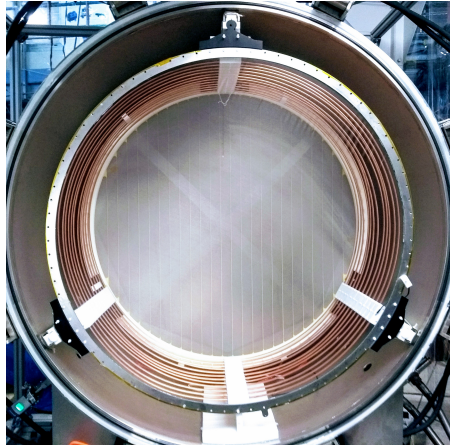


# HPTPC hardware report

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22<sup>th</sup> of November, 2018



## ☑ Digitizer problem resolved

- ▶ Problem: The number of charge triggers would depend on the number of events, e.g.:
  - ▷ Event 0: On the order of kevents
  - ▷ Event 1 to 10: Zero to 10 events
  - ▷ Further events: Zero
- ▶ We found that the digitizer had over 60 °C degrees → now we have better fanning
- ▶ A replacement NIM crate we were using at the time was a bit → different NIM crate in use again
- ▶ No further problems since then

## Preamplifier calibration ongoing

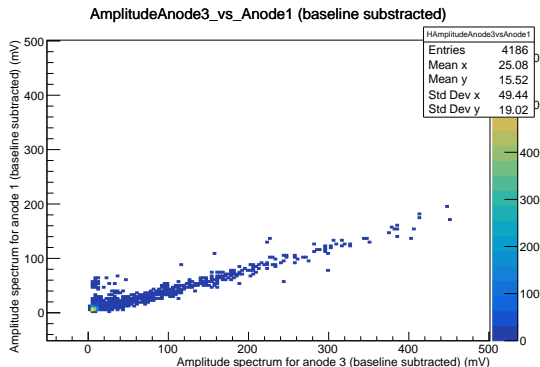
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- Grace to Harrison the CR112 chips are calibrated
- CR113 are next
- Coupling test pulses into the HV line between the bias Ts and the meshes

## Anode 2 behaviour – 1/2

- ▶ Most of the anode 2 signals were not correlated with the anode 1 and anode 3 signals
- ▶ Only at the highest voltages there are correlated signals over all three anodes
- ▶ Basically all anode 1 and anode 3 signals were correlated
- ▶ During ramping and sparking the anode 2 HV channel showed now abnormal behaviour
- ▶ No capacitance measured between anode 2 and the other anodes

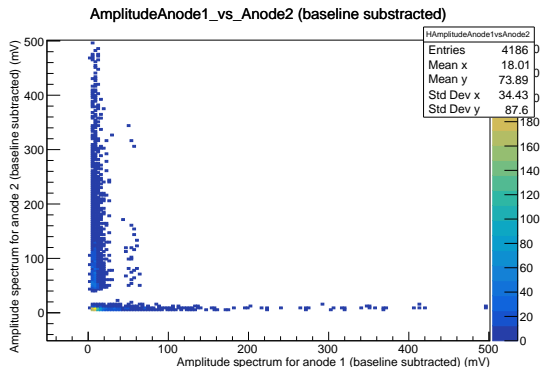
### Correlation between the signal amplitudes on different anodes



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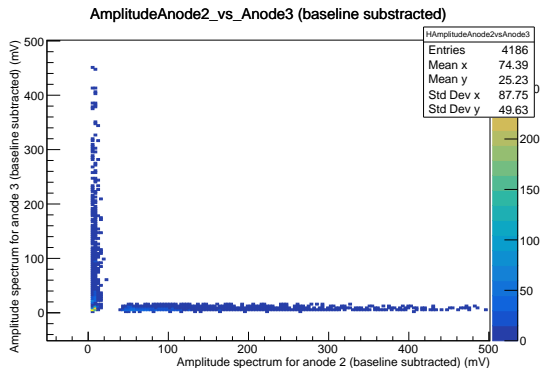
Correlation between the signal amplitudes on different anodes



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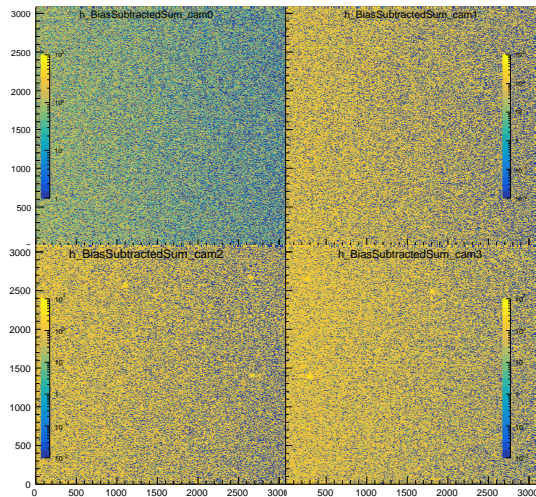


## Anode 2 behaviour – 2/2

- ▶ We opened the TPC yesterday and checked the anode 2 connection
- ▶ There was a loose connection, but a connection → This is fixed
- ▶ Capacitances look reasonable now
- ▶ Given that the ramping and sparking looked normal on anode 2 – and the light as well as correlated charge pulses seen – the data we took during the last days may still usable
  - ▷ Hypothesis: Uncorrelated anode 2 signals are due to some “micro” discharges between the cable and the connection tab
- ▶ There are few runs with no anode 2 signals at all – these would be the bad runs. (There may be a more obvious mistake though, this is still to check.)

# A first look at data: R1322056 to R1322076

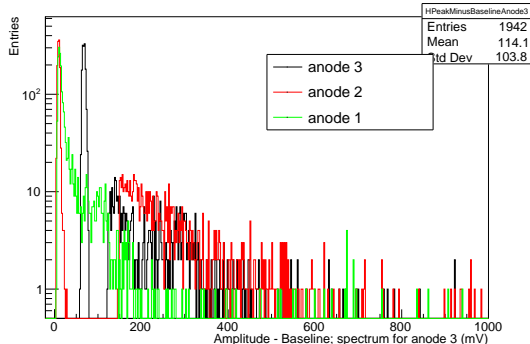
- ▶ Ar, 100% at 3 barA
- ▶ Voltages: 1700 V, 3250 V, 4200 V, -9200 V
- ▶ 2 s exposure length, 4/50 bias/exposure frames,  $-30^{\circ}\text{C}$ ,  $8 \times 8$  binning
- ▶ Twenty runs integrated in the light plot
- ▶ 100 events used in the charge plots





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- ▶ We are pushing jobs to the farm at the moment
- ▶ For the charge analysis a few 100 events seem fine per setting
- ▶ For the light analysis we need at least a few ks exposure times as it seems