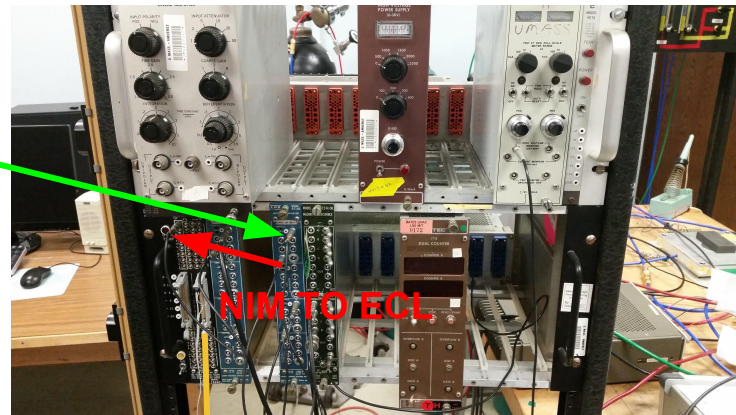


MWPC w/ NaI PMT

PMT
SIGNAL
TO
DISCR.



NIM Bin Array

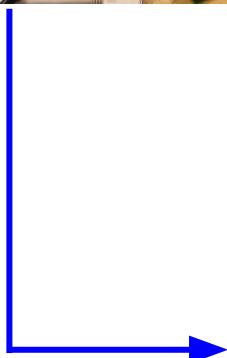
NIM TO ECL



ECL TO FADC
TRIGGER

fADC

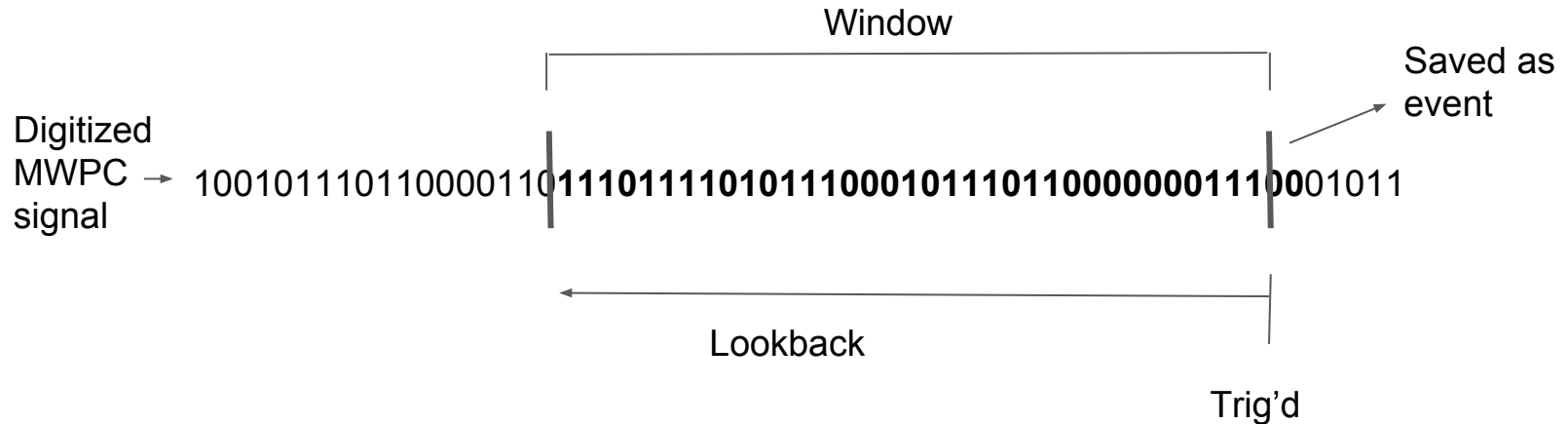
MWPC SIGNAL

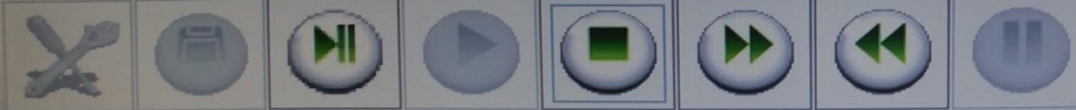


DAQ

The fADC has a constant pipeline of data entering it from the MWPC, broken down into 8 ns frames.

When it receives a trigger from the PMT, it consults a CONFIG file that instructs it on where to start taking data, and for how many 8 ns frames.





Start Time
/25/16 20:01:56

End Time
26/16 18:19:28

Run Parameters

Expid: Session: Configuration:

Output File:

User RTV %(config):

User RTV %(dir):

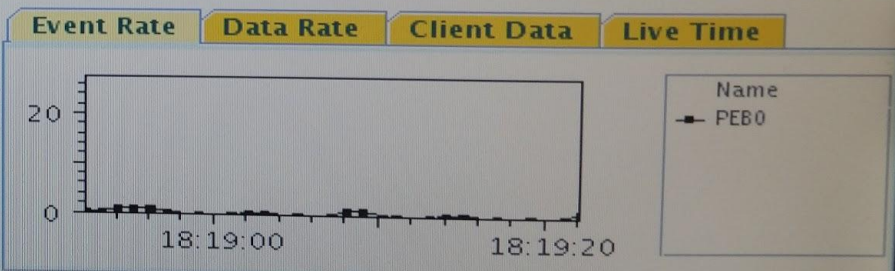
Run Status

Run N...: Run State: Event Limit:

Watch Component: Data Limit:

Total Events: Time Limit (min.):

Name	State	EvtRate	DataR...	IntEvt...	IntDat...
PEB0	download...	0.0	0.0	0.4	0.1
ROC0	download...	0.0	0.0	0.4	0.1



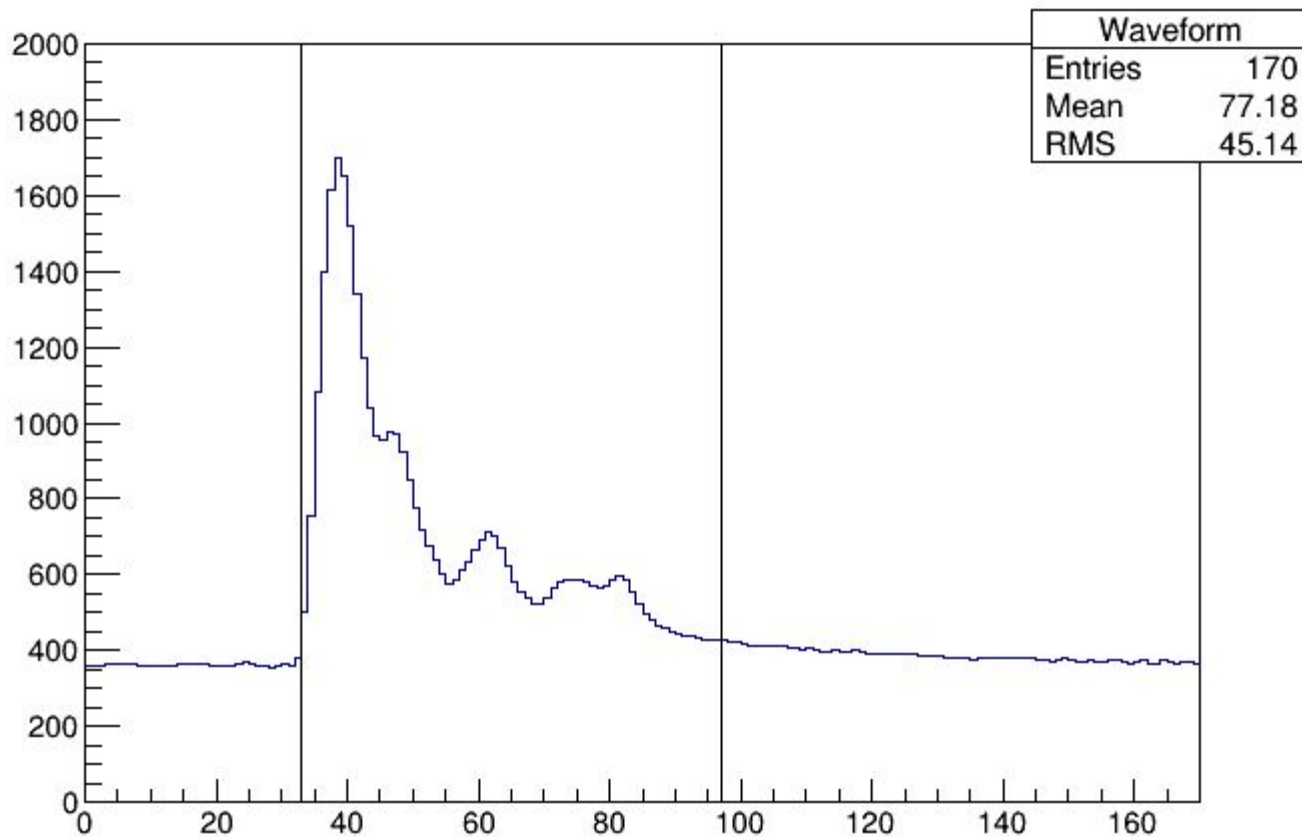
Name	Message	Time	Severity
sms_fADC125_single	waiting for...	18:19:27 ...	WARN
sms_fADC125_single	End succeeded.	18:19:28 ...	INFO

ROOT files

The DAQ system creates a ROOT file of the data.

Using software that wraps some of ROOT's functionality, we create a waveform that can be analyzed.

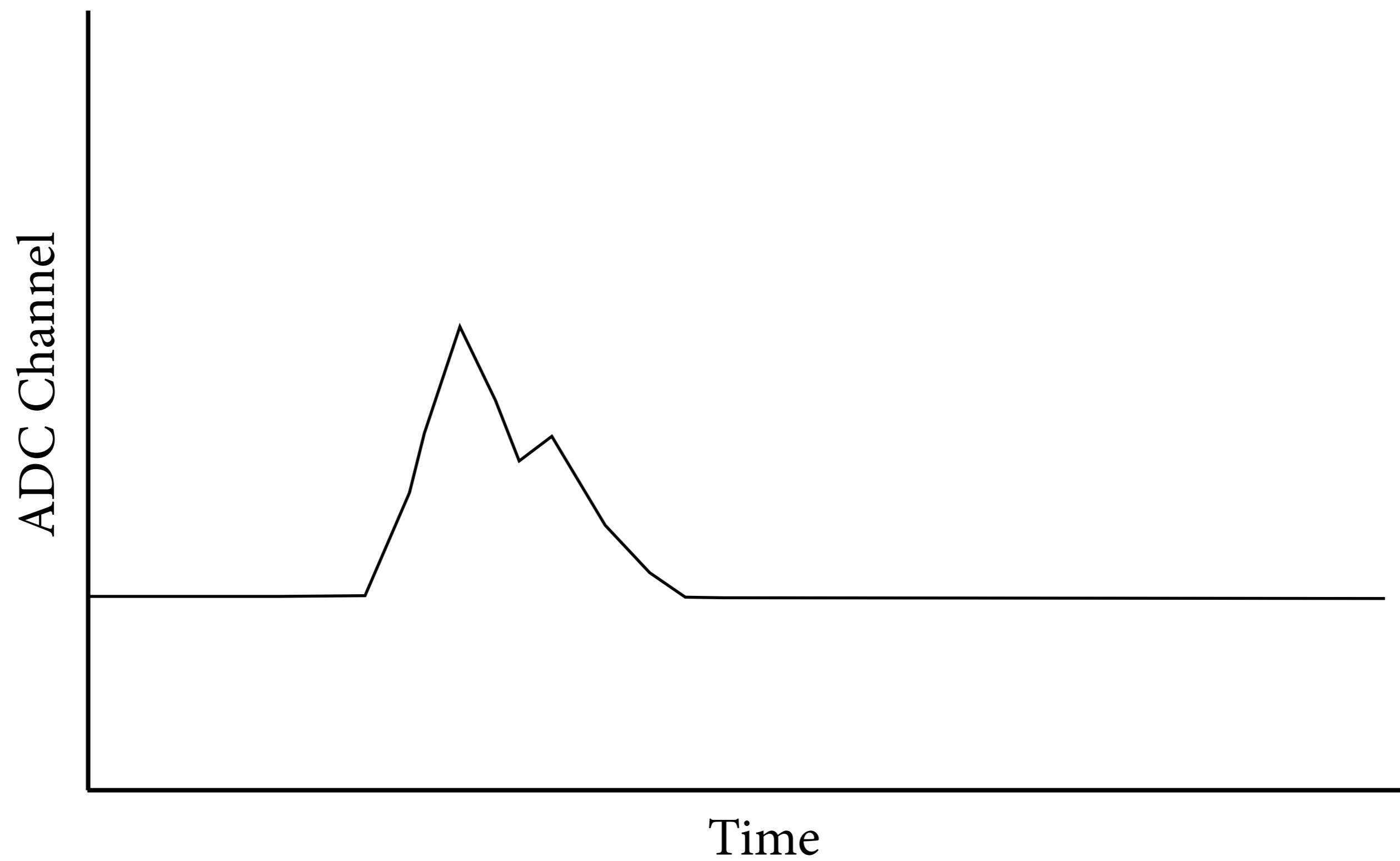
Event 75 ROC:0 SLOT:3 CHAN:7

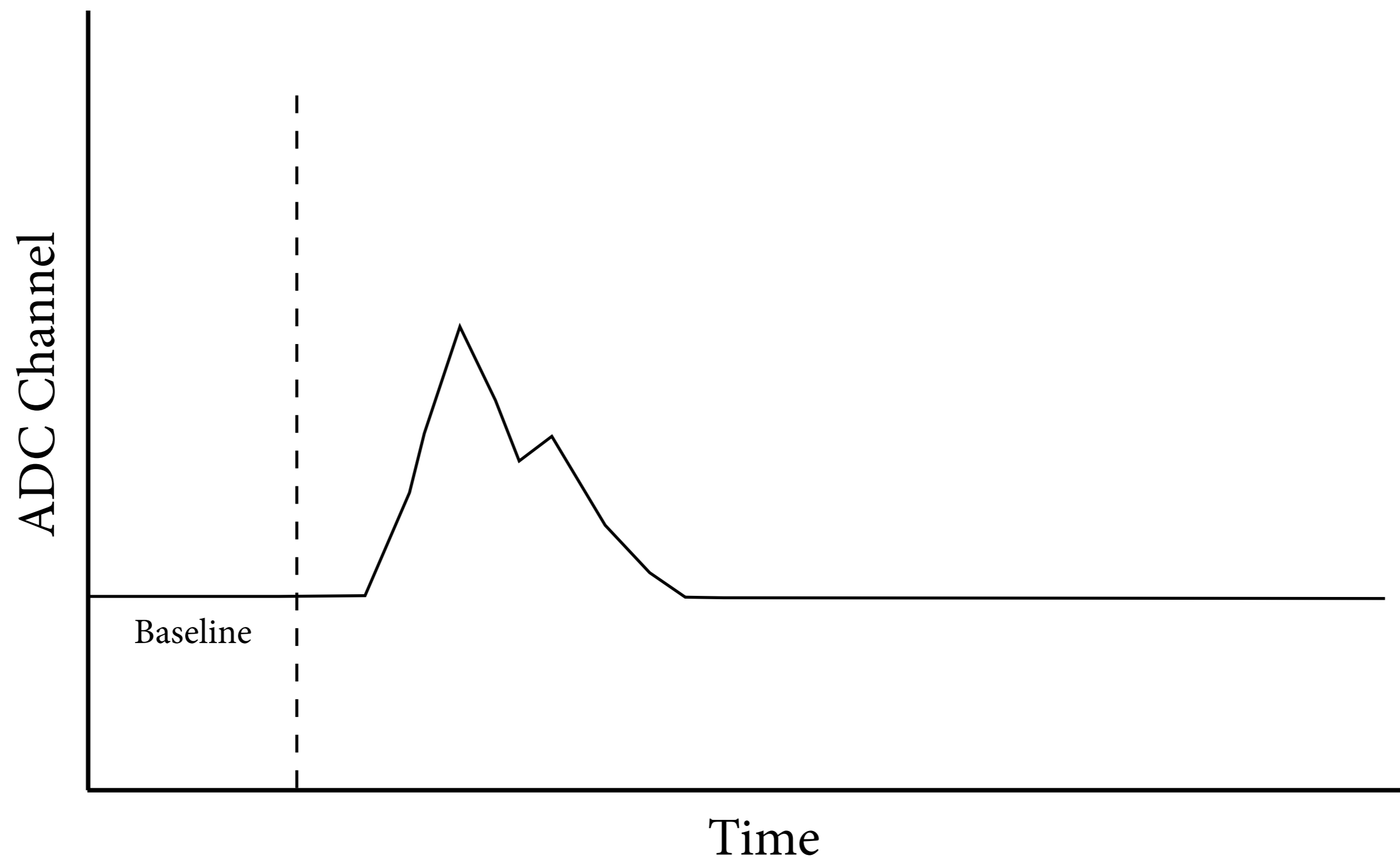


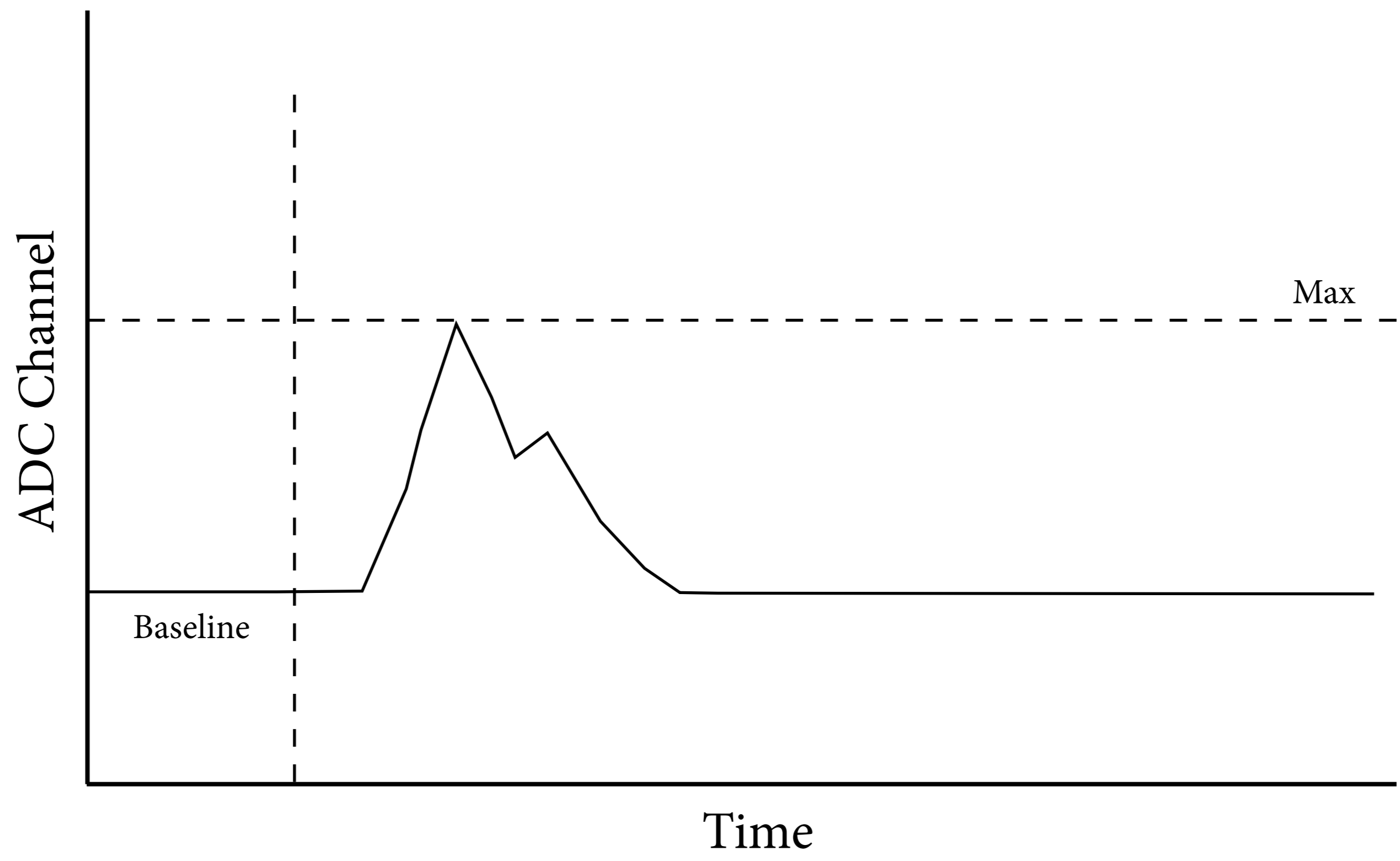
Using the ROOT files in drift time studies

PEAK DETECTION ALGORITHM:

Constant Fraction Method with some modifications






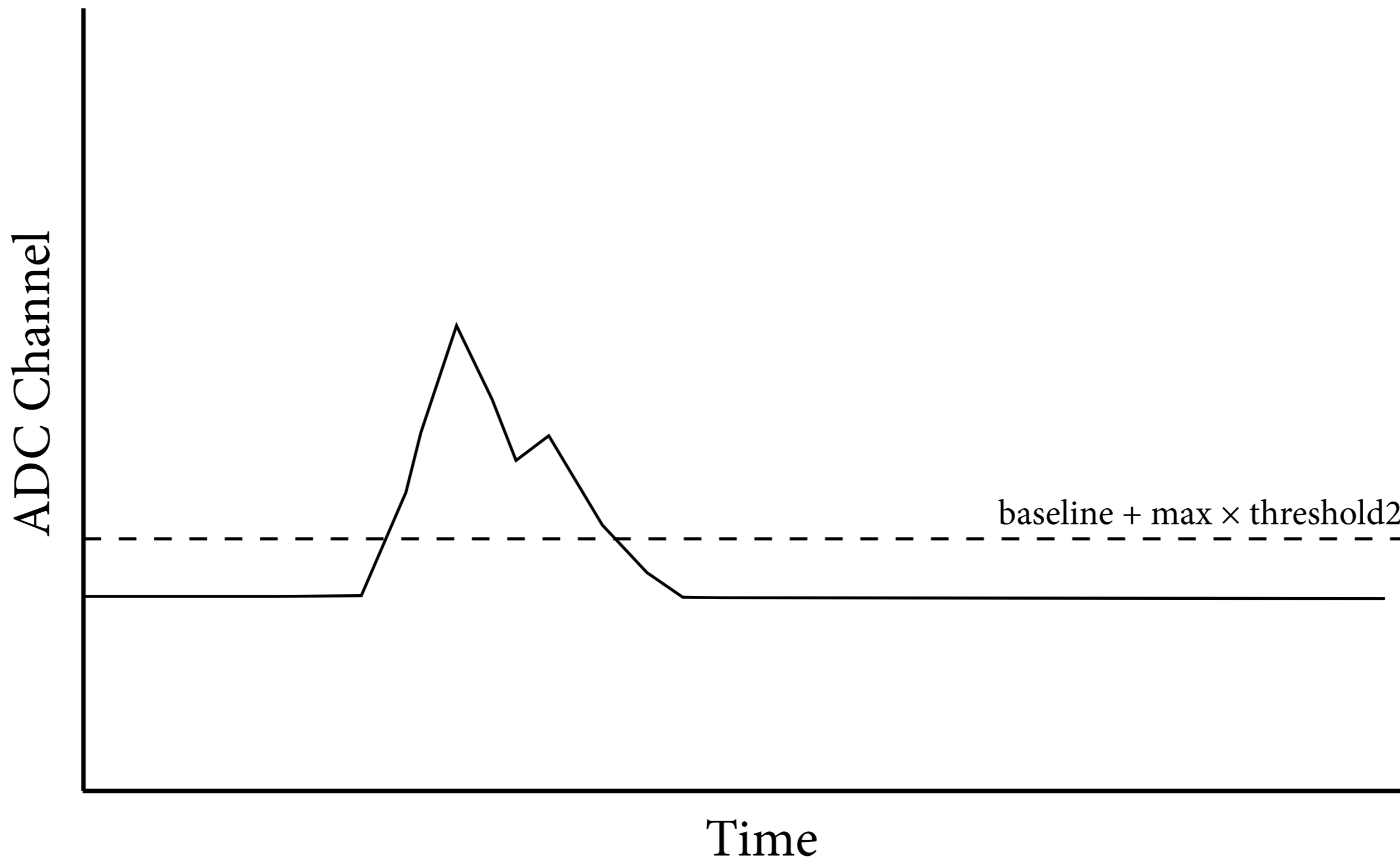


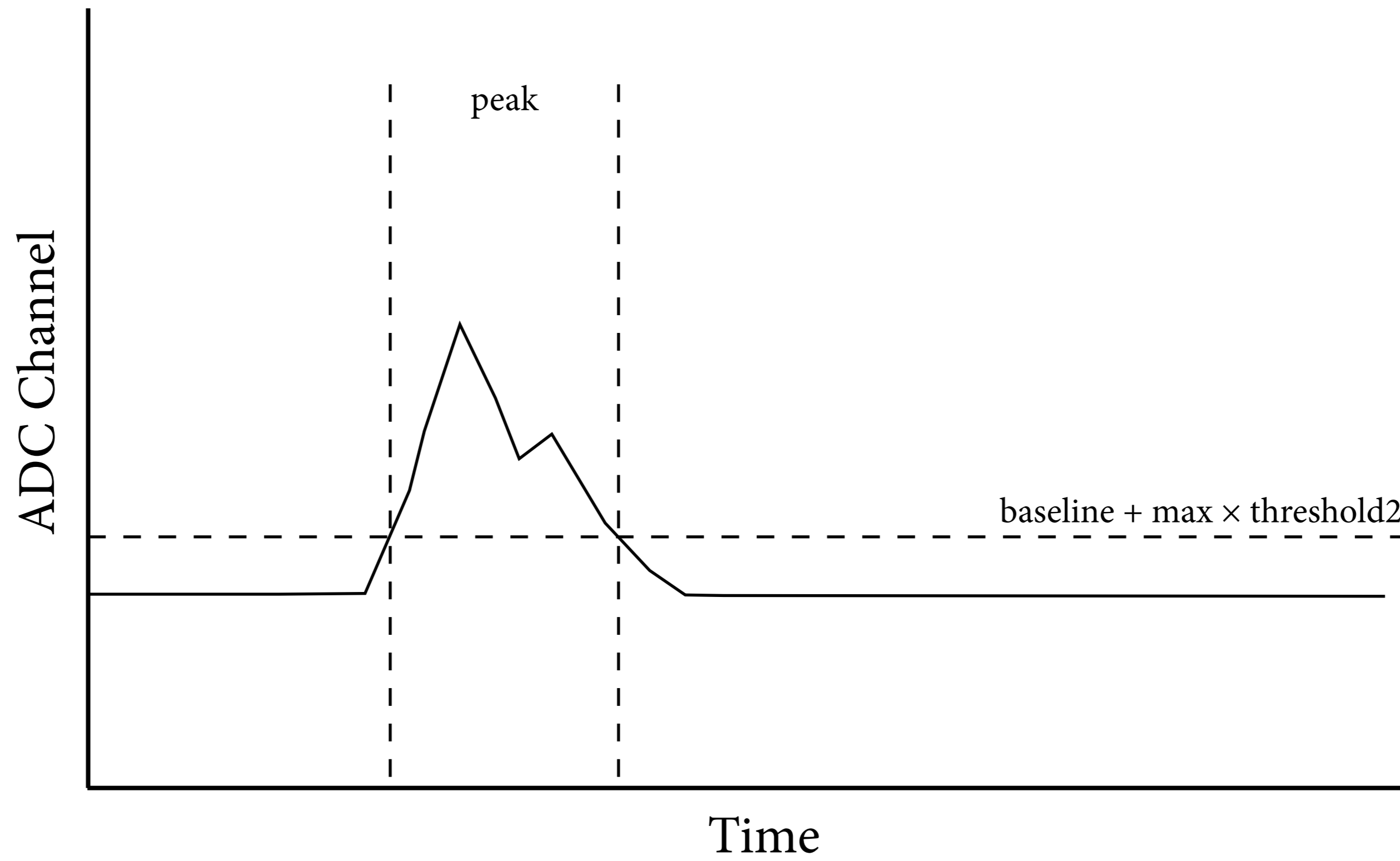
Peak Condition:

$$\text{max} - \text{baseline} \geq \text{baseline} \times \text{threshold1}$$

Set by user, about 0.05







Voltages for 10^5 gain on MWPC power supply

Ar:CO_2 80:20 2020 Volts

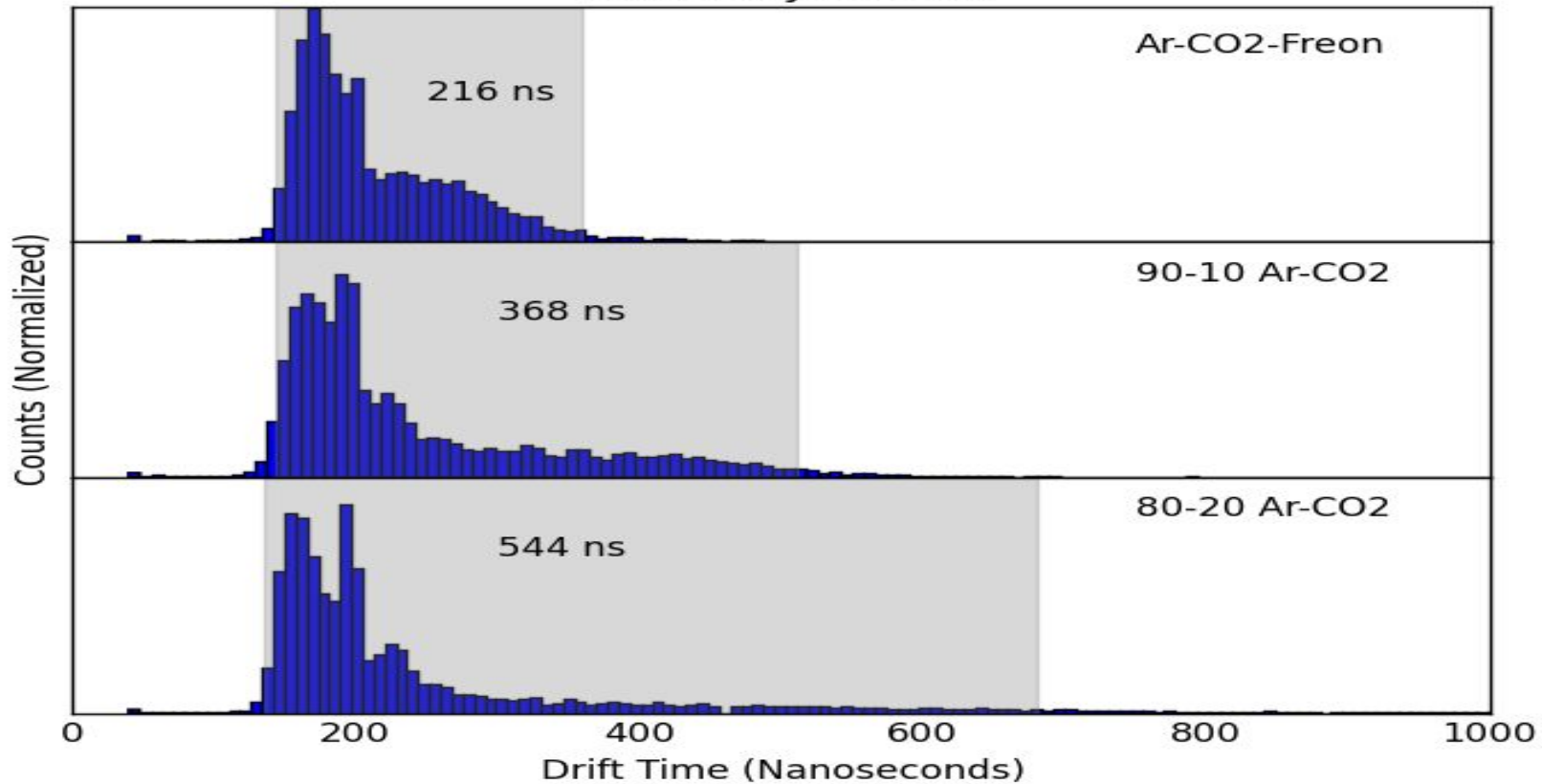
Ar:CO_2 90:10 1820 Volts

Freon 2125 Volts

Voltage for NaI PMT power supply 1400 V

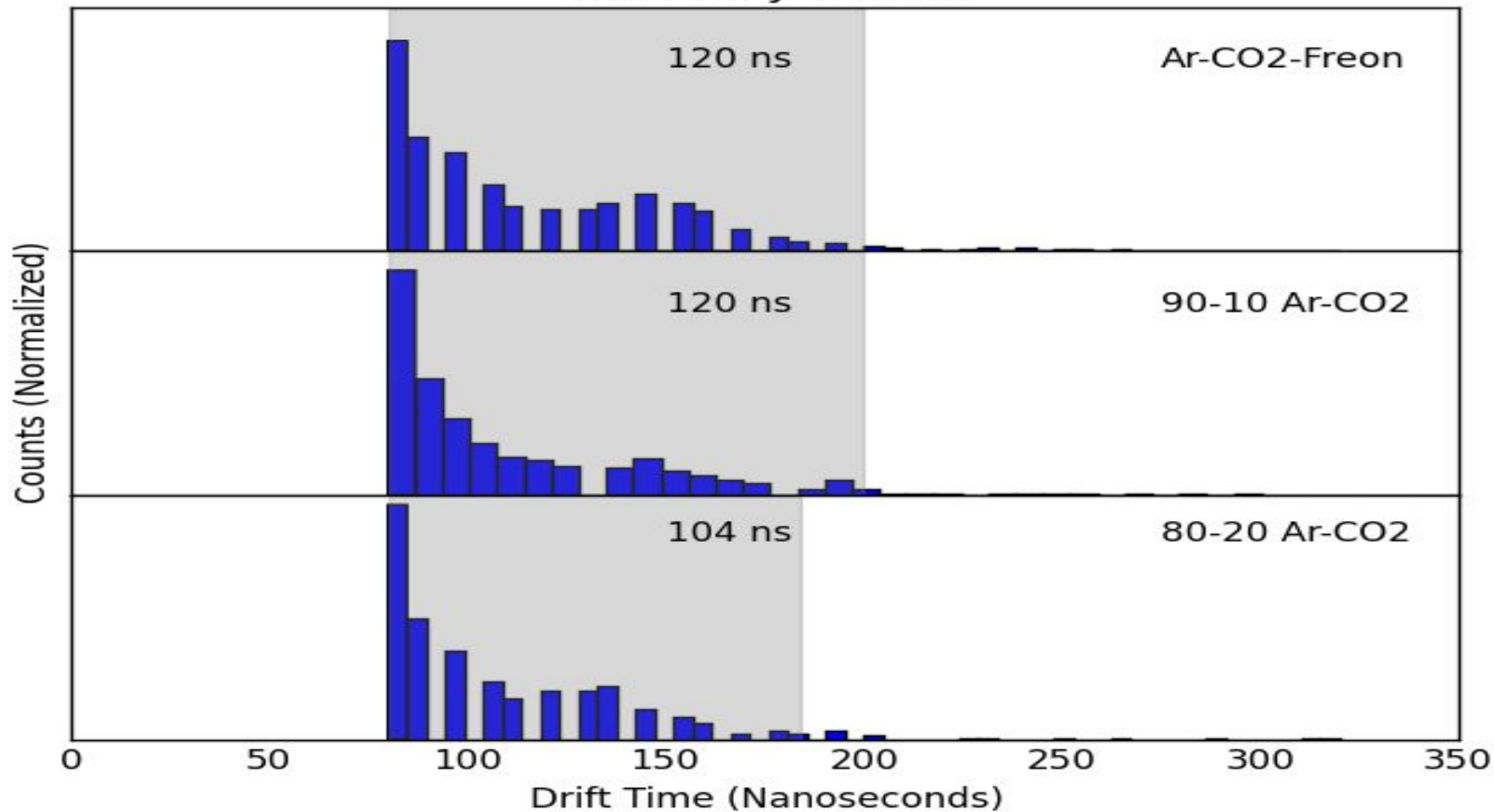
Discriminator threshold for PMT signal 390 mV

Gas Study Results



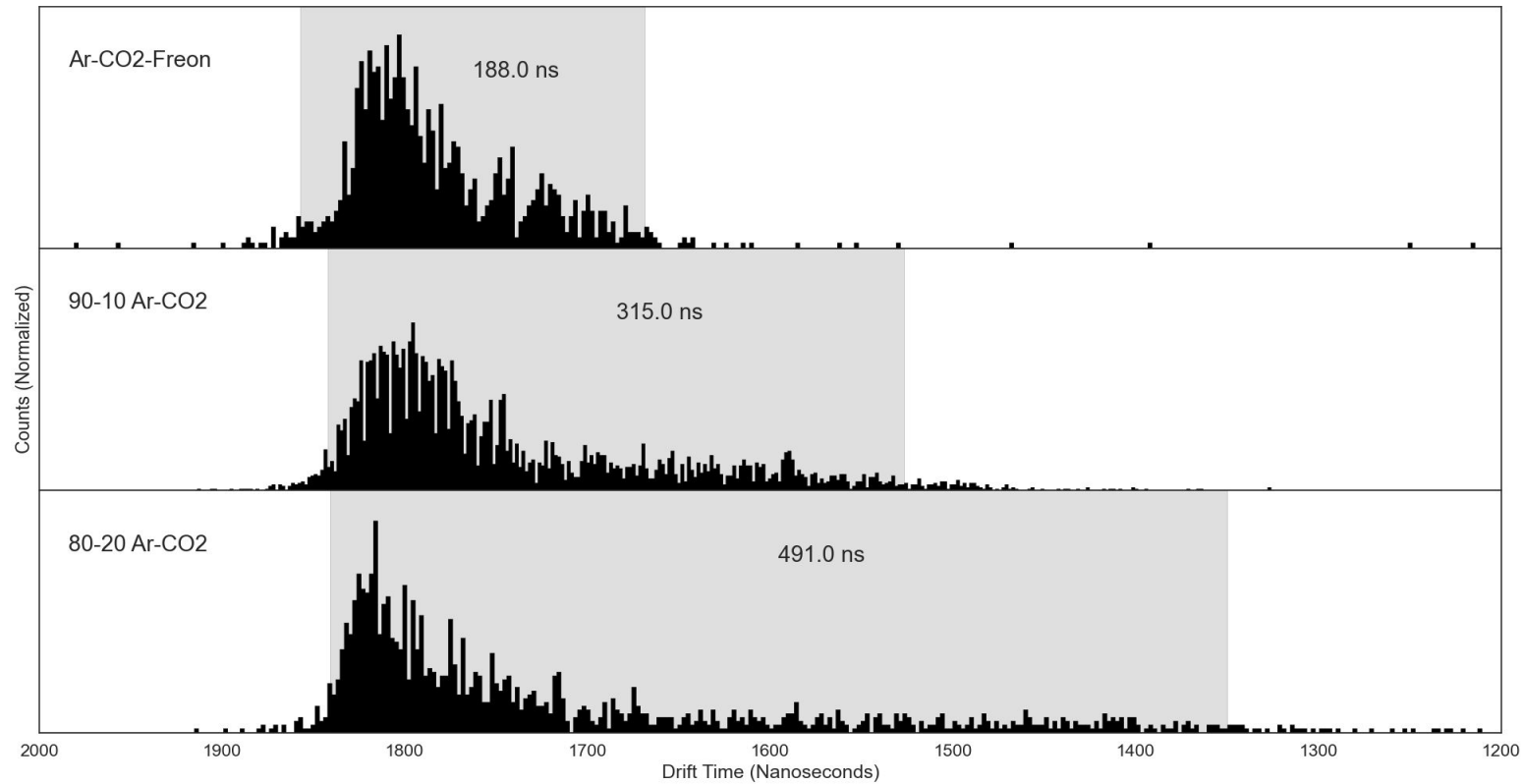
Analyzing the signal from all wires

Gas Study Results

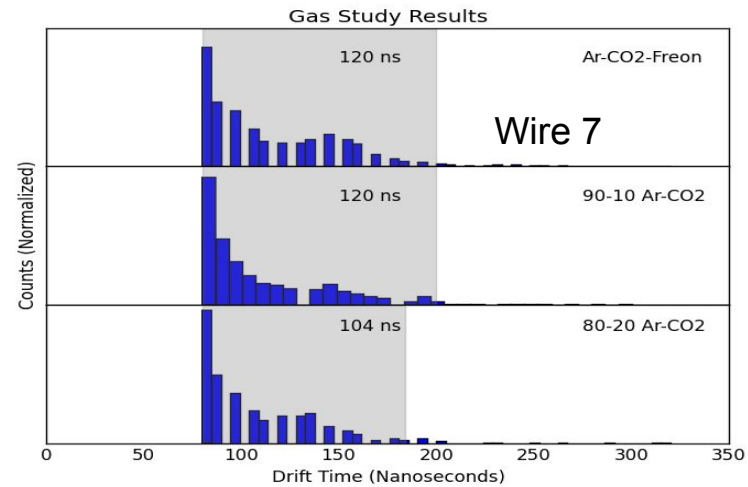
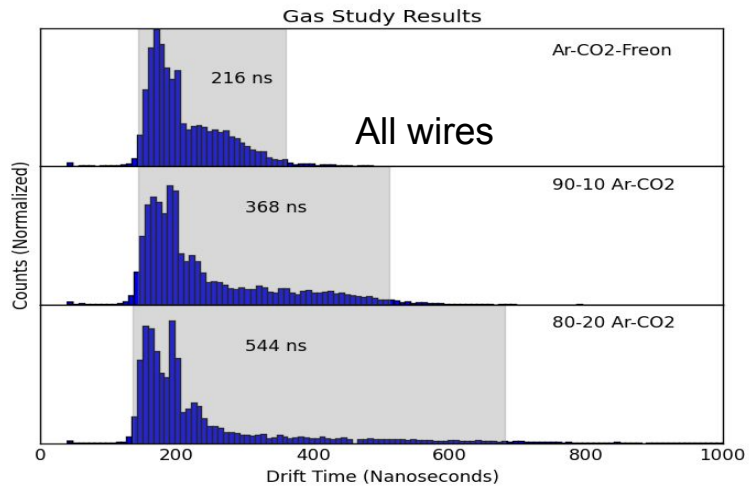


Just analyzing one wire (the 7th in, directly under the PMT)

Gas Study Results



Drift time studies from last summer utilizing ScopeOut



Gas Study Results

