

Where's the Ecal, part II?

Norman Graf (SLAC)

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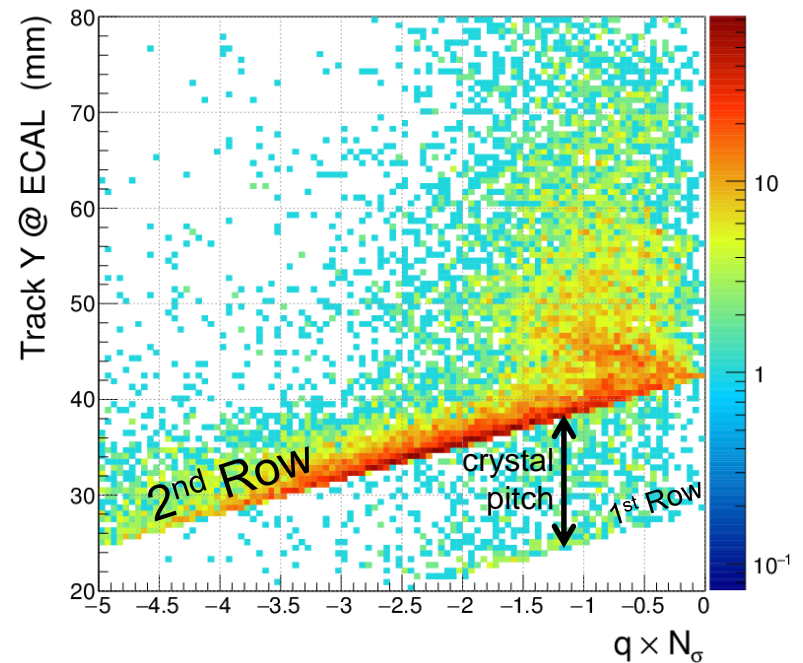
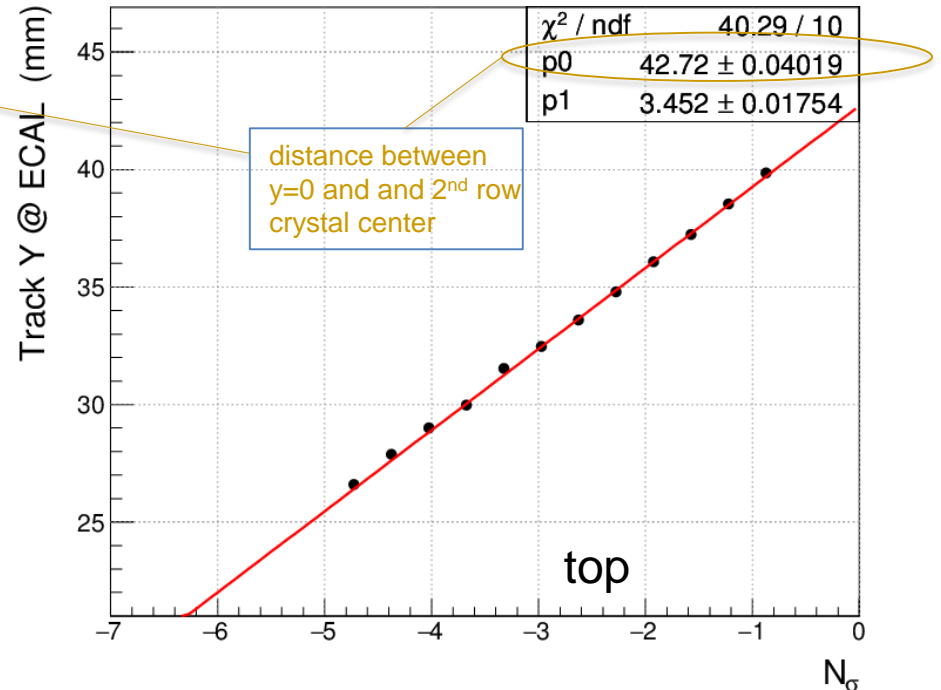
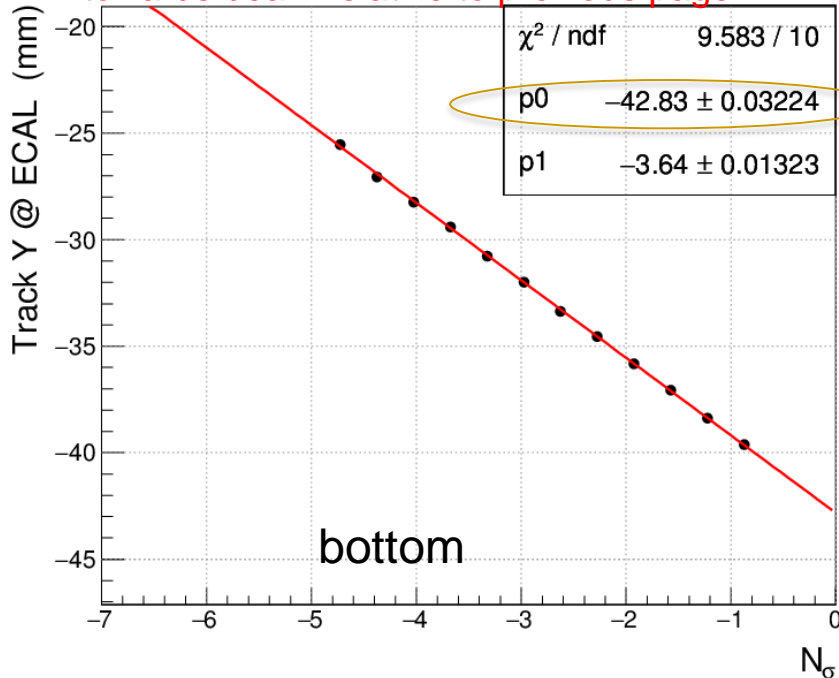
SVT/ECAL Y-Misalignment

A more precise way to measure it.

Use fact that lowest possible reconstructed ECAL position is half-crystal from edge.

Then sharp drop off in y is just middle of 1st/2nd row, and their y-intercept ($N_\sigma=0$) is crystal center.

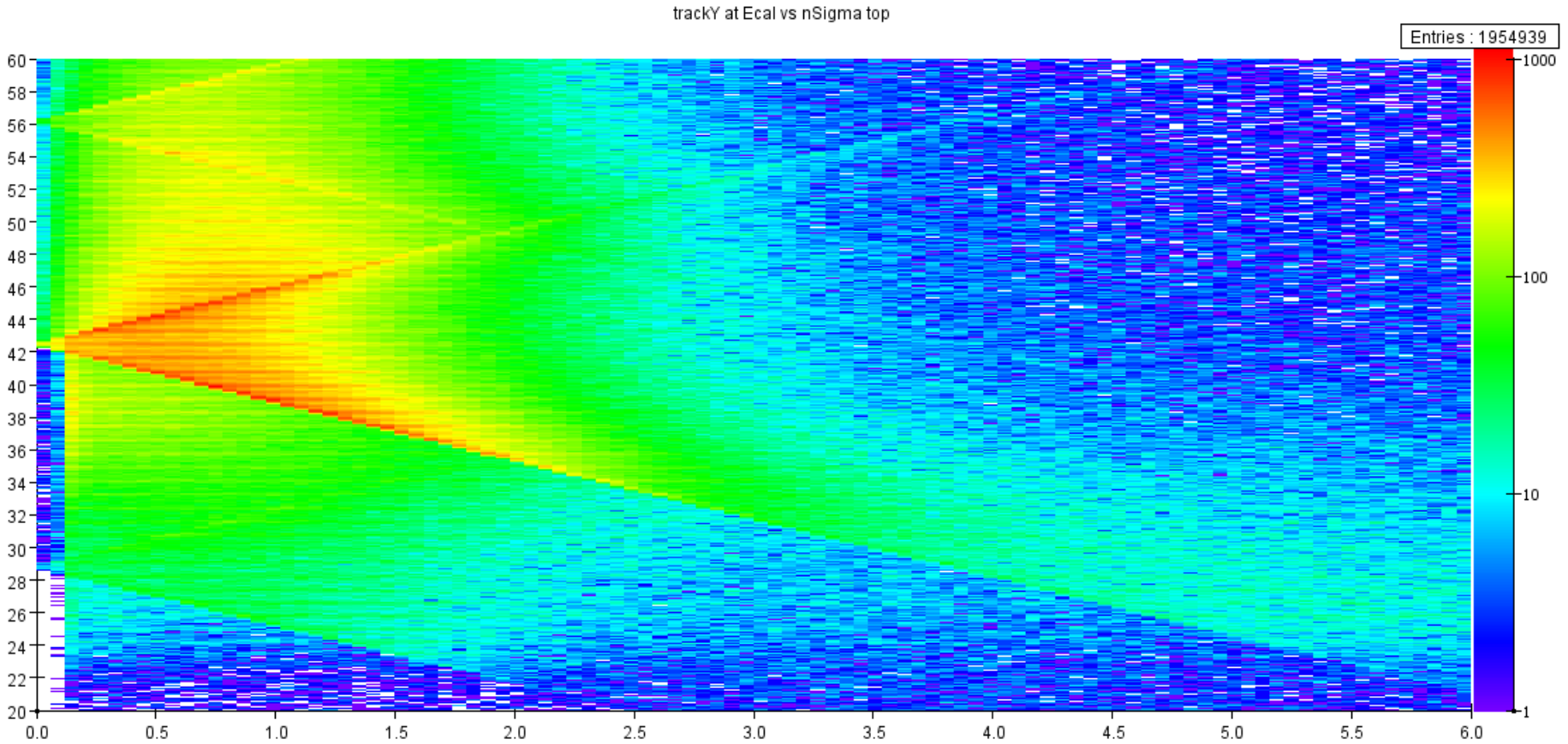
Result is again very symmetric 22.3/22.4 mm ECAL beam gaps for top/bottom, with half-mm shift towards beam relative to previous page.



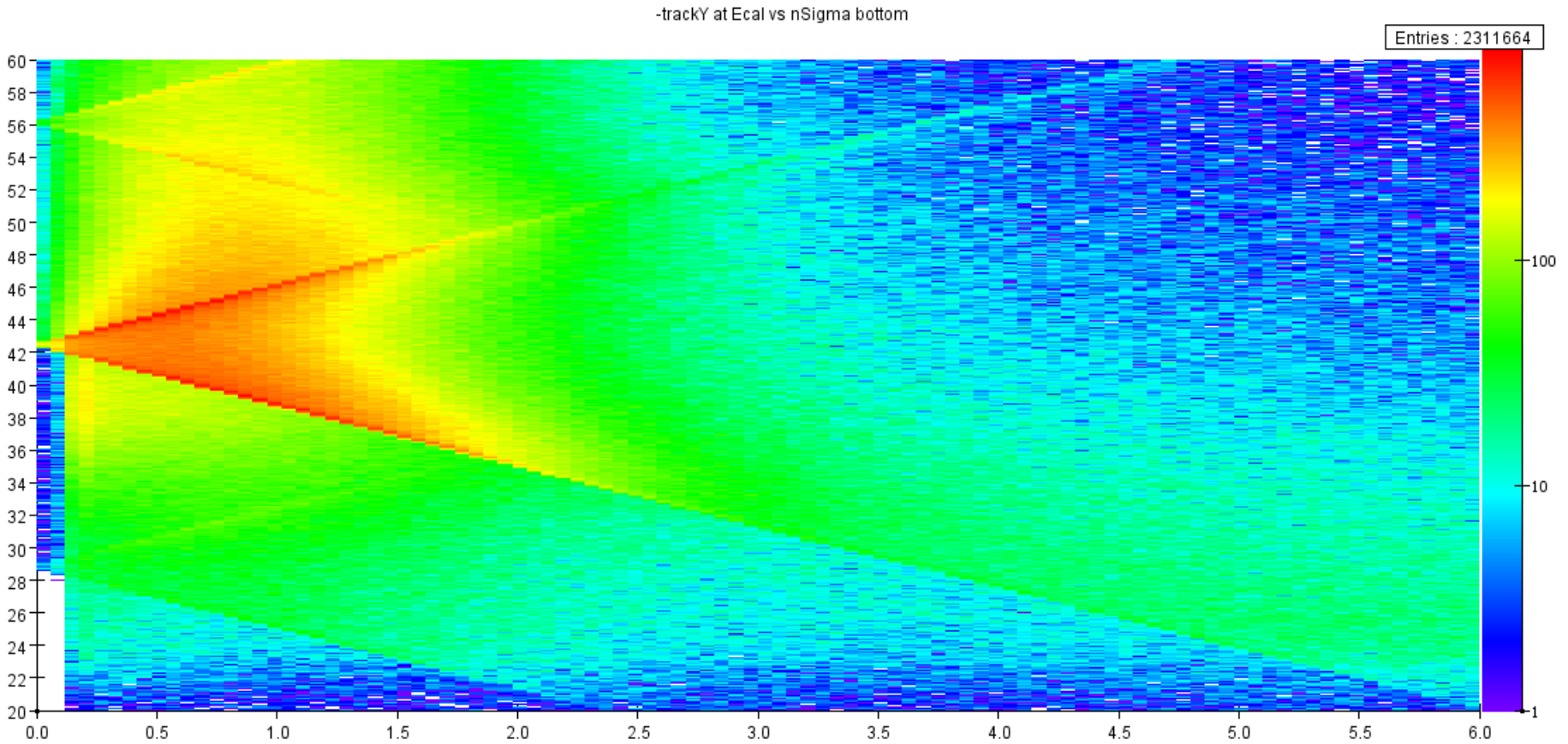
2015 Analysis

- Uses technique pioneered by Nathan, plotting dy vs y close to calorimeter edge.
- Created [git issue #269](#)
 - “Calculate Calorimeter y position with respect to the SVT”
- Copy over fee skims from 2015 pass7 for runs 5796 and 5797
- Plot $n\text{Sigma}$ vs Y
 - $n\text{Sigma} = \text{ReconstructedParticle}. \text{getGoodnessOfPID}()$
 - $y = \text{TrackStateUtils}. \text{getTrackStateAtECal}(t). \text{getReferencePoint}()[2]$

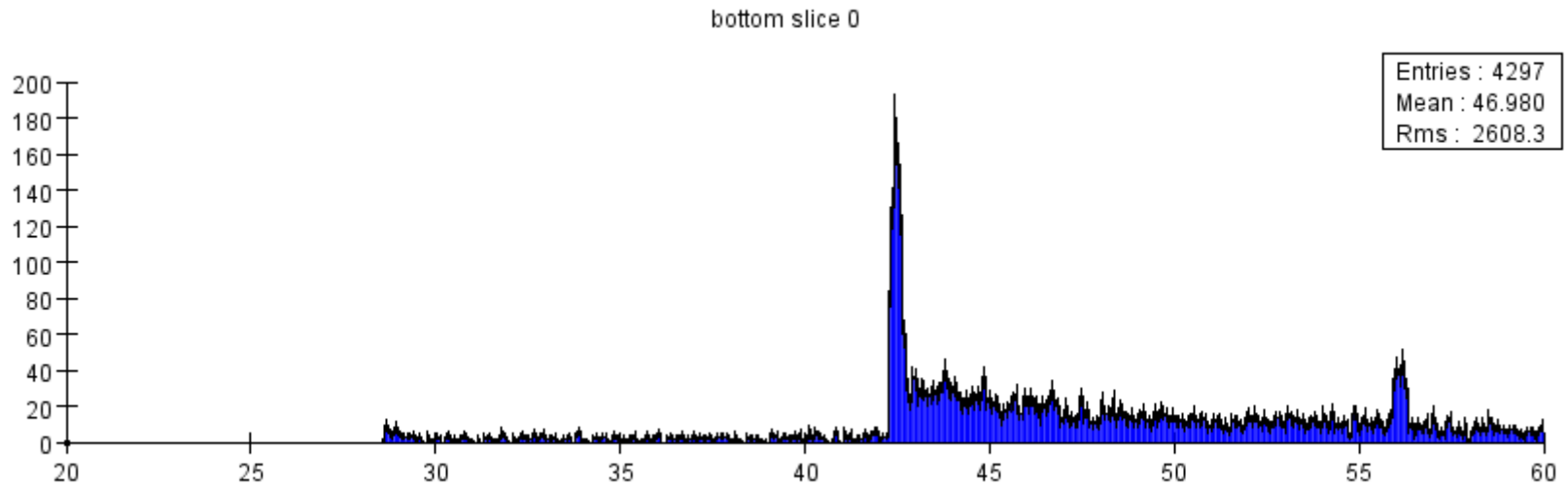
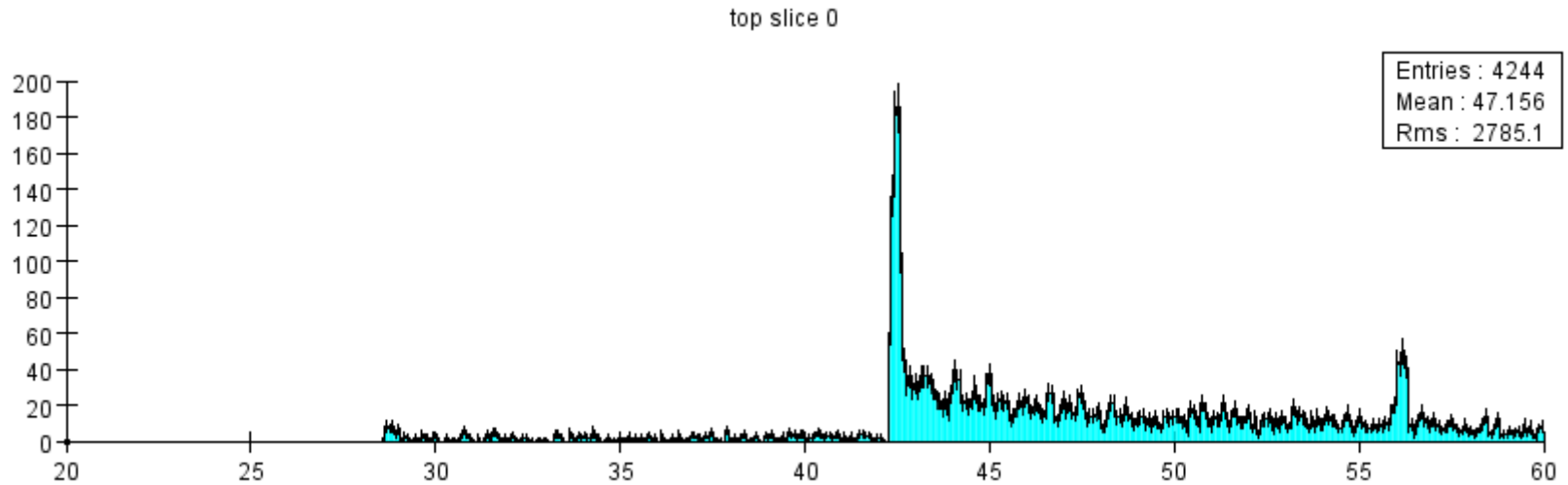
nSigma vs y (top)



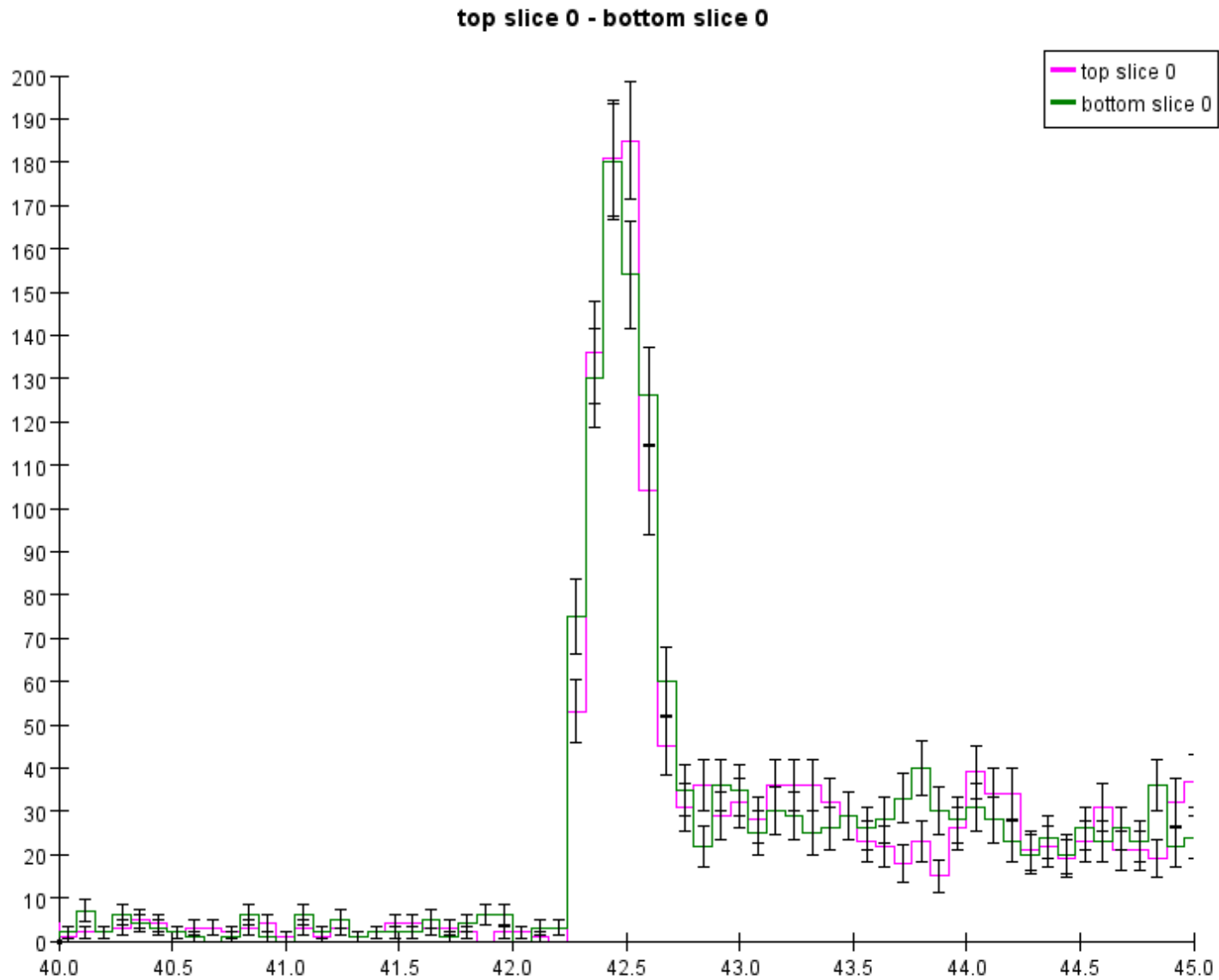
nSigma vs y (bottom)



Slice at nSigma=0



Slice at nSigma=0



Status

- ECal appears to be remarkable well located with respect to the SVT.
- ECal appears to be symmetrically positioned with respect to $y=0$.
- Review analysis chain to look for any possible systematic errors
- Redo analysis propagating track state at last sensor to ECal face.
 - Currently using track state @ IP.
- Test/confirm on Monte Carlo samples
- Investigate y as $fn(x)$ to look for rotations