



# National News

Easter 2011

## Seeing the light

Light as a topic reappears at different stages during secondary school physics, with students needing to explore its nature and applications in greater depth. The Stimulating Physics Network offers a range of support and resources to help you engage your students with light and all its implications whether as an introduction or a spectral analysis.

### Lights, Cameras, Images: A free CPD session

This workshop introduces a variety of activities for use in the classroom when teaching light, colour and spectra. Participants find out how to make 3D images and how a digital microscope can turn a small demo into a whole class activity. There are plenty of ideas for the use of images in general. Each participant receives a CD with all the information needed to use the workshop ideas in their classroom.

Contact your local External Liaison Officer (ELO) to find out when this workshop is running in your area. Alternatively, if you can bring together a small group of science teachers from local schools and colleges, one of our Physics Network Co-ordinators could arrange the workshop at a time and place that suits you. To arrange a bespoke session talk to your local ELO, see the back page for their contact details.

→ To see the range of workshops your local Physics Network Co-ordinator can offer, visit: [iop.org/workshops](http://iop.org/workshops)

### Optoelectronics

Optoelectronics is the study and application of electronic devices that source, detect and control light. Some of our Physics Network Co-ordinators have been trained to deliver a series of Optoelectronics workshops in which you can assemble and test a solar buggy, investigate coloured LEDs and optical transmission of various materials using remote photodiodes and explore dispersion and colour mixing and teaching approaches for how colour displays work.

→ Contact your ELO to find out where the nearest Optoelectronics workshops are running.



### Planning for Teaching Light: [talkphysics.org](http://talkphysics.org)

As well as being an online community for teachers to post questions, comments and share ideas, [talkphysics.org](http://talkphysics.org) offers a wide range of classroom resources. Join the Supporting Physics Teaching (SPT) group on Light and you can download the free resources as well as get support as you teach your students.

→ To get support for teaching light or share your bright ideas, visit [talkphysics.org](http://talkphysics.org)

### Teaching Advanced Physics: TAP

This website contains detailed ideas and resources for teaching physics to students aged 16 - 19, including demonstrations you can carry out in class to explore the aspects of light. Demonstrations cover Spectra and Energy Levels; Wave Particle Duality including the diffraction of light; Circuits and the use of different light bulbs; Cosmology and distance in light travel time; Superposition and measuring the wavelength of laser light.

→ To explore all the TAP resources, visit: [tap.iop.org](http://tap.iop.org)

## Propelling physics teaching into the future

The Stimulating Physics Network is a government funded project run by the Institute of Physics and the National Network of Science Learning Centres. Our aim is to improve the take-up of A level physics, offering free events, resources and activities to support teachers and inspire students in secondary schools across England. [stimulatingphysics.org](http://stimulatingphysics.org)

## Schools and College Lecture Tour

This year sees a new Institute of Physics lecture touring schools and colleges around the country to offer GCSE and Standard Grade students an exciting insight into cutting-edge physics.

**“From x-rays to antimatter: the science of seeing inside your body”**  
by Dr Michael Wilson

Find out how physicists build machines that do what our eyes cannot - see inside the human body. This inspiring lecture will reveal how:

- over the past hundred years physicists have developed increasingly sophisticated techniques to see inside the body
- these techniques use x-ray, radioactive molecules and magnetic fields to produce images of the body
- these images allow doctors to better diagnose and treat illness and disease



Dr Michael Wilson has always been fascinated by the physical world and enjoys the challenge of making scientific ideas accessible to any audience. After completing his first degree in Natural Sciences at Cambridge, he taught physics and mathematics for two years at Shrewsbury School before moving into a medical physics career. After teaching at Birmingham University for five years, he is now a consultant clinical scientist in the Nuclear Medicine Department of the University Hospital Birmingham NHS Trust. He continues to teach at Birmingham University, as well as being involved in a range of other teaching roles.



The talk is one hour long and offers valuable links to the curriculum including: How Science Works - Applications and Implications of Science; The Electromagnetic Spectrum; Electromagnetism and Radioactivity. Find out when the lecture is at a school or college near you, visit: [iop.org/schoolslecture](http://iop.org/schoolslecture)

## Girls in Physics

The Stimulating Physics Networks aims to inspire all students to engage with physics and continue it to A level and beyond but we acknowledge there does need to be a particular focus on encouraging girls to progress through physics. Girls continue to make up only 22% of those taking A level physics, despite huge changes in the educational system over the last 20 years. Physics is only the 19th most popular A level with girls, compared with the 6th most popular for boys. To try to help you tackle this discrepancy, we have reviewed the most recent research on Girls in Physics, summarising their findings, and created a teachers' guide for action as well as supporting videos.

To view the resources aimed at helping you engage and inspire girls to take A level physics visit: [iop.org/girlsinphysics](http://iop.org/girlsinphysics)

## Getting to grips with Physics

The national network of Science Learning Centres has developed a successful and popular pair of courses for physics non-specialists, 'An Introduction' and 'Taking it Further'.

Whatever stage you are in your career 'Physics for Non-Specialists: An Introduction' will support you in teaching physics confidently by effectively using a range of teaching strategies to assess pupils' prior understanding, counter alternative conceptions and move their learning forward.

The courses focuses on the key physics principles needed to teach physics at KS3 and KS4 effectively. It will provide opportunities to explore and refine understanding of the key topics covered, to develop skills and update strategies for teaching physics at KS3 and KS4. Subject knowledge necessary to support teaching will be covered as well as the use of stimulating practical activities and demonstrations to excite and enthuse pupils. ICT based resources will also be explored.

'Taking it Further' will provide opportunities to explore and refine your understanding of the key topics covered including forces and motion, electricity and magnetism electromagnetic spectrum, radiation and cosmology.

Course cost: £230. All qualified teachers are eligible for an Impact Award. This is a £200 per day bursary payable to the teachers' school, funded by the Department for Education. To find out when these courses are running at your regional Science Learning Centre visit: [sciencelearningcentres.org.uk/courses-and-events](http://sciencelearningcentres.org.uk/courses-and-events)

## Physics Days

We have a range of free days this summer to give you the chance to immerse yourself in physics teaching, whether you are a specialist looking to advance your ideas or a non-specialist looking for support and resources. Find out where and when your local day of physics is being held.

### Stirling Meeting | 8 June - University of Stirling

The 37th annual meeting organised by the IOP in Scotland. A day of lectures and workshops and including an exhibition.

For information go to: [stirlingmeeting.org](http://stirlingmeeting.org) or contact Lauren Stacy, e-mail: [lauren.stacy@iop.org](mailto:lauren.stacy@iop.org)

### Rugby Meeting | 9 June - Rugby School

The 23rd annual meeting for teachers of physics in schools and colleges; a day with a mixture of information, stimulation and communication with an exhibition as well.

For details and booking, visit: [iop.org/rugby](http://iop.org/rugby) or contact Manchi Chung, e-mail: [manchi.chung@iop.org](mailto:manchi.chung@iop.org)

### North Wales Teachers of Physics Conference | 21 June - Bangor University

This free conference is open to everyone who teaches physics. Speakers will include Prof Dame Athene Donald on Physics at the Interface with Biology and there will be a variety of engaging workshops.

For more details and booking contact Andrea Fesmer, e-mail: [andrea.fesmer@talk21.com](mailto:andrea.fesmer@talk21.com)

### North East Physics Teachers Conference | 22 June - Durham University

Lectures, workshops, ICT resources, 'ask a physicist' and more. There will be a keynote lecture by Dr Andy Newsam, Director of the National Schools' Observatory, on 'Exploring the Dynamic Universe'. Workshops include: Using thermocolour film; Variety - low cost demonstrations and experiments to engage students; Dragsters Make and take - make a compressed air dragster.

For more information and booking details contact Nicola Hall, tel: 0191 370 6200, e-mail: [n.l.hall@durham.ac.uk](mailto:n.l.hall@durham.ac.uk), web: [sciencelearningcentres.org.uk/northeast](http://sciencelearningcentres.org.uk/northeast)

### Manchester Teachers Conference | 22 June - Manchester Metropolitan University

This one day event provides a forum to reflect on current challenges in teaching physics and science at KS4. Presentations from local and national institutions and organisations will provide ideas and strategies to aid classroom teachers in preparing and presenting materials. Free admission for secondary education delegates and exhibitors.

For more information and booking go to: [sci-eng.mmu.ac.uk/physics2011](http://sci-eng.mmu.ac.uk/physics2011) or e-mail: [v.vishnyakov@mmu.ac.uk](mailto:v.vishnyakov@mmu.ac.uk)

### South West Physics Teachers Conference | 24 June - Exeter University

An inspiring day of lectures and workshops and so much more, for all teachers of physics and their technicians. Steve Lewis, from the Bloodhound Project, will give the keynote lecture, exploring the technological and scientific challenges of building a car capable of breaking the 1,000 MPH land-speed record. Workshops will include: Materials In Action; Variety - demonstrating a selection of low cost practical ideas to challenge and inspire students; Toys and Physics; Optoelectronics Workshop - build your own solar buggy to take back to school.

For details contact Alison Alexander, e-mail: [alisonalexander@aol.com](mailto:alisonalexander@aol.com) or visit: [stimulatingphysics.org/regions-southwest](http://stimulatingphysics.org/regions-southwest)

### North West Free CPD day for 11-19 teachers | 29 June - UCLan in Preston

A free CPD day for 11-19 teachers, jointly organised by ASE and IOP. There will be a range of workshops including: Lights, Camera, Images; What happens next? - challenged assumptions; A practical Approach to teaching Medical Physics.

For more details contact Lyn Bossons, ASE Field Officer, e-mail: [lynbossons@ase.org.uk](mailto:lynbossons@ase.org.uk)

### Annual Liverpool Physics Teachers Conference | 30 June - University of Liverpool

For the first time this conference will combine with the 'Physics Can be Easy!' conference as a major free event for all teachers of physics. Prof. Dame Jocelyn Bell Burnell will give a keynote talk and leading national facilitators will provide a wide selection of practical workshops.

For more details or to register, contact Lucas Hayhurst, e-mail: [lht@blueyonder.co.uk](mailto:lht@blueyonder.co.uk)

### IOP Yorkshire Branch Teachers Day | 2 July - University of Leeds, Department of Physics & Astronomy

This is a free event and there is no limit on the number of teachers per institution. Workshops, seminars and lectures on both classroom and cutting-edge physics.

For more information, contact Dr Alex Brabbs, e-mail: [alex.brabbs@iop.org](mailto:alex.brabbs@iop.org), tel: 07795 831434.

### IOP East Midlands Network Day | 1 October - Ockbrook School, near Derby

There will be a keynote presentation and three physics workshops.

For further information on about the Network Day and to express your interest in attending contact Alison Gupta, tel: 07723 088025, e-mail: [alisongupta@rocketmail.com](mailto:alisongupta@rocketmail.com)



To find more events in your region visit: [stimulatingphysics.org/regions](http://stimulatingphysics.org/regions)

## ► Get in touch

To get connected with the Stimulating Physics Network contact your regional External Liaison Officer (ELO). They will be able to give you details of events and courses happening across your region. If you want a workshop on a particular

day then you could create a cluster group with two or three other schools and look to organise a session with a Physics Network Co-ordinator for a day and time that suits you. Contact your ELO to find out more.

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## Physics Update

University of Bristol 8-10 July 2011

This three-day residential course is hosted by the Institute of Physics for physics specialists. The conference features an exciting programme of talks and workshops with special guest speakers. After Dr Neil Downie's hands-on sessions "Vacuum Bazookas and Vortex Transistors", participants will be able to indulge in an evening wine-tasting session on "The Science of Taste and Flavour" with Prof Peter Barham. Other highlights include "The Physics of Volcanic Eruptions" with Prof Steve Sparks, "Physics of Bores and Catastrophes and Holonomy" with Prof John Hannay.



For more details or to book a place visit [iop.org/update](http://iop.org/update) or contact Manchi Chung, e-mail: [manchi.chung@iop.org](mailto:manchi.chung@iop.org)

## Summer School

York and Oxford, July & August 2011

As part of the Stimulating Physics Network, two summer schools will be taking place this year for non-specialist teachers of physics. Come along to build your confidence in teaching physics, broaden your subject knowledge and learn to engage and inspire your students. The four-day conferences offer a programme of workshops, discussions, masterclasses, food and entertainment, provided at no cost. A bursary will be available to all who attend.

"The workshops were truly inspirational, the speakers were brilliant, and the accommodation and food were exceptional."



For more information about Summer School contact Henry Lau, e-mail: [henry.lau@iop.org](mailto:henry.lau@iop.org) or visit: [stimulatingphysics.org/events](http://stimulatingphysics.org/events)