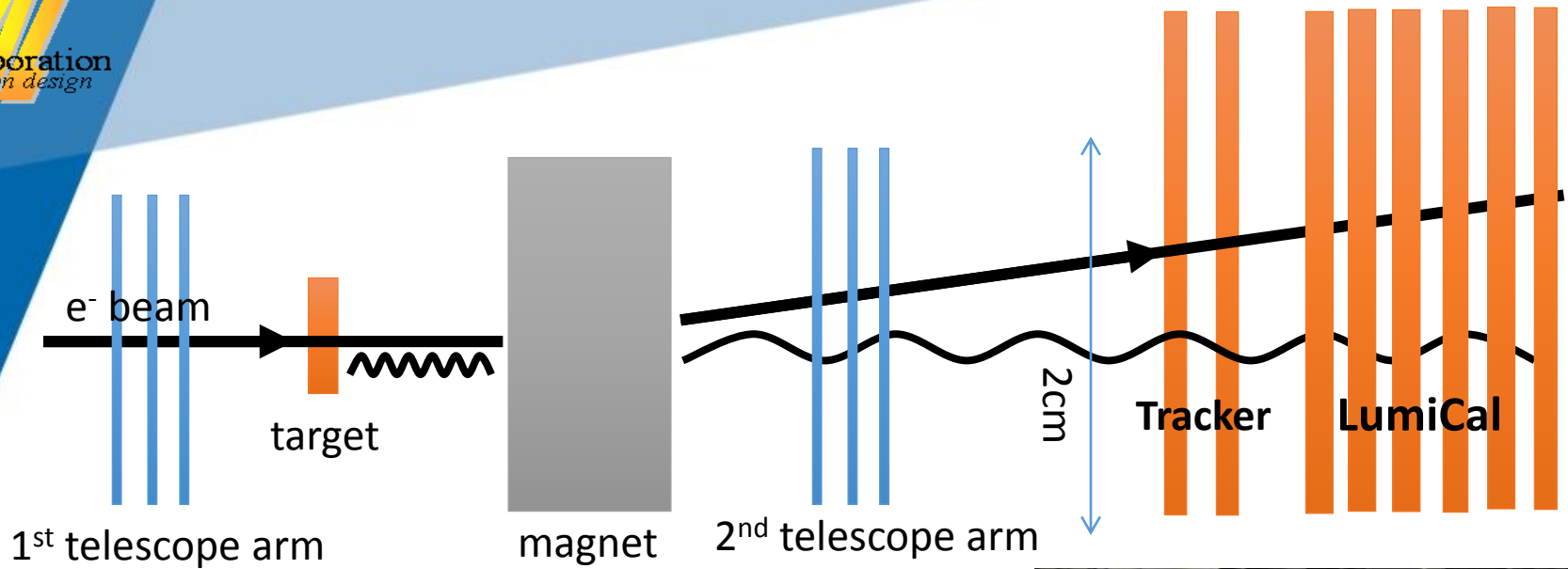


TB2016 – noise analysis

Veta Ghenescu*

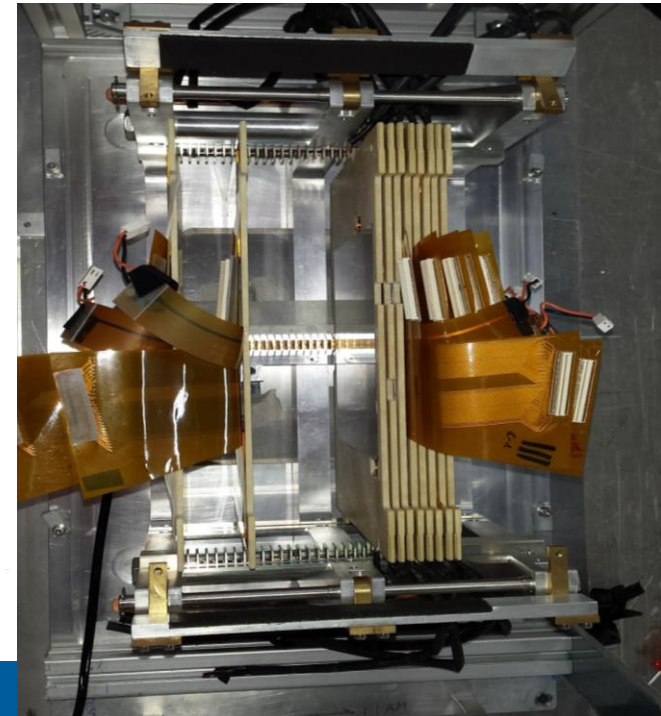
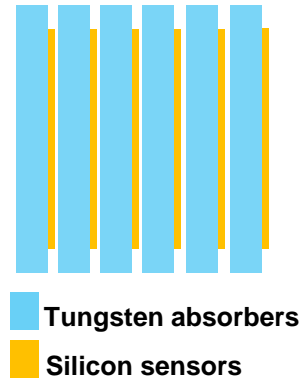
**Institute of Space Science*

Experimental set-up



- Tracker planes consist of LumiCal sensors without absorber layers;
- Lumical calorimeter consists of 6 Si sensors with one absorber layer placed in front of each active sensor layer;

LumiCal

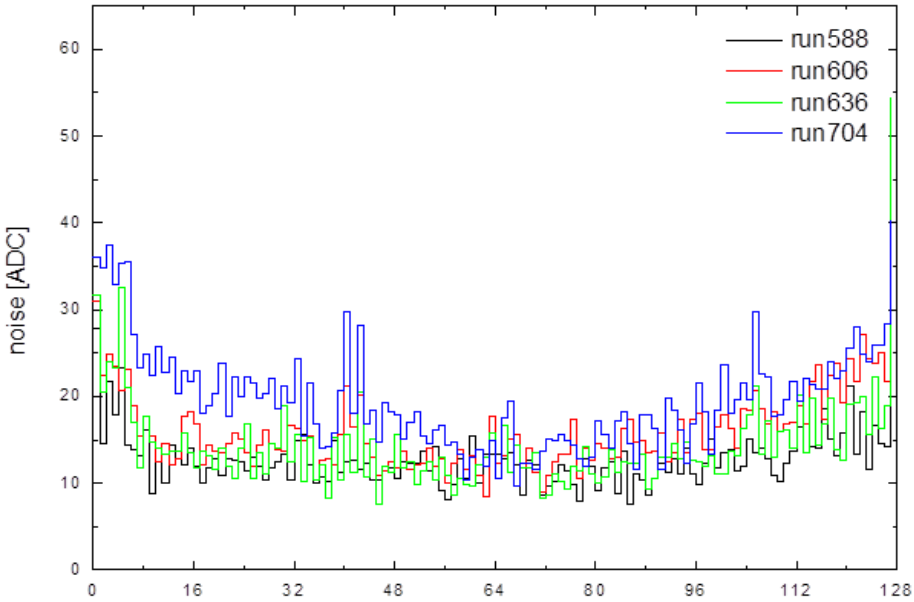


Data

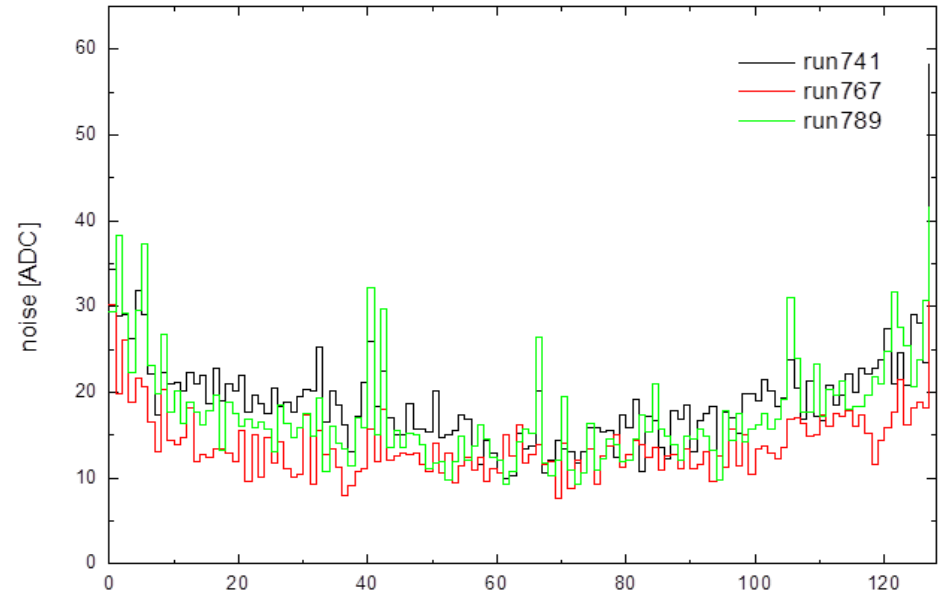
#Run	Hit position ~ pad no	Energy beam	Observation
Without charge divider			
588	X = 87.5, y = -373.5 ~ Pad 18	5 GeV	No target, no mag field
606	X = 47.3, y = -373.5 ~ Pad 49	5 GeV	No target, no mag field
636	X = 47.3, y = -373.5 ~ Pad 49	5 GeV	Target = 1.5mm Magnetic field, I = 90A
704	X = 47.3, y = -373.5 ~ Pad 49	5 GeV	Target = 1.5mm Magnetic field, I = 90A
With charge divider*			
741	X = 94.1, y = -348.1 ~ Pad 20	5 GeV	No target , no mag field
767	X = 94.1, y = -348.1 ~ Pad 20	5 GeV	Target = 1.5 mm Magnetic field, I = 90A
789	X = 94.1, y = -348.1 ~ Pad 20	5 GeV	Target = 2.5 mm Magnetic field, I = 90A

*** The charge divider wasn't installed on all APVs. The trackers were without charge divider all the time**

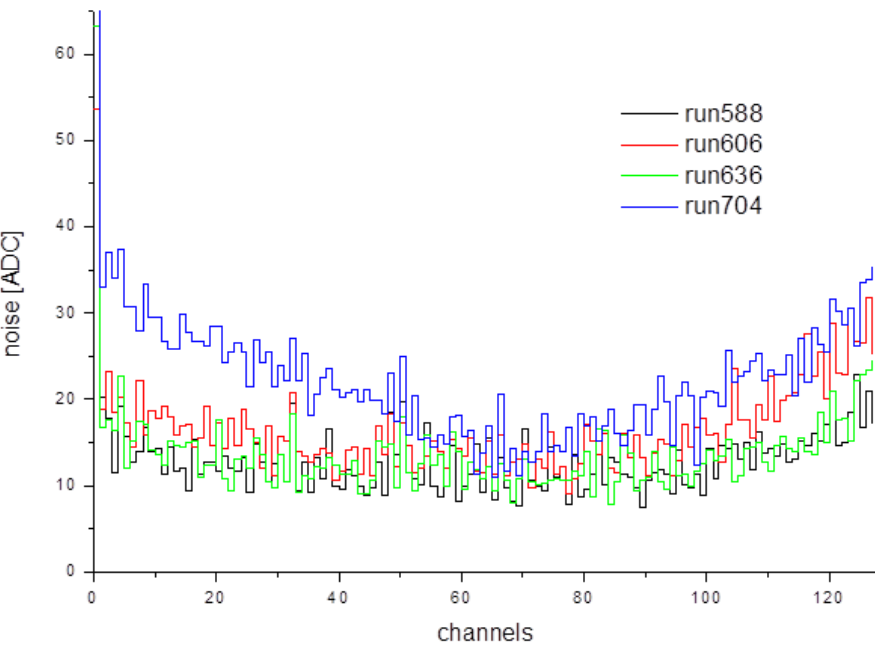
Noise (apv_0) at 5GeV, w/o charge divider



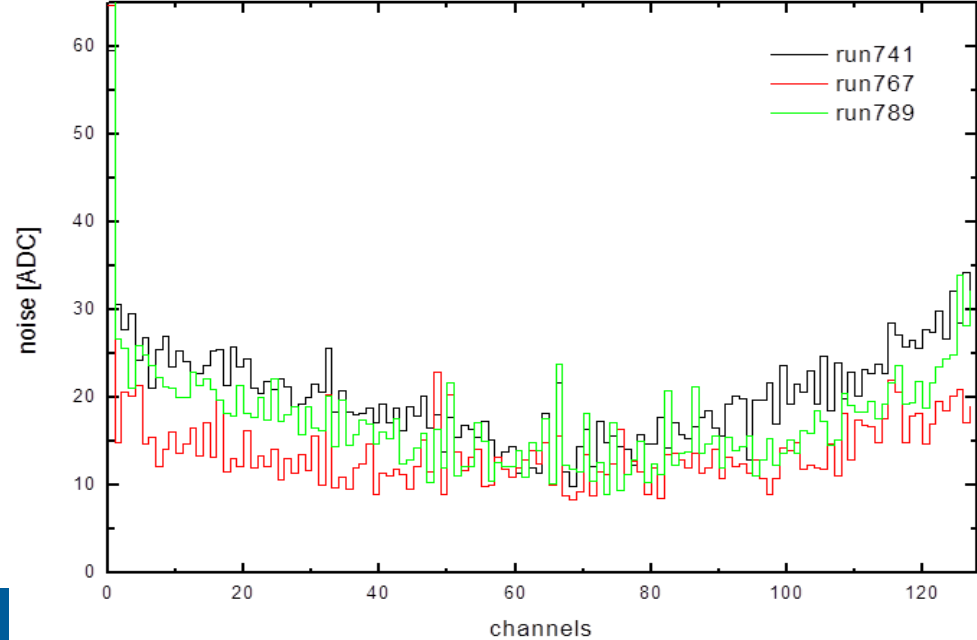
Noise (apv_0) at 5GeV, w/ charge divider



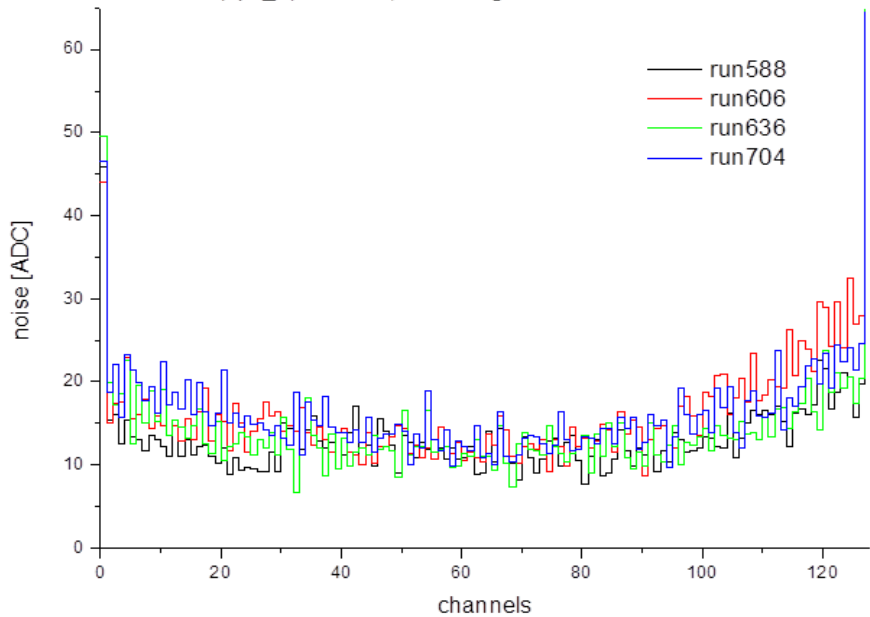
Noise (apv_1) at 5GeV, w/o charge divider



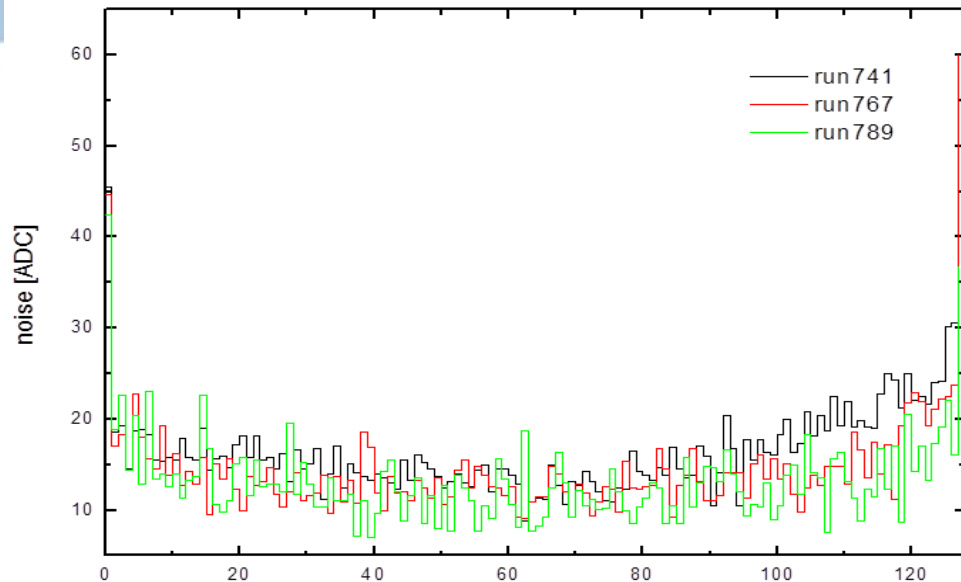
Noise (apv_1) at 5GeV, w/ charge divider



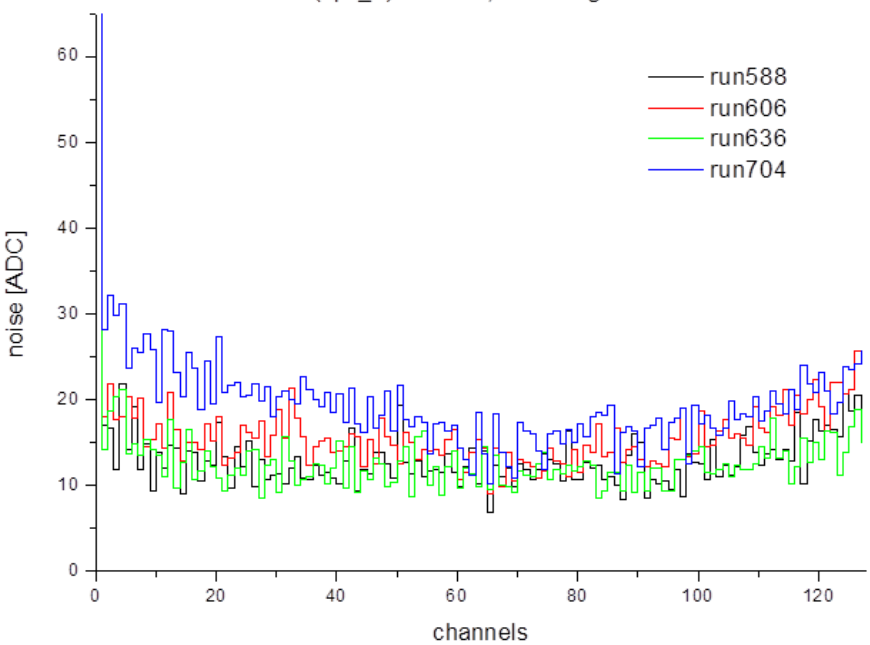
Noise (apv_2) at 5GeV, w/o charge divider



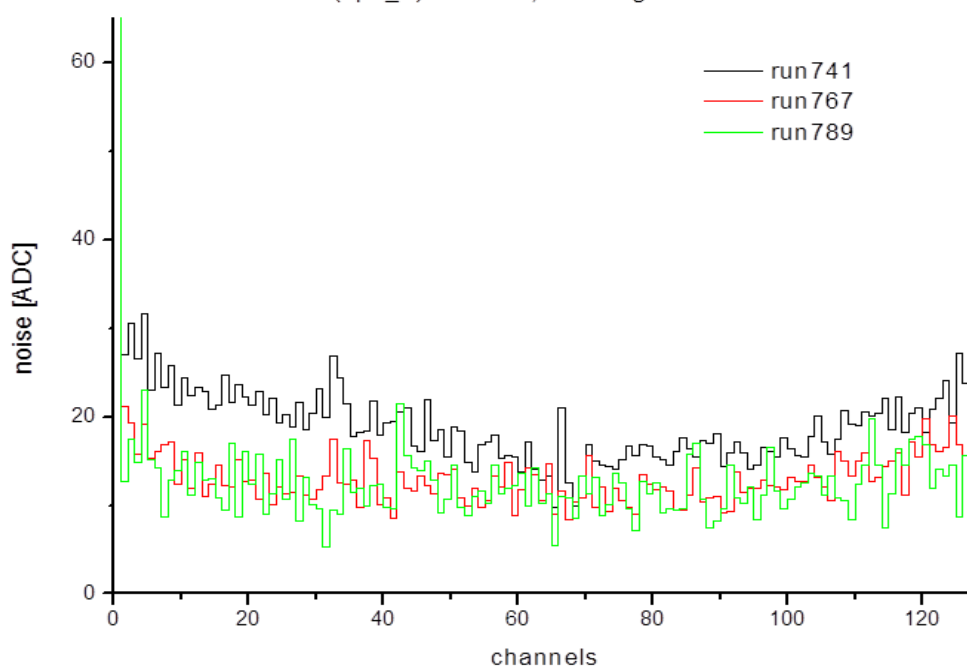
Noise (apv_2) at 5GeV, w/ charge divider



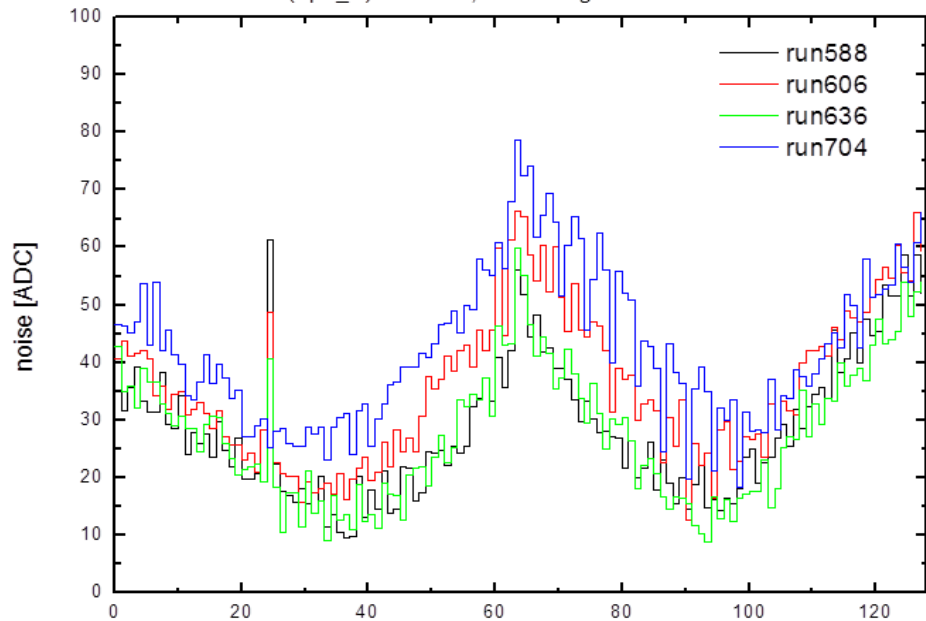
Noise (apv_3) at 5GeV, w/o charge divider



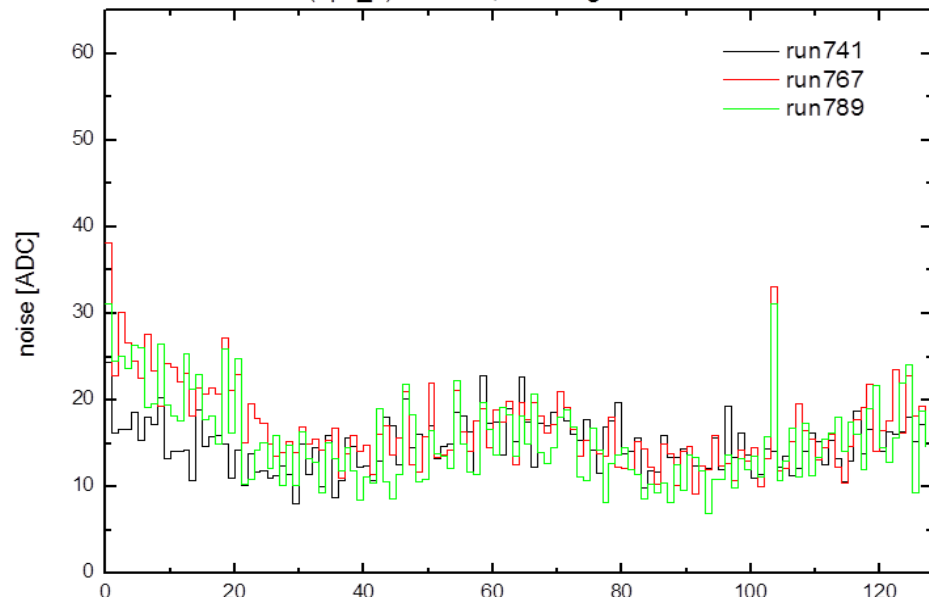
Noise (apv_3) at 5GeV, w/ charge divider



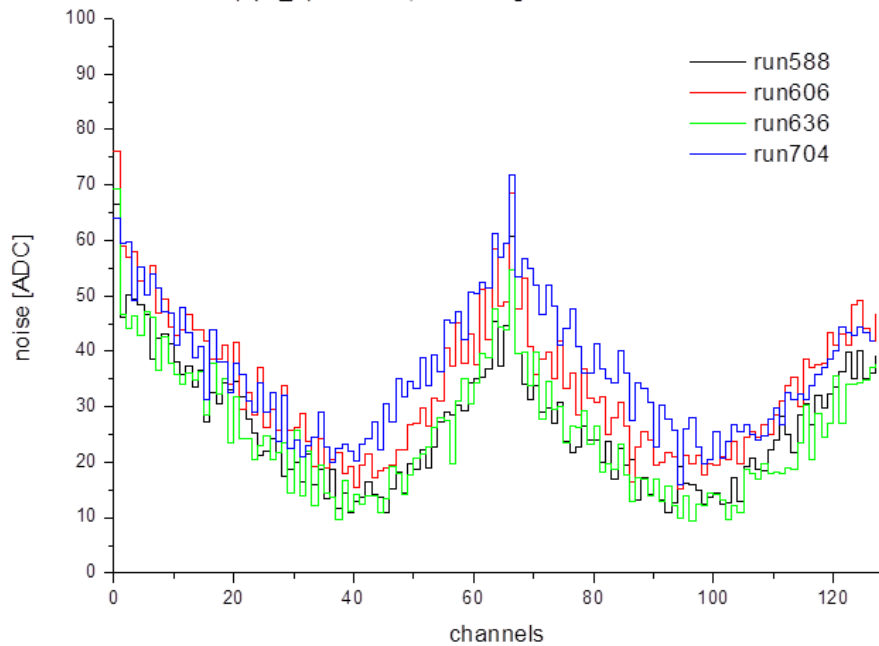
Noise (apv_4) at 5GeV, w/o charge divider



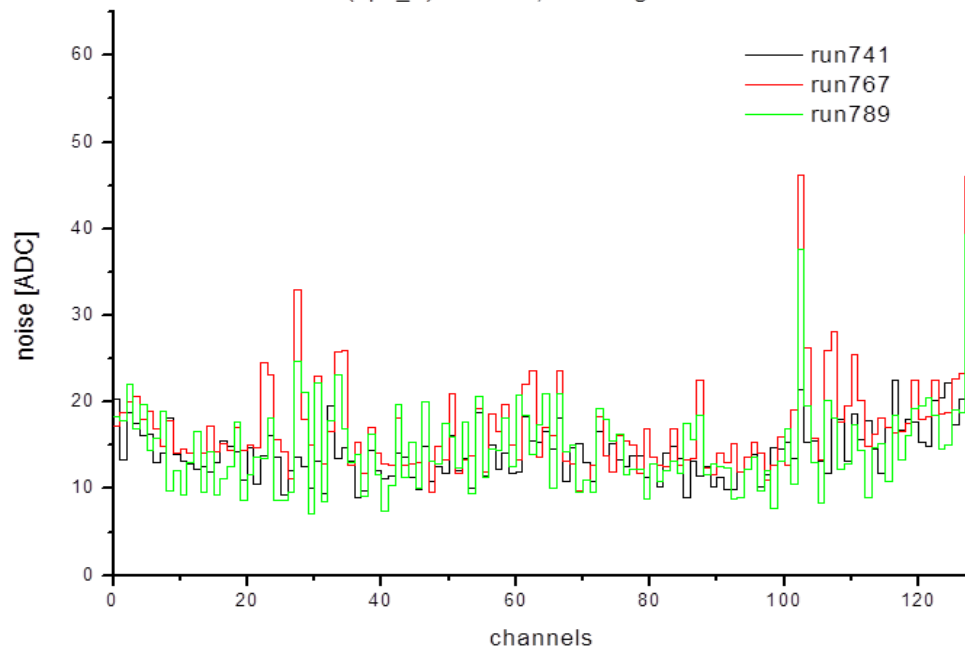
Noise (apv_4) at 5GeV, w/ charge divider



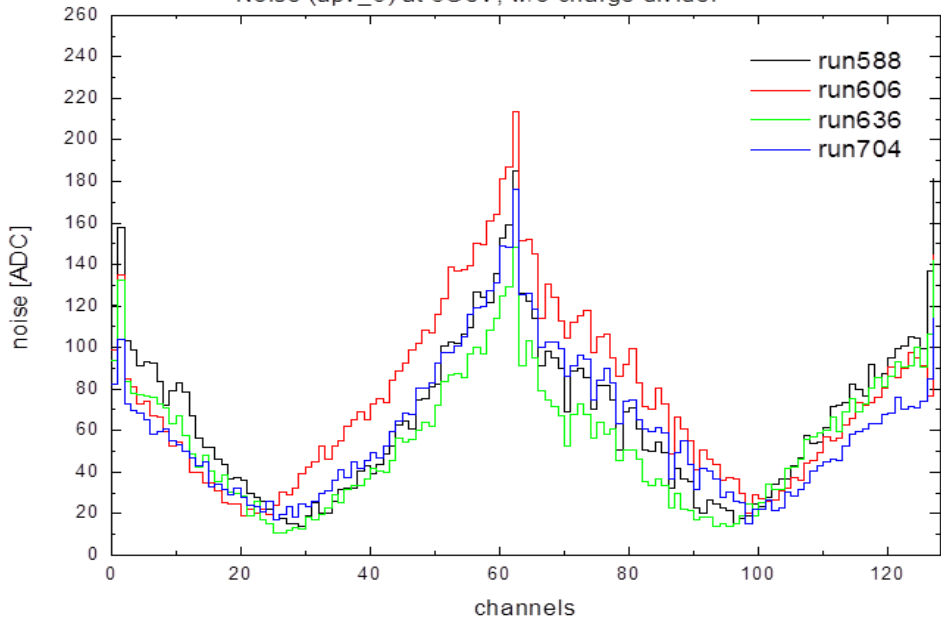
Noise (apv_5) at 5GeV, w/o charge divider



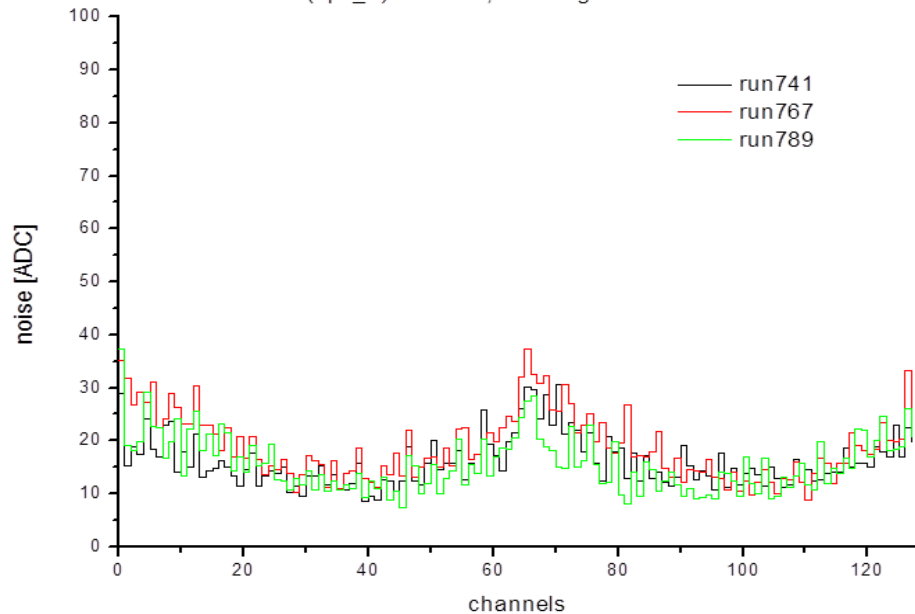
Noise (apv_5) at 5GeV, w/ charge divider



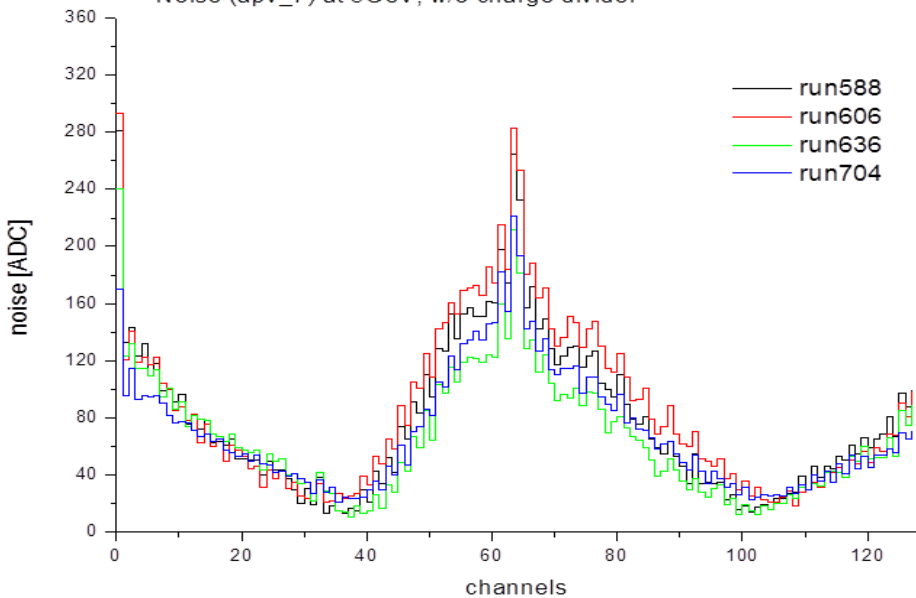
Noise (apv_6) at 5GeV, w/o charge divider



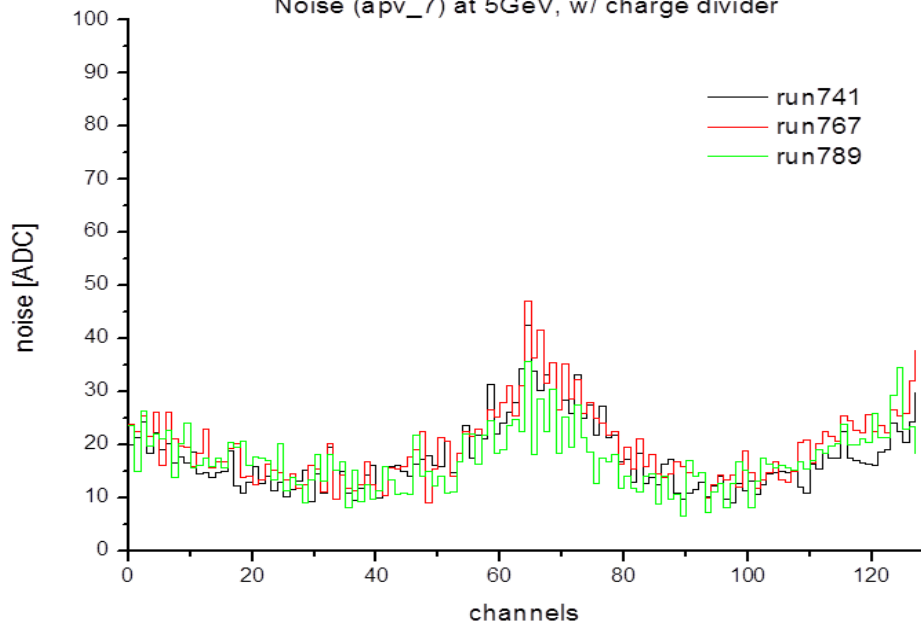
Noise (apv_6) at 5GeV, w/ charge divider



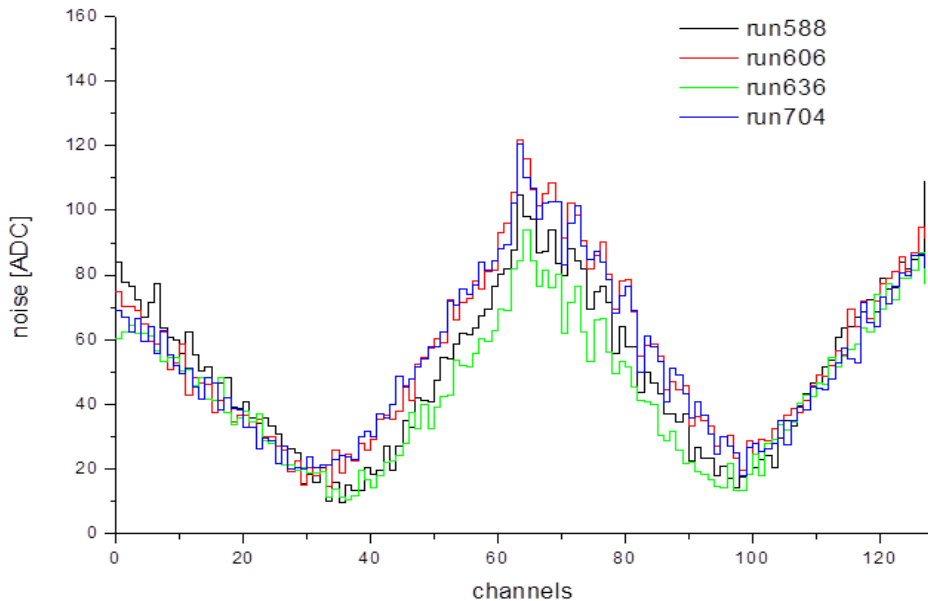
Noise (apv_7) at 5GeV, w/o charge divider



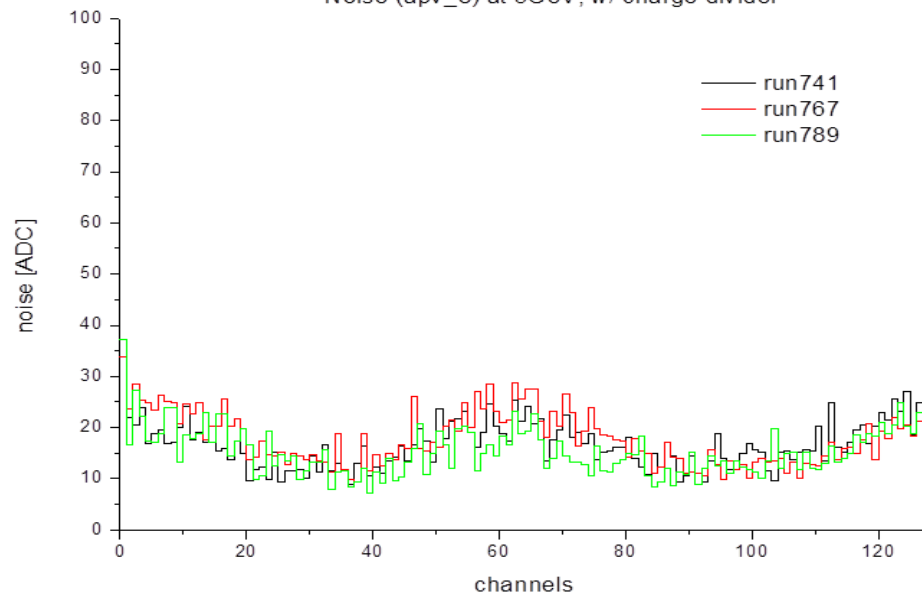
Noise (apv_7) at 5GeV, w/ charge divider



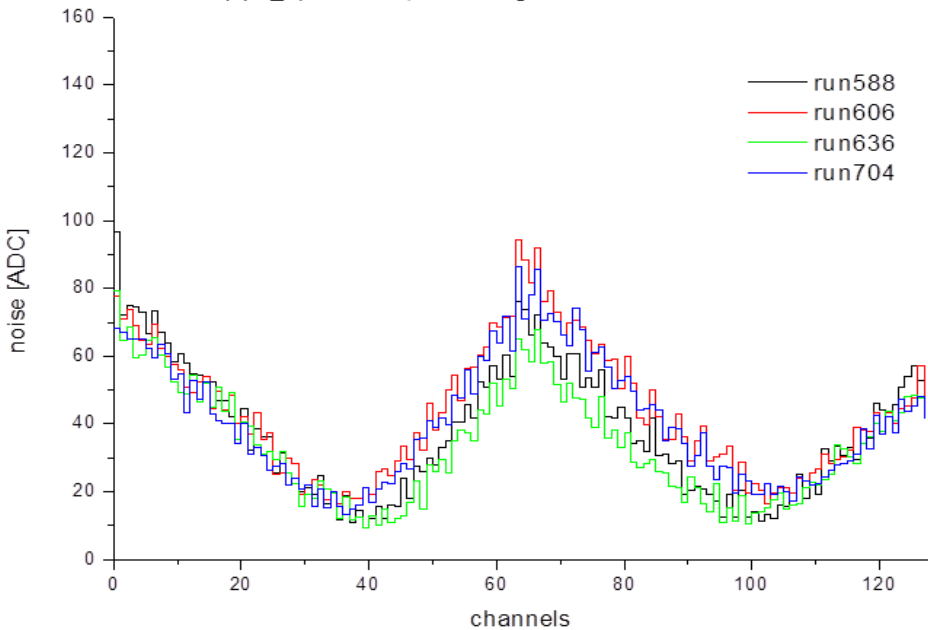
Noise (apv_8) at 5GeV, w/o charge divider



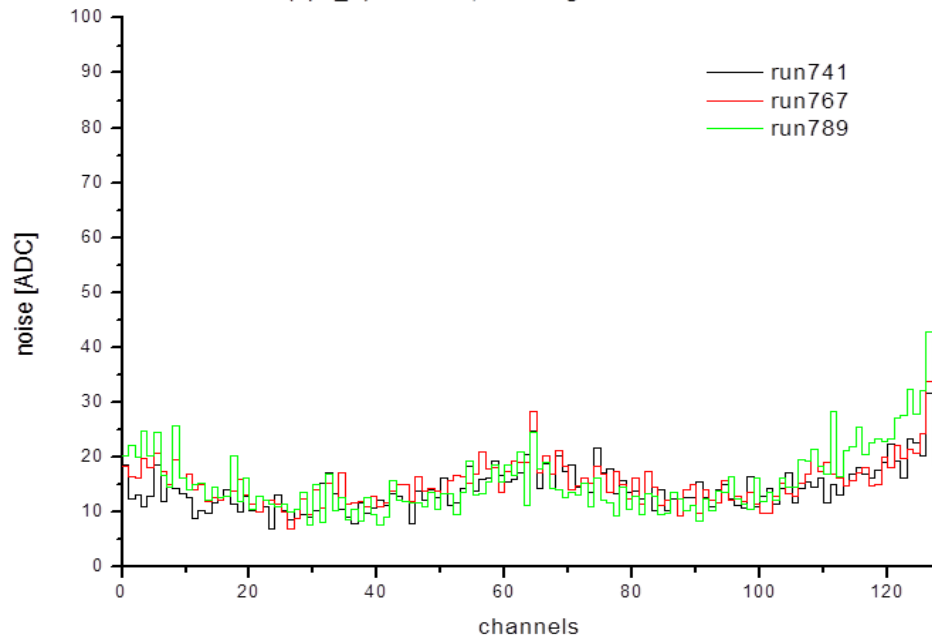
Noise (apv_8) at 5GeV, w/ charge divider



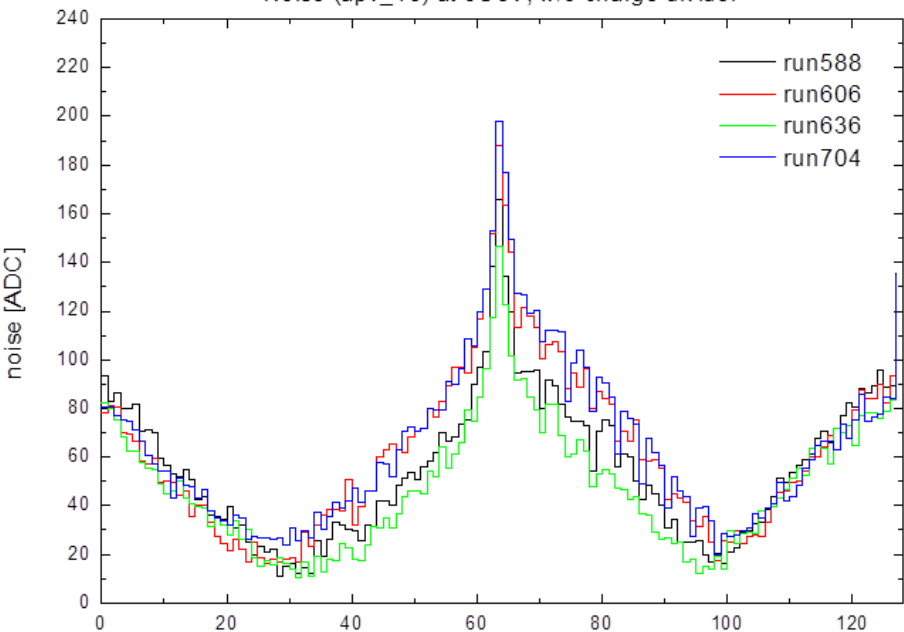
Noise (apv_9) at 5GeV, w/o charge divider



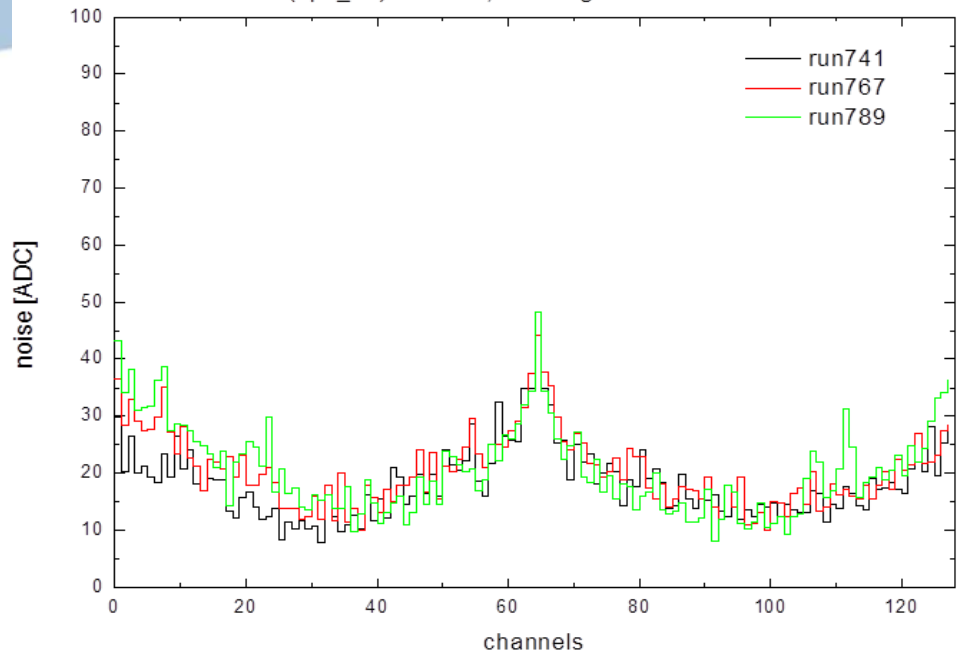
Noise (apv_9) at 5GeV, w/ charge divider



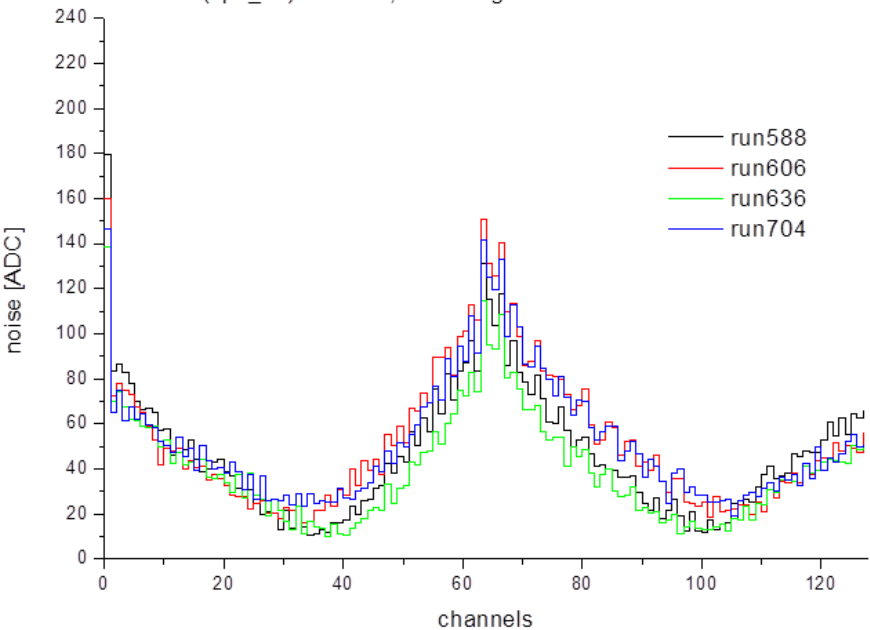
Noise (apv_10) at 5GeV, w/o charge divider



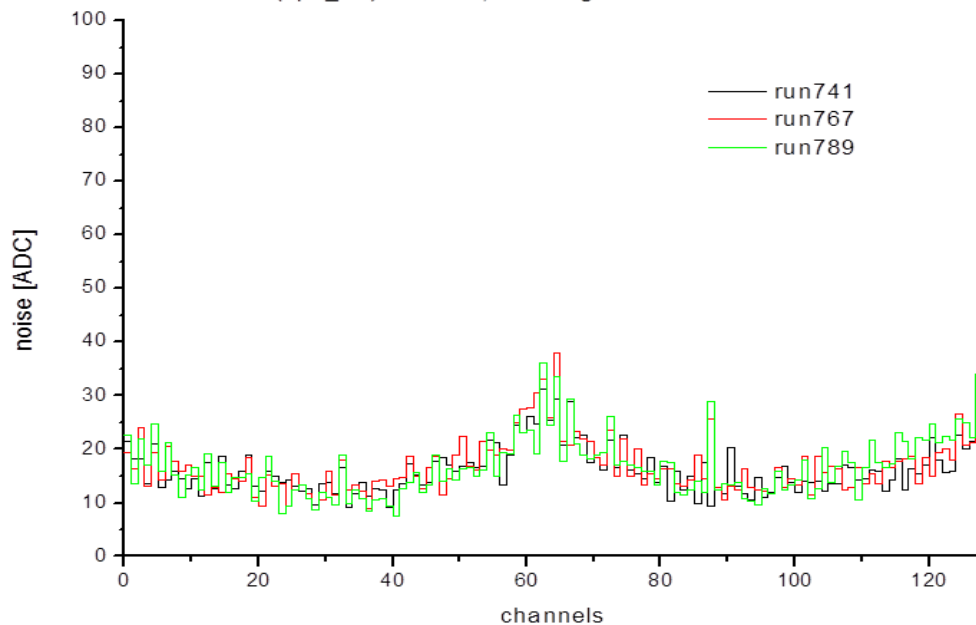
Noise (apv_10) at 5GeV, w/ charge divider

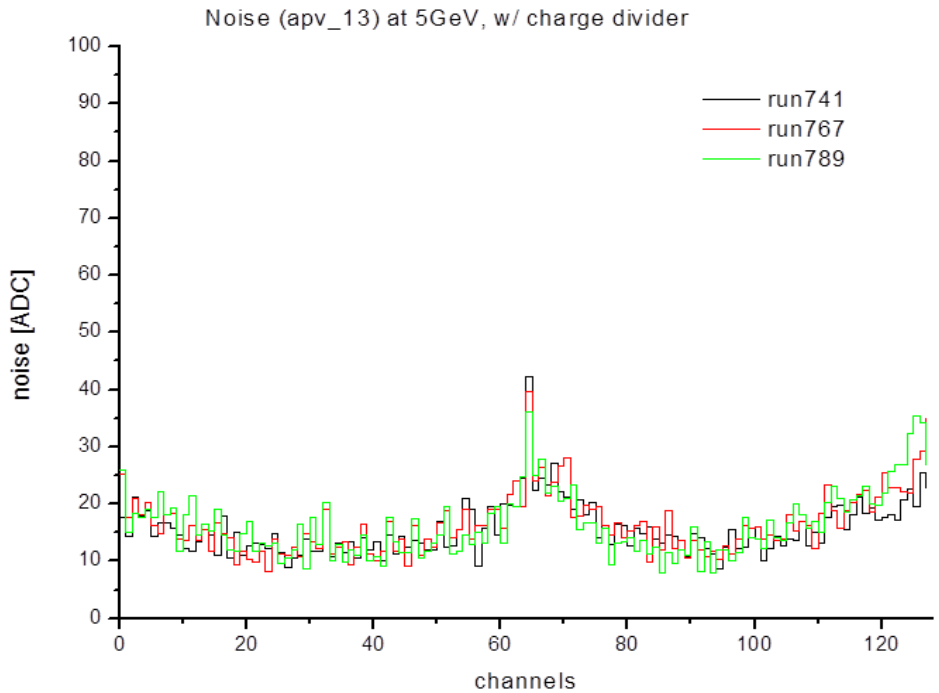
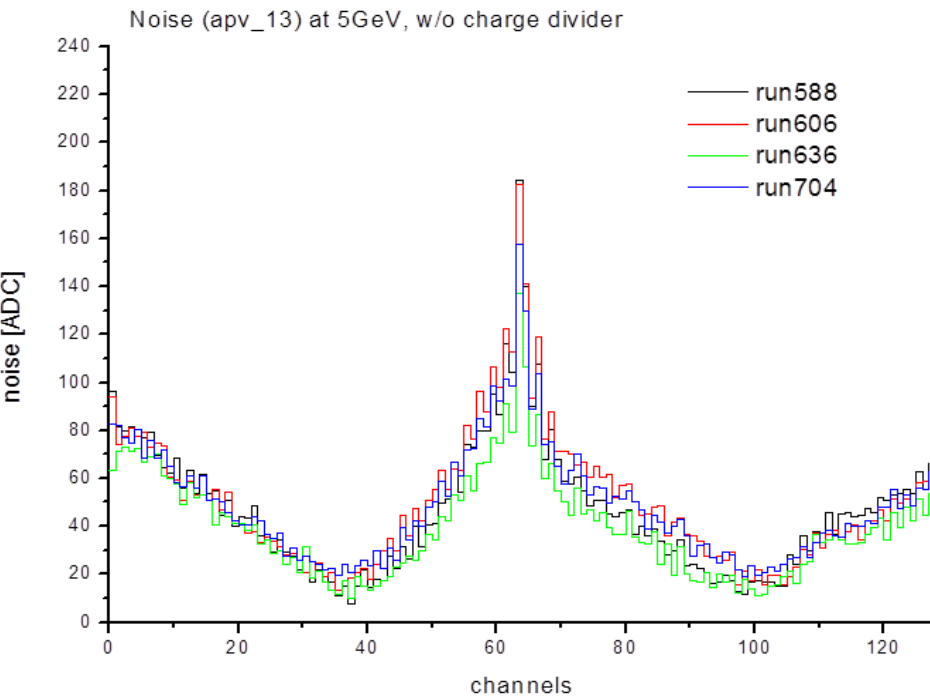
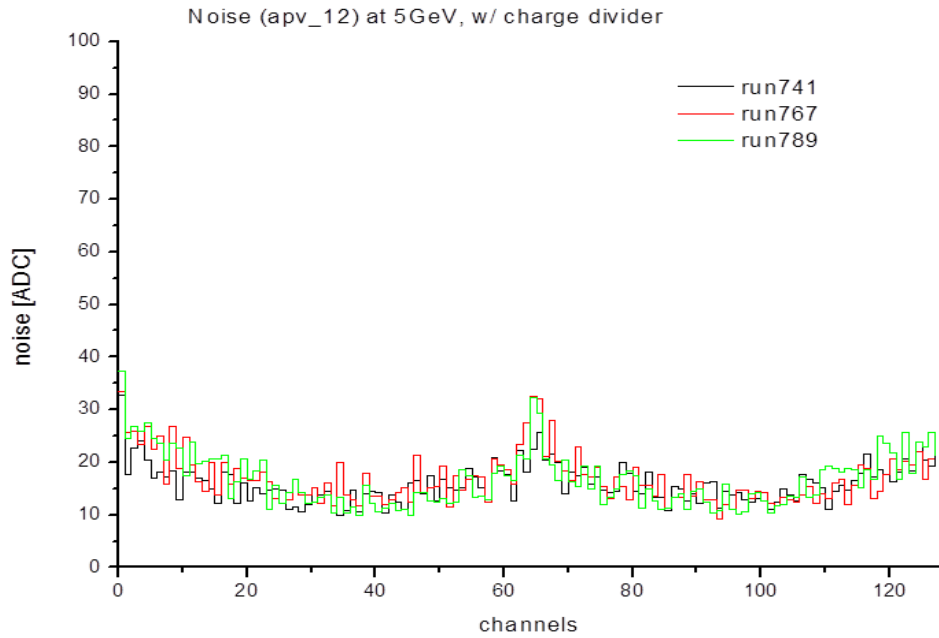
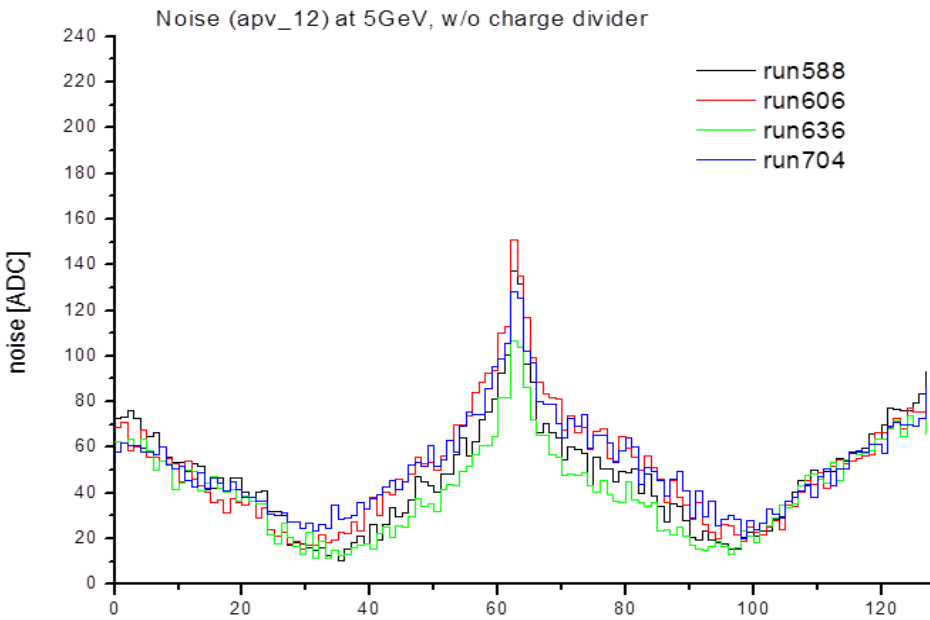


Noise (apv_11) at 5GeV, w/o charge divider

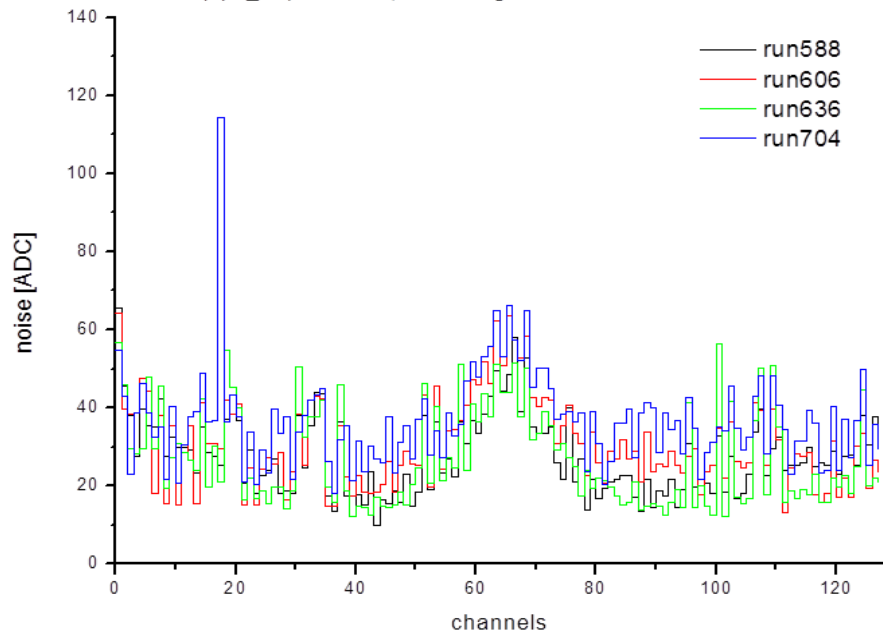


Noise (apv_11) at 5GeV, w/ charge divider

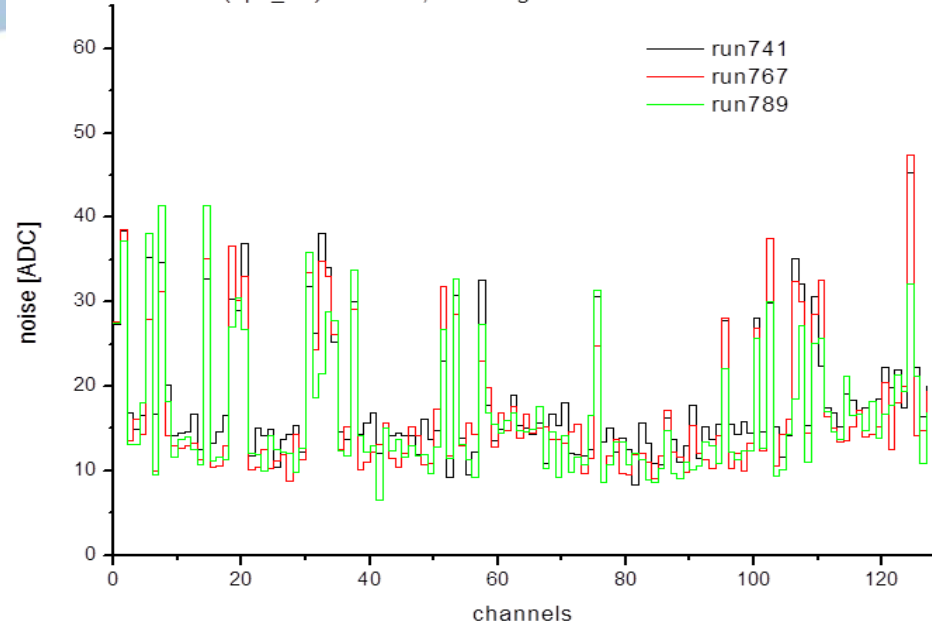




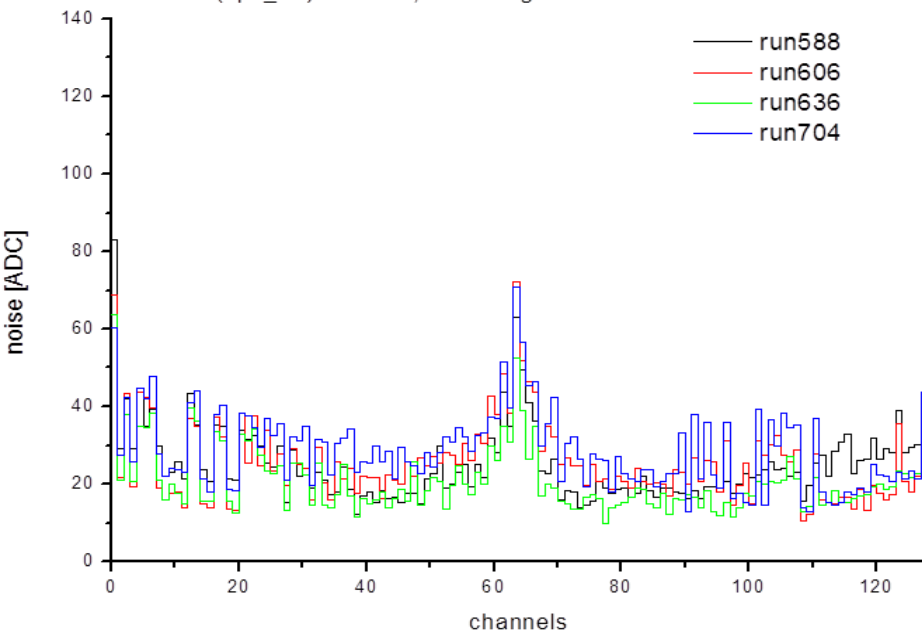
Noise (apv_14) at 5GeV, w/o charge divider



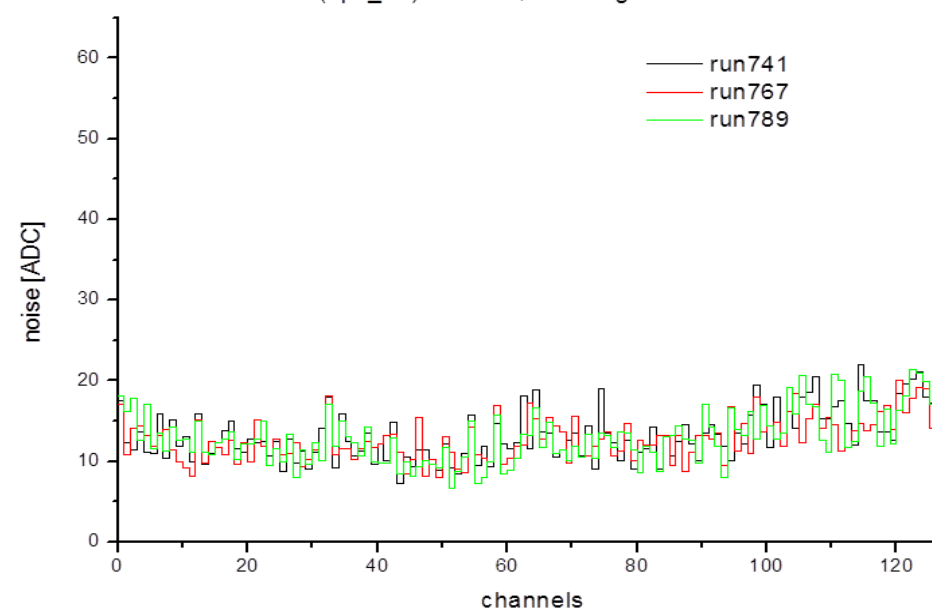
Noise (apv_14) at 5GeV, w/ charge divider



Noise (apv_15) at 5GeV, w/o charge divider



Noise (apv_15) at 5GeV, w/ charge divider



Conclusions

- **The noise were analysis for all APVs and for different experimental conditions as follow:**
 - w/ and w/o charger divider
 - w and w/o magnetic field
 - w/ and w/o target
- **For trackers the noise is almost constant. The value is about (15 – 20) ADC;**
- **For LumiCal layers w/o charge divider the noise is two or three times higher than LumiCal layers w/ charge divider;**
- **For TAB bonding layer the noise is low, the values are almost the same like on the tracker;**