



MAIN PMT ANALYSIS CODE

1. INPUT HANDLING

- a. Data files from FNAL with PMT waveforms
 - i. Data file format may change
- b. PMT mapping
 - i. Need to map channel/board #'s to individual PMT#
 - ii. Board/Channel #'s may change from now but basic format should not?
 - 1. This piece should not need to be changed?
 - iii. Organize by Chimney
 - iv. Pass this to all outputs
- c. Current HV
 - i. Should be determined from Shell Script from previous week

2. ANALYSIS

- a. Pulse Peak Amplitude Determination
 - i. Current determination is satisfactory
- b. Baseline Determination
 - i. Determine baseline from fixed size window ie 200 bins
 - ii. For clean baseline, use bins prior to pulse where there are no photons
 - iii. Determine window location by using pulse peak
 - 1. Window ends at (pulse peak amplitude - x bins)
 - iv. Subtract baseline from pulse
- c. Charge Distribution
 - i. Fixed size window to from before to end of pulse to sum up the charge
 - 1. Window start at (pulse peak amplitude - x bins)

3. OUTPUT

- a. ROOT
 - i. Event plots w. Fit
 - ii. Baseline Mean
 - iii. Baseline Width
 - iv. Peak Amplitude Distribution
 - v. Charge Distribution
 - vi. Pulse Width
- b. Future HV for optimal gain (TBD)
 - i. With Light
 - ii. Without Light (using reflected light from neighboring chimney)
- c. Current Gain for PMTs
 - i. With Light
 - ii. Without Light (using reflected light from neighboring chimney)

SHELL SCRIPT

1. INPUT

- a. Future HV for optimal gain

- b. Current Gain for PMTs
- 2. ANALYSIS
 - a. Administer a switch here so w/wo light can be chosen
- 3. OUTPUT
 - a. Weekly Calibration File
 - i. This file is used to determine current gain and what to change the HV for for each individual PMT