

TPOL check of 2022 data

TPOL

Checking 2022 data

Biggest concern:

- Using the SEB tree instead of the Nathan tree
 - SEB tree has different variables than the Nathan tree
 - SEB is the plugin used for cooking
 - Nathan tree has been the version I have always used in the past

TPOL

Checking 2022 data

Biggest concern:

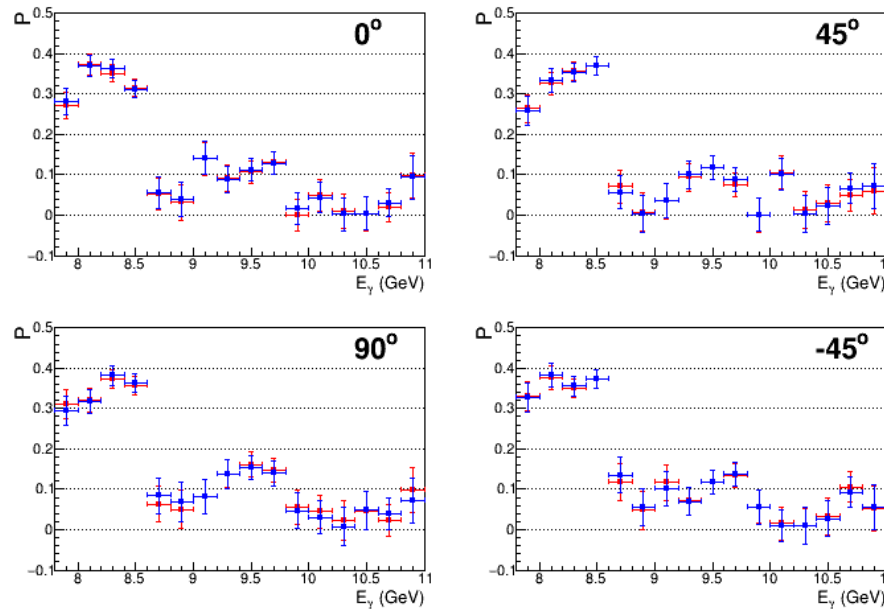
- Using the SEB tree instead of the Nathan tree
 - SEB tree has different variables than the Nathan tree
 - SEB is the plugin used for cooking
 - Nathan tree has been the version I have always used in the past

Important tests

- Make sure that the conversion layer for SEB to Nathan variables work
- Compare prior TPOL analysis using Nathan trees with a TPOL analysis utilizing SEB trees



Comparison of results from different TPOL trees using 2019-11 data (batch 11-12)



Red = SEB
Blue = Nathan

SEB

Polarization values for E_gamma between 8.0 and 8.6 GeV

| Beam orientation | Polarization |
|------------------|-------------------|
| 0 degrees: | 0.3471 +/- 0.0143 |
| 45 degrees: | 0.3539 +/- 0.0146 |
| 90 degrees: | 0.3506 +/- 0.0158 |
| 135 degrees: | 0.3650 +/- 0.0145 |

Nathan

Polarization values for E_gamma between 8.0 and 8.6 GeV

| Beam orientation | Polarization |
|------------------|-------------------|
| 0 degrees: | 0.3483 +/- 0.0142 |
| 45 degrees: | 0.3540 +/- 0.0142 |
| 90 degrees: | 0.3577 +/- 0.0158 |
| 135 degrees: | 0.3679 +/- 0.0145 |

- Agreement is close but not exact
- I will have to determine why agreement is not exact (not exact same run files?)
- The agreement is close enough to proceed with SEB trees

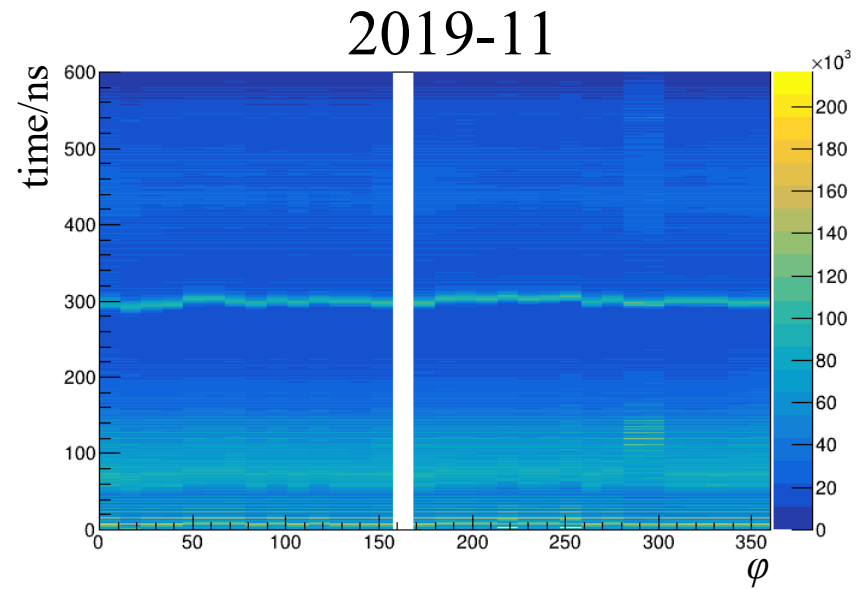
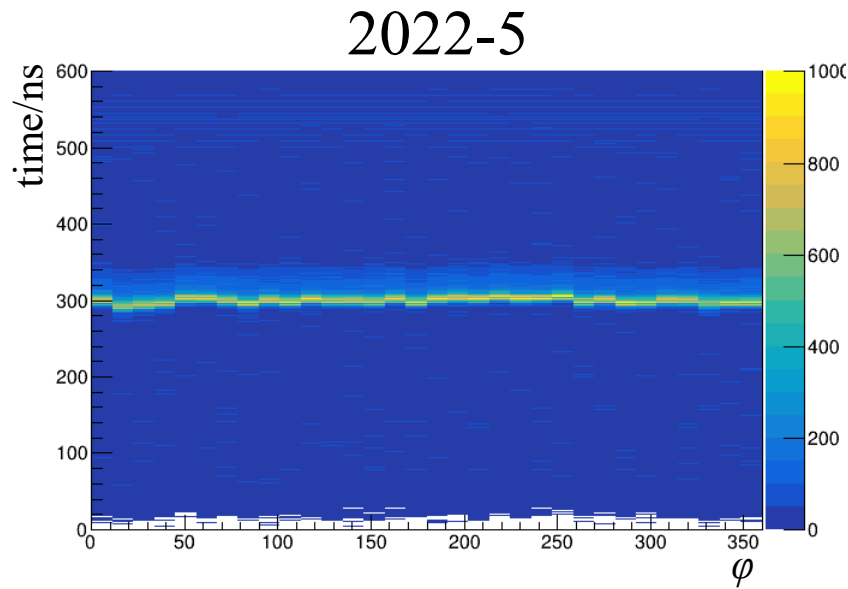


Comparing 2022-5 data to 2019-11 data

- Looked at 74 runs (all run numbers that end with 2) and processed them through the waveform fitting and subsequent TPOL histogram creation.

Comparing 2022-5 to 2019-11

- Comparison of time versus azimuthal angle φ

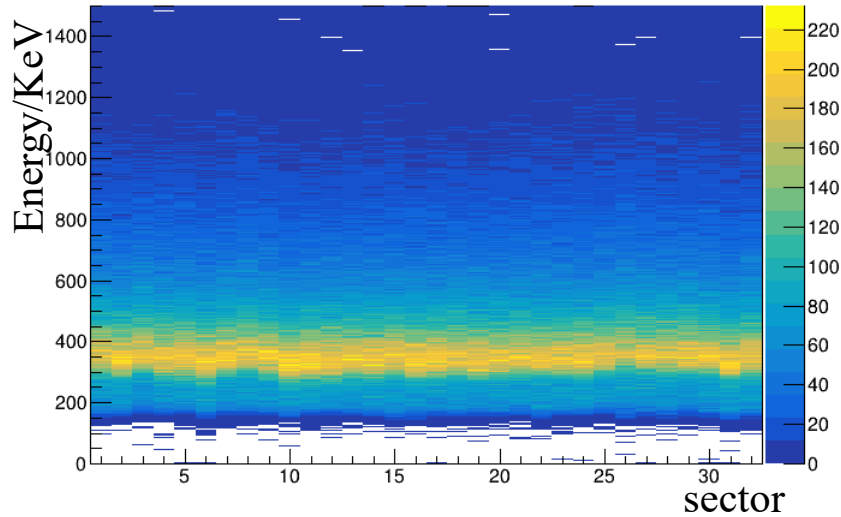


- Looks like problem sector came back to life 😊
- The 2022-5 data looks better than 2019-11 😊

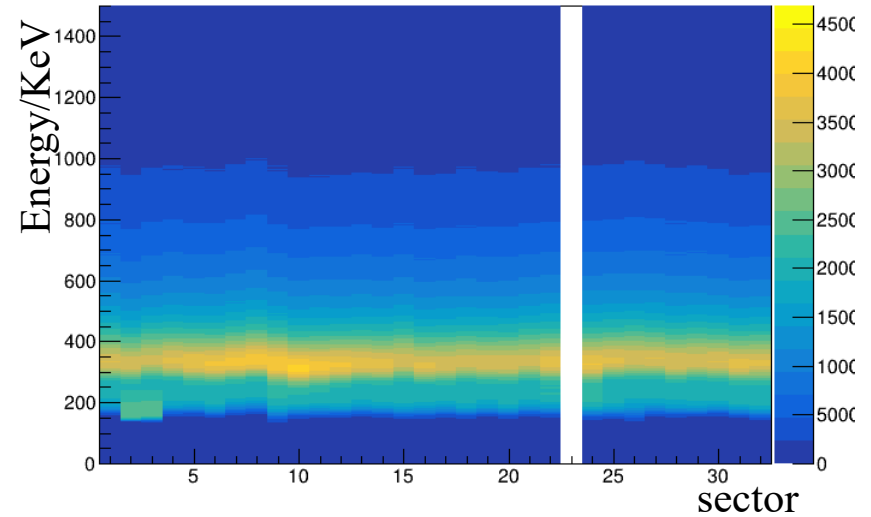
Comparing 2022-5 to 2019-11

- Comparison of energy deposition versus sector

2022-5



2019-11



- I do not see anything to be concerned about 😊

Title

