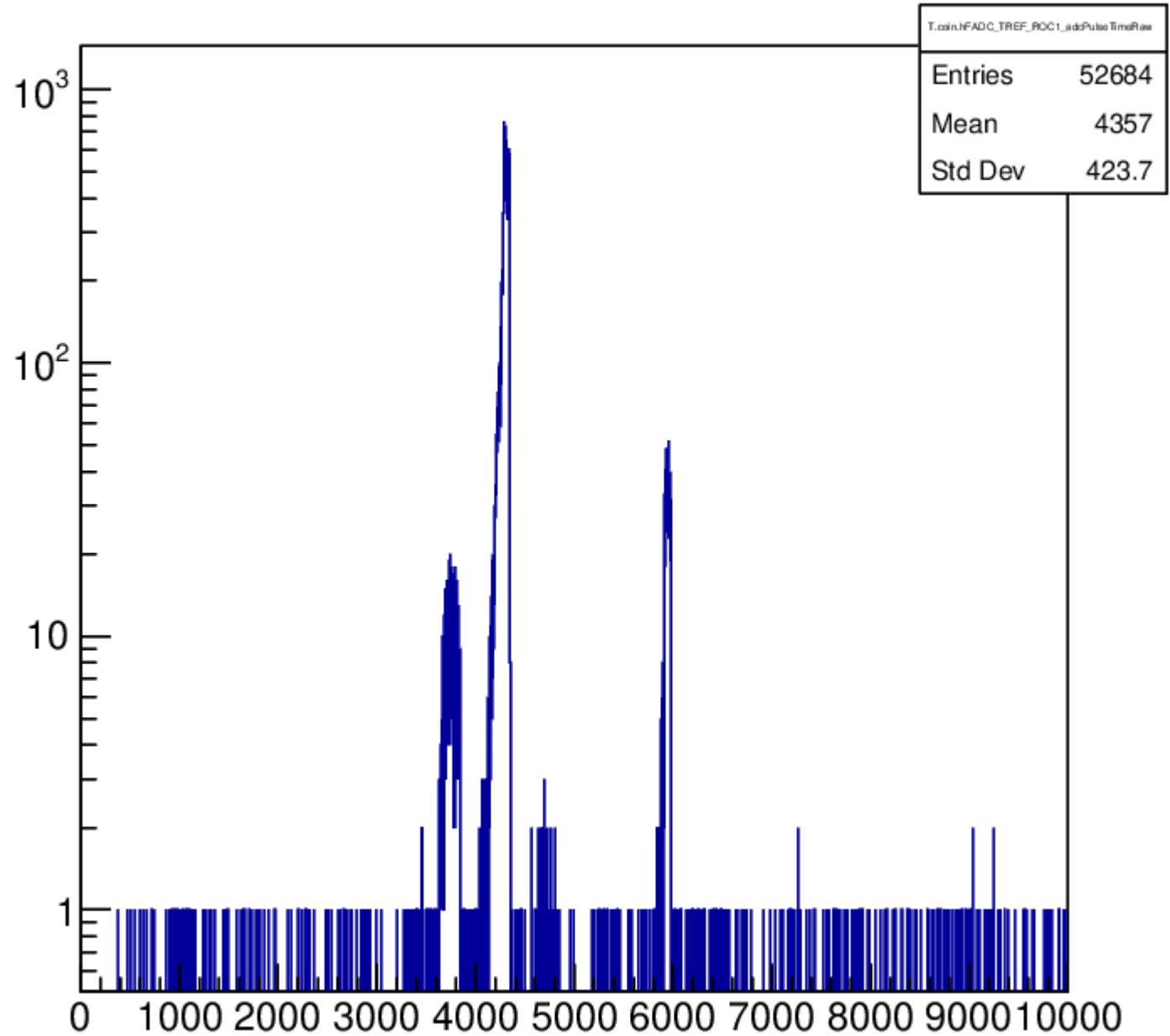


PionLT Ref Times Update

- Began looking into the Reference time plots.
- Ran several run to get an idea of stability
- Following: <https://hallcweb.jlab.org/doc-private/ShowDocument?docid=1032>
- Started by looking at the ADC Ref time for both HMS and SHMS
 - For all plots there is a multiplicity == 1 cut.
- T.coin.hFADC_TREF_ROC1_adcPulseTimeRaw
 - Adc ref time for all hms detectors (except DC)
- T.coin.pFADC_TREF_ROC2_adcPulseTimeRaw
 - Adc ref time for all shms detectors (except DC)

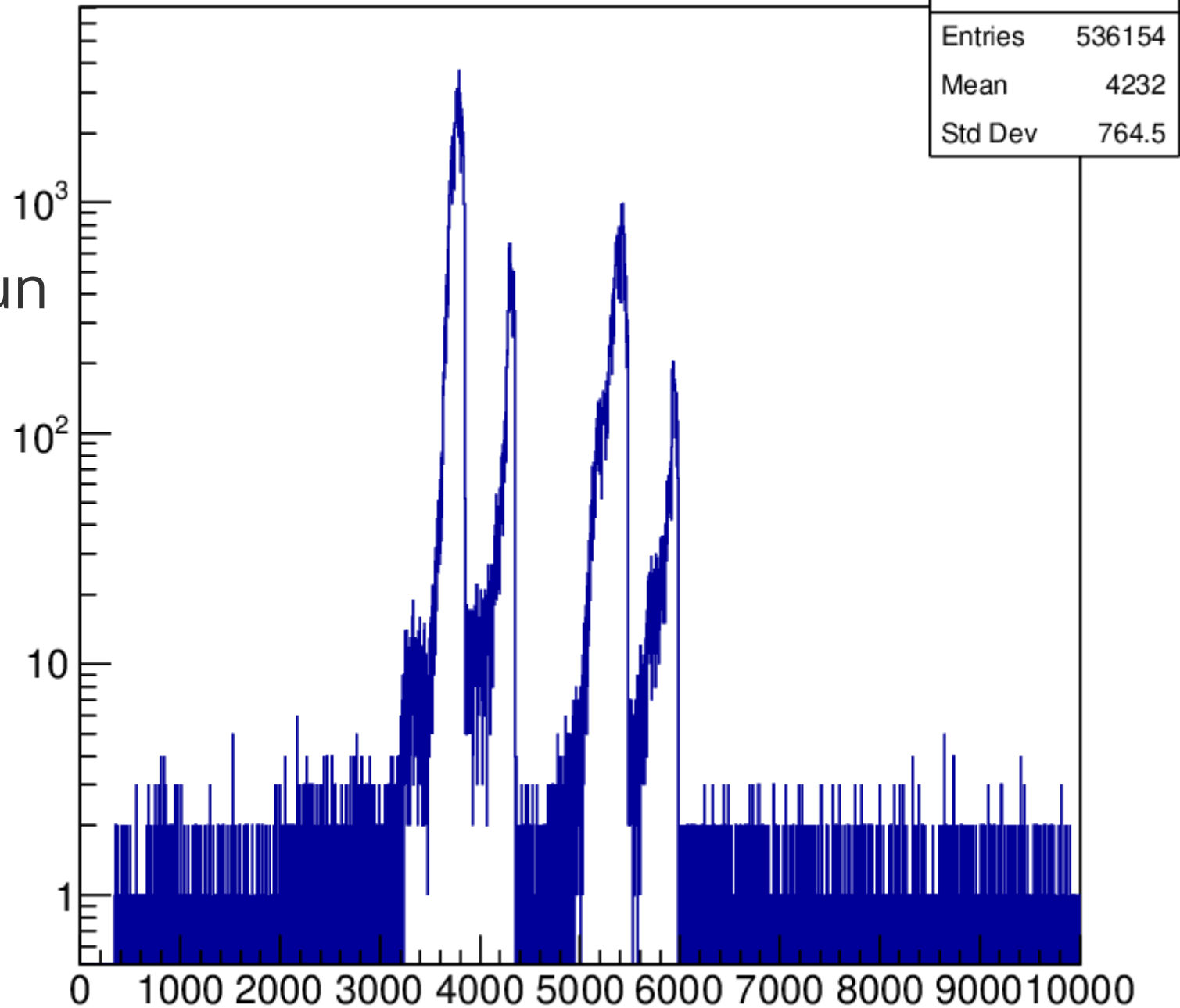
11829

- HeeP coin
- Fourth run of 2021 Fall



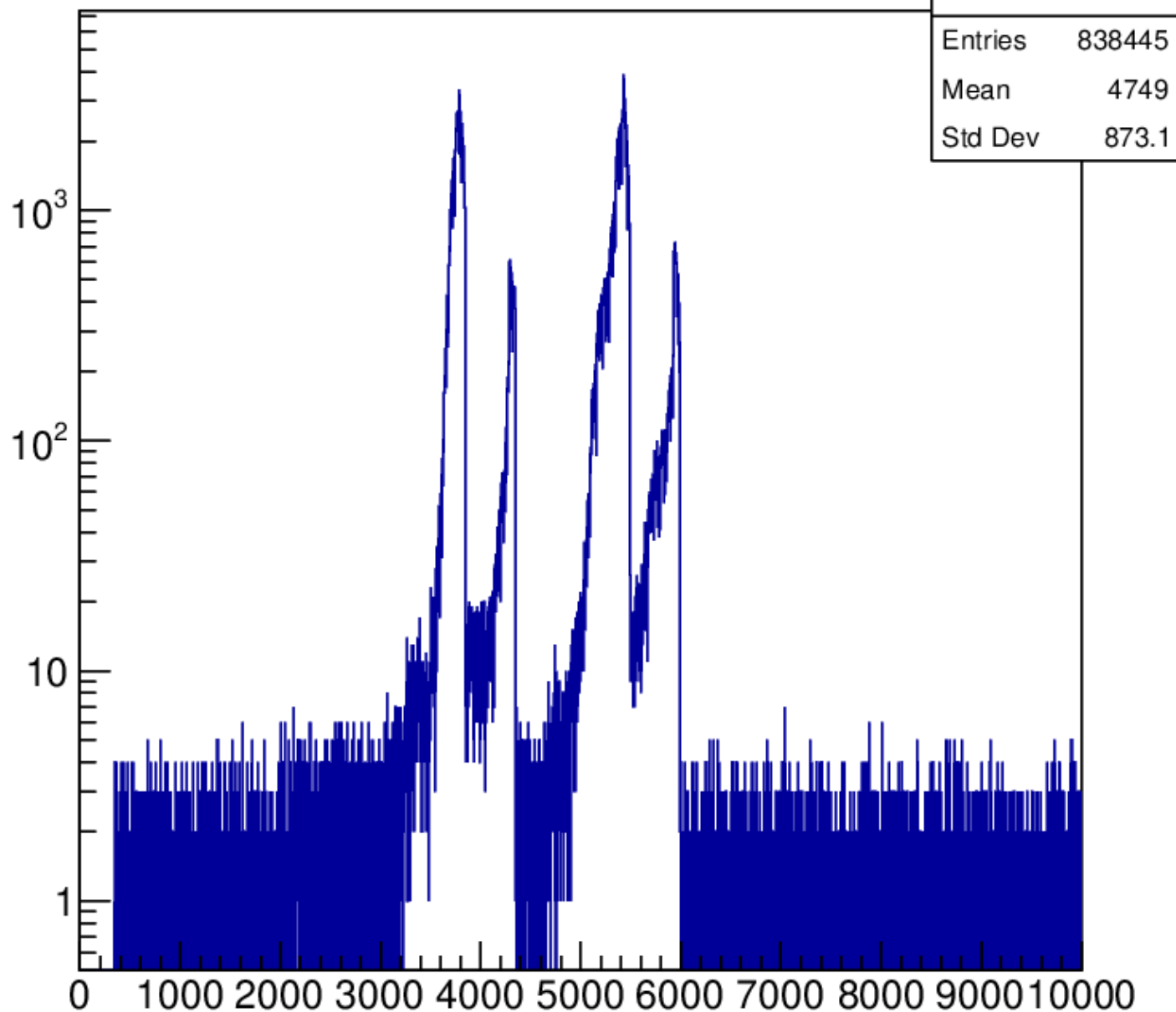
12493

- Production run
- 9.177 GeV



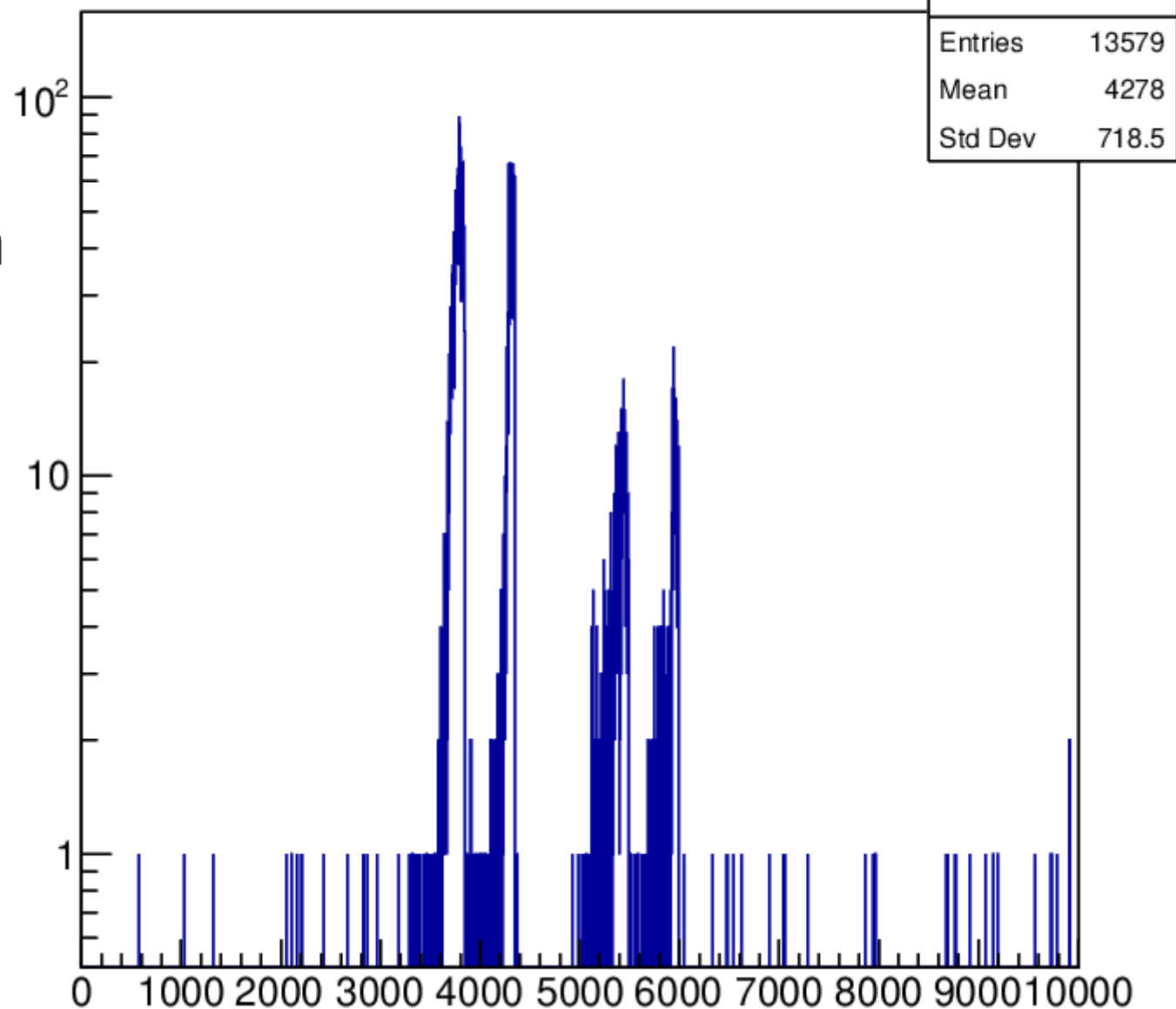
14666

- Production Run
- 7.93 GeV part 2



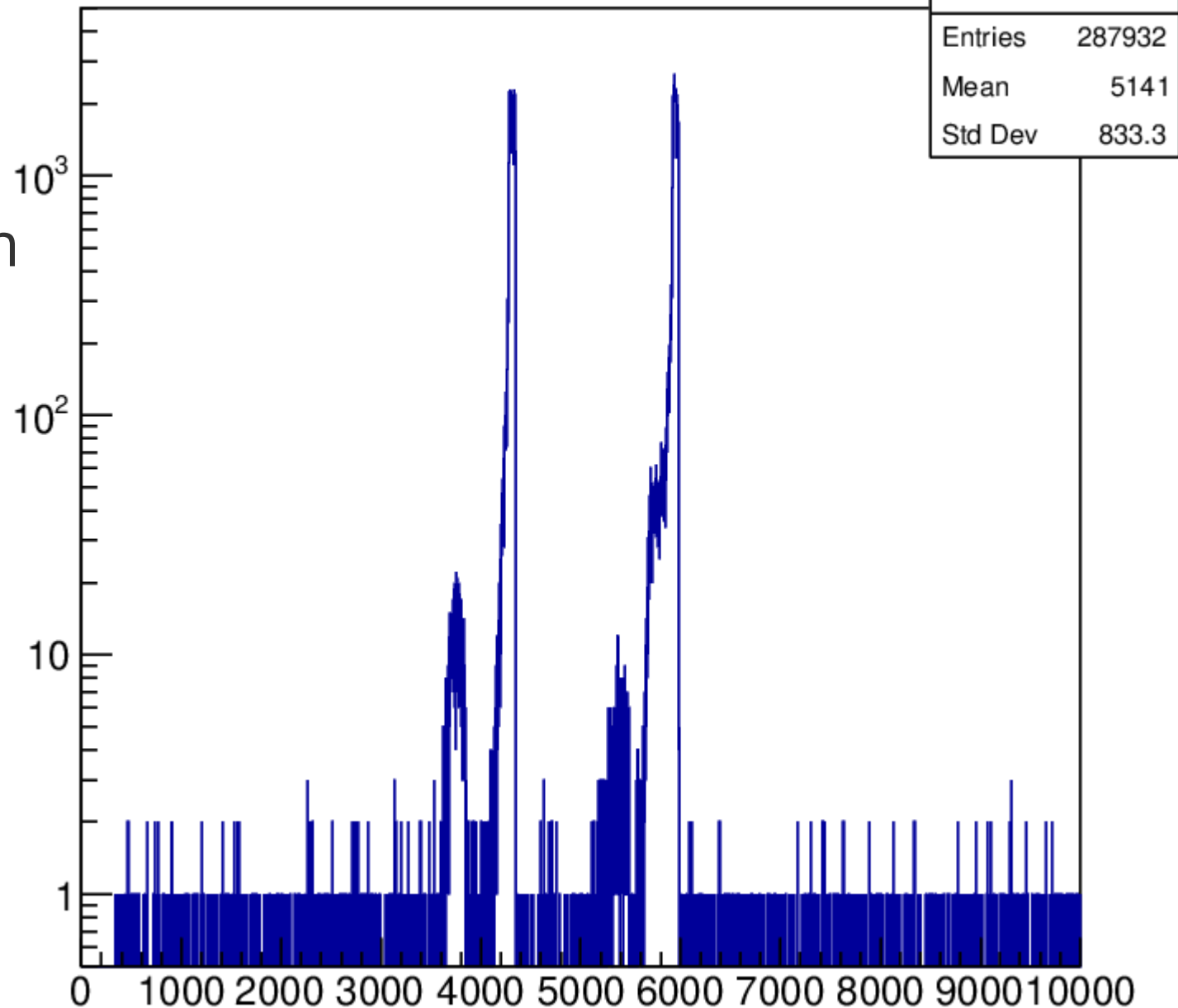
14777

- Prod run, last run from fall 2021



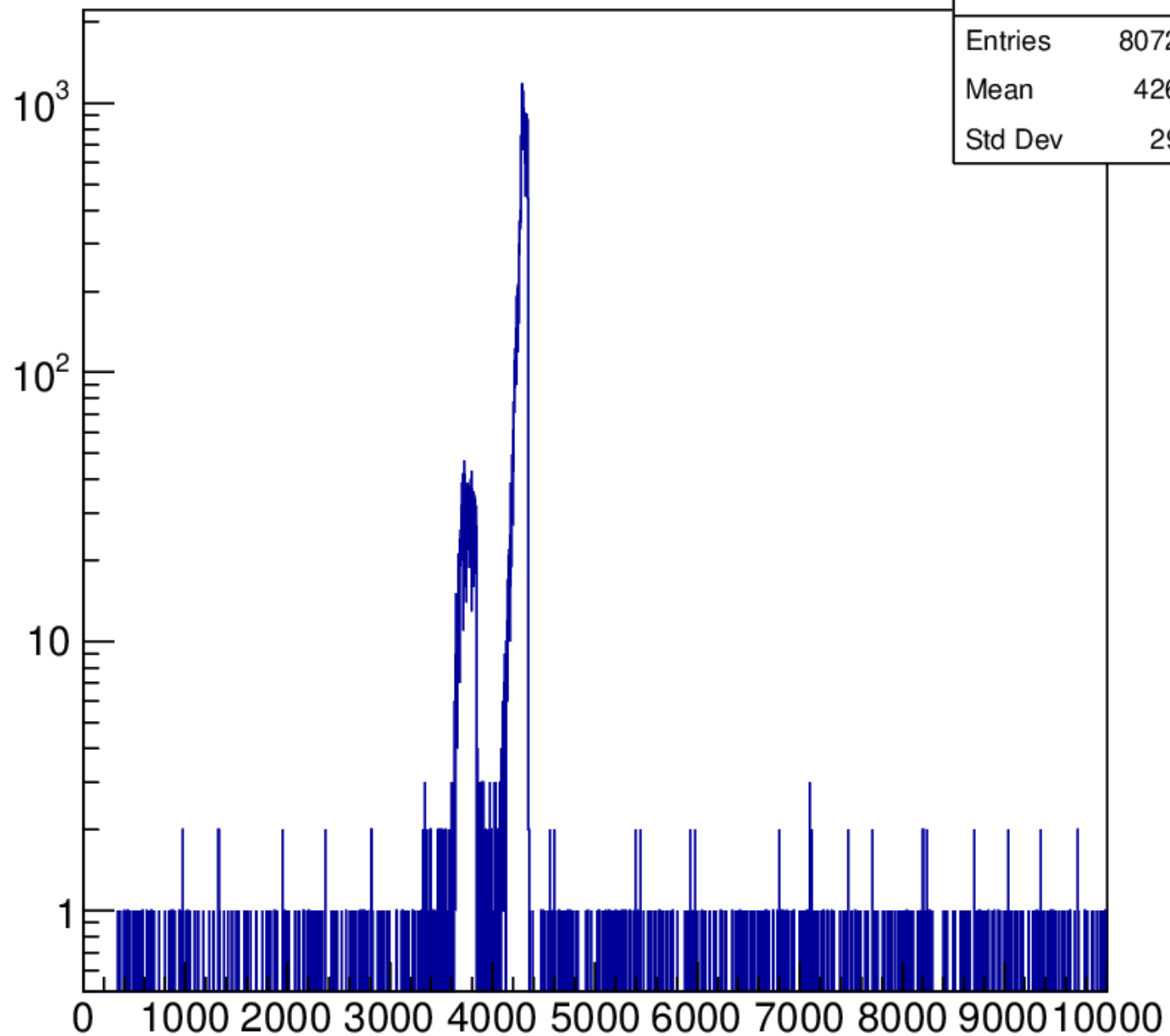
14997

- HeeP coin from the start of 2022 run
- 10.5GeV beam



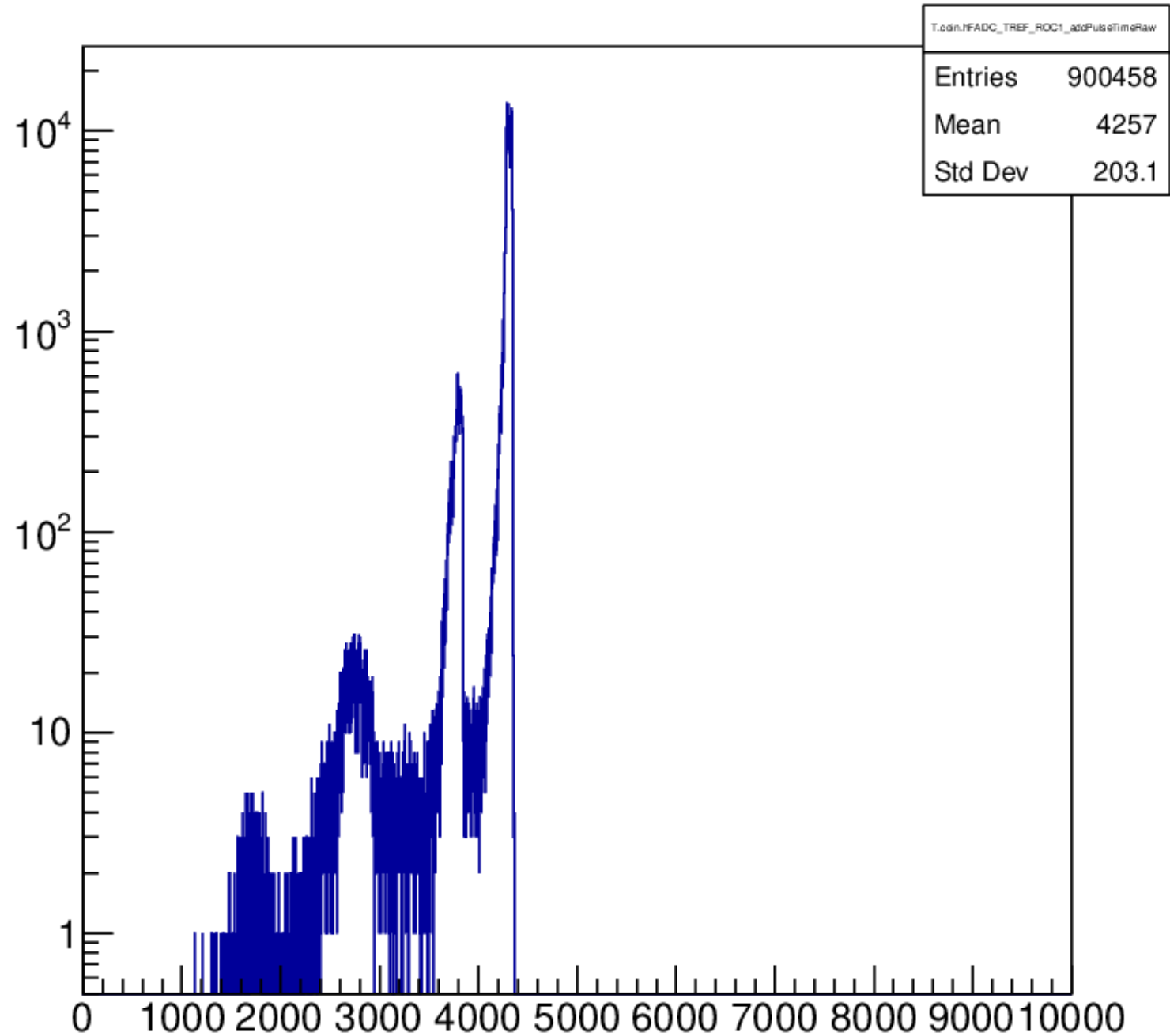
16199

- HeeP Singles
- 8.5 GeV



16715

- Lumi run, with only hms trigger

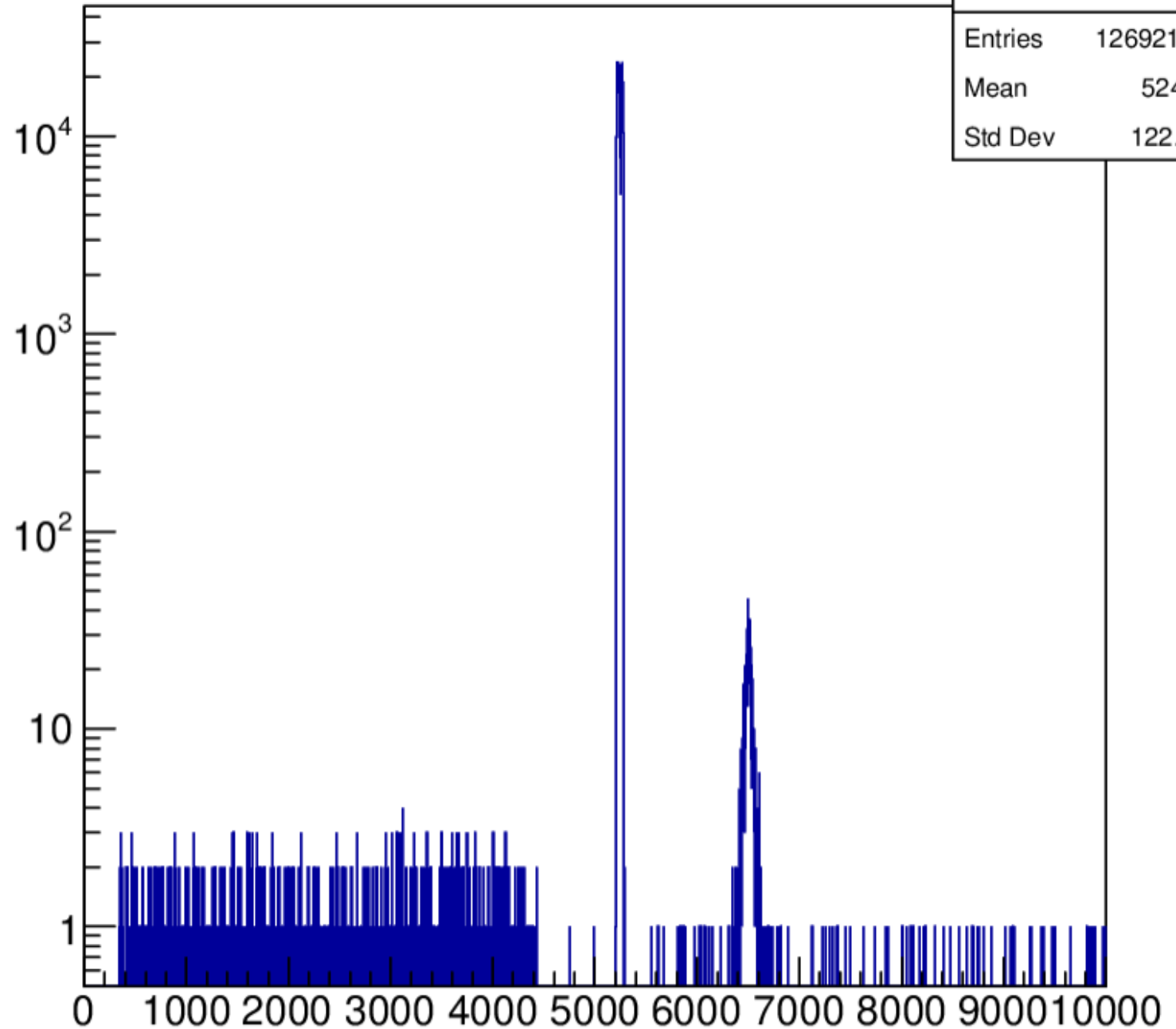


HMS conclusions

- The 4 peak structure appears in all coin runs, while the 2 peak structure is only in single arm running
- Not sure why there is 2 peaks though
- The peaks are in a consistent position over the whole experiment
- I'd suggest placing the cut at 3400

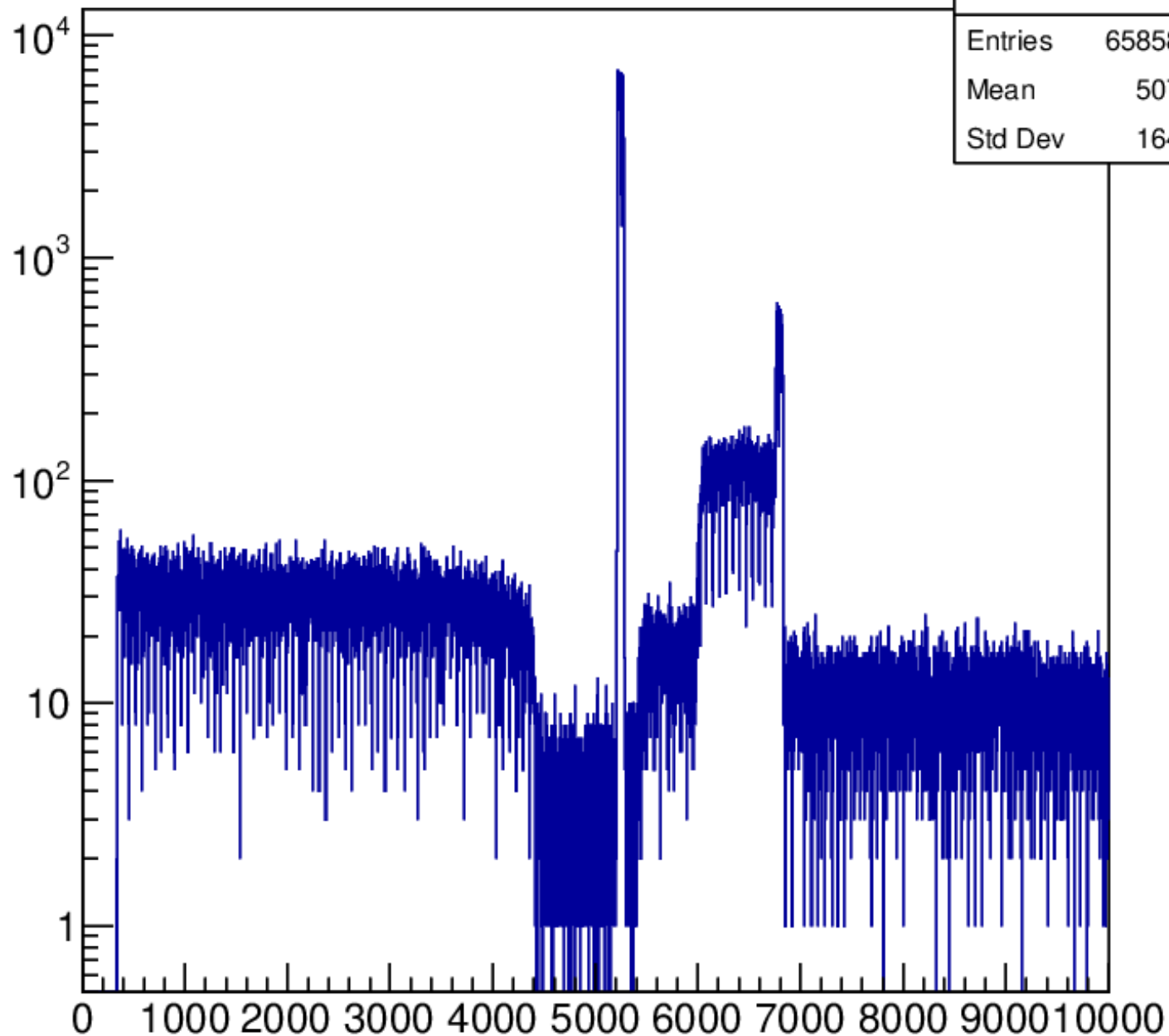
11829

- HeeP coin
- Fourth run of 2021 Fall



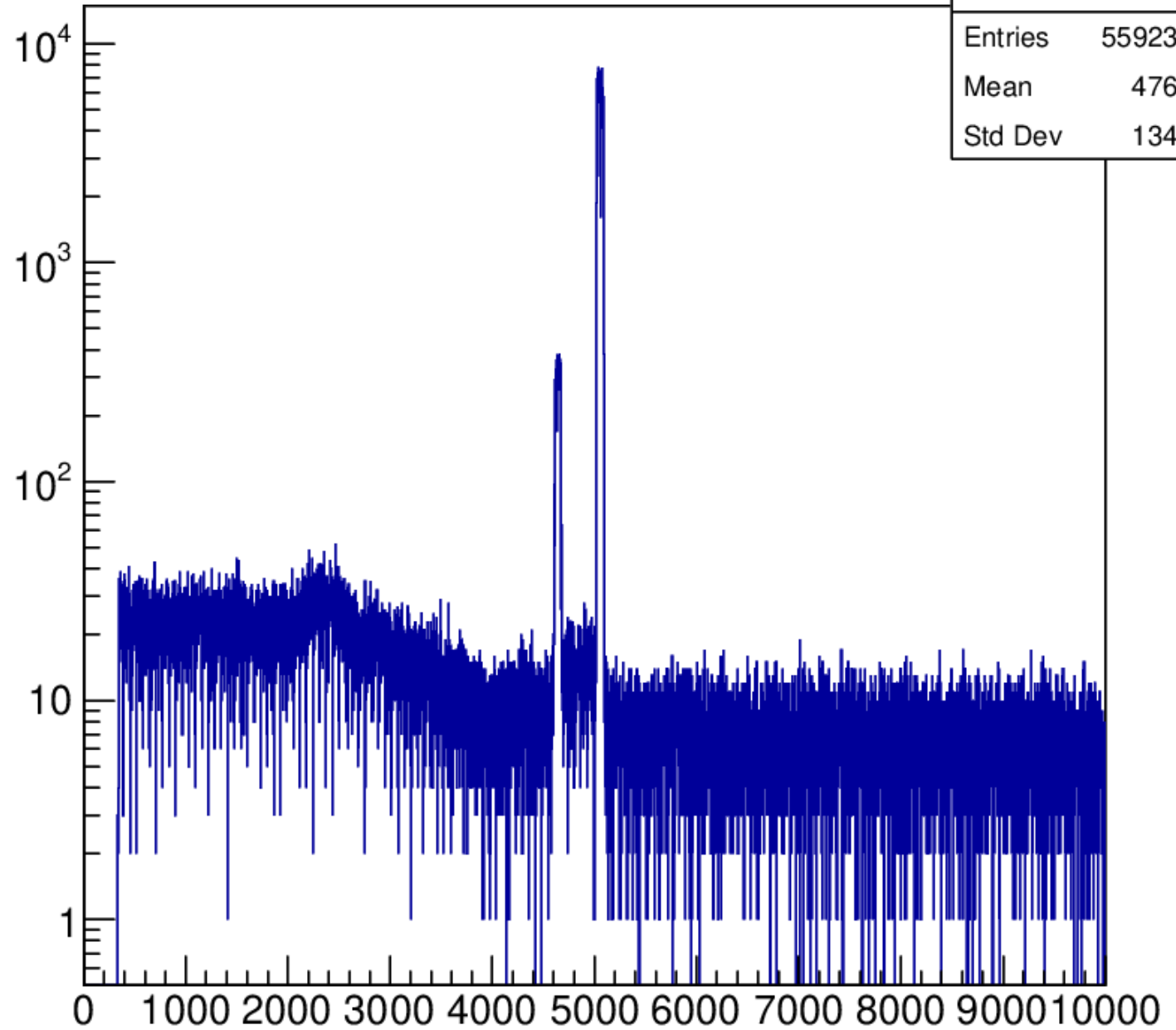
12493

- Production run
- 9.177 GeV



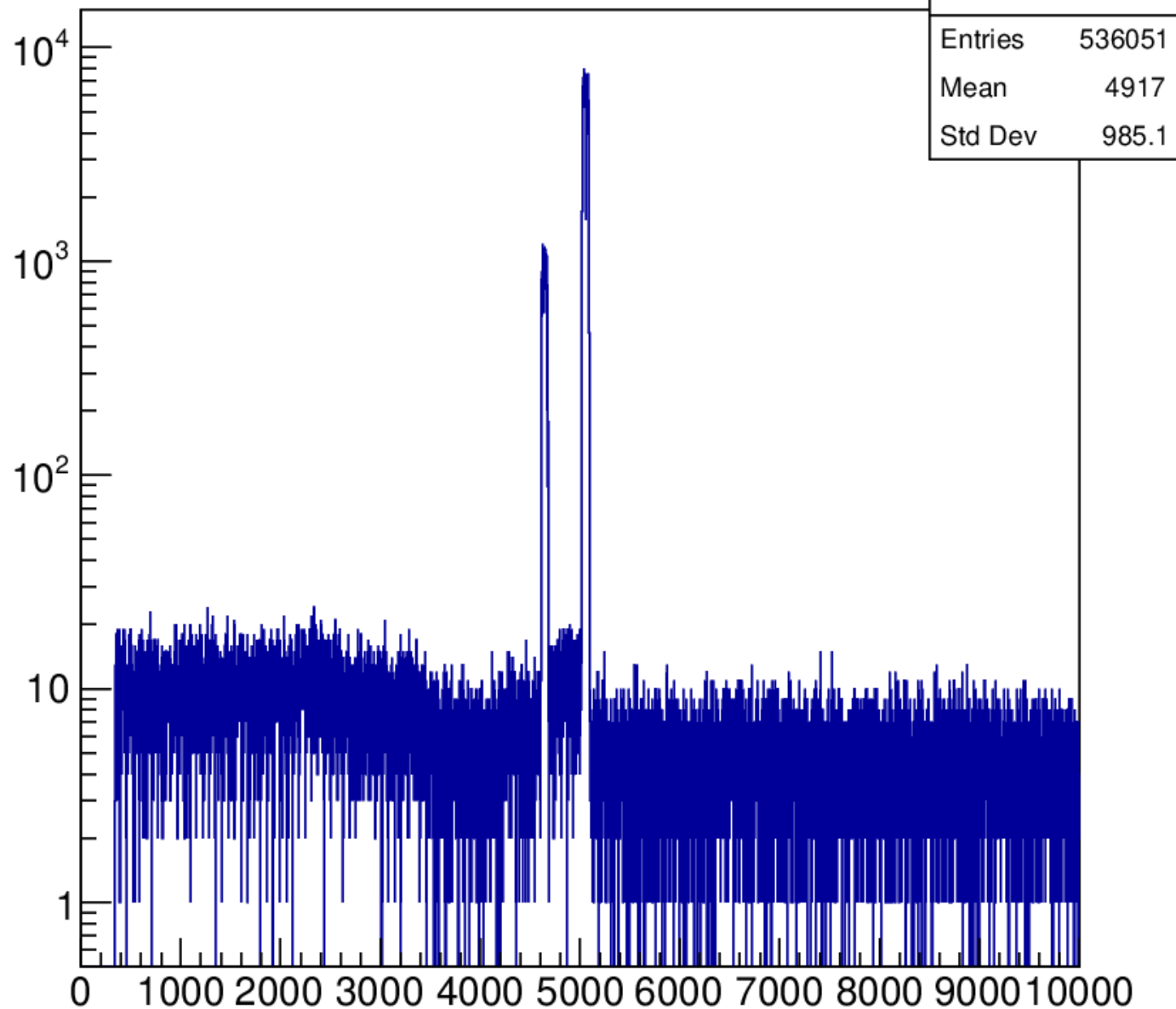
13854

- Heep singles
- 7.937 GeV



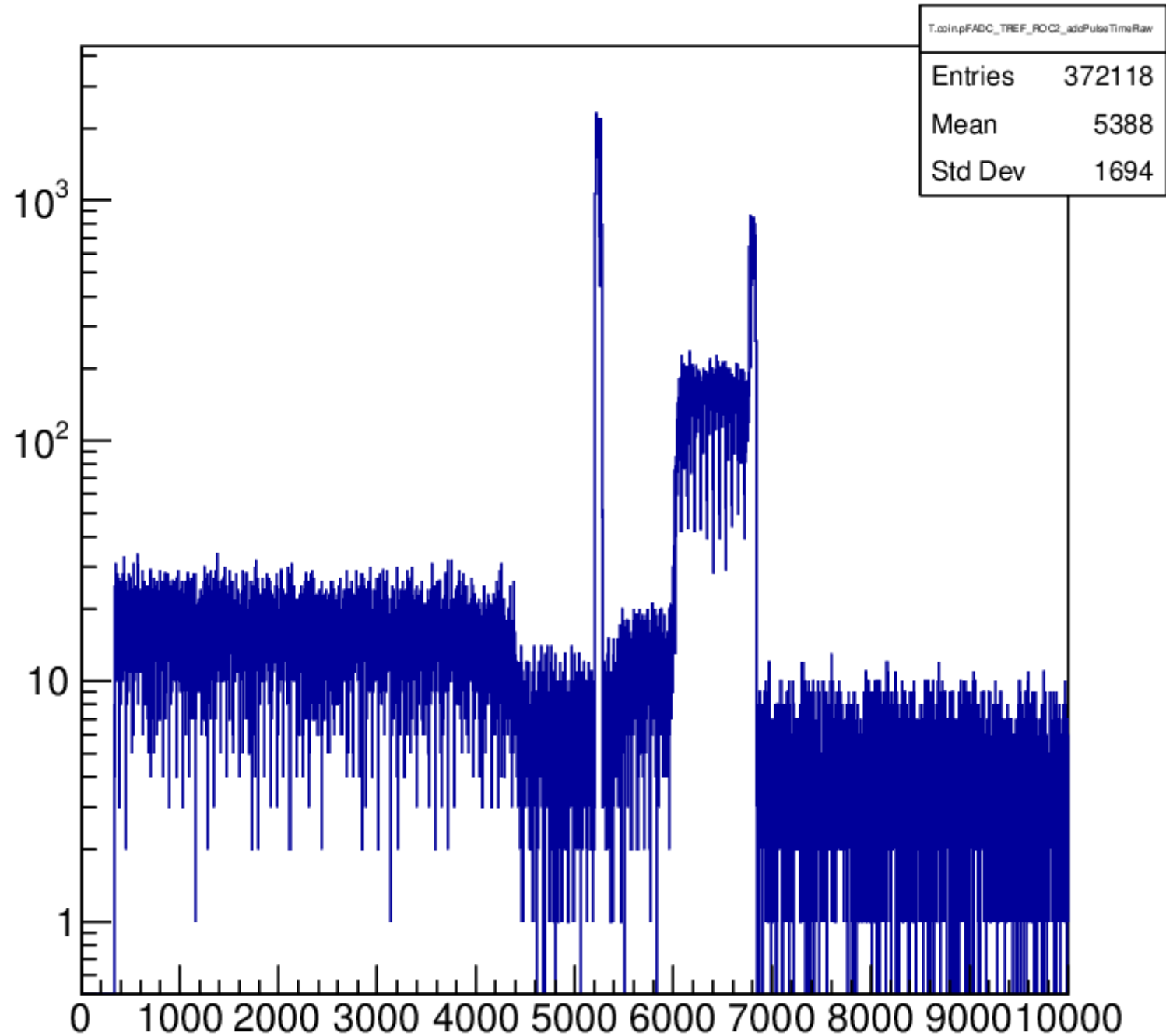
13905

- Lumi
- 7.937 GeV



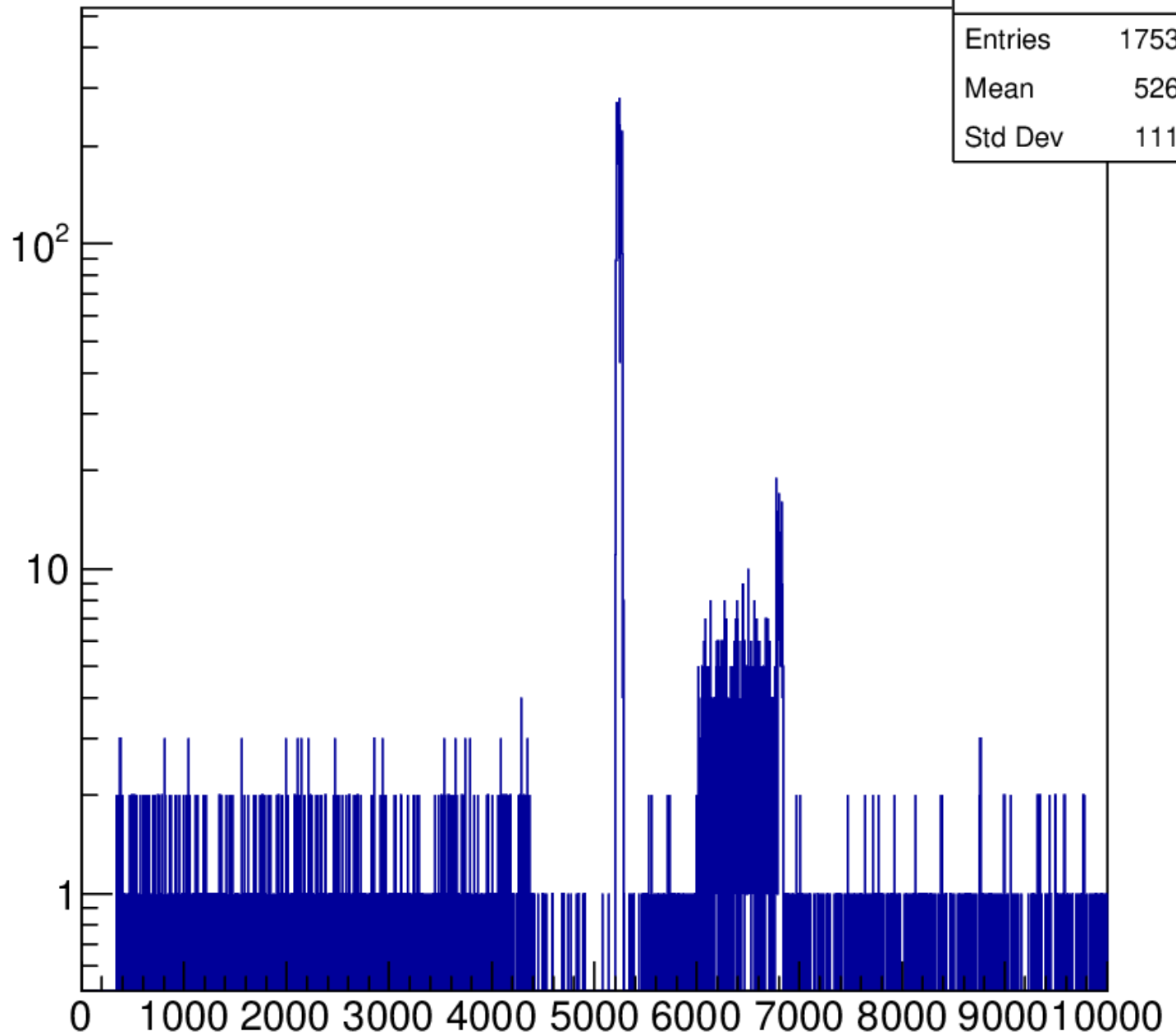
14208

- Prod run
- From Jan 2022



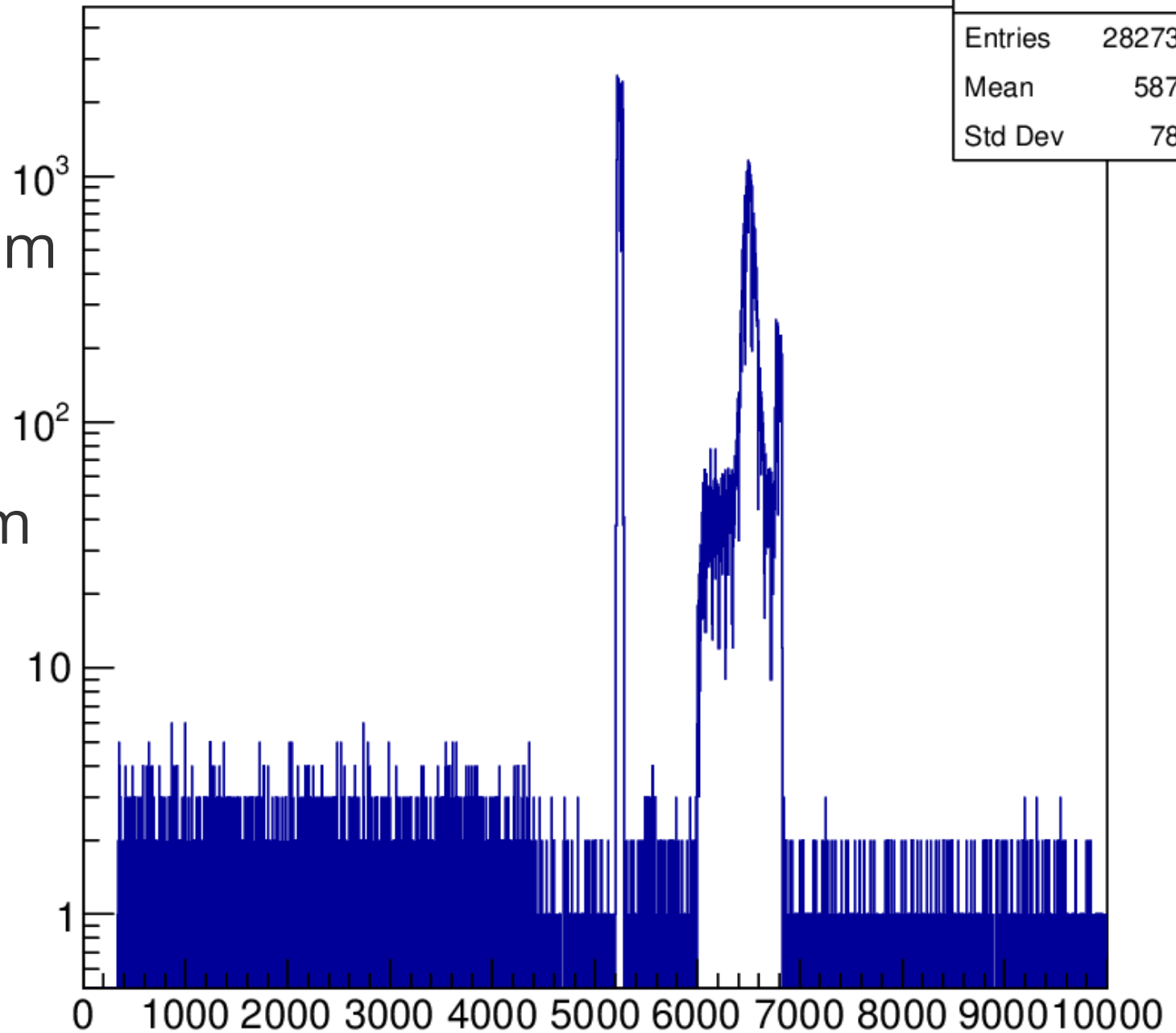
14777

- Prod run, last run from fall 2021



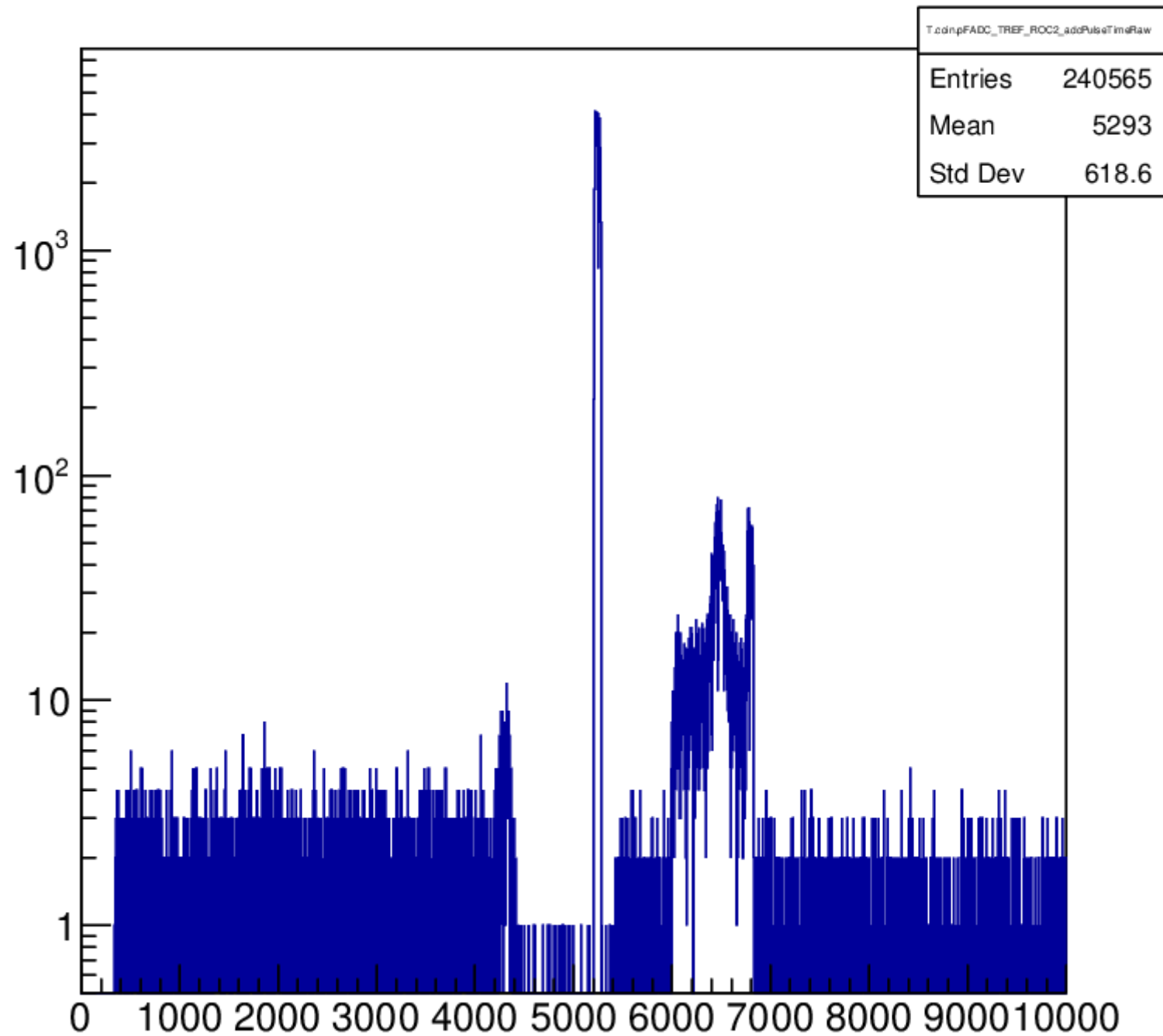
14997

- HeeP coin from the start of 2022 run
- 10.5GeV beam



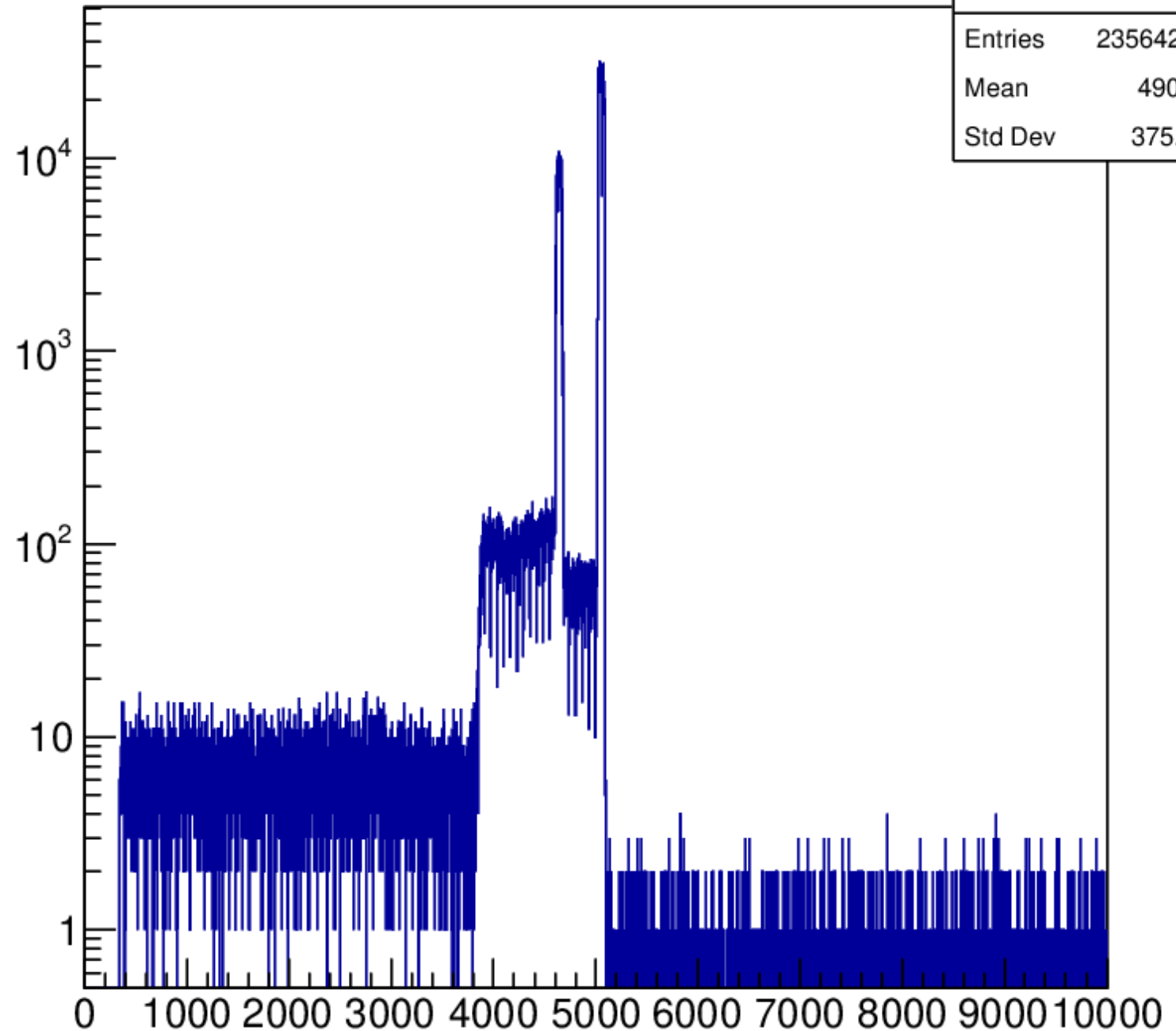
15229

- Prod run
- Summer 2022
10.5 GeV
- Dummy target
run



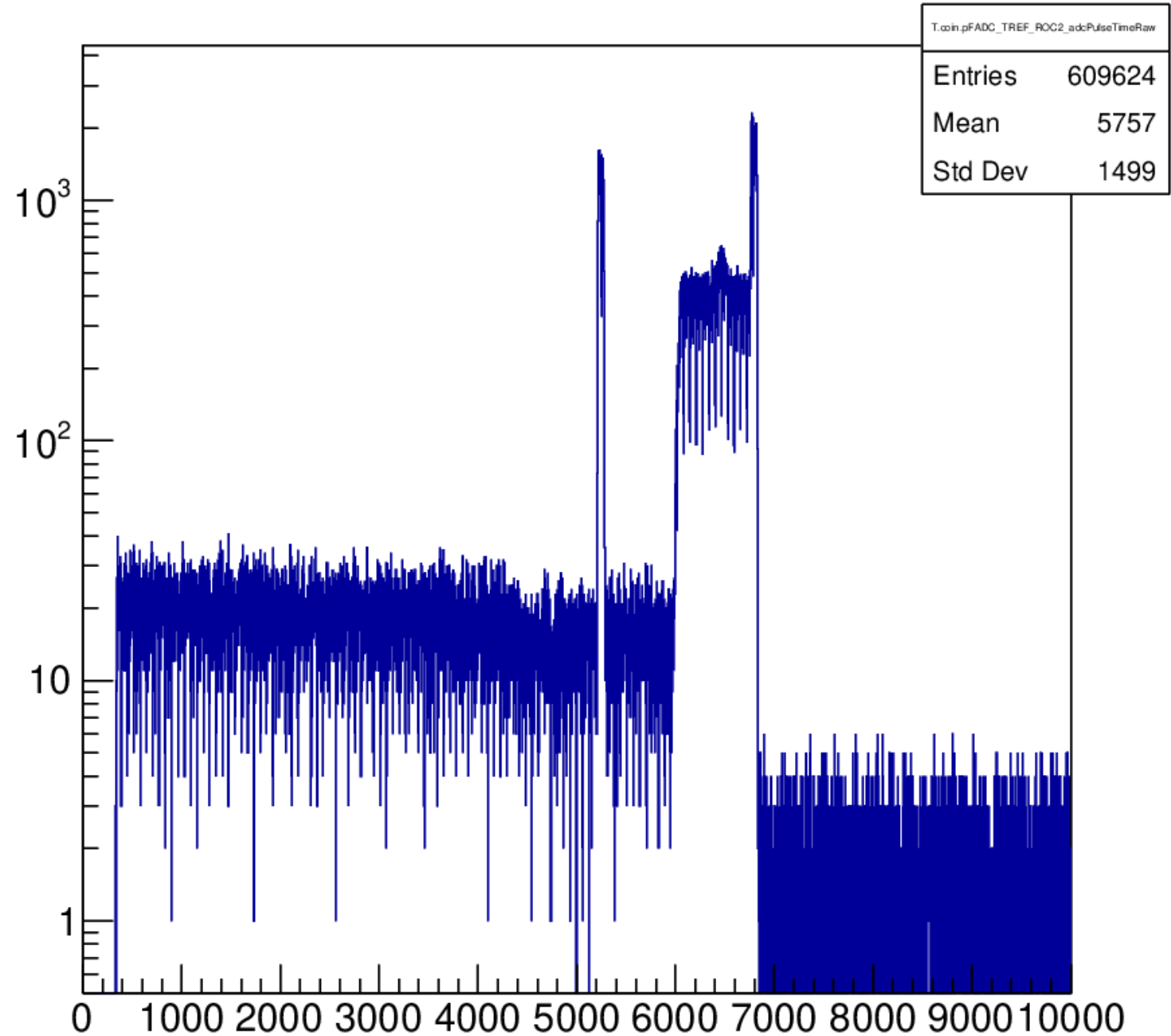
16060

- Heep Singles
- 10.5 GeV



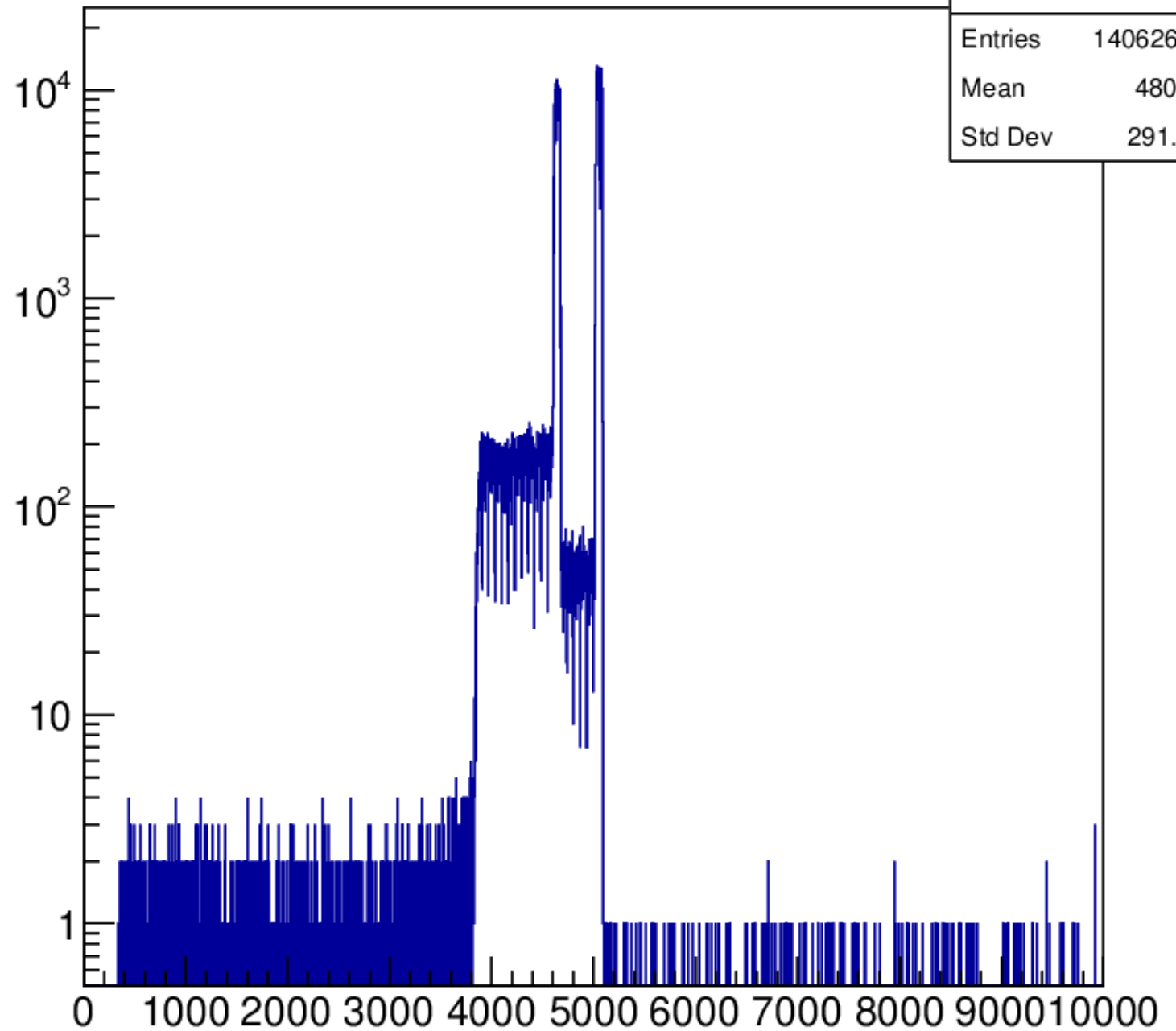
16063

- Prod run
- Start of 8.479 GeV beam



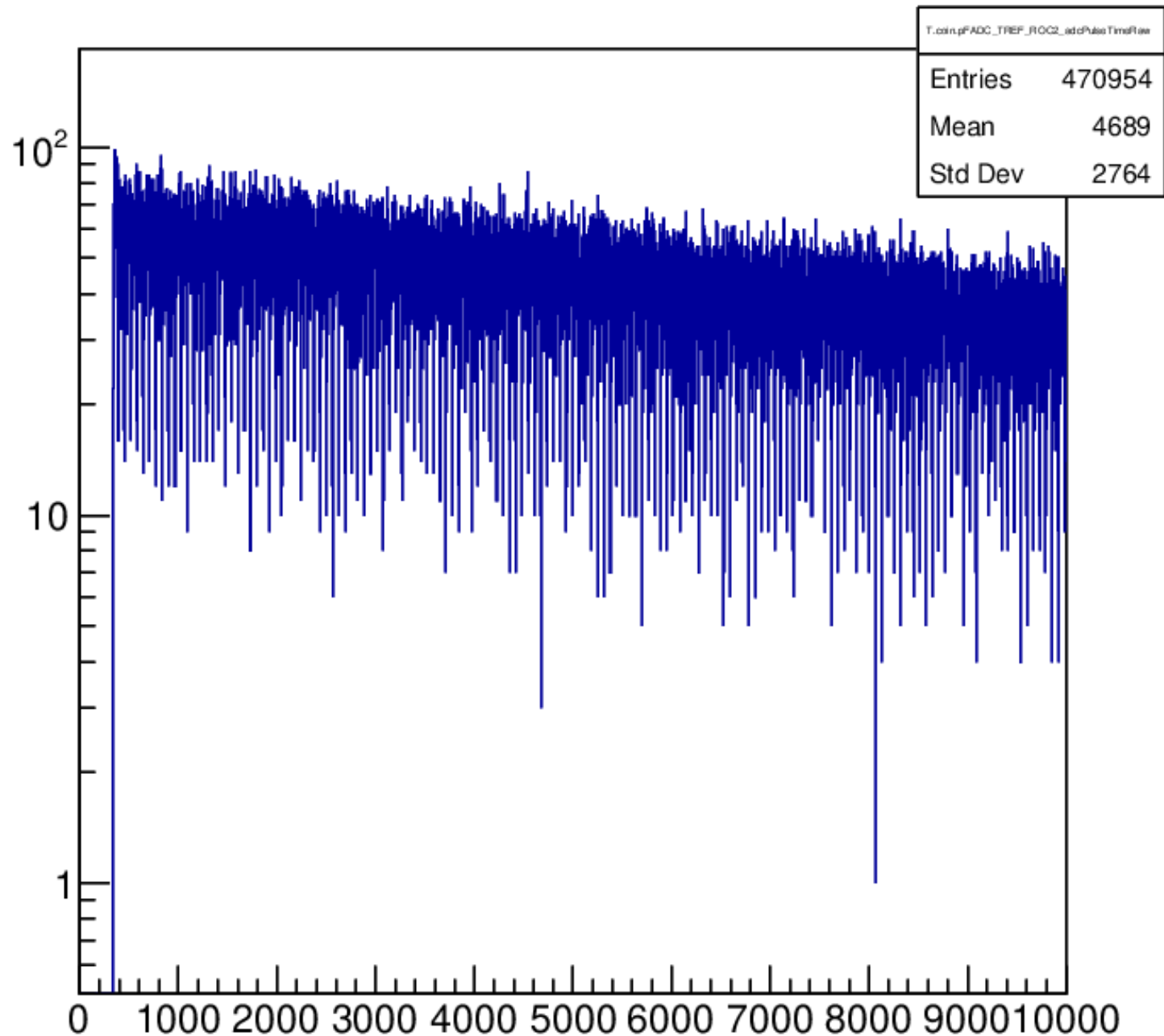
16199

- HeeP Singles
- 8.5 GeV



16715

- Lumi run, with only hms trigger
- As expected nothing here

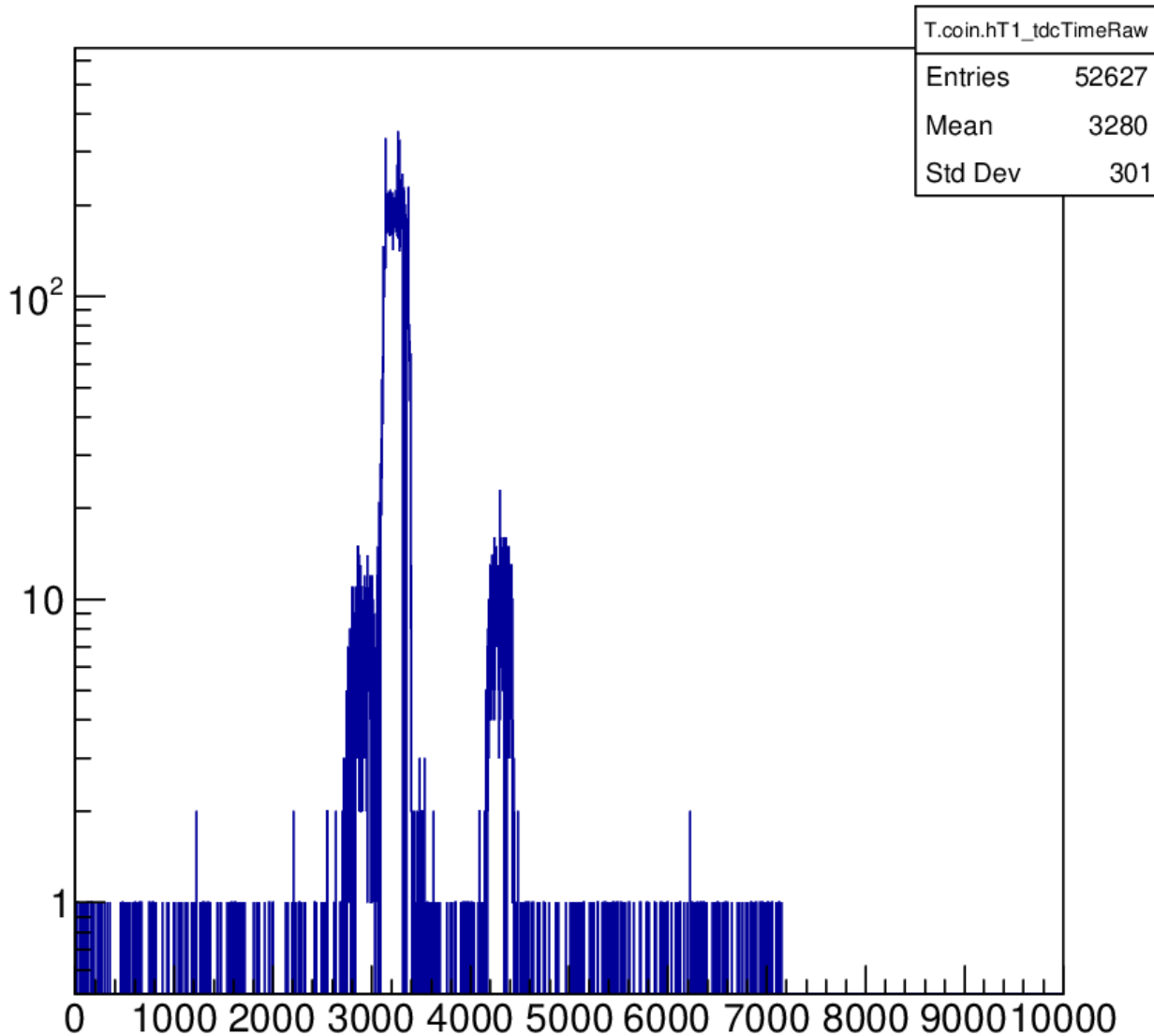


SHMS Conclusions

- The SHMS coin runs have 2 peaks, one sharp the other with some grass. I assume this is due to the coin trig and the singles trig interacting.
- The single arm data appears to have 2 peaks in completely different positions which would mean making 2 version of the cuts.

Next Reference times

T.coin.hT1_tdcTimeRaw



Choose cuts on TDC REF for Hodoscope and trigger.

Also need to look at the DC ref time cuts.

After finished with this replay all the data again and pick detector time cuts.