

# TOF, CKOV, KL PERFORMANCE

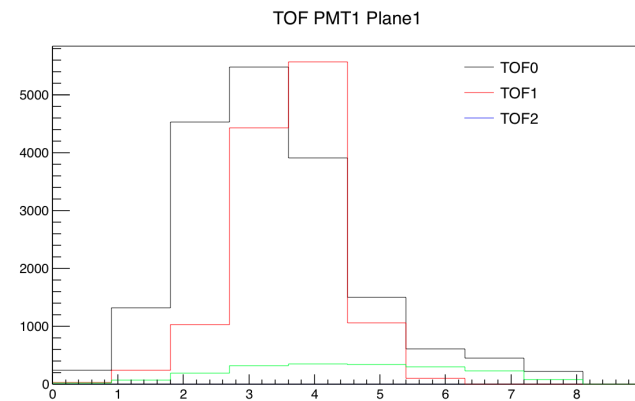
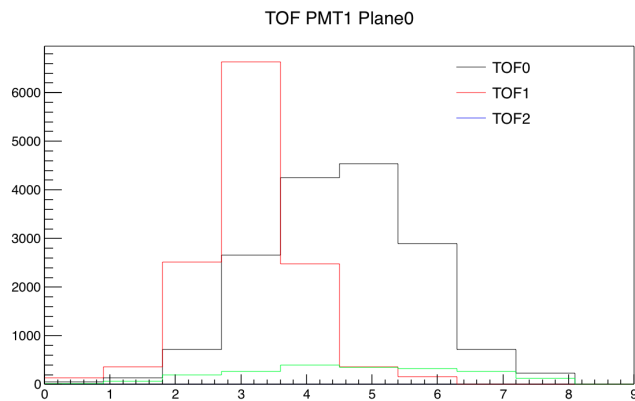
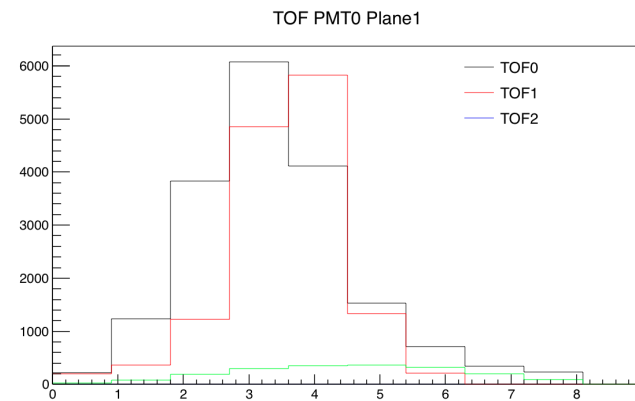
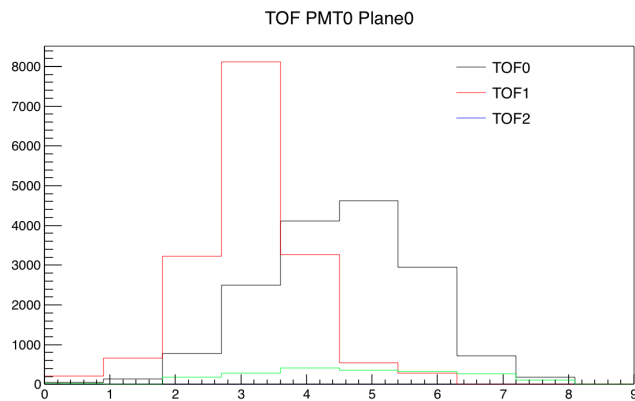
Durga Rajaram

CM 44

March 30, 2016

# TOF PERFORMANCE

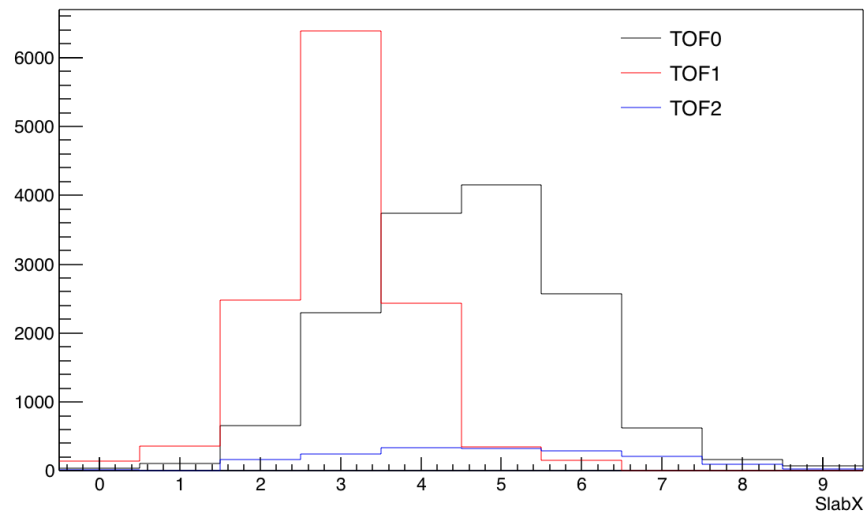
- Plots come from MLCR online reconstruction which runs continuously.
- PMT-hits: OK
  - TOF2: Plane 0 (Horizontally oriented slabs), slab 1 may be inefficient and worth looking at



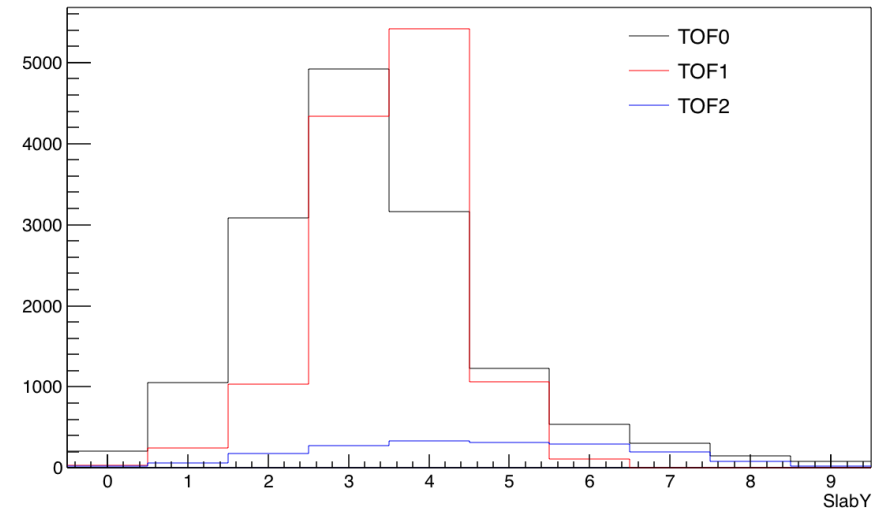
# TOF PERFORMANCE

- Slab-hits: OK

SlabHits X-view

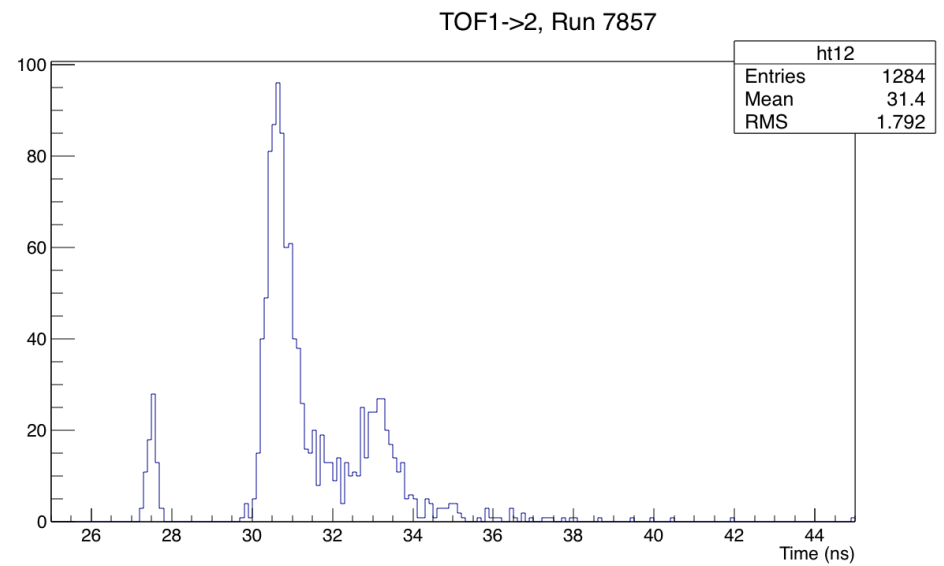
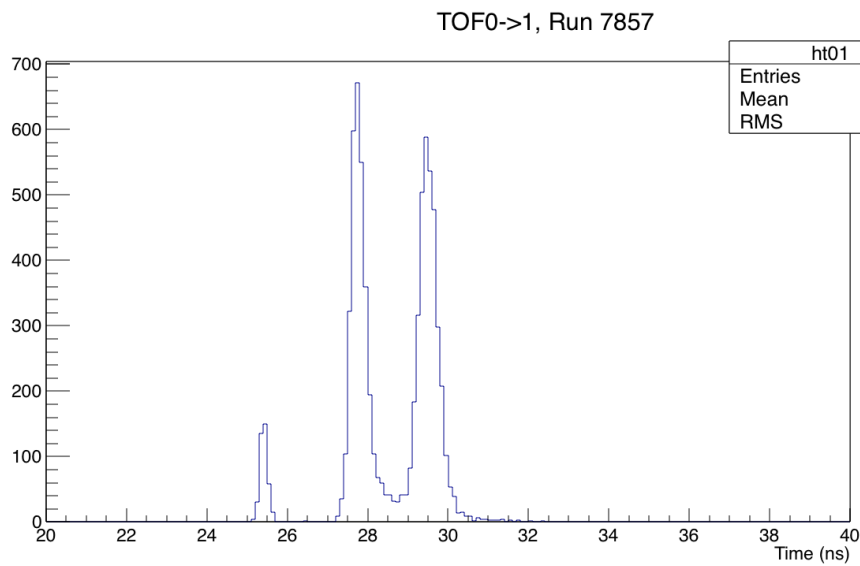


SlabHits Y-view



# TOF PERFORMANCE

- Reconstructed time of flight

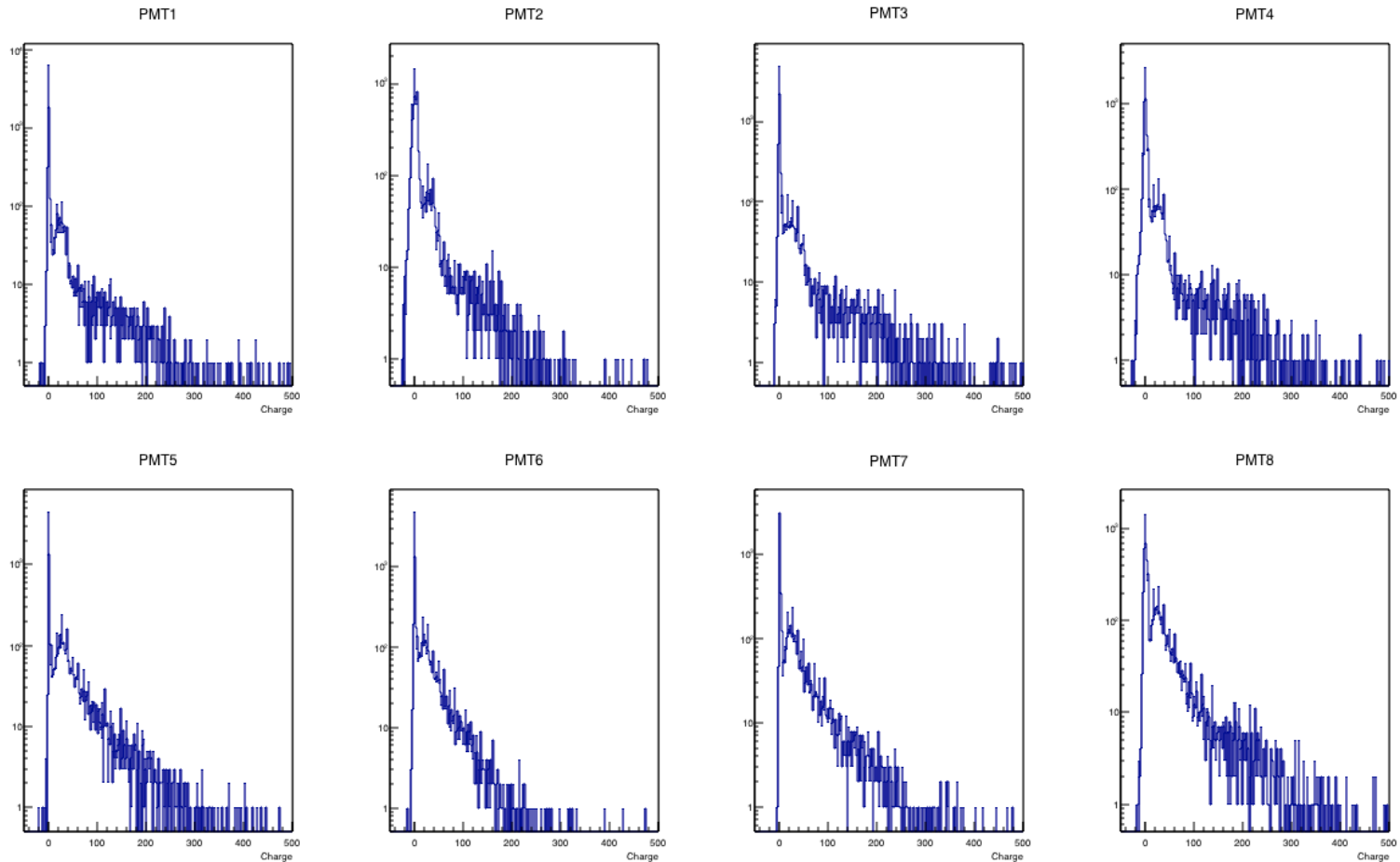


# TOF ISSUES

- There was an issue that came to light a few months ago
  - The convention for TOF2 cabling of vertical slabs appeared to be the opposite compared with TOF0/1
  - 0->9: South-North, whereas for TOF0/1, 0->9: North-South
  - This was verified by turning on/off specific PMTs based on the HV map and seeing which ones read out
    - [Elog# 3442](#)
  - This has since been “fixed” in the DAQ cabling map.
  - The documentation (MICE-Note 286) should be updated
- Antonio de Bari pointed out late last year that there is one slab in TOF2 which has PMT0/PMT1 swapped
  - This does not affect the “average time”, but any position reconstruction using time-difference between PMTs will be affected
  - This is not fixed in the cabling map, but can be if hardware intervention is difficult.

# CKOV PERFORMANCE

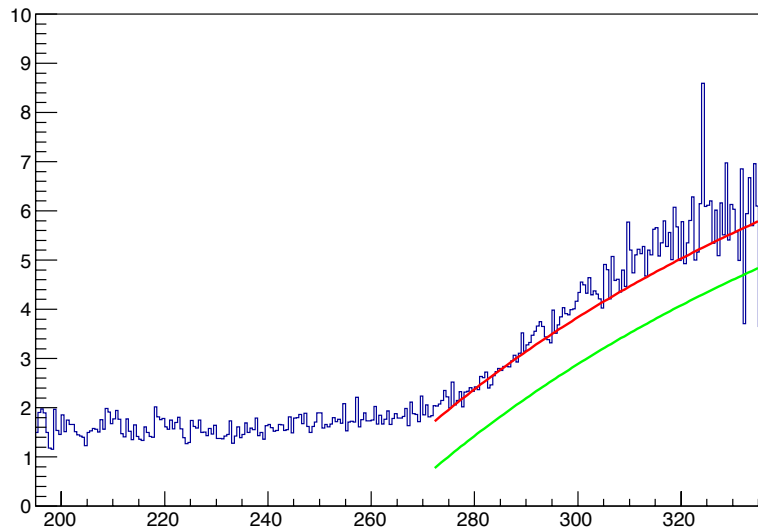
- No issues. PMT arrival times & charge looks OK



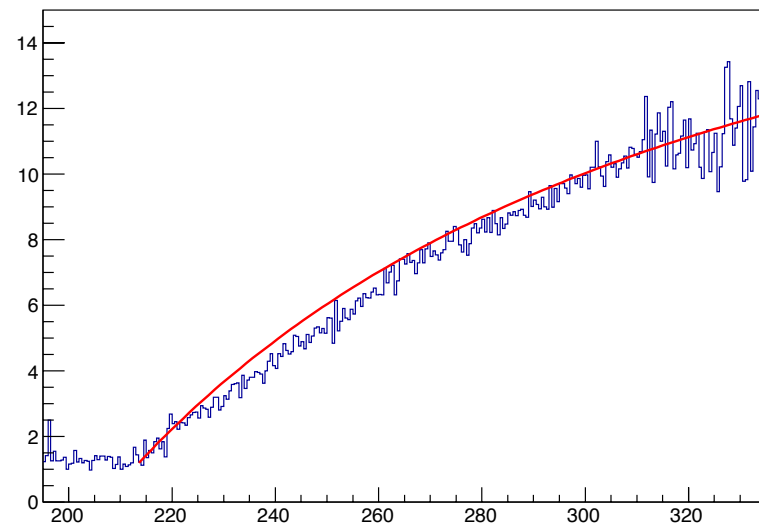
# CKOV PERFORMANCE

- A Ckov momentum scan was done on Sep 30, 2015
  - Some scans were done earlier in March 2015 (Issue#1667), and May 2012 (MICE-Note 473)
- Plots from analysis by Ao Liu
- For muons:
  - CkovB: The turn-on point looks ~ consistent with the earlier scans (March 2015, and some earlier ref. MICE-Note 473)
  - CkovA: The turn-on momentum appears a little lower (~270 now ~280 then)

Avrg\_#\_of\_CkovA\_pes\_v.s.\_momentum\_PID=-13



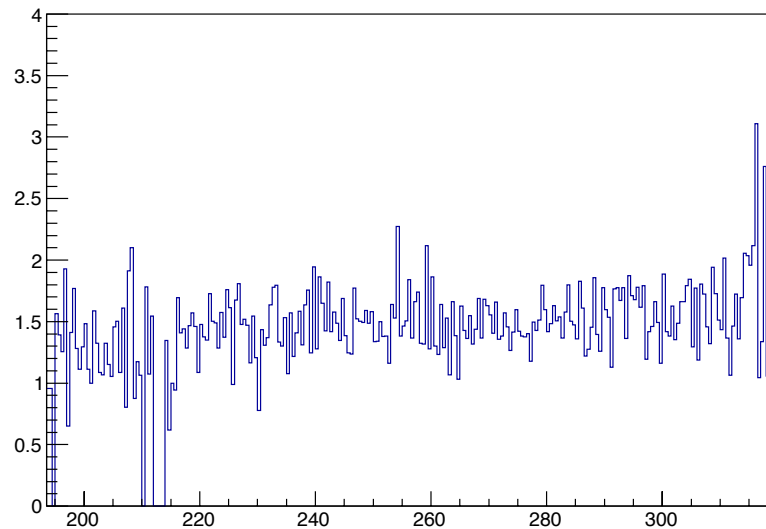
Avrg\_#\_of\_CkovB\_pes\_v.s.\_momentum\_PID=-13



# CKOV PERFORMANCE

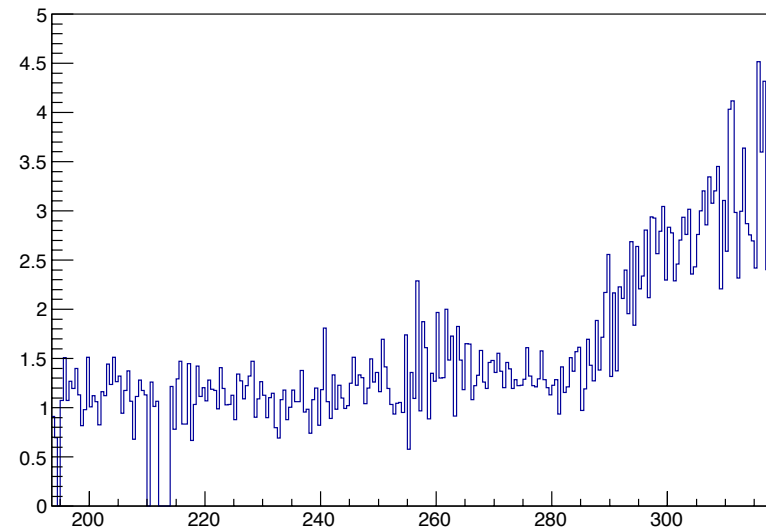
- A Ckov momentum scan was done on Sep 30, 2015
- Plots from analysis by Ao Liu
- For pions, there wasn't enough time to scan higher momentum, so pion turn-on can't be seen
  - Request from Lucien & Ao to do include higher momentum settings the next time we get a chance to scan

Avg\_#\_of\_CkovA\_pes\_v.s.\_momentum\_PID=211



DR, 3/30/16

Avg\_#\_of\_CkovB\_pes\_v.s.\_momentum\_PID=211



CM 44



# KL PERFORMANCE

- No issues in PMT/ADC readout, and reconstruction has been stable

