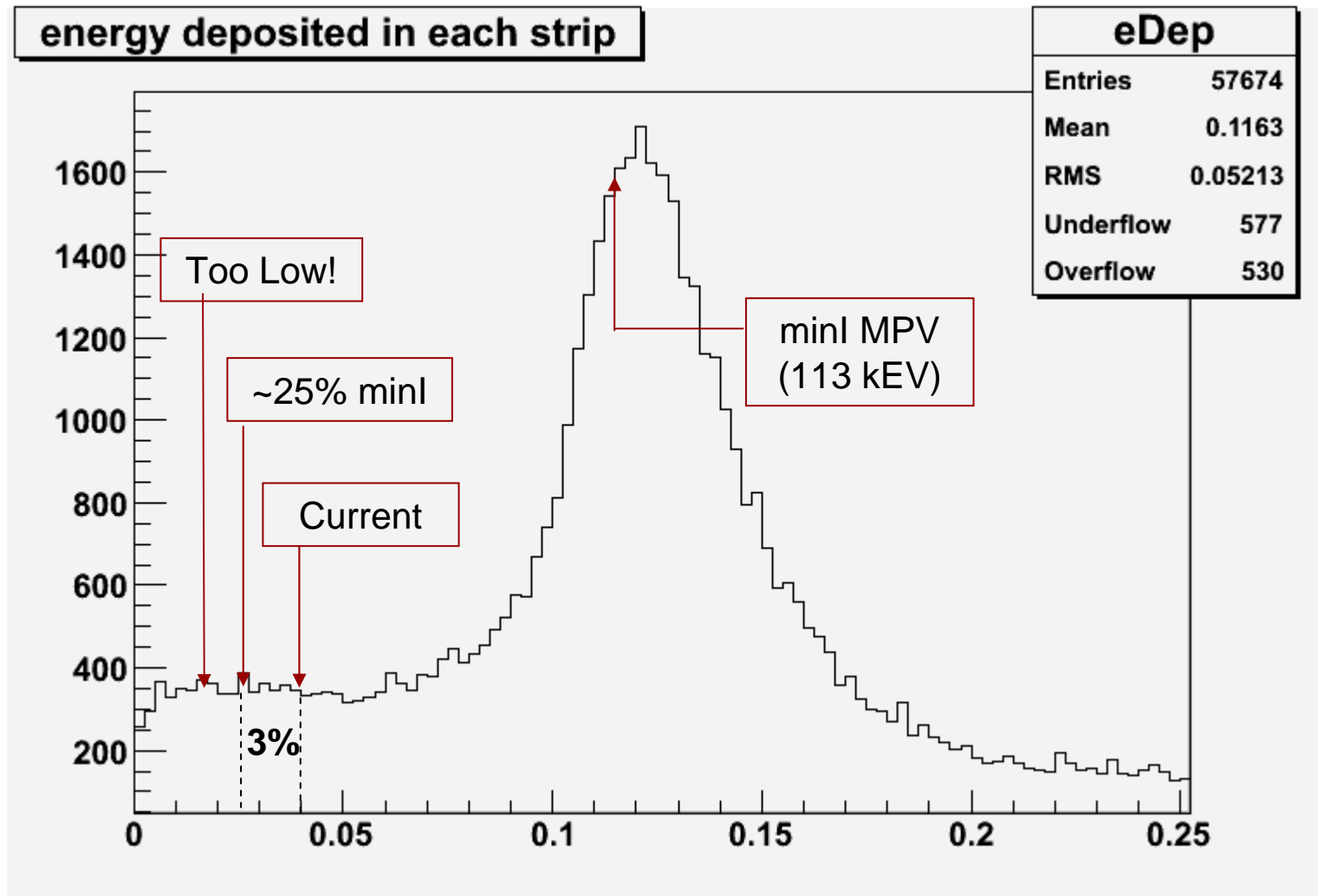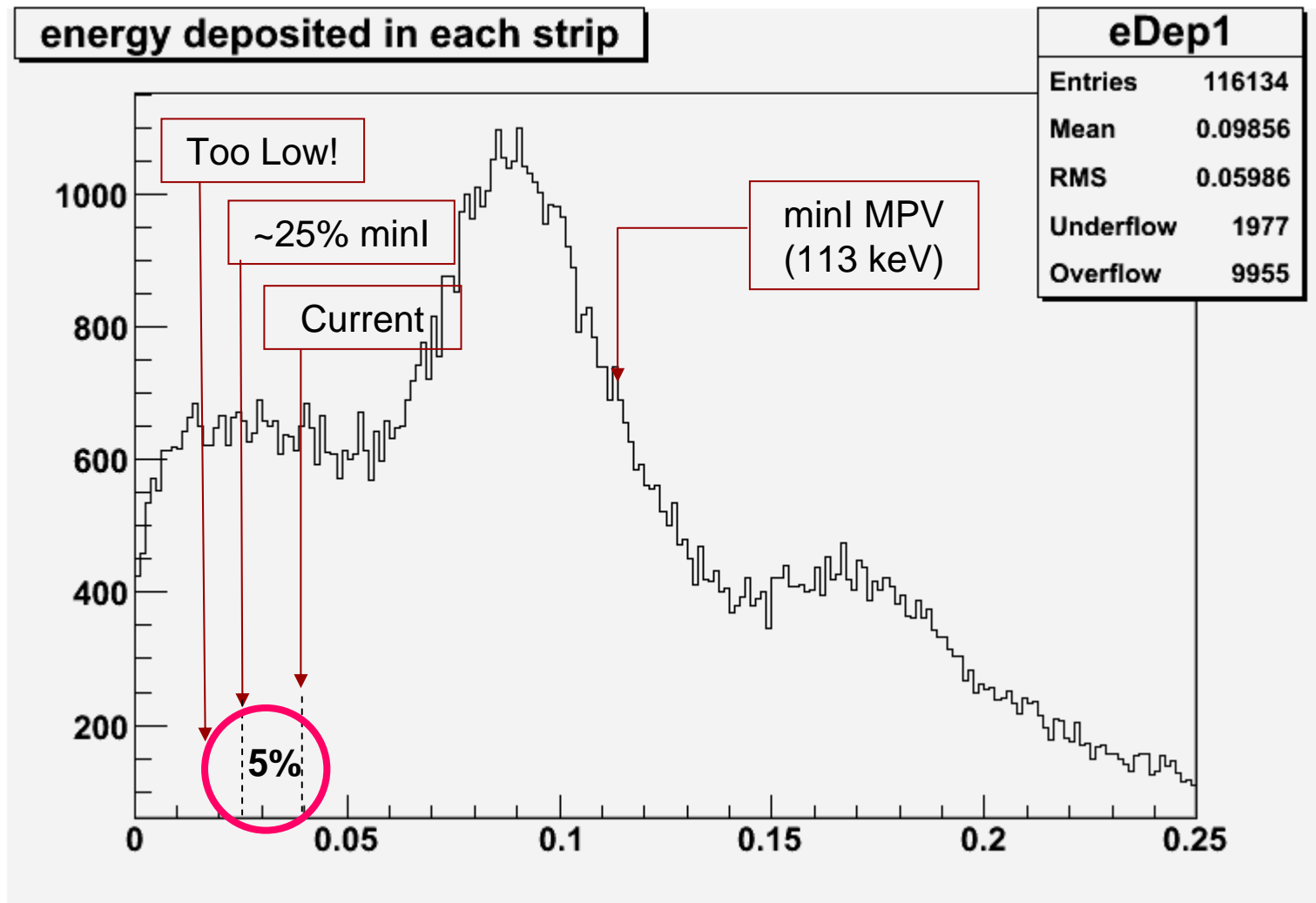# Digitization Thresholds in Gleam Part II

Leon R.
Beamtest VRVS Meeting
1 March 2007

From Last Week, 2-GeV Normally-incident Electrons
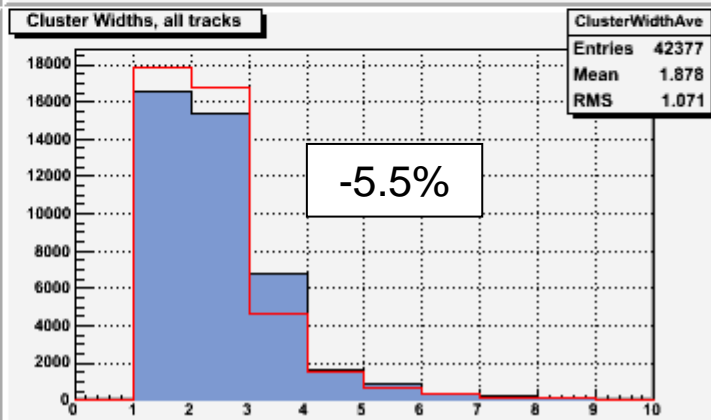
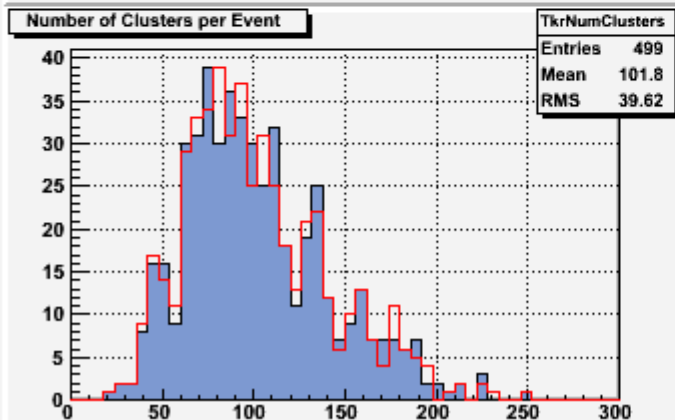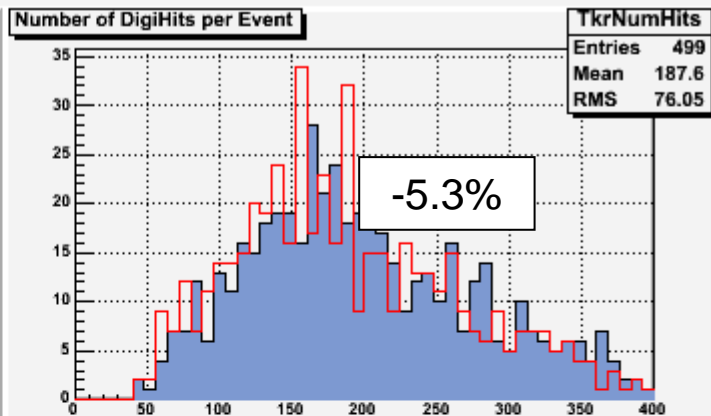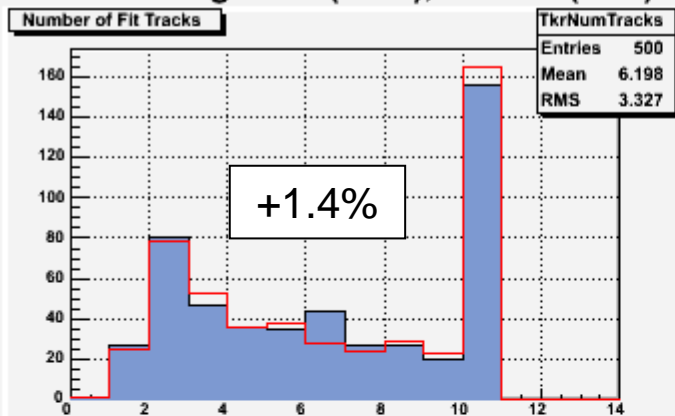# Now, Incident at 45⁰

Current vs "Correct"

Average ToT (Blue), Default (Red)

"PSF"
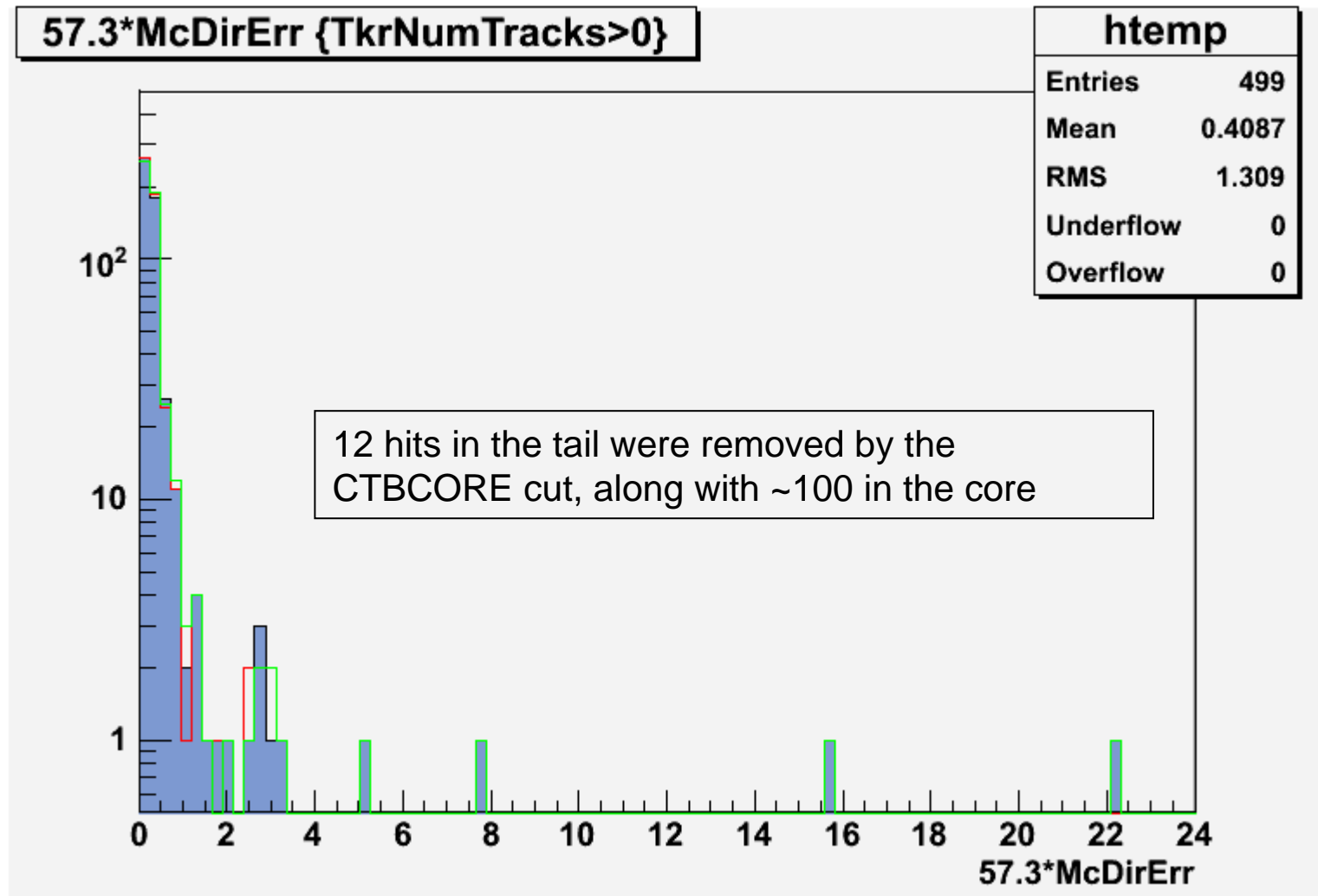

57.3*McDirErr {CTBCORE>0.8}
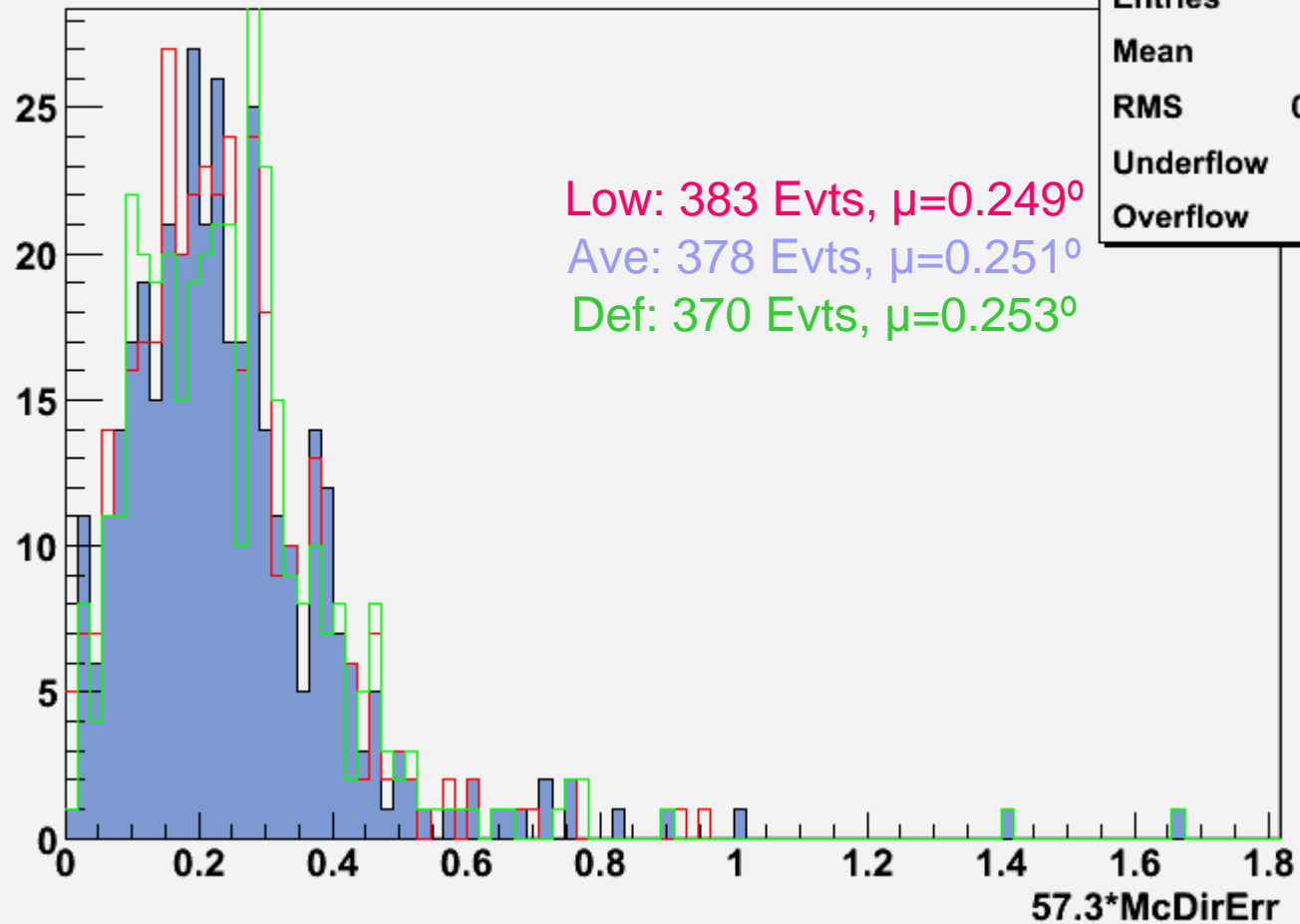
htemp	
Entries	378
Mean	0.251
RMS	0.1743
Underflow	0
Overflow	0

Low: 383 Evts, $\mu=0.249^{\circ}$
Ave: 378 Evts, $\mu=0.251^{\circ}$
Def: 370 Evts, $\mu=0.253^{\circ}$

57.3*McDirErr

"PSF" (no CTBCORE cut)

57.3*McDirErr {TkrNumTracks>0}

htemp	
Entries	499
Mean	0.4087
RMS	1.309
Underflow	0
Overflow	0

12 hits in the tail were removed by the CTBCORE cut, along with ~100 in the core

57.3*McDirErr

Conclusion

- Fixing the digi threshold doesn't appear to be the solution to the "extra-hits" problem, for normal incidence or for inclined tracks. It does add an increasing numbere of hits as the angle of the track in increases (~5% at 45°), even to the first track. So it probably should to be fixed before any ad-hoc corrections are made.

- The "electronic noise" contribution appears to be a bit too large (7 vs ~5-6 keV), but it has no effect on the threshold, since the distribution is flat in the vicinity of the threshold, so the number of hits is about the same before and after the addition of noise.

- Diffusion, cross-talk still to be investigated.

How to fix the thresholds & ToT

Straight-forward in principle, but there are a few little wrinkles…
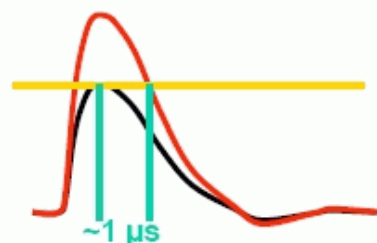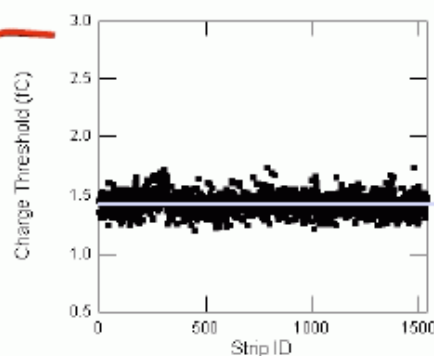
Hiro's Slide from IA Meeting

Data Thresholds from Calib Database
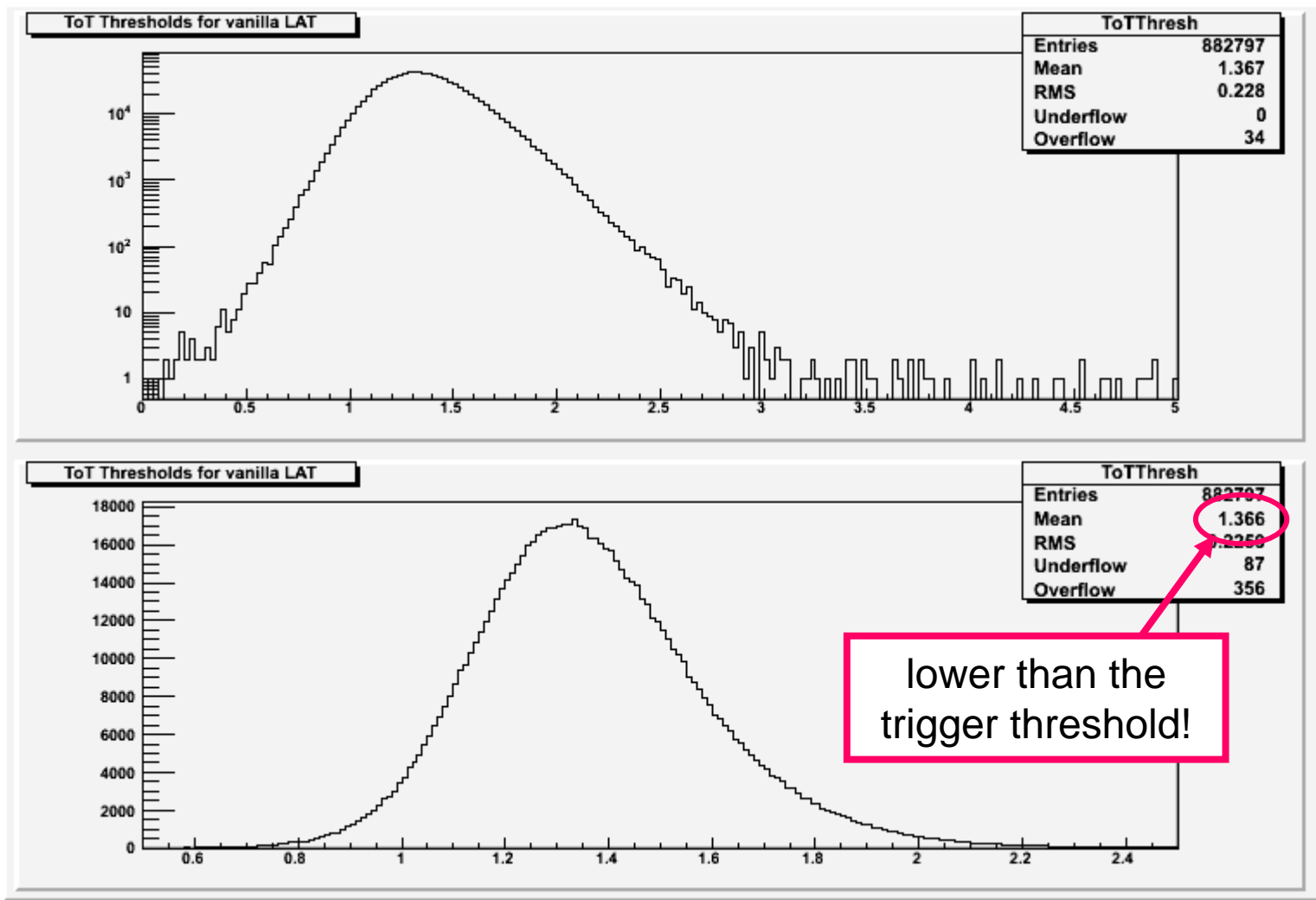
- So, the data ToT threshold we're using is *lower* than the trigger threshold…

- We need to adjust this somehow, but without messing with the gain and curvature.

- Current plan is to add the equivalent of ~0.2 fC to each ToT threshold before we test.

- At some point we should probably revisit the determination of the calibration constants.