2023-Test beam analysis updates

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-20µm
1	1	1.0cm-20µm
2	2	1.0cm-20µm
3	3	1.0cm-20µm
4	4	1.0cm-20µm
5	5	1.0cm-20µm
6	12	1.5cm-20µm
7	13	1.5cm-20µm
8	14	1.5cm-20µm
9	15	1.5cm-20µm
10	-	-
11	-	-
12	-	-
13	-	-
14	-	Sipm Scintillator upstream
15	-	Sipm Scintillator downstream

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

Derivative algorithm optimization

for DRS & OSC data

example run no. 4 (Gas mix. 90/10, angle 45, momentum 10 GeV)

Different set of cuts are tested (60 sets!):

[run number] [first event] [last event] [sampling rate] [cut on RMS] [cut on amplitude] [1st der.] [2nd der.] [Bsln time] [n bins] [clusterization]

1st der. : 0.4, 0.6, 0.8, 1.0

2nd der. : 0.4, 0.6, 0.8

scale cut : 0.2, 0.22, 0.24, 0.26, 0.28