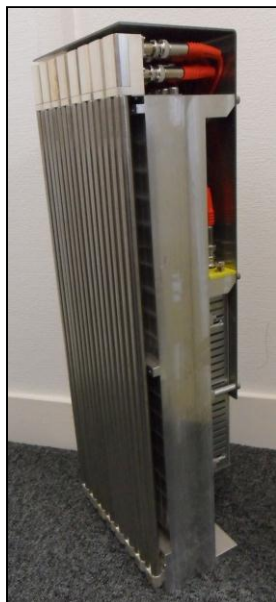




## A new 7C2 for the new year!

Your diffractometer for liquid and amorphous materials  
on the hot neutron source of ORPHEE

In a previous message on March 2008, we had announced our new project of a much more efficient detection device for 7C2 (Yes, it's a long time without any news -except during your experiments at LLB/7C2!).



A detection module, 16 tubes and associated electronics

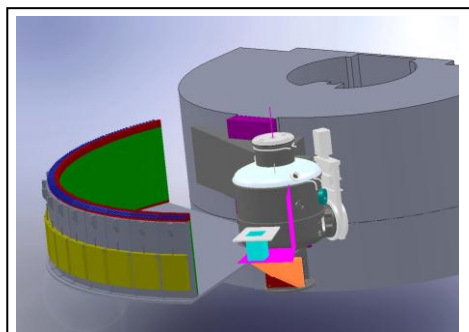
Since that time, and with the help and comments of some users, and colleagues from other sources, the project has slightly changed:

- the  $^3\text{He}$  pressure of the detectors is 30b (instead of 25b),
- 256 vertical PSD tubes instead of 224,
- the detectors are grouped in 16 independent units, with their electronics (Mesytec), see photo
- no collimation, at least at the beginning.

The new detection device: 16 independent modules of 16 vertical PSD tubes:

- 12.2mm internal diameter tubes paired at bottom,
- height of the detection zone: 470mm
- 13mm between tubes (axis to axis)
- Sample to detector: 1.5m (unchanged)
- filled with 30b  $^3\text{He}$  pressure

The angular step will be around  $0.5^\circ$ . The efficiency will be around 76% at  $0.7\text{\AA}$ .



The 16 modules around the unchanged sample environment

The skills of the new 7C2:

- A strongly increased counting rate (about x25): efficiency x4.5  
detection solid angle x5.5
- the whole measurement in one run (for unstable samples or environments)
- easier access to  $0.58\text{\AA}$  measurements (up to now, the low neutron flux was dissuasive)

Where are we with the project?

It has been very difficult to get some  $^3\text{He}$  during that period! We had to wait during one year before Reuter-Stokes could get it and start filling the tube detectors. We now have received and tested the 128 pairs.

We have also received the electronics from Mesytec, adapted for the electronics standards developed at

LLB, and we have tested it.

The mechanical part, frame, housing and polyethylene protection, has been first mounted in the guide hall.

We needed to remove our neighbour 6T2 in order to put the new frame in place, and 6T1 is also renewed on the other side of 6T2!. So we take advantage of a long reactor break (due to the change of the cold sources), from December the 19th to

March the 26th to mount the whole new detection device on the 7C2 area.

A test and adjustment period will follow at the end of March when the reactor will start.



The BF3 banana you used has been removed... (2012, January 4th)



The new frame and PE protection on its way from the guide hall to the 7C2 area (January 13th)

See you soon on the new 7C2!