ArgonCube General Phone Meeting, 29.10.2020

Timing performance of LRO (ArcLight)

Nikolay Anfimov
On behalf of LRO group

Light Yield

About 50% of photoelectrons give timing information

Gate~80ns

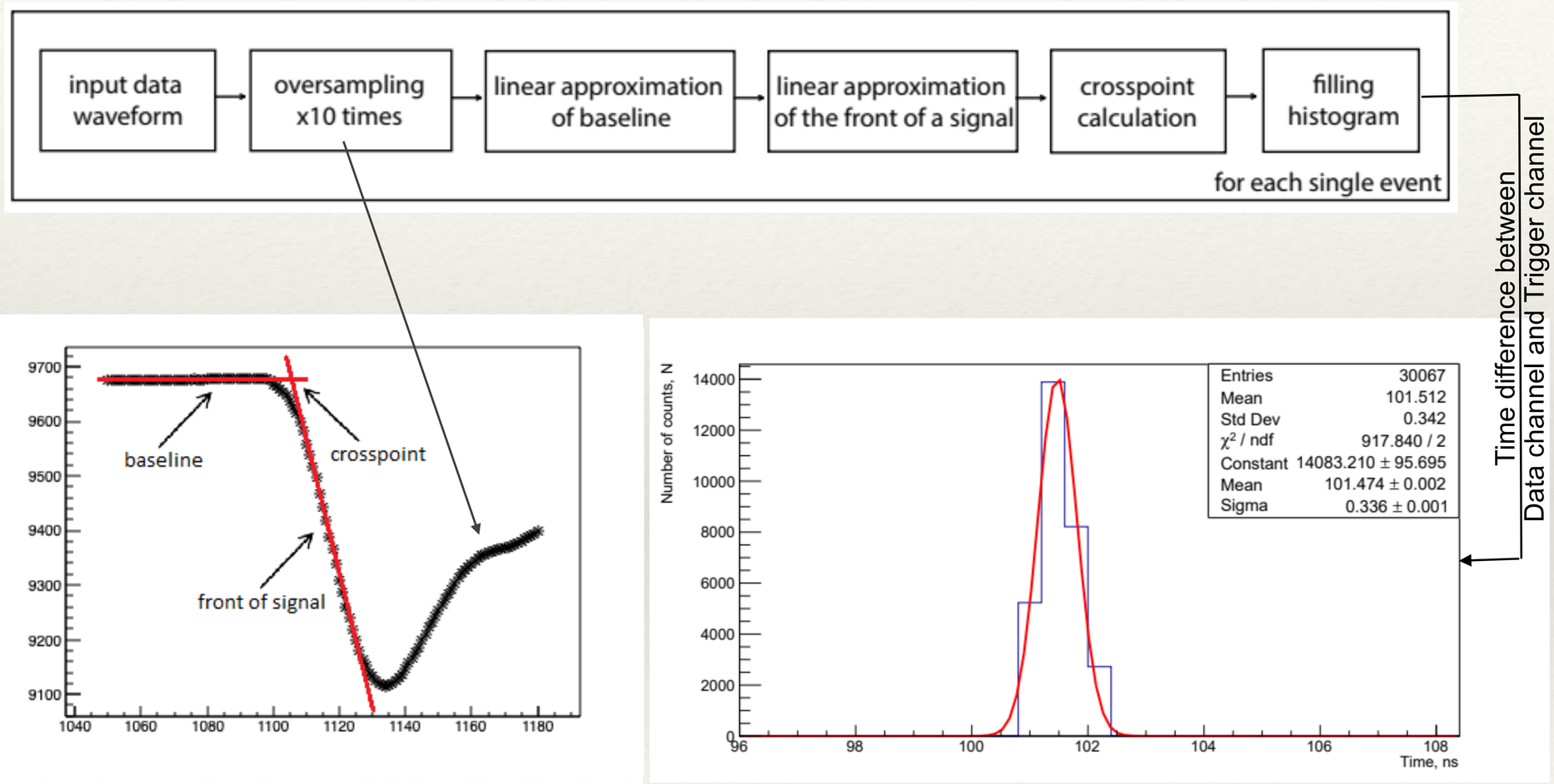
Gate~500ns

Run	28_185007	Gate: 492-500					Gate: 492-1000				
CH	Q0	P1	Mean	S	G	Mu	G*1.4	Q0	Mean	S	mu
2	202.1	258.4	421.6	219.5	56.3	3.9	78.82	1996.3	3288.0	1291.7	16.39
3	203.9	260.9	476.5	272.6	57.0	4.8	79.8	1997.8	3201.7	1203.9	15.09
4	202.8	254.2	424	221.2	51.4	4.3	71.96	1996.6	3075.4	1078.8	14.99
5	204.4	262.1	490.2	285.8	57.7	5.0	80.78	1998.5	3368.7	1370.2	16.96
6	203.1	260.1	459.9	256.8	57.0	4.5	79.8	1996.5	2969.3	972.8	12.19
7	203.6	261.6	458.1	254.5	58.0	4.4	81.2	1997.2	3021.2	1024.0	12.61
						26.8	ph.e.				88.2 ph.e.

Light, p.e.

Light, p.e.

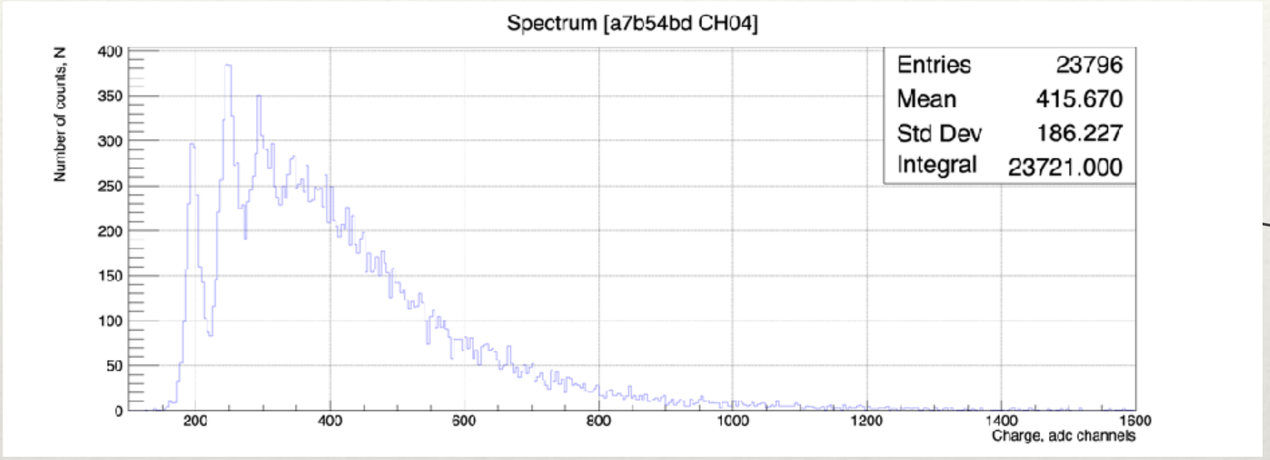
Time Extraction

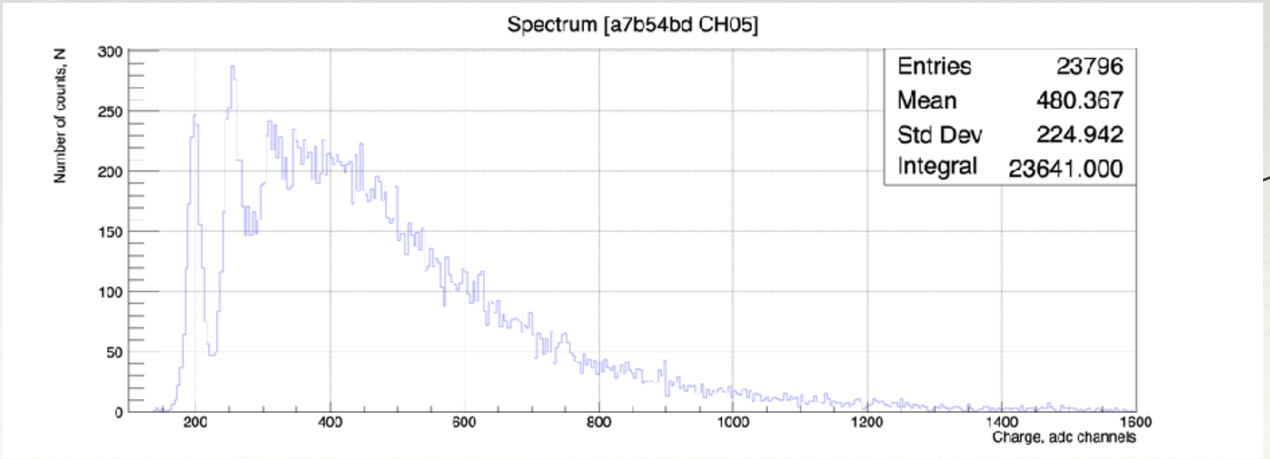


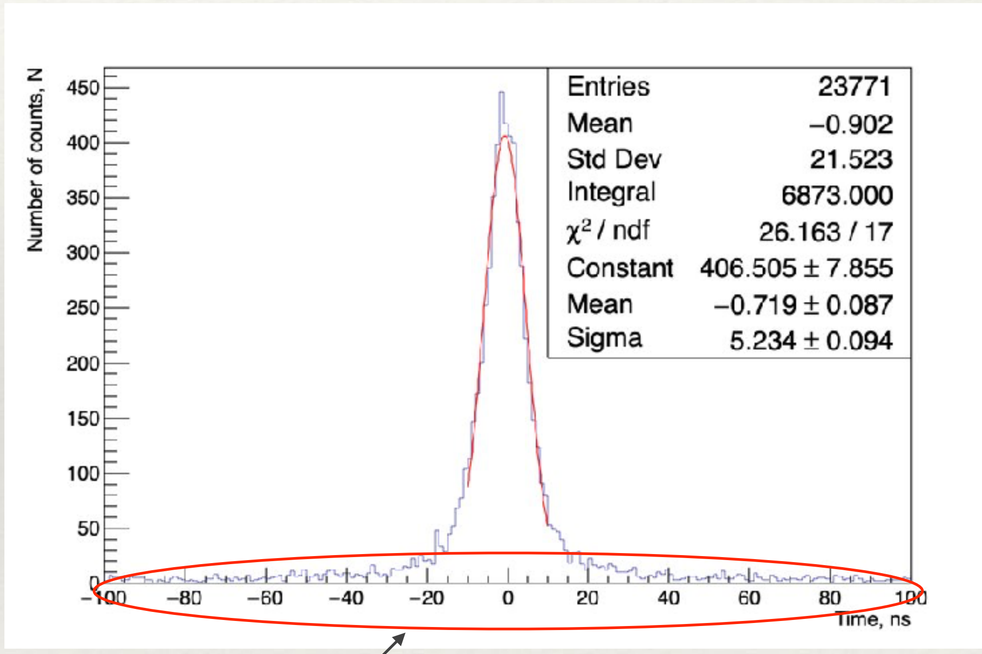
Fit error ~ 200ps, Bin width = FWHM~500ps,

Slicing charge spectrum - 80 ns (No THR)

Triggered by SUM



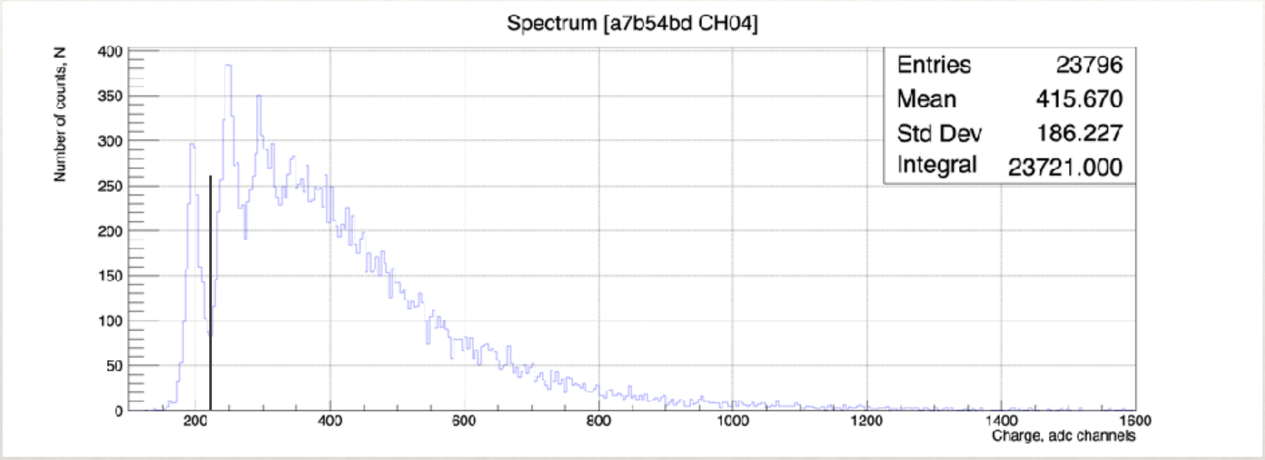


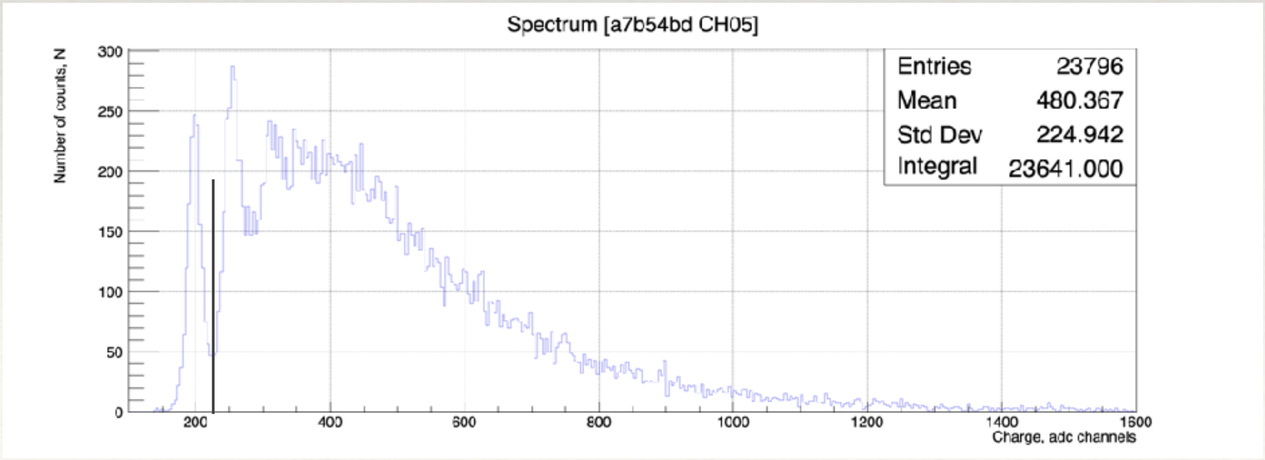


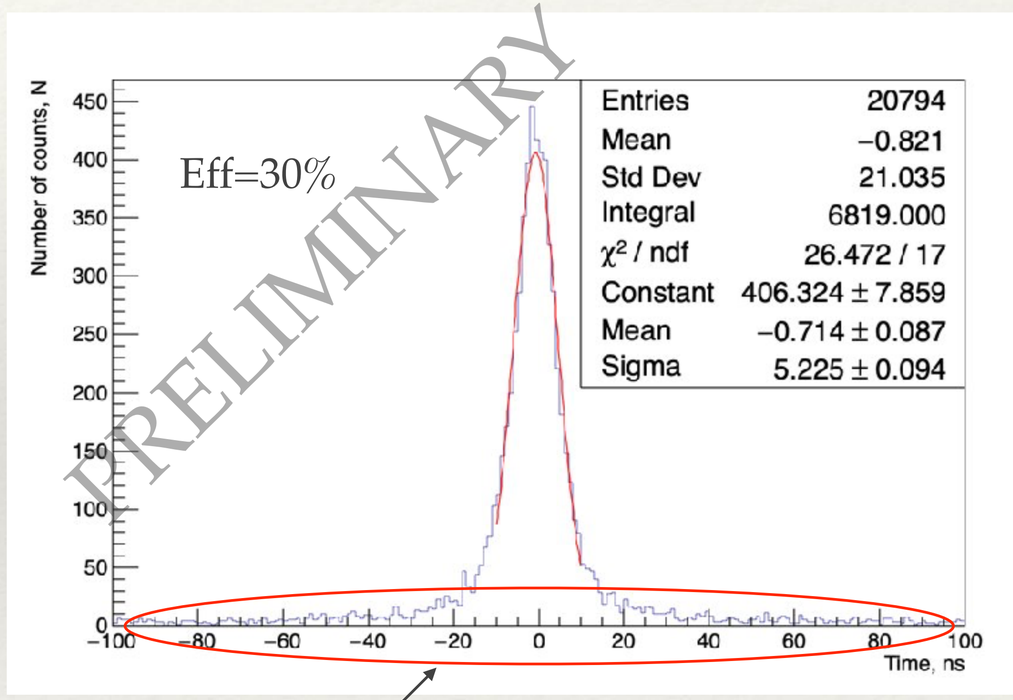
Pedestal/Noise events are Random in time

Slicing charge spectrum -80 ns (THR>1 p.e$^-$)

Triggered by SUM



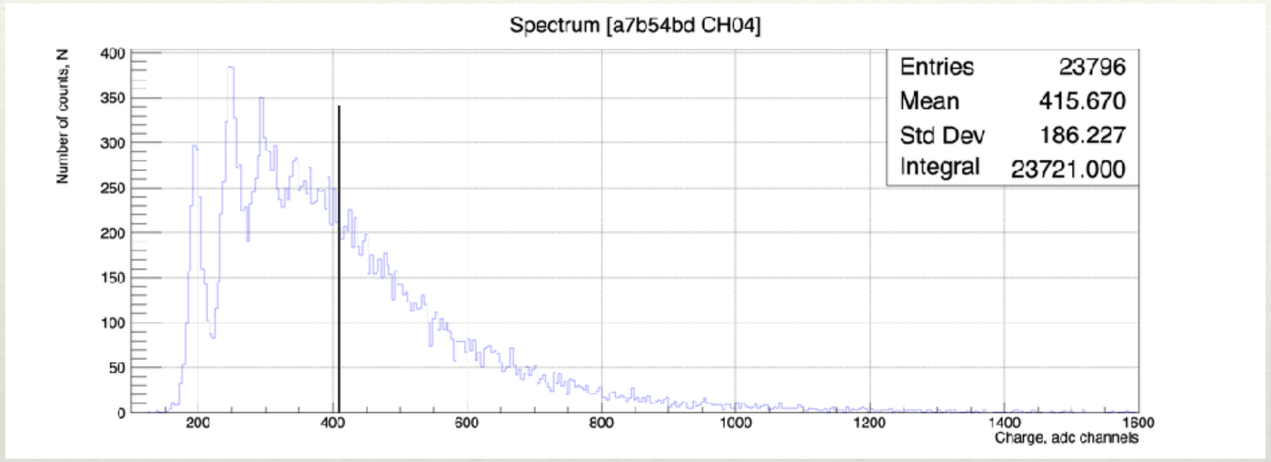


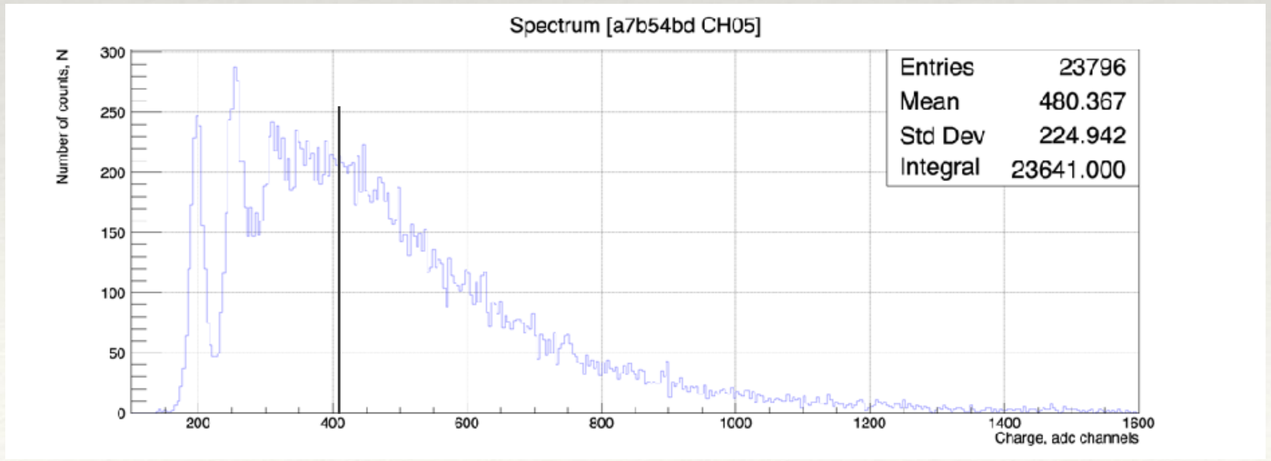


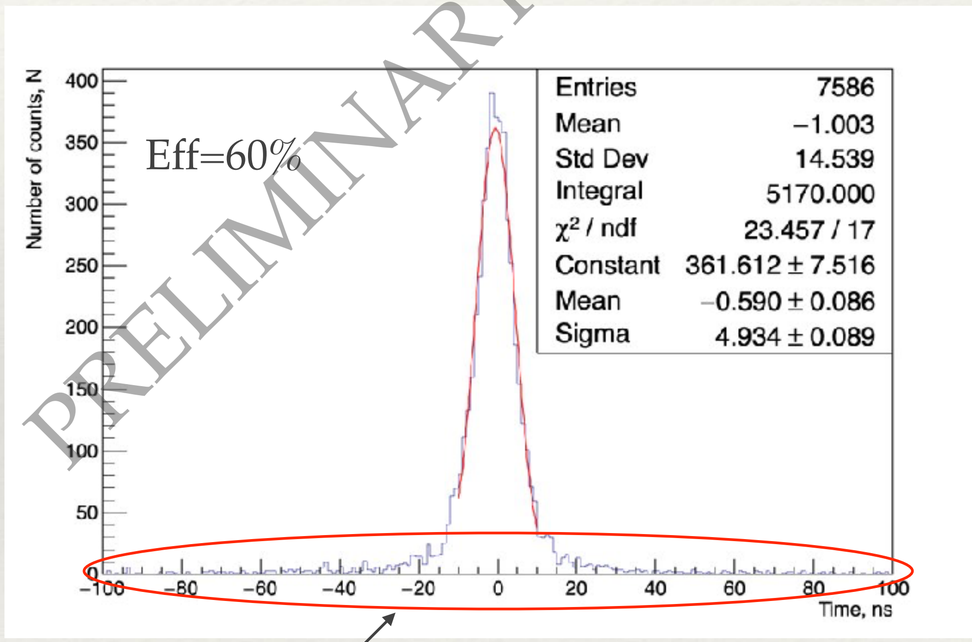
Noise background

Slicing charge spectrum - 80 ns (THR>4 p.e$^-$)

Triggered by SUM



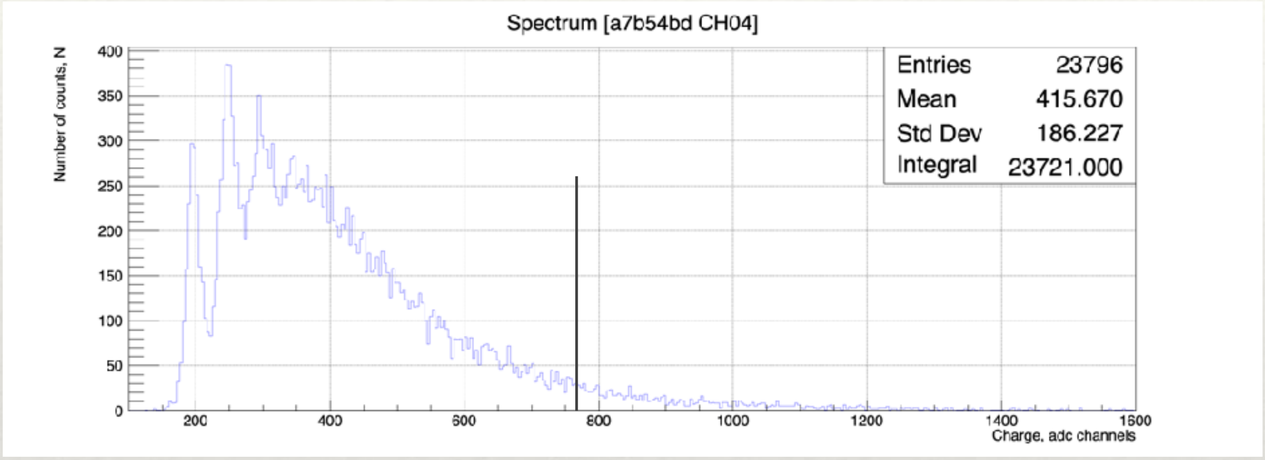


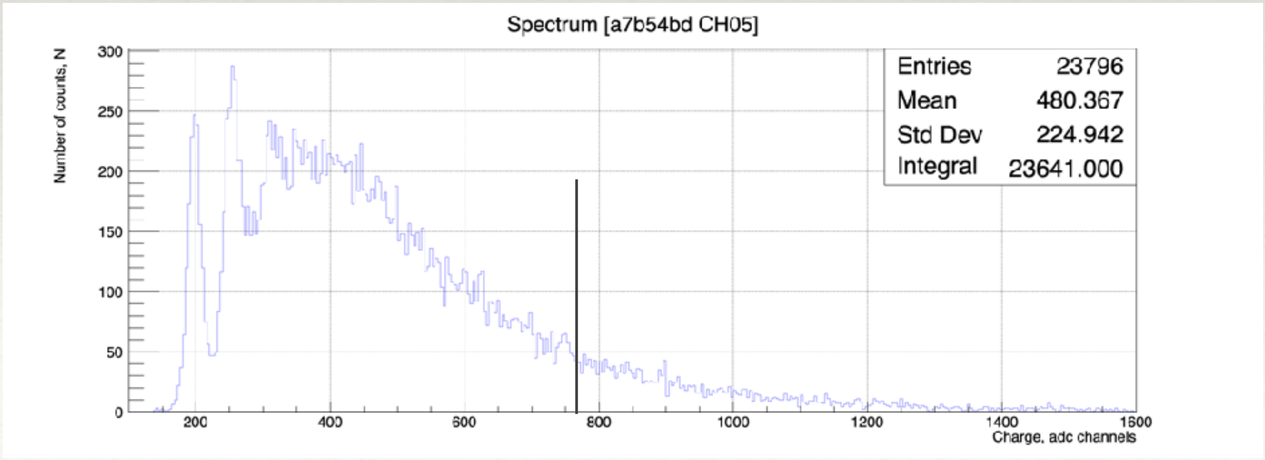


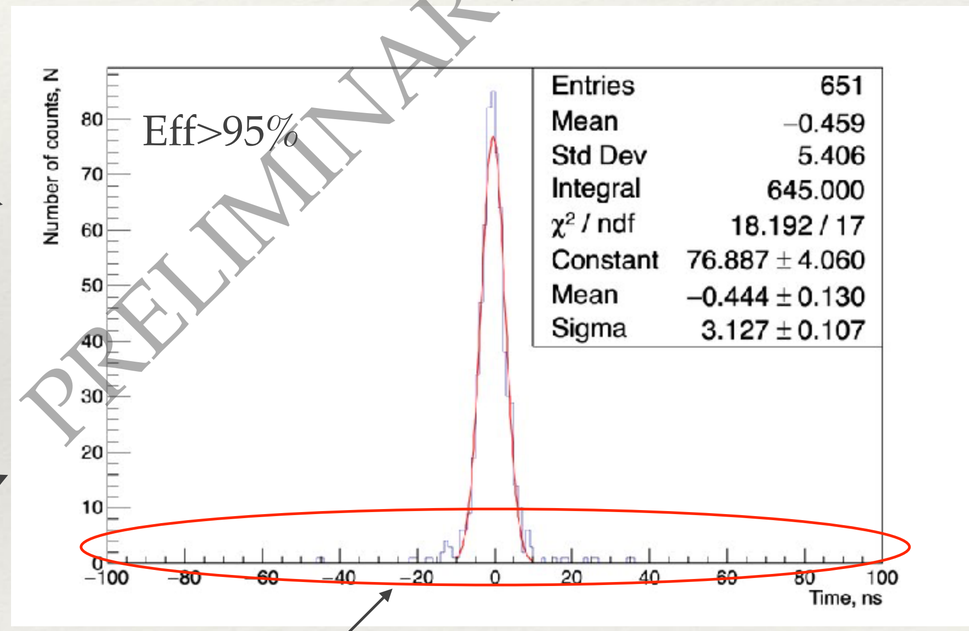
Noise background

Slicing charge spectrum - 80 ns (THR>10 p.e$^-$)

Triggered by SUM



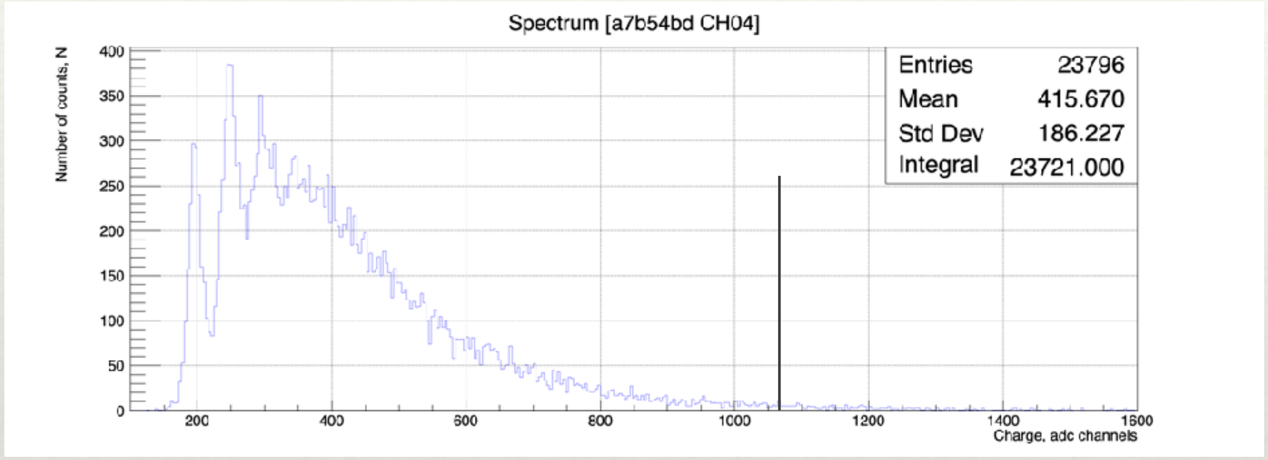


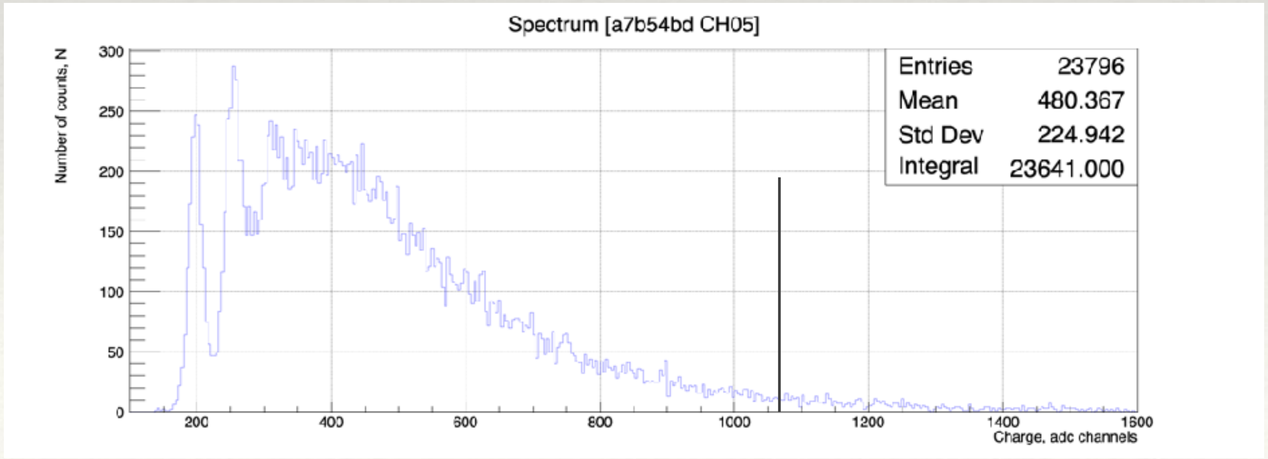


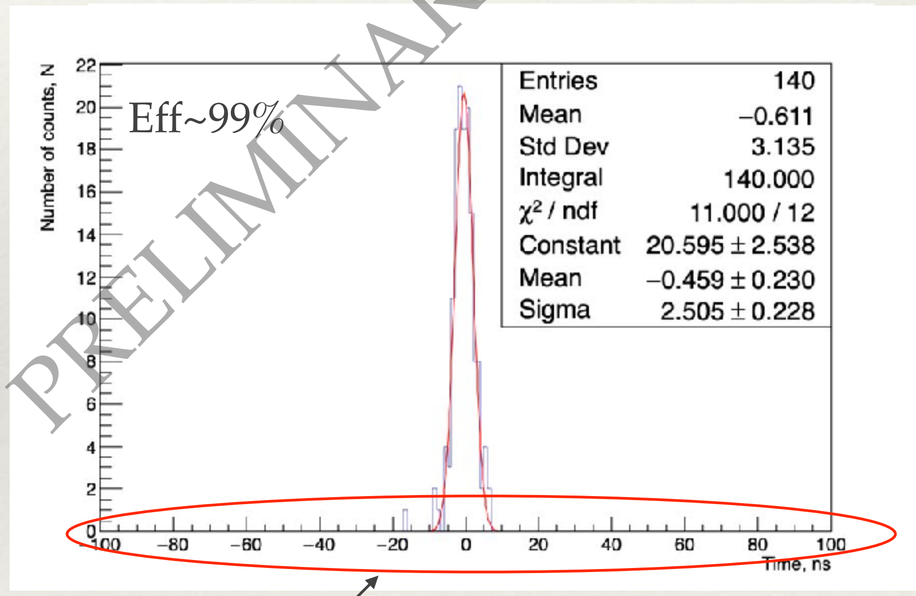
No noise background

Slicing charge spectrum - 80 ns (THR>15 p.e$^-$)

Triggered by SUM







No noise background