pass3: dst data

First time to look on DST data.

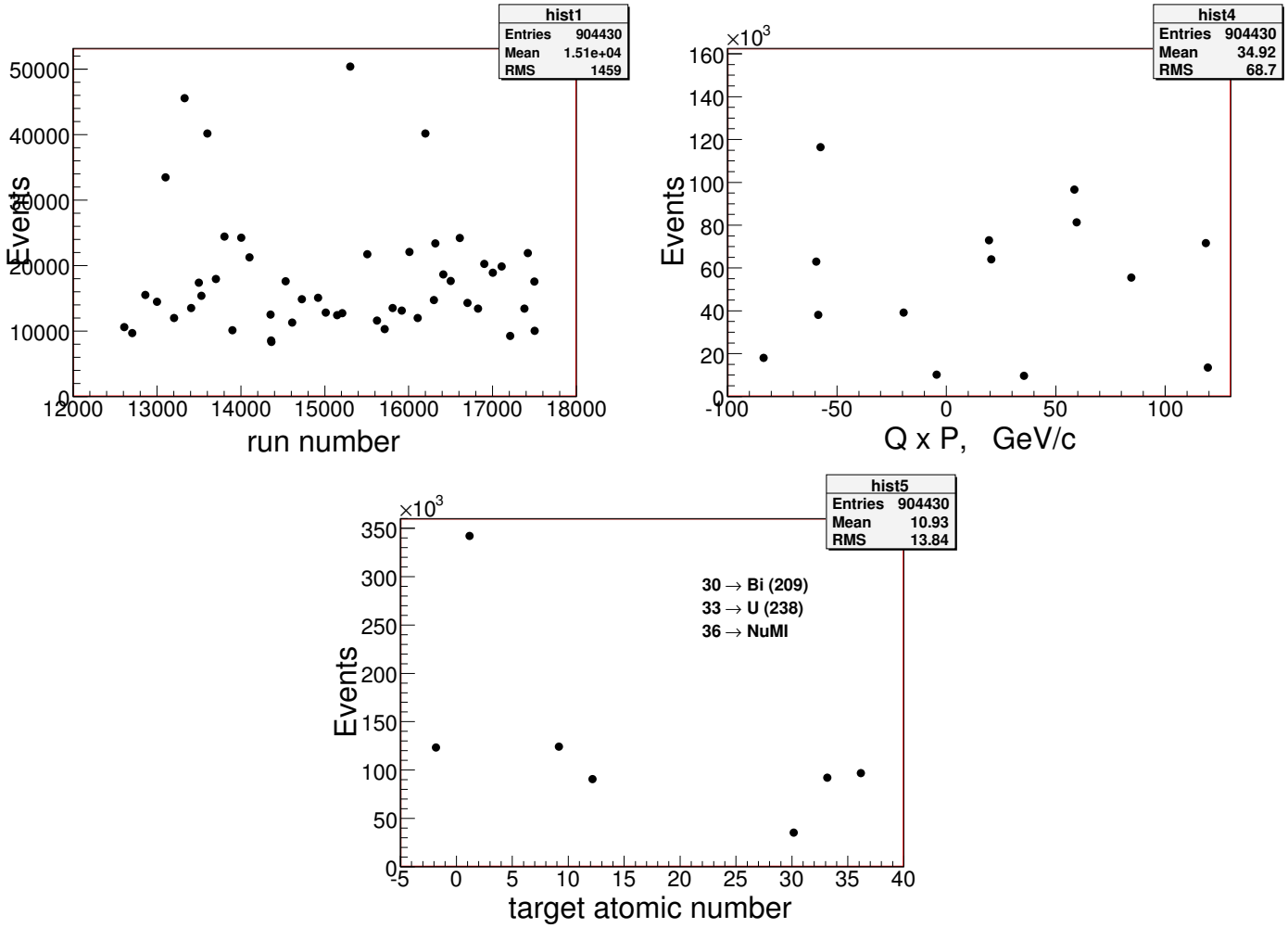
First time DST has calorimeter info on it

used data size: 50 runs, (7.1 GB)

Event/track selection cuts for track - emcal matching:

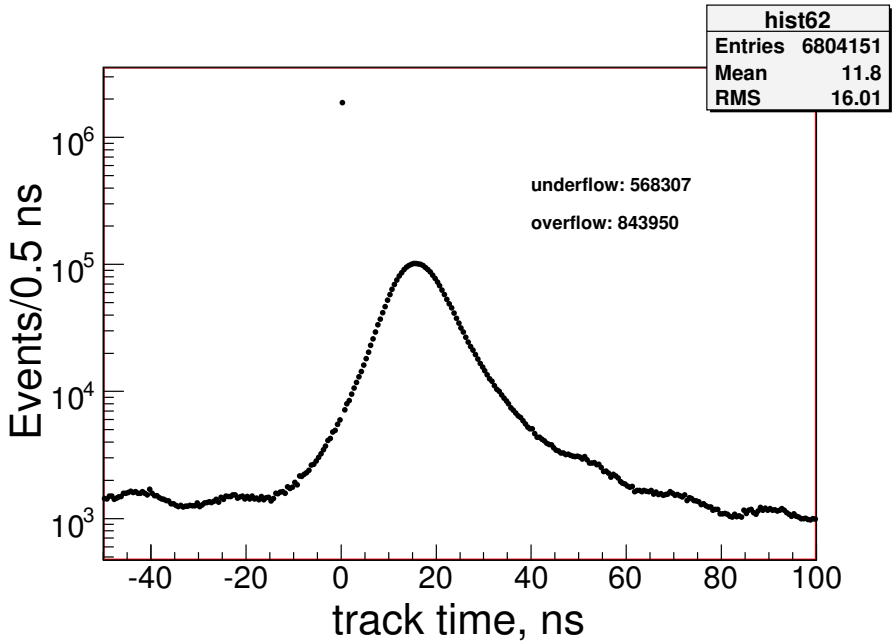
- nTotalTrks $\leq$ 20
- verteces are within the target location
- 20$<$NTPCPoints$<$95
- -10$<$TrkTime$<$50 ns
- Tracks with the DC4, PWC5 and PWC6 hits
- The track projections are within EMCAL aperture

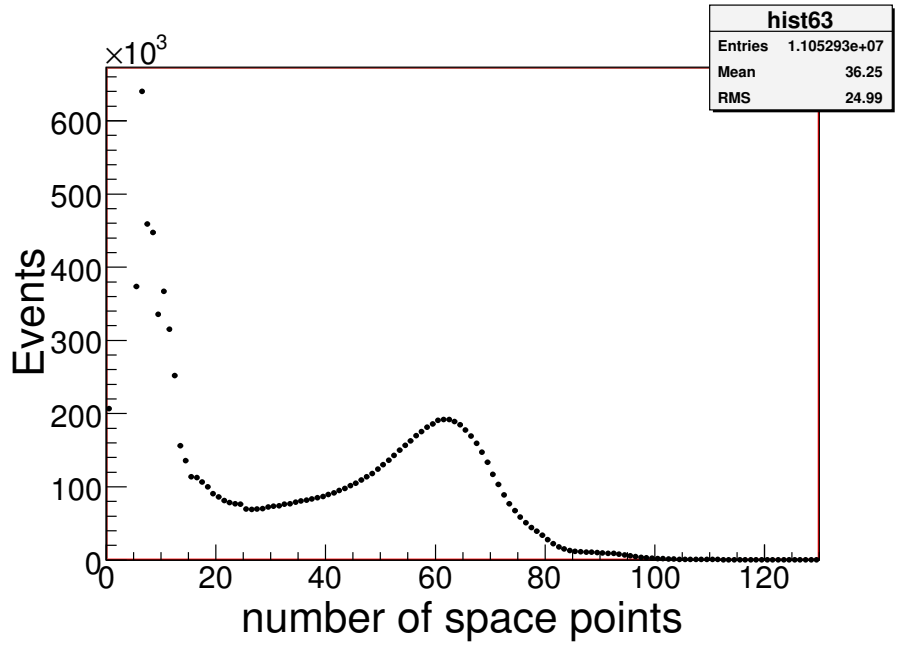
run num., momentum, target



Top left - number of events vs run number, top right - events vs momentum, bottom - events vs target.

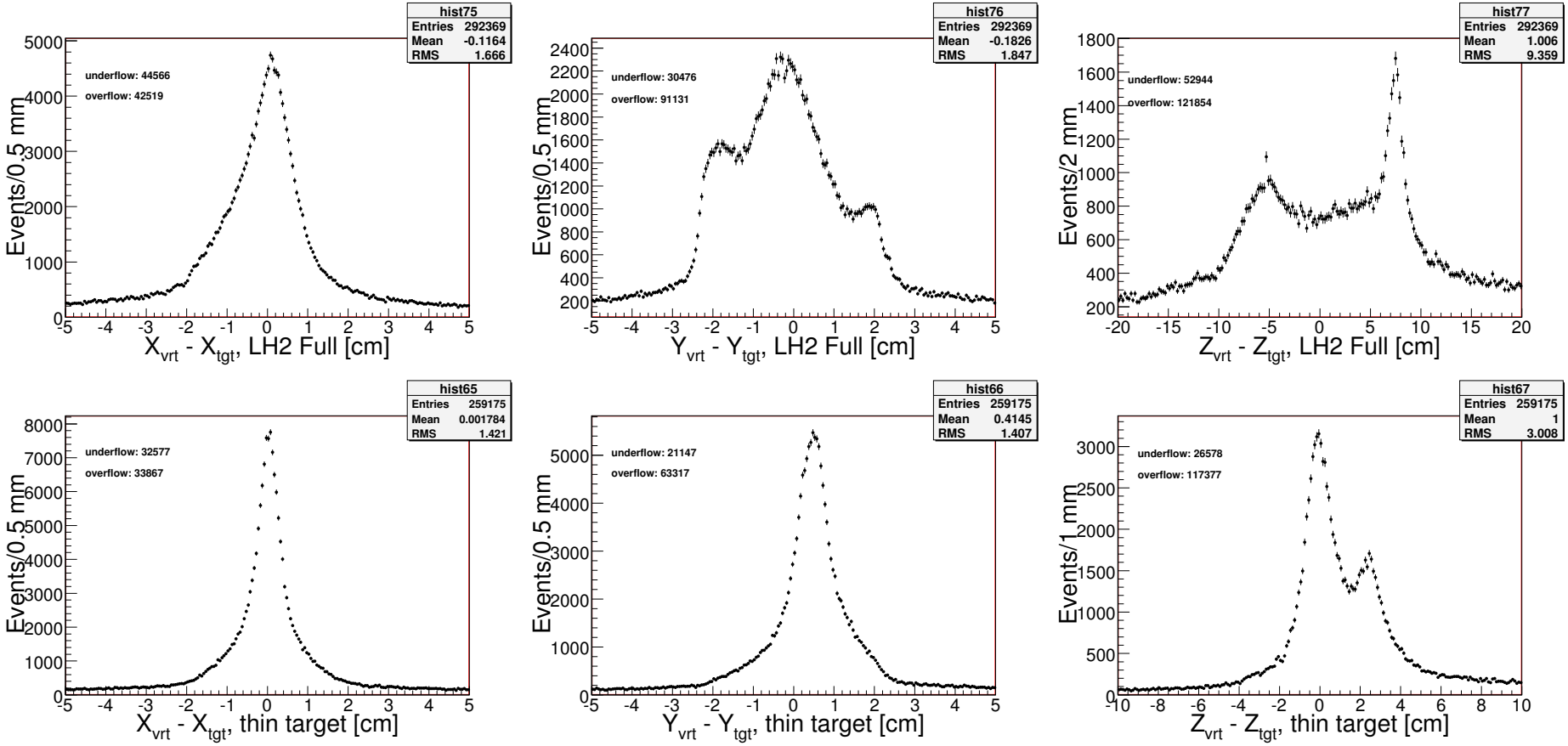
track time and nTPC hits





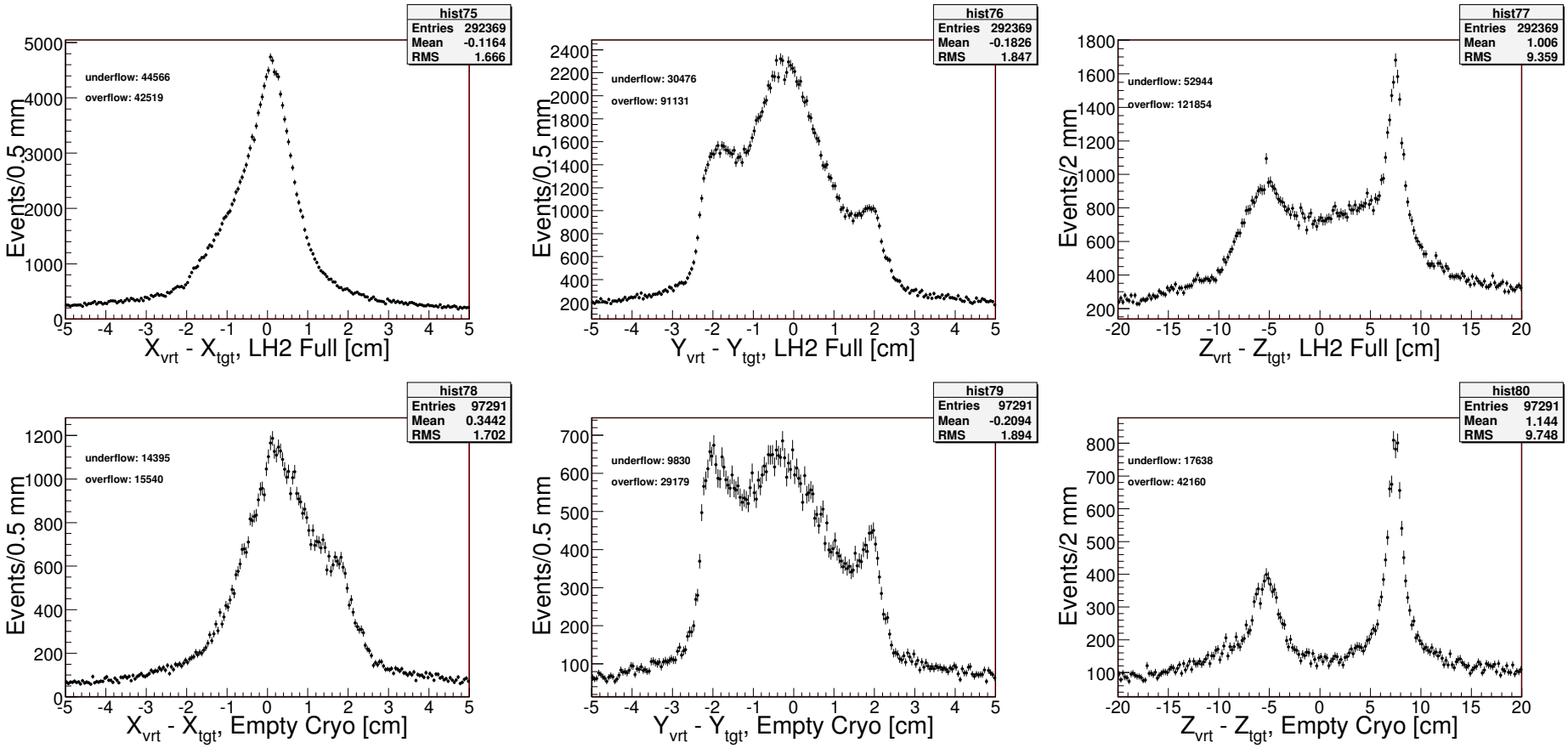
Left - track time distribution, right - number of TPC hits distribution

interaction positions: LH2 vs thin



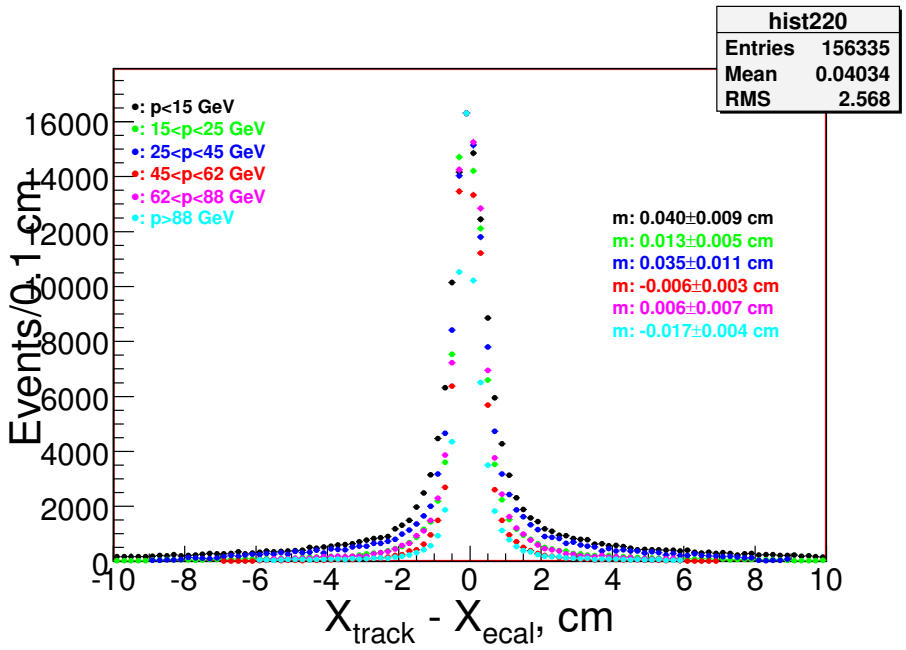
The vertex coordinates in X, Y and Z directions relative to the target center (x_o, y_o, z_o). Top plots - LH2 target data, bottom - thin target data.

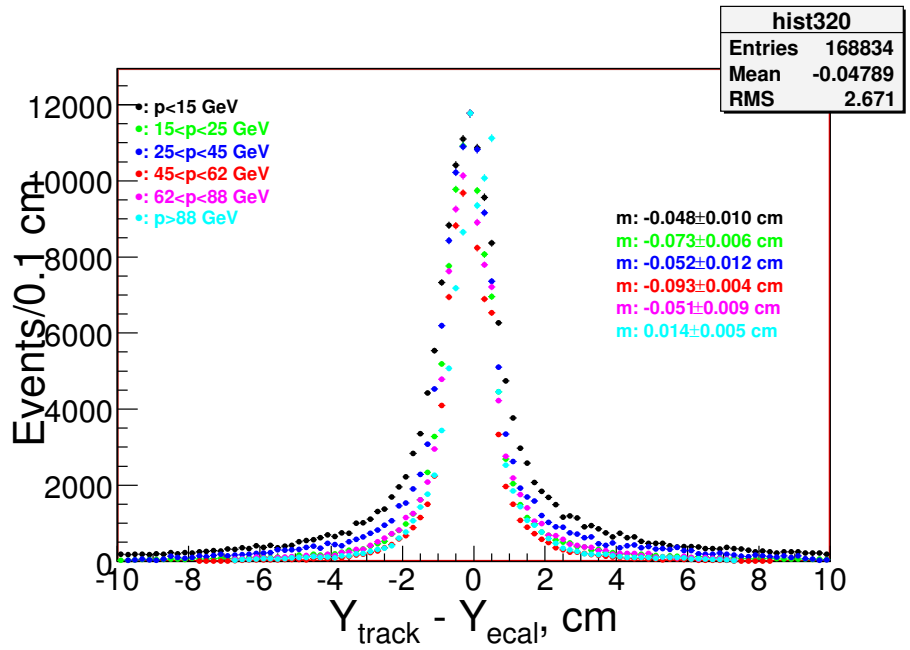
interaction positions: LH2 vs Empty



The vertex coordinates in X, Y and Z directions relative to the target center (x_o, y_o, z_o). Top plots - LH2 target data, bottom - Empty Cryo target data.

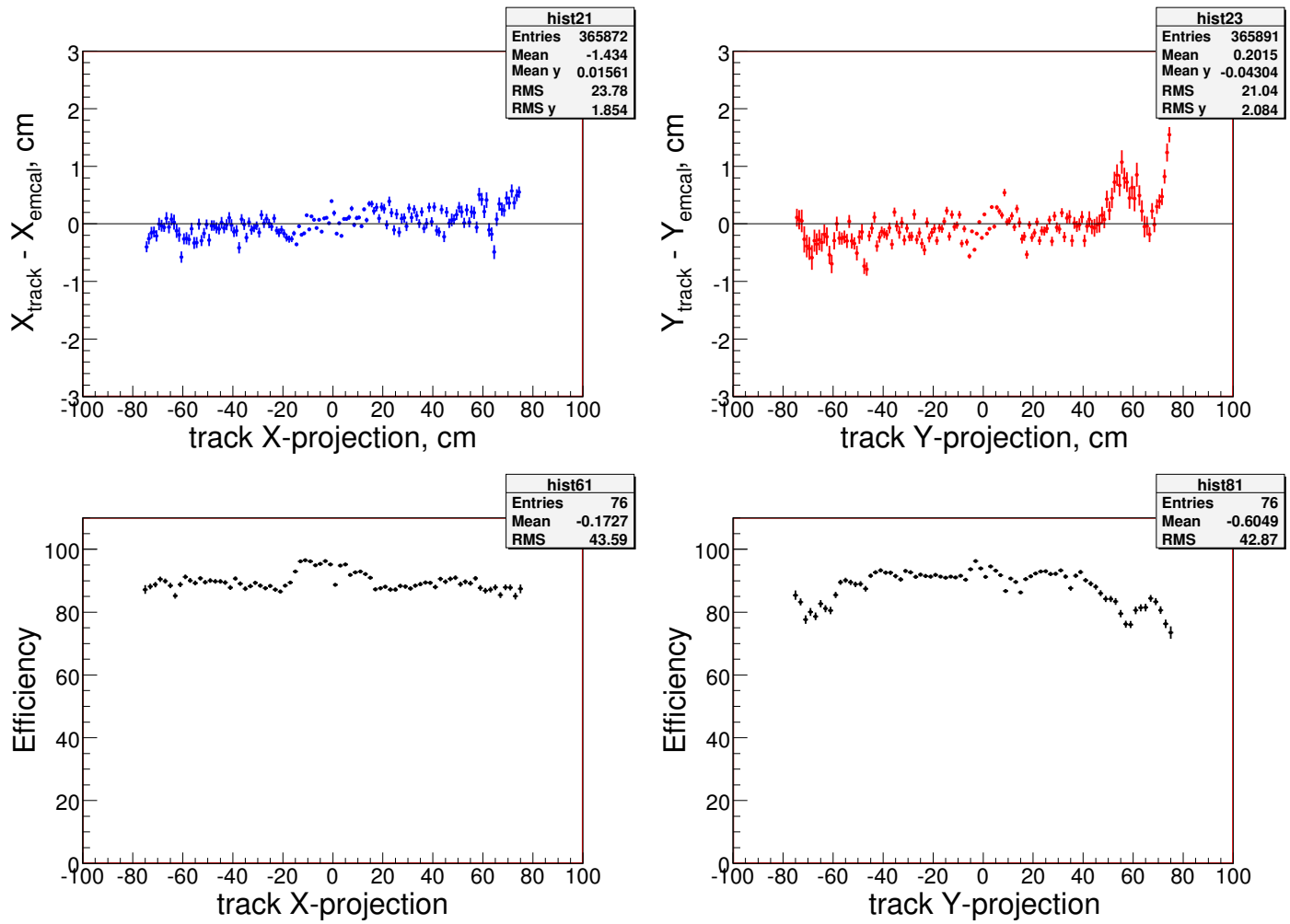
track - shower position differences





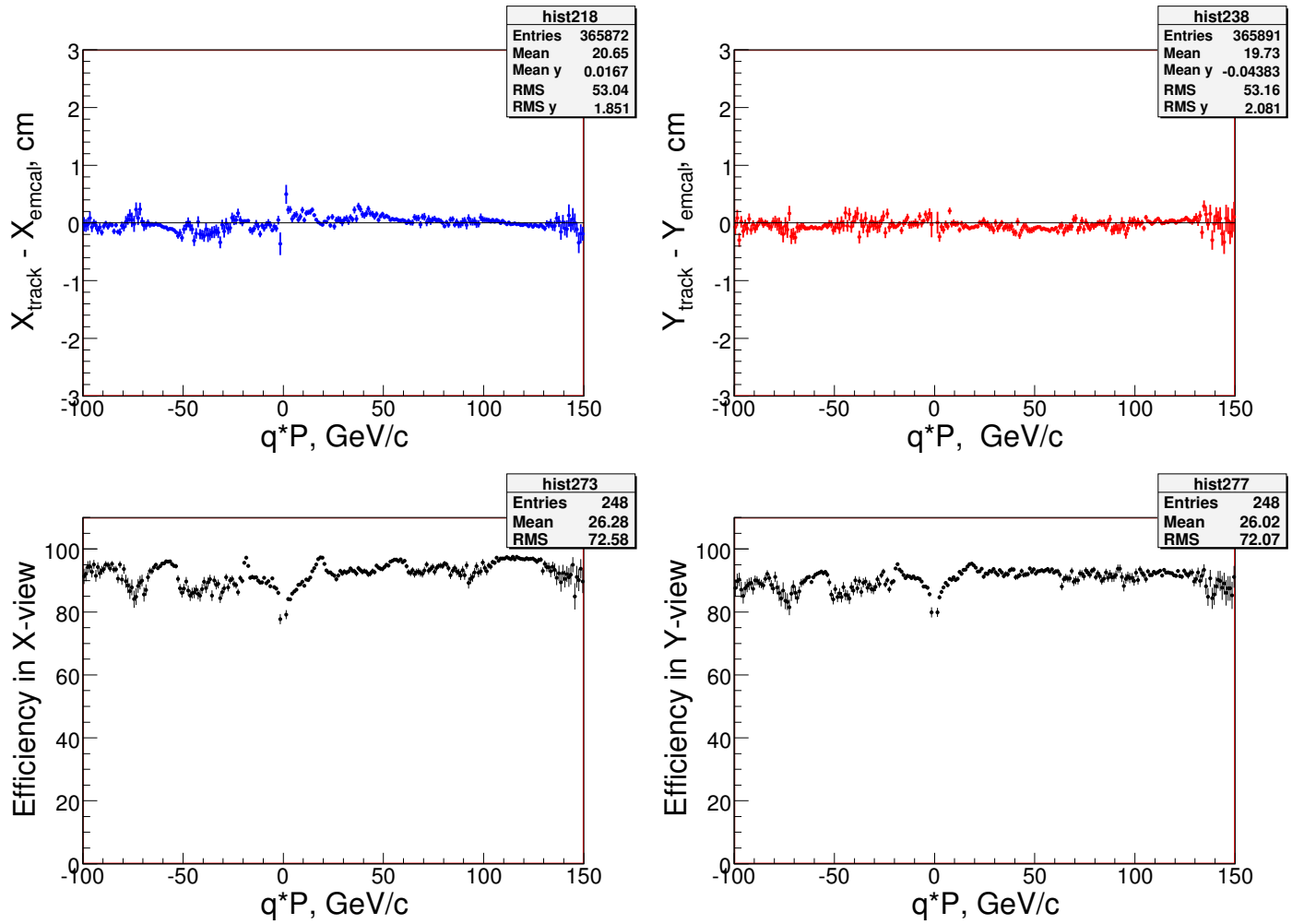
The track - shower residuals distributions for the different momentum. Data in both views looks at the center within fraction of mm. Y-view offsets has been updated by 2.7 mm. The distributions has been equalized to the same height.

matching vs track position



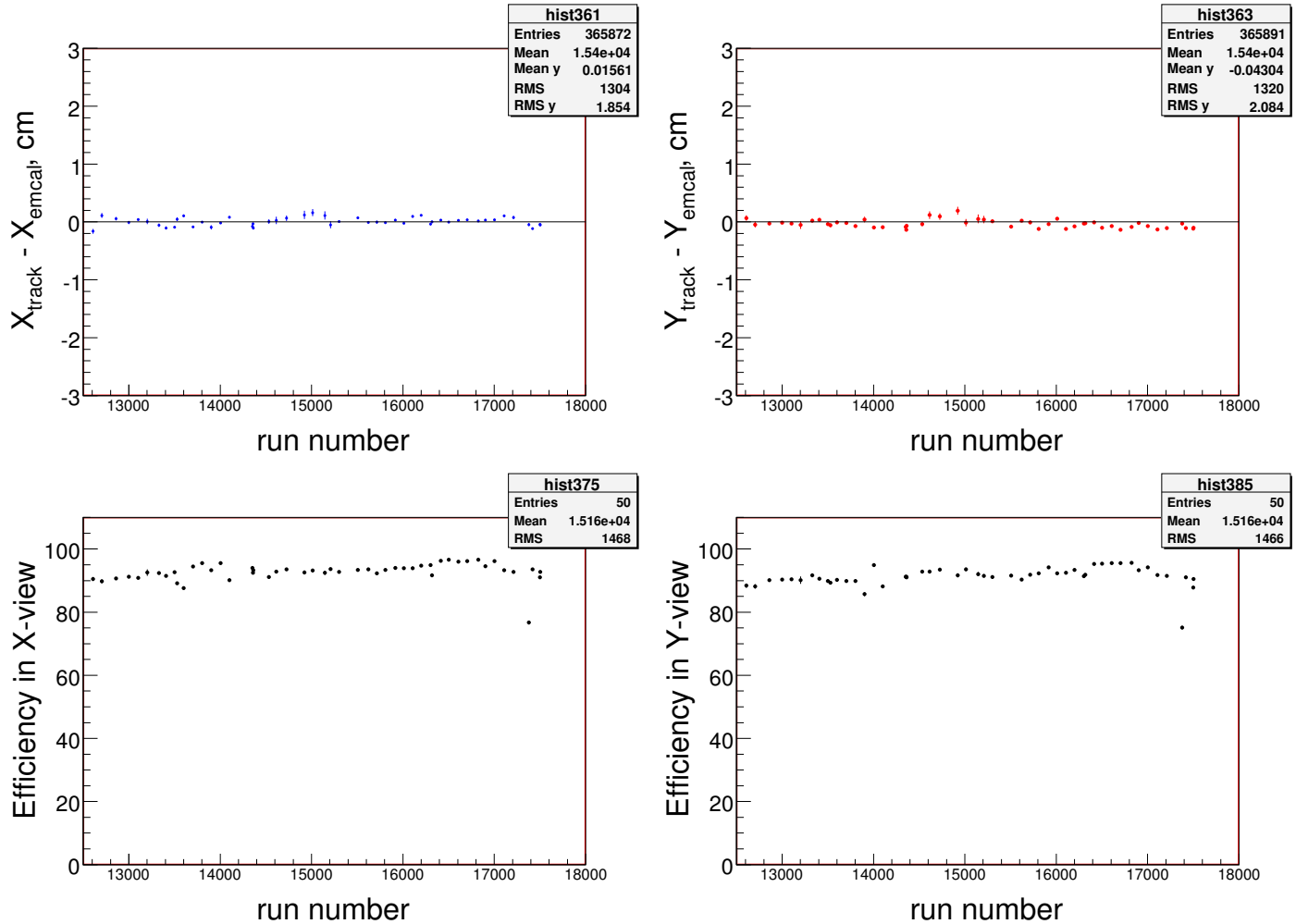
Top plots - the average dx and dy distributions vs the track position. Bottom - the matching efficiencies. The offset and low efficiencies in Y-view at EMCAL edges are under study. What a reason for the slopes in dx and dy distributions?

matching vs q·P



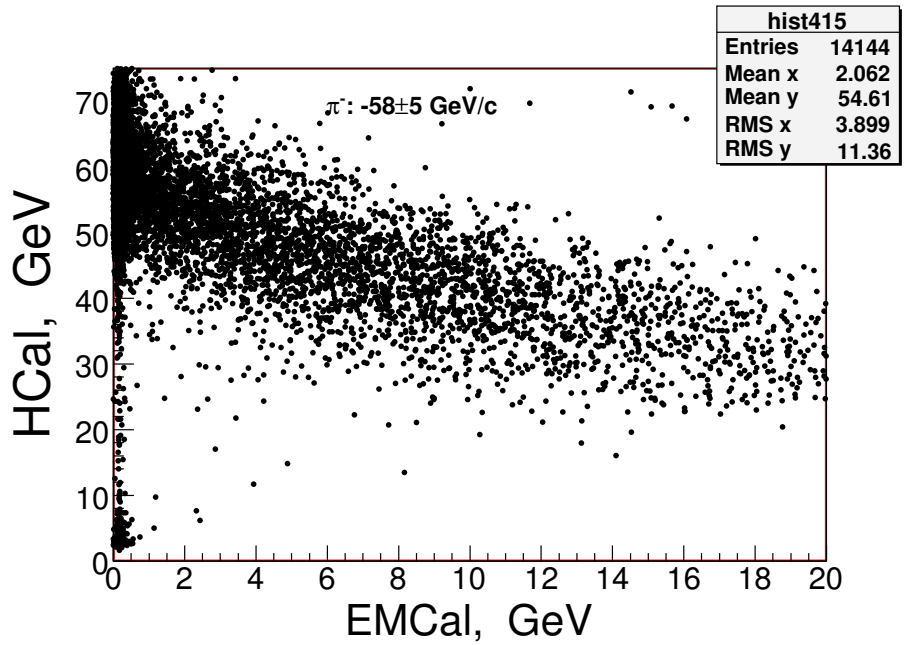
Top plots - the average dx and dy distributions vs the q·P of the tracks. Bottom plots - the track - emcal matching efficiencies vs the track momentum.

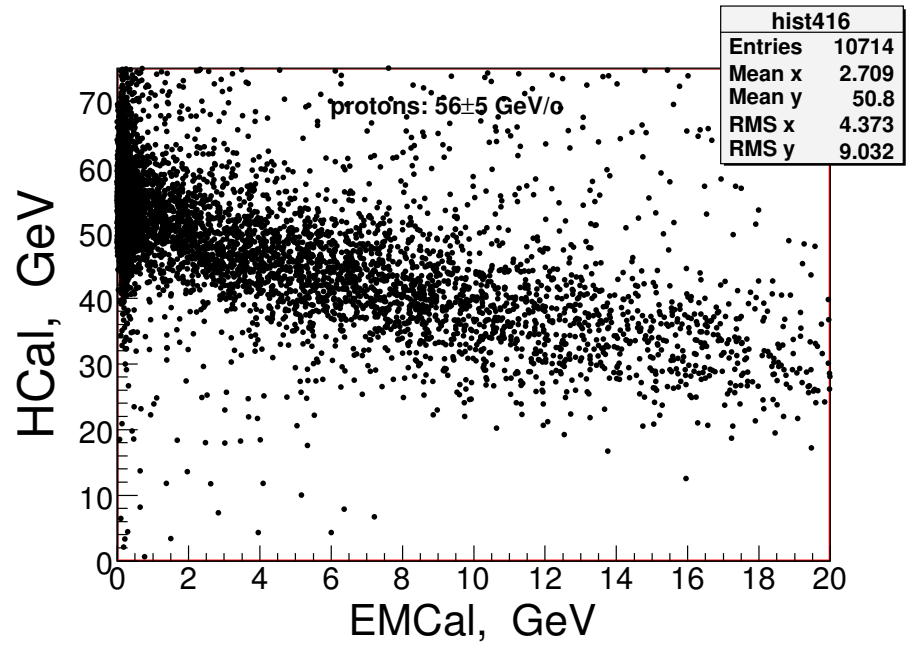
matching vs run number



The top plots: the average dx and dy distributions vs the run number. Bottom - the matching efficiency vs the run number.

HCAL vs EMCAL





HCAL vs EMCAL distributions: left - π^-, right - protons. The tracks are within the HCAL aperture. The events in region HCAL$<$10 GeV and EMCAL$<$0.5 GeV (on left plot) are muons from $\pi^- \rightarrow \mu^-\nu$ decay-in-flight process.

summary

First time to look on DST data: considered variables looks OK.

Calorimeters finally are in DST. The shower energy variables from EMCAL and HCAL are reasonable well.

The track - emcal matching: in Y-view at EMCAL edges there is some inefficiency and offset. The dx and dy vs the track position have small slope (1 mrad). Need some studies using pass2 data (the realignment is on way). Previous alignment was done in August 11, 2006.