TPOL update

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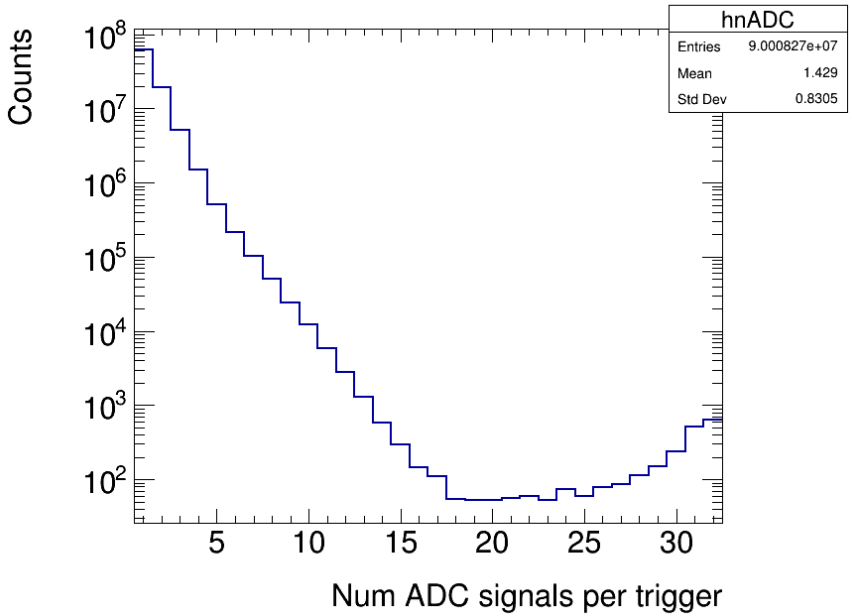
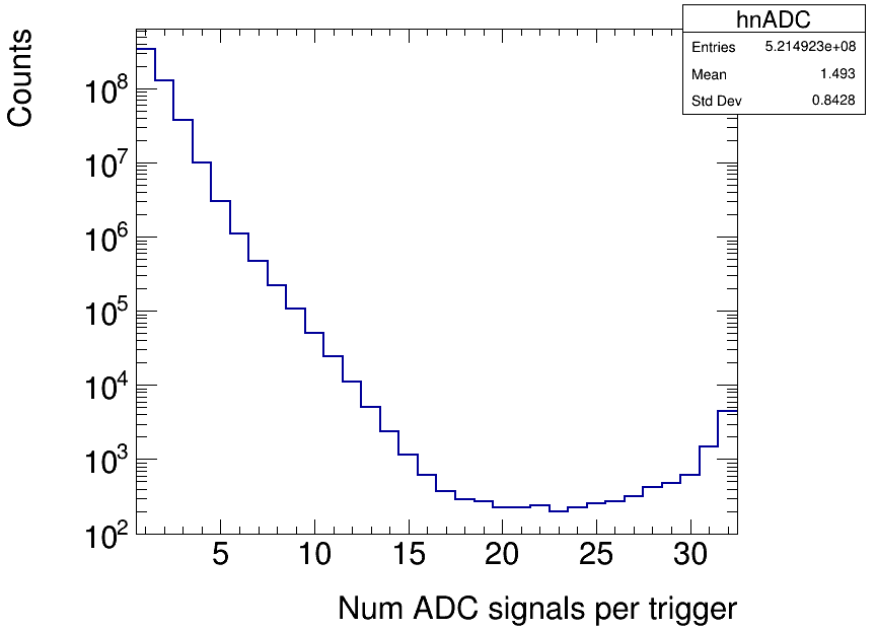
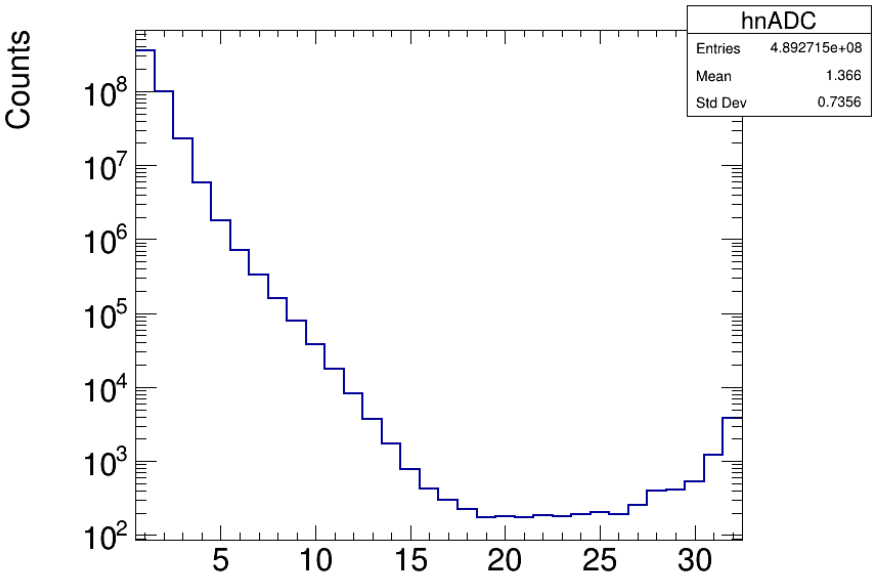
TPOL hits







- Top left: 2016, Bottom left: LI2017, Top right: HI2017
- Different view of the plot Sasha showed at the collaboration meeting.

MC

- Began looking at the MC Richard produced.
- Initial work on the generated HDDM file with mcsmear did nothing. Tracked down to DEventSourceHDDM needing to be updated with help of Justin and David.
- Added Extract_TPOLHit and Extract_TPOLTruthHit functions. Will commit the changes before the end of the day.
- MCSmear now works with TPOL generated events.
- Wrote new plugin to use the TPOL hit object to correctly read the smeared HDDM. Our other plugin uses the raw waveforms.
- Need to update the tagger part of the TPOL_MC plugin.

MC smear parameters

- Spoke with Sean about how to change smearing parameters for TPOL in mcsmear. Need to update the smearing functions and parameters.
- In the past, the TPOL time use a sigma of 4.4 ns with an added flat background.
- Energy deposition smearing has been updated to a double Gaussian. This was done in the response to review of the TPOL NIM paper where the original smearing was a single Gaussian with sigma 30 keV.
- Also using 0.08 MeV and 0.14 MeV readout thresholds in the TPOL smearer for 2016 and 2017 data, respectively. Calculated based on the baseline being approximately 100 and readout thresholds of 130 and 150 for TPOL data 2016 and 2017, respectively.
- I know we used 160 for a readout threshold at some point in 2017.
- Will use these past values as a starting point for matching.

Next

- Working on the final parts of the TPOL_MC plugin to properly handle the tagger.
- Need to finish the energy deposition corrections for alignment of sectors.
- Work on matching the MC to data.
- Extract analyzing powers for each set of LT fit anlysis cuts.
- Determine systematics with the TPOL MC and data.