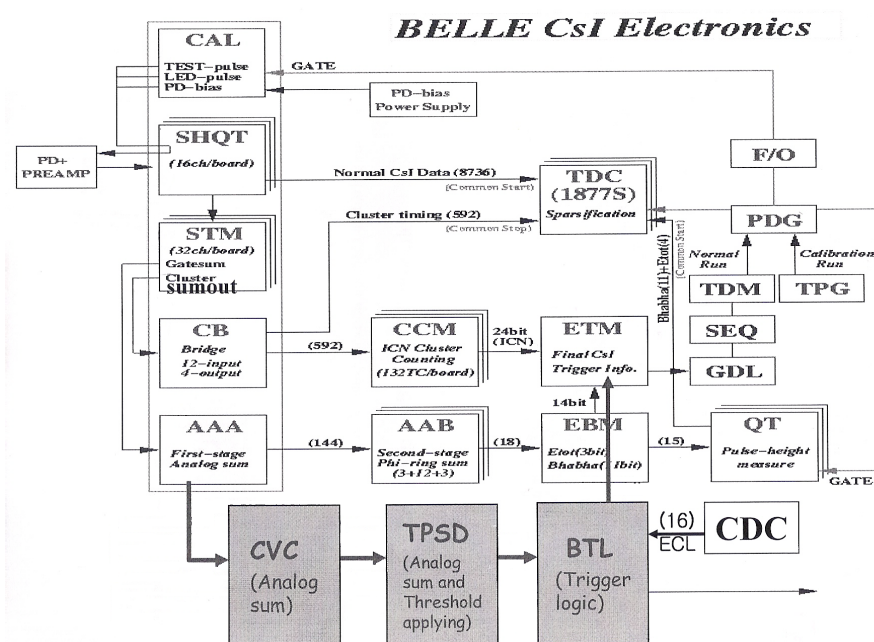


ECL Trigger status

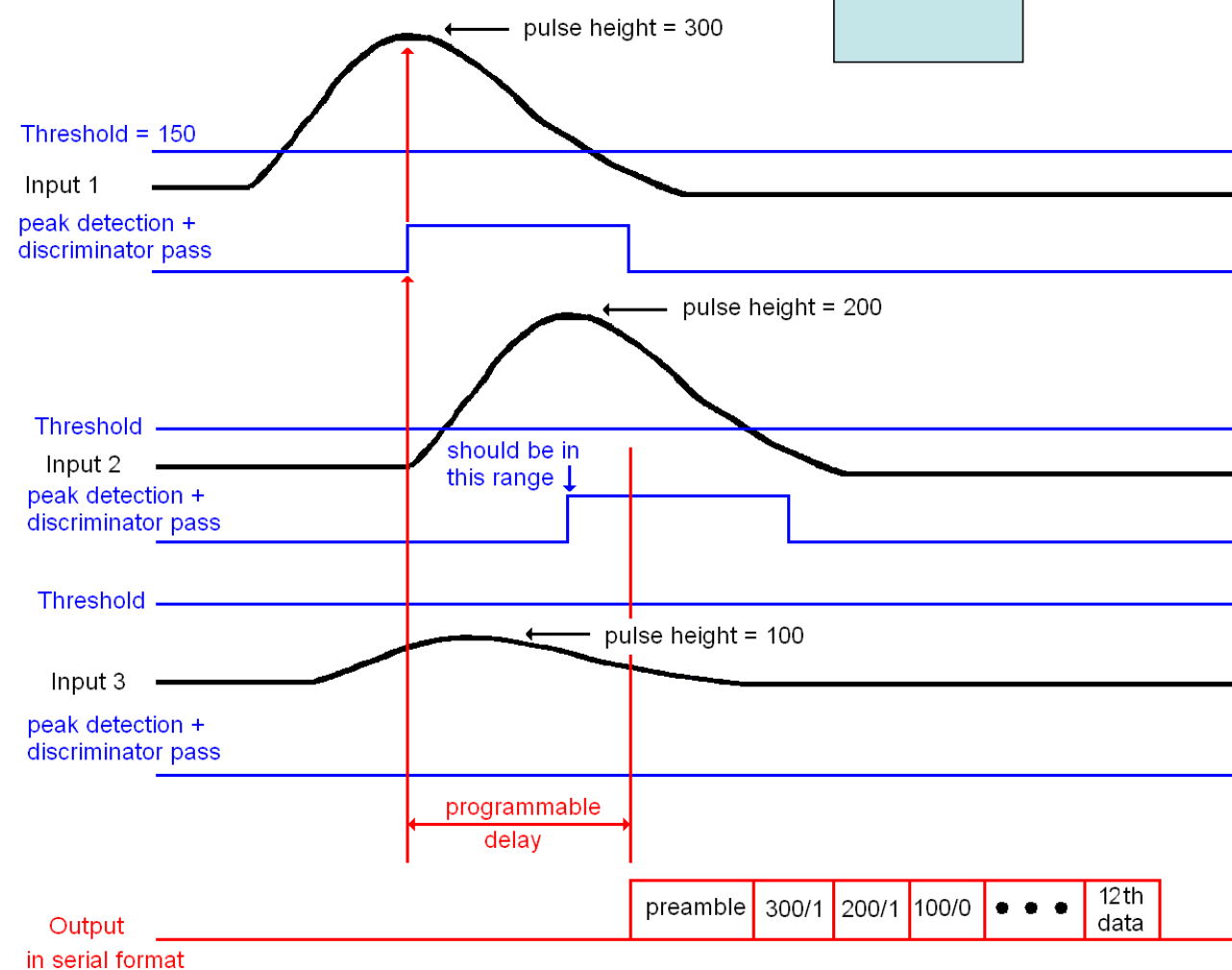
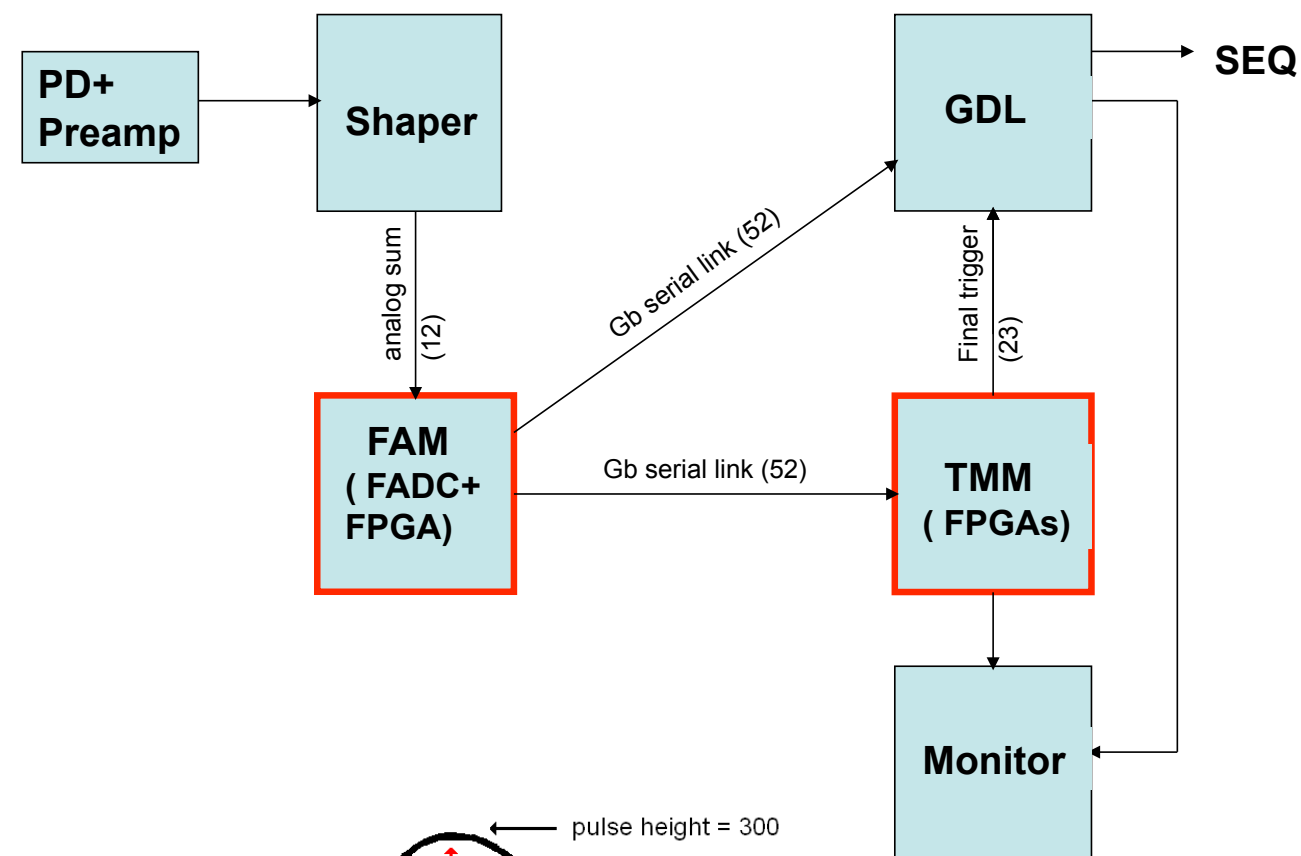
S. Ryu (SNU)

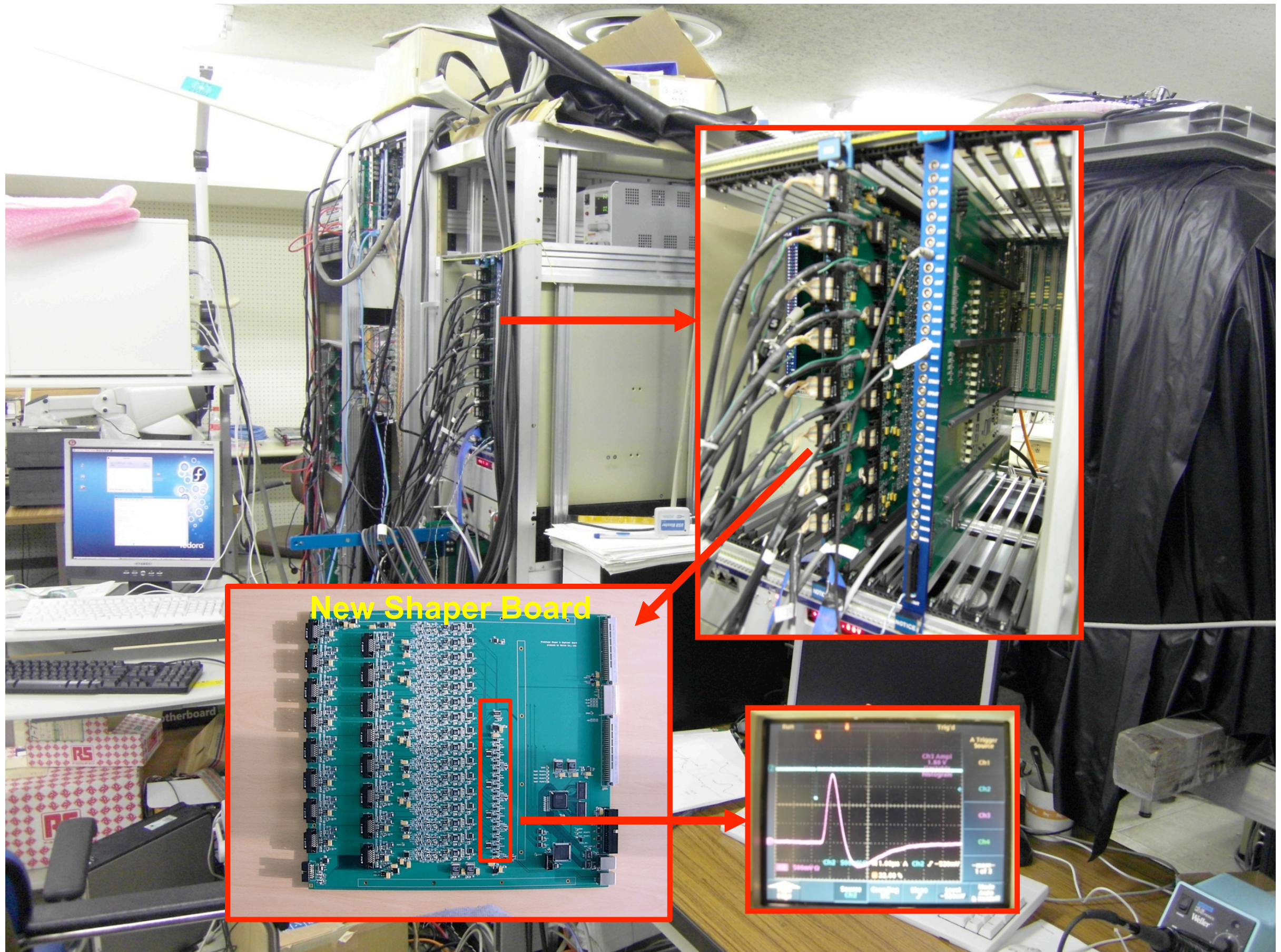
March .19. 2009

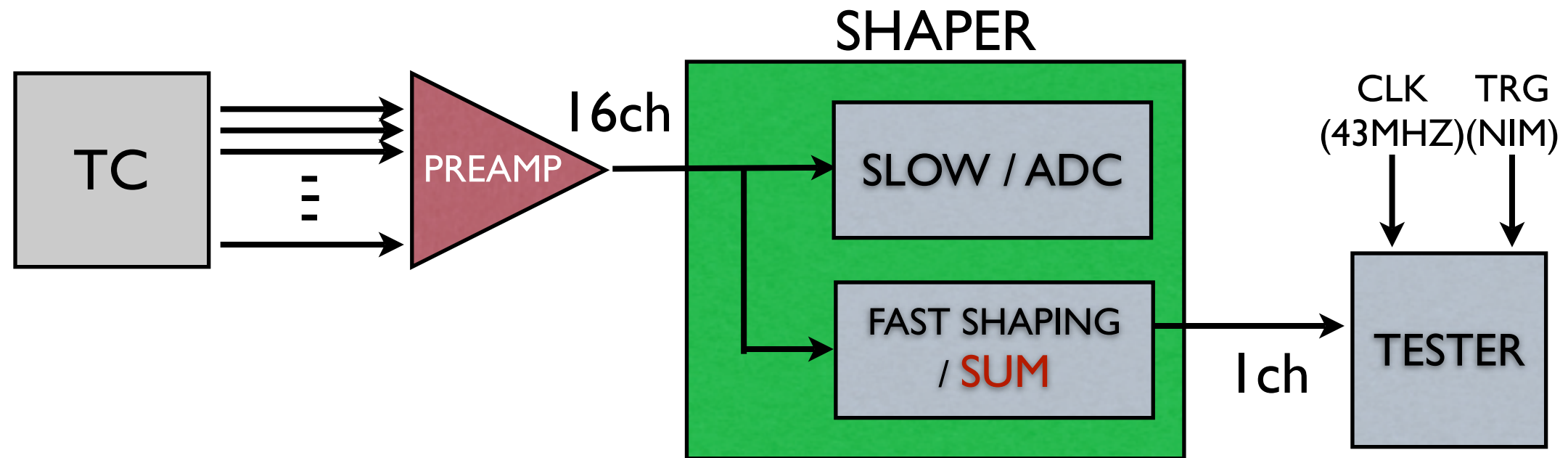
2nd open meeting of the SuperKEKB Collaboration



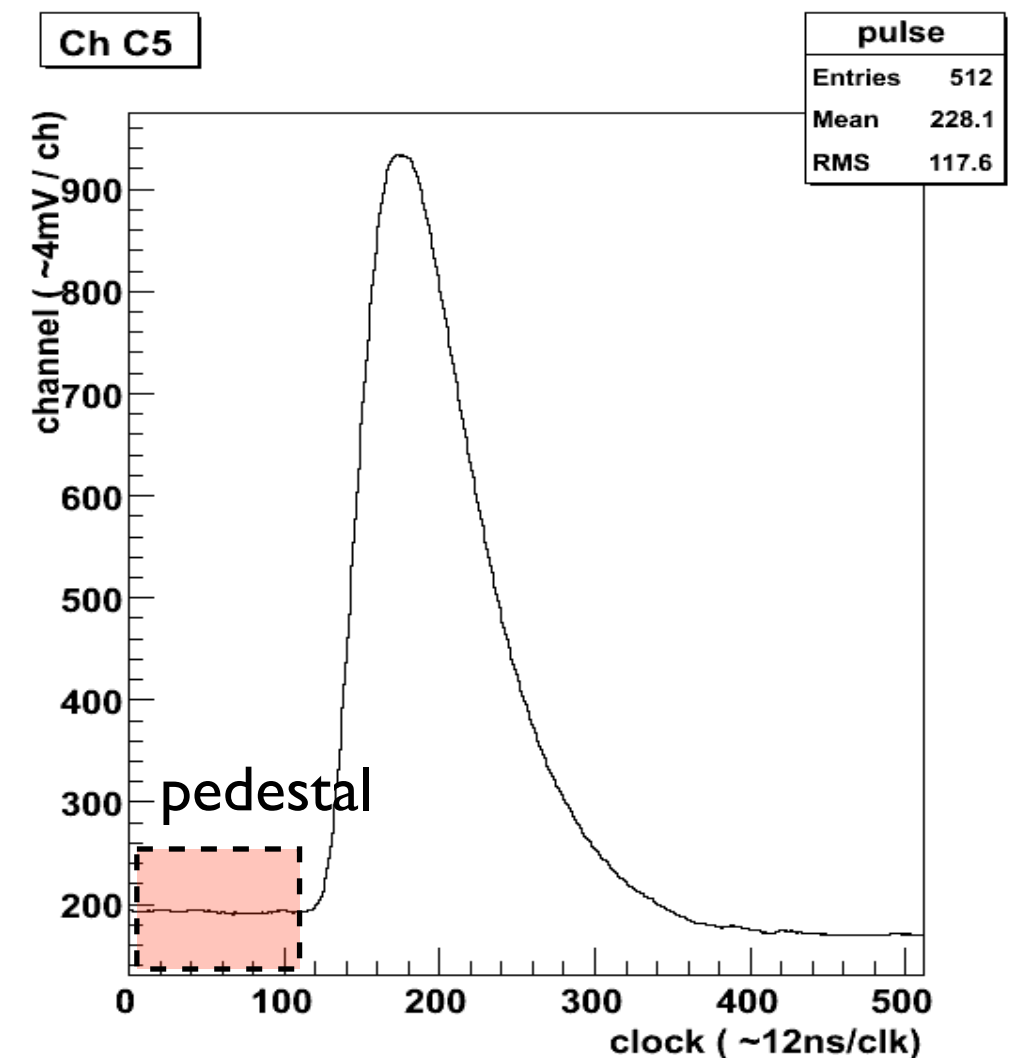
- ECL Trigger system has two streams
 - ➔ Cluster counting trigger
 - ➔ Energy bhabha Trigger
- **FAM** will play a role of current **STM**
Furthermore, it will have some portion of functions of **EBM**
- Characteristics of a pulse from the shaper module is important
- To check the output of shaper module a “tester module” (FADC) was delivered from Korea



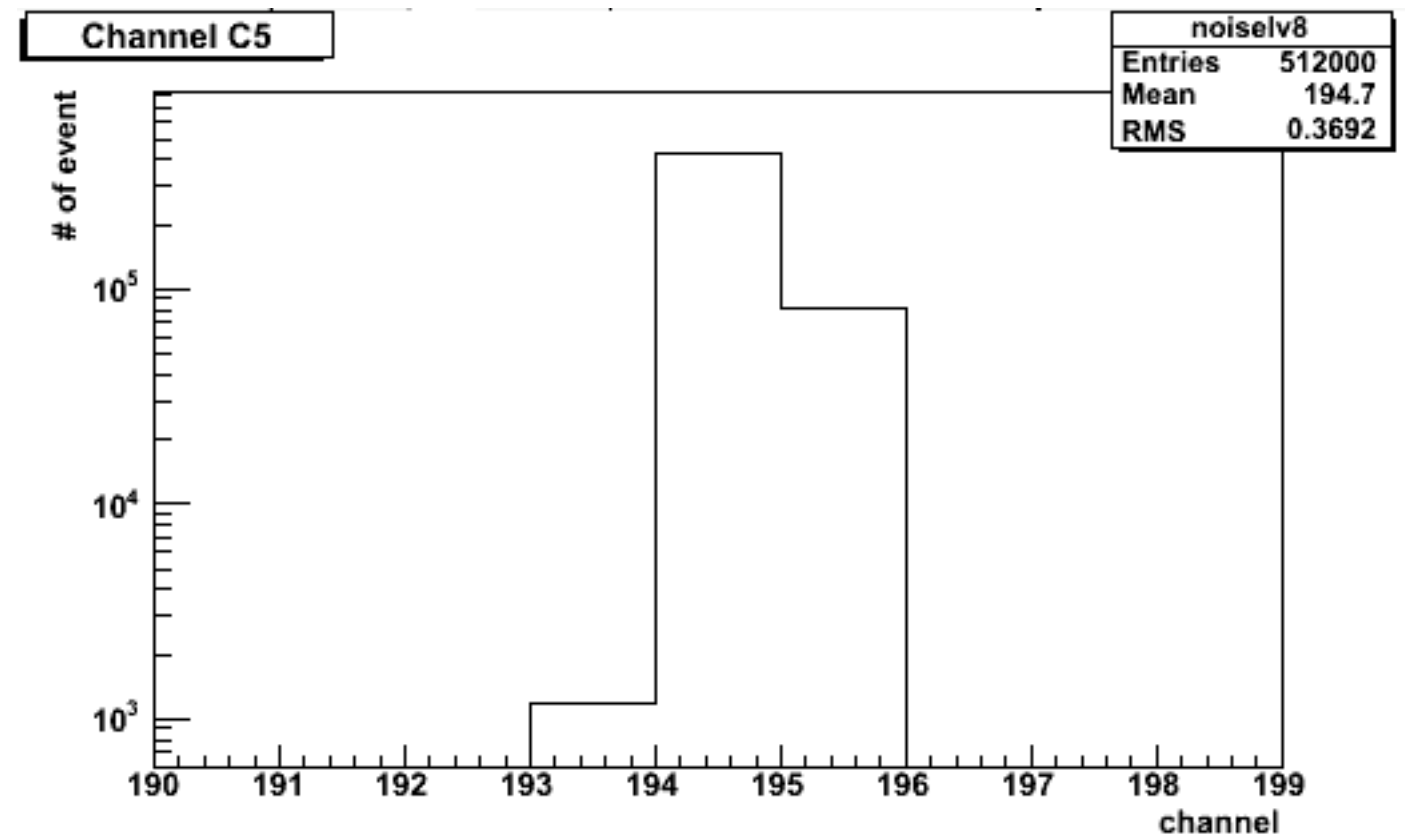




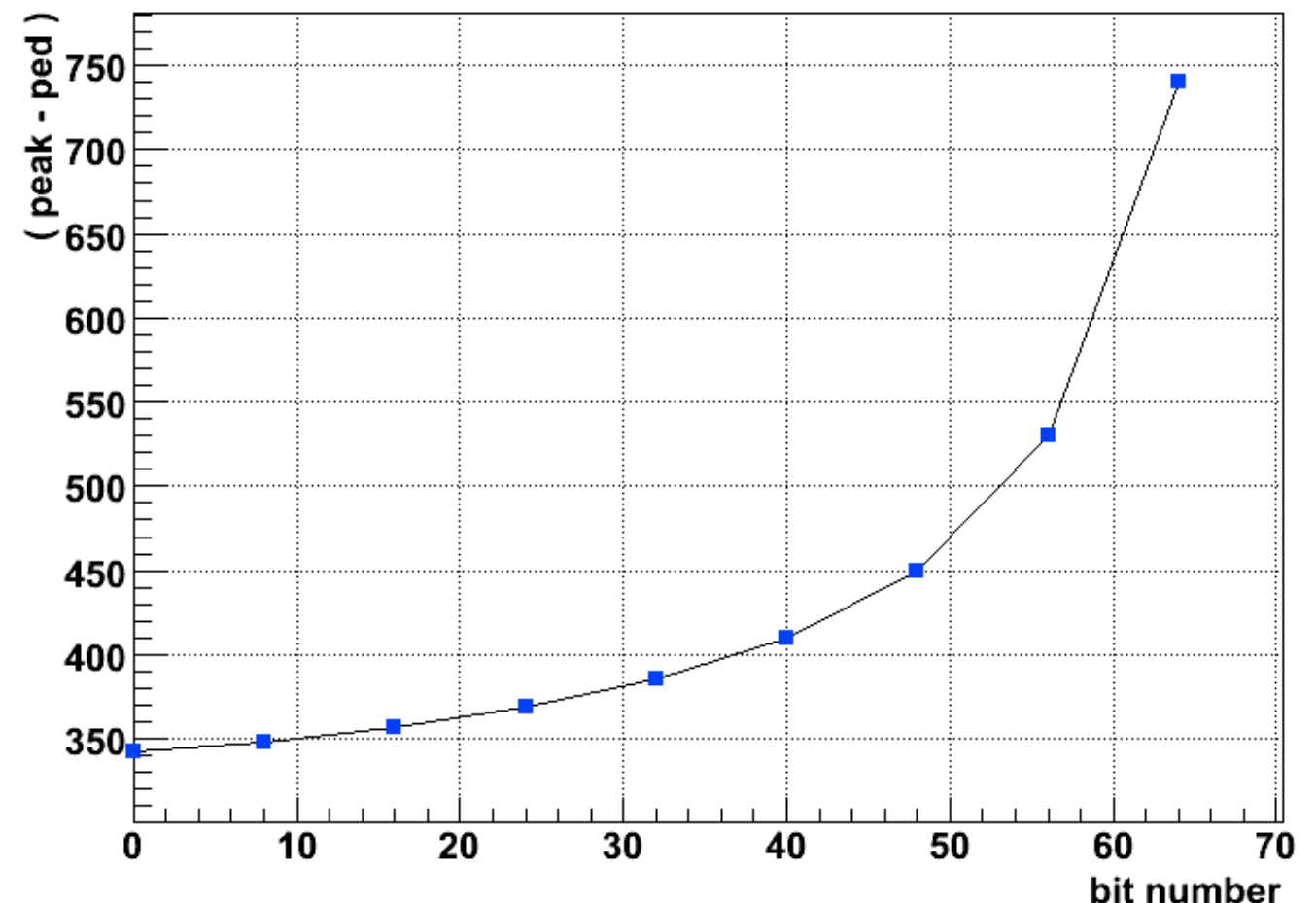
- 16 input pulses go through fast shaping and summed
- An example of a pulse from shaper module taken by the tester module
- Specification of the tester module
 - ➔ accept at most 4V pulse digitized with 10 bit (1024 ch)
 - ➔ multiplies input clock by twice (e.g. 43MHz → 86MHz)



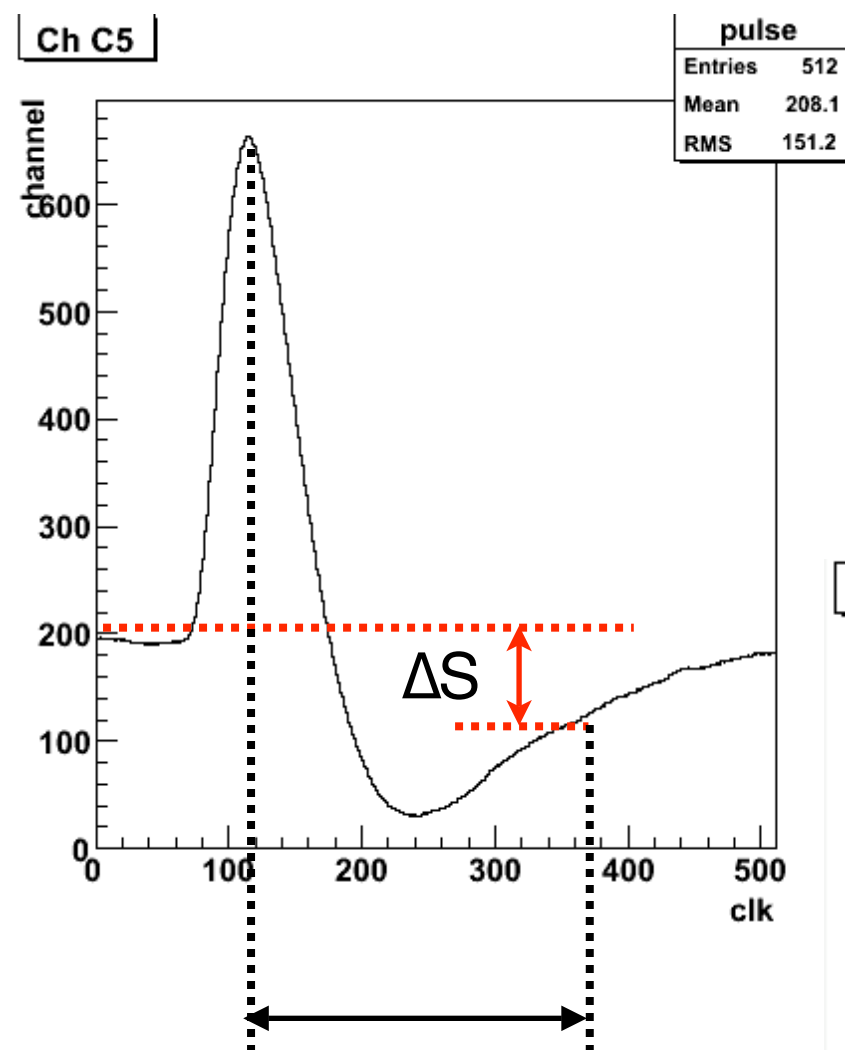
- ◉ Noise Check for the tester module
The tester module noises are very small, $0.4 \text{ ch difference} \approx 1.6 \text{ mV}$
→ negligible



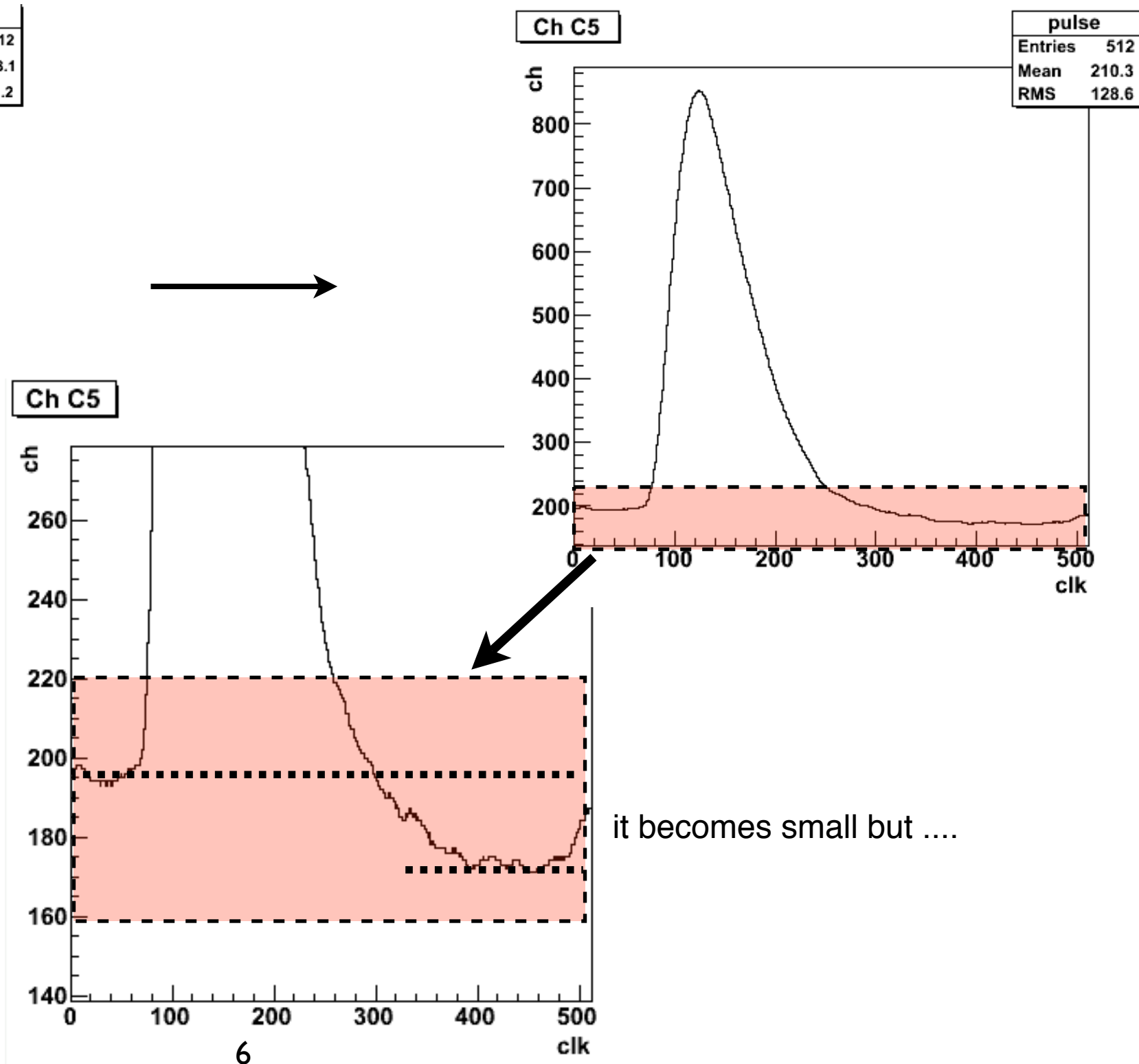
- ◉ Gain Test for Shaper
6 bits are reserved for the gain adjustment.
→ enough



- After 3 μ sec for the peak position, pulse should be stable. Thus, signal compensation is necessary to prevent the defect of amplitude by undershoot

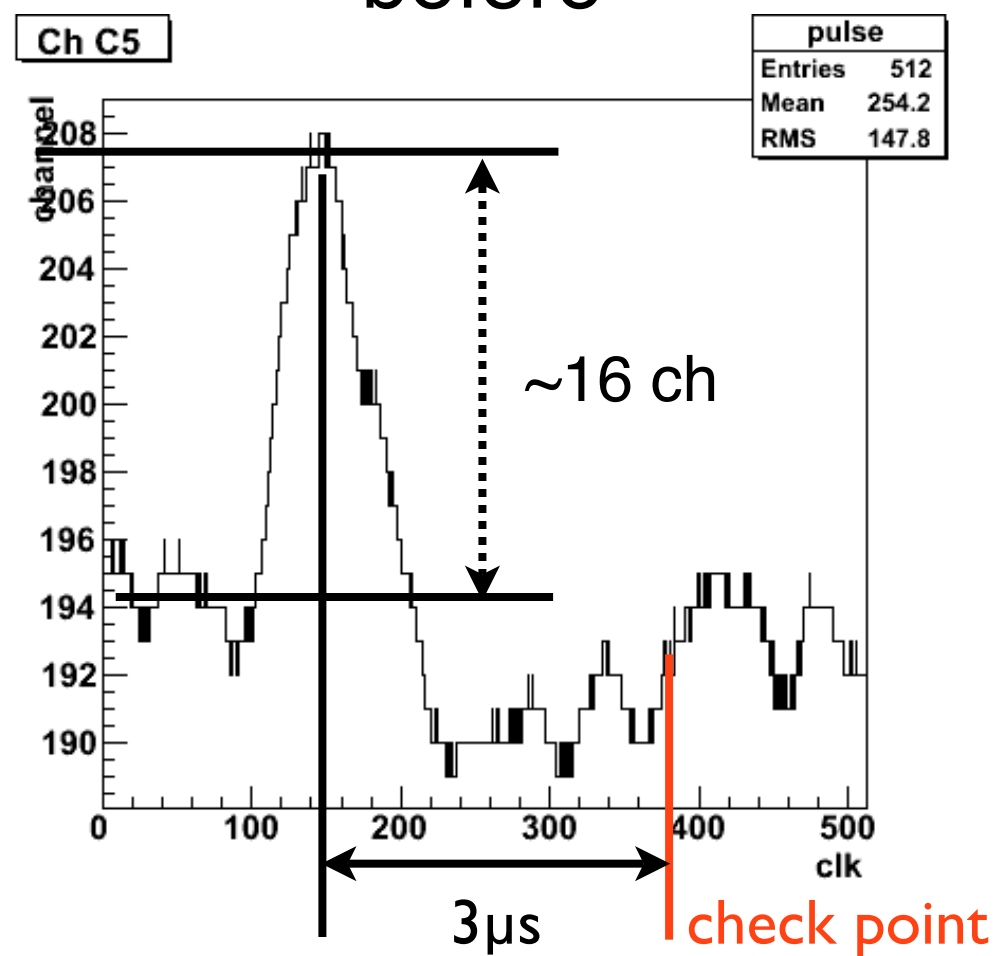


$\Delta S = (\text{undershoot level} - \text{pedestal level})$

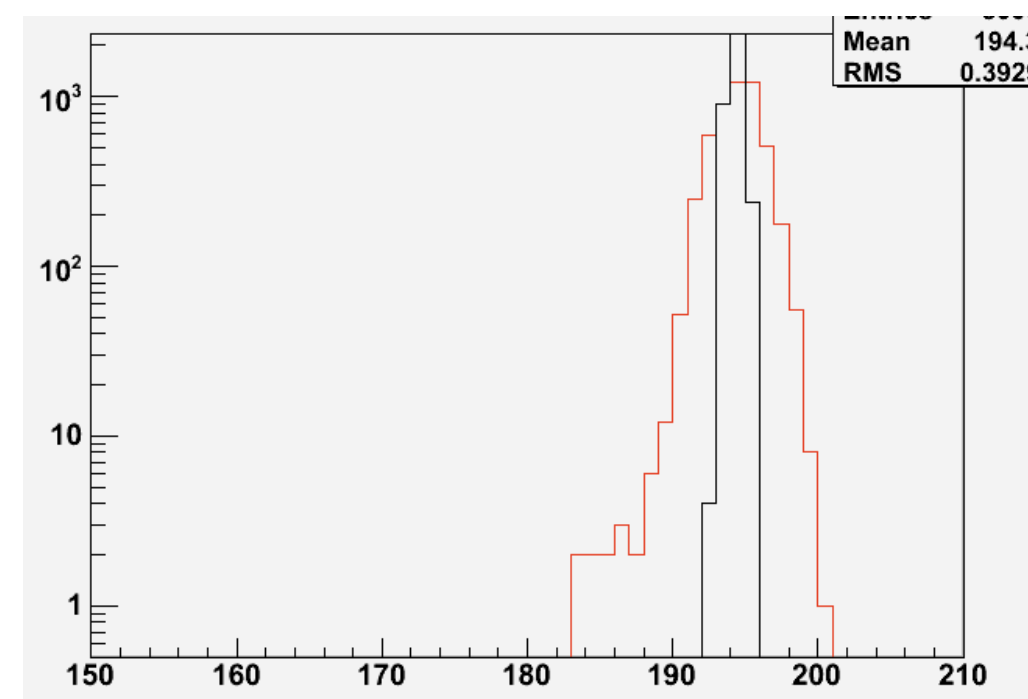
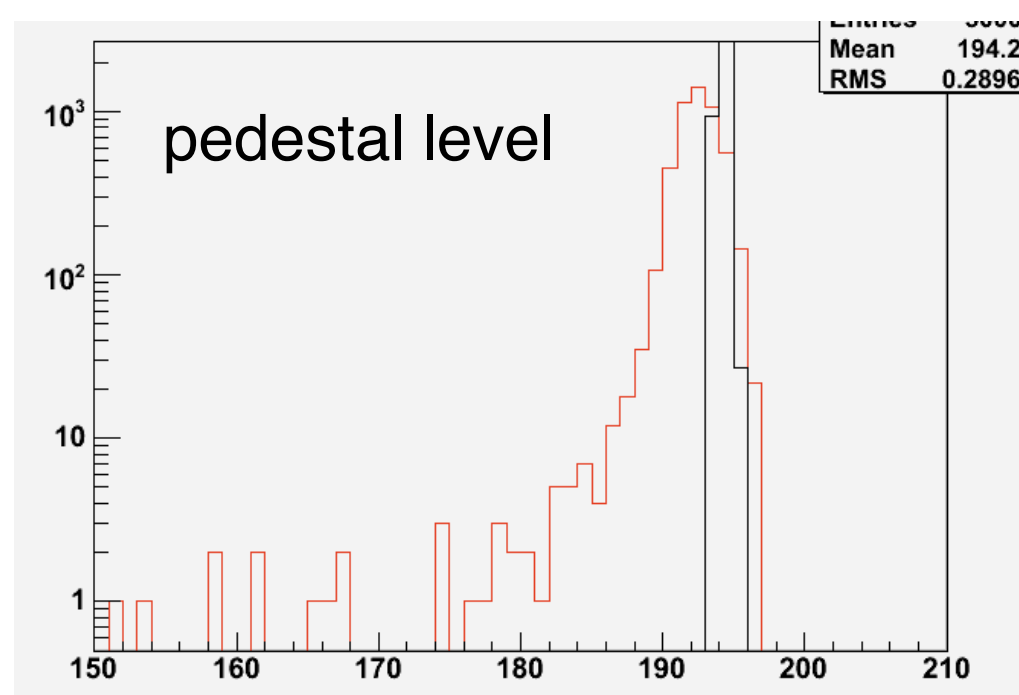
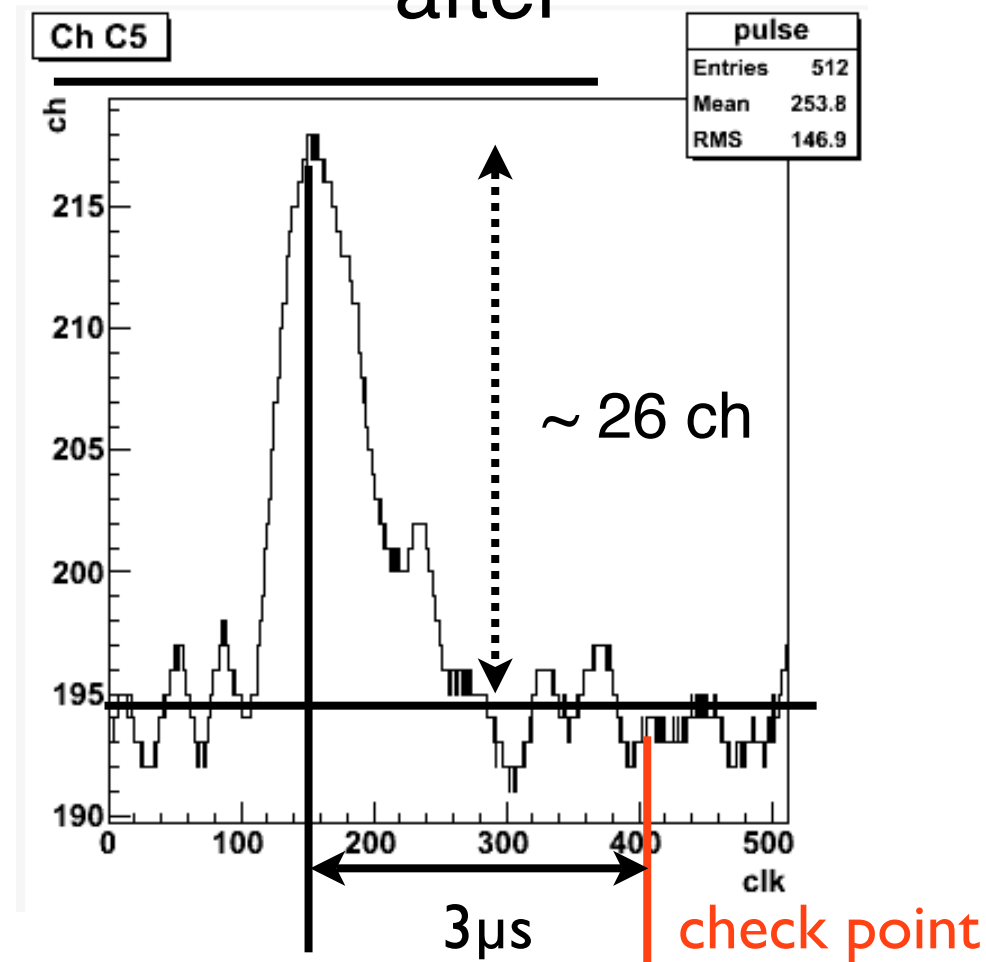


it becomes small but

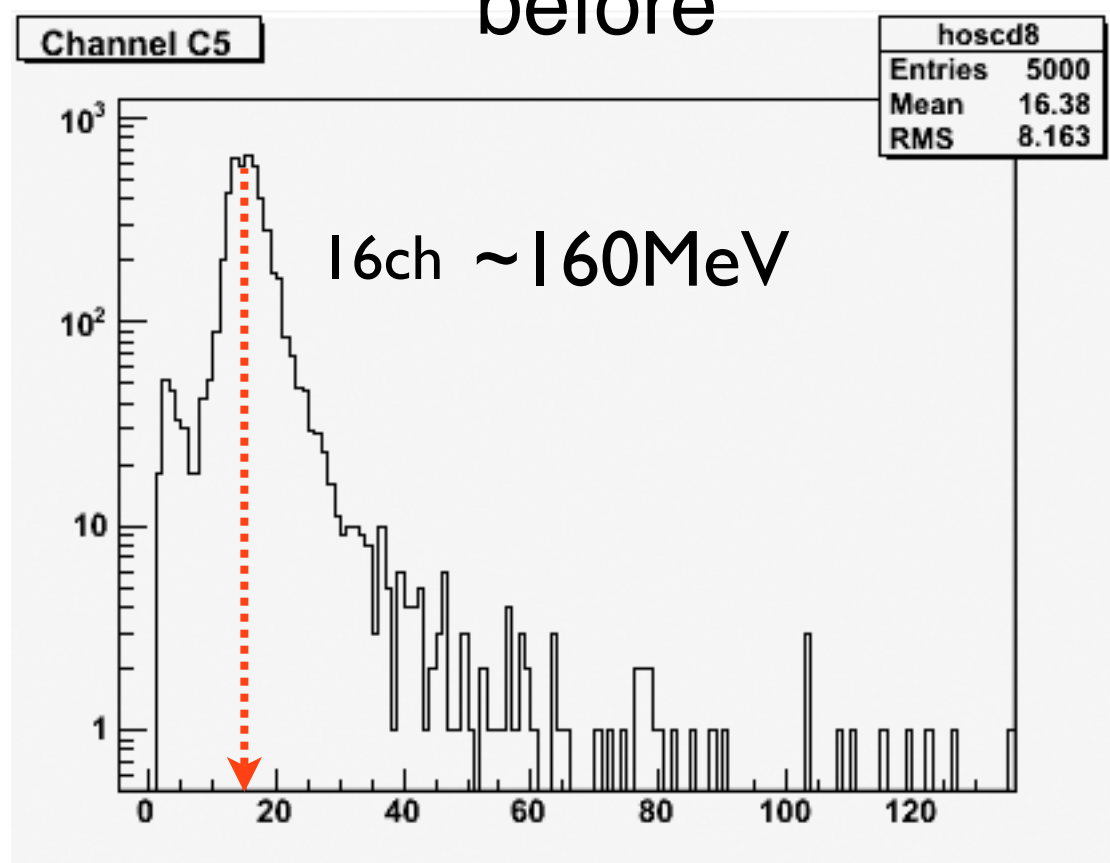
before



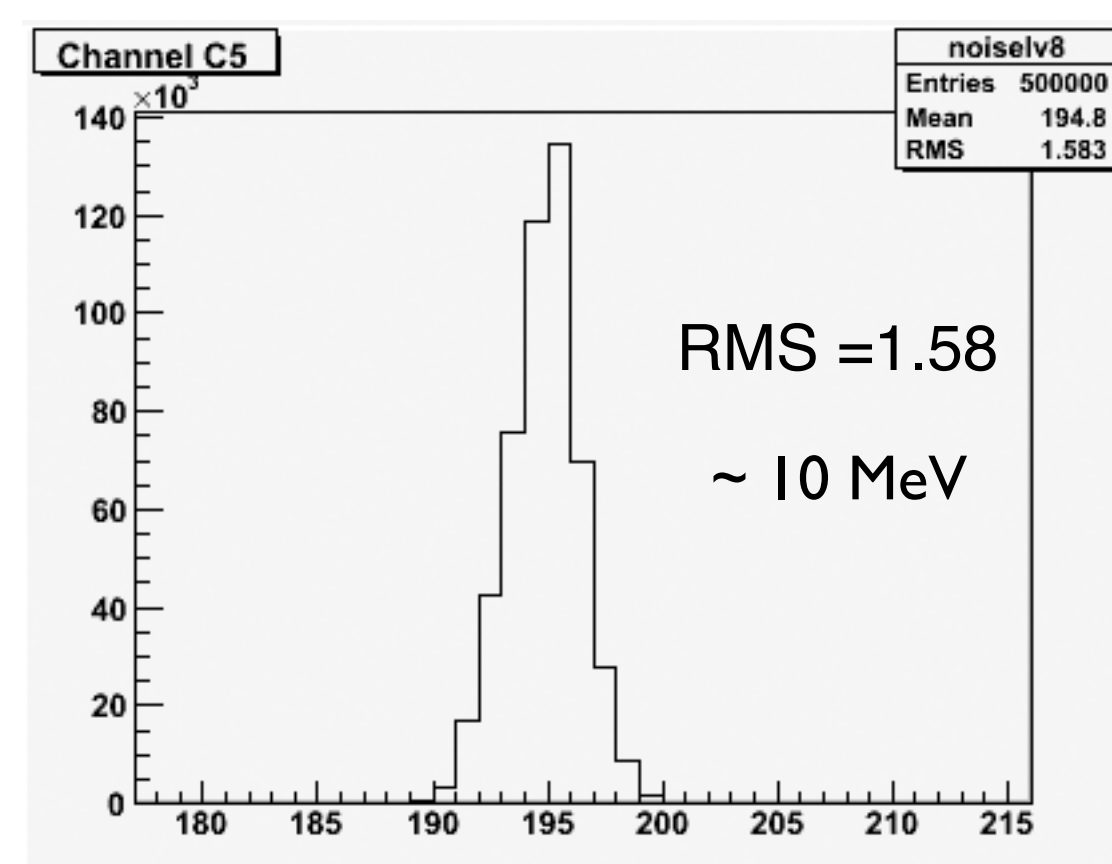
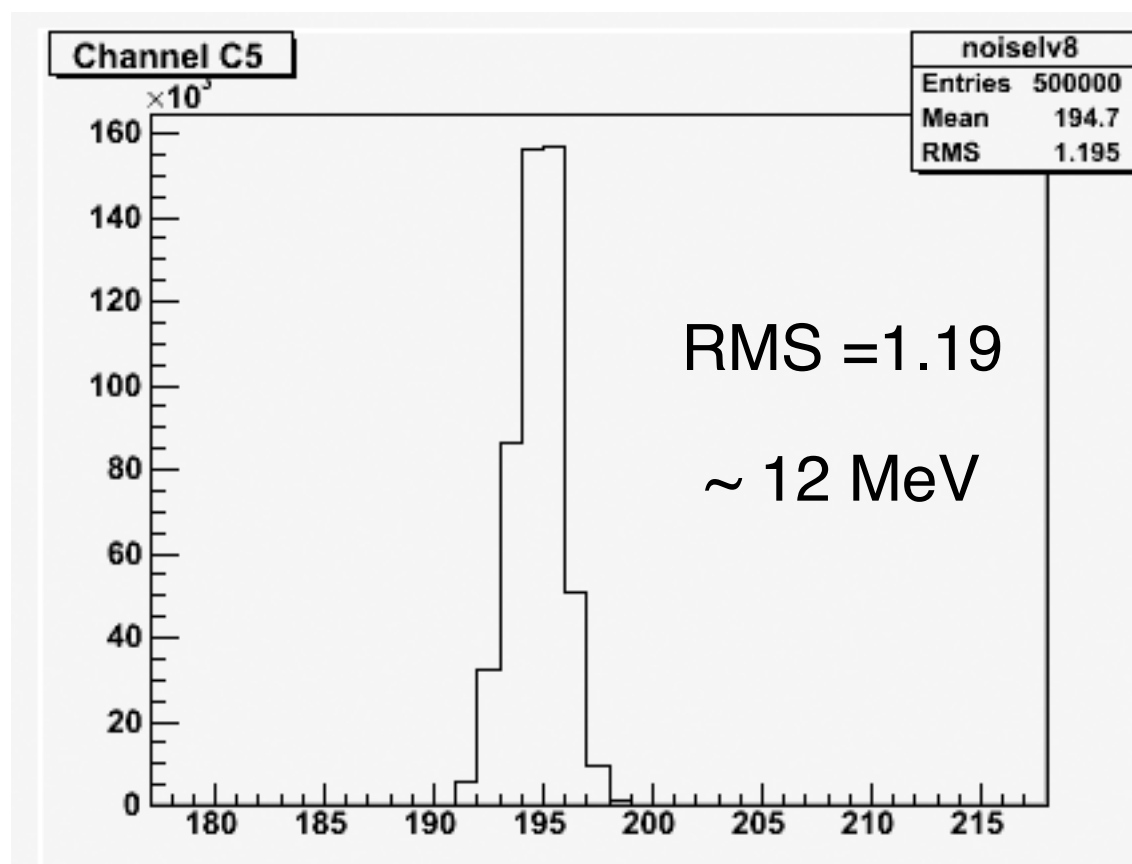
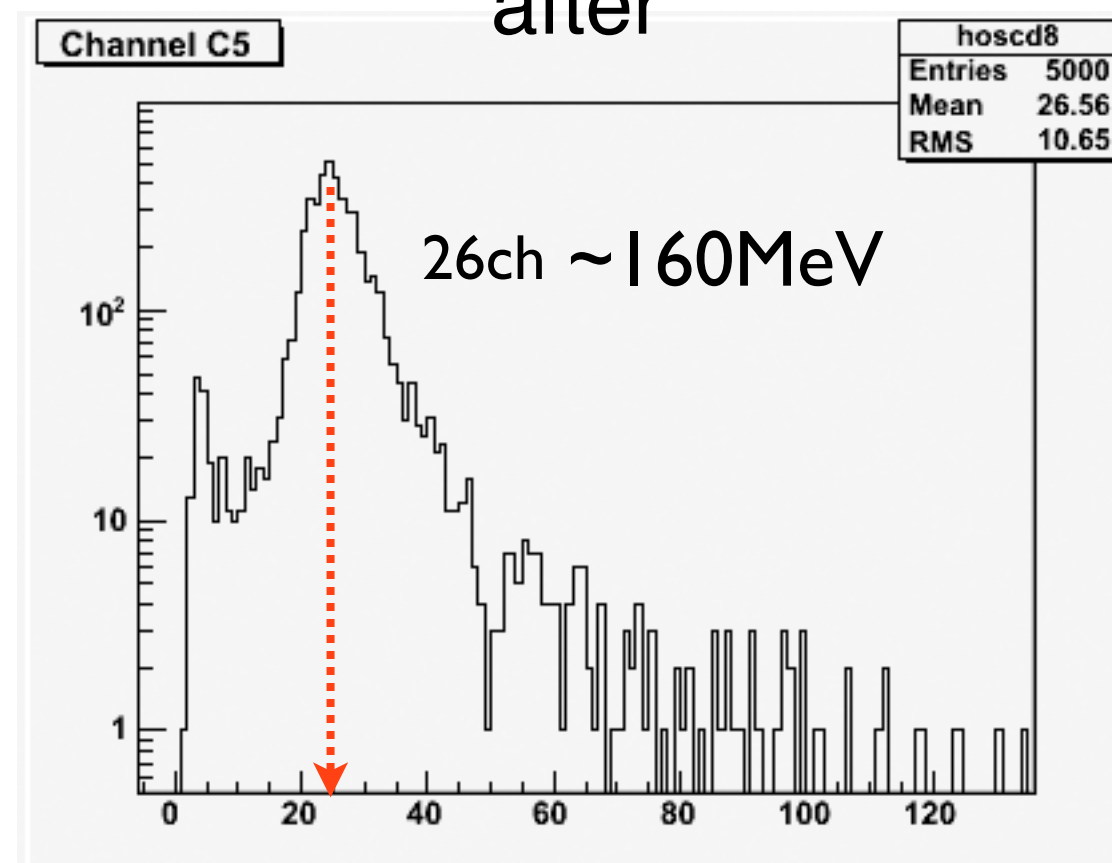
after



before



after



- ◎ Conclusion

- ✓ 6 bits for Gain Adjustment
- ✓ Noise Level : 1.6 ch (~ 10 MeV) after the compensation
- ✓ Undershoot problem

- ◎ Plan

- * A newly designed shaper will be prepared for another test
- * FAM / TMM prototype will be ready by June