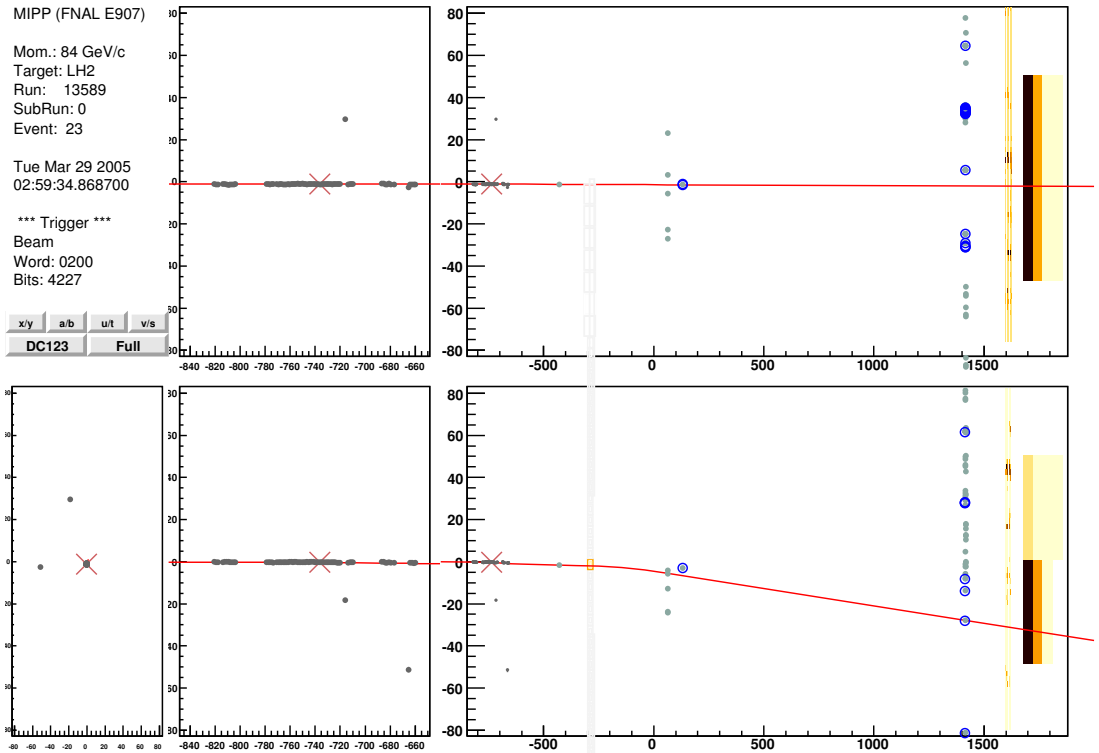
run:13589 event:23



Info from upstream fraction of track (before vertex):

Track 1 Q=1 T=2ns

Vertex x(cm)=(-0.3,-1.1,-736.4)

Vertex p(GeV/c)=(-0.20,-0.04,84.00)

Info from downstream fraction of track (after vertex):

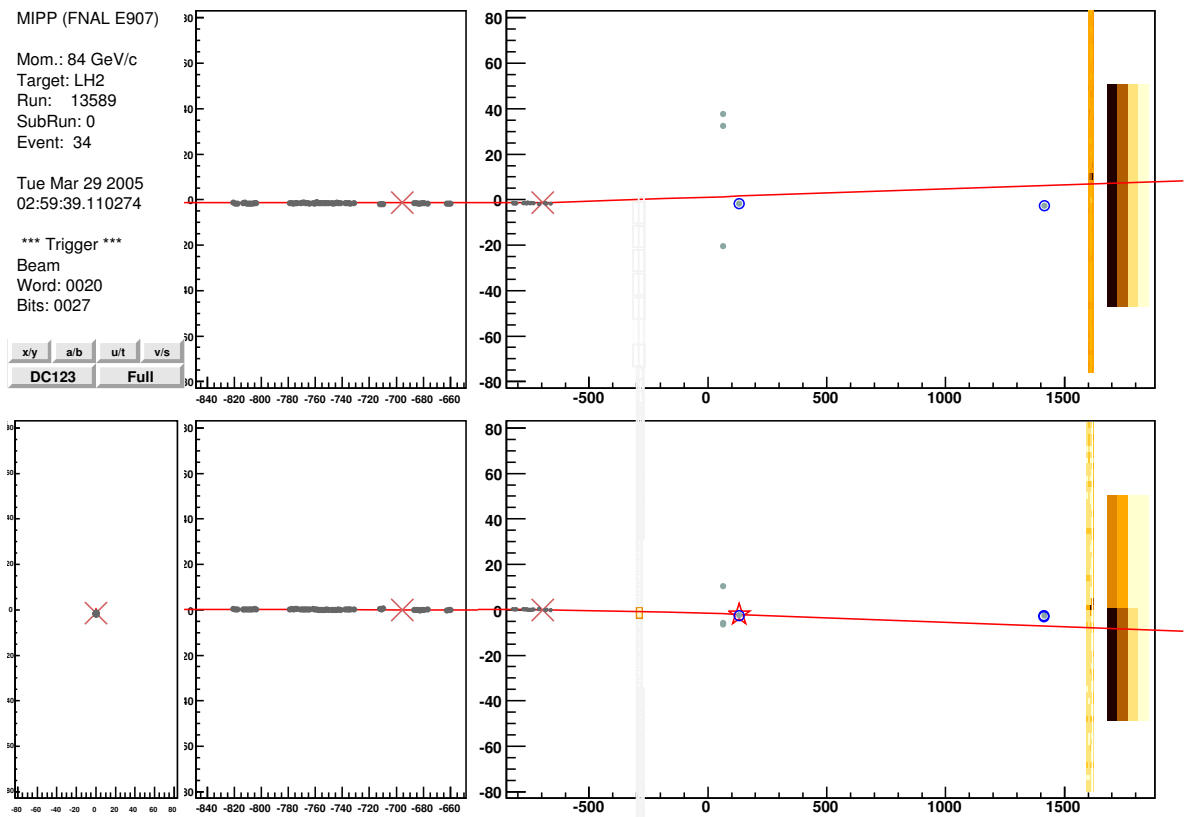
Track 2 Q=-1 T=17ns

Vertex x(cm)=(-0.3,-1.1,-736.4)

Vertex p(GeV/c)=(-0.23,-0.01,23.72)

Is this a case when the momentum measurements is off? I think for right momentum measurements we can not brake TPC track on 2 independent pieces, unless we see a secondary vertex inside of volume. Another wrong thing: different Q.

run:13589 event:34



Info from upstream fraction of track (before vertex):

Track 1 Q=1 T=7ns

Vertex x(cm)=(-0.0,-1.4,-695.6)

Vertex p(GeV/c)=(-0.24,-0.04,84.00)

Info from downstream fraction of track (after vertex):

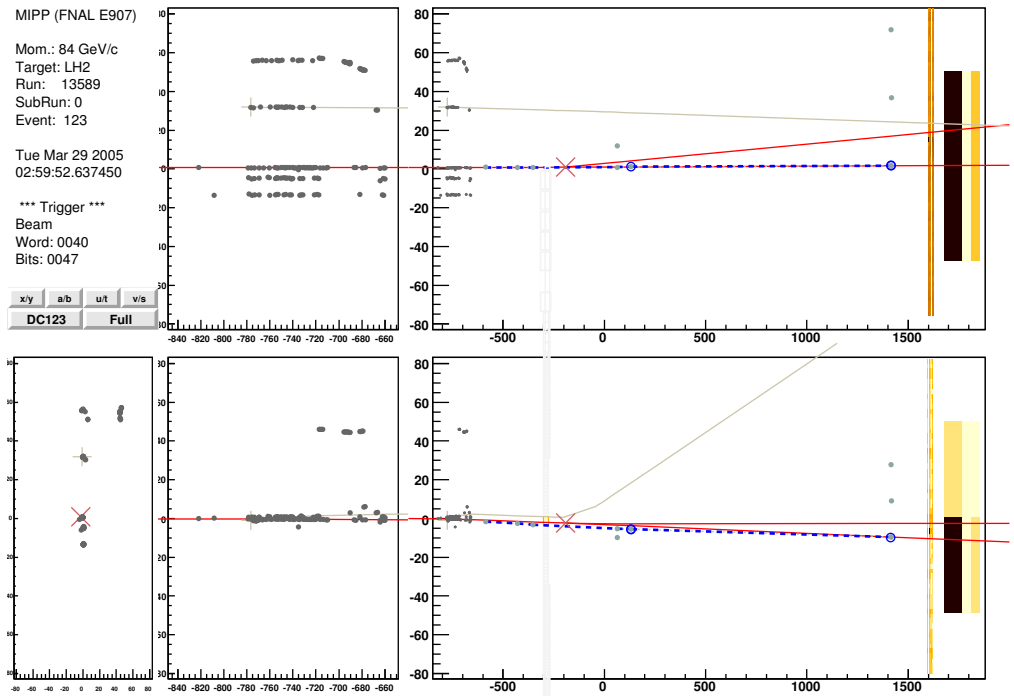
Track 2 Q=-1 T=100ns

Vertex x(cm)=(-0.0,-1.4,-695.6)

Vertex p(GeV/c)=(-0.31,0.49,137.0)

In this event the momentum measurements is more off. Q is also different.

run:13589 event:123



Info from upstream fraction of track (before vertex):

Track 1 Q=1 T=4ns

Vertex x(cm)=(-2.4,0.9,-190.8)

Vertex p(GeV/c)=(-0.24,-0.04,84.00)

Info from downstream fraction of track (after vertex):

Track 2 Q=-1 T=23ns (blue), Track 3 Q=1 T=23ns (red)

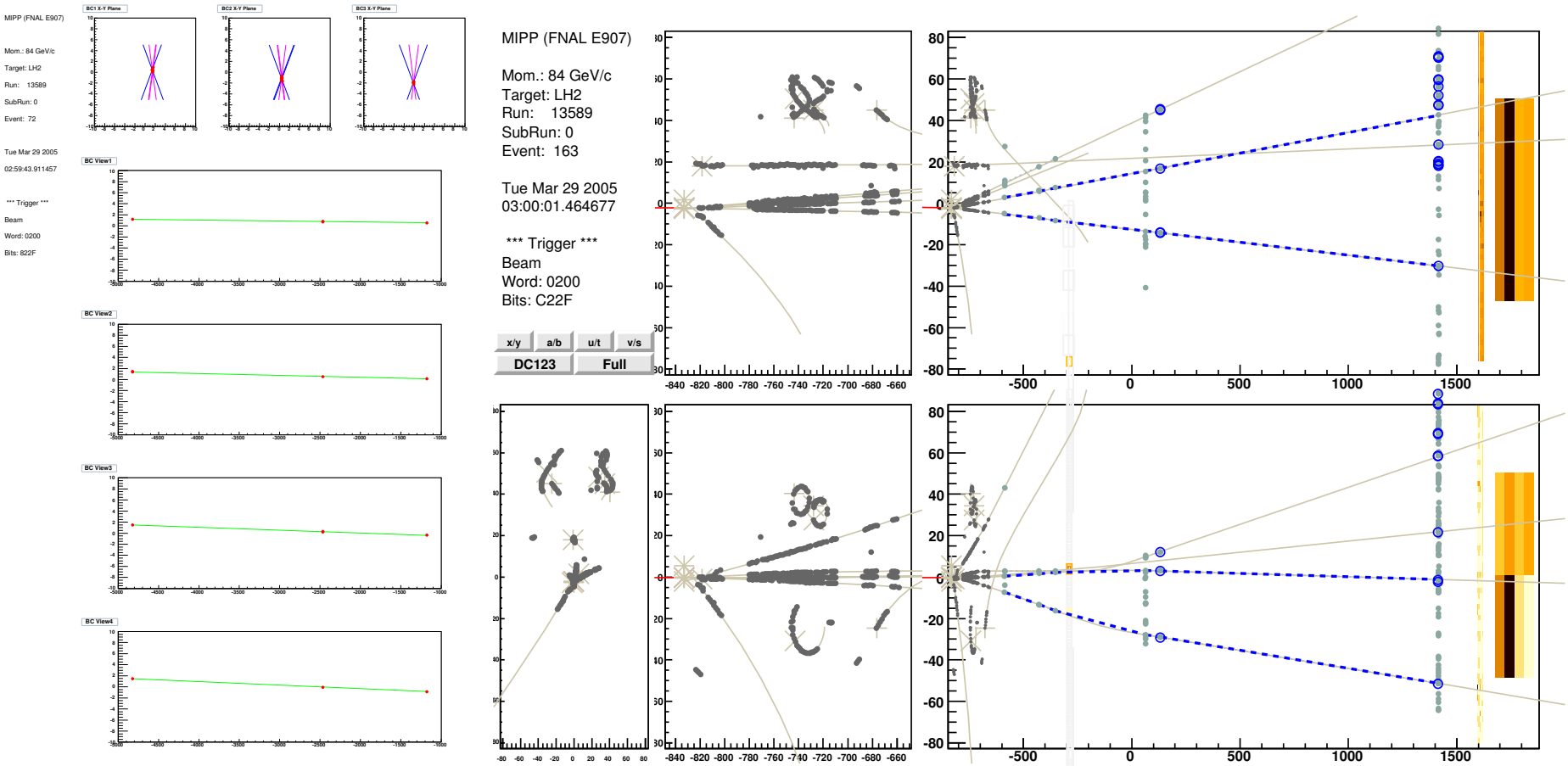
Vertex x(cm)=(-2.4,0.9,-190.8)

Vertex p(GeV/c)=(-0.99,0.13,275.17) dotted blue track

Vertex p(GeV/c)=(-0.25,0.53,53.12) red track exiting vertex

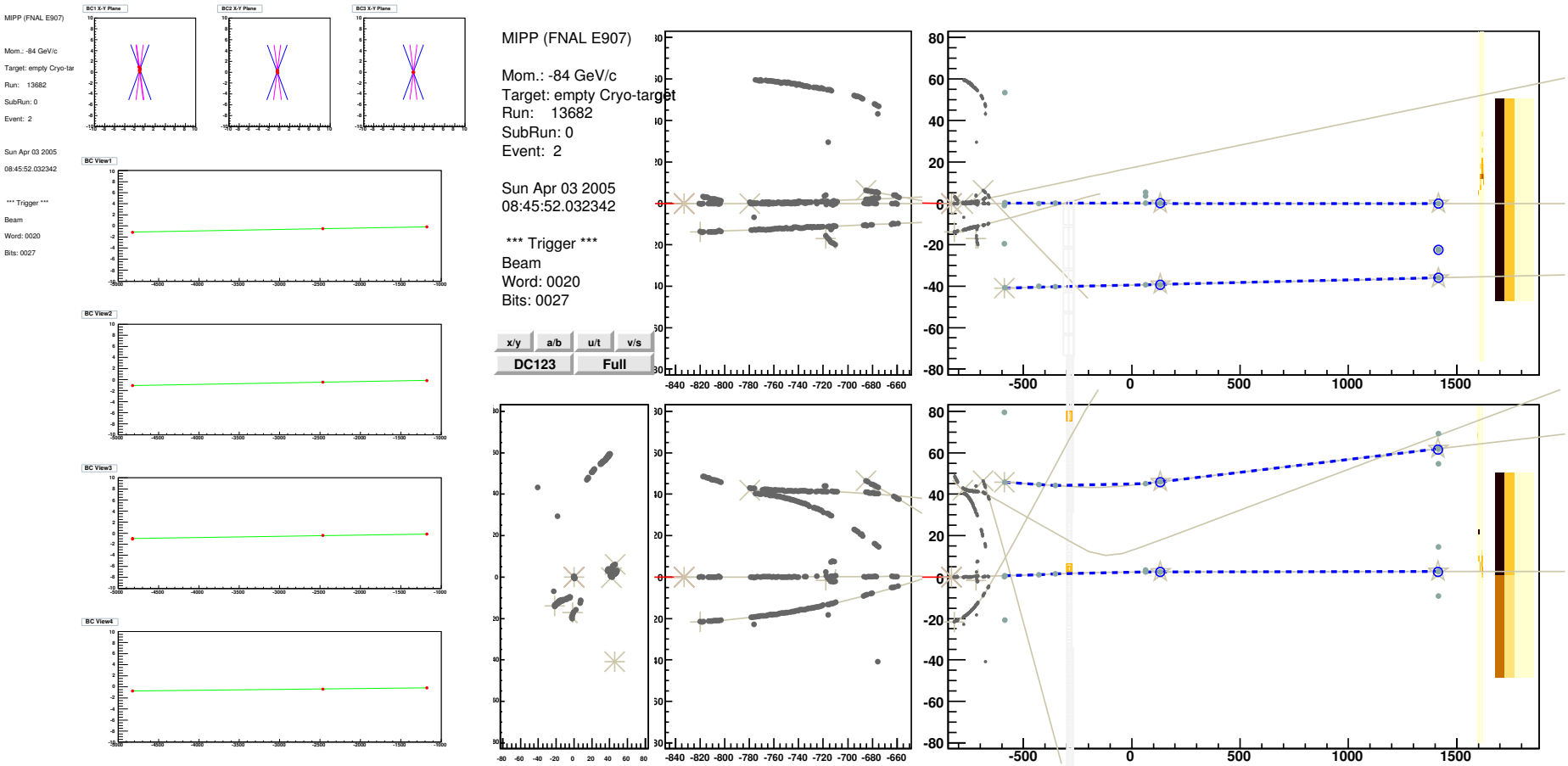
Case, when the vertex position is way off downstream.

run:13589 event:163



In this event a single beam track entering to the TPC. At least 3 gray tracks should have a match with beam. Why matching is failed? Another question: why vertex is failed? Used category: Track not associated to vertex that should have been

run:13682 event:2



This event is an example of most often failure I observed during scan (run 13589 LH2 - 7%, run 13682 empty Cryo - 23%).

Used category: Track not associated to vertex that should have been.

summary

Allowing to float the vertex position in Z direction for the single straight through track can lead to the false momentum of track. Fixing the Z position of vertex near the target can help in such cases.

I share the opinion that the scan party is useful to better understand the detectors and the track reco software. However, 200+200 events might be not sufficient.

The data I observed demonstrate that the tracking authors made a hard, titanic work. My recent findings I consider as a minor job to fix. I feel that the MIPP members want to express our gratitude to the tracking authors: Andre and Jon. Do I miss anyone?