

Introduction

Welcome to the new academic year. I hope you had a good summer break and that all your students got the results that they deserved.

Last term we sent out a questionnaire on the affiliated schools scheme. Many thanks to those of you who responded to the questionnaire; it is vital that we shape the scheme to match your needs. I am pleased to say that overall the feedback was very positive. A number of you requested resources for the new GCSEs, careers, photocopiable worksheets and more reviews and news. In response:

- We will shortly be publishing material that has been designed to support the new GCSEs.
- Next year we will be enhancing this newsletter with more news and reviews and the addition of resources/ideas for teaching.
- We have commissioned some new posters about how people use physics in their work

If you think there is an area where the Institute could do more to support you, I hope that you will let me know.

Daniel Sandford Smith
daniel.sandfordsmith@iop.org

NEWS

Physics Education

"I never think of the future, it comes soon enough," said Albert Einstein, so he clearly didn't edit a journal. *Physics Education* does like to think of the future and we hope to publish the following special features in future issues, hence we would welcome submissions connected with these themes:

- Electrostatics
- The teaching of energy
- Spaceflight
- Assessment

There are many ways in which teachers can (and do) contribute to the pages of *Physics Education*. Perhaps you've recently run a successful event that other teachers might like to hear about. So why not write a news item about it? Maybe you've got a great demonstration that you've never seen described anywhere else; spread the word by writing a short "Frontline" article. You might even be involved with some classroom-based research that's yielding interesting results. Papers are peer reviewed and we have an international readership, so if you're a world leader then *Physics Education* is the place to let everyone know. It's much easier to get good classroom ideas published than you probably think. If you would like to discuss ideas for contributions, please e-mail the editor: gary.williams@iop.org.

The Faulkes Telescope project

The Faulkes Telescope Project is now available to all schools in the UK for no charge. The project will also continue to offer teacher training at no charge, and can offer this training anywhere in the UK where there is sufficient demand. New initiatives with the project include increased support for all GCSE science/physics and A-level physics courses being available during the coming months.

During September, Faulkes Telescope North in Hawaii will have its maintenance completed, and one of the new features will be a new CCD camera that will have a wider field of view. In October we expect to be able to make Faulkes Telescope South in Australia available for schools for the first time. A whole new sky to look at! For more details, please see the project website at www.faulkes-telescope.com or e-mail david.bowdley@faulkes-telescope.com.

9 – 18 March 2007 – National Science and Engineering week

Science Week has now become Science and Engineering week. You might want to consider using one of the IOP/PPARC grants to run an event during the week. You can apply for grants of up to £400. See http://teachingphysics.iop.org/teacher_support/schoolgrants/index.html

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 17 November 2007. For more details contact Ms Gita Taylor, gita.taylor@iop.org.

Courses for Teachers & Technicians

Supporting Physics Teaching 11-14

The shortage of physics teachers has become acute over the last few years and the Institute of Physics has been instrumental in gathering evidence, assessing the impact of the lack of specialist teaching and addressing the shortage of physics teachers. It has addressed the shortage in two distinct ways: the first is the Physics Enhancement Project, which aims to broaden the base of suitably qualified entrants to the profession and the second is Supporting Physics Teaching 11-14 (SPT), which aims to provide professional development for those non-specialists who will inevitably be teaching physics in our schools.

You will find further information about SPT in the enclosed leaflet. SPT is primarily aimed at people with a limited background in physics so may not be of direct interest to you, although a number of physics teachers have commented that they have picked up some useful ideas and resources from the training. We would be very grateful if you could pass the details on to your colleagues who might be interested. We believe that the resource is most effective when used with expert to help answer some of the questions that arise. The Institute is trying to provide training using the CD-ROMs, to find out if there is training in your area, visit the website [http://www.iop.org/Our Activities/Schools and Colleges/index.html](http://www.iop.org/Our_Activities/Schools_and_Colleges/index.html) or e-mail spt@iop.org.

8 – 10 December 2006 – Physics Update Course, Cambridge University

Physics Updates are two-night / three-day residential courses for physics teachers. 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 8 December and finishes at lunchtime on Sunday 10 December.

30 March – 1 April 2007 – Physics Update Course, University of Birmingham

Date for your diary: application forms for this course will be sent out in January 2007.

24 – 26 November 2006 – Visit CERN

This is a great opportunity to visit CERN – particularly with the opening of the LHC coming up next year. You can see for yourself the work going on there, update your knowledge of particle physics and meet physics teachers from

across Europe. As previous delegates will tell you it is a memorable experience (see, for example, the report by Andrew Shipley in *Physics Education*, Sept 2004) and not to be missed.

Conference fees and accommodation costs are met by CERN and PPARC will provide up to £150 towards the cost of travel to Geneva for UK teachers selected for the event. Details will shortly appear on the web at

<http://public.web.cern.ch/Public/Content/Chapters/Education/TeacherProgrammes/TeacherProgrammes-en.html>

Teacher Network Sessions

28 June 2007 – The Annual Liverpool Physics Teachers' Conference

This popular and informative free event for physics teachers will be held at the University of Liverpool. Speakers cover a range of topics interspersed with discussions and hands-on activities, and opportunities to question a panel of physicists. For information and downloads see:

<http://www.liv.ac.uk/~iop/PTC/index.html> or e-mail Dr Steve Barrett for more details: s.d.barrett@liverpool.ac.uk

12 October 2006 – Glasgow Science Centre

Will include physics teaching ideas and hopefully a Curriculum for Excellence update, contact: ronnamontgomery@mail.physics.org

26 October 2006 (18:30 - 20:30) – Grosvenor Hilton, Edinburgh

A Curriculum for Excellence - 15-18 Update, *More Teaching Ideas*. Distribution of CD of Materials. Contact: tom.balanowski@wled.org.uk

For Students

Schools Lecture Series 2006: Gravity, Gas and Stardust

The schools lecture continues during the autumn term. For details of venues see [http://www.iop.org/Our Activities/Schools and Colleges/index.html](http://www.iop.org/Our_Activities/Schools_and_Colleges/index.html)

18 – 20 February 2007 Physics in Perspective – Study Course for 6th Formers

Physics in Perspective is a three-day course for sixth-formers and college students, run each January/February in London, with the purpose of bringing to participants some of the excitement, relevance and fun of physics. It consists of a series of six lectures, or lecture-demonstrations, by eminent speakers and is held at London University colleges. Free time is scheduled in to allow participants an opportunity to explore other aspects of London. Further information can be obtained from Leila Solomon e-mail: leila.solomon@iop.org

Physics and Enterprise

The Institute has worked with the By Design Group to develop an enterprise day for students. The Enterprise of Physics day brings an exciting and science based theme to the delivery of Enterprise education. Dealing with the key areas of teamwork, communication skills, creative thinking, entrepreneurial skills, business planning and best practice, sales and marketing, the power of advertising, finance and practical target setting, the day is split into a number of highly engaging and interactive workshops. The science themes are interwoven with the delivery of the Enterprise curriculum ensuring that the audience fully appreciates the entrepreneurial aspects and opportunities afforded by physics. Affiliated schools are entitled to a 10% discount on the normal cost of the day. For more details, see the enclosed leaflet or http://www.bydesign-group.co.uk/lbd/news_26.php

11 December 2006 – Sixth-form Christmas lecture, University of Liverpool

Extra Galactic Planets: Extreme E.T.? Dr Andrew Newsam. The "bending" of light by gravity has long been understood, and using so-called "gravitational lensing" to study otherwise invisible objects in our galaxy is now common. However, the development of new kinds of robotic telescopes makes it possible to study lensing effects deep in the core of our neighboring galaxy, Andromeda. The lecture will describe how the most ambitious extra-galactic lensing project to date may even make it possible to find extra-galactic planets! Contact David Cox by e-mail: davidcox@physics.org.uk

15 March 2007 – Showcase Science

Calling all science teachers to bring groups of A-level students to this highly proactive one-day event with a difference at which students can elect to give either poster presentations or verbal presentations alongside leading luminaries in the fields of science and technology. Showcase Science is an educational conference aimed at pre-university students with the purpose of enthusing them about science and encouraging them to study pure and applied sciences at university and to continue with it in their careers.

Travel and accommodation bursaries are available for individual students and school groups. Further details and registration information from: Dr Mo Afzal, tel: 01926 735 466, e-mail: ma@warwickschool.org

Ireland

'Superstrings' – a science week event that will combine science and music in lectures and recitals, given by Prof. Brian Foster, Oxford University and Mr Jack Liebeck, violinist.

Tyndall Lecture for schools Ireland 2007. Dr. Mark Lewney of the UK Patent Office will be delivering his inspirational and amusing talk Rock Guitar in 11 Dimensions: Strats, Strads and Superstrings.

For further details see <http://ireland.iop.org/>

A-level Physics Student Study Day

An opportunity for students to experience the importance and excitement of modern physics with the help of a mobile phone, a rock guitar, ultrasound, a gherkin and even a spider. Organised by the training partnership at the Institute of Education in London on 22 Nov and 7 Dec, ticket price £14. e-mail: training.partnership@btinternet.com

P.S.

Stimulating Physics

The Higher Education Funding Council for England (HEFCE) has awarded the Institute of Physics £1.8m to increase the numbers of students studying physics-based courses in higher education institutions. A significant element of this project is focused in schools. Over the next two years the Institute will be working with small clusters of schools to explore ways of encouraging greater take up of physics. For more information, see www.stimulatingphysics.org

Girls in Physics

The Institute recently published a review of the research into why more girls do not study physics post-16. The report is available online in the 'making a difference' section of the Schools and Colleges webpages, under 'policy'. If you would like a hard copy please contact Gita Tailor: gita.tailor@iop.org. Later this term we will be publishing a guide for teachers that suggests how some of the research might be put into practice in the classroom.