

The following main points have been investigated:

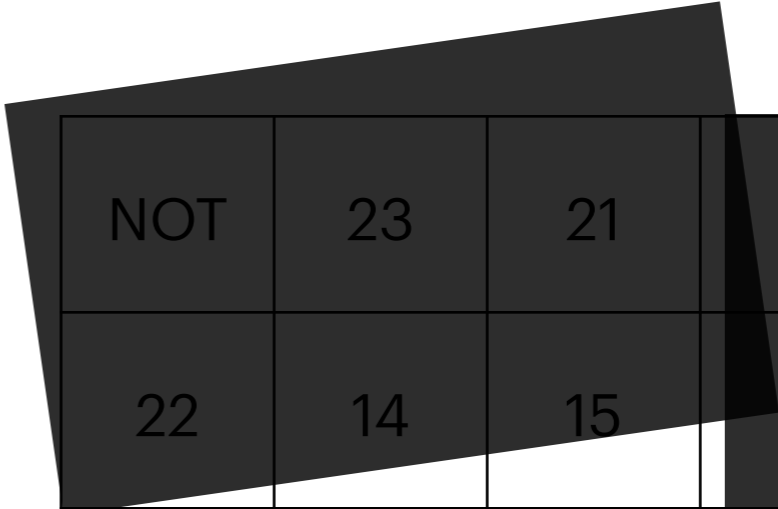
- Finding the HV stability of the LAPPD #153, comparing the Gain with INCOM.
- Studying CrossTalk
- Studying Space Resolution

1 June 2023, Deb

LAPPD#153 Pad Type: C
(6 mm by 6 mm, pitch 6.2 mm)

Channel Map

NOT	23	21	13	5
22	14	15	7	6
20	19	18	17	16
12	11	10	9	8
4	3	2	1	0

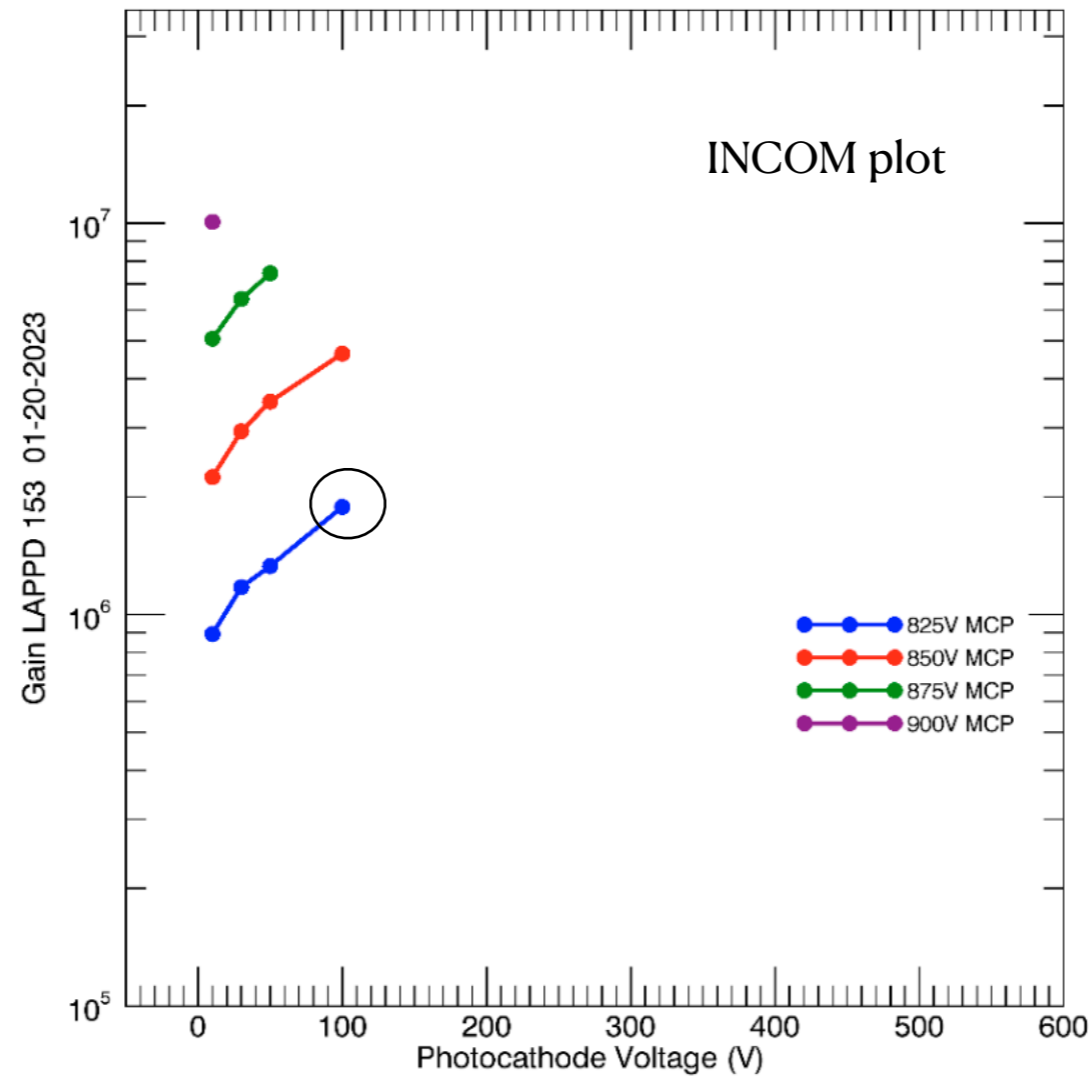


NOT	23	21	13	5
22	14	15	7	6
20	19	18	17	16
12	11	10	9	8
4	3	2	1	0

the numbers are CAEN channel numbers: ch_x

Looking towards PC window, PC-HV on top

HV Stability



At 100/825/200/825/200, the Measured gain $G = 1.3 * 10^6$ is in agreement with INCOM

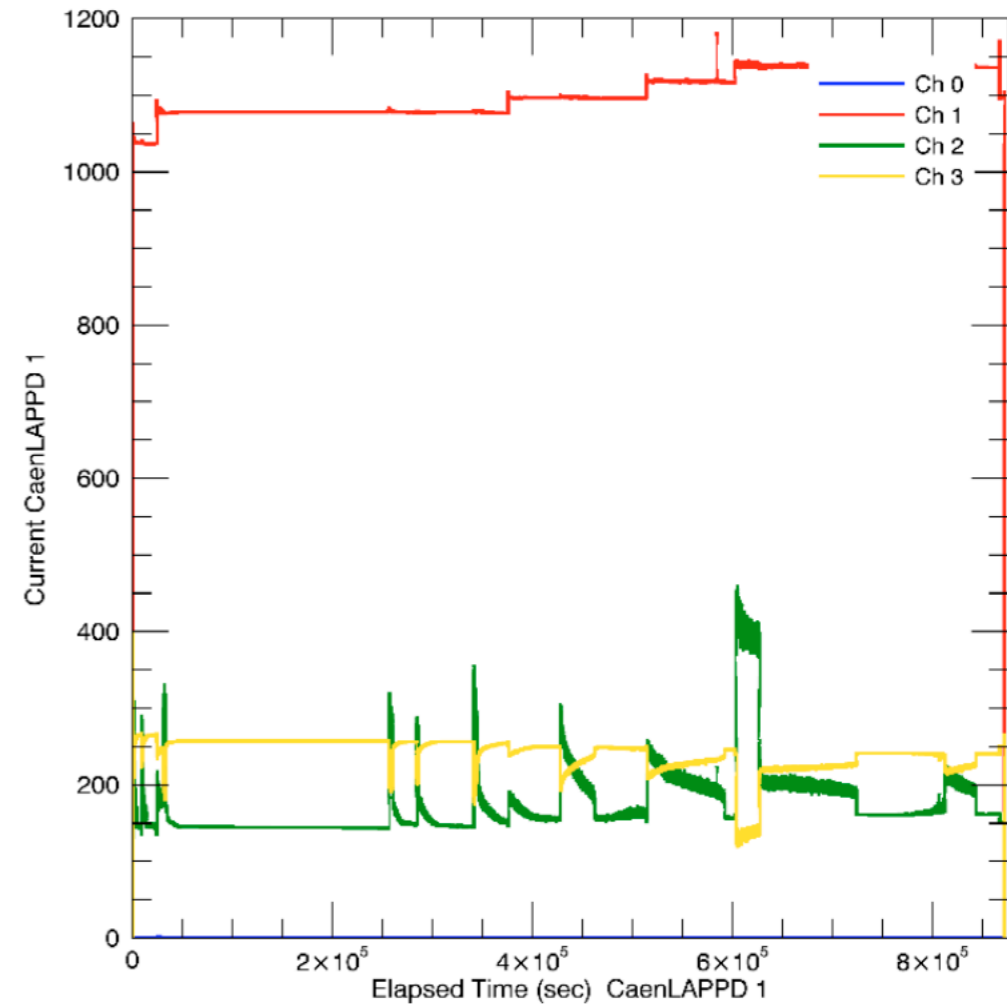
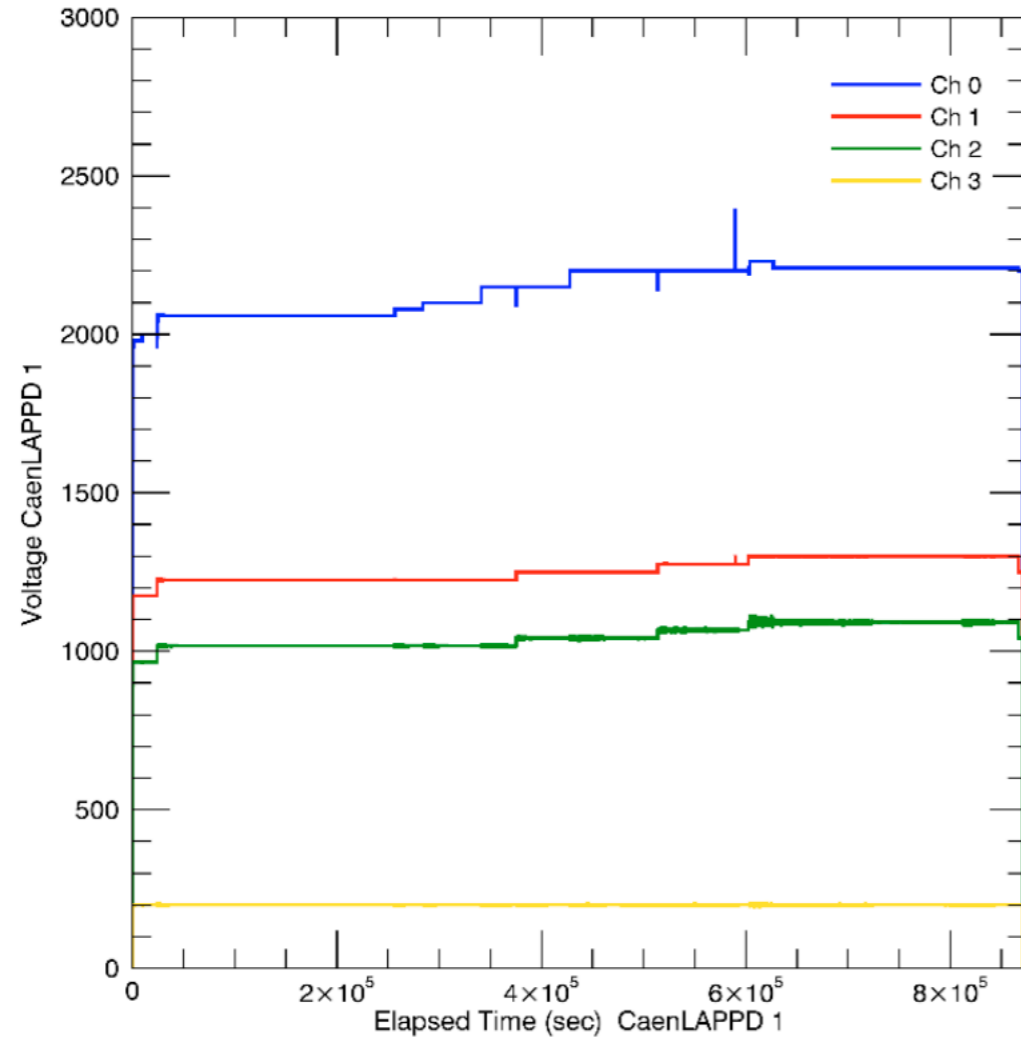
Therefore, our HV scheme is equivalent to INCOM's HV scheme (see slide 5 for HV schemes)

Presently the problem is:

- (1) I so far can NOT so far reach: 100/850/200/850/200 as they reported above
- (2) I COULD reach: 100/825/200/900/200 and the Gain, $G = 4 * 10^6$

I learned today (1 June 2023) that I can push the LAPPD hard to reach, say, 50/900/200/900/200
By keeping the MCP current $\sim 200 \mu\text{A}$ above the baseline, for up to 12 hr

INCOM plots

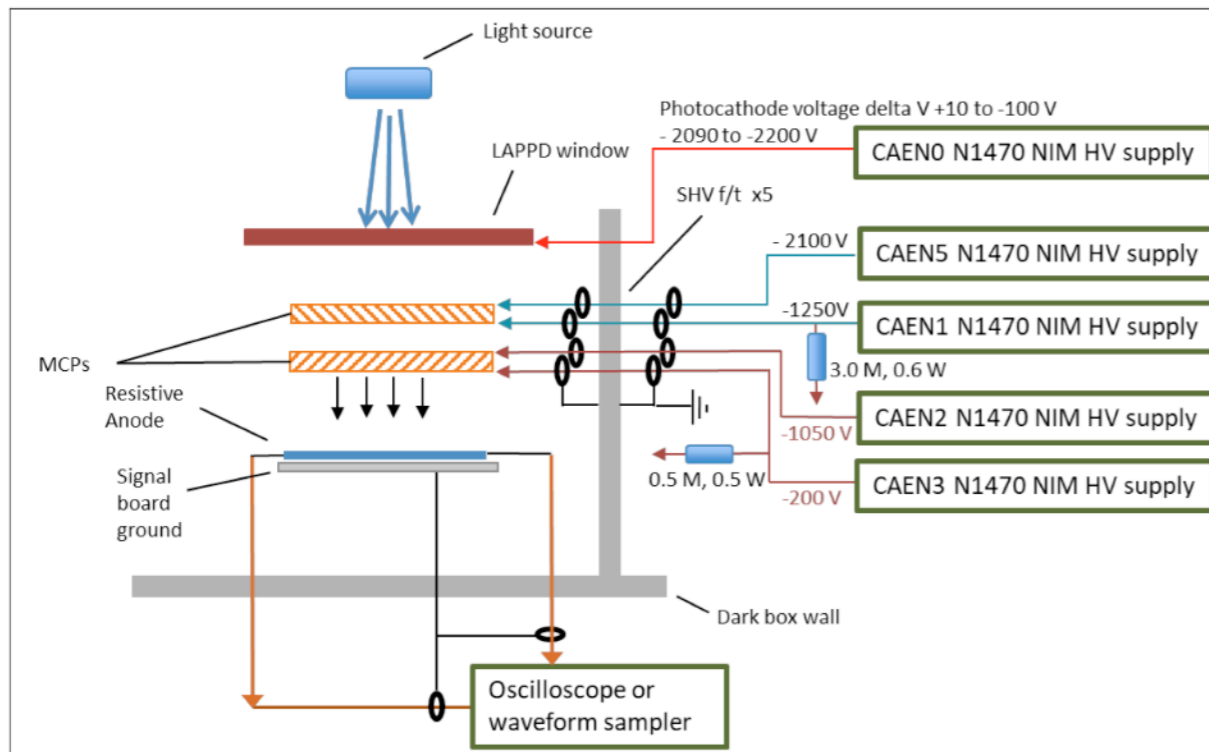


blue = PC, red = NoN, green = NoX, yellow = XoX (XoN not shown)

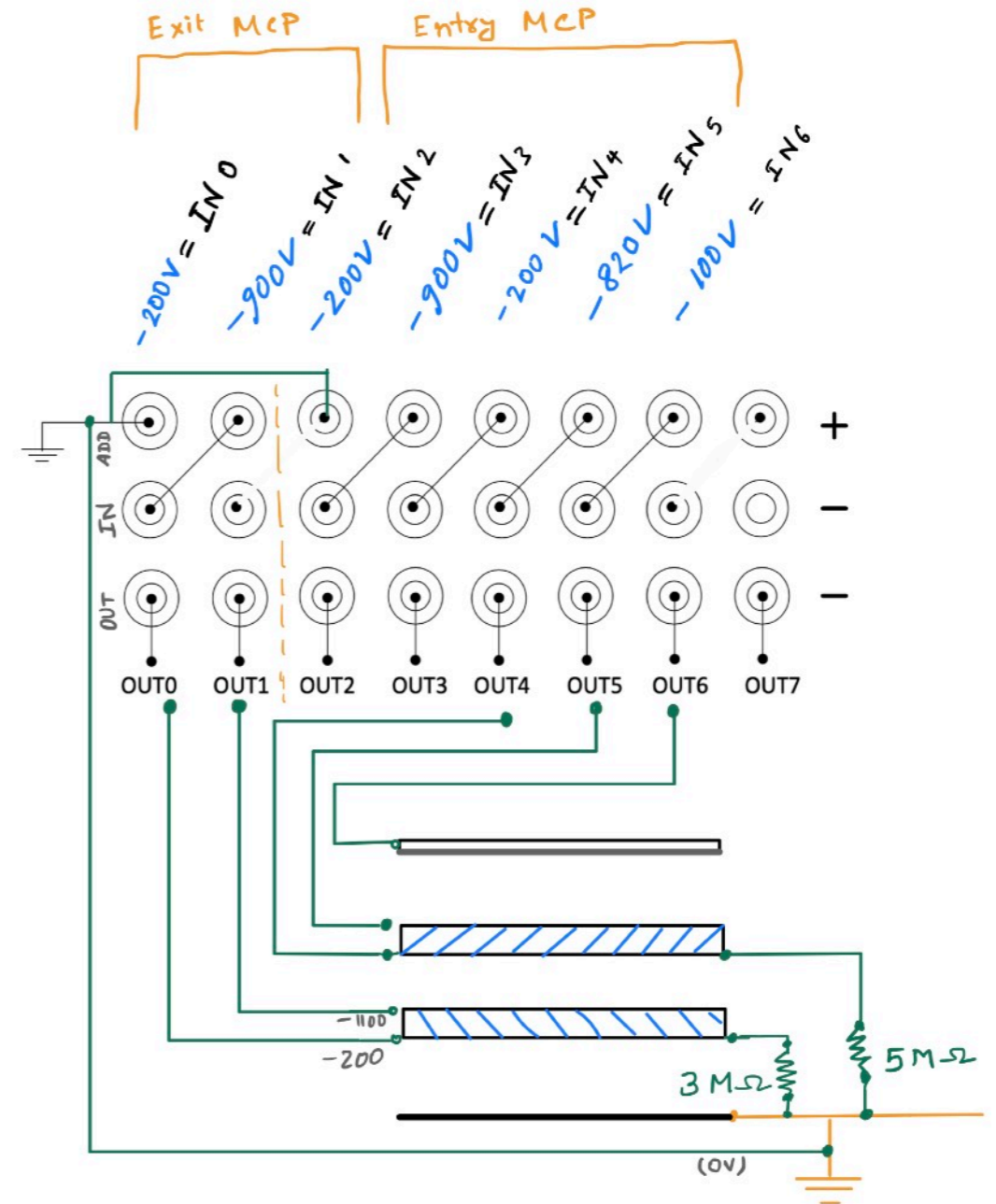
HV schemes on the next slide. Note, current was high for 13 hrs at $6 \cdot 10^5$

The channel map:

INCOM scheme

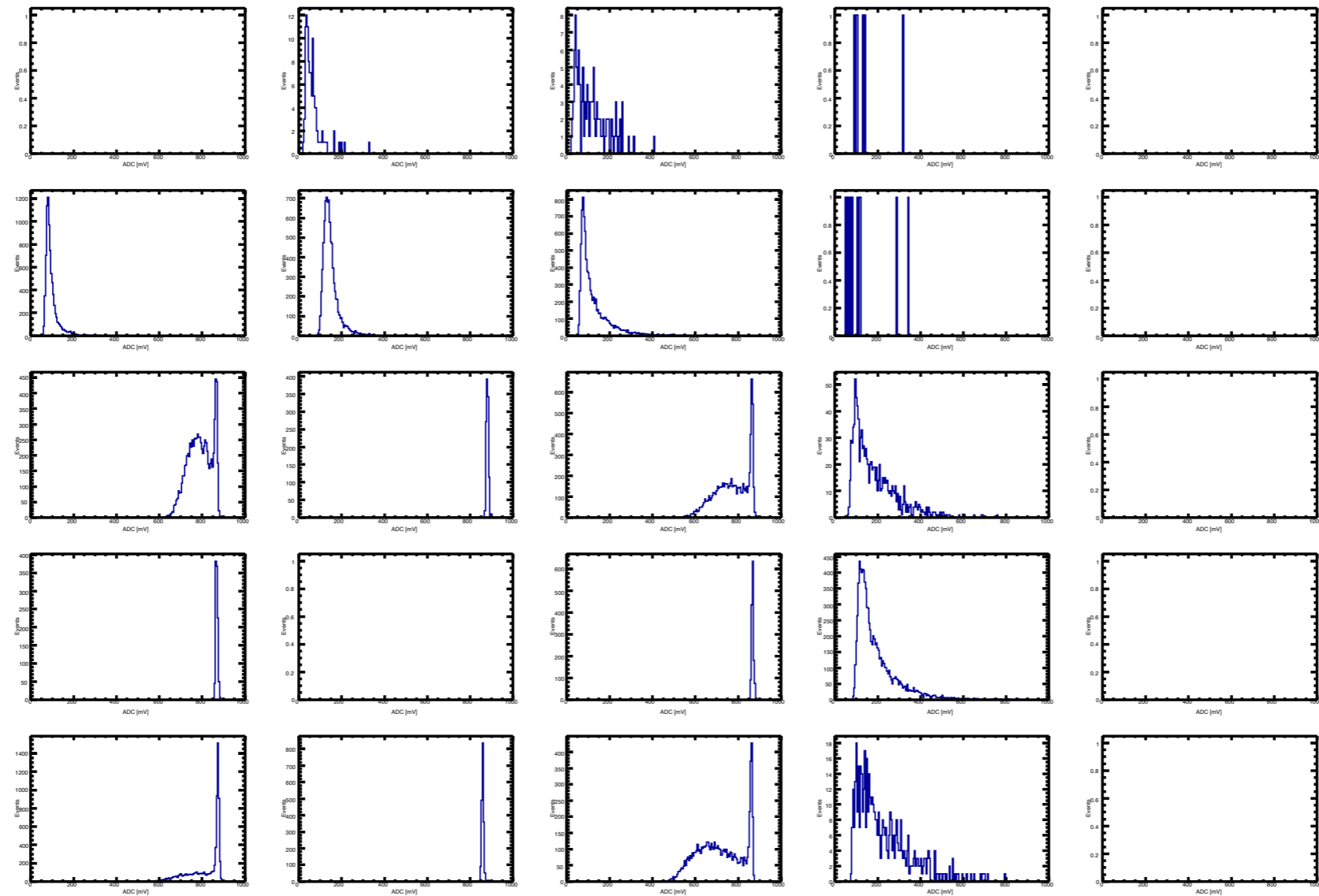


Our scheme



CrossTalk

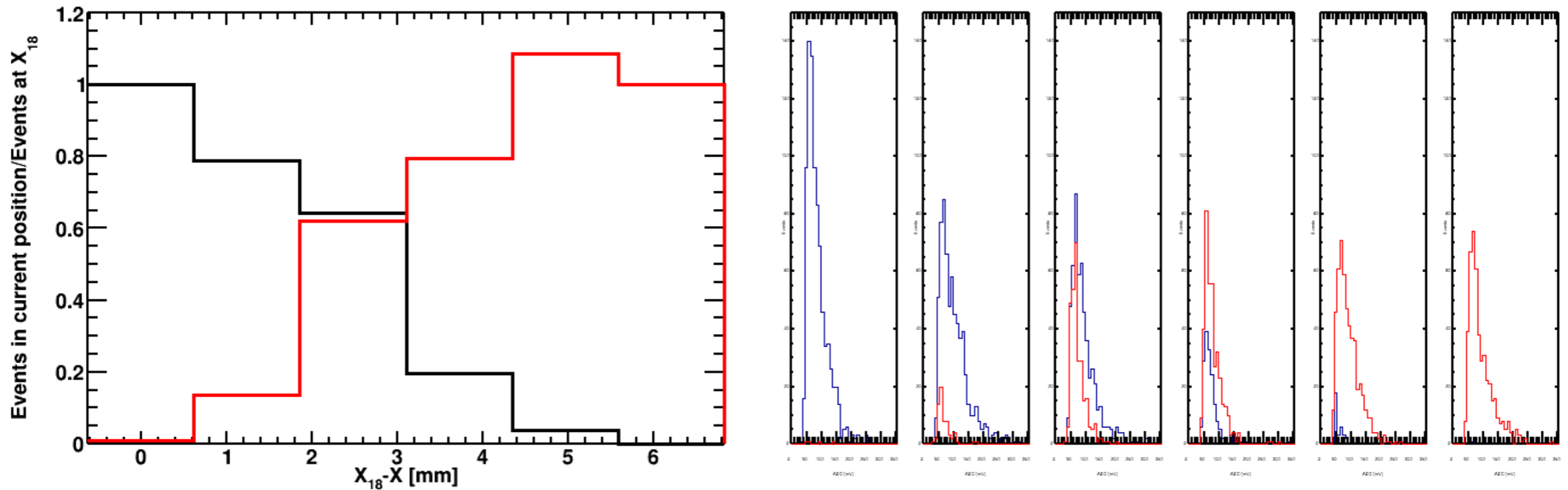
Ch_11 was illuminated, with amplifier bypassed
100/825/200/900/200, LASER spot < 500 μ m



But the neighbouring pads (with amplifier) got saturated. I would retake the data.
[check channel map on slide 2]

SpaceResolution:

done at low gain : 50/800/200/900/200, while there was no charge sharing among pads. LASER spot > 1 mm. Moved from ch_18 (blue) to ch_19 (red)

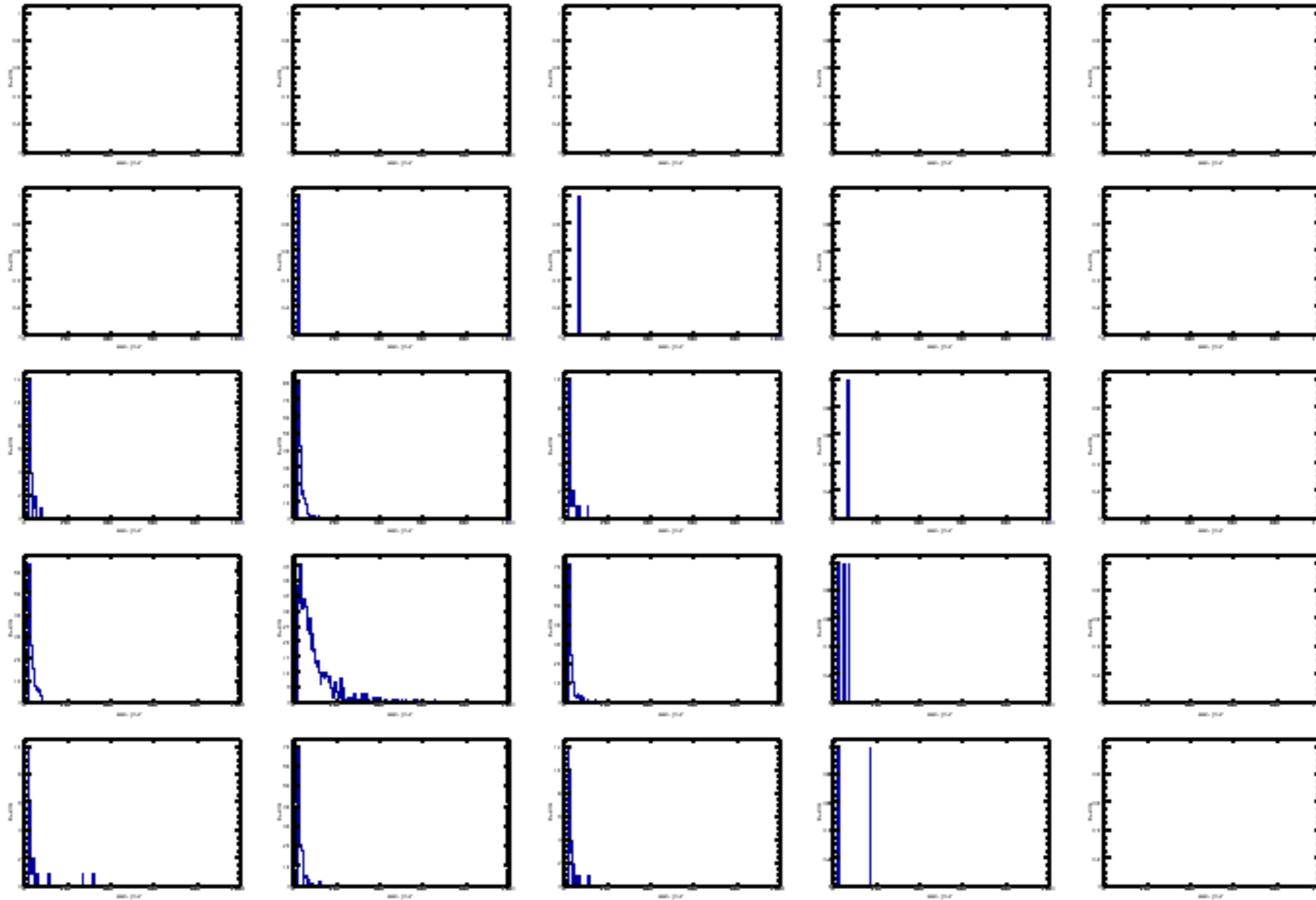


New scan for space resolution has to be redone at 100/825/200/900/200, where the charge sharing seems to be high.

- After I am done taking data for cross talk, I will start taking data for space resolution.
- I also need a discussion on charge-centring, to find resolution.

SpaceResolution:

Ch_11 is illuminated at 100/825/200/900/200.
Charge sharing is obvious at this gain ($4 \cdot 10^6$)



Next:

- Push the HV to 50/900/200/900/200. [Over a day or so]
- New data for Cross talk at high gain.
- New data for Space resolution at high gain with 6 mm pads.
- New data for Space resolution at high gain with 4 mm pads.