First look at 7 TeV data

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Setup

- Data /MinimumBias/Commissioning10-GOODCOLL-vx/RAW-RECO
- # events: 1715230, # files: 219, overall size: 496.8GB
- CMSSW_3_5_6

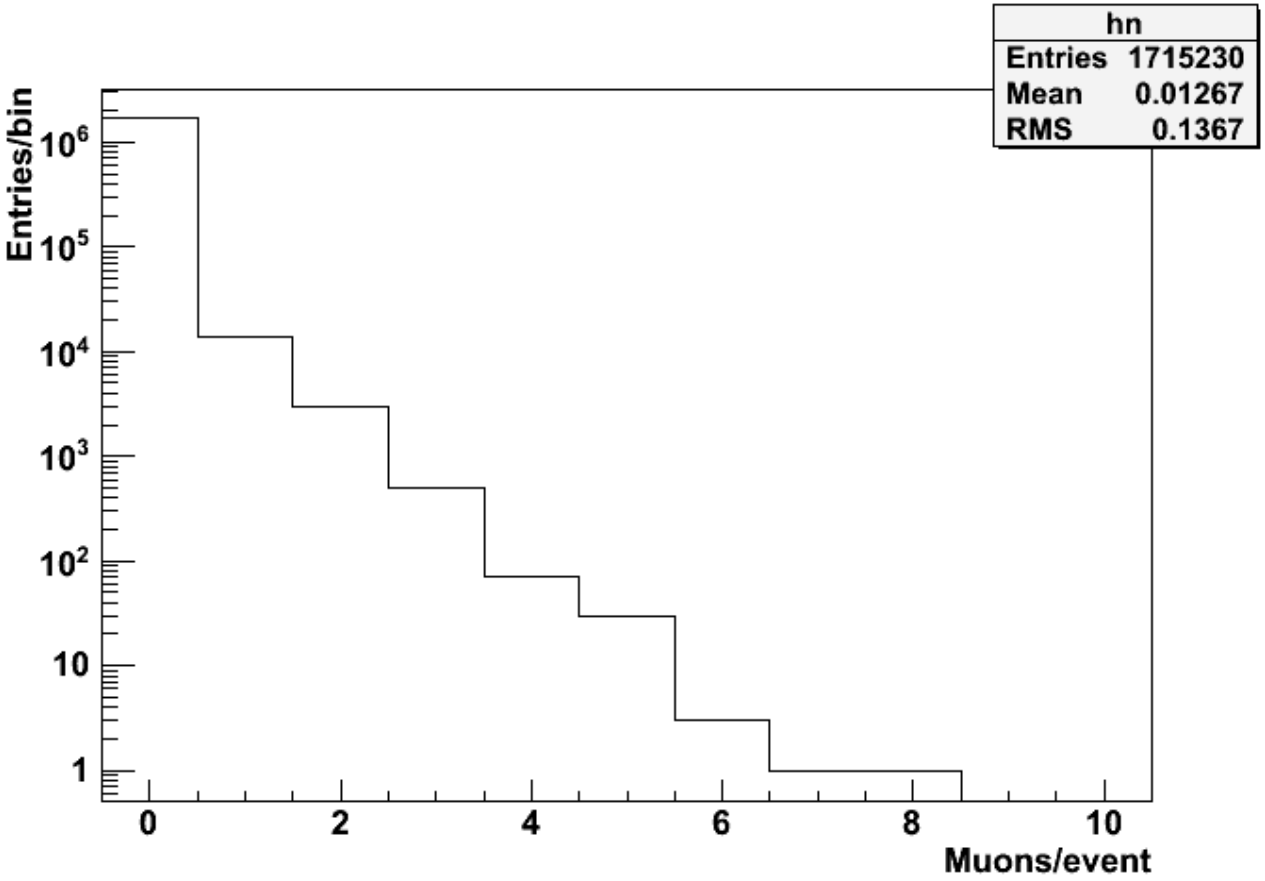
https://cmsweb.cern.ch/dbs_discovery/aSearch?caseSensitive=on&userMode=user&sortOrder=desc&sortName=&grid=0&method=dbsapi&dbsInst=cms_dbs_prod_global&userInput=%2FMinimumBias%2FCommissioning10-Apr1Skim_GOODCOLL-v1%2FRAW-RECO+

What to look at?

- Check out a few distributions for single muons
- Combine opposite sign dimuons

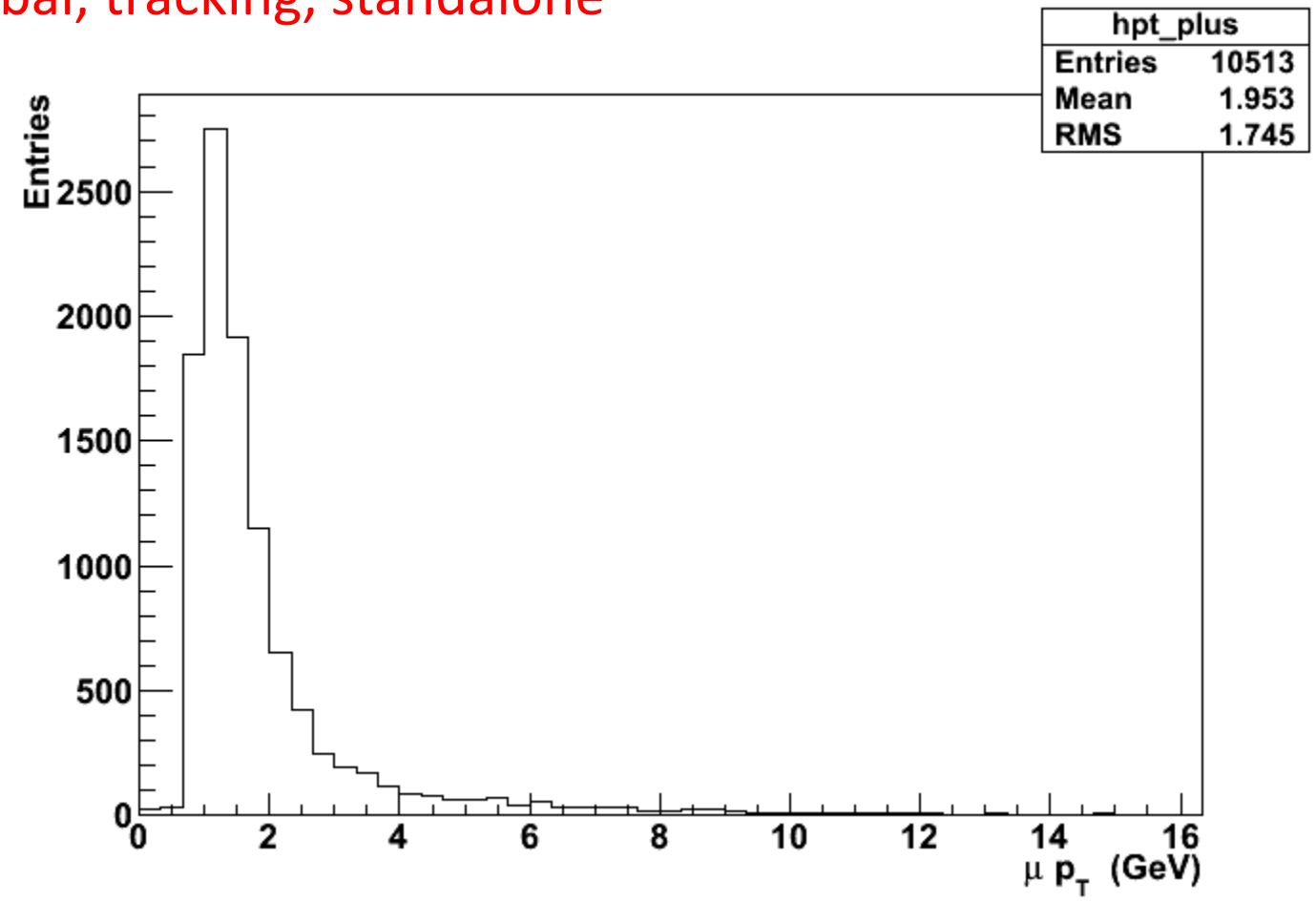
Single Muons

- All types of muons are included
- Global, tracking, standalone

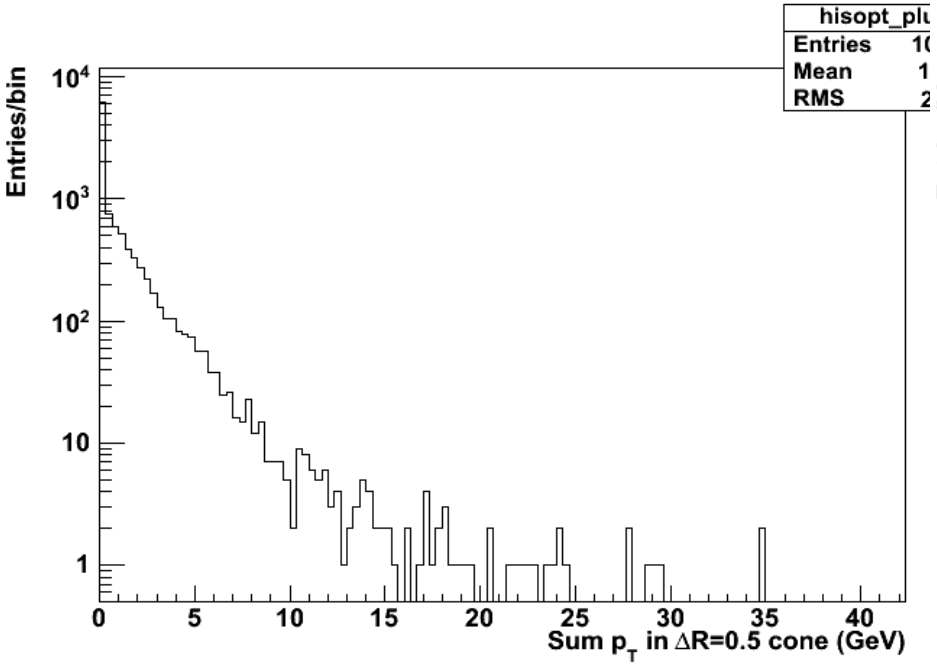


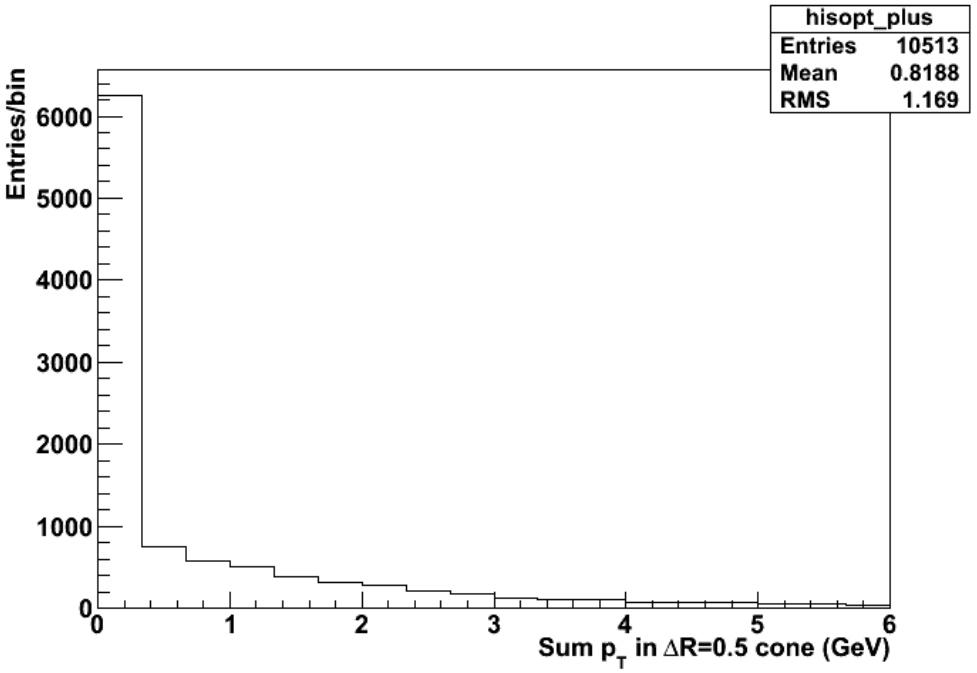
Muon Transverse Momenta

- All types of muons are included
- Global, tracking, standalone



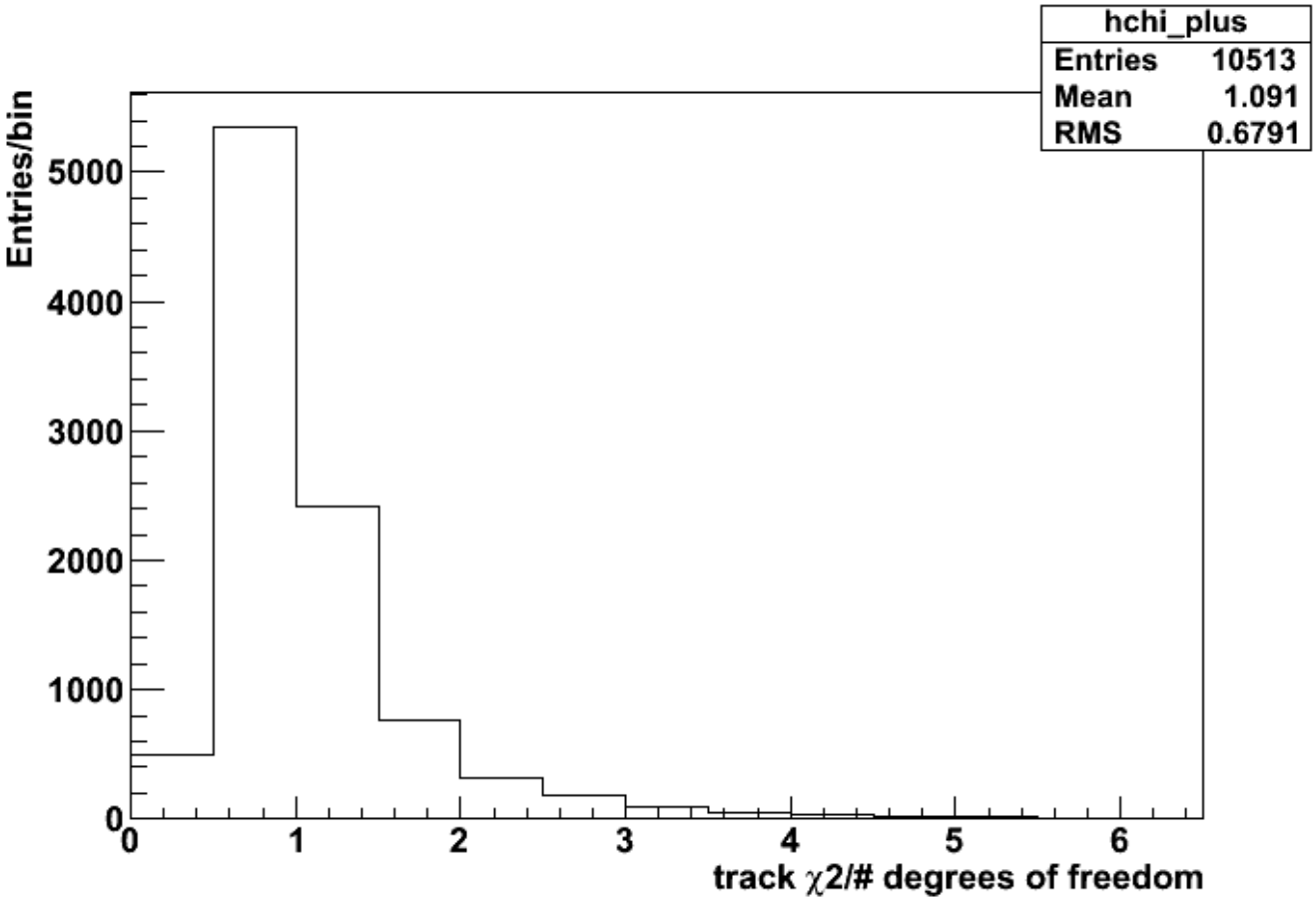
Muon Isolation



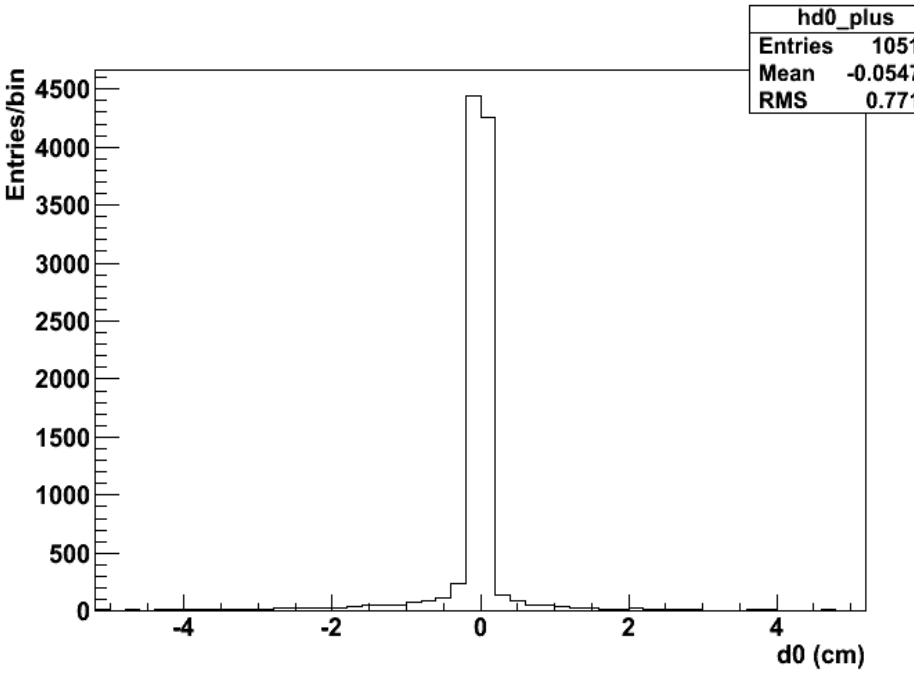


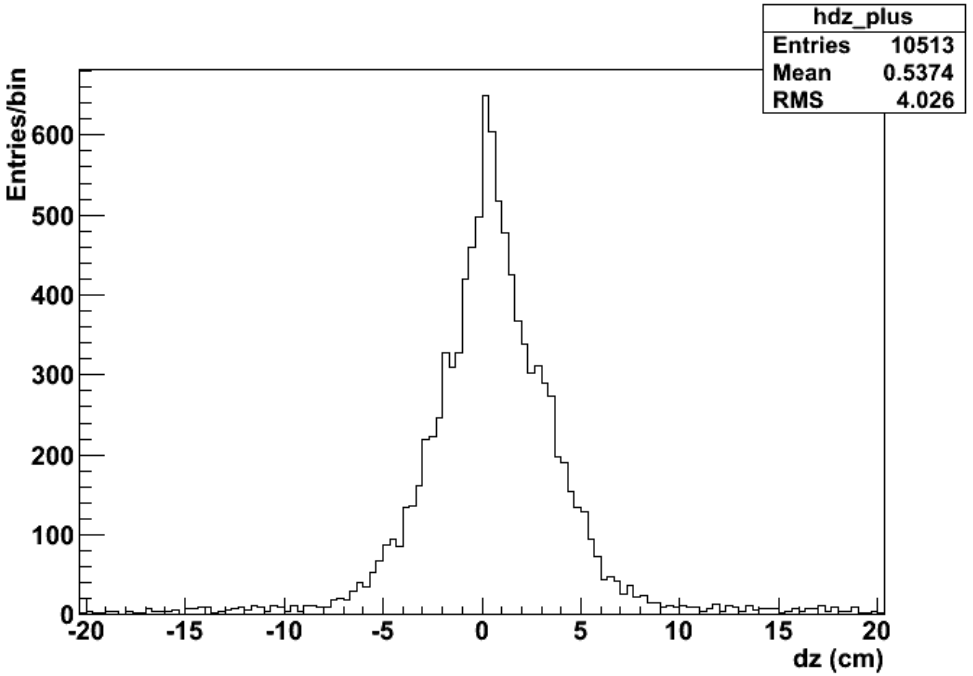
Sum of the tracks p_T inside a $\Delta R=0.5$ cone aligned with the muon direction

Muon Track χ^2



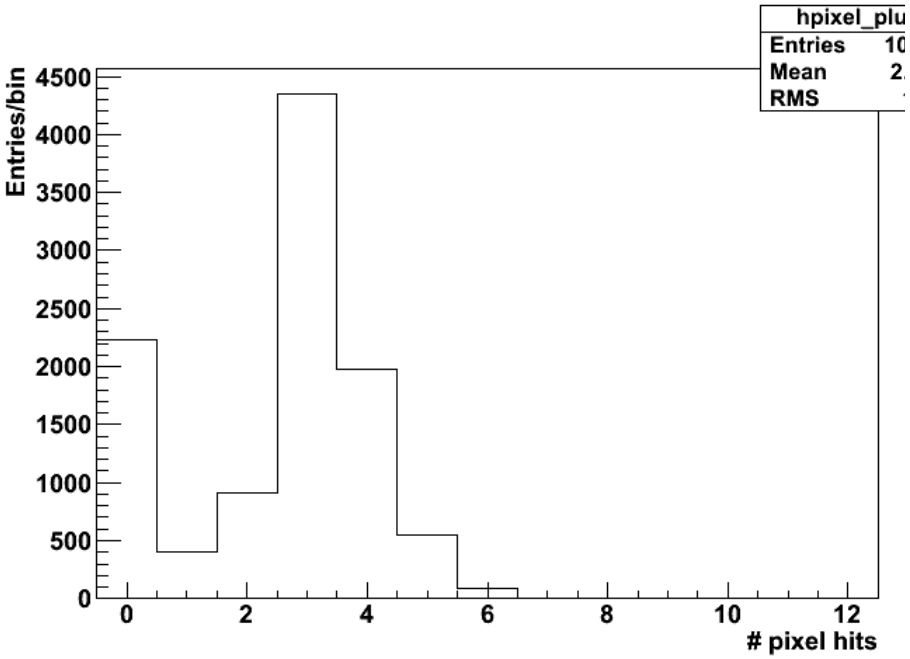
Muon Track Displacements

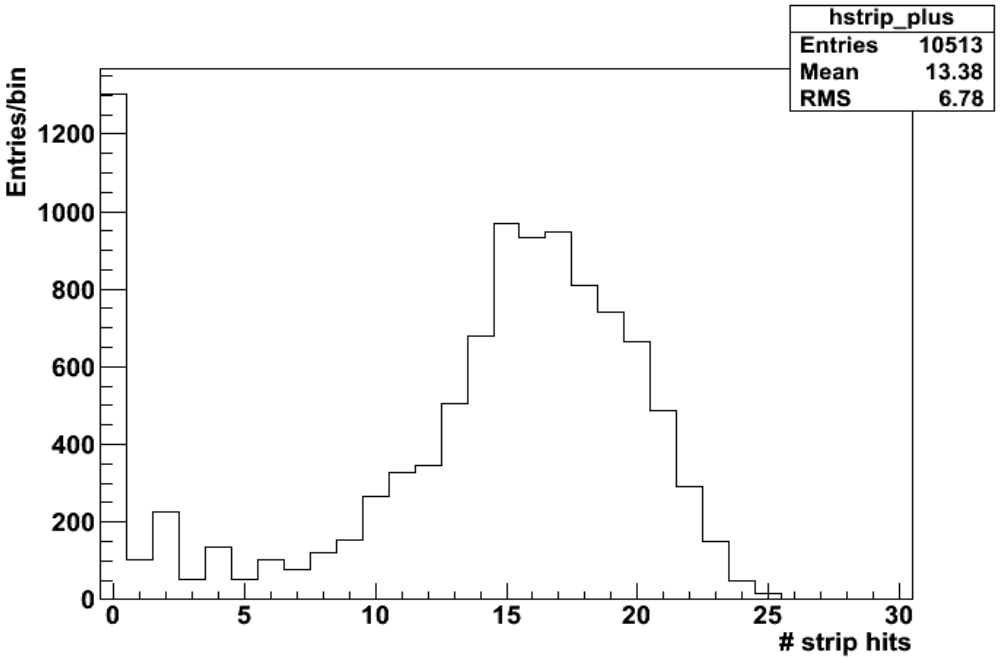




d0 ~ Minimum transverse distance
dz ~ z0 distance between track and (0,0,0) reference point

Muon Track Hits



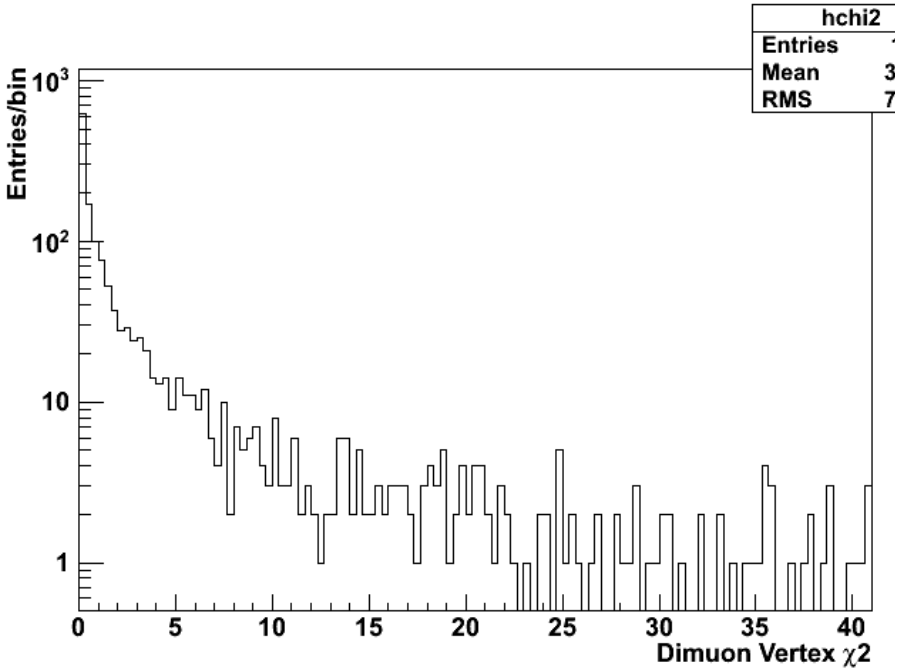


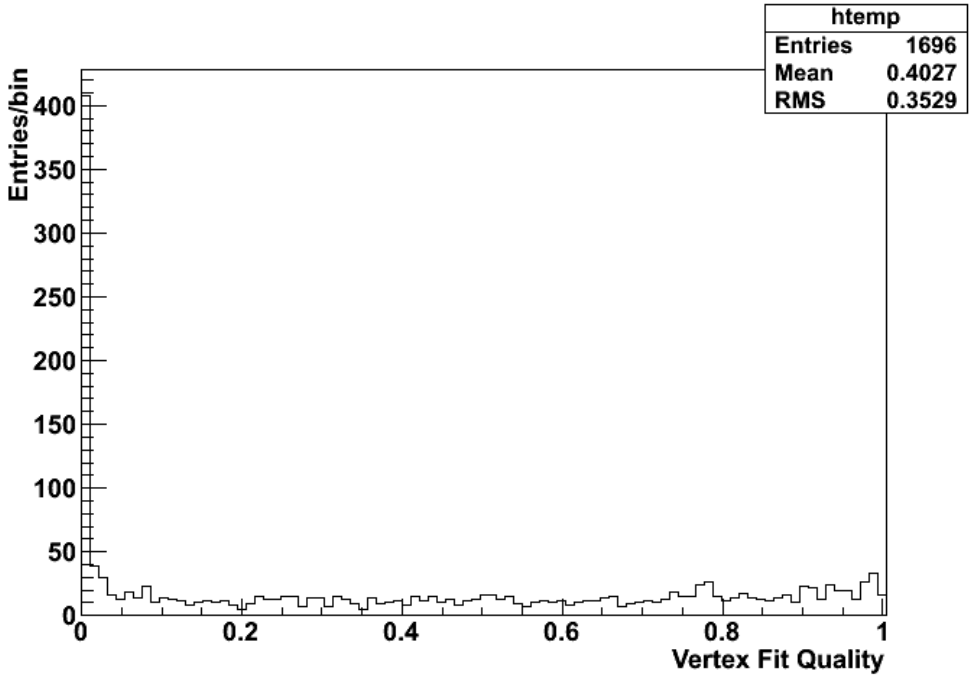
Number of track hits on the pixel and strip systems

Typical cuts:

pixel hits > 1, # strip hits > 10

Dimuon Vertex Fit





Standard Kalman Fitter available at CMSSW

Dimuon Vertex Position