

LABNEWS

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CLRC Notices

The Enterprise Forum

22 April 10am
The human failures in decision making and
Protecting the Organisation
(the talks are split by coffee at 11am)
Brian Joff, Marsh & McLennan
DL Merrison Lecture Theatre

28 April 10.30am

Communications issues for science based companies
Judith Hahn and John Exelby, The Media Advantage
RAL Pickavance Lecture Theatre R22, video-linked to DL

RAL Notices

RAL lectures

All lectures are held in the Pickavance Lecture Theatre at 3pm.

1 Apr
Beagle 2 - a voyage of discovery
Professor C Pillingier, Open University

22 April
Chaos in physical systems,
Professor Tom Mullin, Manchester University

Rutherford Appleton Laboratory Christian Fellowship
"He has risen."
April

8 April
Worship and Prayer
15 Bible theme: the life of Jesus, His resurrection
22 Bible theme: the life of Jesus, His ascension
29 Topic to be arranged

All meetings are held at 12.30 in CR11, R3 unless otherwise stated.



You are warmly invited to attend any of the meetings. In particular, the new series on the life of Jesus may be of interest if you do not normally attend. For further information, please contact Jonathan Wheeler, R27, ext. 5189.

Gilbert and Sullivan

Abingdon Operatic Society are performing "The Sorcerer" at Arney Hall, Abingdon 12 - 17 April at 7.30pm. Tickets can be obtained from Newbury Building Society, Abingdon or by phoning 01865 730301.

DL Notices

DCI seminars

All seminars are held in Conference Room 1 at 2pm unless otherwise stated:

20 April
High resolution modelling of airflow over the Isle of Arran
Alan Gadian, Department of Physics, UMIST, Manchester

Structural biology seminar series

All lectures will be held in the Merrison Lecture Theatre at 2pm.

14 April
Shooting the messenger: an mRNA-degrading enzyme
Marilyn Symmons, Cambridge University

28 April
The structure of Alpha-toxin: a gangrenous tale
Claire Naylor, Birbeck College

ROSAT completes almost a decade of discovery

The most successful X-ray satellite ever, ROSAT, completed its very last observations before being switched off on 12 February 1999

having provided astronomers with a wealth of knowledge on previously unquantified X-ray sources for almost ten years.

Since its launch in 1990 ROSAT has achieved more than 9000 observations of a variety of objects (comets to quasars), sizes (black holes to clusters of galaxies), and ages (proto-stars to supernovae). ROSAT also performed the first high-resolution all-sky

astronomical surveys at X-ray and extreme ultraviolet (EUV) wavelengths. Commenting on its extended life, PPARC's Professor Ian Halliday said,

"This mission has been an outstanding success, scientifically and technically. Given that the satellite's initial life was anticipated to be two years, its performance throughout its eight years of operation is testament to the engineering capabilities of the collaborative team."

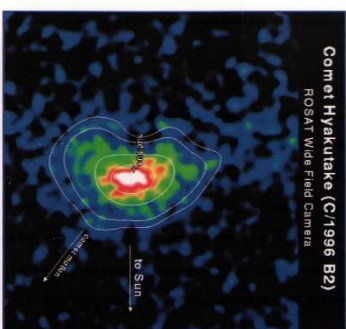
The German led space mission, with British and American partners, was designed to produce the first all-sky fully-imaging surveys in the X-ray and extreme ultraviolet parts of the spectrum. Astronomers from around the world were able to use the satellite by virtue of its 'guest observer' programme, resulting in more than 4000 of them publishing over 3000

scientific papers on new discoveries - equating to one or more papers appearing in scientific journals every day.

ROSAT's UK Ground System Manager, Brian Stewart, who works at RAL commented, "RAL played a major part in the processing of data from the UK's Wide Field Camera. Over the nine years of operations there have been many periods of excitement - the very first source detected in the commissioning phase described as

'nearly' by Ken Pound (a name that has stuck), the detection of extended emission around the Vela Pulsar, and the detection of comet Hyakutake to name a few. There have also been lows particularly the two accidental pointing excursions towards the Sun albeit recovered by 7 years. The instruments separated from the first but, unfortunately, the second proved fatal."

Continued overleaf



Comet Hyakutake (C/1996 B2)

ROSAT Wide Field Camera

The ROSAT Wide Field Camera made the first ever extreme ultraviolet (EUV) image of a comet when it observed Comet Hyakutake on 27 March 1996. The observation was simultaneous with the X-ray measurements from the ROSAT High Resolution Imager. These X-ray/EUV images of a comet are remarkable because of the green - and quite unexpected - brightness, and the large changes in brightness over a few hours. This important discovery shows that there must be

previously unsuspected 'high-energy' processes taking place in the comet, probably due to the influence of the Sun's radiation on the solar wind. In addition to a bright 'core' of omission surround of the comet's nucleus, the WFC images show faint diffuse emission extending out to at least three-quarters of a degree from the centre of the comet nucleus, and forming an arc around the bright central region. Photo courtesy of Department of Physics & Astronomy, Leicester University.

Articles, ideas and letters are very welcome!
Articles to the Editor or Correspondent by 15th of the month.

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CLRC

COUNCIL FOR THE CENTRAL LABORATORY OF THE RESEARCH COUNCILS

ROSAT continued

"Many people have worked on the project at RAL over the years but, in particular, I don't believe it would have worked as well as it has without the efforts of Jack Gounley, Rita Blake and Martin Ricketts."

UK astronomers are now looking forward to the launch of XMM (X-ray multi-mirror telescope), the European Space Agency's next major X-ray satellite due for launch in January 2000, in which PRARC funded

Extreme Ultraviolet Astronomy with the Wide Field Camera on ROSAT

The Wide Field Camera (WFC) consists of a single telescope unit, and uses a set of three, nested, 'grazing incidence' mirrors, all forming an image on the same focal surface. The mirrors were constructed from aluminium and were gold-coated, using techniques developed jointly with British industry. The extreme ultraviolet (EUV) radiation is imaged in the focal plane

by a microchannel plate detector. Two areas pioneered in the WFC detectors were that the plates are curved (concave) and that the front surface is coated with a special 'photocathode' material (caesium iodide) to increase sensitivity. As with many telescopes, the best image from the mirrors is formed not on a plane (flat) surface, but on one which is curved. So the detector was curved to match, hence preserving the quality of the image over the whole field of view of 5 degrees diameter. Very thin metal and

plastic filters are used to define four, fairly broad wavebands, centred on roughly 10, 14, 20 and 60 nm. The filters are mounted in a motor-driven wheel, in front of the detector; one filter is used at a time, and can be changed as needed. The two shorter wavebands, 10 and 14 nm, were used to conduct the all-sky survey. To April 1998, the filter wheel mechanism, designed and manufactured at RAL, performed almost 200,000 filter-change operations with no problems!

UK research institutes are playing a major part.

For more images see URL: <http://redas-www.star.ac.uk/rfp/exhibition>

Inauguration of DL Occupational Health Centre

David Norman formally opened DL's new look Occupational Health Centre on 24 February 1999. As well as being completely refurbished the OHC has been redesigned to incorporate a nursing mothers' room and now boasts such amenities as a new audiology facility for improved hearing tests, and EEG and sprometry equipment for testing heart and lung functions. Together with a targeted range of proactive health care programmes and a voluntary health screening

programme, the Centre is well equipped to take occupational health at DL into the Millennium. The range of services on offer has also been extended to include a drop-in service between 8.30am and 10am each day, when employees can call in without an appointment to discuss any matter of concern with Occupational Health Nurse Cathy Jones, or seek advice on any non-urgent medical matter. Professor Norman took full advantage of his visit to the centre by taking up Cathy's offer of a free medical examination.

The DL Occupational Health team
Cathy Jones, Occupational Health Nurse (ext. 3234)
Dr Roy, Occupational Health Physician

DL9916/10 Prof Norman under pressure having his blood pressure measured by Cathy Jones Occupational Health Nurse



DL9916/1 Prof Norman 'removing the plaster' Pictured with Dr Roy, DL's Occupational Health Physician.

S&T

It never ceases to amaze me how much science is going on at CLIRC. There are scientists here who have taken pictures of earth-sized tomatoes on the Sun and others who can fabricate cantilevers the size of a human hair. At RAL, we have the world's most powerful lasers and a neutron source that is second to none. And did you know that colleagues at Daresbury have found out how Taxol, a chemotherapy drug used to fight breast cancer, really works? No, well you haven't been reading CLIRC's magazine *Science and Technology*.

The latest issue is now in the library. You can't miss it as it has a striking picture of polymer crystals on the front cover. You will see that the articles are aimed at a general audience but they do include some detailed science - the intention is not to trivialise. Copies of the magazine are sent all over the world - the readership extends to countries far and wide including China, Australia and Brazil.

As the editor of *Science and Technology*, I am on a constant lookout for good science stories. I want to tell the world of the fascinating research that is going on at CLIRC. To do this properly, however, I really need your help! If you have recently published a paper of which you are really proud, or are involved in some really 'real' science then tell me about it. Of course, every article has to be approved by you and your director before it gets published so don't worry about being misquoted or things being taken out of context.

I am looking forward to hearing from you. My extension at DL is 3519 or you can email me <ckielty@dl.ac.uk>

Carol Kielty



Healthy heart

An increased number of racing pulse rates around St Valentine's Day prompted staff from Occupational Health and the ambulance at RAL to consider the issues which keep hearts beating healthily and improve general fitness. During the event staff had the chance to have their blood oxygen levels measured. Good-hearted employees were also encouraged to compete in a quiz for a splendid basket of fruit kindly donated by Aramark - congratulations to Chris Knape - the winner. Occupational Health wish to thank everyone who participated in the event. If you would like to highlight any health topics, they would be pleased to hear from you.



Sylvia Jones (left) presents the fruit basket to Chris Knape (centre). Also pictured is Kal Pumpfroy (99RC1626)



Kal Heston (left) Reid's blood oxygen levels (99RC1610)

Chasing the shadow

The Sun was the star of the show at a lecture demonstration evening at the IOP on Monday 8 March. Two authoritative speakers explained what we can do to make the most of the once-in-a-lifetime event on 11 August 1999 when the sun will disappear from our skies during the total solar eclipse. CLRC exhibited at the event taking huge backlit images of the Sun during an eclipse and the structural model of CDS, part of the SOHO satellite.

Dr Francisco Diego from University College London explained what will happen during the eclipse, why it is so special and what scientists can learn from it. HJP (Douglas) Arnold, managing director of a specialist astronomy and space-flight photographic library and formerly head of public relations at Kodak Limited, demonstrated the best ways to photograph the phenomenon using a simple throwaway camera through to the most sophisticated digital equipment.

A total eclipse of the sun occurs when the moon comes directly between the sun and the earth so that the earth lies in the shadow of the moon. In August the moon's shadow will first appear on the earth's surface in the North Atlantic, moving east across the earth at an average rate that is over 100 times the speed of a grand prix car, and will cross Cornwall and the Channel Island of Alderney shortly after 11 am. The shadow then passes across mainland Europe, the Black Sea, the Middle East, Pakistan and India and finally sweeps into the Bay of Bengal where it lifts from the face of the earth having travelled around 14 000 km in 3 hours and 7 minutes in the last total solar eclipse of this millennium.

CLRC and PPARC also jointly hosted an event called 'The Sun, the Stars and the Eclipse' for DTI Ministers and staff during SET week. Details next month.

Some fascinating facts about eclipses

During an eclipse the temperature can drop by 10 degrees. On average, there is a total solar eclipse visible from somewhere on the earth about every 18 months or so. From any one location on earth, however total eclipses are visible on average only once in several hundred years.

The last total solar eclipse visible from the UK mainland was on 29 June 1927. The path of totality crossed north Wales and northern England where the weather was mostly cloudy; totality only lasted 24 seconds.

The longest possible duration of totality during a solar eclipse is 7 minutes 31 seconds.

A total eclipse was visible from the very north of the Shetland Islands on 30 June 1954.

The next total solar eclipse visible on the UK mainland will be on 23 September 2090.

Galileo went blind from counting sunspots without protecting his eyes in any way.

Brian bows out



Brian (left) and Dr Westwood examine Brian's retirement card (99MC1630)

About 100 staff gathered to say farewell to Brian Davies, Director, Computation and Information on his retirement. Brian has worked at

either Daresbury or Rutherford Appleton Laboratories for 33 years, starting at Daresbury Laboratory in 1966, and moving to RAL at the end of 1984. During his career he has seen many computers come and go, including the IBM 360 in the early days, and more recently various Crays, Bert Westwood, when presenting Brian with his gifts, wondered why an expensive piece of equipment bought for other areas of the Lab would last 10 or even 20 years, but that the average lifetime of one of Brian's computers seemed to be about three years!

Brian was presented with a television (with the recommendation that it is permanently tuned to cricket test matches) and a cutter - we understand from Margaret, his wife, that the bathroom is only half-decorated; obviously, completing this project will be one of Brian's first retirement jobs. In recognition of Brian's time at DL, Jerry Hopkinson presented him with a memo from the Lab - an IBM system tape, and a paper tape from the 1960s. His memo from RAL was a copy of the picture that used to hang in his office.

Brian will be keeping his finger on the computing pulse as he will be spending some time in the immediate future working on virtual reality projects for the Laboratory.

Jacky Hutchinson

Ken Whittaker

Ken Whittaker recently retired from DL after 19 years. Ken started at the Laboratory in April 1979 and he was heavily involved in the NSF during his early years. Over the following years he was involved in the commissioning and maintenance of the SHe gas handling plant and, more recently, projects within SR. As well as his valuable contribution to work, Ken was also very involved with the social activities of the Laboratory. He was the Chairman of the Sports and Social Outings section, and Union representative on the Health and Safety, Catering and Benevolent committees. I'm sure everyone at the Lab would like to join me in wishing Ken and his wife June all the best in their retirement.

Jane Welborn

Ken (left) with Andy Dent (DL98/12714)



Safe students

Safety was on everyone's mind at an event jointly organised by the Institution of Occupational Safety and Health, the Esso Research Centre and RAL. The Schools' safety seminar set out to give A' level students an understanding of the underlying principles of health and safety in the workplace before they start full time employment.

The serious messages were presented in a number of practical (and fun!) sessions including a specially staged hazard-spotting exercise in one of the RAL workshops and an investigation into the causes of a catalogue of disasters shown on an earlier video. Facilitators became characters from the video and were on hand to answer questions, enabling the students to piece the accidents together. Points were awarded to the 80 students, working in teams of three, for each activity. The concluding part of the video was shown at the end of the day and prizes were awarded to the team with the highest score.

David Barlow watches his back in the dangerous workshop (99MC1394)



Jim Wells shows student Smith Lloyd the correct setup for a PC (99MC402)

Jim Wells, one of RAL's safety officers, commented after the event, "After initial reservations about the day, the students really got into it and enjoyed the various sessions a great deal".

Training update

Upgrade of RAL computing training facilities

The PCs in the RAL Computing Training Room and the classroom have now undergone a substantial upgrade. The machines in the training room are Vigena Genie 2 Pentium 2/350's, and the existing training set has been upgraded to match the new machines. This gives us the capacity to run courses in Office 97, programming courses and others by demand on both sets of machines. It also provides us with the extra capacity to handle any upgrades in the future. These facilities are also available for hire by departments with their own specific training needs.

APR 1998/9

APR season provides an excellent opportunity for staff and their line managers to discuss the work they have done over the last 12 months and future plans. An essential part of this discussion is training and I hope that you will take the opportunity to discuss your computing training needs with your manager. If you would like advice from RAL Computing Training please come along and we will do our best to help and provide the course you need.

Computing Training courses and the Office 97 upgrade

The upgrade to Office 97 is now well underway within CLRC and future training courses will be based on this version of Microsoft Office. RAL Computing Training plan to provide a workshop to demonstrate the features of the new versions of Word, Excel, Access, PowerPoint and Outlook to help CLBO users learn how to make best use of Office 97. It will be most beneficial to existing users of Microsoft Office who can attend the workshop with their immediate colleagues. Group leaders, in particular, are encouraged to contact me to discuss how the Office 97 workshop can be tailored for the particular requirements of their staff and presented as a group event. The suggested format is a half-day workshop for small groups of CLBO users with instruction provided by the trainers, and follow-up support by CLBO support staff.



PPARC commit £3 million for cutting-edge research

PPARC have announced a £3 million fund (the PPARC Opportunity) for truly new and innovative research projects in astronomy, planetary science and particle physics.

"This is a unique opportunity for our science community," said Professor Ian Halliday, PPARC Chief Executive. "We are actively encouraging originality and creativity. We are looking for projects that will push scientific research to its very limits and position the UK at the forefront of tomorrow's research". PPARC are particularly keen to encourage proposals from less experienced researchers and from those that do not normally have the option to apply for grants, such as researchers employed on short term projects.

Projects must be exceptional and capable of demonstrating their potential for new science of the highest international quality. It is expected that proposals will be for projects somewhat larger than might normally be funded through research grants, although there is no lower limit to the amount that can be requested. The awards will be made as standard grants of up to 3 years. Proposals will be judged against criteria based on those agreed by the Science Committee for PPARC projects.

- * Quality of science
- * Uniqueness and originality
- * Timeliness and urgency of science
- * Balance of risks against benefits

There will be a single competition with a closing date of 30 June 1999. For an application form or for further information please email <gma_miller@pparc.ac.uk>



Respect was the name of the bear correctly guessed by Monica Brown who won in Sales Contracts at RAL. The 'name the bear competition' was organised by Marie Curie Cancer Care and raised £101 for the charity (0993C1569)

Radio interviewing

Training Section is organising a media interviewing training day on Friday 14 May at RAL.

This course gives you the opportunity to practise radio interviews, so would benefit anyone whose project is likely to become newsworthy in the next few months. Georgia Ferry, who used to report for Radio 4's Science Now programme before the BBC axed it, runs the course - aided and abetted by Peter McIaryre, who does a very good impression of an average local reporter with zero knowledge of science. These journalists often ask questions that are notoriously difficult to answer within 40 seconds ... like "What does this laser actually do then?"

Apprentices awarded

A special event held at Daresbury on Tuesday 16 February celebrated the successful completion of four year craft training by three DL apprentices: Steven Pugh-Jones, Christopher Blackwell and Mark Pendleton were each awarded with their completed indentures and an engraved pewter tankard by Gordon Walker at the event, which was also attended by Neville Snodgrass (Chairman of the CLRC Apprentice Scheme), parents, and many of the staff involved in apprentice training at the Laboratory.

Local discounts

If you are a full member of the Recreational Society, you can enjoy a range of discounts at shops and other venues by showing your CSSC membership card.

The Oxford Playhouse is giving a 10% reduction for selected performances. Phone the box office for details on 01865 798600. Two Oxford sports shops are also giving a 10% discount. The shops are Physical Presence, 184 Cowley Road, and Elmer Cotton Sports, 18-19 Turl Street.

The Gym at 381 Cowley Road also offers a reduced rate of annual membership at £300 instead of the usual £380. For more details see the Rec Soc noticeboard by the Library in R61.



Please let Mary Carnes in Training Section (RAL ext. 6018) know if you're interested in the course, or contact Jacky Hutchinson on RAL ext. 6482 if you want more information on the course's content.



Helen Walker appeared on the popular 'Sky at Night' programme in March. Patrick Moore interviewed Helen about what happens when stars go out - starting with relatively young stars like our Sun, through main-sequence stars, to old age as white dwarfs.

RAL staff may be interested to know that they can see Patrick at The Corn Exchange Theatre, Newbury, on 8 April where he will be talking about a variety of space-related topics. Photo courtesy Helen Walker



From left to right: Neville Snodgrass, Mark Pendleton, Christopher Blackwell, Steven Pugh-Jones and Gordon Walker (DL991316)

Susan C Hillon (D+)
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FORTHCOMING COURSES	
APRIL	
16	NT4 for new users
21	PowerPoint for new users
22	Word for new users
23	Word for secretaries and administrators
26-27	MS Project
26	UNIK workshop
27-30	Perl programming
28	Going further with NT4
29	Outlook courses
30	PowerPoint workshop
MAY	
4-5	Access for new users
6	Outlook
7	Access users
10	Excel for budget holders
11	Word for new users
12	Outlook
13	Introduction to Excel
17	Introduction to PowerPoint
18	Outlook
19	NT4 for new users
20	Going further with Word
24	Outlook
25	Going further with NT4
26	advanced Word
	Going further with Excel