

Event Mixup

20240906

INTTJPMT

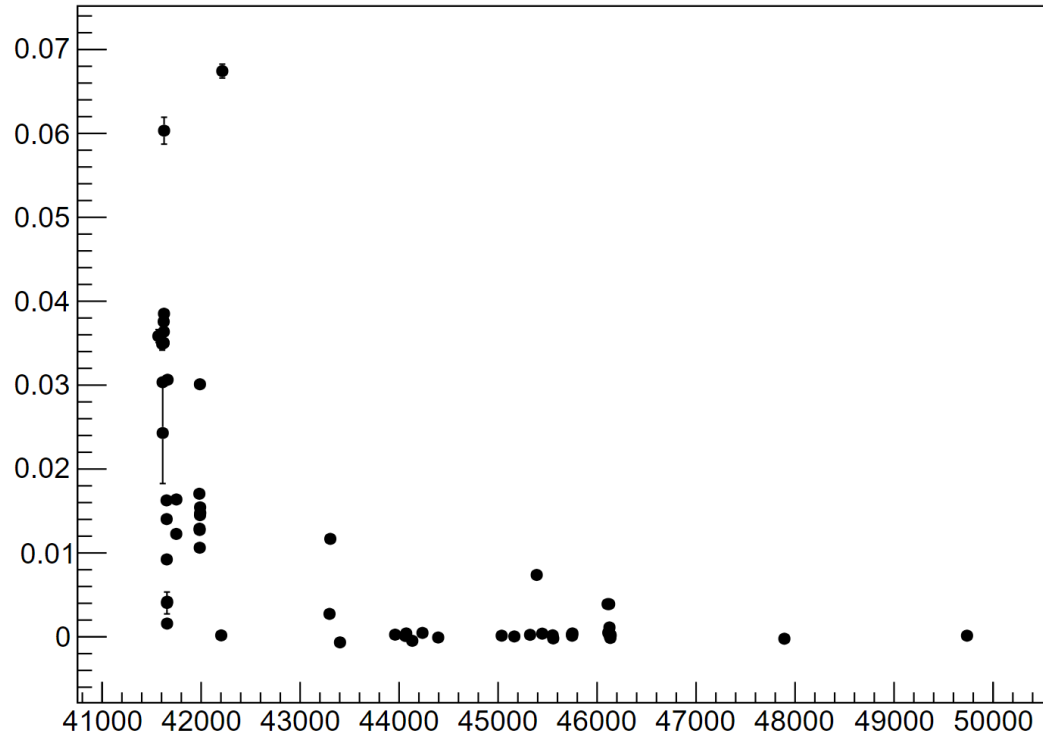
Mai Kano

contents

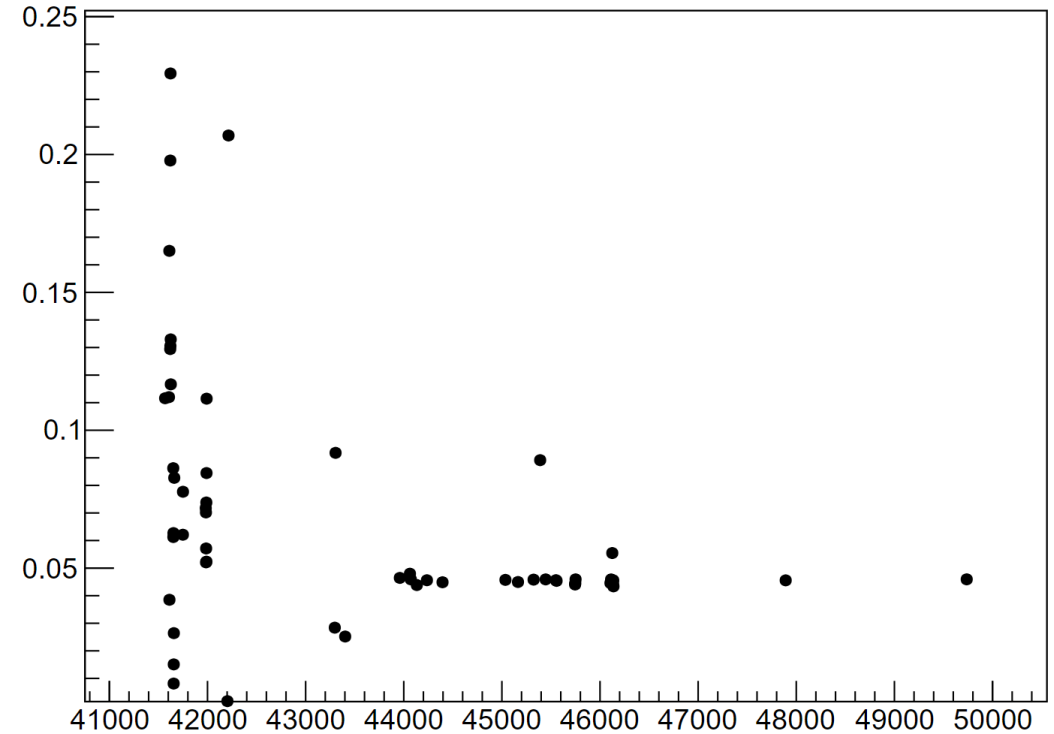
- DSTファイル作成でバグが起きていて内容とRun番号が一致していなかった
- 調べていたRunを全て結果を作り直した
- 各RunごとにMixupのプロットを確認することはまだ出来ていないがMixup fractionの分布も作り、今までのと比べ変化があった

Run24 Mixup fraction intt0 > 10min old

Mixup hit fraction for Felix = 0



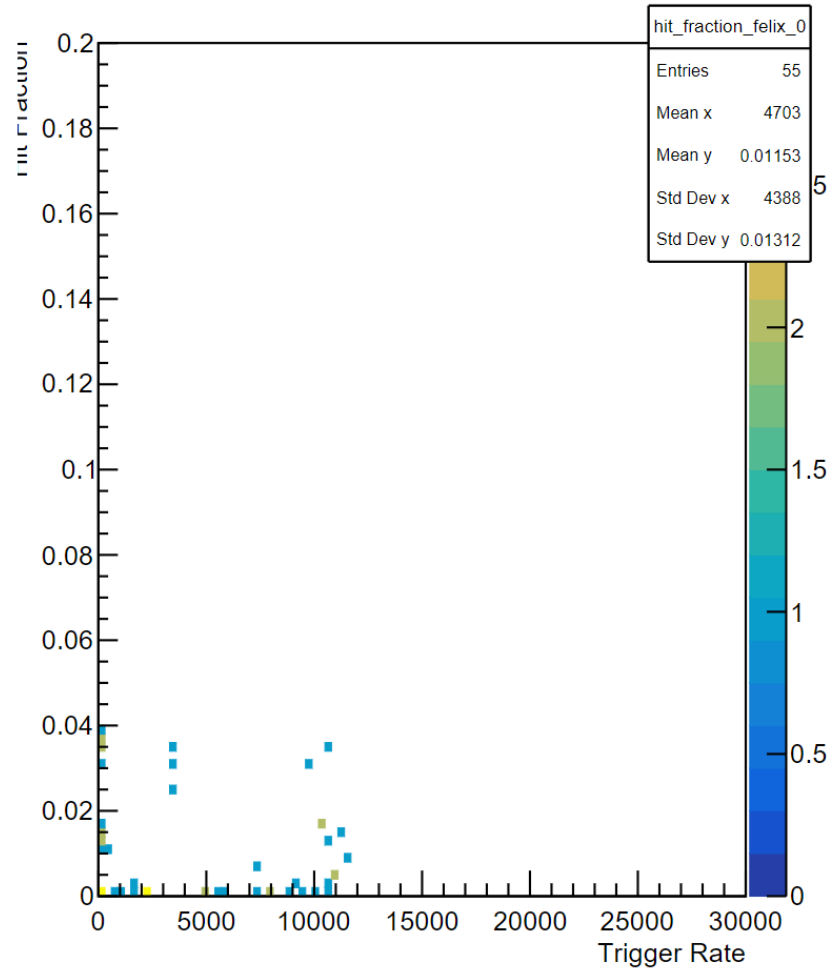
Mixup event fraction for Felix = 0



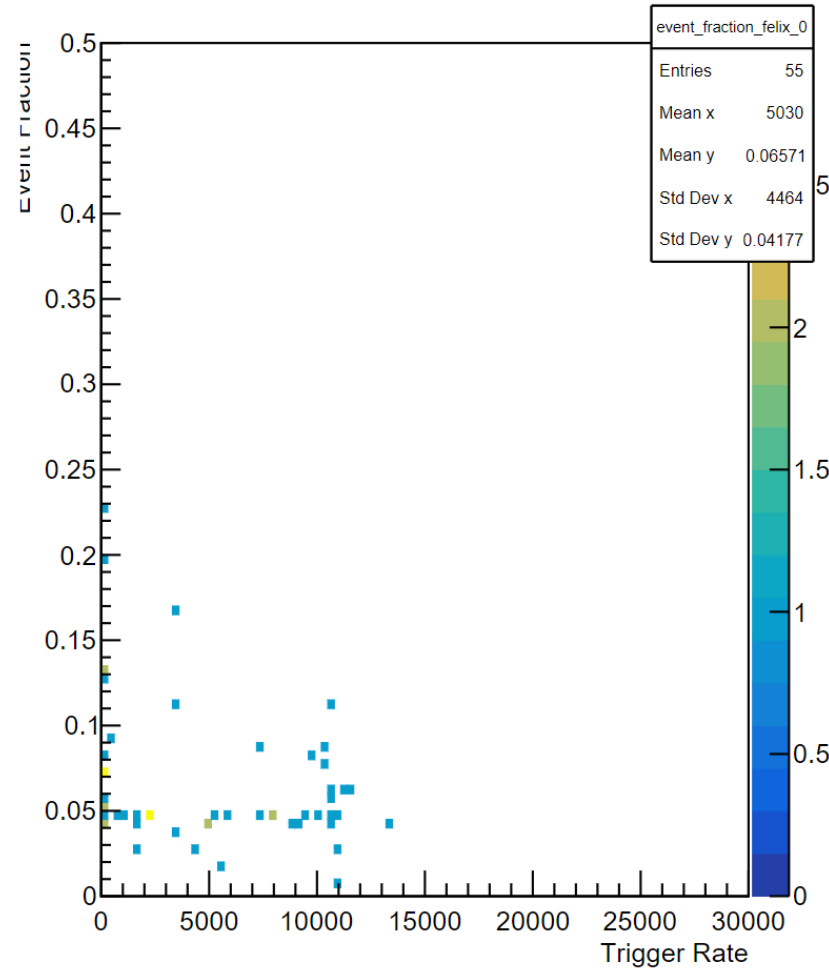
I will submit a plot of Run vs Mixup fraction only Runs with a measurement time of 10 minutes or more. Also, this trigger rate is the trigger rate obtained by dividing the total number of events scaled down by the duration

Mixup fraction vs trigger rate intt0 > 10min old

Hit Fraction vs Trigger Rate for Felix 0



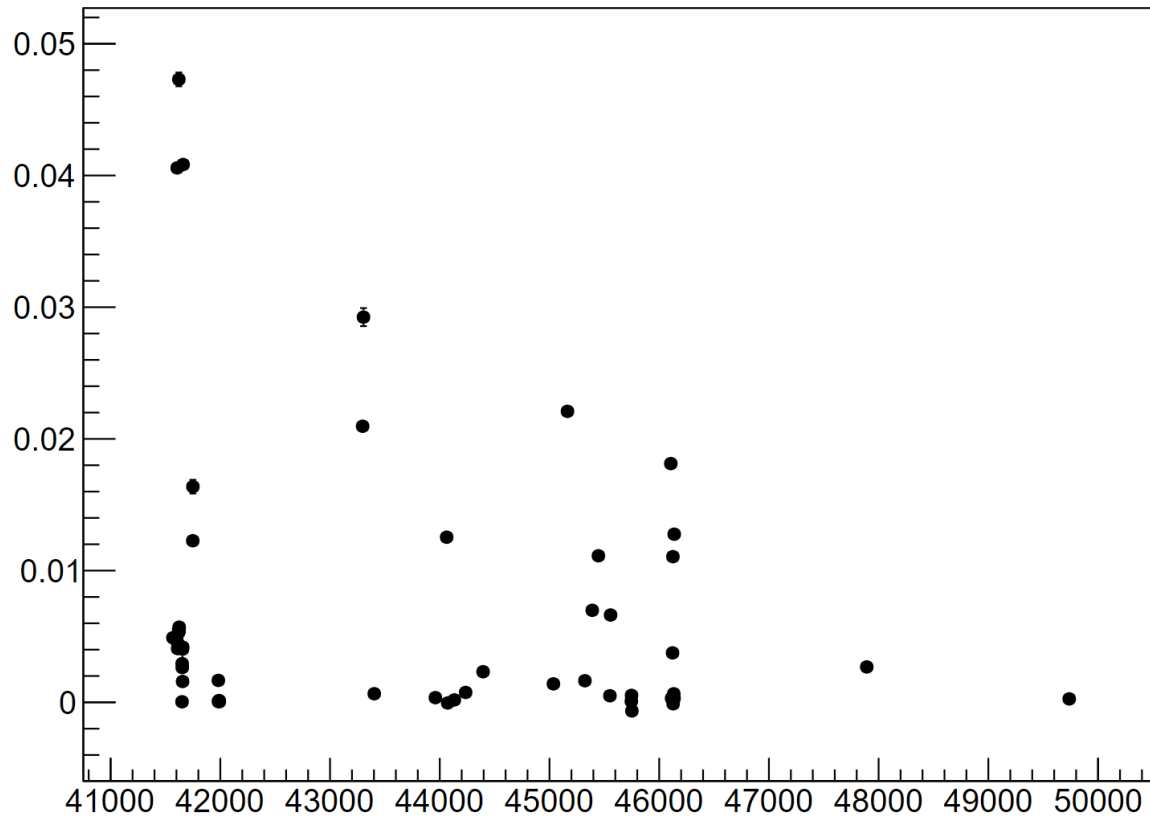
Event Fraction vs Trigger Rate for Felix 0



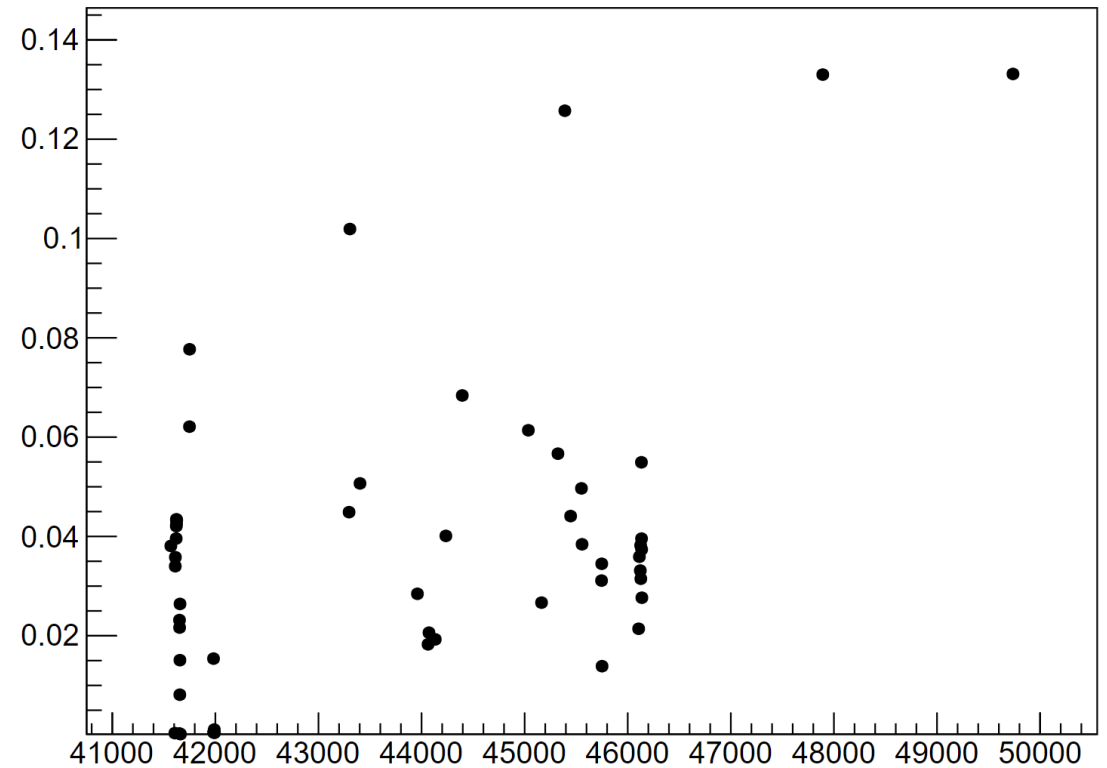
I will be submitting this plot as well, but the mixup fraction for each Run data will change after the reanalysis, so this plot will change as well. After that I will check Mixup have trigger rate dependence or no.

Run24 Mixup fraction $\text{intt0} > 10\text{min}$

Mixup hit fraction for Felix 0

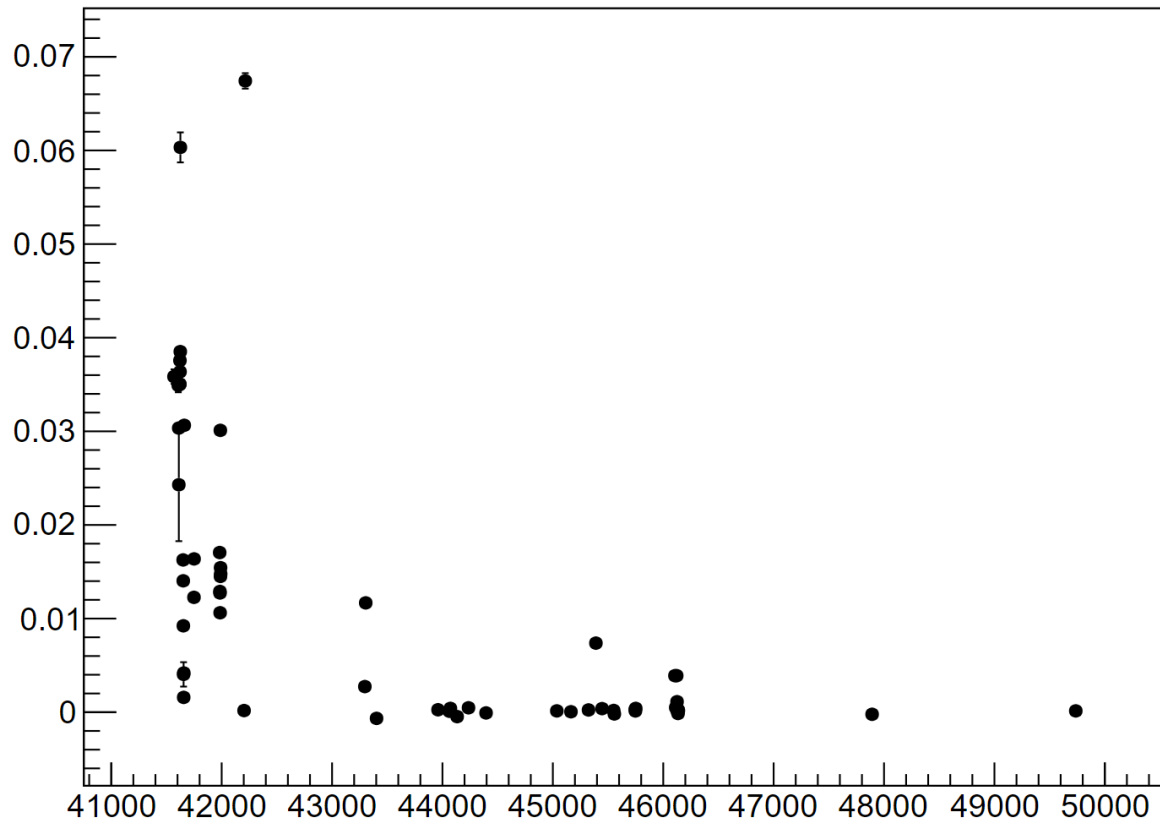


Mixup event fraction for Felix 0

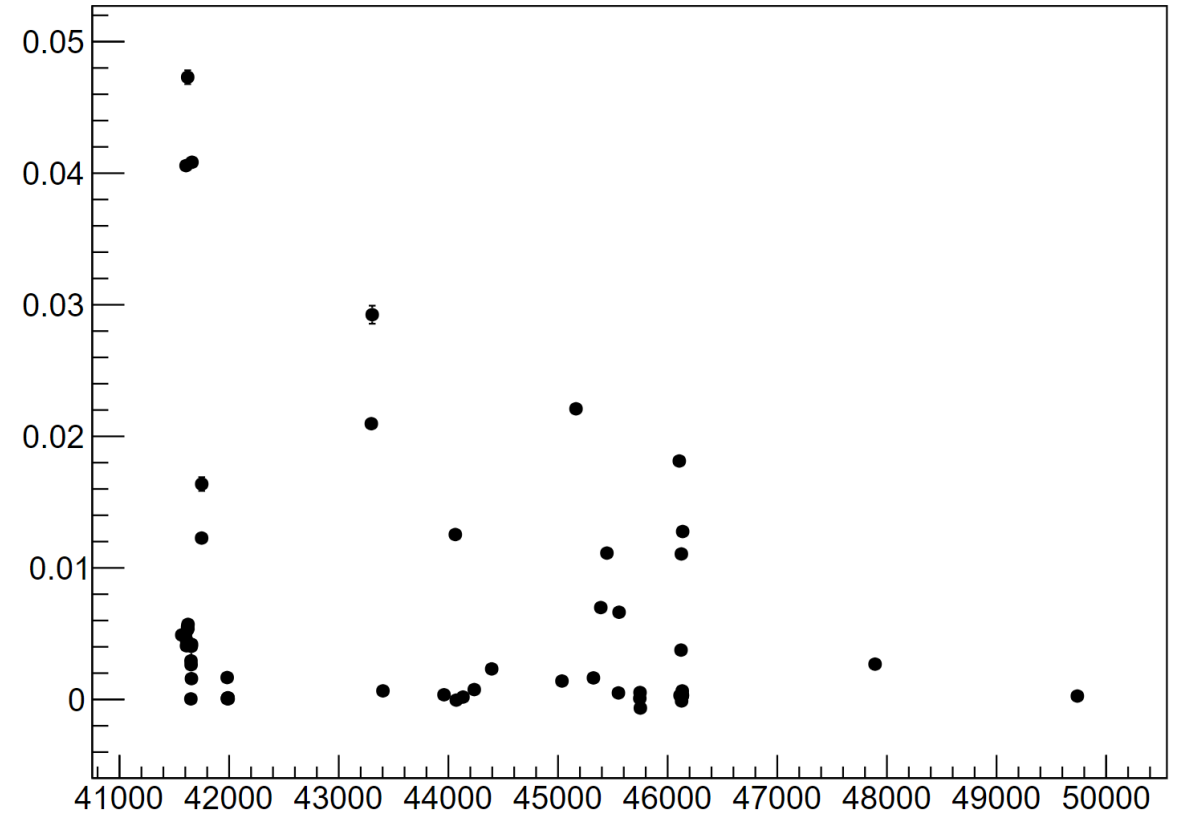


Run24 Mixup fraction intt0 > 10min

Mixup hit fraction for Felix = 0

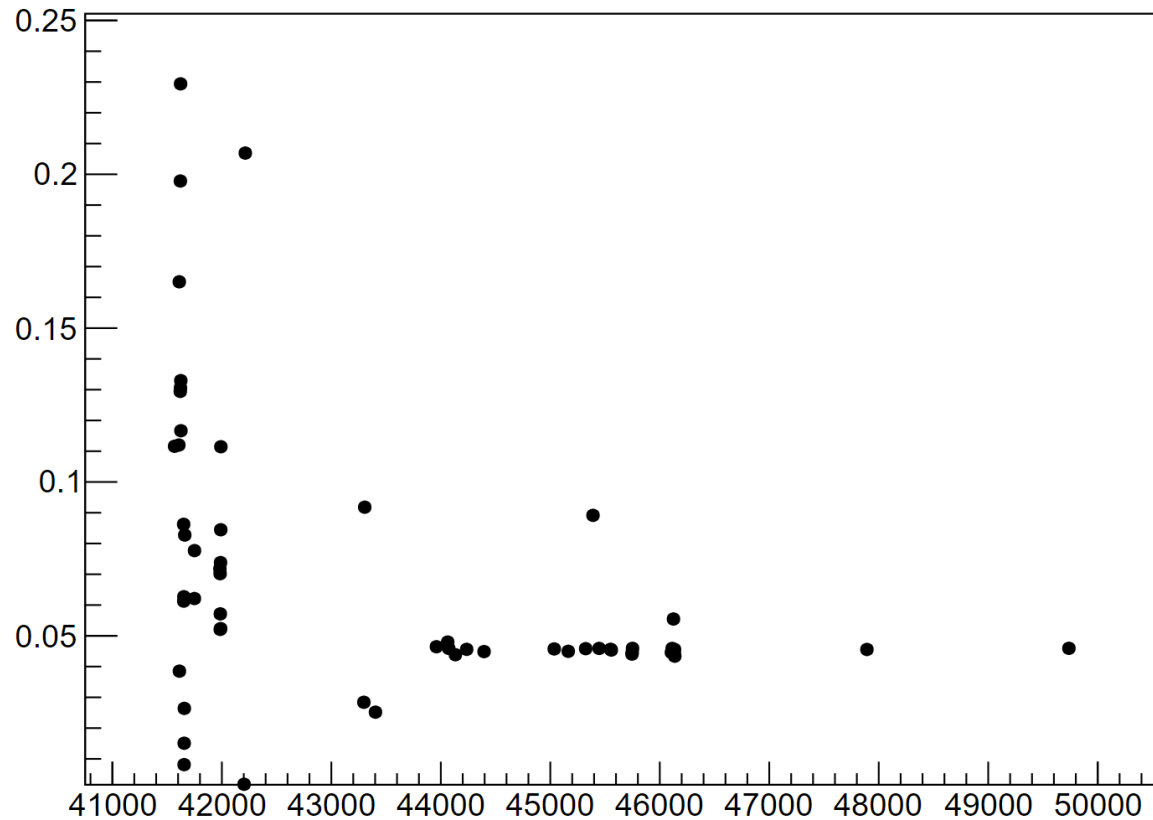


Mixup hit fraction for Felix 0

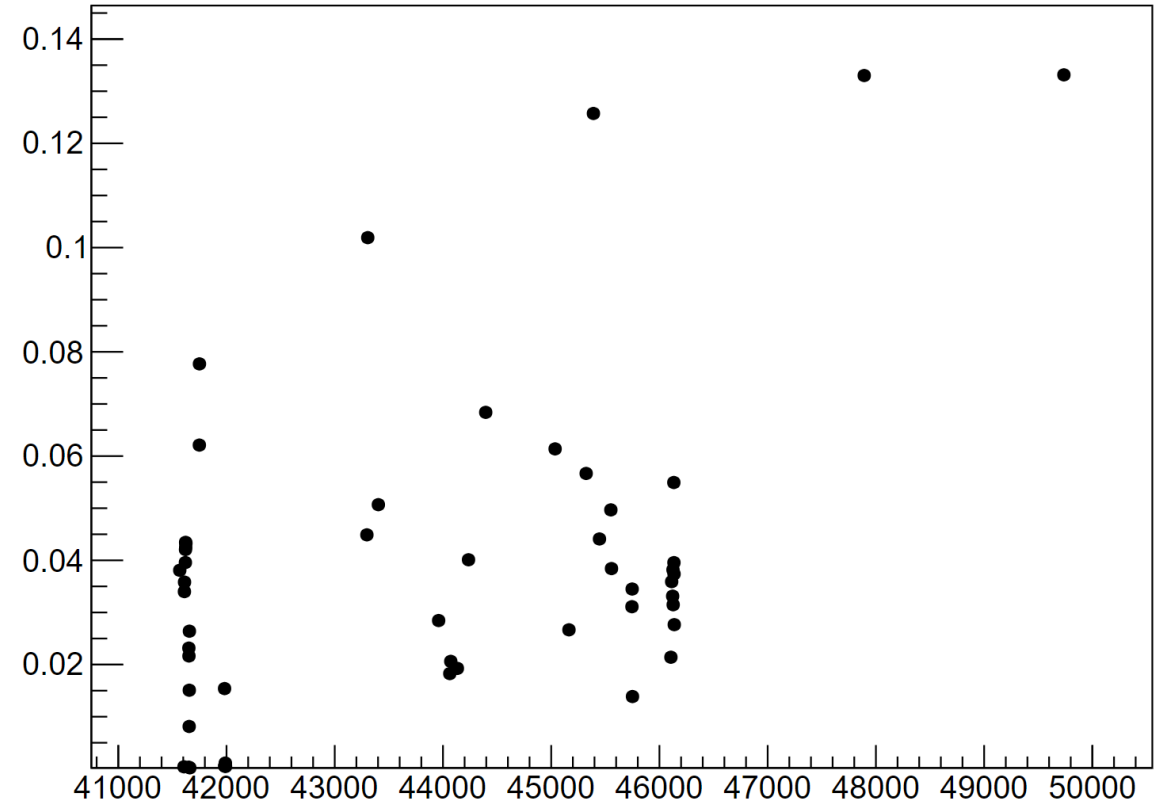


Run24 Mixup fraction intt0 > 10min

Mixup event fraction for Felix = 0

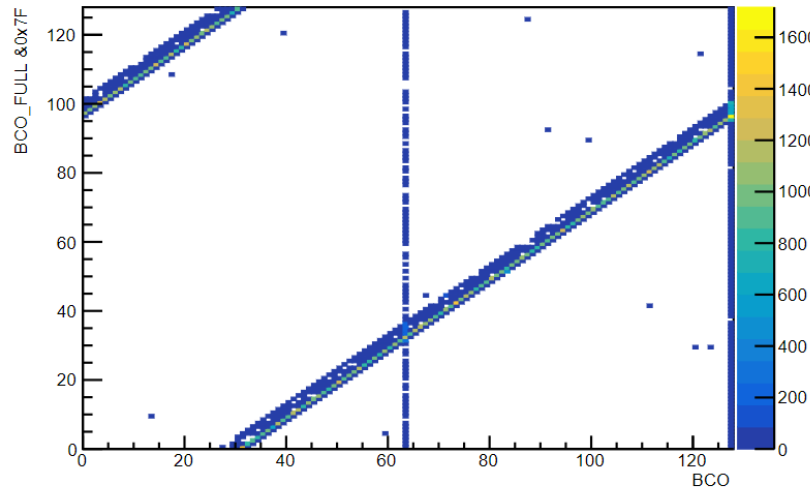


Mixup event fraction for Felix 0

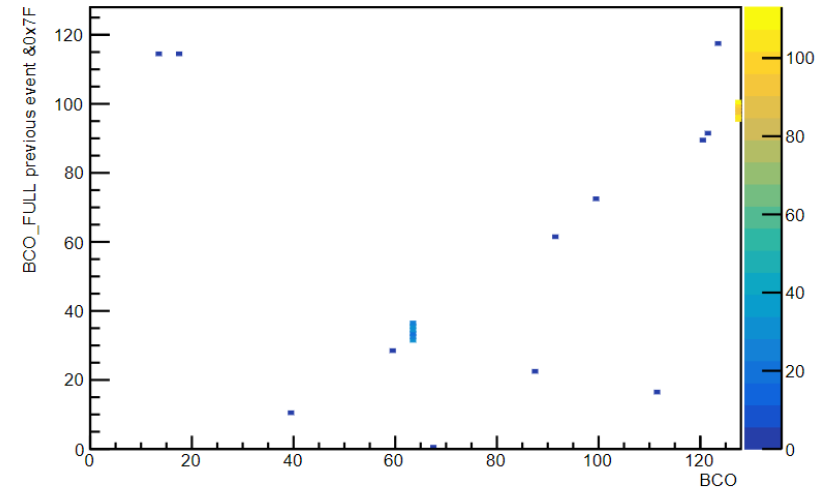


Run41622 inttt0 high hit fraction

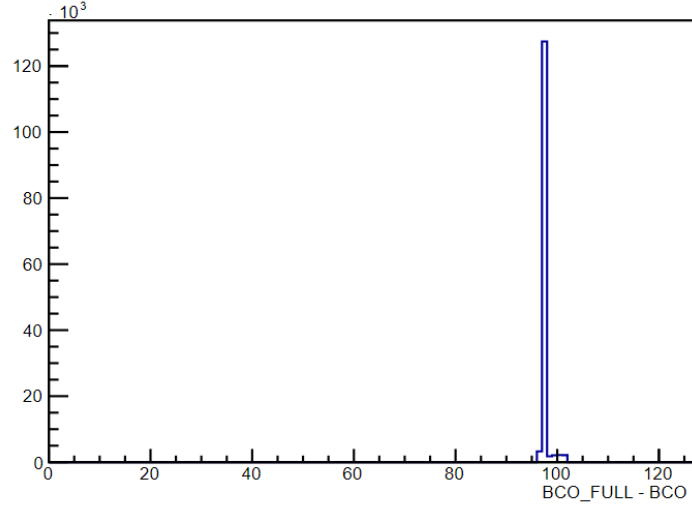
bco_full&0x7F_vs_bco_intt0_Run41622



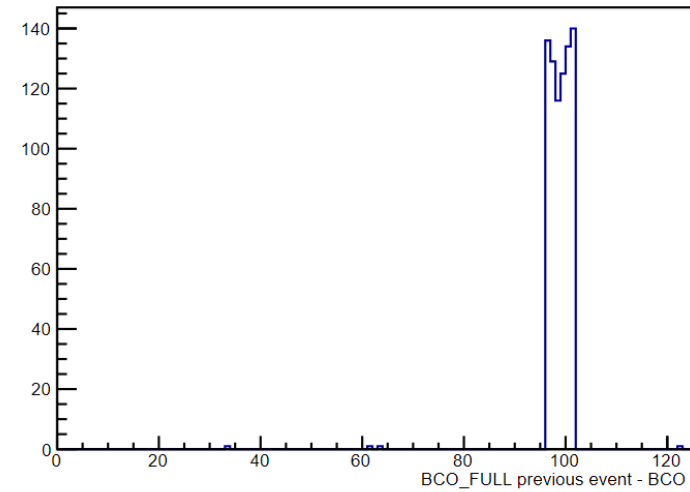
bco_full&0x7F_prev_vs_bco_intt0_Run41622



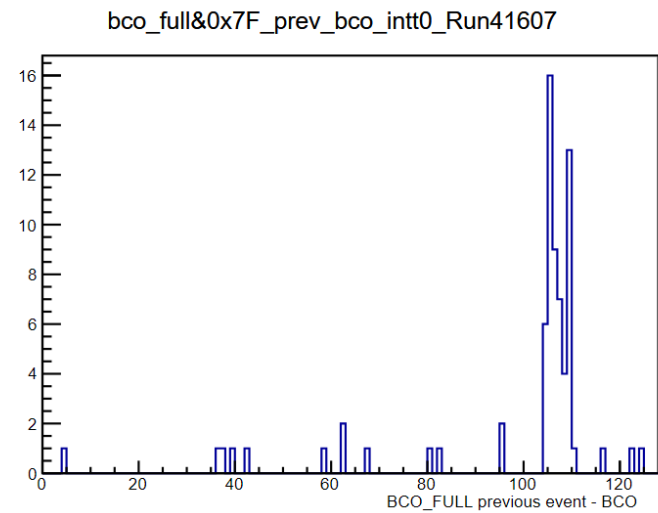
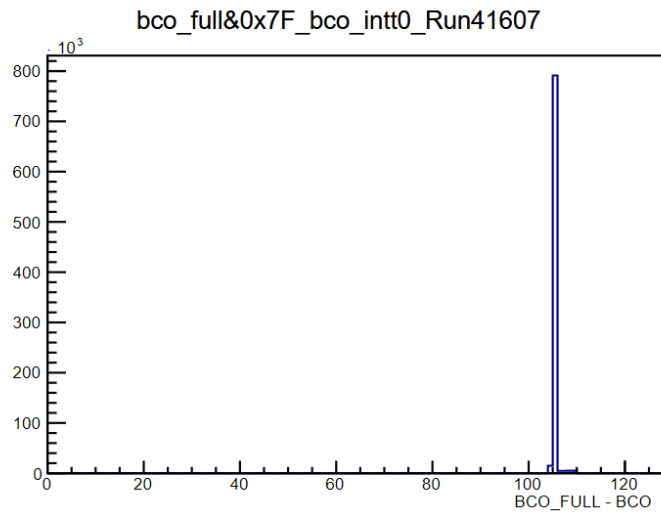
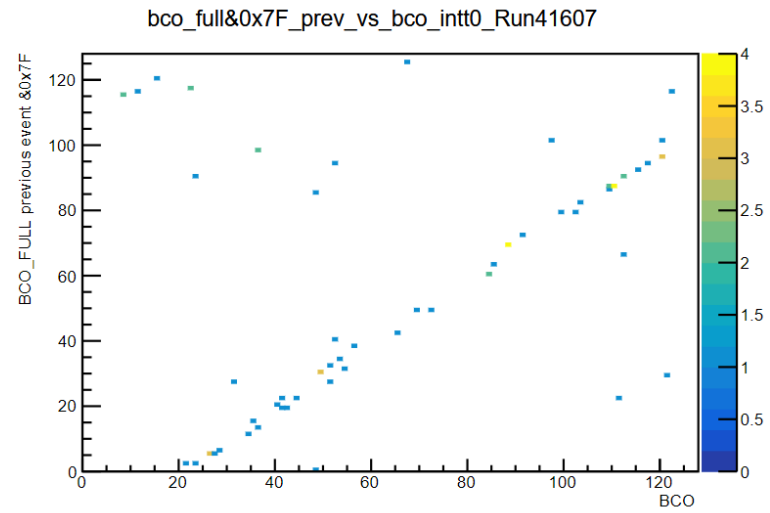
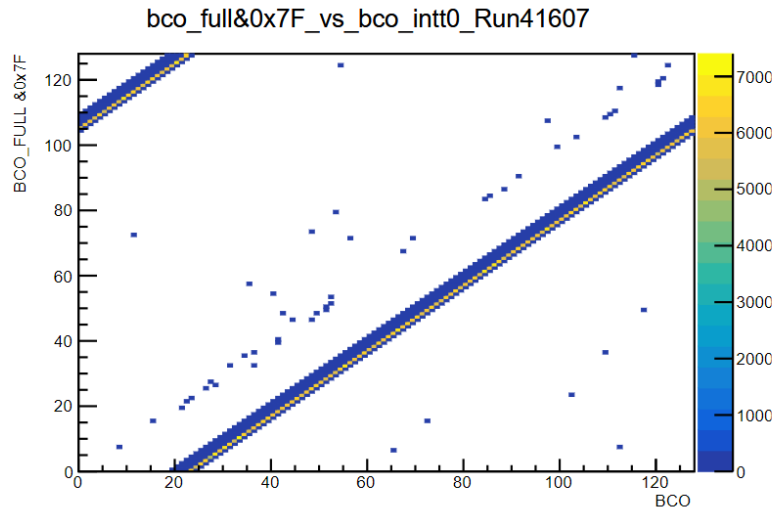
bco_full&0x7F_bco_intt0_Run41622



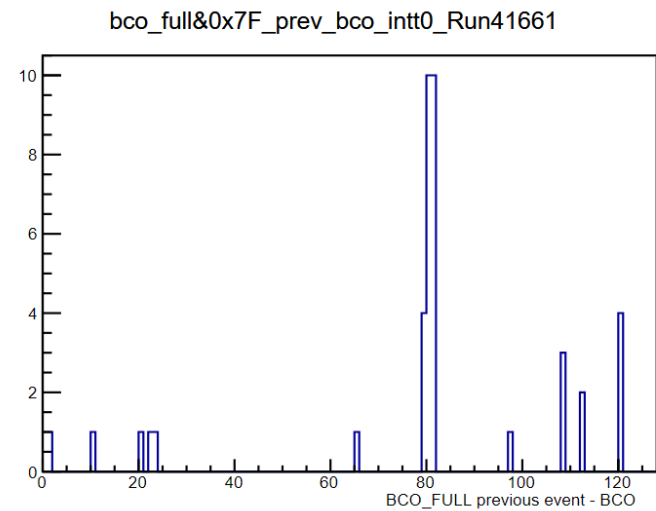
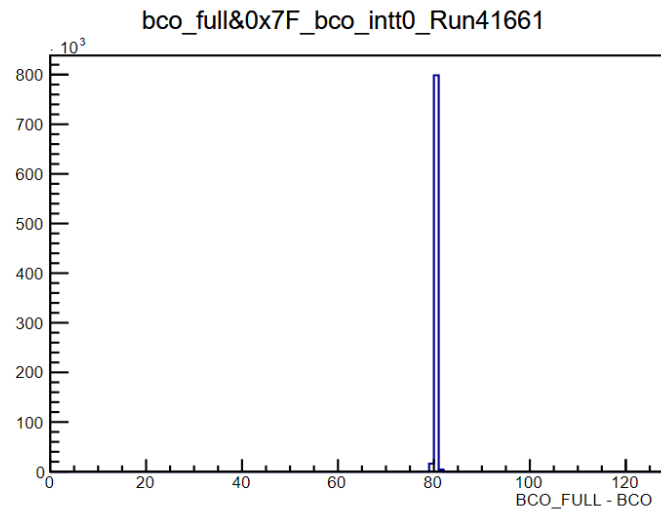
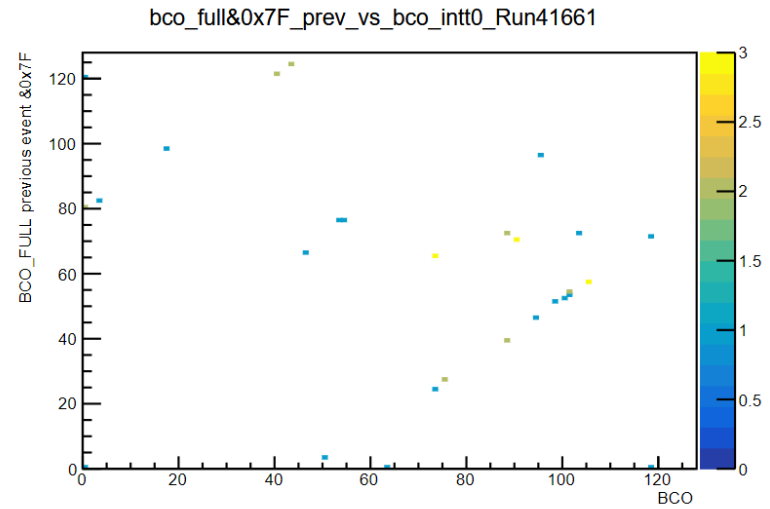
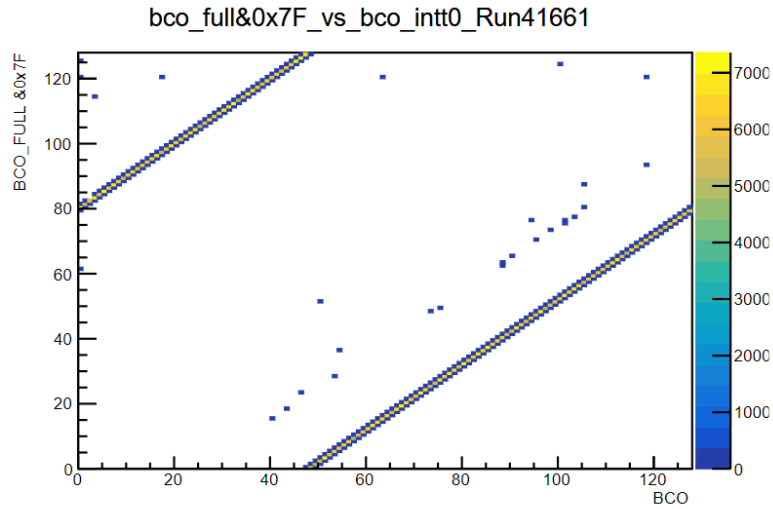
bco_full&0x7F_prev_bco_intt0_Run41622



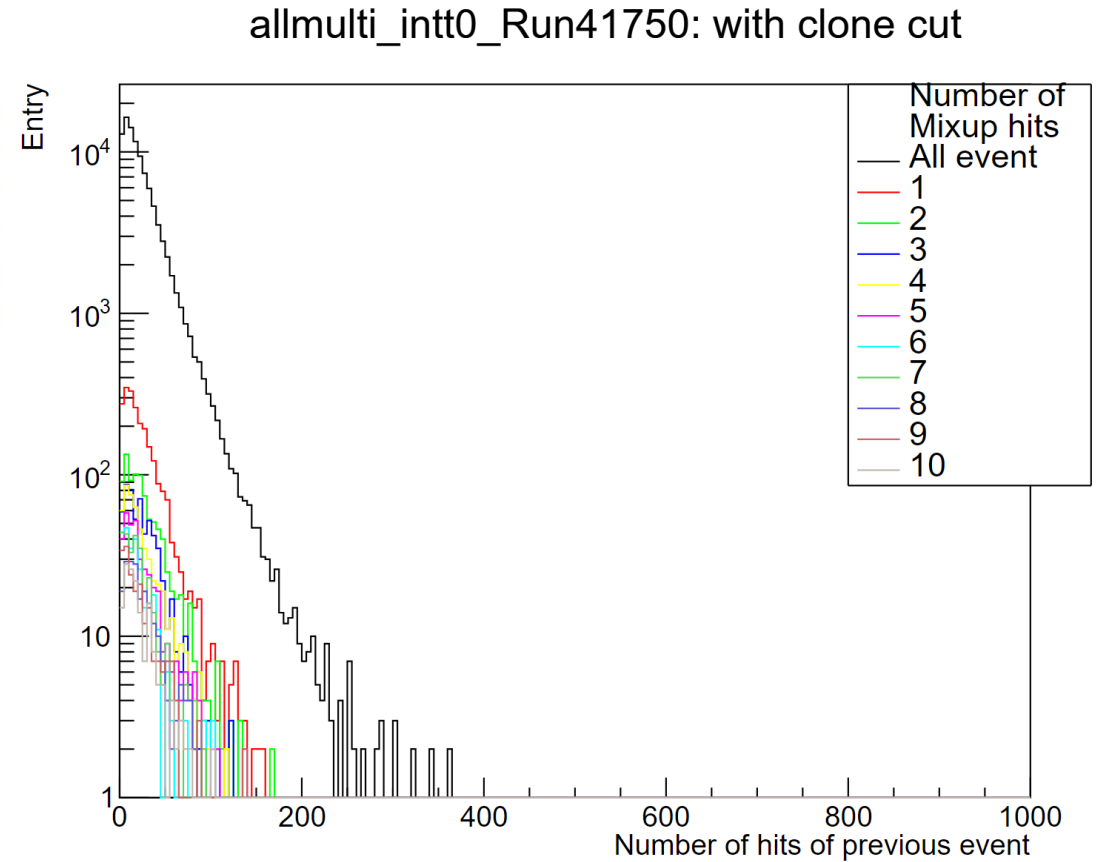
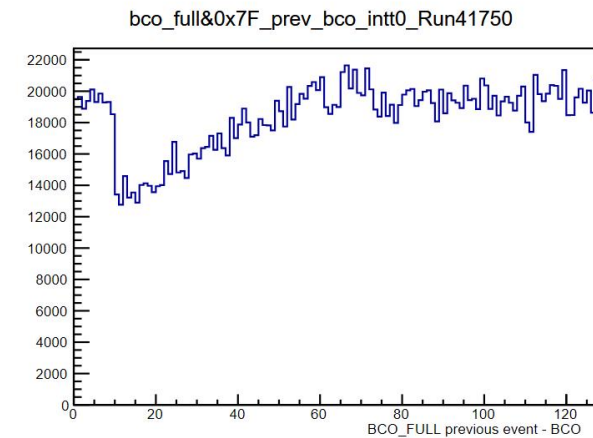
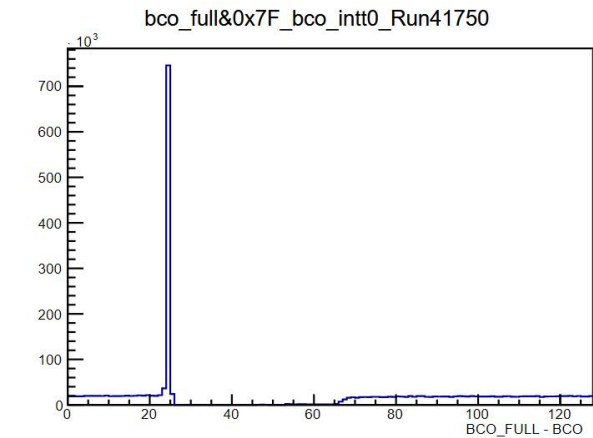
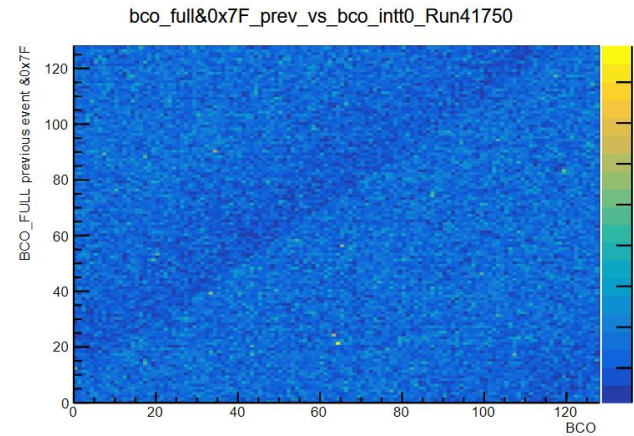
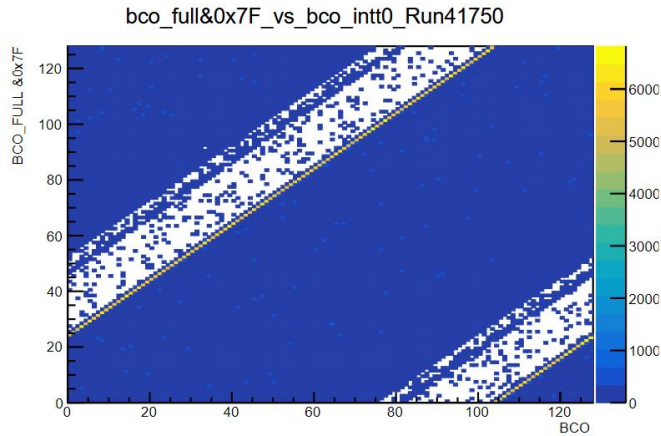
Run41607 inttt0 high hit fraction



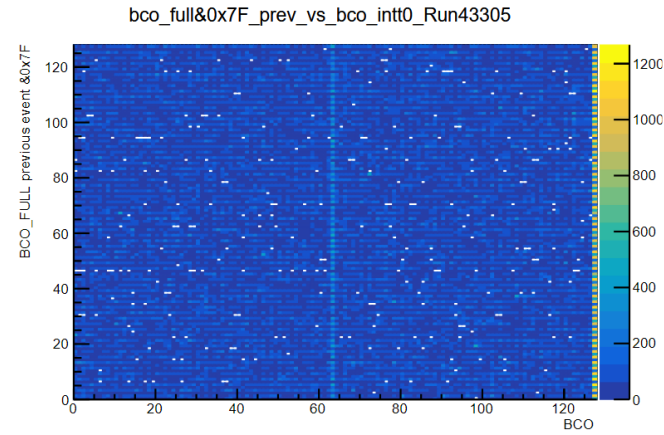
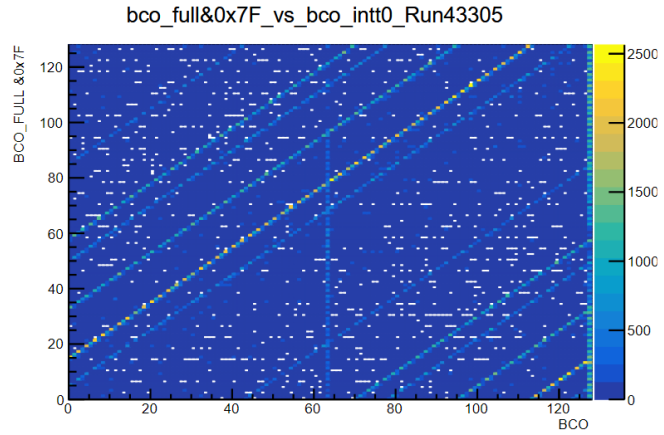
Run41661 inttt0 high hit fraction



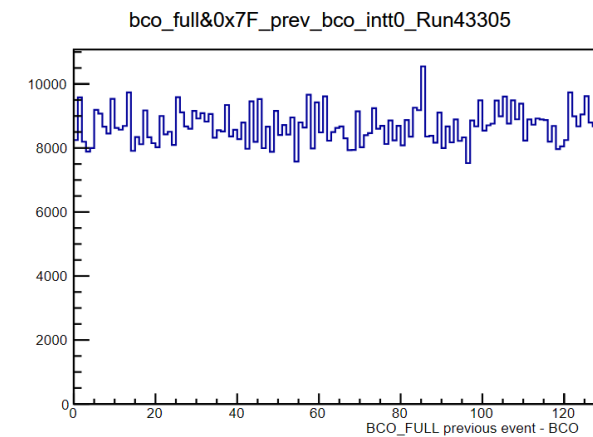
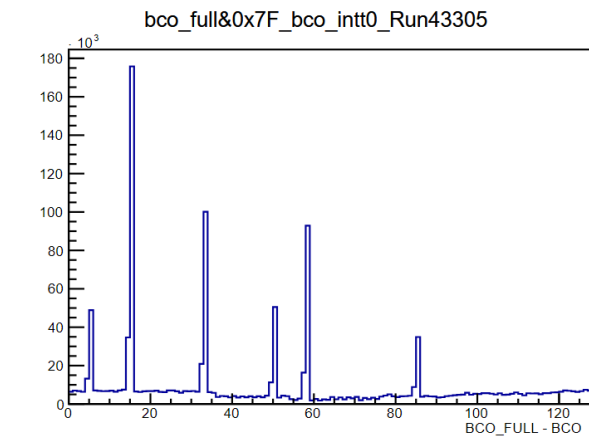
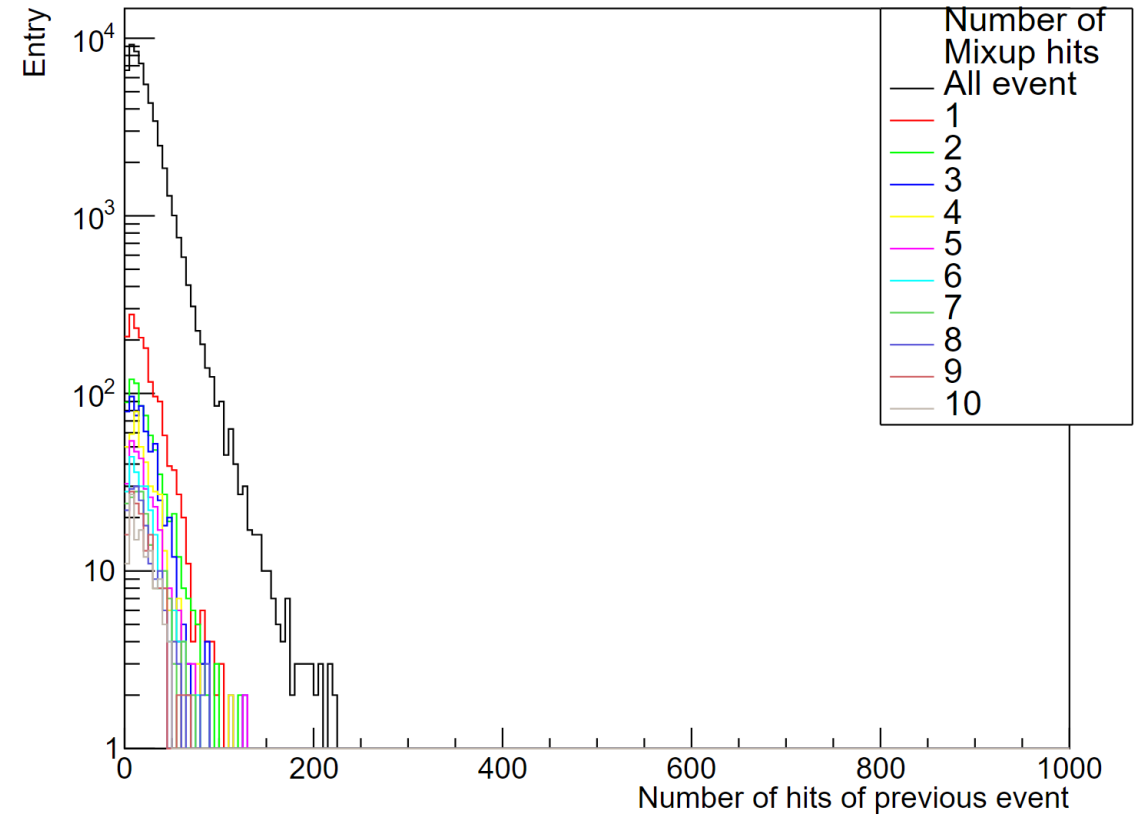
Run41750 inttt0 high Event fraction



Run43305 inttt0 high Event fraction

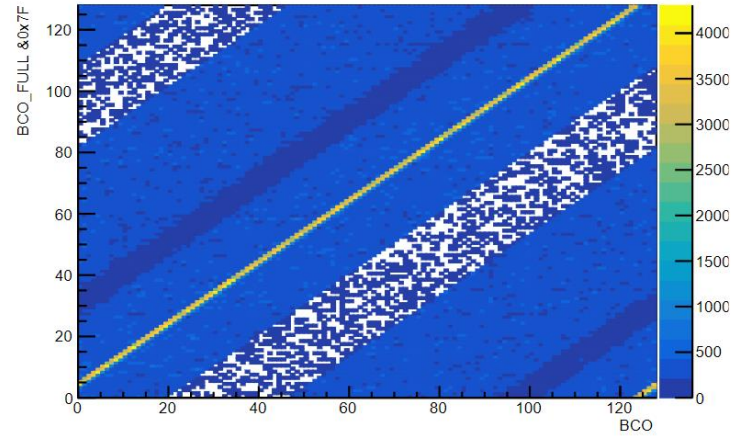


allmulti_inttt0_Run43305: with clone cut

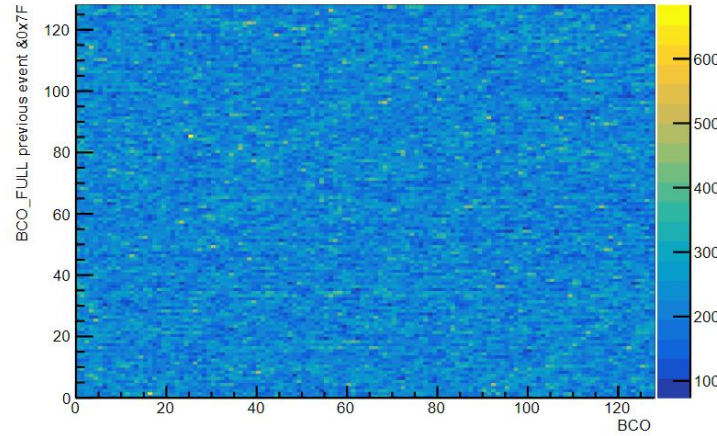


Run45390 inttt0 high Event fraction

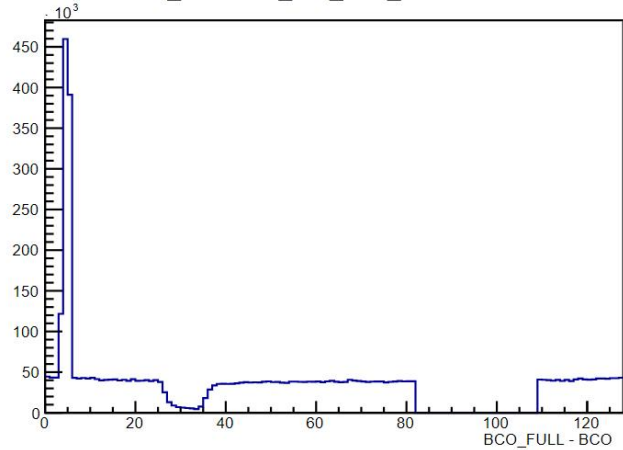
bco_full&0x7F_vs_bco_intt0_Run45390



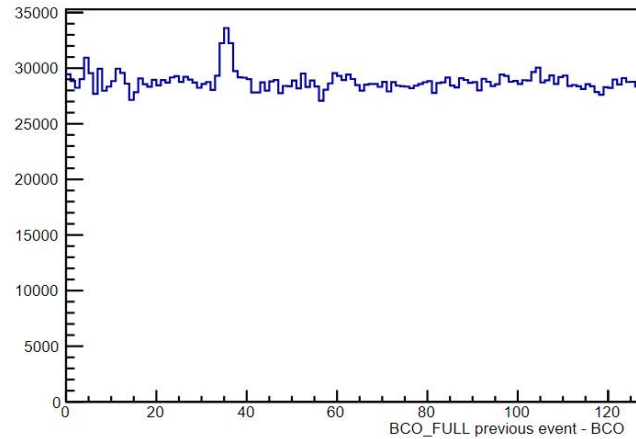
bco_full&0x7F_prev_vs_bco_intt0_Run45390



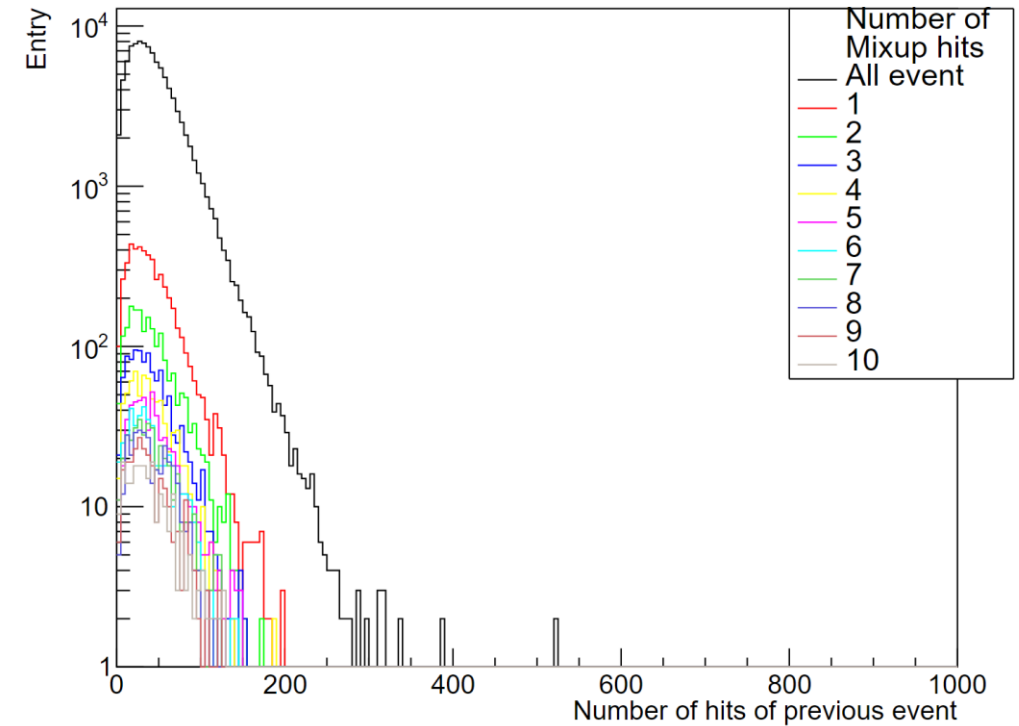
bco_full&0x7F_bco_intt0_Run45390



bco_full&0x7F_prev_bco_intt0_Run45390

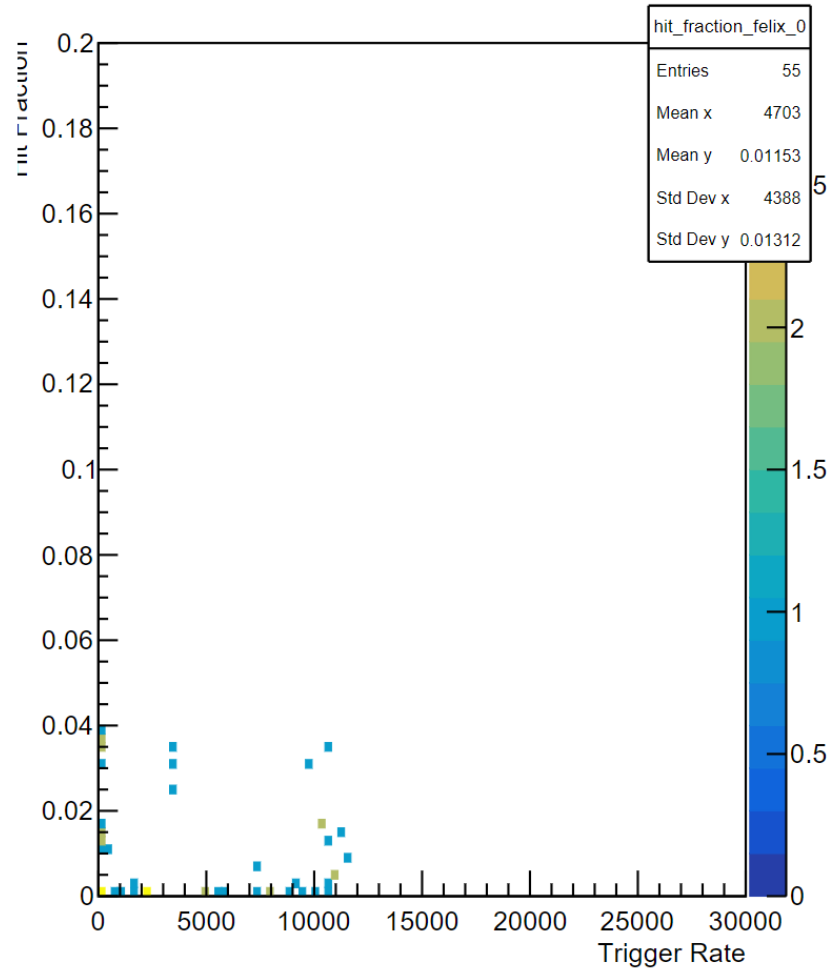


allmulti_inttt0_Run45390: with clone cut

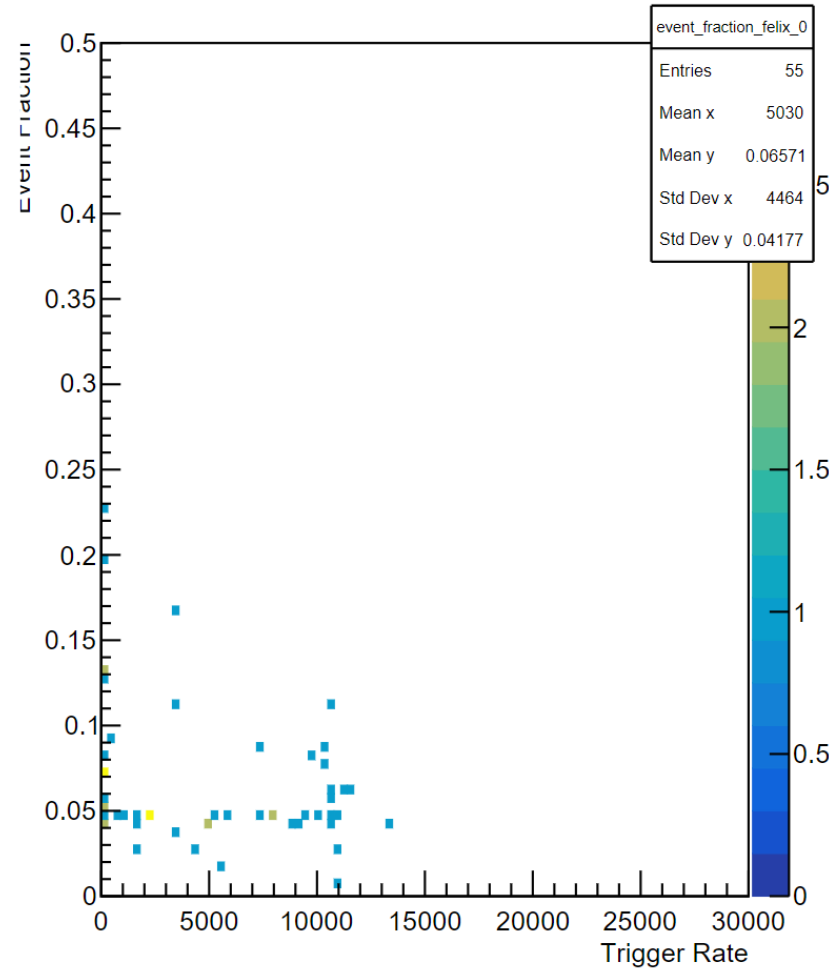


Mixup fraction vs trigger rate intt0 > 10min old

Hit Fraction vs Trigger Rate for Felix 0



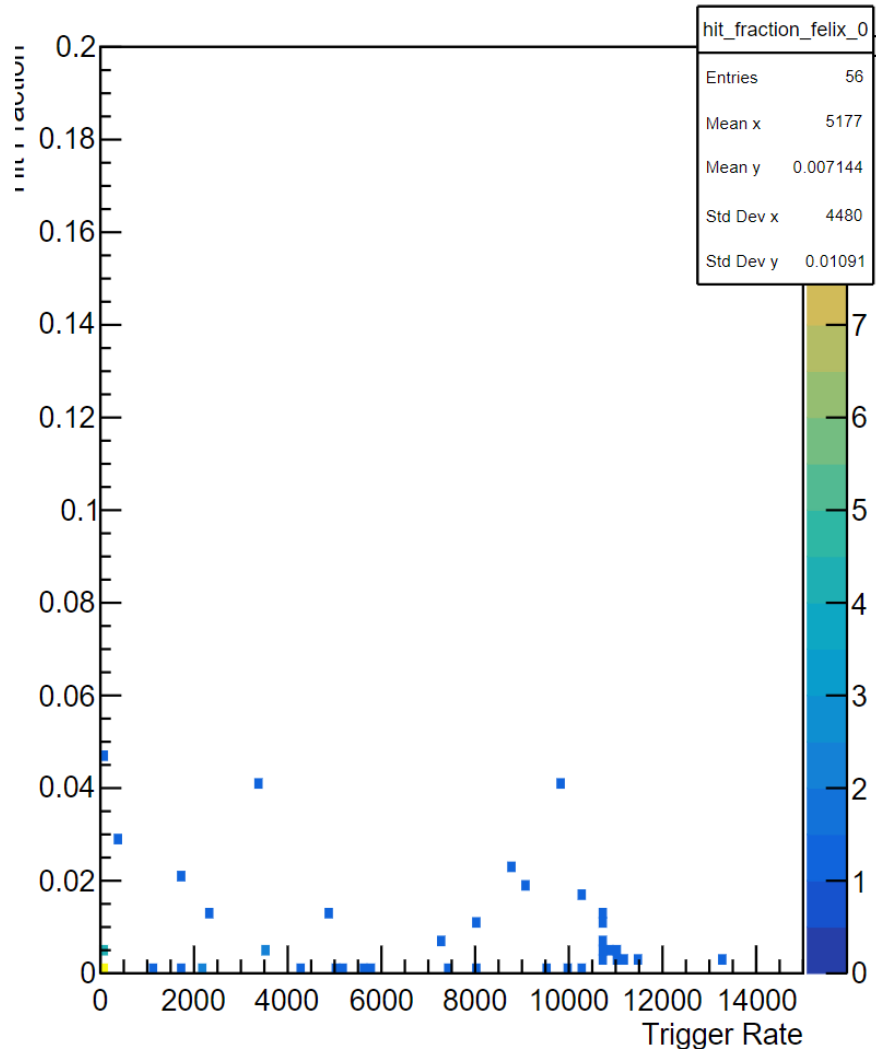
Event Fraction vs Trigger Rate for Felix 0



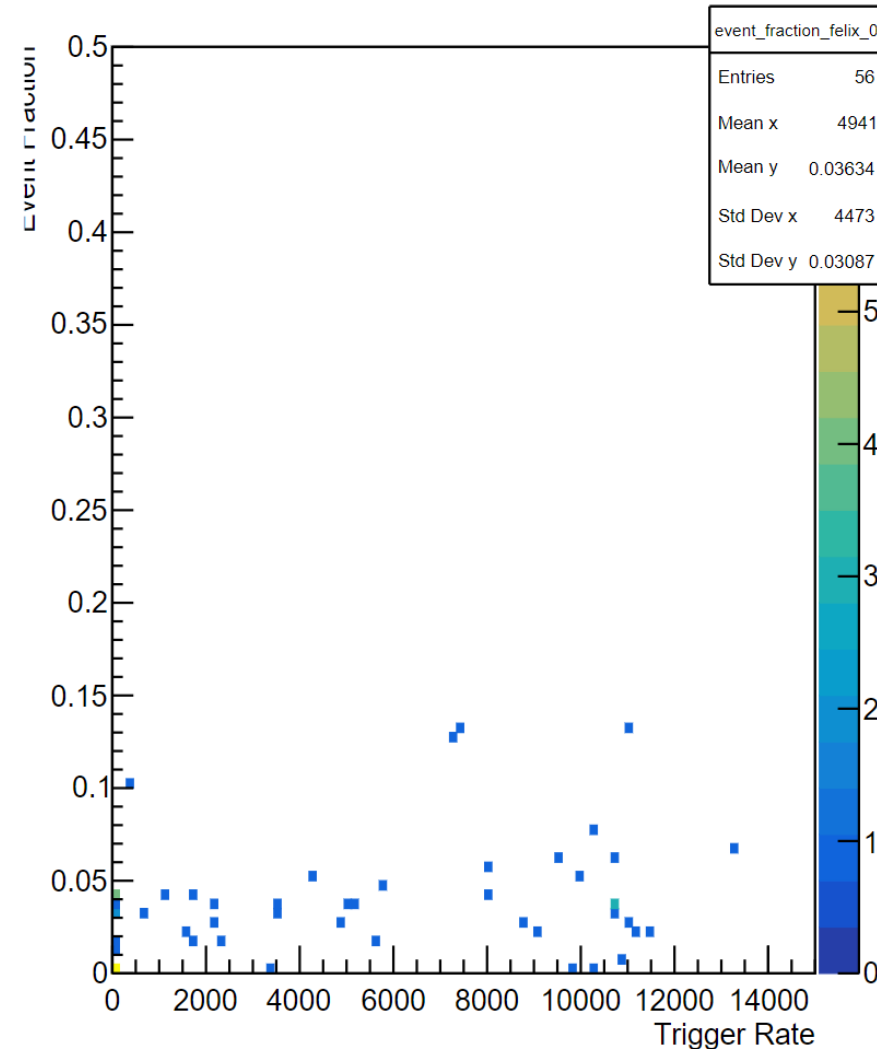
I will be submitting this plot as well, but the mixup fraction for each Run data will change after the reanalysis, so this plot will change as well. After that I will check Mixup have trigger rate dependence or no.

Mixup fraction vs Trigger rate $\text{intt0} > 10\text{min}$

Hit Fraction vs Trigger Rate for Felix 0

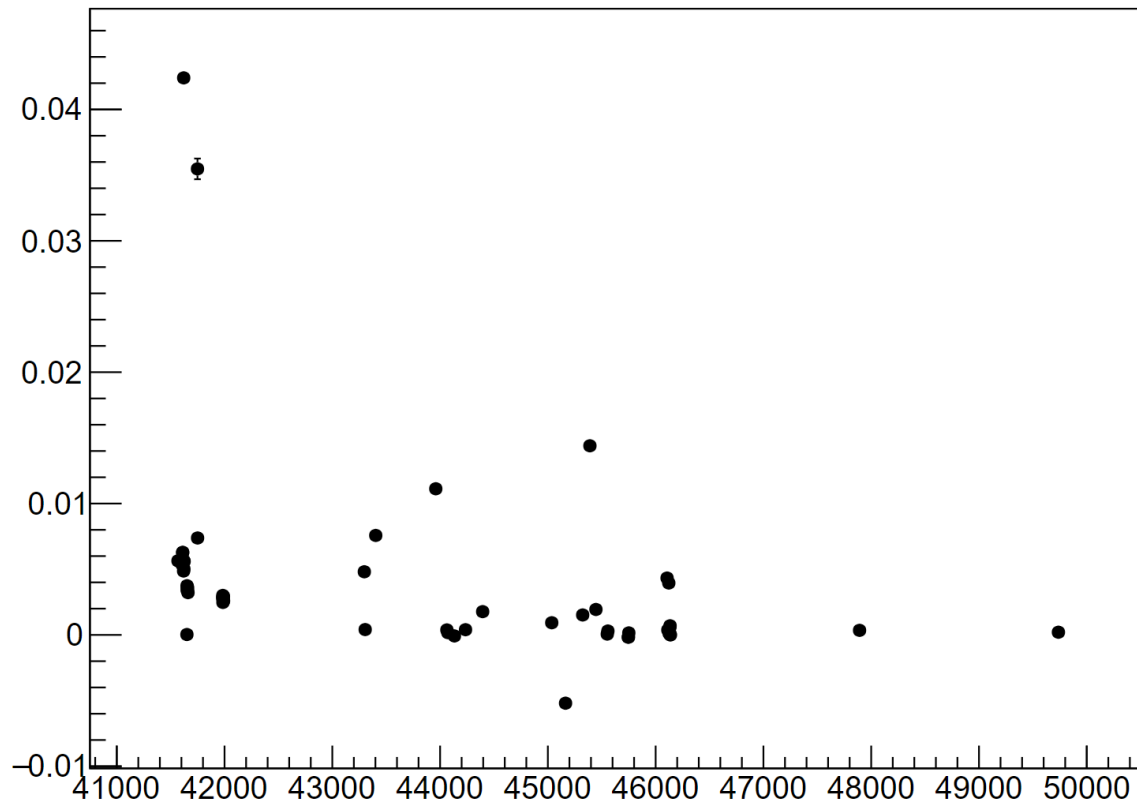


Event Fraction vs Trigger Rate for Felix 0

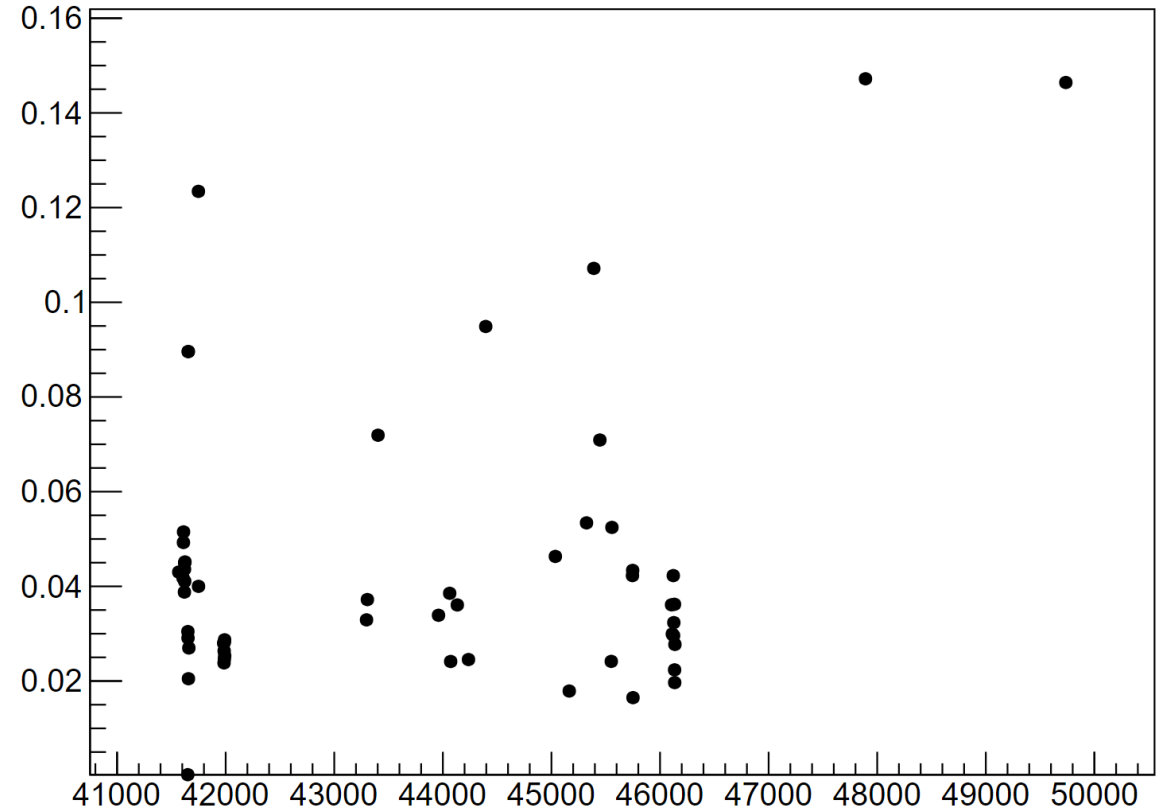


Run24 Mixup fraction intt1 > 10min

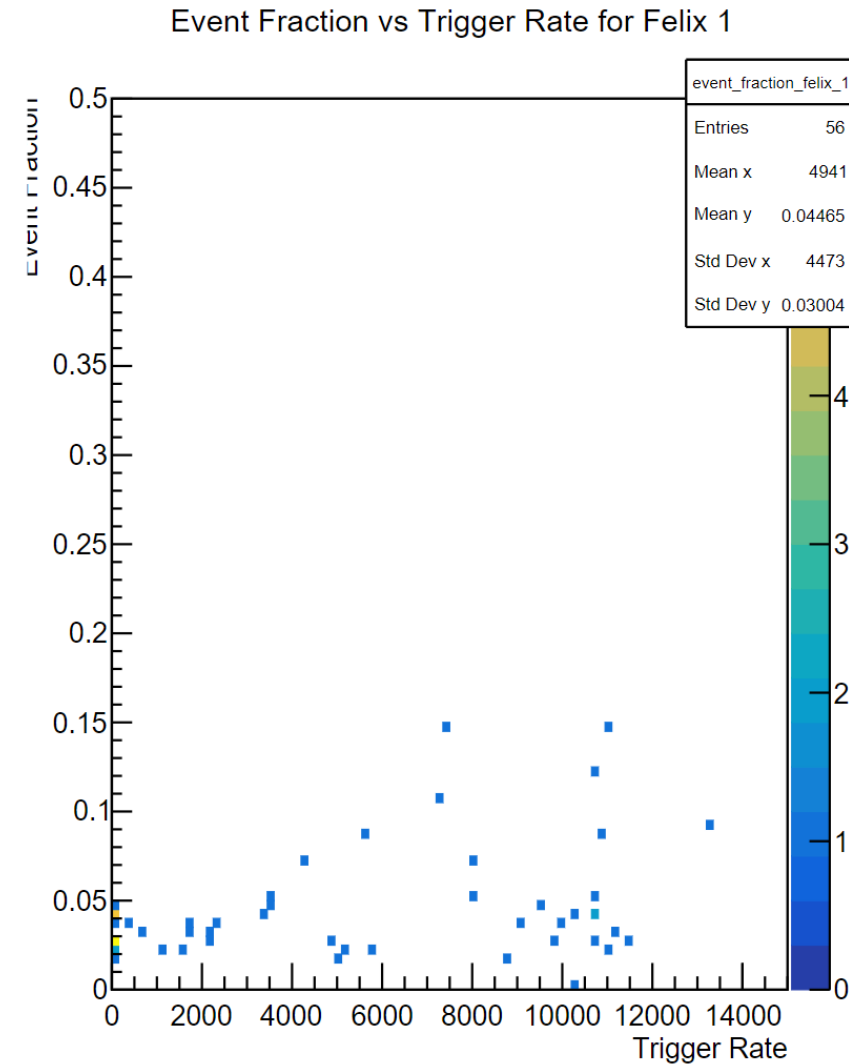
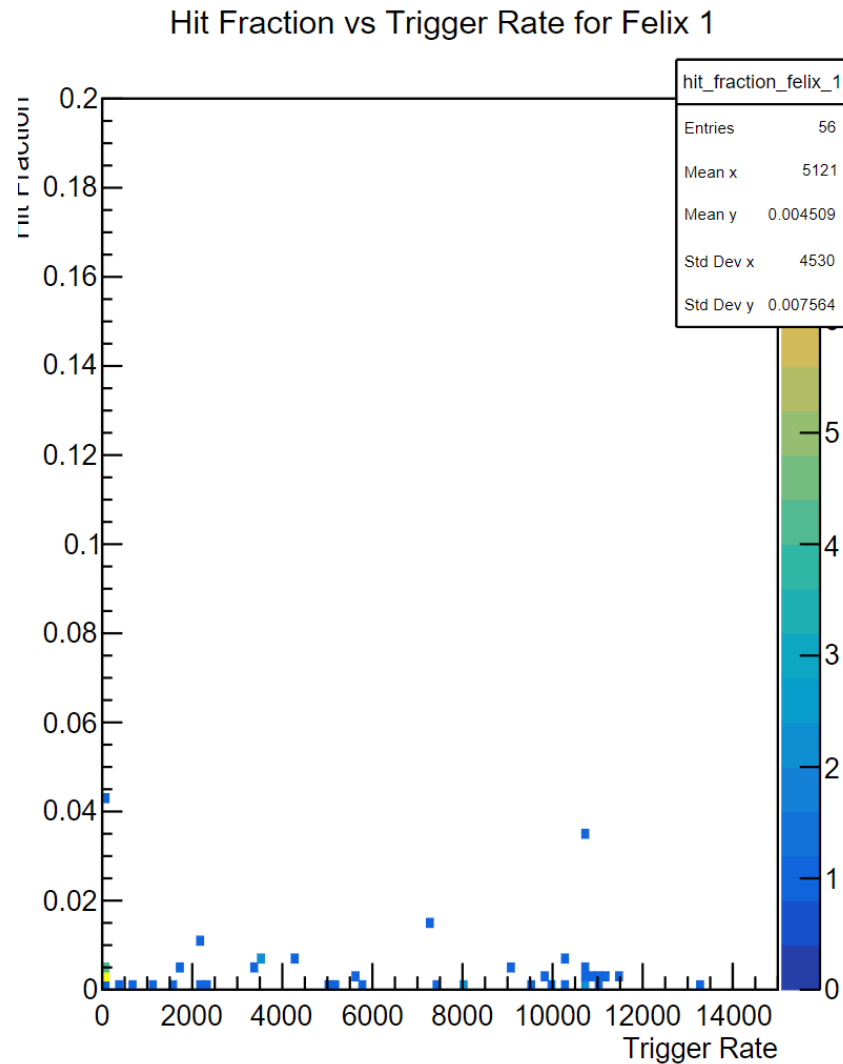
Mixup hit fraction for Felix 1



Mixup event fraction for Felix 1

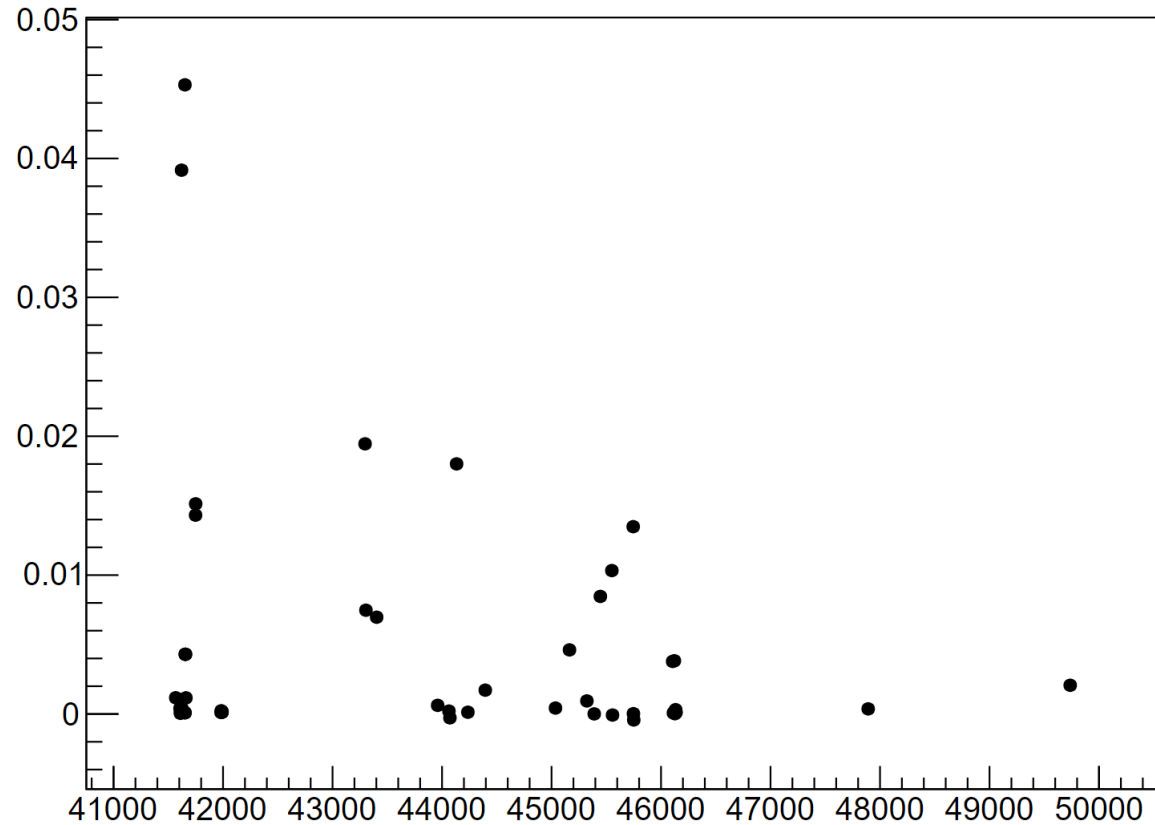


Mixup fraction vs Trigger rate intt1 > 10min

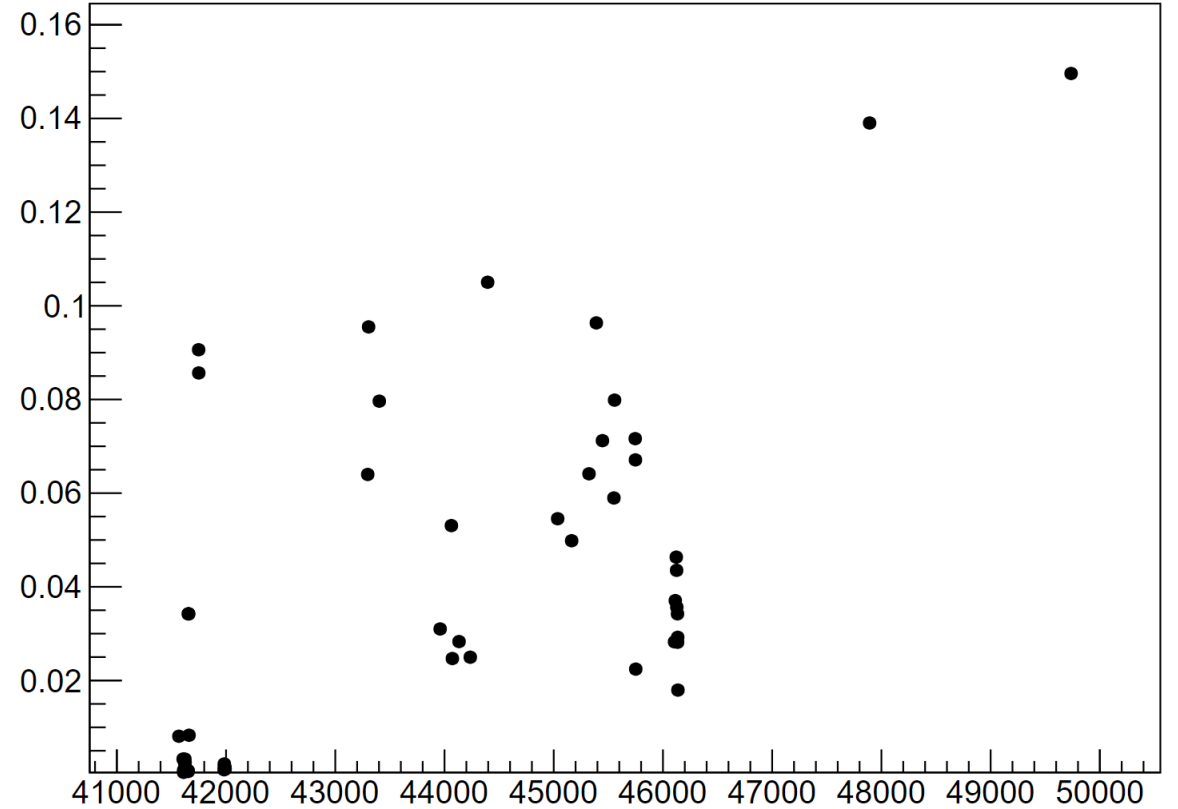


Run24 Mixup fraction intt2

Mixup hit fraction for Felix 2

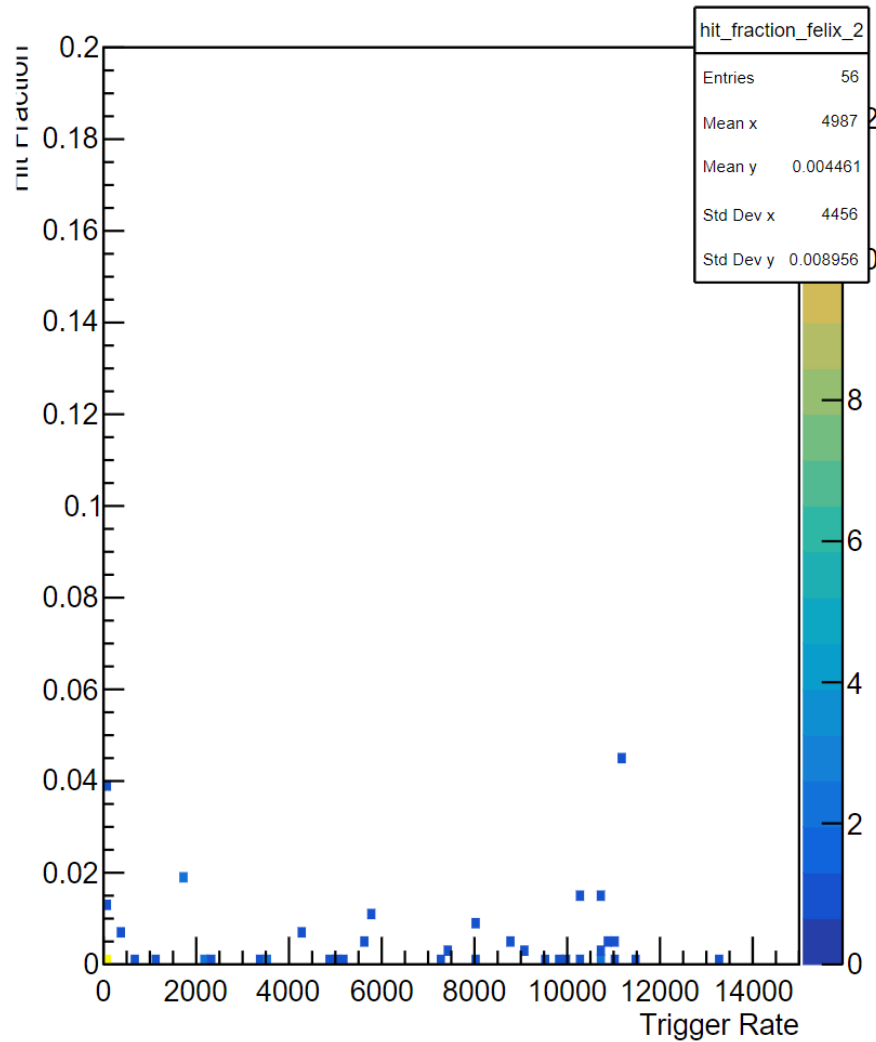


Mixup event fraction for Felix 2

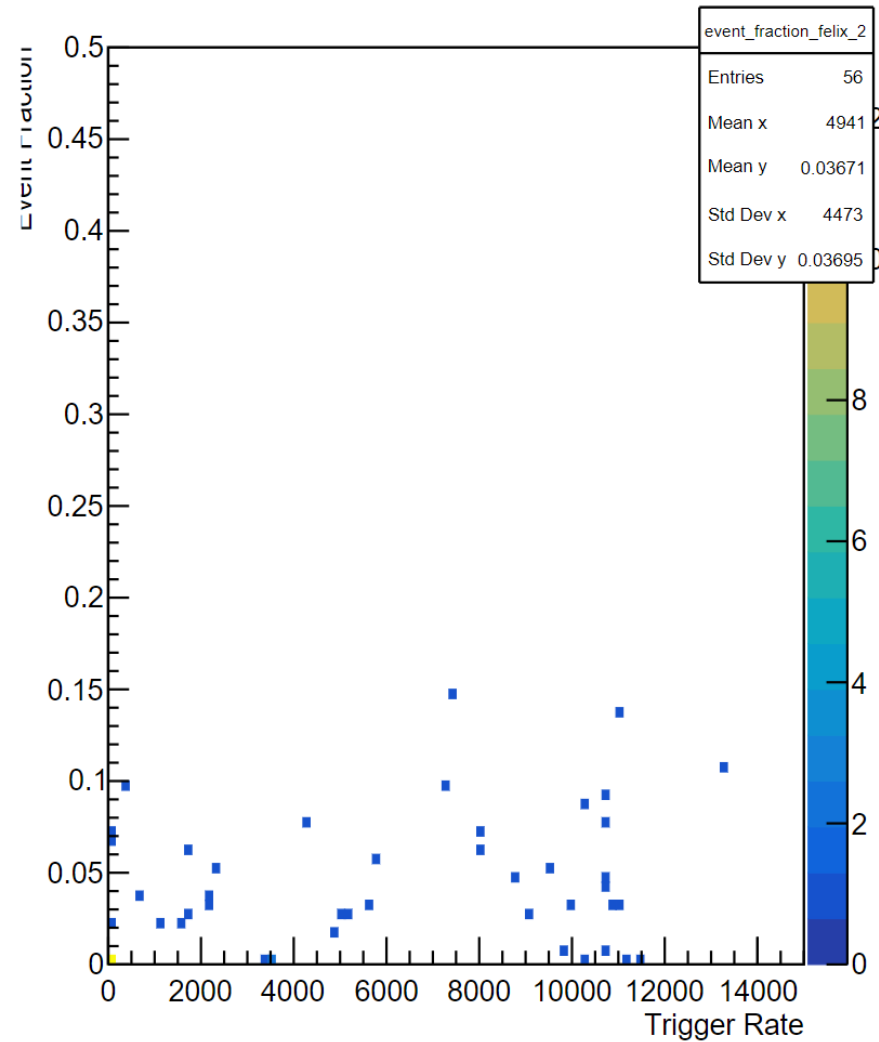


Mixup fraction vs Trigger rate intt2 > 10min

Hit Fraction vs Trigger Rate for Felix 2

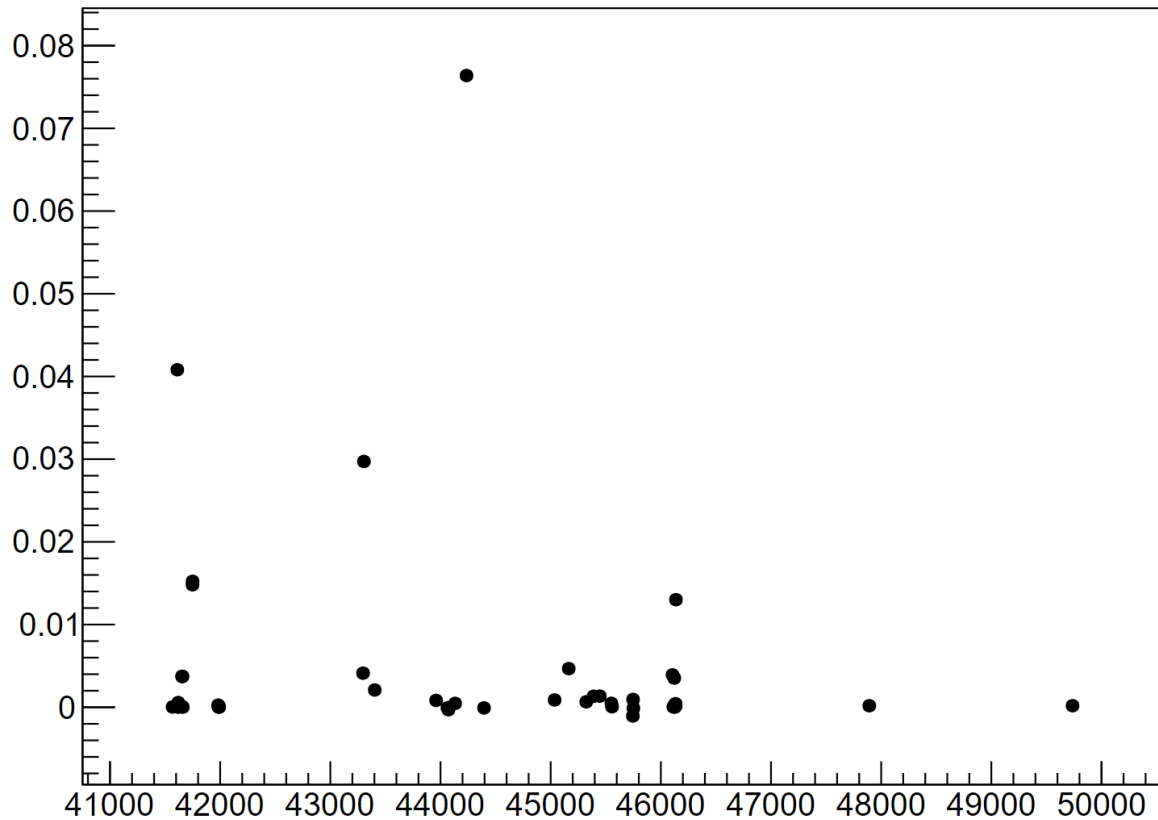


Event Fraction vs Trigger Rate for Felix 2

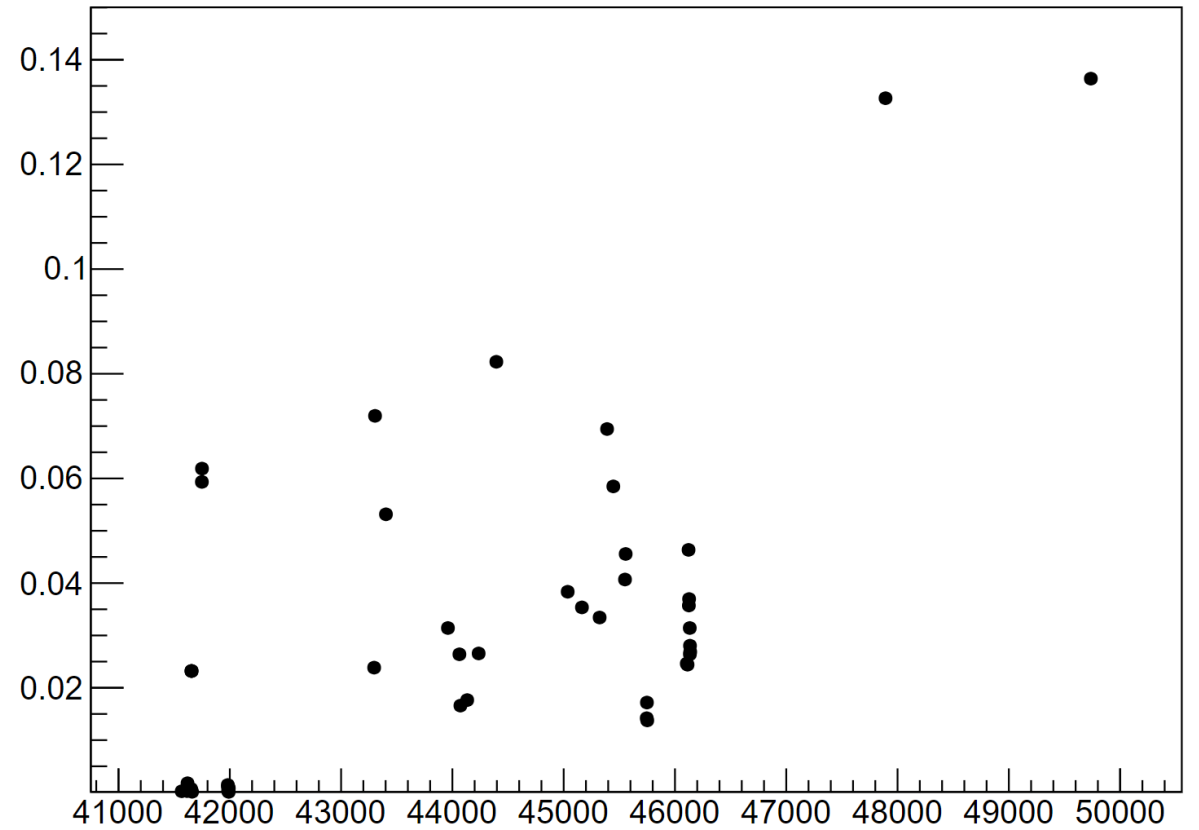


Run24 Mixup fraction intt3

Mixup hit fraction for Felix 3

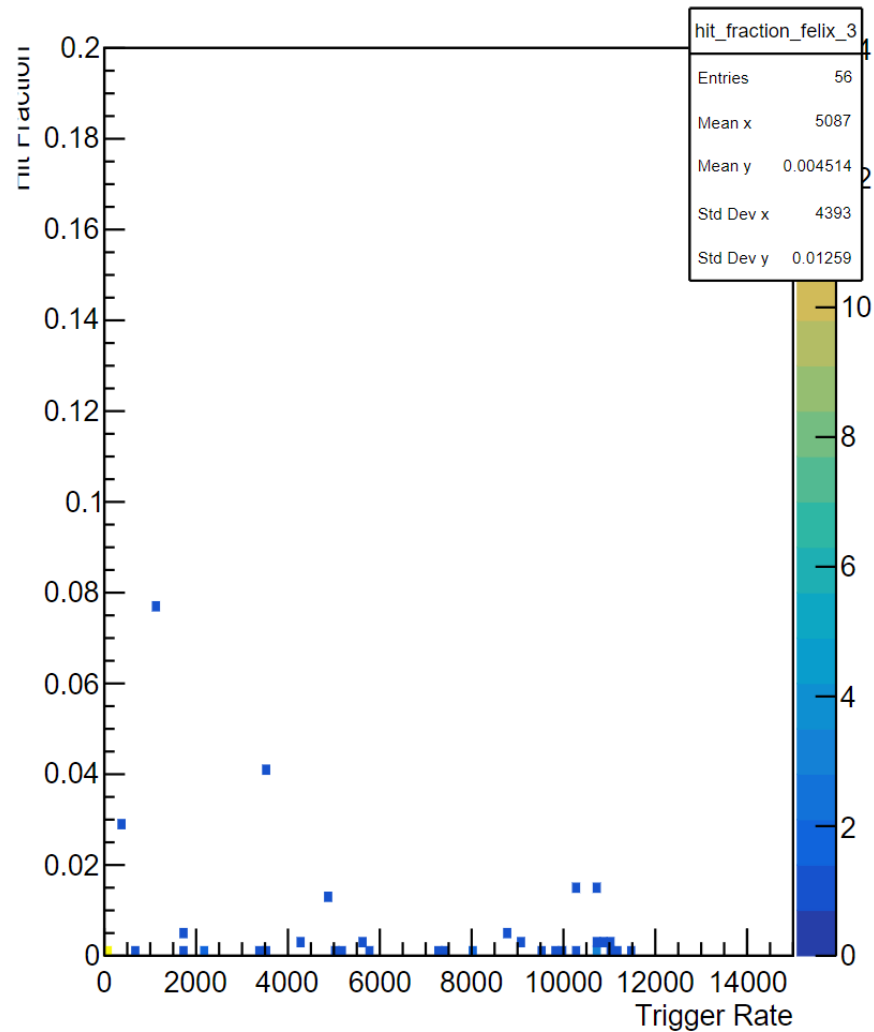


Mixup event fraction for Felix 3

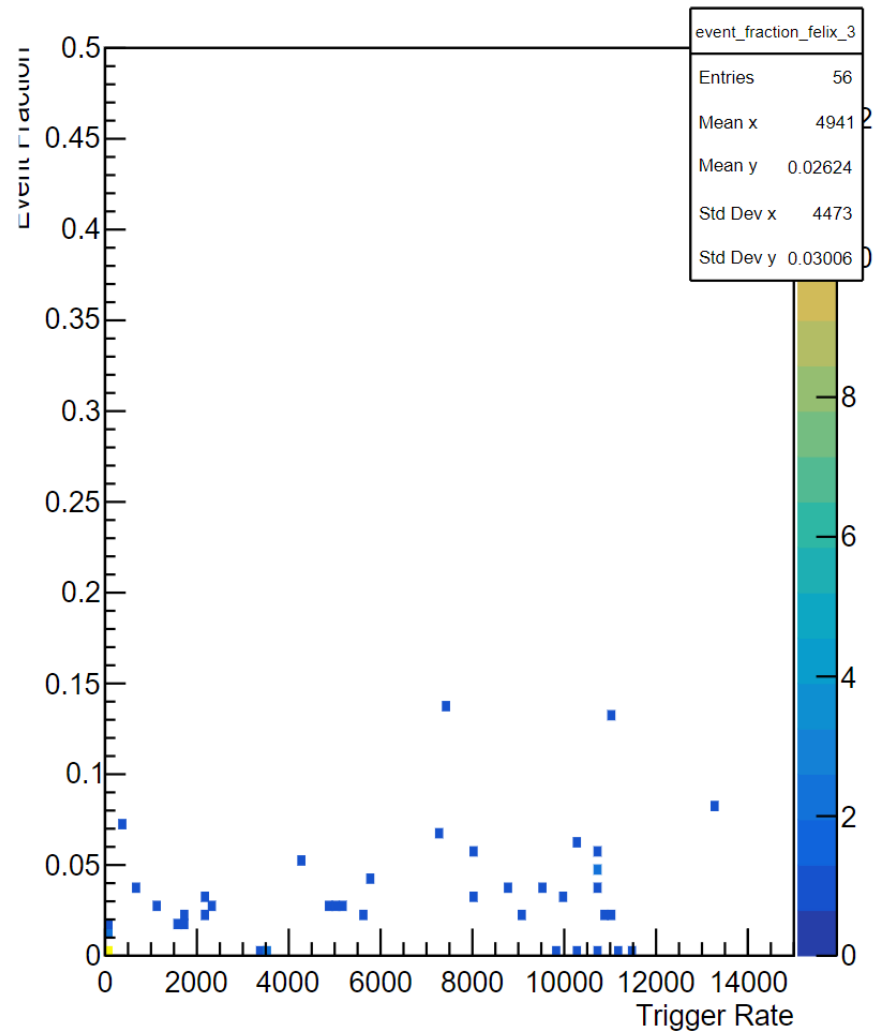


Mixup fraction vs Trigger rate inttt3 > 10min

Hit Fraction vs Trigger Rate for Felix 3

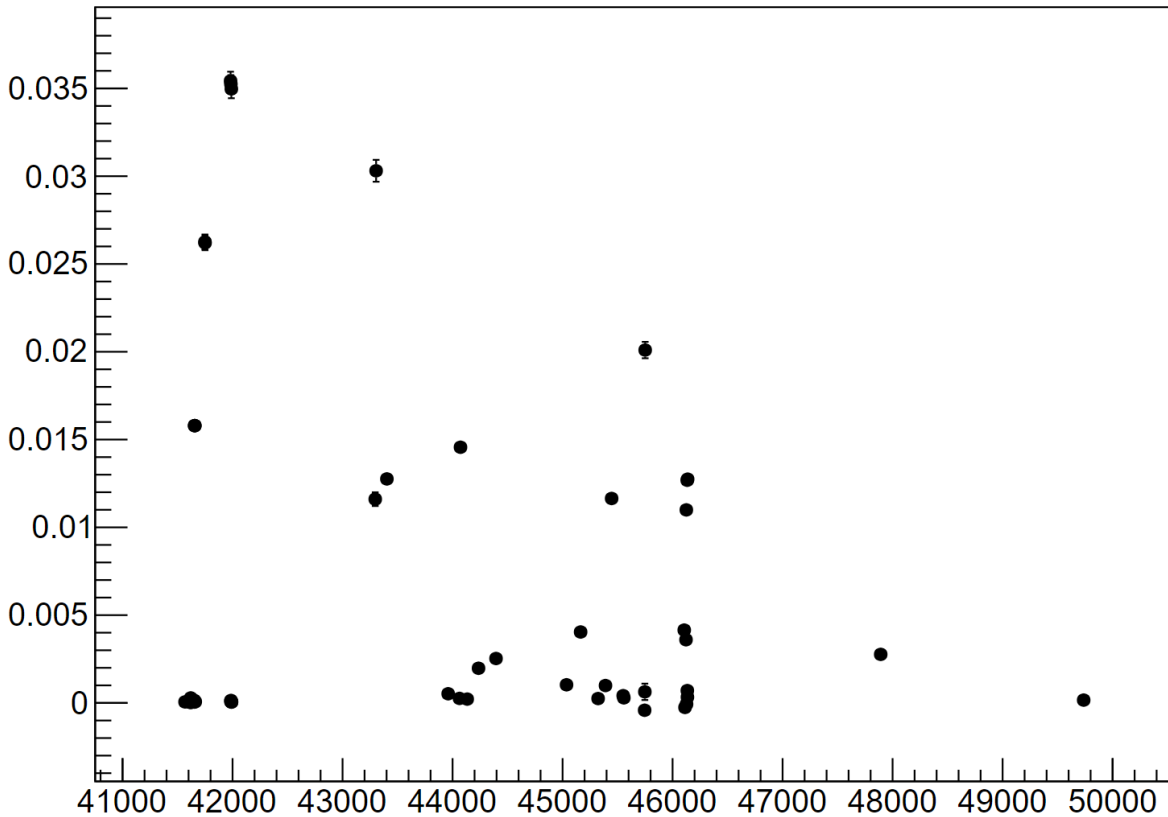


Event Fraction vs Trigger Rate for Felix 3

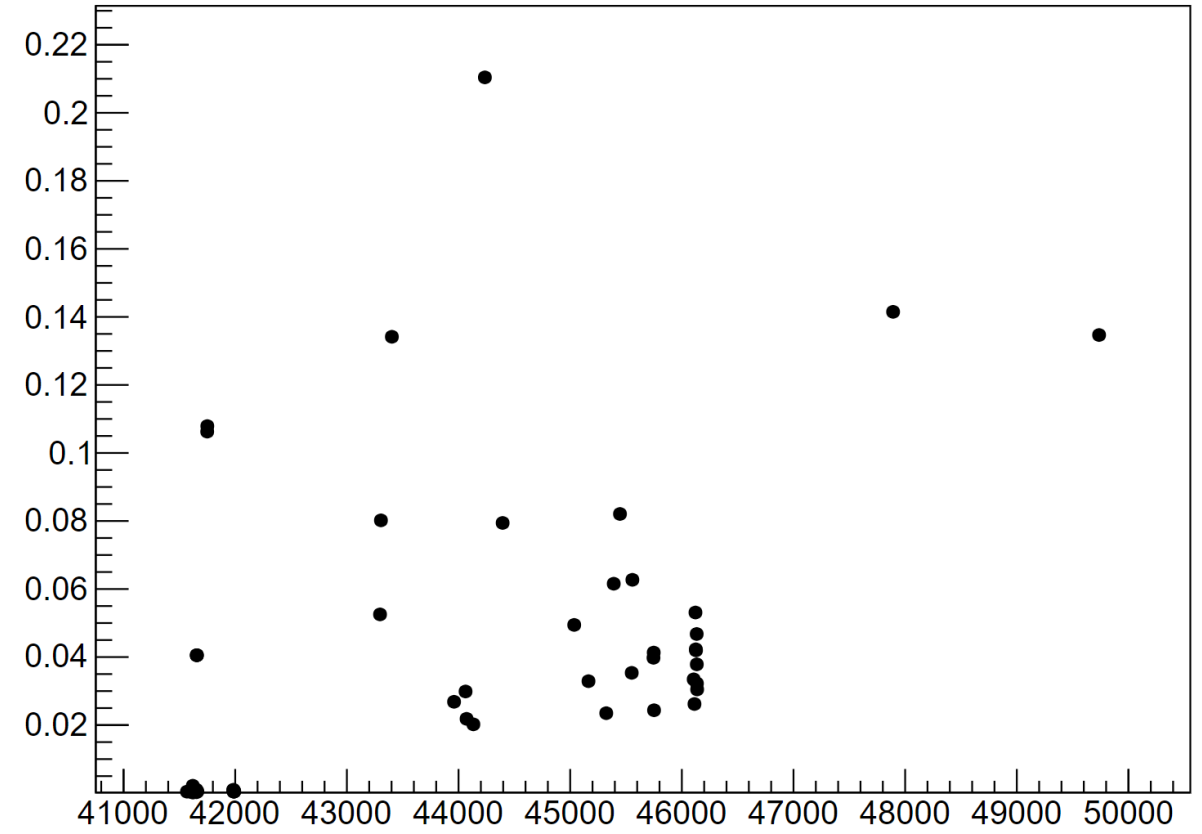


Run24 Mixup fraction intt4

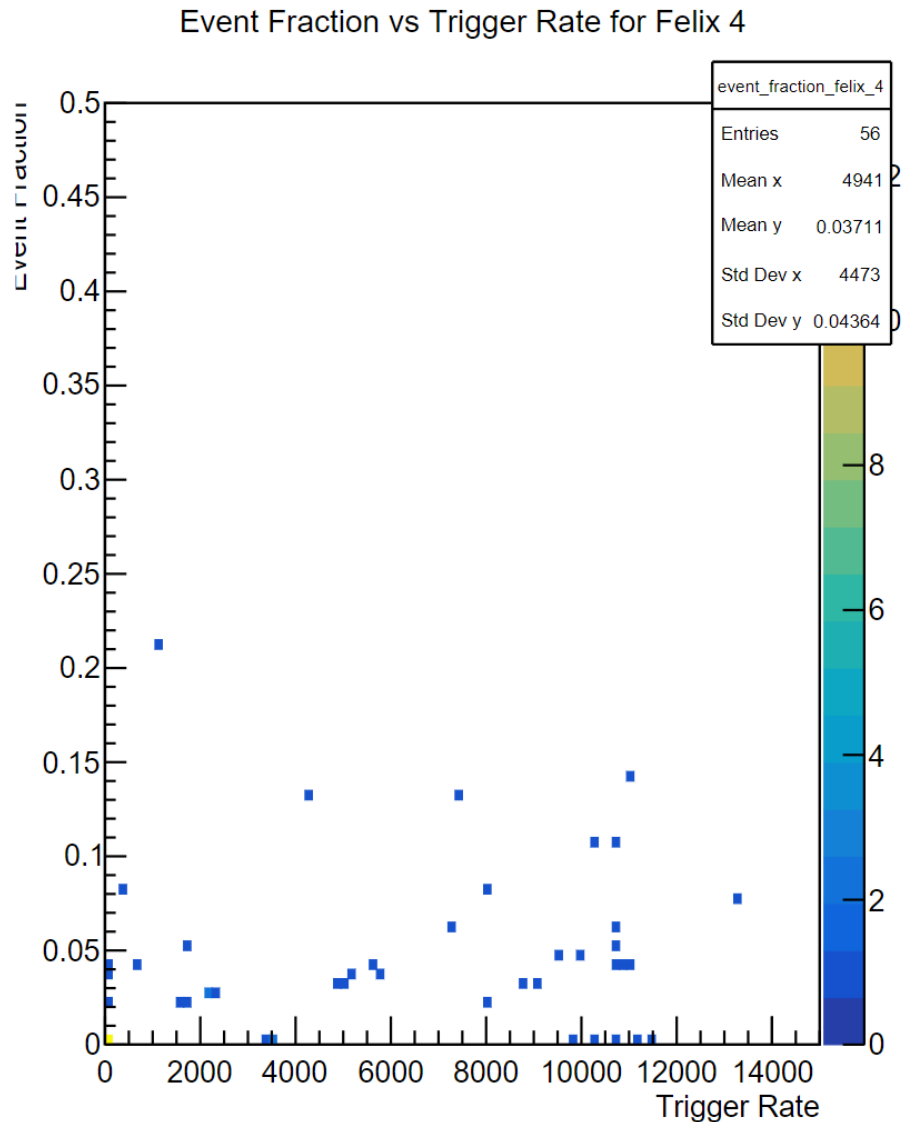
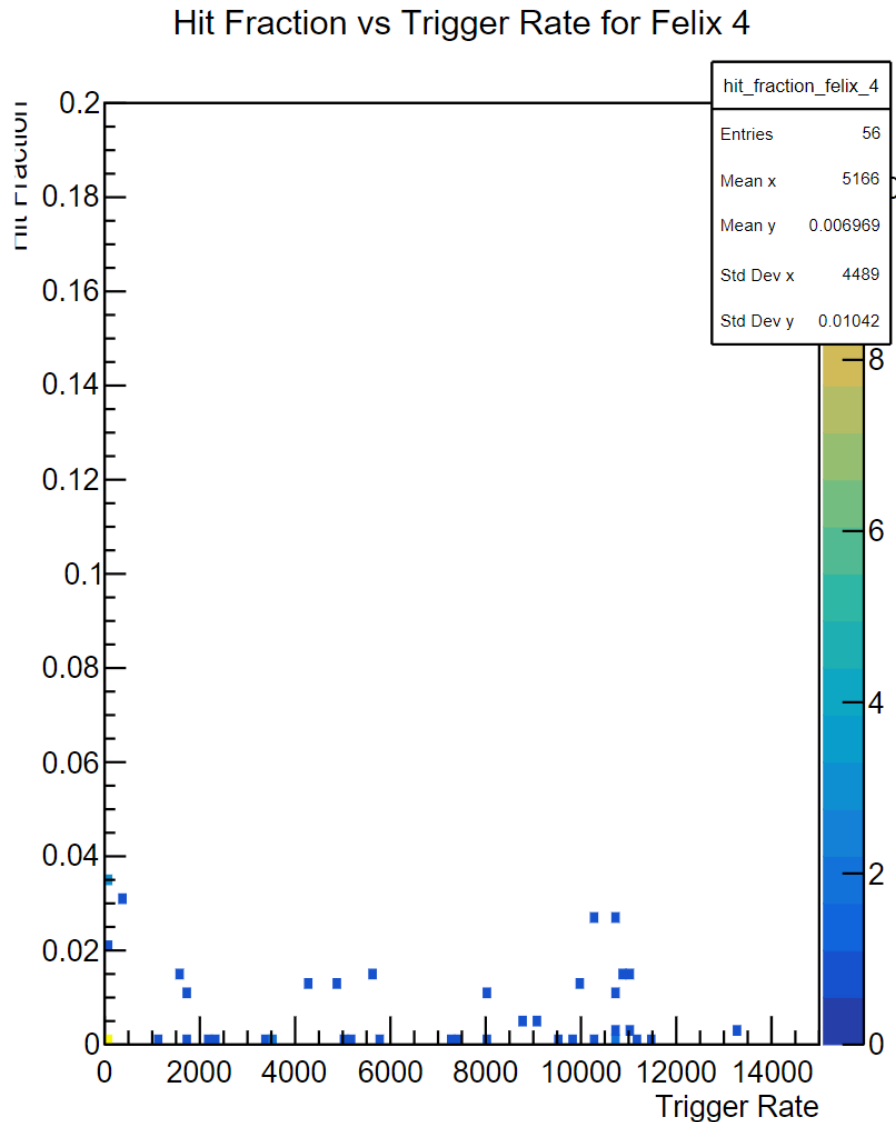
Mixup hit fraction for Felix 4



Mixup event fraction for Felix 4

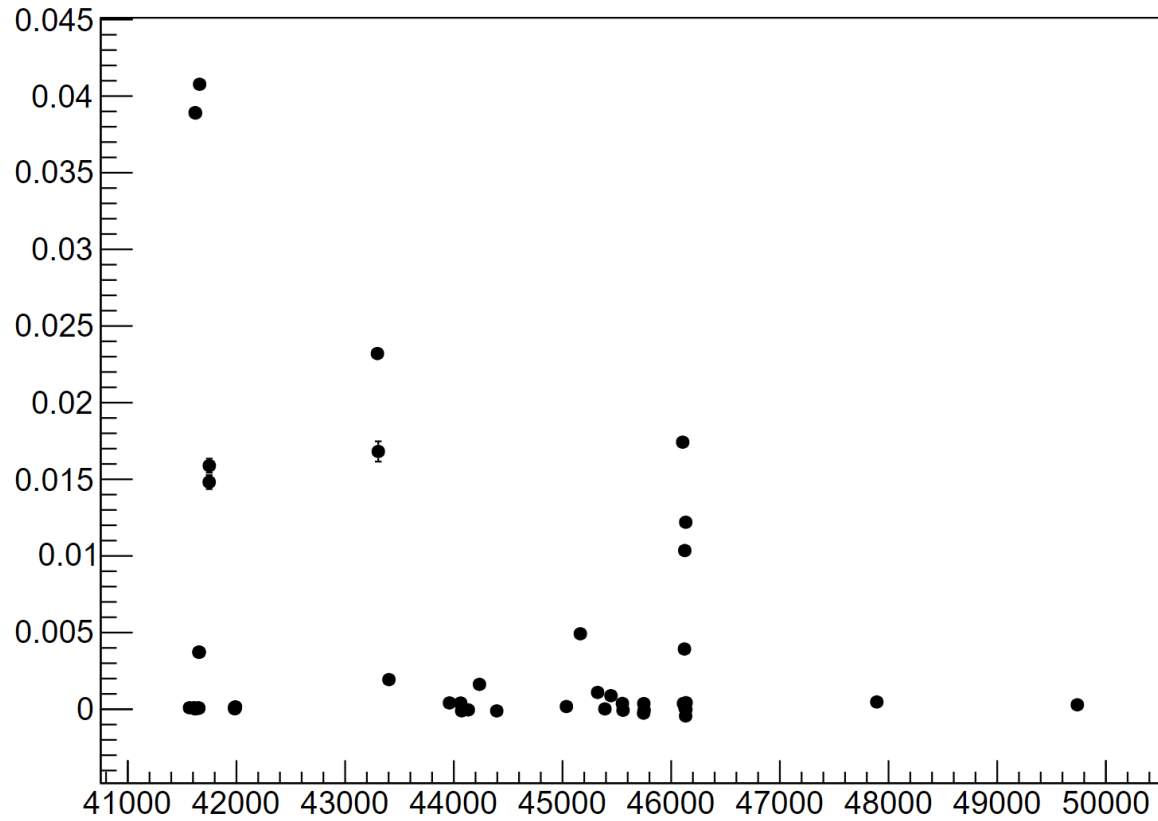


Mixup fraction vs Trigger rate inttt4 > 10min

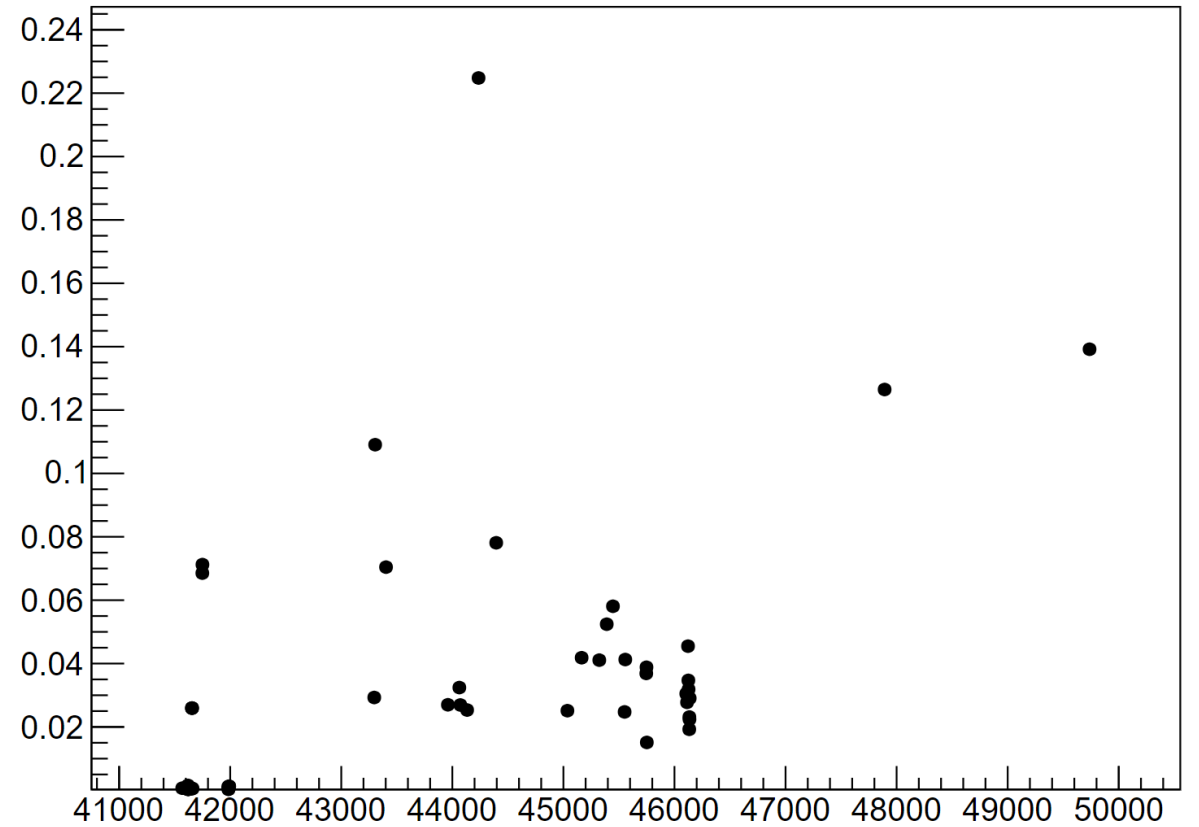


Run24 Mixup fraction intt5

Mixup hit fraction for Felix 5

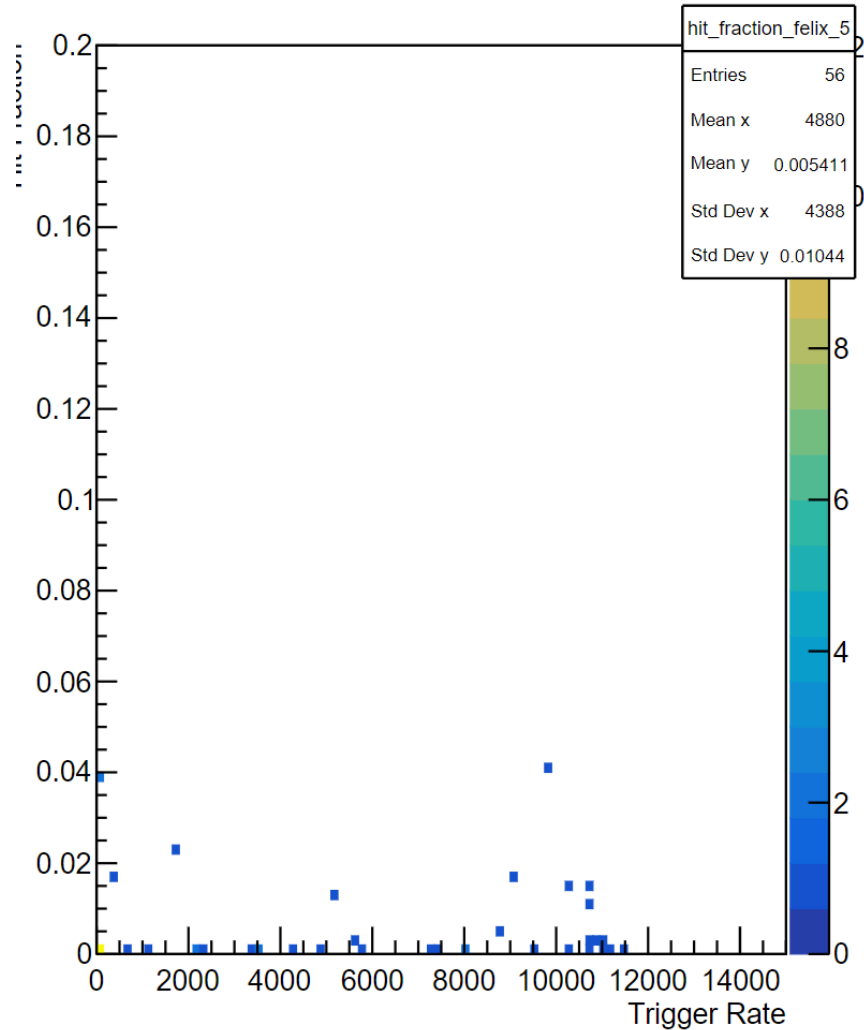


Mixup event fraction for Felix 5

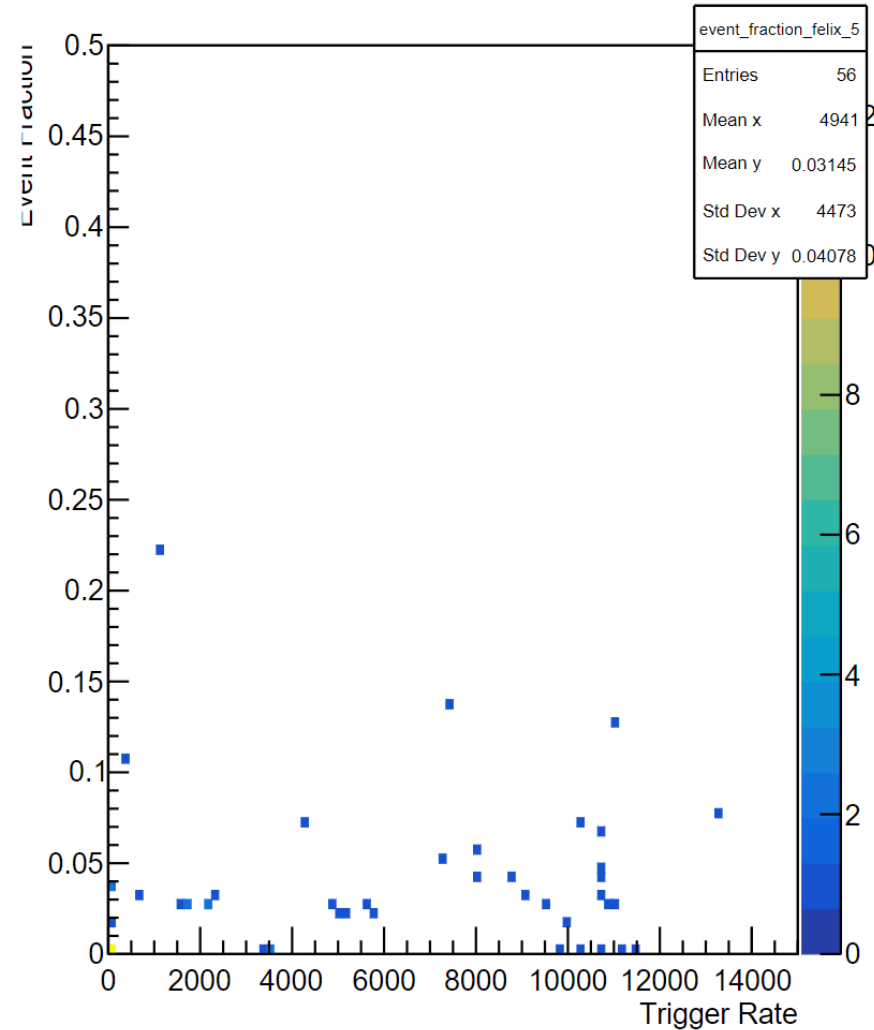


Mixup fraction vs Trigger rate intt5 > 10min

Hit Fraction vs Trigger Rate for Felix 5

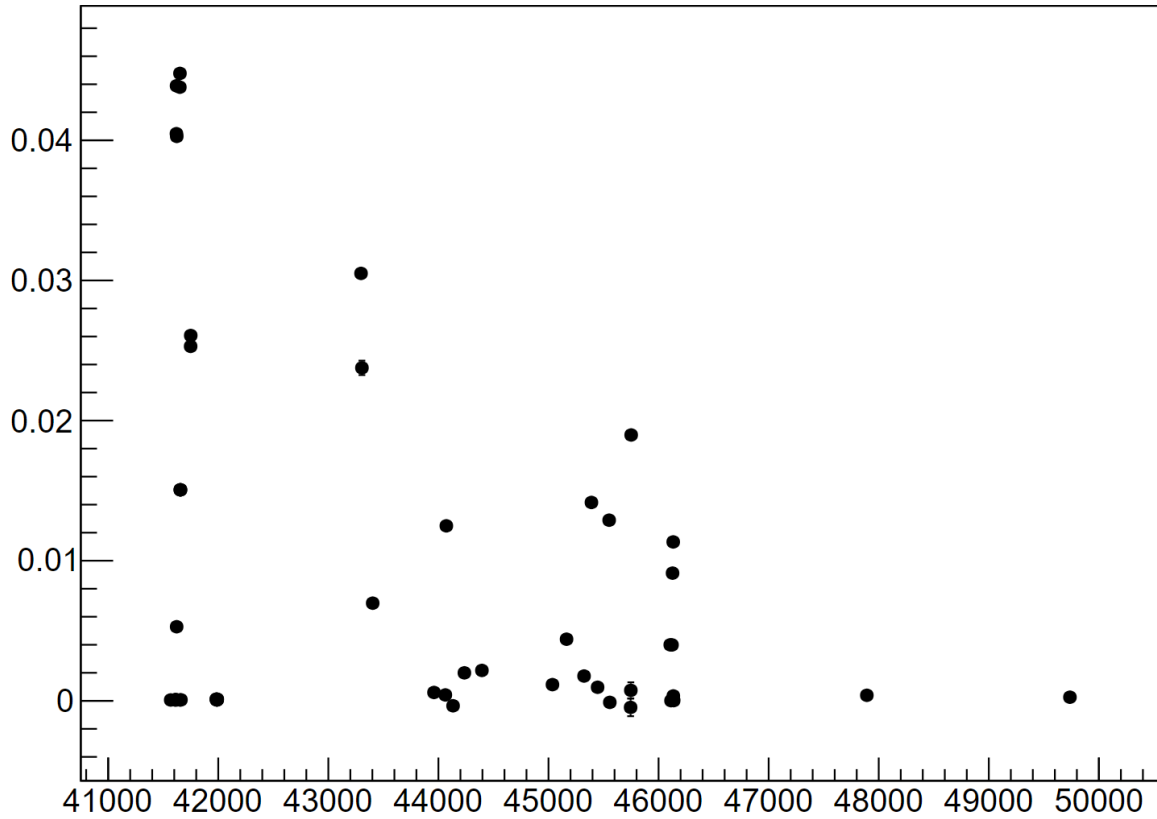


Event Fraction vs Trigger Rate for Felix 5

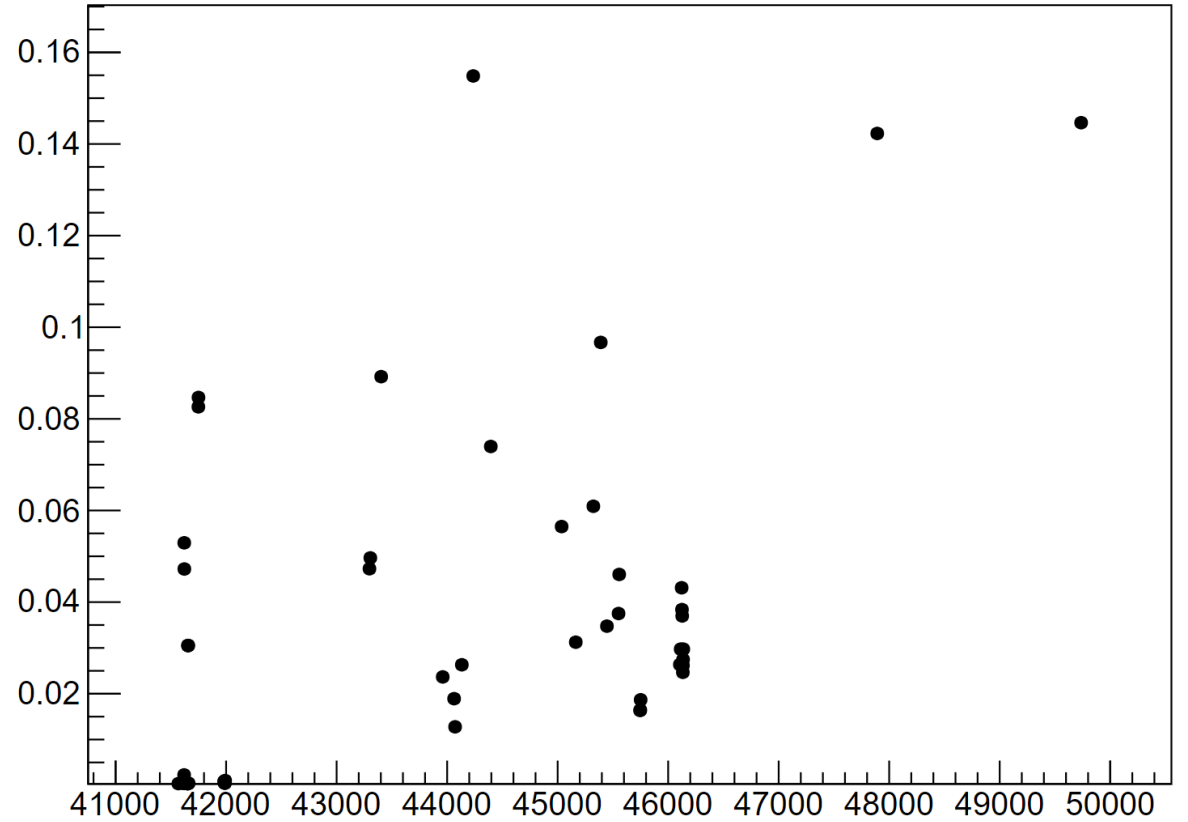


Run24 Mixup fraction intt6

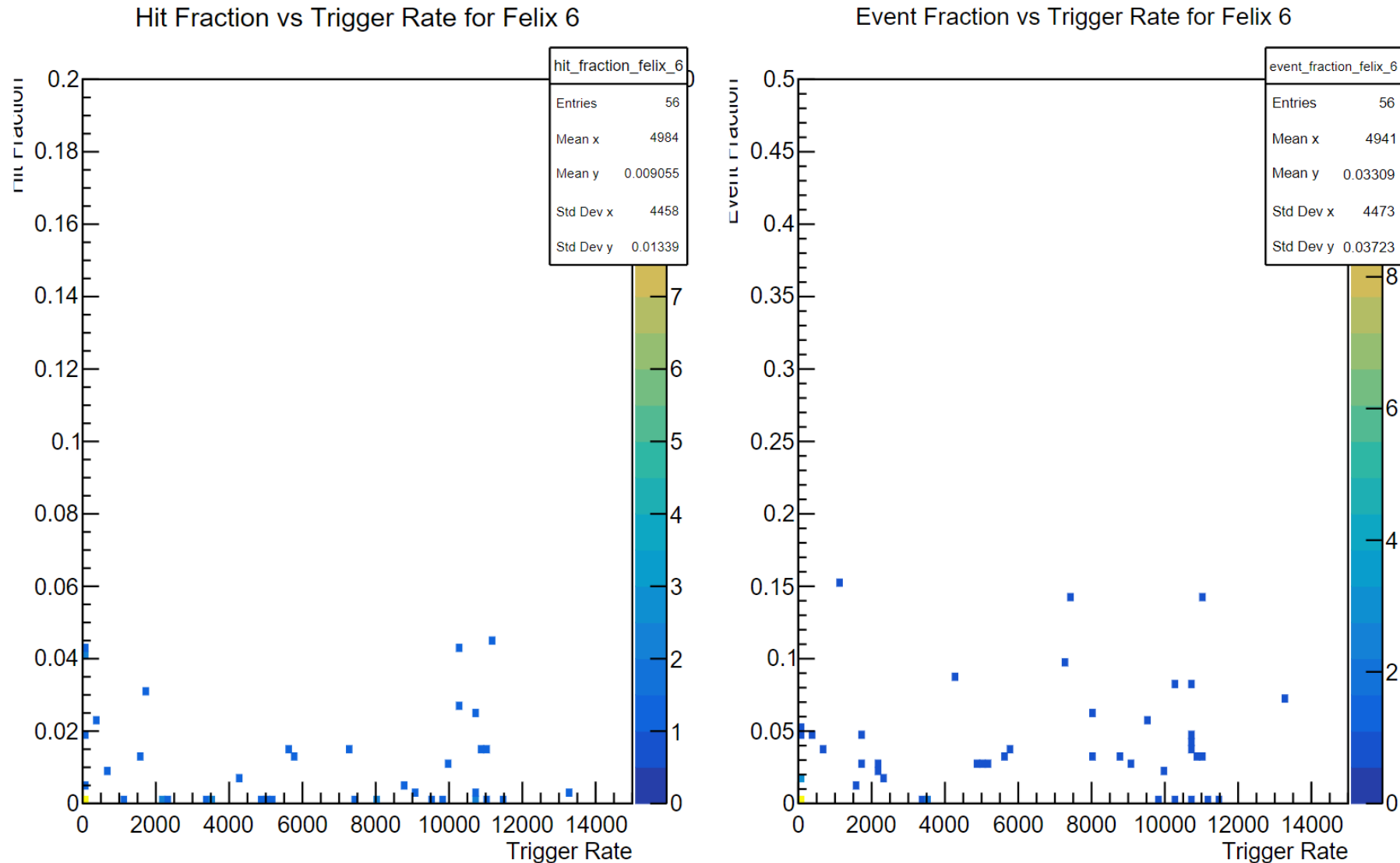
Mixup hit fraction for Felix 6



Mixup event fraction for Felix 6

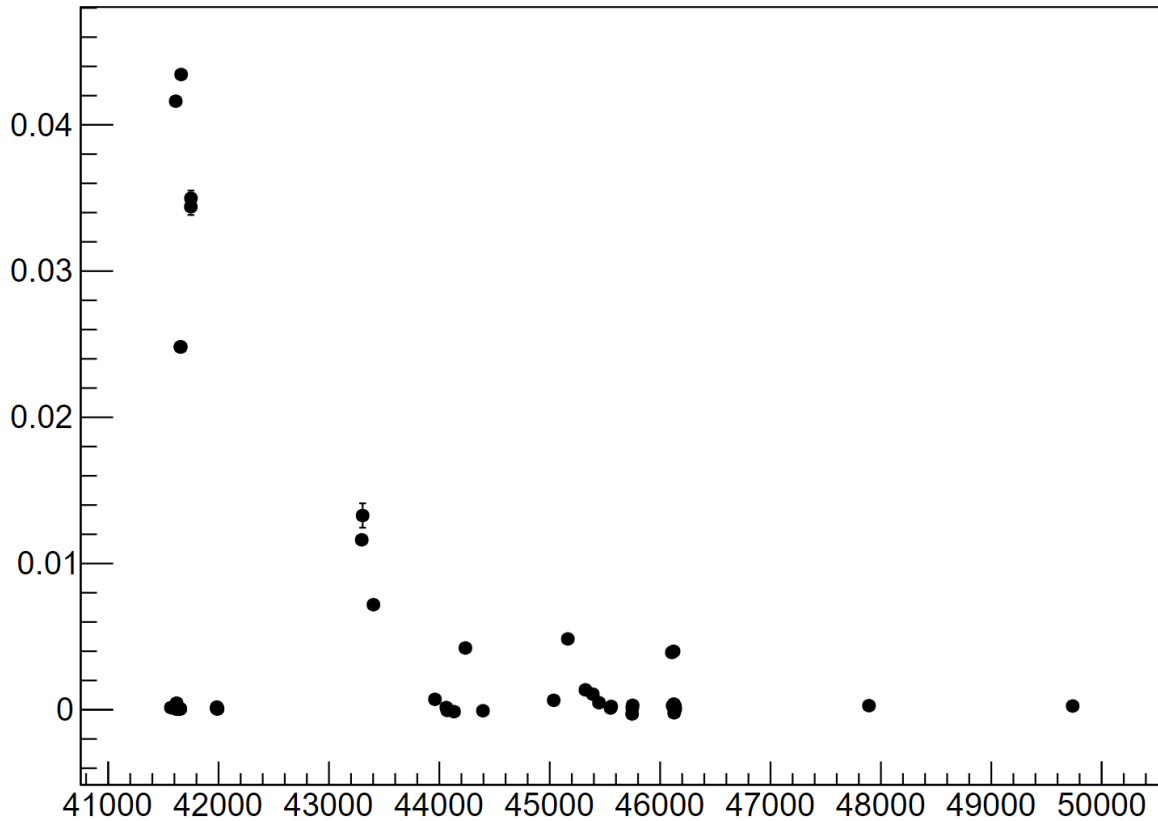


Mixup fraction vs Trigger rate $\text{intt6} > 10\text{min}$

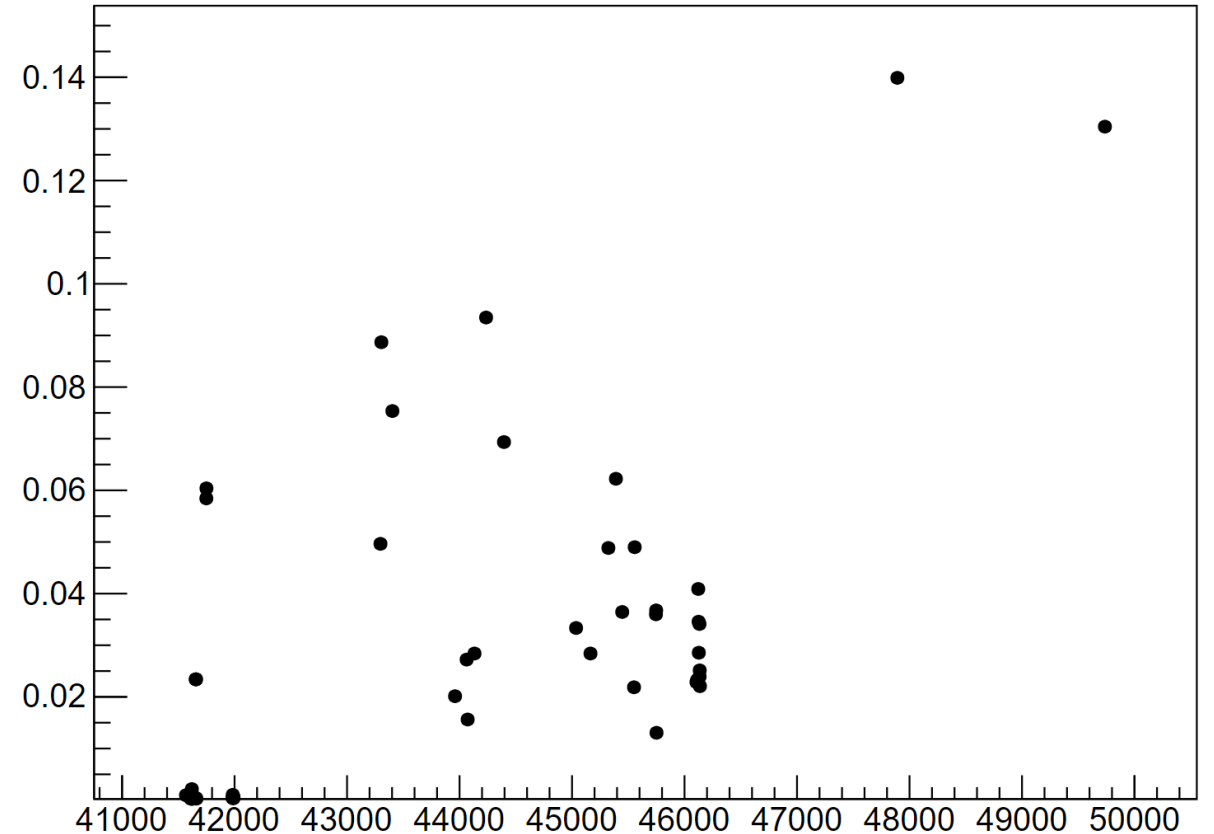


Run24 Mixup fraction intt7

Mixup hit fraction for Felix 7

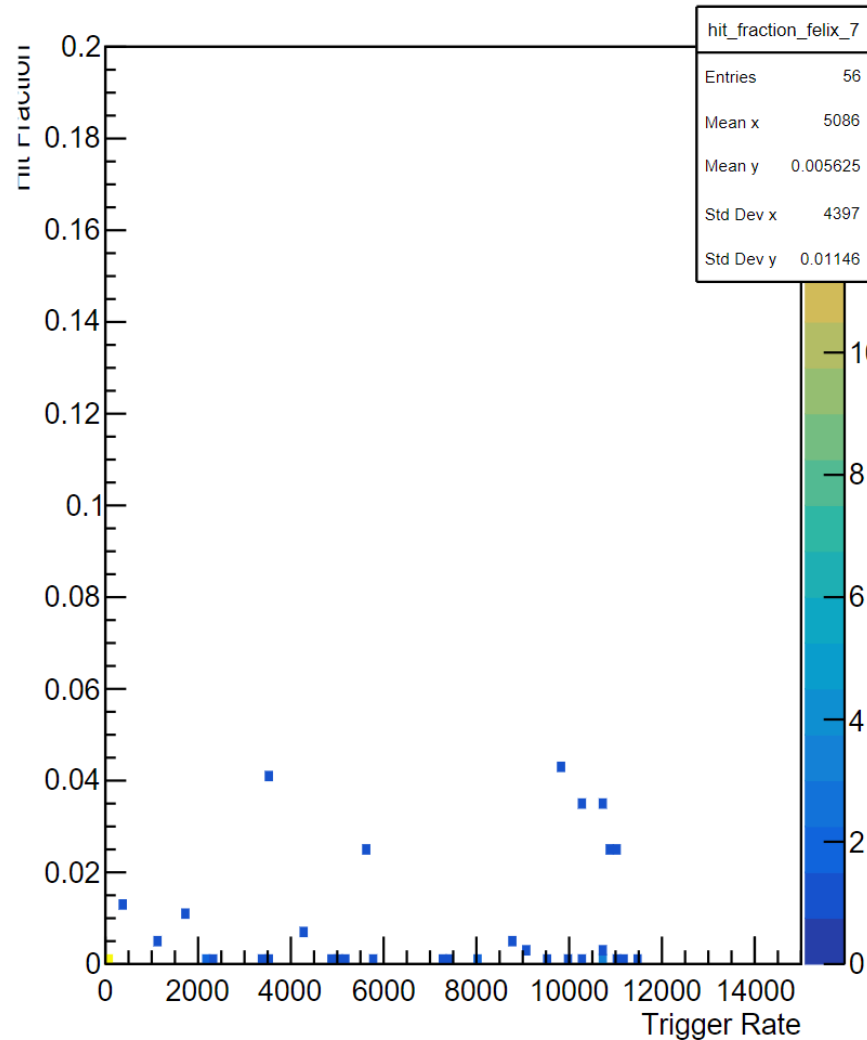


Mixup event fraction for Felix 7

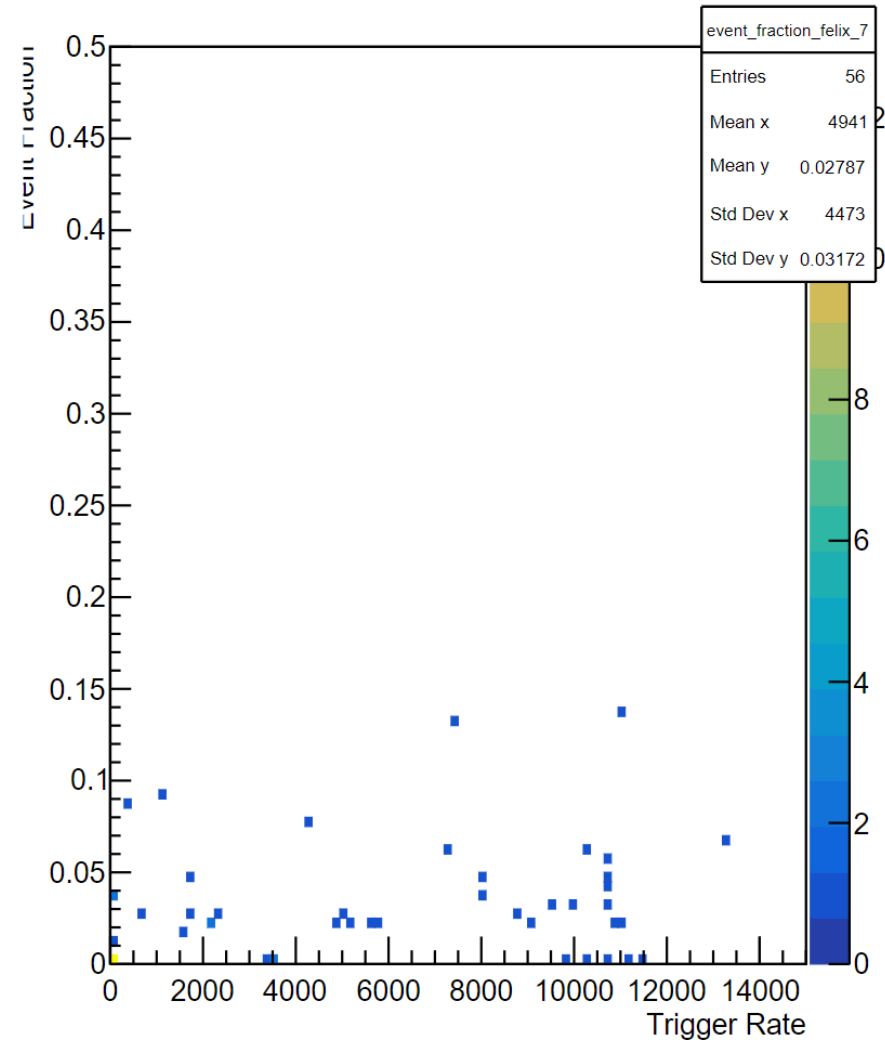


Mixup fraction vs Trigger rate inttt7 > 10min

Hit Fraction vs Trigger Rate for Felix 7



Event Fraction vs Trigger Rate for Felix 7

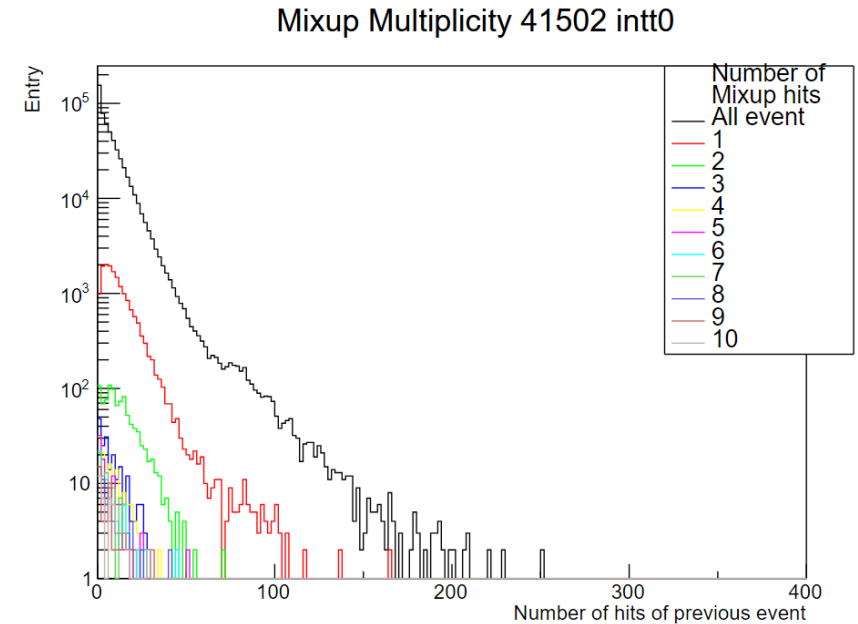
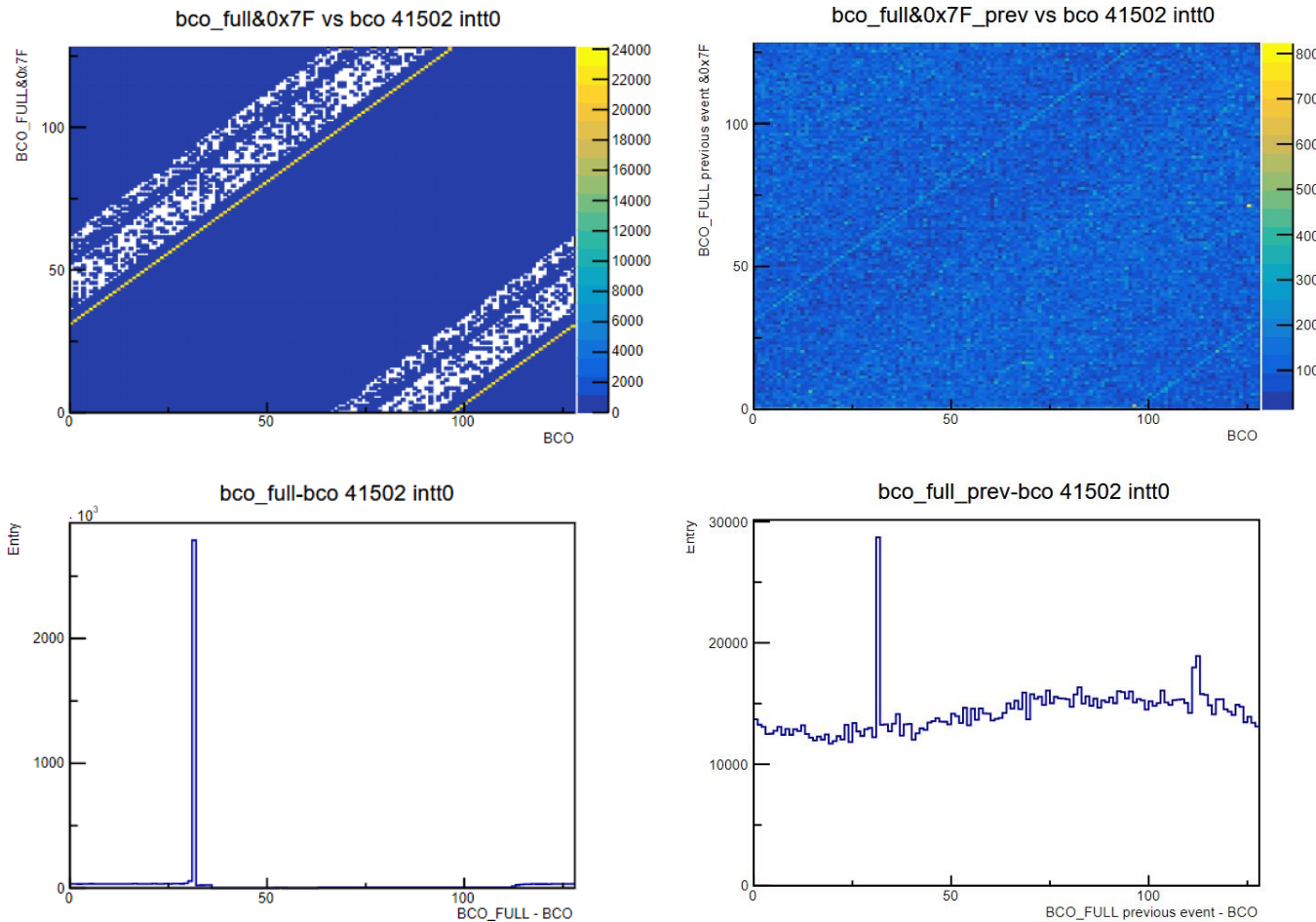


To do list

- Analysis note write (as soon as possible)
- Submit plots for preliminary (next week GM)
- I have not yet included the bunch number 111 x 111 or the opening time or any other cuts. If it is done in time, it will be included.

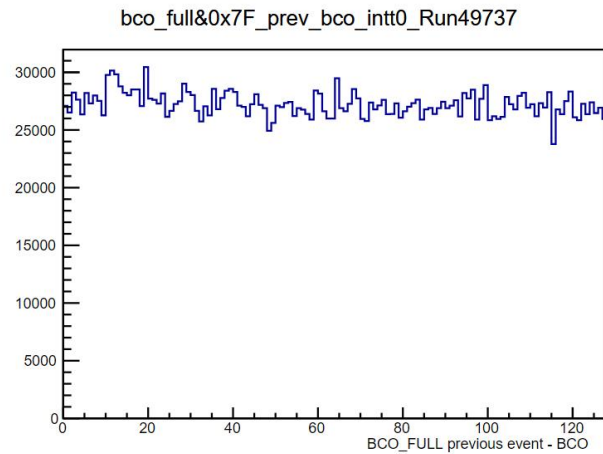
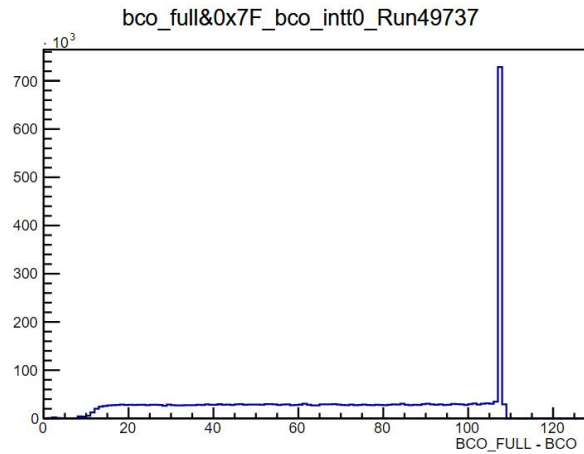
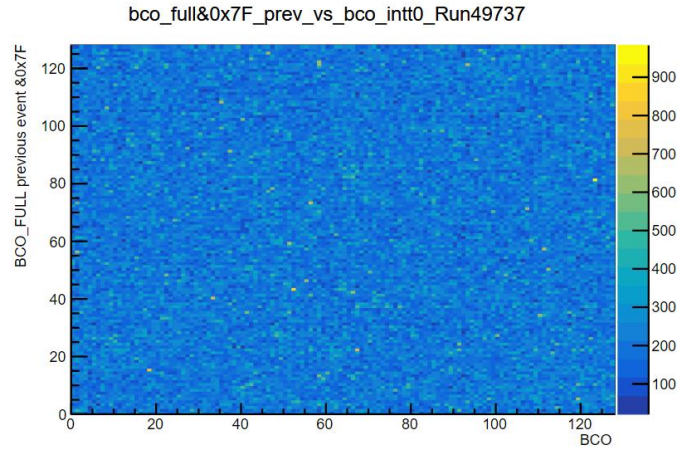
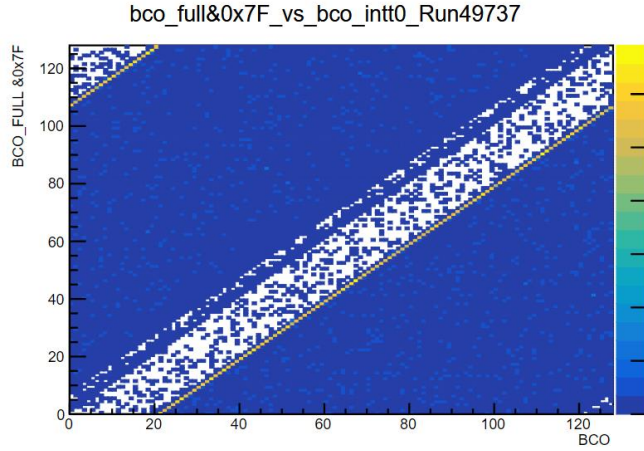
Back up

Run24 p-p BCO_full BCO & Multiplicity plots

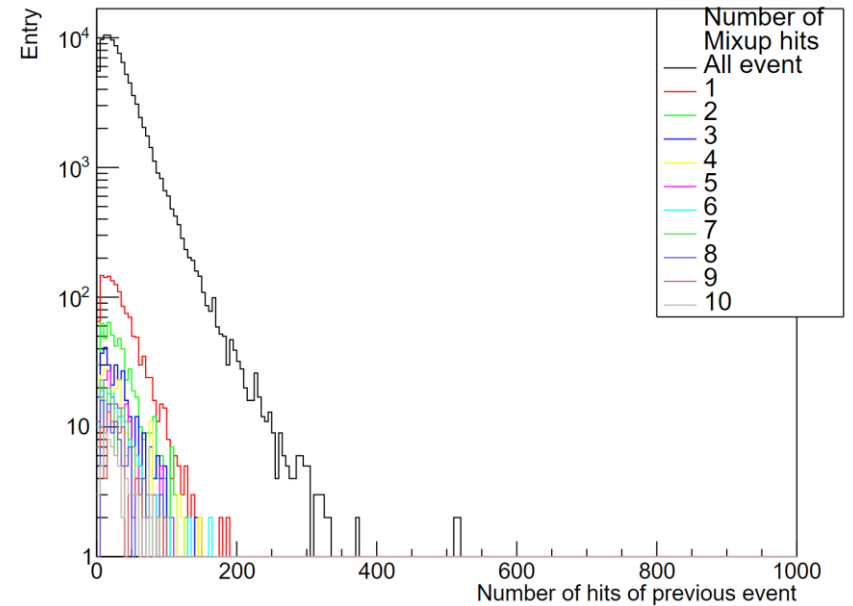


- These plots that show the mixup is occurring.
- I will remake them and choose Run data that is easier to understand Mixup is occur or not and has no riddle peaks, and I will submit these plots

Run24 p-p BCO_full BCO & Multiplicity plots



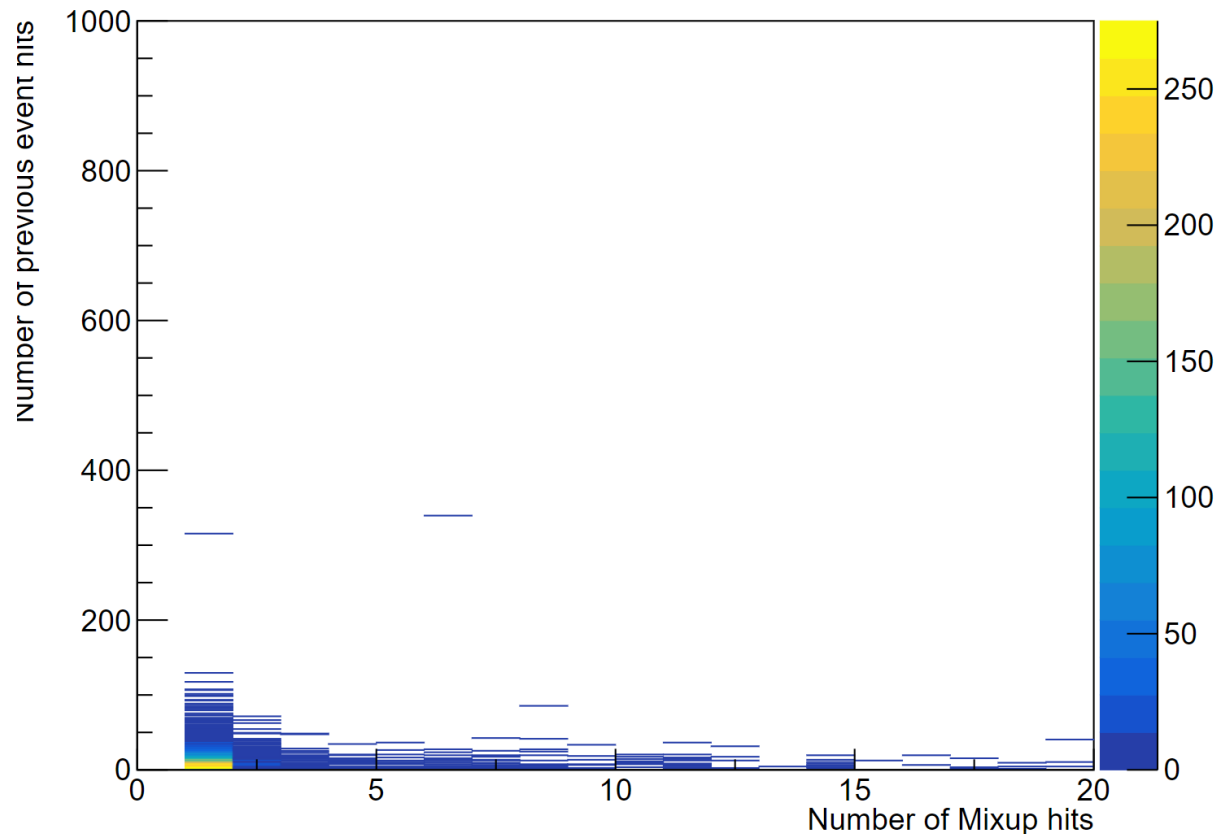
allmulti_intt0_Run49737: with clone cut



I will submit results for similar previous plots where the mixup does not appear to have occurred.

Multiplicity dependence

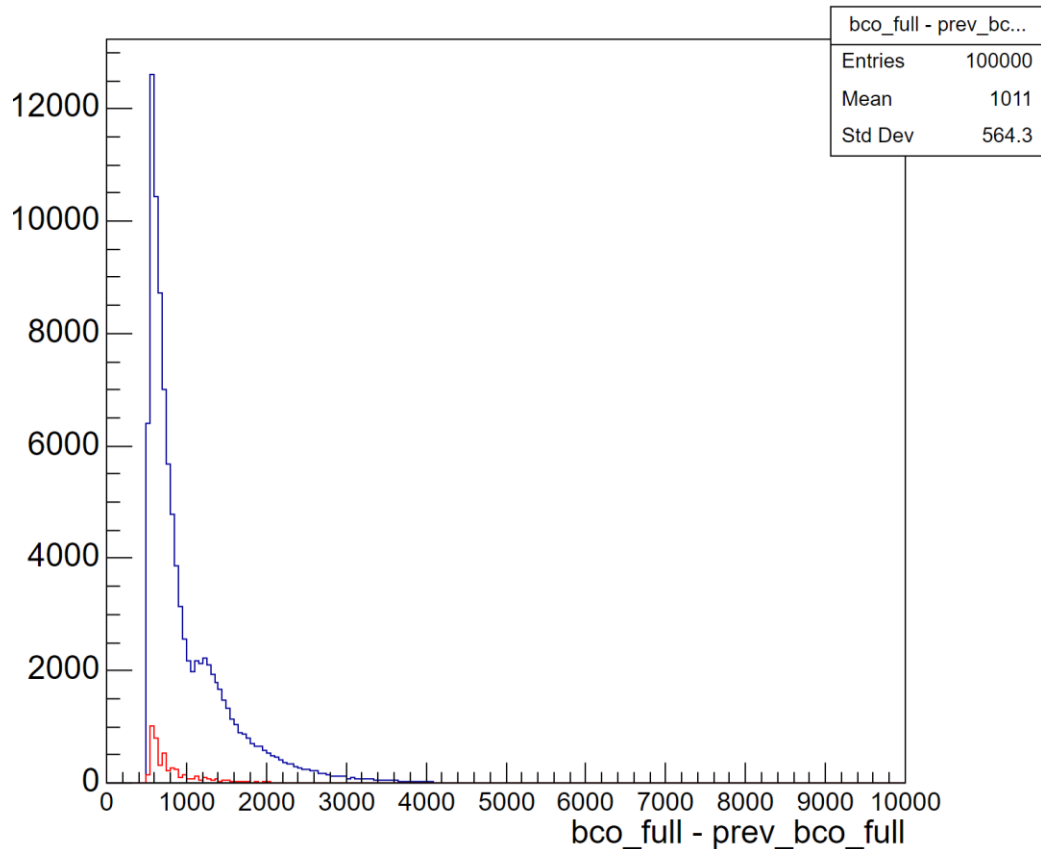
prev_allhit vs Nmixup0_Run41502



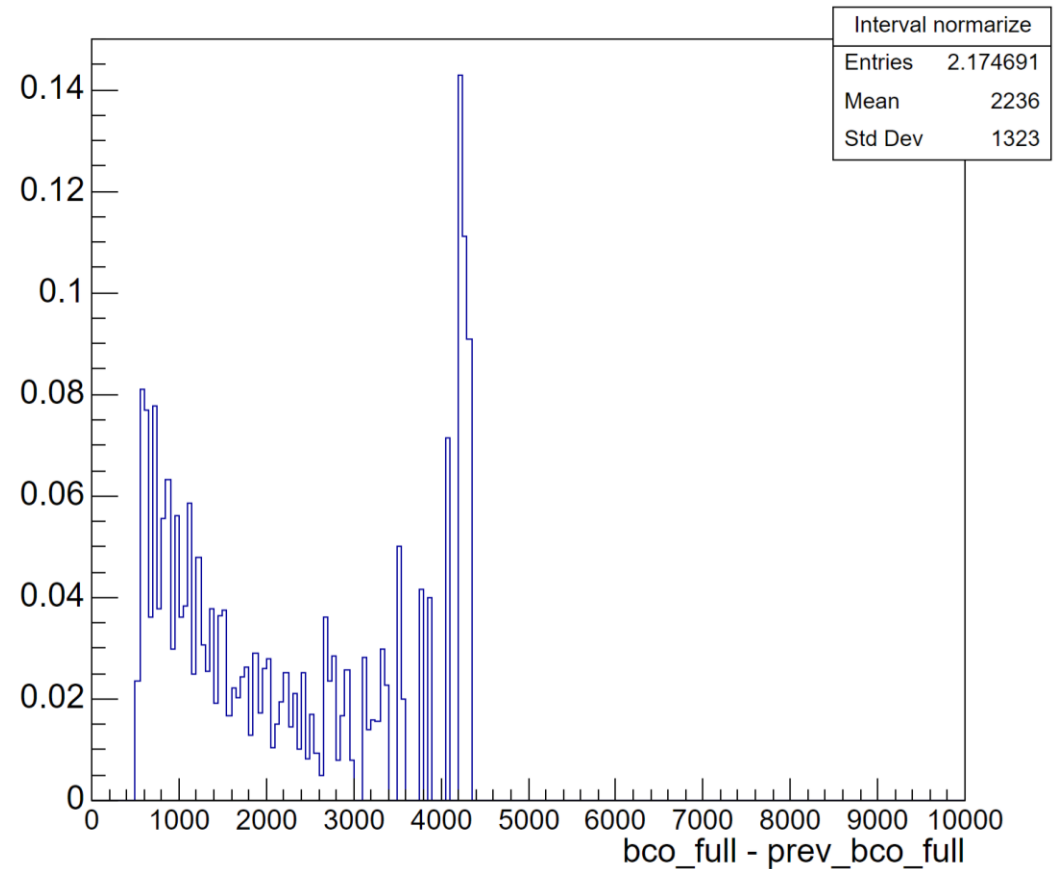
In Run23 Au-Au, the correlation between Multiplicity of previous event and the number of hits of Mixup was confirmed, but in Run24 p-p, it is difficult to confirm it because Multiplicity is low. If any of the results can be confirmed in the reworked results, I would like to submit them.

Collision interval dependence

bco_full - prev_bco_full_Run41502



Interval normalize_Run41502



These plots show collision interval dependence, and in this result, the shorter the interval, the more likely mixups are to occur, but I do not know how this will change when the results are remade. However, I will submit the results with or without this dependence.

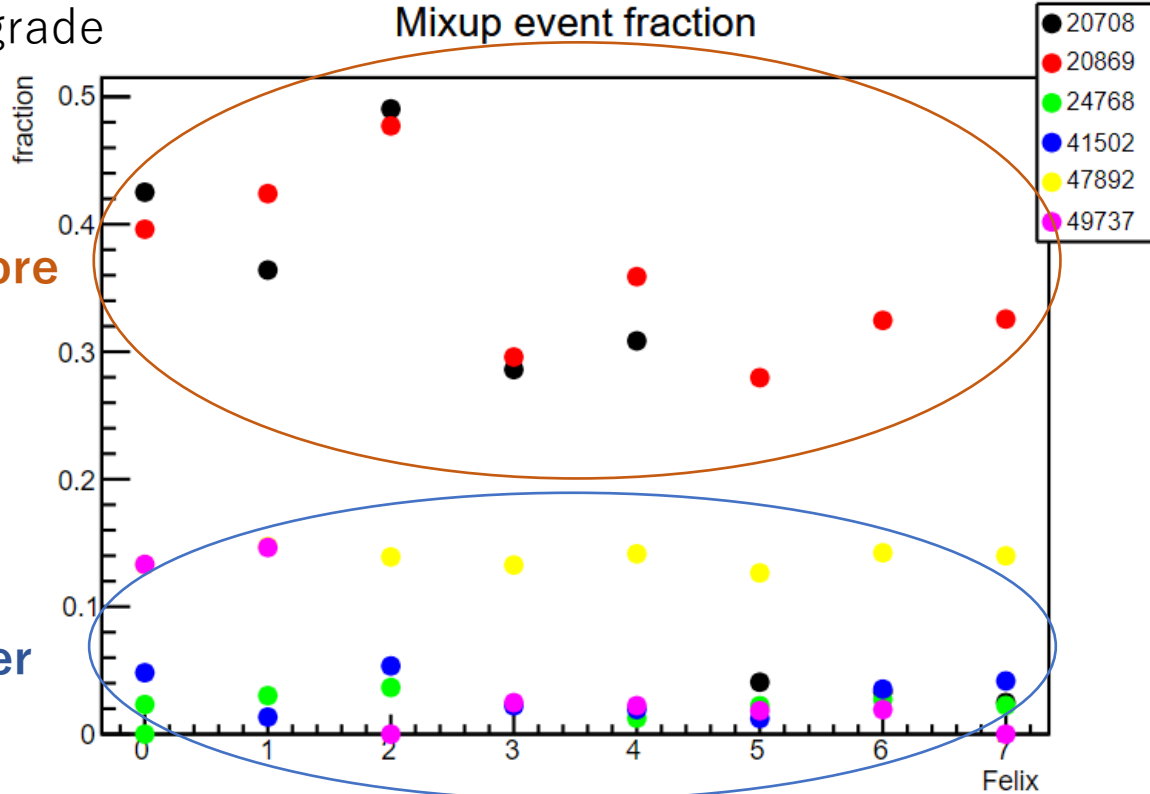
Run23&24 Mixup fraction

Felix
Firmware
upgrade

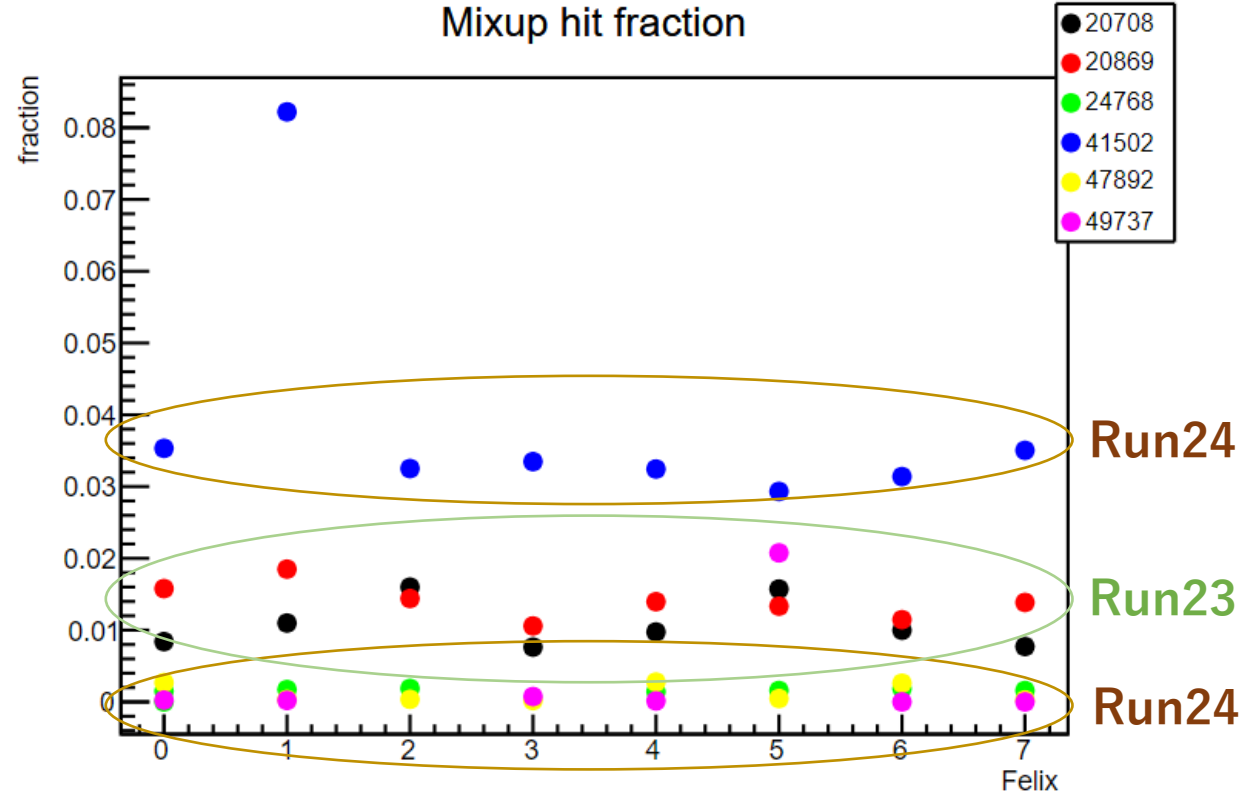
Before

After

Mixup event fraction



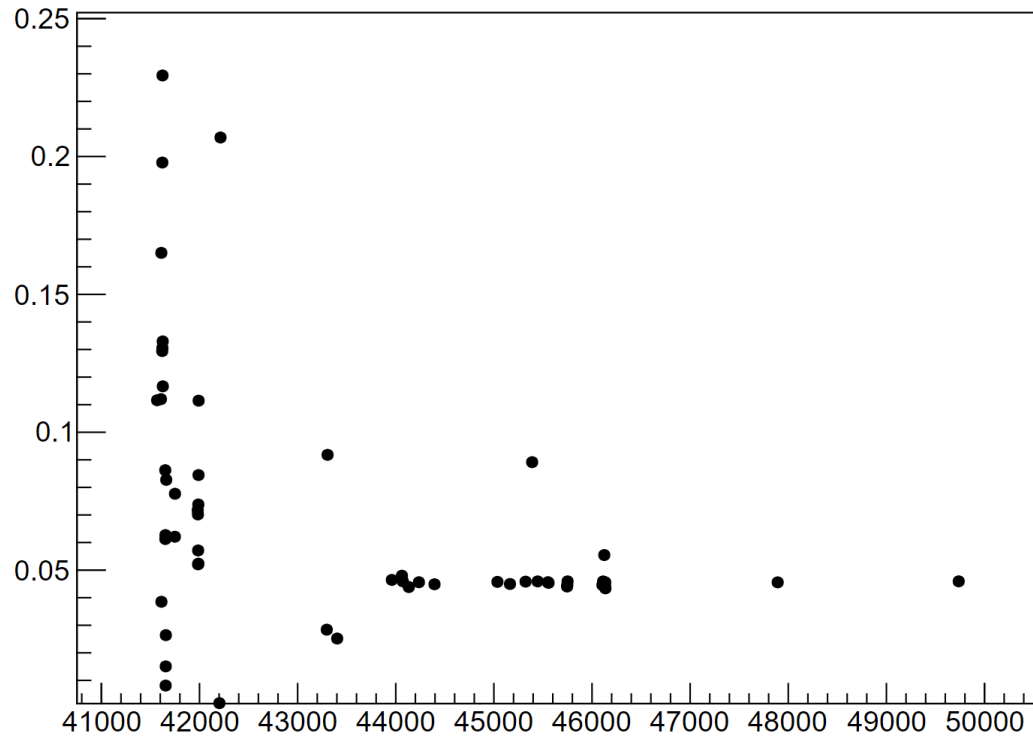
Mixup hit fraction



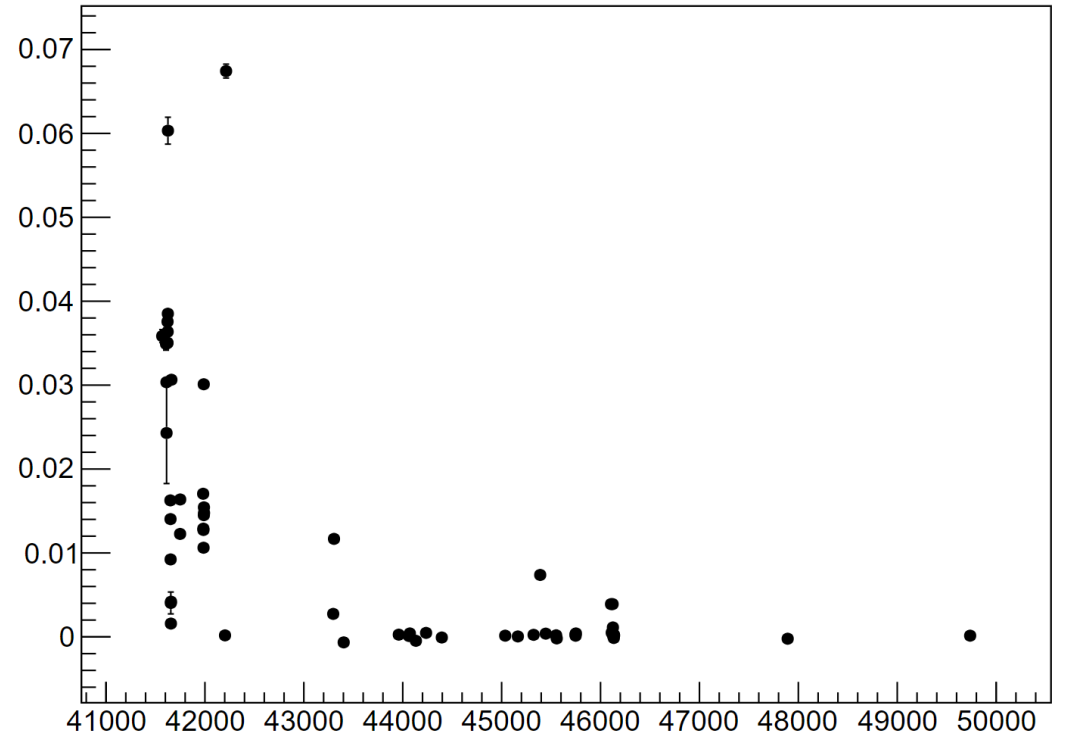
- These plots will also be submitted to show the change in Mixup fraction, but the results could change.
- Also, depending on the results, I plan to change the plots to averages of runs with and without mixups, rather than run-by-run.

Run24 Mixup fraction intt0 > 10min

Mixup event fraction for Felix = 0

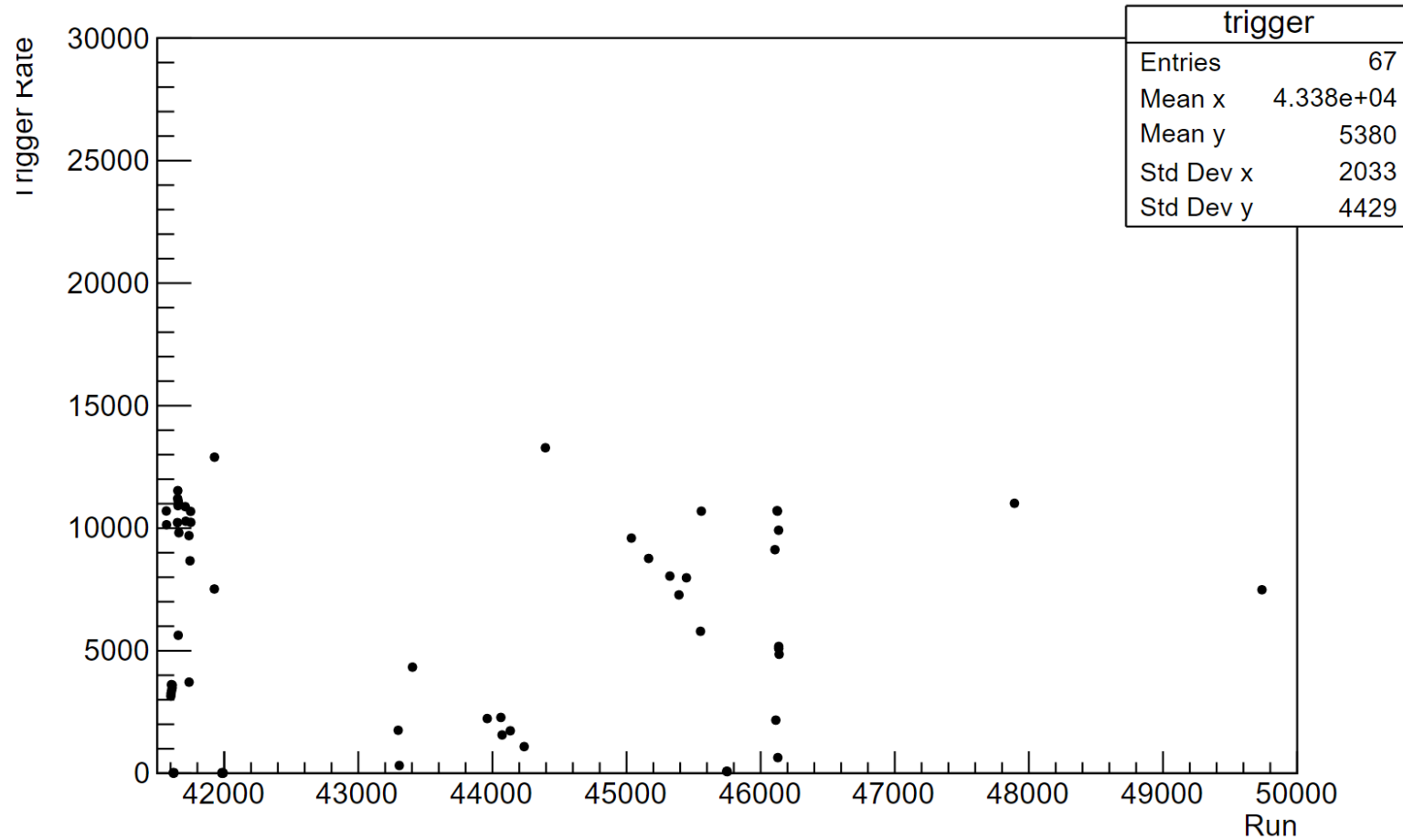


Mixup hit fraction for Felix = 0



I will submit a plot of Run vs Mixup fraction only Runs with a measurement time of 10 minutes or more. Also, this trigger rate is the trigger rate obtained by dividing the total number of events scaled down by the duration

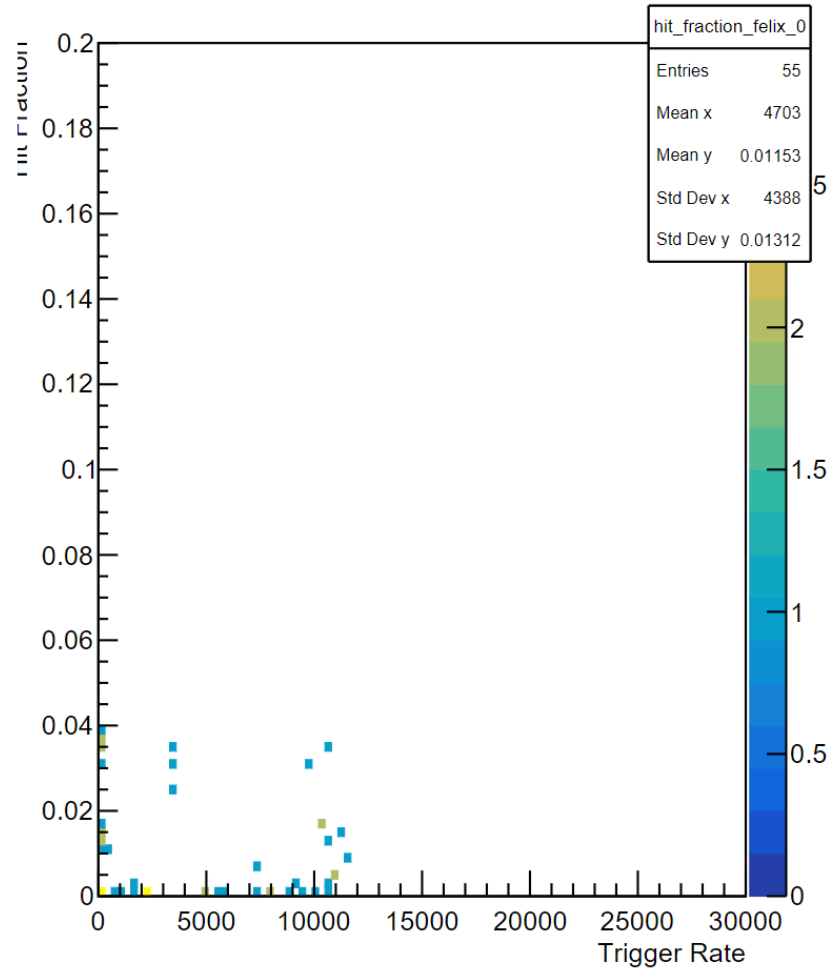
Run vs Trigger rate >10min



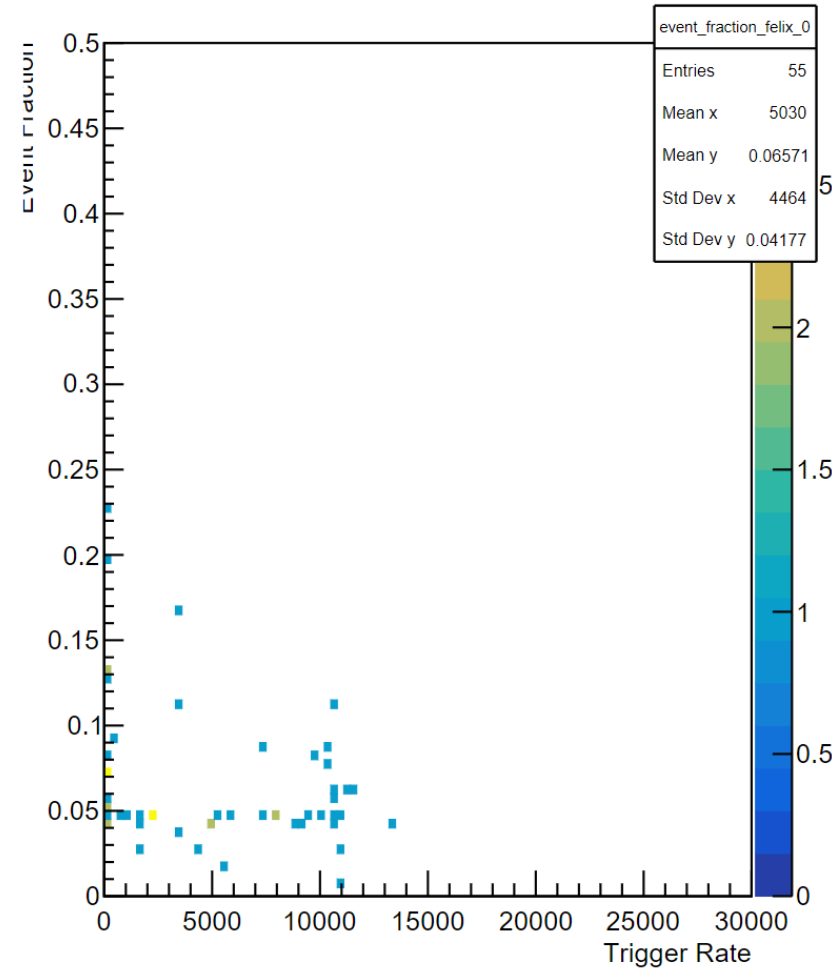
I will not submit this plot, but it is a plot of Trigger Rate vs Run over 10 minutes. From this, I have identified some trigger rate dependence in some Run data, so after reanalyzing it, I will check for dependence between Mixup.

Mixup fraction vs trigger rate $\text{intt0} > 10\text{min}$

Hit Fraction vs Trigger Rate for Felix 0



Event Fraction vs Trigger Rate for Felix 0



I will be submitting this plot as well, but the mixup fraction for each Run data will change after the reanalysis, so this plot will change as well. After that I will check Mixup have trigger rate dependence or no.