

# Japanese Test Beam 2012 Preliminary Analysis

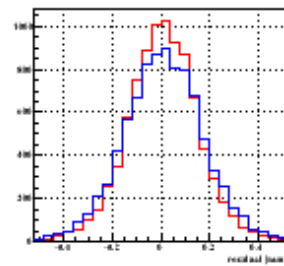
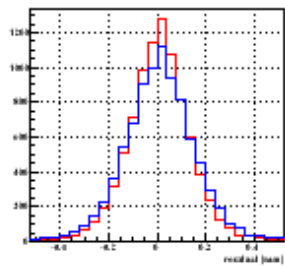
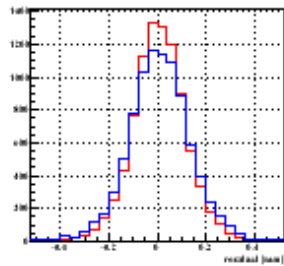
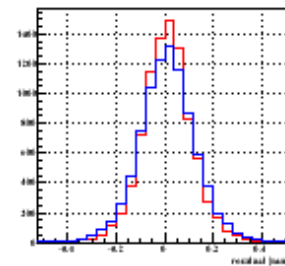
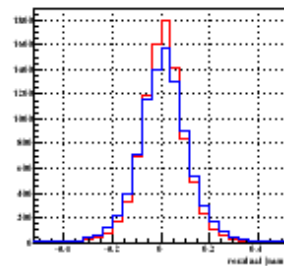
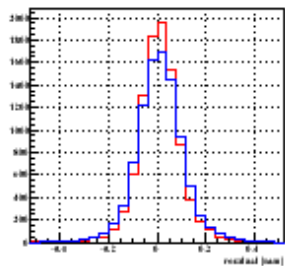
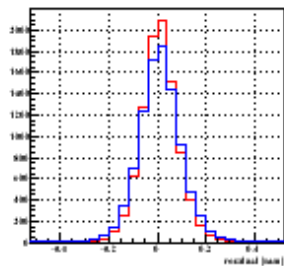
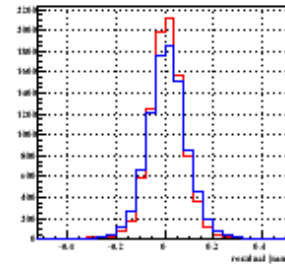
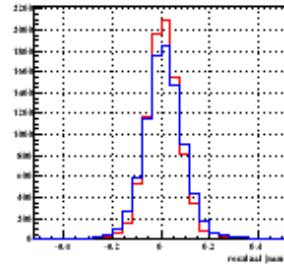
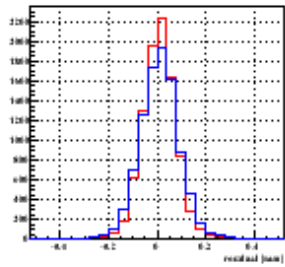
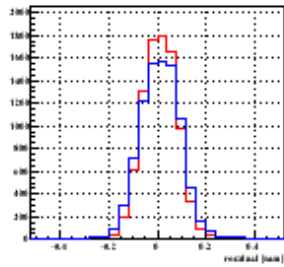
# Outline

- The Data
  - Limited, due to traveling computer
- Preliminary results
  - Distortions
  - Resolution vs drift
- Main issues
  - Charge vs drift

# The Data

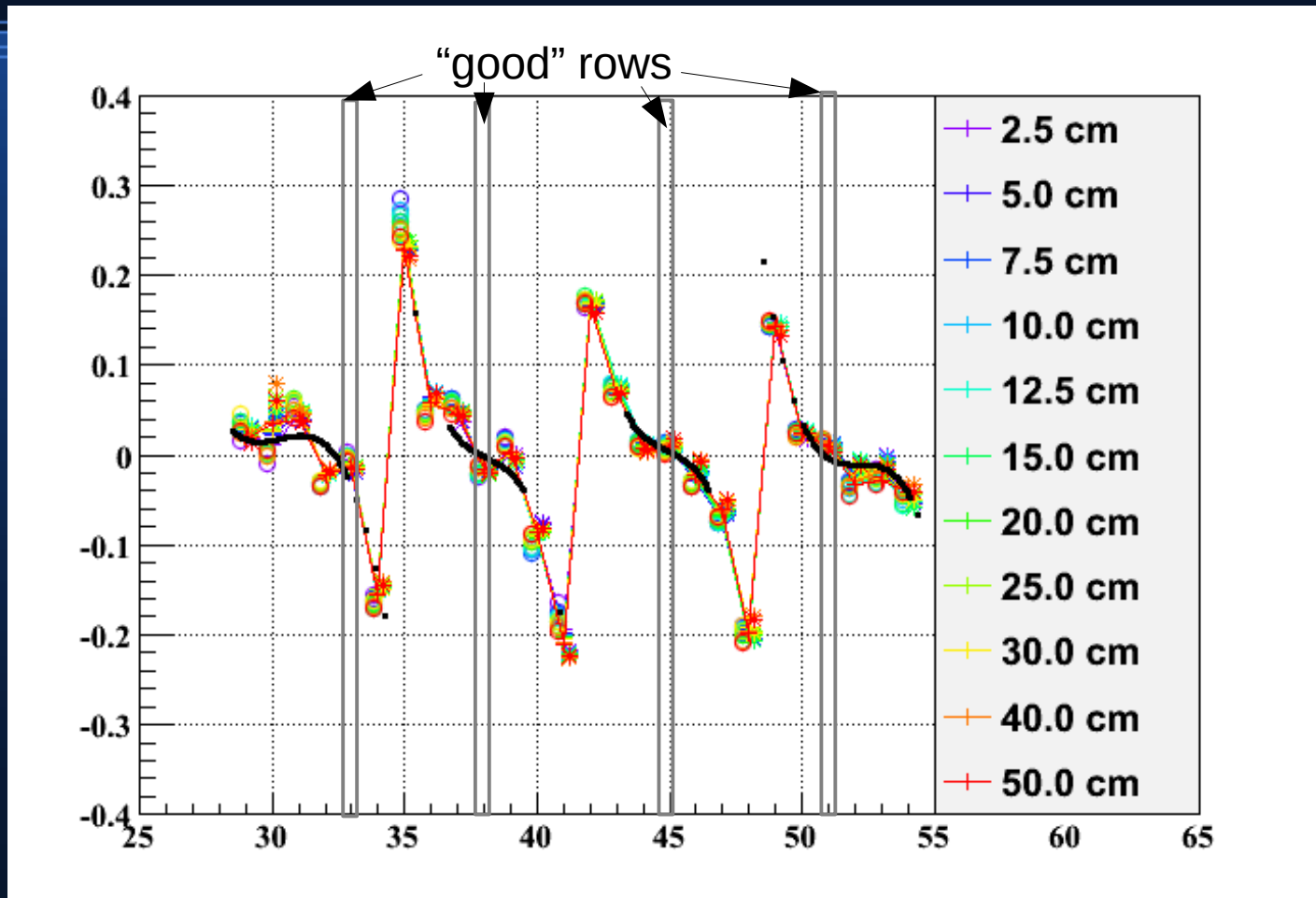
- One data set: Z scan, 2.5 modules, 20,000 events/run
  - 11 runs,  $z=2.5$  to 50 cm
- Updated GEAR file (from pad plane measurements)
- Reconstructed with MarlinTPC
  - Tracking with TrackMakingKalmanFilterProcessor
- Only track hits information
  - Data reconstructed in DESY
- Track selection:
  - 1 track in event
  - Momentum cut (drift dependent for consistent efficiency, to be better understood)

# Residuals



Fit  
with/without  
row

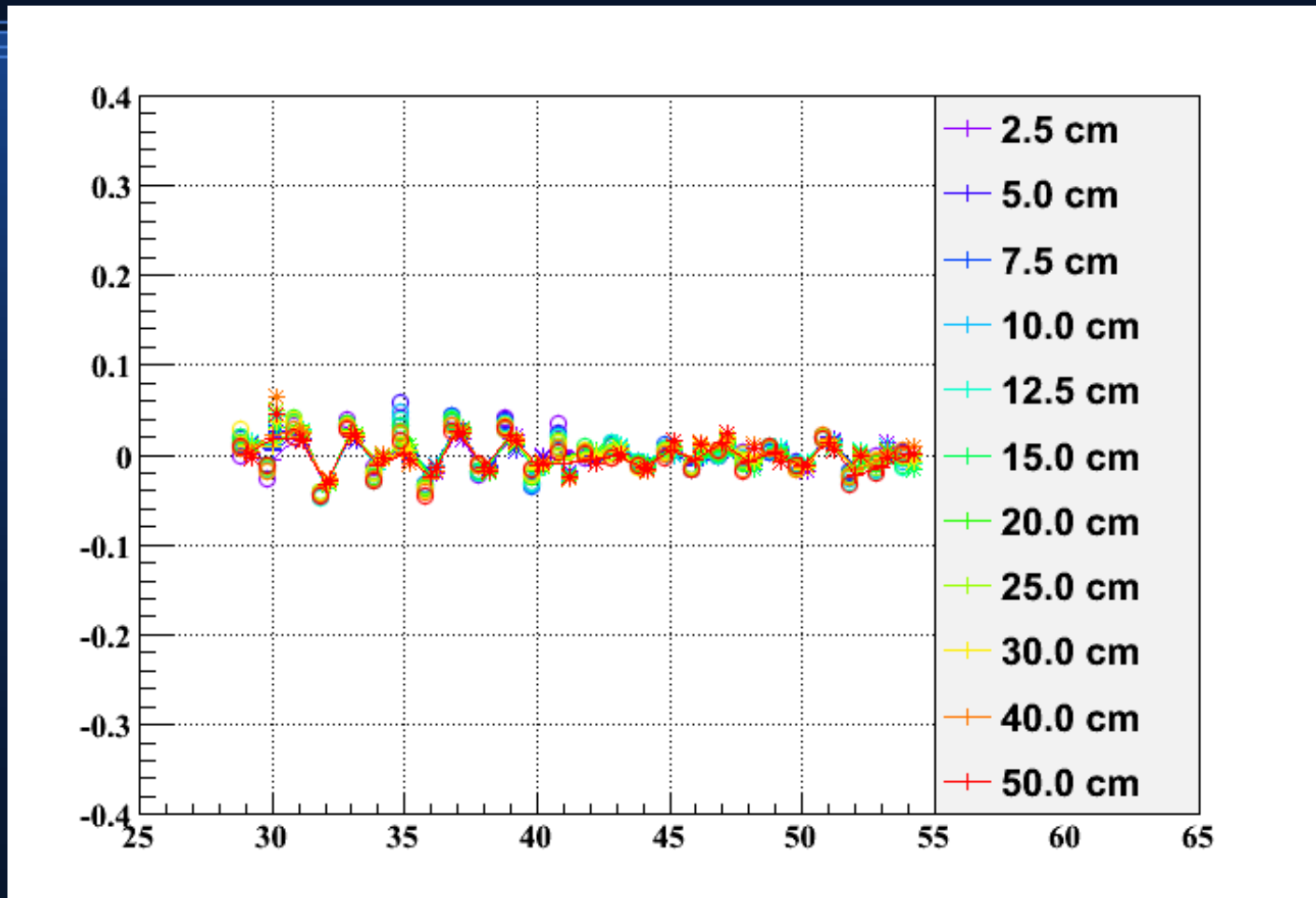
# Distortions



Large distortions between GEM plates

The distortions do not depend on the drift length

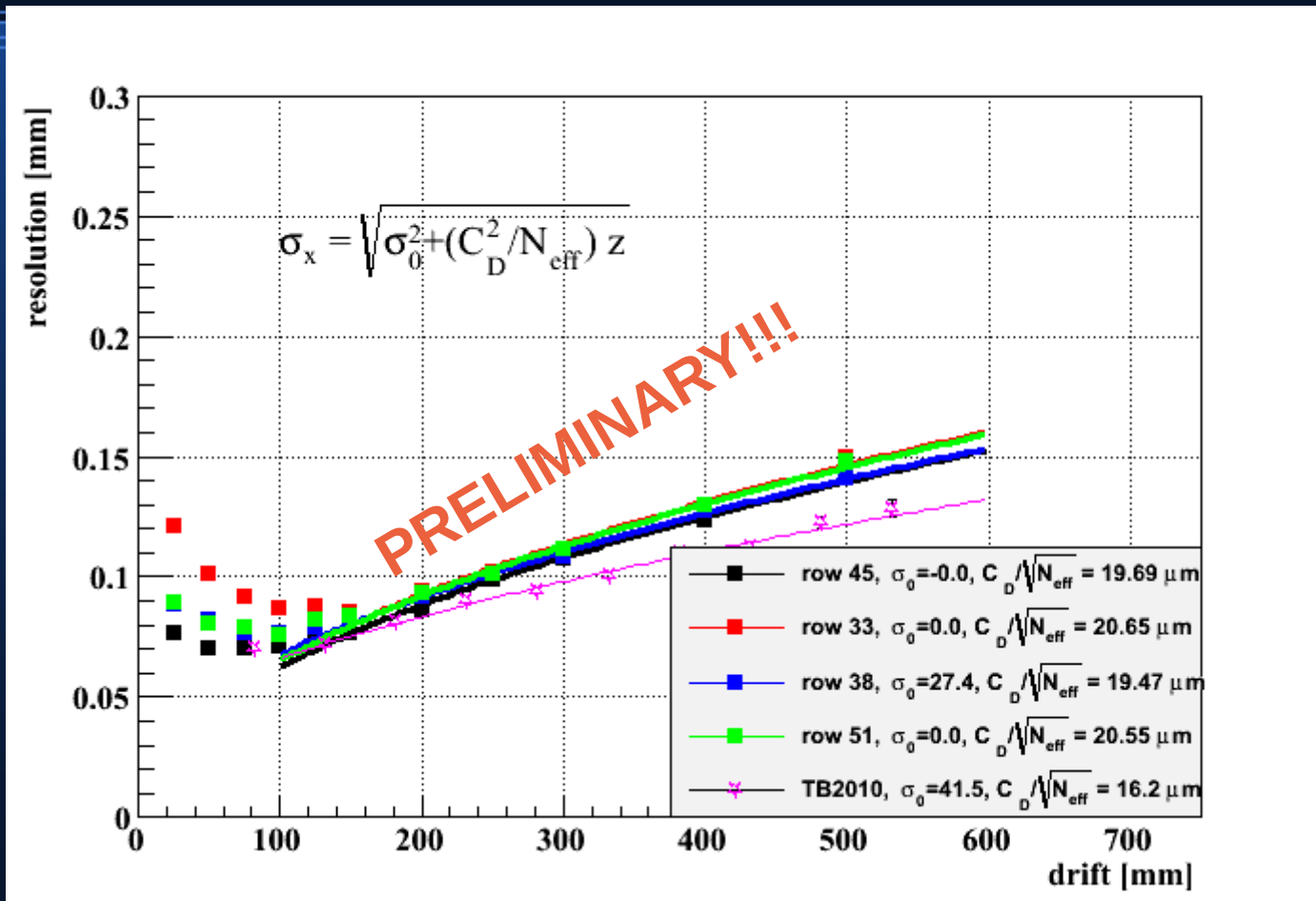
# Distortions



Naive correction (subtract polynomial fit)

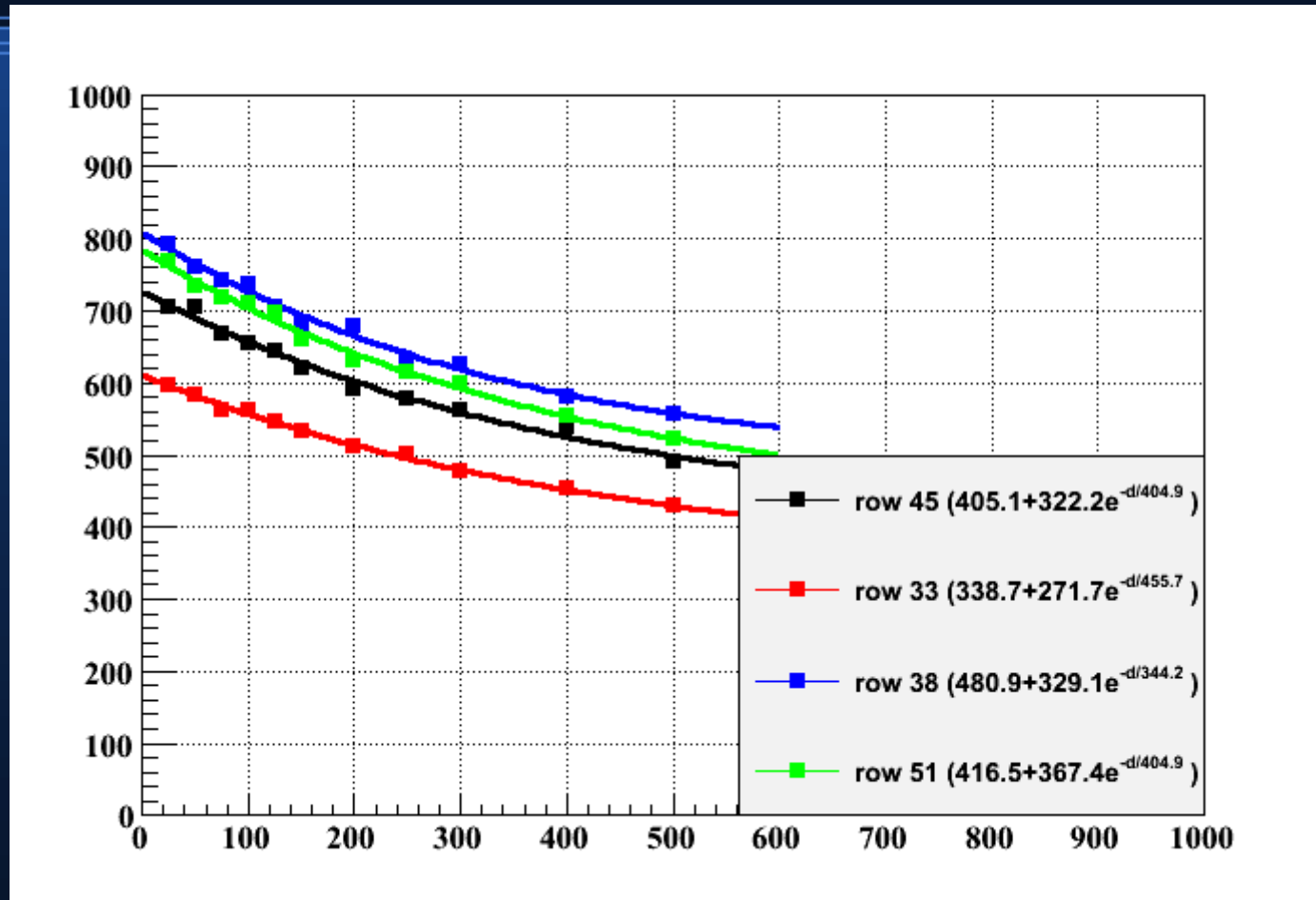
There is a remaining structure (still GEAR file?)

# Resolution



The resolution is not as good as in 2010 (lower gain, higher noise?)  
However, the fit does not look good ( $\sigma_0^2 < 0$ )

# Main issue: Charge vs drift



The effect did not seem to depend on O2 content  
Possibly due to clustering cutting tails because of high noise  
Has to be investigated on raw data

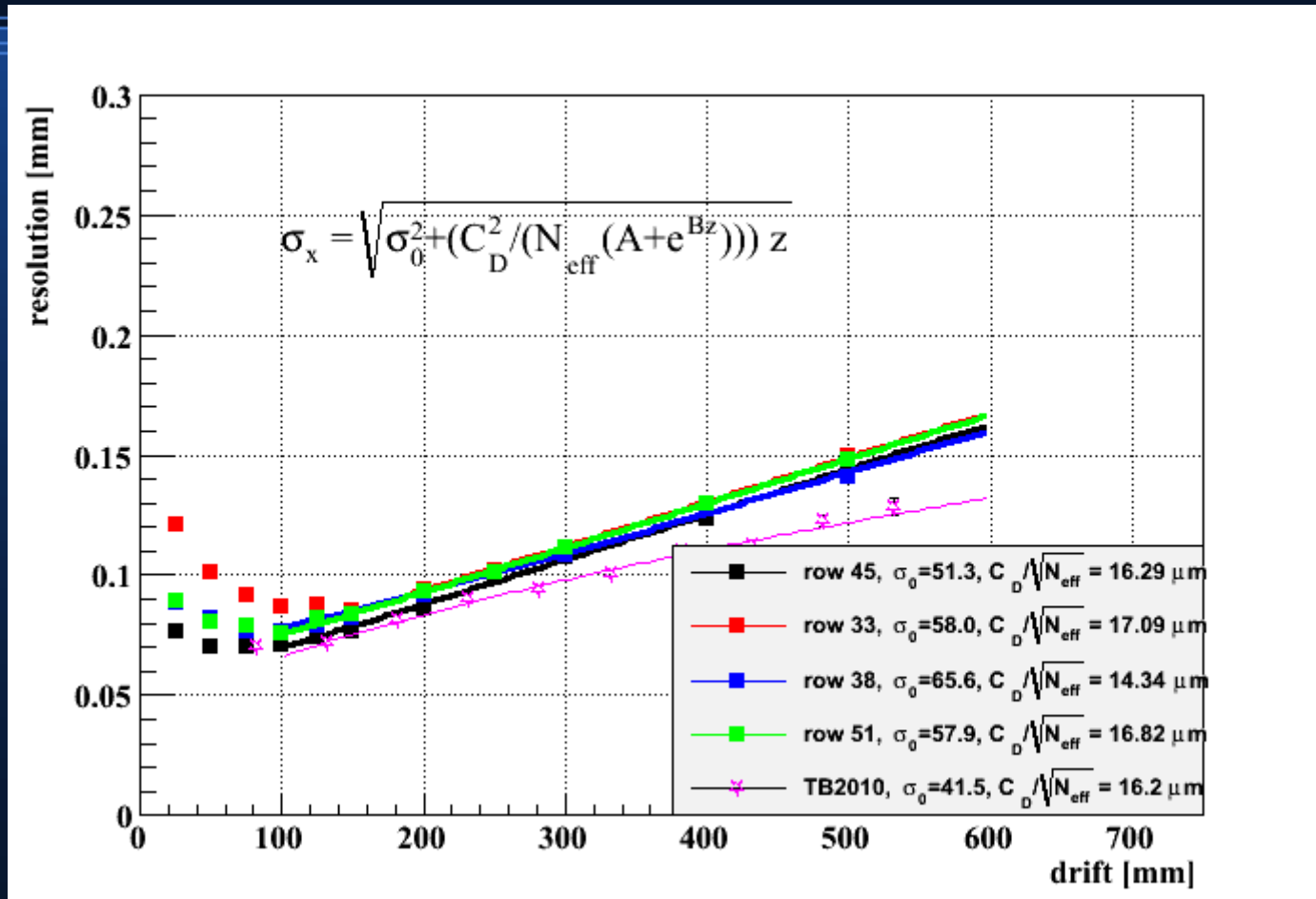


# Outlook

- The data looks promising in spite of a missing  $\frac{1}{2}$ module
- GEAR file has been improved
- The resolution looks good, but needs to be better understood
- Analysis computer, with data, coming back
- Analysis meeting next week to start more serious analysis

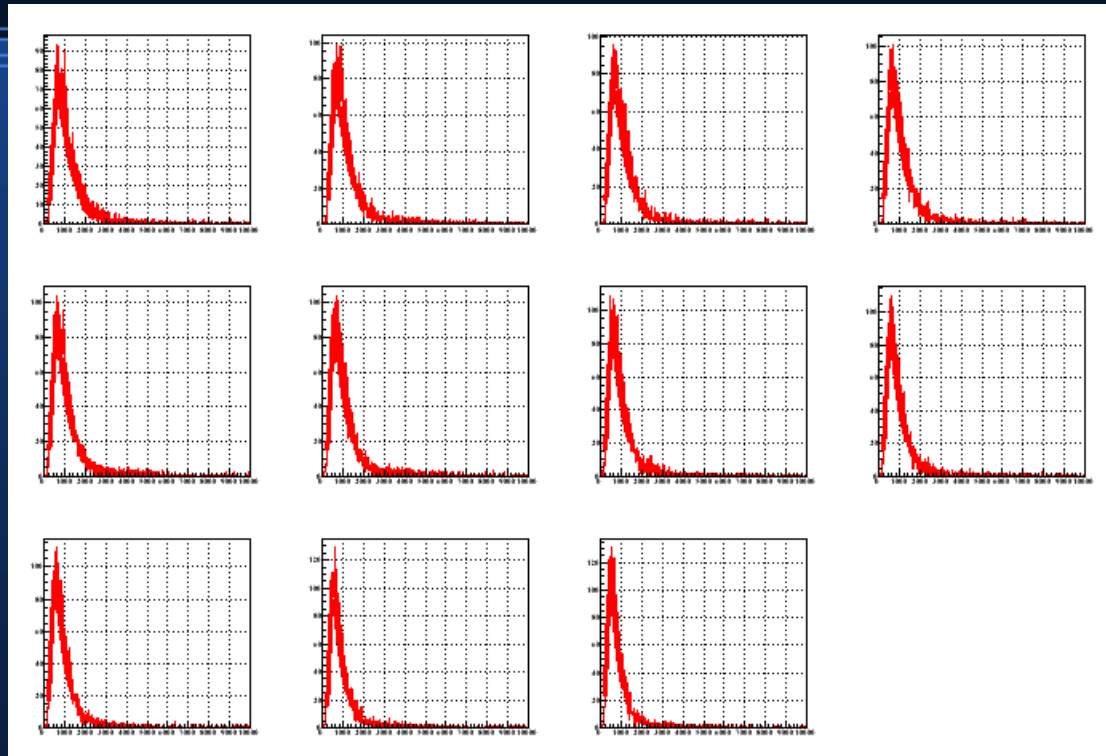
Backup

# Corrected resolution?



If we assume the charge decay correspond effectively to a loss of electrons (e.g. O2 absorption),  $N_{eff}$  and  $\sigma_0$  are very similar to 2010

# Main issue: Charge vs drift



The hit charge distributions look OK (~Landau)