

Online Reco

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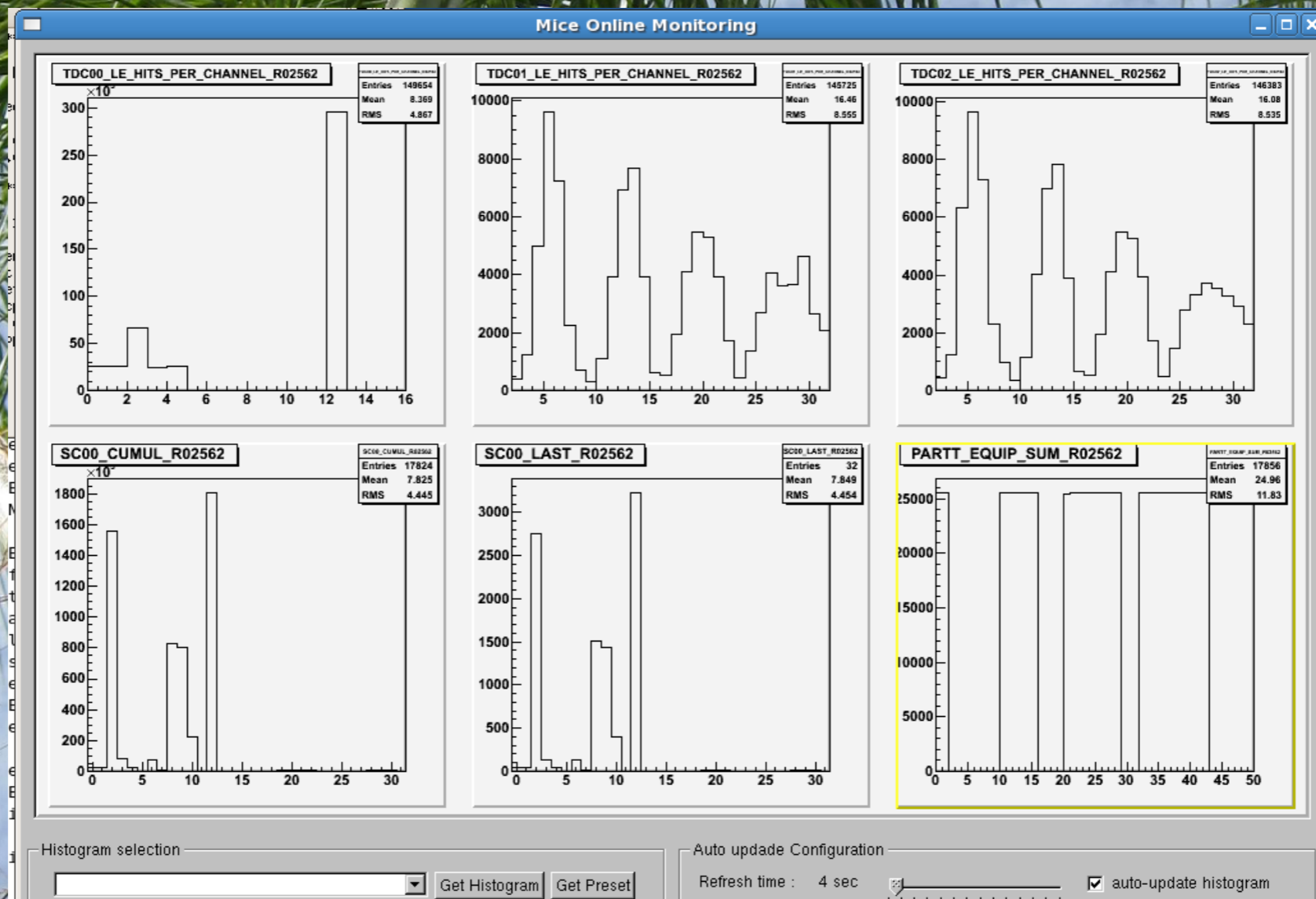
CM28 Oct 2010

Online Tools

- **Online Monitoring**
 - Basic quantities – primarily expert level evaluation
 - Shifter monitor of specific plots
 - Look for noisy/dead channels
- **Online Reconstruction**
 - Physics quantities
 - Detector reconstruction
 - Beam dynamics
- **Online Data Quality**
 - Check other/more specific quantities

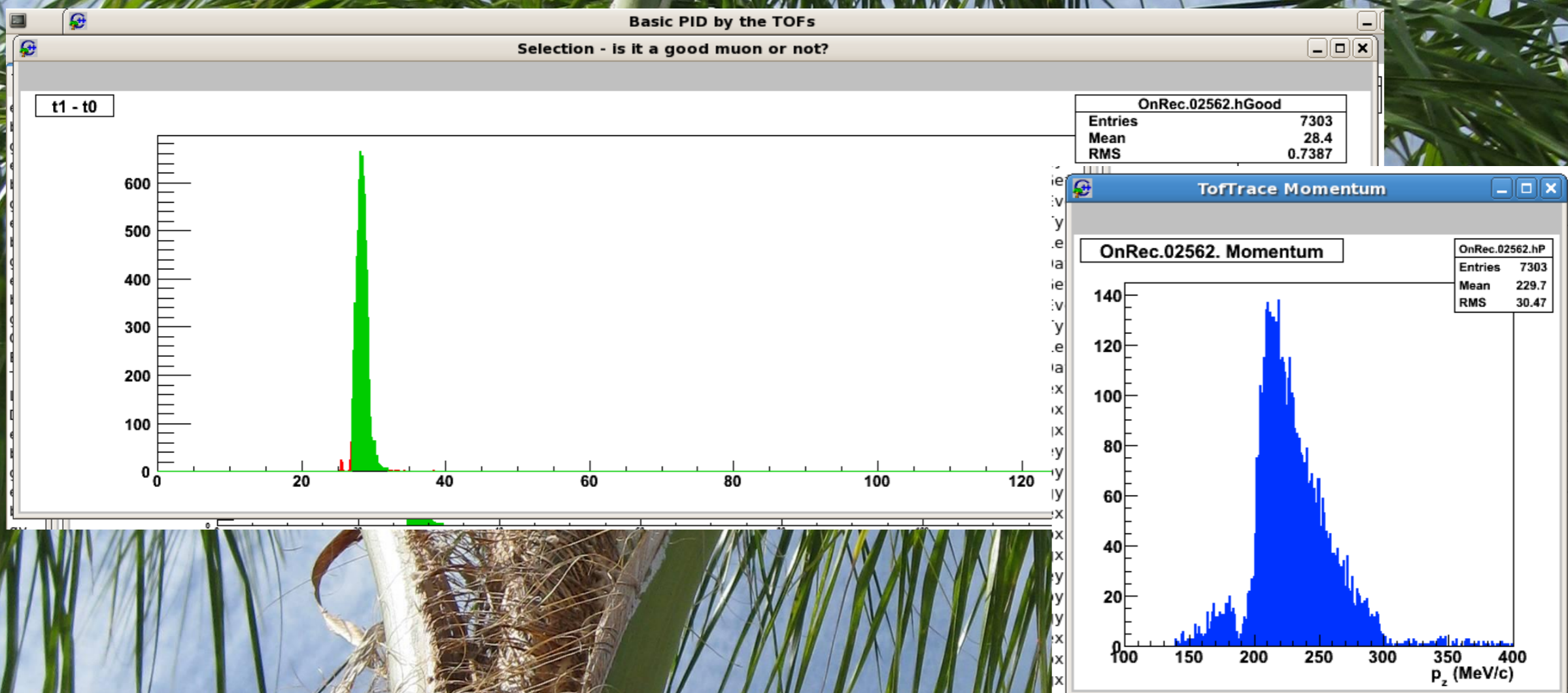
Online Monitoring Now

- **Online Monitoring running**
 - Discovered lower hits in TOF0 when triggered on TOF1
 - Runs over socket from OnRec02a
 - Need update documentation & install on OnRec01a



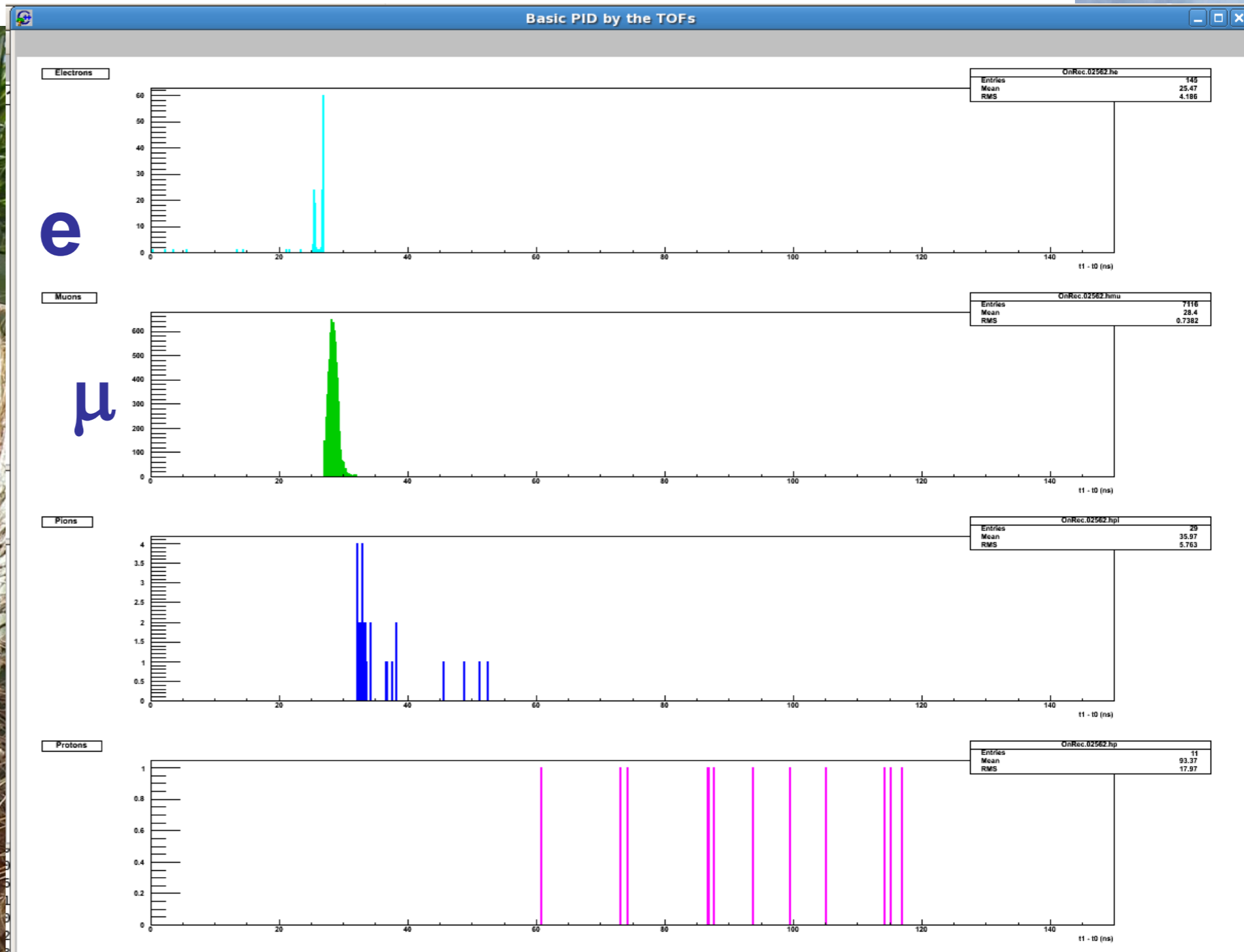
Online Reconstruction Now

- **Selection of Good Muons**
 - Good = green, bad = red
- **Reconstructed Momentum (blue)**
 - M. Rayner/V. Verguilov



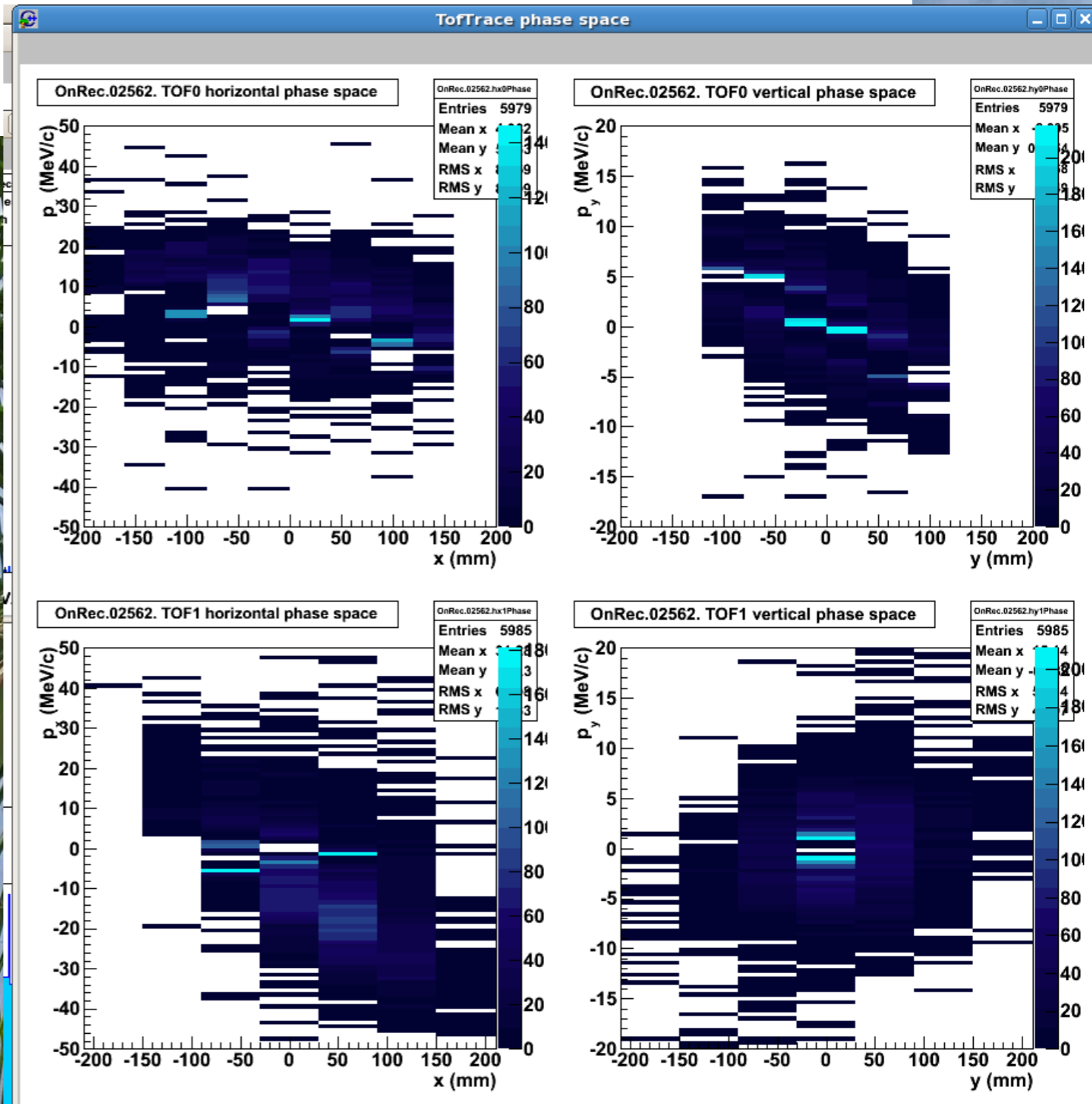
Online Reconstruction Now

- **Basic Particle ID using TOFs**
 - e, μ , pions, protons



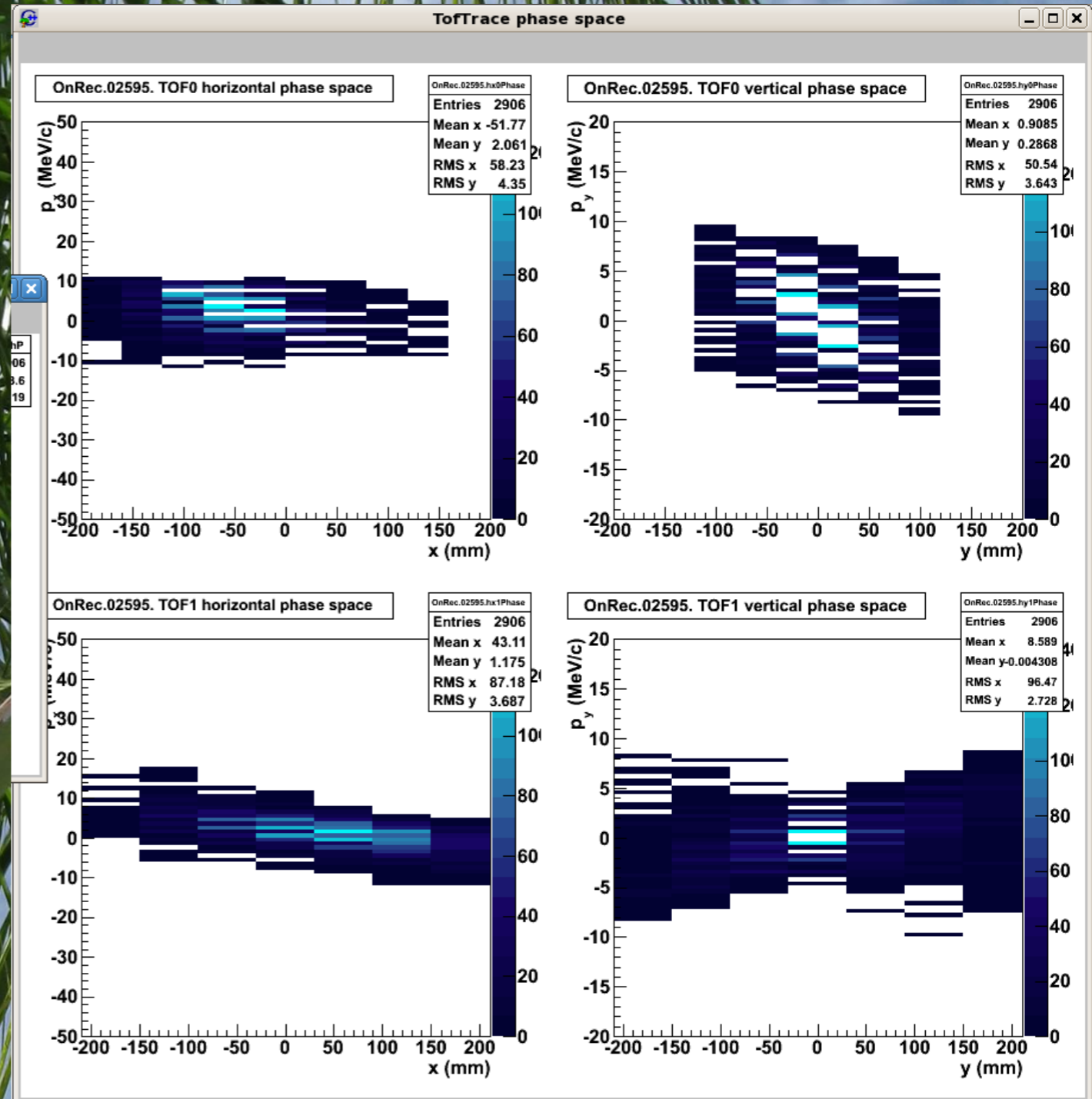
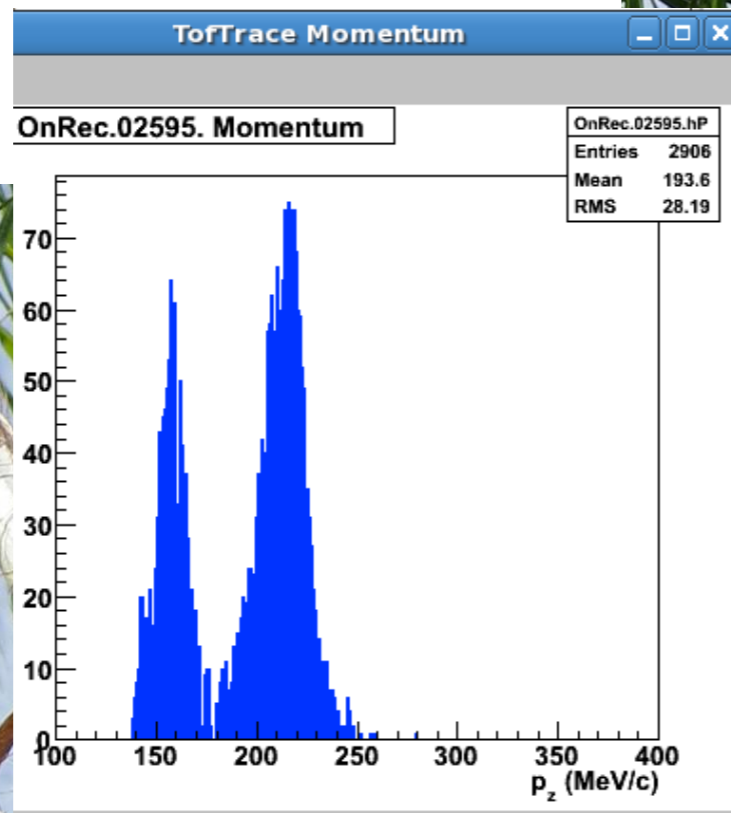
Online Reconstruction Now

- Phase Space Plots Using TOFs (x, P_x) (y, P_y)
 - TOF0 (top plots)
 - TOF1 (bottom plots)



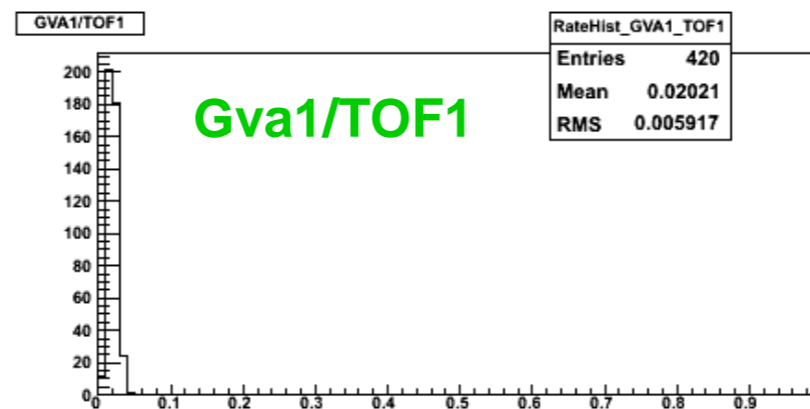
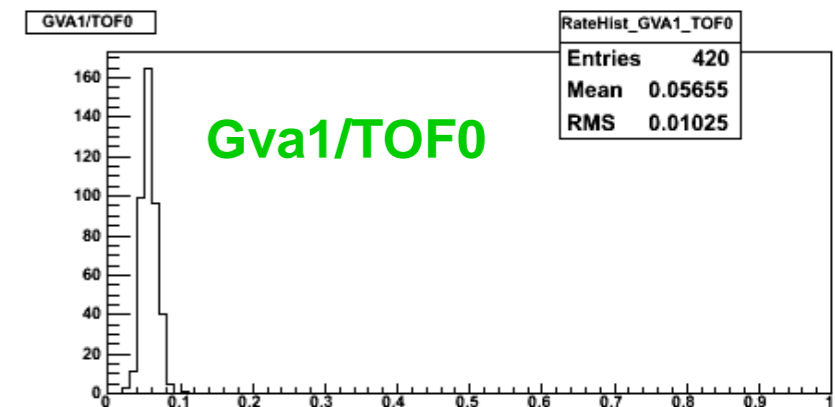
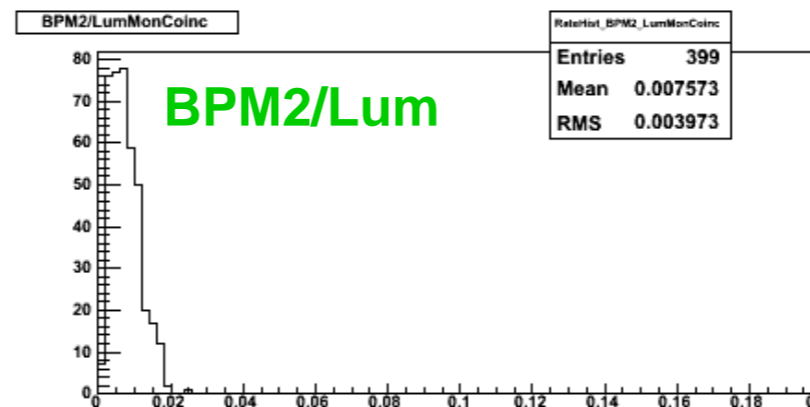
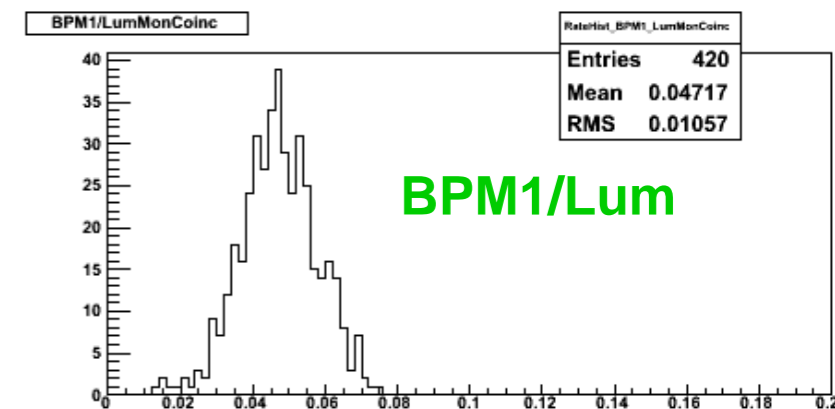
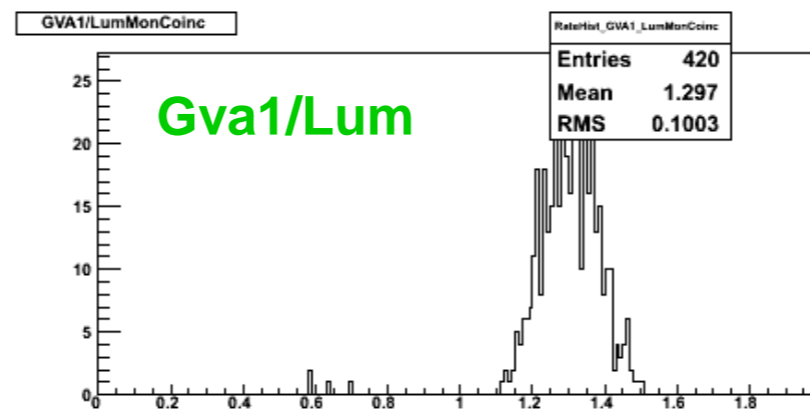
Online Reconstruction Now

- **Run 2595**
 - TOF Calibration positron beam (300 MeV/c at target)
 - Phase Space plots
 - Momentum reconstruction



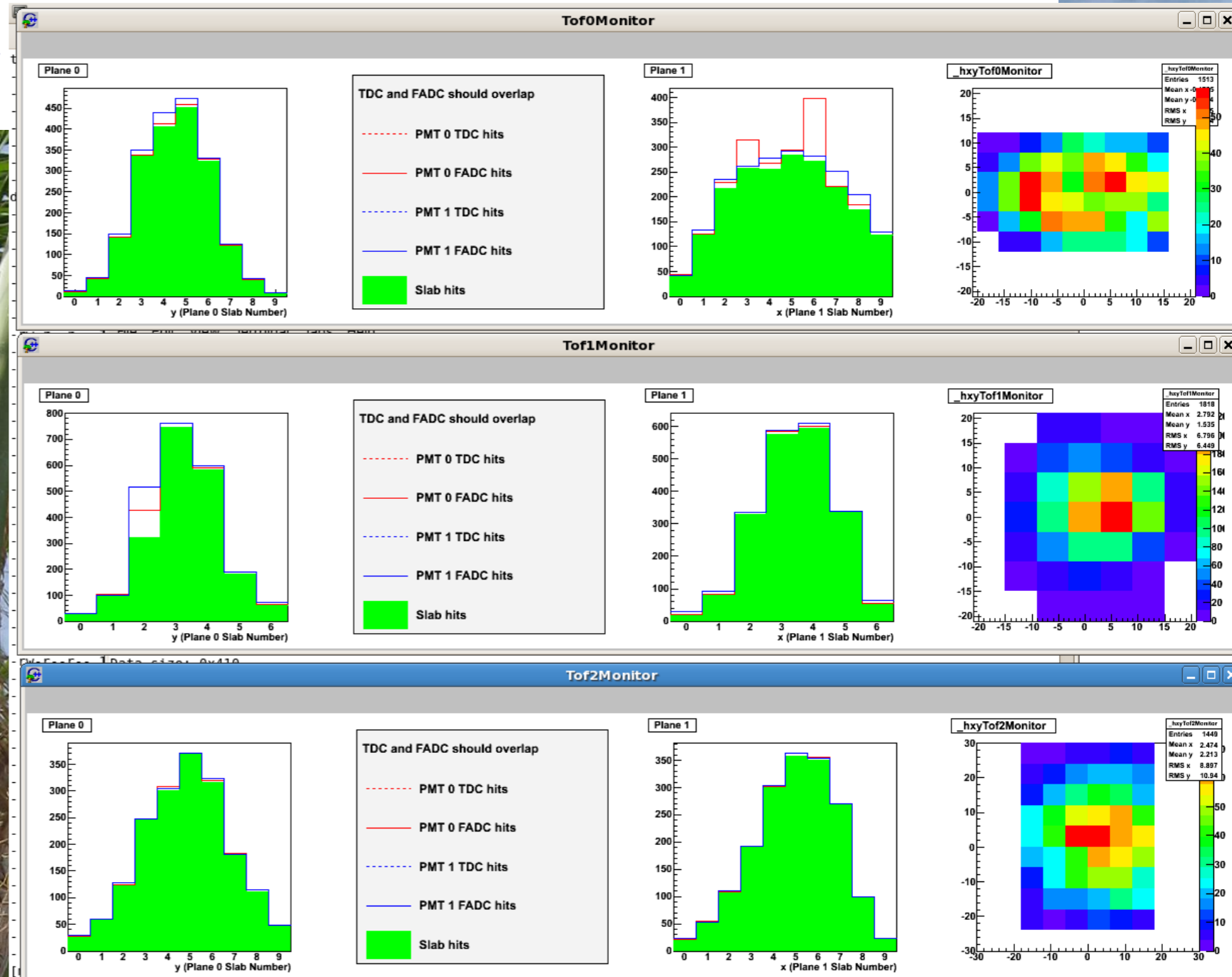
Online Scalars Now

- Online Reco
 - Scalars:
 - V. Verguilov



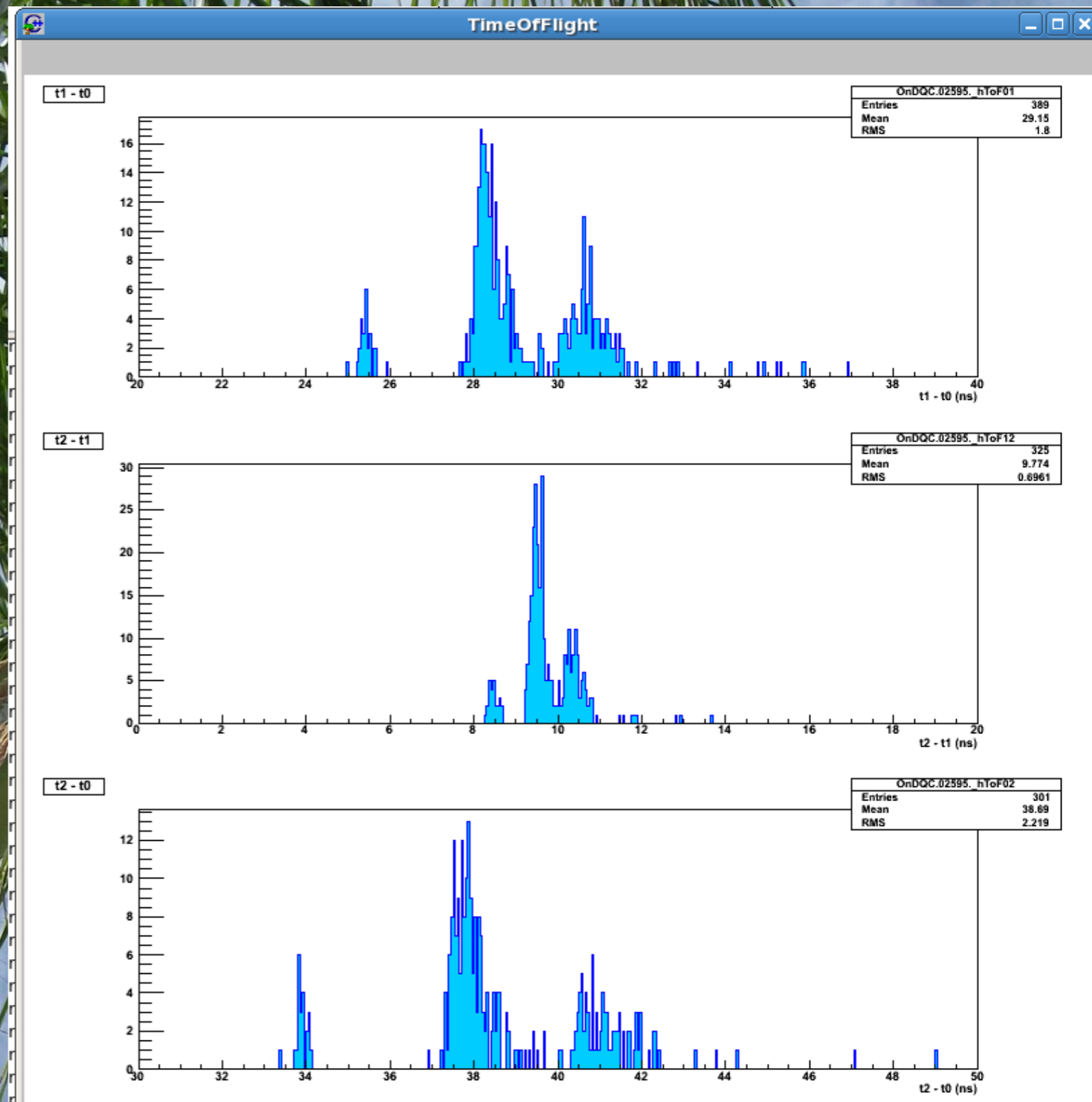
Online Data Quality Now

- TOF Monitor – y, x, combined distributions for TOFs
 - TOF0 (top plots)
 - TOF1 (middle plots)
 - Looks like one slab noisy
 - TOF2 (bottom plots)



Online Data Quality Now

- **Time of Flight plots**
 - TOF1-TOF0 (top plot)
 - TOF2-TOF1 (middle plot)
 - Note separation capability
 - TOF2-TOF0 (bottom plot)



Online Tools

- **Need list of requirements for each detector**
 - Good start for TOF, KL (need reactivate)
 - Have list for EMR
 - What do we need for tracker (DQ/Reco)
- **Fit in with restructure of G4MICE**
- **Maintain current functionality**
- **Online Reco – only one use of DateReader/unpacking**
 - Improve efficiency
 - Applications to produce plots run from the output of “online reconstruction”

Online Reco/DQ Philosophy

- **Need data quality checks offline (and online?) to officially pass the data as good**
 - Check basic level of data
 - **before** reconstruction *and* at each stage
- **How automated should it be?**
 - Can we do this in stages? → **yes** – need figure out how exactly
- **Do we tag Runs or Event-by-Event?**
- **Need method to process data to produce DST (or MiceEvent list or Root file or what?) that is the **Official, Approved, Good data set for analysis****
- **Data Production - iterative**
 - Software version
 - Cabling configuration
 - Geometry
 - Beamline settings/Hardware status

