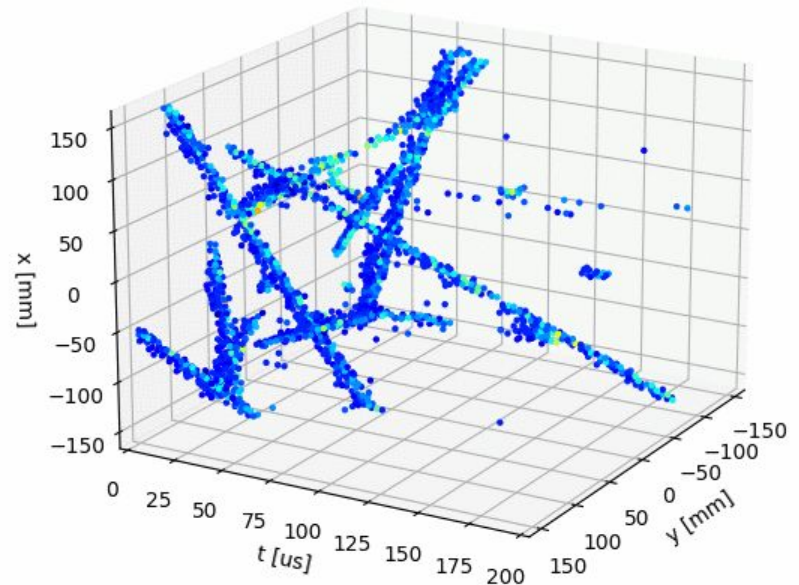


# First look at SingleCube charge data

Peter Madigan



# Charge system bring up

Pedestal measurement

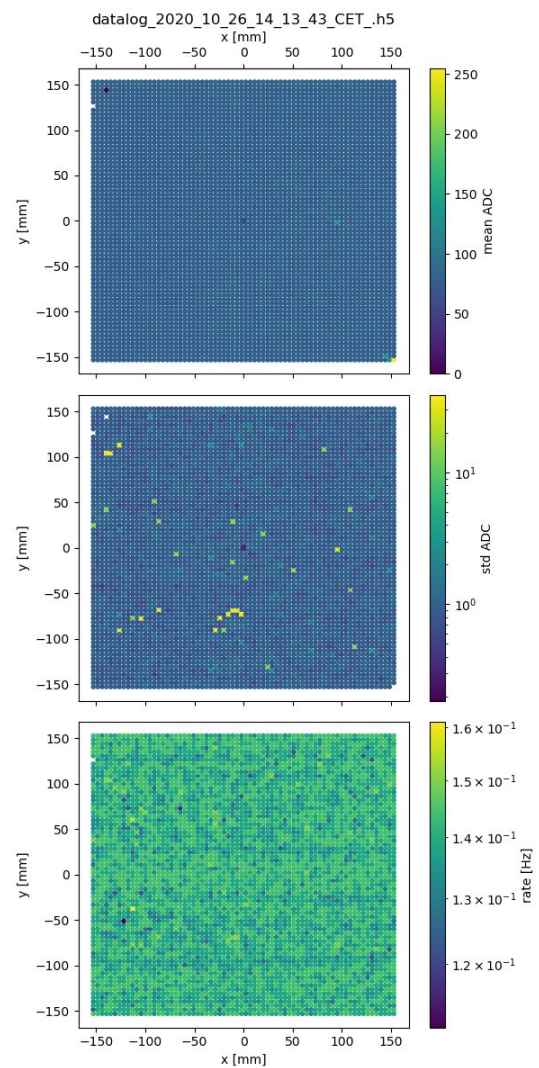
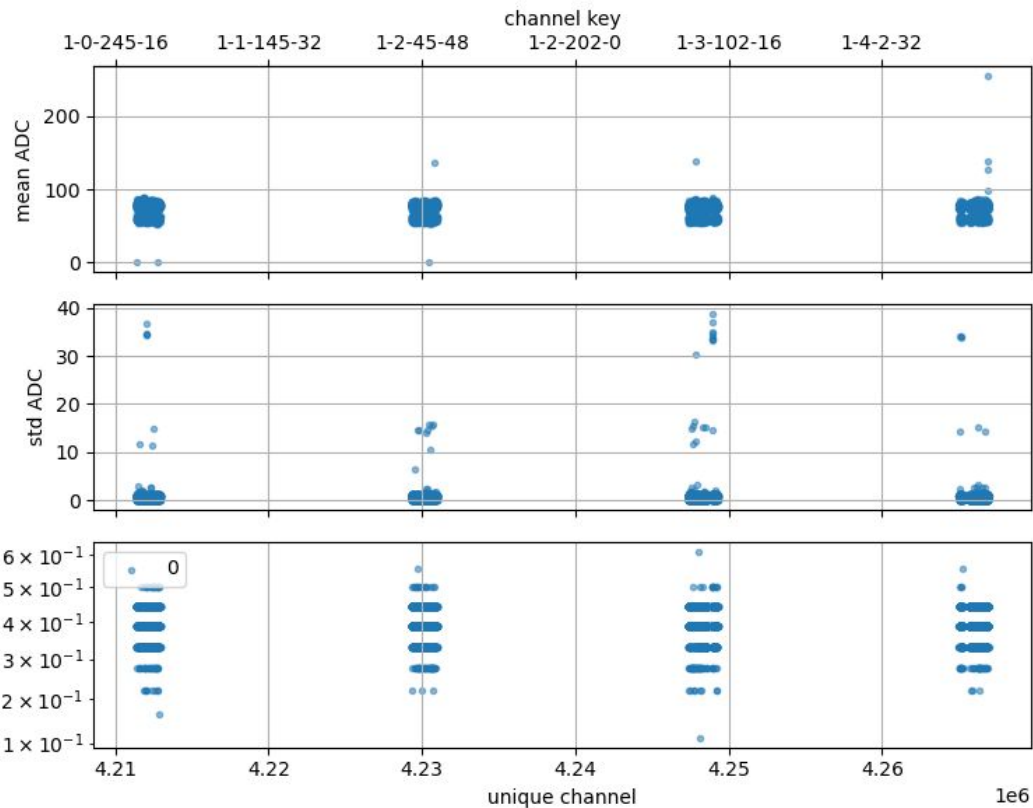
Leakage rate measurement

Threshold setting

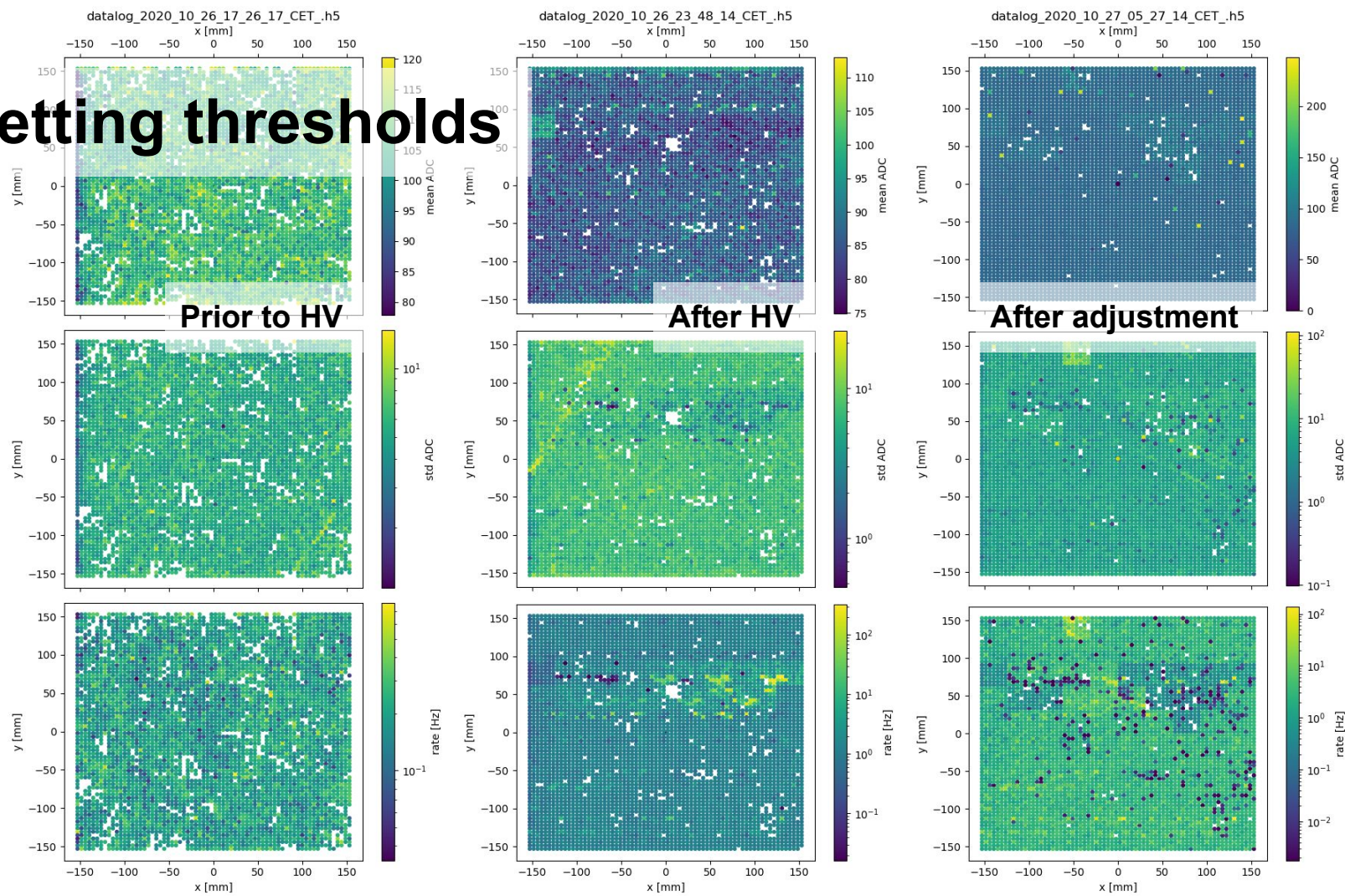
Sensitivity measurement

HV bring up and data collection

# Pedestal measurement

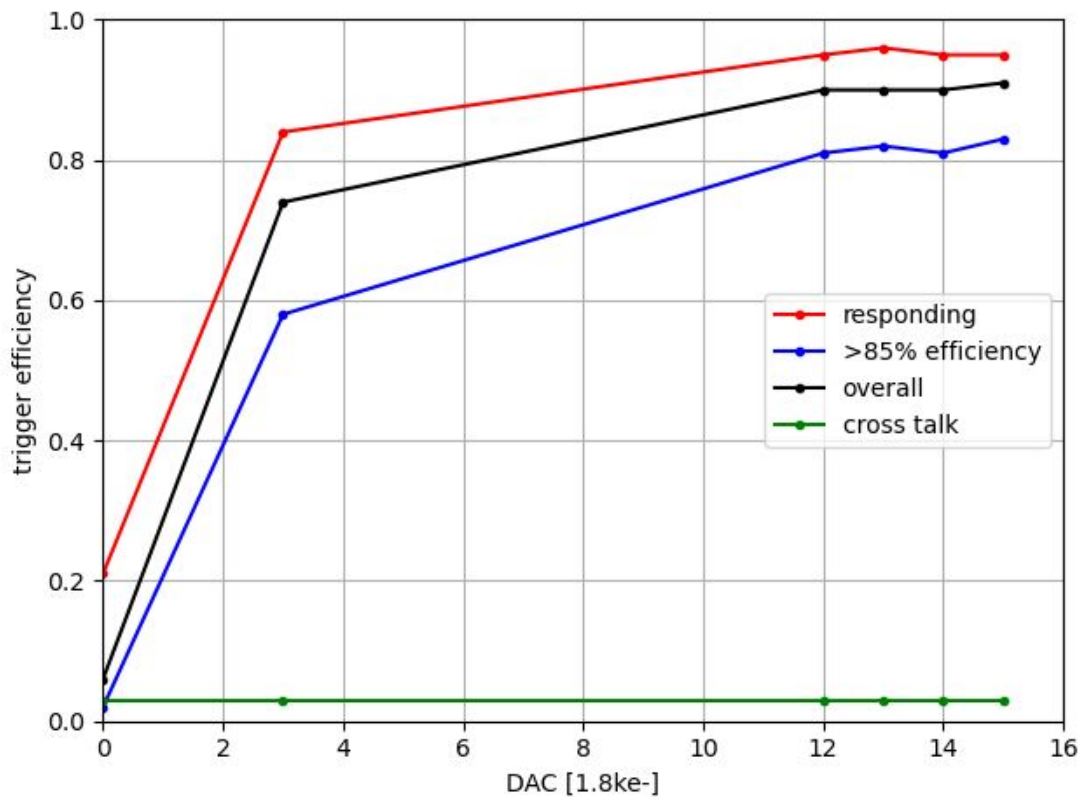


# Setting thresholds





# Sensitivity measurement



# Data

```
[(1, 4, 95, 0, 1, 1, 1, 21, 1804623, 94, 0, 0, 0, 213, 83, 1, 0, 0, 0, 0, 1, 1554814412)
(1, 4, 95, 0, 1, 1, 1, 21, 1804720, 94, 0, 0, 0, 21, 108, 1, 0, 0, 0, 0, 1, 1554814684)
(1, 4, 84, 0, 1, 0, 1, 51, 1803152, 79, 0, 0, 0, 51, 228, 1, 0, 0, 0, 0, 1, 1554814956)
(1, 4, 92, 0, 1, 1, 1, 15, 1807747, 84, 0, 0, 0, 207, 96, 1, 0, 0, 0, 0, 1, 1554818392)
(1, 4, 92, 0, 1, 0, 1, 15, 1807775, 84, 0, 0, 0, 207, 103, 1, 0, 0, 0, 0, 1, 1554818664)
(1, 0, 0, 7, 0, 0, 0, 0, 1554820191, 0, 2, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0)
(1, 1, 11, 0, 1, 0, 1, 2, 4, 96, 0, 0, 0, 2, 1, 1, 0, 0, 0, 0, 1, 1554820485)
(1, 2, 41, 0, 1, 1, 1, 30, 6, 81, 0, 0, 0, 158, 1, 1, 0, 0, 0, 0, 1, 1554820487)
(1, 4, 101, 0, 1, 1, 1, 31, 5, 79, 0, 0, 0, 95, 1, 1, 0, 0, 0, 0, 1, 1554820487)
(1, 3, 71, 0, 1, 0, 1, 35, 7, 81, 0, 0, 0, 227, 1, 1, 0, 0, 0, 0, 1, 1554820489)]
```

Trigger / Sync cross-talk issue

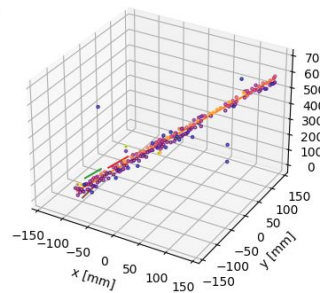
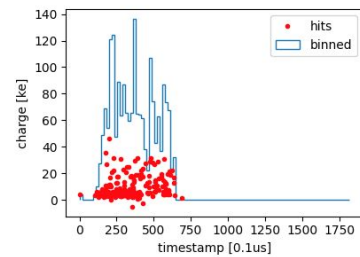
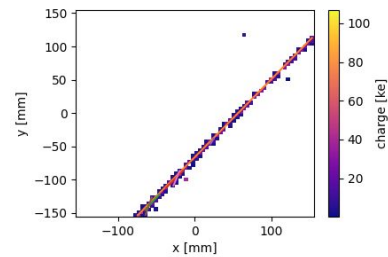
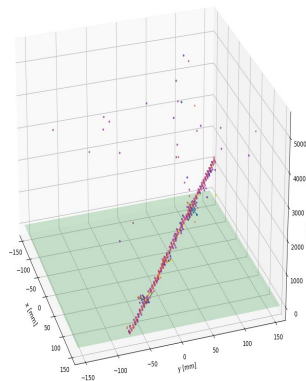
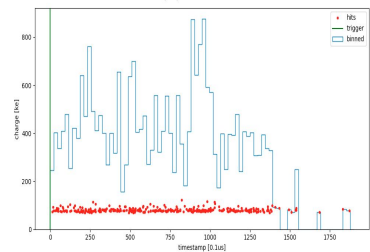
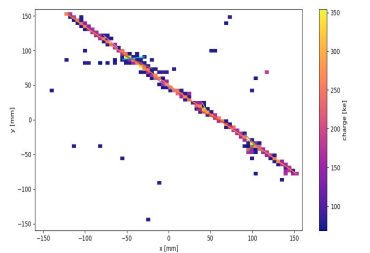
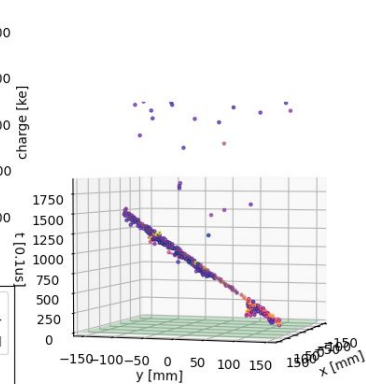
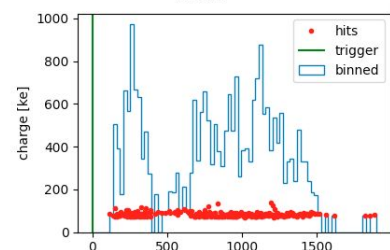
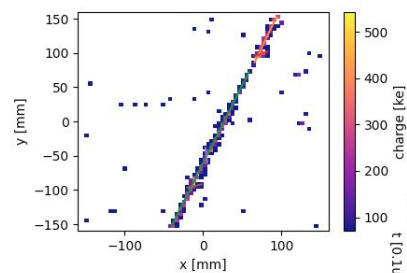
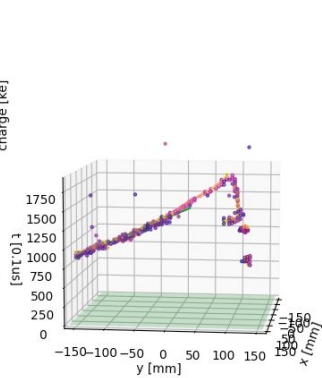
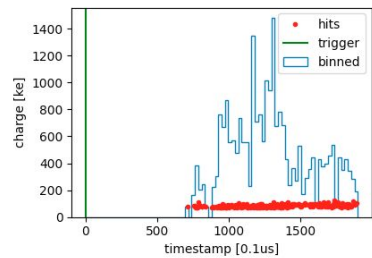
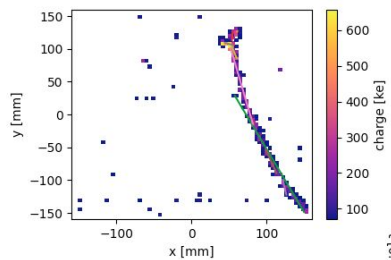
Runs post-datalog\_2020\_10\_28\_21\_41\_24\_CET\_.h5 have good larpix timestamps

Prior runs larpix timestamps are reset after each external trigger, difficult to disentangle individual events

I am generating evd files with pedestal correction and external triggers, publicly available:

<https://portal.nersc.gov/project/dune/data/Bern-singlecube/LArPix/dataRuns/convertedData/>

*Good place to start looking at the data!*



# To Dos

Electron lifetime fit

dQ/dX distribution / charge scale

Check data integrity (parity bits, FIFO flags, missing chips/channels)

Stability studies (pedestal + data)

## **Data runs:**

- Burst mode

- Retune thresholds