

Reconstruction chain issues

Data sets:

- 1) UrQMD, Au+Au, 8 GeV, ClusterFinderMLEM tracking
- 2) BOX, leptons + light nuclei, HitProducer tracking
- 3) UrQMD, Au+Au, 11 GeV, HitProducer tracking (2015 y)

Set of cuts:

Primary tracks (from Geant)

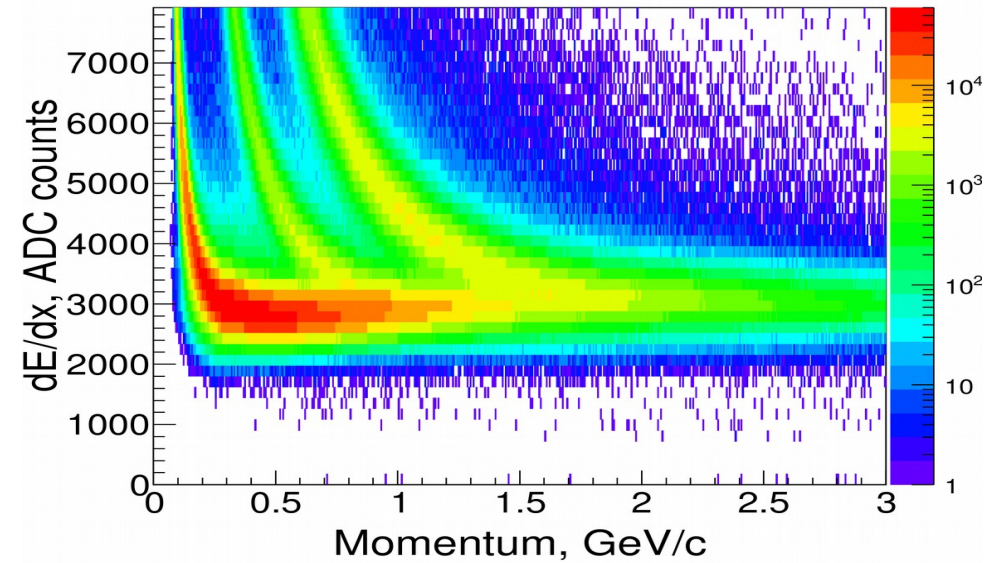
$n\text{Hits} > 20$

$|\eta| < 1.6$ (from Geant)

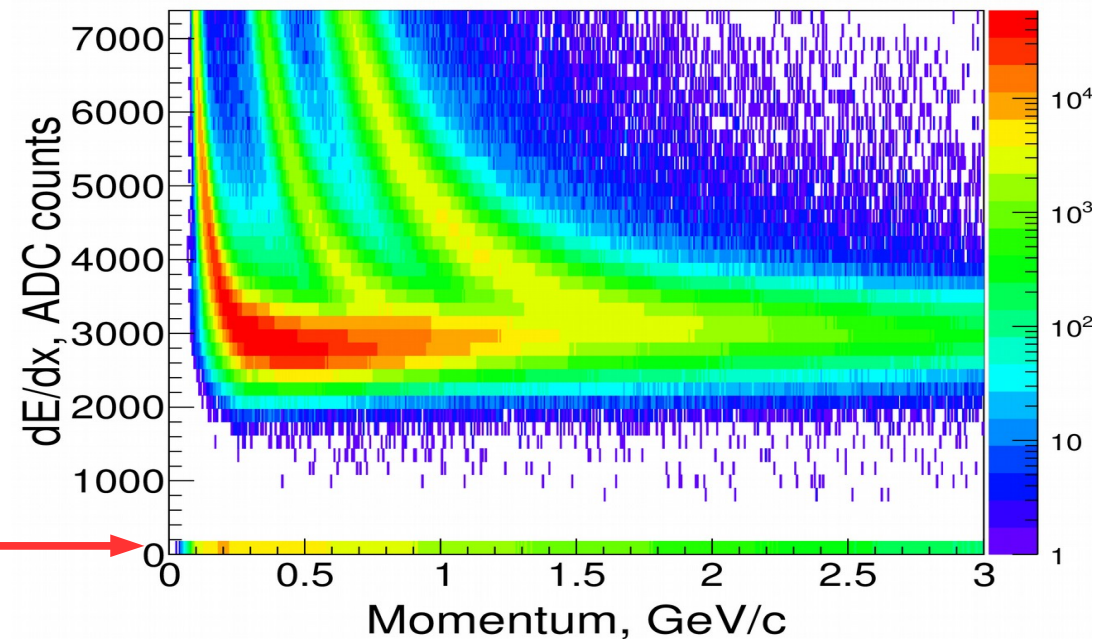
dE/dx VS p

UrQMD, ClusterFinderMLEM tracking

dE/dx from kalmanTrack



dE/dx from mpdTrack

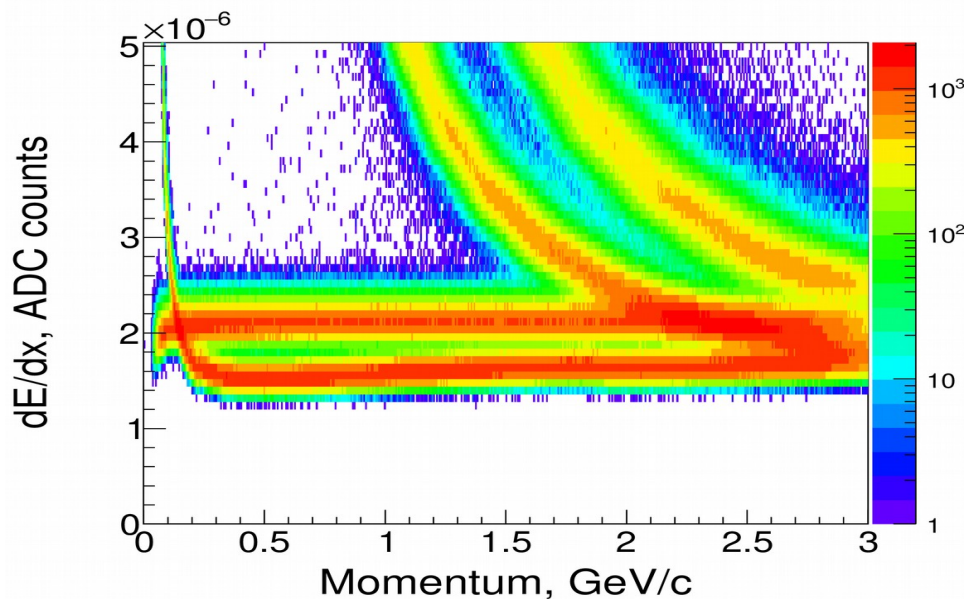


We expect same dE/dx distributions for the KalmanTrack and mpdEvent branches. But ~4% of tracks in MpdEvent branch has dE/dx = 0.

dE/dx VS p

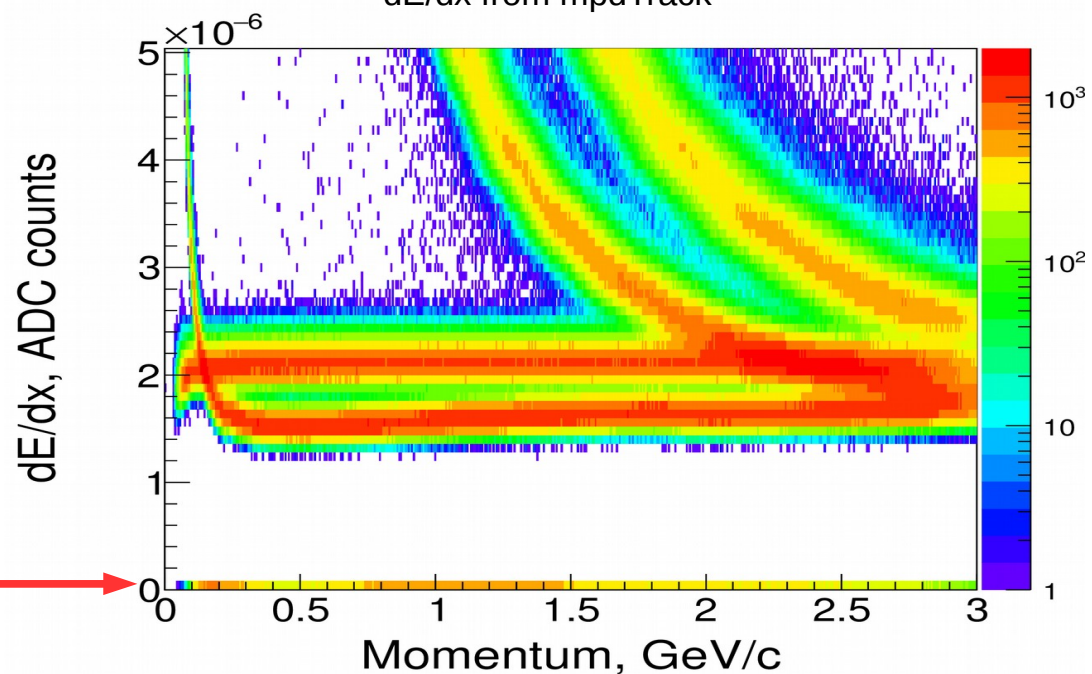
BOX, HitProducer tracking

dE/dx from kalmanTrack



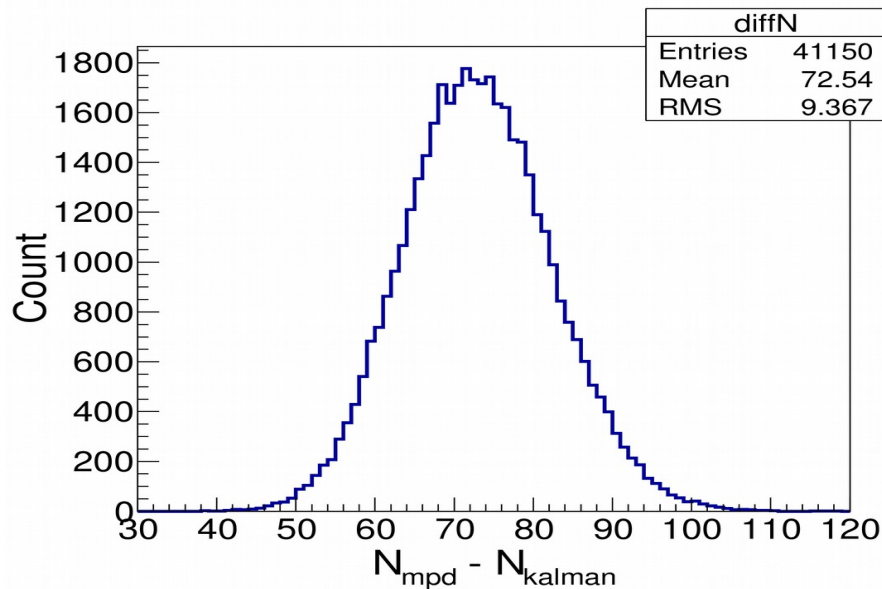
We did again this estimation for the BOX + HitProducer tracking data set. About 2% of tracks in MpdEvent branch have dE/dx = 0.

dE/dx from mpdTrack

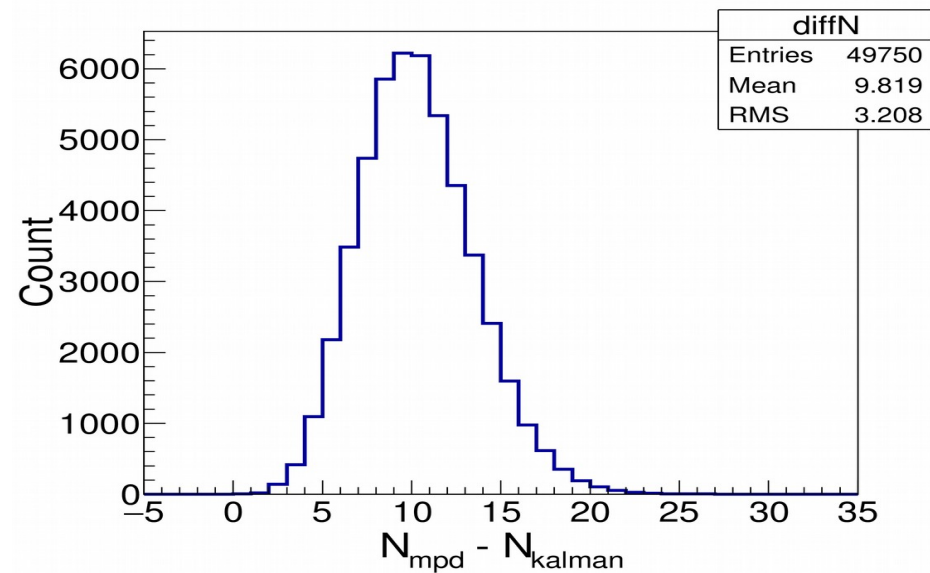


Difference of the numbers of tracks

UrQMD, ClusterFinderMLEM tracking



BOX, HitProducer tracking

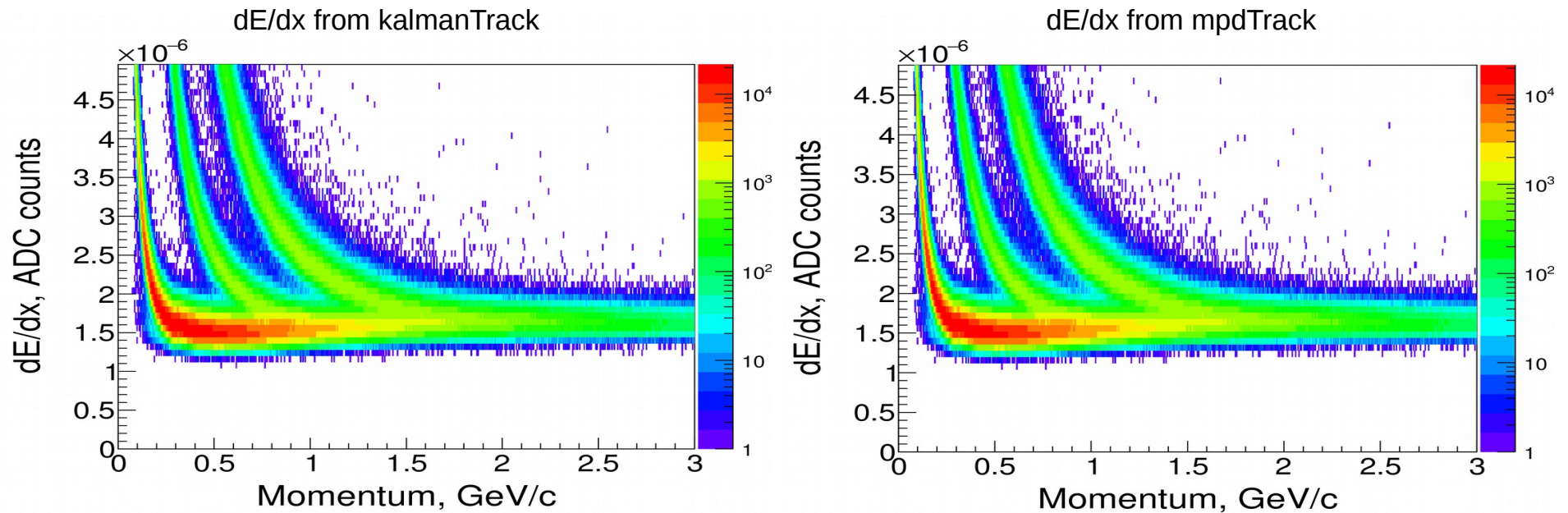


Number of mpdTracks is more than number of kalmanTracks

- ~ 210 mpdTracks per event in BOX data sample (~5% are „fake“)
- ~ 1000 mpdTracks per event in UrQMD data sample (~7% are „fake“)

dE/dx VS p

UrQMD, HitProducer tracking (2015 y)



We don't see this effect in UrQMD + HitProducer data sample which was made in 2015 year

Additional facts and conclusion

There's two additional facts about fake tracks:

- 1) Some of „fake“ tracks have $dE/dx = 0$
- 2) Problem is not connected with the track splitting

Questions:

- 1) Should the numbers of kalman and mpd tracks be equal?
- 2) What is stored in the „fake“ tracks?
- 3) How to remove these tracks?

Conclusion:

We don't understand how mpdEvent branch is filled.
Actually we can not trust and use these data.