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### Education Department Newsletter

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#### Undergraduate Bursary Scheme

The Institute will be making 300 bursaries available for students who intend to study physics at university at the start of the 2006 academic year. The enclosed leaflets Thinking about Physics provide information about physics at university and provide a web address for the Institute's Bursary Scheme: [http://learningphysics.iop.org/beyond\\_school/university/ubs.htm](http://learningphysics.iop.org/beyond_school/university/ubs.htm)

The aim of the Undergraduate Bursary Scheme is to increase the numbers of physics undergraduates, with an emphasis on encouraging those students who do not traditionally choose physics or those who might otherwise be deterred from university entry by financial constraints.

Bursaries are available only for those starting on an Institute accredited degree programme in 2006. They are not available to existing students. Participating university physics departments, which are listed on our website, will be given a quota of bursaries and will make their own local arrangements for the awards subject to the Institute's rules and guidance on the criteria for the bursaries.

Once awarded, the bursaries would continue over the length of the degree programme, so long as the student remains in attendance. The overall amount awarded is £3000 for a BSc and £4000 for an MPhys/MSci. At this level, for standard courses in England, Wales and N Ireland, the bursaries will be equivalent to £1000 per annum for each student. Where degree courses are longer than the standard English 3-year Bachelors and 4-year Integrated Masters, the annual payment will be less. Eligibility is restricted to UK and Irish nationals attending Institute of Physics accredited degree programmes in the UK and Ireland.

We would be very interested to receive any feedback on any impact that the bursary scheme has on your students. Also included is a new version of the *How Far with Science* Leaflet if you want any additional copies of leaflets please contact [education@iop.org](mailto:education@iop.org)

#### Other News

##### Schools Lecture

The 2005 Institute of Physics Schools' lecture, "Our Planet - Our Future", discusses sustainability and the ways in which science and technology are helping us to understand the impact that human life has had on the planet. The enclosed CD of the lecture has a list of resources that you might find helpful when planning to teach about sustainability. To encourage you to give us your feedback on the CD we are running a free prize draw to win a £50 Amazon voucher, to enter go to [www.scenta.co.uk/schoolslecture](http://www.scenta.co.uk/schoolslecture)

Our Planet, Our Future is still touring and throughout this term will be visiting York, Leeds, Salford, Sheffield, Hull, Darlington, Liverpool, Warwickshire, Guildford, Hampshire, Winchester, Cumbria and London. For dates and how to book see:

[http://teachingphysics.iop.org/events/student\\_events/schools\\_lecture/venues.html](http://teachingphysics.iop.org/events/student_events/schools_lecture/venues.html)

##### Physics Education Online

Did you know that, as an affiliated school, you can access Physics Education Online free of charge?

All you need to do is to go to <http://members.iop.org/> (can also be reached from the IOP home page via member services) and click on the Log In button. You will be asked for:

- a username, which is your membership id number
- a password, which is the surname of the school contact (probably you!)

This will enable you to search the archive for articles by topic or author; you can download articles as well as accessing the increasingly frequent online enhancements.

### **Teachers Awards**

Every year we celebrate the work of exceptional physics teachers with the Teachers' Awards. If you know a colleague, or a primary school teacher, who deserves recognition we would be delighted to hear from you. The closing date for nominations is 18<sup>th</sup> November 2005. For more details see [http://teachingphysics.iop.org/teacher\\_support/teacher\\_awards/index.html](http://teachingphysics.iop.org/teacher_support/teacher_awards/index.html) or contact Ms Gita Tailor, email: [gita.tailor@iop.org](mailto:gita.tailor@iop.org).

### **Moon Watch**

The Institute of Physics is inviting members of the public and amateur astronomers in the UK and Ireland to record sightings of the new crescent moon as part of a new initiative called Moon Watch. The aim of the project is to improve the accuracy of the computer model used to predict the date when each new crescent moon becomes visible.

Moon Watch – as part of Einstein Year – will refine the existing astronomical models by combining modern astronomy with recorded sightings of the new crescent moon which occurs roughly every 29.5 days. Data collected by the general public will be submitted to [www.crescentmoonwatch.org](http://www.crescentmoonwatch.org) for analysis by HM Nautical Almanac Office (HMNAO), who provide astronomical data for a variety of users including diary manufacturers and publishers.

Participants should look for the new crescent moon in the western sky immediately after sunset, using the unaided eye, binoculars or a telescope, and record their location (postcode), weather conditions, date, time and orientation of the crescent. For further information, please visit [www.einsteinyear.org](http://www.einsteinyear.org) and [www.crescentmoonwatch.org](http://www.crescentmoonwatch.org)

### **Email Lists**

The Education Department supports a number of email discussion lists designed to provide you with a forum to share ideas, ask questions and exchange views. Emails you send are sent to all list members and automatically archived.

- Physics Early Professional Development (PEPD) - for all science students in Initial Teacher Training, or in the early years of their teaching career.
- Physics Teaching News & Comment (PTNC) – for all those with an interest in the teaching and learning of physics.
- Scottish Physics Teaching News & Comment (SPUTNIK) - for debating the big issues facing physics teaching in Scotland as well as exchanging ideas.
- Northern Ireland Physics Teachers Group (NIPTG) - of interest to those teaching physics in Northern Ireland.
- Connecting Advancing Physics Teachers (CAPT) – intended for Advancing Physics Teachers to help and advise each other.

For details on how to join these discussion groups visit [http://teachingphysics.iop.org/teacher\\_support/email/index.html#ptnc](http://teachingphysics.iop.org/teacher_support/email/index.html#ptnc)

### **Looking for a physicist?**

Have you considered using Physics World to recruit new teachers at your school or college? As the membership magazine of the Institute of Physics, your recruitment advert in Physics World will be seen by potential candidates ranging from recent graduates with PGCEs, to heads of physics departments throughout the UK and Ireland. For advice on how Physics World can help with your recruitment needs, contact Moo Ali on 0117 930 1264.

### **Racing Academy - Free Physics/Engineering game download**

NESTAFuturelab and LateralVisions have developed a prototype PC Racing Car game for exploring physics and engineering. Futurelab are keen to see how students react to it, and how it might fit into teaching.

In the game players choose components for a drag racing car and then race the car against the computer. Playing the game and choosing the components involves interpretation of technical data and interpreting graphs, and evaluating performance. It makes students look for meanings of technical concepts and vocabulary. The aim is for students to start thinking and acting as engineers and working together on solutions and exchanging knowledge. It is suitable from Year 9 onwards. The Racing Academy prototype can be downloaded from [http://www.nestafuturelab.org/download/projects/racing\\_academy.php](http://www.nestafuturelab.org/download/projects/racing_academy.php)

### **Venus Express: Free Resources**

To mark the launch of the European Space Agency's Venus Express mission in October 2005, the Particle Physics and Astronomy Research Council (PPARC) is producing a cartoon-style poster and associated learning activities and the British National Space Centre (BNSC) is producing a set of lesson plans on the web. These are linked to national curricula and are available free. For information about these see [www.pparc.ac.uk](http://www.pparc.ac.uk) and [www.bnsc.gov.uk](http://www.bnsc.gov.uk).

### **The OECD Programme for International Student Assessment (PISA) 2006**

The OECD PISA survey of 15 year olds coming to the end of compulsory education benchmarks students' ability in reading, maths and science against their peers in the other countries. In 2006 the study will assess students' attitudes to science and test their understanding of fundamental scientific concepts and theories with regard to physical systems, living systems and earth and space systems, as well as their understanding of the nature of science as a human activity and the power and limitations of scientific knowledge. The study will also relate their performance to factors such as home background and attitudes to school work.

The study is carried out on a three year cycle. In 2000 the UK's results were generally above average, but reinforced concern about the wider variation in performance and the strong impact of pupil background on performance in the UK. Unfortunately in 2003 the UK data could not be used as too few schools agreed to take part in the study. Based on feedback from schools, measures have been put in place for 2006 to make participation easier. For example, the testing period has been moved from the spring term to the autumn and those schools selected to take part will be alerted much earlier. The hope is that this, plus better information on the purposes and importance of PISA, will increase participation rates. To find out more about PISA, go to: <http://www.pisa.oecd.org/>

### **What do fireworks, sour milk, dog's hair and creepy crawlies have in common?**

They are all part of a new Applied Science web resource for teachers from the British Standards Institution (BSI) which will have students learning how colour is put into fireworks, how to count the micro-organisms in milk to test for freshness, how to examine and compare human and animal hair and how to see the organisms that live under their eyelashes.

The new resource supports the Applied Science GCSE double award and aims to illustrate the importance of standard procedures in scientific work, by showing students how science is used in practical applications. Through classroom activities and group work students can have fun measuring the salt content in butter, identifying food dyes or testing the strength of tissues. See <http://www.bsieducation.org/Education/14-19/topic-areas/applied-science/default.shtml>

## **Events and Courses for Teachers and Technicians**

### **Physics Update Course for Practising Teachers**

Denys Wilkinson Building, University of Oxford.

The lecture component of the programme is devised to update participants on innovations in physics, both pure and applied, and in curriculum matters. "Hands-on" workshops afford teachers opportunities to try new equipment, develop new IT skills, learn new experimental techniques, try out novel investigations and engage with alternative teaching and learning strategies. The course commences on Friday 10<sup>th</sup> December at 12.30 and finishes at lunchtime on Sunday 12<sup>th</sup> December.

For further information please contact Leila Solomon at the Institute of Physics, email: [leila.solomon@iop.org](mailto:leila.solomon@iop.org)

## **The Rugby Meeting**

The Institute's Schools' Physics Group organises a one-day meeting each year at Rugby School. Physics teachers attend to find out about current issues and new developments in physics teaching. The 2006 meeting will be on Thursday 8<sup>th</sup> June.

## **Stirling Physics Meeting**

The largest meeting of the physics teaching community in the UK. This popular one-day event provides not only updating but also an informal forum for discussion of strategies and policies regarding science and physics education in Scotland. The 2006 meeting will be at the University of Stirling on 31<sup>st</sup> May.

Contact Details: [leila.solomon@iop.org](mailto:leila.solomon@iop.org)

## **ASE Annual Conference 5<sup>th</sup>-7<sup>th</sup> January Reading University**

Physics is well represented at the ASE's Annual Conference (nee Meeting). There will be an Institute stand in the exhibition area where you will be able to pick up posters and leaflets. There will also be a drop in room where you can take the weight off your feet and have a cup of coffee with other physics teachers. In the programme itself, the theme for the Thursday is Astronomy and Space; on Friday Professor Delpy will be giving the John Lewis lecture on Medical Physics, the Physics Education Editorial Board will be doing their annual riotous demonstration lecture and there will be a number of workshops and activities delivered by physics teacher network coordinators. See

<http://www.ase.org.uk/>

## **ASE Scotland Annual Conference: 'Increasing Engagement, Improving Achievement'**

It is taking place at the Erskine Bridge Hotel on 3<sup>rd</sup> and 4<sup>th</sup> March 2006 and will be the usual mix of talks, lectures and workshops. Keynote speakers include Professor Brian Boyd and Professor Paul Black. Further details should be available on [www.asescotland.org.uk](http://www.asescotland.org.uk)

## **Events for Students**

### **Physics in Perspective 2006**

In a period of just three days "Physics in Perspective" offers insights to the many different aspects of modern physical science. The 2006 programme includes topics from the cutting edge of physics, up-to-date applications in various technological areas and some 'fun' physics.

The dates for 2006 are 19<sup>th</sup>, 20<sup>th</sup> and 21<sup>st</sup> February

Venues:

- Sunday 19<sup>th</sup> February - University College London
- Monday 20<sup>th</sup> and Tuesday 21<sup>st</sup> February - Institute of Education, London

The programme contains six very exciting lectures and they demonstrates the way physics links with a range of other subjects – cybernetics, engineering, chemistry and sport to name but a few.

For further information contact Leila Solomon, Institute of Physics

Telephone: 020 7470 4821

E-mail: [leila.solomon@iop.org](mailto:leila.solomon@iop.org)

### **"Particles and the Universe"**

Professor Peter Kalmus will deliver the Einstein Year Christmas lecture for Sixth-forms at 2.00pm on 14<sup>th</sup> December at the University of Liverpool, Chadwick Physics Laboratory. He will explain particle physics and show how experiments at large accelerators help us to recreate some of the conditions of the early universe. Peter Kalmus is renowned worldwide for his schools' lectures. To book places for a group, please contact David Martin at [davidm@liv.ac.uk](mailto:davidm@liv.ac.uk) . Early booking is advisable!

## **University of Birmingham Events**

Evening Lectures intended for A Level physics students and teachers, the lectures are free and cover topics related to A level or of general interest. They will be on at 7.30pm on Oct 18<sup>th</sup>, Nov 8<sup>th</sup>, Nov 29<sup>h</sup> 2005 and Feb 7<sup>th</sup>, Feb 28<sup>th</sup> 2006.

Residential Physics Summer School July 12-13<sup>th</sup> 2006 for AS students studying Physics & Maths. More details at [www.ph.bham.ac.uk/prospective/schools](http://www.ph.bham.ac.uk/prospective/schools) under forthcoming events