

Studies on 31X beam halo MC

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cms-hamburg-align meeting

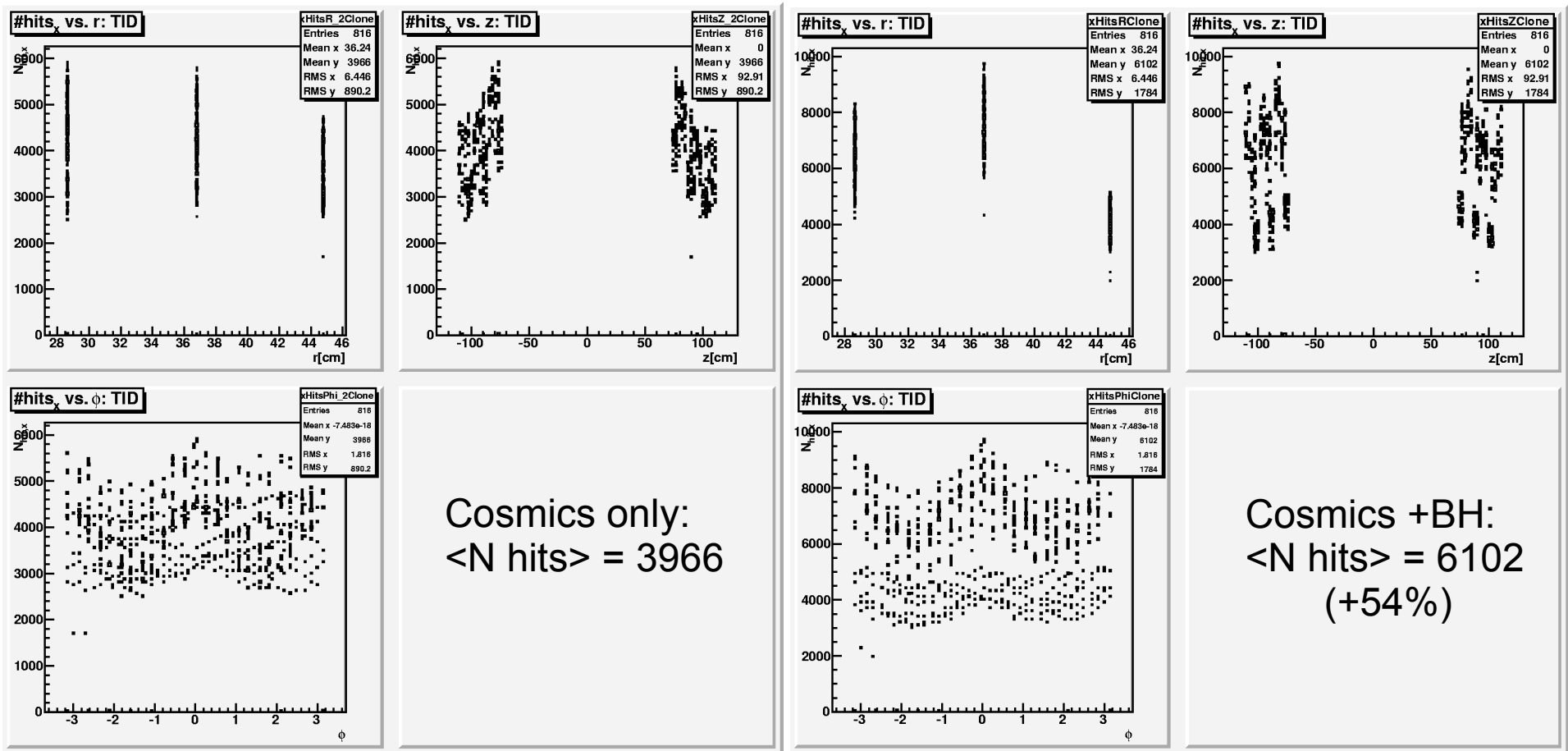
15/12/2009

Track selection

- Cosmics and Beam Halo samples:
 - /TkCosmics38T/Summer09-STARTUP31X_V3_StreamTkAlCosmics0T-v1/ALCARECO
 - /BeamHalo/Summer09-STARTUP31X_V7_StreamTkAlBeamHalo-v1/ALCARECO
- Track collection: ALCARECOTkAlCosmicsCTF0T (ALCARECOTkAlBeamHalo)
- Track refitter: TrackRefitterP5 (TrackRefitterBHM)
- Track selection:
 - ptMin = 0. / pMin = 5. (2.5)
 - etaMin = -999. / etaMax = +999.
 - nHitMin = 14 / nHitMin2D = 3
 - chi2nMax = 50.

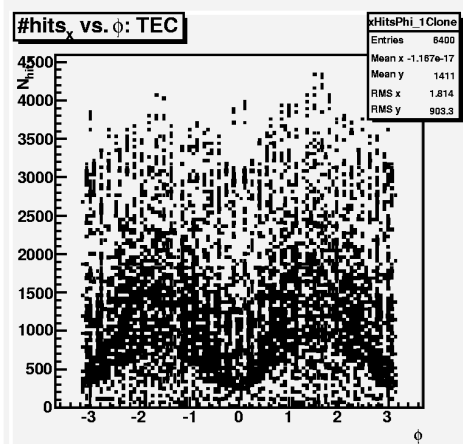
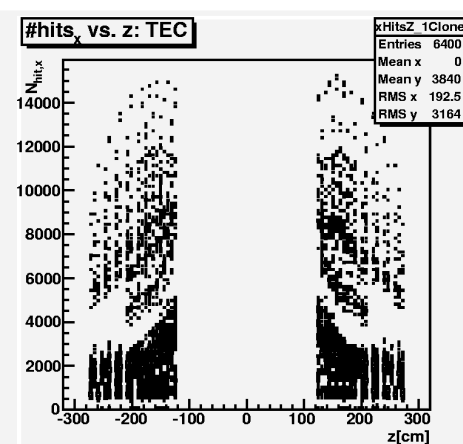
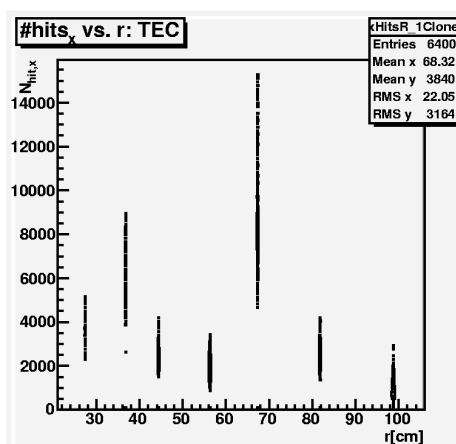
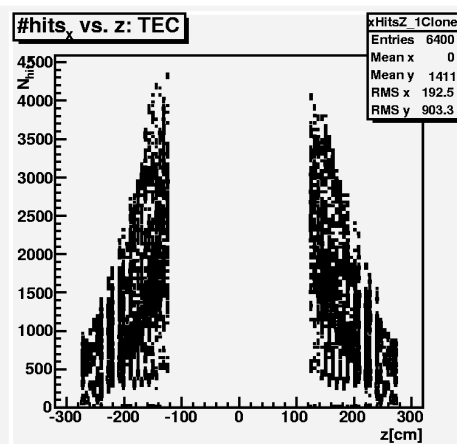
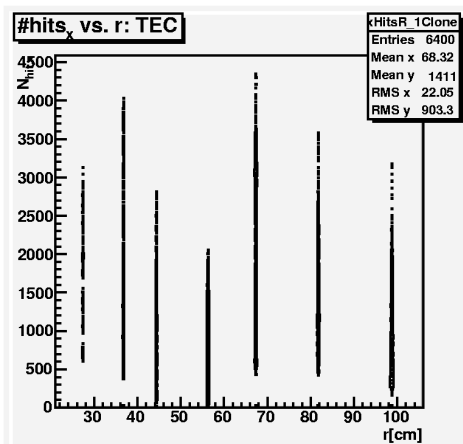
Nhits in TID

- BH tracks are 0.69M, Cosmic tracks are 4.7M
 - $N(\text{BH tracks}) \approx 15\% N(\text{Cosmic tracks})$, but...

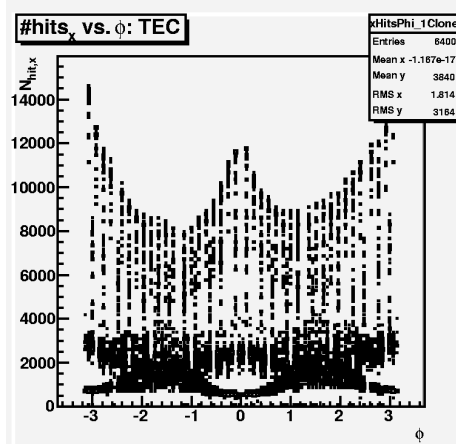


Nhits in TEC

- $N(\text{BH tracks}) \approx 15\% N(\text{Cosmic tracks})$, but...



Cosmics only:
 $\langle N \text{ hits} \rangle = 1411$



Cosmics +BH:
 $\langle N \text{ hits} \rangle = 3840$
 (+172%)

Event Displays

- Beam halo sample produced with CMSSW 326 by Jim P.
 - /BeamHalo/Summer09-STARTUP31X_V7_StreamTkAlBeamHalo-v1/ALCARECO
- Some events do not cross both the end-caps, but a sizable fraction does.
- See three “average” event displays in the following slides.



Delay
3.0

Run

1

Event

47

Filter

Thu Jan 1 00:00:00 1970

Lumi block id: 1



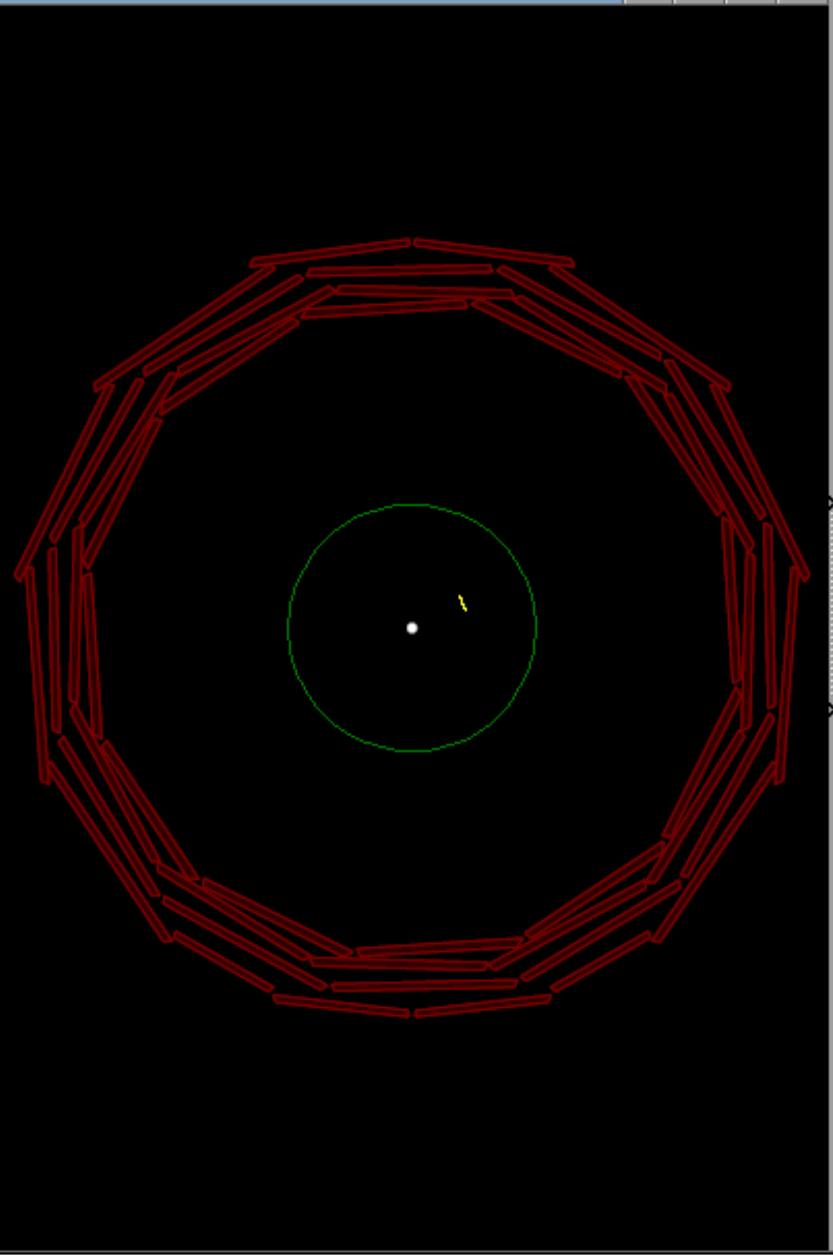
Summary View



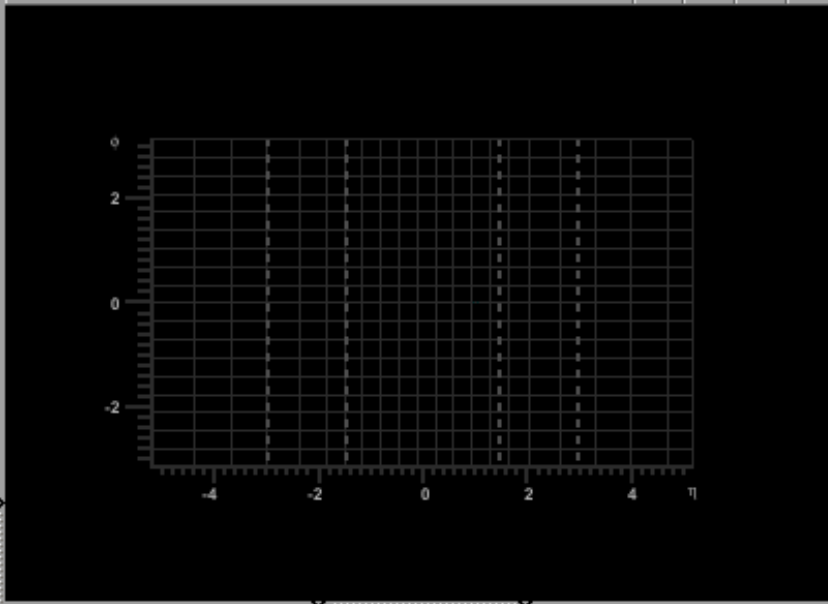
- ☒ ECal
- ☒ HCal
- ☒ Jets
- ☒ Tracks
- ☒ Muons
- ☒ Electrons
- ☒ Vertices
- ☒ DT-segments
- ☒ CSC-segments
- ☒ Photons
- ☒ MET
- ☒ ALCARECOTkAlE

Views

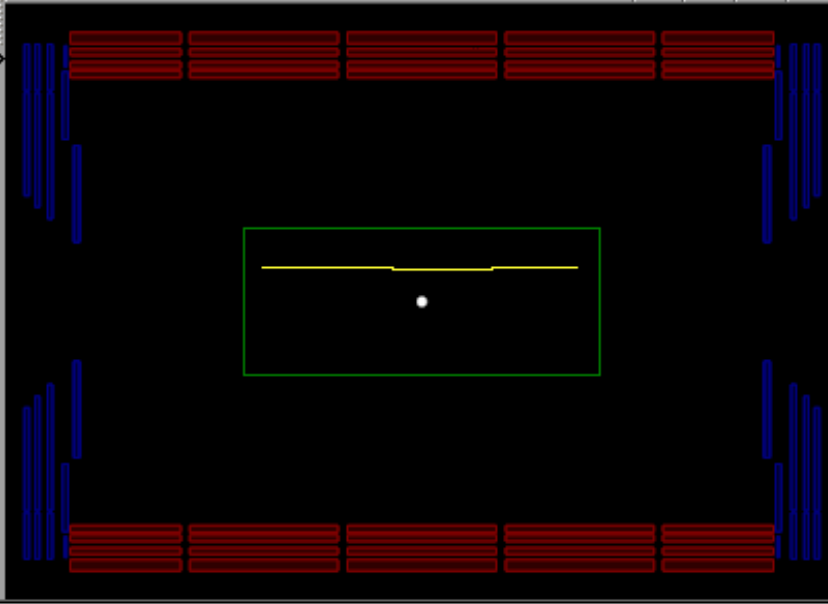
Rho Phi

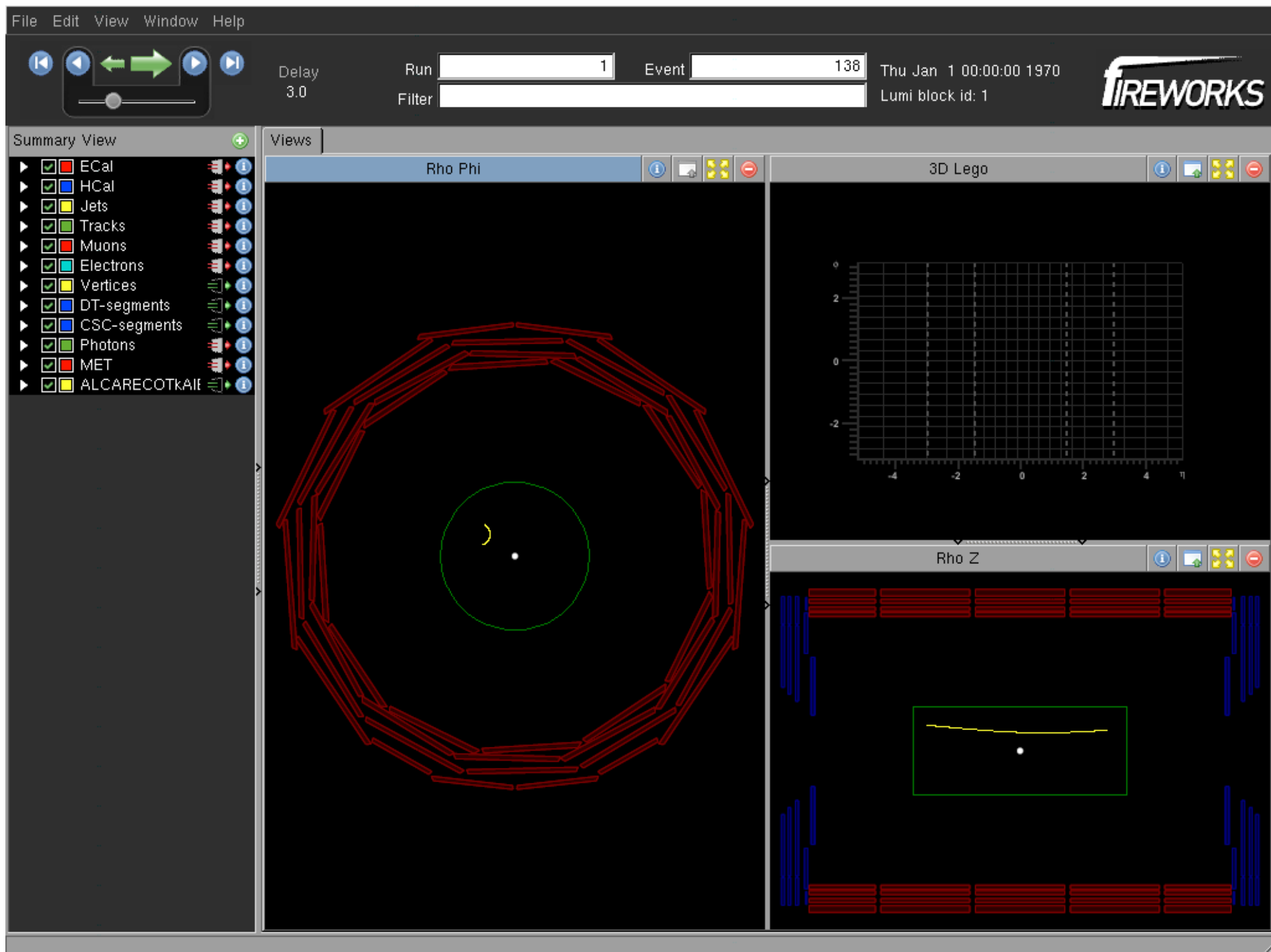


3D Lego



Rho Z







Delay
3.0

Run Event
Filter

Thu Jan 1 00:00:00 1970
Lumi block id: 1

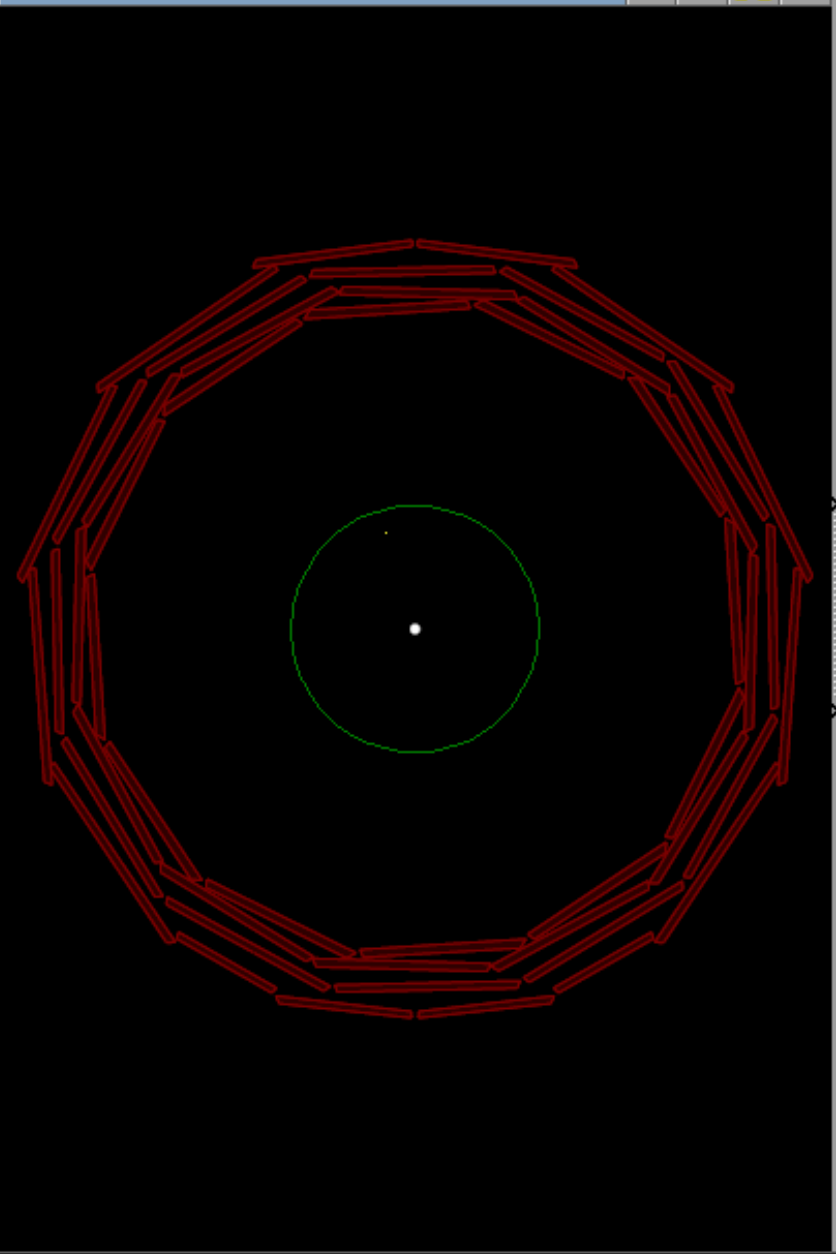


Summary View

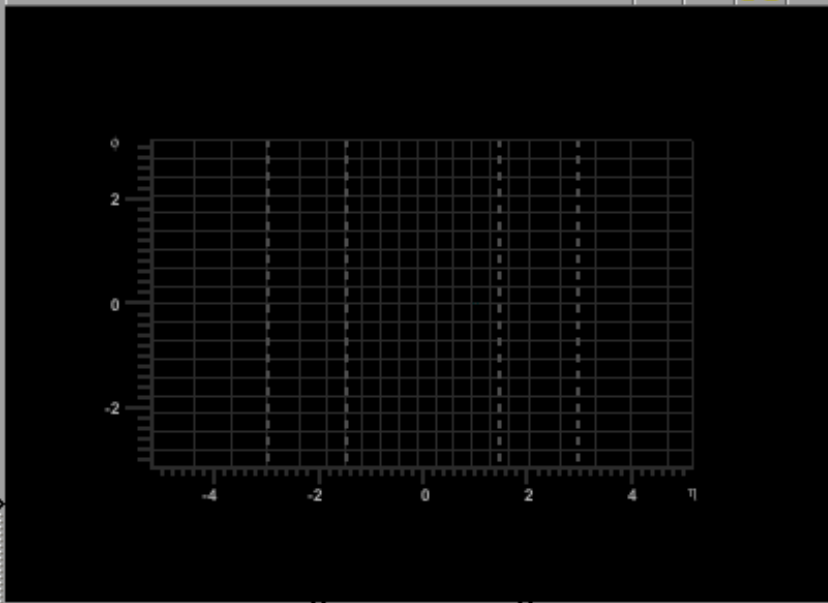
- ☒ ECal
- ☒ HCal
- ☒ Jets
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- ☒ Muons
- ☒ Electrons
- ☒ Vertices
- ☒ DT-segments
- ☒ CSC-segments
- ☒ Photons
- ☒ MET
- ☒ ALCARECOTkAlE

Views

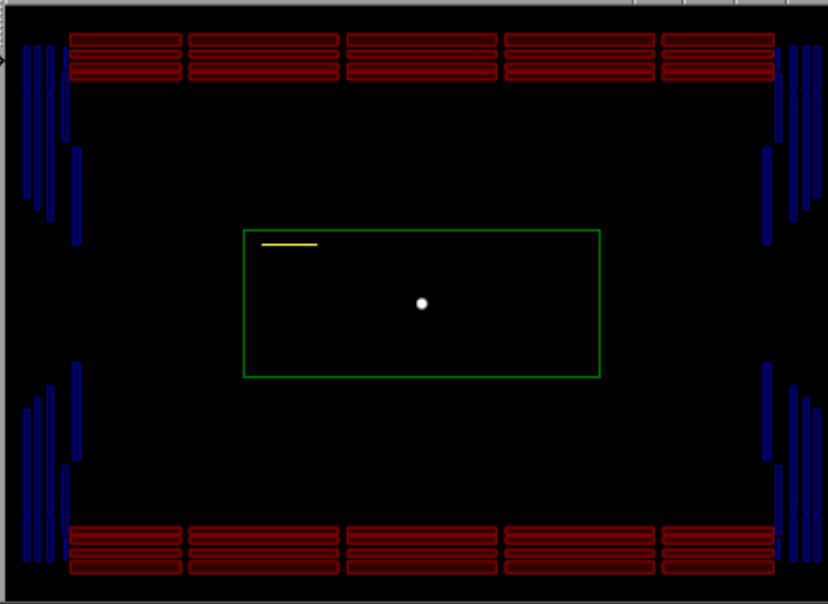
Rho Phi



3D Lego



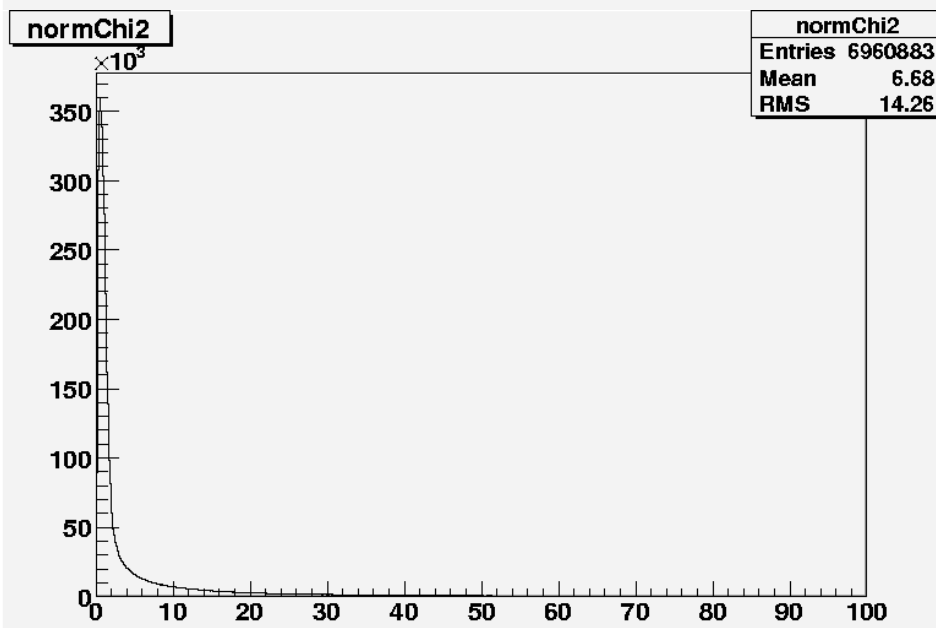
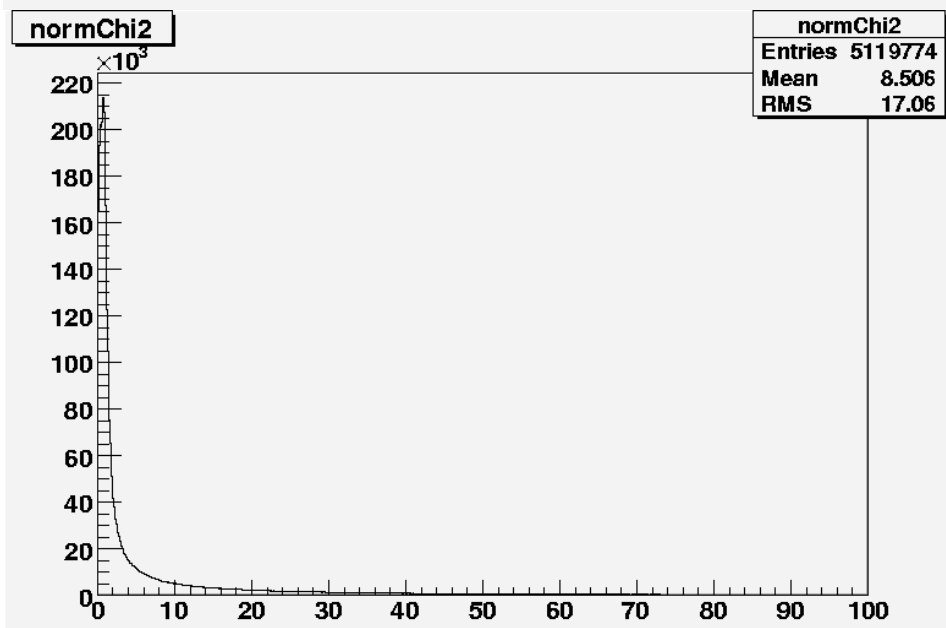
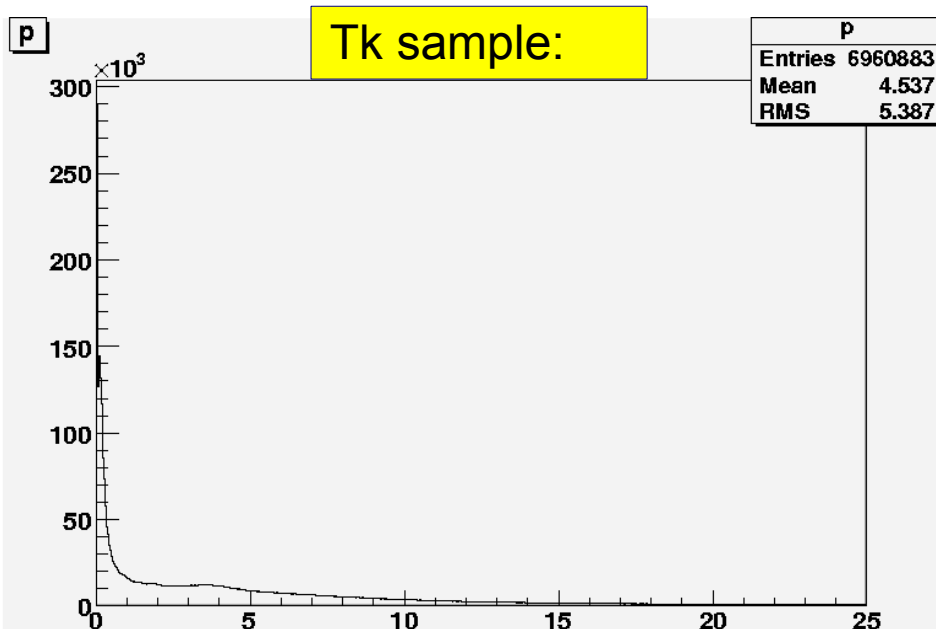
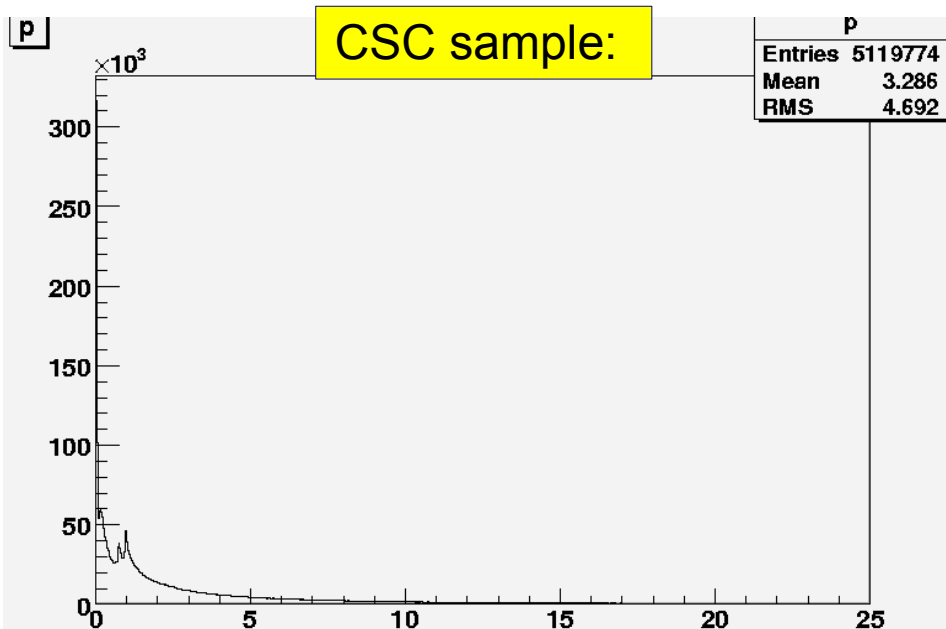
Rho Z



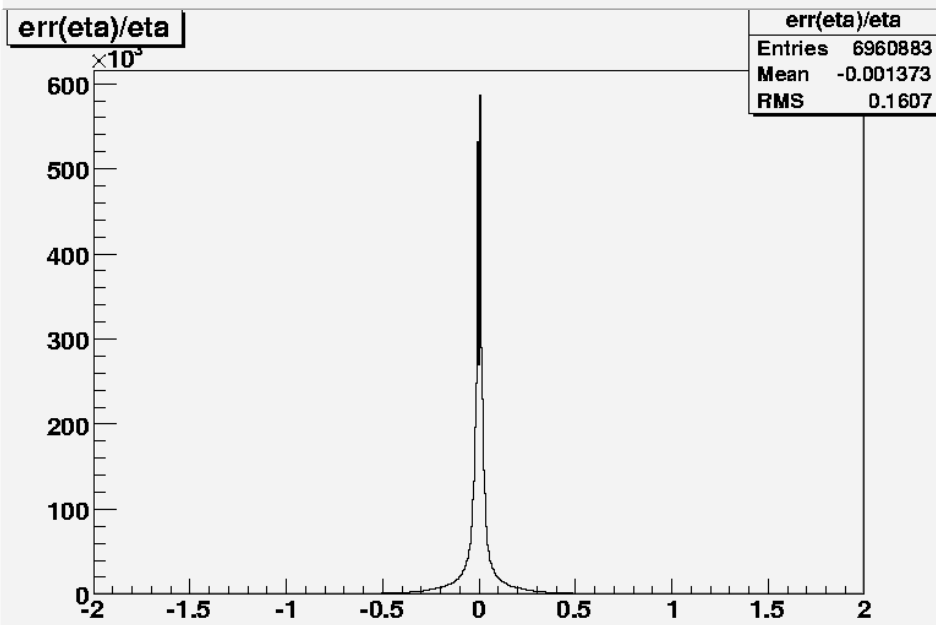
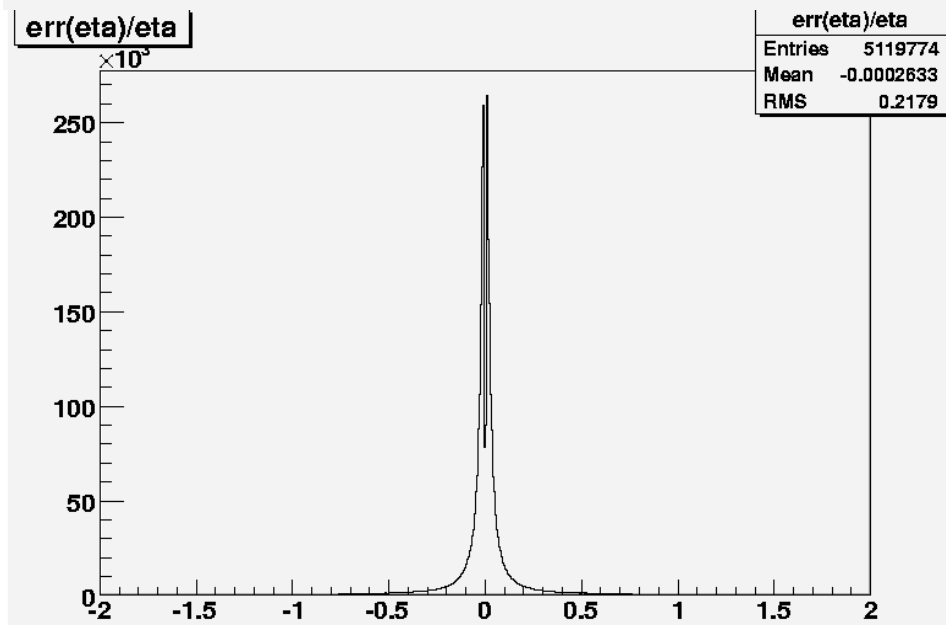
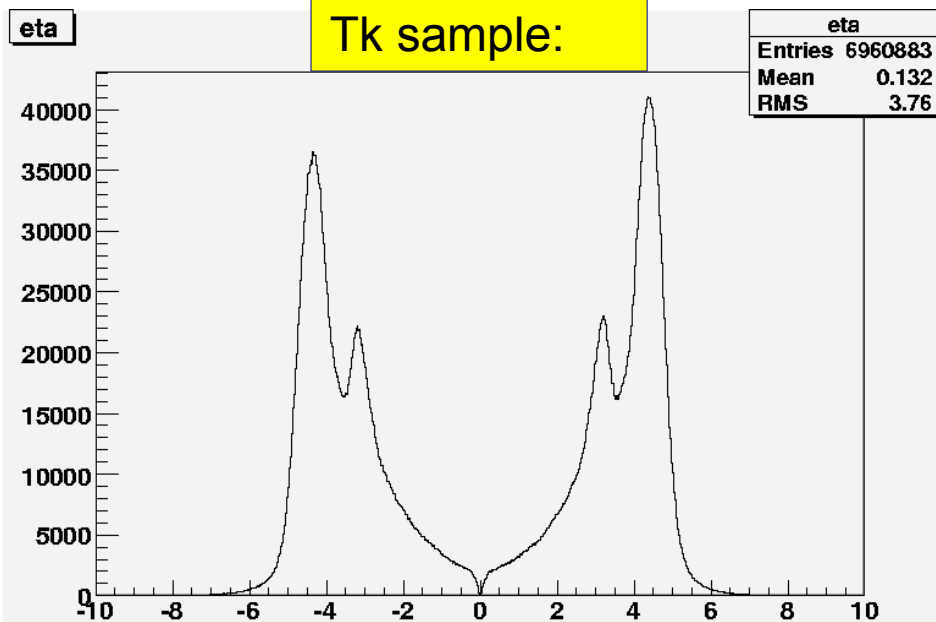
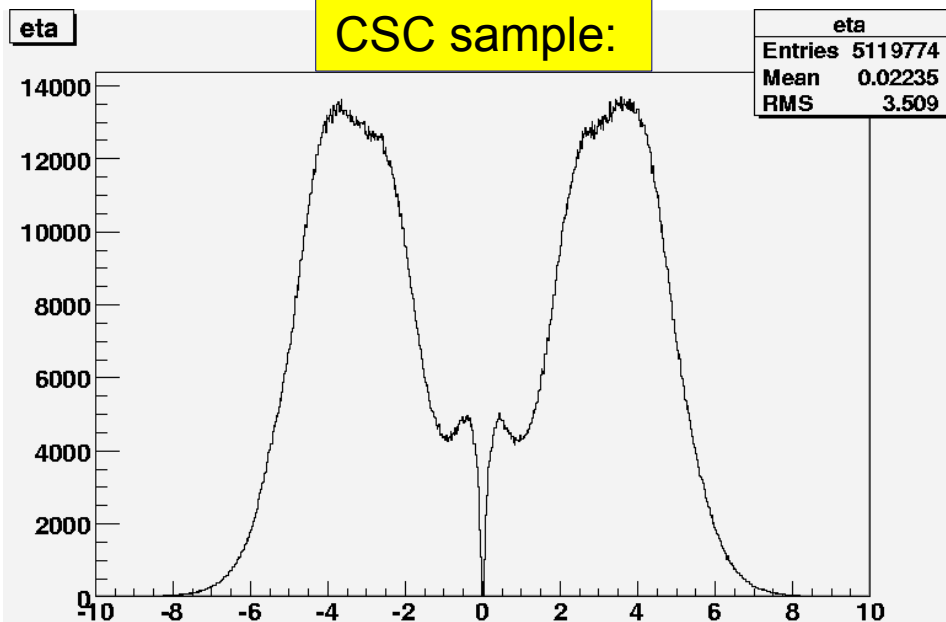
Beam halo track variables

- CSC sample produced with CMSSW 326 by Jim P.
 - /BeamHalo/Summer09-STARTUP31X_V7_StreamTkAlBeamHalo-v1/ALCARECO
- Tk sample produced with CMSSW 312 by Gaelle B.
 - /TkBeamHalo/Summer09-STARTUP31X_StreamTkAlBeamHalo-v1/ALCARECO
 - with BSC selection
- Track collection: ALCARECOTkAlBeamHalo
- The distributions are from all the generated events, with no cuts and no refitting!

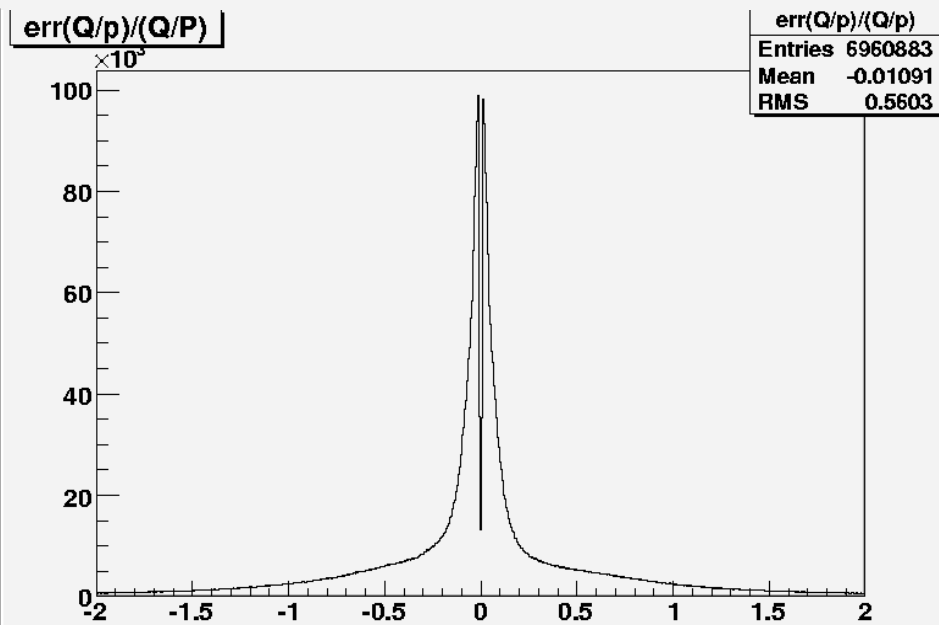
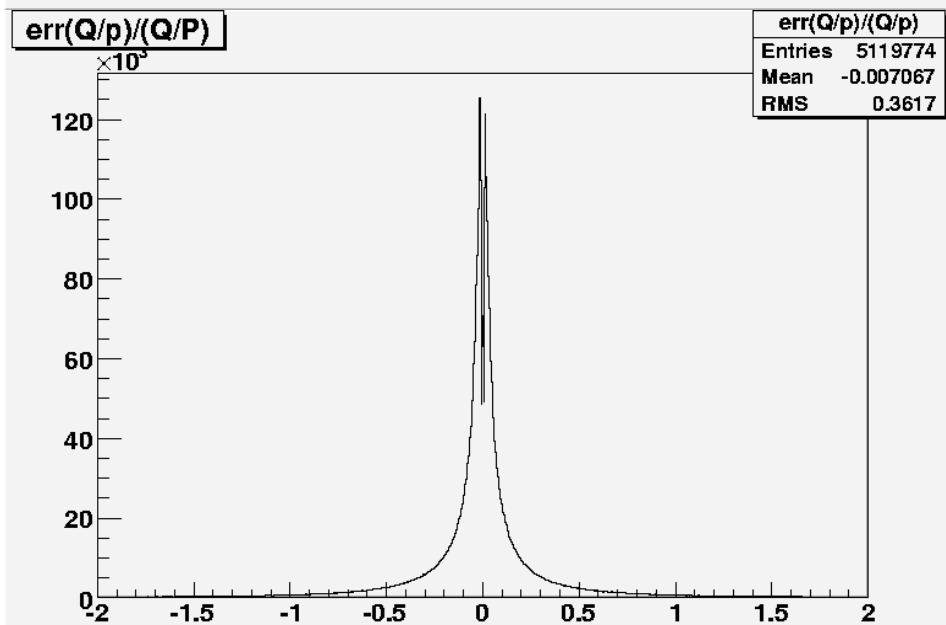
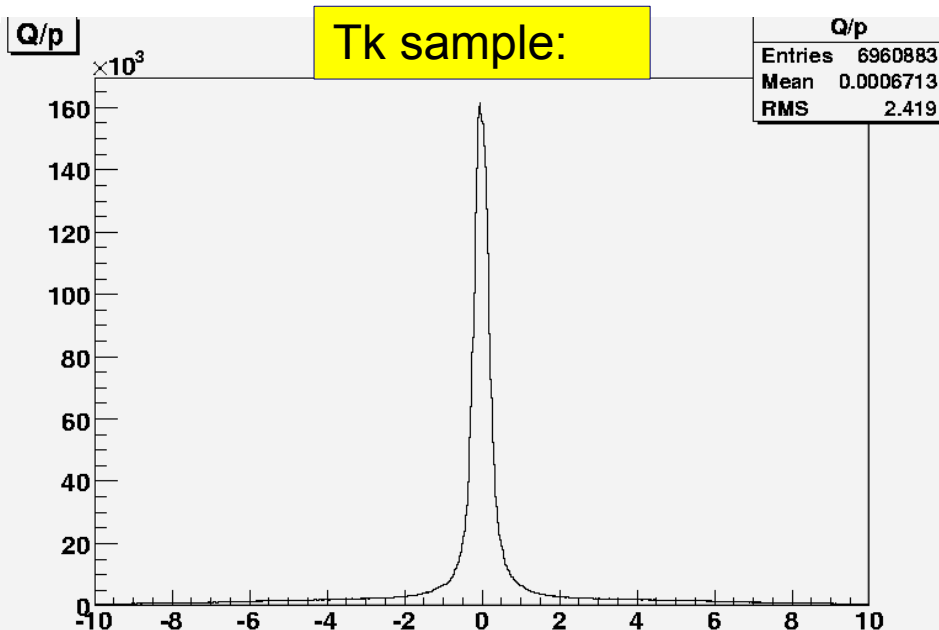
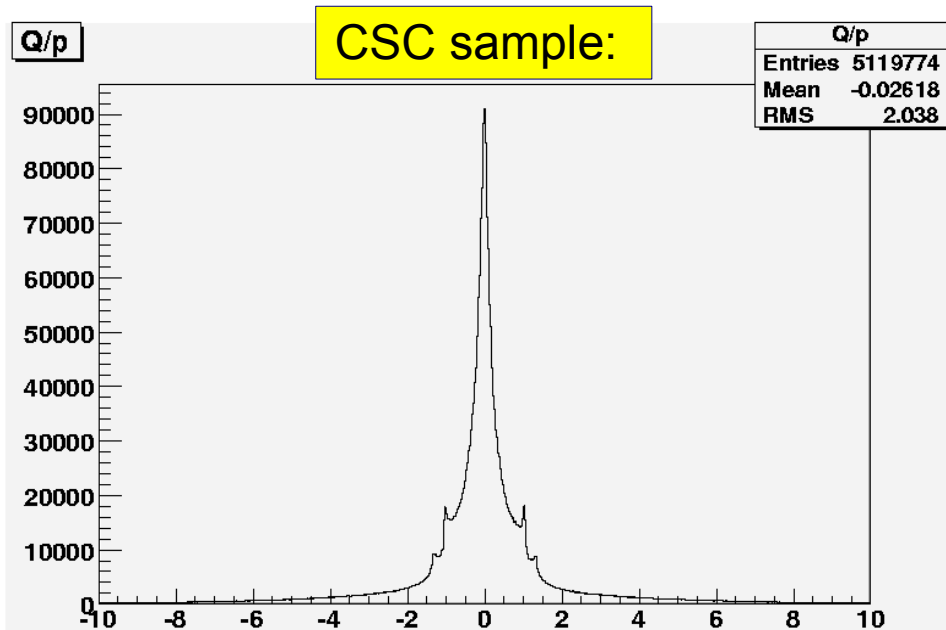
Track variables



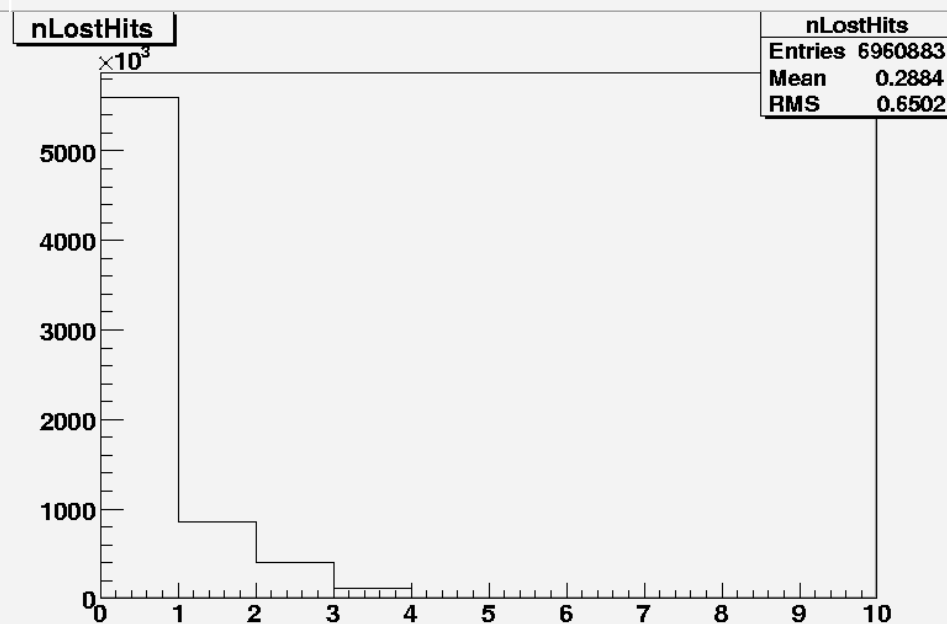
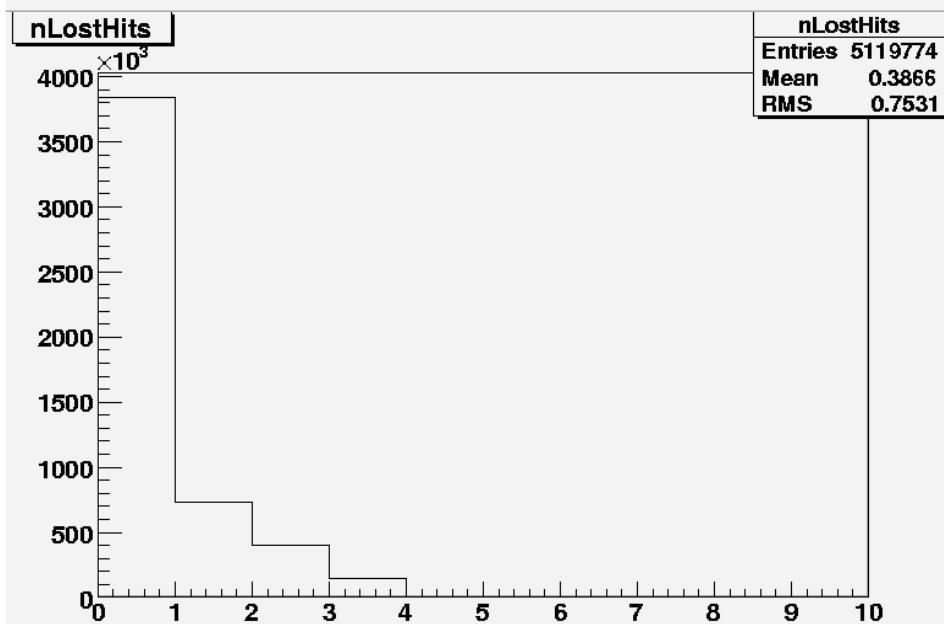
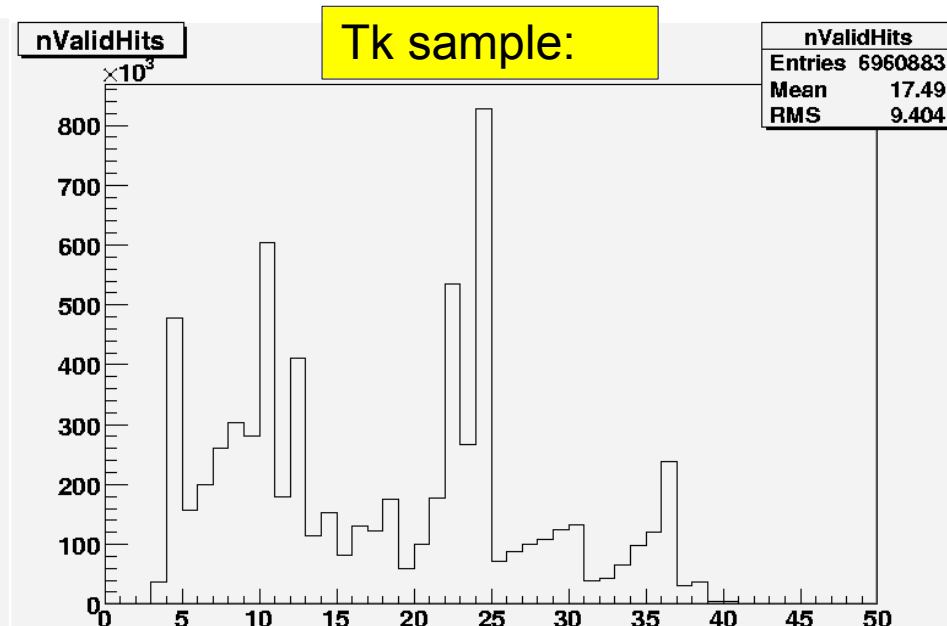
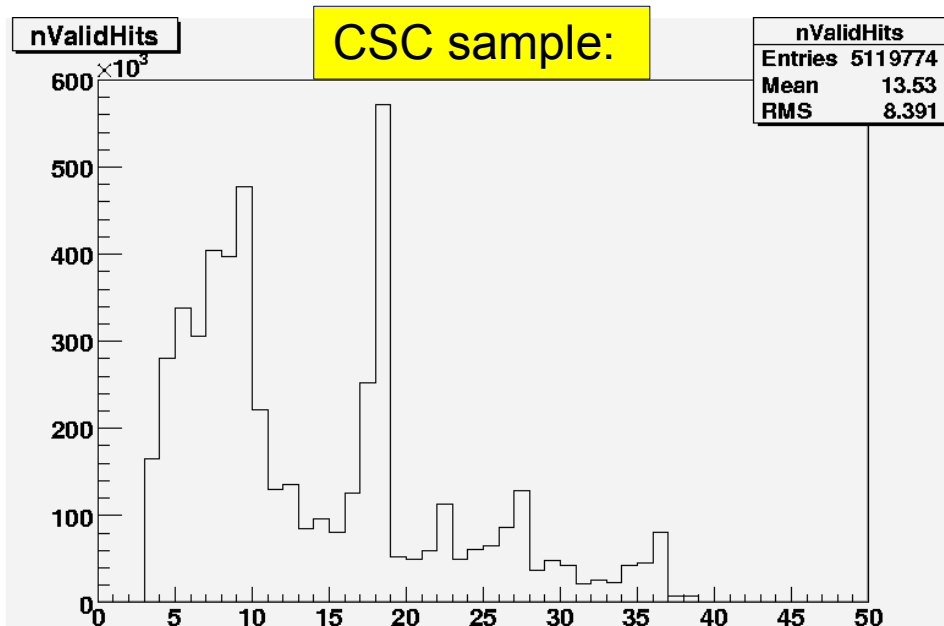
Track variables



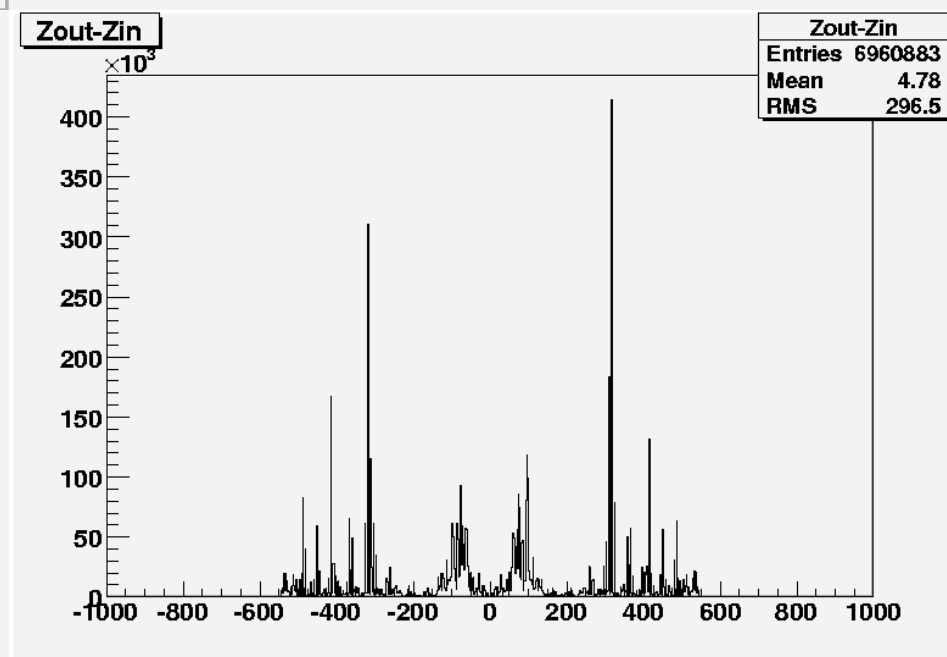
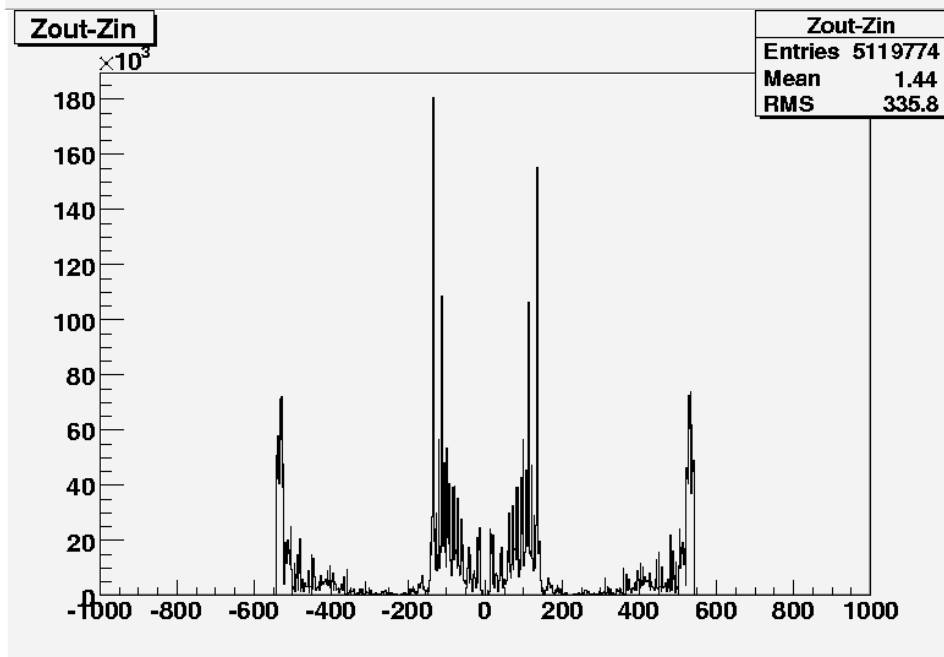
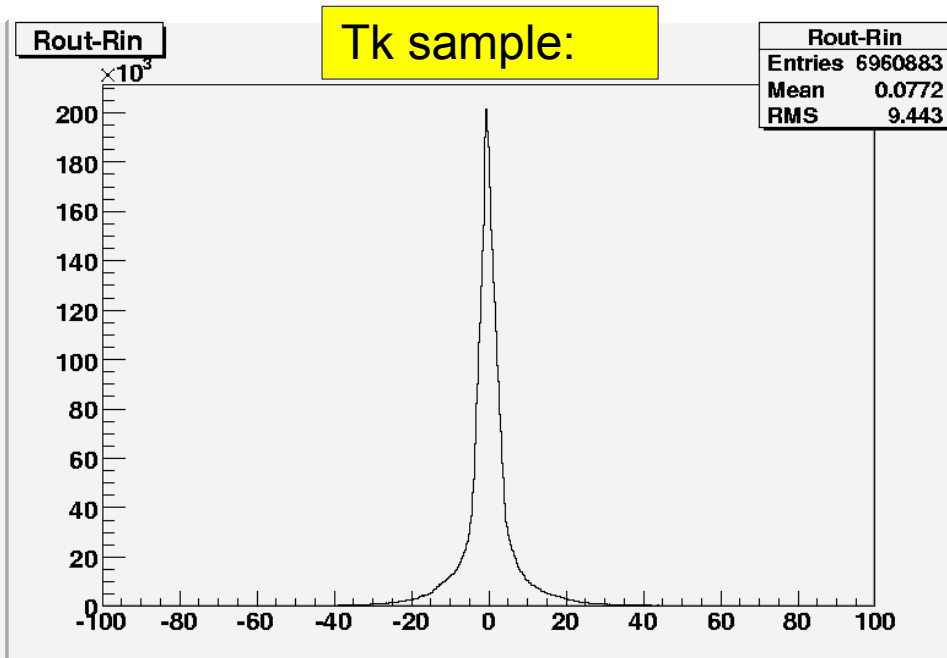
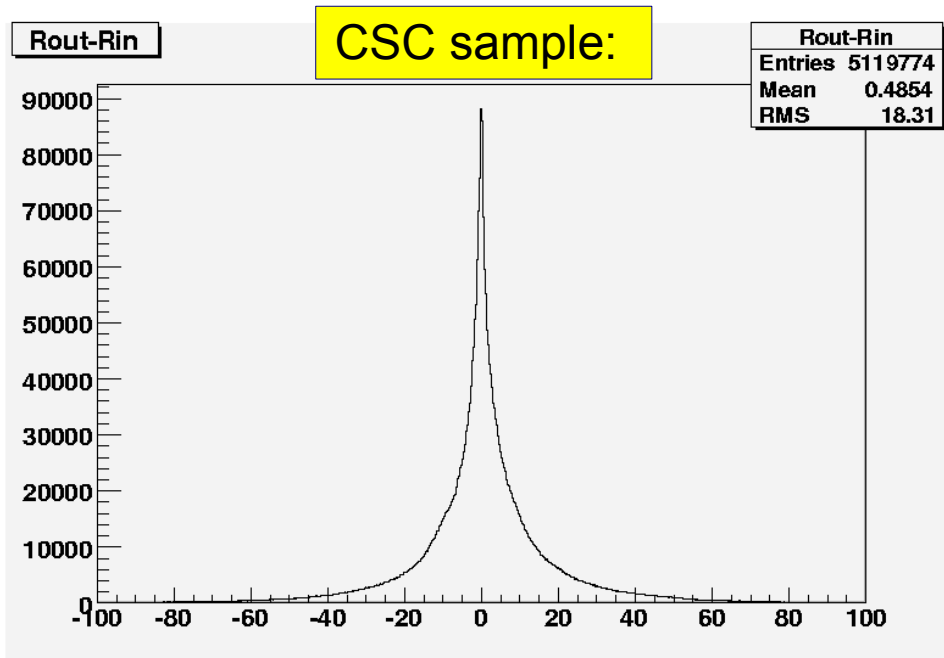
Track variables



Track variables



Track variables



Track variables

