YOUR NEWS WANTED

The news section gives updates on what has been happening in physics education worldwide. Items included show how events in one country could be relevant to good practice elsewhere in the world. Contributions are welcome from all of our readers. They should be about 200–300 words long and can include pictures. Please send your news items for the January issue of Physics Education *to ped@iop.org before 12 November 2004.*

ASTRONOMY

Trust founder receives heavenly honour

It's the 47 144th rock from the Sun. Well...not exactly, but minor planet 1999 PY (discovered on 7 August 1999 by Jana Tichá and Miloš Tichý at the Klet Observatory in the Czech Republic) was the 47 144th to be officially recognized as such by the International Astronomical Union.

At a ceremony in July at the Spaceguard Centre on a windswept hilltop in mid-Wales, this particular rock was renamed (47 144) *Faulkes* in honour of Martin ('Dill') Faulkes, founder and CEO of the educational trust bearing his name that has recently funded the installation of two 2 m robotic telescopes for schools in Hawaii and Australia.

One of the main thrusts of the trust is to engage youngsters in the tracking and possible discovery of asteroids, a process that will be more meaningful now that the Faulkes Telescope North on the Hawaiian island of Maui – having proved its competency – has received its very own observatory code (F65) from the Minor Planet Centre (MPC) in Boston, US.

Minor planets are initially classified according to the year in which they were discovered, followed by one letter denoting the half of the month (counting from January) and a second indicating numerical order, excluding 'I' in both cases and 'Z' in the first. Thus 1999 PY was the 24th (Y) asteroid to be spotted in the first half of August (P) in 1999. Once the orbit has been sufficiently well determined so that the position can be reliably predicted far into the future, the body receives a permanent number (issued sequentially by the MPC) and becomes eligible for naming.

(Left to right.) Jay Tate, Lembit Opik, Andrew Thompson (owner of the observatory) and Dill Faulkes pose for a press photograph.

The guest of honour at the event was Lembit Öpik, Liberal Democrat MP for Montgomeryshire, who has become well known for alerting the powers that be in the UK of the need to monitor near-Earth objects (NEOs). His interest in such matters comes from his grandfather, Ernst Julius Öpik, the Estonian astronomer who in 1932 predicted the existence of a cloud of cometary bodies encircling the solar system that is now known as the Oort Cloud. The Spaceguard Centre, run by Jay and Anne Tate, is a leader in the field of public information and education relating to NEOs, and it welcomes visits from school groups.

Further information

Faulkes Telescope Project: www.faulkes-telescope.com; Spaceguard Centre: www.spaceguarduk.com/centre.htm; Minor Planet Centre: cfa-www.harvard.edu/cfa/ps/mpc.html; Oort Cloud: www.planetary.org/html/news/articlearchive/headlines/2001/Oort1.htm; Great British Meteorite Hunt: www.open2.net/astronomy/.

David Smith

AFRICA

UK teaching methods make the difference in Rwandan schools

Rwanda is a beautiful, rolling country with hills, lakes and wildlife to match. Yet despite its natural beauty the country is still reeling from the genocide that took place just ten years ago.

The chance to come to this amazing country was provided by a former colleague of mine who teaches biology in a school on the outskirts of Kigali, the Rwandan capital. On a visit to England she pointed out that there was a lack of physics expertise in the education system there, accompanied by a distinct lack of practical work.

As a teacher in Rwanda my aims were: to teach classes at a school, targeting the topics where pupils felt least confident; to advise on ways of increasing the amount of practical work the teachers attempt in teaching the syllabus; and to present a large-scale lecture in the school hall along the lines of my Gatsby Teacher Fellowship project.

Students rarely get to do practical work due to a lack of equipment.

Education in Rwanda

Education is given high priority by the government in Rwanda; it is recognized as being important for moving forwards as a country. The education system is based on the French Baccalaureate, with students taking exams at Senior III and Senior VI level. Students' performance at Senior III determines the strand of the syllabus in which they will specialize.

Teachers are not well paid, getting about 60 000 FRw (the equivalent of £60) for a month's work. They do not get paid over the summer holidays and consequently seek other employment. Sadly, teaching is not a well-respected profession in the country (unlike in Uganda where teachers have a high status in society) and as a result it does not attract many people. It is especially difficult to find science teachers.

Ndera School is a private school with about 1200 pupils studying for their secondary qualifications. The school teaches in both English and French, with pupils usually able to speak both languages as well as their mother tongue. The cost per pupil to attend for a term is the equivalent of £45. The age of the pupils is mixed in each year group because some pupils have to retake a year's study due to ill health, or have been unable to afford the fees earlier.

As in British schools, the attitude to study differs from pupil to pupil. Some students are highly motivated, very bright and have a real desire to learn. Others struggle with the language, can be poorly motivated and consequently underachieve.

The style of teaching in a Rwandan classroom is very different to that in a British school. The teachers have no training, often coming straight from university. As a result their teaching

David Richards teaches a practical physics lesson to the pupils of a Rwandan school. The topics that students felt least confident about were electrostatics and direct-current electricity.

method matches how they were taught – didactic, rote learning and to a level far beyond what is necessary for the syllabus or the exam papers at the end.

Pupils are fastidious in their note-taking, copying directly from the board – often for a whole lesson. Practical work is rare, and when it is done it is only by demonstration. This is often due to a dearth of equipment, an unpredictable power supply, and a lack of teacher confidence to use the apparatus that is there.

The problems are compounded by teachers working autonomously. There is no faculty structure in place, and teachers do not help each other to overcome their difficulties or share good practice. Two physics teachers at the school had not met each other until I introduced them!

Teaching three different classes during my stay was a great experience. To share the UK style of teaching with the African pupils was very rewarding. It was hugely satisfying to be able to move the pupils from 'rote learning' to start linking the different parts of the syllabus together.

I asked the pupils about the areas of physics that they felt least confident about, which included electrostatics and direct-current electricity. They had been taught these topics before, but they had not had the opportunity to link their notes to practical examples, as British schoolchildren do.

They hadn't seen even simple experiments to demonstrate charging an object by rubbing! Guiding the pupils as they saw and understood how what they had learned matched the real world was immensely satisfying. It really brought home to me the importance of keeping the science we teach rooted in real situations, and that we should aim for more than just carrying out an academic exercise in understanding.

Talking with the different teachers from different schools, I found that they were all very grateful for the input into the education of their pupils. They were all keen to develop their skills in using practical work as part of their teaching methods, but were quick to point out that the unreliable nature of the equipment they had made them reluctant to use it.

Large-scale lecture

Near the beginning of my stay it was obvious that one subject that was not well understood was that of sound. As a result, I planned and put together a large-scale lecture that summarized the whole of the syllabus requirements for the topic. I presented this twice, once in the dining room of Ndera School and once for the Senior V class at FAWE Girl's School.

The lecture was well received, pupils responding positively to the PowerPoint presentation and the demonstration. Students asked

about what they saw, remaining behind afterwards to ask questions to clarify ideas. The level of interaction was amazing – far beyond what I have experienced with students in the UK. I even managed to get students to clap rhythms and sing along to different songs!

Before I went to Africa, people told me I would never be the same again. The experience of spending time with people for whom it is a privilege to have enough food to eat, or who have to walk four miles just to collect water to drink, cannot fail to change the way in which you view the world.

The gratitude I have seen in the faces of street children just for taking time to play a game of volleyball, or the thanks from students who didn't understand a topic and appreciate the time you've taken to explain it, will stay with me for many years.

On top of that I will be able to take this experience back to the students that I teach in the UK, and share it with the teachers there. Spending time in Rwanda has influenced my motivation for teaching, and convinced me of the absolute necessity to share these experiences with those we teach.

Having to teach in a different culture has also raised my awareness of how people learn and the need to adjust my teaching style accordingly.

- Finding practical equipment is a desperate issue for schools in Rwanda. Finding an appropriate way of providing apparatus, training science teachers and working in partnership to practise using the equipment within the classroom setting is an important and so far unaddressed problem.

David Richardson

SPACED OUT

UK-based scale model places Jodrell Bank at the centre of our solar system

Spaced Out is a UK model of the solar system based on a scale of 1:15 million that involves 18 sites (including several schools) centred on the 'Sun' at Jodrell Bank in Cheshire. Each site will have an artwork that represents an astronomical body. The project is set to become the world's largest scale model of our solar system and is managed by Nigel Marshall – the GCSE astronomy chief examiner – and is due for completion in spring 2005.

Teachers in Herefordshire found out about the project when it was too late to nominate a location but are hoping to make a smaller version within the county with some funding from the Extended Schools Programme.

Their plan involves imagining that the Sun is located at Madley and using a scale of 1:75 million (which is one-fifth of the national model). Using this scale makes one astronomical unit (1 a.u. = distance from the Earth to the Sun) equivalent to approximately 2 km. (See table above to see some examples of the distances involved.)

Planet	Distance (a.u.)	Locations
Mercury	0.39	Kingstone & Thruxton Primary
Earth/Moon	1.00	Madley Primary
Saturn	9.55	Hay Bluff
Uranus	19.2	Leintwardine Primary
Neptune	30.1	Cheltenham
Pluto	39.5	Birmingham

In practice it would be possible to involve all of the schools in Herefordshire in this model. However, the idea would enable anyone with a knowledge of Herefordshire to understand the scale of our solar system.

It is interesting to speculate where on the Herefordshire model the nearest star would fit? Alpha Centauri is 4.2 light-years away, and one light-year = 63 240 a.u., so: 4.2 light-years = 265 608 a.u., which – using a scale of 2 km to 1 a.u. – would place Alpha Centauri 531 216 km from Madley. This is about 1.4 times the distance to the Moon.

The choice of name for the proposed project is 'Hfd-SHARE model of the solar system', which links directly with the website:

The sites and the objects they represent

Jodrell Bank Visitor's Centre, Cheshire	Sun
Hermitage Primary School, Holmes Chapel, Cheshire	Mercury
Alderley Edge Primary School, Cheshire	Venus
Tytherington High School, Macclesfield, Cheshire	Earth, Moon
Hartford High School, Cheshire	Mars
Furness Vale Primary School, Derbyshire	Ceres (asteroid)
William Hulme's Grammar School, Manchester	Gaspra (asteroid)
Techniquest@NEWI, Wrexham, North Wales	Jupiter
Lancaster Girls' Grammar School, Lancaster	Saturn
The National Space Centre, Leicester	Chiron (centaur)
Swanshurst School, Birmingham	Pholus (centaur)
The Spaceguard Centre, Knighton, Powys	Absolus (centaur)
William Herschel Museum, Bath	Uranus
The Armagh Planetarium, Northern Ireland	Neptune
Forest Gate Community School, London	Halley's Comet
Robert Gordon's College, Aberdeen	Pluto
Camborne School & Community College, Cornwall	Varuna (TNO)
Whalsay School, Shetland	TL66 (TNO)

www.Hfd-SHARE.com. The site is being developed to cover all Extended Schools activities.

SHARE is essentially a partnership involving young people. Using the film-making equipment purchased through the Extended Schools Programme, a DVD resource will be developed for use in all schools across Herefordshire and beyond. By aiming the project at year 5/6 (9–11-year-old) pupils – who may well see the first manned mission to Mars in their lifetime – young minds can be focused on cutting-edge science in an innovative way.

The national Spaced Out project website can be found at www.spacedout-uk.com/index.asp.

Paul Haley, *Extended Schools adviser, Herefordshire*

TEACHING SUPPORT

Teacher Network makes its mark in the classroom

It is quite possible that the Teacher Network has passed you by so far, as it started as a limited (pilot) exercise with few staff. As such it was not going to have a huge impact nationwide. However, we hope that by this time next year, few readers of *Physics Education* will not have had some contact with the network, as there are now 29 regional coordinators in place with another five or six still to be appointed. In the meantime, the following description may help you to engage with the initiative.

In brief, the main aim of the Teacher Network is to provide support at a local level to those who teach physics in schools and colleges, and to their students, without further depleting the number of physics specialists in the classroom. The support programmes are being developed on a regional basis by means of a nationwide (Great Britain and Ireland) team of coordinators, the majority of whom are practising teachers.

It works because the regional coordinators give the equivalent of half a day a week of their own time to make it work, and the Institute has been delighted to find that there are practitioners willing to do so, to help others. In return, the Institute pays the coordinators an annual honorarium and provides funds to facilitate the networking activities.

At an induction meeting for Phase 3 recruits in September, the noise level in the room suggested that there was plenty of enthusiasm for the task ahead and plenty of energy ready to be invested in it. There was probably some apprehension too, but coordinators from Phases 1 and 2 were present to share some of their experiences – good and not so good!

The new regional coordinators are: Cerian Angharad (Cardiff); Peter Bell (Nottinghamshire); Tom Dickson (Fife/Central Scotland); David Grace (Pembrokeshire); Nathan Goodman (Humberside); Lin Harwood (Dorset); Paula Martin (based in Cambridge but with responsibility for Anglia North); Michael Melling (Staffordshire); Mike Metcalfe (Hertfordshire); Tony Reeves (Powys) and Ruth Wiltsher (Durham).

Further appointments are anticipated in Greater Manchester, South Yorkshire, the South/West Mid-

lands, the Republic of Ireland and London. The work of the network as a whole is coordinated and guided by a national leader, Gary Williams. Further details of all of the coordinators can be found on teachingphysics.iop.org/teacher_support/teacher_network.

There is considerable variety in the activities in which Phase 1 and 2 coordinators are engaged: the organization of twilight hours sessions for local groups and/or one-day meetings for teachers in a wider area; INSET focusing on the development of key skills for NQTs; INSET for non-specialist teachers; the circulation of newsletters; the collection and development of resources to support particular physics topics; the engagement of PGCE students in activities to enhance their physics knowledge and understanding; the establishment of local electronic networks; and more.

All new coordinators have a degree of flexibility in what they commit themselves to do each year, job descriptions being negotiated from a centrally devised list of possible activities. Support for PGCE students, NQTs/probationary teachers and non-specialists who teach physics have been high priorities in many regions.

Clearly if the Institute's network of coordinators are to succeed in their work, they need to collaborate with other support agencies locally, and there are plenty of examples of fruitful collaboration – with the ASE, SEPOINTs, local authorities etc. Although the network has now moved into its third phase, there is still an experimental aspect to it, especially for the new coordinators, but I am confident to assert that it has been a really exciting and interesting experiment so far. Regional coordinators report that they find the work challenging but also enjoyable and rewarding.

So 'mission impossible'– as the previous editor described it in an earlier issue of *Physics Education* – is a success story by my reckoning. And why is it a strange success story? The answer is that the only doubts that those who originated the scheme had was whether there would be any or enough teachers willing to take on yet more work, and there have been, and whether other teachers would respond positively to their efforts. The following quotation shows that the latter doubts were, perhaps, justified, but that the coordinators are overcoming the scepticism:

'Teachers rarely think that new ventures are beneficial to them. They are usually very sceptical and it takes time for them to realize that the network is actually providing support for them rather than more work!'

However: 'I think it takes a while for teachers who don't know you to see that you're genuinely keen and wanting to support them, and then once they get on board there is a good feeling...The only trouble is that it all avalanches and once you establish interest, there is just more and more to do!'

Catherine Wilson

Correction

The 'Frontline' article entitled Diffraction method measures refractive indices of liquids, by Shyam Singh on page 235 of the May issue, has an error in figure 1. The lines in the diffraction grating should be horizontal rather than vertical.

Furthermore, the last equation should be:

$$n = \frac{AC}{AB}\frac{[(AB)^2 + (OA)^2]^{1/2}}{[(AC)^2 + (OA)^2]^{1/2}}$$

$$= \frac{AC}{AB}\frac{[(AB)^2 + L^2]^{1/2}}{[(AC)^2 + L^2]^{1/2}}.$$

ART ON STAGE

Galileo lacks momentum

The play *Galileo* had its world premiere at the Edinburgh Fringe Festival. About the life of Galileo, the production is based on a Tom Stoppard screenplay. Stoppard wrote the screenplay for Paramount in the 1970s, basing it loosely on Bertolt Brecht's play *Life of Galileo*, but it never saw the light of day until it was published in a literary journal last year.

The Collapsible Theatre Company from Oxford University has now taken the screenplay and adapted it for the stage.

The play deals with the life of Galileo from the time he first turns his telescope to the skies, through his attempts to persuade the Vatican and the authorities that the Sun orbits the Earth, to the time when he recants. The science is well presented, with equations on blackboards being one of the few props used in this production.

Himanshu Ojha plays the irascible Galileo admirably, but the dilemma so central to Brecht's

play – the nature of Galileo's recantation and our loss of faith in the man – are missing. There are some good supporting performances from the cast, and the choir provides an excellent counterpoint to the central action.

Stoppard's screenplay evidently has a great deal of humour in it (Copernicus is branded a 'Polish revolutionary'), but the pace of the production means that some of the sparkle is lost from the script. Empathy for the characters tends to evaporate as the production suffers from a multitude of blackouts at scene changes, which interrupt the flow of the play.

All in all, an admirable effort on the part of the Collapsible Theatre Company, which may revive interest in turning Stoppard's script into a film; but for me, Brecht's version is the richer and more intriguing stage play.

● *Galileo*, Collapsible Theatre Company, C Venue, Edinburgh Fringe Festival, 4–30 August.

Mike Metcalfe

MEETING

Teachers are inspired by US gathering

The 129th AAPT National Meeting in Sacramento, California, US, this summer began with two days of workshops covering topics as varied as TIPERS (tasks inspired by physics education research), mining the Internet, and the physics of toys.

Over three days there were more than 100 talks and presentations. There were also poster sessions, meetings and a variety of displays from manufacturers and suppliers of books and equipment.

The early start of some sessions – the first timers' gathering being at 6.45 a.m. – was due to the number of different events that had to be crammed in to the three days rather than the need for some respite from the midday Sun.

One of the not-to-be-missed venues was the PIRA resource room where you could load up with cheap or free resources, such as poppers, spinners, insulated Year of Physics mugs and 'Nanoseconds' (a piece of plastic similar to a ruler, but without the markings, and exactly the length that light travels in one nanosecond).

Those who were new to the meeting had the chance to go to the previously mentioned first-timers' gathering and pair up with an old hand, but there were more than enough friendly old hands around to point you in the right direction if you didn't attend.

Figure 1. *The Art department building at California State University – how convenient for teaching the visible spectrum!*

'Physics Phun for Everyone!' was a series of demonstrations suitable for the whole family. Everyone attending received a free bag of goodies to take home and play with afterwards.

Tom Noddy blew bubbles for the first half of the show and mixed in some maths and physics on the way, while being extremely entertaining. The audience really did include members of the public who were enthralled by the demonstrations, such as the bed of nails, and colour mixing with an electric drill.

The facilities provided by California State University were very good and included wireless Internet. Unfortunately there was no bar available after 7.00 p.m. This didn't mean that the social programme was lacking, as the baseball night out, welcome reception, picnic extravaganza and stargazing events kept the evenings full.

Outside factors also seemed to have an impact on the international flavour of the event as the 'Physics teaching around the world' session suffered from a few cancellations owing to speakers being unable to get visas due to the current security worries.

Overall this was a fantastic event and is worth attending at least once wherever in the world you teach. Much of the content was based on what is taught in the US, but there are some real gems included in the programme that are suitable for all.

The 130th National Meeting is at Albuquerque in New Mexico on 8–12 January 2005. See the AAPT website for more details: www.aapt.org/.

Gary Williams

ONLINE STUDY

PPLATO Foundation promotes new avenue to university study

In October the physics department at the University of Reading plans to pilot an online physics foundation programme for students wishing to study physics or mathematics from home to prepare for entry into degree courses.

The course is also suitable for personal or career development for those who may have no intention to study at degree level. In this case the programme is free-standing. Students can study either full-time (about 30 hours per week) or part-time (about 15 hours per week), with online tuition provided by experienced university tutors. A one-week residential laboratory school is available as part of the physics programme.

The course running at the University of Reading is currently a pilot, so numbers are restricted. Also, for this academic year it is possible to take the course as a free-standing module as part of a physics degree.

Increasing participation

The initiative stems from the physics department's role in a major national research project that is developing resources to widen participation in physics. The project is called PPLATO (Promoting Physics Learning and Teaching Opportunities) and the PPLATO Foundation Programme (PFP) is one outcome of this initiative. The programme will be taught by members of the project team led by Mike Tinker, who is the director of PPLATO, a National Teaching Fellow and a holder of the Institute of Physics Bragg Medal and Prize for Physics Education. He developed the original on-site Reading Foundation in Physics Programme in 1993 and has directed it since then.

PPLATO teaching materials are at the cutting edge of learning technology and include unique interactive teaching texts and computer-aided learning.

There are three courses available, foundation mathematics, foundation physics and an associated physics laboratory school. Foundation mathematics and foundation physics are each equivalent to 60 CAT points and the physics laboratory school is equivalent to 10 CAT points.

The three courses may be taken together or separately. Together, the programmes constitute a year of full-time study, which amounts to about 30 hours per week for about 30 weeks. When used for university admission each 60-point programme is offered as a replacement for an A-level in that subject, although the courses differ in style and purpose from A-levels.

A-levels cater for students with similar backgrounds and lead into a range of careers and further study. In contrast, these foundation programmes cater for a range of entry backgrounds but are designed specifically for degree courses in physics, engineering and mathematics.

Course entry requirements are similar to those for an on-site foundation programme. This is normally GCSE mathematics or equivalent plus 200 UCAS points (A2 and AS in any subjects), but mature applicants (over 21 years of age) are assessed individually.

Who will benefit?

The online course with the part-time option suggests that the fol-

Programmes and costs

Foundation Physics PH01
The course fee for Foundation Physics is £395 (full-time for 5 months or part-time for 10 months). This includes online tuition and all teaching materials (supplied on CD). The part-time period is October–July and the full-time period is March–July.

Foundation Physics Laboratory School PH01S
The Laboratory School fee is £320. This includes 5 days' tuition and accommodation, from Sunday evening to Friday lunchtime.

Foundation Maths MA01
The course fee for Foundation Mathematics is £395 (full-time for 5 months or part-time for 10 months). This includes online tuition and all teaching materials (supplied on CD). The part-time period is October–July and the full-time period is October–February.

lowing groups will benefit:

- those who wish to improve their qualifications in physics and/or mathematics for university entry;
- those considering career changes that require qualifications in physics and/or mathematics;
- those who wish to limit the costs of foundation level study by studying from home;
- those who have no easy access to a local university or college;
- those with special needs that make studying from home preferable;
- those who wish to study while employed, to 'test the water' before plunging into degree level work;
- those who wish to study while employed, to improve their skills in physics or mathematics for personal or career development purposes;
- and those who wish to study just for personal satisfaction.

The PFP has the full support of the Institute of Physics, and accredited degree courses that accept it are likely to emerge. The expectation is that many universities will accept the PFP as a qualification for entry into their courses. Since universities are autonomous and PPLATO is a new development, no guarantee can be given that a particular university will take this view and so students are advised to check the credit-transfer status with their intended institution.

A full course specification for this purpose can be provided if required. One guarantee that we can give is that you will be taking part in an innovative teaching and learning initiative at the cutting edge of educational technology, widening access into university degree courses. It should be challenging, but fun.

Further information

If you require further information before registering for a programme or if you want to begin the registration process then e-mail us at pplato@reading.ac.uk

Mike Tinker, *PPLATO project director*

CONFERENCE

GIREP '04 creates atmosphere of 'curiosity and enthusiasm'

Physics teachers and educators from across Europe, and many others from further afield, gathered together on 19–23 July in Ostrava in the Czech Republic to share views and discuss the current problems in physics education.

GIREP OSTRAVA

Figure 1. *GIREP demonstrated that learning and teaching physics can be enjoyable for teachers and pupils alike.*

New contexts

International Research Group on Physics Teaching (GIREP) Conference and the GIREP Seminar are held on alternate years. The scope of this year's conference was teaching and learning physics in new contexts.

The topics included physics teaching and learning processes with regard to ecology, climate, biology, biophysics, chemistry, medicine, industry, economics, the arts, and all of the processes that could improve our living conditions from a physics point of view.

All of these subjects were covered in a series of plenary lectures and workshops. The majority of the plenary lectures concerned the implementation of ICT in physics education. Lecturers also talked about some of the more interesting possibilities for cooperation

between physics and industry, high-tech science laboratories and other branches of science.

Throughout the conference, speakers demonstrated that learning and teaching physics can be fun – for teachers and pupils.

The afternoon workshops were divided into sessions with a common theme. The subjects of mechanics, electricity and ICT prevailed, but it turned out that physics teachers still manage to find new and interesting ways to teach old subjects.

The subjects of 'difficult content' and 'connecting the learning process to students' everyday lives' were tackled by the conference organizers, who invited along speakers who love physics and enjoy teaching it.

Several lecturers managed to create an atmosphere of curiosity and enthusiasm, but the stars of the show were a group of teachers from Japan called Stray Cats, who demonstrated child-like enthusiasm and visibly enjoyed themselves while giving their lecture. Their enthusiasm for physics was infectious. If we could achieve this in our classrooms many problems and prejudices would soon be overcome.

ANA G BLAGOTINSEK.

Figure 2. *Stray Cats demonstrate the three-stage water rocket.*

Our Czech colleagues proved to be excellent hosts. Besides the physics that was on the menu we were offered the opportunity to taste local food and make trips to the surrounding area.

After five days of interesting discussions and meeting new people we were forced to say our goodbyes, but not for long. It was agreed by the GIREP assembly that the next conference will be held in Amsterdam, the Netherlands, in 2006. The GIREP Seminar for 2005 with a title of 'Informal learning and public understanding of physics' will take place in Ljubljana, Slovenia. The seminar aims to bring together all those who are involved in building bridges between physics and the public. Come and join us, you're most welcome!

Ana Gostincar Blagotinsek, *University of Ljubljana, Faculty of Education, and University of Primorska, Faculty of Education, Koper, Slovenia (e-mail: ana.gostincar@uni-lj.si)*

MEETING

SonSD meeting allows exchange of teaching ideas

Some 30 teachers and educationalists from 11 different European countries are to attend a meeting that starts the National Steering Committee (NSC) Science on Stage Deutschland e.V. (SonSD) European exchange process called 'Different ways of teaching science in Europe'.

The meeting will take place in Bad Honnef, Germany, on 26–28 November. Those attending will be working in groups comprising teachers from Belgium, Austria, Germany, Bulgaria, the Czech Republic, Poland, Greece, Italy, Spain, Finland and the UK. The following topics will be discussed: group 1 – The interdisciplinary approach to science teaching; group 2 – Science in primary schools; group 3 – The role of the experiment in science teaching.

SonSD schedule

26–28 November 2004
Kick-off meeting, Bad Honnef, Germany

November 2005
Science on Stage in Geneva

2006
Different ways of teaching science in Europe conference

The international exchange process will continue until the main conference in 2006. There is a list of the participants for each working group on the Physics on Stage website (www.science-on-stage.de/149.0.html?&L=2) and teachers can contact the participants via e-mail or through the chat room.

On the website you can find more information about the meeting in November and about other activities planned by SonSD.

The NSC for SonSD is organizing the exchange process, but the event addresses all national steering committees.

Stefanie Zweifel *Science on Stage Deutschland e.V.*

COMPETITION

Win a digital camera!

Here's your chance to show your artistic side to the physics-teaching world. Over the next year, each issue of *Physics Education* will give you the opportunity to win a Fuji F410 digital camera (or a one with a similar specification). What's more we're also going to give your school the chance to win a digital camera too! All prizes have been supplied by the Institute of Physics (IOP) Education Group as part of its Einstein Year activities to encourage the use of digital cameras in classrooms.

The individual prize is for teachers and lecturers involved in physics education and the schools' prize is aimed at any teachers, technicians, pupils or parents associated with a school.

Entrants should submit a photograph (digital or print) showing physics in an interesting and/or artistic way. The first winning pictures will appear in the March 2005 issue of *Physics Education*. The closing date for the March issue's competition is 3 January 2005.

The theme for the photographs for the March issue is **materials**. You should submit your entry to the Physics Education Photograph Competition by e-mail (ped@iop.org) or post them to Gary Williams, Editor, *Physics Education*, Institute of Physics Publishing, Dirac House, Temple Back, Bristol BS1 6BE.

Make sure that you include your name, address, details of your school/institution, telephone number and e-mail address, as well as a short written outline of what your picture shows, how it relates to physics and the theme (materials in this case).

If you are also entering photographs for the schools' prize, please state this on your entry along with the name and address of the school, the name of the photographer and their physics teacher, if applicable. You may also include details of the camera with which the photograph was taken. It is hoped that the IOP Education Group will be able to make use of the best photos in a calendar.

The winners will be decided on by a multidisciplinary panel at Institute of Physics Publishing (IOPP), whose decision is final. It reserves the right to re-use photographs in IOP- and IOPP-related material. Photographs and personal details will not be passed to others outside of IOP and IOPP. If you do not wish your photographs to be re-used anywhere other than in *Physics Education* please let us know.

Teachers and pupils can win a Fuji F410 digital camera.

We prefer submissions to be digital rather than print, but of course you might want to win a digital camera as you've only got a film camera at the moment! Digital images should be in tif or high-resolution jpg format. Please limit the file sizes to 3 Mbyte initially. We will request larger files later if necessary.

Gary Williams

PHYSICS IN PERSPECTIVE

Events highlight how rewarding physics can be

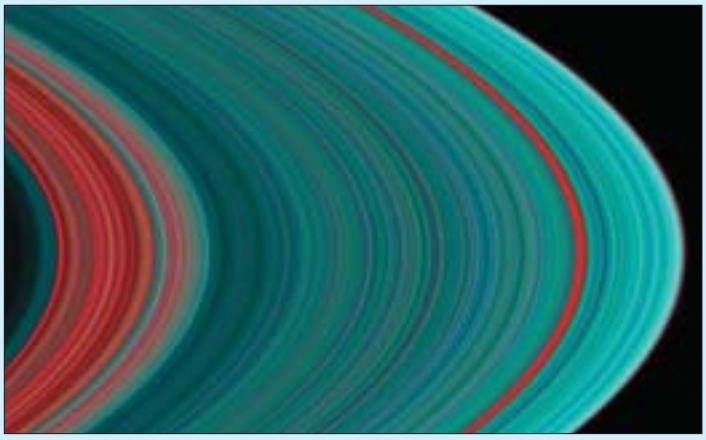
The year 2005 marks the centenary of the publication of Albert Einstein's three papers that changed the way that we see the whole universe. To celebrate, the year 2005 has been designated Einstein Year (the UK and Ireland's contribution to World Year of Physics, see www.einsteinyear.org for more details).

This year's Physics in Perspective programme of events will give students the opportunity to find out more about how our understanding of the universe continues to develop and how these new insights are applied to improve the quality of our lives.

The 2005 programme includes topics such as cutting-edge physics, up-to-date applications in various technological areas and 'fun' physics. The speakers have been chosen for their ability to bring physics alive, illustrate its impact on our lives and to explore its potential for shaping the future through engineering and technology.

Some people see physics as a dry, narrow subject concerned only with certainties and remote concepts. The programme is designed to counteract such mis-

Physics in Perspective programme



NASA/JPL/UNIVERSITY OF COLORADO

Part of Saturn's magnificent ring system viewed in the ultraviolet by the Cassini probe.

Sunday 20 February 2005
University College London
The impact of 3D imaging in surgery
Veronique Sauret
University College London Hospitals NHS Trust

Musical squares – adventures in sound
Mike and Wendy Gluyas

Monday 21 February 2005
The Royal Institution of Great Britain
Lasers, light and liquid crystals
Prof. J Roy Sambles FRS
University of Exeter

Light comes in packets... particles wave
Bryson Gore

Tuesday 22 February 2005
The Royal Institution of Great Britain
The wonder of the ringed world – the Cassini–Huygens mission
Hazel McAndrews
Mullard Space Science Laboratory.

Focusing in the sky
Prof. Sir Michael Berry FRS
Physics Department, Bristol University

conceptions and to demonstrate the way physics links with a range of other subjects – for example, cybernetics, engineering, chemistry and sport, to name but a few – to improve the quality of our lives. Modern physics presents many challenges, but it is a rewarding subject too, as our speakers will testify.

To receive details about these events please contact Leila Solomon, Institute of Physics, Education Department, 76 Portland Place, London W1B 1NT. Tel: +44 (0)20 7470 4800; fax:+44 (0)20 7470 4848; e-mail: leila.solomon@iop.org; Web: teachingphysics.iop.org/events/student_events/perspective/.

Leila Solomon

MEETING

ASE conference to deliver the best of Physics Education

You are invited to join us at the Association for Science Education (ASE) conference on 6–8 January 2005 at Leeds University. On Wednesday 5 January it's ASE International Day, and as *Physics Education* is the international journal for physics teaching you'll have a chance to get a free copy of the journal then too.

In the January issue you'll see a tidied-up 'Reviews' and 'People' section including an interview with Frank Close and lots more in the way of reviews. As part of the launch of this revamped section of *Physics Education* we are inviting you to come to our free datalogging workshop, called 'Everything you ever wanted to know about dataloggers', which takes place at the conference on Friday 7 January at 2.00 p.m.

If we don't get to see you then we look forward to your company at 9.30 a.m. on Saturday 8 January for our 'The best of *Physics Education*' special event. Members of the Editorial Board will do their utmost to entertain you with the best ideas from this year's issues of *Physics Education* and give you a preview of what you can expect to see in forthcoming issues.

Don't be a stranger, come and say hello; we look forward to meeting you. For more information on the ASE conference, go to www.ase.org.uk/.

The Editorial Board
Physics Education