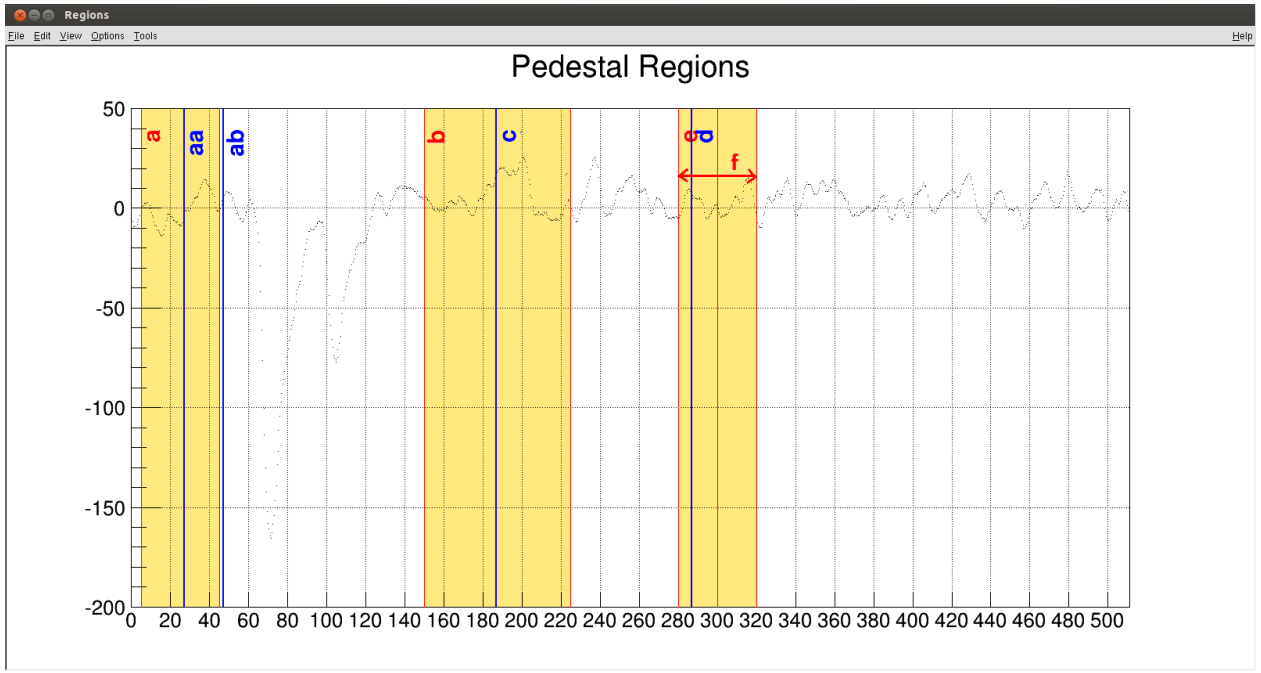
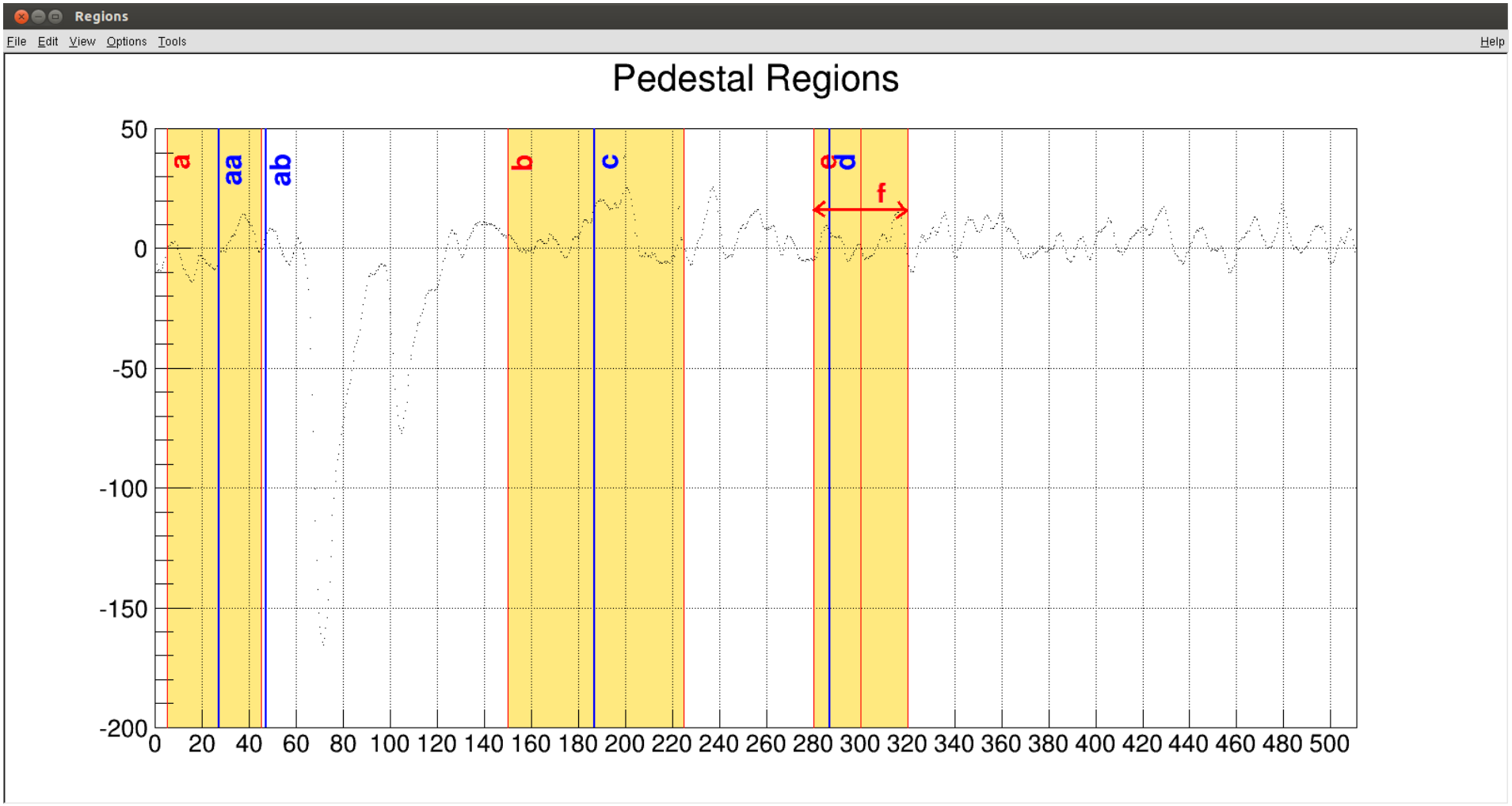
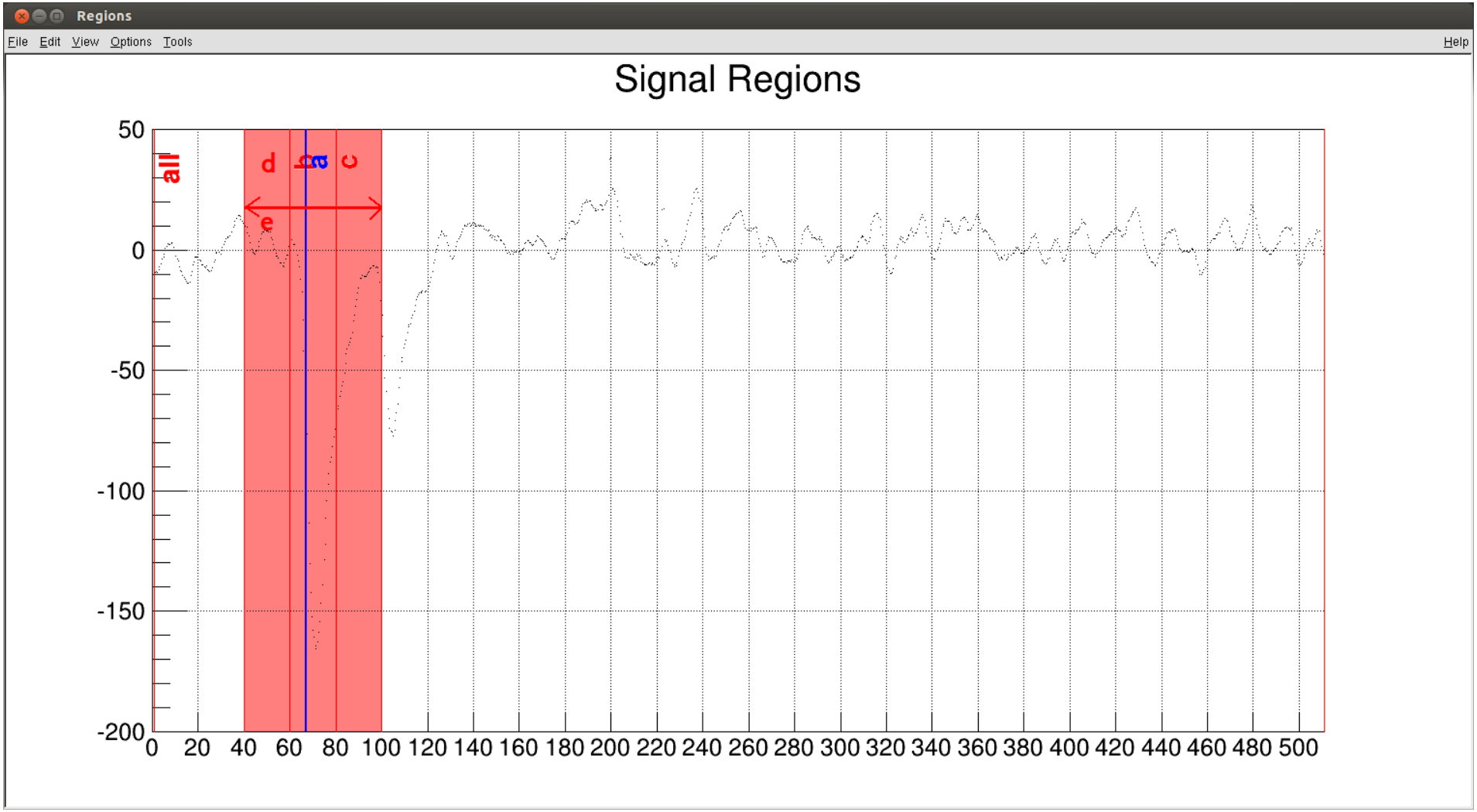


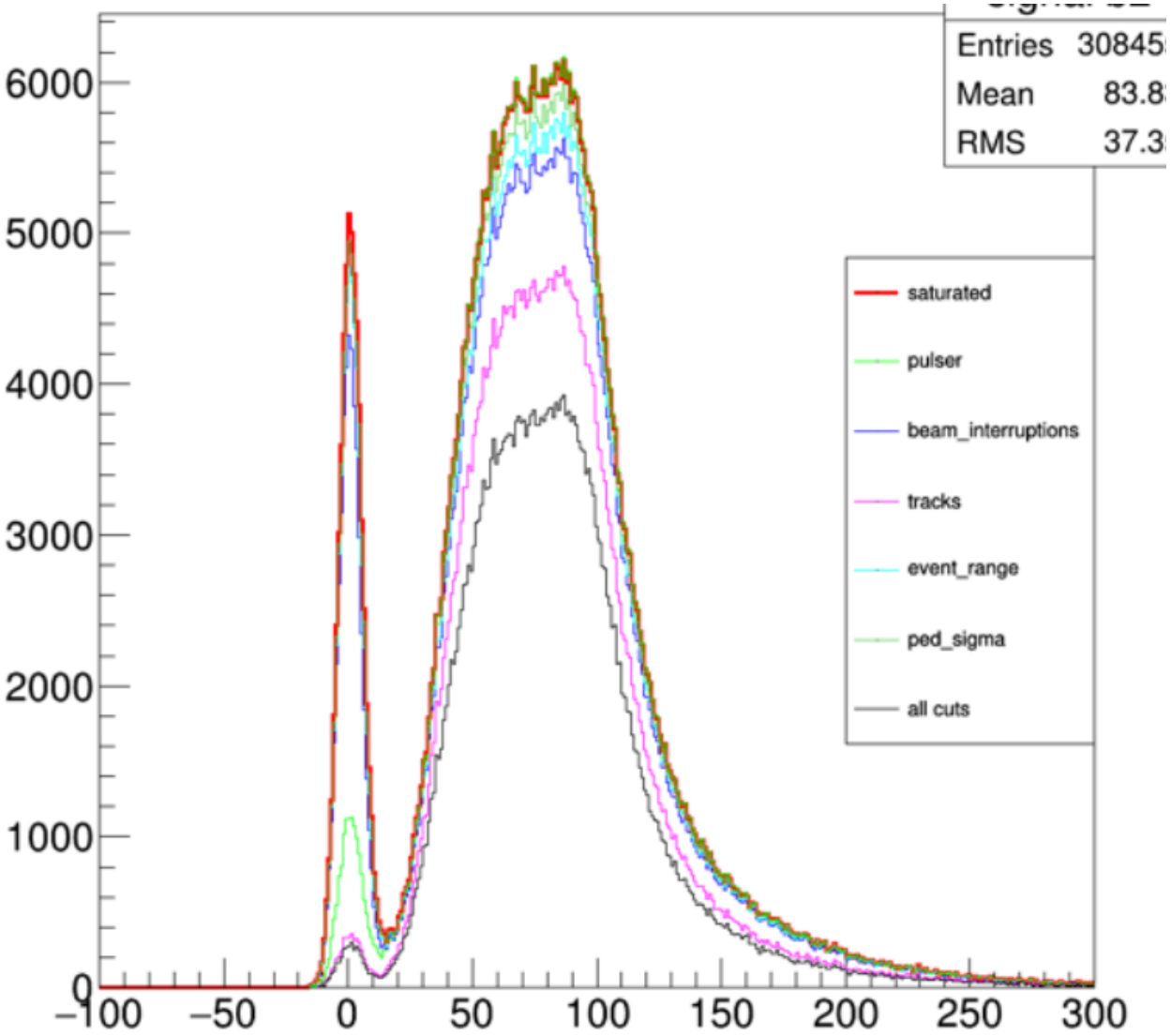
Preliminary Results of Pixel Detectors in 2015 PSI Testbeams

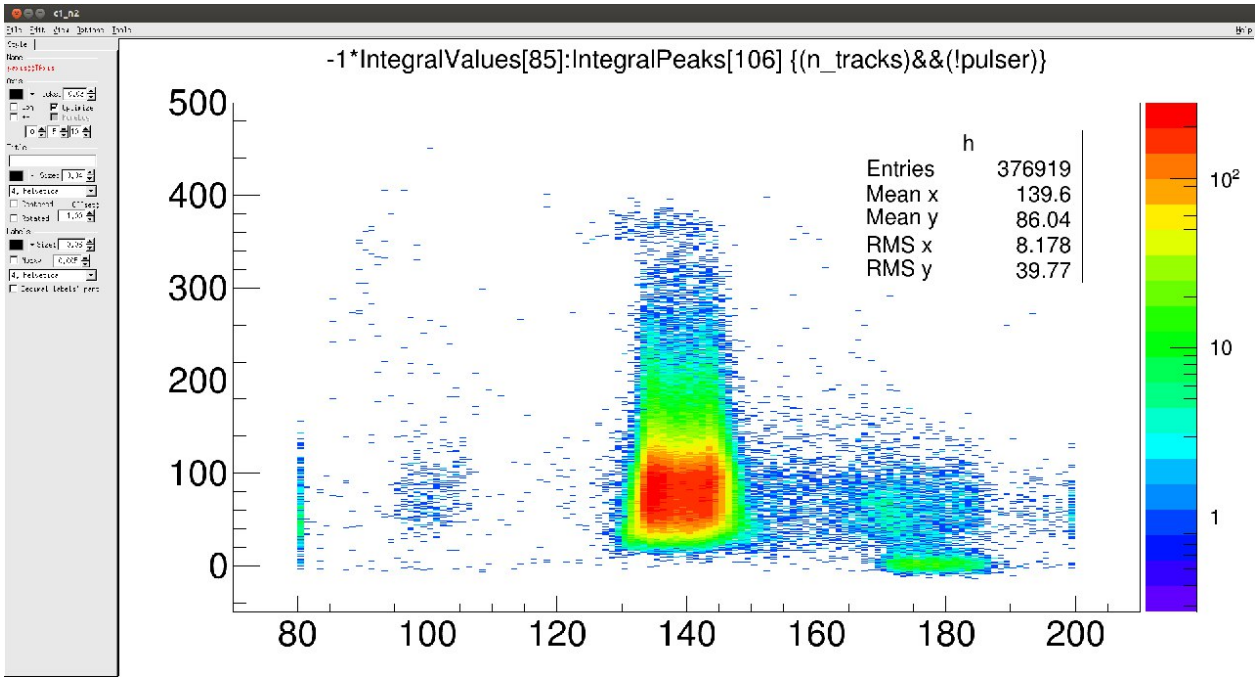
Michael Reichmann


Regions
File Edit View Options Tools
Help
Pedestal Regions
a
aa
ab
b
c
d
e
f
50
0
-50
-100
-150
-200
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420 440 460 480 500

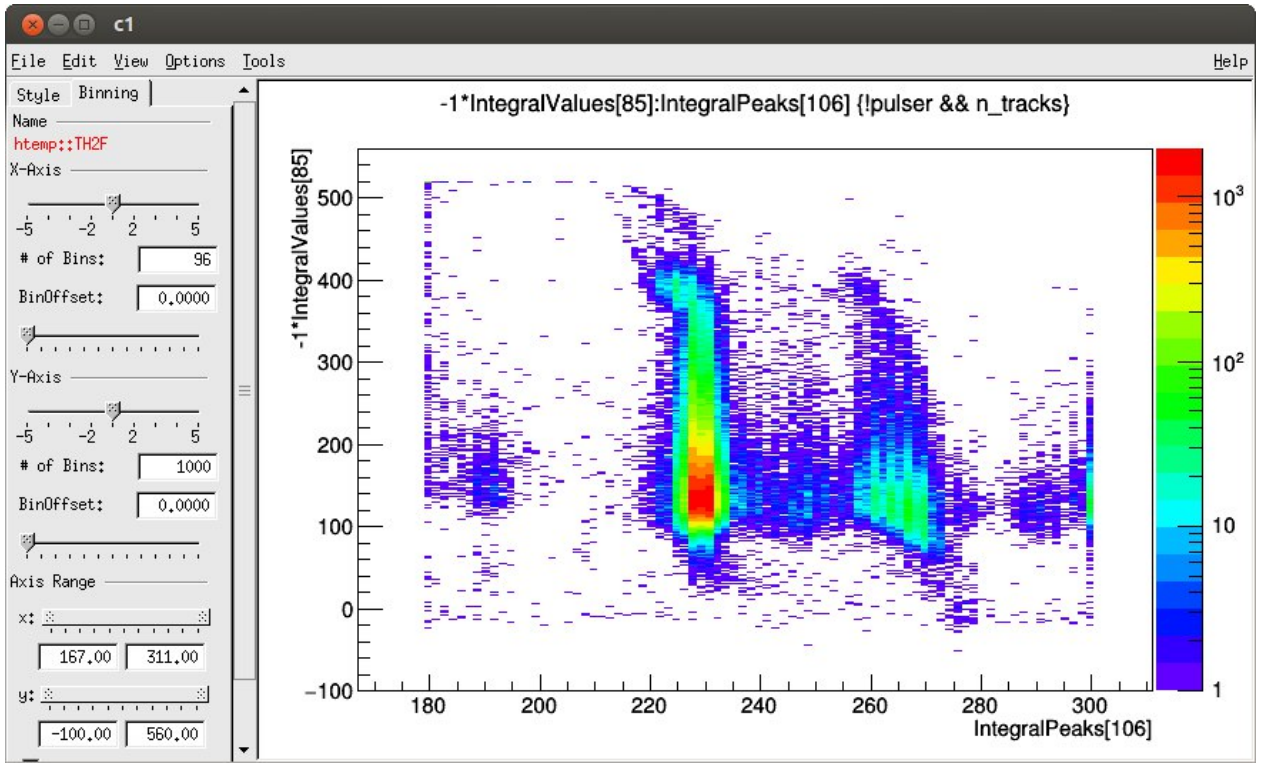

Regions
File Edit View Options Tools
Help
Signal Regions
all
d
a
c
e
50
0
-50
-100
-150
-200
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420 440 460 480 500

- Status a the last meeting

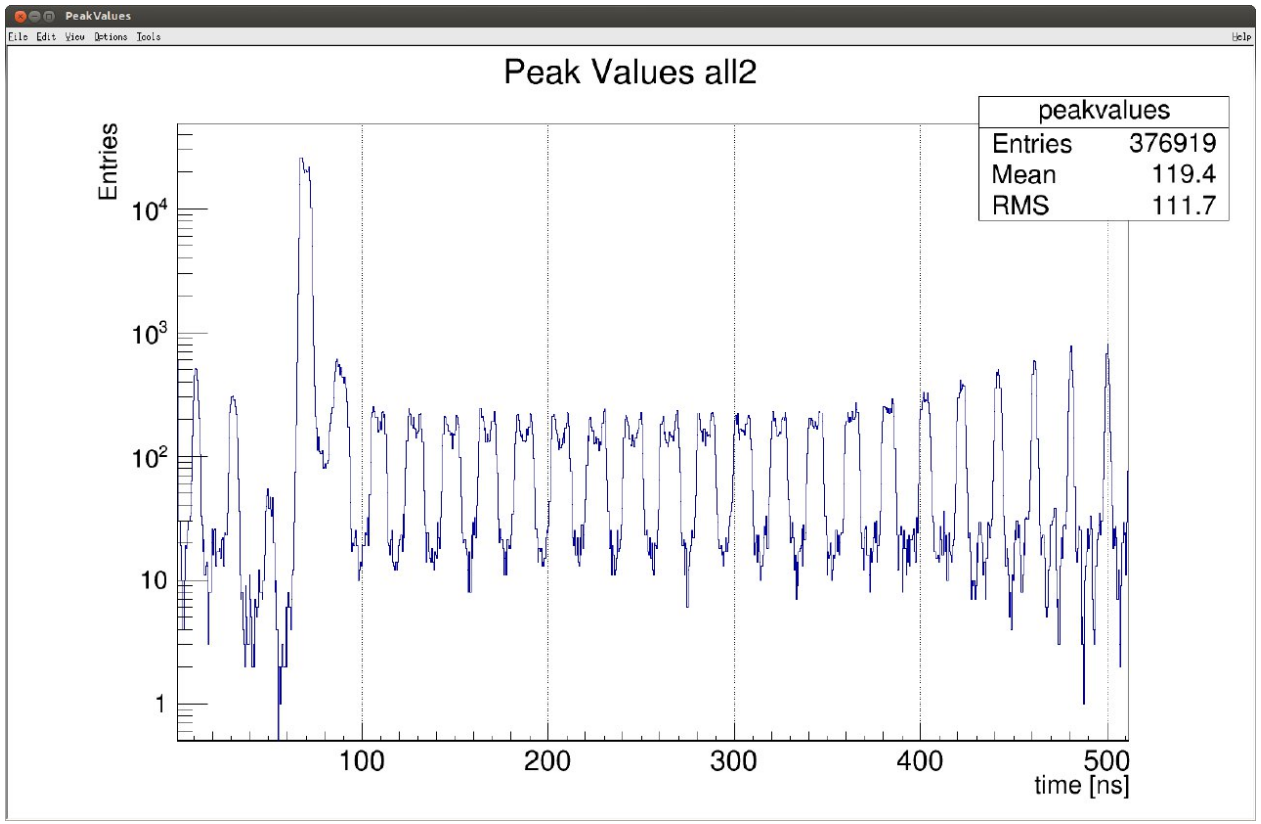




- second setup


c1
File Edit View Options Tools Help
Style Binning
Name
htemp::TH2F
X-Axis
# of Bins: 96
BinOffset: 0.0000
Y-Axis
# of Bins: 1000
BinOffset: 0.0000
Axis Range
x: 167.00 311.00
y: -100.00 560.00
-1*IntegralValues[85]:IntegralPeaks[106] {!pulser && n_tracks}
-1*IntegralValues[85]
IntegralPeaks[106]

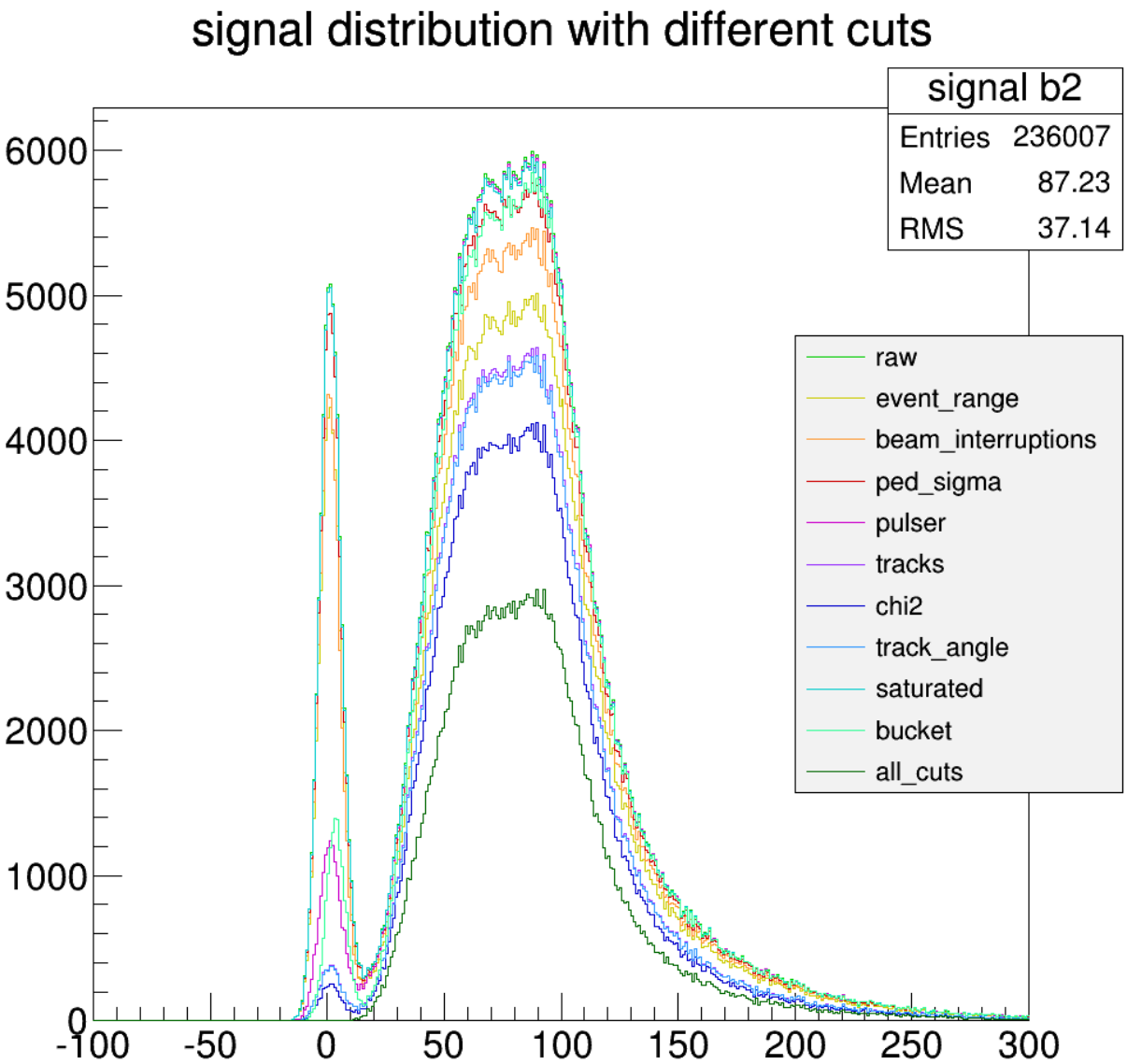
- first setup

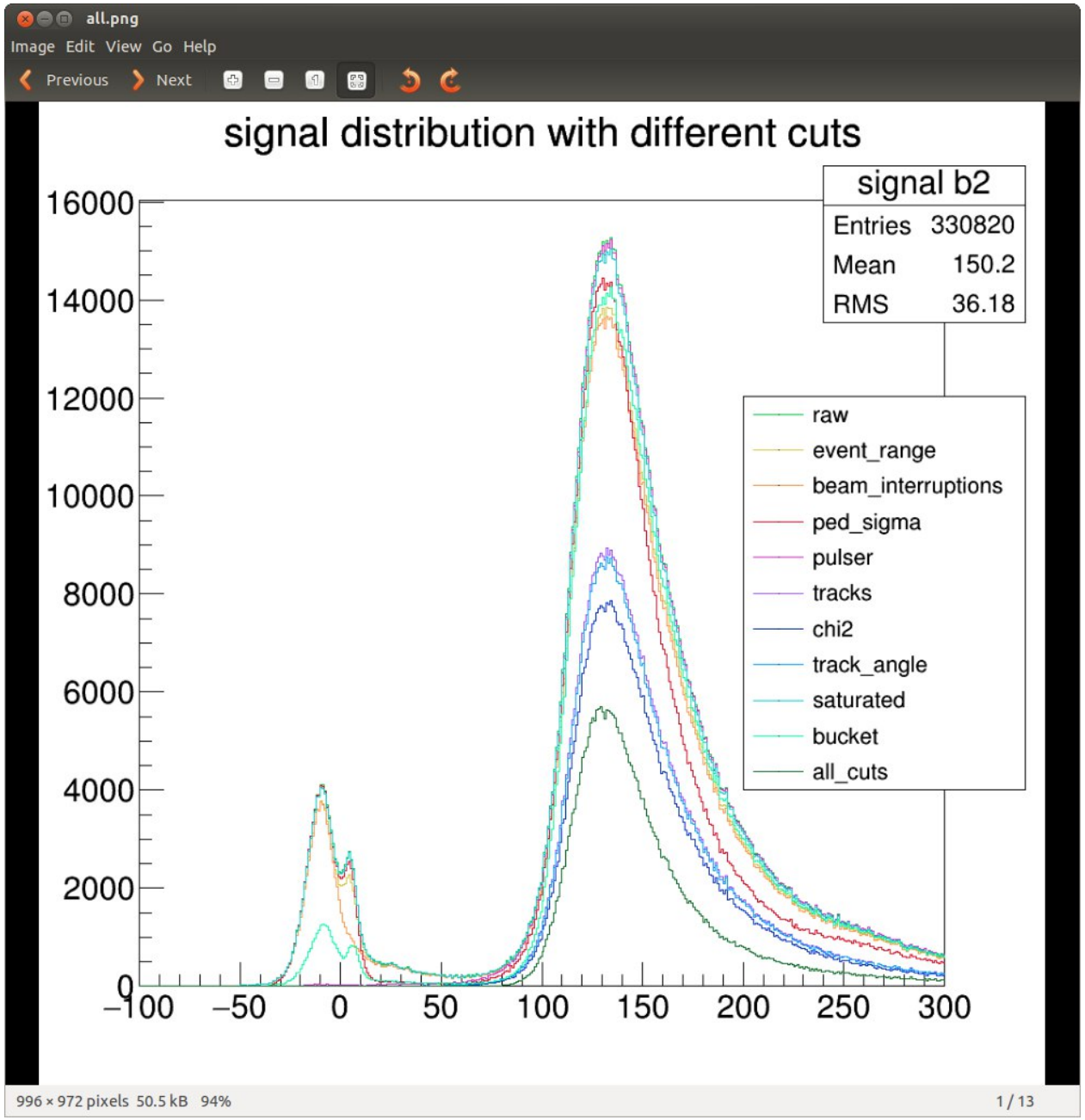

PeakValues
File Edit View Options Tools
Help
Peak Values all2
peakvalues
Entries 376919
Mean 119.4
RMS 111.7
Entries
10^4
10^3
10^2
10
1
100
200
300
400
500
time [ns]

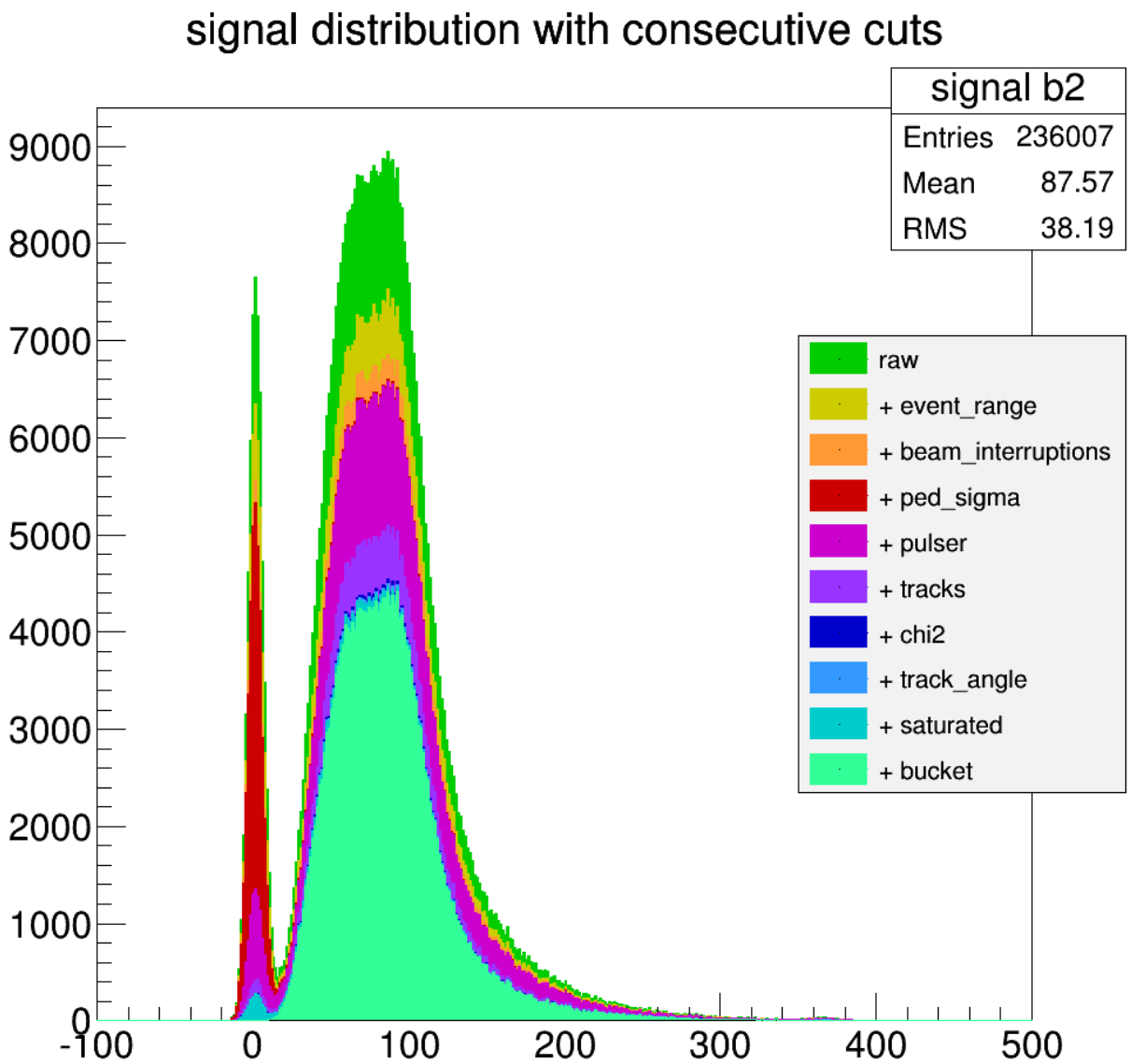
- first setup

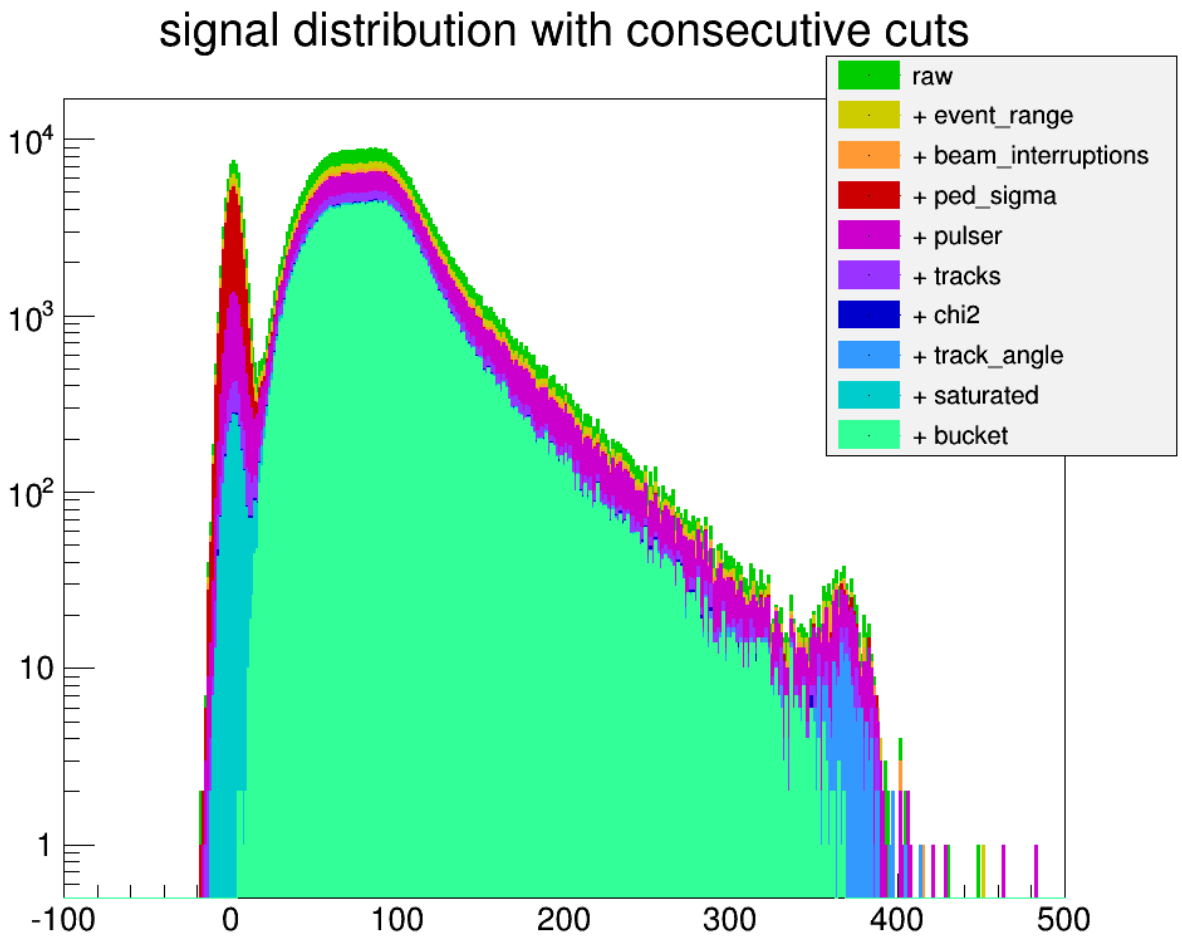
Additional Cuts

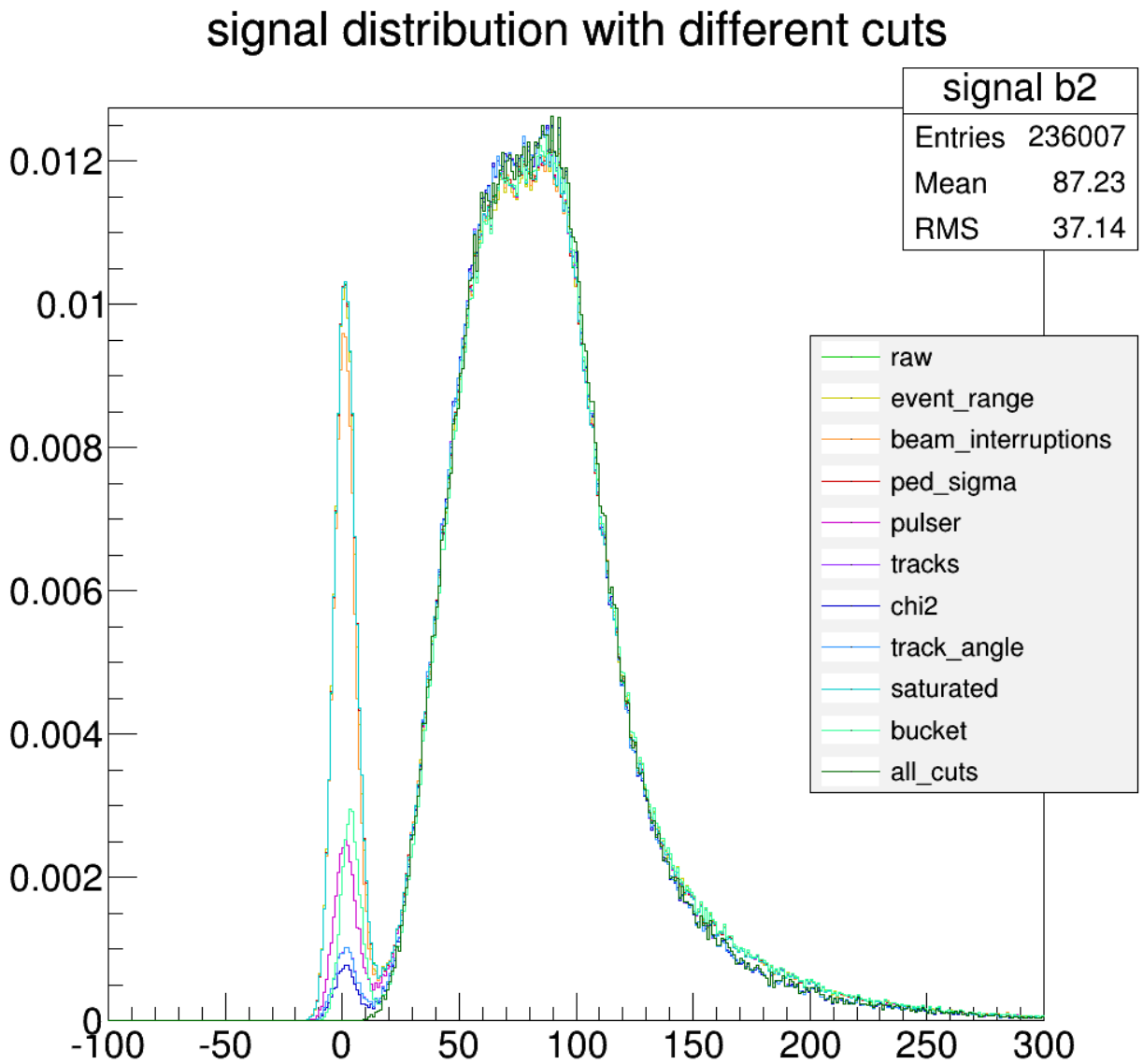
- chi2
  - chi2_tracks<29.499836262&&chi2_tracks>=0
- track angle
  - take only tracks in a certain angle range around the mean angle
  - slope_x>-2.72731579593&&slope_x<1.27268420407&&slope_y>-1.6885275642&&slope_y<2.3114724358
- bucket cut
  - take only events where the max in the signal region is higher than in the buckets in front and after the signal region
  - $-1 * \mathit{IntegralValues}[106] - -1 * \mathit{IntegralValues}[85] == 0$
  - improve cut: if max in bucket 1 or -1 is larger than in bucket 0, signal in bucket 0 has to be below a threshold (is ped event)
- add cut on pad region, landau gets more confined?


signal distribution with different cuts
signal b2
Entries 236007
Mean 87.23
RMS 37.14
raw
event_range
beam_interruptions
ped_sigma
pulser
tracks
chi2
track_angle
saturated
bucket
all_cuts
6000
5000
4000
3000
2000
1000
0
-100
-50
0
50
100
150
200
250
300

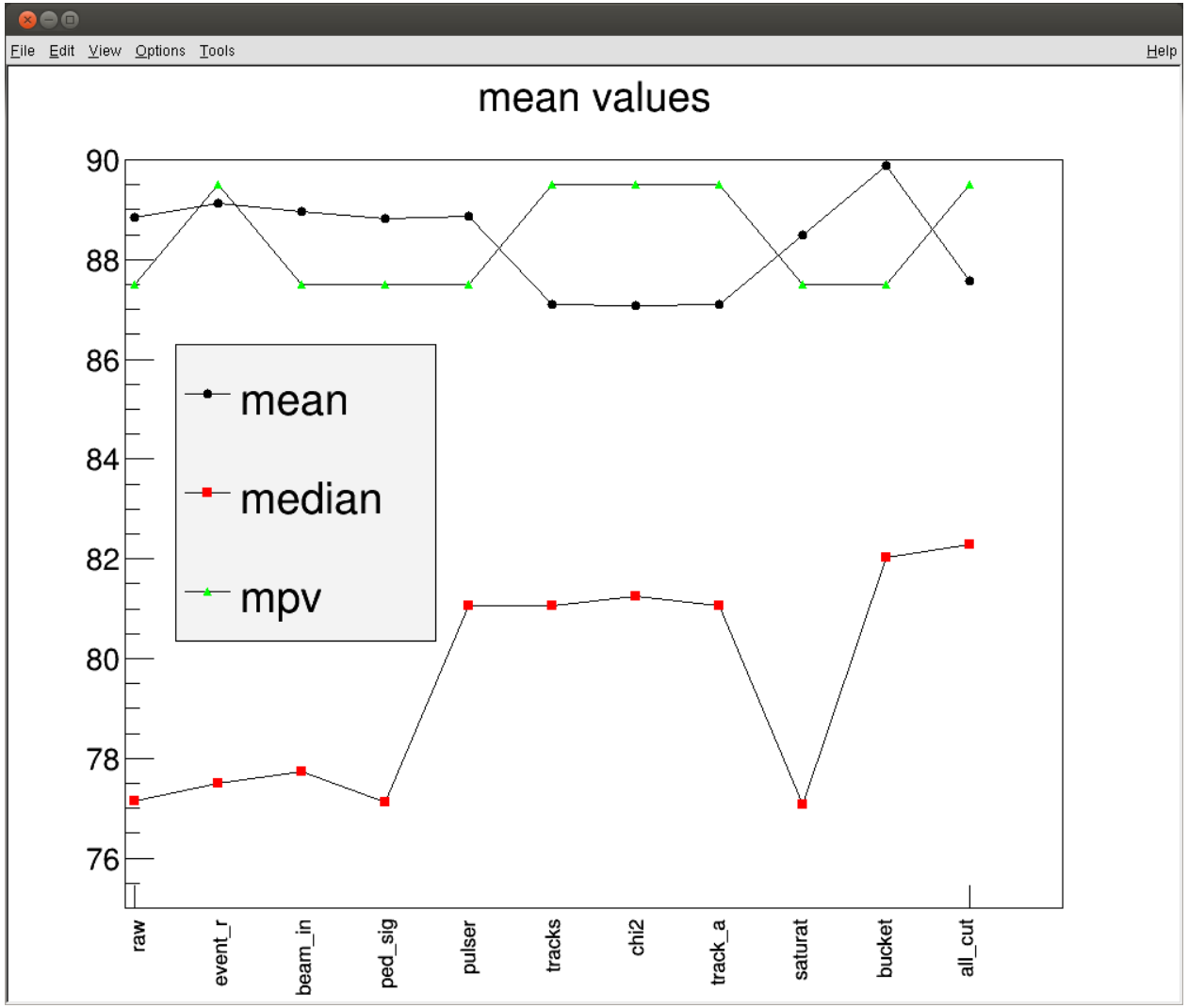

all.png
Image Edit View Go Help
Previous Next
signal distribution with different cuts
signal b2
Entries 330820
Mean 150.2
RMS 36.18
raw
event_range
beam_interruptions
ped_sigma
pulser
tracks
chi2
track_angle
saturated
bucket
all_cuts
16000
14000
12000
10000
8000
6000
4000
2000
0
−100
−50
0
50
100
150
200
250
300
996 × 972 pixels 50.5 kB 94%
1 / 13


signal distribution with consecutive cuts
signal b2
Entries 236007
Mean 87.57
RMS 38.19
raw
+ event_range
+ beam_interruptions
+ ped_sigma
+ pulser
+ tracks
+ chi2
+ track_angle
+ saturated
+ bucket
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
-100
0
100
200
300
400
500

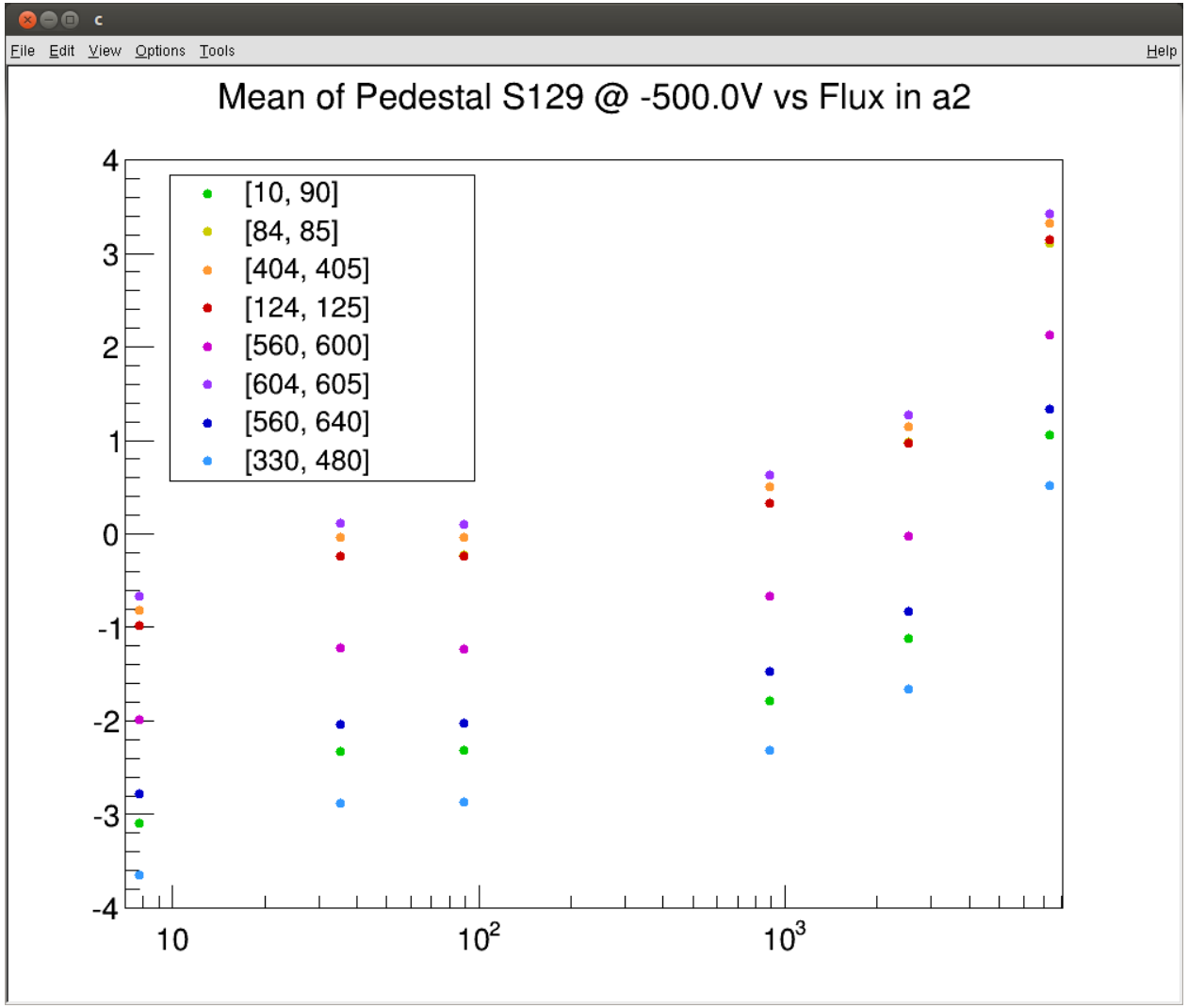

signal distribution with consecutive cuts
raw
+ event_range
+ beam_interruptions
+ ped_sigma
+ pulser
+ tracks
+ chi2
+ track_angle
+ saturated
+ bucket
10^4
10^3
10^2
10
1
-100
0
100
200
300
400
500


signal distribution with different cuts
signal b2
Entries 236007
Mean 87.23
RMS 37.14
raw
event_range
beam_interruptions
ped_sigma
pulser
tracks
chi2
track_angle
saturated
bucket
all_cuts
0.012
0.01
0.008
0.006
0.004
0.002
0
-100
-50
0
50
100
150
200
250
300

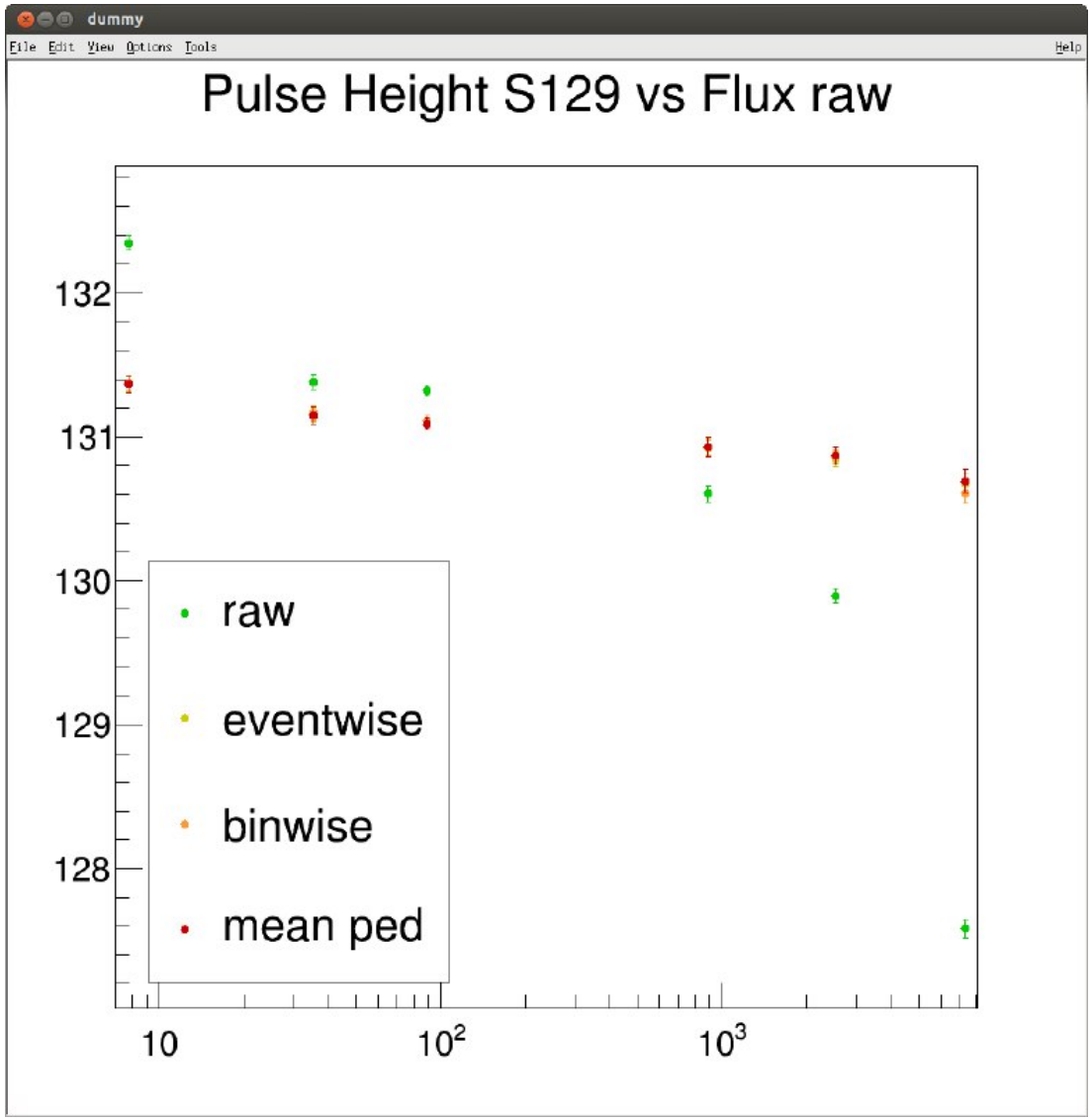
Landau attributes of different cuts



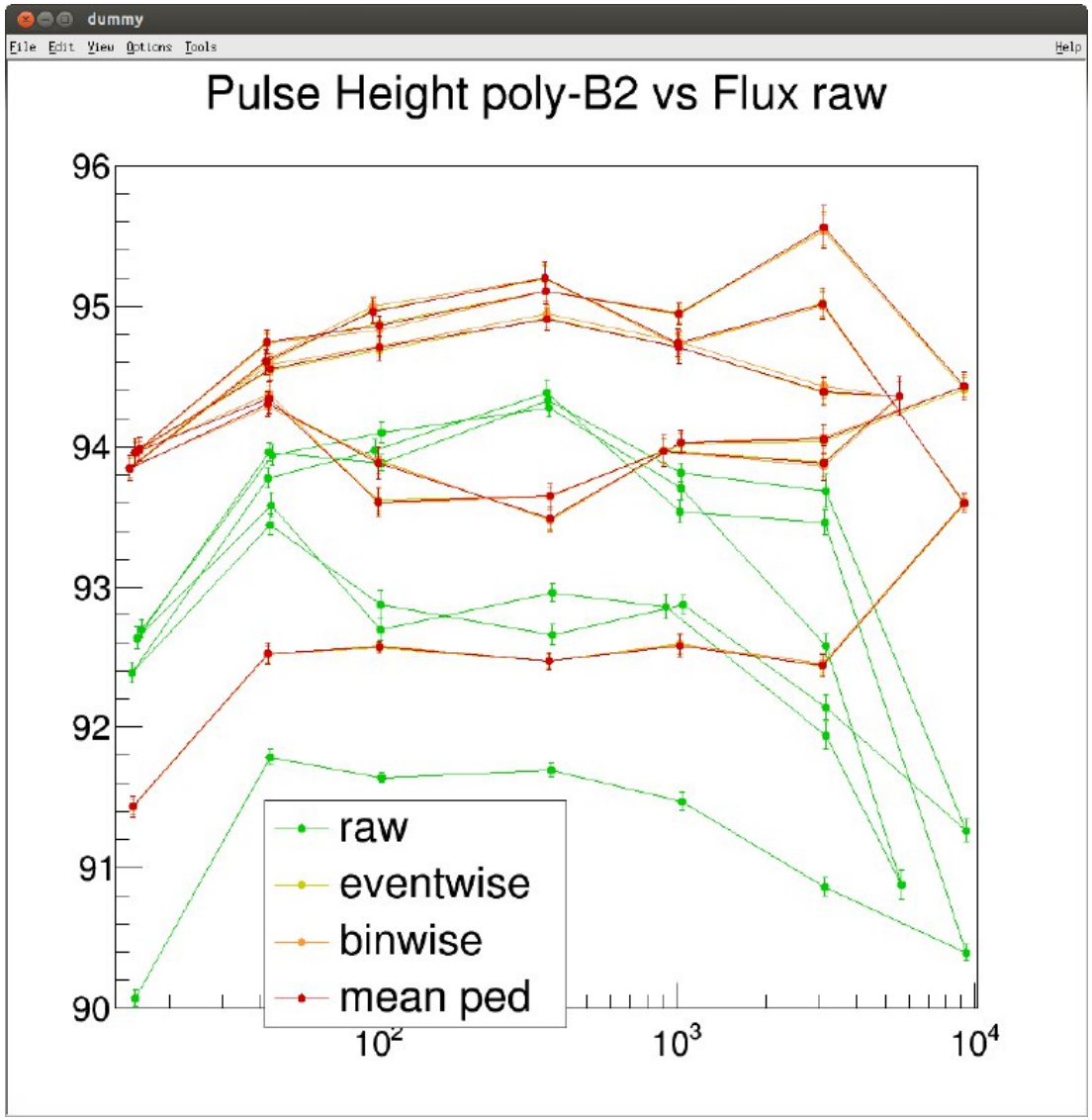
Pedestals of Different runs



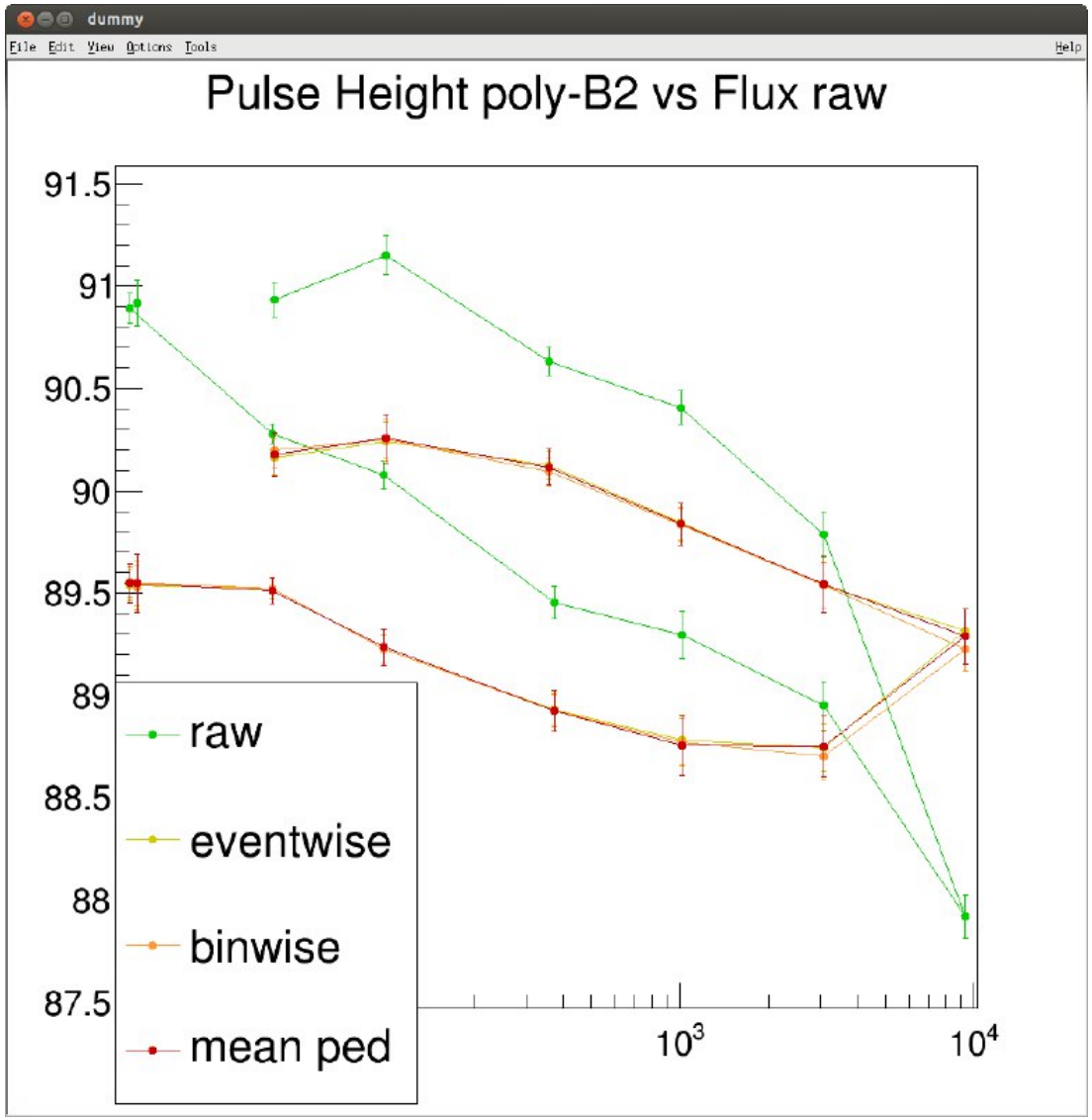
Signal S129


dummy
File Edit View Options Tools Help
Pulse Height S129 vs Flux raw
132
131
130
129
128
raw
eventwise
binwise
mean ped
10
10^2
10^3

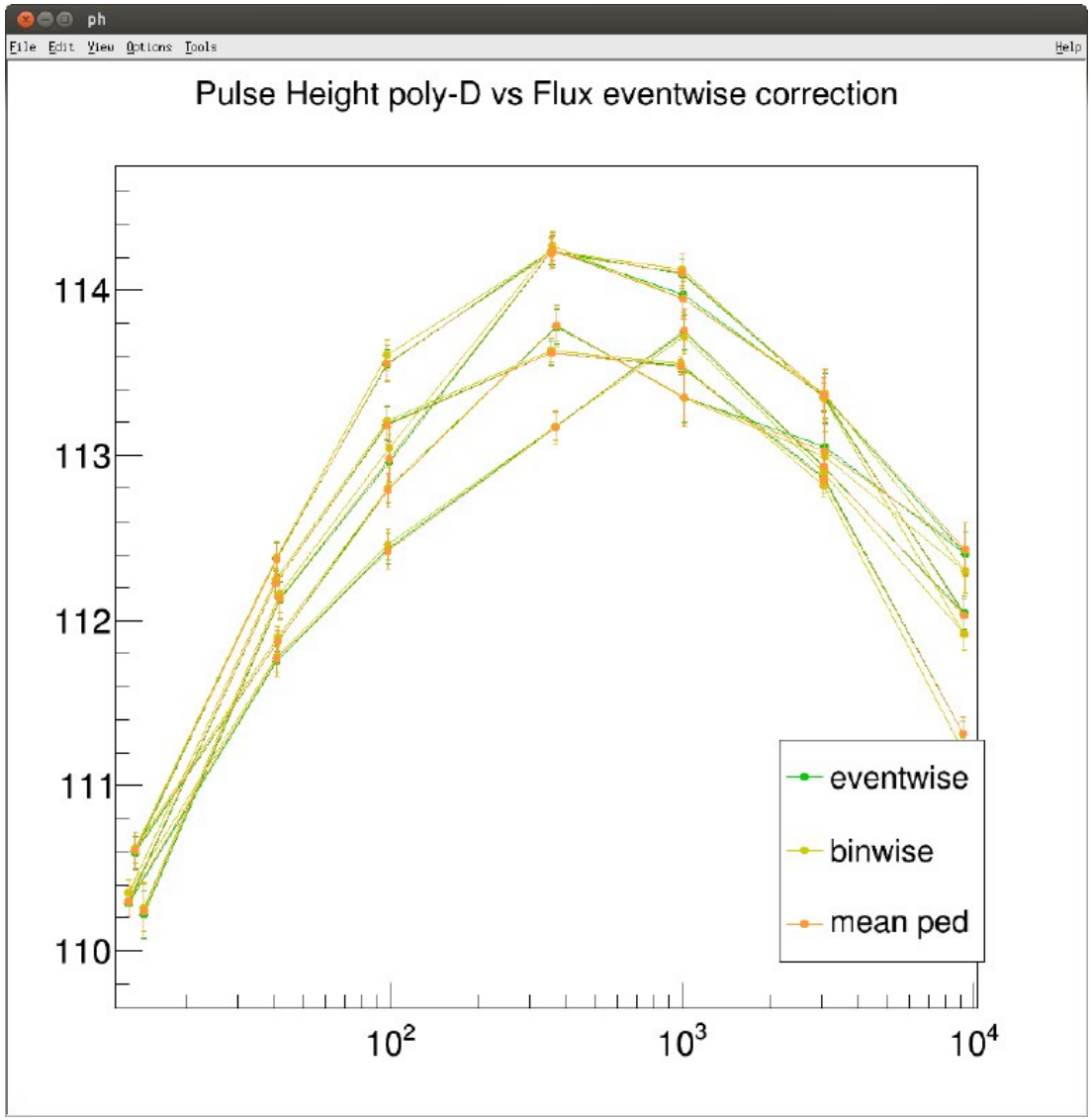
Signal B2


dummy
File Edit View Options Tools Help
Pulse Height poly-B2 vs Flux raw
96
95
94
93
92
91
90
10^2
10^3
10^4
raw
eventwise
binwise
mean ped

Signal B2


dummy
File Edit View Options Tools Help
Pulse Height poly-B2 vs Flux raw
91.5
91
90.5
90
89.5
89
88.5
88
87.5
10^3
10^4
raw
eventwise
binwise
mean ped

Signal B2


ph
File Edit View Options Tools Help
Pulse Height poly-D vs Flux eventwise correction
114
113
112
111
110
10^2
10^3
10^4
eventwise
binwise
mean ped