

# First pass at "(PDS) Detailed Beam Run Data Information" Google sheet

- Based on the given beam runs from Roberto:

[https://docs.google.com/spreadsheets/d/1O4o9\\_q8F-KynQltKDAfmco3e\\_s1eKltFkzZ4-g\\_Vls0/edit?usp=sharing](https://docs.google.com/spreadsheets/d/1O4o9_q8F-KynQltKDAfmco3e_s1eKltFkzZ4-g_Vls0/edit?usp=sharing)

- It can be found here:

[https://docs.google.com/spreadsheets/d/1hD2hb\\_haSmXRfChmf\\_sfnAcnhFJMeZdrMydWdRMLVGI/edit?usp=sharing](https://docs.google.com/spreadsheets/d/1hD2hb_haSmXRfChmf_sfnAcnhFJMeZdrMydWdRMLVGI/edit?usp=sharing)

- Brief summary:

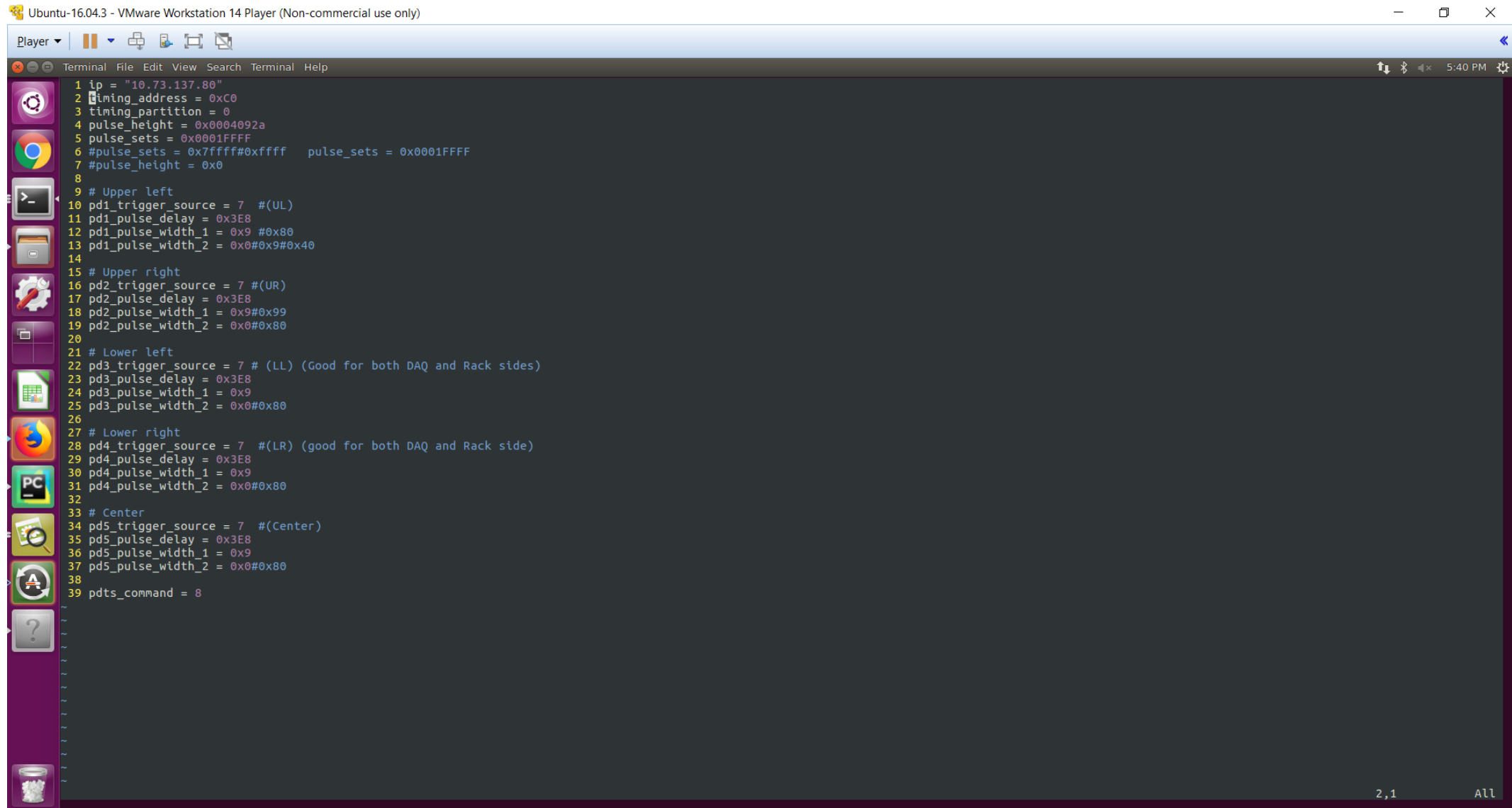
- This is a first pass UNFILTERED list of all "good" beam runs, containing the following:

Momentum	Run_Num	Content_Status	Data_Stream	Config_Used	Num_Raw_files	Tot_Evnts	ch0-Thresh	ch1-Thresh	ch2-Thresh	ch3-Thresh	ch4-Thresh	ch5-Thresh	ch6-Thresh	ch7-Thresh	ch8-Thresh	ch9-Thresh
OneGeV	5216	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00001	84	8382	100	100	100	100	100	100	100	100	100	100
OneGeV	5219	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00001	109	11475	100	100	100	100	100	100	100	100	100	100
OneGeV	5225	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00002	132	13541	100	100	100	100	100	100	100	100	100	100
OneGeV	5235	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00003	227	24135	100	100	100	100	100	100	100	100	100	100
OneGeV	5240	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00004	97	10509	100	100	100	100	100	100	100	100	100	100
OneGeV	5244	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00005	132	13567	100	100	100	100	100	100	100	100	100	100
OneGeV	5249	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	117	12656	100	100	100	100	100	100	100	100	100	100
OneGeV	5250	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	126	13156	100	100	100	100	100	100	100	100	100	100
OneGeV	5254	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	27	2286	100	100	100	100	100	100	100	100	100	100
OneGeV	5257	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	153	16297	100	100	100	100	100	100	100	100	100	100
OneGeV	5258	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	279	30113	100	100	100	100	100	100	100	100	100	100
OneGeV	5259	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	144	15749	100	100	100	100	100	100	100	100	100	100
OneGeV	5260	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	378	40259	100	100	100	100	100	100	100	100	100	100
OneGeV	5261	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	106	11447	100	100	100	100	100	100	100	100	100	100
OneGeV	5267	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	252	27049	100	100	100	100	100	100	100	100	100	100
OneGeV	5275	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	547	58801	100	100	100	100	100	100	100	100	100	100
OneGeV	5282	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	234	24591	100	100	100	100	100	100	100	100	100	100
OneGeV	5283	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	567	60624	100	100	100	100	100	100	100	100	100	100
OneGeV	5284	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	1005	108305	100	100	100	100	100	100	100	100	100	100
OneGeV	5287	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	693	73965	100	100	100	100	100	100	100	100	100	100
OneGeV	5290	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	1260	135988	100	100	100	100	100	100	100	100	100	100
OneGeV	5293	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	144	16716	100	100	100	100	100	100	100	100	100	100
OneGeV	5298	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	24	2520	100	100	100	100	100	100	100	100	100	100
OneGeV	5301	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	8	122	100	100	100	100	100	100	100	100	100	100
OneGeV	5303	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	168	17820	100	100	100	100	100	100	100	100	100	100
OneGeV	5304	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	132	13962	100	100	100	100	100	100	100	100	100	100
OneGeV	5308	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	249	26704	100	100	100	100	100	100	100	100	100	100
OneGeV	5311	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	475	50893	100	100	100	100	100	100	100	100	100	100
OneGeV	5313	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00008	204	20718	100	100	100	100	100	100	100	100	100	100
OneGeV	5315	good	physics	np04_WibsReal_Stps_BeamTrngIGeV_00009	84	7986	100	100	100	100	100	100	100	100	100	100

`<beam momentum from Roberto's google sheet>, <run #>, <labeled good/bad by shifter>, <labeled physics/cosmic/noise/etc. by shifter>, <configuration used>, <number of raw data files per run>, <Total Evnts in root file (via samweb meta-data, i.e. not all true beam events)>, <list of SSP thresholds set, per (DAQ) PD channel>`.

# Taking DCM Runs

# DCM Configuration File: "dcm1\_on\_newfw.cfg"



```
1 ip = "10.73.137.80"
2 timing_address = 0xC0
3 timing_partition = 0
4 pulse_height = 0x0004092a
5 pulse_sets = 0x0001FFFF
6 #pulse_sets = 0x7ffff#0xffff   pulse_sets = 0x0001FFFF
7 #pulse_height = 0x0
8
9 # Upper left
10 pd1_trigger_source = 7 #(UL)
11 pd1_pulse_delay = 0x3E8
12 pd1_pulse_width_1 = 0x9 #0x80
13 pd1_pulse_width_2 = 0x0#0x9#0x40
14
15 # Upper right
16 pd2_trigger_source = 7 #(UR)
17 pd2_pulse_delay = 0x3E8
18 pd2_pulse_width_1 = 0x9#0x99
19 pd2_pulse_width_2 = 0x0#0x80
20
21 # Lower left
22 pd3_trigger_source = 7 #(LL) (Good for both DAQ and Rack sides)
23 pd3_pulse_delay = 0x3E8
24 pd3_pulse_width_1 = 0x9
25 pd3_pulse_width_2 = 0x0#0x80
26
27 # Lower right
28 pd4_trigger_source = 7 #(LR) (good for both DAQ and Rack side)
29 pd4_pulse_delay = 0x3E8
30 pd4_pulse_width_1 = 0x9
31 pd4_pulse_width_2 = 0x0#0x80
32
33 # Center
34 pd5_trigger_source = 7 #(Center)
35 pd5_pulse_delay = 0x3E8
36 pd5_pulse_width_1 = 0x9
37 pd5_pulse_width_2 = 0x0#0x80
38
39 pdts_command = 8
```

2,1 ALL

Run DCM : “dcmControl\_v5.exe dcm1\_on\_newfw.cfg”

Waits for Timing endpoint ( Press “Send Timing Delay” button)

DCM Pulse = Fake Trigger

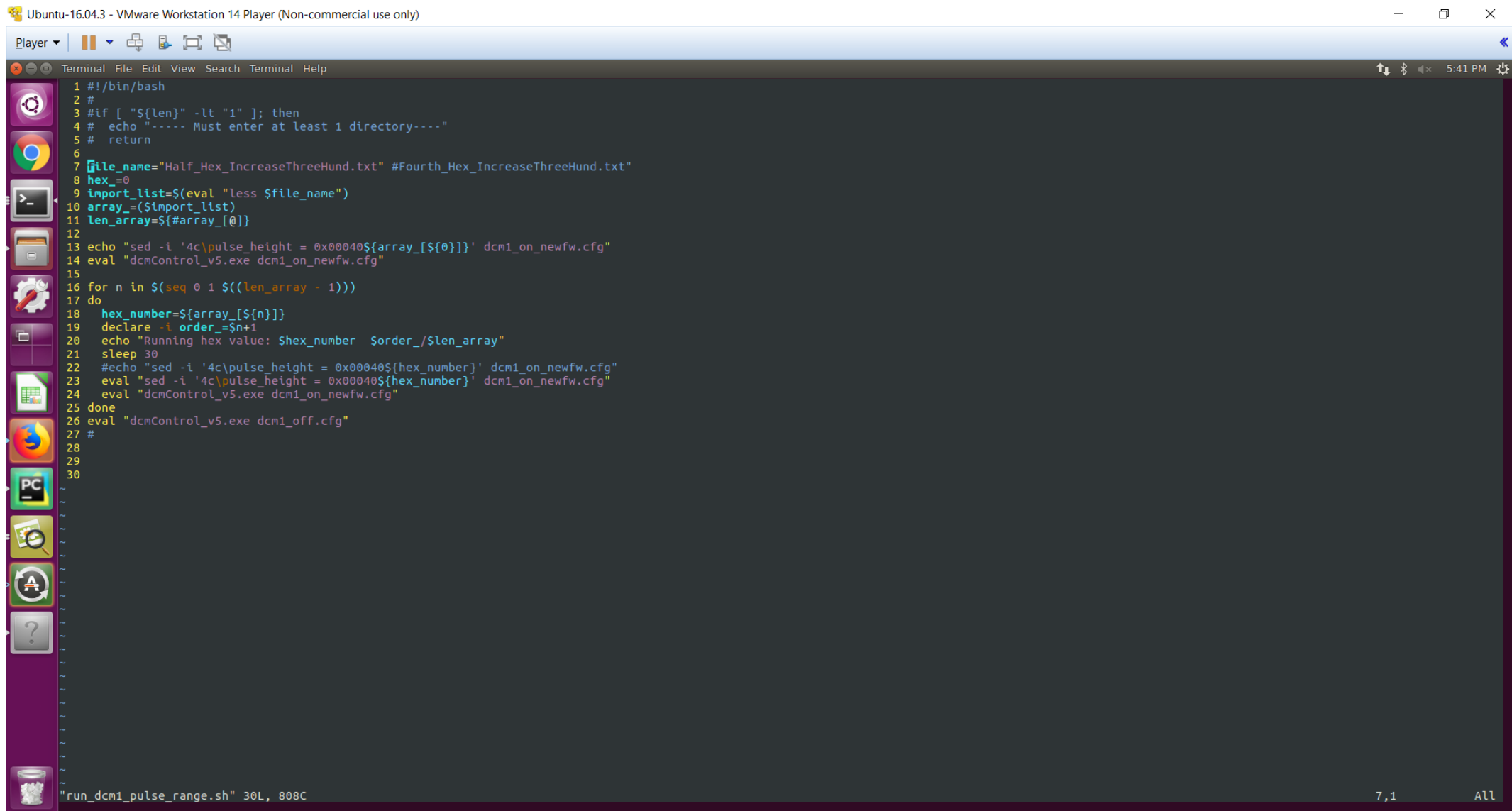
The screenshot displays the NP04RC: FW\_SYSTEM\_OVERVIEW\_TOOL interface. The main window shows the system status for Partition\_0, which is currently RUNNING. A table lists the sub-systems and their states:

Sub-System	State
ProcessManager_0	RUNNING
BoardReaders_0	RUNNING
EventBuilders_0	RUNNING
Monitoring_0	RUNNING
InhibitMaster_0	RUNNING
RoutingMaster_0	RUNNING

The interface also features a 'Fake Trigger Options' section with a 'Trigger rate' of 2.00 Hz and a 'Send Timing Delays' button. A 'Run Number' field is set to 5941. The 'artdaq folder selection' is set to /nfs/sw/work\_dirs/dune-artdaq\_artdaq\_v3\_03\_00\_beta. The 'Run summary' section provides detailed information about the current run, including the start time and device configurations.

Red arrows from the text above point to the 'Send Timing Delays' button and the 'Fake Trigger Options' section.

# DCM Loop During a Run



```
1 #!/bin/bash
2 #
3 #if [ "${len}" -lt "1" ]; then
4 # echo "---- Must enter at least 1 directory----"
5 # return
6
7 file_name="Half_Hex_IncreaseThreeHund.txt" #Fourth_Hex_IncreaseThreeHund.txt"
8 hex_=0
9 import_list=$(eval "less $file_name")
10 array_=( $import_list )
11 len_array=${#array_[@]}
12
13 echo "sed -i '4c\pulse_height = 0x00040${array_[0]}' dcm1_on_newfw.cfg"
14 eval "dcmControl_v5.exe dcm1_on_newfw.cfg"
15
16 for n in $(seq 0 1 ${len_array} - 1))
17 do
18   hex_number=${array_[${n}]}
19   declare -i order_=$((n+1))
20   echo "Running hex value: $hex_number $order_/${len_array}"
21   sleep 30
22   #echo "sed -i '4c\pulse_height = 0x00040${hex_number}' dcm1_on_newfw.cfg"
23   eval "sed -i '4c\pulse_height = 0x00040${hex_number}' dcm1_on_newfw.cfg"
24   eval "dcmControl_v5.exe dcm1_on_newfw.cfg"
25 done
26 eval "dcmControl_v5.exe dcm1_off.cfg"
27 #
28
29
30
```

"run\_dcm\_pulse\_range.sh" 30L, 808C 7,1 ALL

# Beam-Right DCMs

1. 4/5 diffusers in use
2. UL-RaS out of commission

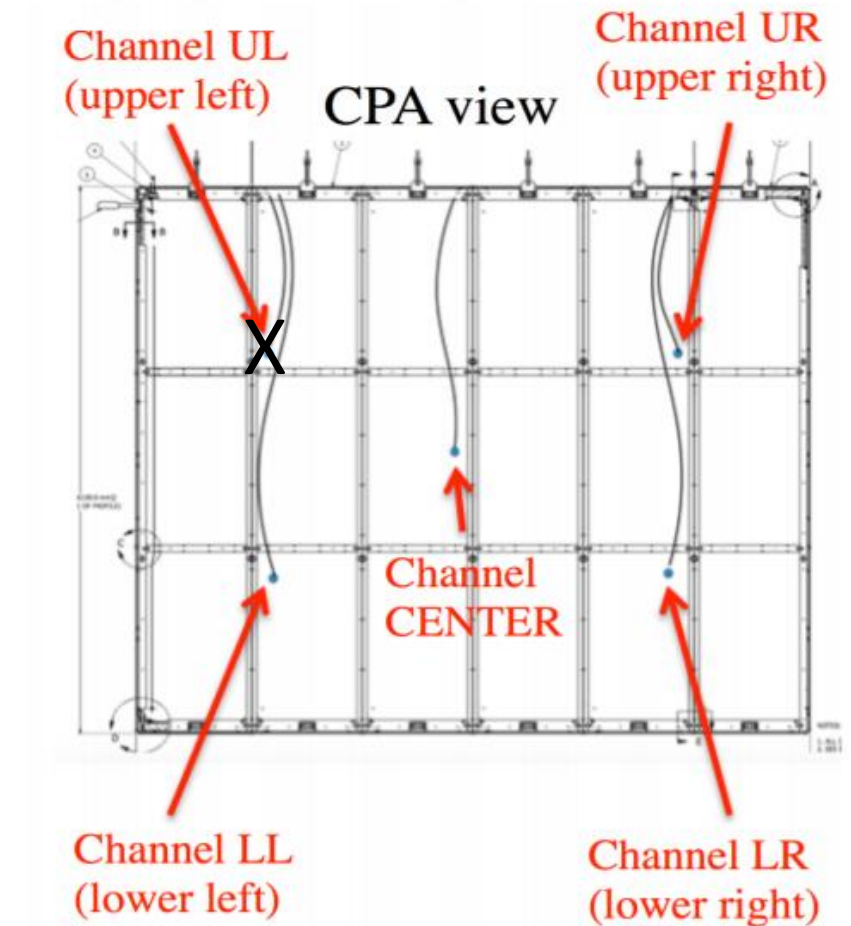
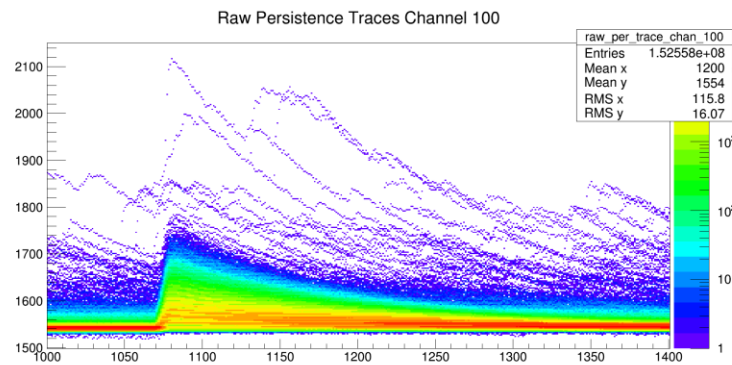


Figure 2: An CPA view from APA, with five light diffuser locations.

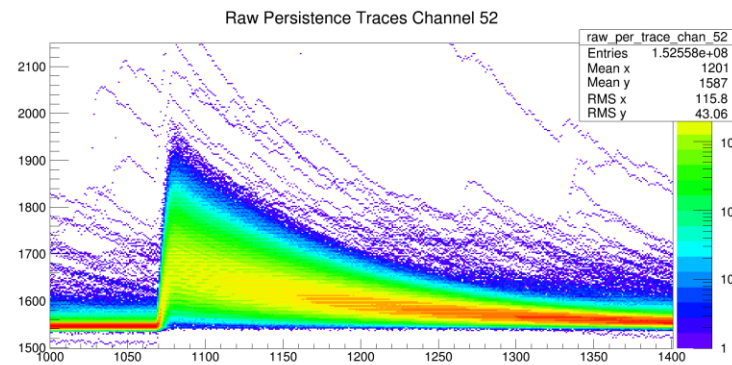
Zelimir Djurcic, et al.  
[DUNE-doc-#11191-v3](#)

# Run\_5912\_DCM\_VaryPulse\_sample

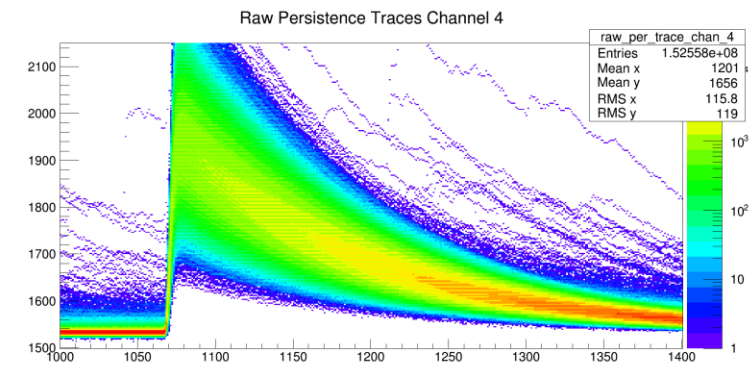
## APA-3



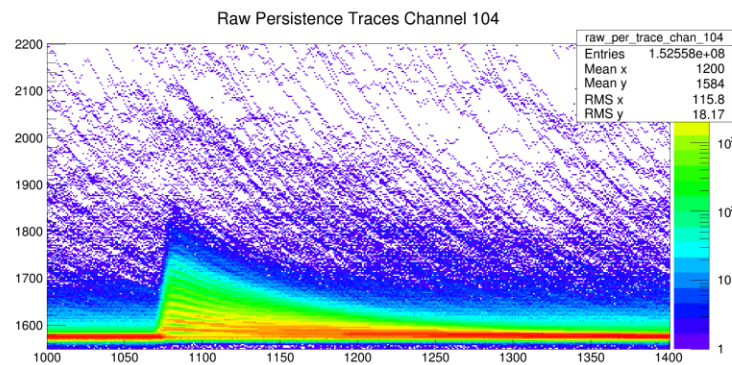
## APA-2



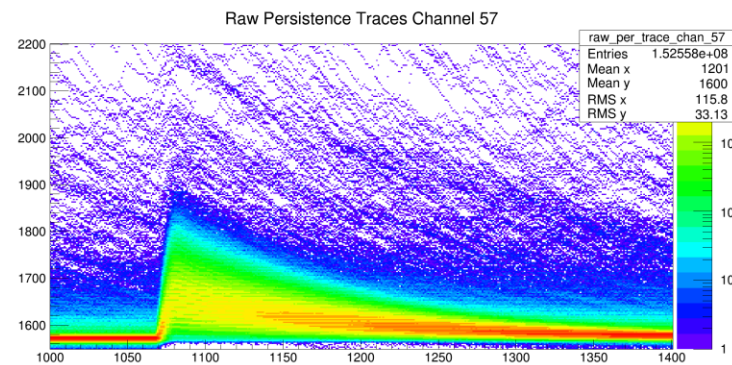
## APA-1



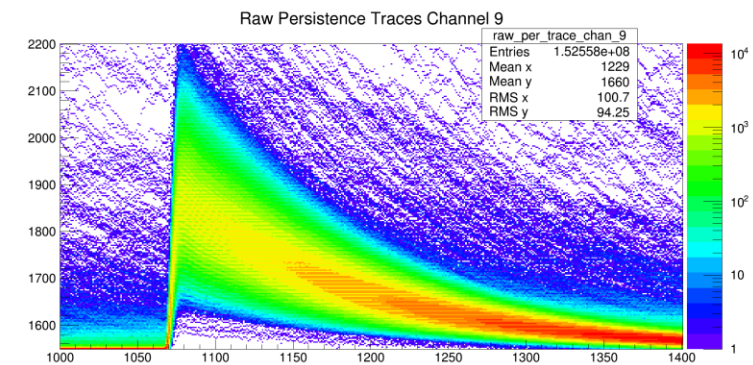
FNAL  
PD Slot#2



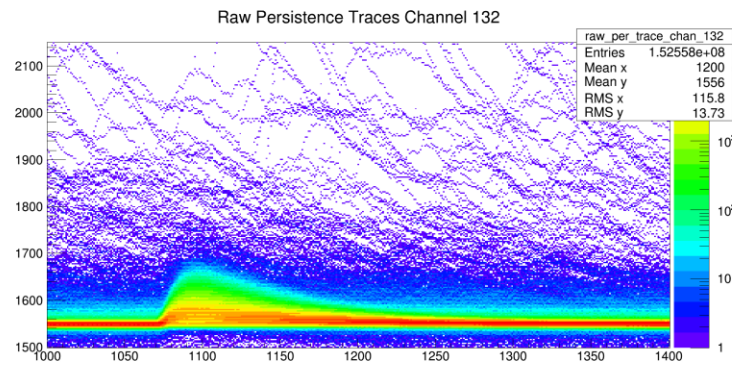
Raw Persistence Traces Channel 57



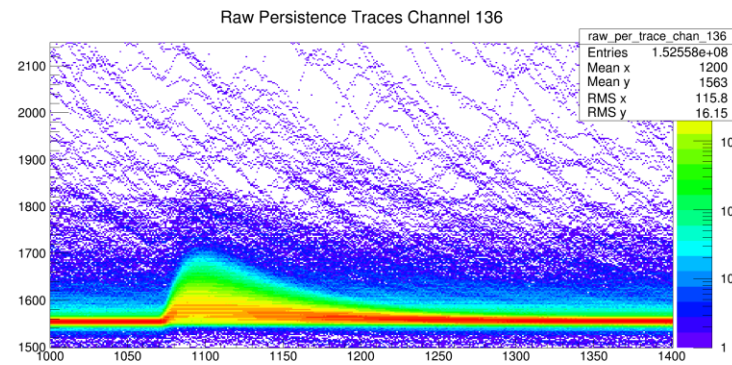
Raw Persistence Traces Channel 9



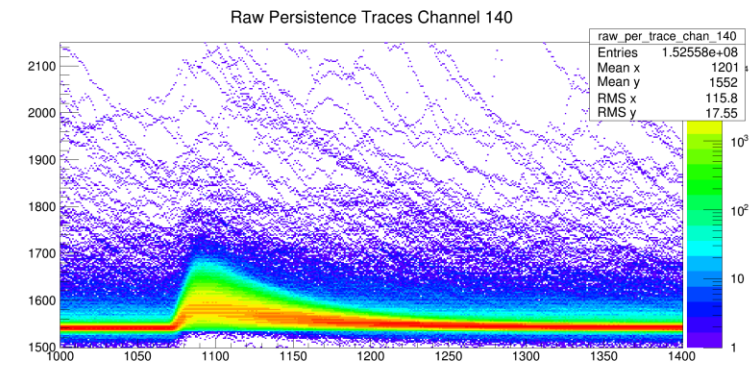
IU  
PD Slot#3



Raw Persistence Traces Channel 136



Raw Persistence Traces Channel 140



ARAPUCA  
PD Slot#4

# Beam-Left DCMs

1. 3/5 diffusers in use
2. UR-DaS out of commission
3. Center-DaS out of commission

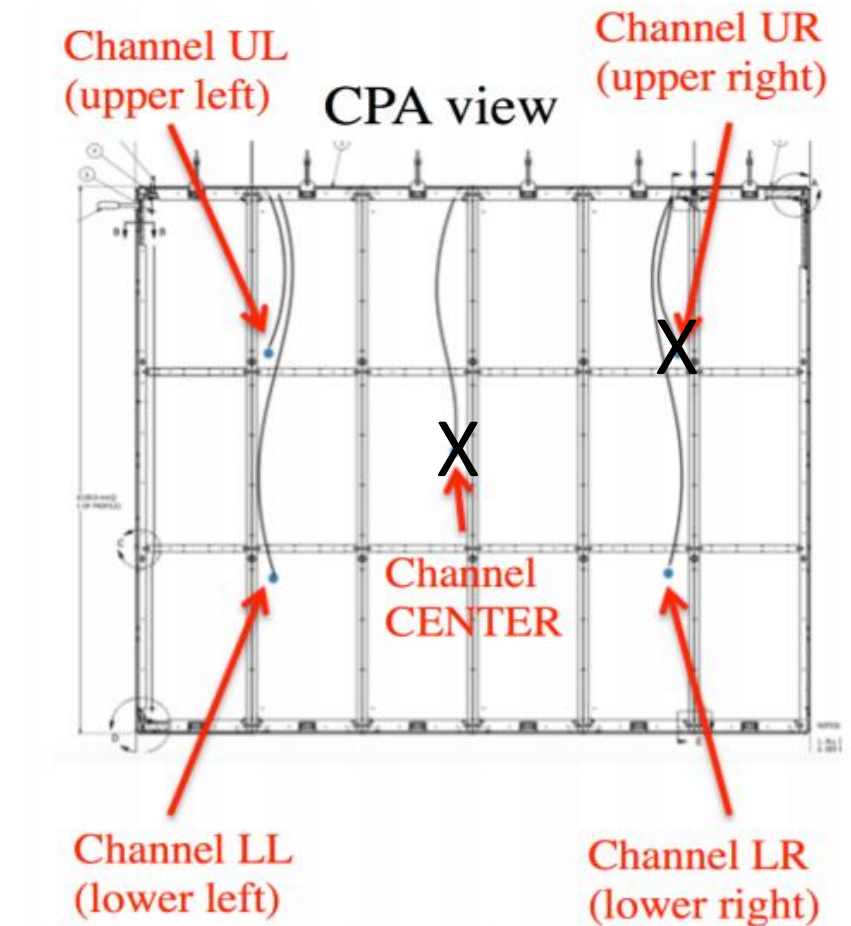


Figure 2: An CPA view from APA, with five light diffuser locations.

Zelimir Djurcic, et al.  
[DUNE-doc-#11191-v3](#)



# DCM Runs Taken This Past Week

- 5910
  - 5912
  - 5926
  - 5927
  - 5929
  - 5931
  - 5932
  - 5933
  - 5934
  - 5935
  - 5936
  - 5937
- Will fill in more information soon!