

TOF Software Report

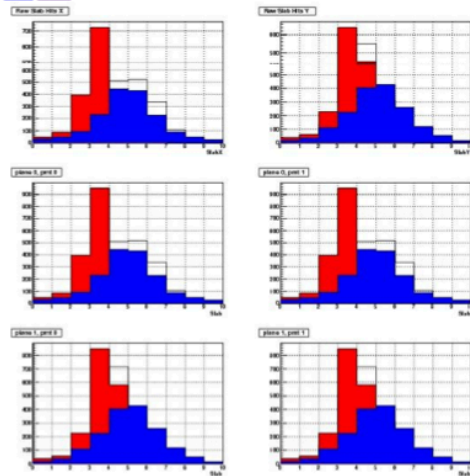
D. Rajaram
IIT, Chicago

MICE CM 32
Feb 9, 2012

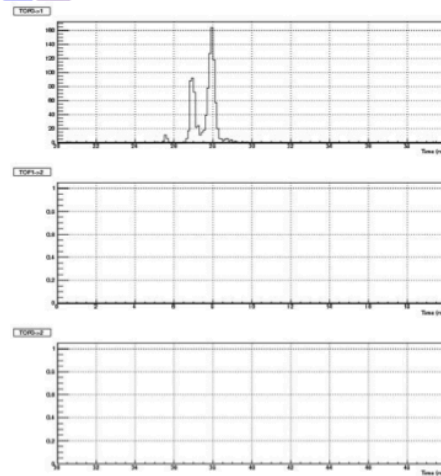
- Since CM31
 - Online
 - Calibration
 - MC
- Online:
 - TOF online monitoring was ported from G4MICE & were working in the December run

MAUS histograms

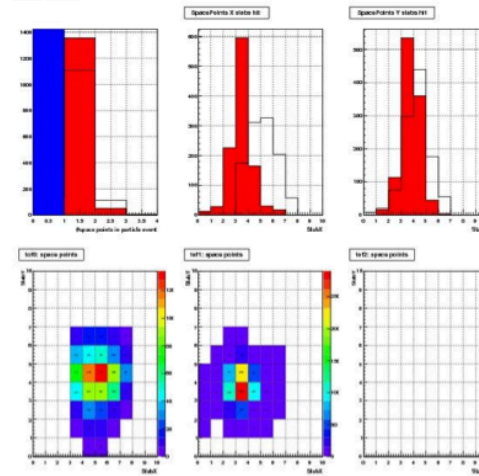
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[EPS](#) [PNG](#)



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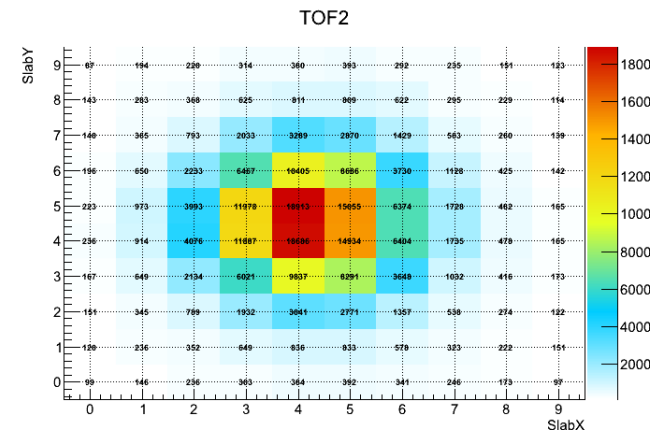
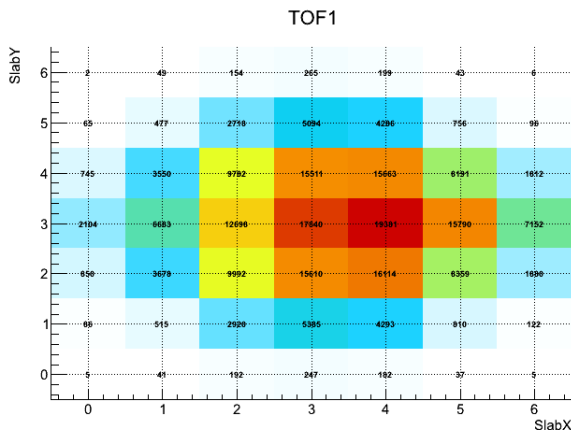
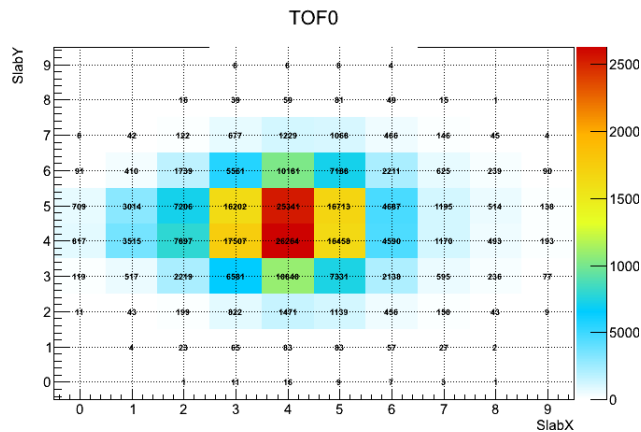


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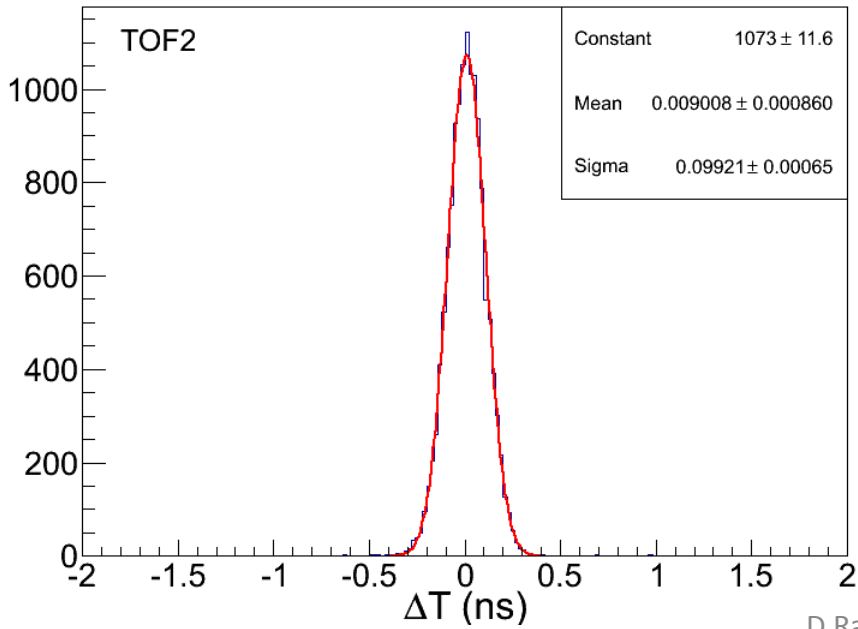
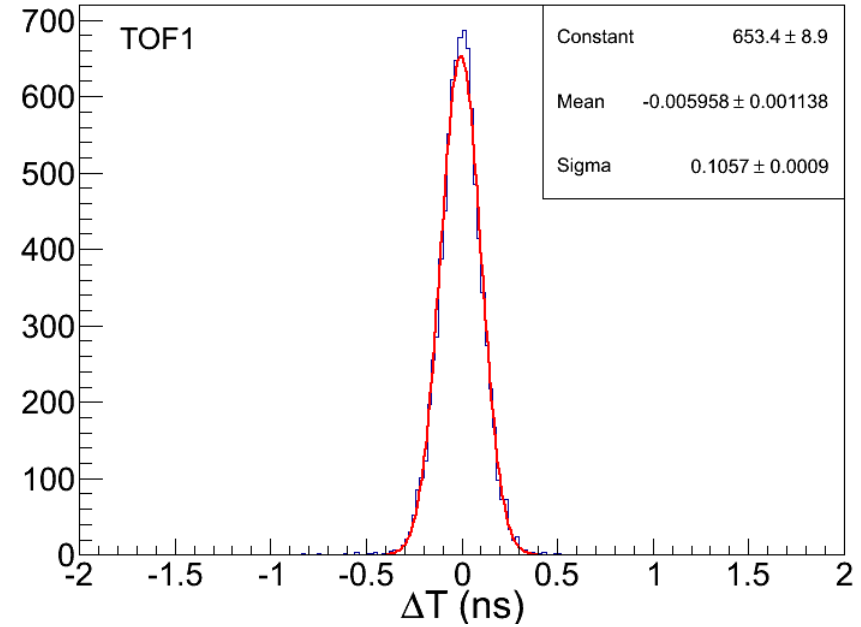
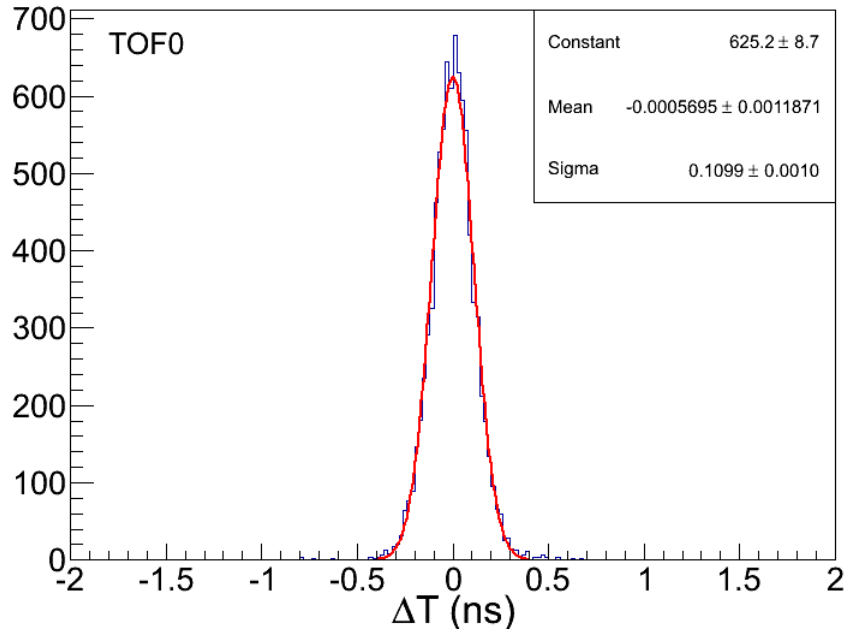


TOF Calibration

- Calibration with December data is done
- Data-sets:
 - 3245, 3248, 3247, 3248 pi+, 272 MeV/c at D2, Q7,Q8 lower by 20%, Q9 lower by 40%; Defocused beam for TOF calibration; Decay Solenoid is OFF; ~4500 target pulses
 - 3251 pi+, 272 MeV/c at D2; Decay Solenoid is OFF ~ 400 target pulses
 - 3511 pi+, 148 MeV/c at D2; Defocused positron beam for TOF2 calibration; Decay Solenoid is ON. ~1200 target pulses



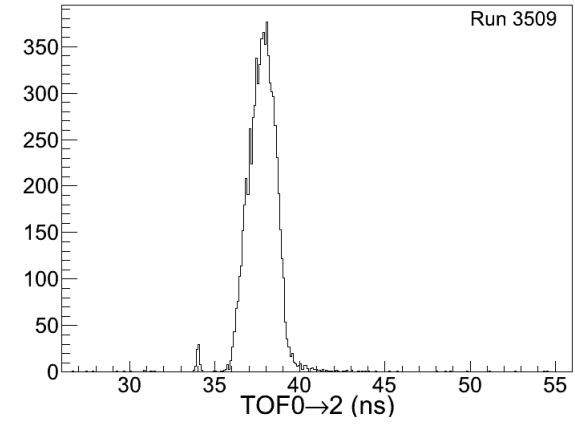
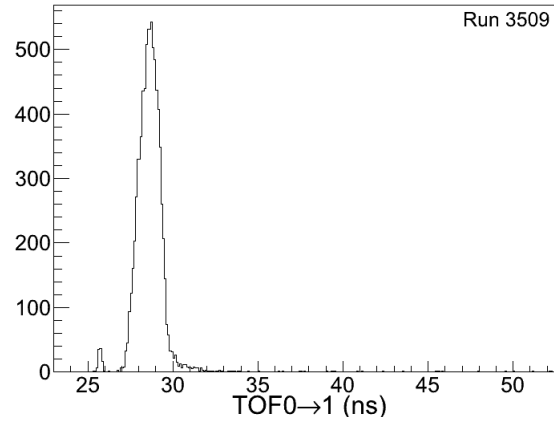
- Some pixels uncalibrated due to statistics
- Checked calibrations against muon run
 - 3509, pi/mu+, nominal, ref., 237 MeV/c at D2; Pion background study; Decay Solenoid is ON.
- New calibration constants are in the trunk



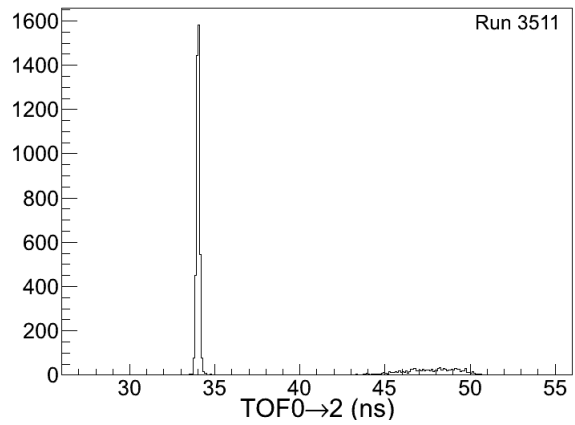
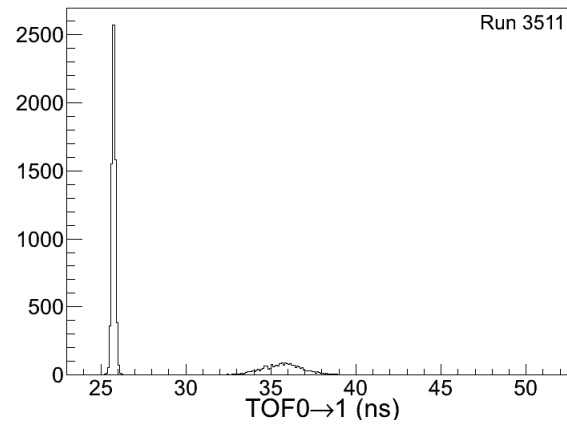
Resolutions

- TOF0: 55 ps
- TOF1: 53 ps (improved)
- TOF2: 50 ps

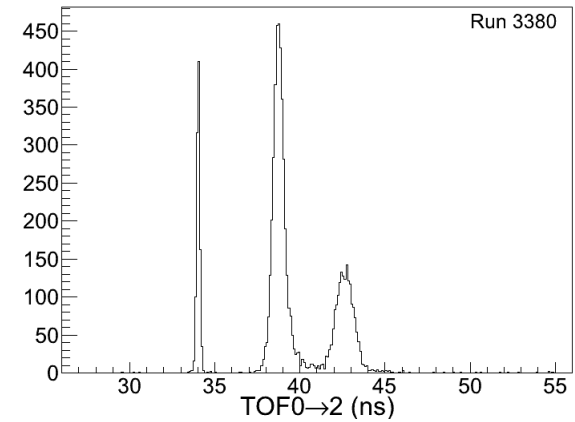
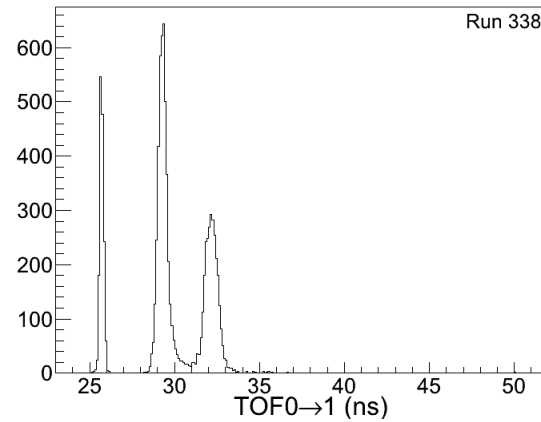
#3509, μ^+ , 237 MeV/c



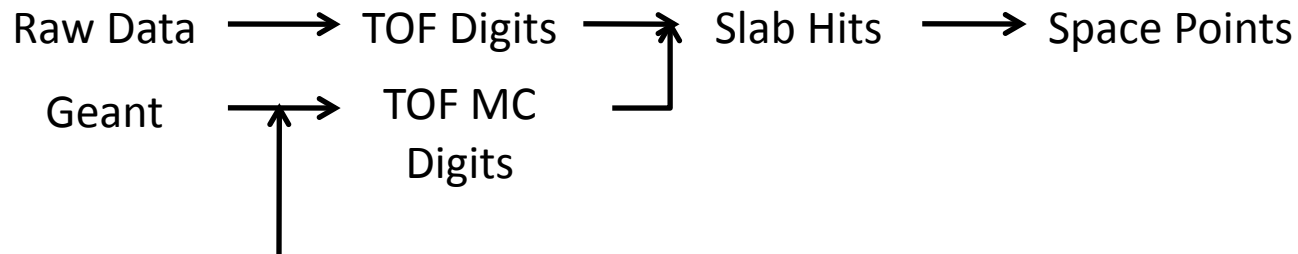
#3511, e^+ , 148 MeV/c



#3380, π^+ , 222 MeV/c



MC



- **MC Digitizer:**

- [Geant time + propagation in slab + resolution + slewing correction] → TDC
 - Propagation velocity in slabs should be measured from data (not done right now since we have not required this for calibration)
- Store Truth
- Some special handling of MC digits at reco level still necessary (e.g. no “trigger” simulation)
- In progress. My goal is to have at least the basic digitizer working for the grid test

Misc. (To do)

- Data structure
 - modify to go from by-spill to by-event
- Geometry
 - Currently in MICE Module format → GDML
- Calibration constants
 - Currently text files → DB