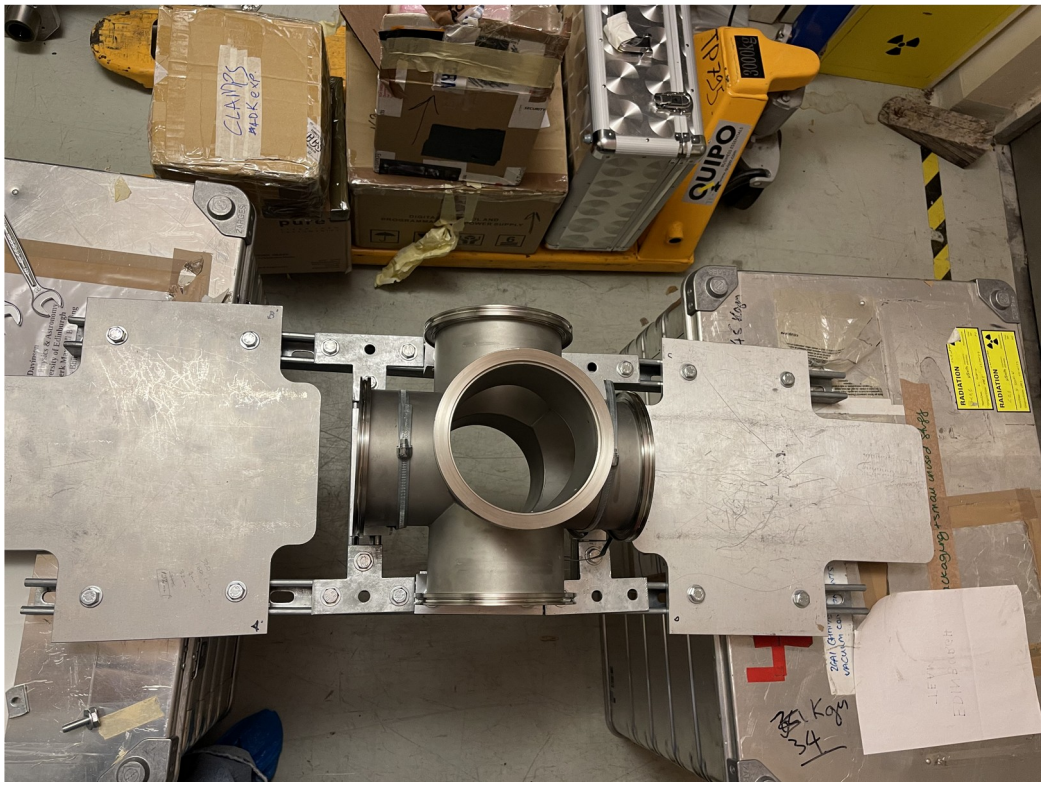
^{41}Ca Experimental setup

Tuesday 8th of July

On Tuesday we setup the chamber and detectors to do some test with Tom in the Rack Area.



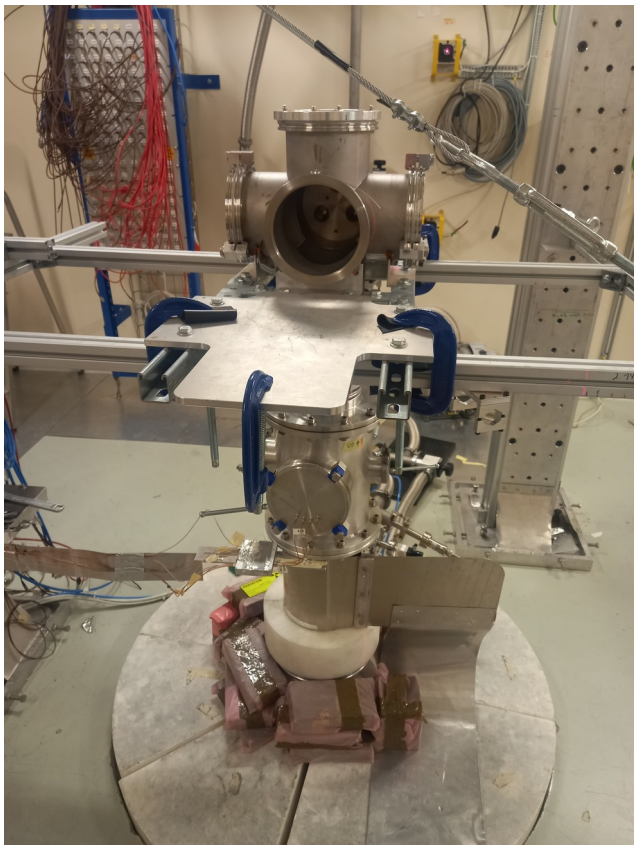
We setup all the cables from the detector to the MCA modules. The main point was to understand the possible noise inside the area.

We left everything ready for setting up on Wednesday.

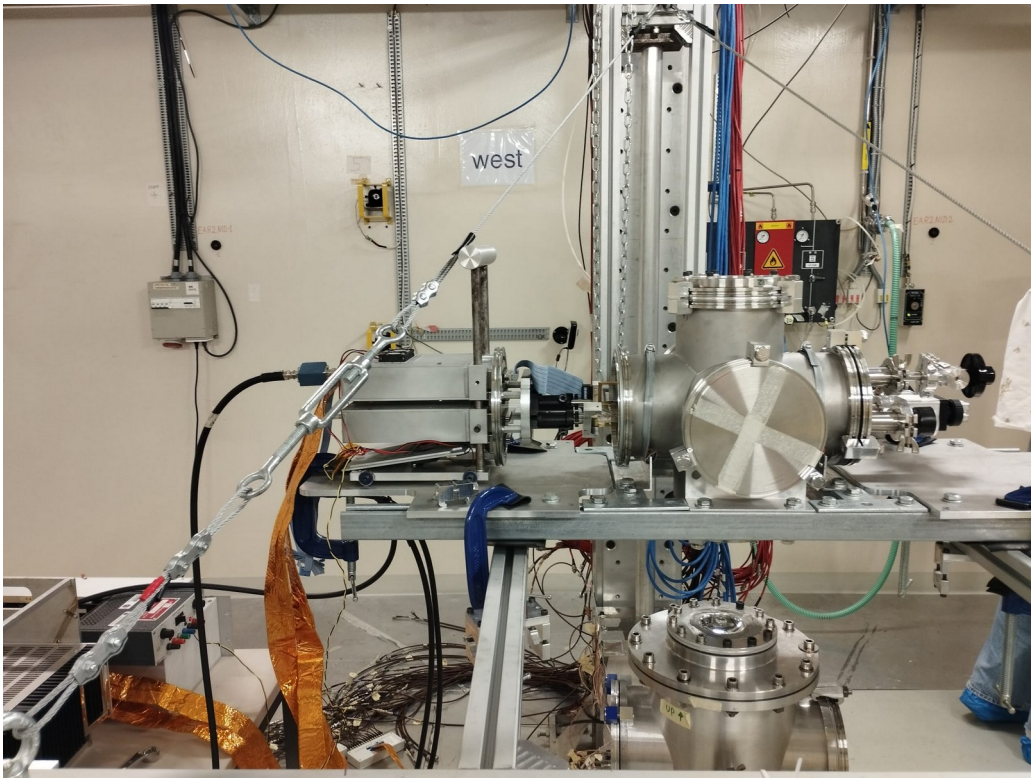
Wednesday 9th of July

First, we put the chamber in place. The chamber was preliminary align by using the lasers. From the entrance window to the center of the chamber, there are ~25 cm, so, the center of the sample and the centre of the detectors were.

The detector and the sample support were placed in a way minimazing the interaction of the beam with the detector. On the other hand, a gafchromic was used for alaignment with the same shape of the sample.



Once the chamber was on beam, we closed and we setup the vacuum window and we put the carrier on the platform. Then, we plug all the cables as we did on Tuesday afternoon.



Once everything was setup, Tom started to play with the signal detectors tocheck the noise we have. In the meantime, Selin and Emmanuel started to prepare the cables from the experimental area to the DAQ.

The conclusion from the first day were good, at least we were reproducing the same condition than last year.

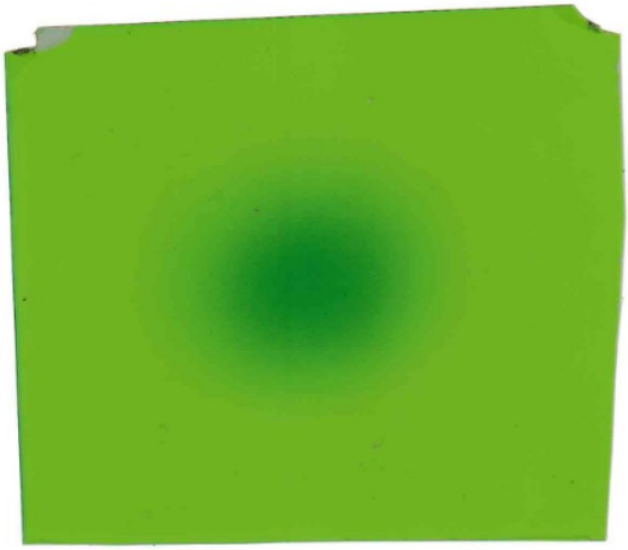
The problem came when the beam started, the detector triggered a lot of noise. In any case, we run overnight with a gafchromic on beam to check the alignment of the sample.

Thursday 9th of July

The first step was to realign the chamber with the results from the gafchromic.

First alignment

Final Aligment



The chamber was moved in order to center the sample, because it was shifted at the beginning. Now the sample is center with the beam.

Then, we started to investigated the problem with Tom. He realized that the input and the output from the HV supplier was not the same, which was the causer of the noise observed the night before. Apart from that the cable beween the DSSSD and the PreAmp was replaced and some channels in the DAW were moved because they were not working well.

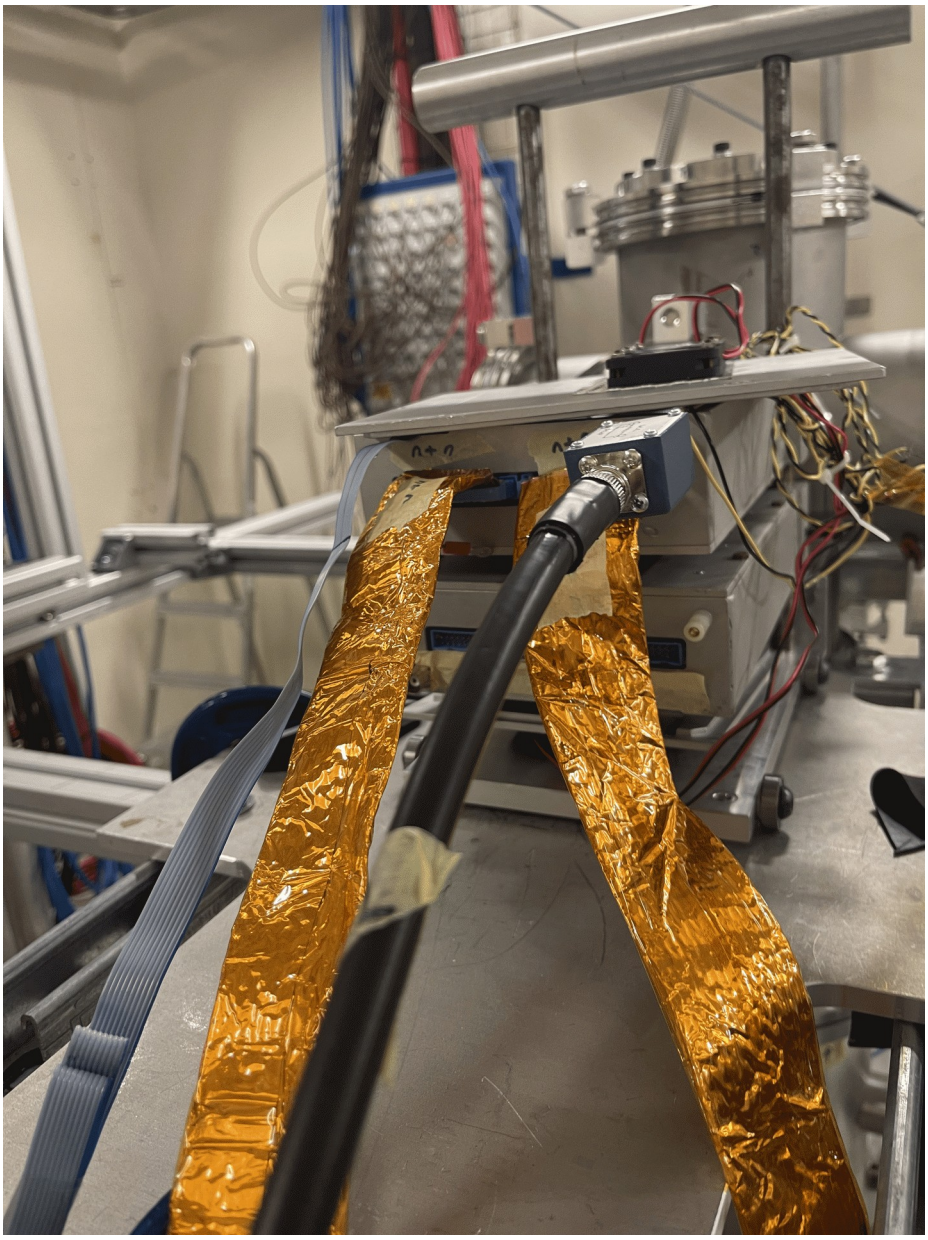
Checking the signals, we observed that the noise was not there, the detectors were working better and we adjested the parameters in the DAQ by running with a lithium run for an hour. At the end of the day, we put the second gafchromic to confirm that we were well align, as we can see in the right picture above.

Friday 9th of July

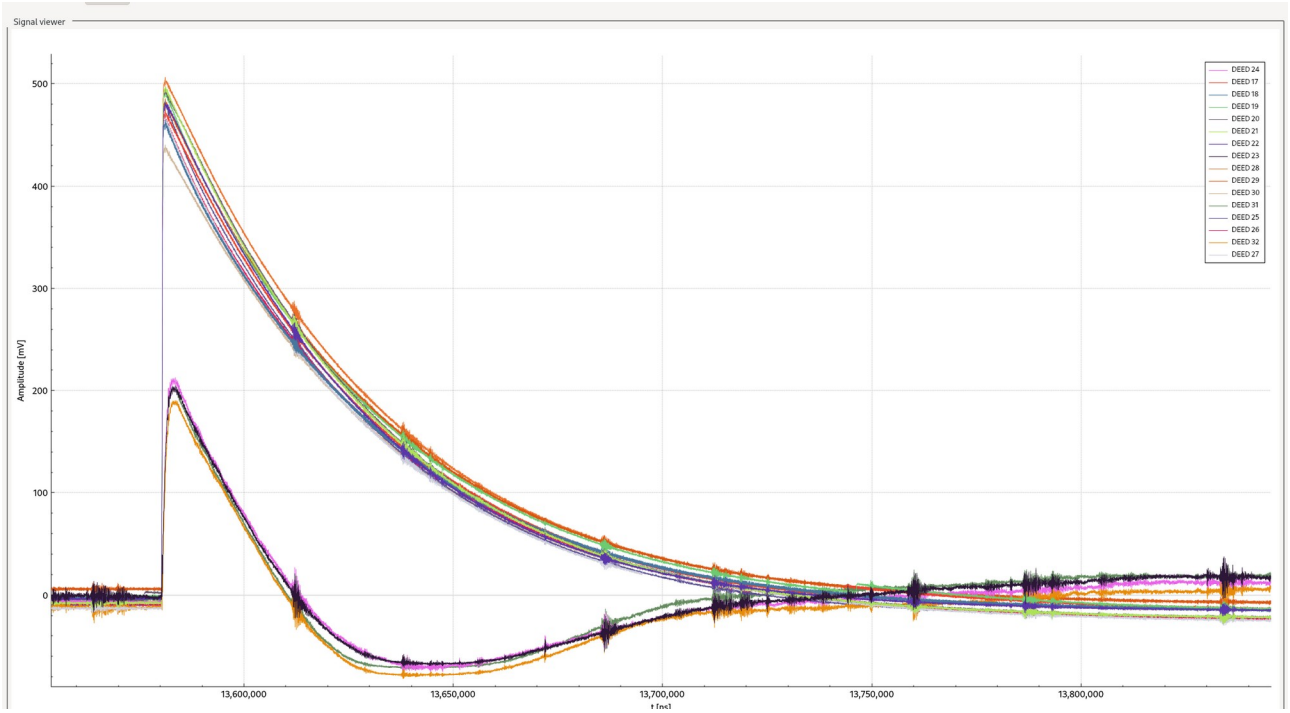
As, there were four channels in the back detector that were not working fine, we decided to do an intervention to investigate the problem. Following some indications from Tom.

The first thing we tried yesterday to solve the problem was to change the preamp. In order to compare with the other PreAmp we used the same cables that we used for the TOP preamp. This change didn’t give us any results and the problem was still there.

Then, we moved to the cable that connect the detector with the PreAmp and we tried three different cables in both PreAmp and it didn’t work either. The problem was the same and for the same channels.



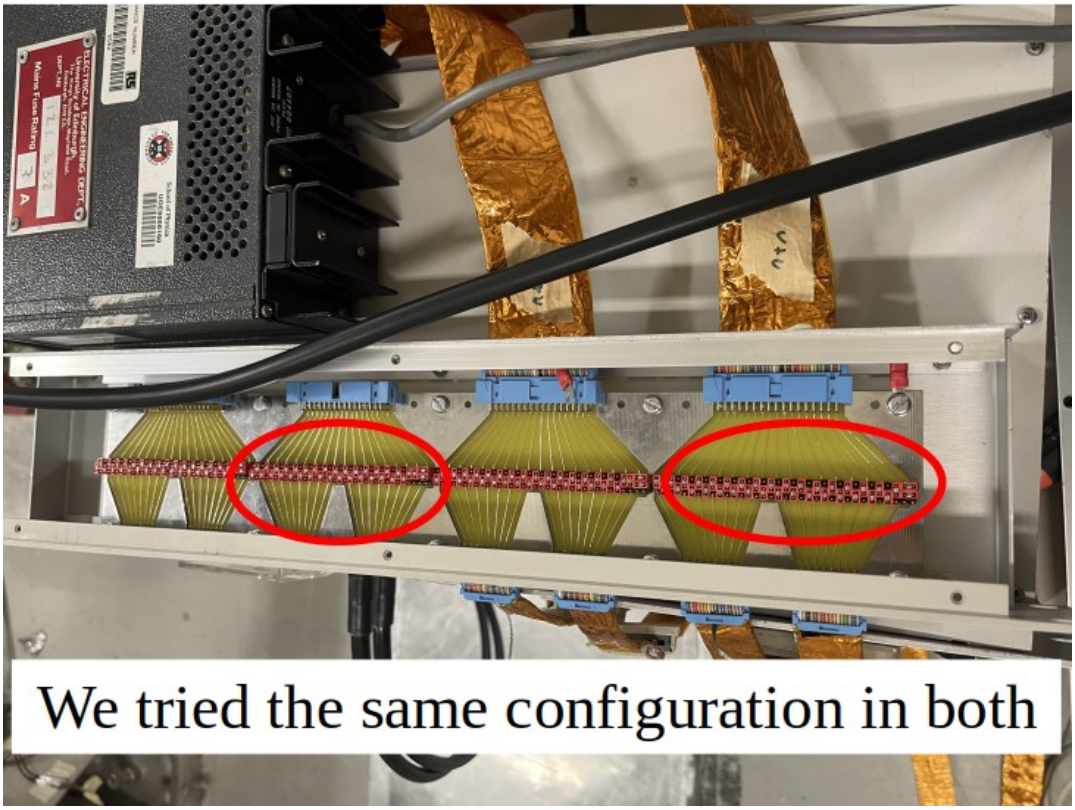
We changed the DSSSD detector as well, getting the same results as before.
In order to have an idea, this was how these for channels look like.



It’s clear the attenuation between these four channels and the others one.

As the problem didn’t look to be in the PreAmp or in the detector itself, we replaced the cables from the PreAmp to the MCA.

Then, we checked the cables again to be sure that the problem was not there, we changed the cables from the PreAmp to the MCA, but the problem was still there. We tried as well to used a different connection in the picture attached below.



The situation after all these modification is still the same and for the Boron run we are not able to see signals from the FileDisplay.