

WEEKLY ANALYSIS UPDATE

02 August 2024

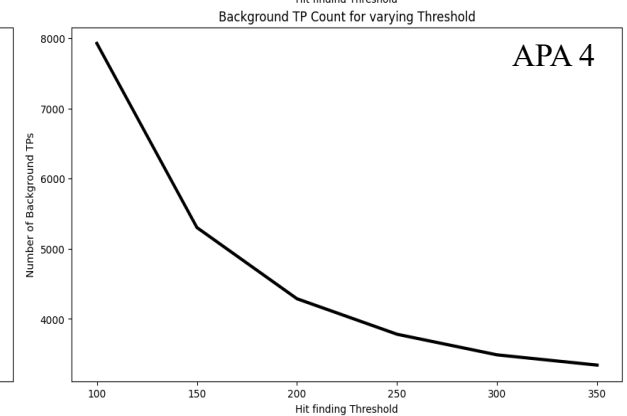
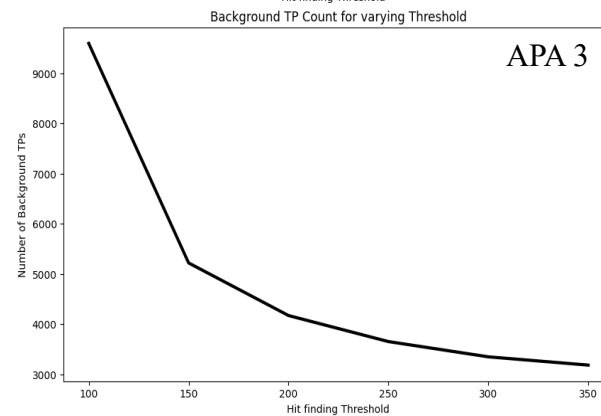
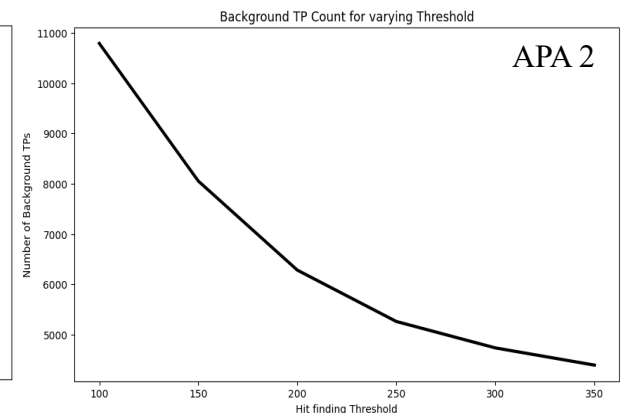
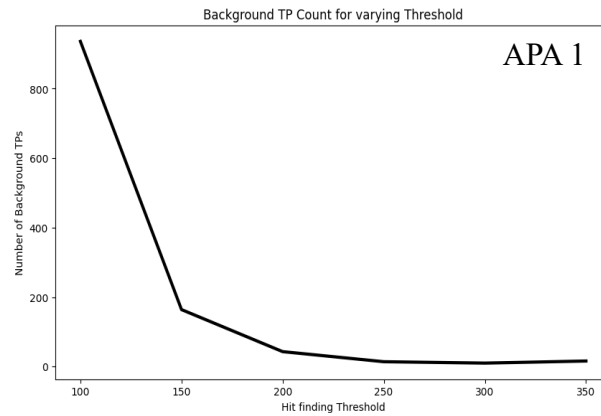
Samikshya Kar

Further Steps for Bismuth Physics

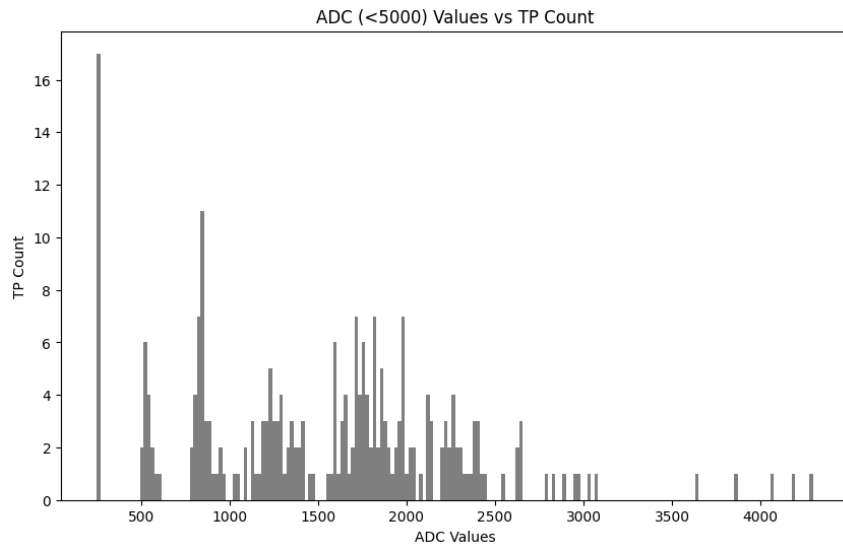
- Raw data for APA 2 channels for run 026482 TR
- Analysis with more data: Need Rucio account to access PD2HD TRs: In progress (have been facing technical difficulties)
- Set of Background TPs:
 - Clustering to remove cosmics data
 - Increased TP Count to remove Bismuth active channels
- Plotting the number Background TPs vs varying threshold (Hit finding) for different APAs
- ADC integral plot of Background TPs
- To classify a TP into different categories:
 - Matching it with Induction TPs to get its actual source (currently in this step)
- To get only Bismuth TPs: Subtraction the expected background TPs in the Bismuth region from all hits to estimate the distribution of only Bismuth TPs.
- Conversion of ADC integral to Energy and the 1D energy plot (needs further work)
- Offline reconstruction: Got my FNAL account password yesterday

Background TP Count vs Threshold

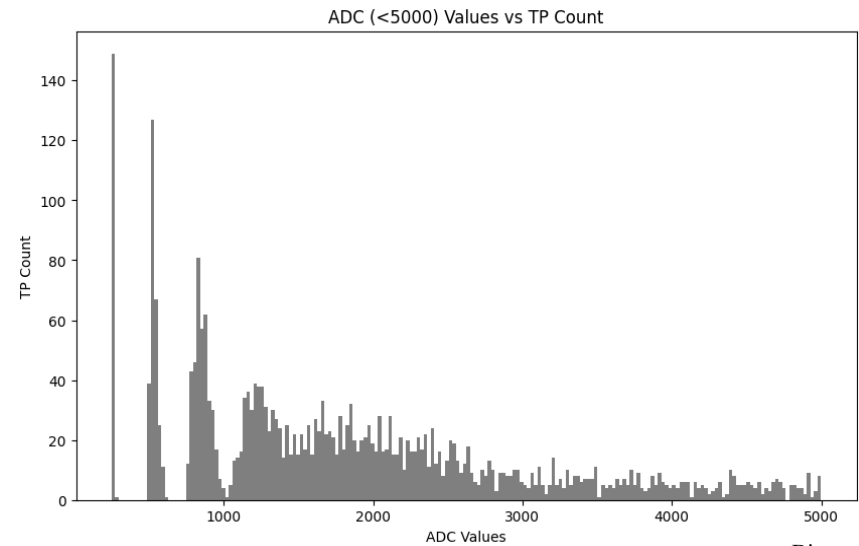
- Datafile: run 026482 off beam data
- Emulated Collection TPs
- Algorithm: Simple Threshold Hit Finding



Background TP Count vs Threshold 1D Histogram



ADC integral of Bismuth channel
emulated collection TPs from APA 2

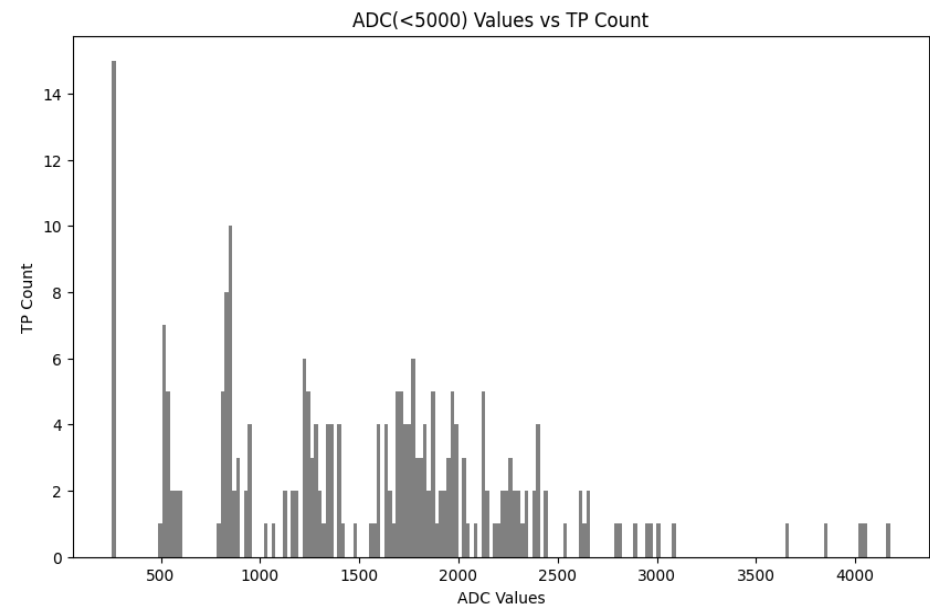
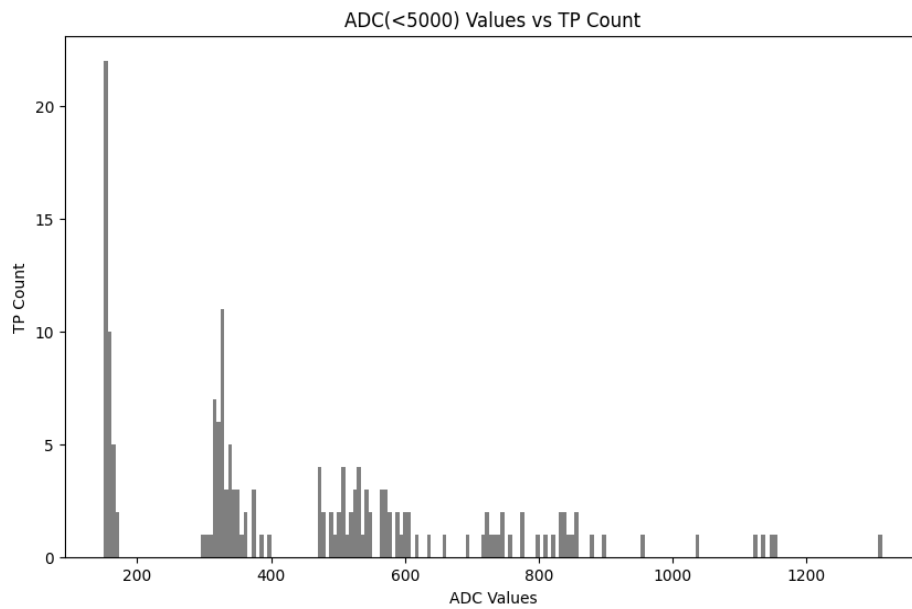


Bins = 200

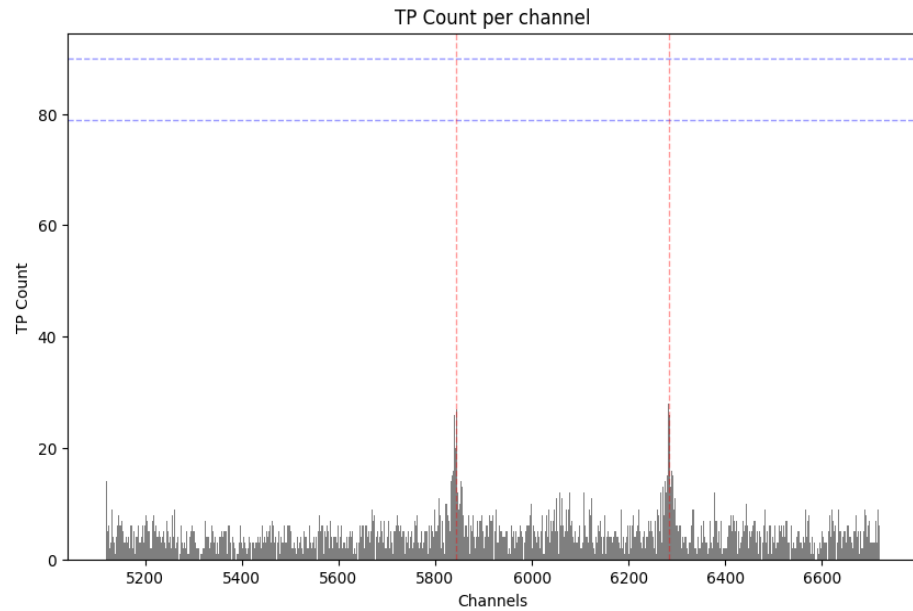
ADC integral of Background
emulated collection TPs from APA 2

THANK YOU!

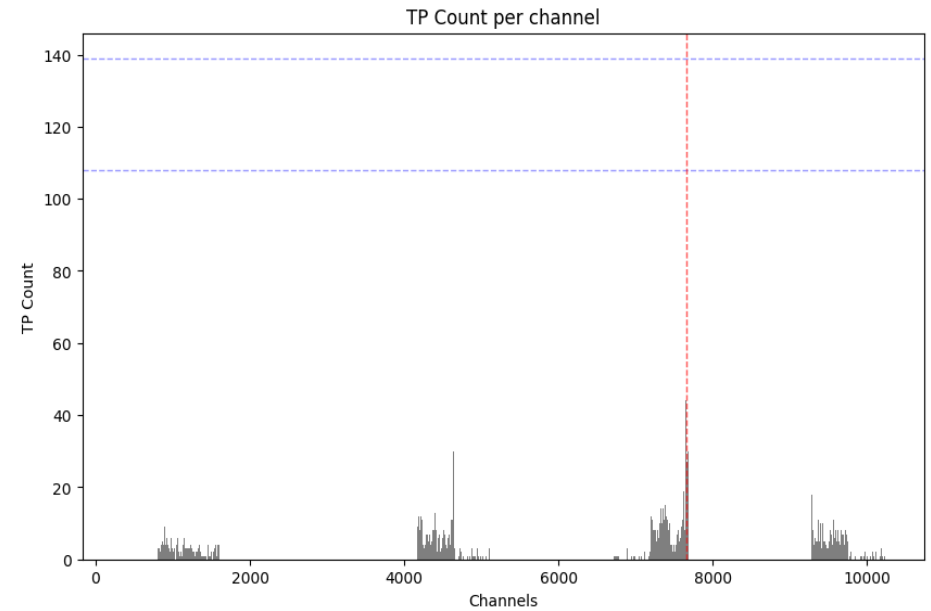
1D Histogram of ADC Integral values



TP Count per channel



Induction plane



Collection plane