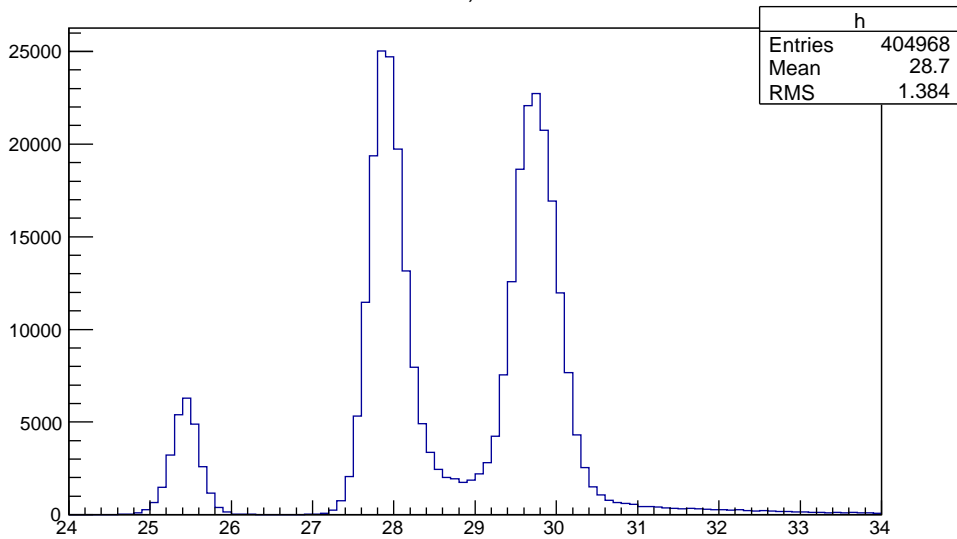

TOF Status
Scott Wilbur
University of Sheffield

Contents

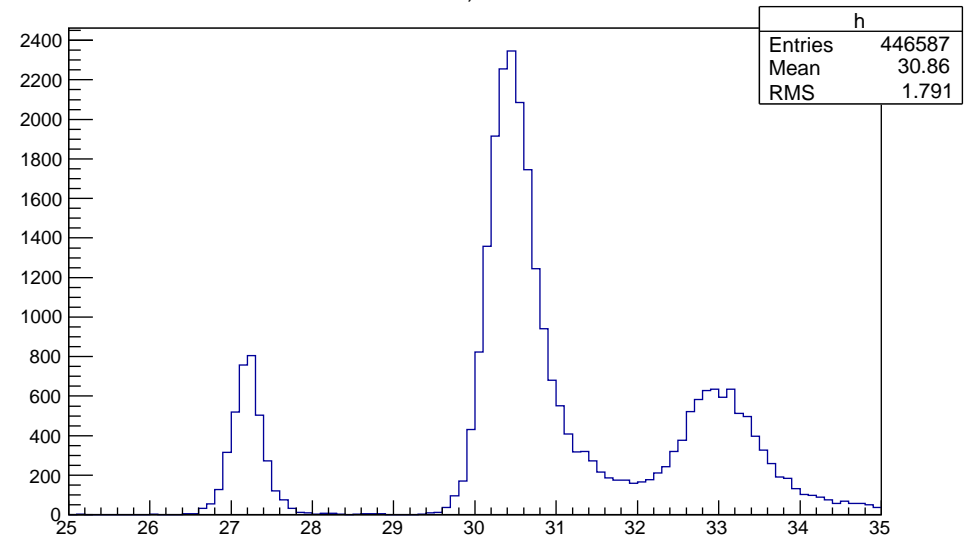
- Pretty Plots
- TOF2 Inefficiency
- Δt Offset
- Worsening Resolution
- Small Remaining Bugs

Top-Level Performance Plots

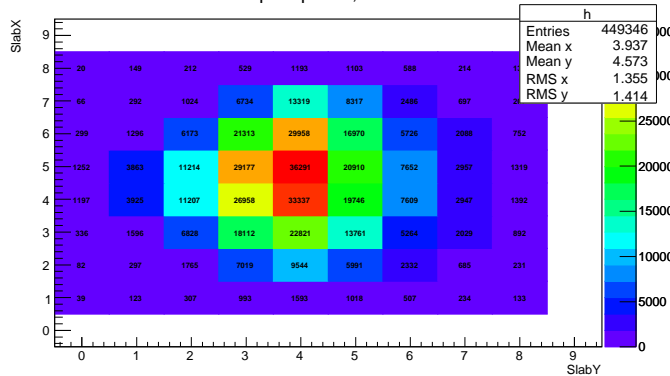
TOF 0->1, Run 9297



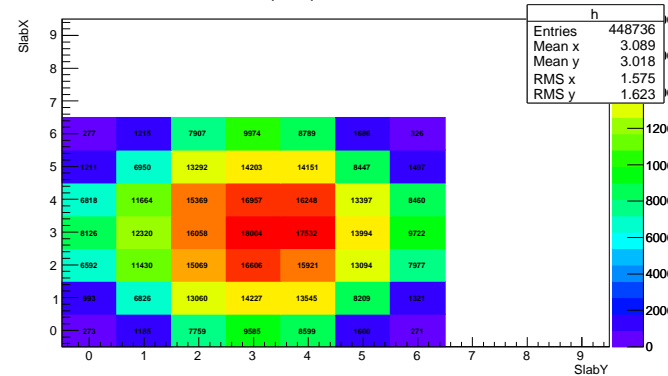
TOF 1->2, Run 9297



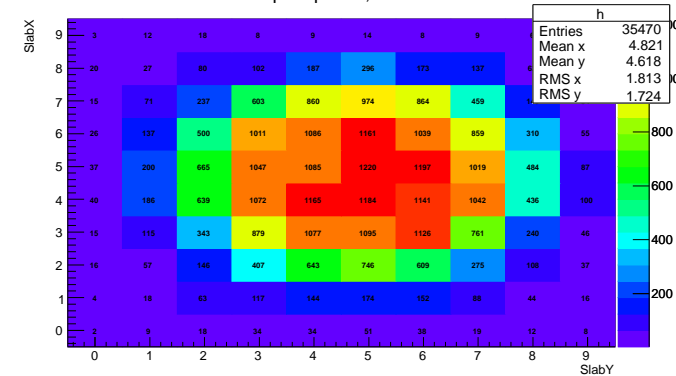
tof0 Spacepoints, Run 9297



tof1 Spacepoints, Run 9297



tof2 Spacepoints, Run 9297



TOF2 Inefficiency (MAUS bug #1912)

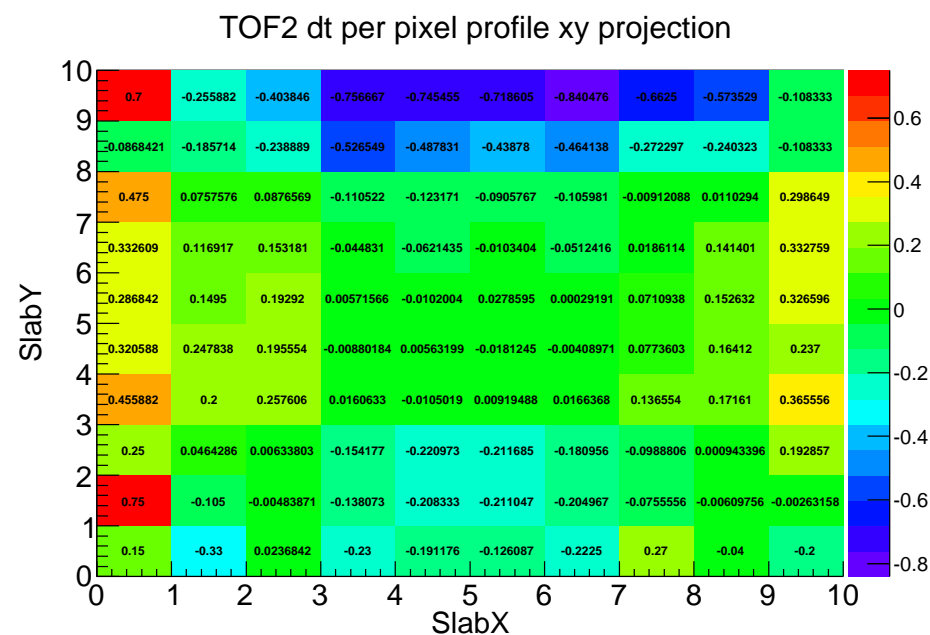
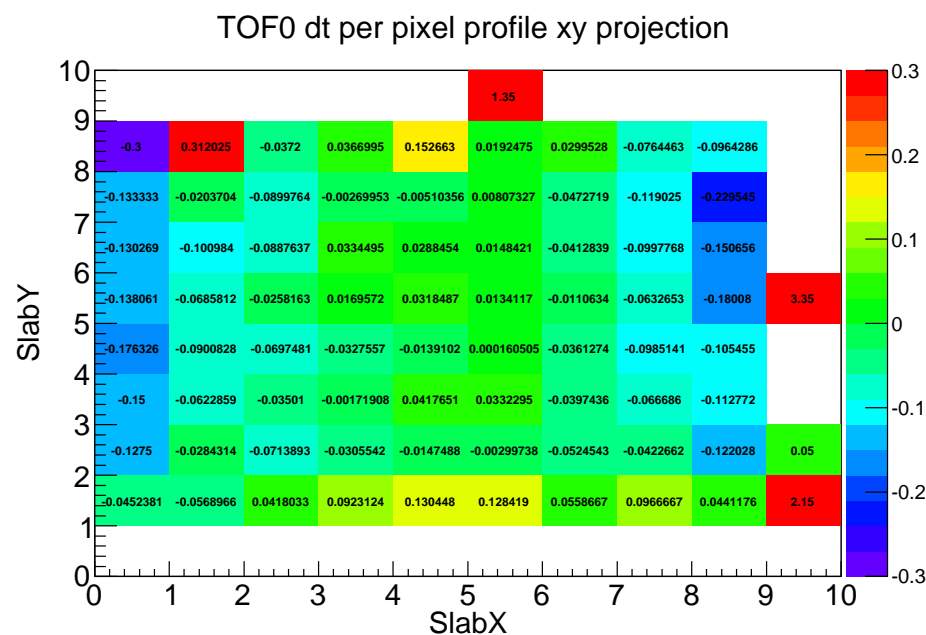
- Run-dependent TOF2 inefficiency creating spacepoints from slab hits

Run	TOF0	TOF1	TOF2
8447	98.66	100	94.27
8448	98.16	100	82.75
8450	97.77	100	92.16
8451	97.20	100	97.36

- Problem was uncalibrated edge slabs; fixed by using those runs to calibrate
- ‘Fix’ revealed another problem...

Δt Offset

- Noticed previously as Δt not being centered at 0 in TOF2
- With more slabs calibrated, is clearly pixel-dependent



- Occurs even when running a calibration over the same run used to produce the calibration
- Related to calibrations performed at center of slab and applied across entire slab?
- On the plus side, this explains away...

Worsening Resolutions

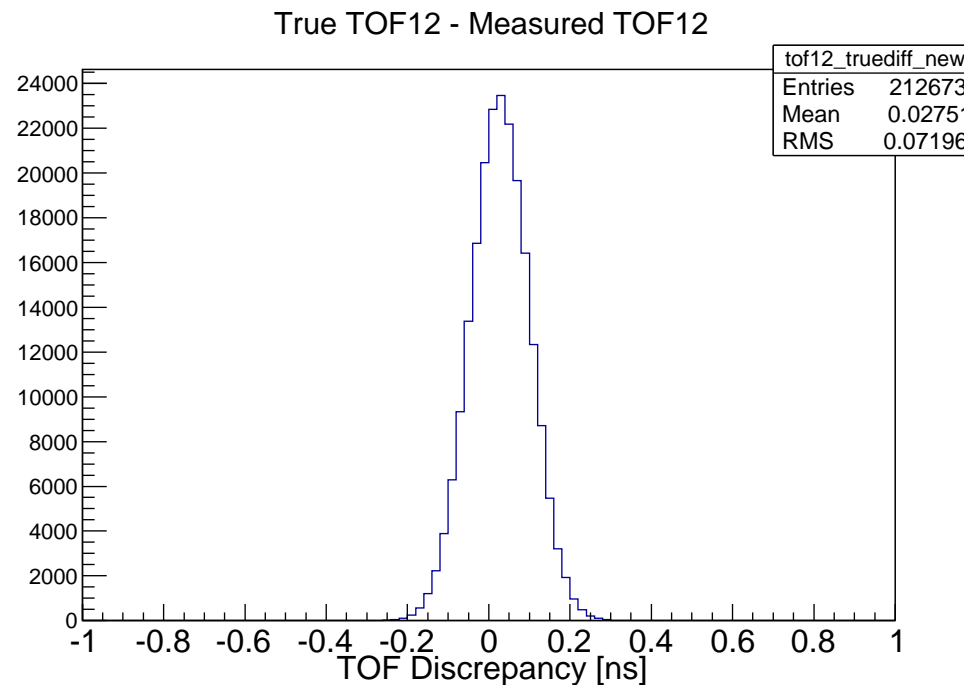
- Last meeting, presented plots showing slight worsening of TOF resolutions

Detector	2012 Res.	2016 Res.
TOF0	52 ps	58 ps
TOF1	60 ps	65 ps
TOF2	53 ps	63 ps

- This seems to be due to outer pixels having offset Δt peaks
- In each individual pixel, resolution looks closer to 2012 measurement

Remaining Bugs

- Discrepancy between TOF and Tracker
 - Unclear if problem with TOF or Tracker
 - Will revisit after vetting TOF MC
- MC true — measured TOF is fine in TOF01, 27 ps (0.5 cm) in TOF12



Summary

- Inefficiency and Δt offset should be fixed by improved calibration
- Calibration will be uploaded to database when I'm happy with it
- Some minor bugs remain to be worked on when that's done