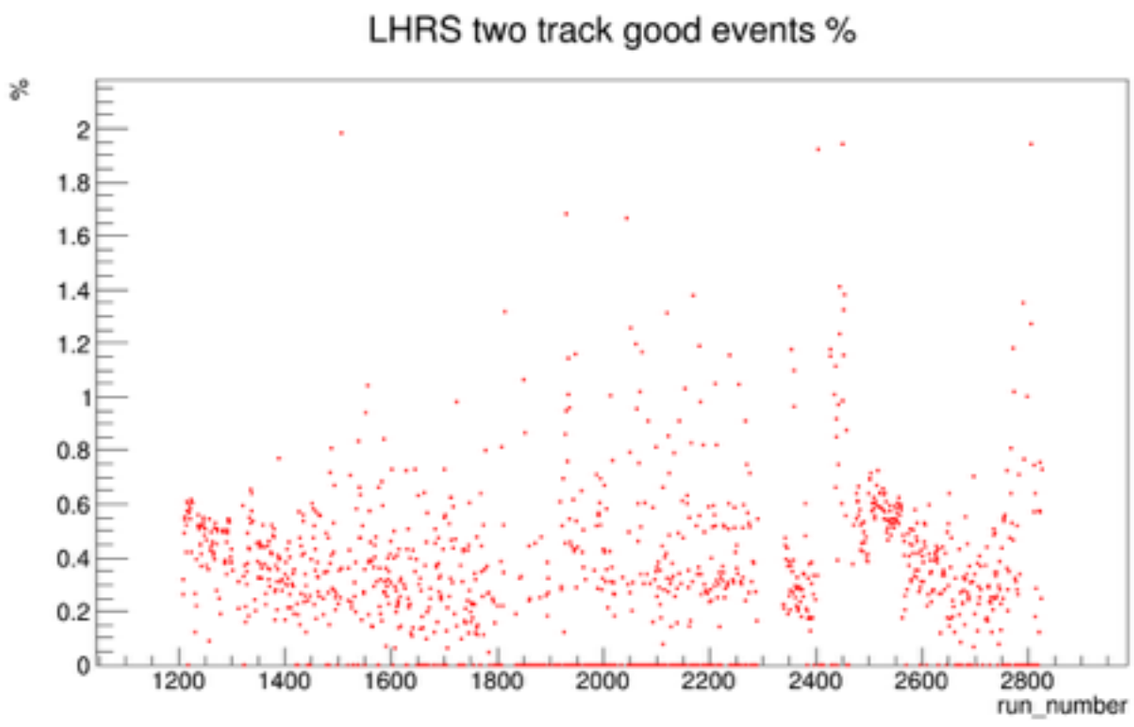
Dual tracks study

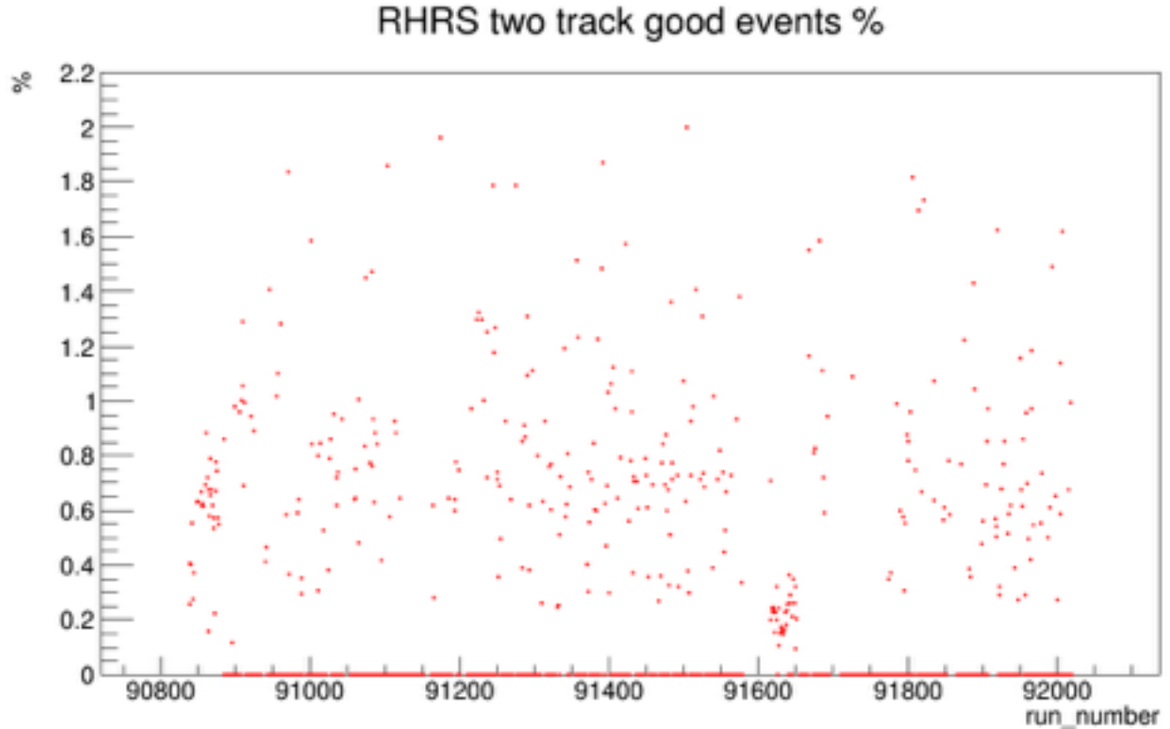
Hanjie Liu

Purpose of study:

able to explain where are the two tracks come from and why one track cut is applied;

ACC: abs(theta)<0.06 && abs(phi)<0.03 && abs(dp)<0.045; ← at least one track pass the cut
beta: beta>0;
Ep: E/p>0.75;
CK: cer.asum_c>2000;
VZ: abs(tr.vz)<0.1;
trigger2: (s0&s2)&cer





Run 1213 (tritium kin1)

After (beta+Ep+ACC+CK+VZ+trigger2) cut,
99.3% events have only one track; —— 50835 events
0.5% events have two tracks; —— 267 events

How to select the good one from two tracks

1. apply “abs(L.s2.trdx[0])<0.075 && abs(L.s2.trdx[1])<0.075”

(1). ~40% events can choose one track by using this cut
(the other track is of highly chance not electron events)

(2). 58.8% events both tracks pass the cuts;

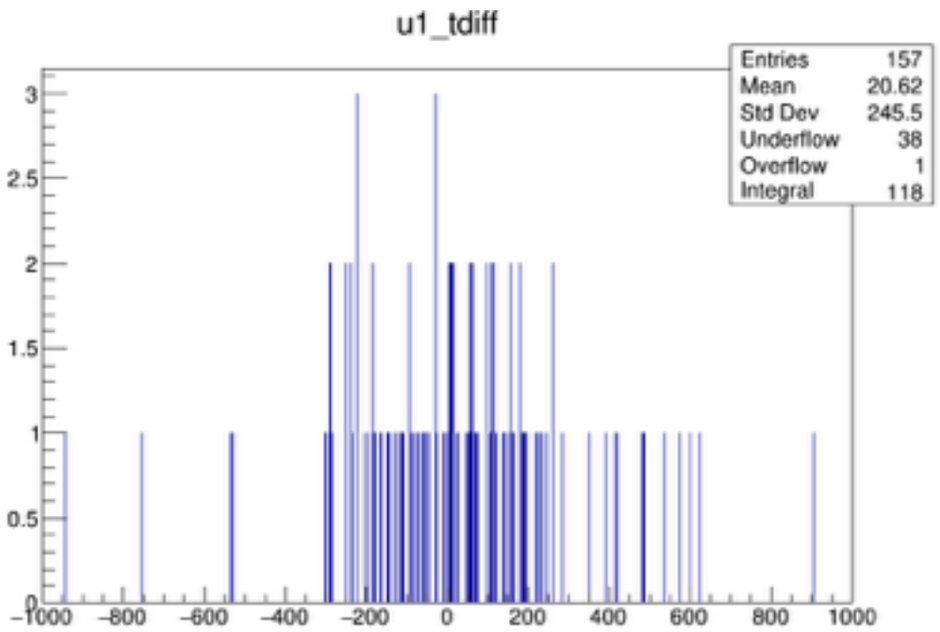
- abs(ps_trpad[0]%17-ps_trpad[1]%17)<3

a. 90% events both tracks are close to same cluster;

b.10% events have two clusters; —> the electron goes with another particles and the good track can be chosen by compare the energy of clusters;

For only one track good events, 99.2% events pass this s2 cut

- calculate the pivot wire time difference between two tracks

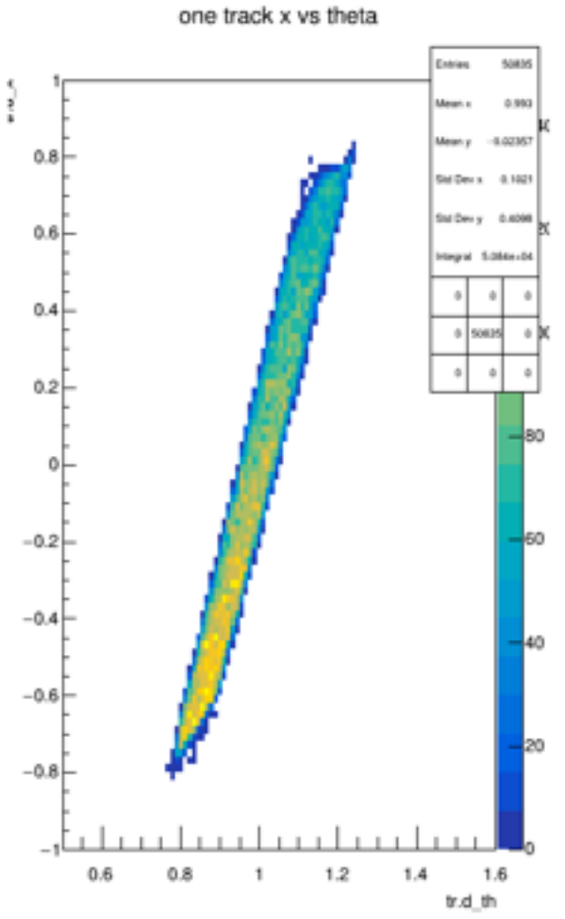


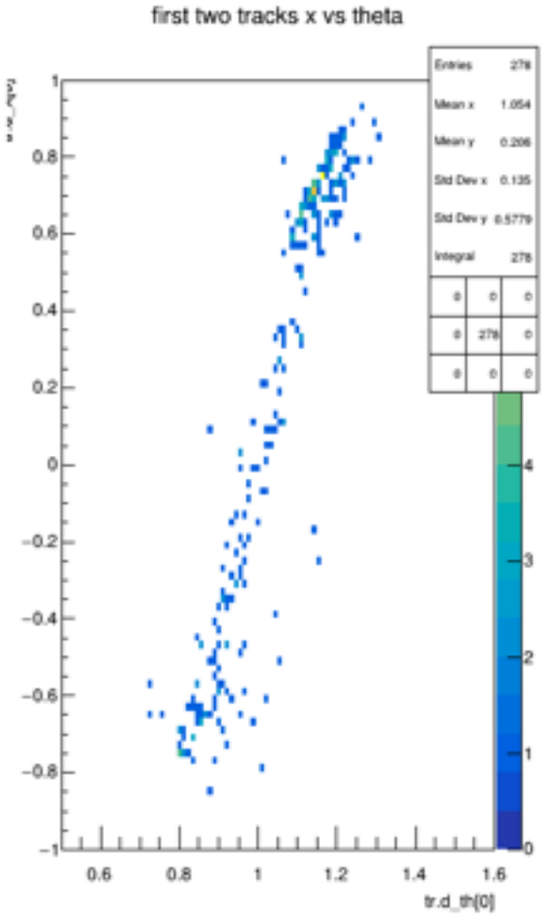
~7% abs(u1_tdiff)<10ns - - - - - - 3m

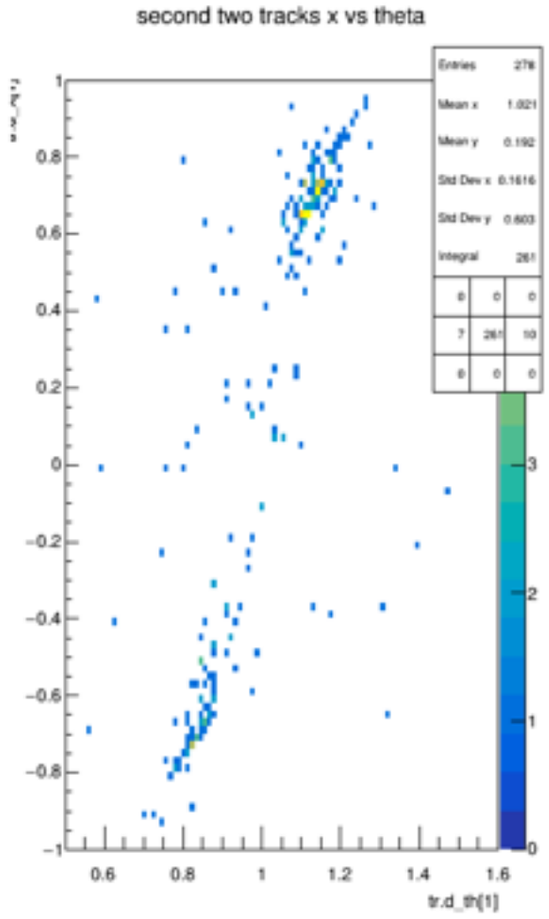
~30% abs(u1_tdiff)<100ns - - - - - - 30m

most two tracks are not related?

Focal plane

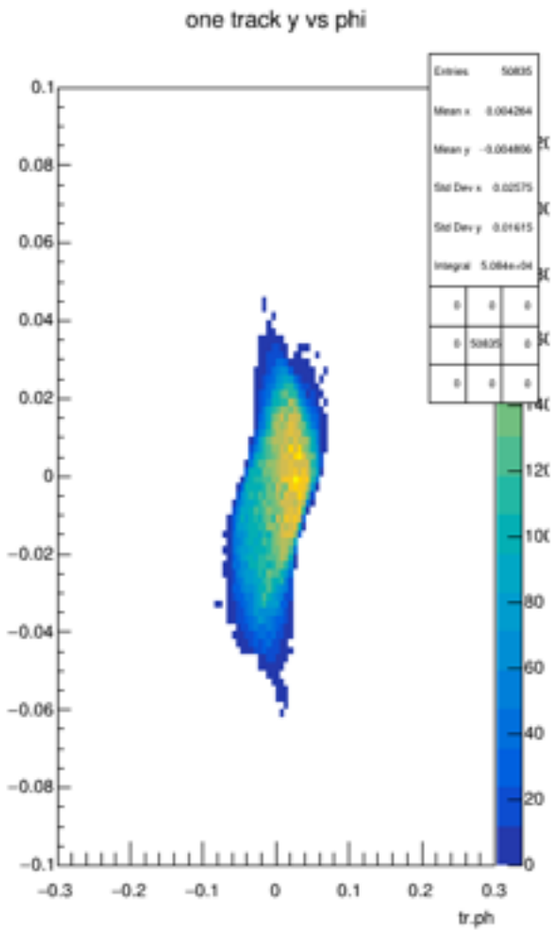




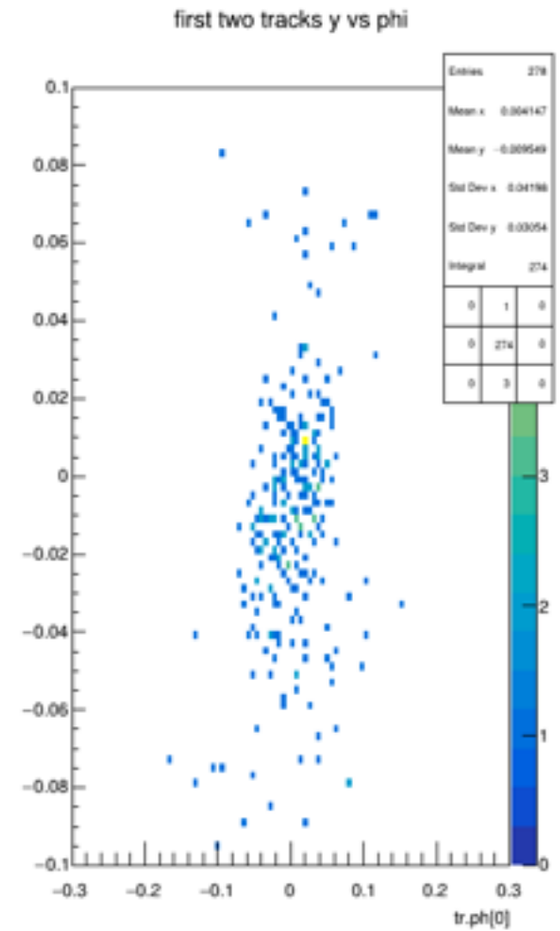


tr.d_x:tr.d_th

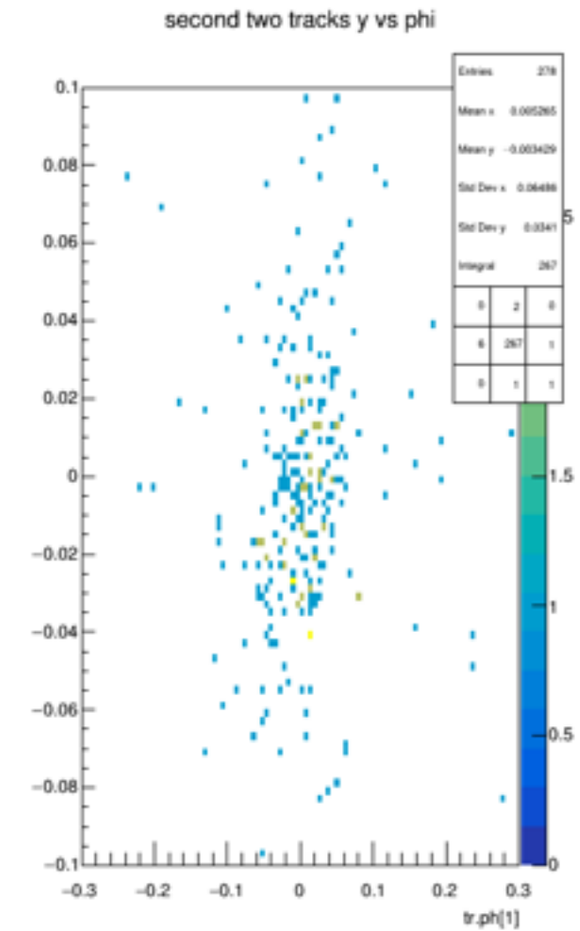
only one track



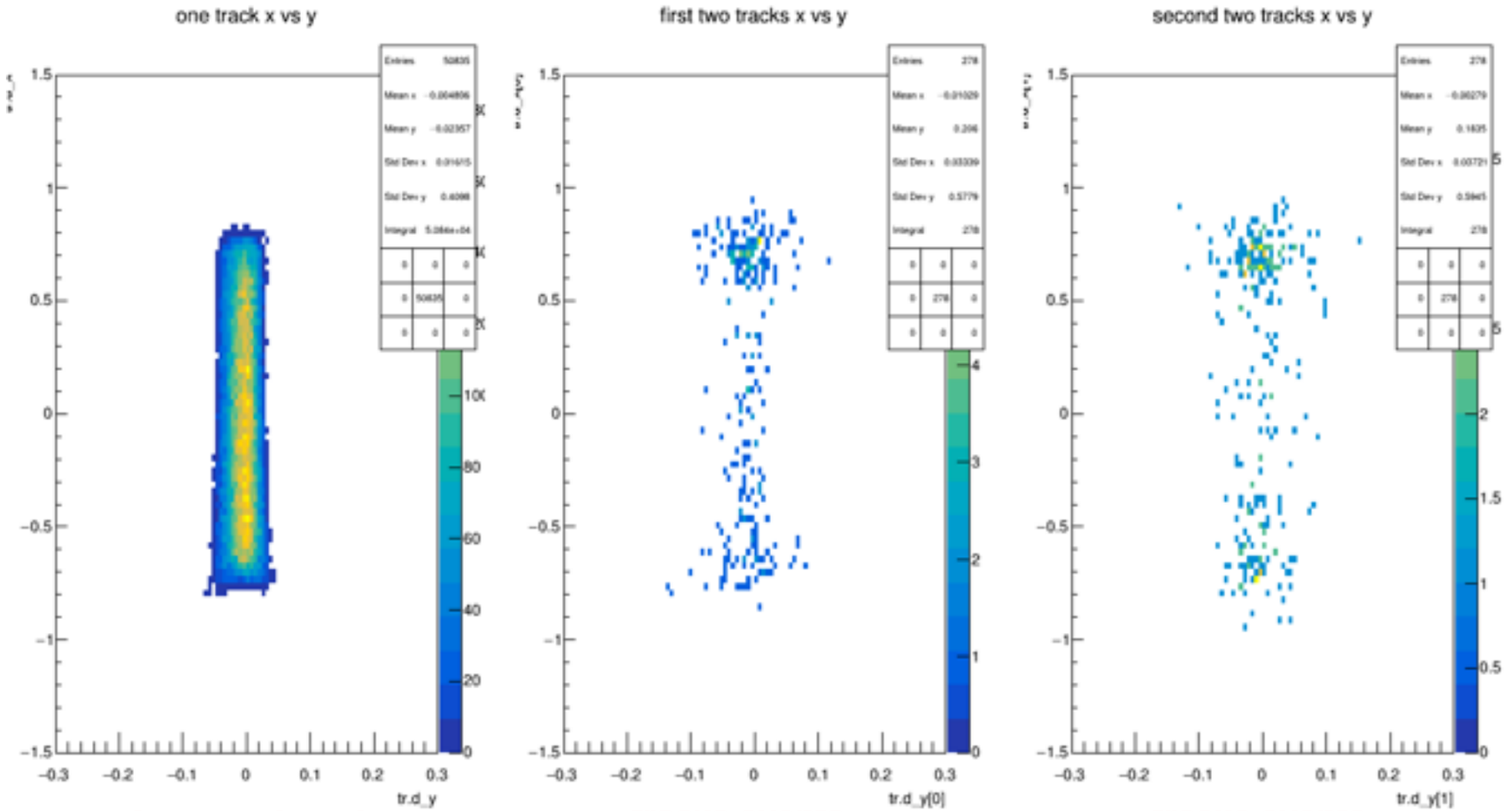
tracks events



tracks events



tr.d_y:tr.d_ph



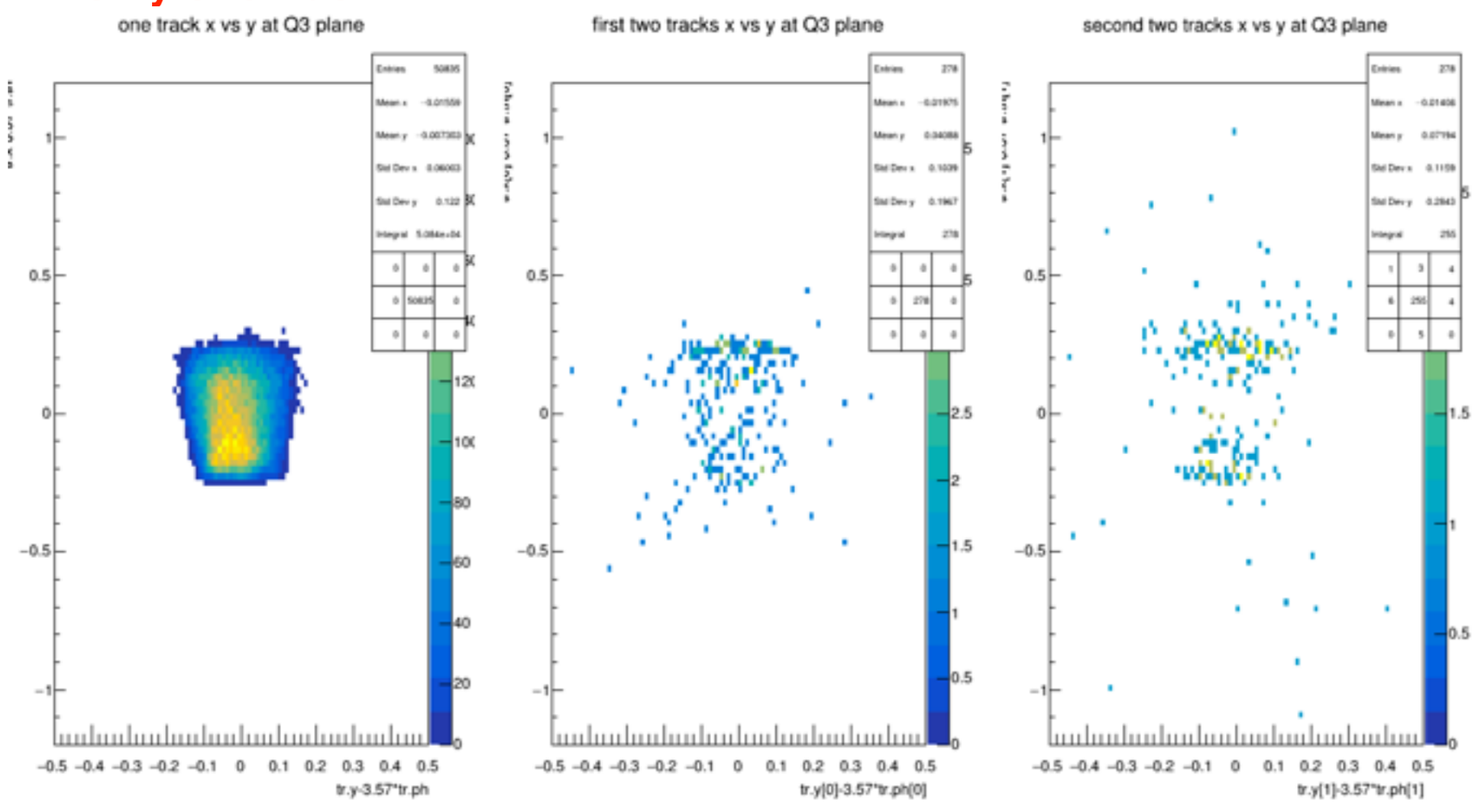
Focal plane

tr.d_x:tr.d_y

only one track

tracks events

tracks events



Q3 plane