



Rutherford  
Laboratory

COMMON/CSCAL/IBM, NERR, NCH, NGAP, TSCAN, NBR, NGR, NSCAN, NRO,  
IYSEL, IYSEU, IYMAX, NTRA, 3-17 February 1975  
2NBEGIN, NTK, NTRY, NMIS, NSSR, NFID, MAXMIN, NFRST, NEND, JTR,  
COMMON/CFID/MFX(20,3), MFY(20,3), NFX(10,3), NFX(10,3),  
JTAB(2,20,3), NX(100,4), NY(100,4), XN(2), YN(8), IB(2), ID  
R IDY(100,2), JDX(4), JDY(4), IHS(4), IDV(2), LUN(2),  
S NCF(16), IFS, NFS, FX, FY, JK, PIC, KPIC, NCOUNT, NBIN,  
T MAXN, CTA, CTB, MX, MY, JA, JB, JC, JD, 3  
DIMENSION, NCTR(144), NCTR(20), CTR(2), N

bulletin

3

#### NEWS FROM NIMROD

As we appear to have neglected Nimrod since last July (Bulletin 14/74) the following information supplied by the Nimrod Division is very welcome.

#### Nimrod Shutdown

Commencing 3 February and continuing until mid-June, Nimrod will be shutdown for an extensive programme of modifications and maintenance. Modifications in connection with the new 70 MeV injector include:

1. Installation of a new straight section box, (in straight 2). This box will contain the 70 MeV electrostatic inflector element and a thin-septum inflector bending magnet in addition to the existing plunged kicker magnet used with the Hall 1 extracted proton beam, XI.
2. Installation of the beam transport elements and diagnostic devices between tank No 4 of the 70 MeV injector and the synchrotron ring.

In the Magnet Hall, components of the P7I and P8I beams will be removed, and those for the new XI extracted proton beam installed. The shield wall between Hall 1 and the Magnet Hall will be largely rebuilt to match the new Hall 1 beam complex.

#### Experimental Hall 1

The new beam complex is presently under construction. It will consist of three branches serviced by the XI extracted proton beam:

- K18 - This will be a single stage electrostatically separated beam, designed to give a high-flux of 2.8 GeV/c  $K^-$  for the Rapid Cycling Vertex Detector. With minor changes the beam should be capable of transmitting momenta up to 4 GeV/c.
- $\pi 13$  - This beam is unseparated and suitable for momenta up to 6 GeV/c. A production angle of 70 mrad is used to allow separation of the positive secondary particles from the non-interacting portion of the extracted proton beam. Operation will be for positive particles at two momenta, 4 GeV/c and 6 GeV/c. This beam will be used with the Rutherford Multiparticle Spectrometer.
- K20 - This beam is a two-stage design incorporating a single tank electrostatic separator in the first stage and covering the momentum range 0.7 to 1.4 GeV/c. It will be used for polarisation measurements in kaon-nucleon elastic and charge exchange scattering experiments.

Initially, successive Nimrod beam spills may be diverted to any one of these branches, by a pair of switching magnets, capable of having their field polarity reversed during the time between these successive beam spills. The Rapid Cycling Vertex Detector will use fast beam spills generated on Nimrod's "Flat-Top". These will be 0.5 millisecond spills at a frequency of 60 Hz.

#### Extracted Proton Beam

The extracted proton beam into Hall 3 now peaks at around  $2 \times 10^{12}$  protons per pulse, (ppp), with a more general level of about  $1.8 \times 10^{12}$  ppp. This compares with about  $1.1 \times 10^{12}$  ppp which was the usual figure up to the introduction of the Nimrod 2nd RF system. This addition to the RF accelerating system has been in full operation since June of 1974 and accounts for about 40% of the increased beam. The remainder is accounted for by improved steering at the upstream end of the X3 beam. The 2nd RF system has proved to be very reliable in operation.

#### SURPLUS PROCEEDINGS

Some surplus copies of the Proceedings of the Fourth International Conference on High Energy Collisions (Stony Brook Series), held in Oxford 1972, are available. Staff wishing to obtain a copy should apply to the Librarian, Building R61.

#### CERN FELLOWSHIP PROGRAMME

A reminder that the appropriate literature dealing with the opportunities for Fellowships at CERN can be seen on request at Room 68, Personnel Group Building R20.

#### QUEEN ELIZABETH II FELLOWSHIPS

Details are now to hand on the Queen Elizabeth II Fellowships in Physical and Biological Sciences for two-year periods of post-doctoral research in an Australian University or approved research institution. Further information from Training Section, Ext 266. Closing date for applications to reach Canberra is 7/3/75.



## INTERNAL EVENTS

### NIMROD LECTURE SERIES

Monday 3 February  
11.30  
Lecture Theatre

Threshold Pion Production by Weak Neutral Currents

Dr E W Colglazier/RL and Princeton

### HEP SEMINAR

Wednesday 5 February  
11.00  
R61 Conference Room

Impact Parameter Structure of Multiparticle Production

B Webber/Cavendish Laboratory, Cambridge

### NIMROD LECTURE SERIES

Monday 10 February  
11.30  
Lecture Theatre

Results of the CERN-Heidelberg  $K^0$  Experiment and the Status of the Superweak Model of CP Violation

Dr J Steinberger/CERN

### HEP SEMINAR

Wednesday 12 February  
11.00  
R61 Conference Room

Partial Wave Analysis of  $\pi^-p \rightarrow \Lambda K$  using the Barrelet Zeros Method

R Baker/RL

### SEMINAR IN COMPUTING

Friday 14 February  
11.00  
R61 Conference Room

The report of the SEAS Future Requirements Project

Dr R Taylor/RL

SEAS, like SHARE has set up a project to consider computing requirements in the 1980's. The reports of both projects have been completed and will be discussed.

### NIMROD LECTURE SERIES

Monday 17 February  
11.30  
Lecture Theatre

$\pi^+d$  Interactions at 4 GeV/c, and the Production of Vector and Tensor Mesons

Dr R Sekulin/RL



# EXTERNAL EVENTS

## OXFORD UNIVERSITY

THEORETICAL ELEMENTARY PARTICLE PHYSICS SEMINARS/NP DEPT - 14.20 hours

- 7 Feb: Massive & Massless Spin 2 Field Theories - Dr G Feldman/John Hopkins & IC
- 14 Feb: Weak Currents in the Han-Nambu 3-Triplet Model - Dr C K Sackioglou

ELEMENTARY PARTICLE PHYSICS SEMINARS/NP DEPT - 14.30 hours

- 6 Feb: What can we learn from Inclusive  $\Delta^{++}$  Production - Dr K Barnham/Imp Coll
- 13 Feb: Pion Production by Weak Neutral Currents - E W Colglazer/Rutherford Laboratory

THEORETICAL PHYSICS SEMINARS/CLARENDON LABORATORY - 16.15 hours

- 6 Feb: Anisotropic Superfluidity in  $\text{He}^3$  - Prof P W Anderson/Cambridge

COLLOQUIA/CLARENDON LABORATORY - 16.15 hours

- 7 Feb: Simple Nuclear Spectroscopy from Complex Probes - Dr P S Fisher/Dept of NP
- 14 Feb: Microwave Paramagnetic Transmission Resonance in Metals - Prof T R Carver/Princeton

LOW TEMPERATURE & SOLID STATE PHYSICS SEMINARS/CLARENDON LABORATORY - 14.30 hours

- 6 Feb: Infra-red Cyclotron Resonance in Ge-Si Alloys - Prof R Braunstein/UCLA

## BRISTOL UNIVERSITY

PHYSICS & GEOPHYSICS COLLOQUIA/ROOM G12, ROYAL FORT - 17.00 hours

- 10 Feb: The Superconducting Transition Temperatures and Lattice Dynamics of Transition Metals and Their Alloys - Dr B L Gyorffy/Bristol
- 17 Feb: Applications of Lattice - Imaging Electron Spectroscopy - Prof J S Anderson/Oxford

## ROYAL HOLLOWAY COLLEGE

APPLIED MATHEMATICS SEMINARS/MATHS DEPT, MAIN BUILDING - 15.00 hours

- 6 Feb: War Gaming - Prof R W Shephard/Royal Military College, Shrivenham
- 13 Feb: Theoretical Interpretation of  $\text{Ly } \alpha$  and  $\text{H}\alpha$  Fluorescence Experiments - Dr V P Myerscough /QMC

## MANCHESTER UNIVERSITY

THEORETICAL PHYSICS SEMINARS/NIELS BOHR COMMON ROOM - 15.45 hours

- 5 Feb: Is there a Superfluid Velocity for Liquid  $\text{He}^3$ ? - Prof H E Hall/Manchester
- 12 Feb: Meson Exchange in Nuclear Physics and Kaon Physics - Dr N Cottingham/Bristol

## SOUTHAMPTON UNIVERSITY

THEORETICAL & HIGH ENERGY PHYSICS SEMINARS/LECTURE THEATRE C - 14.30 hours

- 7 Feb: An Operator Formulation of the Parton Model - Dr F Ravndal/Nordita
- 14 Feb: Exactly Soluble Models in Statistical Mechanics - Prof R J Baxter/Edinburgh & Aust Nat U

## SURREY UNIVERSITY

NUCLEAR PHYSICS SEMINARS/ROOM 08 AC 22 - 14.15 hours

- 5 Feb: Elementary Excitations in Vibrational Nuclei - F Tachello/Groningen
- 12 Feb: Correlations in Light Nuclei - K Ahmad/Surrey

## EVENTS AT AERE HARWELL

NUCLEAR PHYSICS DIVISION COLLOQUIA/CONFERENCE ROOM, HANGAR 8 - 15.30 hours

- 6 Feb: Dr Basil Rose, Division Head NPD, will give an account of his recent travels
- 13 Feb:  $\gamma$ -Ray Astronomy - Dr D Ramsden/Southampton

THEORETICAL PHYSICS SEMINARS/4 Feb in Conf Rm Bldg 8.9, 11 Feb in Conf Rm H8 - 14.00 hours

- 4 Feb: The Growth of Particles & Droplets in Fluid Media - Dr C F Clements/AERE
- 11 Feb: The Development of the SGHW Reactor - Dr D Hicks/Director, Thermal Reactors, Risley

COMPUTER SCIENCE & SYSTEMS/CONFERENCE ROOM, HANGAR 7.12 (times below)

- 14 Feb: 10.30 hours - IBM System Network Architecture
- 14.00 hours - A Description of the IBM 3850 Mass Storage System

The Editor thanks all those who have forwarded programmes of lectures, seminars etc being given in the present university term. It is fully appreciated that the publication of these events in the Bulletin serves a useful purpose. Space limitations do not always permit full details to be published. PLEASE, send your lists directly to the Editor - the correct address is published in each issue of the Bulletin.

### RUTHERFORD LABORATORY BULLETIN

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Editor: H F NORRIS

Deadline  
for  
Insertions

GENERAL & SOCIAL NEWS  
Tuesday 1600

INTERNAL & EXTERNAL EVENTS  
Wednesday 1200

Room 42 Building R20  
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#### MISSING EQUIPMENT

The following item of equipment has been reported missing from Room 212, Building R2 during the weekend of 10-13 January:-

Sinclair Cambridge Electronic Calculator Ser No 88603, marked P H Pennington, R2

Will anyone with information on the present whereabouts of this item please contact Mr P H Pennington, Bldg R2, Ext 285.

The Inventory Section is seeking information on the following:-

An Orbital Sander, Ser No 002452 is missing. Any information on the whereabouts of this item to Inventory Section, Bldg R20, Ext 570.

#### LOST PROPERTY

A key (possibly for a car) was found in the RI Computer on 20/1/75. Owner should apply to Mrs S A Fones, Ext 495.

#### FILM BADGE NOTICE

It is Period 2, Colour Strip - PURPLE for B<sub>y</sub> films.

All neutron packs are to be returned on 2 February when Nimrod shuts down. There will be no further issue of neutron packs until Nimrod resumes operations.

Please check that you are wearing the correct dosimeter and that all old ones are returned to allow the totals for 1974 to be compiled.

#### OVERSEAS VISITS

Dr J J Thresher, to CERN, 3-6 February, to attend meeting of Hyperon Experiment planned for the SPS.

The Director, to CERN, 4-5 February, to attend special meeting of CERN Committee of Council.

Mr E G Sandels and Mr K W Smith, to CERN, 5-7 February, to inspect results and have discussions on surveys of PS New Linac Test Tank.

## SOCIAL NEWS

#### CHRISTIAN FELLOWSHIP

All are welcome to come and join in a time of prayer in the R12 Conference Room at 12.30 pm on Friday, 7 February. Requests for prayer can be forwarded to any member of the Fellowship and we will include them in our meeting.

St Valentines Day is about LOVE. David Heaven of Didcot will be leading a study about this word on Friday, 14 February, to which all are invited to attend. This is the first in a series of three, the second being led by Pastor John of Wantage and the third by John Thewlis of the Atlas Laboratory. All these meetings will be held in the R12 Conference Room at 12.30 pm.