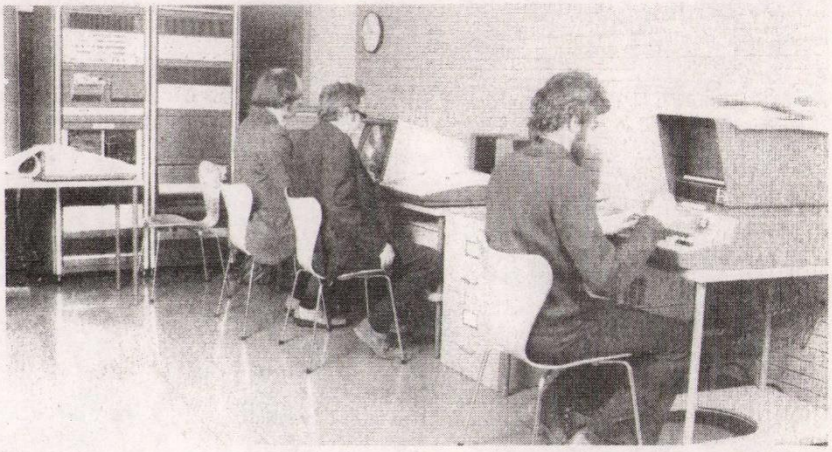
Rutherford Laboratory

bulletin 7

12 April - 3 May 1976

COMPUMAG 76



Highlight of the recent COMPUMAG conference on the computation of magnetic fields was the specially set up magnet design workstation, shown in the photograph. Based on a GEC 4080 computer linked by a 4800-baud Post Office line to the Rutherford Laboratory's IBM 360/195 computer, the workstation enabled delegates to use the Laboratory's GFUN magnet design software running on the IBM computer together with additional computer-aided design programs running on the GEC 4080 machine. Teams from RL, Imperial College, and CERN demonstrated the capabilities of these magnet design facilities.

The first truly international conference of its kind to be held, COMPUMAG - organised by RL and held at St Catherine's College, Oxford - from 31 March to 2 April, attracted 210 delegates from 15 countries, from as far afield as the USA, Japan and the USSR.

Apart from the Conference dinner, there was little time for relaxation, some 40 papers being read in the three days. Indeed the middle day turned out to be something of a marathon, starting at 0900 & ending at 22.30. The delegates however from many comments received, found it all very worthwhile. Many also commented very favourably on the smooth and efficient organisation of the Conference Office, operated by members of the RL stimulated by a good supply of coffee and perhaps by the nearby and attractive Junior Common Room Bar!

Magnet design work began at RL as part of its High Energy Physics development programme, but its potential for applications in other fields was soon realised, and the GFUN software has now been used by several outside organisations and research centres, including British Rail and International Research and Development Co, for applications in such fields as magnetic levitation and Tokamak magnets for fusion experiments.

The wide interest in the subject was reflected by the attendance at the conference, which brought together experts from industry and universities as well as other research centres. Topics covered included Magnetostatics, Magnetic Materials, Steady State and Transient Eddy Currents and Computer-Aided Design, while applications described included High Energy Physics, Fusion Studies, Electrical Machines and Magnetic Levitation.

The COMPUMAG International Steering Committee chaired by Bill Trowbridge is to meet in the near future to decide on the location of the next conference, scheduled for 1978.

RUTHERFORD LABORATORY LECTURE

The subject of Black Holes is of great interest to many people. We are not of course referring to the proverbial coal hole or the Calcutta variety but certain areas in outer space.

We are therefore fortunate to have Dr Dennis Sciama from the Department of Astrophysics at the University of Oxford as our next speaker in the RL Lecture series. The title of his lecture, "Particle Creation by Black Holes" does conjure up visions of a future Travel Sub-Section entitled Space Travel.

Dr Sciama, a Fellow of All Soul's College, Oxford since 1970 previously lectured in Mathematics at Cambridge. He has a number of publications to his credit and his professional interests are listed as Astrophysics; Cosmology and, Relativity. He has kindly supplied the following summary of his lecture which will be given at 15.15 on Thursday 22 April in the Lecture Theatre.

"It has recently been shown by Stephen Hawking that as a result of quantum processes a black hole creates particle pairs of all kinds and radiates them as though it had a well defined temperature uniquely related to its mass. The final stages of this process are explosive resulting in a pulse of gamma rays. Our theoretical understanding of this process is changing rapidly at the moment and the lecture will attempt to describe the latest position".

INTERNAL EVENTS

NIMROD LECTURE SERIES
Monday 12 April
11.30
Lecture Theatre

Partial Wave Analysis of K^+p Elastic Scattering from 800-2500 MeV/c

Dr R L Kelly/Carnegie-Mellon

HEP SEMINAR
Tuesday 13 April
11.00
R61 Conference Room

Particle Classification with the MIT Bag Model

J Cleymans/University of Bielefeld

HEP SEMINAR
Wednesday 21 April
11.00
R61 Conference Room

Future Counter Experiments with Charged Hyperon Beams

R M Brown/RL

RUTHERFORD LABORATORY LECTURE
Thursday 22 April
15.15
Lecture Theatre

Particle Creation by Black Holes

Dr D Sciama/University of Oxford (see General News for details).

NIMROD LECTURE SERIES
Monday 26 April
11.30
Lecture Theatre

Properties of Neutral Currents

Professor J J Sakurai/UCLA and CERN

HEP SEMINAR
Wednesday 28 April
11.00
R61 Conference Room

Particle Production at Low Transverse Momentum at the ISR

S Sharrock/UCL

HEP DATA HANDLING SEMINAR
Wednesday 28 April
13.30
R61 Conference Room

The INFOL Information Retrieval System

R A Rosner/RL

EXTERNAL EVENTS

SOUTHAMPTON UNIVERSITY

THEORETICAL & HIGH ENERGY PHYSICS SEMINAR - 14.30 hours
30 Apr: Deep Inelastic Scattering - Prof H Pietschmann/Vienna

MANCHESTER UNIVERSITY

THEORETICAL PHYSICS SEMINAR/NIELS BOHR COMMON ROOM - 16.30 hours
28 Apr: Some Aspects of Condensed Nuclear Matter - Prof L Castillejo/UCL

EVENTS AT AERE

THEORETICAL PHYSICS DIVISION SEMINARS/CONF. RM., BLDG 89 - 14.15 hours
30 Apr: Semiclassical Theory of Bound States - Prof I C Percival/QMC

COUNTY AND MINISTRY IN JOINT ENERGY SAVING PROJECT

The Architects Department of the Oxfordshire County Council and the Architects and Building Branch of the Department of Education and Science have begun work on a joint project aimed at saving fuel and money on heating and lighting in schools and colleges.

It is expected to bring changes in the design, construction and use of school buildings which will improve their efficiency in terms of the amount of fuel it takes to heat and light them.

The project, which also involves studies by staff and students from the Department of Architecture at Oxford Polytechnic, working in collaboration with Scientists of Rutherford Laboratory, is in three stages and will last for two or three years.

The first stage, which is now under way, is to make a detailed survey of two typical secondary schools and check every aspect of their construction and performance. This will include looking at the amount of insulation the buildings have, how much glass there is, and metering fuel supplies in a way that records not only the total fuel used, but also the peaks and troughs during the day.

Experts from the County Council and the Department of Education and Science will then study the results and try to find answers - at a practical cost - to any problems they reveal.

These would then be put into action at the two 'test' schools and the results monitored to see if they work. If they do, then it could mean changes in the design of all school buildings in future and economising in the use of our considerable stock of buildings.

The two schools chosen for the project are Matthew Arnold School, Cumnor and Gosford Hill School, Kidlington, both mixed comprehensive schools.

"We are not setting out with any preconceived ideas", said the Oxfordshire County Architect, Mr Albert Smith, "and the approach to the project is very much one of an experiment to test how different buildings perform in different circumstances". "We shall take account of the type of building, the use the occupants make of it, the type of heating installation and how good the schools' fuel management and housekeeping is as well as the climatic conditions outside".

"The survey will record everything in great detail right down to things like draughts from badly closing windows or doors so that we can get a clear picture of the performance of the buildings".

When the work is complete a report on its results will be published.

EMINENT NUCLEAR PHYSICIST AT RUTHERFORD LABORATORY

Professor K V Laurikainen of the University of Helsinki, who arrived at the Laboratory on 24 March will be spending about three months of his sabbatical leave in Theory Division.

Professor Laurikainen, an elder statesman of Finnish nuclear physics is said to have founded the Nuclear Research Institute by his own efforts.

BLOOD DONORS THANKED

The following letter from Mrs Beryl Phipps, the Regional Donor Organiser of the National Blood Transfusion Service should, we feel, be seen by all concerned.

"It was an excellent two day clinic at SRC Chilton with a total number for both days of 200 with 34 new donors.

This result was the highest for sometime and I am extremely grateful to those responsible for recruiting, promoting and calling donors on our behalf. The Teams and Medical Officers would like me to convey their appreciation for the regular way in which the donors attended throughout the two days and the hospitality and co-operation they received from all.

The extra blood donations collected were particularly welcome at this time when many donors are suffering from colds and 'flu. The blood was speedily prepared and distributed to the various Hospitals in need where it will by now be well on the way in helping to save life.

Thank you all, very much indeed.

GOODNEWS

Superconducting magnets being developed at RL could solve the problems of suspending a magnetically-levitated train, said Mr J A Stokes, chairman of the SRC's ground transport panel, giving evidence to the House of Commons Select Committee on Science & Technology. This could be achieved in the next five years or so, he maintained.

As a member of the SRC's Engineering Board, Mr Stokes visited RL in February and saw the work of the Superconducting Magnet Research Group at close hand.

OVERSEAS VISITS

Dr R T Ross, to the USA, 9 April - 3 May, to attend Washington APS meeting (and present paper) and to visit LBL, SLAC, FNAL, ANL and BNL for discussions.

Dr C M Fisher and Mr R A Lawes, to Italy, 20-25 April, to attend Conference on Computer-Assisted Scanning at Padua.

Dr T A Broome, to the USSR, 22 April - 20 July, to work on a πp experiment at the Leningrad Nuclear Physics Institute.

Dr G A Ringland, to Spain 25 - 30 April, to give lectures at the Universities of Barcelona and Zaragoza.

Mrs G Kuo-Petravic, to Munich, 26 April - 1 May, to attend 2nd European Conference on Computational Physics at the Max-Planck-Institut fur Plasmaphysik in Garching.

Dr R Taylor, Dr Margaret M Curtis, Mr G A Lambert, and Mr A E Stormer, to Montpellier, France, 26-30 April, to attend SEAS Spring Technical Meeting.

RUTHERFORD LABORATORY BULLETIN *Published by the Scientific Administration Group*

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Deadline for Insertions: 1000 hours Wednesday 28 April

PERIODICAL SAFETY TEST OF PORTABLE ELECTRICAL EQUIPMENT The test carried out during February/March has now been completed. The current marker colour is GREEN and marked "Do not use after July 1976"

Portable electrical equipment marked otherwise or has no marker should be considered unsafe and must not be used. All such items should be returned, if possible, to Electrical Services Section, Building R18. Alternatively ring A Hipwell on Ext. 573.

POSTAL ARRANGEMENTS AT EASTER The last delivery of mail to the Post Office will leave the Post Room at Atlas 1100 hours on Thursday 15 April.

Mail reaching the Post Room after this time will not be taken to the Post Office until Tuesday 20 April.

MORE CHECKING Would persons in possession of any Stenorrette or personal memo recording machines, please inform the Inventory Section, Room 48, Building R20.

SALES TO EMPLOYEES Sales of scrap metal/plastics as set out in RLN 12/73 will be made on 23 April.

MISSING EQUIPMENT A Laboratory Ladies Bicycle (Coventry Eagle) with front basket is missing from the bicycle shed, R20. It is numbered SRC1, Serial number R25 331, RL44.

Anyone with information on the present whereabouts of this item is asked to contact J Penfold, Ext. 6396.

Safety Group, R12 report that a Baldwin Static Gun was borrowed some while ago. Would the person who borrowed it please contact Mr G Mendoza, Ext. 6216.

The following items have been reported missing from R53 Bubble Chamber Annexe -

Ratchet Socket Wrench, Extension Bar 6" long,
Sockets M6, 8, 10, 12, 16 & 20, Tool box.

Information to Inventory Section, R20, Ext. 570.

NATIONAL SAVINGS CERTIFICATES Monthly cycle No 14 ending 31.3.76. Certificates can now be collected from the Cash Office R20. New Members wishing to join the scheme can obtain enrolment forms from the Cash Office.

FILM BADGE NOTICE It is Period 4. Colour Strip - GREEN for βγ films and neutron packs.

The next film period commences, Tuesday, 20 April.

SOCIAL NEWS

NETBALL The girls of the Atlas Netball team are to be congratulated on their enterprise. They have entered a competition officially called - the Civil Service Southern Region Netball Competition - Treadaway Trophy Preliminary Round.

The South Eastern preliminary round is to be played on 11 April at Basingstoke and 16 teams have entered. If Atlas win, their next engagement is at Southampton on 8 May, where they meet the winners of the South West Region. The final rally of the Treadaway Trophy is to be held at the Crystal Palace on 22 May.

The Atlas girls, kitted out by the RL Rec. Soc. in green skirts and white tops, are Liz Krauesslar, Nora Jackson, Ann Walters, Anne Roberts, Maureen Goodchild, Gill Keats, Gill Jones and Janet Ford.

We wish them every success on 11 April, and 8 and 22 May?

RUTHERFORD 1975/76 CHESS TOURNAMENT Predictably an in-form Peter Craske not only held onto his lead but with 2 wins in the final 2 rounds increased it by ½ point finishing with 7 wins out of 8 matches and one drawn. The final points table is shown below:-

Peter Craske	- 7½ points	Barry Whittaker	- 4 points
Peter Hemming	- 6 "	Rob Hambleton	- 4 "
Jim Riddle	- 5½ "	Reg Sidlow	- 4 "
Peter Kent	- 5 "	Dennis Sivers	- 3½ "
Mike James	- 4½ "	Dick Apsey	- 3 "
Mike Elder	- 4½ "	Roy Culliford	- 2½ "
Roy Redgrave	- 4 "	Fred Gilbert	- 2 "
Vic Saunders	- 4 "		

For those readers who can count, the absence of the sixteenth player resulted from 9 weeks jury service!

Congratulations to Peter Craske on his fine win.

RECORD CONCERTS The next concert will be presented on Tuesday 27 April at provisionally, 12.40 in the Lecture Theatre. Please see R22 Coffee Lounge Notice Board nearer the time for details of programme.

CHRISTIAN FELLOWSHIP 23 and 30 April. All are welcome to join the Fellowship for a Bible Study revolving around the Book of Colossians. The venue is the R12 Conference Room and the time 12.30.

SPORTS DAY 1975 Medals and Medallions won by the the cricket, netball, bowls and tennis competitions at the last year's SRC Sports Day will be displayed in the Rec. Soc's new show case in the R1 Foyer.