BigBite Analysis

Particle miss-id and 4pass BB Stability

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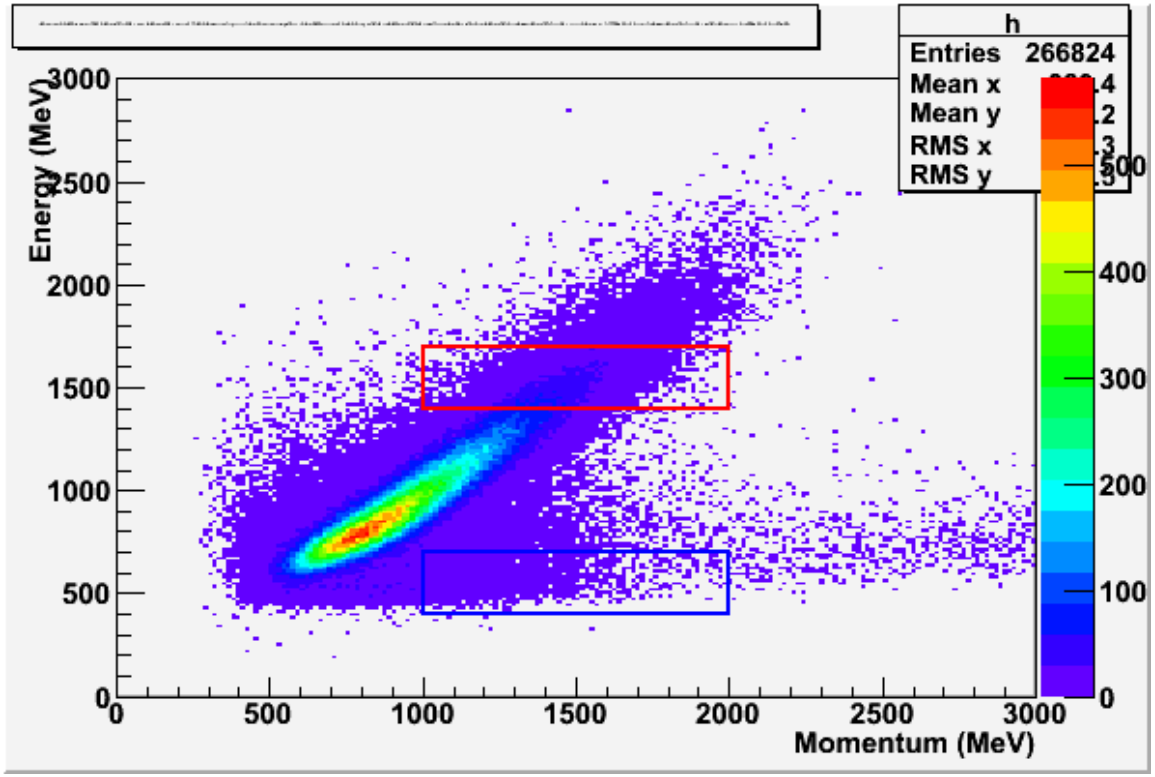
Outline

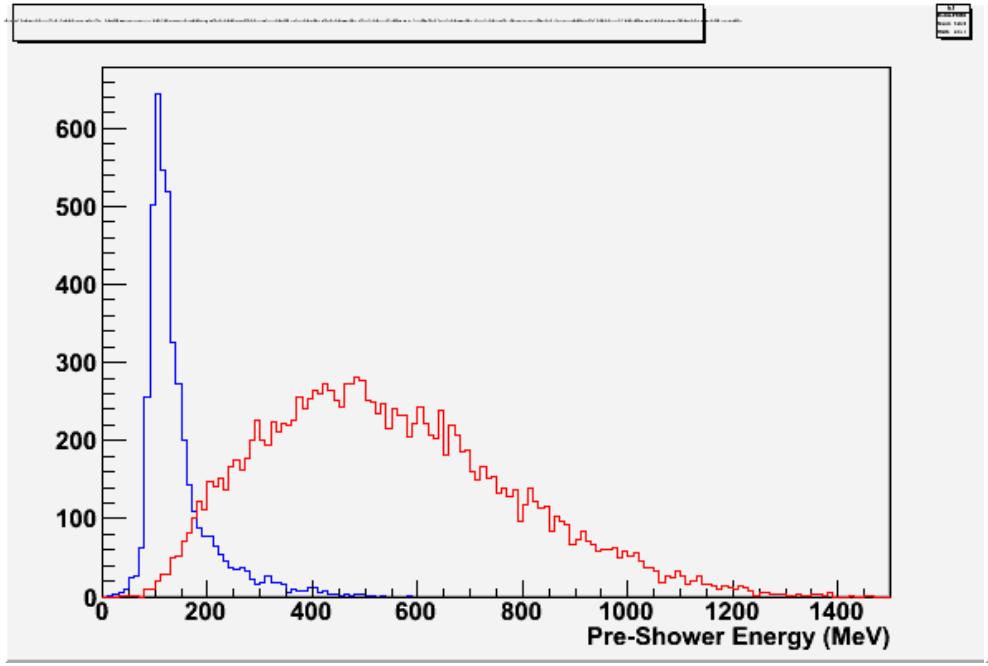
Define 2 Particle Types



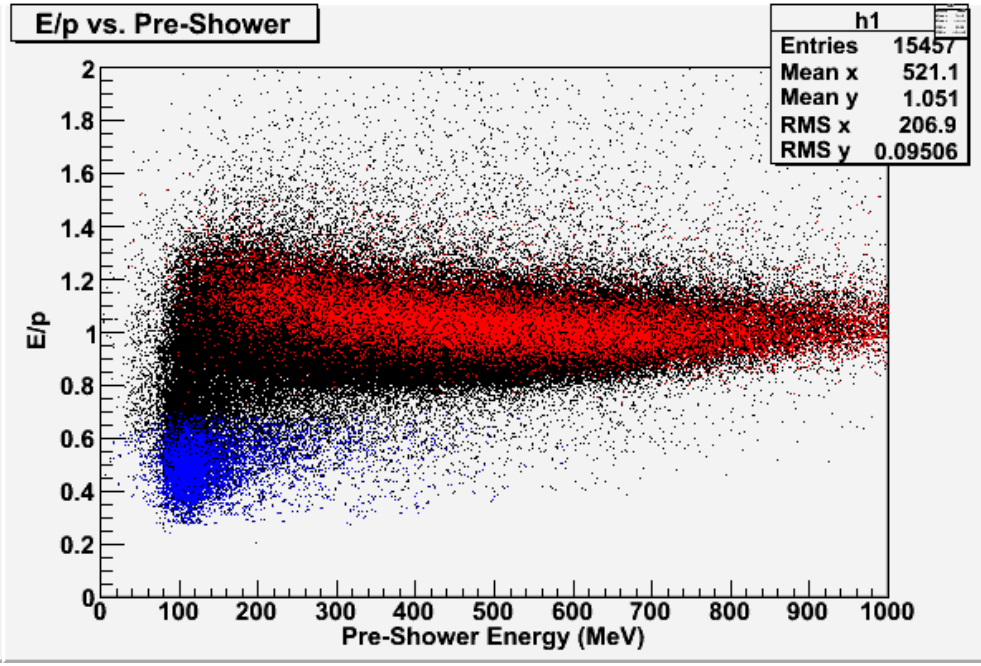
Two particle types to consider, red and blue

Pre-Shower and E/p vs Pre-Shower

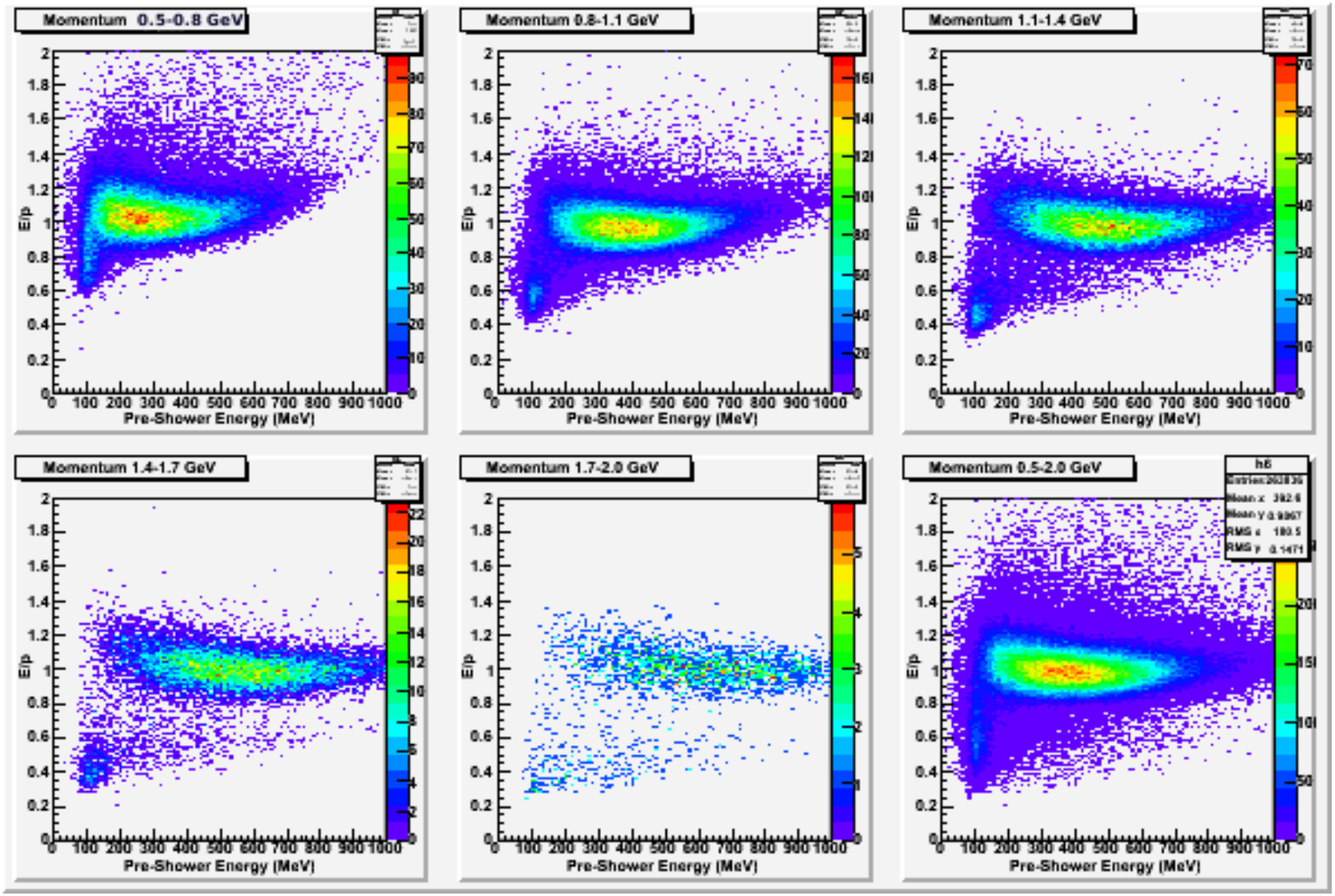
Pre-Shower



E/p vs Pre-Shower

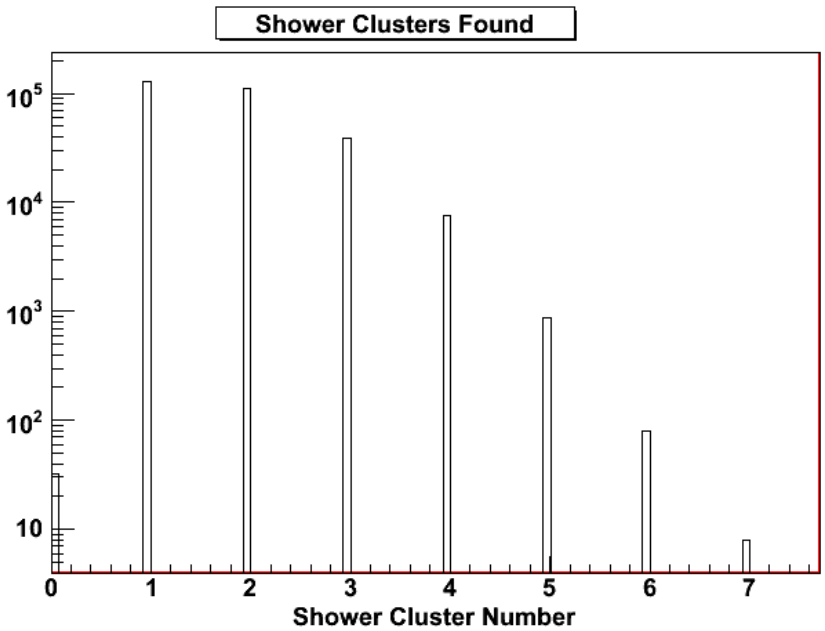


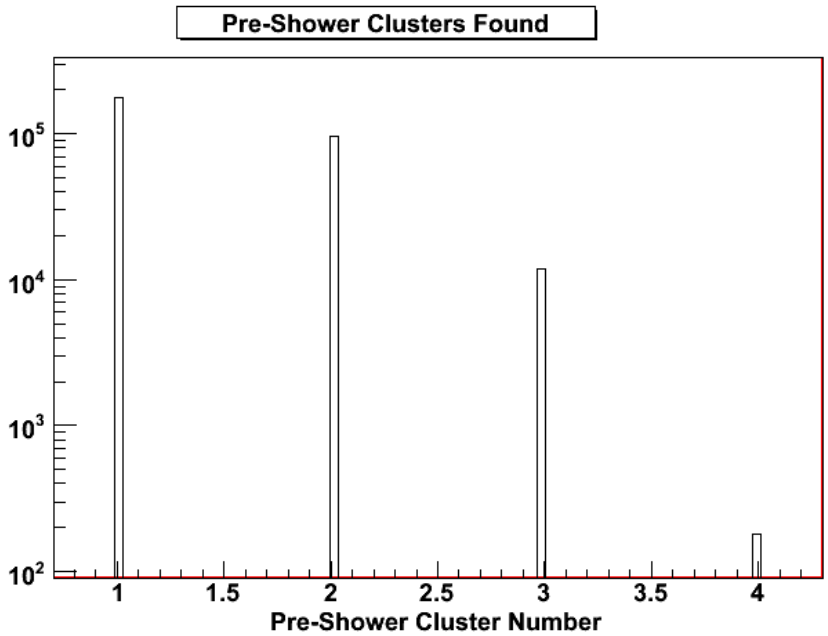
E/p vs Pre-Shower (Binned in Momentum)



Found Shower/Pre-Shower Clusters

Started looking at multiple clusters using Transversity shower class (d2n shower class does not save multiple clusters).





Particle Miss-ID Summary

- Seems like most of particles off of $E = p$ line are from pion + background events
- Two particle types (background and electrons) have little separation at low momentum
- Two particle types separate as momentum increases
- Still need to look at clusters to check if cluster is identified with wrong track...
- But track match to shower and pre-shower cluster should take care of most of those events

TDC Fits

Fit TDCs for each 4pass production run...

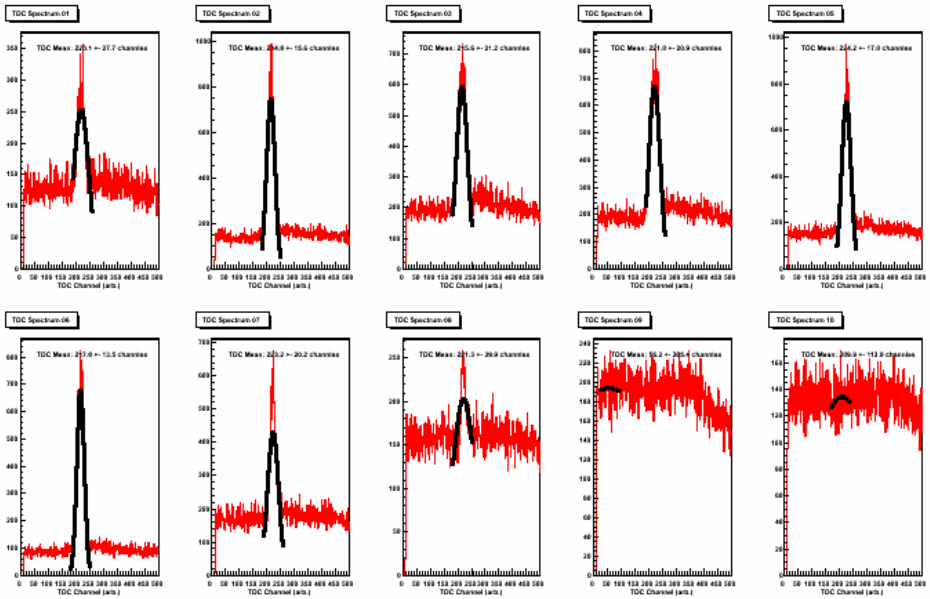


Figure: Beam-side TDC fits for 4pass ^{3}He run 2180.

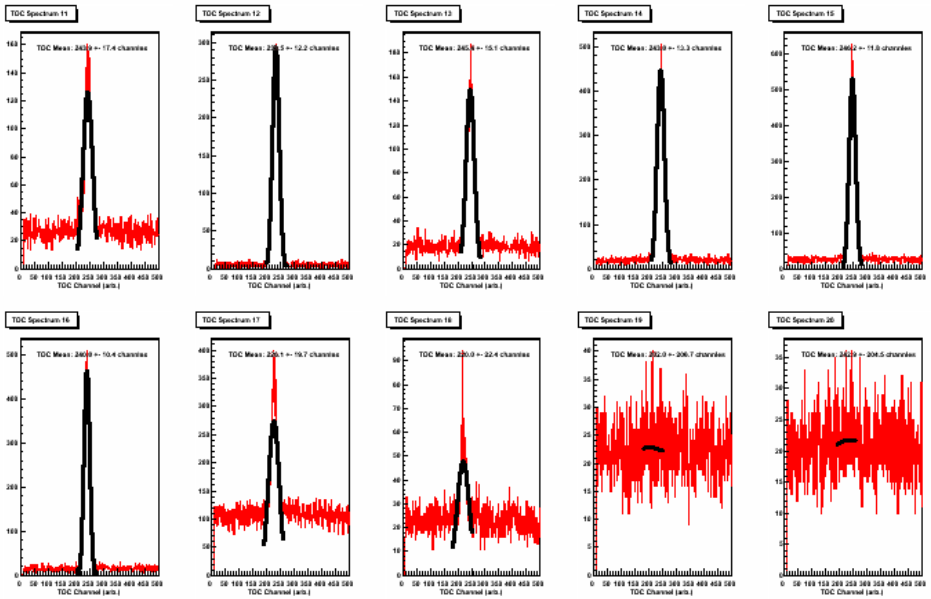
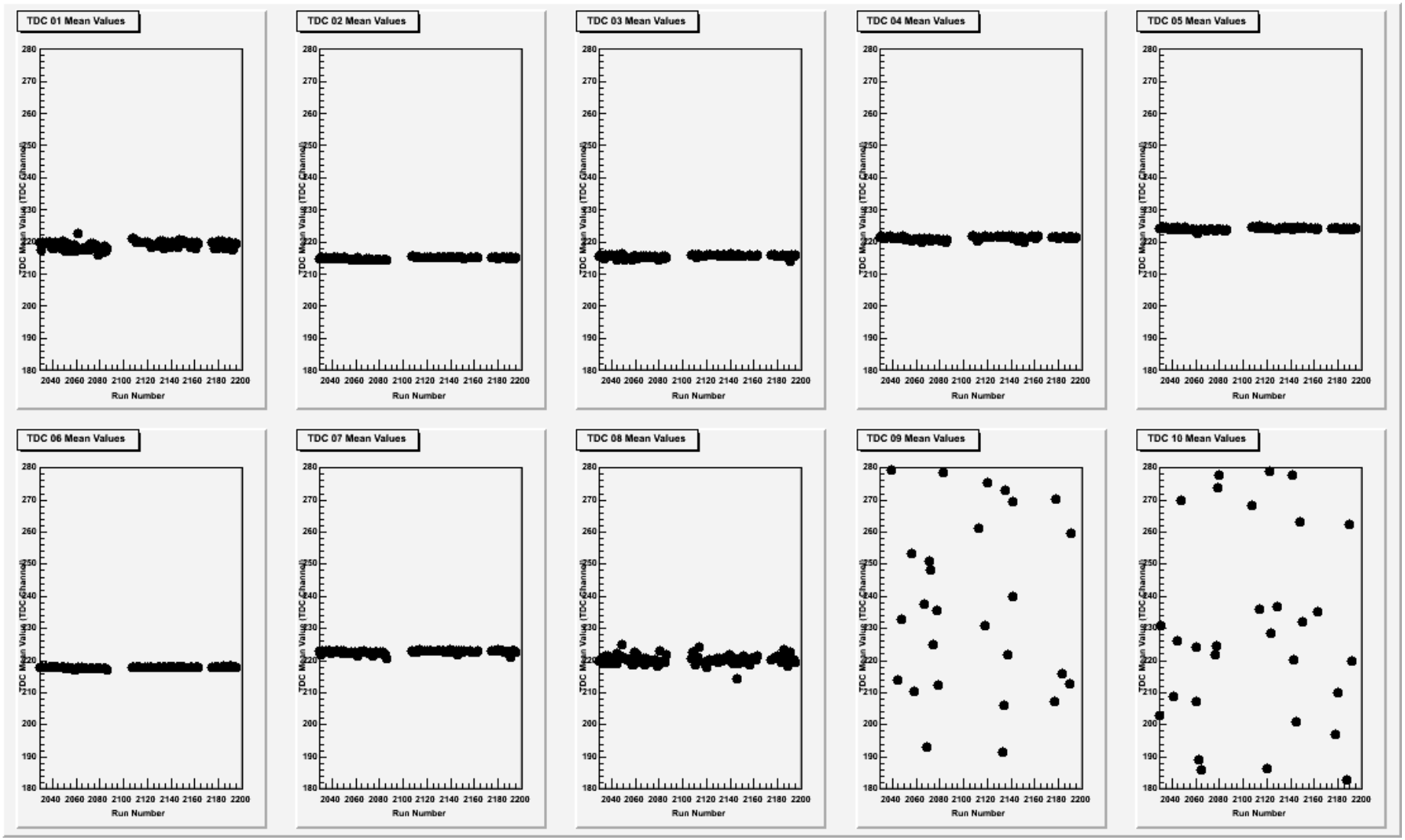
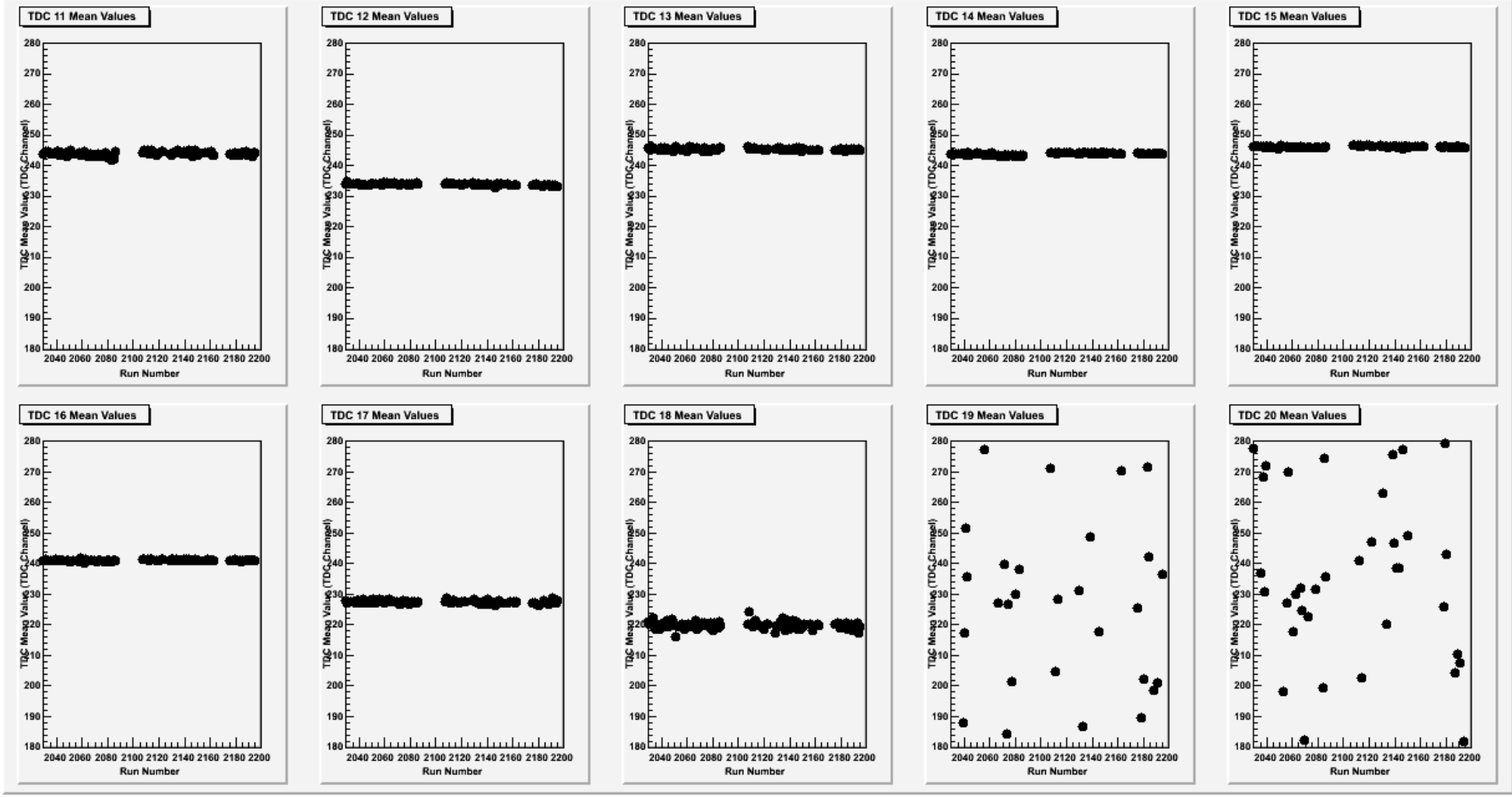


Figure: RHRS-side TDC fits for 4pass ^{3}He run 2180.

Beam-Side Mean TDC values vs Run Number



RHRS-Side Mean TDC values vs Run Number



E/p Fits and Stability

Fit E/p for each 4pass production run...

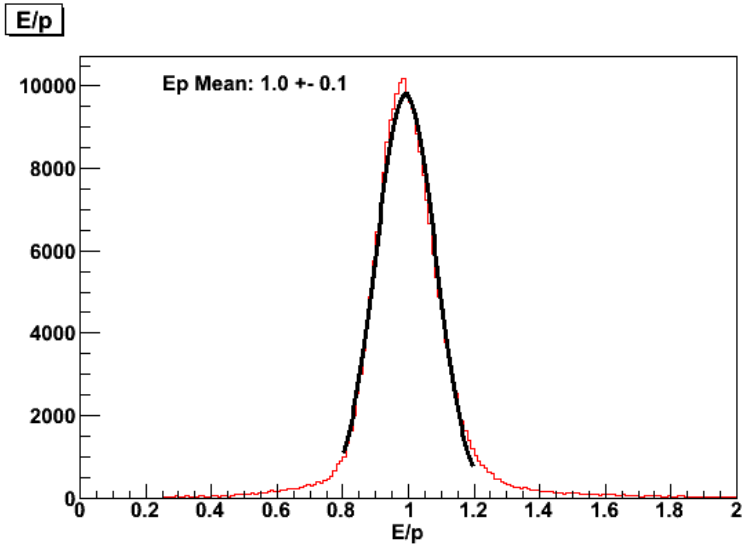
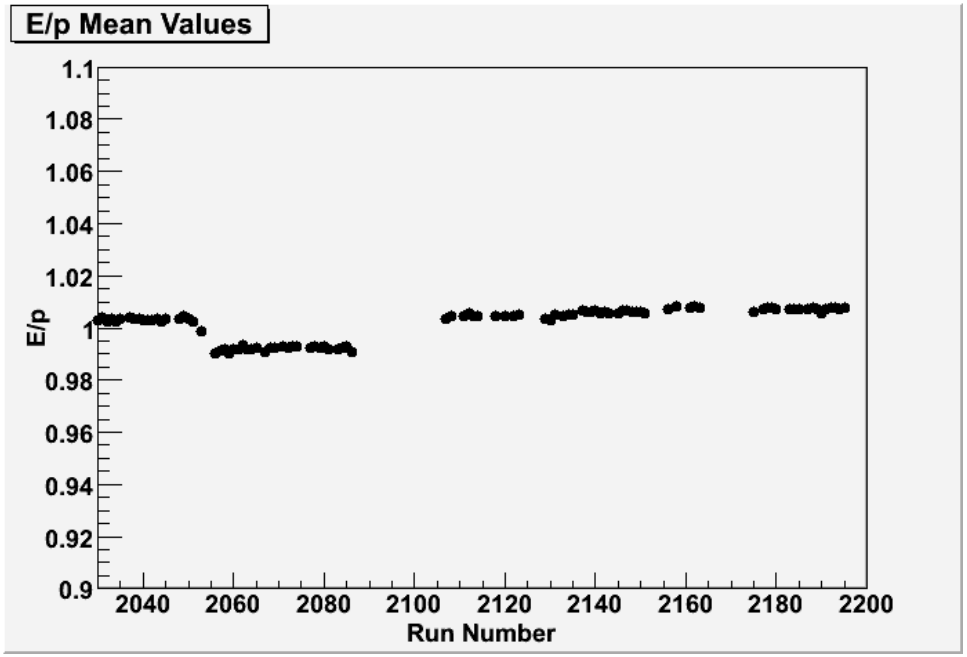


Figure: E/p fit for 4pass ^{3}He run 2061.

Stability of E/p vs Run Number...



For Next week

- Look at cluster-track distances of multiple shower/pre-shower clusters
- See how to implement E/p correction to 4pass data
- Determine PID cuts (Bring in Čerenkov)