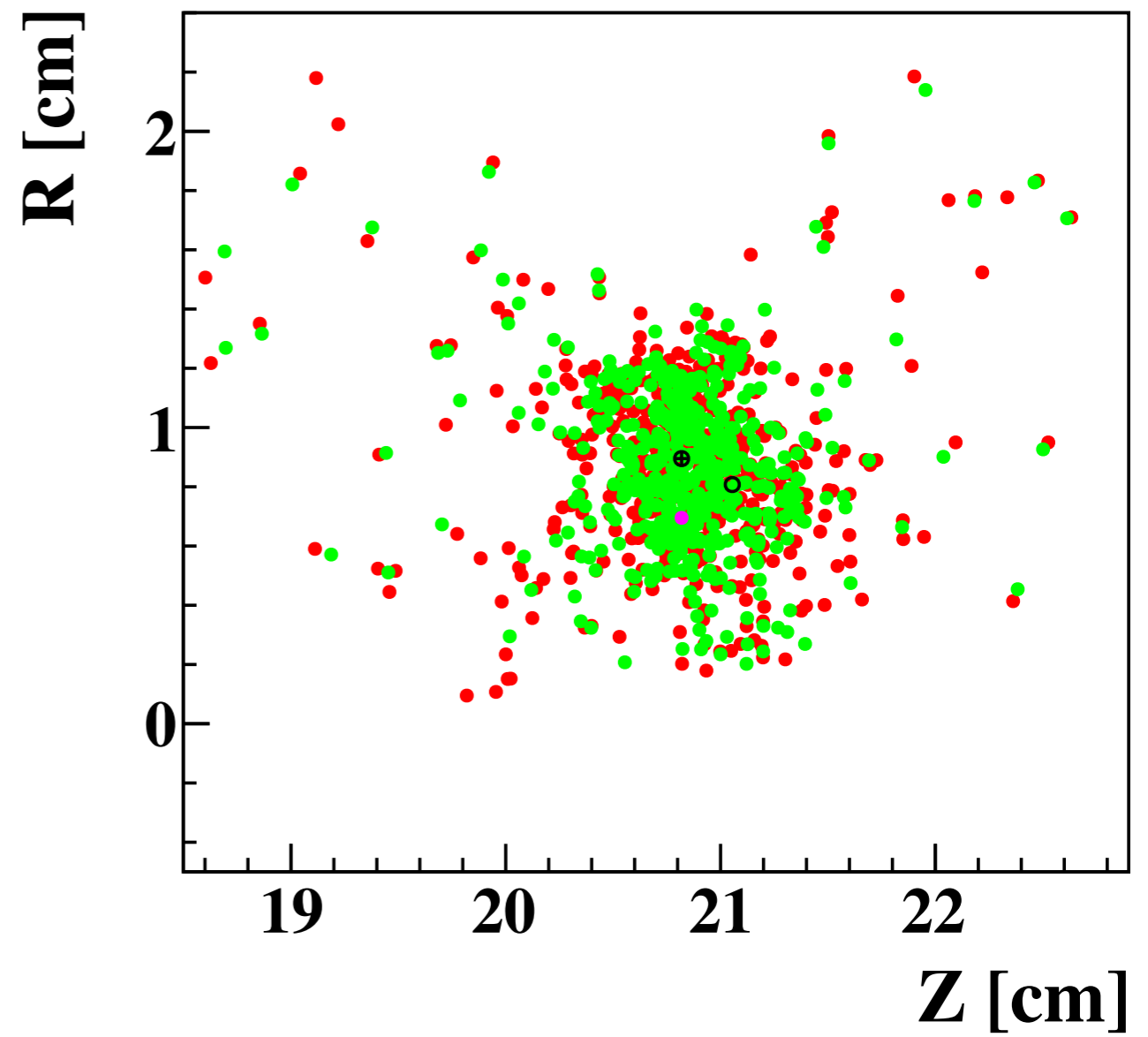
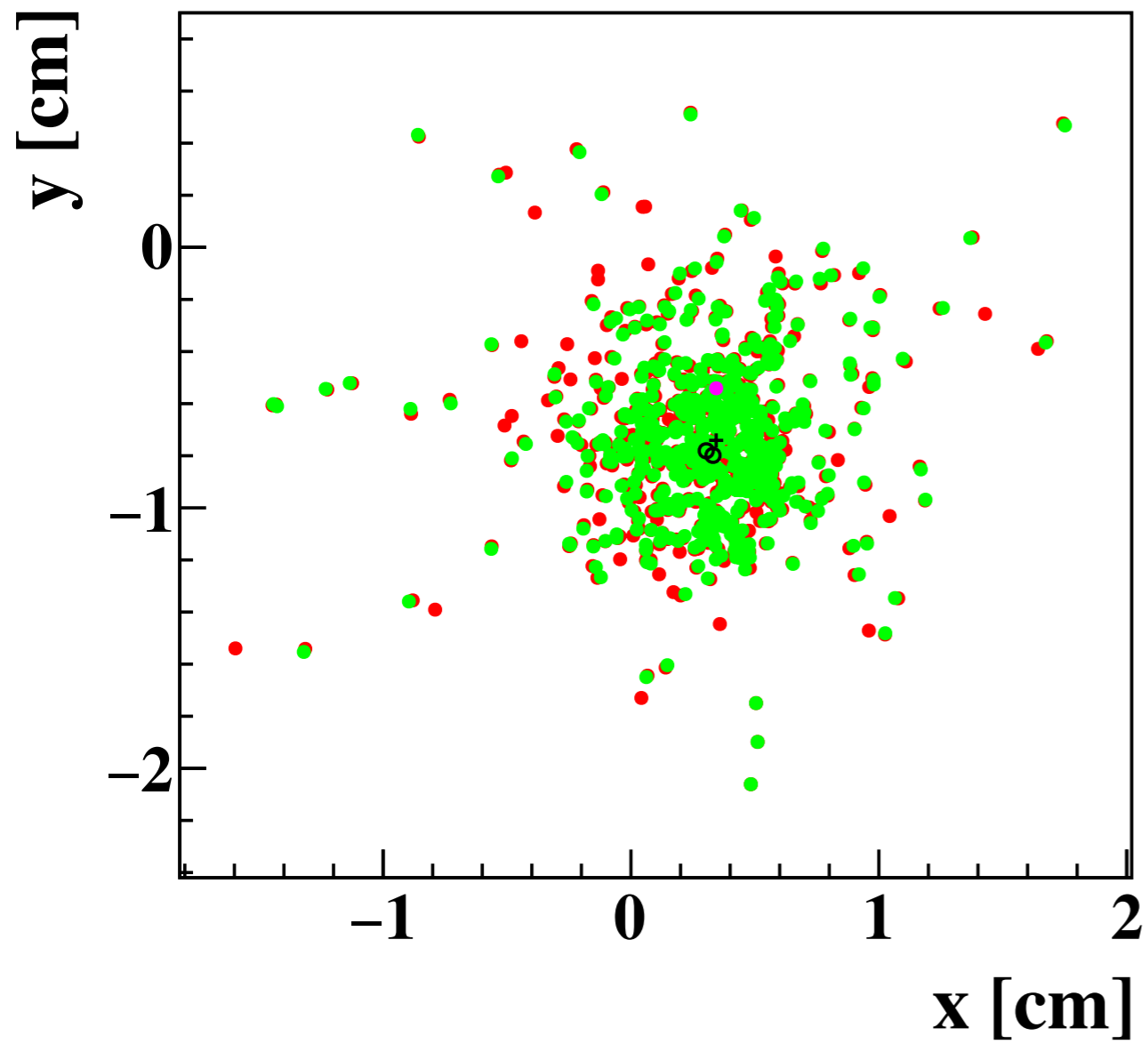
# Algorithm strategy

1. Choose 50 tracks with the largest momenta
2. Construct all possible 2 tracks vertices out of 50 tracks
3. Choose only vertexes:  $\chi^2 < 5$ ,  $|z| < 210$ ,  $|r| < 10$
4. Find vertex with maximum number of neighbour vertexes
5. Create cluster of tracks from chosen vertex and its neighbours
6. Use chosen vertex as initial approximation
7. Fit the cluster of tracks with a Kalman Filter ( $\chi^2$  cut)

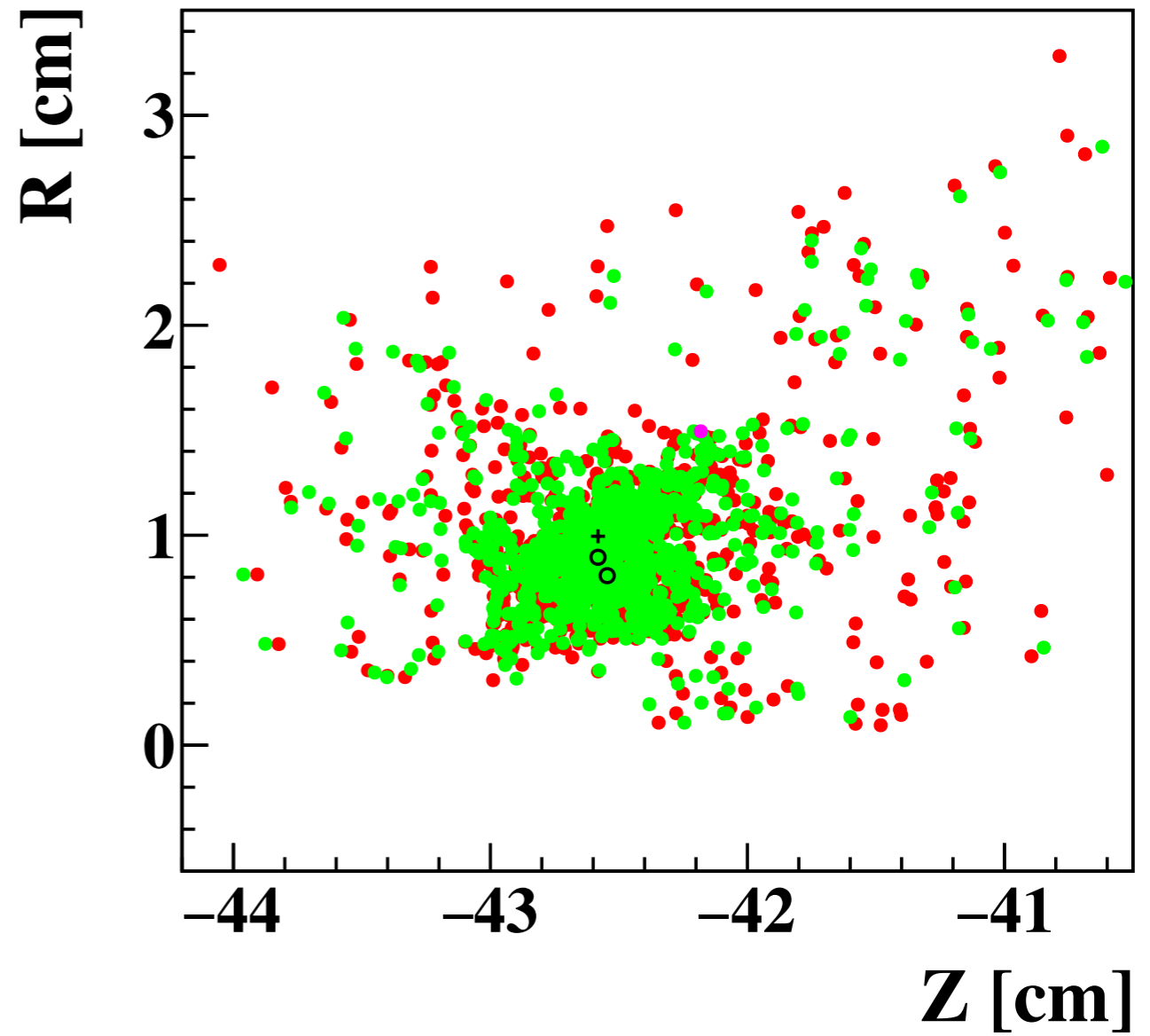
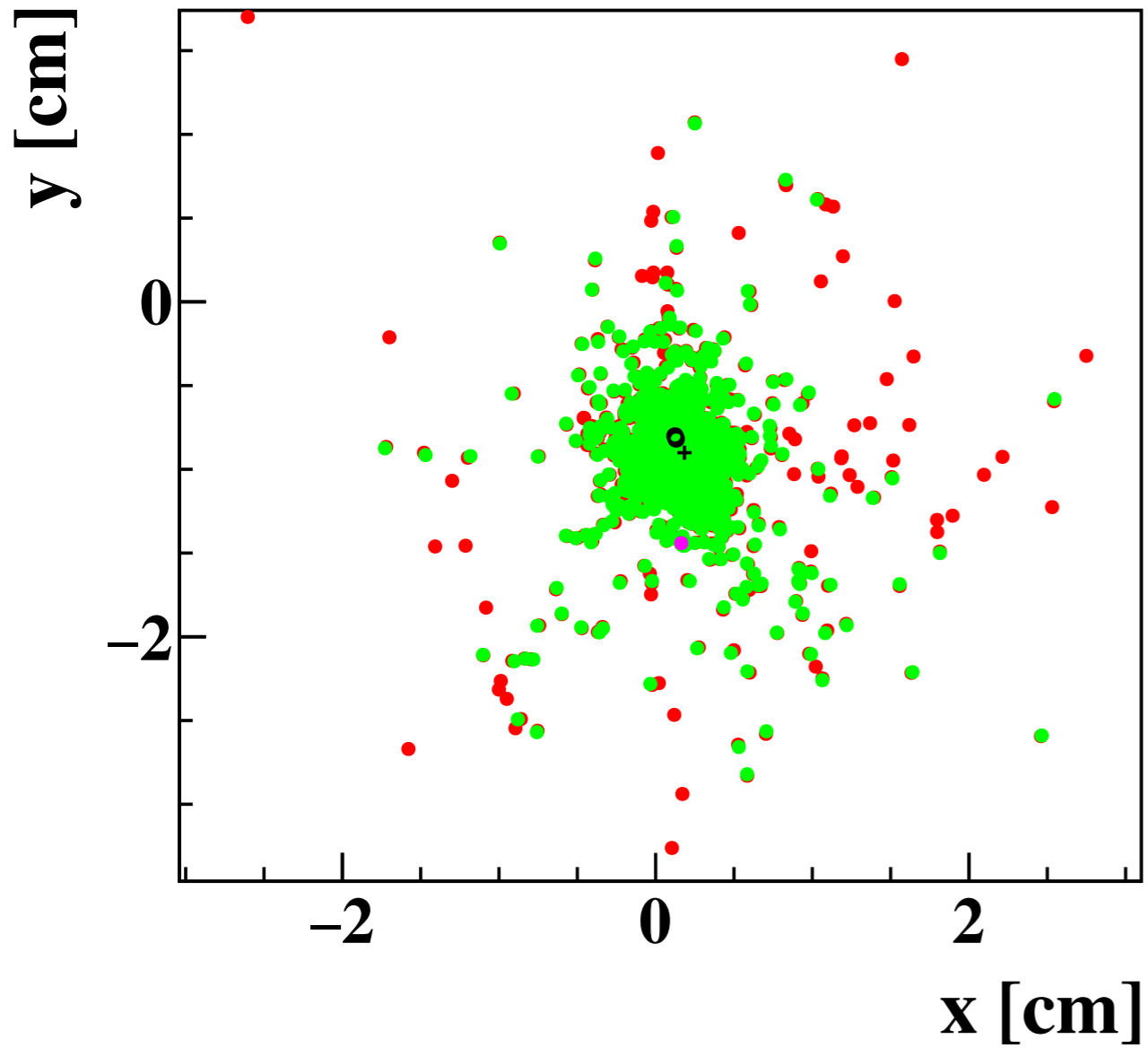
# Event 0



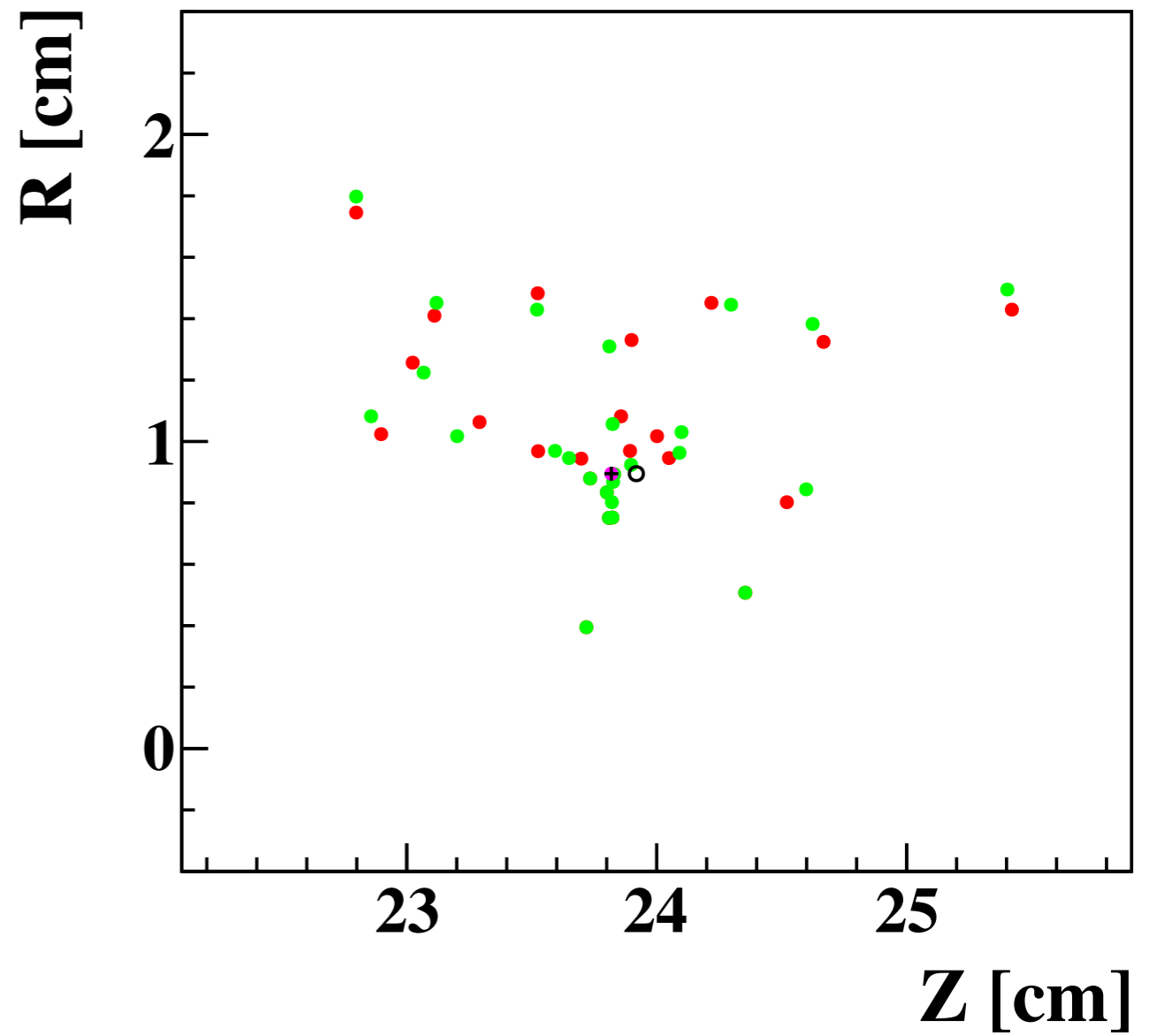
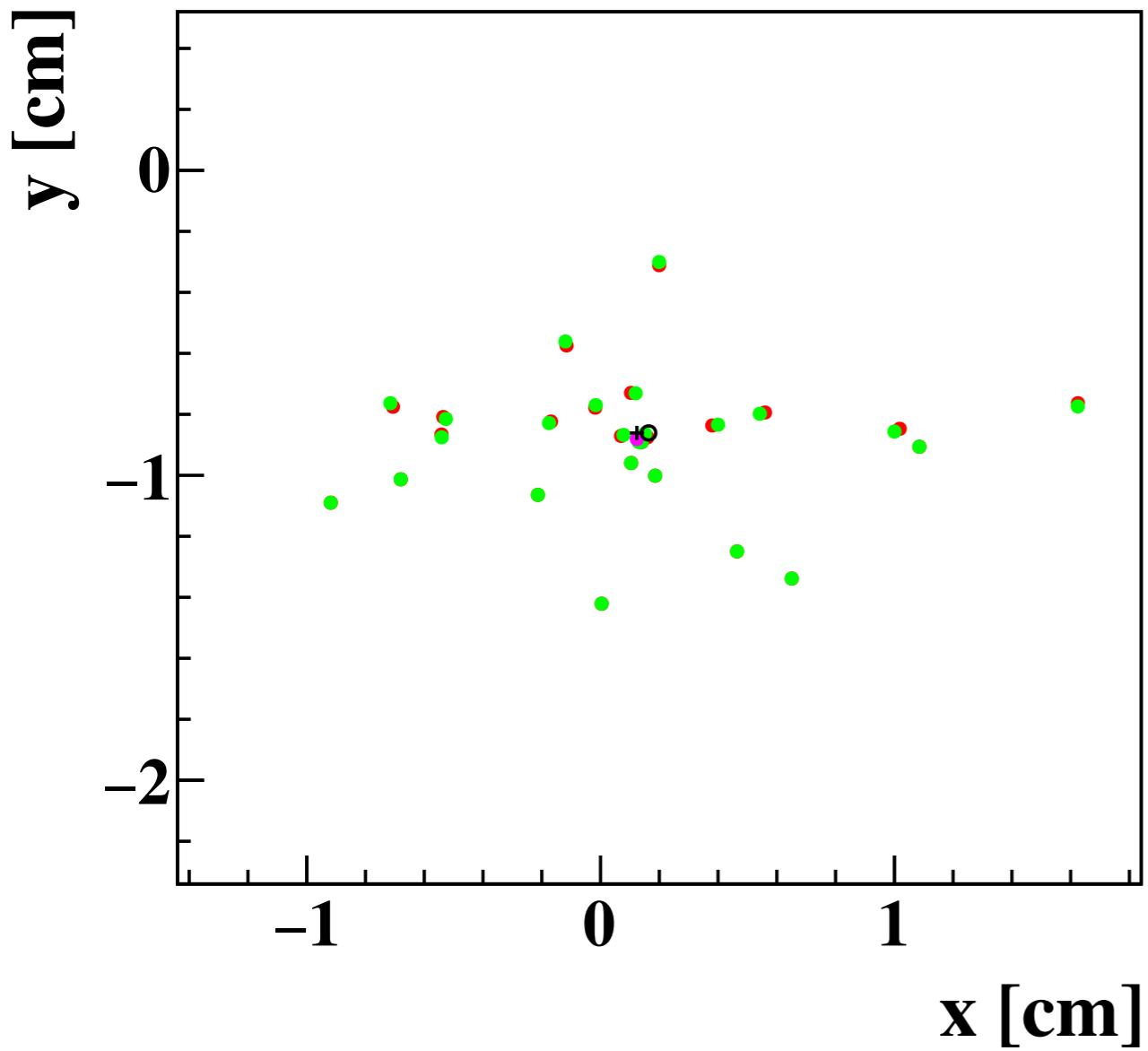
# Event 1



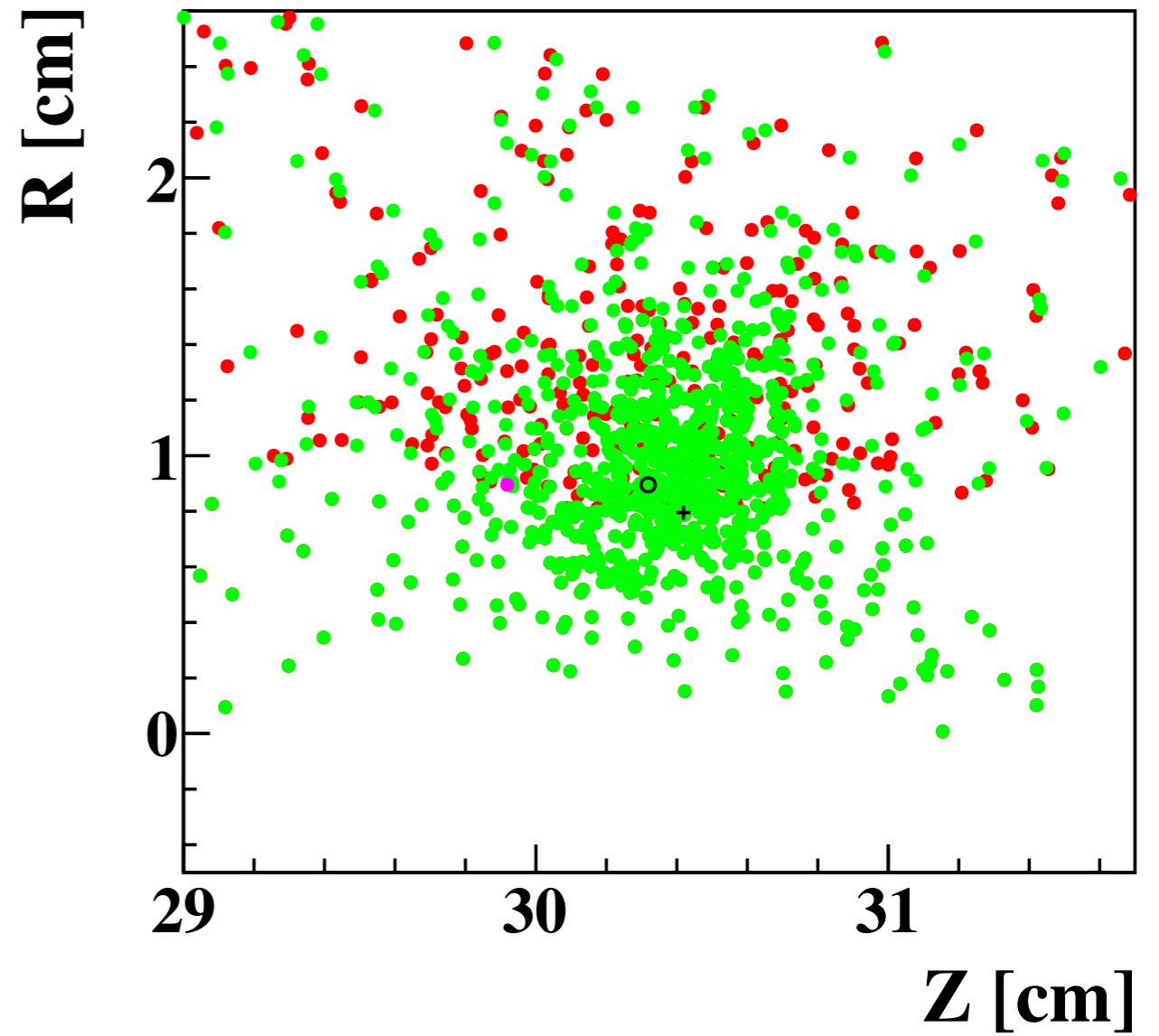
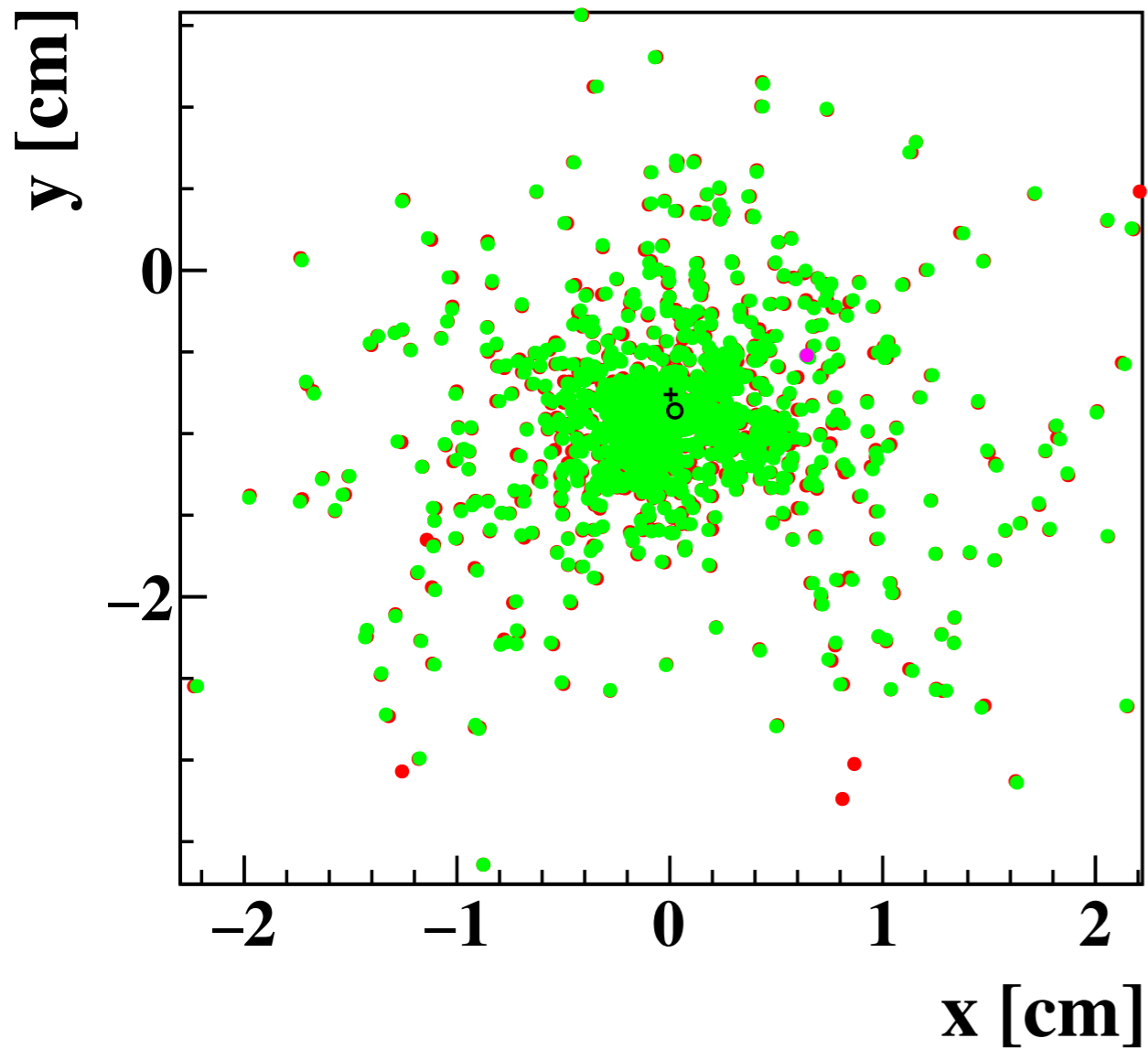
# Event 2



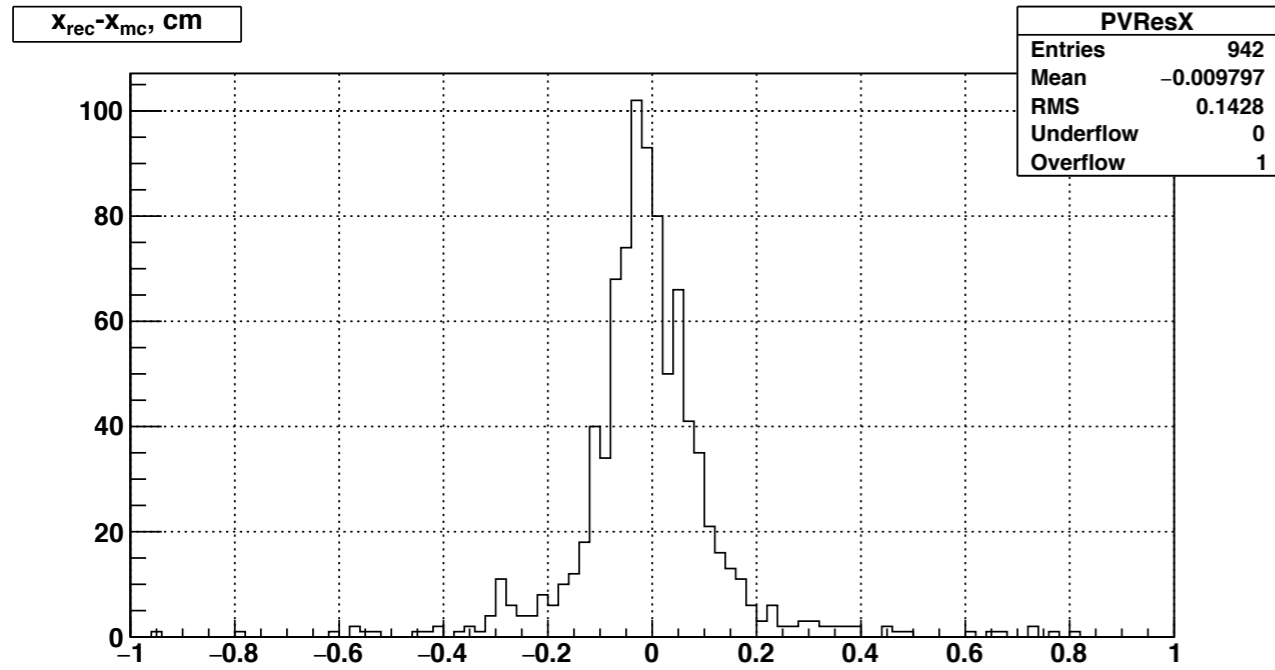
# Event 3



# Event 4

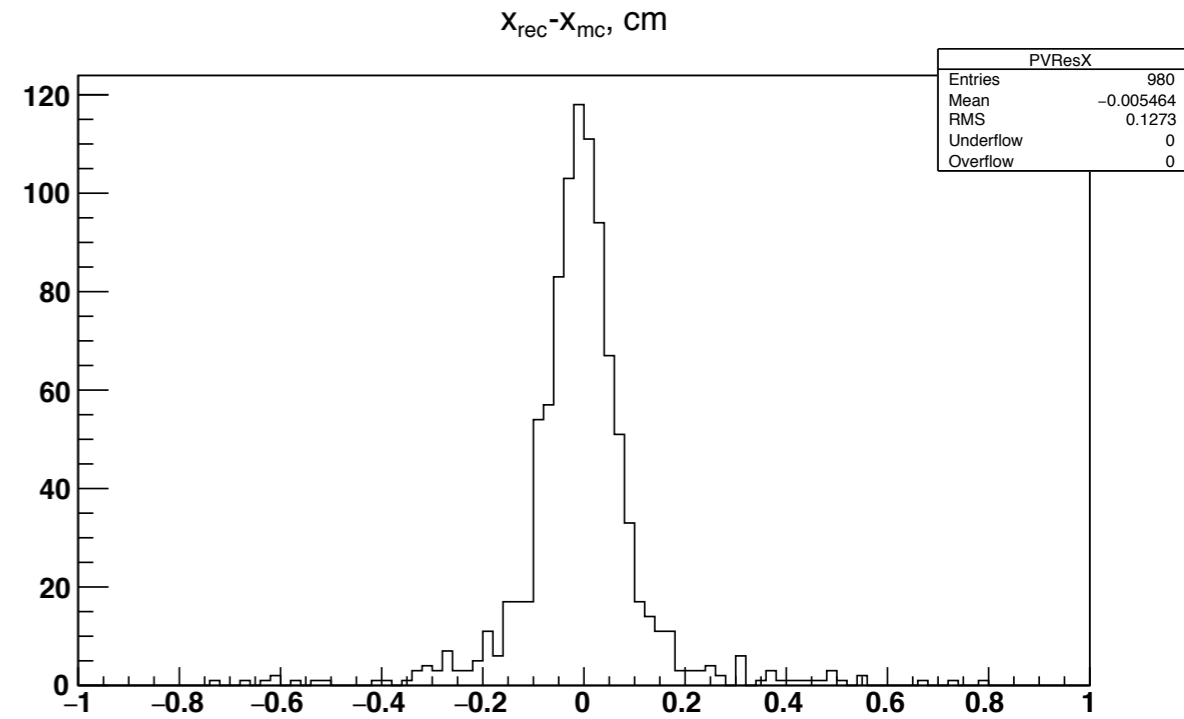


# pv residual and pull x

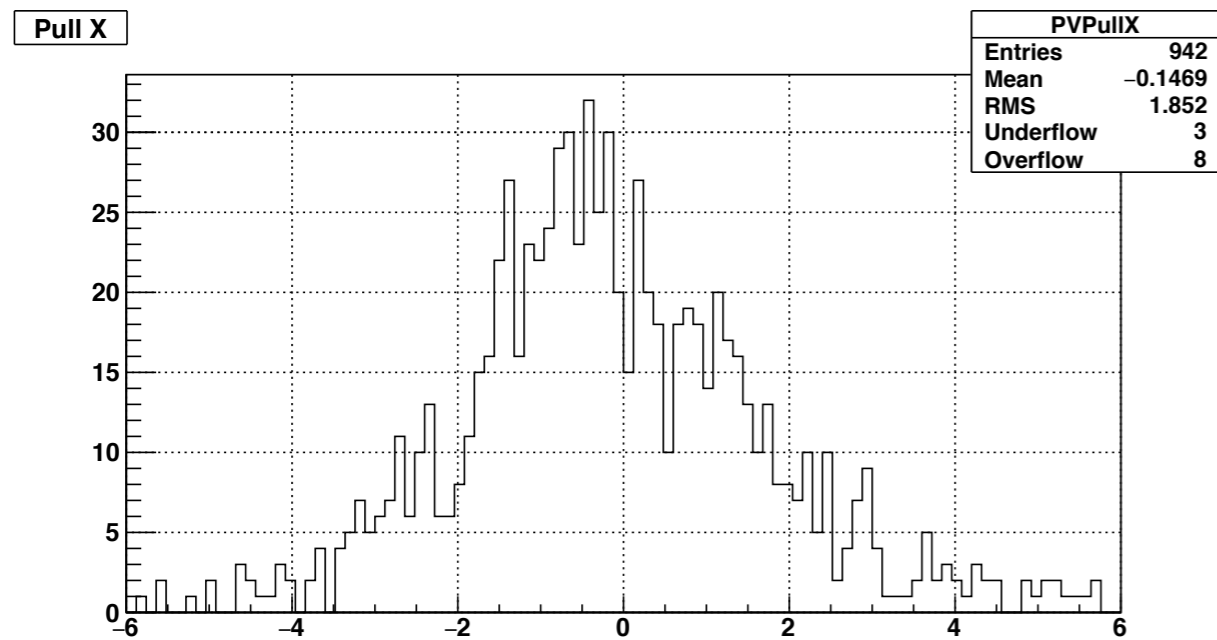


Thu Dec 17 13:21:06 2015

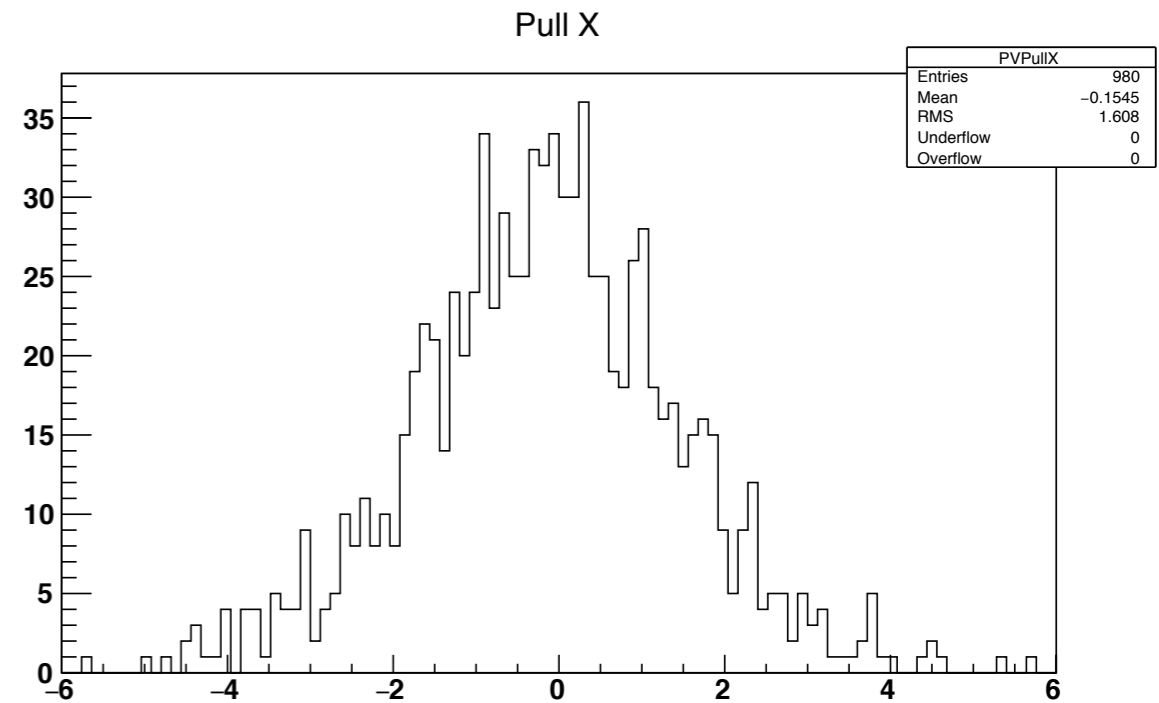
all tracks



only primary tracks

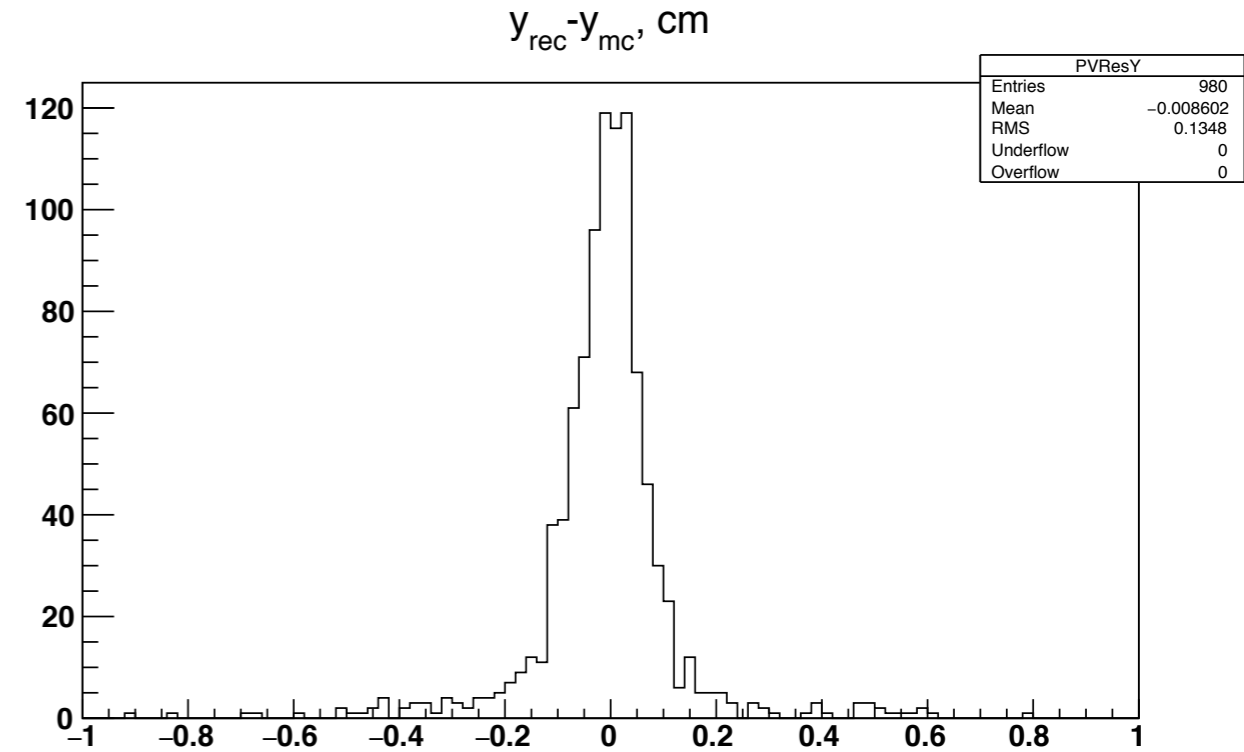
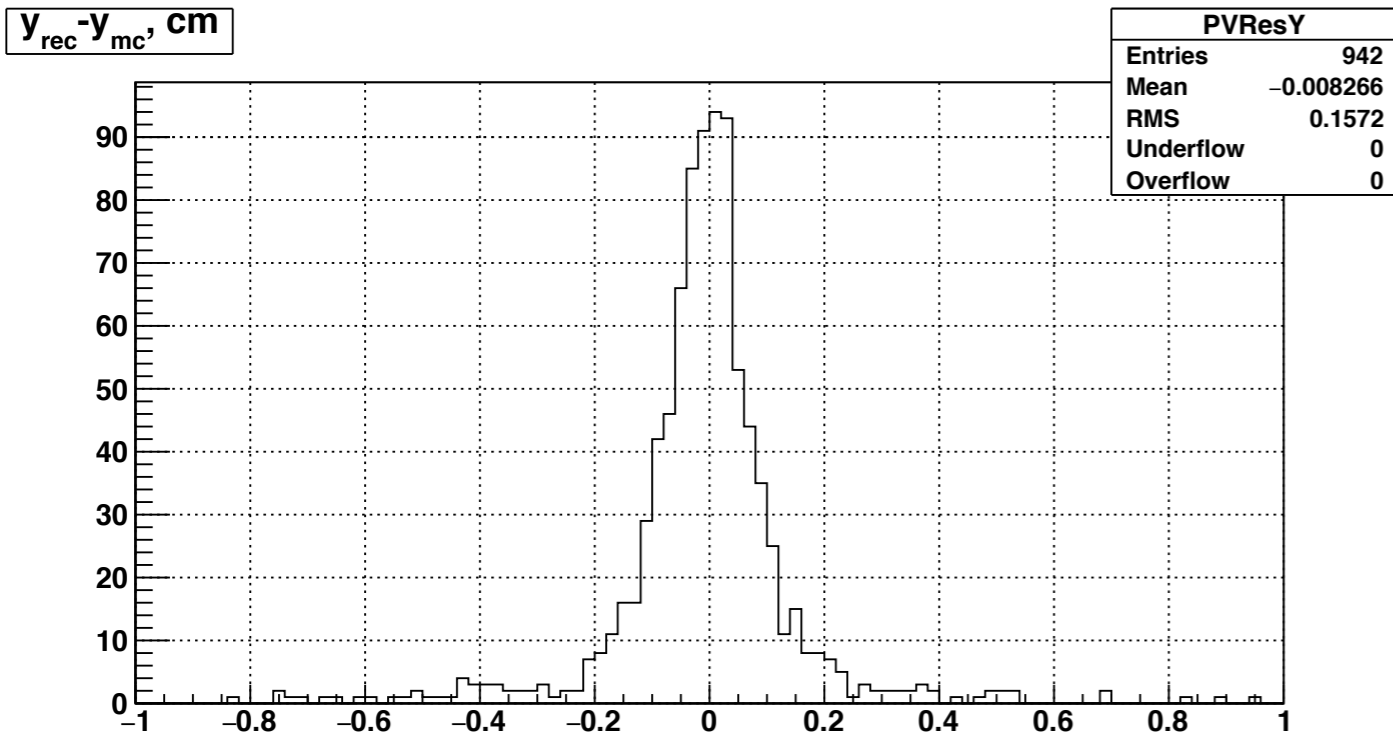


Thu Dec 17 13:23:16 2015





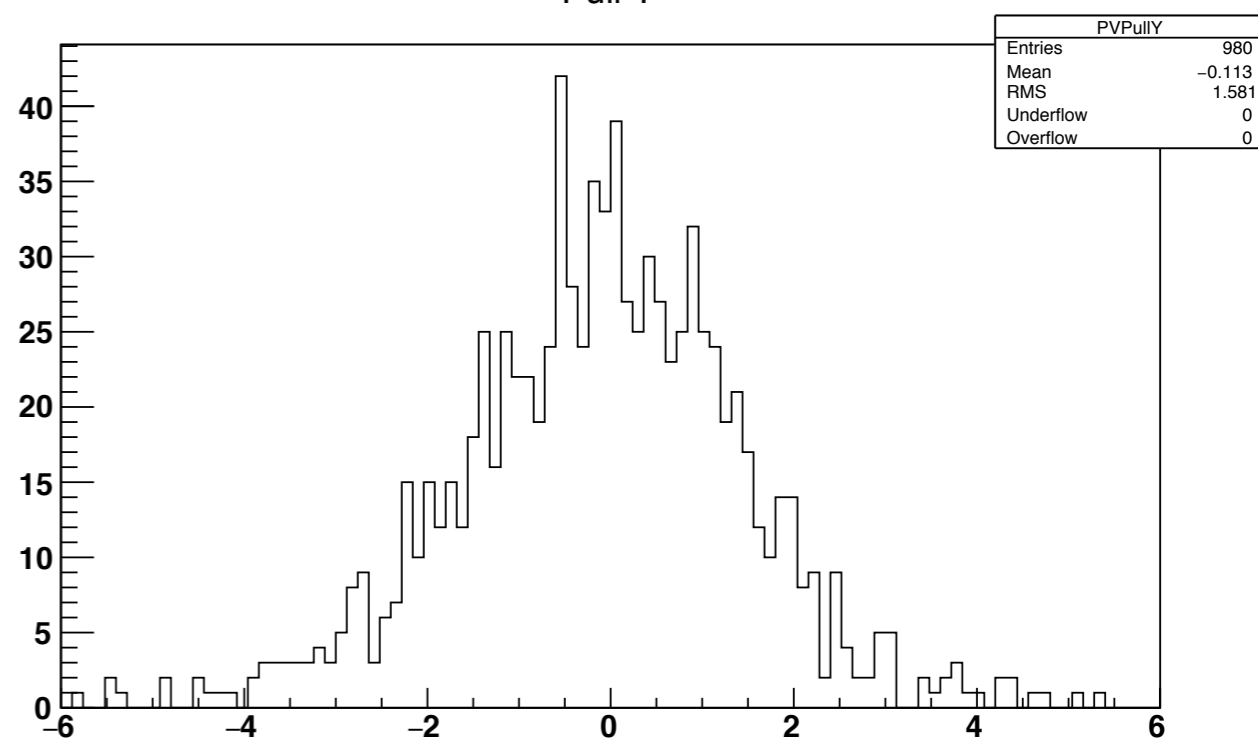
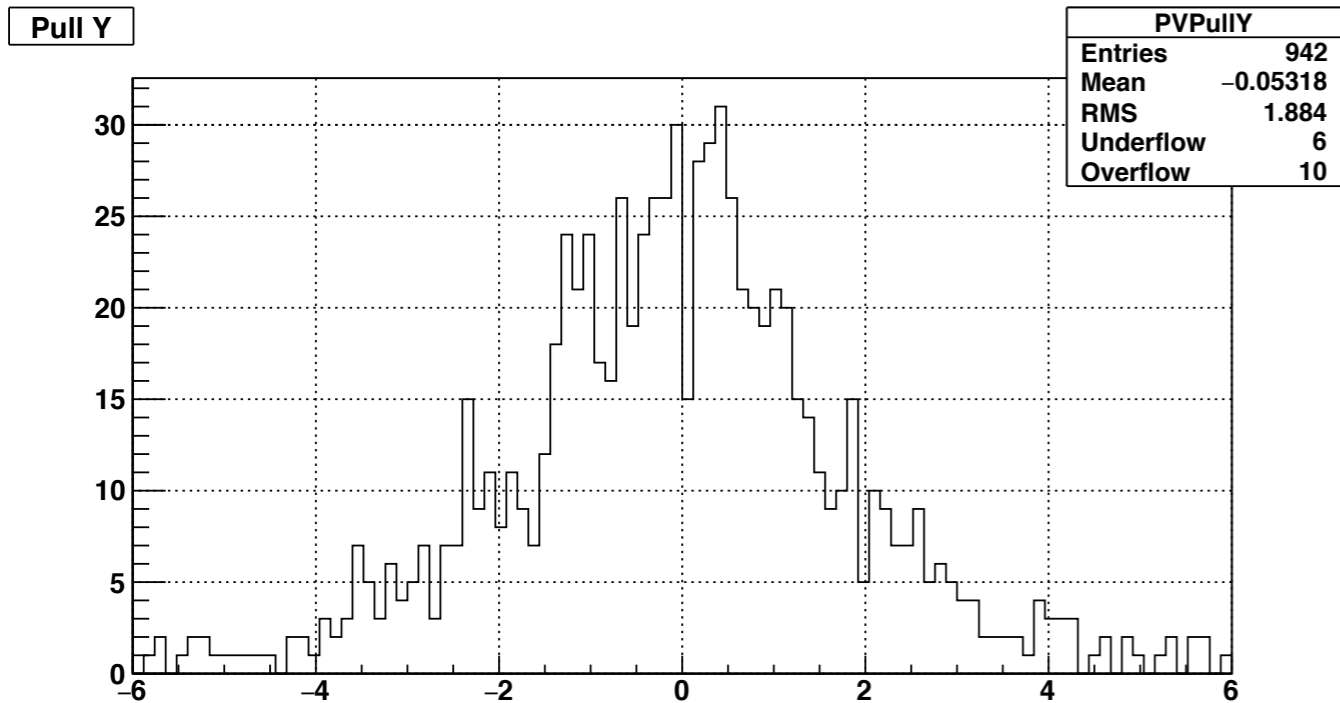
# pv residual and pull y



Thu Dec 17 13:21:54 2015

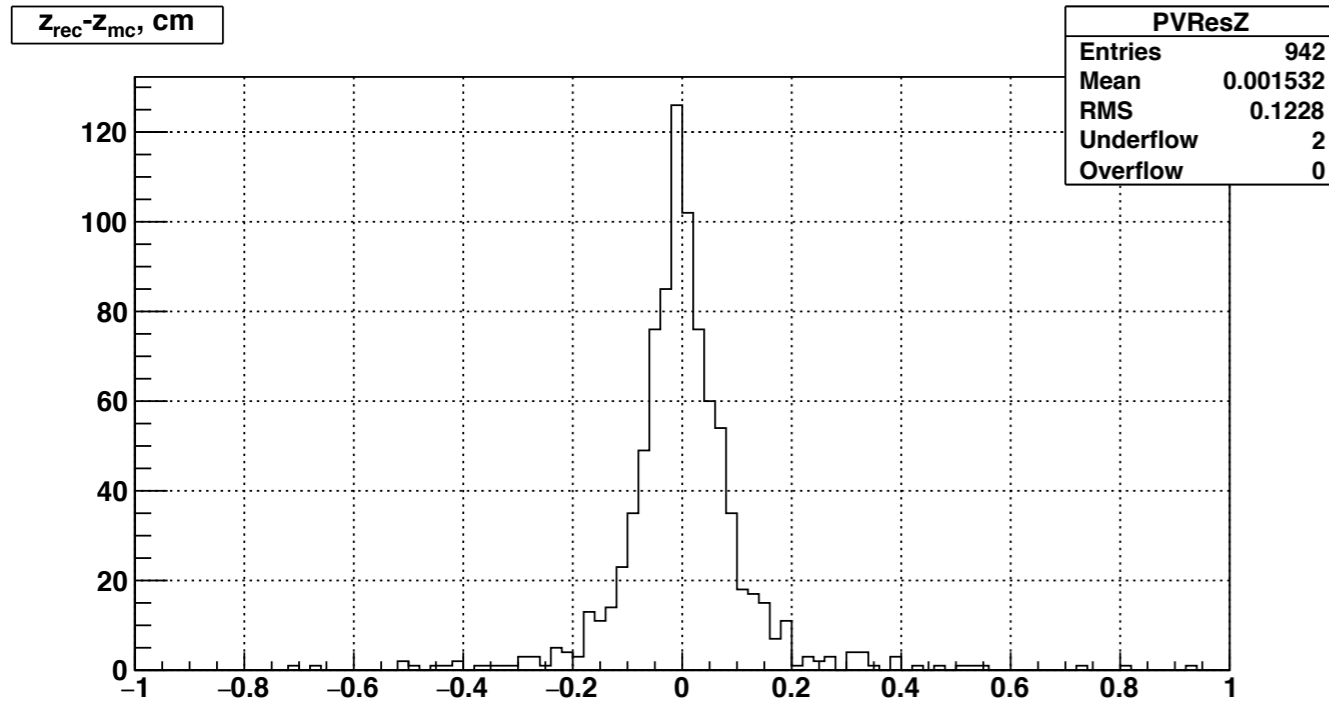
## all tracks

## only primary tracks



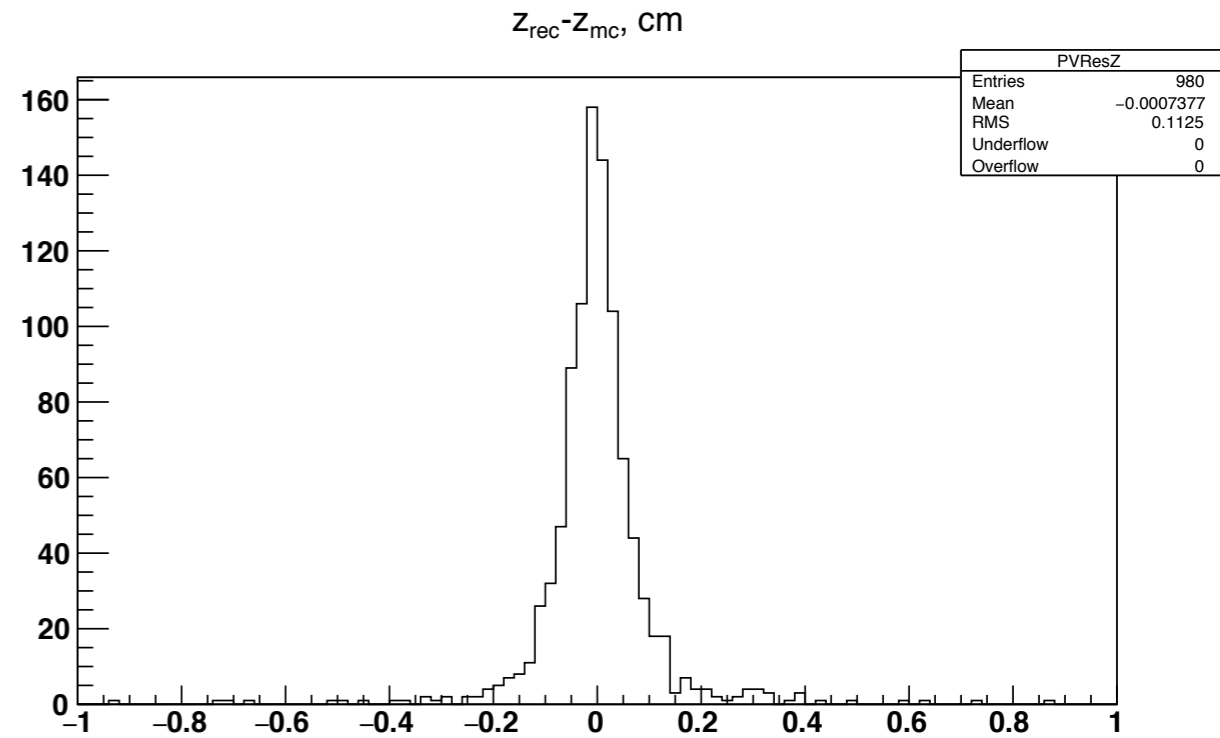
Thu Dec 17 13:23:47 2015

# pv residual and pull z

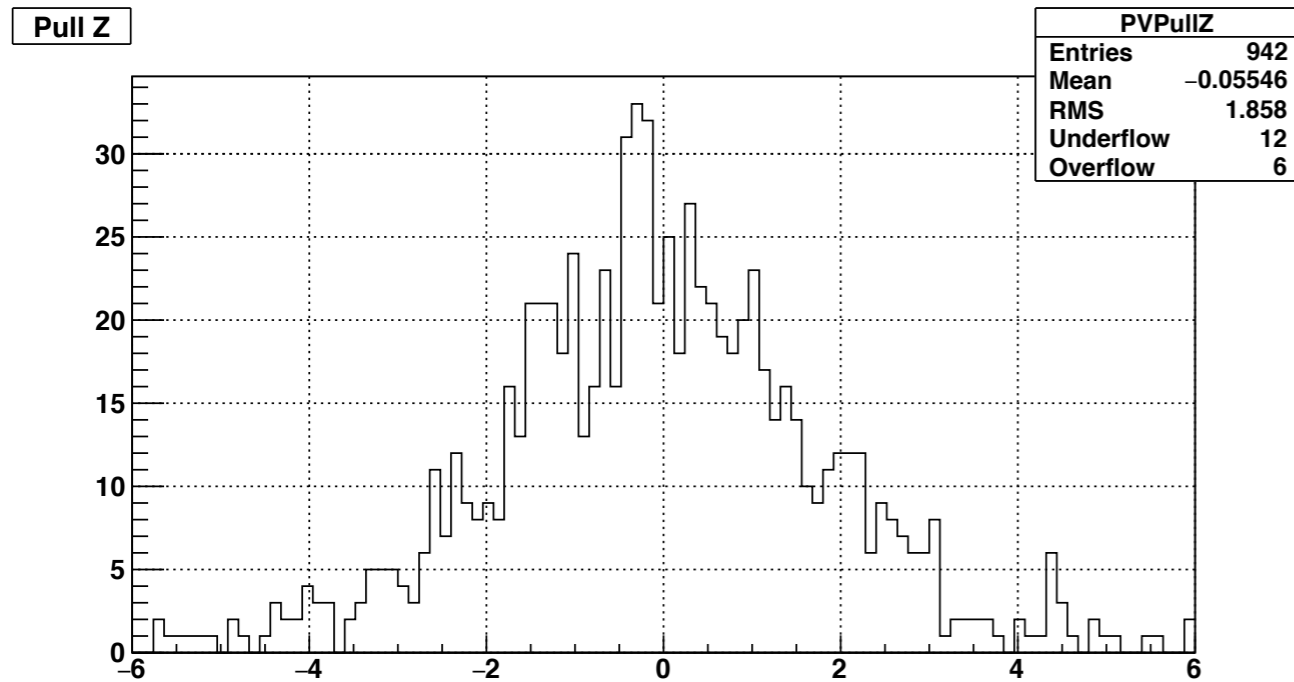


Thu Dec 17 13:22:35 2015

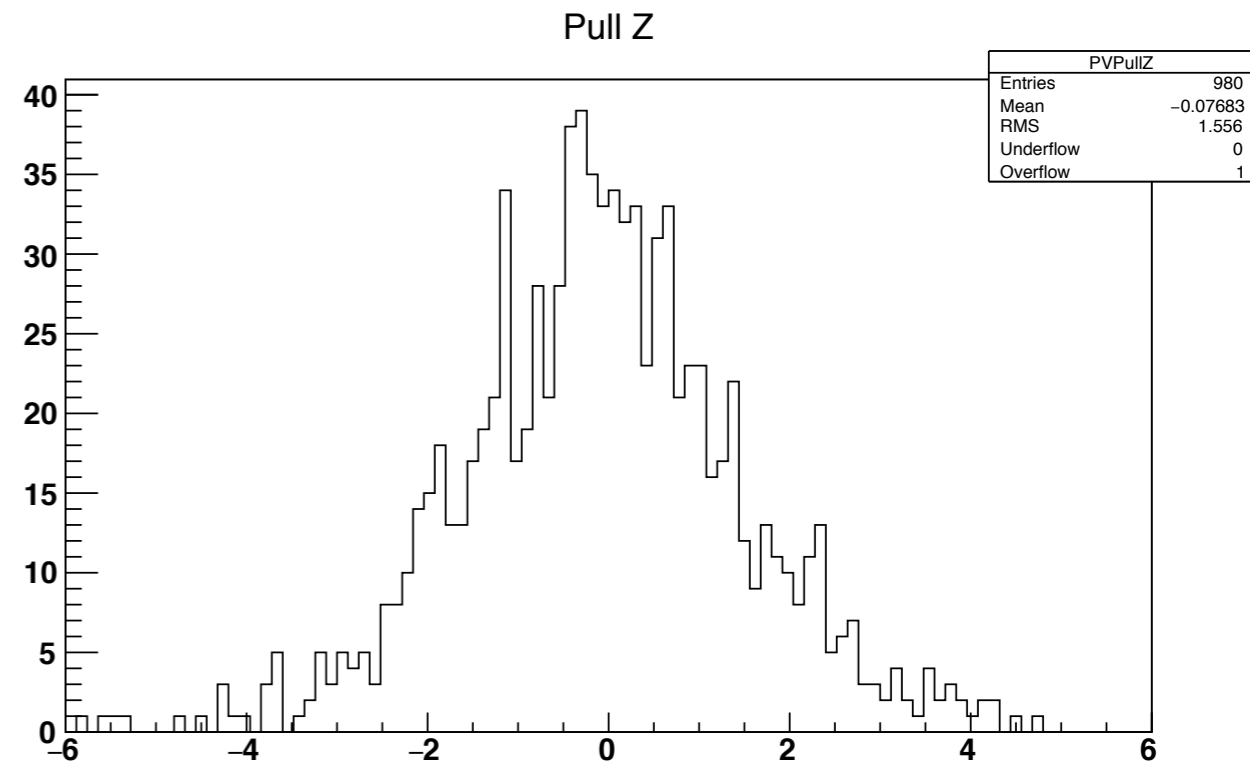
all tracks



only primary tracks



Thu Dec 17 13:24:17 2015



# all selected tracks

ACCUMULATED STAT : 1000 EVENTS

PV with at least 2 reconstructed tracks is reconstructable:

	Eff	/	Ghost	/	BackGr	/	Clone	/	N Ghost	/	N BackGr	/	N Reco	/	N Clone	N MC
PV	0.944	/	0.041	/	0.017	/	0.000	/	41	/	17	/	942	/	0	998
PV trigger	0.960	/	0.000	/	0.000	/	0.000	/	0	/	0	/	942	/	0	981
PV pileup	0.000	/	-1.000	/	-1.000	/	-1.000	/	0	/	0	/	0	/	0	17

PV with at least 2 MC tracks with 15 MC points is reconstructable:

	Eff	/	Ghost	/	BackGr	/	Clone	/	N Ghost	/	N BackGr	/	N Reco	/	N Clone	N MC
PV	0.941	/	0.041	/	0.017	/	0.000	/	41	/	17	/	942	/	0	1001
PV trigger	0.960	/	0.000	/	0.000	/	0.000	/	0	/	0	/	942	/	0	981
PV pileup	0.000	/	-1.000	/	-1.000	/	-1.000	/	0	/	0	/	0	/	0	20

# only primary tracks

ACCUMULATED STAT : 1000 EVENTS

PV with at least 2 reconstructed tracks is reconstructable:

	Eff	/	Ghost	/	BackGr	/	Clone	/	N Ghost	/	N BackGr	/	N Reco	/	N Clone	N MC
PV	0.984	/	0.020	/	0.000	/	0.000	/	20	/	0	/	980	/	0	996
PV trigger	0.999	/	0.000	/	0.000	/	0.000	/	0	/	0	/	980	/	0	981
PV pileup	0.000	/	-1.000	/	-1.000	/	-1.000	/	0	/	0	/	0	/	0	15

PV with at least 2 MC tracks with 15 MC points is reconstructable:

	Eff	/	Ghost	/	BackGr	/	Clone	/	N Ghost	/	N BackGr	/	N Reco	/	N Clone	N MC
PV	0.979	/	0.020	/	0.000	/	0.000	/	20	/	0	/	980	/	0	1001
PV trigger	0.999	/	0.000	/	0.000	/	0.000	/	0	/	0	/	980	/	0	981
PV pileup	0.000	/	-1.000	/	-1.000	/	-1.000	/	0	/	0	/	0	/	0	20