Running Details

Experimental Work in Australia

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Pre-ANU Meeting Notes

Notes on the informal meeting held at Birmingham
2 September 1993
Updated and distributed by e-mail 9 September 1993

1. **Personnel/dates/runs etc**

   CDJ,RPW,SJAH depart on 6th September and will reamin at ANU until all runs are finished. They carry with them various items (see later).

14/9/93	1 day test with ^{12}C beam
19/9/93	1 day test with ^{24}Mg beam

   22/9/93: NMC,JP,NC, WNC,GJG,SMS are at ANU and ready for action (!?)

24/9/93	1 day test of Ca beam.

   THIS RUN IS IMPORTANT FOR CHECKING ON LIMITS OF ANGLES, DISTANCES ETC. SEE ITEM 2 !!

27/9/93 to 30/9/93	WNC RUN..190MeV ^{40}Ca beam on ^{16}O target (100-200ug/cmsq)

   looking for ^{28}Si +^{28}Si (or maybe ^{24}Mg + alpha?) Angles 13/17 dges and 18/22 degs. Hybrid windows 3.5μm, pressure 100 torr.

2/10/93 to 5/10/93	NMC run 170MeV ^{24}Mg beam on ^{12}C target (400ug/cmsq)

   looking for ^{12}C+^{16}O and ^{16}O+^{16}O Angles 14/14, 14/20 and 18/18,20/20 degs. Windows,pressure as WNC run

4/10/93	PMS arrives
5/10/93	WDMR,MF,DLW arrive
11/10/93 to 14/10/93	DLW run

2. Detector radius — may not be able to get to 240mm without cuttting mask mount since it fouls tube in middle of chamber, smaller distances may be

impossible. It was decided that we should try to get 240mm , but 250mm would eb acceptable.

Angle setting on arms only to 0.1 degs, but reproduceable to about 0.02 degs, if always moving in same direction. Help available from Jack Leigh.

Right arm moves to about 100 degs. Left has 2 arms. minimum spearation between 2 arms is 30.3 degs - this may cause problems for first two runs.

Discussion about mounting plates; detectors can only be fixed on centre rib, else they dont point at target... hence the rest of the plate is likely to be the limit of the angles. Conhex cable brackets on mounting plates can be unscrewed and dangled down into chamber to make more room.

3. Vacuum system uses Carbon vane pumps, Vacsorbs(to about 30μm) and Cryo. There is 1 large vacsorb, which does about 1 to 2 pumpings, then has to be baked out overnight; however another can be borrowed (but smaller).

   This baking out of vacsorbs severely limits the number of times one can let up to air and pump down.

   IT IS VITAL THAT EVERYTHING IS CHECKED BEFORE PUMPING DOWN!

   It takes about 30mins to get to the cryo and about 3 hours to get to 1×10^{-6}, so that 1 cycle of filling and evacuating the chamber can take 3/4 shift!

4. Gas rig: piping needs doing in chamber; Paddy has a supply, propane gas is used, not isobutane. dE/Dx is similar. (WNC: scale for molecular weight)

5. Collimation is by collimators on an arm at 0 degs. ML has a list of collimators, and will distribute copies (ACTION ML); spot size is claimed to be 1.5mm $\times$ 1.5mm without collimattion. Min distance of collimator from target is about 25cm!

6. Targets are mounted by sliding frames into Geneva wheel mechanism; some discussion of whether Bob Darlington construction would fit- he has spot welded DL frames onto ANU frames.

   THIS NEEDS TO BE CHECKED ASAP. There are 12 positions.

7. Targets Bob D has made all C targets, Au, flash, on ANu frames, also O targets, and these will be collected on 3/9/93 and taken on 6th by RPW. News from RPW is that all targets arrived safely in ANU!

8. Detectors. After some discussion it was realised that we have no Si detectors in ANU (!!) and with the extra units (see item 14) our baggage is going to be filled with electronics, Si detectors - no space for clothes!

   After the meeting, 3 old detectors (2 $\times$ 300um, 1 $\times$ 1000um) were found in G7, and RPW will take these with him. We have 3 new detectors (now on RPW desk) at 1000um each, which could be carried with the Bham group to

ANU. However, this will leave us short of spares. There are more detectors at YORK (3 $\times$1000um, 7 $\times$500um), but CDJ will not be going back to YORK, and so cannot transport these. This means that all these detectors will have to be distributed (along with electronics) amongst the 6 people travelling on 20/9/93.

THESE MUST BE COLLECTED AND DISTRIBUTED AT THE YORK MEETING ON 9/9/93.

DETECTORS WERE DISTRIBUTED TO WNC,GJG & NMC AT YORK.

9. Discussion of grids in gas detectors.. we have new grids with 20μm wires at 1m spacing, as well as 100μm wires and 1mm spacing. It was proposed that the first tests of 2 detectors should use one detector with 20μm wires and no rear grid, and compare it with another detector with 100μm wires and a rear grid (which is the current configuration).

   IT IS IMPORTANT THAT WE GET FIGURES FOR the DELTA-E RESOLUTION/NOISE FROM FIRST TESTS.

   NOTE!!! WNC CALCULATES THAT TO GET EQUIVALENT DE LOSS WE MUST RUN DETECTORS WITH PROPANE AT 130 TORR, SO THIS PRESSURE SHOULD BE USED IN TESTS WITH 3.5μm WINDOWS.

10. Earthing in chamber is only via the cables thru the feedthrus, a strap to the chamber was suggested; also a solder tag under one ofthe gas detector window screws and a croc clip+wire could be used to ensure good earthing of the window.

    NOTE!! COMMENTS AT YORK MEETING INDICATE THAT ANU DO NOT EARTH TO THE CHAMBER,ONLY VIA THE CABLES

11. Email to ANU. IDs are now set up for rpw,cj and sjah at ANU, but they will also read their email by telnet, so can also email them at home.

12. There are 100 exabyte tapes available at ANU

13. Spares for electronics etc.. there are few spares at ANU and more will need to be taken out with the 6 people on 20/9/93. RPW distributed modules to Surrey contingent, and will ensure that the BHAM contingent know what to bring (as well as detectors!)

14. Data Acqu. system. There are no spares for the Event contoller, Data Stack, or VME crate, and these will also need to be carried out by the 6 people on 20/9/93 (!)

15. Discussion of experimental runs; angles , pressures, distances etc.. details as above in item 1.

16. Electronic circuit diagram. In the absence of any new ideas, the circuit used in the successful High Resolution run should be used, and NC will distribute

some copies of his circuit diagrams to RPW,SJAH on friday 3/9/93. ACTION: NC

17. NC demonstrated his new detector built in Bham workshop which incorporates a CsI scintillator behind the Si by means of an additional box, and special supports/clamps. More work is needed on internal wiring (scintillator ribbon to conhex skts, aralditing ribbon connector for Si etc) but it is hoped to begin testing after the ANU runs during the autumn when the 1m chamber comes to Bham. The Bham workshop have gained some experience with welding thin stainless steel, and now feel they are able (and are keen !) to make more of these detectors.

18. More discussion to take place next week in York.

Many thanks to all for attending a very useful meeting!

Nobby Clarke 3/9/93 and 9/9/93