

2023-Test beam analysis status

May 2024

Configurations

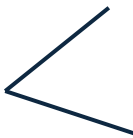
configuration	runs	gas	angle	momentum	events	MB
1	tbdata_1,_2,_3 run1,2	90/10	3°	10	18800 6987	460,4 3382
2	tbdata_4 run4	90/10	45°	10	4800 2585	119,3 1240
3	tbdata_10 run10	90/10	5°	8	4709 3413	118,2 ?
4	tbdata_5,_6,_7,_8,_9 run5,7,8	90/10	45°	8	8100 + 4548 +	67,1 + 2190 +
5	tbdata_11 run11	90/10	0°	6	4618 4973	115,3 2390
6	tbdata_12 run12	90/10	45°	6	3041 ?	83,9 ?
7	tbdata_14 run14	90/10	0°	4	1001 4365	25,2 ?
8	tbdata_13 run13	90/10	45°	4	1700 5355	42,7 ?
9	tbdata_15 run15	90/10	0°	2	6947 3516	184,6 ?
10	tbdata_16 run16	90/10	45°	2	? 4023	43,9 ?
11	tbdata_17 run17	85/15	0°	10	10400 4000	268,4 ?
12	tbdata_18 run18	85/15	45°	10	2000 2500	117 ?
13	tbdata_26 run26	85/15	0°	8	19814 5039	
14	tbdata_25 run25	85/15	45°	8	10000 ?	
15	tbdata_20 run20	85/15	0°	6	9800 5019	247,5 ?
16	tbdata_19 run19	85/15	45°	6	4112 3767	104 ?
17	tbdata_21 run21	85/15	0°	4	2827 3760	70,3 ?
18	tbdata_24 run24	85/15	45°	4	2900 4215	104,9 ?
19	tbdata_22 run22	85/15	0°	2	923 2691	23,2 ?
20	tbdata_23 run23	85/15	45°	2	2000 4000	83,9 ?

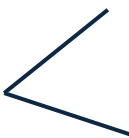
The set up

DRS16 channels	HV channels	Tubes
0	0	1.0cm-20 μ m
1	1	1.0cm-20 μ m
2	2	1.0cm-20 μ m
3	3	1.0cm-20 μ m
4	4	1.0cm-20 μ m
5	5	1.0cm-20 μ m
6	12	1.5cm-20 μ m
7	13	1.5cm-20 μ m
8	14	1.5cm-20 μ m
9	15	<u>1.5cm-20μm</u>
10	-	-
11	-	-
12	-	-
13	-	-
14	-	Sipm Scintillator upstream
15	-	Sipm Scintillator downstream

Oscilloscope	HV channels	Tubes
1	16	1.5cm-20 μ m
2	17	1.5cm-20 μ m
3	18	1.5cm-20 μ m
4	19	1.5cm-20 μ m
5	8	1.0cm-20 μ m
6	6	1.0cm-20 μ m
7	9	1.0cm-20 μ m
8	10	1.0cm-20 μ m

Results for :

run 14: gas mix 90/10 , angle 0  DRS
OSC

run 25: gas mix 85/15 , angle 45  DRS
OSC

- Derivative algorithm for peak finding
- 9 sets of different cuts are tested

DRS, Derivative algo. run 14 & run 25

Different set of cuts tested:

[run number]	[first event]	[last event]	[sampling rate]	[cut on RMS]	[cut on amplitude]	[1st der.]	[2nd der.]	[Bsln time]	[n bins]	[clusterization]	
0	-50	1	4	0	1.0	0.4	25.0	1024	0.25	(set1)	
0	-50	1	4	0	1.0	0.4	25.0	1024	0.26	(set2)	
0	-50	1	4	0	1.0	0.4	25.0	1024	0.27	(set3)	
0	-50	1	4	0	1.0	0.5	25.0	1024	0.25	(set4)	
0	-50	1	4	0	1.0	0.5	25.0	1024	0.26	(set5)	
0	-50	1	4	0	1.0	0.5	25.0	1024	0.27	(set6)	
0	-50	1	4	0	1.0	0.6	25.0	1024	0.25	(set7)	
0	-50	1	4	0	1.0	0.6	25.0	1024	0.26	(set8)	
0	-50	1	4	0	1.0	0.6	25.0	1024	0.27	(set9)	

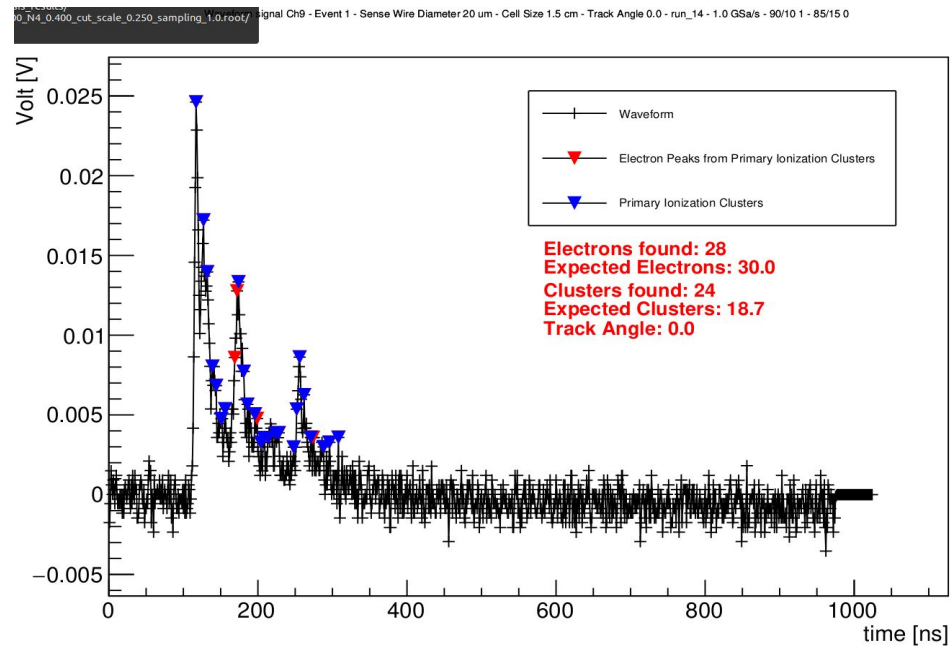
OSC, Derivative algo. run 14 & run 25

Different set of cuts tested:

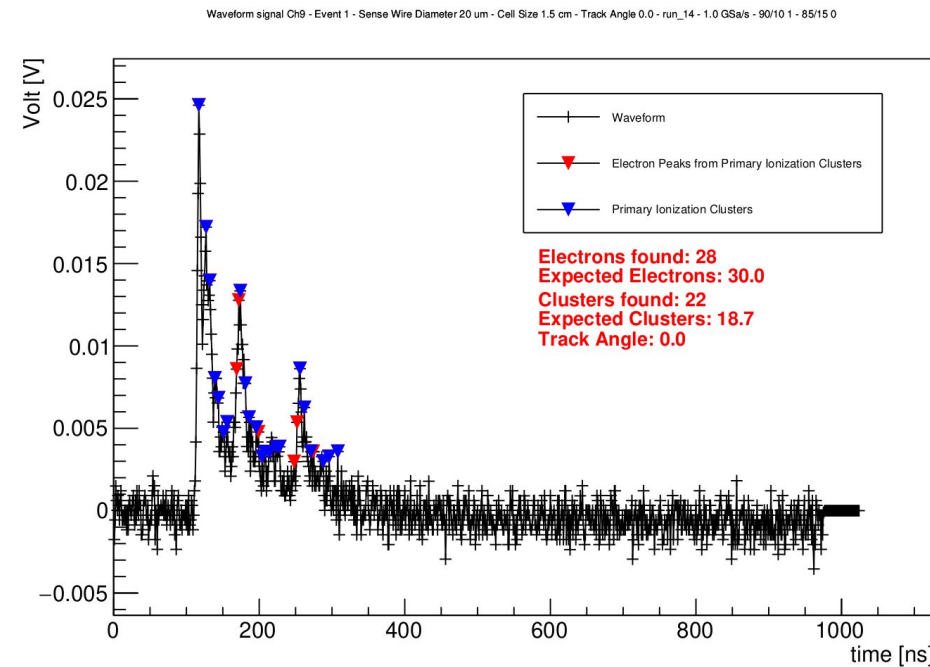
[run number]	[first event]	[last event]	[sampling rate]	[cut on RMS]	[cut on amplitude]	[1st der.]	[2nd der.]	[Bsln time]	[n bins]	[clusterization]	
0	-50	2.5	4	0	1.0	0.4	25.0	2596	0.25	(set1)	
0	-50	2.5	4	0	1.0	0.4	25.0	2596	0.25	(set2)	
0	-50	2.5	4	0	1.0	0.4	25.0	2596	0.25	(set3)	
0	-50	2.5	4	0	1.0	0.5	25.0	2596	0.25	(set4)	
0	-50	2.5	4	0	1.0	0.5	25.0	2596	0.25	(set5)	
0	-50	2.5	4	0	1.0	0.5	25.0	2596	0.25	(set6)	
0	-50	2.5	4	0	1.0	0.6	25.0	2596	0.25	(set7)	
0	-50	2.5	4	0	1.0	0.6	25.0	2596	0.25	(set8)	
0	-50	2.5	4	0	1.0	0.6	25.0	2596	0.25	(set9)	

DRS, Derivative algo. run 14

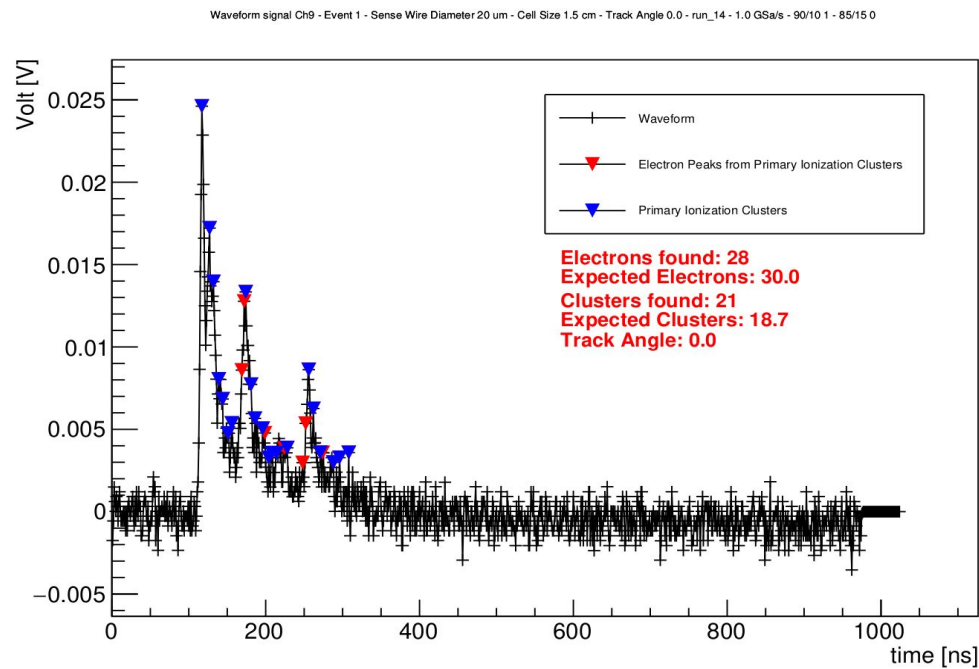
set1



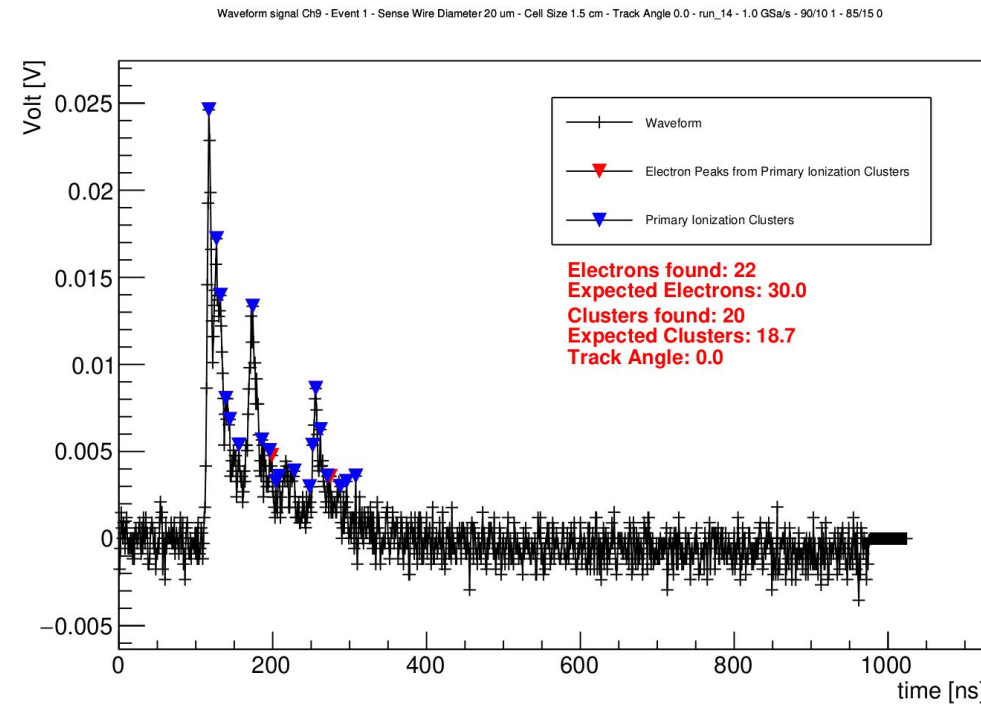
set2



set3

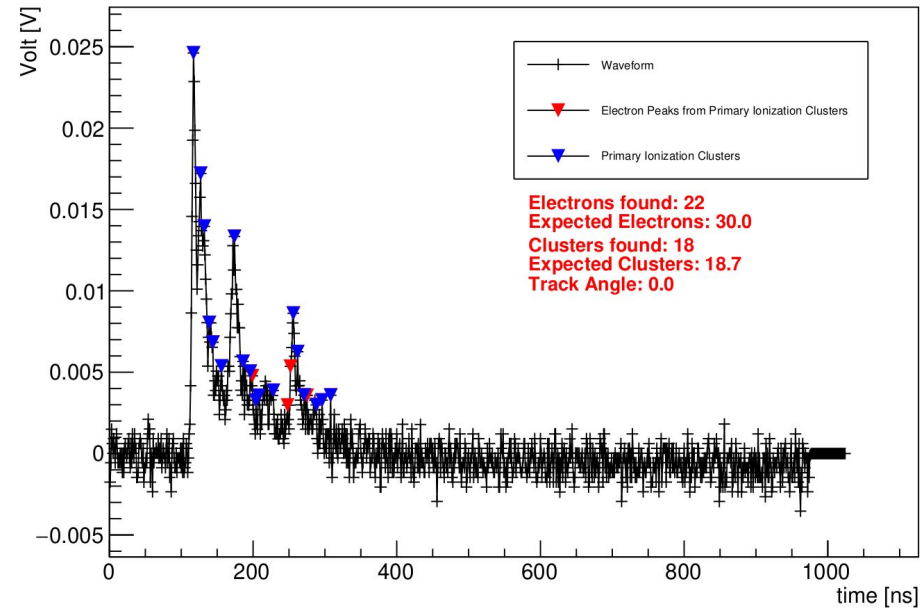


set4



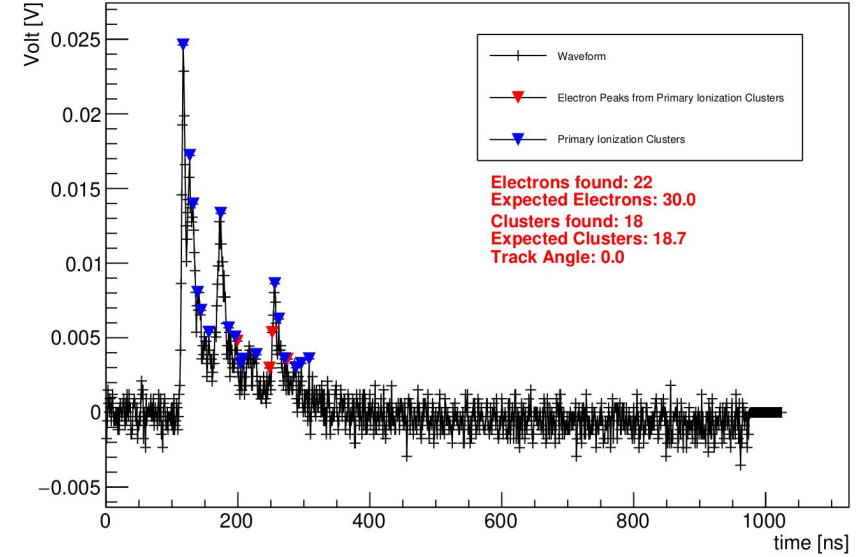
DRS, Derivative algo. run 14

Waveform signal CH9 - Event 1 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0



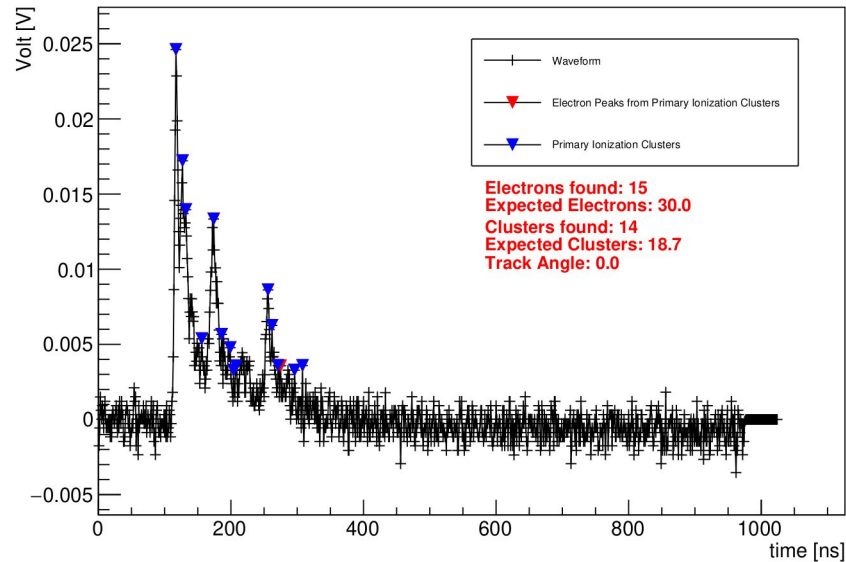
set5

Waveform signal CH9 - Event 1 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0



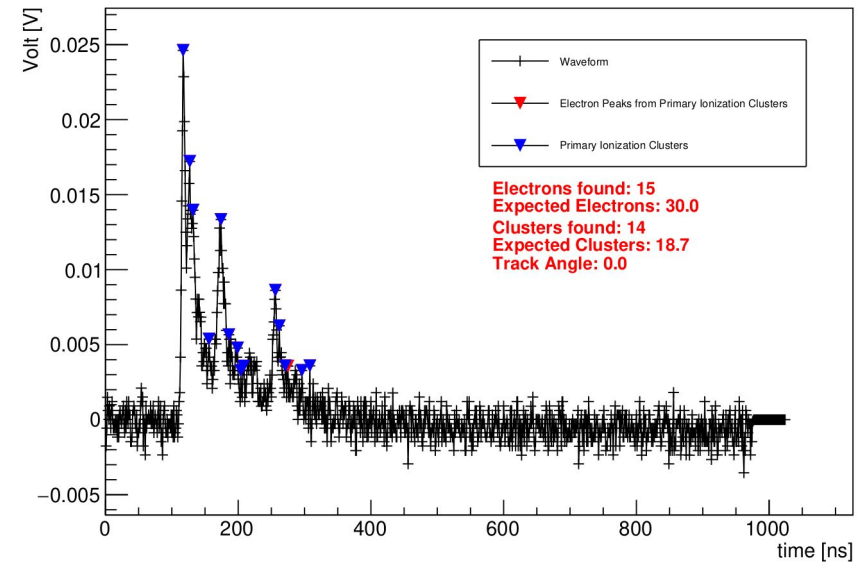
set6

Waveform signal CH9 - Event 1 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0



set7

Waveform signal CH9 - Event 1 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0

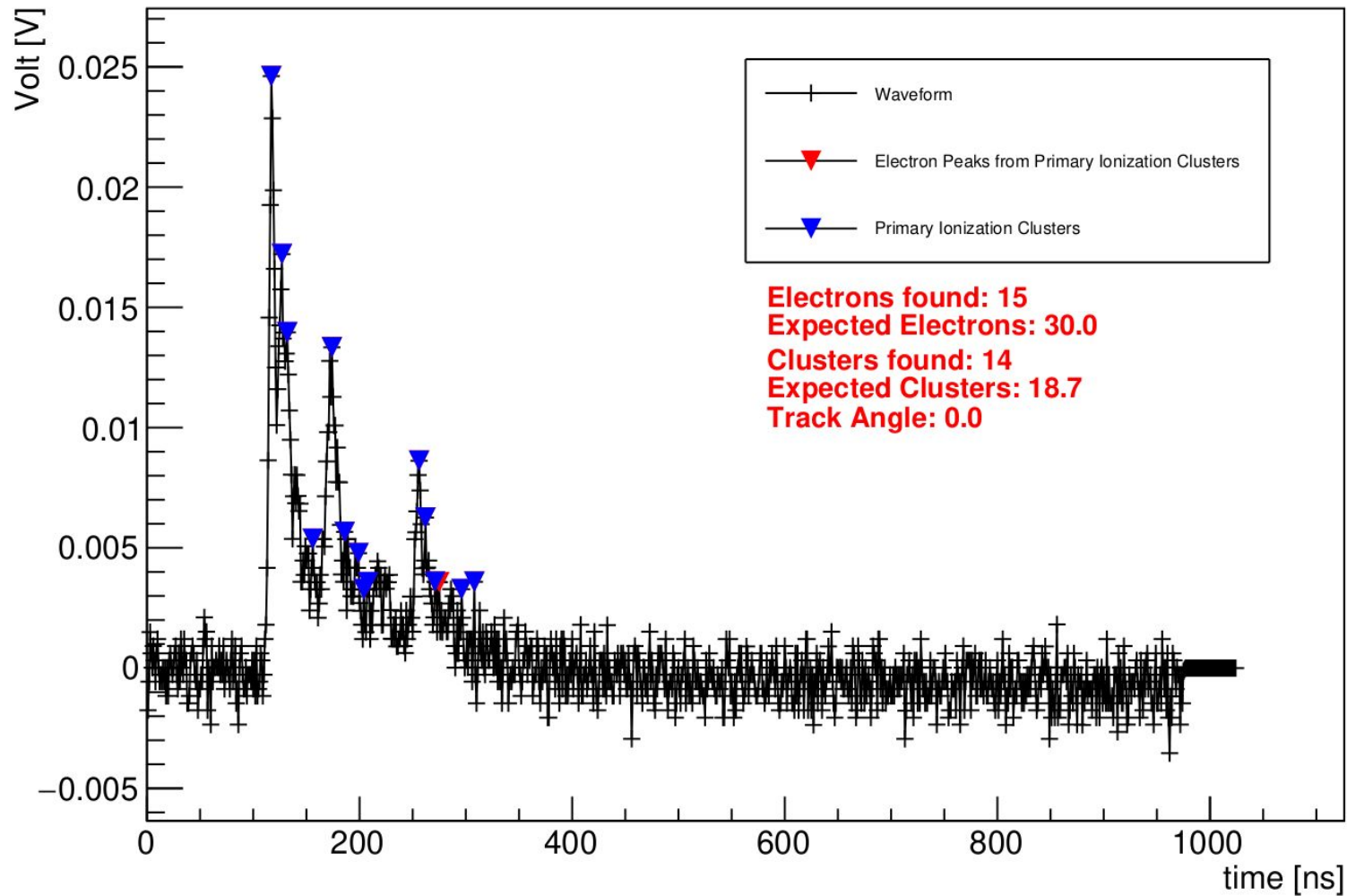


set8

DRS, Derivative algo. run 14

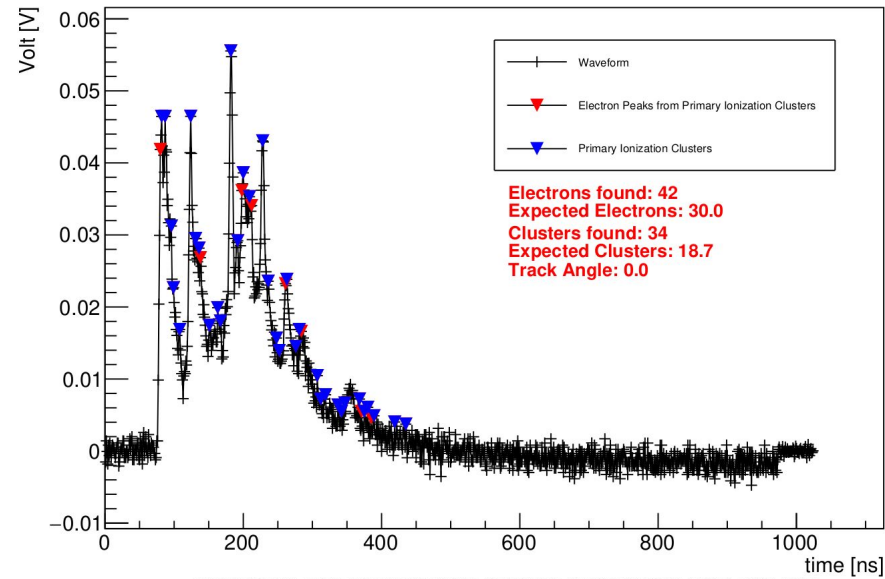
Waveform signal Ch9 - Event 1 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0

set9



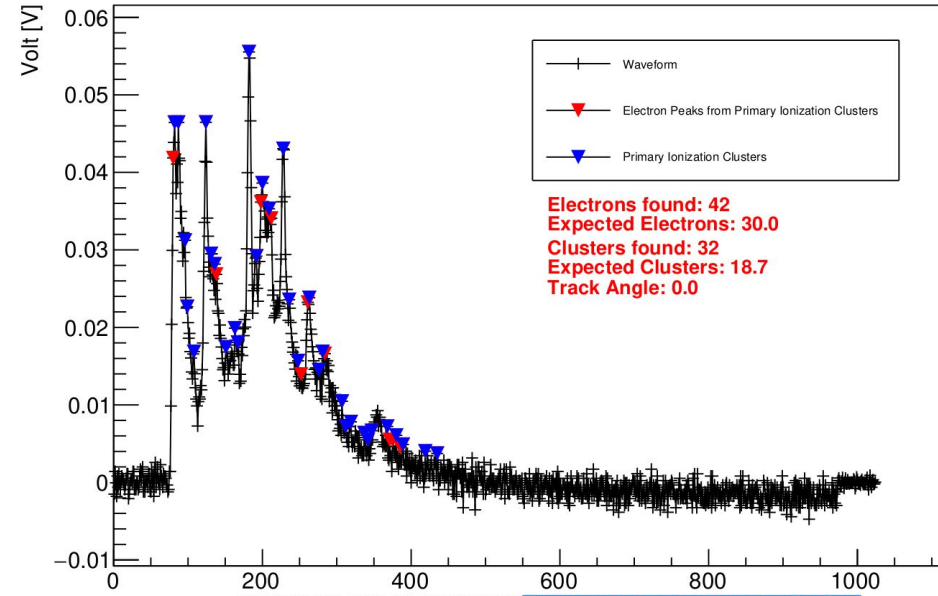
DRS, Derivative algo. run 14

Waveform signal Ch8 - Event 13 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0



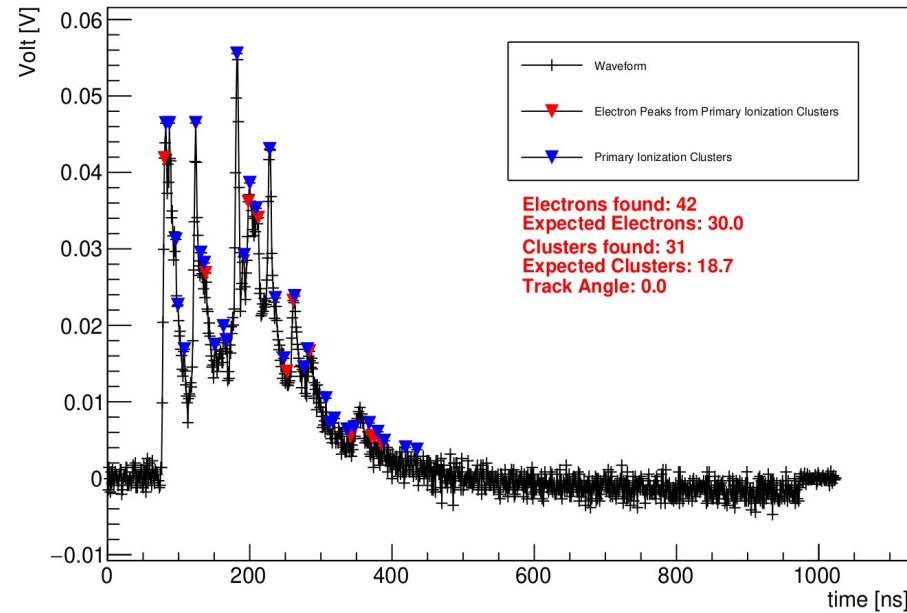
set1

Waveform signal Ch8 - Event 13 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0



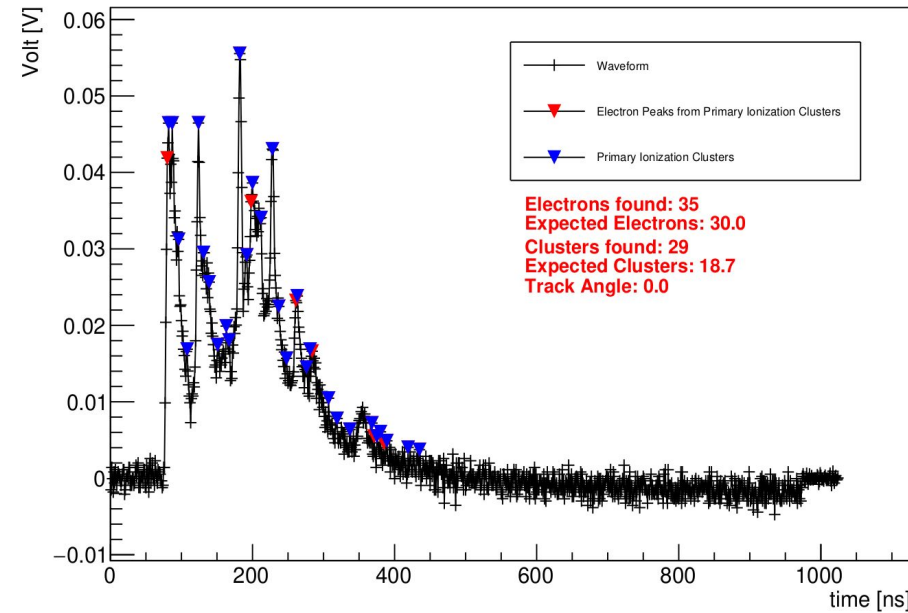
set2

Waveform signal Ch8 - Event 13 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0



set3

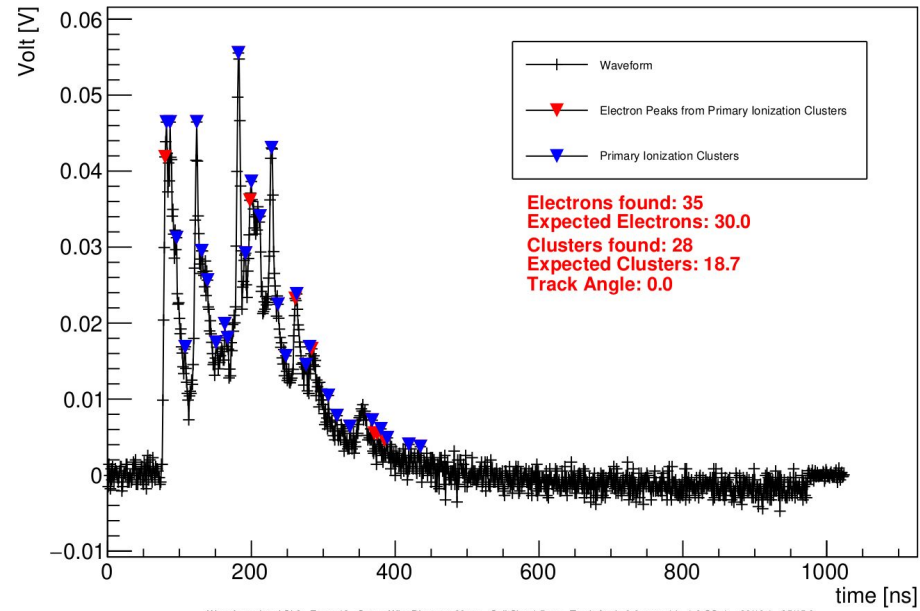
Waveform signal Ch8 - Event 13 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0



set4

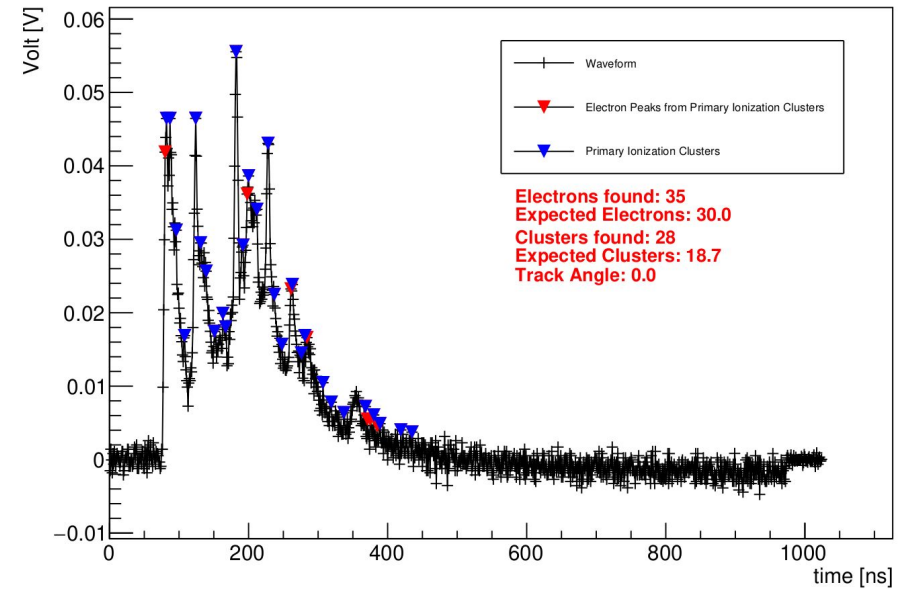
DRS, Derivative algo. run 14

Waveform signal Ch8 - Event 13 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0



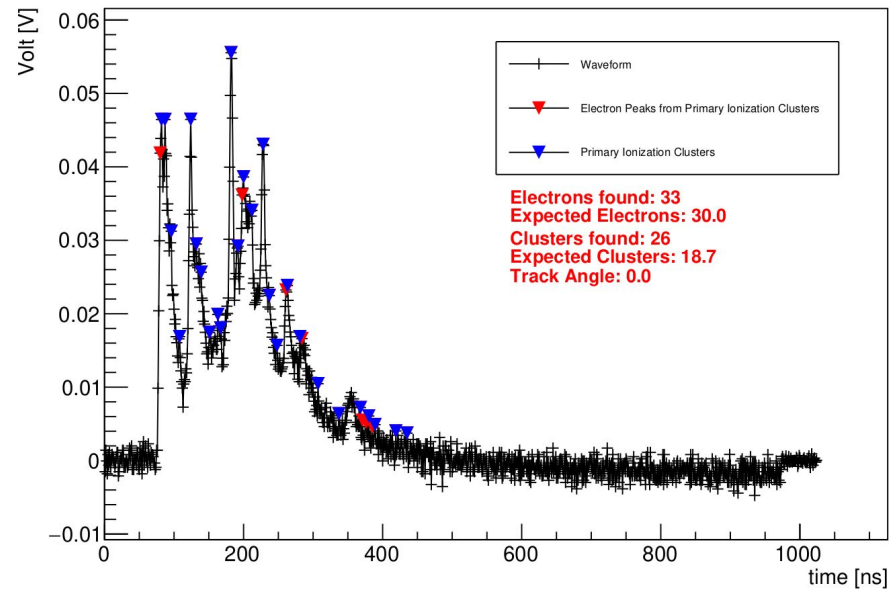
set5

Waveform signal Ch8 - Event 13 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0



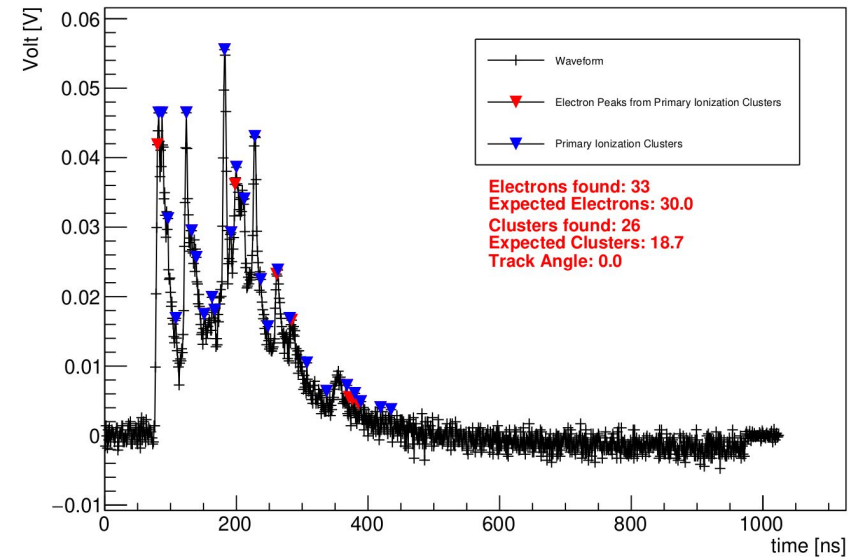
set6

Waveform signal Ch8 - Event 13 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0



set7

Waveform signal Ch8 - Event 13 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0

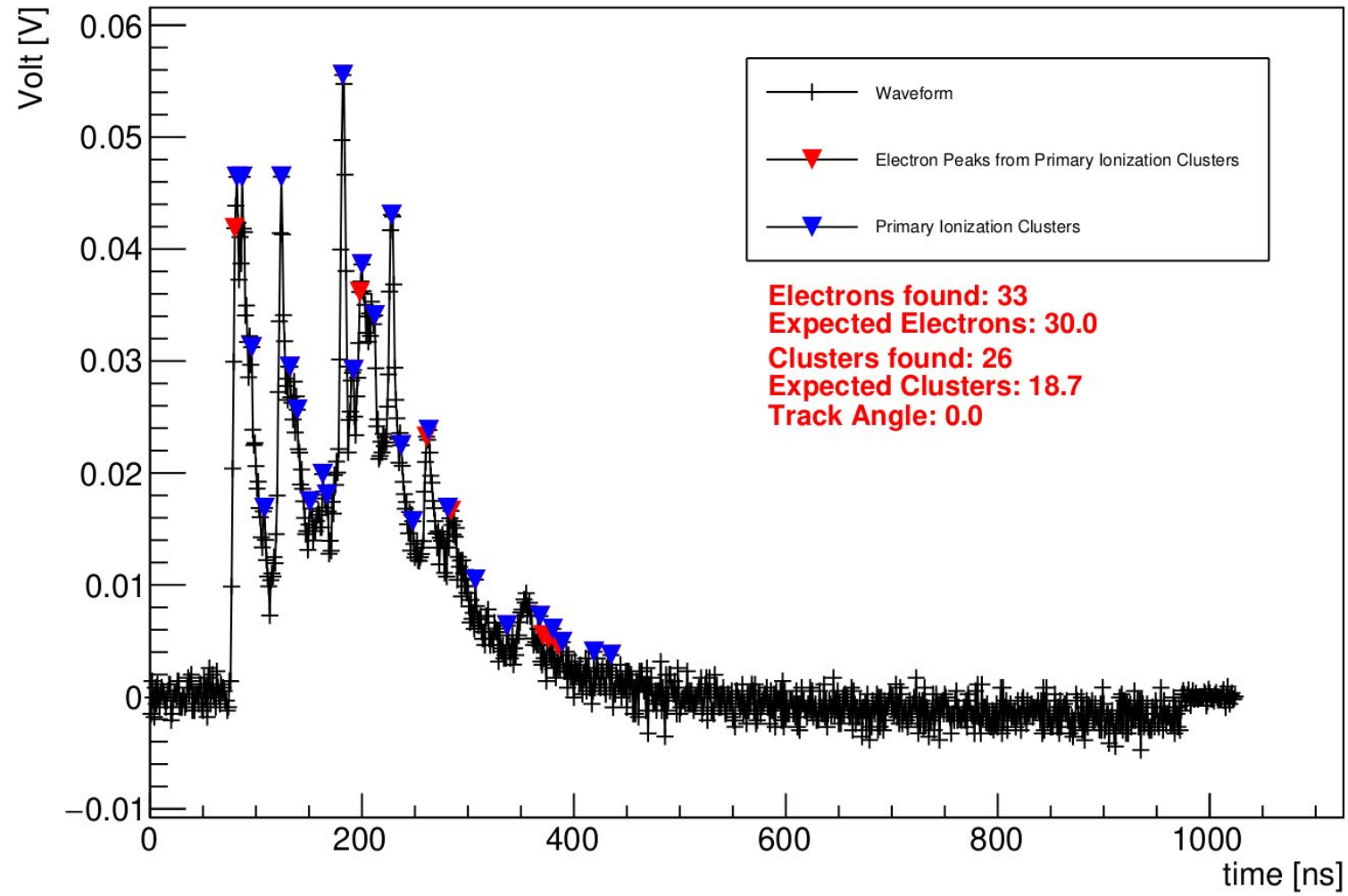


set8

DRS, Derivative algo. run 14

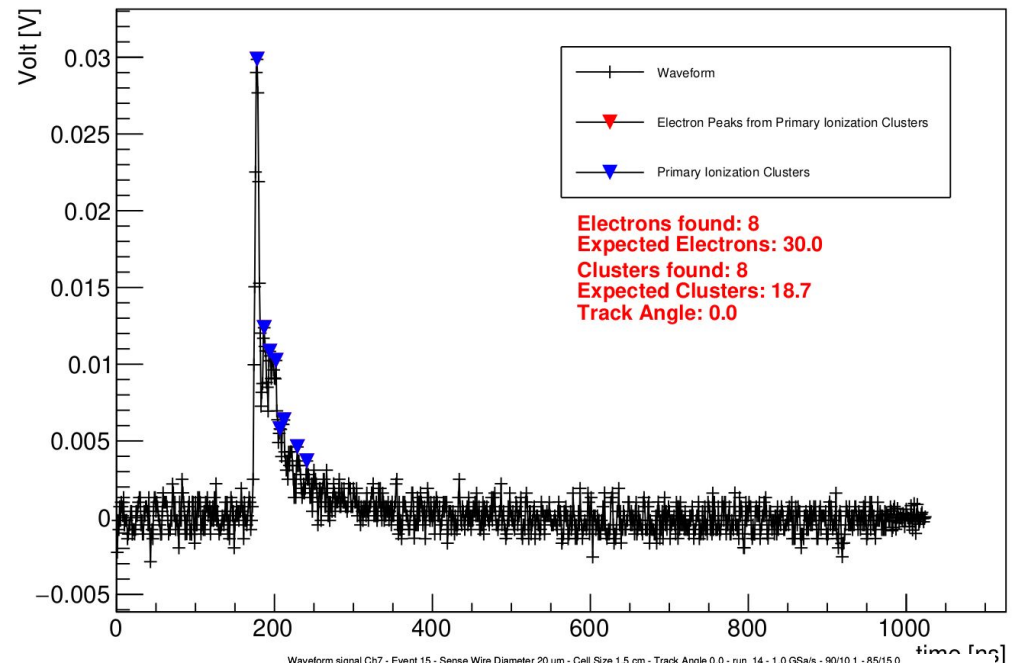
Waveform signal Ch8 - Event 13 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0

set9



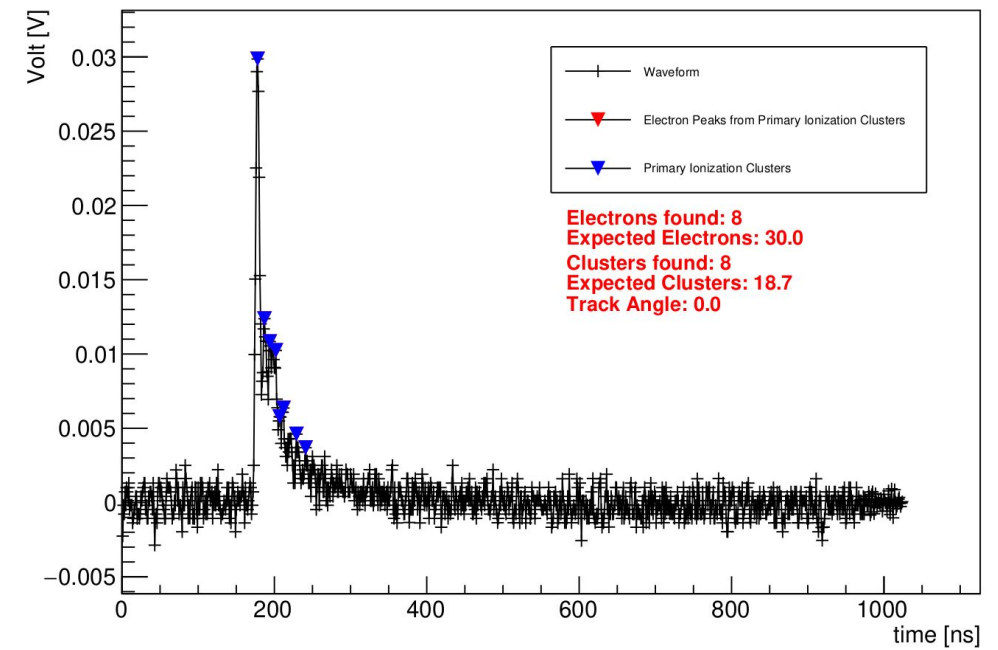
DRS, Derivative algo. run 14

Waveform signal Ch7 - Event 15 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0



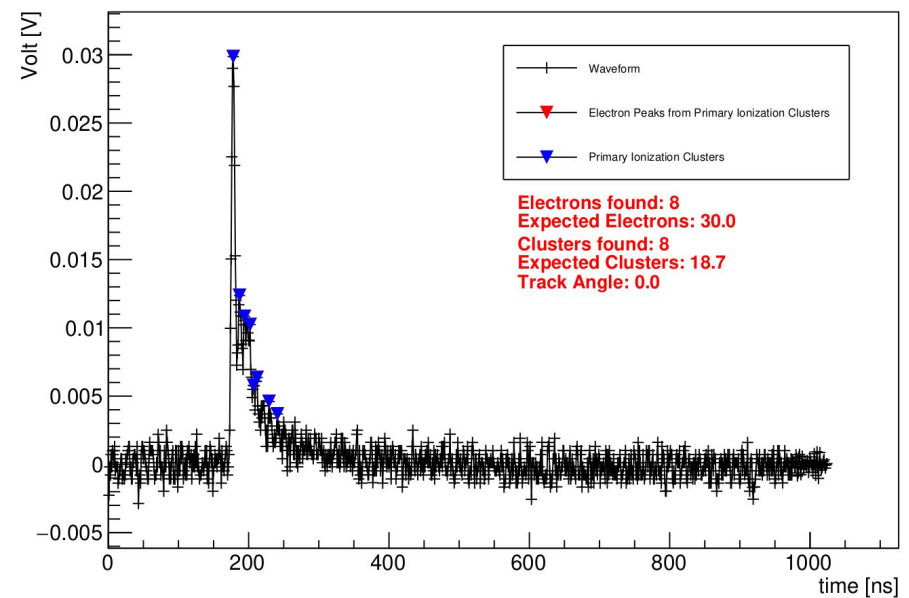
set1

Waveform signal Ch7 - Event 15 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0

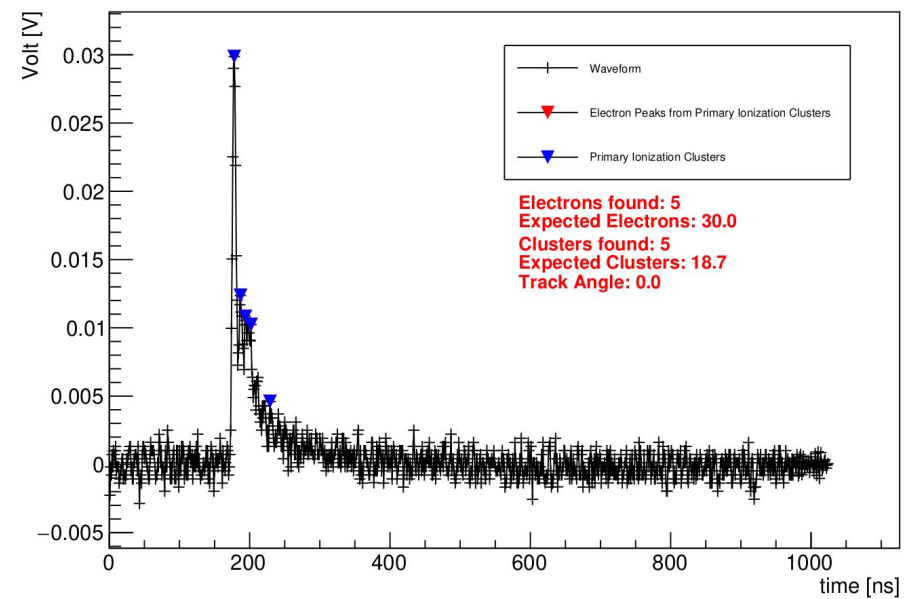


set2

Waveform signal Ch7 - Event 15 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0



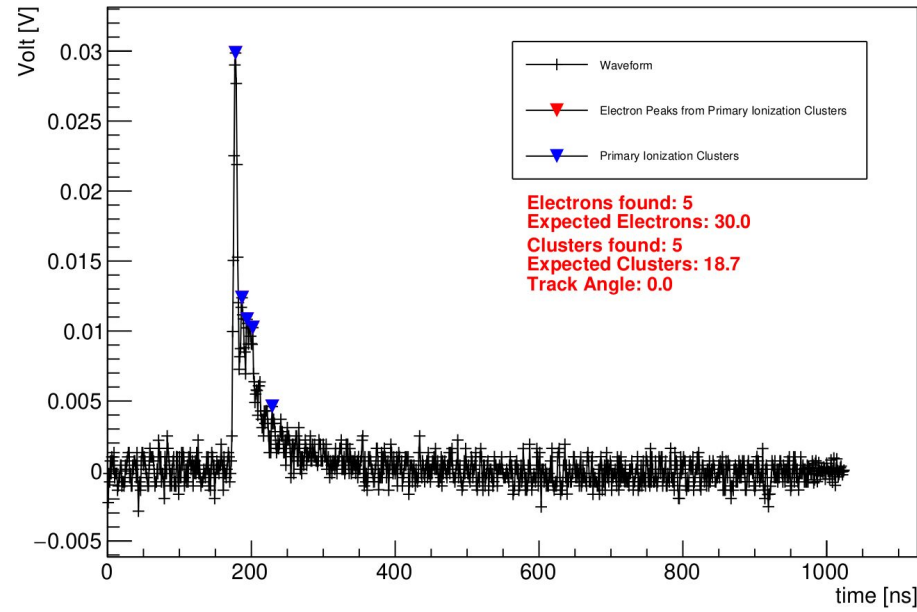
set3



set4

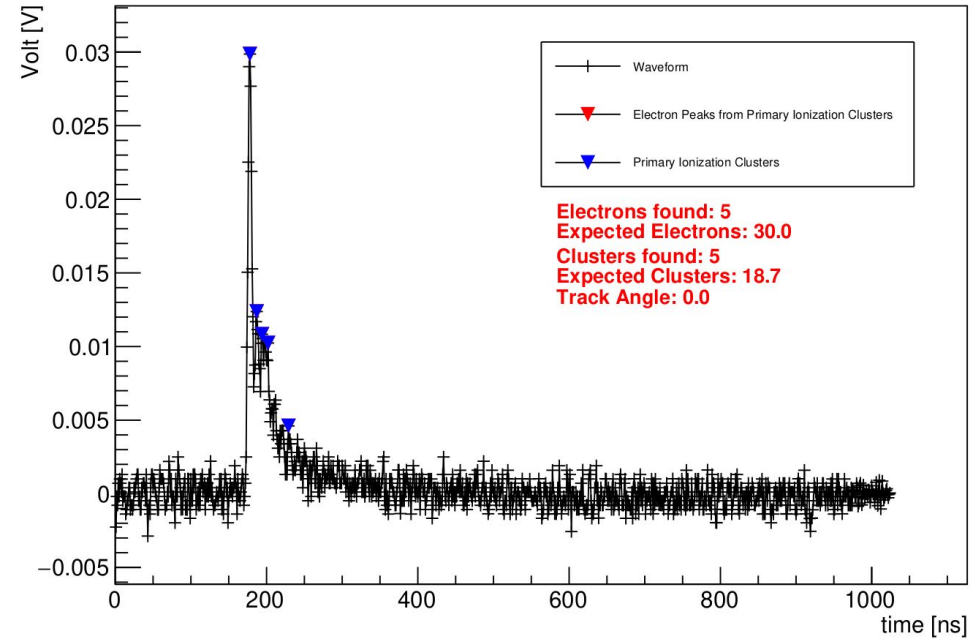
DRS, Derivative algo. run 14

Waveform signal Ch7 - Event 15 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0



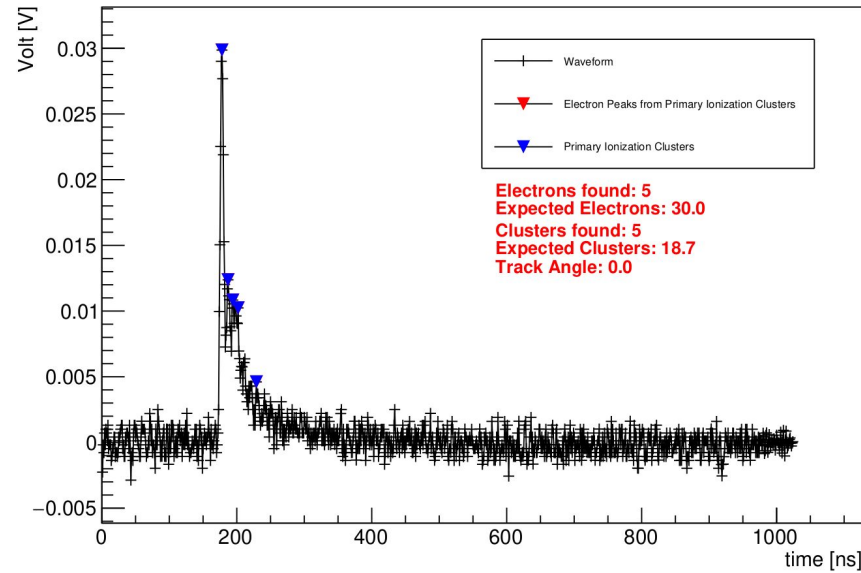
set5

Waveform signal Ch7 - Event 15 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0



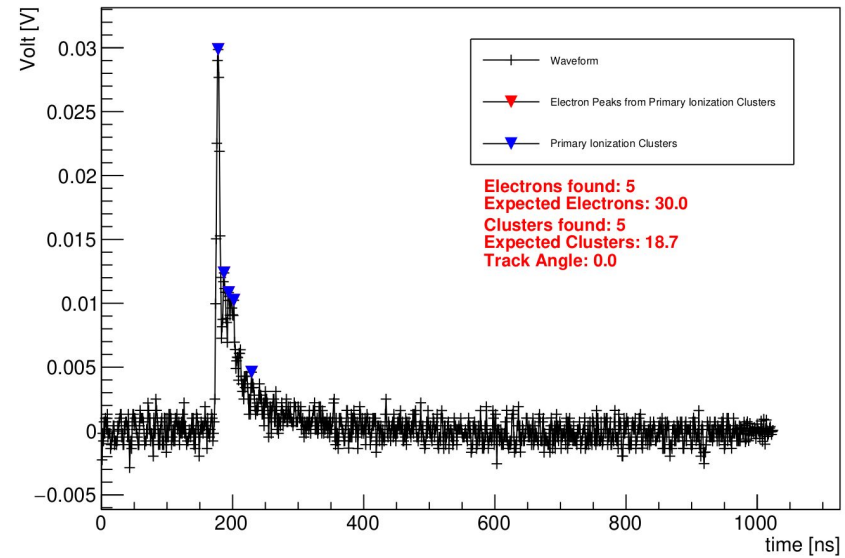
set6

Waveform signal Ch7 - Event 15 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0



set7

Waveform signal Ch7 - Event 15 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0

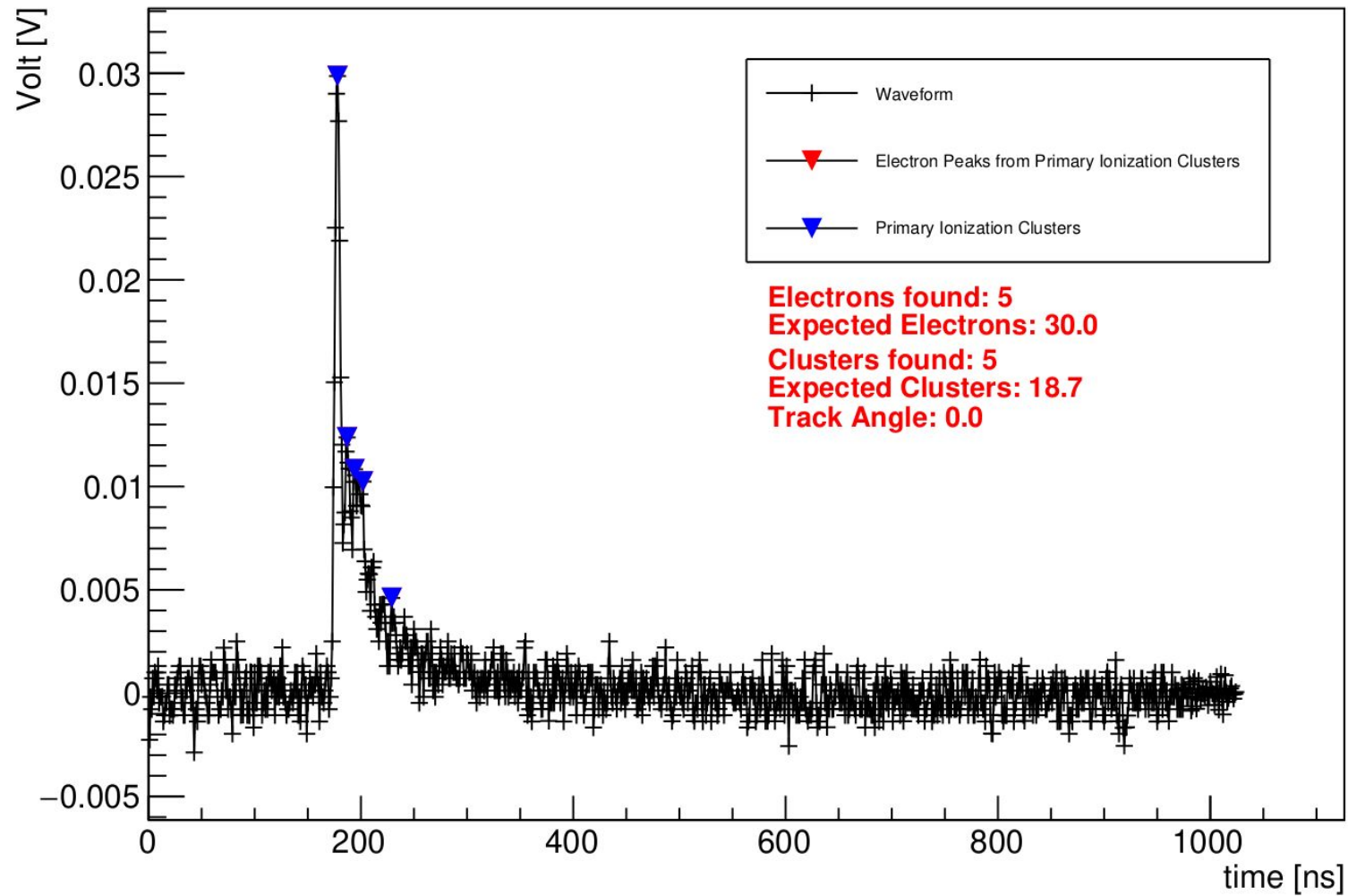


set8

DRS, Derivative algo. run 14

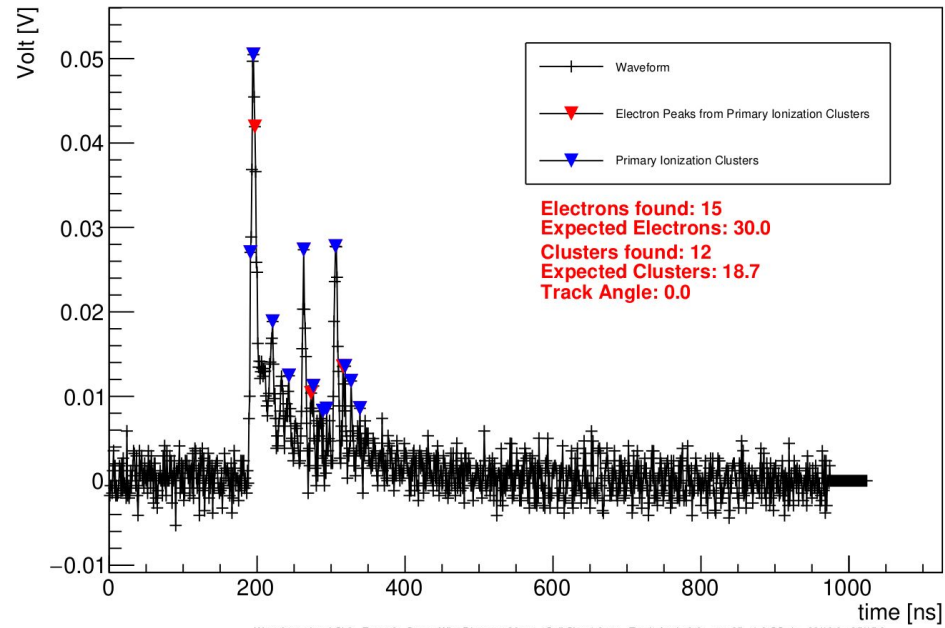
Waveform signal Ch7 - Event 15 - Sense Wire Diameter 20 μm - Cell Size 1.5 cm - Track Angle 0.0 - run_14 - 1.0 GSa/s - 90/10 1 - 85/15 0

set9



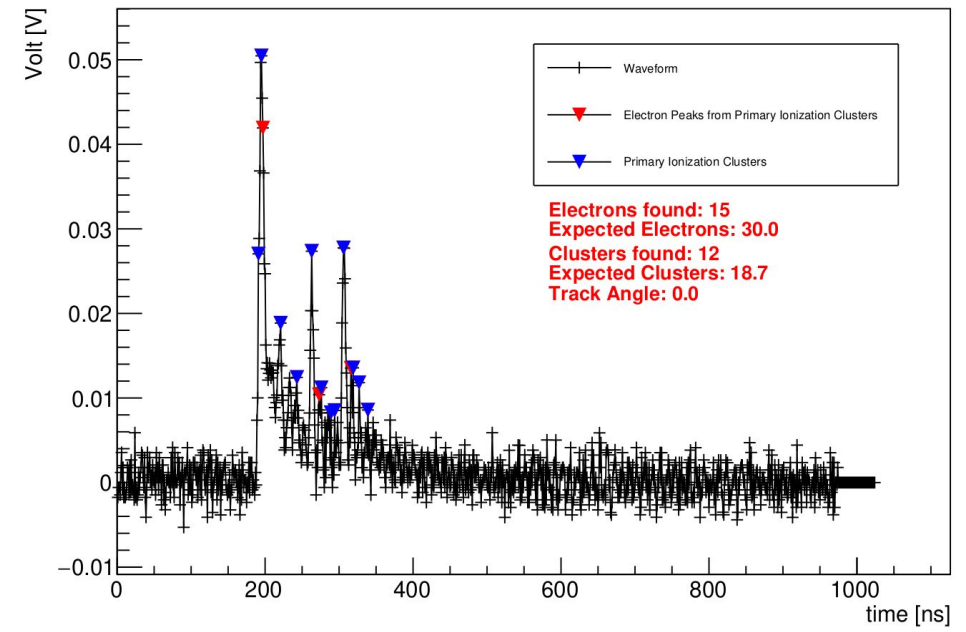
DRS, Derivative algo. run 25

Waveform signal Ch0 - Event 0 - Sense Wire Diameter 20 μm - Cell Size 1.0 cm - Track Angle 0.0 - run_25 - 1.0 GSa/s - 90/10 0 - 85/15 0



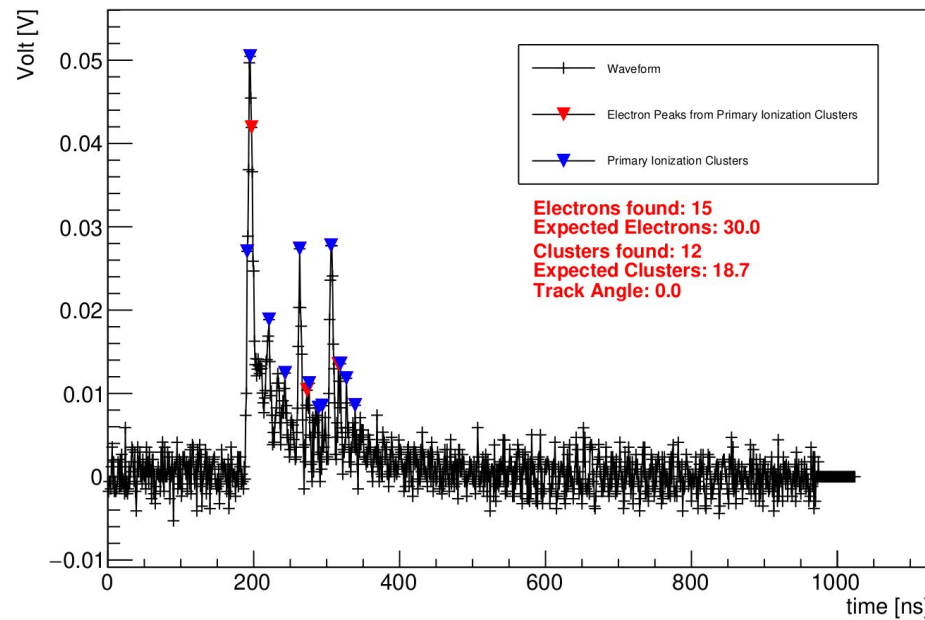
set1

Waveform signal Ch0 - Event 0 - Sense Wire Diameter 20 μm - Cell Size 1.0 cm - Track Angle 0.0 - run_25 - 1.0 GSa/s - 90/10 0 - 85/15 0



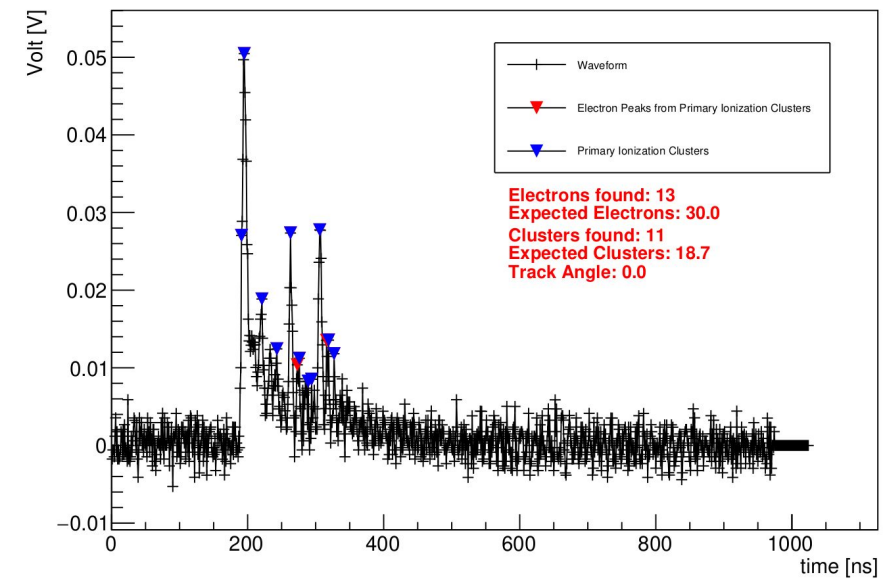
set2

Waveform signal Ch0 - Event 0 - Sense Wire Diameter 20 μm - Cell Size 1.0 cm - Track Angle 0.0 - run_25 - 1.0 GSa/s - 90/10 0 - 85/15 0



set3

Waveform signal Ch0 - Event 0 - Sense Wire Diameter 20 μm - Cell Size 1.0 cm - Track Angle 0.0 - run_25 - 1.0 GSa/s - 90/10 0 - 85/15 0

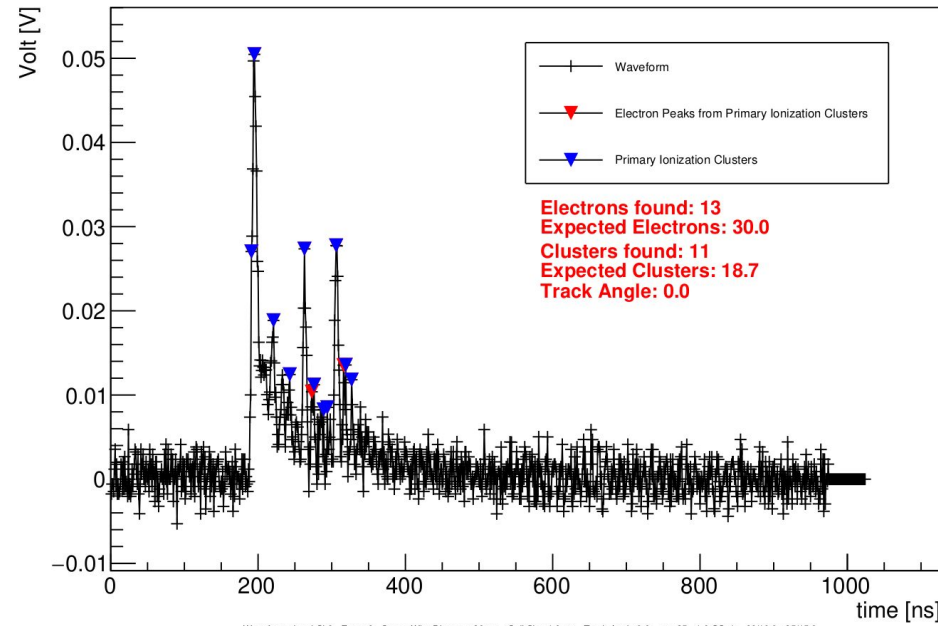


set4

DRS, Derivative algo. run 25

Waveform signal Ch0 - Event 0 - Sense Wire Diameter 20 μm - Cell Size 1.0 cm - Track Angle 0.0 - run_25 - 1.0 GSa/s - 90/10 0 - 85/15 0

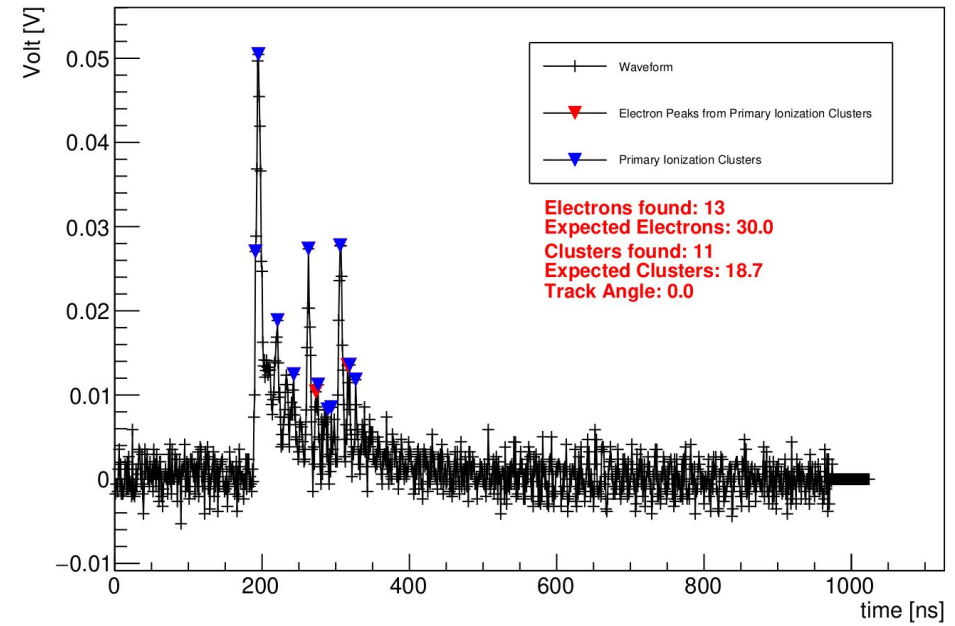
set5



Waveform signal Ch0 - Event 0 - Sense Wire Diameter 20 μm - Cell Size 1.0 cm - Track Angle 0.0 - run_25 - 1.0 GSa/s - 90/10 0 - 85/15 0

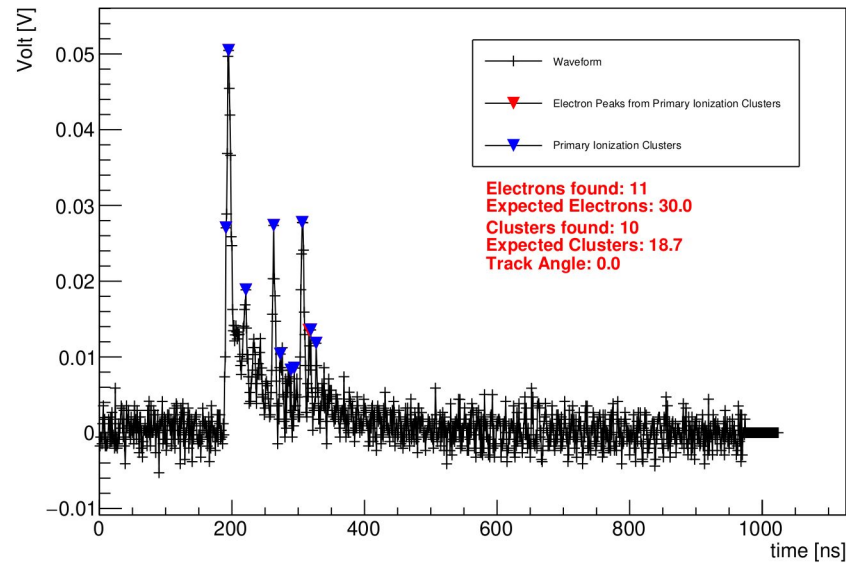
Waveform signal Ch0 - Event 0 - Sense Wire Diameter 20 μm - Cell Size 1.0 cm - Track Angle 0.0 - run_25 - 1.0 GSa/s - 90/10 0 - 85/15 0

set6

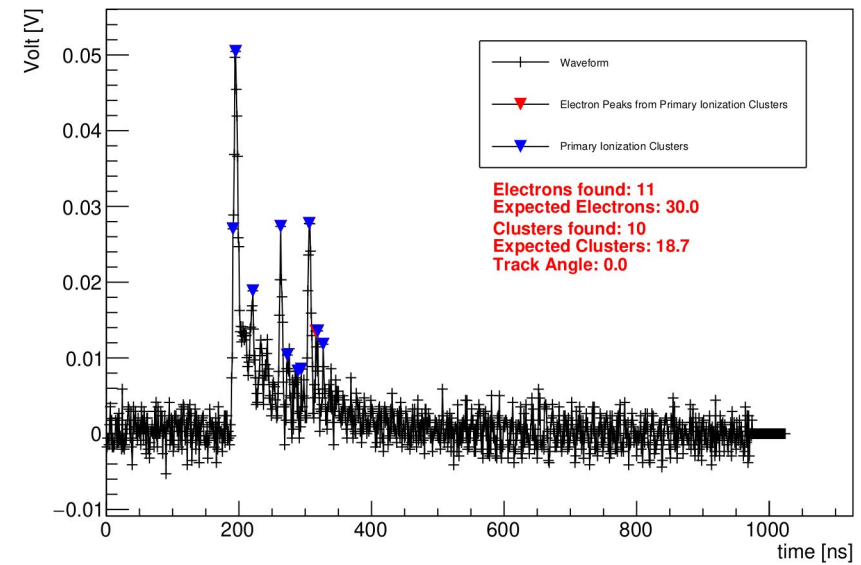


Waveform signal Ch0 - Event 0 - Sense Wire Diameter 20 μm - Cell Size 1.0 cm - Track Angle 0.0 - run_25 - 1.0 GSa/s - 90/10 0 - 85/15 0

set7



set8



DRS, Derivative algo. run 25

Waveform signal Ch0 - Event 0 - Sense Wire Diameter 20 μm - Cell Size 1.0 cm - Track Angle 0.0 - run_25 - 1.0 GSa/s - 90/10 0 - 85/15 0

set9

