

BigBite Timing Hodoscope SBS Weekly Meeting Update

Hall A Jefferson Lab

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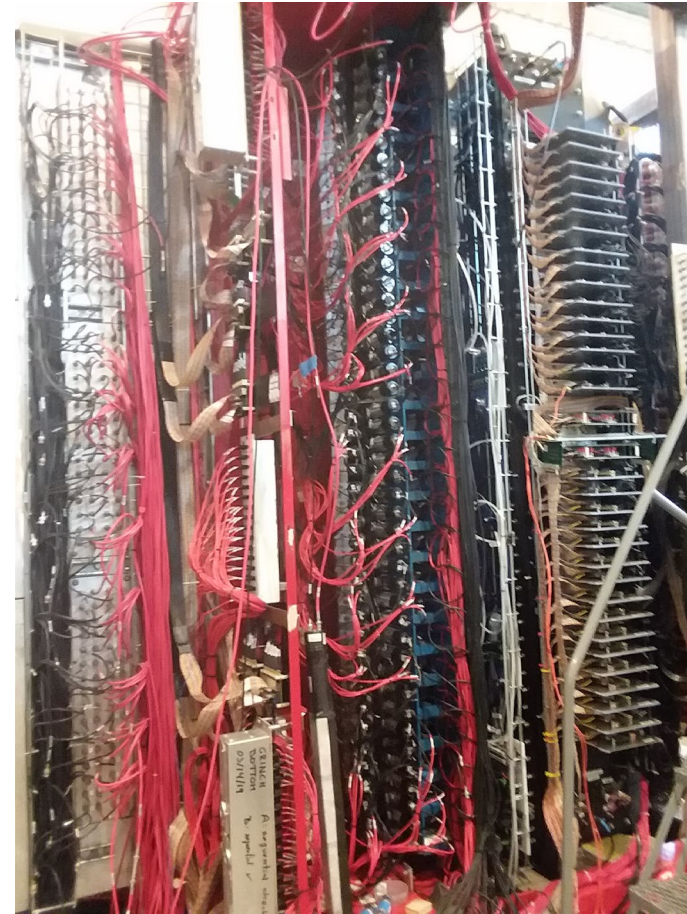
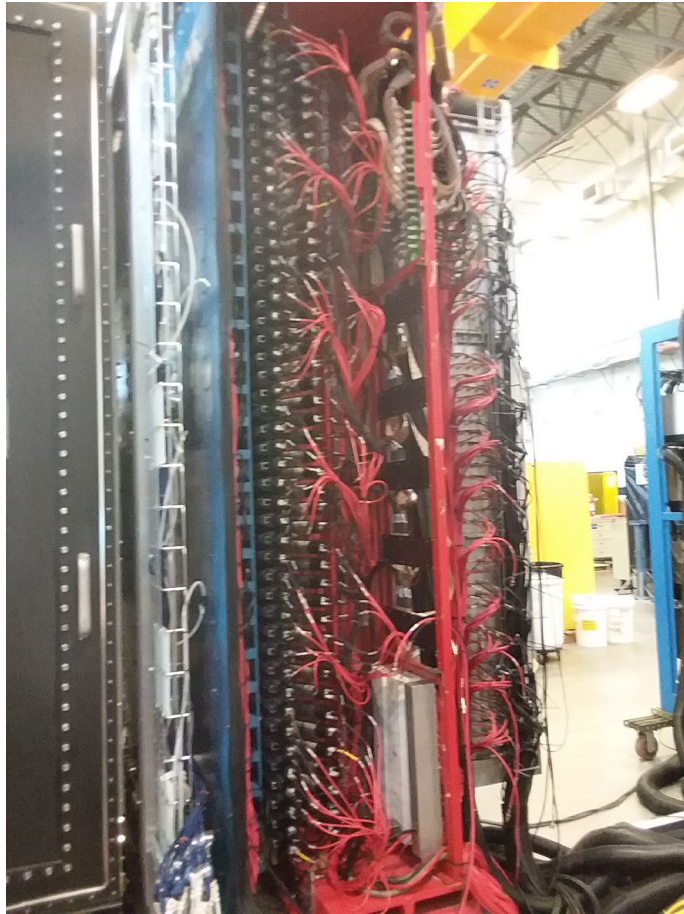
Hardware Status

- Checklist:
 - detector completely repaired and rebuilt – **YES**
 - HV, TDC, and ADC cables reinstalled correctly and relabeled – **YES**
 - HV crate working, supplying correct voltage to PMTs and triggers – **YES**
 - NINO power supply working, thresholds set to 1.5V – **YES**
 - TDC level translator working, power supply fixed, grounding installed – **YES**
 - daq electronics installed – **YES**
 - TDC Caen v1190s and ADC v792s, and cables working properly – **YES**
 - CODA3, ROC, and PEB working and connected – **YES**
 - seeing TDC and ADC signals for every bar on oscilloscope and from daq – **YES**
 - Several successful data runs taken – **YES**

Hardware Status – individual bars



Hardware Status – detector

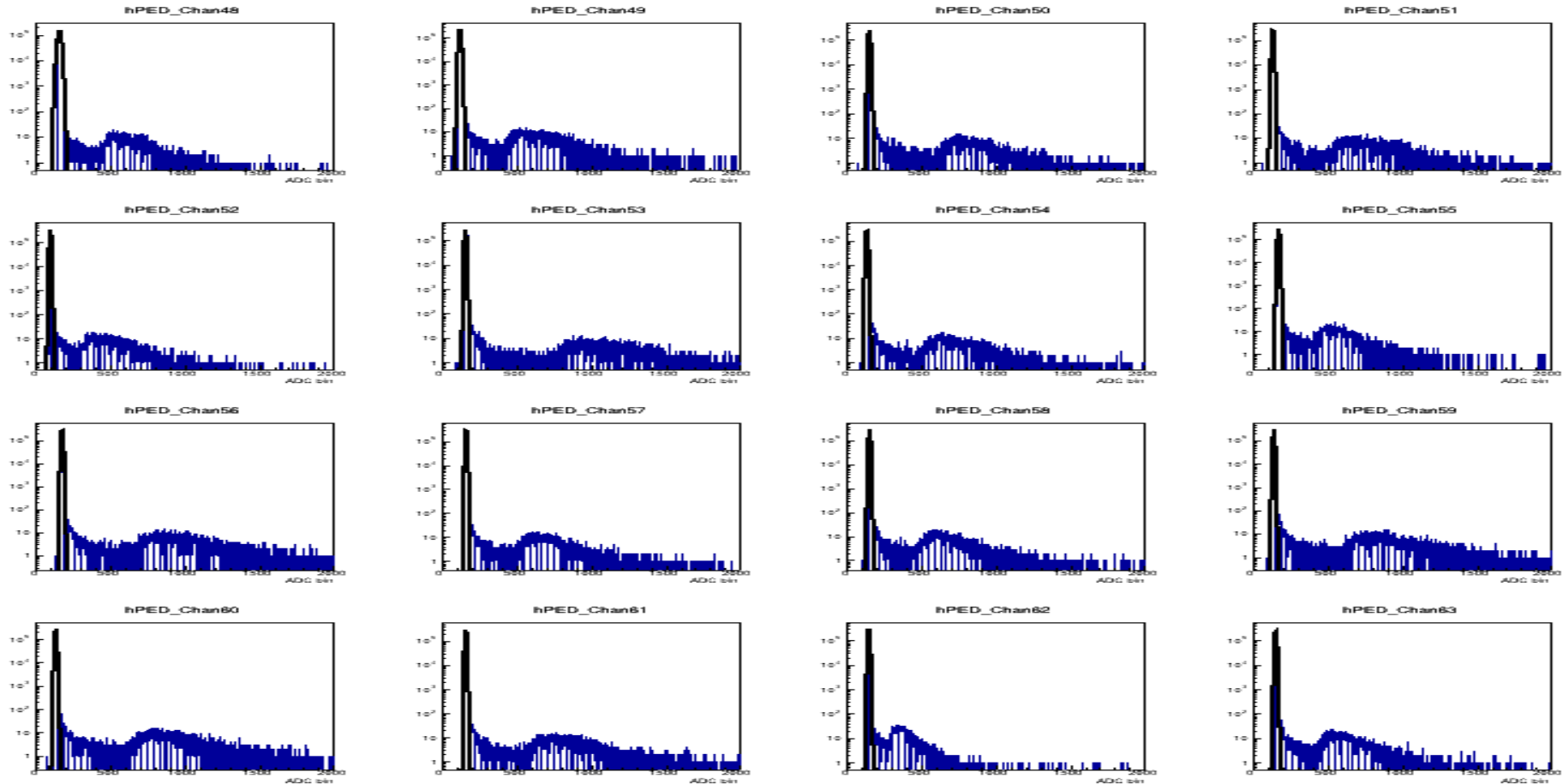


Data Analysis Status

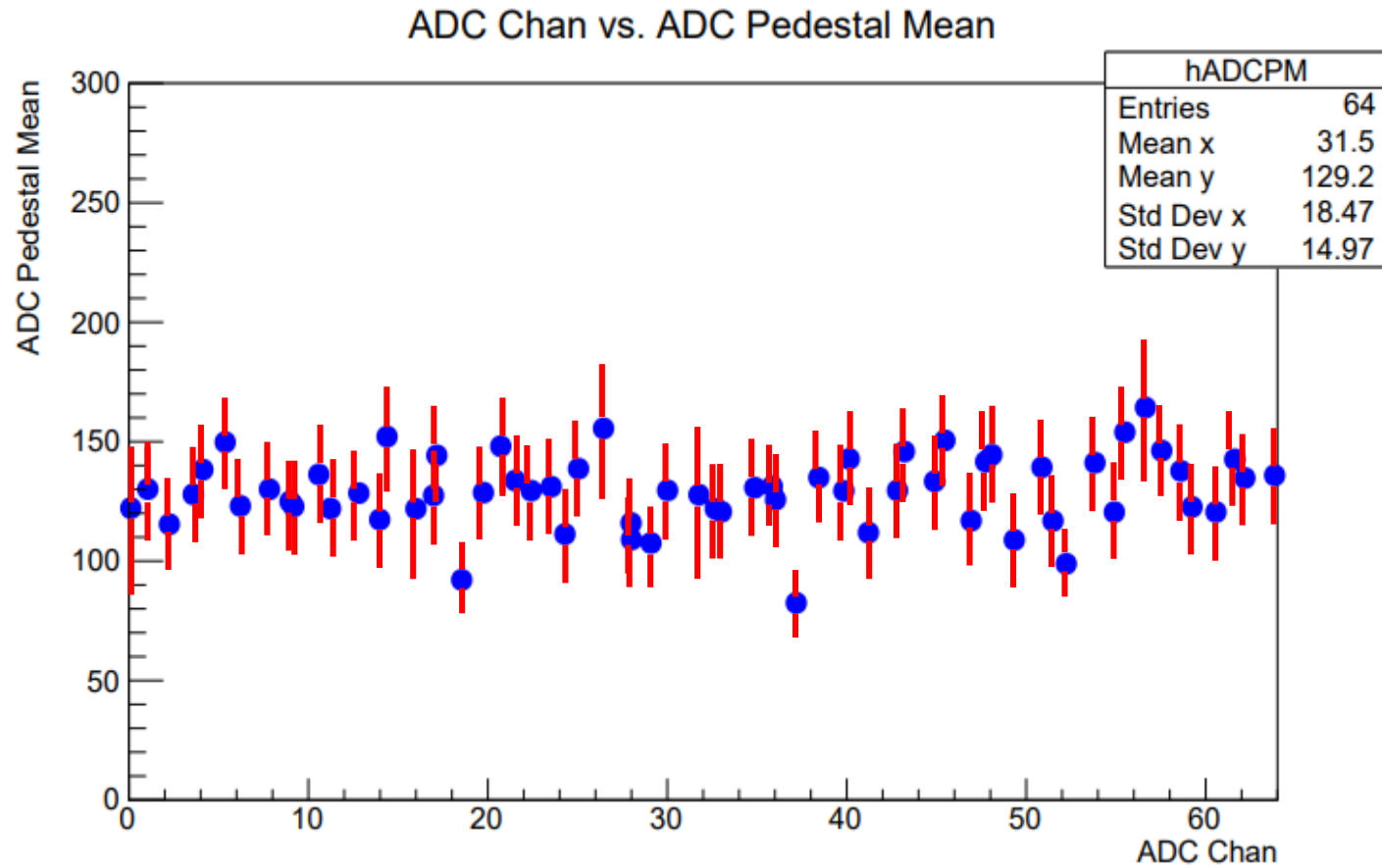
- Checklist:
 - data files ready to be analyzed – **YES**
 - data files decoded and converted to a rootfile – **YES**
 - analyzer, root, and sbs-offline installed – **YES**
 - updated CAEN 1190 class to include TDC leading and trailing – **YES**
 - setup database with crate and channel mapping – **YES**
 - sbsoffline runs with updates to detector class – **YES**
 - analysis scripts ready for rootfile – **YES**
 - rootfiles data analysis complete – **NO**
 - gain matching – **IN PROGRESS**
 - threshold studies – **NO**
 - timing resolution and time dependence – **NO**

Fitting ADC Pedestals

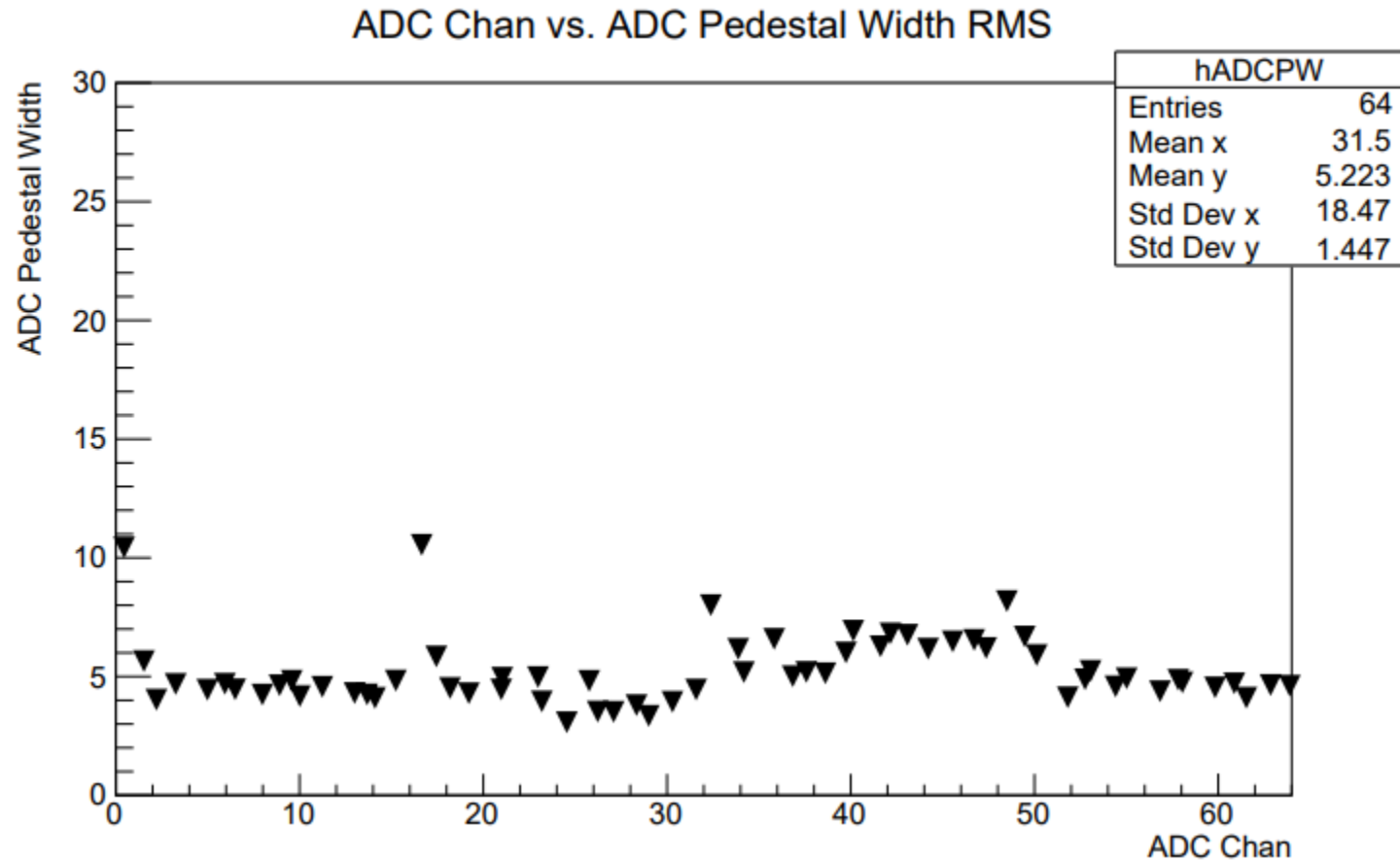
- Fit pedestal with gauss and subtract mean



Fitting ADC Pedestals



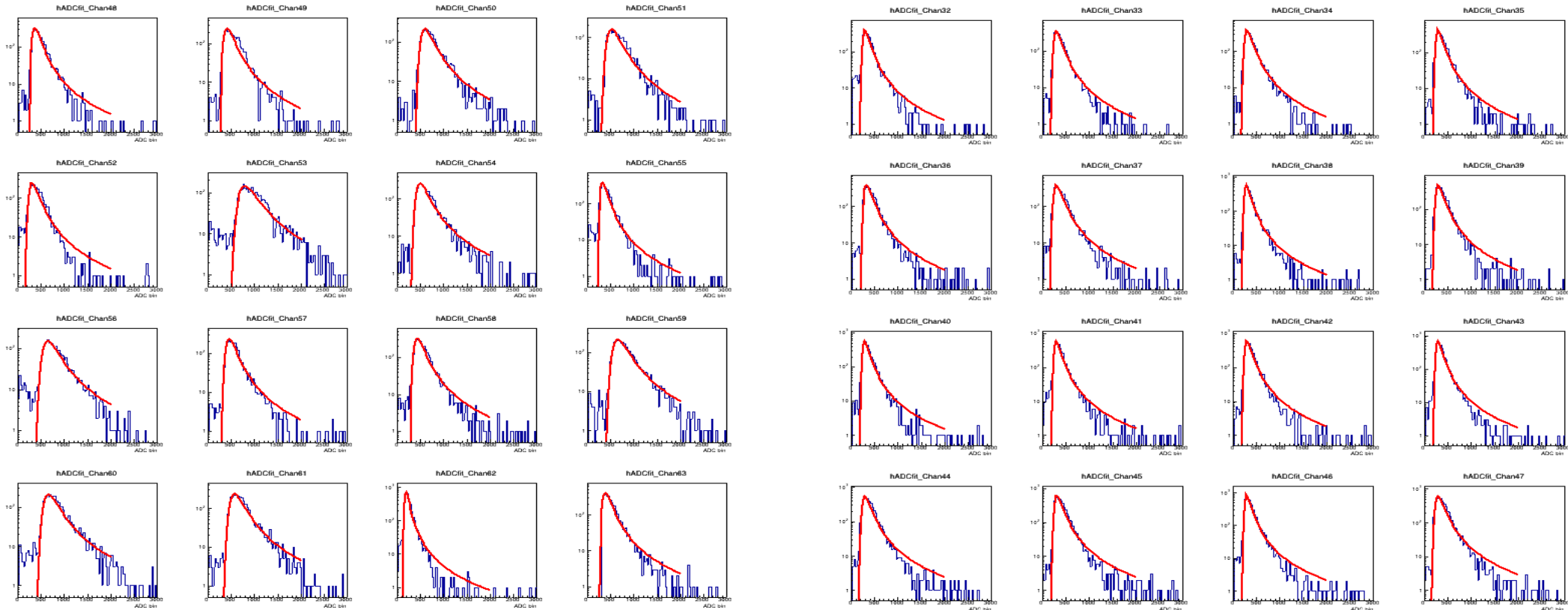
Fitting ADC Pedestals



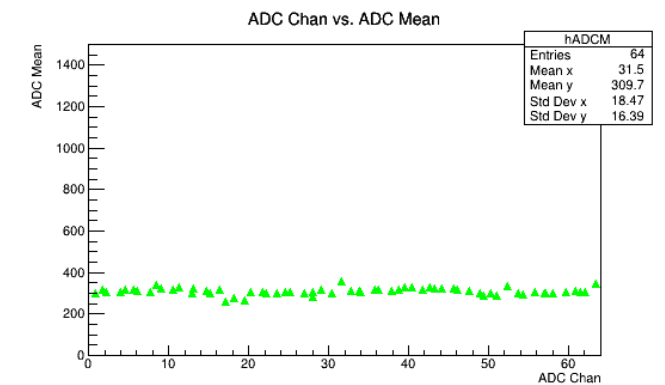
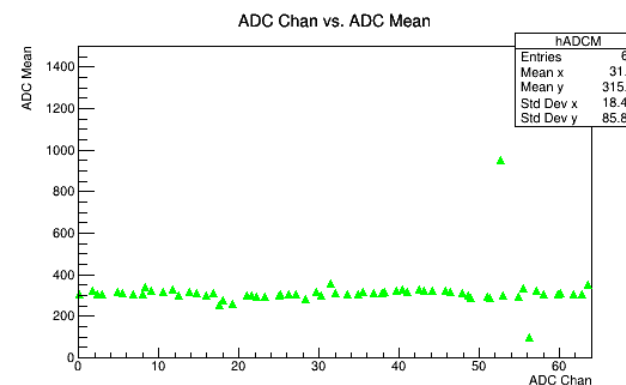
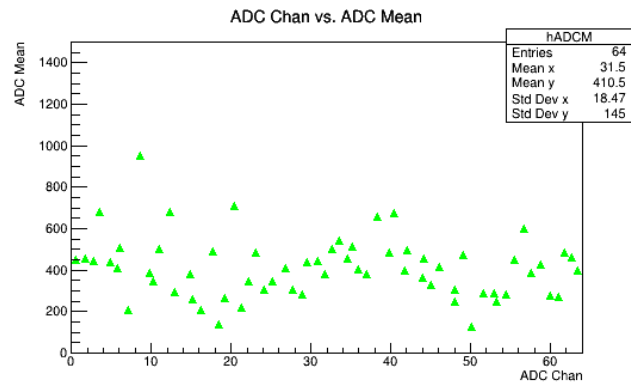
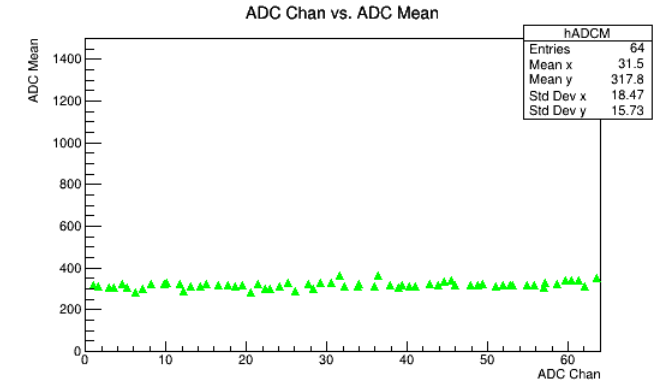
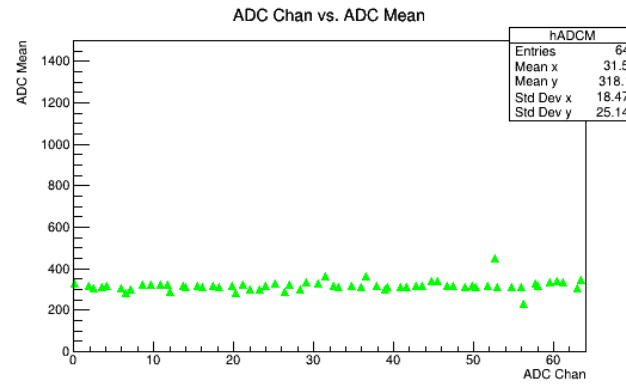
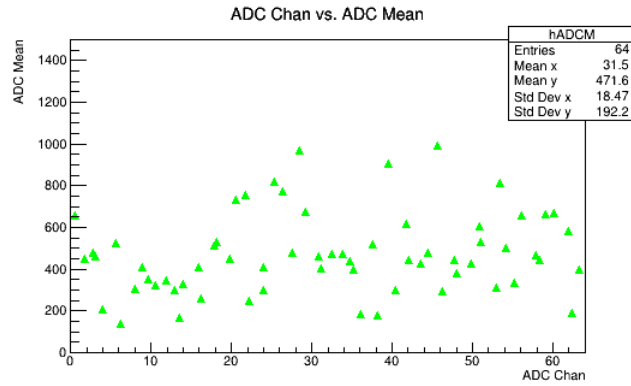
Filling and Fitting ADC Spectra

- Cut out pedestal, vertical cut on neighbors ADC > 250, fit with landau by getting bin max
- Normalize to 300 using formula:

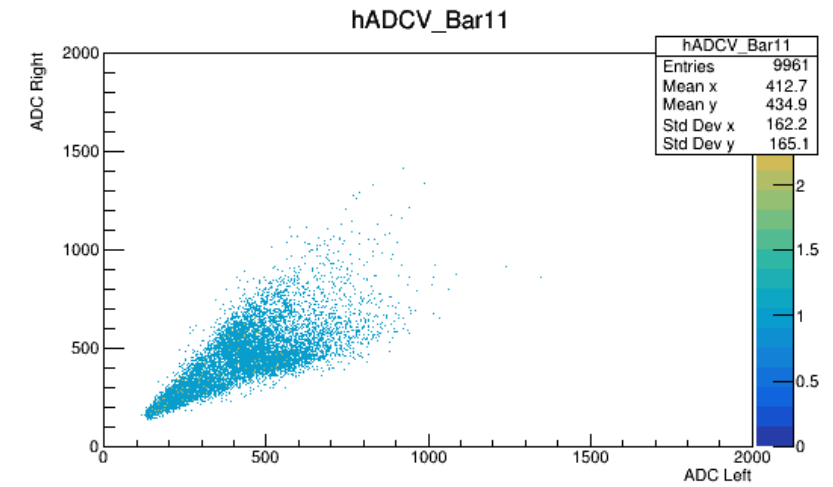
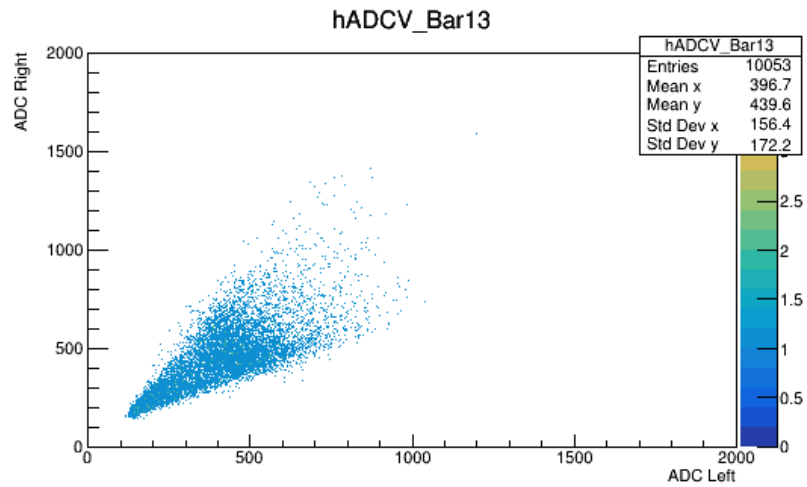
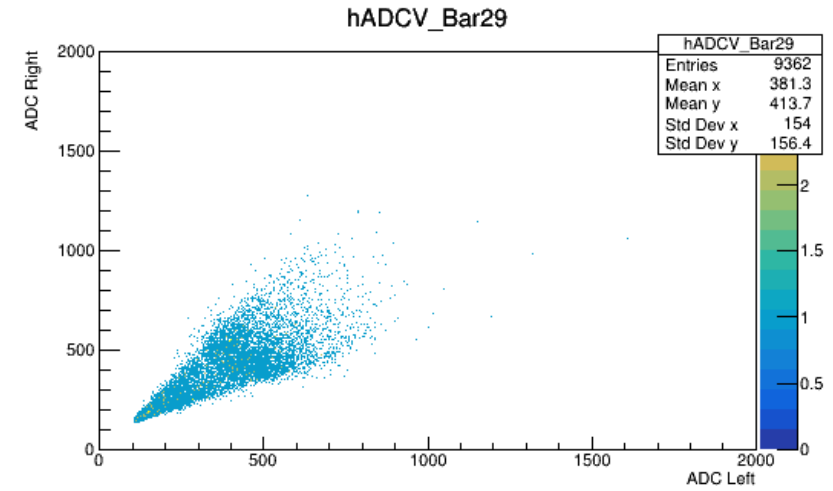
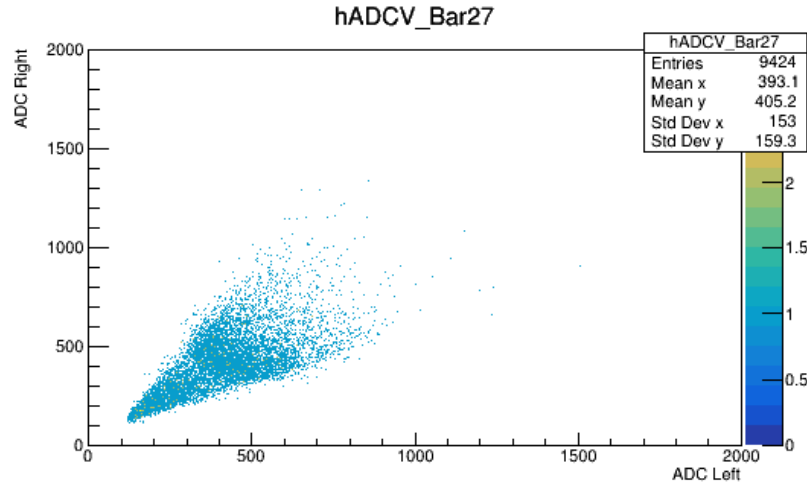
$$HV_{new} = \left(\frac{300}{ADC_{mpv}} \right)^{1/10} HV_{current}$$



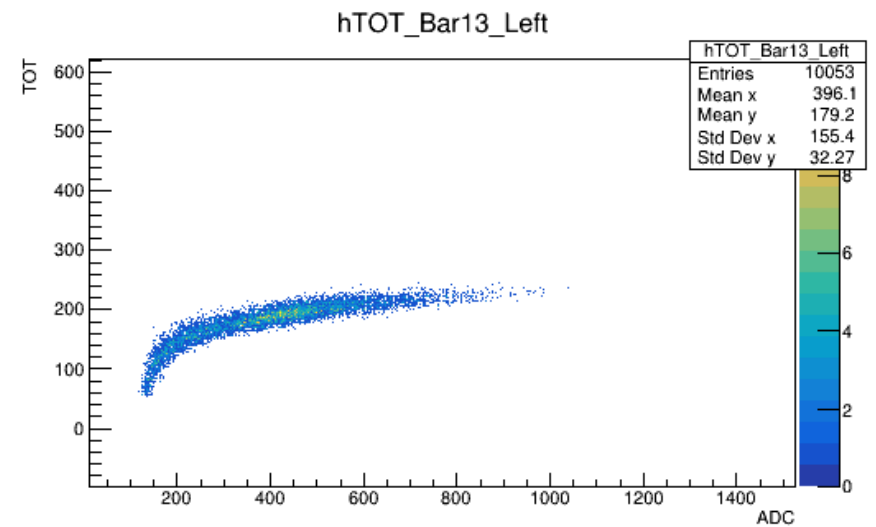
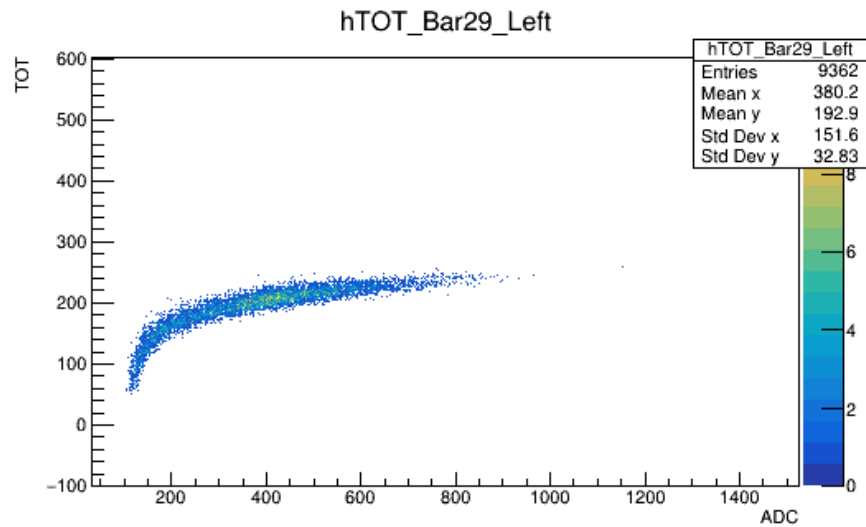
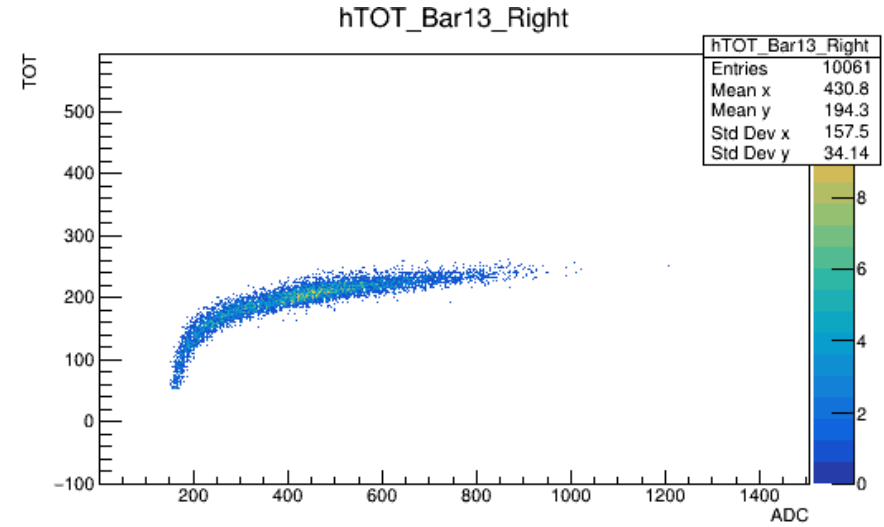
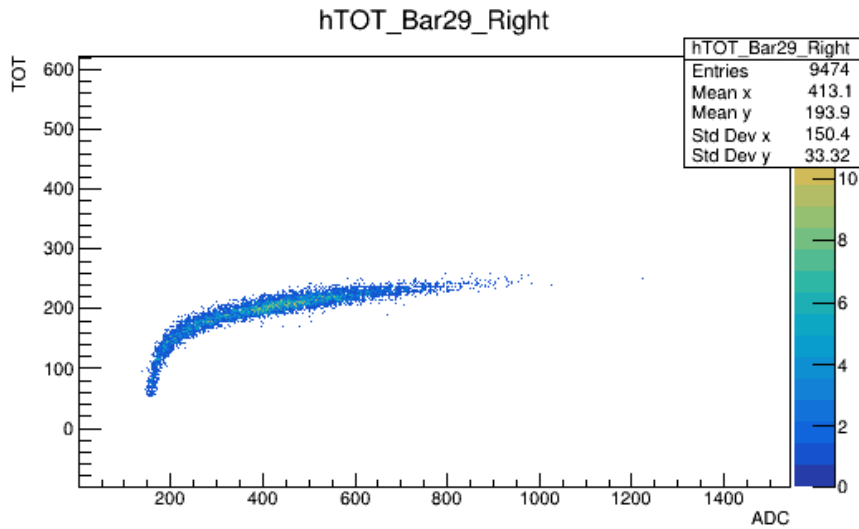
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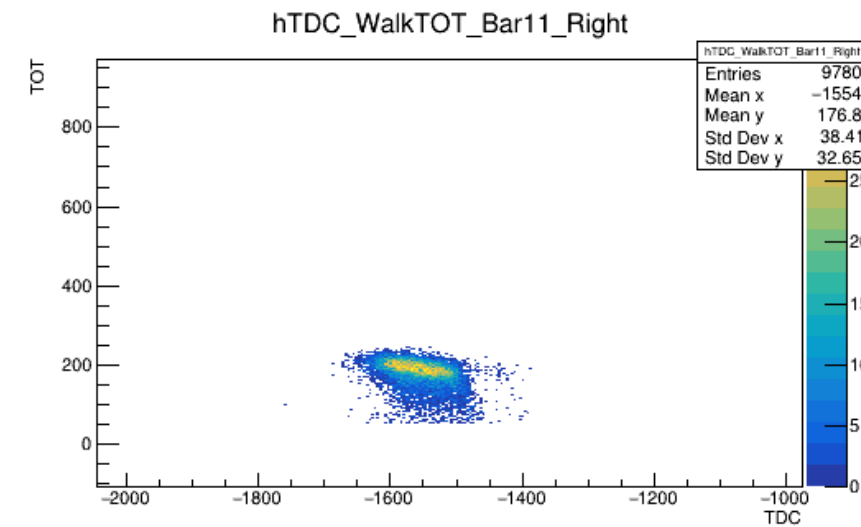
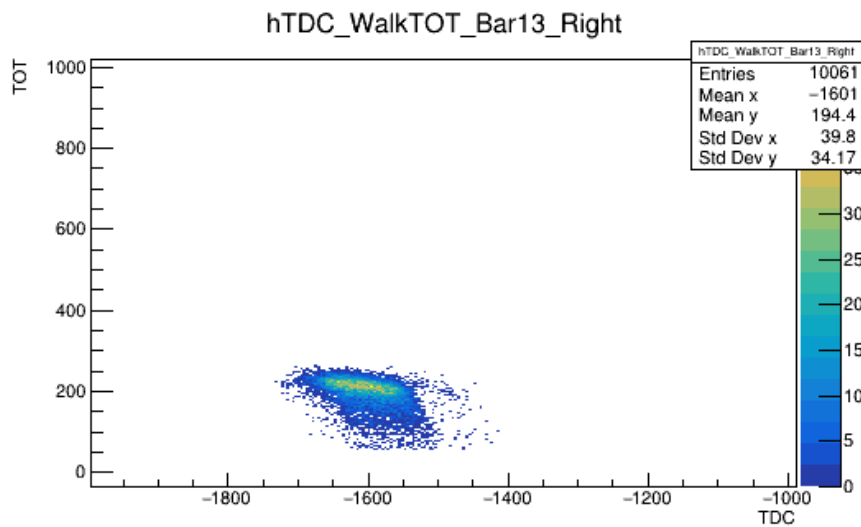
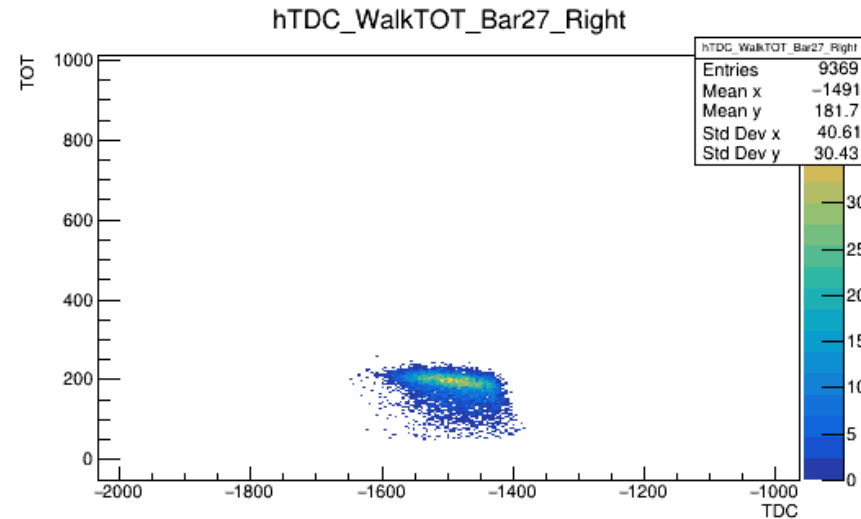
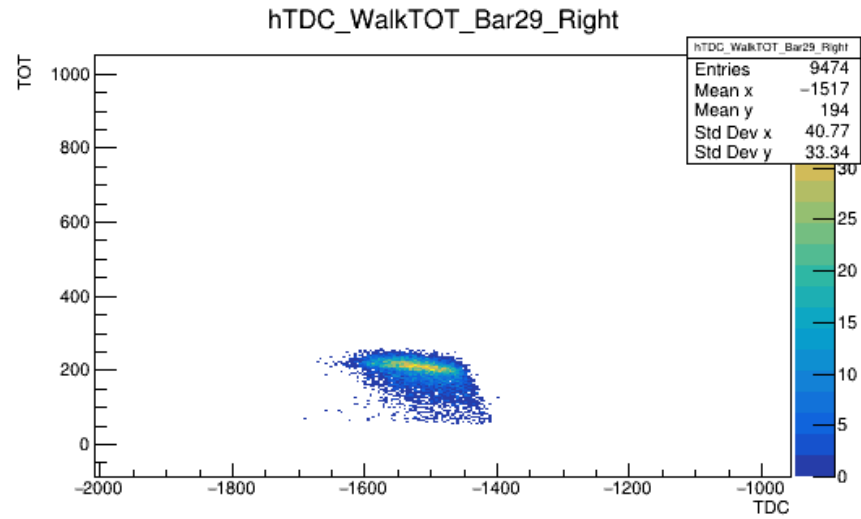
Plotting ADC Spectra



Plotting ADC Spectra



Plotting TDC Spectra



Summary

- detector completely assembled and bars tested
 - To Do:
 - write up documentation on repairs and reassembly process
- daq working, seeing signals for all channels
 - To Do:
 - write up documentation on daq and detector setup in TEDf
- data taken, ready for analysis
 - To Do:
 - complete gain matching
 - begin study of thresholds for NINOs
 - finish timing analysis
- prep for installation mostly complete