Beam test status update

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Ye Tian, SDU

Vincent Sulkosky, UVA

Status:

- New beam data after added preshower and shashlik to Fan-in/out, use higher HV to make up the low signal without 4× amplifier.

- Beam got back since last Wednesday, now the beam energy is 10.6GeV, and current is 20uA.
- The beam is only delivered to HallA or HallD, because of the problem on separator. The beam will be delivered to HallD before Christmas Day for a few days, and if the problem isn’t be solved then, I’m afraid HallA will not get beam.

High voltage changing

Detector	Previous HV (V)	New HV (V)
EJEN SPD	1675	2000
THU	2000	2500
THU preshower(NCS5)	1800	2150
SDU #1	1177	1294
SDU #1 preshower(NCS6)	1500	1700
SDU #2	1200	1453
SDU #2 preshower(KEDI6)	1650	1850

After using Fan-in/out and new SUM module, even if the HV get higher, the saturation events get obviously less, only the signal out of range. Maybe there is something problem with previous SUM module(why is their signal normal?).

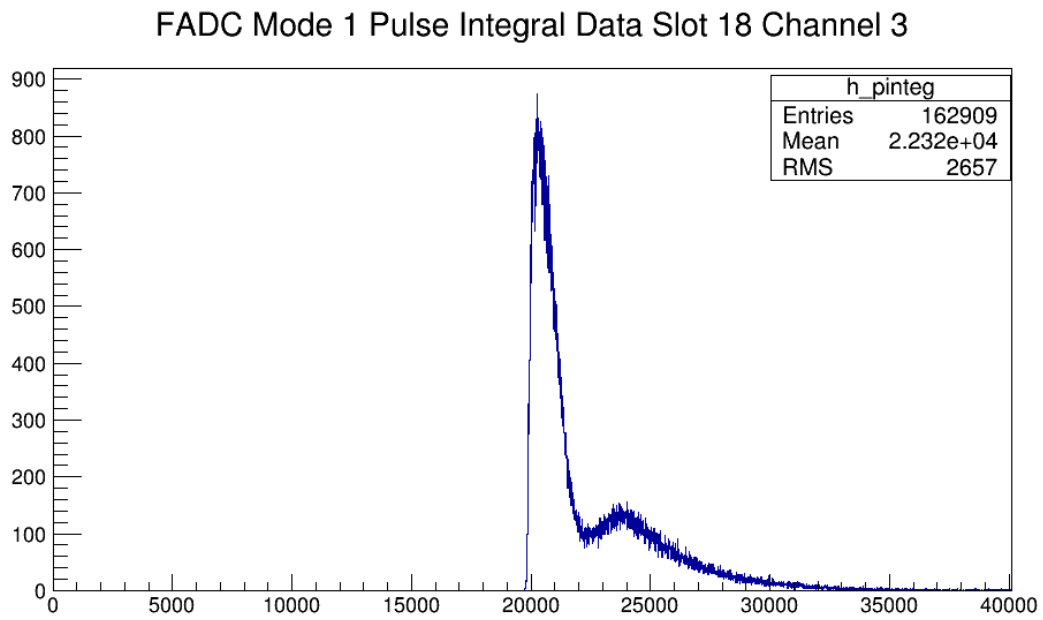
Scaler rate after raising HV (high rate)

- The threshold for SoLID single detector is -70mV, but for trigger is -300mV.
- The 10k pulser doesn’t work now, even repalce a new battery last night, need to replace pulser.
- Counting time is about 60 seconds.
- There is problem with TDC common stop, which should be the same value as TI busy.
- Now the HV of EJEN SPD is raised from 1850 to 2000, and rate increased to 50M/60s.

Type	Counts	Rate (Hz)	Rate (KHz)
10 KHz pulser	0	nan	nan
Front Top scint	10856131	inf	inf
Front Mid scint	10198193	inf	inf
Front Bot scint	17558670	inf	inf
OR of Front scint	37933068	inf	inf
Calorimeter Trigger	1654405	inf	inf
L1A	14398	inf	inf
TDC Common Stop	12105	inf	inf
TI Busy	14398	inf	inf
Trigger	87293	inf	inf
S4	609915	inf	inf
S5	4266891	inf	inf
Solid calo	1653684	inf	inf
Calo row 1	0	nan	nan
Calo row 2	0	nan	nan
calo row 3	0	nan	nan
//			
EJEN spd	26405463	inf	inf
SDU mod 1 shower	1880340	inf	inf
NCS6 preshower	6206741	inf	inf
SDU mod 2 shower	4033845	inf	inf
KEDI6 preshower	3919748	inf	inf
THU mod 1 shower	11377015	inf	inf
NCS5 preshower	6978330	inf	inf
hac_bcm_average	18.8152		

Single trigger test

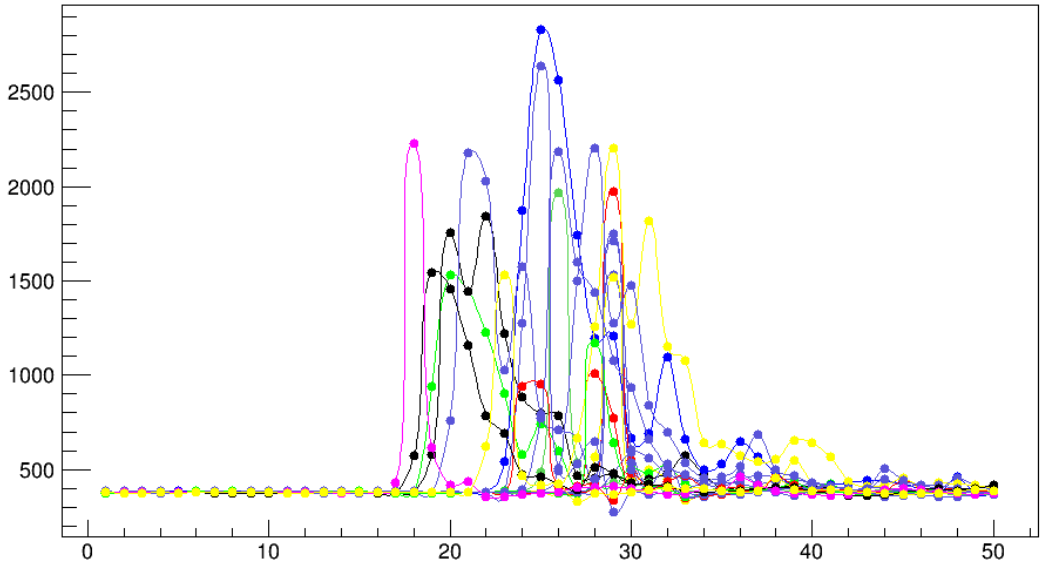
Only use one shashlik module as trigger, turn off other calorimeter's HV.



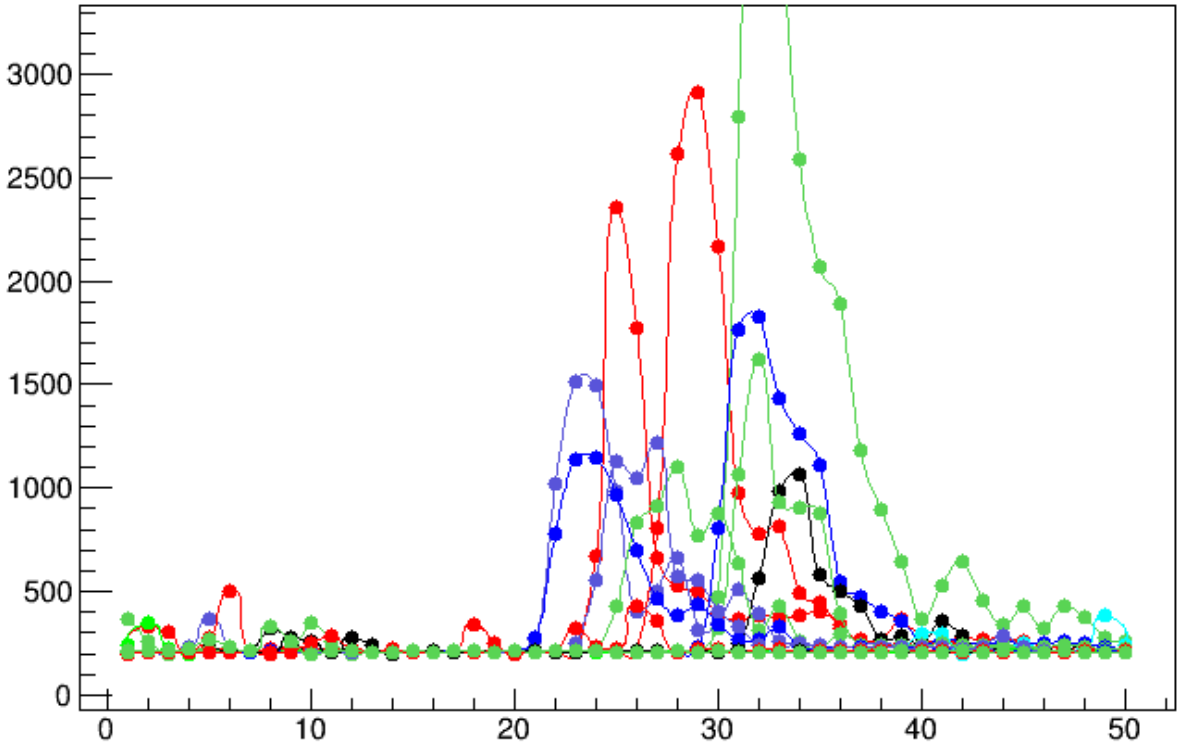
THU module

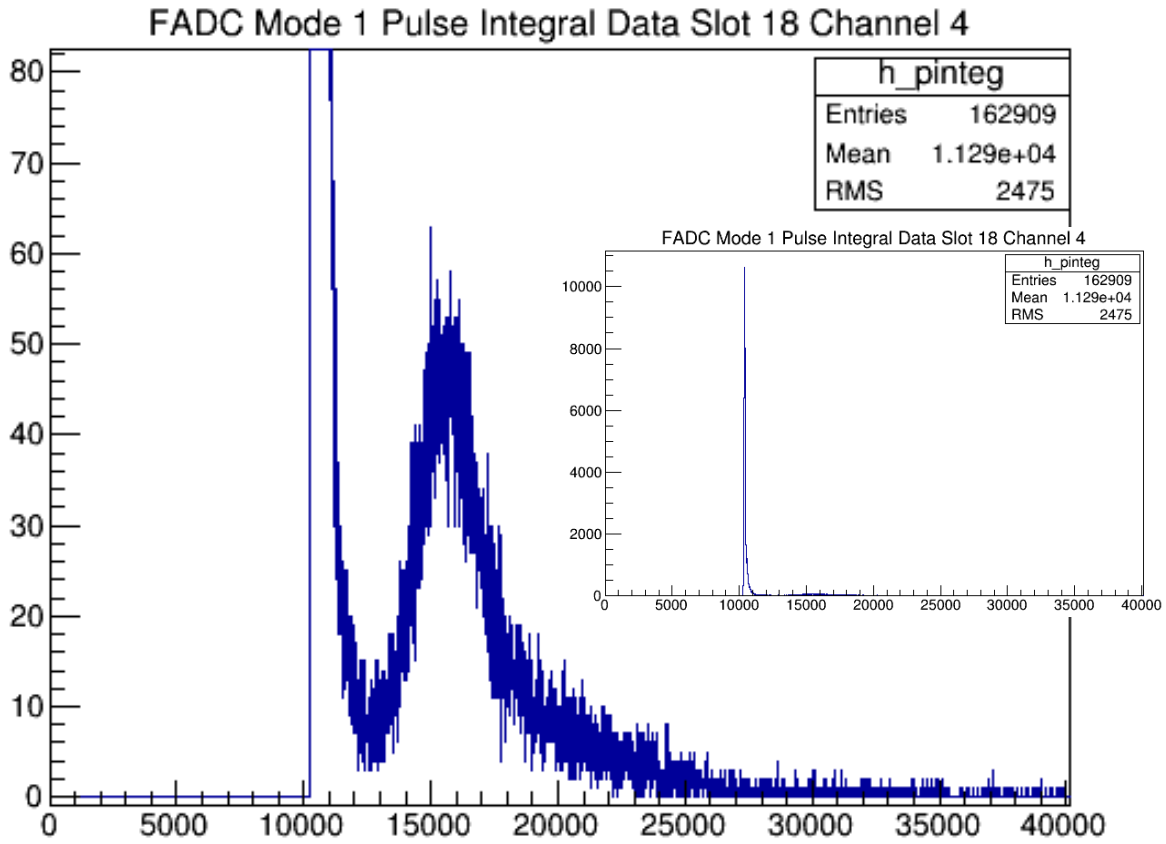
Pedestal is about 19000

Counting rate 300* 2(prescale)



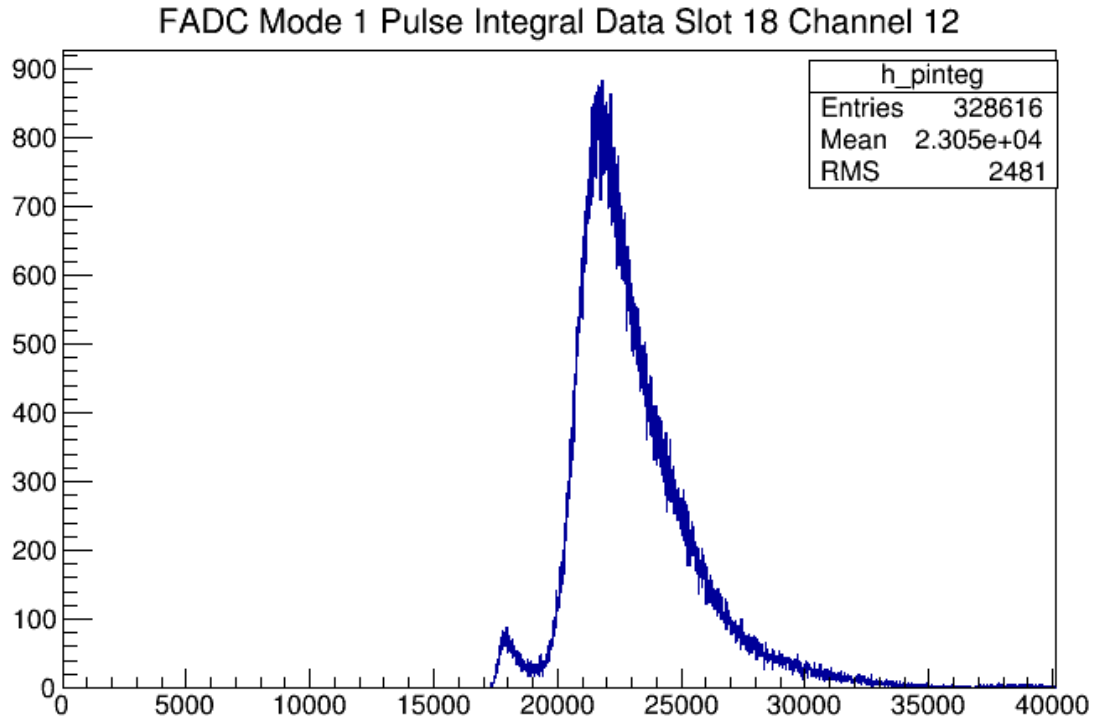
Preshower in front of THU

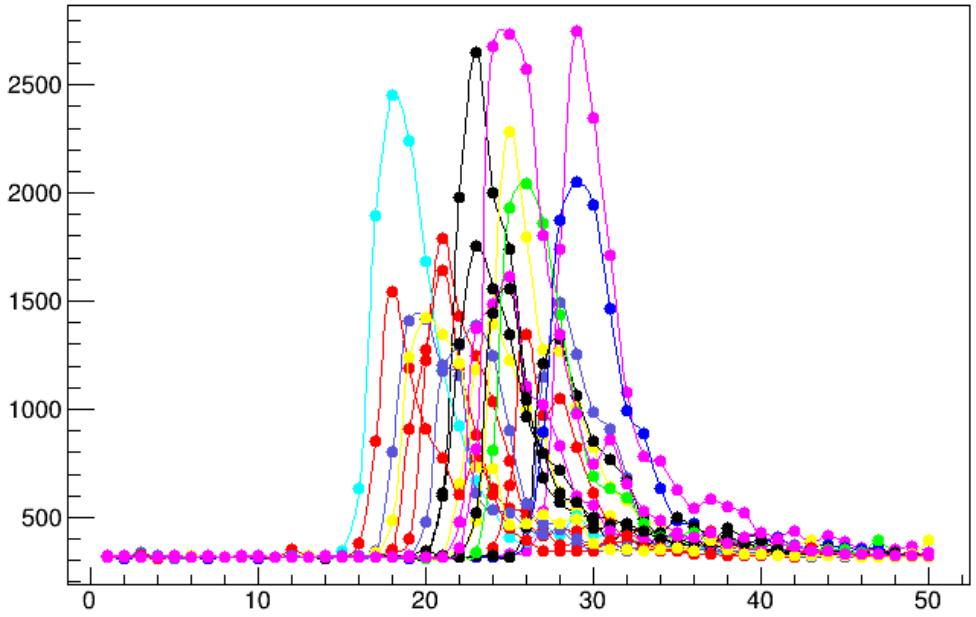




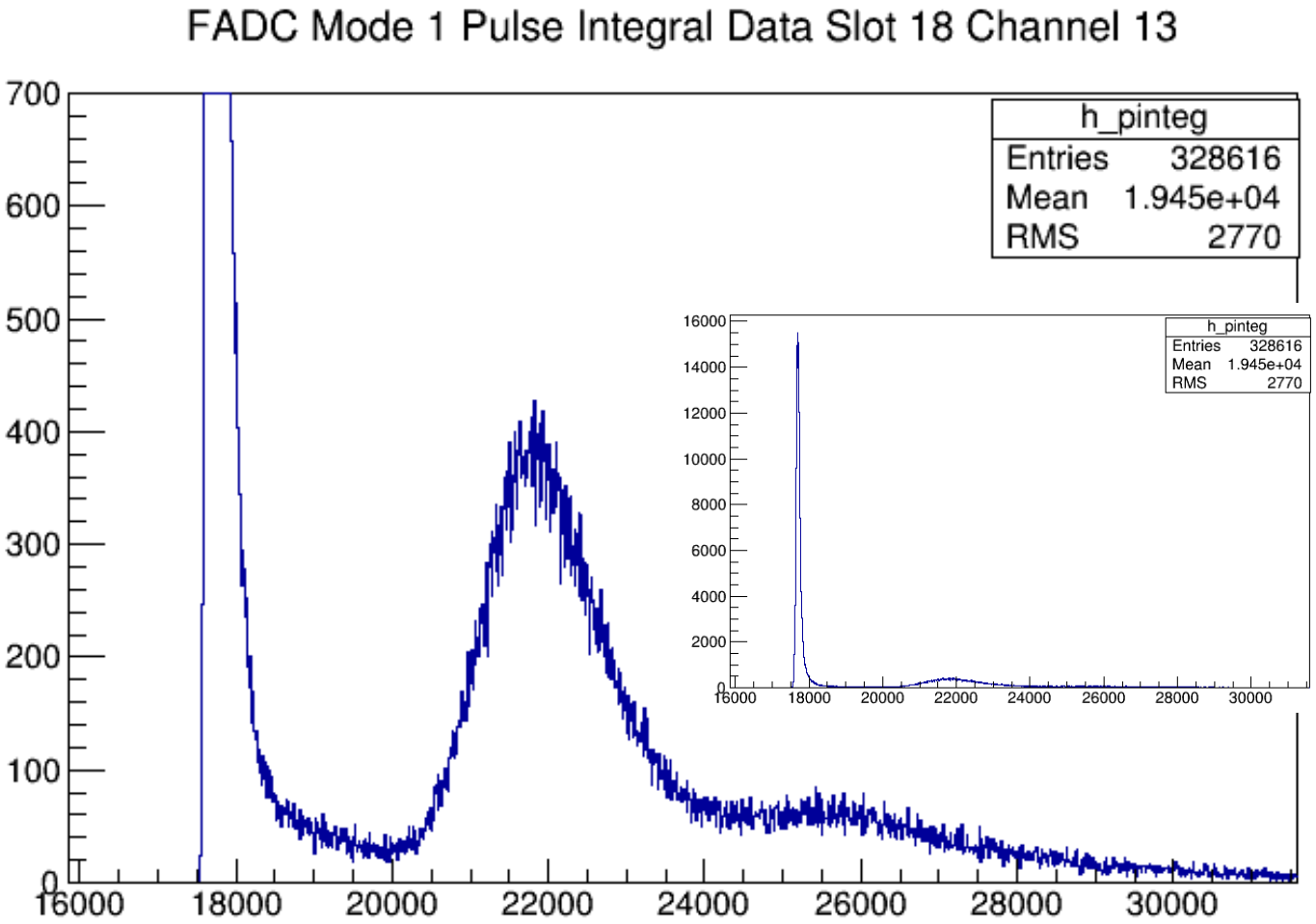
SDU #1

- Pedestal 15800
- Counting rate 50* 2(prescale)



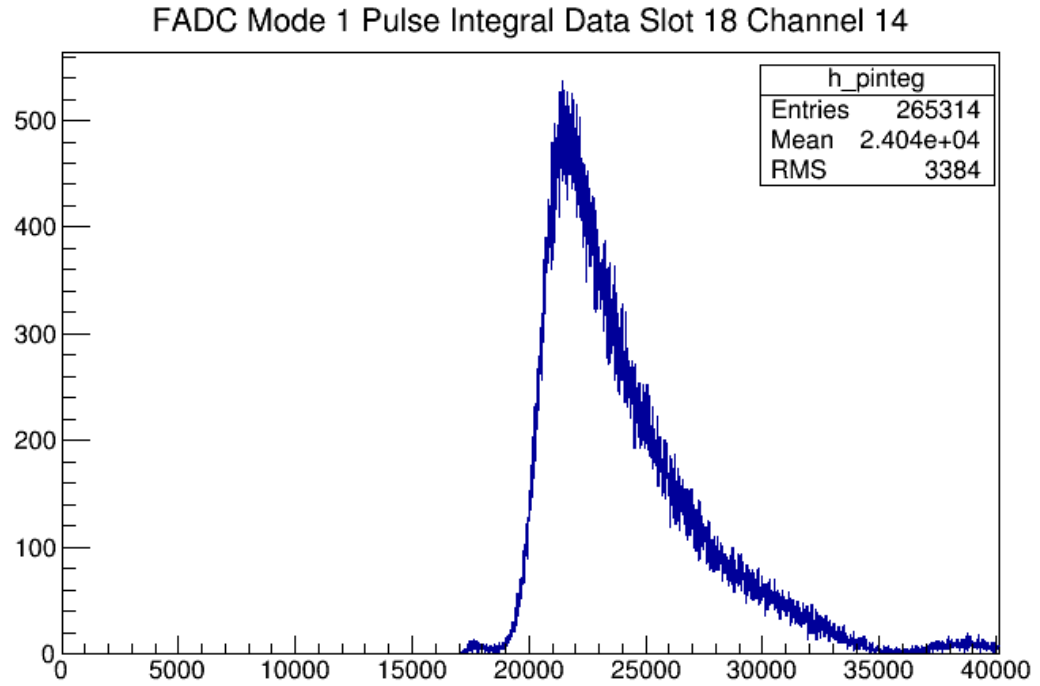


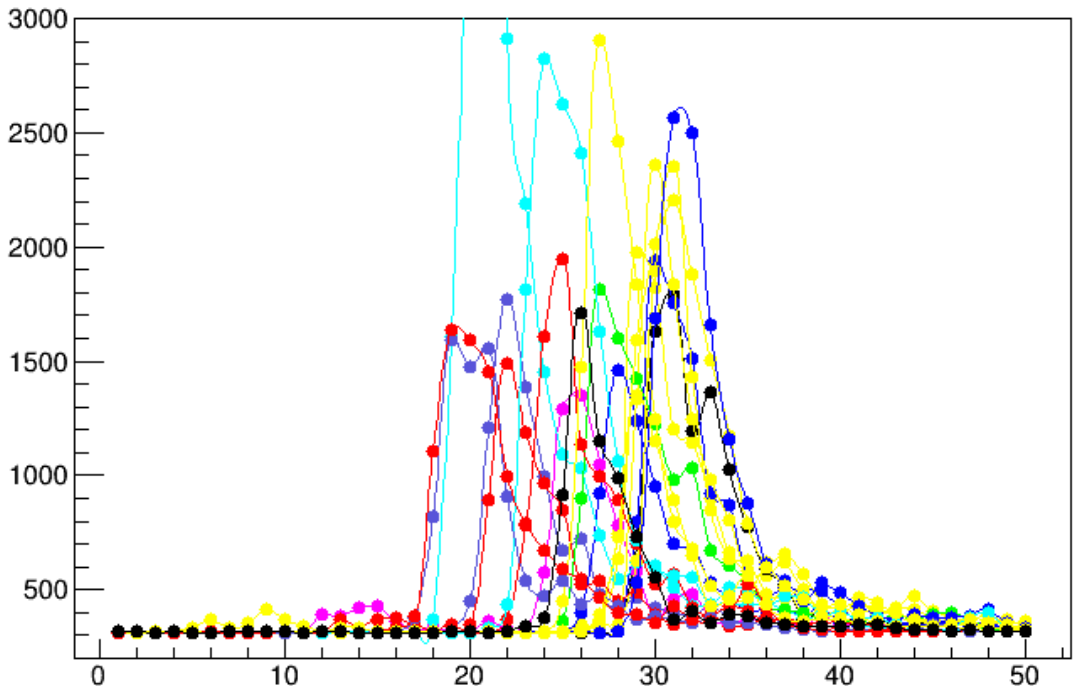
Preshower in front of SDU #1



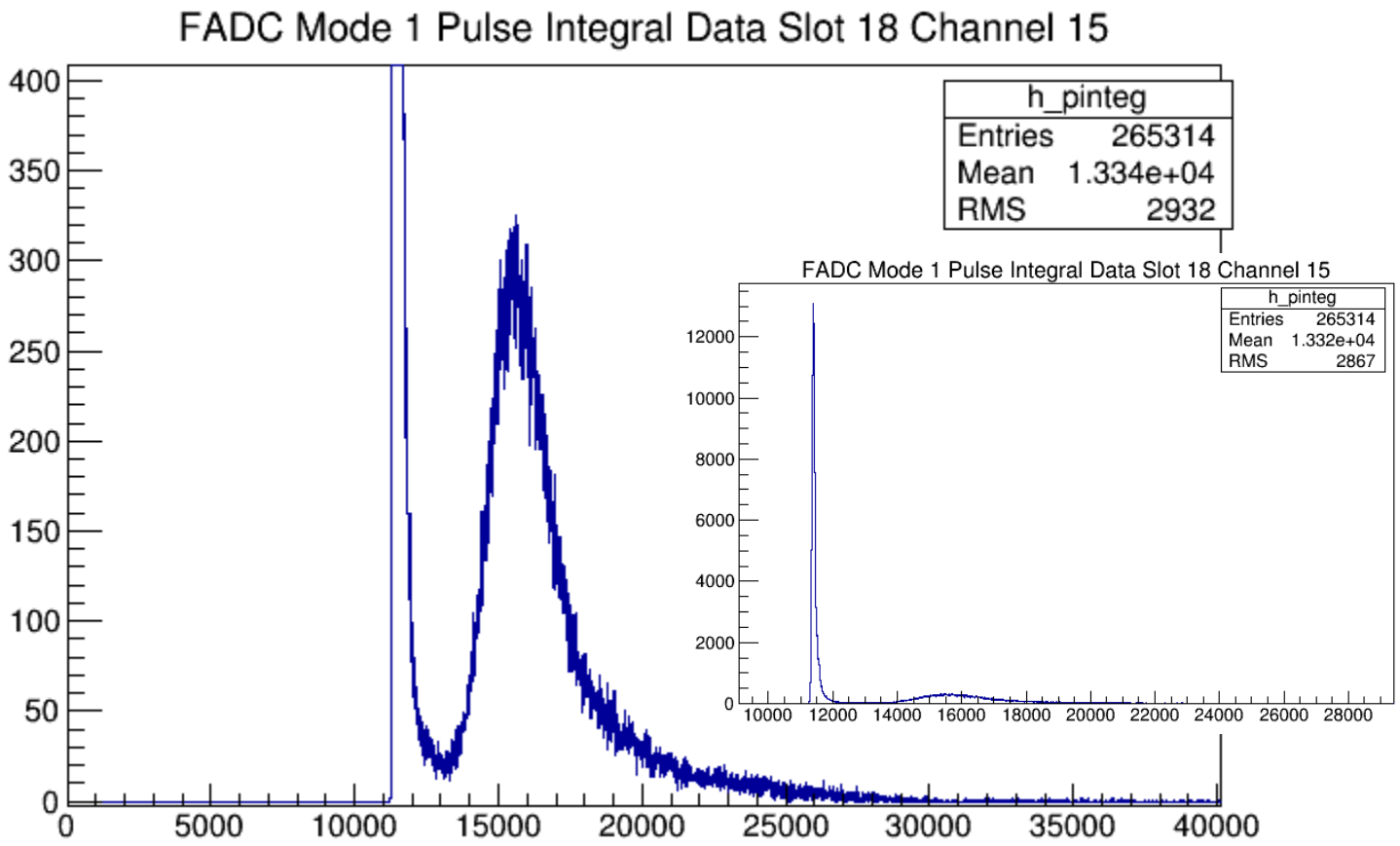
SDU #2

- Pedestal 15800
- Counting rate 170* 2(prescale)

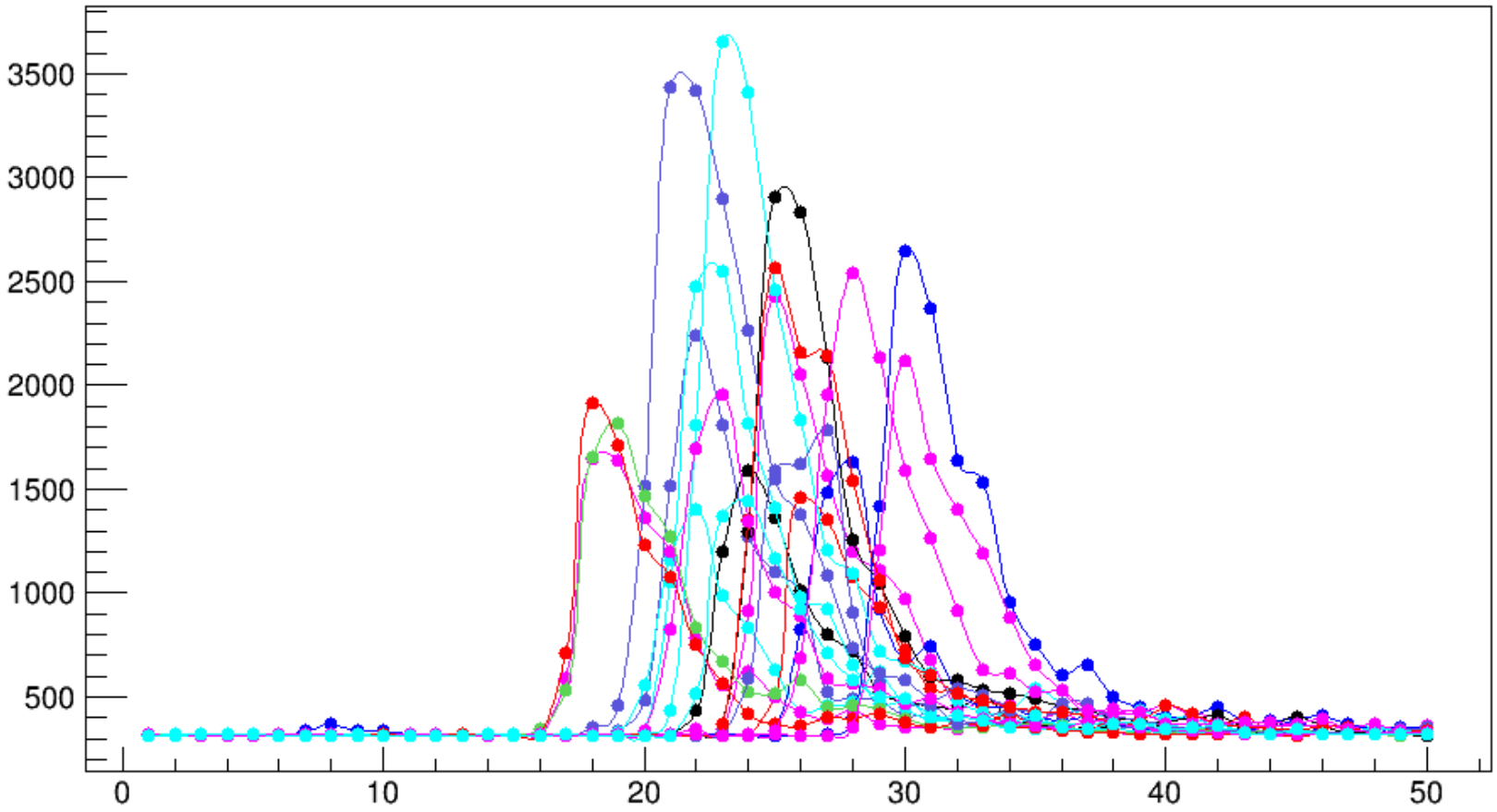




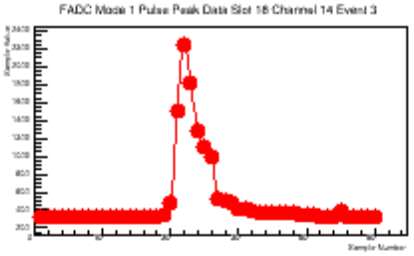
Preshower in front of SDU #2

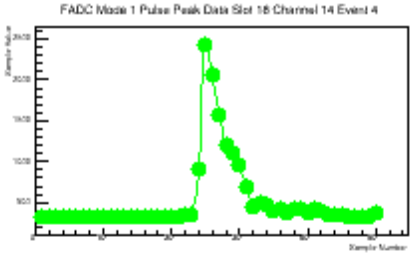


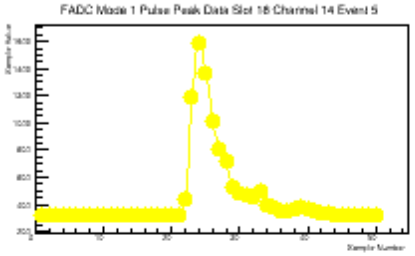
Only SDU #2 and S2(front middle paddle) HV on (no difference in time distribution)

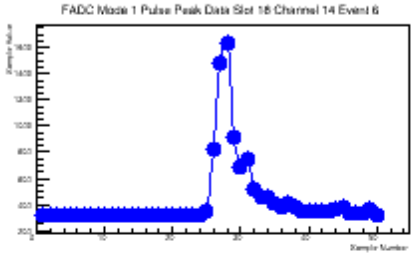


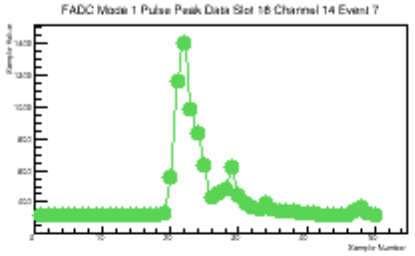
Single spectrum

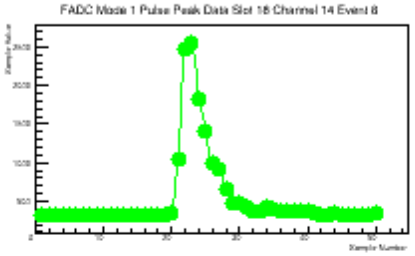


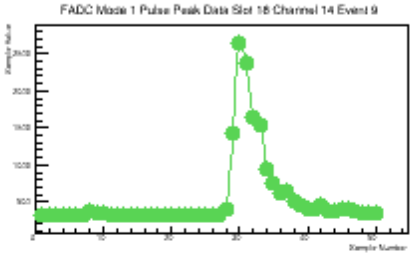


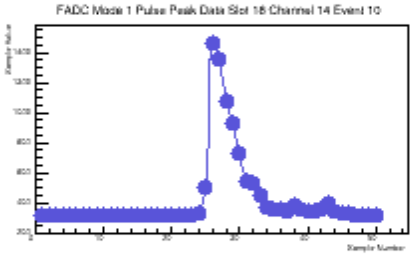


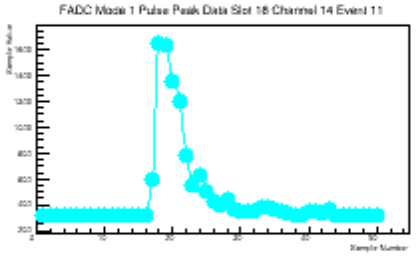


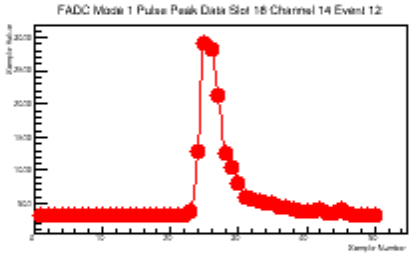


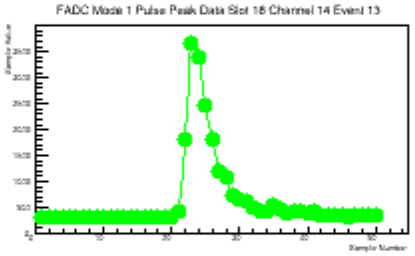


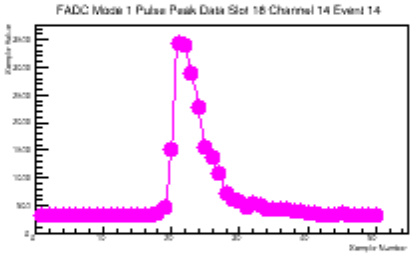


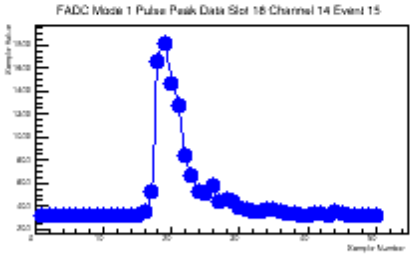


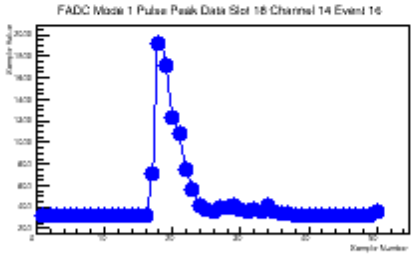


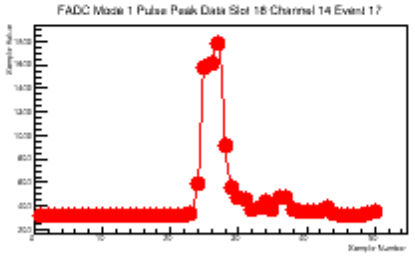


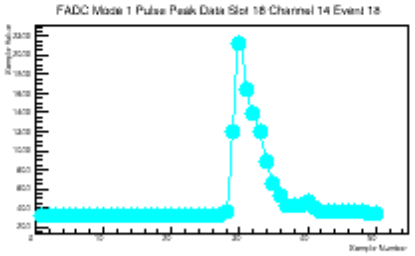


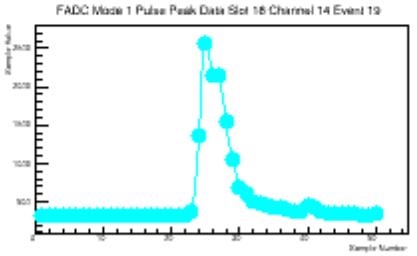


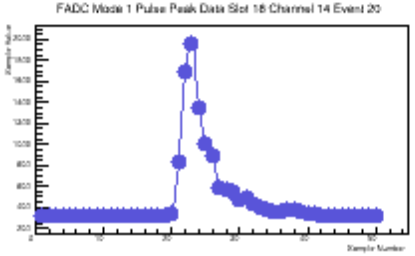


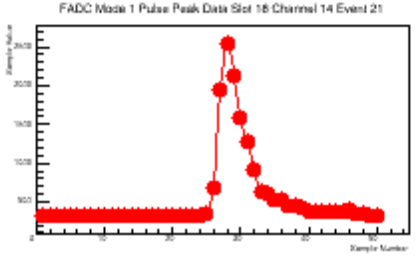


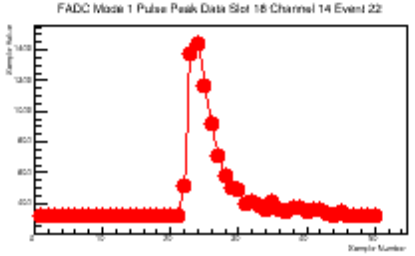


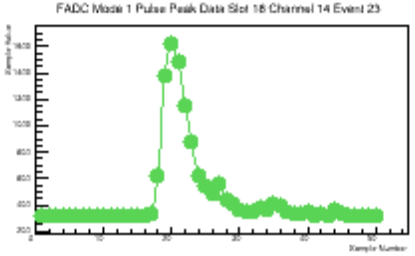


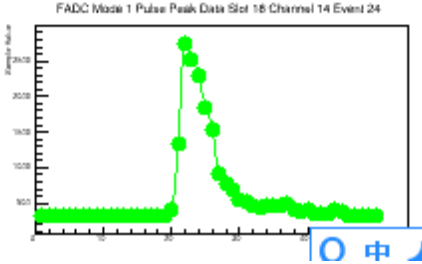






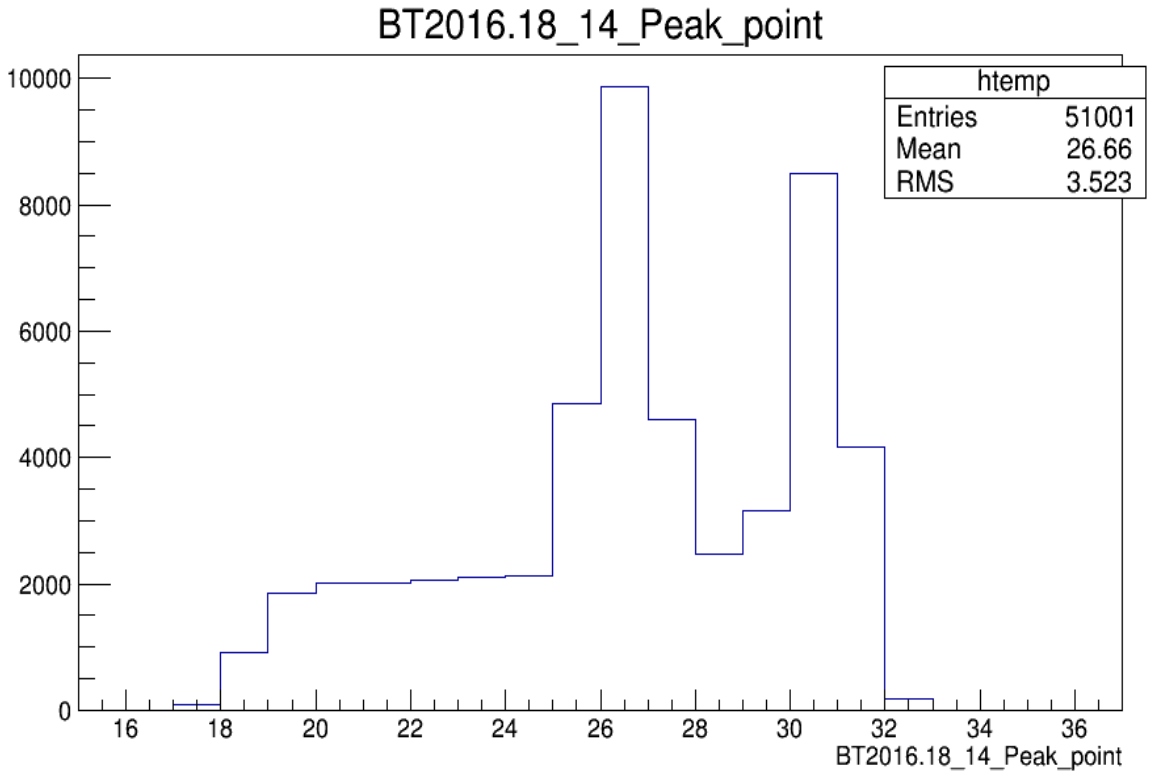




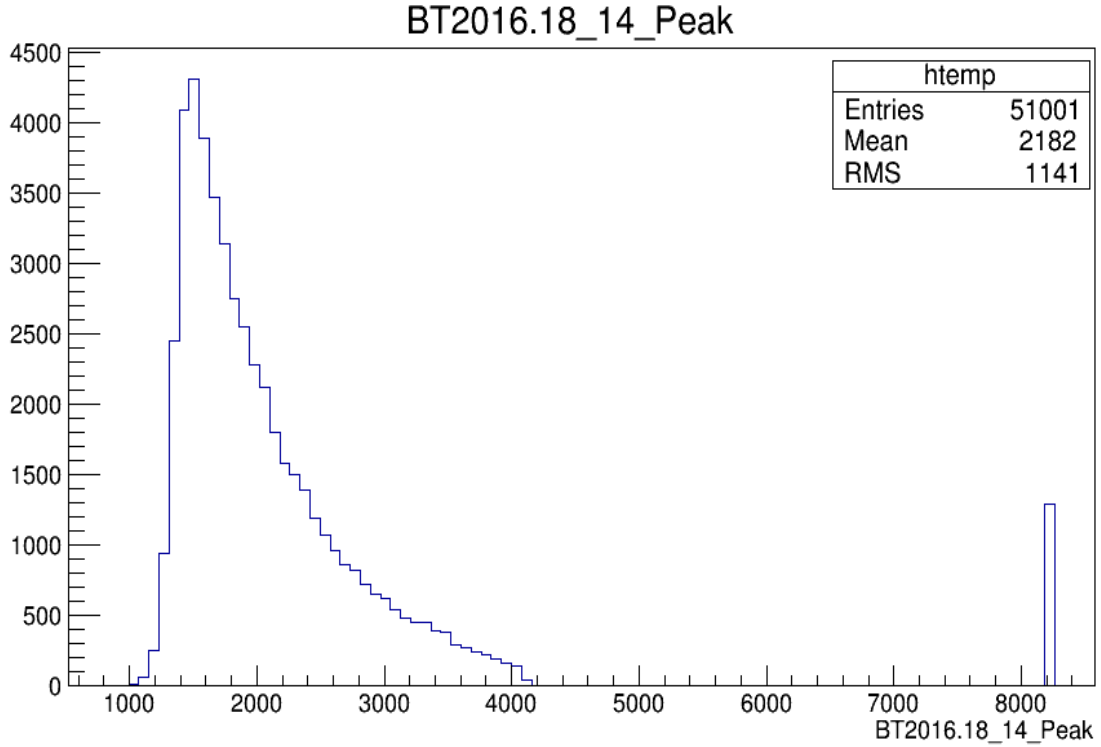


Peak information(only SDU #2 and S2 HV on)

Peak time



Peak ADC bin

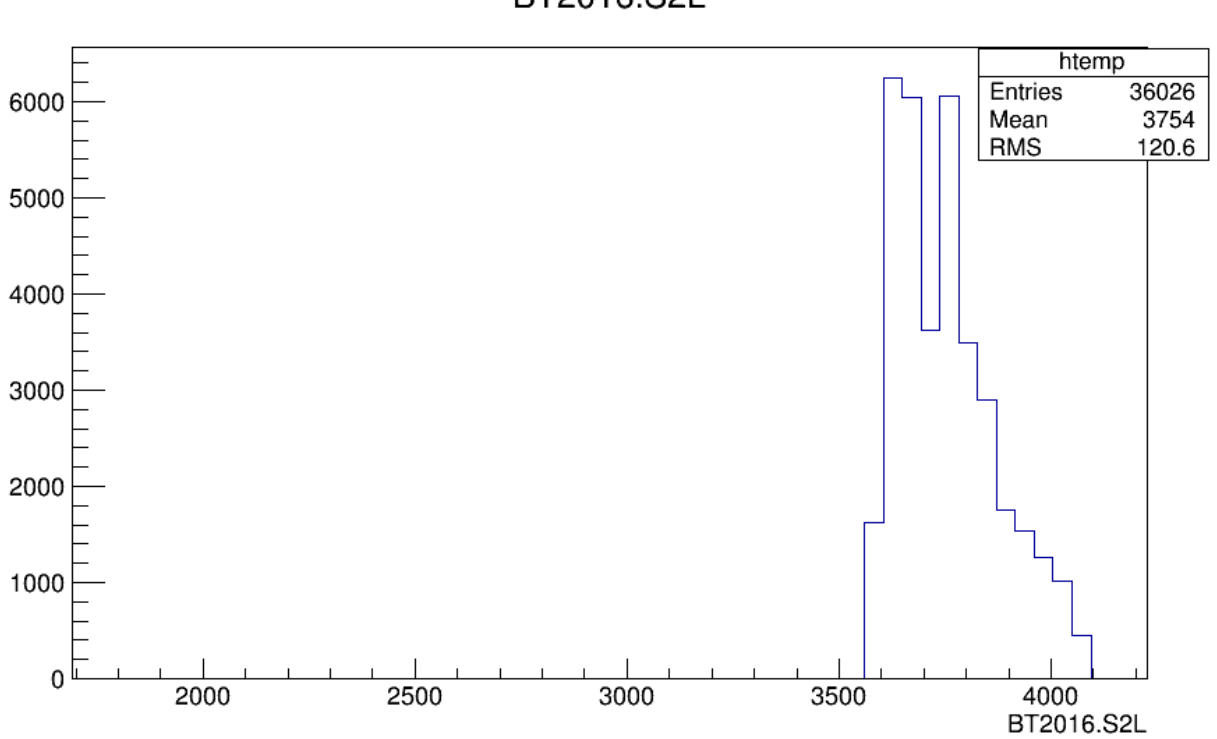


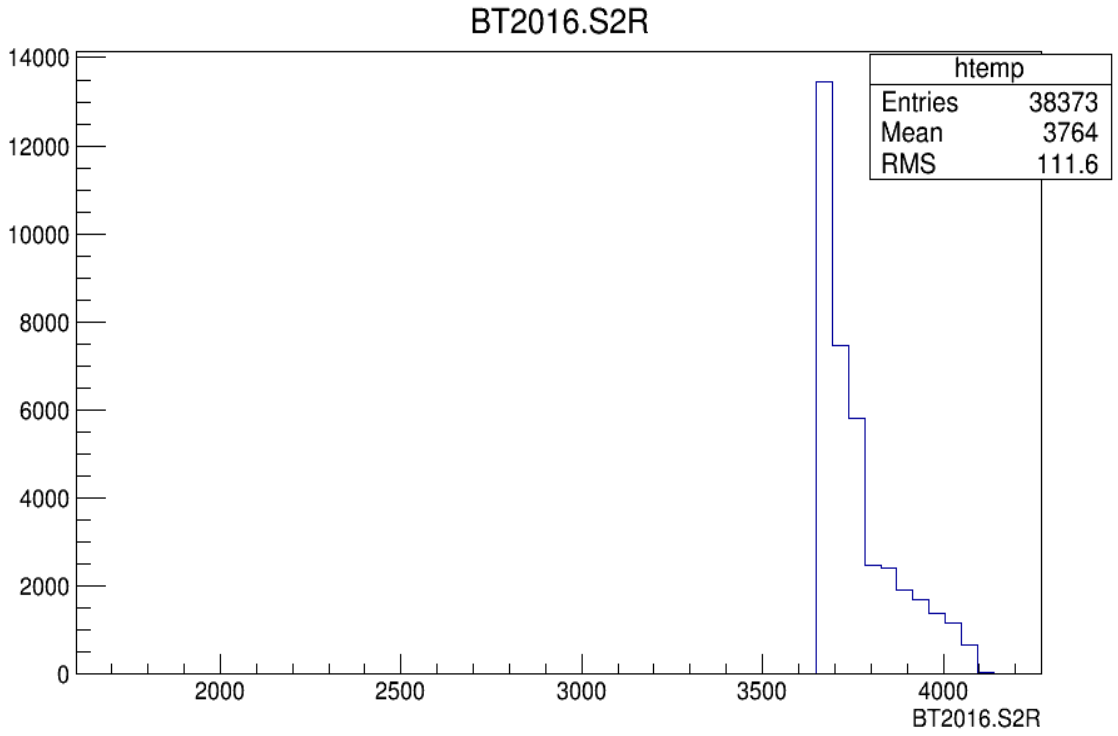
S2 time information

Considering the problem of TDC stop, which only miss less than 5% events in this run, there is still other time data missed.

Same problem use other trigger.

L1A	1451	inf	inf
TDC Common Stop	1447	inf	inf
TI Busy	1451	inf	inf

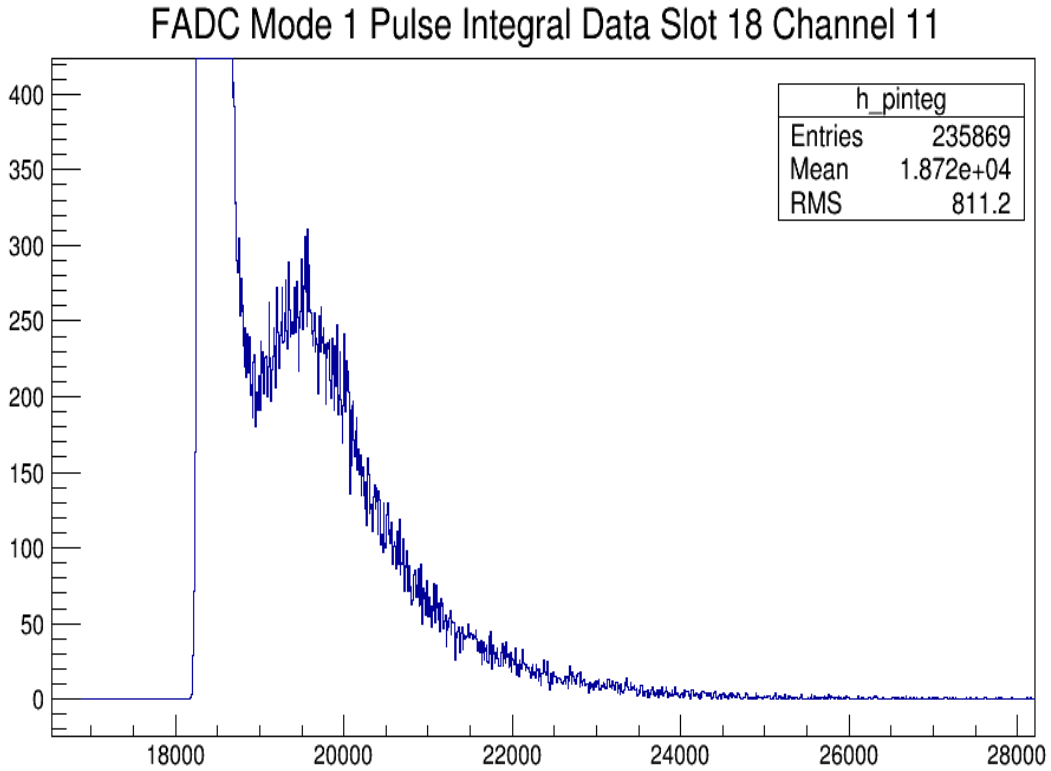


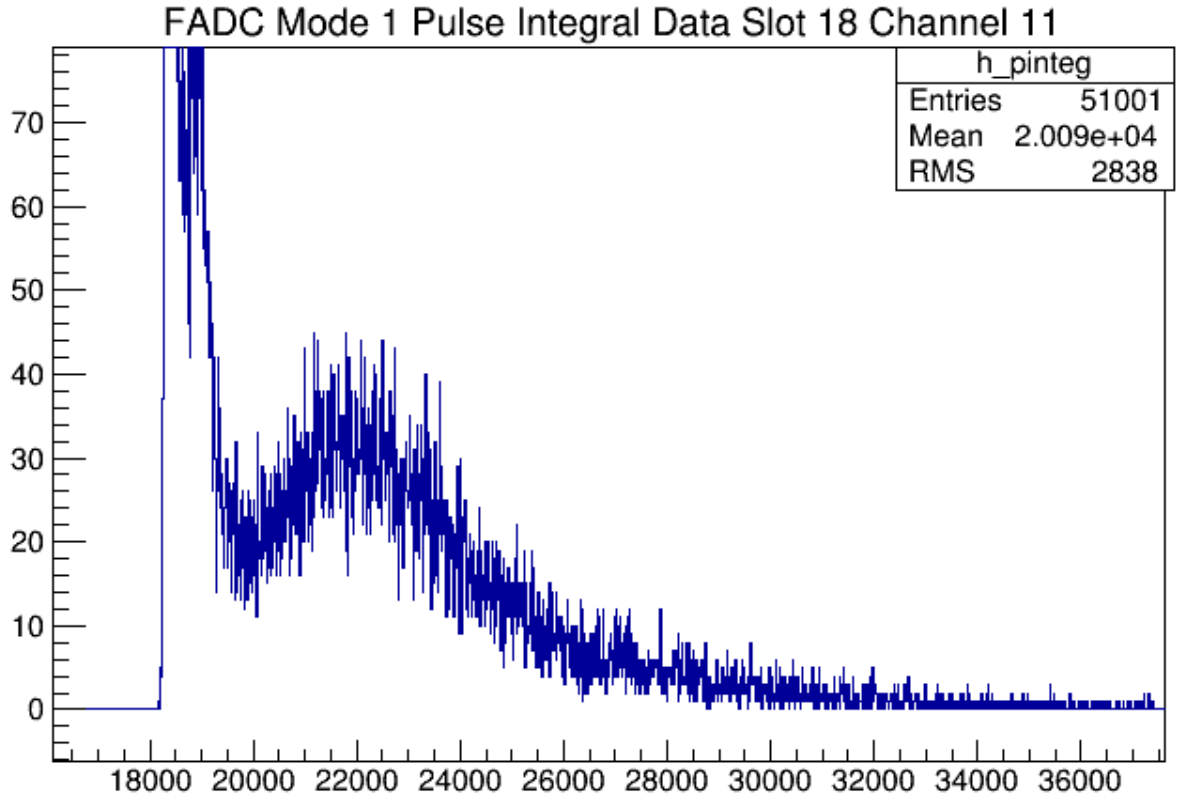


EJEN SPD HV(restricted by noise)

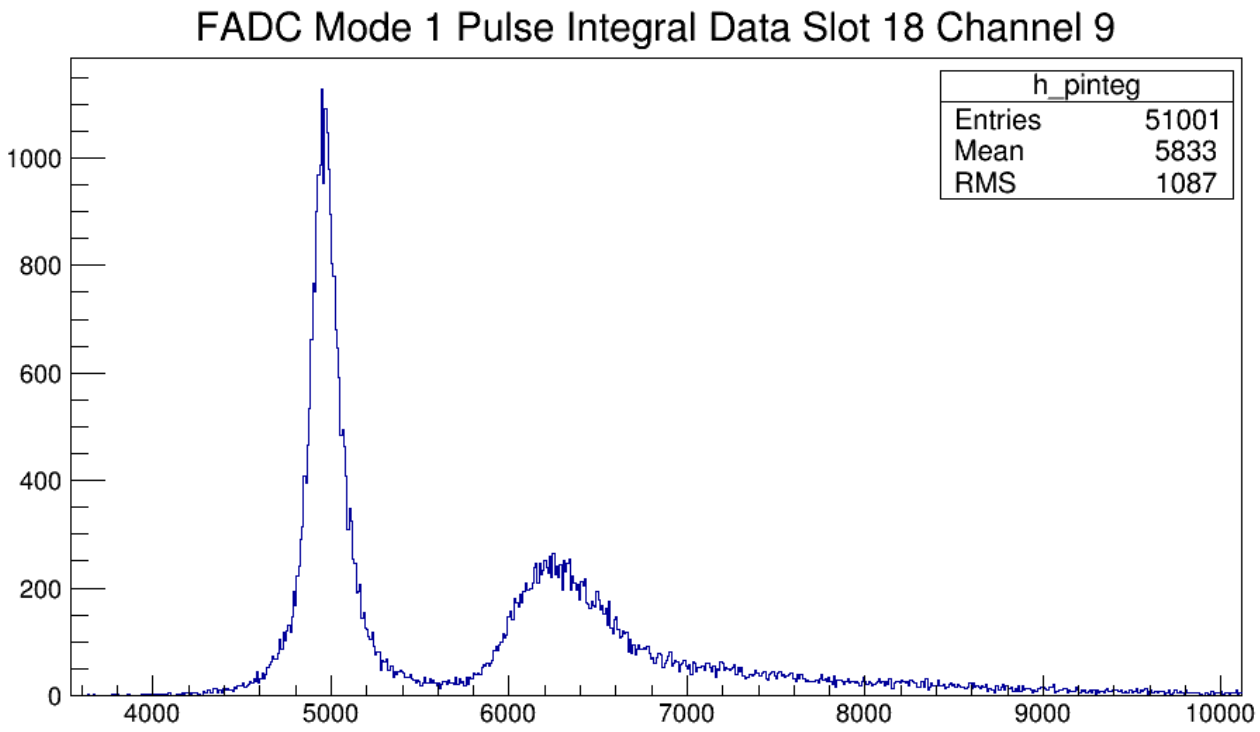
HV 1850V

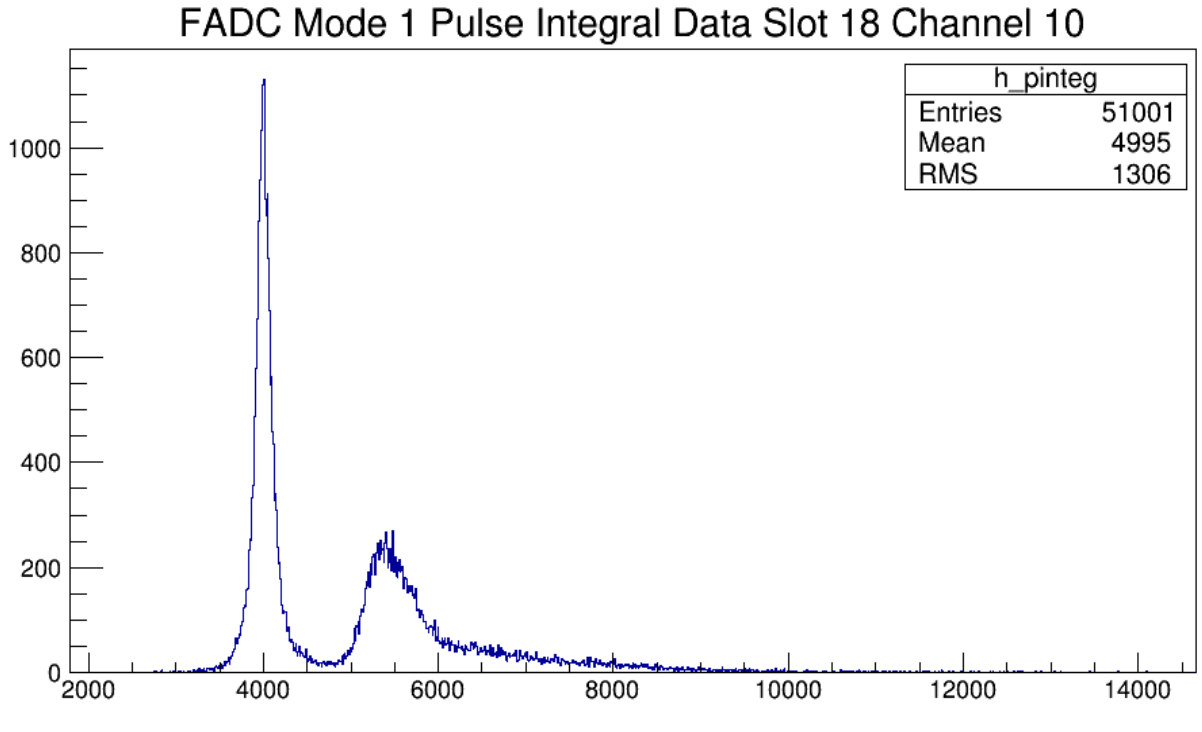
HV 2000V





Large angle SPD





Problems need to solve

- Missed TDC events
- THU module PMT high noise
- High noise rate for other detector
- Replace a new pulser

To Do List

- Make sure the configuration, and start to take useful data for analysis.

No pedestal point between 30 and 40? Triggered around time?

The peak of SBS calorimeter is around point 40.