

Update - TRD Trigger in pp @ 13 TeV



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- Studies vs mu
 - TRD Trigger Geometry
-

TRD Trigger in pp @ 13 TeV



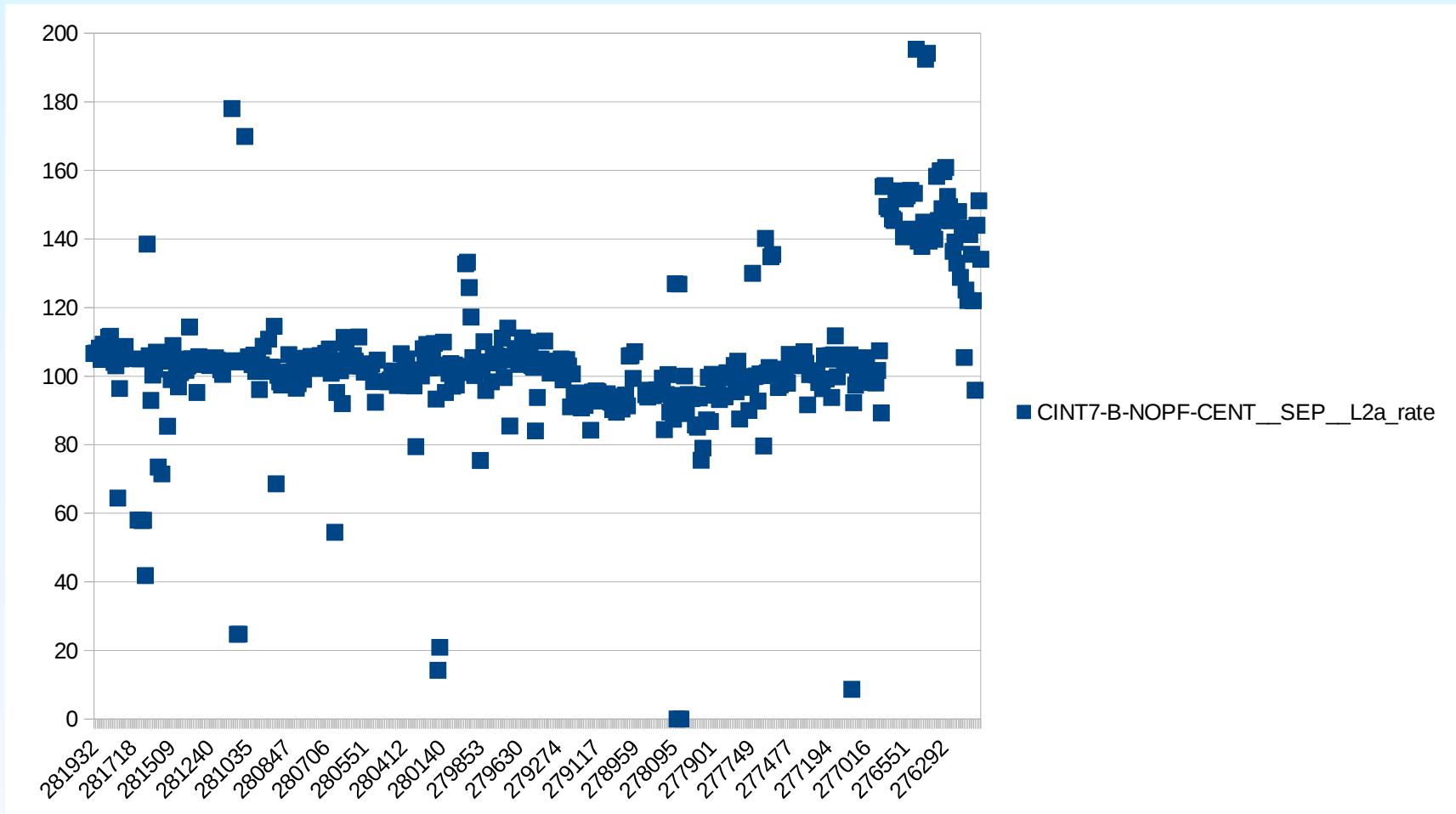
- **TRD L1 trigger (threshold on p_T and PID value)**
 - Triggers successfully running since additional Xenon injection in Aug 2017
 - TRD electron and nuclei trigger activated on 16.8.2017 (first run 276135)
 - Jet trigger activated on activated on 21.8.2017 (first run 276551)

Class	Description	#Events
CINT7HJE-T TRD L1 jet	≥ 3 tracks with $p_T > 1.5$ GeV/c, sagitta cut 0.2c/GeV	9e6
CINT7HQU-T TRD L1 quarkonia	$p_T > 2$ GeV/c, PID > 130, at least 5 tracklets, tracklet in layer 0 required, sagitta cut 0.2c/GeV	78e6
CINT7NU-T TRD L1 nuclei	PID ≥ 255 (4 tracklet case) PID ≥ 235 (5/6 tracklet case)	28e6

CINT7

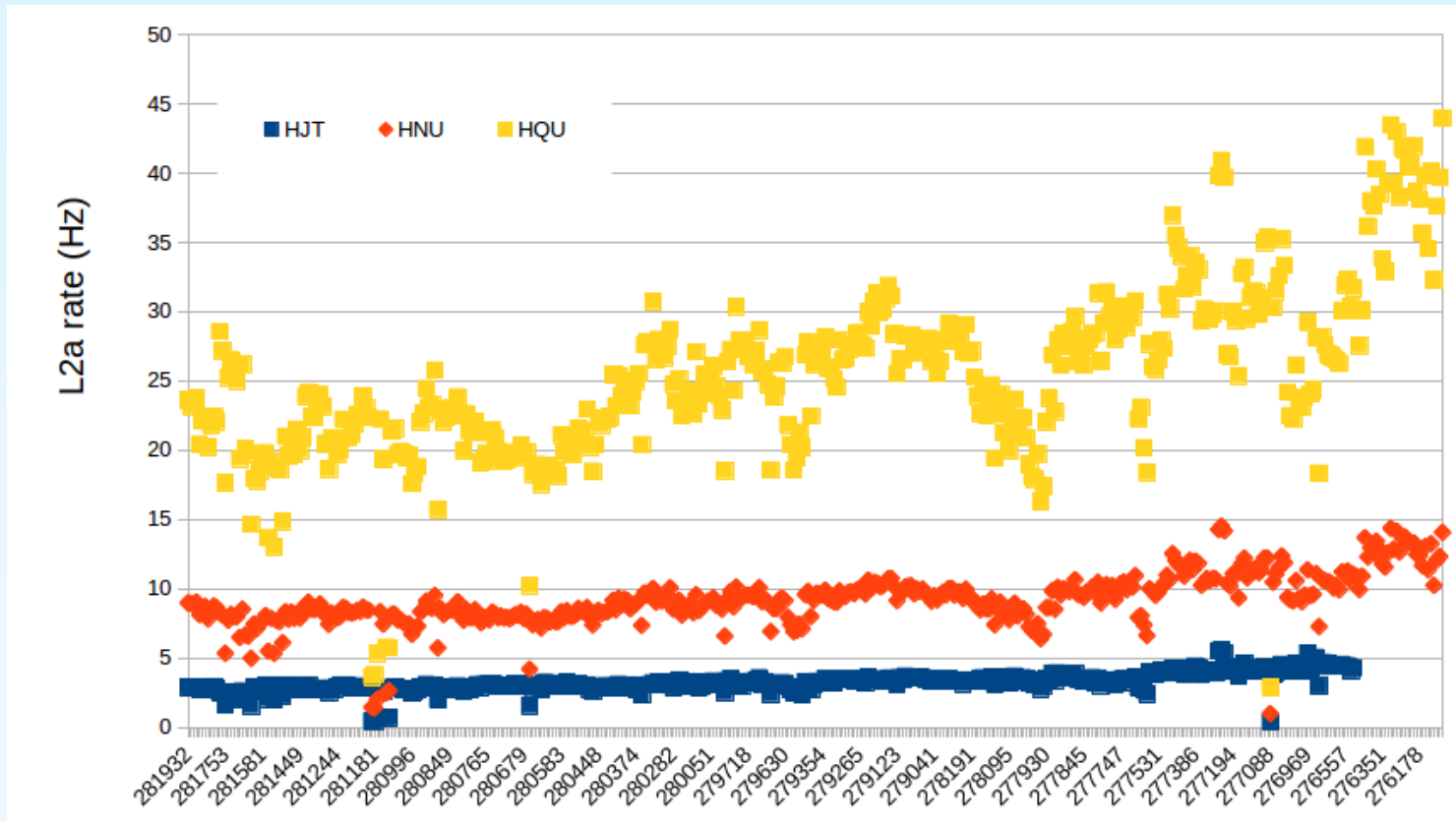


L2a rate (Hz)



TRD Triggers

L2a rate

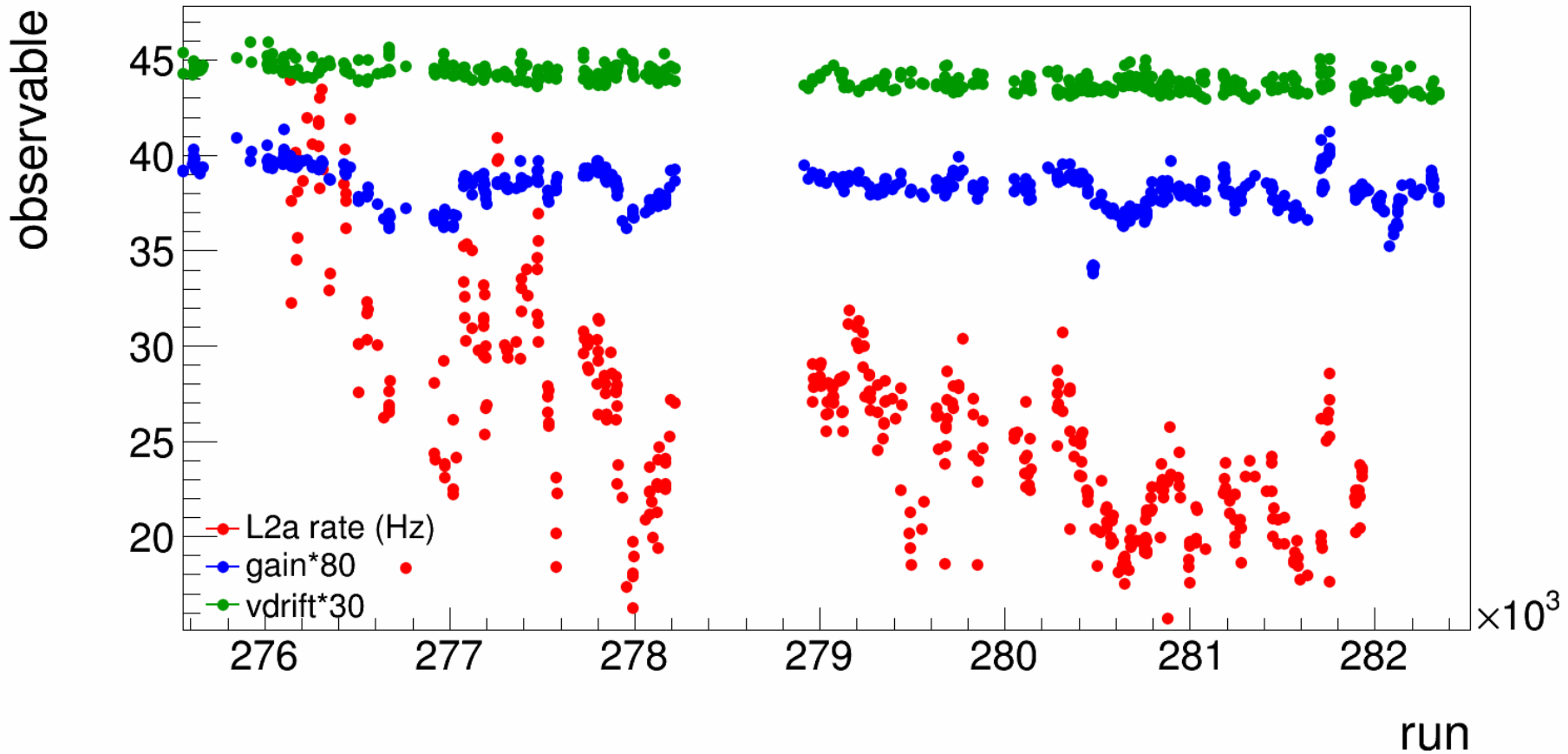


Calibration



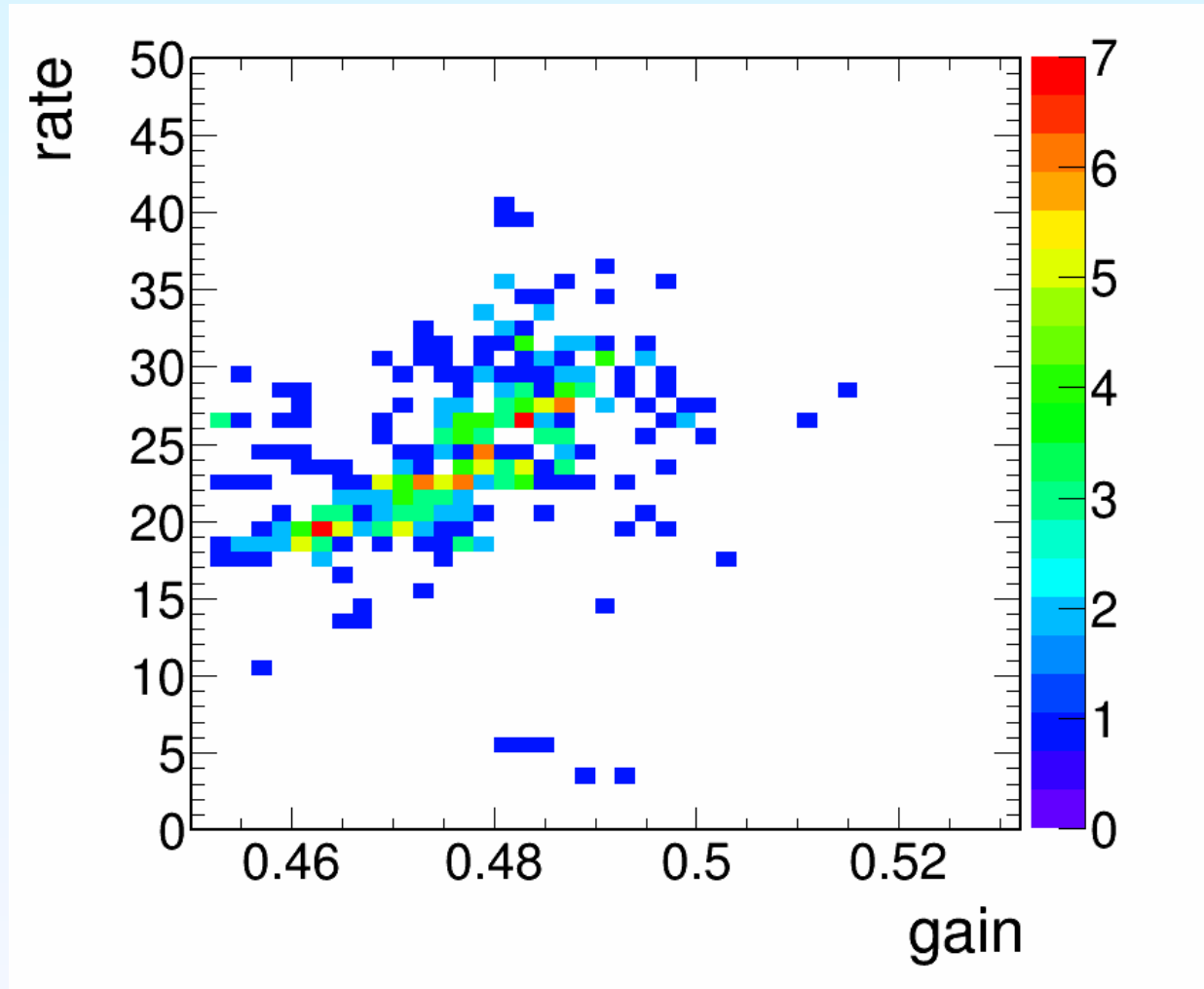
- **pass1**
 - LHC17k
 - LHC17m
 - LHC17n
- **cpass1_pass1**
 - LHC17l
 - LHC17o
 - LHC17p

L2a/Gain/Vdrift vs Run



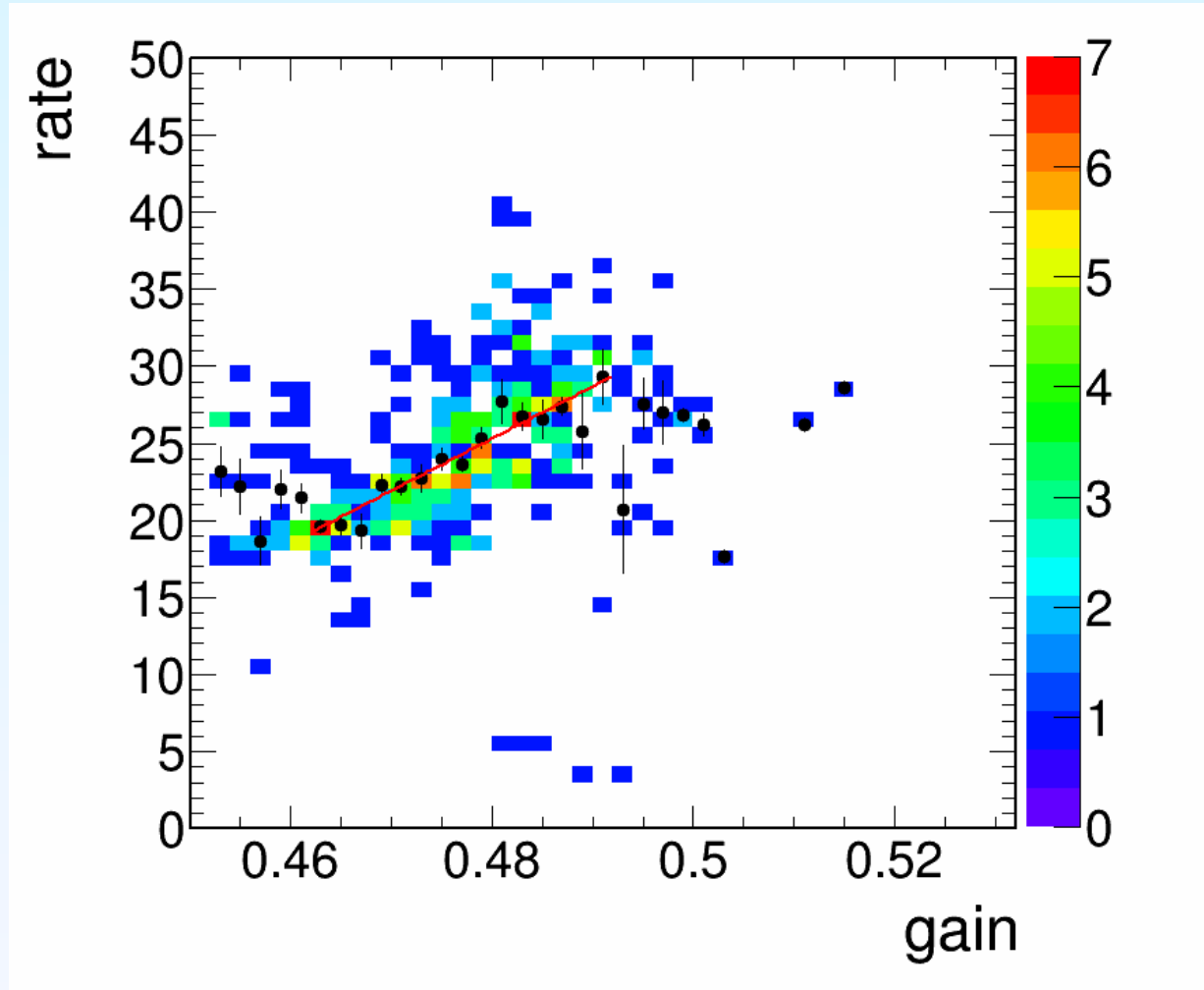
Rate vs gain

Only runs >276508 (also jet trigger on)



Rate vs gain

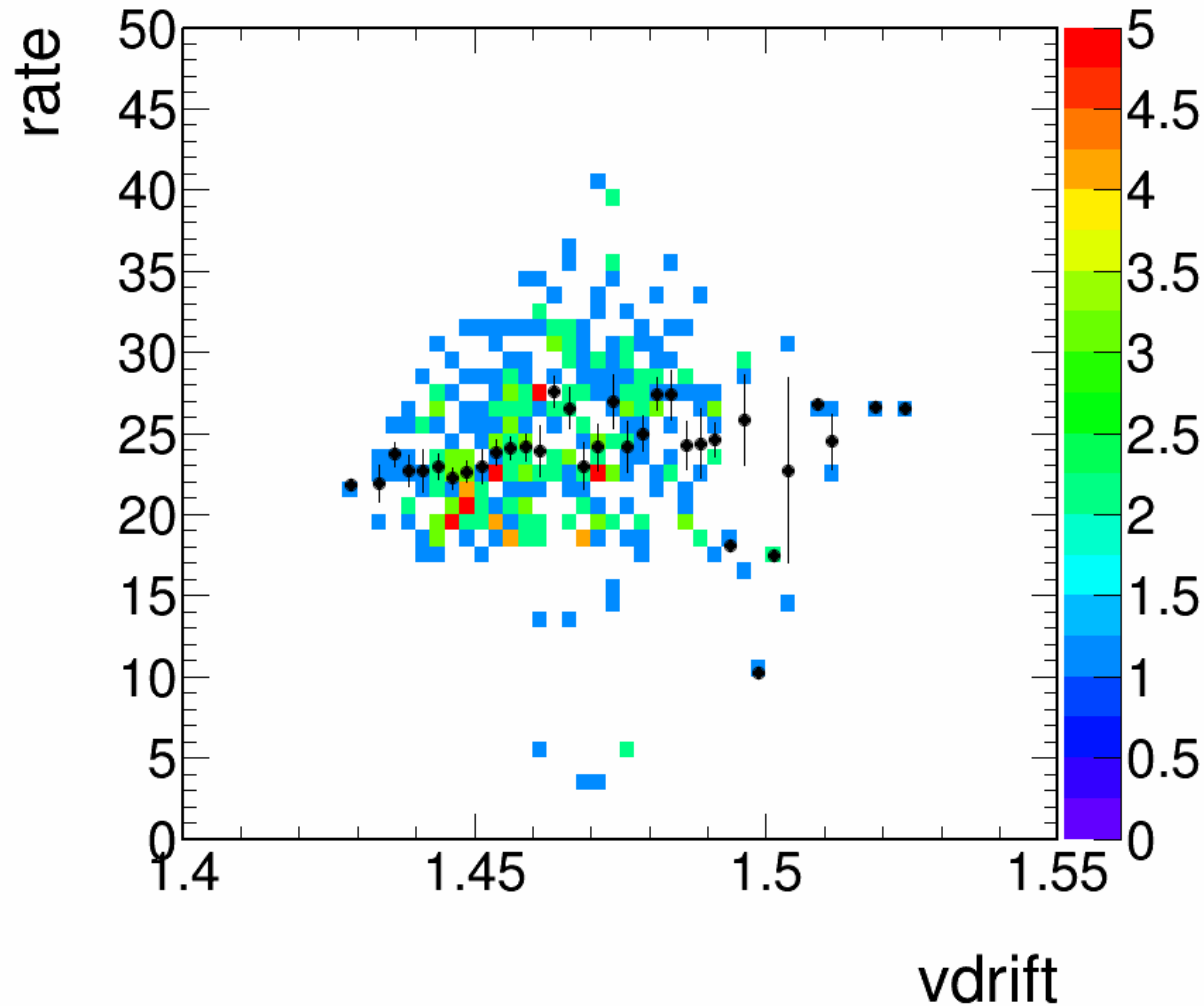
Only runs >276508 (also jet trigger on)



Fit result: $(-137.184 \pm 10.2649) + (338.371 \pm 21.7232)x$

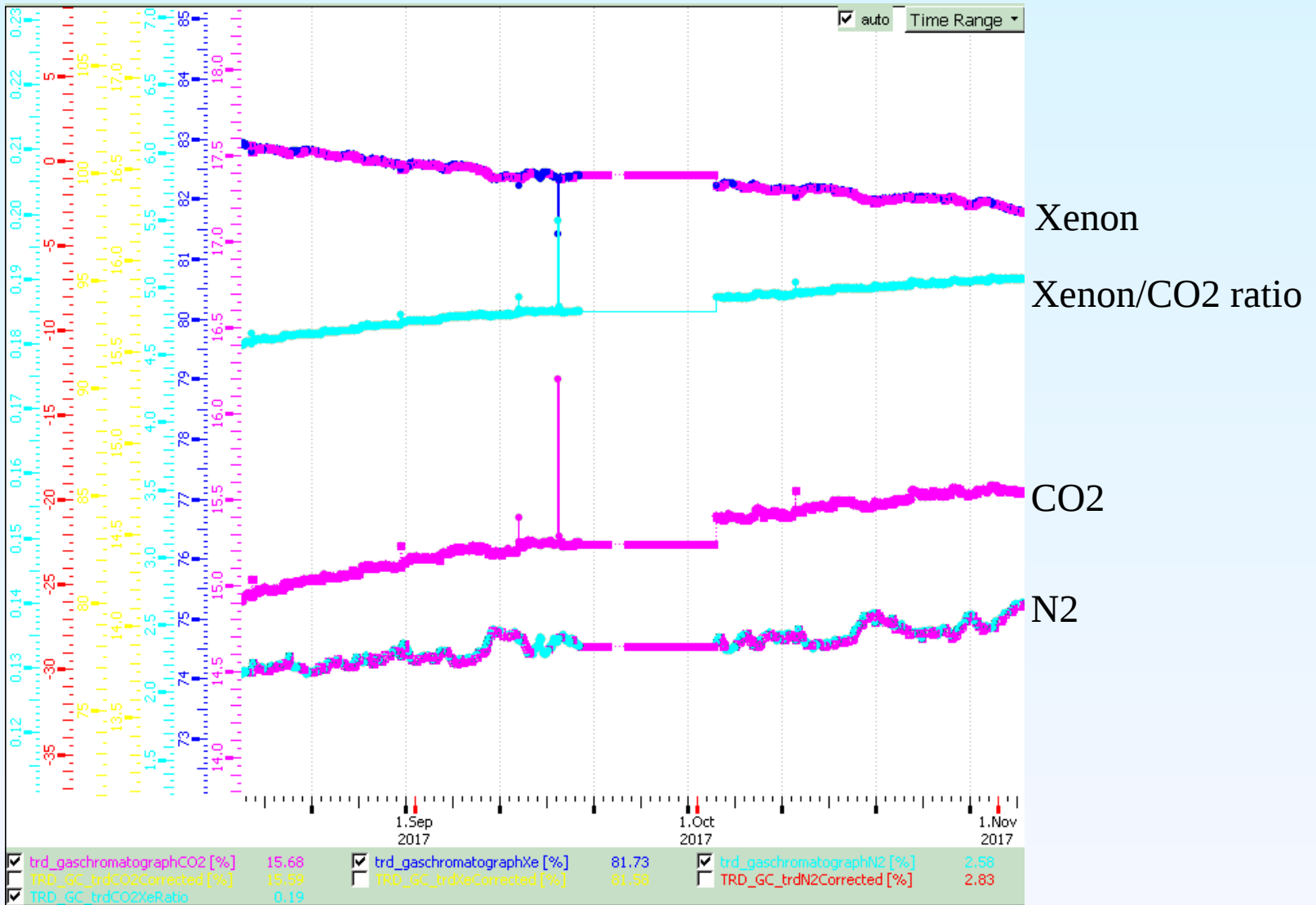
Rate vs vdrift

Only runs >276508 (also jet trigger on)



Gaschromatograph

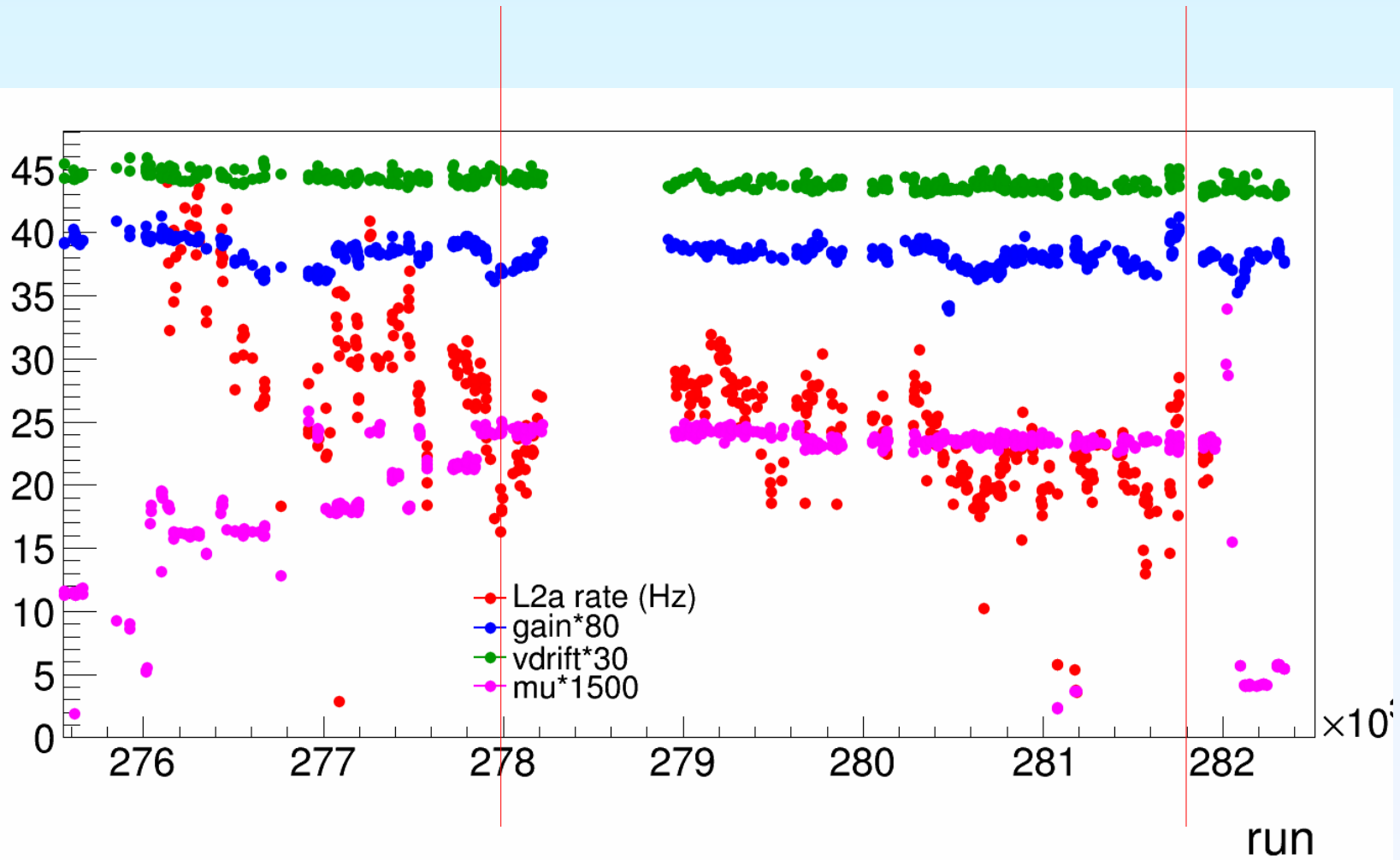
Uncorrected values



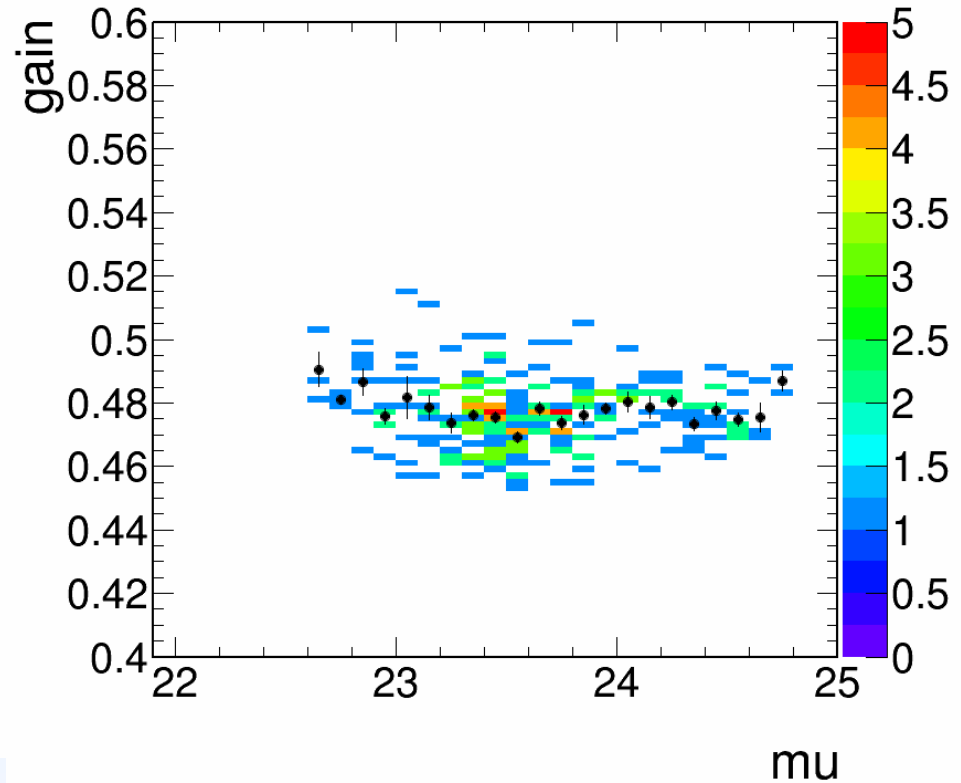
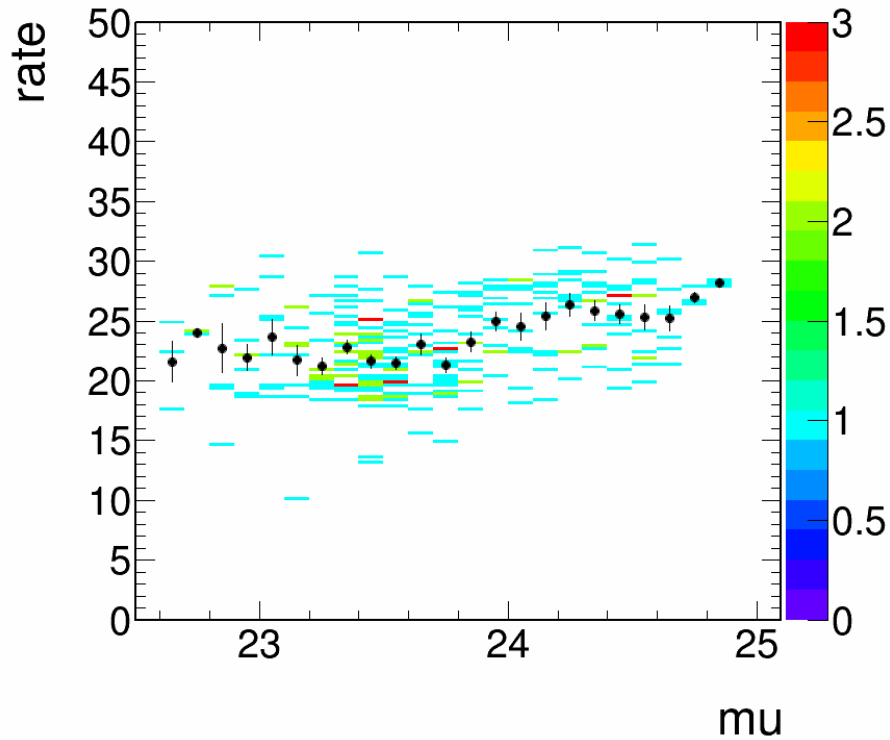
L2a/Gain/Vdrift/mu vs Run



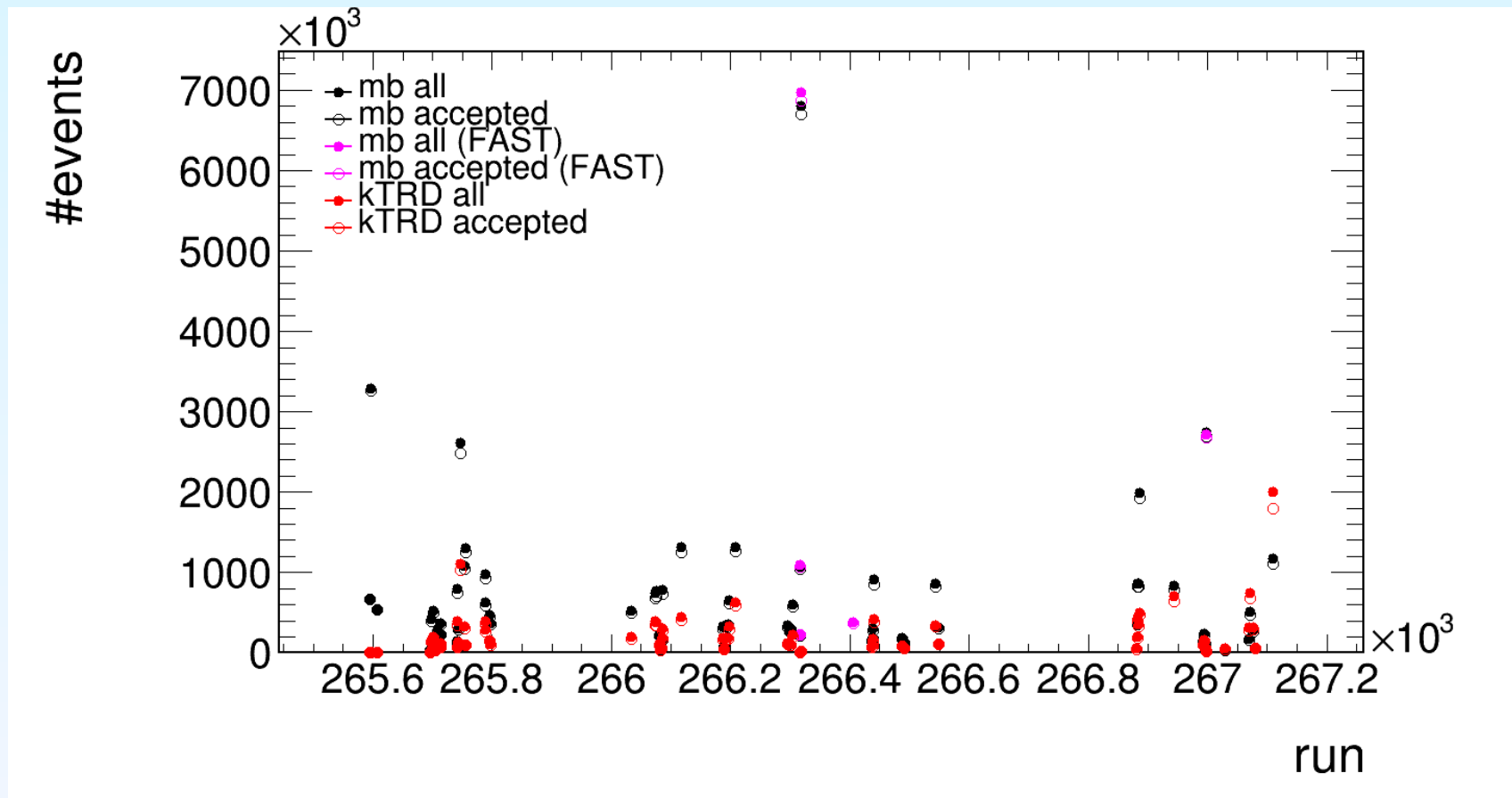
observable



Mu Correlation



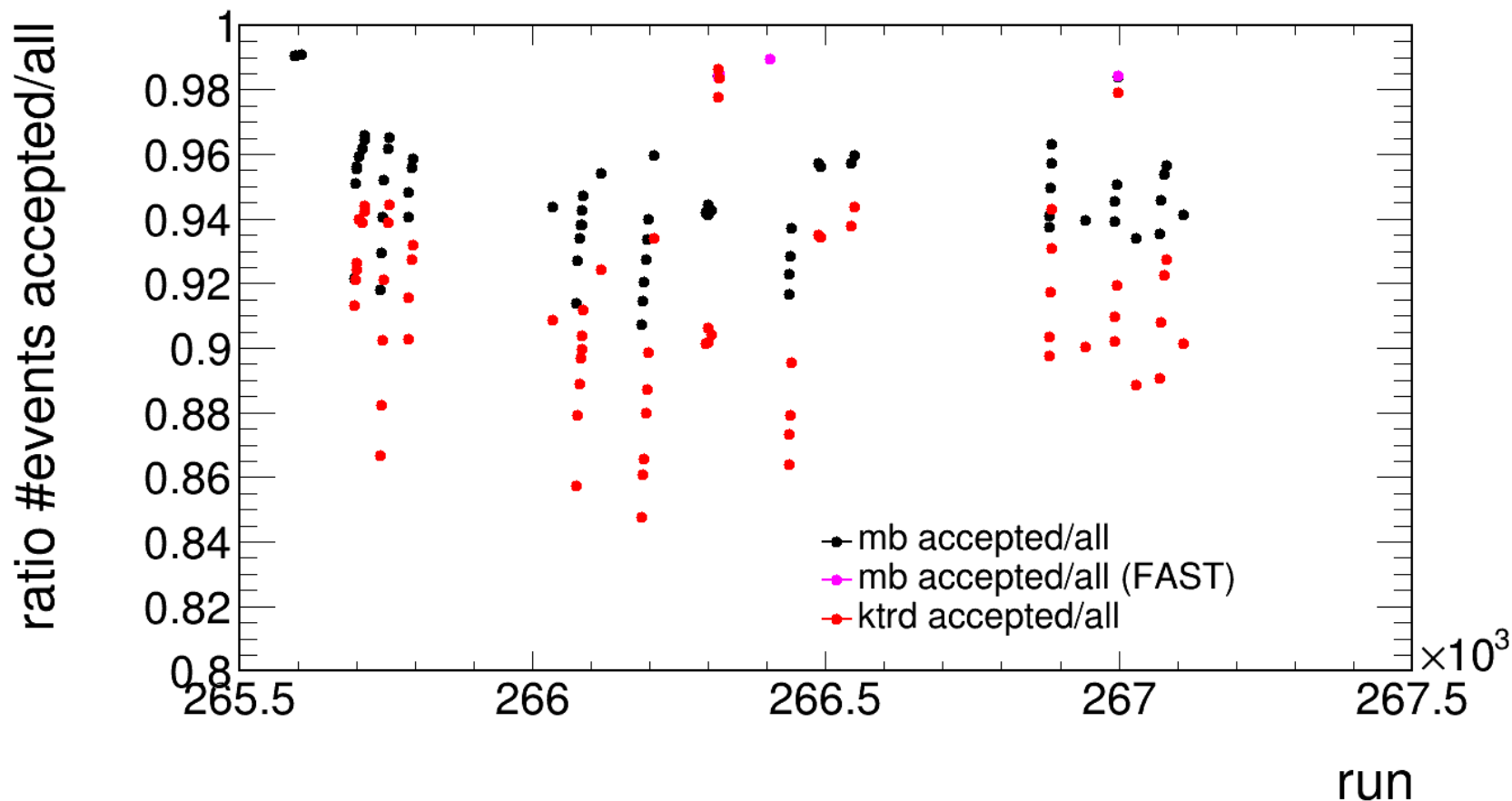
#Events before/after Physics Selection in p-Pb



CINT7-B-NOPF-[CENT|FAST]

CINT7[HJT|HSE|HQU|HNU]-T-NOPF-CENTNOPMD

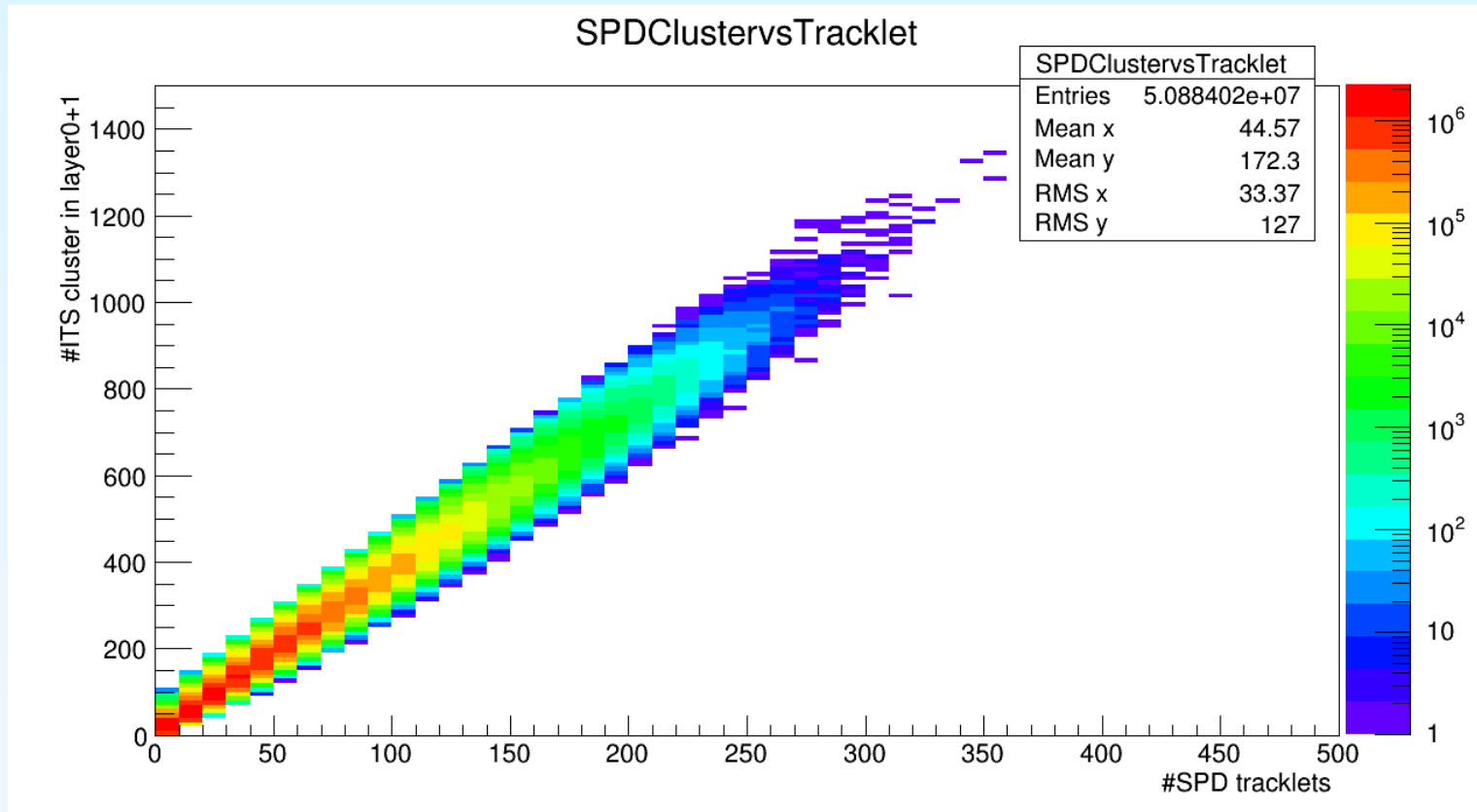
#Events before/after Physics Selection in p-Pb



CINT7-B-NOPF-[CENT|FAST]

CINT7[HJT|HSE|HQU|HNU]-T-NOPF-CENTNOPMD

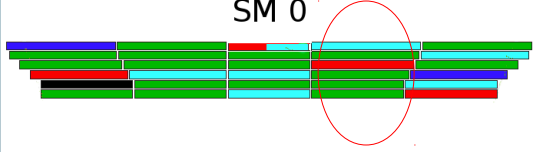
SPD tracklets vs clusters





Differential Analysis (problem wise)

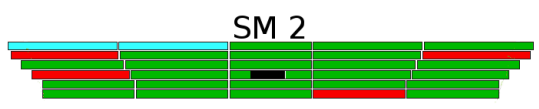
SM 0



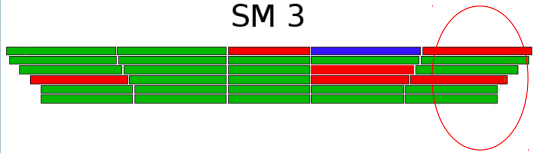
SM 1



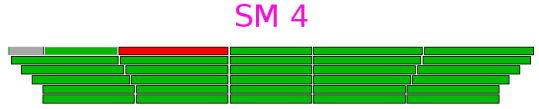
SM 2



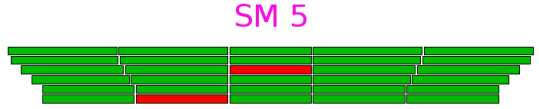
SM 3



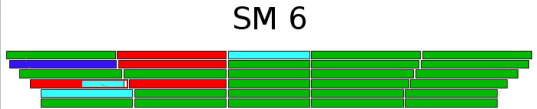
SM 4



SM 5



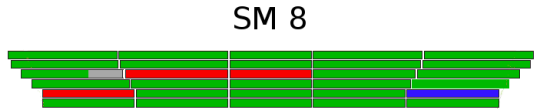
SM 6



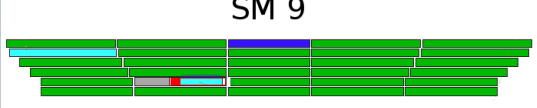
SM 7



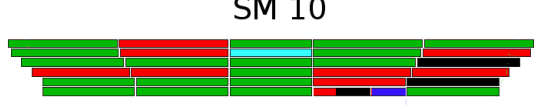
SM 8



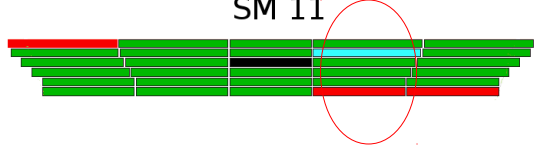
SM 9



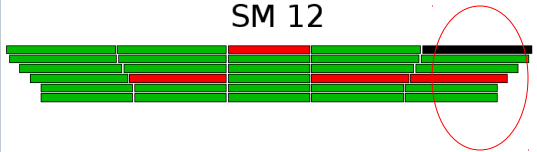
SM 10



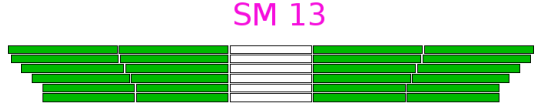
SM 11



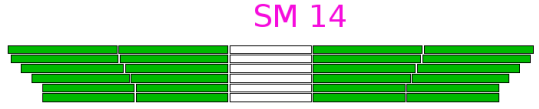
SM 12



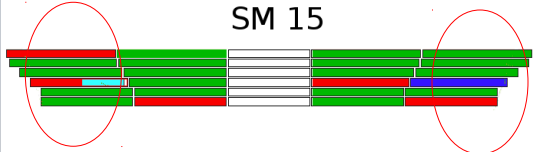
SM 13



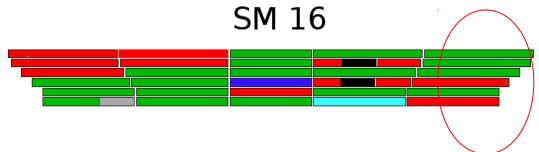
SM 14



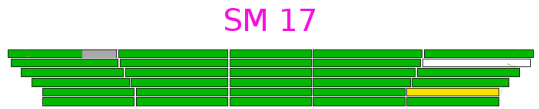
SM 15



SM 16



SM 17



no 4.7nF

Yellow: Anode not at nominal voltage ($V > 1100$)
 Light red: Anode off
 Light blue: Drift not at nominal voltage ($V > 1100$)
 Dark blue: Drift off
 Black: FEE A-side and B-side off
 Grey: A-side (left) or B-side (right) off
 17_4_3 soldering problem

TRD Stack Statistics



- **90 stacks**
- **Stacks off**
 - 3 stacks PHOS holes
 - 30 stacks (5 layers or layer 0 off)
- **Recoverable**
 - Removing layer 0 condition: 4 stacks
 - Min 4. layers, not consecutive/large lever arm
 - See slide before

Back-up

TRD Triggers

#events accepted/inspected

