



COMMON/CSCAL/IBM ,HERR,NCH,NCAP ,SCAN,NBR,NCR ,CAN1,NRO  
1 IYSEL,IYSEU,IYMAX,NTRACK **4-18 November 1974**  
2NBEGIN,NTK,NTRY,NMISS,NSSR,NF10,MAXIMP,NFIRS,NEND,JR  
COMMON/CF10/MFX(20,3),MFY(20,3),NFDX(10,3),NF (3)  
QTAB(2,20,3),NX(100,4),NY(100,4),XN(2),YN(8),ID  
R IDY(100,2),JDX(4),JDY(4),IHS(4),ICV(2),IUN(2),I  
S NCF(16),IFS,NFS,FX,FY,JK,PIC,KPIC,NCOUNT,NB1N,MAX  
T MAXN,CTA,CTB,MX,MY,JA,JB,JCV,JD,JE  
DIMENSION NCTR(144),NCTR(20),CTR(1

readers. The readers receiving such a letter are asked to fill in the survey (at least question 1). As before these may be returned via the Bulletin Editor, Room 42, R20.



# INTERNAL EVENTS.

## NIMROD LECTURE SERIES

Monday 4 November  
11.30  
Lecture Theatre

SU(6)<sub>W</sub> is Alive and Well

Dr A J G Hey/Southampton

## PROPOSAL TALK & PROGRESS REPORT

Monday 4 November  
14.30 approximately  
Conference Room, Building R+2

The Proposal Talk and Progress Report will follow the Nimrod Ops II Meeting at approximately 14.30

**Proposal No 159:** "A Proposal to Study  $K^+p$  Interactions Between 450 & 900 MeV/c", Rutherford Laboratory/Imperial College, talk by Dr R T Ross/R.L.

**Progress Report on Proposal No 112:** "A Proposal to Investigate Spin Dependent Effects In High Energy Proton-Proton Interactions at Rutherford Laboratory and CERN", Oxford University/CERN/ORSAI, talk by Dr N E Booth/Oxford University

## HEP SEMINAR

Wednesday 6 November  
11.00  
Lecture Theatre

Particle Exchange In Exotic Channels at Low Energies

W N Cottingham/Bristol

## RUTHERFORD LABORATORY LECTURE

Thursday 7 November  
15.15  
Lecture Theatre

R & D in High Speed Bulk Forming

Professor S A Tobias/Birmingham University (see 'News Section' for details)

## SEMINAR IN COMPUTING

Thursday 7 November  
11.00  
Conference Room, Building R12

General Meeting

Progress Reports will be given on various aspects of C & A Division's work

## NIMROD LECTURE SERIES

Monday 11 November  
11.30  
Lecture Theatre

s-channel Structure of Reggeon Diagrams

Dr C de Tar/CERN and MIT

## TRADE DEMONSTRATION

Tuesday 12 November  
10.00 - 16.30  
Conference Room, Building R12

SINTROM Electronics Limited will be showing a wide range of computer peripherals including - Versatec printer and plotter, a silent matrix unit with line printing speeds up to 1200 lines/min and plotting speeds up to 3" per sec on 8½", 11" and 20" wide paper; System Industries disc systems with storage capacities from 2.5 - 67.6 Meg Bytes, using DRI or Diablo drives, for connection to various mini computers; Kennedy range of buffered and phase encoded Tape Transports with recording densities up to 1600 BPI in IBM compatible format; Periflex 6000, a single or dual 3M cartridge tape transport system with a storage capacity of up to 2.5 Meg Bytes/cartridge. Also on show - Dicom Cassette Tape Systems; Periflex 6500 Floppy disc systems; SAC GP3 Sonic digitizer; Carmel range of VDUs and a CAI mini computer.

## HEP SEMINAR

Wednesday 13 November  
11.00  
Lecture Theatre

Anti-proton Interactions

Dr H Muirhead/Liverpool

## NRPB SEMINAR

Thursday 14 November  
14.00  
Lecture Theatre

The National Radiological Protection Board have received permission to hold their External Scientific Seminars in the Rutherford Laboratory Lecture Theatre. Attendance at these Seminars is by invitation only. The first in the series, on "Development in Bone Dosimetry" is to be given by Prof F W Spiers. Staff at the R.L. concerned will have received individual invitations.

## NIMROD LECTURE SERIES

Monday 18 November  
11.30  
Lecture Theatre

Results on Electroproduction in Exclusive Channels

Dr G Wolf/DESY

## RUTHERFORD LABORATORY BULLETIN

Published by the Scientific Administration Group

Editor: H F NORRIS

Deadline

GENERAL & SOCIAL NEWS

INTERNAL & EXTERNAL EVENTS

Room 42 Building R20

for

Insertions

Tuesday 1600

Wednesday 1200

Rutherford Laboratory

Chilton Didcot Berks

Abingdon 1900 Ext 484



## EXTERNAL EVENTS

**NUCLEAR STRUCTURE SEMINARS, NP LAB, OXFORD - 14.30 hrs**  
 11 Nov: Dr B L Roberts/RL - Exotic Atoms - a Tool to Study Nuclear and Particle Properties.  
 18 Nov: Dr D J Millener/Oxford -  $\beta$  Decay of  $^{14}\text{B}$ .

**ELEM PART PHYS SEMINARS, NP DEPT, OXFORD - 14.30 hrs**  
 7 Nov: Dr R G Roberts/RL - Inelastic Diffraction Scattering at High Energies - the Present Situation  
 14 Nov: Dr H Muirhead/Liverpool - Annihilation Process for pp, ee, KK, etc.

**COLLOQUIA AT CLARENDON LAB OXFORD - 16.15 hrs**  
 8 Nov: Dr E R Pike/RRE - Photon Statistics & Photon Correlation  
 15 Nov: Dr J W White/Oxf - While Neutrons Spin, Molecules Relax...

**THEORETICAL PHYSICS SEMINARS, CLARENDON LAB - 16.15 hrs**  
 14 Nov: Dr N Robinson/Clarendon - Electromagnets Stress & Momentum in Refracting Media

**PHYSICS DEPT COLLOQUIA, READING UNIV. - 17.00 hrs**  
 11 Nov: Dr D Titterdehl/Reading - Irradiation Damage in Silicon  
 18 Nov: Prof O S Heavens/York - Surface Physics

**NUCLEAR PHYSICS SEMINARS, UCL - 14.00 hrs**  
 6 Nov: Dr P E Hodgson/Oxf - Alpha Particles on the Nuclear Surface  
 13 Nov: Dr J M Irvine/Manchester - Nuclear Physics of Neutron Stars

**THEORETICAL PHYSICS SEMINARS, DARESBURY - 14.00 hrs**  
 11 Nov: D Scott/RL - Correspondence at Large Angle

**DARESBURY COMPUTER SYSTEMS & ELECTRONICS DIV SEMINARS - 14.30 hrs**  
 6 Nov: Prof F H Sumner/Manchester - The Architecture of the MU5  
 13 Nov: T Daniels - DOCAL (how to use this language)

**THEORETICAL PHYSICS SEMINARS, MANCHESTER - 14.30 hrs**  
 6 Nov: Prof J M Ziman/Bristol - Electron Localisation & Percolation  
 13 Nov: Dr R S McIntosh/Oxford - Proton Scattering & the Effect of Strongly Coupled Deuteron Channels.

**THEORETICAL & HEP SEMINARS, SOUTHAMPTON - 14.30 hrs**  
 8 Nov: Prof D V Bugg/QMC - Collision Broadening of Resonances (& Particles)  
 15 Nov: Dr D H Nanopoulos/CERN - The Question of Non-Leptonic Interactions of Leptons

**NP DIV SEMINAR IN CONF RM H8 AERE - 15.30 hrs**  
 7 Nov: Dr D Sharma/Oxford - The Origin of the Light Elements  
 14 Nov: Dr J C Riviere/MDD - Intercomparison of Modern Methods of Surface Analysis

## NIMROD SCHEDULE

CYCLE 10 22.10.74 - 12.11.74

MACHINE PHYSICS

HIGH ENERGY PHYSICS

Team	Beam	Experiment	State
CERN/ORSAY/OXFORD	P81	Hadron-Proton Spin	Data
RUTHERFORD LABORATORY	$\pi 11$	Beam Measurements	Tests
IMPERIAL COLLEGE/RL	$\pi 8A$	Experiments on Narrow Bosons $X^0$ (958) $S^*$ and Cross-Section Measurements	Data
BEAM DETECTOR GROUP	K15A	Parasitic Running	Tests
COUNTER GROUP B/ CAMBRIDGE UNIVERSITY	$\pi 12$	$\pi^- p \rightarrow K^0 \Lambda^0$ in the Range 1.4 - 2.0 GeV/c	Data
RUTHERFORD LABORATORY	$\pi 9$	Polarisation in the $\pi^- p \rightarrow \pi^0 n, nn$	Data
BIRMINGHAM/SURREY/RL	K17	Study of X-rays from $K^- p$ Atoms	Setting up
	P17	Beam line being dismantled	

**RUTHERFORD LABORATORY LECTURE** The second lecture in the 1974/75 season of this series is to be given by Professor

S A Tobias, Head of the Department of Mechanical Engineering at the University of Birmingham. He was educated in Budapest and Edinburgh and amongst his past appointments was Assistant Director of Research, Dept of Engineering, Cambridge University. His professional interests, are in the field of mechanical engineering design, research and development with a special interest in vibration and machine tools and high energy rate forming. In a rather nice contrast who's who gives his recreational interests as colour photography, music and cactus plants.

The title of lecture, to be given at 15.15 on Thursday 7 November in the Lecture Theatre is "R & D in High Speed Bulk Forming" and Professor Tobias has kindly provided the following abstract -

In the 1950's a number of processes were developed, mainly in the USA, known under the generic name of "High Energy Rate Forming". The characteristic feature

of these processes is that they involve the discharge of some form of energy at a very high rate, its conversion into kinetic energy and the utilization of this for forming purposes.

H.E.R.F. processes can be divided into two categories: (1) explosive, electro hydraulic, magnetic etc used in the forming of sheets and tubes, (2) high energy rate bulk forming.

The lecture will discuss H.E.R.F of bulk materials, carried out in high speed hammers which are generally actuated by compressed gas.

A survey of high speed hammers will be given, with particular reference to Petro-Forge, designed and developed in the speaker's Department. The advantages of H.E.R.F machines will be discussed and the effect of high forming speeds on a variety of processes such as hot, cold forming, cropping blanking, compaction of powder and powder forging will be considered.

The lecture will be illustrated with slides and films.



**OVERSEAS VISITS** The Director, to CERN, 4-7 Nov, to attend meetings of CERN Scientific Policy Committee and CERN Committee of Council. Dr C M Fisher & Dr R Sekulin, to Rome, 5-11 Nov, to discuss multiplicity trigger for RCVD proposal 119. Dr R J N Phillips, to CERN & Prague, 10-20 Nov, for consultations with TH & NP Divisions & to give lecture in Prague. Mr G H Rees, to the USSR, 17-25 Nov, to attend Russian National Accelerator Conference in Moscow & to visit Novosibirsk.

**NUMBER PLEASE** The opening of the new automatic telephone exchange at Abingdon has been delayed yet again. This has been caused by faults in equipment and as operators on the manual boards are not being replaced as they leave the remaining operators are working under great pressure. This information will not ease the problems experienced by members of staff when using the external telephone, but it may help in understanding the operators problems.

**FILM BADGE NOTICE** Period 12 commences Monday 4 November. Colour Strip - for 8y films and neutron packs. Please change your dosimeters promptly and return all old ones. (Neutron packs to be sent to Film Service, R2). Six monthly TLD change for people with surnames commencing S, T, U and V. Any queries regarding dosimeters to Mrs J A Coates, Building R2, Ext 430.

**MISSING EQUIPMENT** The following items of equipment have been reported missing -  
O-25 m/m micrometer, engraved R9/M8.  
O-150 m/m depth micrometer, engraved R9/M43.  
Both items should be returned to R9 Tool Store a.s.a.p.  
Muirhead Voltage Divider ref LP15, missing from R36.  
Information please to R Downs, Building R36, ext 6656.

**REMINDER** Will the person who removed the guillotine from the Xerox Room on the top floor of Building R1 please return it.

## SOCIAL NEWS

**RUTHERFORD CUP FINAL REPLAY** Showing greater appetite for possession and certainly much more workman-like in their performance, C & A won this Rutherford Cup replay against R25 by three goals to one.

R25, who put up an extremely fine show when the sides met just over a fortnight ago, failed to find the continuity which served them so well on that occasion. Often C & A had the control of the midfield for long spells to which R25 could find no answer. It was rather tragic that Dave Matthews who has scored in every game he has played in with the exception of one, should be reduced to being virtually a passenger when with less than five minutes of the first half remaining he received a knee injury when he went for a 50-50 ball with goal-keeper Malcolm Edwards. It's only fair to say that C & A were two up at that stage, but even so Dave kept up his record by putting the finishing touch to a move which brought R25 a consolation goal.

The game was only 3 minutes old when C & A forged their way into the lead, the goal, one of the best your reporter has seen in the competition, came from, in my view, the outstanding player not only in this final but throughout the whole of the series - Jeff Bizzell whose reading of the game is a delight to watch. Now back to the instance when Bizzell himself in possession, something like 30 yards out unleashed a shot which had goal written on it from the moment it left his lethal right foot.

All credit to R25 who quickly put in a counter-attack. Phil Lewis & John Mackerness combined to give the latter a chance to test Edwards with a crisp ground shot. Later, Matthews did find the target but his shot had lost much of its power as it struck a defender on its way to goal.

It was from a long ball up-field from Bizzell that started the move in which Ron Lawes combined with Jim Taylor to finally push the ball out to him on the left and although Steve Farr got his hands to the shot he failed to stop it from slowly trickling over the line. Shortly afterwards came the incident in which Matthews after treatment on the field had to be taken off. Half-time, 2-0.

Just 4 minutes after the break Brian Whittaker lobbed one into the goal mouth and to his surprise found the back of the net. For a spell it looked as if R25 were going to make a fight of it; Lewis, who really tried to pull out all the stops in an effort to get his side back in the game, worked the ball through only to see his on-target shot strike a defender, rebound to Matthews who from close in, stroked the ball over the line to pull one back.

Back came C & A and only a timely interception by goal-keeper Farr, whipped the ball away from the head of Lawes as the C & A striker was posed to steer the ball home. Later the same player, with only the keeper to beat, saw his angled shot strike the far post and rebound clear.

The cup, statuettes and medals were presented to the winners and runners up by Mr Les Patton of the R18 Electrical Workshop.

**FILM SOC 11** In addition to their main programme the AERE Film Society organises three other types of show one of which is Film Soc 11. This was set up to look at 'Cinema' as an art form in more detail. This season Science Fiction is under the microscope and there will be four shows, on Tuesday evenings at 7.45 pm in the Rutherford Laboratory Lecture Theatre. Subscription £1 for the four shows.

The first, on 12 November is entitled "The Man with the X-Ray Eyes" (Roger Corman) in which Ray Milland experiments on himself to extend the effective range of his eyesight - with uncontrollable results. A neat idea with some amusing tricks and an extraordinary - not to say - horrific - final sequence. Corman indulges his particular fondness for the exuberant use of colour. The film is concise, confident and not one ounce overweight.

**CHRISTIAN FELLOWSHIP** Meetings as usual on 8 and 15 November at 12.30 in the Conference Room, R12. All are welcome.