

E570 analysis report  
6th/Nov/2006 H.Tatsuno

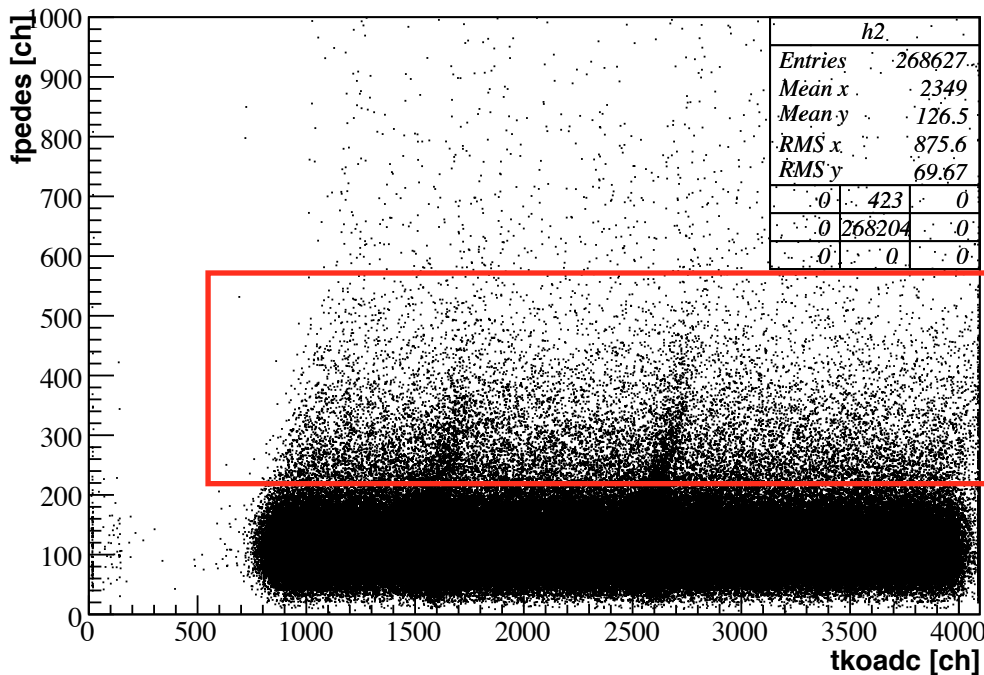
To eliminate the events of the excess between Ka and Kb using the flash ADC data.

Pile-up events construct the excess, this can be seen as a correlation between the pedestal and the ADC.

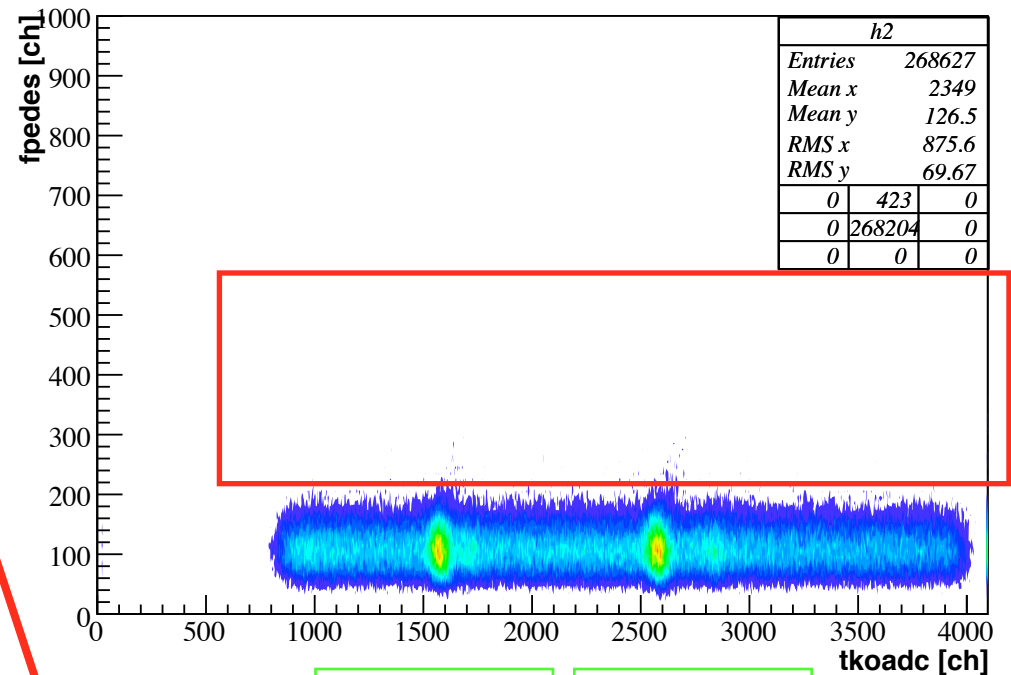
# pedestal vs TKO ADC

pedestal : the average of the beginning 30 channels of FADC data

pedestal vs tkoadc (run 333-337 sdd5)



pedestal vs tkoadc (run 333-337 sdd5)



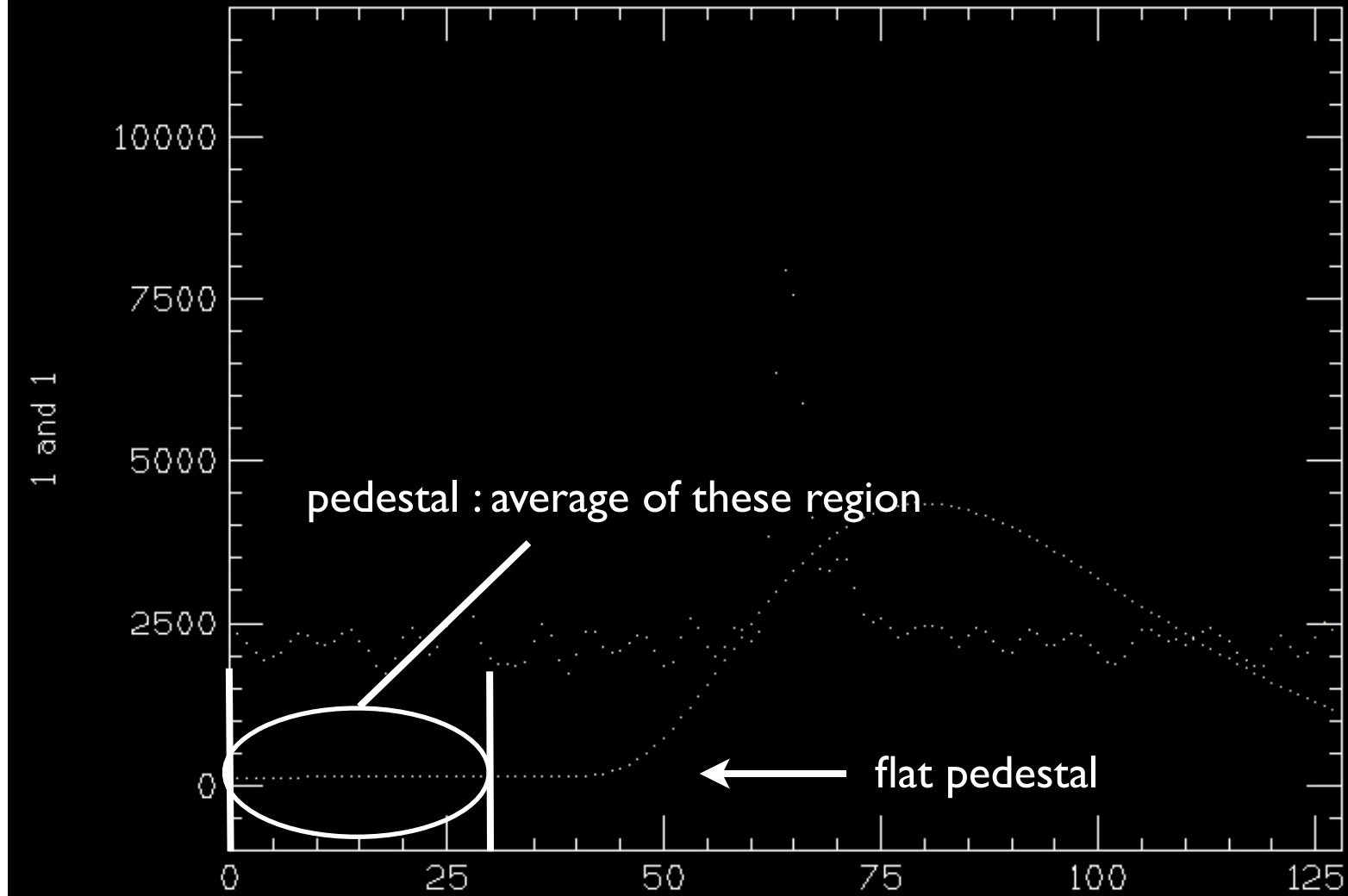
Ti Ka

Ni Ka

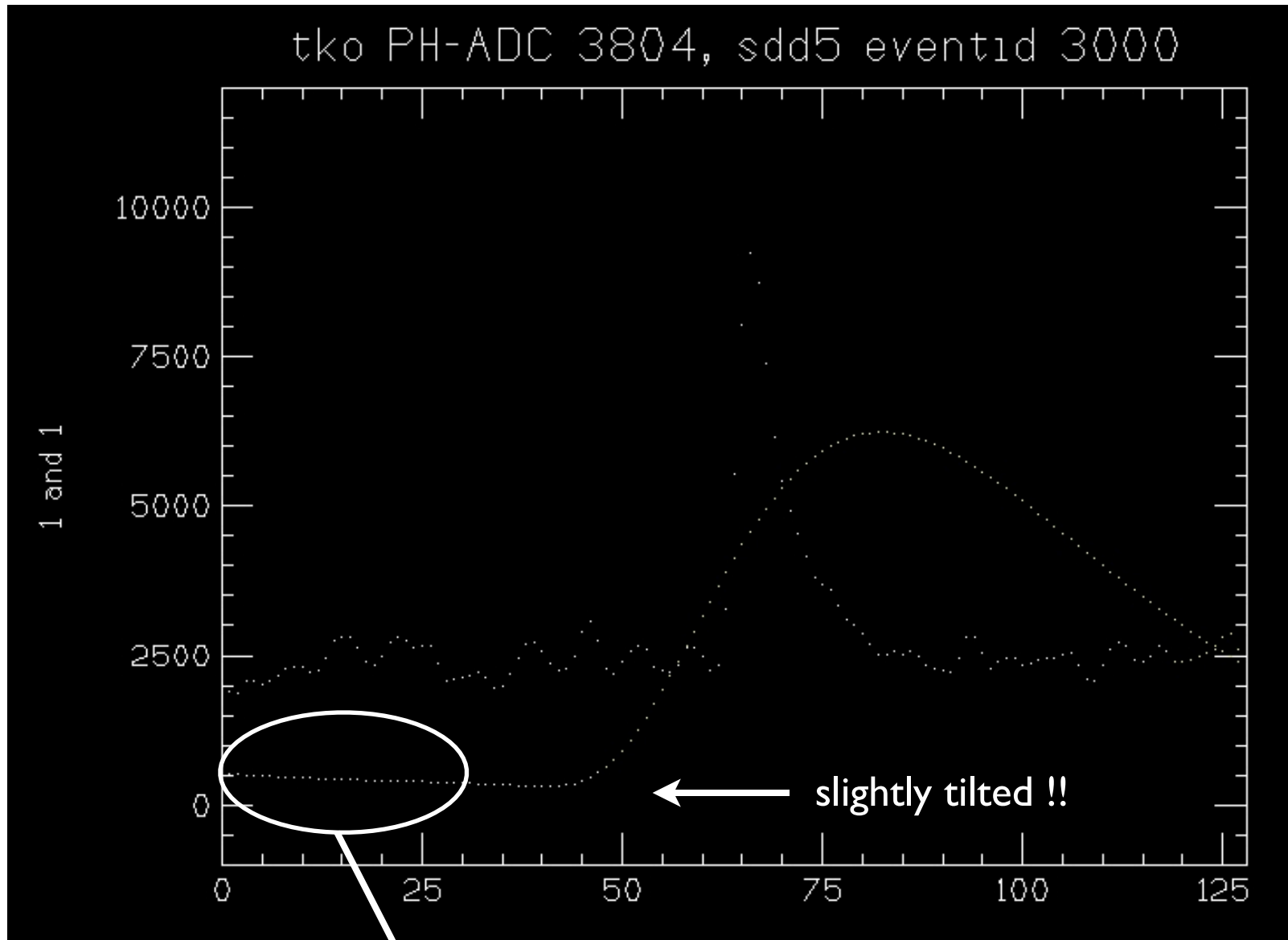
linear like correlation between the pedestal and TKO-ADC

# normal waveform run 333

tko PH-ADC 2580, sdd2 event1d 2674



(pedestal > 200)



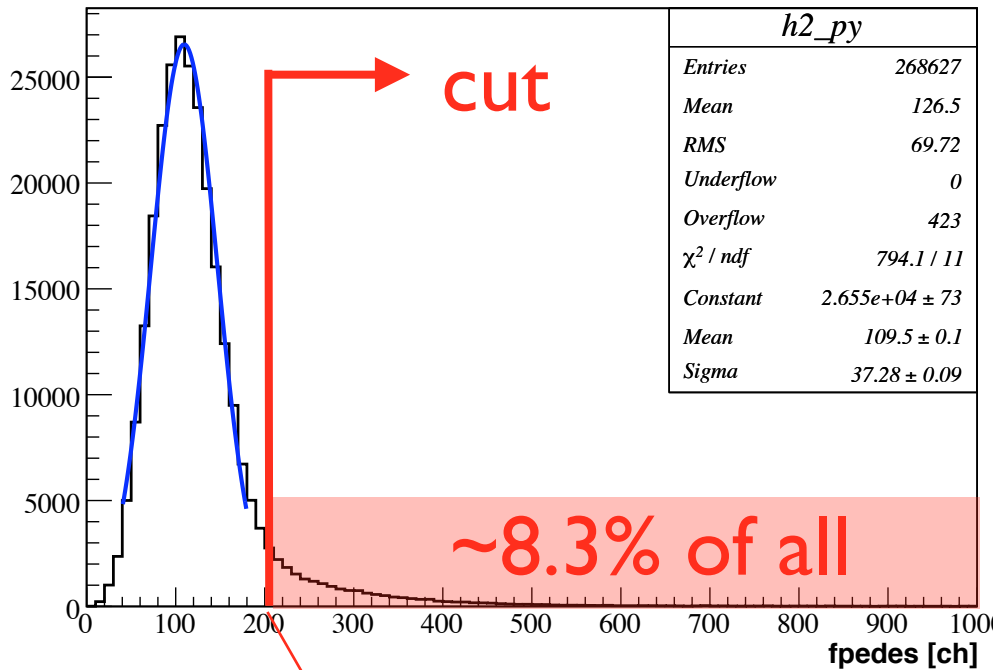
Need some quantities to distinguish these events from normal events

# Pedestal (projection)

mean  $\sim 109$ ch

$\sigma \sim 37.3$ ch

pedestal vs tkoadc (run 333-337 sdd5)

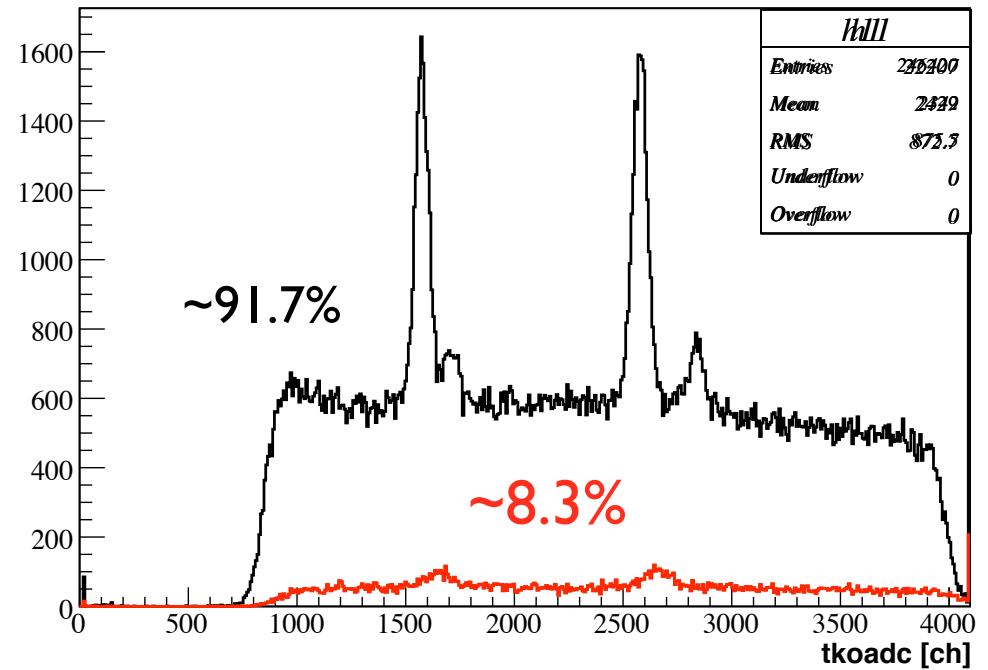


fpedes=200ch

(roughly cut)

# TKOADC

tkoadc (run 333-337 sdd5)

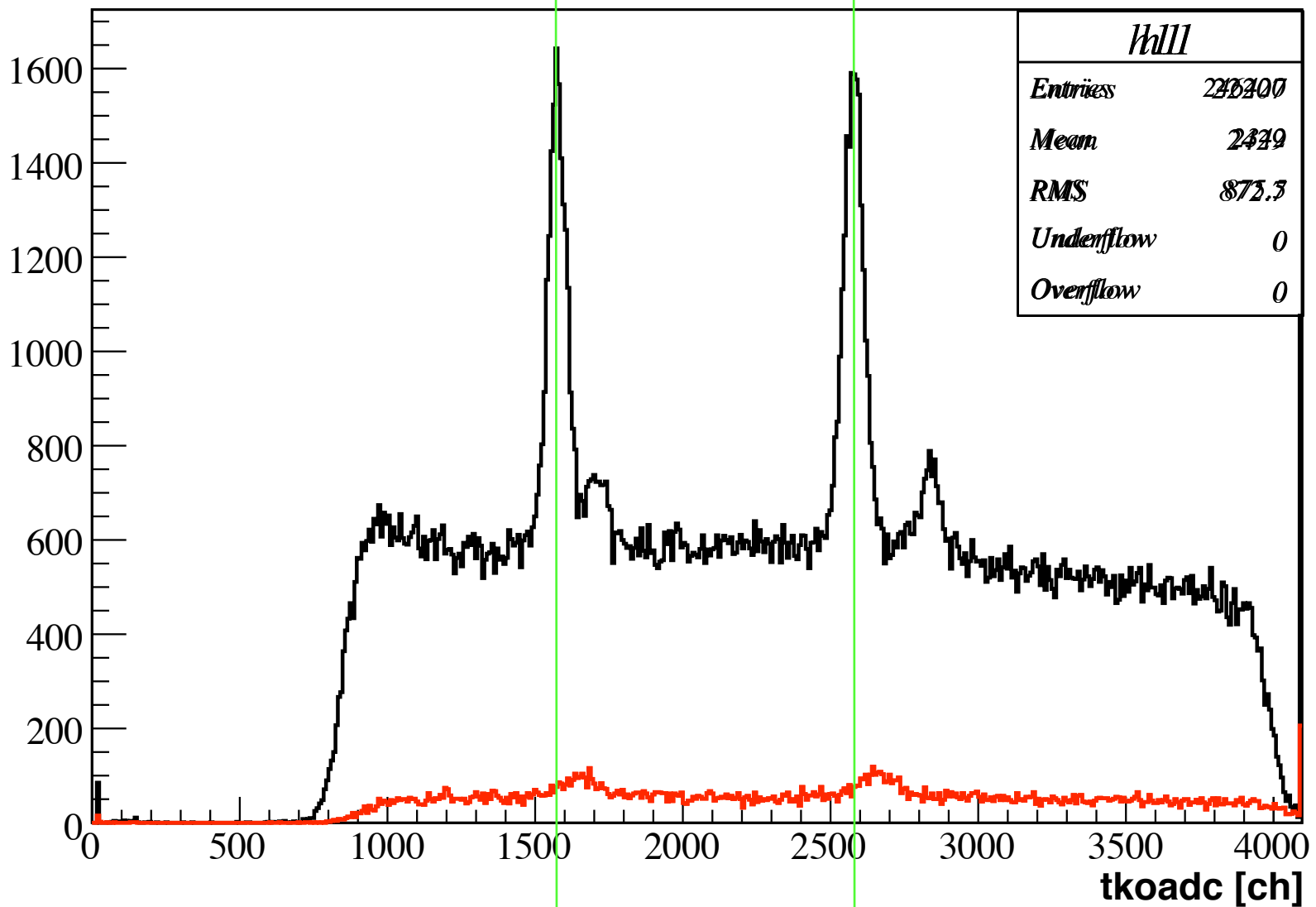


red : cut region

black : subtract

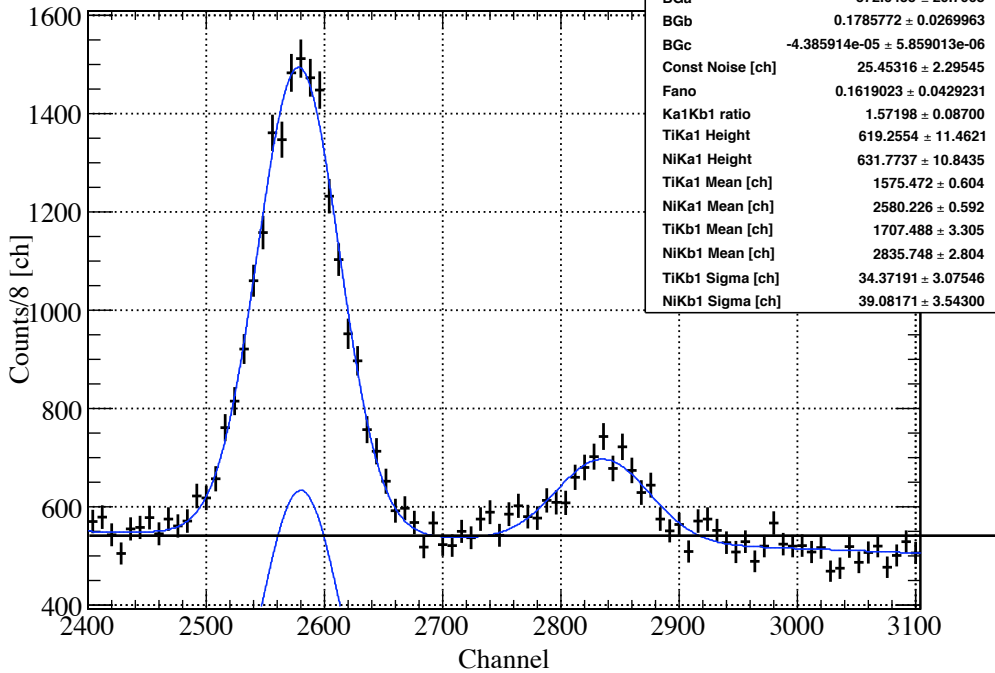
close up

**tkoadc (run 333-337 sdd5)**



The peak positions are between Ka and Kb !!

out mean and noise free fit (ped<200 run333-337 sdd5)



ped < 200 (FADC feedback)

new fit

NiKaI height ~632

NiKaI mean ~2580

Const noise 25.4

Fano 0.16

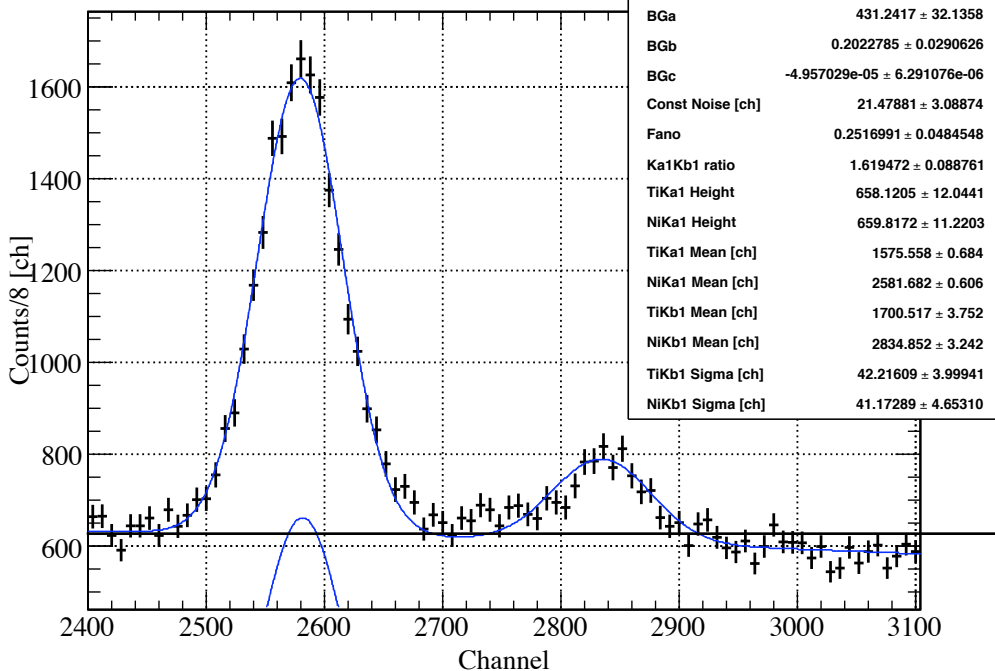
$$\sigma = \sqrt{\{(\text{noise})^2 + \text{Fano} * \text{mean}\}}$$

~ 32.5 ch

background ~550

S/N, chisq/ndf and  $\sigma$  were improved

out mean and noise free fit (no cut run333-337 sdd5)



TKO only (no cut from FADC)

previous fit

NiKaI height ~660

NiKaI mean ~2581

Const noise 21.5

Fano 0.25

$$\sigma = \sqrt{\{(\text{noise})^2 + \text{Fano} * \text{mean}\}}$$

~ 33.3 ch

background ~625

## Summary

The slightly tilted pedestal cause the excess between  $K_a$  and  $K_b$ .

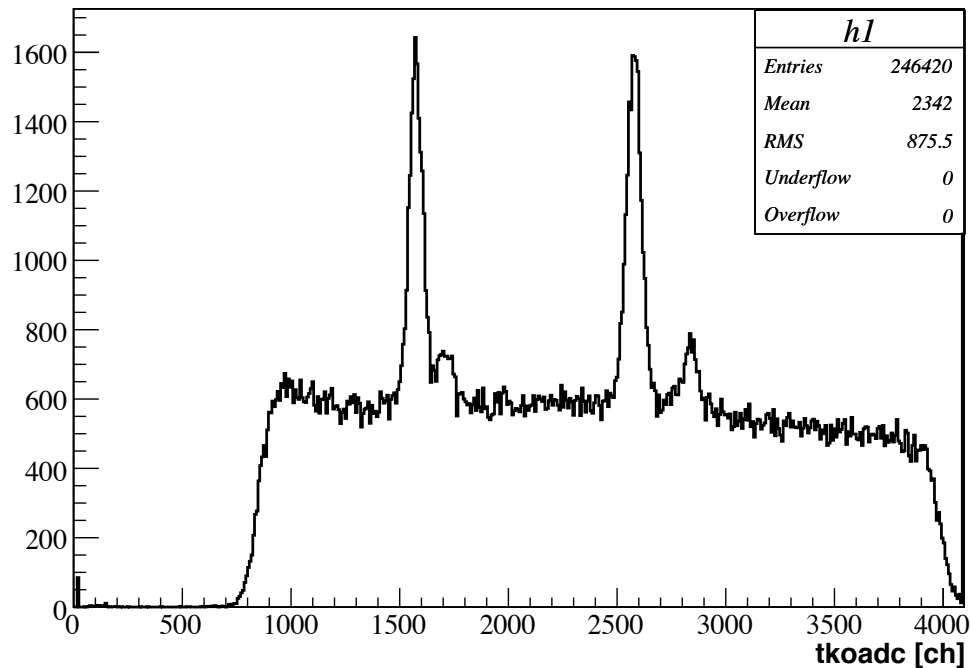
About  $\sim 10\%$  of all events may be eliminated by the pile-up rejection, but S/N ratio may be improved.

Event verifying now going ...



Spare

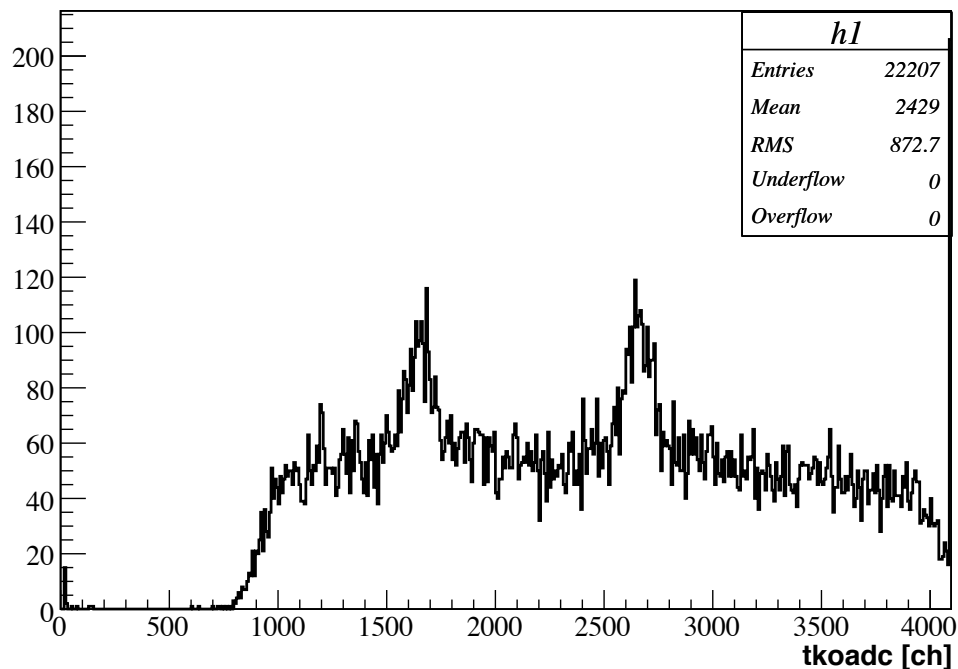
**tksadc (run 333-337 sdd5 fped<=200)**



**246420 events**

**~91.7% of all**

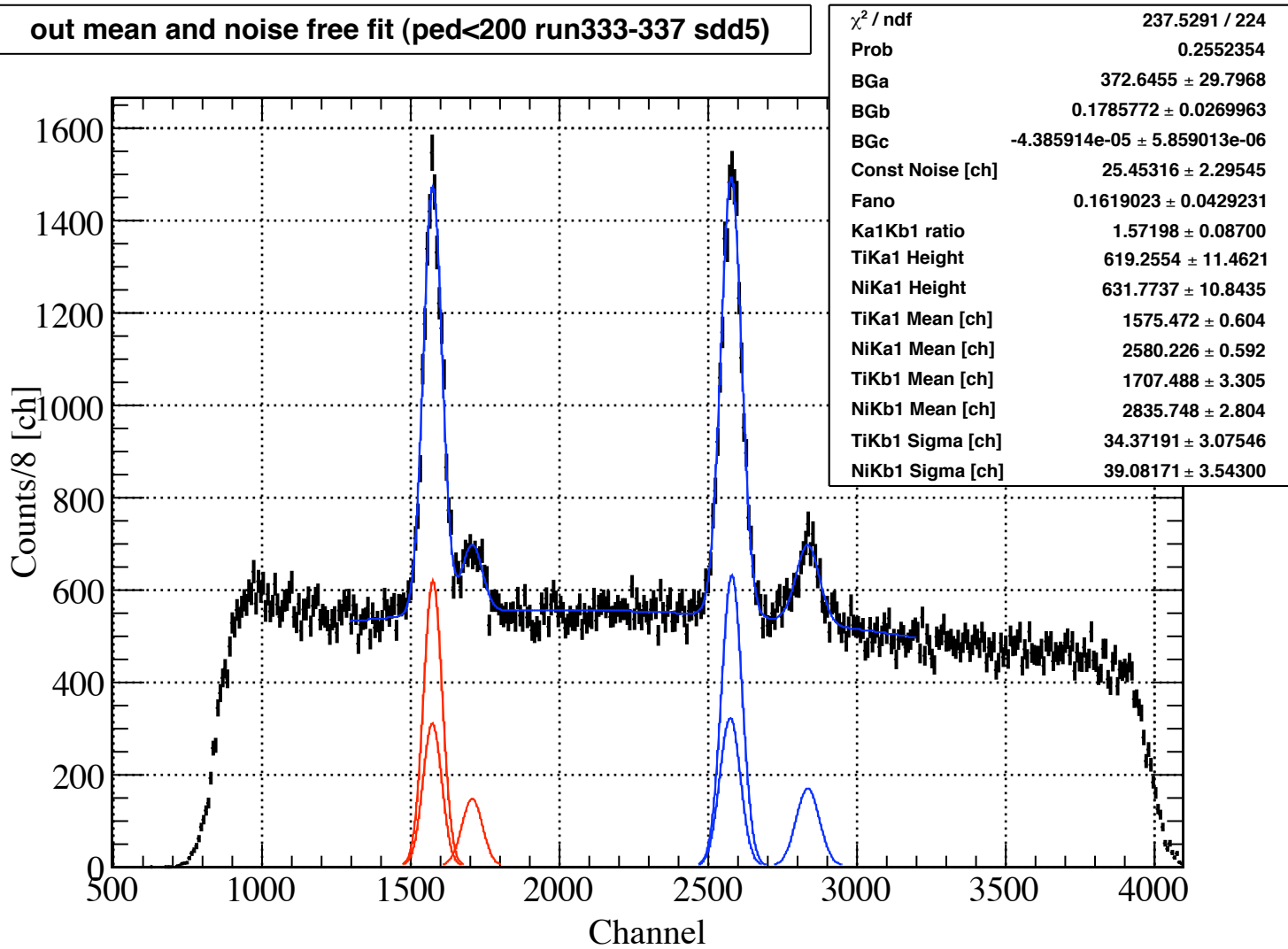
**tksadc (run 333-337 sdd5 fped>200)**



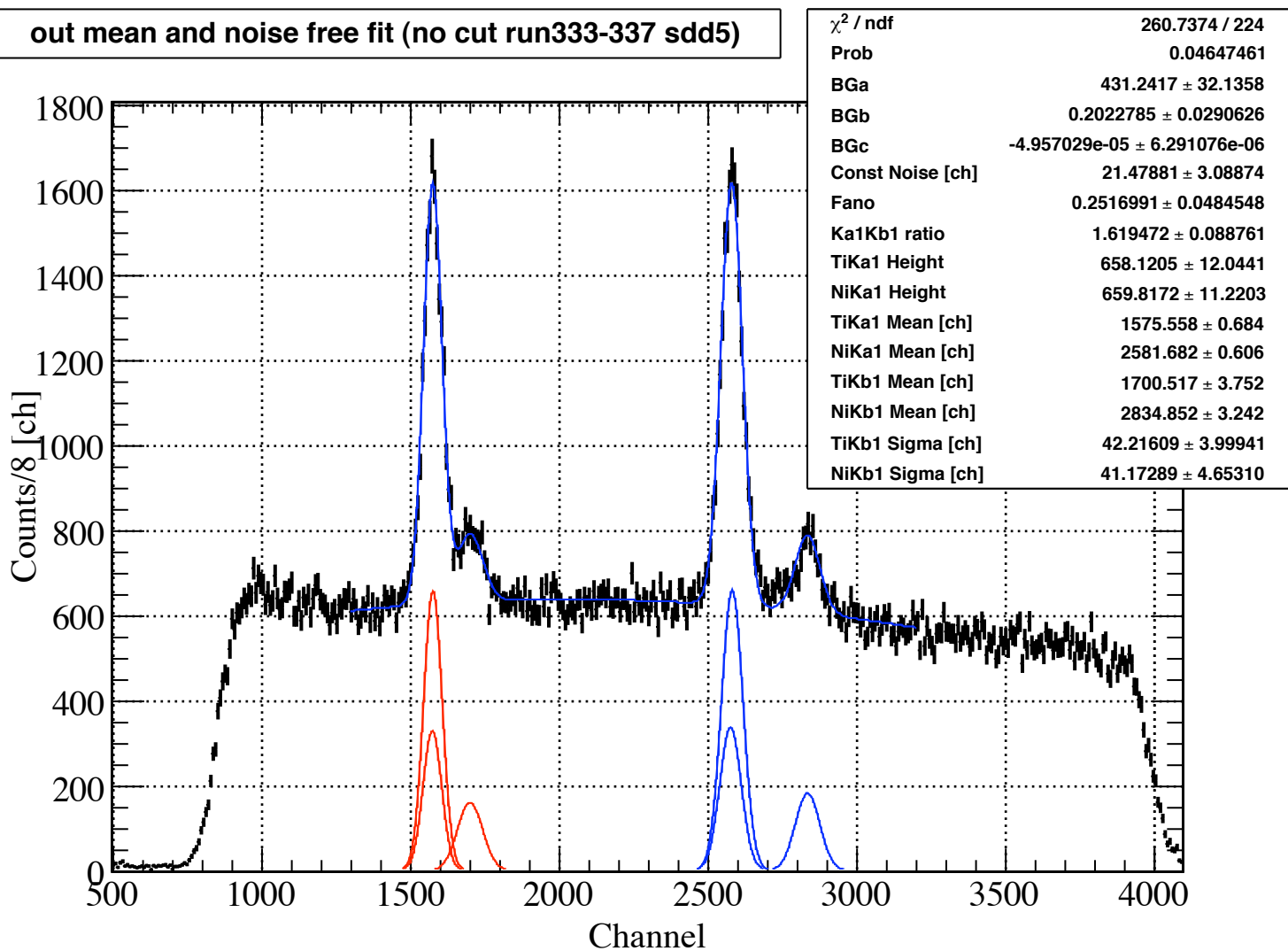
**22207 events**

**~8.3% of all**

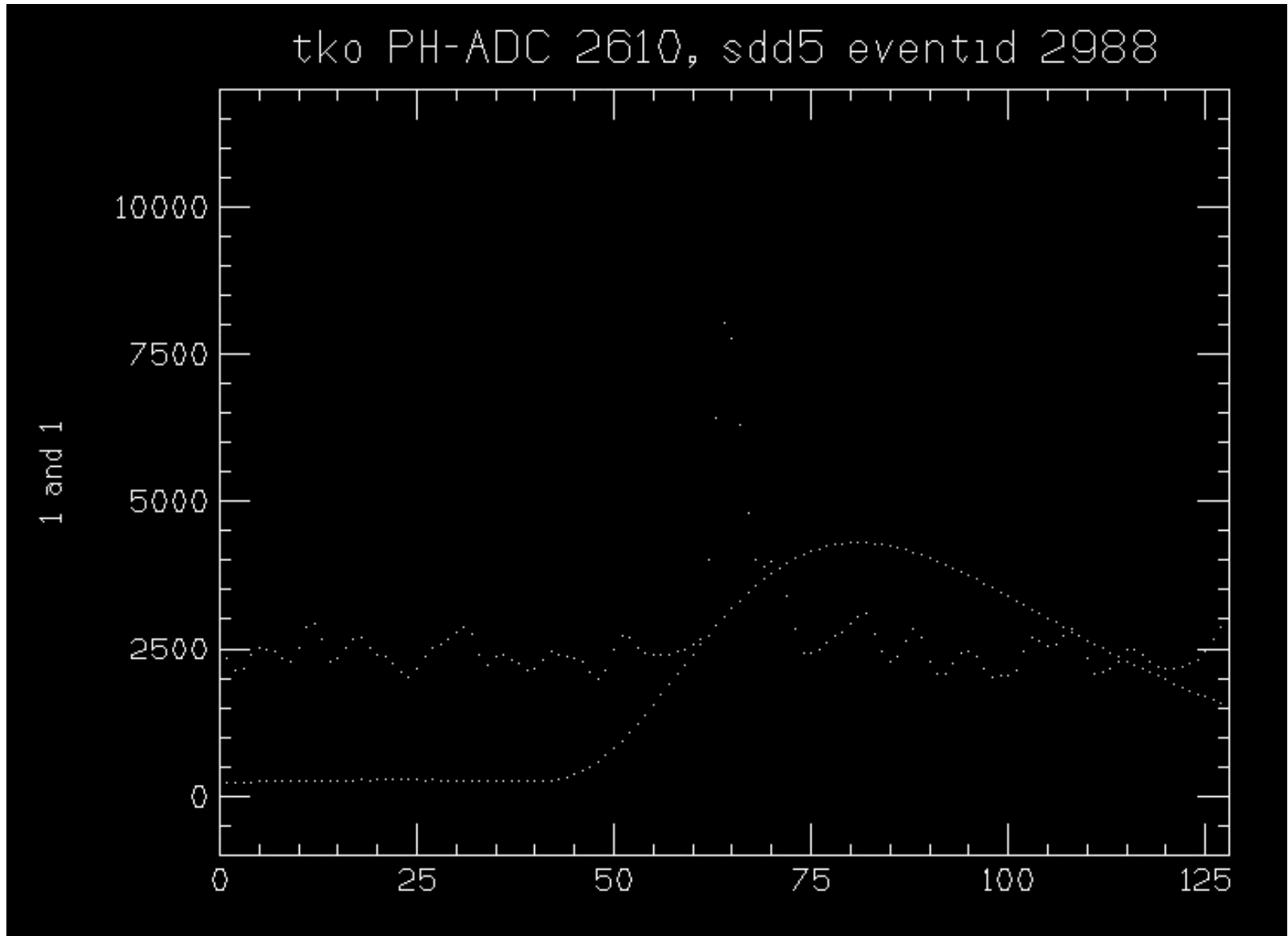
# ped < 200 (FADC feedback)



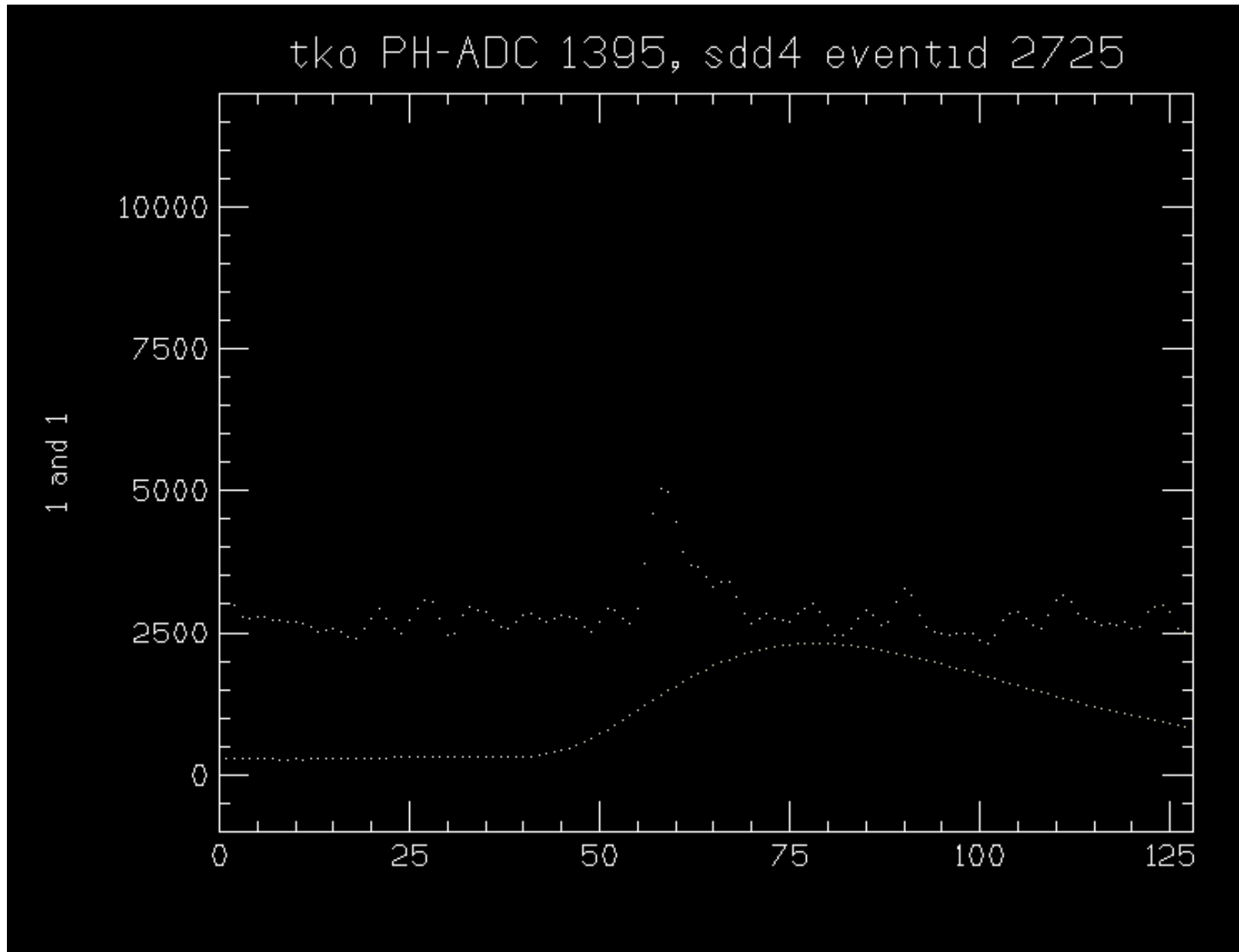
# TKO only (no cut from FADC) previous fit



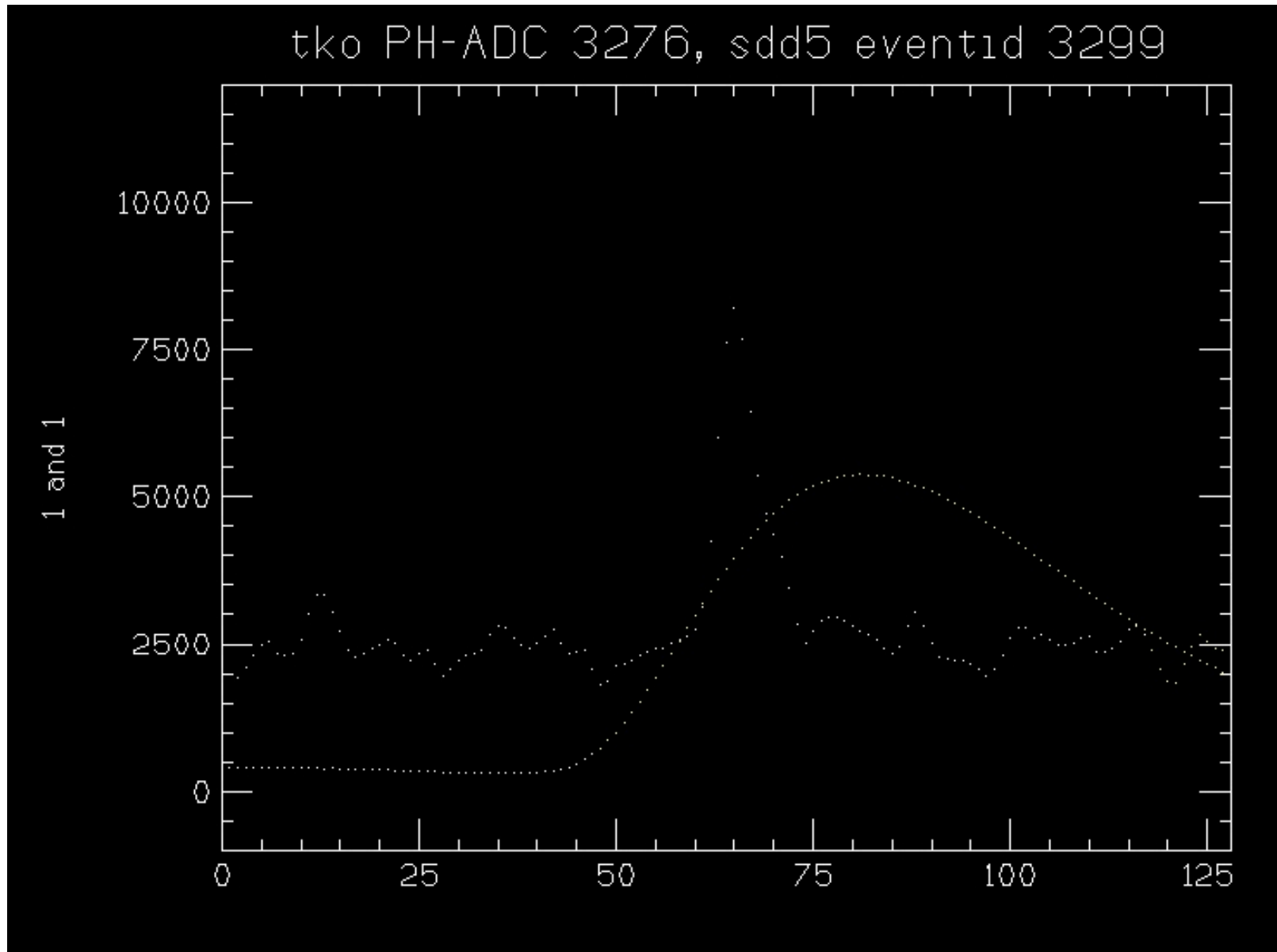
(pedestal > 200)



(pedestal > 200)



(pedestal > 200)



(pedestal > 200)

