

HPTPC beam test quality flags

HPTPC Analysis meeting

Ed Atkin

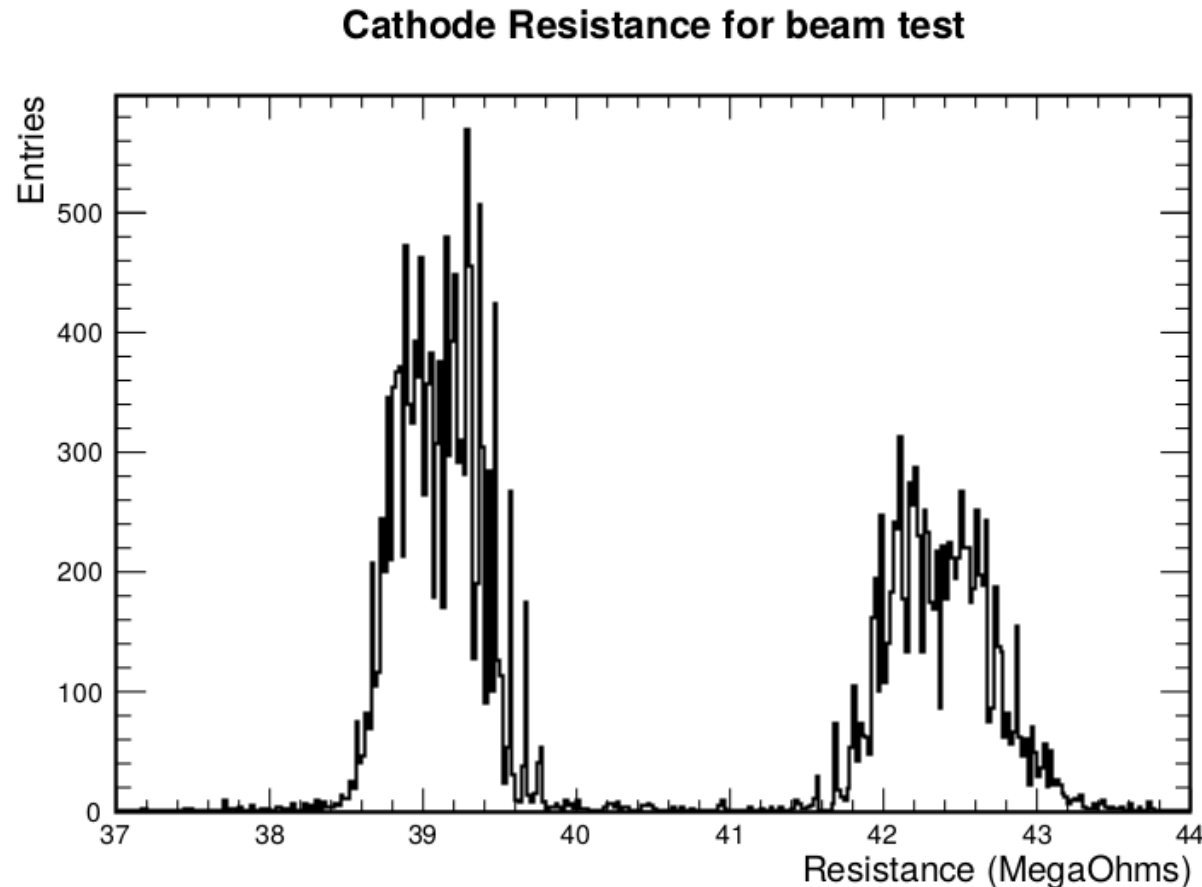
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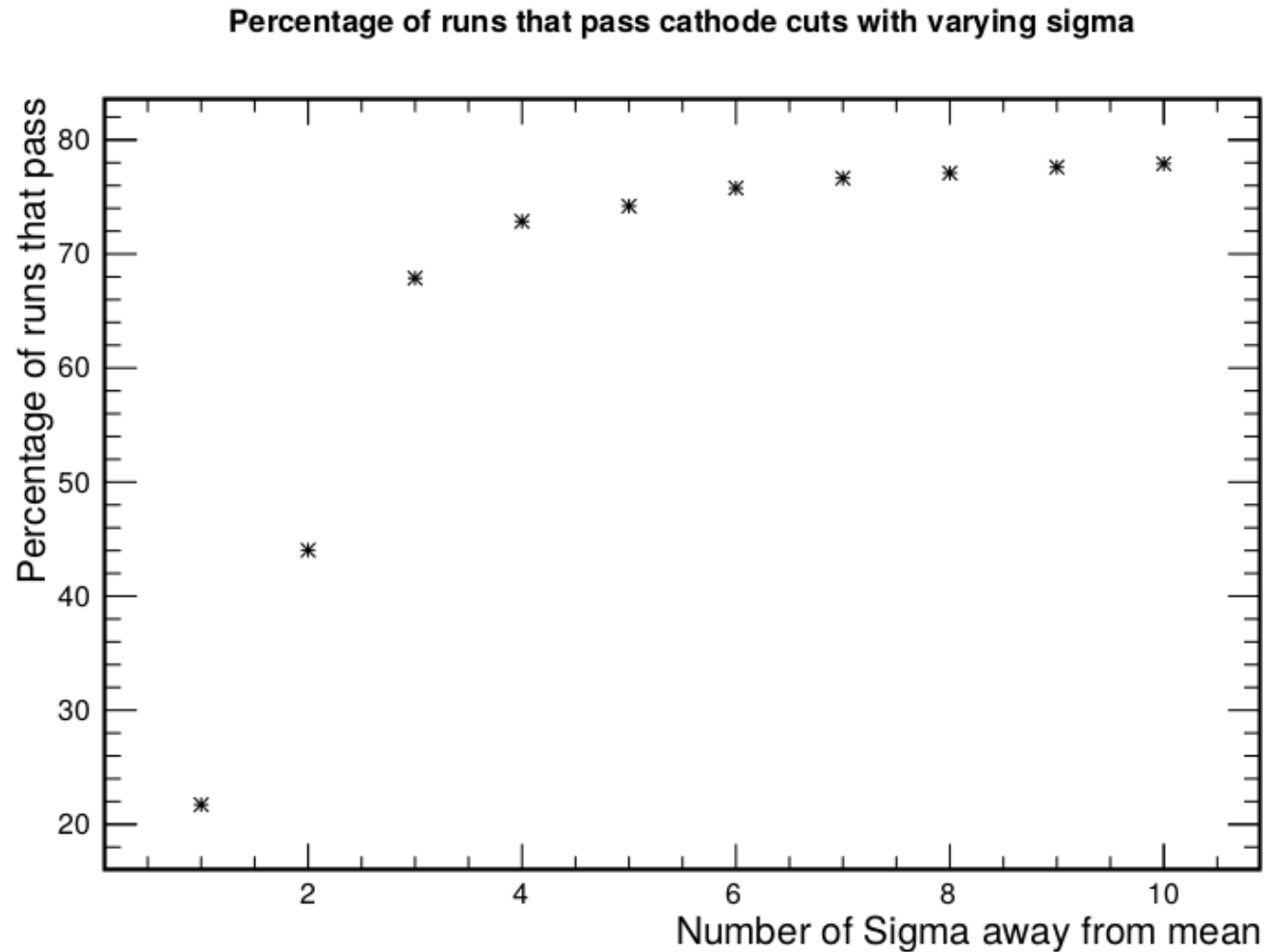
Recap

- If Cathode not behaving ohmically → BAD!
- If there are sparks on the anode → BAD!
- Need to decide on what level of badness is good
- Been using slow control databases to look into this

Cathode Behaviour

- Cathode resistance gives two nice peaks. One at 39MOhms and the other at 42MOhms which are the two configurations we ran in
- Fitting gaussians to these get s.d.'s of 0.24 and 0.31 MOhms

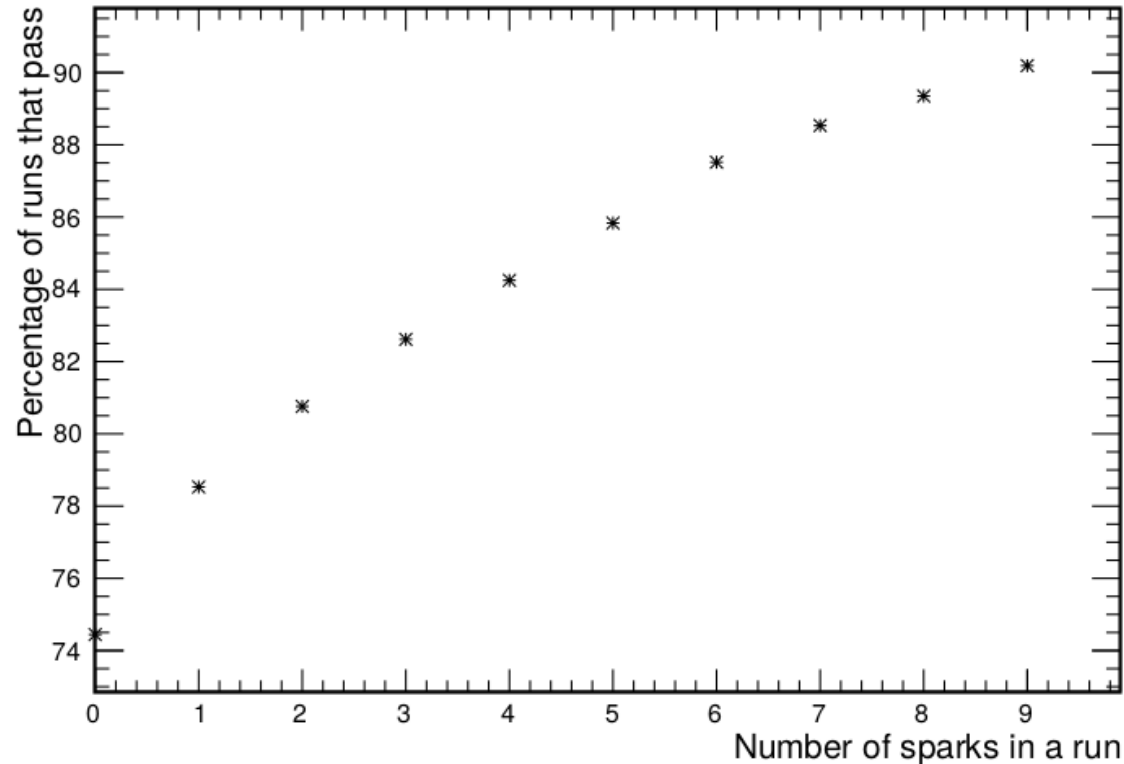




- Get a nice error function like shape (maths works!)
- Nothing strange here, just need to decide on what level is good

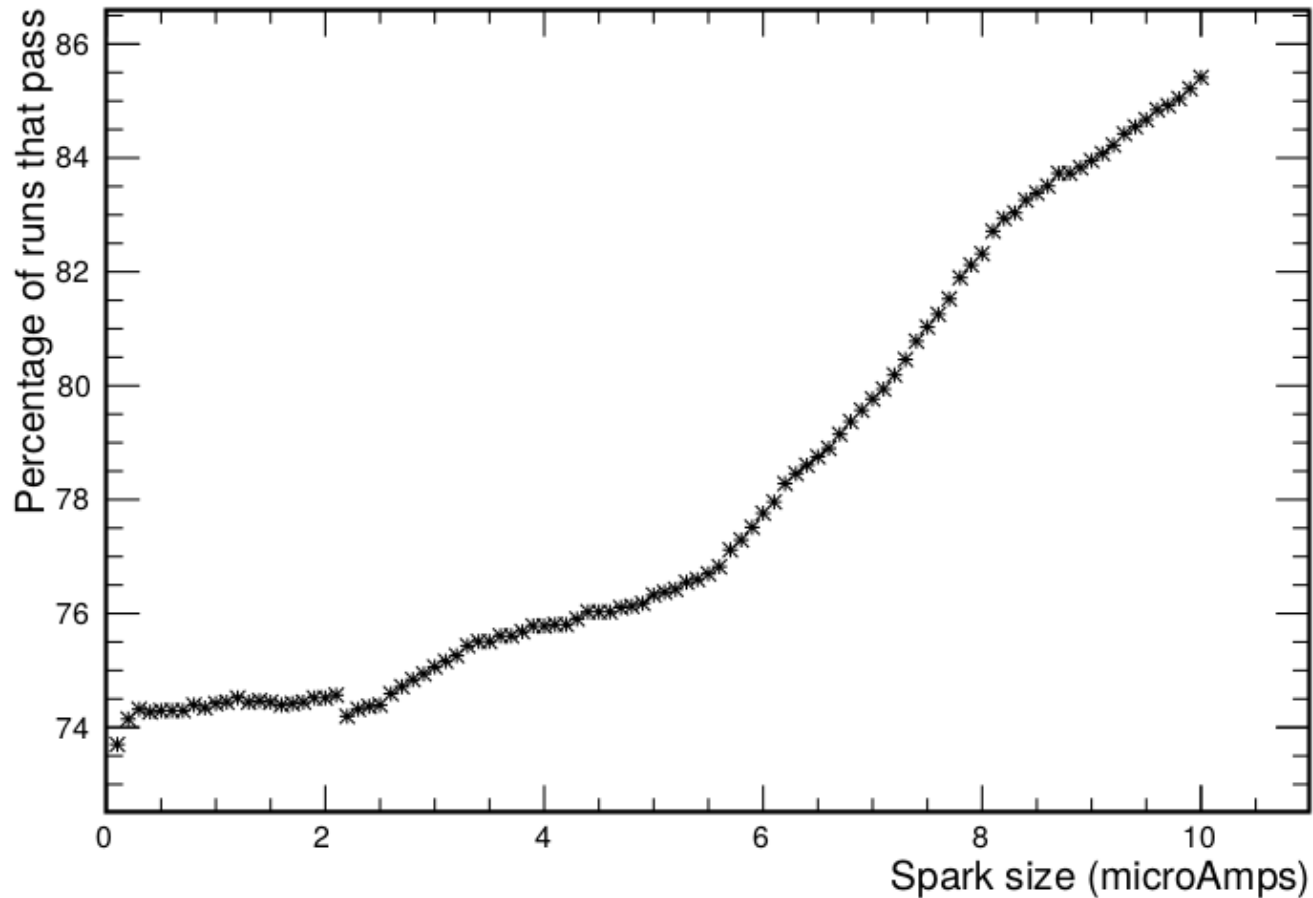
Anode sparks

Percentage of runs that pass spark number cuts



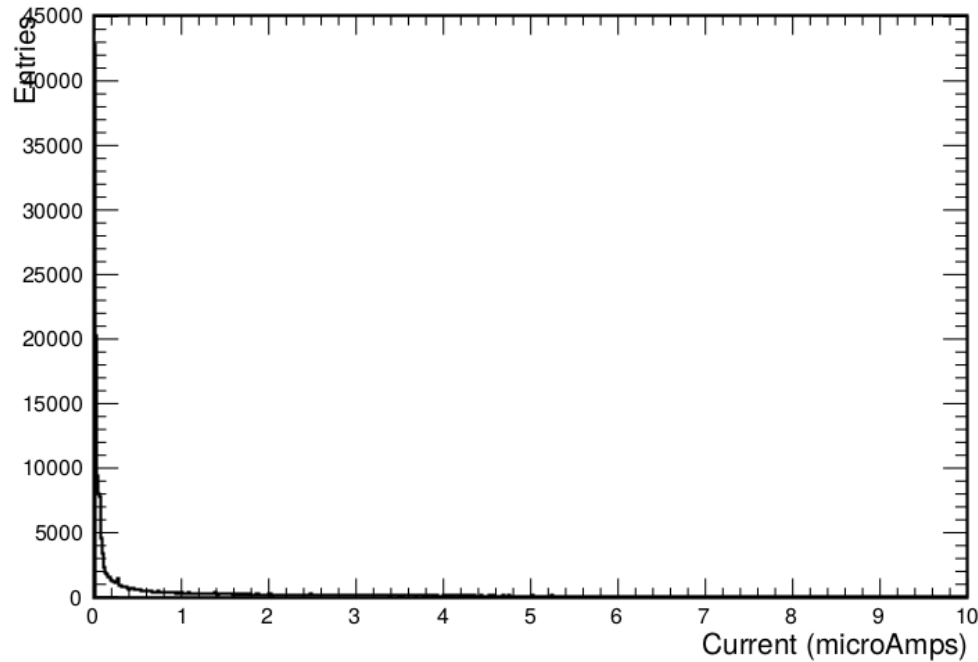
- Wanted to investigate affect of number of sparks being acceptable
- This is where a spark is defined as $>1\mu\text{A}$

Percentage of runs that pass for different spark size



- Now fixed number of sparks to 0 and changed definition of spark
- Not immediately clear what causes the behaviour $< 2\text{microA}$

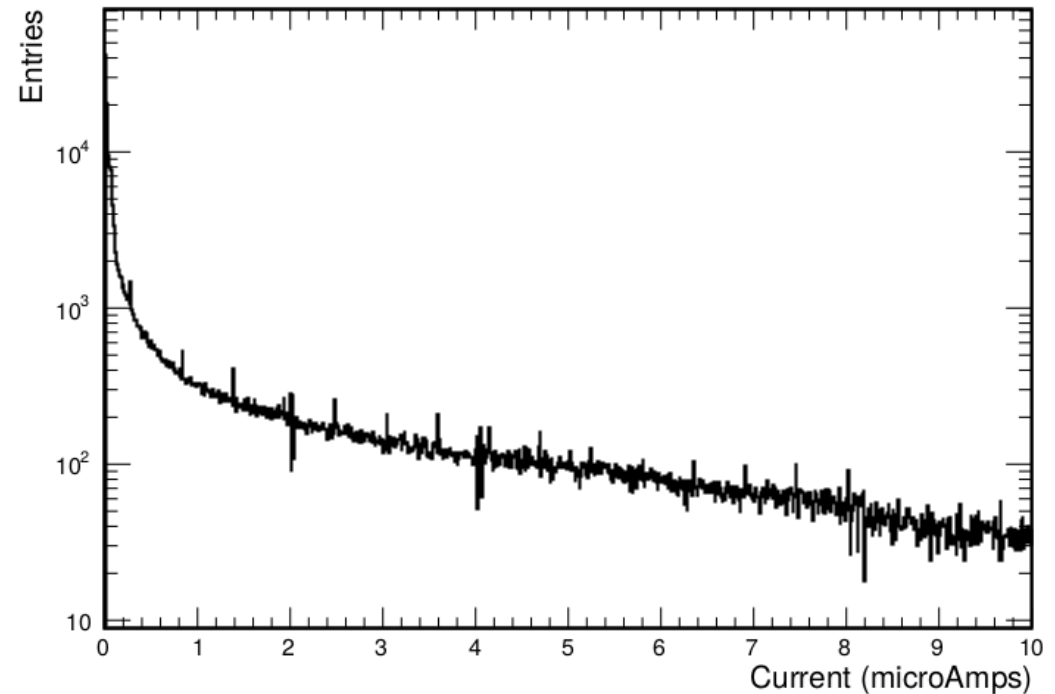
Current distribution for anode 3



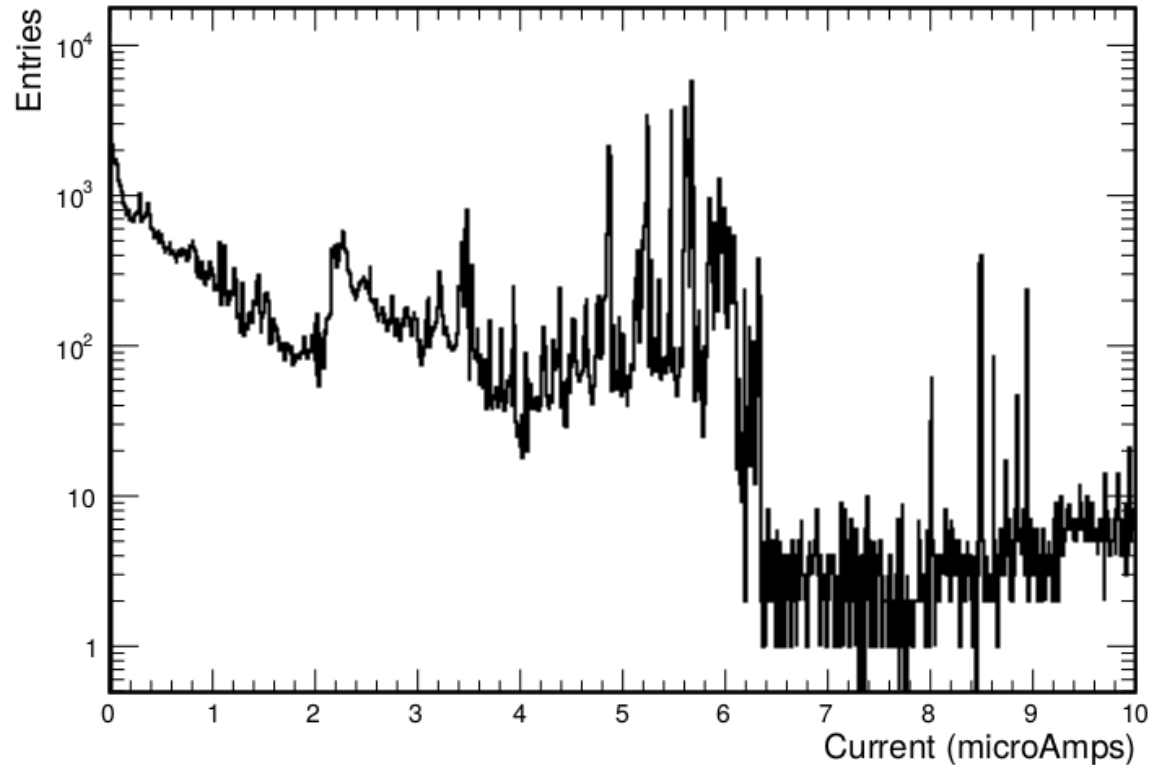
- Distribution of anode 3 current for whole beam test

- Looks pretty reasonable....
- See same behaviour in anode 2

Current distribution for anode 3



Current distribution for anode 1



- Don't see nice behaviour on Anode 1
- Almost definitely feature of DC current draw we saw during beam test
- Best option to probably look at mean current across a run and also define a spark ~ 0.5 microAmps

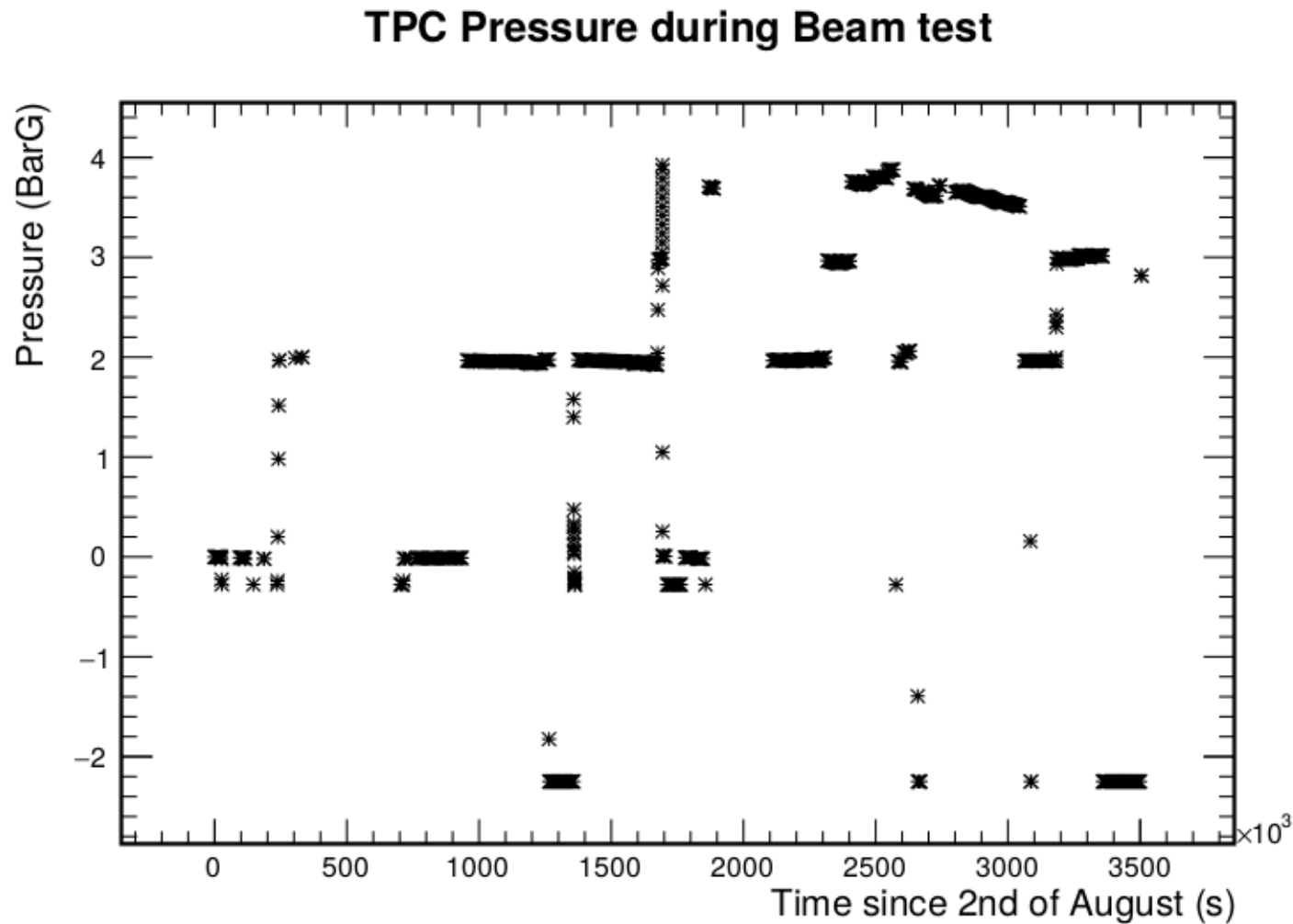
Ed's view on Best Cuts

- Anode cuts
 - Spark size 0.5 microAmp
 - Number of sparks = 0
- Cathode cuts
 - Standard Deviation from mean = 4
- This gives 50.14% of runs that pass

Next Step

- Also check for these runs that the beam stopper out / not moving
- Put them all into a DB
- This will be done by Friday

An aside: Pressure throughout beam test



Summary

- Performed study on effects of different cuts
- Think we can call 50% of data good with pretty stringent cuts
- These good runs will then we cross checked with Beam DB
- Good run DB will be done by Friday
- (Can't rely on HPSlow pressure reading, will need to use Aachen's as well)