



# 18 February-4 March 1974

## bulletin 4

### VISITS BY PARLIAMENTARY CANDIDATES

The three candidates for the Abingdon constituency will address members of staff in the Lecture Theatre on the following dates -

|                               |   |                 |   |              |
|-------------------------------|---|-----------------|---|--------------|
| Tuesday 19 February, 12.45 pm | - | Denis Moriarty  | - | Labour       |
| Thursday 21 February, 1.00 pm | - | Michael Fogarty | - | Liberal      |
| Monday 25 February, 1.00 pm   | - | Airey Neave     | - | Conservative |

### CONFERENCE ON QUANTUM GRAVITY

A two-day Conference on Quantum Gravity is being held at the Rutherford Laboratory on Friday and Saturday, 15 and 16 February. The full programme is given in 'Internal Events'. About 110 participants are expected so there should be plenty of room for any members of the Laboratory wishing to attend individual sessions. Talks which may be of special interest are those by S W Hawking and J A Wheeler.

### MEDICAL TALK

The talk on the Proposed High Blood Pressure Studies which was to be given on Wednesday 13 February had to be postponed. It is hoped to arrange a new date shortly. If this new date occurs before the next Bulletin is issued it will be shown on the Lecture Theatre notice board in the Coffee Lounge, otherwise details will be published in the next, or appropriate Bulletin.

### NATIONAL SAVINGS CERTIFICATES - SALARIES CYCLE ENDING 28/2/74

Certificates can be collected from the Cash Office, R20 from 1 March 1974 onwards. New members wishing to join the scheme can obtain enrolment forms from the Cash Office. Forms must be returned not later than 5 March 1974.

### OPPORTUNITIES FOR FELLOWSHIPS AT CERN DURING 1974-5

The latest information can be obtained from the Personnel Group, Room 68, Building R20.

### FILM BADGE NOTICE

It is now Period 2. Colour Strip - BROWN for 8y films.

The next film issue will be on Monday 25 February.

### LOST AND FOUND COLUMN - CORRECTION

Under this title the previous Bulletin recorded the loss of a Hewlett Packard HP35 Pocket Calculator. The serial number was wrong - the correct number being - 1143 A 43886. (No - it was not a typing error - Ed.)

### CONFERENCE NOTICE

The fourth International Conference on Vacuum Ultraviolet Radiation Physics will be held from 22-26 July 1974 at the newly opened Congress Centrum in Hamburg. The conference will comprise experimental and theoretical contributions from the fields: optical properties of atoms, molecules and solids, characteristic energy loss of electrons, photoemission, luminescence, appearance potential spectroscopy and instrumentation. The scheduled date fits just between the 12th International Conference on the Physics of Semiconductors (15-19 July, Stuttgart) and the International Conference on X-Ray Processes in Matter (29 July - 1 August, Helsinki), but coincides with the 4th International Conference on Atomic Physics (22-26 July, Heidelberg). Co-ordination of subjects will be made with the organizers of the Heidelberg Conference to allow interested people to attend both conferences. Further information from the Editor.

### QUEEN ELIZABETH II FELLOWSHIPS IN PHYSICAL & BIOLOGICAL SCIENCES

The Queen Elizabeth Fellowships are awarded each year for full-time research by young scientists of exceptional promise and proved capacity for original work. These are post-doctoral awards tenable in an Australian University or approved research institution normally for two years. Further information from Training Section, Ext 266/555.



# INTERNAL EVENTS

## QUANTUM GRAVITY CONFERENCE Friday & Saturday 15 & 16 February Lecture Theatre

The Conference Programme is as follows:-

### FRIDAY 15 FEBRUARY

| Time  | Speaker     | Title                  | Chairman    |
|-------|-------------|------------------------|-------------|
| 11.00 |             | Coffee                 |             |
| 11.30 | C J Isham   | Introductory Survey    | D W Sciama  |
| 14.30 | S W Hawking | Black Hole Explosions  | J G Taylor  |
| 16.30 | M J Duff    | Covariant Quantization | J G Taylor  |
| 19.30 | Abdus Salam | To be announced        | J A Wheeler |

Lunch at 13.00, Tea at 14.00 and Dinner at 18.00, Finish at 21.00

### SATURDAY 16 FEBRUARY

|       |                 |                                      |              |
|-------|-----------------|--------------------------------------|--------------|
| 10.30 |                 | Coffee                               |              |
| 11.00 | R Penrose       | Twistor Theory - Aims & Achievements | T W B Kibble |
| 12.15 | G Sparling      | Calculating Twistor Diagrams         | T W B Kibble |
| 14.30 | M A H MacCullam | Quantum Cosmology                    | Abdus Salam  |
| 16.30 | J A Wheeler     | Summary & Prospects                  | Abdus Salam  |

Lunch at 13.00 and Tea at 16.00. Finish at 18.00

## NIMROD LECTURE SERIES Monday 18 February 11.30 Lecture Theatre

A Model for Fixed Angle pp Scattering

Dr I Halliday/Imperial College

## HEP SEMINAR Wednesday 20 February 11.00 Lecture Theatre

Some Ambiguities of the Multi-Regge Model

W Zakrzewski/Durham

## APPLIED PHYSICS LECTURE Wednesday 20 February 14.15 Lecture Theatre

Progress on the 400 GeV European Synchrotron (SPS)

N M King

## NIMROD LECTURE SERIES Monday 25 February Time not fixed Lecture Theatre

At the time of going to press no firm arrangements have been made so please watch notice boards for further information.

## HEP SEMINAR Wednesday 27 February 11.00 Conference Room, Building R1

The Mystery of the Disappearing Masses: Accidental Symmetries and Pseudo - Goldstone Bosons.

H Danskin/Imperial College

## SEMINAR IN COMPUTING Friday 1 March 11.00 Conference Room, Building R12

High Level Assemblers

C Adams and A Bell/RL

A high level assembler is a language which provides the convenience of other high level languages (e.g Algol) and yet allows access to all the machine's basic functions. Discussions will centre around PL516 and Babbage, plus a new high level assembler written by C Adams for the GEC 2050.

## NIMROD LECTURE SERIES Monday 4 March 11.30 Lecture Theatre

Identifying Secondary Particles at SPS Energies: a New Approach (ISIS)

Dr W Allison/Oxford

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## EVENTS AT HARWELL

19 February  
26 February

21 February  
28 February

THEORETICAL PHYSICS SEMINARS/CONF. RM. BLDG. 8.9 - 14.00 hours  
Photo Detachment of Alkali-Negative Ions and Electron Affinities-Dr D Moores/UCL  
The Modelling of Reactor Fuel Materials - Dr J L Head/Imperial College  
NUCLEAR PHYSICS COLLOQUIA/CONF. RM. HANGAR 8 - 15.30 & 14.00 respectively  
Physics Considerations of Thermal Reactors Pertinent to Safety-Dr J R Askew/Winfrith  
Physics of Safety in Fast Reactors - Dr A Baker/Risley (at 14.00 hours)



# EXTERNAL EVENTS

## OXFORD UNIVERSITY

- ELEMENTARY PARTICLE PHYSICS SEMINARS/NP LAB - 14.30 hours  
 21 February: Muon-Proton Scattering at NAL - Dr T Quirk/Oxford.  
 28 February: The Analysis of the Reactions,  $\pi N \rightarrow N \pi$  - Dr R Cashmore/Oxford
- THEORETICAL PHYSICS SEMINAR/CLARENDON LAB - 16.15 hours  
 21 February: Thomas-Fermi Theory - Dr G S Handler.
- THEORETICAL ASTROPHYSICS SEMINARS/SOUTH PARKS ROAD - 1430 hours  
 18 February: Some Gasdynamical Effects of Supernovae on the Interstellar Medium -  
 P Gulliford/Manchester.  
 4 March: Transport Properties of Neutron Star Matter - N Itoh/Cambridge (note change).
- NUCLEAR PHYSICS & NUCLEAR ASTROPHYSICS SEMINARS/NP LAB - 14.30 hours  
 25 February: The Explosive CNO Cycle - Dr J Audouze/Orsay.  
 4 March: Nuclear Orientation, NMR and Ion Implantation Experiments in the Clarendon -  
 Dr P T Callaghan/Clarendon Lab.
- LOW TEMPERATURE & SOLID STATE PHYSICS SEMINAR/CLARENDON LAB - 14.30 hours  
 21 February: Topics in Non-superconducting Electron Tunneling Spectroscopy -  
 Prof E L Wolf/USA.
- COLLOQUIA/CLARENDON LAB - 16.15 hours  
 22 February: Mountain Building Viewed as a Thermal Event - Dr S W Richardson/Oxford.  
 1 March: Ultra Heavy Cosmic Rays - Prof P H Fowler/Bristol.
- CHERWELL-SIMON LECTURE/LECTURE THEATRE, UNIVERSITY MUSEUM - 16.30 hours  
 8 March: Inner Space - Prof N F Ramsey/Harvard University (Eastman Visiting Professor).

## QUEEN MARY COLLEGE

- THEORETICAL PHYSICS SEMINARS - 16.15 hours  
 18 February: Some Results on the XY Model - Dr D B Abraham/Oxford.  
 25 February: Band Theory for Random Metallic Alloys - Dr B L Gyorffy/Bristol.

## BRISTOL UNIVERSITY

- PHYSICS & GEOPHYSICS COLLOQUIA - 1700 hours  
 18 February: Liquid Crystals at the Molecular Level - Dr G R Luckhurst/Southampton.  
 25 February: Neutral Currents and the Unification of Weak Interactions and  
 Electromagnetism - Prof D H Perkins/Oxford.  
 4 March: Dislocations in Wave-Trains and Radio Echoes from Ice Sheets -  
 Prof J F Nye/Bristol.

## MANCHESTER UNIVERSITY

- THEORETICAL PHYSICS SEMINARS - 14.30 hours  
 20 February: Calculations of Potential Energy Surfaces for Simple Chemical Reactions -  
 Dr G Balint - Kurti/Bristol.  
 27 February: Coupled Mode Scattering Theory - Dr E R Pike/RRE Malvern.

## READING UNIVERSITY

- APPLIED PHYSICAL SCIENCES COLLOQUIA - 16.30 hours  
 20 February: The Climate of the Earth - Brian Hoskins/Reading.  
 27 February: Contributions of Science and Technology to Peace Research - Prof R W Ditchburn.
- PHYSICS COLLOQUIA - 1700 hours  
 25 February: Beams of Molecules, Atoms and Nucleons - Prof N F Ramsey/Oxford.  
 4 March: The Enhancement of Optical Images - Mr P Levy/Reading.

## ROYAL HOLLOWAY COLLEGE

- APPLIED MATHEMATICAL SEMINARS - 1500 hours  
 21 February: Towards a Unified Theory of Hadron Collisions - Dr K J M Moriarty/Holloway.  
 28 February: Resonance Processes in Simple Molecules - Dr C Bottcher/Manchester.
- HIGH ENERGY PHYSICS SEMINARS - 15.00 hours  
 19 February: A Gauge Theory of the Weyl Group - Dr J M Charap/OMC.  
 5 March: Unified Gauge Theories - Dr G G Ross/RL.

## DARESBUURY LABORATORY

- DARESBUURY LECTURE SERIES - 14.00 hours  
 26 February: Processes at Large Transverse Momentum - P V Landshoff/DAMTP, Cambridge.
- THEORETICAL PHYSICS SEMINARS - 14.00 hours  
 25 February: The Usefulness of High Energy  $e^+e^-$  Colliding Beams - Dr A McDonald/Oxford.  
 4 March: Energy - Resources, Economics and Technology - Dr R J Eden/Cavendish.

### 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  
Rutherford Laboratory  
Chilton Didcot Berks  
Abingdon 1900 Ext 484



# TELEPHONE DIRECTORY AMENDMENTS

## ADDITIONS

|                   |          |     |         |         |
|-------------------|----------|-----|---------|---------|
| SAXON DR D H      | 248/6236 | RI  | 1.67    | HEP BCR |
| BLOODWORTH DR I S | 6153     | RI  | 1.45    | HEP     |
| GOPAL DR G P      | 243/6362 | RI  | 1.66    | HEP BCR |
| MILDNER D F R     | 6145     | R20 | 85      | NBRU    |
| GREGORY MRS M A   | 6226     | AL  | LIB.    | USGR    |
| WOOLFORD MISS L M | 6640     | AL  |         | OPBR    |
| CARLILE DR C J    | 6686     | R20 | 85      | NBRU    |
| JENNINGS D N      | 360      | RI  | 230/195 | CA OPS  |
| FORMANEK J        | 444      | RI  | 2.47    | THEORY  |
| HARRINGTON MRS R  | 6143/525 | R20 | 73      | ADM     |
| DAVIS MISS A C    | 6630     | RI  | G53     | HEP VIS |
| EDWARDS DR T R M  | 370      | RI  | G54     | HEP VIS |
| GROVER M G        | 360      | RI  | COMP.   | CA      |
| HATHWAY A         | 6104     | AL  | 27      | AL ASGR |

## ALTERATIONS

|                              |                 |                    |
|------------------------------|-----------------|--------------------|
| HODGSON C                    | delete 6647 R9  | add 563 R18        |
| KILVINGTON A I               | " 3911 Wantage  | " Lambourn 71826   |
| JACKSON B J                  | " 6686 RI 2.02  | " 490 R20 rm 41    |
| EASTWOOD A W                 | " NIM EF        | " 6267 NIM/OEE     |
| JACKSON W A                  | " WC            | " WA               |
| ELLIS J E                    | " 425 RI Lab 5  | " 502/478 R2 G3    |
| MILNE J D                    | " 6260          |                    |
| SIDLOW R                     | " 294 R25 13    | " 6112 R50 rm 13   |
| BENDALL R G                  |                 | " 318              |
| BRADY B G                    |                 | " 318              |
| SMITH K M                    |                 | " 502              |
| EMPEIGNE L R F               | " 6334          | " 6689             |
| WIGNALL DR J W G             | " 248/6238 1.67 |                    |
| BRISTOL/RL (K15 BEAM OFFICE) | " 6340 6247     | " 212 G59, 370 G54 |
|                              | 218/6153 R55    | 6630 G53           |

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## NEWS FROM LRL

The October/November issue of 'The Magnet', the journal of the Lawrence Berkeley Laboratory carries an interesting story on a new low temperature engine which could have tremendous importance in the search for new energy sources. Named after its inventor, the Banks engine capitalizes on a little known metal dubbed Nitinol, an inter-metallic compound of nickel and titanium, which when heated above a threshold temperature will forcefully spring back to a previously imprinted shape. Only slight differences in temperature are needed to produce useable energy as the materials 'memory' of its previous shape is alternatively activated by heating and deactivated by cooling. The first working model, admittedly primitive, has been running at about 70 r.p.m since it was assembled in August last and has, so far shown no fatigue after over one million revolutions. Anyone interested in reading the article should contact the Editor, Ext 484, R20.

## OVERSEAS VISITS

Dr M R Jane, to CERN, 19-22 February, for discussions on neutron counter calibration experiment.

The Director, Mr D A Gray and Dr D J Baugh, to CERN, 21-22 February, to attend Plenary ECFA Meeting.

Dr R P Worden, to the USA, 23 February - 6 April, to work with the theory group at Cal Tech and at the University of Michigan.

Dr W T Toner, to CERN, 24-27 February, to attend SPSC open meeting on spectrometers and to have discussions on possible future use of RMS at CERN.

Dr R D Peccel, to Meribel France, 28 February - 10 March, to attend IX Rencontre de Moriond meeting.

Mr H Hurst, to Amsterdam, 26-28 February, to attend Conference on 'Computer Security 74'.

Dr R G Roberts, to Meribel France, 1-9 March, to visit and participate in IX Rencontre de Moriond meeting.

Dr G V Guy, to CERN, 4 March, to work on experiment with Turin and CERN.

## SOCIAL NEWS

### CHRISTIAN FELLOWSHIP

Friday 22 February: All are welcome to attend this meeting which will be led by the Rev. Norman Baker of Didcot Methodist Church. The venue is the Conference Room, R12 and the time 12.30 pm.

Friday 1 March: This months prayer meeting will be led by Graham Robinson of Atlas. All are welcome to come along and the meeting commences at 12.30 pm in the Conference Room, R12.