CH/Meet/93/03

Minutes

Charissa Group Meeting

Meeting held on: 13 May 1993

Meeting held at: Birmingham

Present:	BRF(Chair),WNC,NMC,RAC,GJG,SJAH,CDJ, JSL,ACM,VP,WDMR,GT,RPW,DLW
Apologies:	RAH,JK,JZ
Distribution:	Those above plus DDW, all by e-mail/file-server.

Minutes

1. **Minutes of meeting of 7 April:** accepted
2. **Matters Arising/ Actions:**
    - *Item 7:* DLW asked about the diagram mentioned at the previous meeting, summarising the Channel Control Units described in Ch/Tech/93/05. WNC reported that the diagram was now on the server as Ch/Tech/93/07.
    - *Item 10:* The account at the ANU with £5K for Stores and Workshop payments, etc., had been set up.
    - *Item 10:* The beam tests for 170 MeV ^{24}Mg at ANU had been successful, with 6 pnA achieved. BRF had e-mailed this information to collaboration members and the report would be made into a Charissa document. WNC
    - *Item 11:* Alex Murphy will not be available for the ANU experiment. The meeting was informed of his illness, and asked that their concern and best wishes for Alex be recorded.
    - *New Arrival:* Martin Freer was welcomed to his first meeting since his return from Argonne National Laboratory.
3. **Update on NSC/SERC matters:** nothing to report
4. **Progress on Detector Tests:**

    DLW reported that analysis of test data for two-dimensional PSD's was proceeding at York. This is on course for a decision and order to be made by September. Delivery time was thought to be around 3 months.

5. **Progress on Chamber and Detector Assemblies:**

   DLW reported that all present construction should be completed by mid-June.

   Work on the new plate (which includes a tube for the beam) was awaiting drawings. Progress on the drawing should be checked with SJM at DL. $\boxed{\text{RAC}}$

   RAC reported that the 80 Verelec feedthroughs for the backplates had arrived, and showed a sample. The question of light-tightness was raised; it was agreed that the preamp cans would serve to prevent light from entering, although the colour of the epoxy may be a consideration in any future orders of feedthroughs. A feedthrough should be taken to Oxford to assist with prototype preamp design. $\boxed{\text{WDMR}}$

   Priority: Construction of items for the ANU experiment would take priority in the York workshops when the drawings are received.

   The new chamber is not using effort at present, but it is still planned to have preliminary drawings by September.

6. **Progress on Gas Supply:**

   DLW reported that all components for the new system were ordered, but some were on long delivery times.

   JSL raised the possibility of a small modular multi-unit system. It was thought that space restrictions near the chamber may preclude this option.

7. **Progress on Electronics and Data Acquisition:**

   WDMR confirmed that 32 prototype amplifiers and 32 channel control units were nearing completion at Oxford.

   WDMR summarised the numbers of new amplifiers presently planned for the new array (as given in minutes of 7 April). These numbers were reviewed by the meeting.

   Each telescope required 7 energy channels (5×Si, 1 gas, 1 scint), so 44 telescopes required 308 channels. Bias supplies were required for 44×Si and 5 gas volumes. High gain preamps were required for 44 gas signals.

   The following revisions were agreed:

Description	Previous	Revised
normal gain preamps	256	320
high gain preamps	48	64
bias supplies 100V/8μA	128	64
amplifiers	256	320
channel control units	256	320

It was noted that the data acquisition system from DL (being redeployed at the ANU) has 80 analog energy and 32 time channels. The new data acquisition system was being constructed to accommodate 256 time-and-energy channels.

It was decided to investigate increasing the new system's capability to 320 channels. This would instrument the whole new array with new PSD's. BRF noted that it would deal with 10 strip detectors.

WDMR agreed that 320 channels would be a reasonable number of channels to begin with. He also noted that this number would need to be increased in the future, and this was generally agreed.

Costings, to be presented at the next meeting, should also address the implications of extending beyond 256 channels. This would probably require a third controller crate; the trade off between cost savings and performance should be considered. The meeting should also receive information on the means of getting the new modules constructed. WDMR

MF pointed out that increasing the number of channels impacts on the expected data rate.

8. **Developments on Event Manager and Data Acquisition Processor:**

It was agreed henceforth to refer to the GEC Emulator as the "data acquisition processor", and when a more specific name was required as "the M VME 187".

VP reported that he required assembler code to be produced by Golding before he could proceed with the speedier readout of data in the present system (cf. Item 7, Ch/Meet/93/02, 7 Feb).

WDMR reported that Golding had been to Oxford to assess the work and would be submitting an estimate. It was expected that the assembler code would be ready by July, when the first group was due to travel to the ANU. Meanwhile, the BASIC programming was proceeding, and this would allow RAH to complete the hardware.

VP reported that the subsequent work to enable the HSM (CES module) to be read out was not major. The number of HSM units presently held was discussed and found to be satisfactory. VP also commented briefly on Eurogam plans to replace the HSM's by a DT32 card.

WNC asked about the effect of the proposed different event headers on the sorting programme. VP will address this when he has a final decision on the new header structure. WDMR,RAH

A sub-meeting would be convened to discuss the ease of swapping between the present system and the modified (FERA readout) system, taking into account the timetable and manning of the next run. BRF

9. **Requirements for Hybrid Detector Operation at the ANU:**

   Modifications to the hybrid mounts:

   JSL showed the latest drawing by Stuart Metcalf, dated 12 May (A0–NSP/SC/2). This showed the proposed support for plates from the 1m chamber. The following key features were agreed to be required in the final design: easy access to detector, limiting separation of arms minimised, able to run close to the beam. The following responsibilities were agreed:

   Agree final design. $\boxed{\text{JSL,RAC,SJM}}$

   Final drawing to York by 20 May. $\boxed{\text{JSL}}$

   Build at least 2, preferably 3, mounts by 11 June. $\boxed{\text{DLW}}$

   Provide patch panels to fit to arms. $\boxed{\text{DLW}}$

   Provide cables from arms to vacuum feedthrough flanges. Have T-piece with feedthroughs modified to match ANU fittings; liaise with SJM on details of modifications. $\boxed{\text{DLW}}$

   Shipping Details:

   The shipment was due to arrive at the ANU on 7 July. Meanwhile, customs and shipping documents were to be sorted out. $\boxed{\text{CDJ}}$

   At the end of June, various computing items were also to be sent.

   Detector Details and Operation Details:

   RAC reported that four 5μm windows had been sent to Canberra along with pipework and fittings, and requested advice regarding additional window requirements.

   Ten extra window plates were being constructed in York. These should be completed and forwarded to RAC. $\boxed{\text{DLW}}$

   It was agreed that 15 windows should be made up, in addition to those already sent. These should consist of $6 \times 1.5\mu$m, $4 \times 3\mu$m and $5 \times 5\mu$m. Also, 2 blank plates should be sent. All this should reach DLW by the end of June. $\boxed{\text{RAC}}$

   There were no spare grids available yet, due to other demands on available time. It was hoped to make up new grids on 3.2mm PCB's (rather than 1.6mm); 100μm wire could be wound by machine, but 20μm had to be made by hand.

   Silicon detectors: all requirements for ANU running in September/ October to be e-mailed to BRF. $\boxed{\text{WNC,DLW,WDMR,NMC,MF}}$

   Magnetic suppression of electrons, which may prevent the dramatic increases in leakage current, will be investigated. $\boxed{\text{MF}}$

10. **Report on Trip to Strasbourg:**

    The successful Workshop on Heavy Ion Reactions, held in Strasbourg from 5–7 May 1993, was attended by BRF, MF, NMC, GT, CDJ, WNC, GJG and JSL. NMC spoke about Charissa work, and JSL about near-barrier work.

Discussions at Strasbourg had identified areas of mutual research interest which would involve deploying Charissa hardware at the Vivitron, and BRF had circulated a discussion document (Ch/Doc/93/06).

BRF initiated the discussion, with reference to the need for a plan to be presented to the NPC in September. The previous forward look had envisaged the new array now being built, followed by a period of exploitation and subsequent development of a 4π array intended for radioactive beams.

A wide-ranging discussion ensued. It was clear that the physics interest in cluster states and the reactions forming them was the common driving interest in the research. The distribution of effort between the ANU and Strasbourg was discussed, including the repercussions for data acquisition. It was agreed that the new data acquisition system, together with the new array, comprised a versatile modular combination that could be deployed at various locations. Plans for the second two years of the grant application (1997/8) were also discussed.

The meeting agreed with the general tone and content of the discussion document, but further agreed that a revised version should incorporate the comments that had been made. A preliminary draft of the NPC case would be produced along these lines. **BRF**

Any brief comments for possible inclusion should be forwarded to BRF as soon as possible, but no detailed input was yet required. **ALL**

Feedback on the proposal for a joint French–UK collaboration (Ch/Doc/93/07) was required as soon as possible. **ALL**

Costings for an extended data acquisition system (from 320 to 640 channels) should be included at the next meeting, together with information on possible VXI interfacing. **WDMR**

11. **Agree Final Timetable for the ANU Experiment:**

The timetable discussed at the previous meeting (Ch/Doc/93/04) was confirmed.

BRF would send to WNC the specific dates and suggested bookings for individuals, to clear up any uncertainties. **BRF**

BRF, GT, SJAH and ML's travel date (first phase visit) was subject to the shipping date being met for the equipment.

VISA requirements: RPW reported that *academic* visas now appear to be required. Applications by individuals should wait until the situation had been clarified and they had received further advice. **RPW**

Letters of invitation, from the ANU, were still required for PS, SS, GJG, JP and NMC. **BRF**

12. **Status of Shipment to the ANU:**

It was noted that the Linac crate had arrived in Canberra with the contents in very poor condition, and that negotiations involving the packers and the insurance company were in progress.

DLW reported that the packers had advised that the same problems were unlikely with the Charissa shipment. As a precaution, the packing would be certified by a designated authority at the packing company prior to final closing up.

The shipment was expected to arrive in Sydney Circular Quay on 30 June, as presently booked, and in Canberra on 7 July, which was the day scheduled for Charissa staff also to arrive.

13. **Documentation for ANU Running:**

Upon arrival, it would be necessary to have copies of all relevant manuals for electronics, software, equipment, etc.

SJAH reported that many manuals were in the shipment. It was agreed that the rest would be collated, and that this would include the contributions to the Charissa Users' guide project (Ch/Meet/92/06, Item 11). **SJAH**

14. **Status of Papers and Need for Publications:**

This topic was briefly reviewed.

It was requested that GJG produce an initial draft of the energy dependence paper as soon as possible. **GJG**

WDMR noted the conditions for publication of contributions to the Santorino conference, and BRF/NMC would produce a suitable paper. **BRF,NMC**

DLW agreed that S. Fox would write up the band termination results, as he would be starting a new project soon. **DLW**

It was also agreed that CDJ should write up the oxygen target work as soon as possible, and Z. Phys. was suggested as a suitable channel. **CDJ**

It was also noted that J. Murgatroyd would be visiting Birmingham shortly, and that his work was due to be written up as a paper. **BRF**

15. **Any Other Business:**

(a) BRF reminded those present that the September presentation to the NPC would require input from each institution regarding: money spent on grant, and plans; manpower, including any UFC transfer effort used *to the present date* on Charissa; publications; talks at conferences. **WNC,WDMR,DLW**

(b) NMC reported that he is planning to build a modified hybrid detector with a scintillator behind the silicon detector.

(c) JSL reported that Hendrie (DOE, USA) would be visiting on Friday, 18 June and would possibly be available for talks.

(d) DLW noted that a Physics Meeting before the next run would be desirable. This was agreed, but no suitable date could be found.

16. **Date of Next Meetings:**

Next Meeting: 9.30 a.m., Thursday, 14 July 1993 in Oxford.
(Level 5 Conference Room.)

The above date was agreed. WDMR had previously arranged for electronics personnel to be able to attend. The meeting would agree final numbers and costings for the new electronics, and the logistics of construction (cf. actions on WDMR, Items 7 and 10).

W.N. Catford, Secretary.
June 7, 1993
(released June 17, 1993)