ECAL alignment

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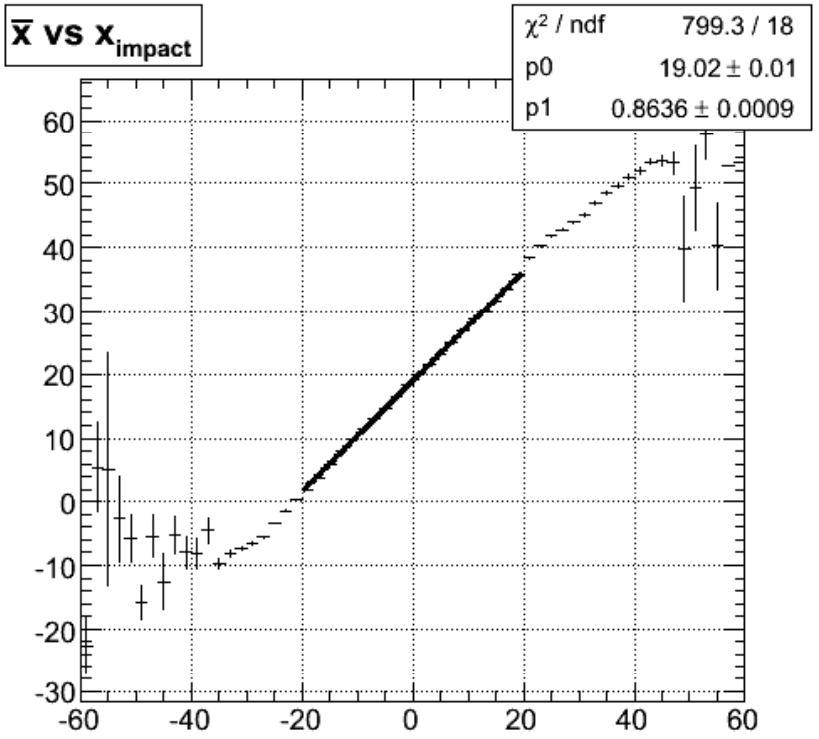
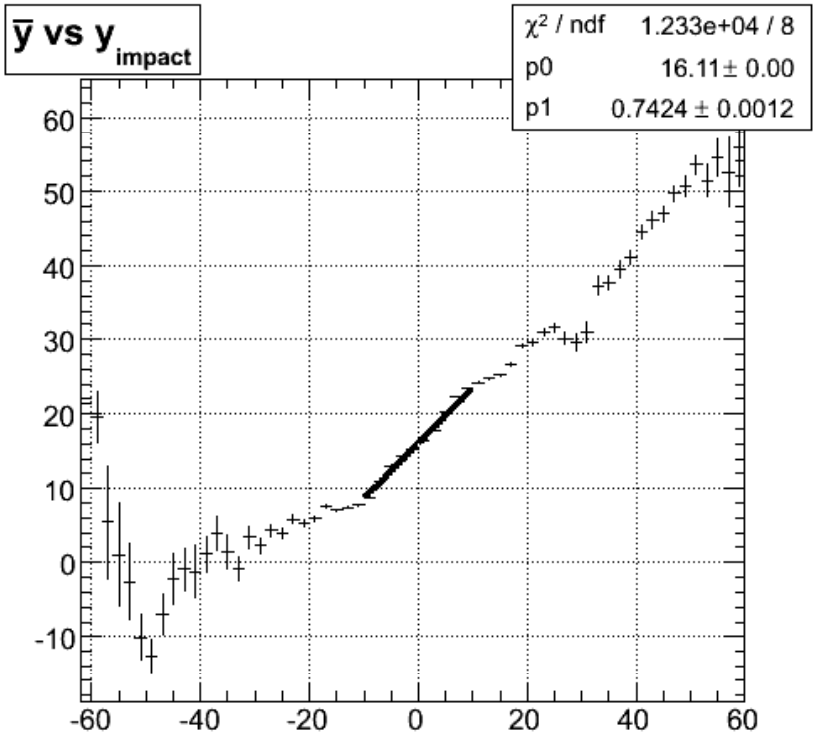
- A few thoughts about ECAL alignment
- And related issue of the drift velocity of the tracking
- No answers – feedback appreciated

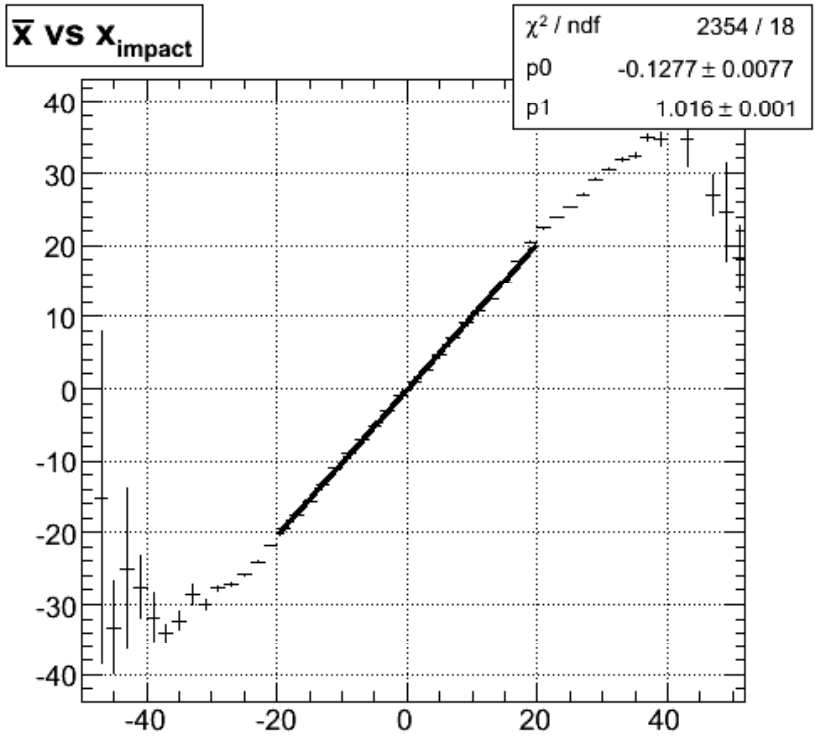
2006 approach

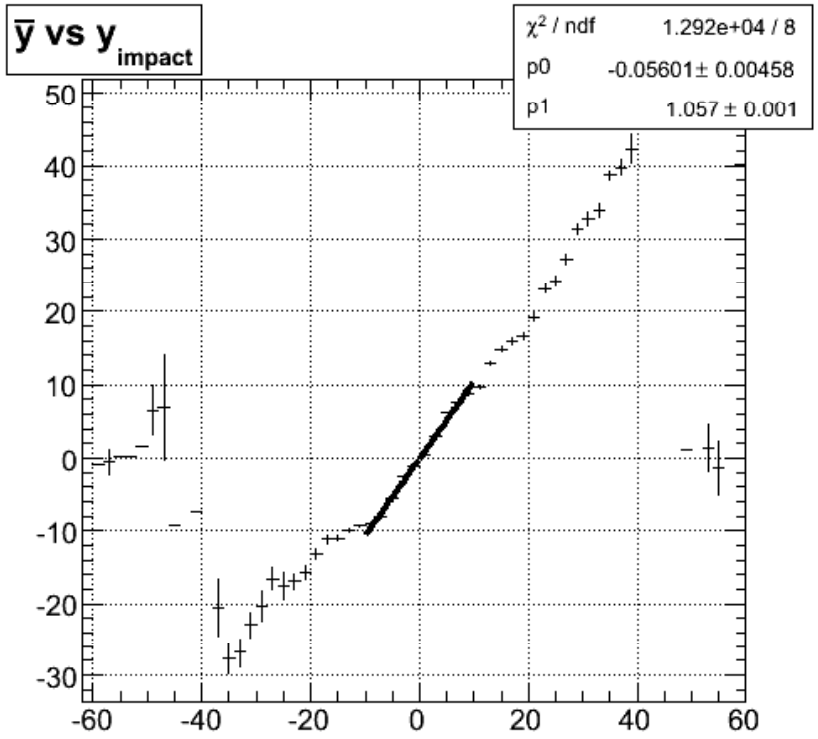




- Apply to 2007 data (run 300428; 50 GeV e^-)
- Intercept at x(track)=0 gives ECAL offset
- Gradient gives correction to drift velocity (assuming 1cm pitch of ECAL is accurate)

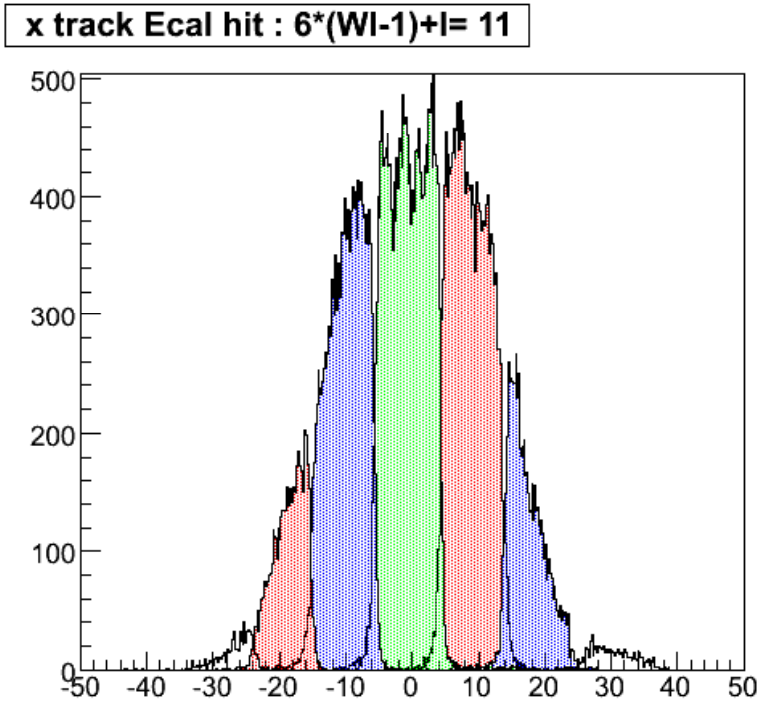
After correction

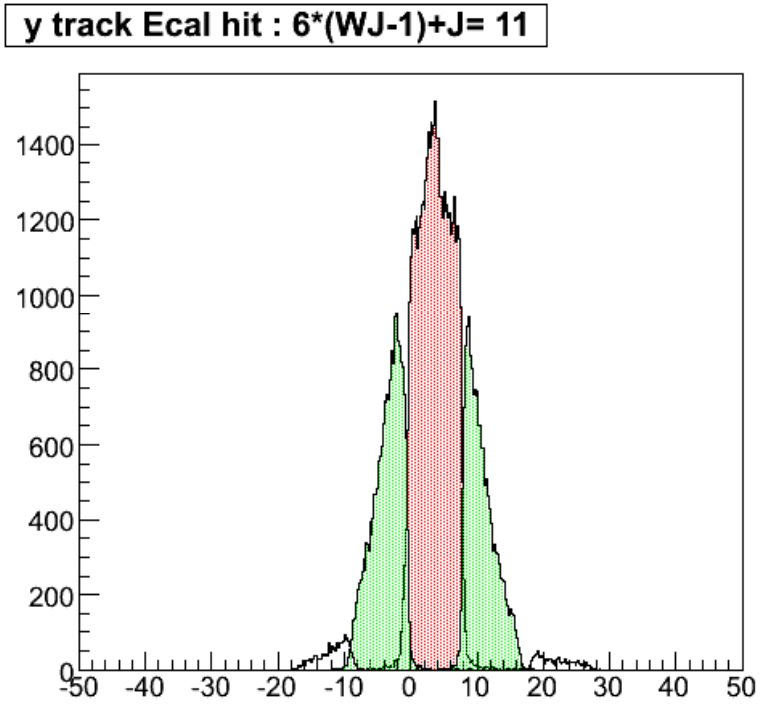




- Offset has been corrected to ~0.1 mm (good enough?)
- Gradient overshoot; especially in y (n.b. S-distortions).
- Is there a better way of getting the drift velocity?

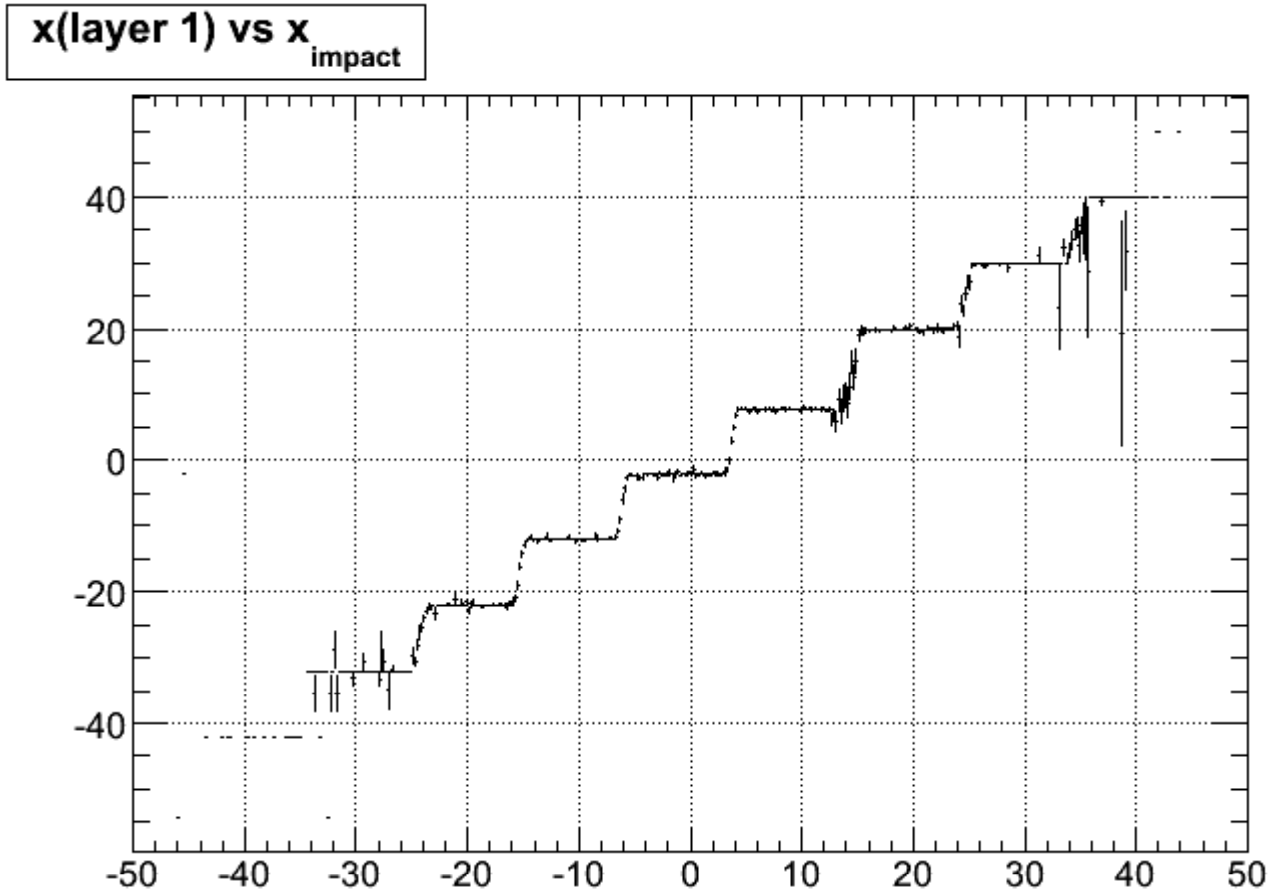
Track position vs pad index in layer 1





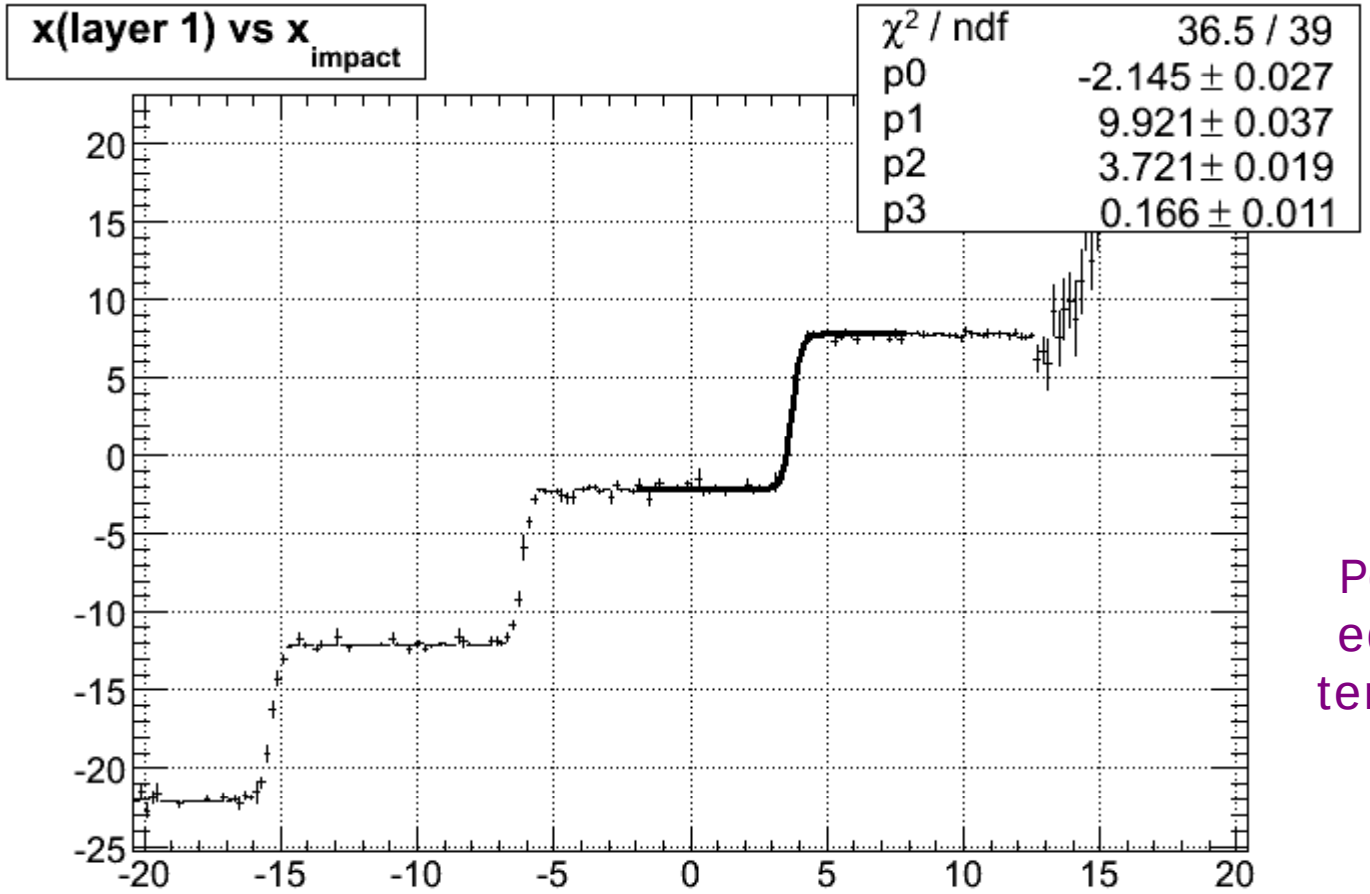
- Consider events with just a single hit in first layer
- For each cell index in x (or y) plot x (y) of extrapolated track
- Identify coordinates of cell edges
- Plots shown for Run331298 (30 GeV π^+)

Possible way to do this



<x> of ECAL cell vs x(track)
Run330428 50 GeV e^-

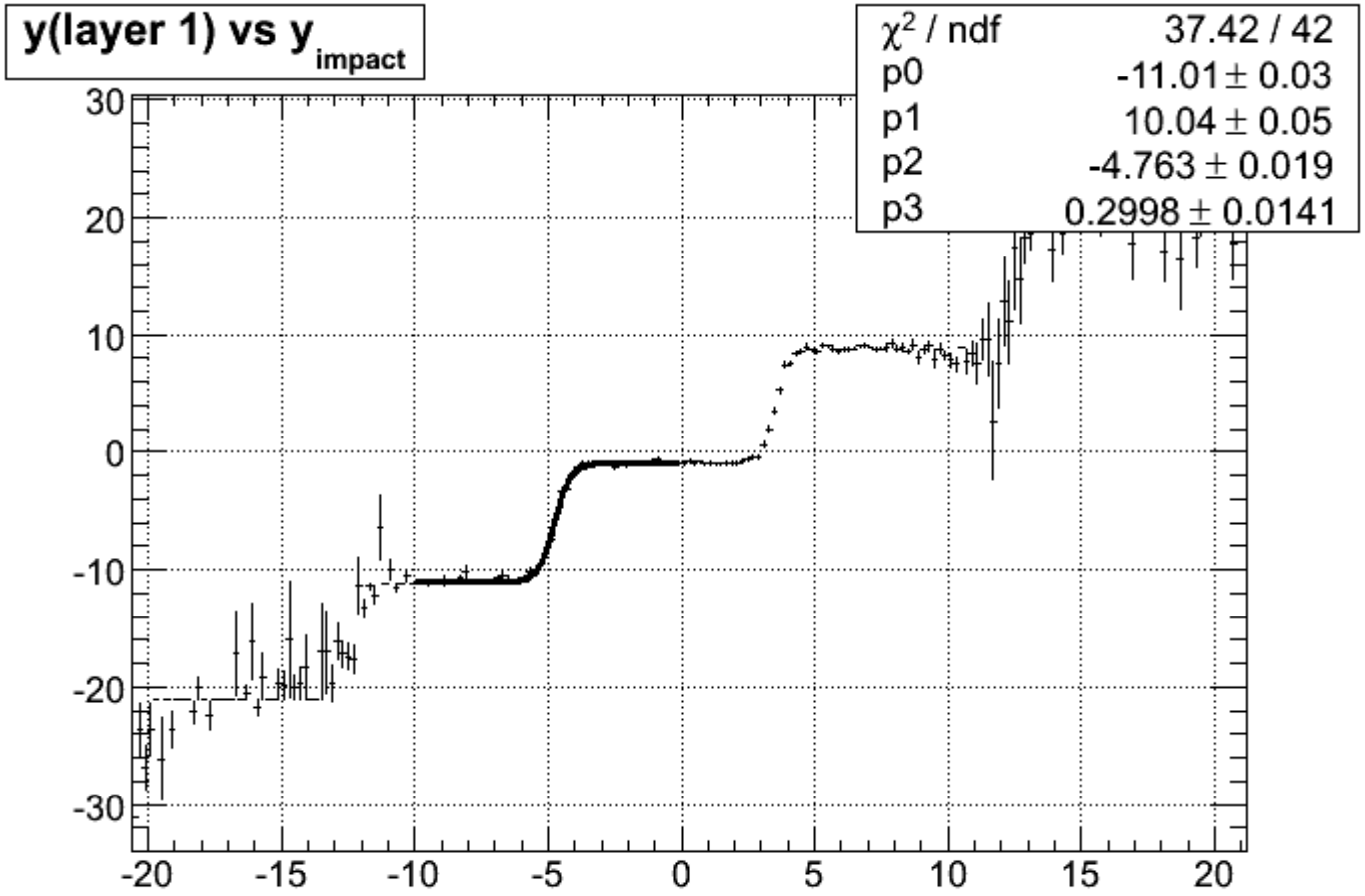
Fit Fermi function to extract parameters



Cell width
Edge position

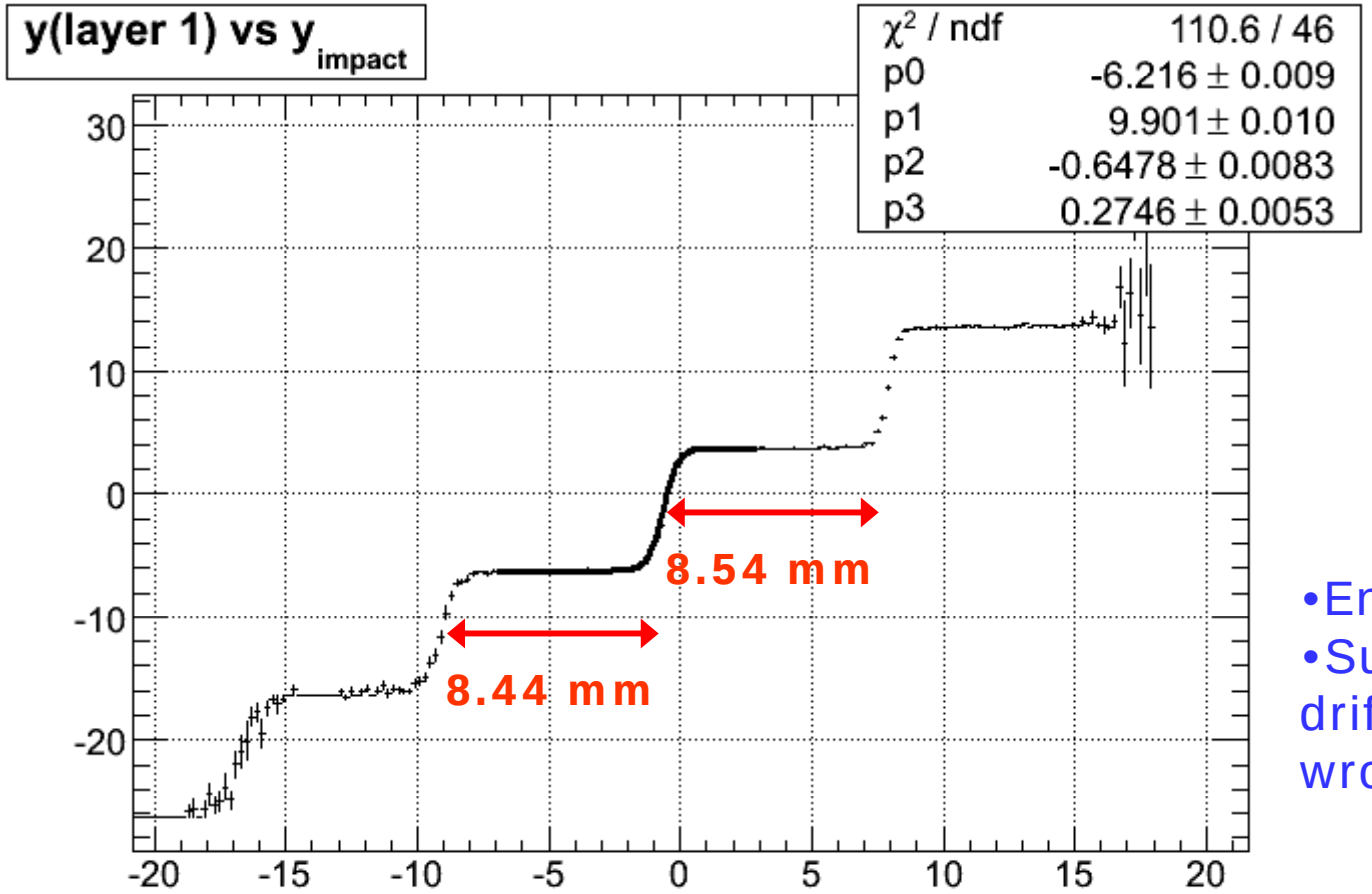
Potential to fix edges to a few tens of microns?

Likewise in y



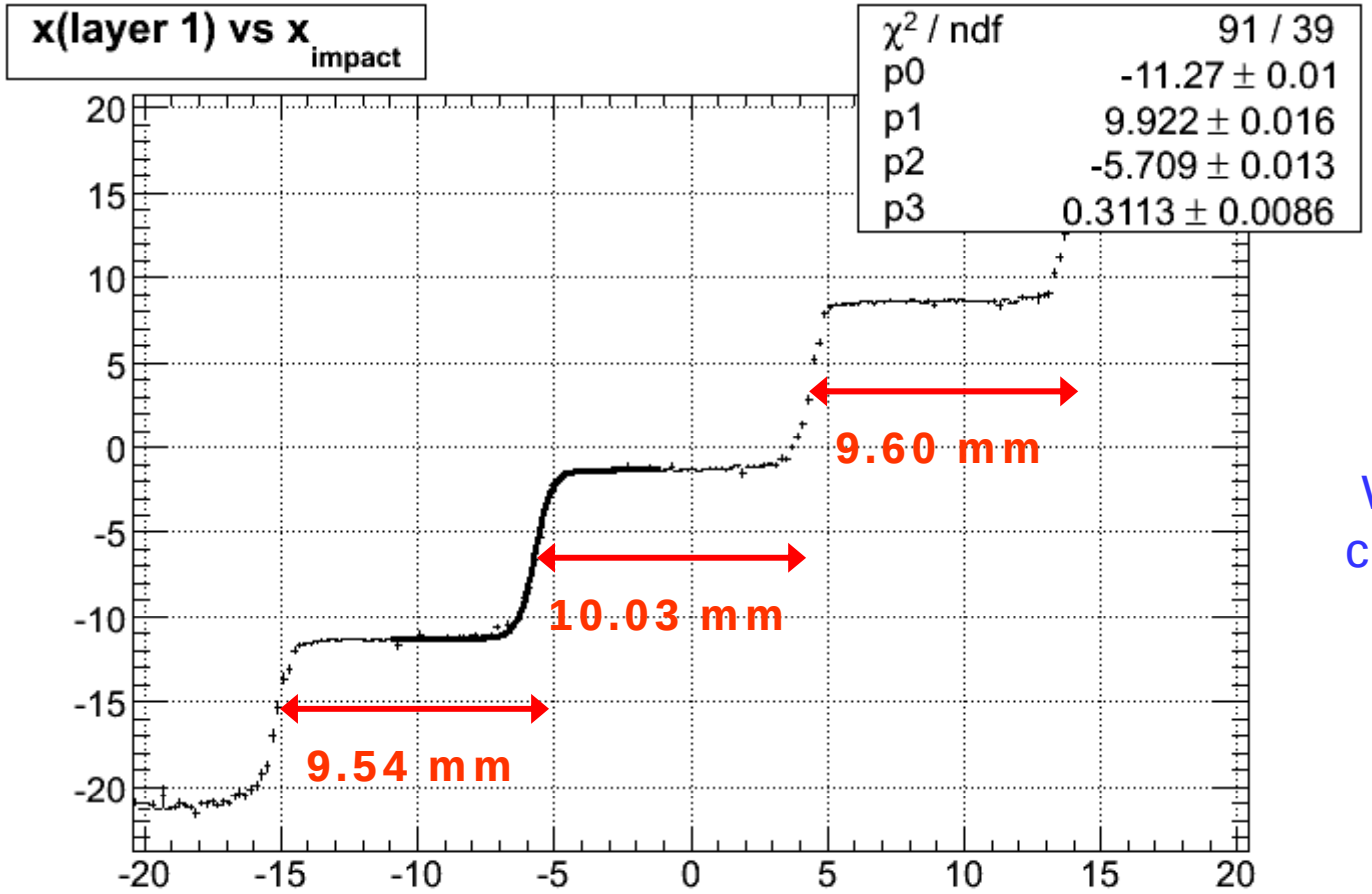
Cell width
Edge position

y: Run331298 30 GeV π^+



- Encouraging
- Suggests drift velocity wrong by 15%

x: Run331298 30 GeV π^+



Why not constant?