DEEP UNDERGROUND NEUTRINO EXPERIMENT

Brookhaven National Laboratory

U.S. DEPARTMENT OF ENERGY

Quick Summary on Data Fitting

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What's New

Applied fitter to PDHD Data

- NP04 TPC Electronics Studies Runs.
- Pulser Run 25732.
- DAC = 30.
- 14 mV/fC LArASIC gain.
- 2 us Shaping Time.
- LArASIC Output Mode: Single-ended.

(HD) Observations

- ✓ **NO noisy channels found.**
- ✓ **NO zero baseline channels were found.**
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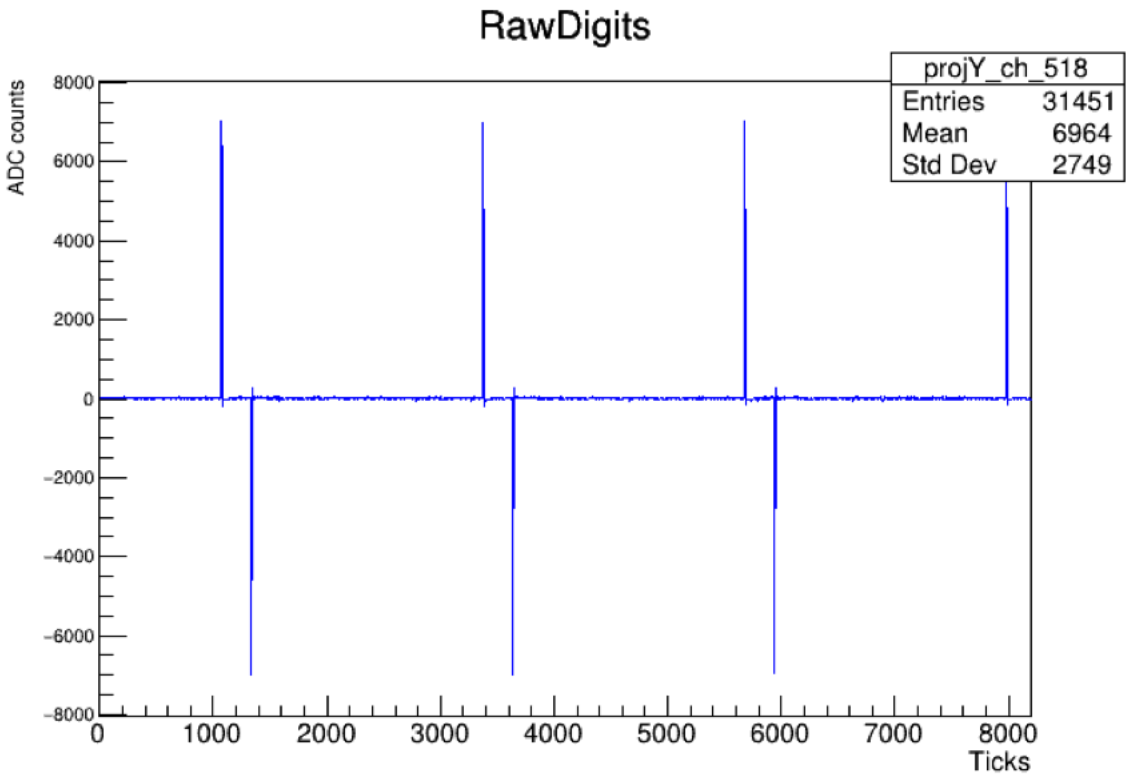

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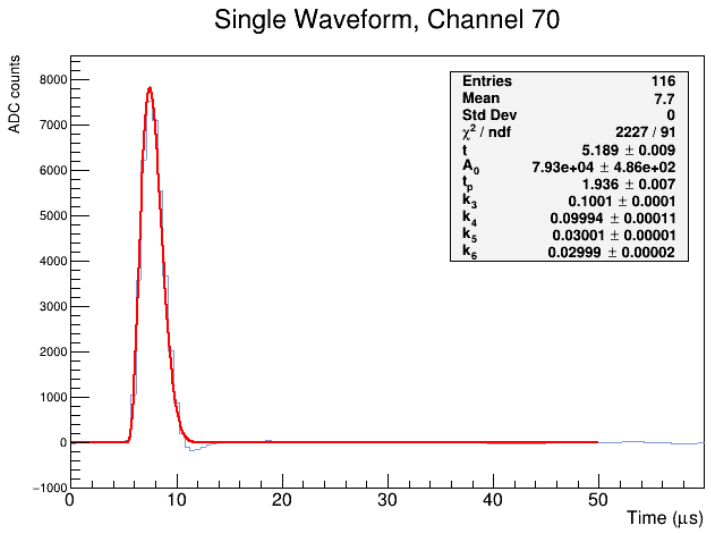
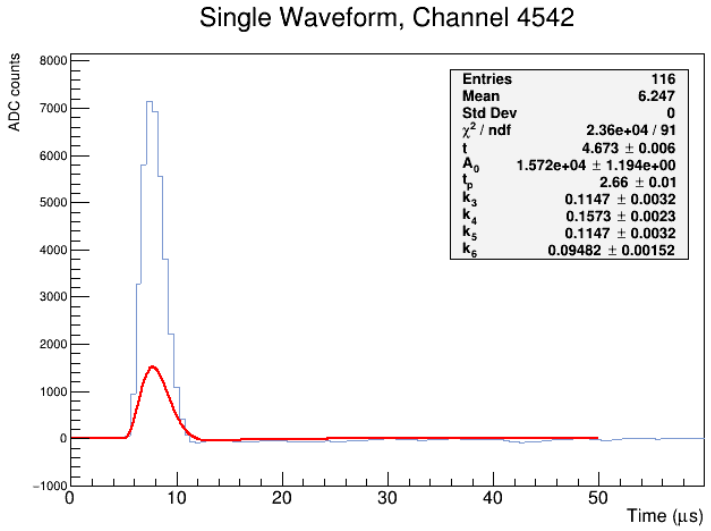
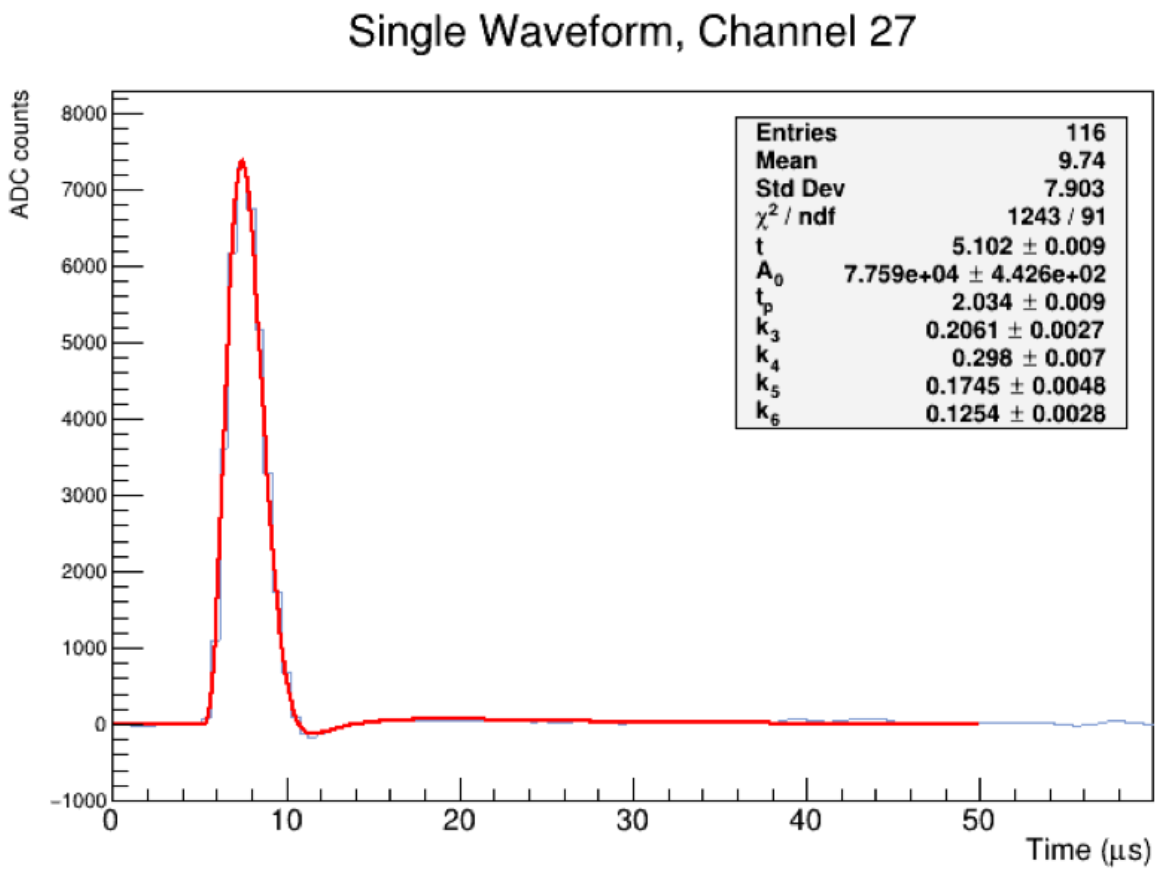




(HD) Fitter Performance

Fitted Examples



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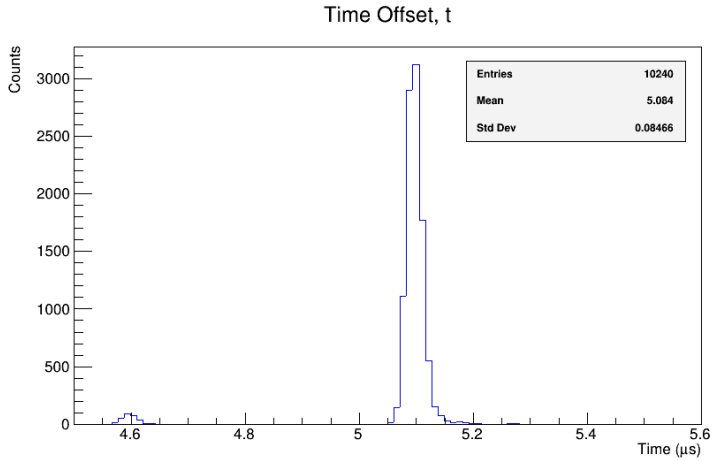
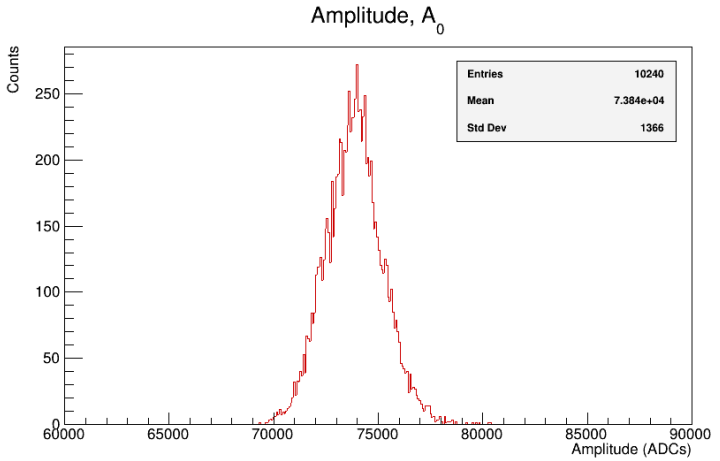
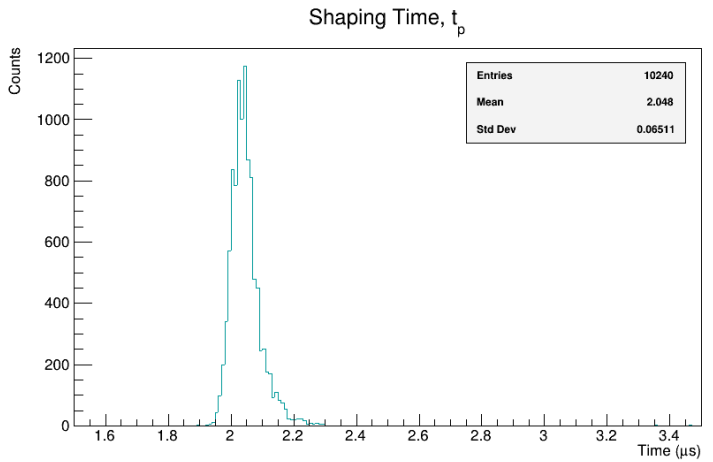
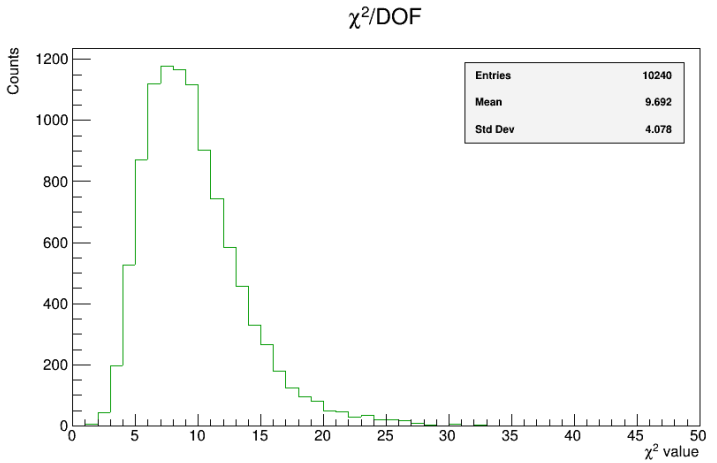
Pre-fit Parameters









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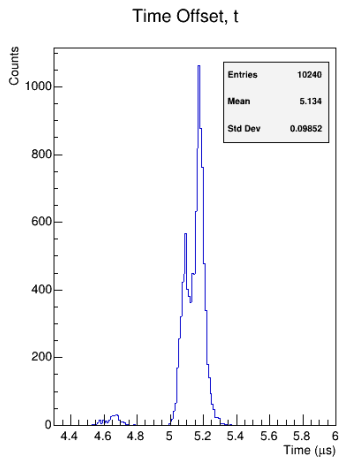

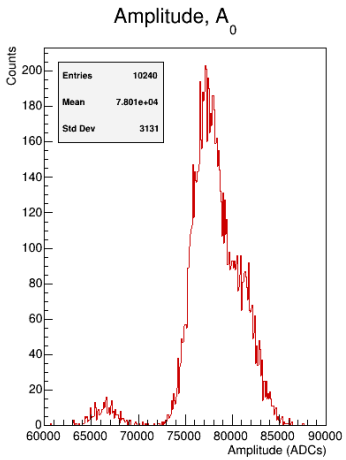

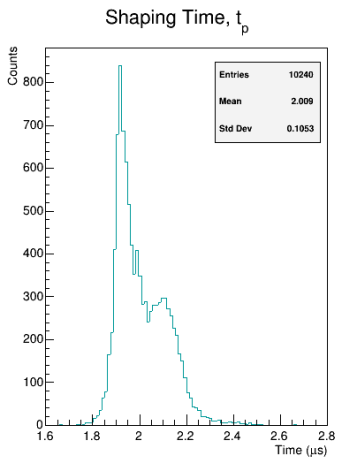

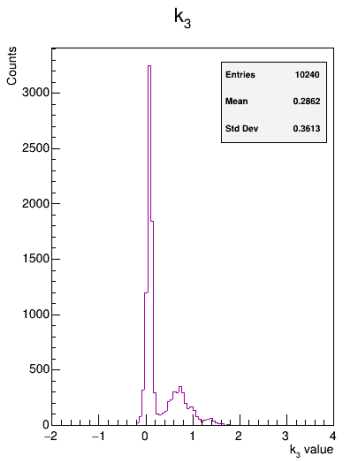

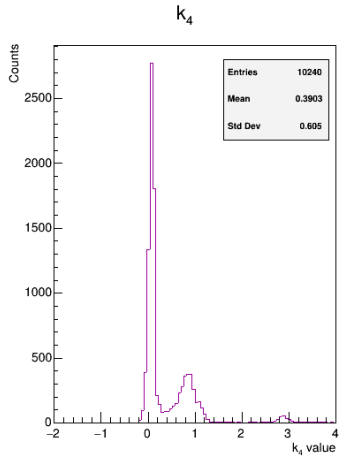

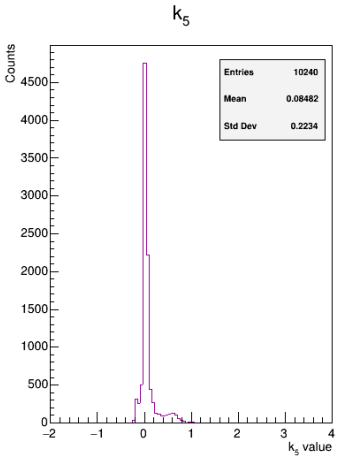

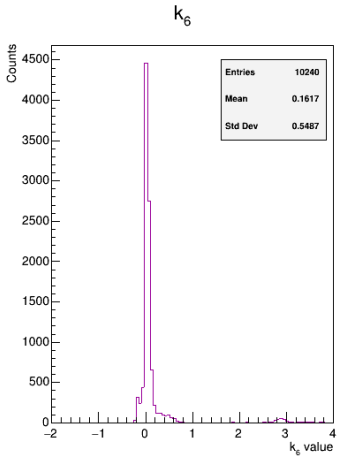

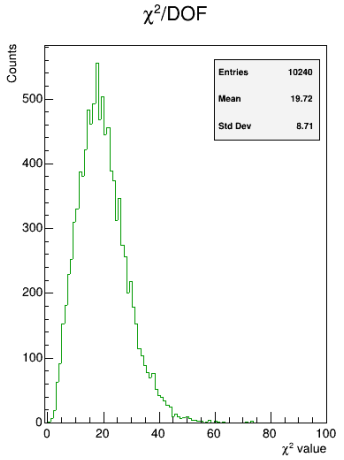

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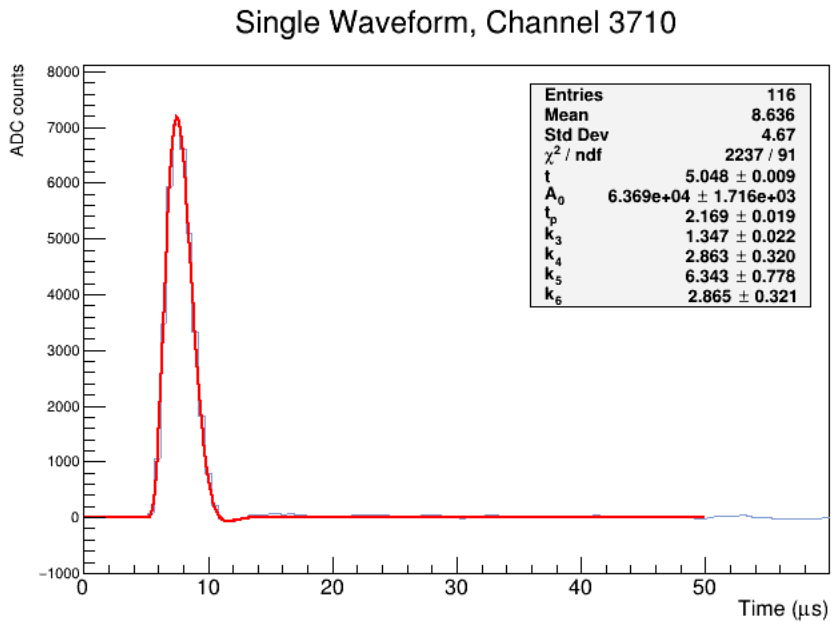

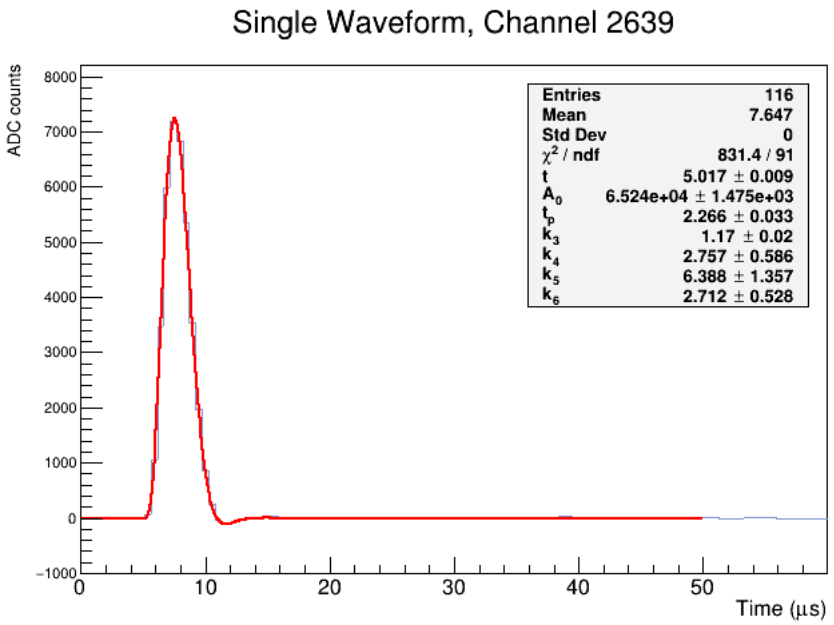

Cases where A_0 < 68K

PDVD Data: Averaging Waveforms

1. Identify all peaks in Time Domain.
2. Transform waveform to Frequency Domain using FFT.
3. Identify the Dominant Frequency and phase Shift.
4. Calculate the Time Offset required to align the waveforms.
5. Align the waveforms.
6. Go back to Time Domain with FFT.
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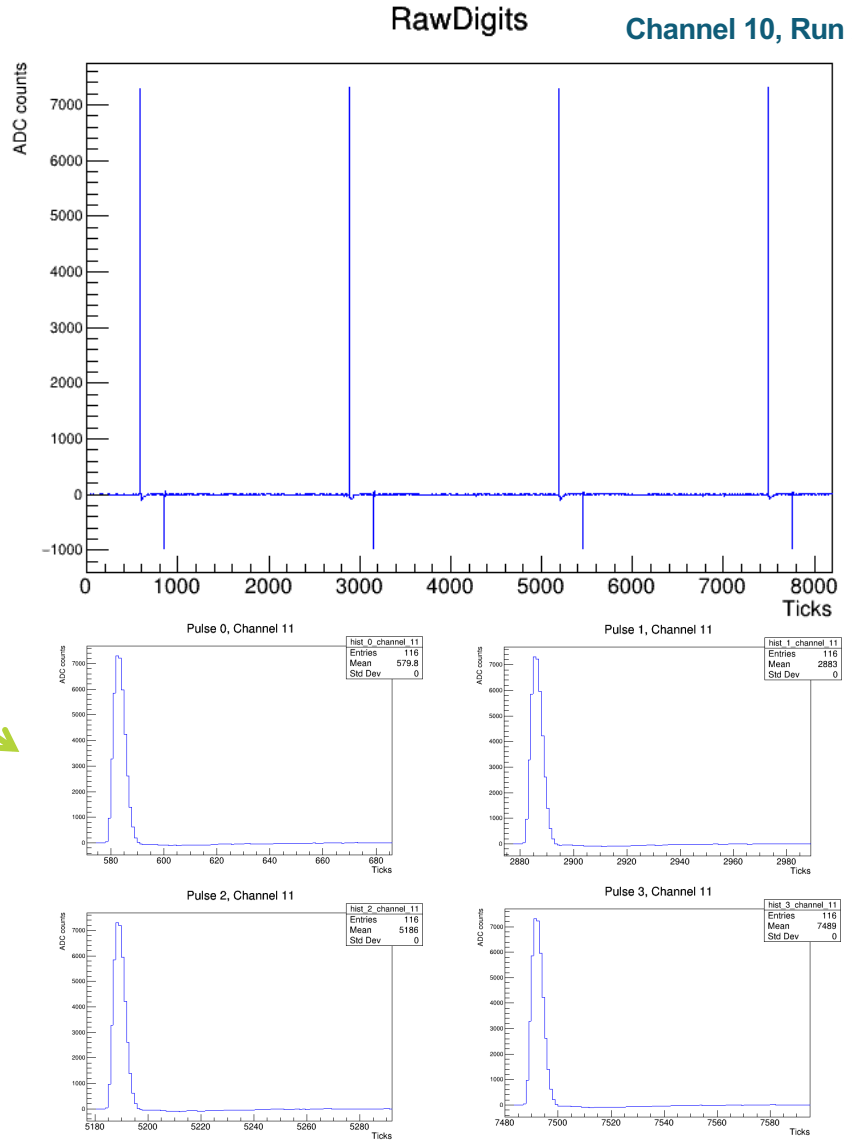

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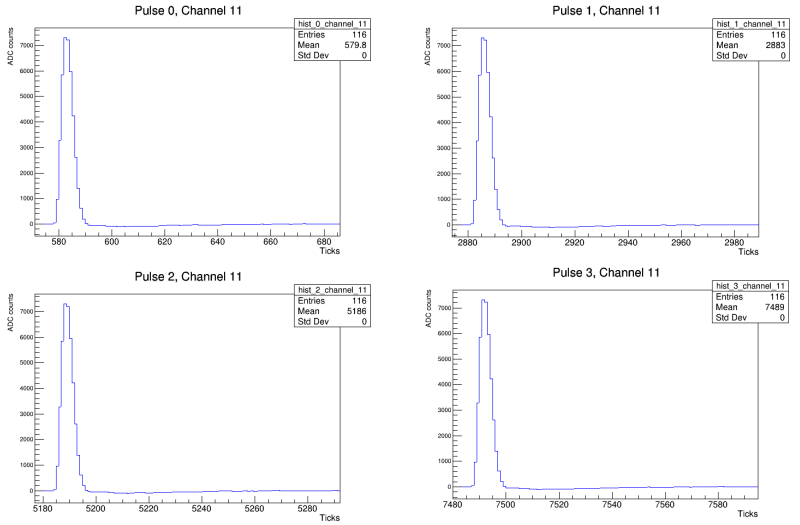

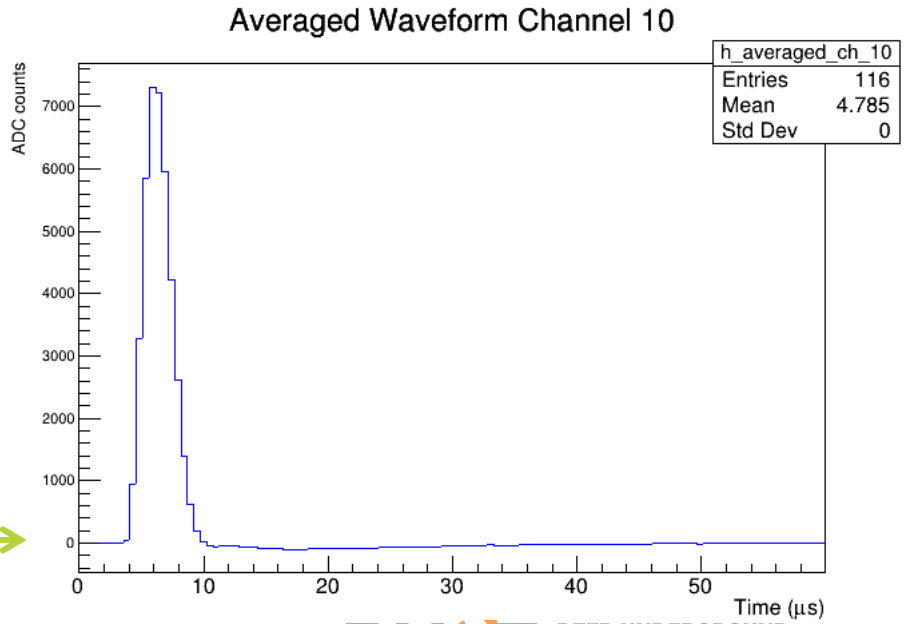

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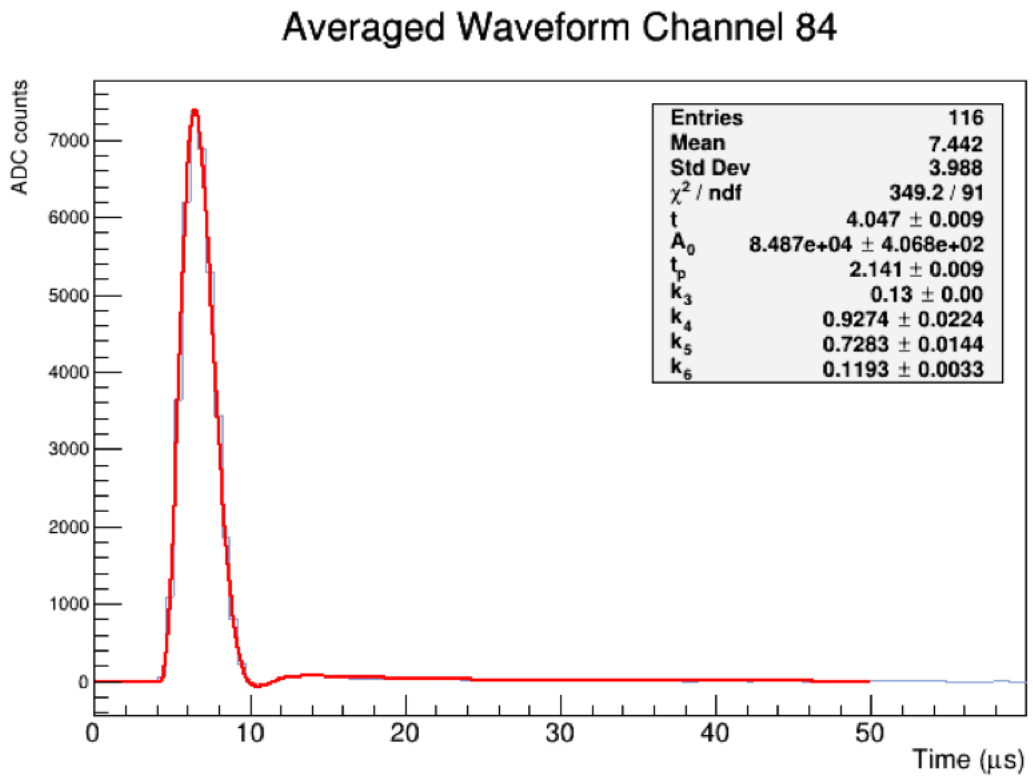

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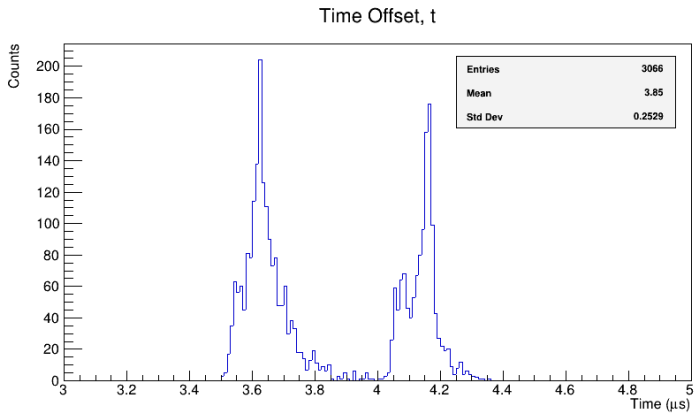

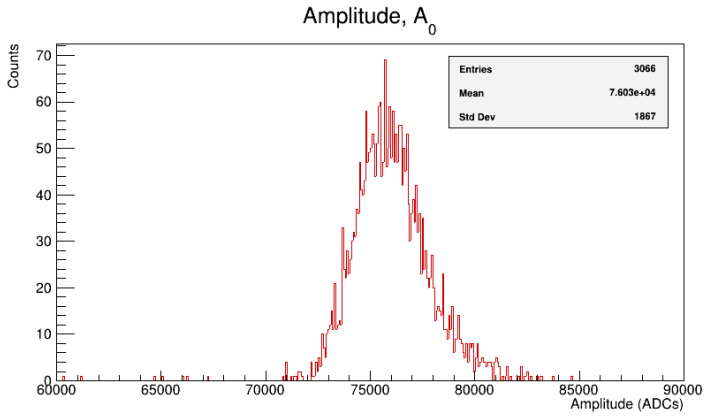

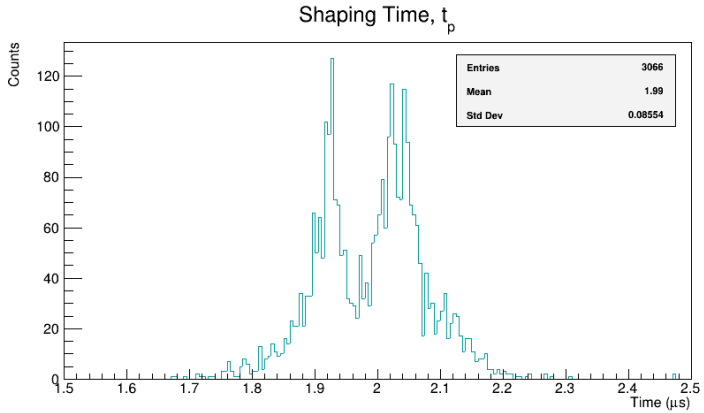

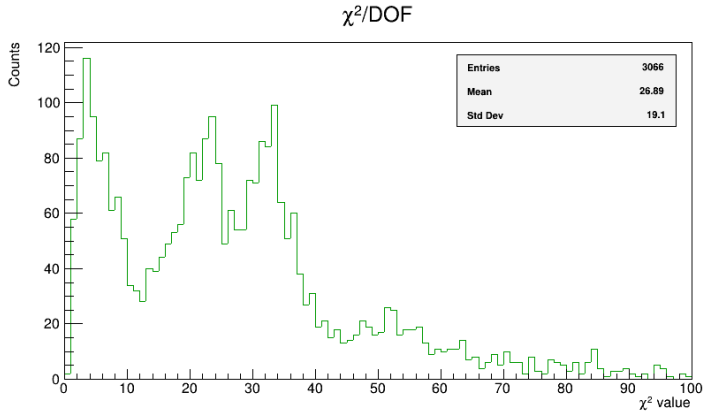

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