

Shaper - FEM Results

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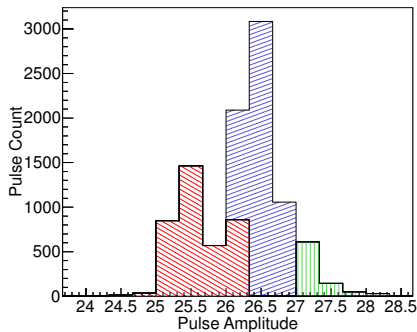
Nevis Labs



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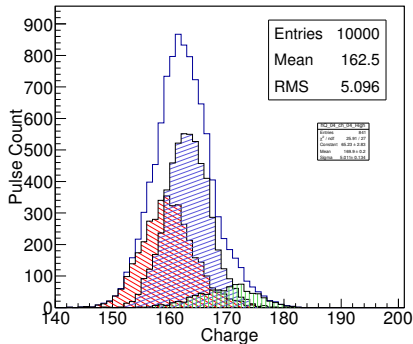
Pulse Height Cuts

Pulse Height Division



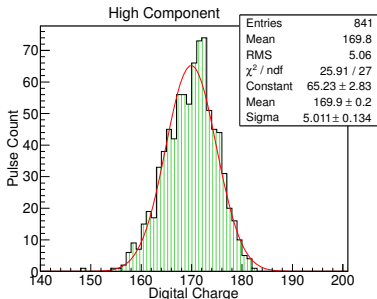
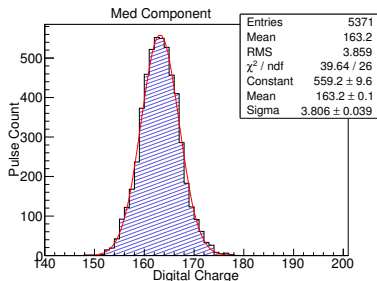
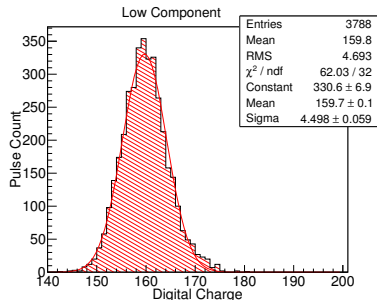
- Make 3 cuts on pulse A distribution
- Find max bin, look ± 0.5 as estimate of digitization effect

Charge: Amp=4.0



- Charge distribution split by peak cuts

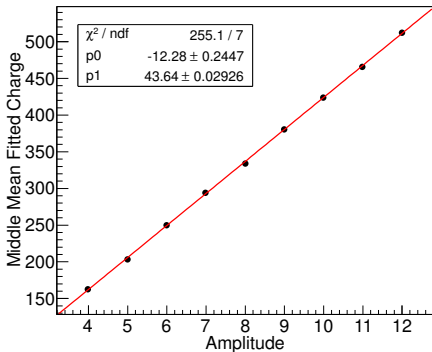
Separated Peak Height Components



- Fit corresponding energy distributions
- Low (red), Med (blue), High (green)
- Take med component, estimator of mean summed charge

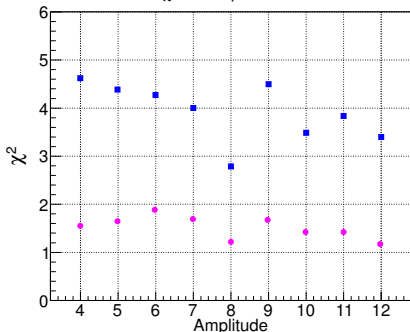
Linearity Plot

Middle Charge Sum Ch. 4



- For each input A, plot mean
- Linear as function of input A

χ^2 vs. Amplitude Ch. 4

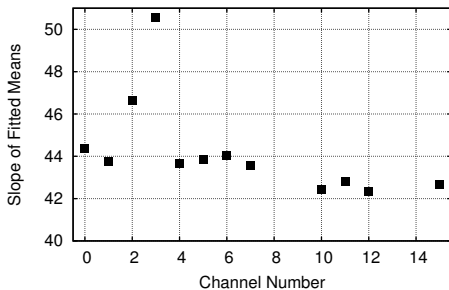


- Magenta: middle peak fits
- Blue: fits without cuts
- For each input A, plot χ^2 goodness of fit parameter
- Cuts are indication better selection of sample selection

All Channel Fits

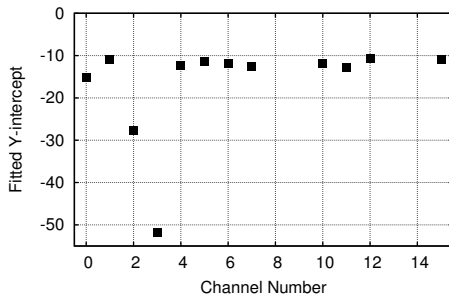
Repeat over all shaper channels

Slope of Fitted Means vs. Channel



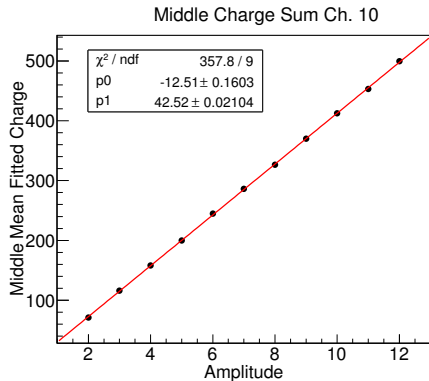
- Slope of fitted mean plotted over channel number

Fitted Y-intercept vs. Channel

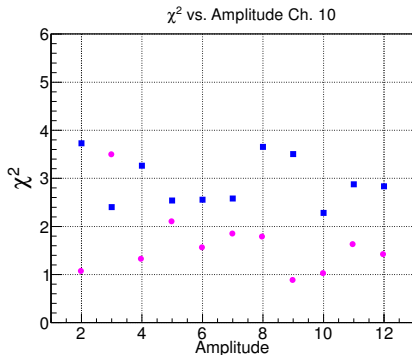


- Y-intercept of fitted mean plotted over channel number
- Shows non linearity at low energy ($A < 4$)

Channel 10, Less than SPE region



- Include A: 2 & 3. Response is linear



- A = 3 high χ^2 .
Peak ± 0.5 cut should be tuned

FEM - Shaper

- Finish taking data for channels 8, 9 and 14
- Investigate lower A region and determine linearity

PMT GUI

- Implement with Win Driver functions next week

