Minutes

Charissa Group Meeting

Meeting held on: 11 Oct 1995

Meeting held at: Birmingham

Present: BRF(Chair),WNC,SPC,NMC,RAC,NC,MF,SJH,RAH, JSL,GT,WDMR,RPW,DLW

Distribution: Those above plus JK,ACM,VP,DDW, all by e-mail/file-server

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Minutes

1. **Apologies:** ACM and VP sent formal apologies.
2. **Minutes of meeting of 10 May 1995:** accepted
3. **Matters Arising/ Actions:** All covered by agenda.
4. **Personnel:**

   Three new students were starting in Oct 95: Mark Shawcross (Surrey), Graham Dillon (York) and one at Birmingham TBA.

   RPW had accepted a position at the University of Staffordshire to start Dec 95. A request to EPSRC for travel funds until the next grant round had been supported by BRF in a letter on behalf of the collaboration.

   N. Curtis had accepted the Surrey RA position to start Oct 95. J. Murgatroyd had accepted the Birmingham RA position to start Dec 95.
5. **ANU beamtime submission:**

   The document prepared by BRF to cover all Charissa requests (CH/Doc/95/04) was approved. BRF was thanked for his efforts in preparing it.
6. **Update on EPSRC matters:**

   The early review suggested for the ANU agreement was not certain to be approved. This aspect will have to be kept in mind when preparing the next consolidated grant application.

7. **Position on ANU beamline installation:** Quotes had been received from ANU, DRAL and a private firm for repair of the beamline equipment damaged in transit to the ANU. It had earlier been proposed over email by BRF that the ANU quote was the most competitive and should be accepted and this was approved. Repair costs would be borne on the present grant pending resolution of the insurance claim. EPSRC to be contacted over financial details for progressing rapidly. BRF

8. **Progress on MEGHA project:**

   i Hardware (detectors, chamber, gas supply):

   All components with full drawings are complete at York: chamber, target assembly, modules, module components. Drawings of beam dump are awaited from S. Metcalf.

   JSL to visit York to decide on collimation arrangements. JSL

   Complete assembly including 2 modules with windows is expected by 21 Oct 95. DLW

   Extra windows and grids expected before 31 Jan 96. RAC

   Control of vacuum will be via PC and PLC and should be complete at York by 31 Oct 95. DLW

   Other groups to get experience at York in first three weeks of November. ALL

   ii Electronics:

   Amplifiers: Paul Jagpal (Birmingham) was now collaborating with David Smith (Oxford) on construction and will be responsible for finalising PCB and crate details, and placing production contracts for completion in time for June 96 shipping of 320 channels.

   NMC reported that 8 amplifier channels were assembled at Birmingham and could be controlled via a PC link; alpha tests would be performed. NMC

   Preamplifiers: 480 boards had been delivered to York. Motherboards for MEGHA mounting were being slightly redesigned and the first would be finished by 21 Oct 95. DLW

   At Birmingham, 32 channels were being mounted in NIM modules. NMC

   Bias Supplies: DLW reported that these were complete.

   PC software: DLW reported that minor software changes were required and were in hand.

   iii Readout:

   RAH tabled a report (CH/Doc/95/02) on progress with the interface electronics. The 64 channel system agreed at the previous meeting was complete and awaiting final tests which would be complete by 18 Dec 95. RAH

The 16-channel CAT and WAG units were displayed at the meeting.

The cost for construction and testing of these for the 320 channel system was estimated by RAH as £11K plus components. It was recommended to upgrade the 8 TDC's purchased for the original 256 channel proposal by the purchase of 3 further TDC's to give 320 channel capability (£9.9K). For the trigger logic, 6 MALU multiplicity logic units were recommended (£15.2K). These were approved by the meeting. Thus, Oxford is committing £36.1K plus component costs. RAH

The FIACRE unit was the final item requiring development and was in the prototype stage; to be completed by 30 Nov 95. RAH

MF reported that 5 universal logic units were required for the trigger definition, committing £15K from Birmingham. MF

RAH summarised that the 64 channel system would be ready for Dec 95 shipment and the 320 channel system was on schedule for experiments in July 96.

iv Strip detectors in MEGHA:

MF reported that MF, RAC, DLW, SPC, WNC and S. Metcalf had discussed the mounting of strip detectors in MEGHA, on 10 Oct 95 in York. It was proposed to remove the modules and replace them with flanges with electronic feedthroughs. S. Metcalf will outline a design based on these plans, anticipated before 1 Nov 95, and a meeting would be organised for mid-November to advance the design. MF

It was noted that significant drawing effort will be essential in the near future, and enquiries should be made. BRF

For strip detector operation, it was intended to use a separate rack of dedicated preamps. Hence it was agreed to purchase another tranche of 500 preamplifier boards. DLW

Sheet resistance detectors in MEGHA:

DLW reported that Eurosys had recently delivered 4 sheet PSD's to York (12 months late, after a change in personnel in Strasbourg) and that these were under test.

v Shipment to ANU:

DLW reported that companies approached had advised air transport. He will coordinate negotiations with shippers in liaison with SPC. DLW,SPC

Liaison with Oxford on electronics shipment required. RAH,SPC

Shipment of MEGHA and bulk items is planned for 1 Dec 95. DLW

Shipment of electronics and experimental components to be returned to the UK is planned from York for 18 Dec 95. RAH,DLW

vi Installation and commissioning:

It was planned to make a start on the installation in January when people were out for the experimental running period. Thereafter an extended period of installation and commissioning would be needed. SPC and NC are likely to be involved. BRF will outline a timetable for this period, with a view to having MEGHA available for full experiemnts in July. BRF

9. **Planning for next ANU running period:**

The ANU had advised that the 14UD was operating well and had recently run at 15.7 MV.

Three experiments were approved for running before the end of February, plus some detector tests. A six-alpha run (strip detectors) and a carbon-carbon run for MF (hybrid detectors) were planned, and details of the remaining run were not finally confirmed.

It was provisionally planned to commence travelling out on 12 Jan 96 and to start running on 22 Jan. SPC to coordinate shipping, personnel, order of running, number of channels required, etc. SPC

Electronics tests for Jan 96 at the ANU will compare 32 channels in the TDC system and in the silena ADC's. RAH to be present. RAH

SJH reported on software changes. The software can now handle in excess of 128 channels (up to 512). Fortran compiler purchases were in hand. The new workstation windows described in the previous minutes, for control via VME of CAMAC modules, would be installed in January, and the upgrade to Solaris 2.4 would also be made. VP

It was estimated that 2 days of computer downtime would be required.

Running times later in the year needed to be built around the ANU (J. Leigh) requirements for the 2m chamber, so consultation required. BRF

The first runs with MEGHA were planned for July 96.

10. **Detectors stocks and new purchases:**

RPW reported on the detector stocks.

Hamamatsu strip detectors: 19 at Birmingham (of which 3 have one strip mising). Another 11 may be at York. Liaison with Simon Mullins regarding detectors in ANU to occur. DLW

Hamamatsu to be contacted with advance notice of right-angled pins being required for strip detectors (for mounting in MEGHA). BRF

Micron strip detectors: 11 at Birmingham, of which 2 thought to be badly damaged.

NMC reported that two new hybrid bodies, with extra space at the rear to accommodate scintillators, are now finished at Birmingham, making a total of three available.

DLW reported that the CONHEX manfacturer has ceased production of hermetically sealed feedthroughs

11. **Computing hardware needs**

SJH reported. Two colour X-terminals had been purchased for use in Canberra. One was already in use at Birmingham.

It was proposed and agreed to site exabytes for data acquisition at the beamline next to the emulator; the arrangement could be reassessed after some running experience.

A working group (SJH,SPC,NC) was formed, to report on three matters related to the experimental setup at the ANU: **SJH,SPC,NC**

(a) PC control of HV biases, amplifier crates, vacuum, gas handling, trigger logic and CAMAC, including RS485 control,

(b) Eventual transfer of above tasks to windows/VME control through SUN,

(c) Possible Sparc70 or similar extra screenless workstation to support PC's and X-terms and be a compute server.

Discussion document on above to be circulated by e-mail. **SJH**

12. **Status of spend on current grants:**

It was noted that funds need to be committed earlier than usual, since the EPSRC requires bills to be received and paid by September 1996. Major orders should be placed before the end of March.

Grant holders to notify BRF of present/future spend on current grant. **WNC,DLW,WDMR**

Responses to be coordinated and situation reviewed. **BRF**

13. **Discussion of next grants applications:**

Factors affecting the next grant round were briefly reviewed. WNC reported that the Radioactive Beams Working Party had discussed a unified UK contribution to building a strip detector array for SPIRAL at GANIL, which is due to start running in 1998. A working party would be arranged by WNC to consider the funding requirements, which were likely to be significant. It was agreed that the UK should be in a position to move and take advantage of opportunities as they emerge in this very new area.

The main thrust of the Charissa project through the grant period was envisaged as exploitation of the MEGHA array, with possible extension of the array. BRF will begin to assemble ideas. **BRF**

14. **Status of Strasbourg plans:**

    RPW had circulated the document "Charissa at the Vivitron" (CH/Doc/95/05) and comments should be sent to him.

    RPW tabled a document (CH/Doc/95/03) reporting that the Charissa beamline at Strasbourg was installed and had taken first beam on 13 July 95. A small number of jobs remained (few days' work).

    It was noted that the Vivitron was not operating, and was awaiting a replacement belt that was due on 20 October 95. Earliest possible beamtime was 15 November 95. Strasbourg to be approached about providing sufficient beam for commissioning during early operation with the new belt. RPW

15. **Reports of other running:**

    Argonne:
    MF reported that the July 95 run at ANL on ^{20}Ne + ^{12}C with 6 strip detectors had gone well, and the data were very promising. This would form the thesis data for SH.

    Ganil:
    WNC reported that the GANIL run scheduled for July 95 had been rescheduled to Jan/Feb 96 due to a radiation protection incident at GANIL. A new experiment had been joined, which was due for running in November 95 to study elastic scattering of ^{10,11,12}Be using SPEG. A new proposal was being prepared to study inverse (p,d) reactions using sheet resistance PSDs. Possibilities also existed to expand into more $\beta\gamma$ coincidence work.

    Orsay:
    DLW reported that there was slow progress with the analysis in Strasbourg of the Dec 94 experiment in Orsay.

16. **WWW pages**

    There was general agreement that any references to the Charissa collaboration on the WWW should be vetted at each institution and agreed, possibly through collective vetting, including references in students' home pages.

    SPC and WNC suggested that the Charissa documents on the server be available by ftp but not through the web, to restrict access.

    Guidelines on WWW policy to be drawn up for consideration. SJH,SPC

17. **Update on status of papers**

    The table attached to the minutes was updated.

    On the theory side, Jie Zhang has submitted a paper based on his thesis, and another is in preparation. ACM has a paper completed.

    It was agreed to circulate copies of the recent review article in Ann. Rev. Nucl. Part. Sci. Astrophys. when reprints arrive. BRF

18. **Talks etc.**

    Invited talks were to be given by WDMR (Bombay, Dec 95), BRF (Hawaii, Dec 95) and WNC (Study Weekend, Oct 95).

19. **Time for next physics meeting**

    A physics meeting would be arranged for Friday 24 November at Daresbury.

    Note added since meeting: a satellite meeting for dealing with details of analysis procedures is also being arranged by SPC and NC.

20. **Any Other Business:**

    (a) *Thesis:* WDMR reported that Jie Zhang had successfully completed his D.Phil. at Oxford.

    (b) *Test facilities:* NMC reported that the Daresbury 1 metre chamber was available at Birmingham for detector tests, after refurbishment.

21. **Date of Next Meeting:**

    Physics meeting
    Friday, 24 Nov 1995
    Daresbury

Documents relevant to these minutes:

	Ch/Doc/95/02	R.A. Hunt	Electronics progress report
**	Ch/Doc/95/03	R.P. Ward	Strasbourg beamline status
	Ch/Doc/95/04	B.R. Fulton	ANU Beamtime Submission
**	Ch/Doc/95/05	R.P. Ward	Charissa at the Vivitron

** Documents available in electronic form on file-server

W.N. Catford, Secretary. October 16, 1995 (released October 16, 1995)

Attached: table 1, summary of analysis on Charissa work, 11 Oct 95.

Table 1: Status of analysis on Charissa work

Description	Status
Outstanding from NSF Running	
Band termination (York)	New student to look at
^{24}Mg on ^{12}C ang dist (York)	SPC and MF to discuss
^{12}C on ^{24}Mg (Surrey)	Analysed with July 94 data
^{24}Mg to ^{12}C*+^{12}C (B'ham)	SH analysing. Draft paper in Birmingham
^{48}Cr to O+O+O (B'ham)	AM thesis. Paper submitted
ANU (Oct 93)	
^{16}O on ^{40}Ca (Surrey)	SMS analysing. Low statistics. Hopeful on ^{28}Si+^{24}Mg coincidences.
^{28}Si and ^{32}S (B'ham)	NC thesis. Paper submitted on ^{32}S
^{12}C+^{12}C 0_3^+ (York)	SPGC thesis. Paper published. Second paper on angular correlations in preparation
^{12}C+^{16}O 7–α chain (Oxf)	PS thesis. Paper published
Commissioning runs	
ANU (April 94)	
^{12}C+^{12}C ex. fn. (York)	CDJ preparing draft
^{12}C+^{16}O ex. fn. (York)	SF thesis submitted. Draft in preparation
^{28}Si oblate (Surrey)	GJG analysis complete. Draft paper prepared.
Tests of DA	
Test of Hybrids	
Test on MEGHA	see July 94
ANU (July 94)	
^{16}O+^{16}O for ^{24}Mg states (B'ham)	MF analysis. Paper published
^{12}C on ^{24}Mg (Surrey)	SMS analysis complete. Limit on cross section. Outline of short paper in preparation.
^{24}Mg+^{24}Mg gammas (B'ham)	RleM midterm. Paper submitted
Tests of MEGHA	PL draft prepared for NIMs
ANU (March 95)	
^{16}O+^{12}C to α+α+Ne (B'ham)	GRK thesis. Analysis in progress
^{12}C+^{12}C 6–α fine struct (B'ham)	RlM thesis. Analysis in progress
^{12}C+^{12}C 6–α O+Be chan (York)	PL thesis. Analysis in progress
MEGHA test + ^{16}O tgt (York)	RC to analyse for ^{16}O target paper
^{16}O+^{16}O	MF paper draft complete