CH/Meet/93/05

Minutes

Charissa Group Meeting

Meeting held on: 9 September 1993

Meeting held at: York

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

Minutes

1. **Minutes of meeting of 14 July:** accepted

2. **Matters Arising/ Actions:**

   (a) Item 2(4): a draft version of the report by S. Chappell on detector tests exists.

   (b) Item 2(9): hybrid detector tests recommended by RAC for ANU had been arranged. It had been agreed to implement the tests in the first period of beam, on 14 September (carbon beam). See also Item 5, these minutes.

   (c) Item 4(a): comments on time constants for amplifiers should be given to RAH before 31 October. Final results from Hamamatsu PSD tests required for this. WDMR commented that values of 0.5 μs and 2μs were likely (if using integrator), or 2μs and 10μs (no integrator).

   (d) Item 5: BRF reported that the projected spend on electronics, as discussed at the meeting on 14 July, was within budget.

   (e) Item 7: WDMR reported that PCB layouts for the amplifiers were now likely to be done in-house.

   (f) Item 8: the allocation of responsibilities for longer term action on data acquisition were noted.

   (g) Item 8: WDMR reported that the new bias supplies were essentially complete; the programme works locally and remotely, and handover to York would occur in October.

(h) Item 9(b): the strip detector stocks had been supplemented by orders placed from York and Birmingham. Delivery had been approx. 4 weeks.

3. **Update on NPC/SERC matters:**

   DLW reported that the newly instituted NPC had been significantly reorganised relative to the NSC. The grant timetable would remain as previously, with a 15 January 1994 deadline and decisions complete by April 1994. The situation under the EPSRC was not known.

   It was noted that the input for the new grant would need to be finalised in December 1993.

   BRF would be reporting to the NPC on behalf of the collaboration on 23 September (40 minutes). Input on the forward look (Sep 94 — Sep 96) required. **ALL**

4. **Daily rate for the ANU; Treatment of SERC applications:**

   BRF suggested that a rate of £10 per day, plus actual accommodation costs, be adopted as standard within the collaboration for subsistence at the ANU. This was agreed.

   It was noted that this rate should be reviewed if it proved to be inadequate.

   It was also noted with concern that the reduction imposed by SERC on student claims, to represent savings on costs, seemed unreasonably high.

5. **Progress at the ANU and plans for runs:**

   There had a been a meeting in Birmingham on 2 September, chaired by NMC and attended by all groups running this month. Notes from the meeting had been circulated via e-mail by NMC.

   WNC reported that detector pressures would need to be increased 30% from the values discussed previously to account for using propane rather than butane; also, the earthing of hybrid detectors in the chamber should not employ earth straps because of earth loops.

   VP clarified the precise requirements for extra spares of data acquisition modules. it was agreed that a spare VME crate already existed and hence no extra needed to be taken on 20 September. The modules MVE 187, MVE 712 and the Hitec CAMAC interface did need to be taken. **NMC**

   RAC requested that all used windows should be returned after the experiment in order to reuse the frames.

   M. Leddy had distributed notes via e-mail about the beam collimators available at the ANU, but this had not been received by many people.

   The meeting reviewed the details of which experiments would be performed in the September/ October running period.

6. **Electronics — update and summary:**

   This topic had been discussed in depth at the 14 July meeting, and hence was only briefly updated at the present meeting.

   WDMR reported, with reference to the revised costings prepared by R.A. Hunt (CH/Doc/93/12). Certain design rationalisations had been found to give savings estimated at 20% approximately.

   The preamplifiers were progressing well, and should be complete by 31 October.

   MF reported that the trigger controller was estimated to require a budget of approximately £20K. This was acceptable.

7. **Data Acquisition Update:**

   WDMR reported that Golding had produced assembler code to read out the TDC's, but the code has not been tested. RAH has details.

   The TDC's are to be read into a data stack, a hit pattern written at the top of the data stack (so the format is the same as the old read/store modules), and the data is then read out to VME. The system can be set up using BASIC commands, and then run using the (faster) assembler version. The system is now ready for further development work. $\boxed{\text{VP}}$

   VP reviewed the present plan for the data acquisition upgrading:

   (a) use a Starburst to replace the read/store module, thus gaining a factor of 20 in data handling rate,

   (b) in parallel, investigate method for getting data out of the system, for sorting (e.g. put onto ethernet).

   (c) also, 256 channel extension of present system (from 128 channel) to be considered, and in particular the implications for event structure.

   The present Charissa interface (currently at the ANU) is likely to continue to be used until the new array is installed. The beamline for the new array will not be available before April 1995. Thus, the present system must be extended to deal with more channels, more quickly. Sufficient amplifiers exist for this. It should be possible to buy spares of the Starburst, or more modern equivalent, at an economical price.

   VP stated that the extension to 256 channels, with a typical multiplicity of 15, made it desirable to review the way of writing events. The hit pattern could be replaced by a channel number word attached to each channel contents. This possibility had also been suggested by RAH. It would also move towards compatability with EUROGAM/ ICARE/ DEMON data formats. The present sort programme would no longer work, however.

   A summary should be produced in time for for BRF's presentation to the NPC. $\boxed{\text{VP}}$

8. **New detector assemblies and gas system:**

   DLW reported that the prototype module was completed to the level of the existing drawings. When assembly was complete, York would contact Daresbury to clarify the information still required. $\boxed{\text{DLW}}$

   It was agreed that the assembly of the outside body of the prototype module, with successful vacuum testing, installation of horseshoe clamps and fitting of ribbon cables, would enable work to be commenced on the bodies of further modules without delay.

   DLW described the options for mounting silicon PSD's in the modules. It was envisaged that the mounting boards for the individual wafers would plug into a large motherboard for all nine detectors, using a system similar to the MULTICS array. The motherboard was envisaged as a double-sided PCB with tracks arranged to avoid cross-talk between the 36 signals. York would produce a track layout and consult with JK and RAC on the mechanical design. Requests for quotes would be sent out before 4 October. $\boxed{\text{DLW}}$

   The details for grids in the detectors were not available. RAC reported that he had been pushing for drawing effort on this. It would be sensible to coordinate with the motherboard design. JK reported that sufficient drawing effort should be available at the beginning of November to complete this work, and hence the input from York should be provided before 1 November. $\boxed{\text{DLW}}$

   Installing strip detectors seemed to offer no insurmountable problems; the ribbon-cable connector could be reoriented, and the cable brought out behind the detectors, assuming that scintillators were not employed.

   In summary, the construction of the modules is still on track for testing at the ANU in April 1994.

   The gas handling system is ready for assembly and testing, but so far has had a lower priority than other jobs for the array.

9. **New chamber and beamline:**

   Conceptual drawings exist. It was confirmed that the Eurogam-style target ladder would be employed, and that components from the QMG spectrometer's vacuum-transfer device would not be available. The chamber was not yet receiving design effort.

10. **Longer term plans for the ANU:**

    BRF reviewed recent developments. The Linac availability had been revised back to the first half of 1995. Hence, the two runs previously agreed for 1994 would each need to use the 2m chamber and the existing detectors/interface.

    Plans for running in 1994 are subject to NPC Programme Panel approval. It was clear to the meeting that the planning and support of Charissa running at the ANU required long term programme approval rather than approval on an individual run basis.

Dates for 1994, tentatively agreed with the ANU are: April (20 days), September (20 days). For the April running, a provisional division of time to match the IoP meeeting at Brighton, term dates, Easter etc. is: York (8) and Surrey (4), 28 March to 8 April; Birmingham (8), 20 April to 27 April.

For 1995, the plan would be to run the new array with the new data acquisition system, on a linac beamline. BRF reported that the ANU was no longer in a financial position to provide such a beamline. WNC raised the possibility of mounting the array behind other equipment on a line built for ANU use. BRF agreed to ask D. Weisser (note added: letter sent).
The possibility was discussed of acquiring components for the Charissa collaboration to provide a beamline. The necessary components were outlined. BRF agreed to clarify whether the pumping units for the new chamber had been allocated in the DL equipment awards (note added: the 450 l s^{-1} turbo (plus rotary) were awarded).
An estimate of the cost of the new beamline was required for the forward look exercise, by 17 September. $\boxed{\text{JK}}$
DDW/H.Price should be approached about ANU beamline needs. $\boxed{\text{BRF}}$

The question of whether more hybrid detectors ought to be built would be reviewed after the forthcoming running period, at the November meeting (see item 14). WNC suggested that "siamese twin" double hybrids may become necessary to achieve desired angle settings.

11. **Plans for Strasbourg:**

First beam from the Vivitron was anticipated for January 1994, but utility was likely to be limited.

RAC reported on the proposed move of the Charissa beamline from Daresbury to Strasbourg. He and others would be reporting to JSL before 30 September on the effort required for this. It was planned that the line would be recommissioned as a stand-alone item at Daresbury before being moved to Strasbourg and installed, along with its own dedicated control system. The recommissioning at DL could require University effort. At present, the transportation to Strasbourg was scheduled for April 1994.

12. **Timetable for grant applications:**

This was dealt with under Item 3.

13. **Any Other Business:**

The publication list collated by WNC (chpubs00 on the server) should be updated to include theses and extra papers that had been omitted. $\boxed{\text{WNC}}$

14. **Date of Next Meeting:**
Next Meeting: 11.15 a.m., Wednesday 17 November 1993, Birmingham.

W.N. Catford, Secretary. September 14, 1993 (released September 14, 1993)