Special Events

14 November 2012 • refreshments from 5.30 p.m., programme begins at 6.45 p.m.

Discovering the Hidden Universe – Exciting Results from the Herschel Space Observatory

Speakers: Prof. Michael Rowan-Robinson (past president RAS), Prof. Mike Barlow (head of Astrophysics Group UCL) and Prof. Matt Griffin.

Herschel is the biggest telescope ever launched into space and is one of four ESA "cornerstone" missions. The speakers will present a historical overview of infrared astronomy from space and discuss the technical challenges of assembling and launching a major space observatory. They will also consider some of the exciting results produced by Herschel over the last two years.

Location: Weston Auditorium, De Havilland Campus, University of Hertfordshire, Hatfield, AL10 9EU.

An event organised by EEESTA and co-sponsored by the London and South East Branch of the Institute of Physics. For enquiries and telephone bookings, tel 0845 474 3341 or book online **bookwhen.com/p8ujr**.

Further Information: **www.eeesta.org** or see **http://London.iop.org**.

London and SE Branch Dinner

LONDON • 21 November 2012 • 8.00 p.m.

The London and South East Branch Dinner will follow Prof. S. Swithenby's lecture. The cost of the dinner (including wine) will be £36.00 per head. Members are encouraged to bring guests.

A booking form and further details can be found on the branch calendar page at **http://london.iop.org**.

In addition, details will be e-mailed out to members nearer the time but please save the date.

Christmas Lectures

KENT • 26 November 2012 • 11.00 a.m. and repeated at 2.30 p.m. • Prof. David Pye

Polar Explorations in Light (the importance of polarisation in optical measurements and observations)

The properties of light are extremely important and have many technical applications in physics, geology and natural history. Prof. Pye will demonstrate polarised light and discuss topics such as how the Vikings navigated; how to make the most amazing kaleidoscope; and how to take a photograph in a millionth of a second.

KENT • 27 November 2012 • 11.00 a.m. and repeated at 2.30 p.m. • Dr. Cyril Isenberg

Rainbows and Haloes

Many atmospheric phenomena can be explained by the laws of reflection and refraction of light. This was appreciated by Decartes who gave the first detailed explanation of the rainbow. The lecture-demonstration will consider the physical explanation of rainbows and haloes, plus other natural optical phenomena.
Location: Gulbenkian Theatre, University of Kent, Canterbury.
Booking essential, tel 01227 769075. Tickets £1 per person.

Information

All of our lectures are free to all and last for about one hour. There is usually 30 minutes at the end for the audience to ask questions.

All venues are wheelchair accessible.

Details herein are subject to possible alteration, but changes and updates to the lectures can be found at **http://london.iop.org**

- Join us on Facebook **www.facebook.com/ioplse**
- Join us on Twitter **@IOPLSE**
- Any views expressed on Twitter and Facebook are not necessarily those of the IOP.

Lecture Venues and Times:

London

Refreshments are served from 6.00 p.m. on the day of the lecture. Lectures are held at 6.30 p.m. at Institute of Physics, 76 Portland Place, London W1B 1NT.
Closest tube stations: Great Portland St, Regents Park and Oxford Circus.
Please book your place at least one day in advance by e-mailing **londonsoutheast@physics.org**. If you do not have access to e-mail, tel 020 8845 2295 or Alex on 07809 006973.

AWE

Lectures held at 7.30 p.m. in the William Penny Theatre, AWE, Aldermaston, Reading RG7 4PR. The theatre entrance can be found on the A340 Basingstoke to Newbury road, just before the Heath End roundabout at Tadley.
E-mail **iop.lectures@awe.co.uk** for further information.

Herts

Lectures are usually held in the Lindop Building, University of Hertfordshire, College Lane, Hatfield AL10 9AB. For further information on this season's events, contact Diane Crann, e-mail **d.crann@herts.ac.uk**, tel 07770 444614.

Kent

All lectures held at 7.30 p.m. in Rutherford Lecture Theatre 1, University of Kent, Canterbury CT2 7NZ. Further information can be obtained from Dr Cyril Isenberg, e-mail **c.isenberg@kent.ac.uk**, tel 01227 823768.

Milton Keynes

Lectures held at 7.30 p.m. in the Berrill Lecture Theatre, Open University, Walton Hall, Milton Keynes MK7 6AB. For further information contact Prof. Ray Mackentosh, e-mail **r.mackintosh@open.ac.uk**.

London & South East Events

September – December 2012

IOP Institute of Physics

London and South East Lecture Programme

September 2012

LONDON • 26 September, 6.30 p.m. • Prof. Peter Kalmus

The Value of Basic Physics

Einstein did not invent the Satellite Navigation System, but without the use of both Special and General Relativity, the system would be wrong by more than 10 km per day! Paul Dirac, pondering on relativity and quantum physics, suggested the existence of antiparticles, which some decades later are being used medically for PET scans. Some of the many benefits of basic physics will be explored.

October 2012

KENT • 2 October, 7.30 p.m. • Prof. Mark Miodownik

Strange Materials

Animate materials are coming! Communicating concrete, self-healing hip replacements and invisibility shields will all soon be with us. This talk covers the amazing science and engineering behind these innovative materials.

HERTS • 3 October, 7.00 p.m. • Prof. Alan Davies

Science in the Cinema

The special effects in today's blockbuster movies are so good that it can often be difficult to tell fact from fiction. Using a combination of film clips and the power of science, Prof. Davies will seek the truth about how accurate our favourite movies really are.

MILTON KEYNES • 9 October, 7.30 p.m. • Prof. Nick Braithwaite

Plasma – as Heard on TV

Most people know that plasmas produce light – the sun and plasma TVs being obvious examples. However, very few of us appreciate that plasma can also be used to produce sound. Aided by an audio demonstration, Prof. Braithwaite will trace the captivating history of plasma sound sources.

LONDON • 17 October, 6.30 p.m. • Prof. Wade Allison

Radiation and Reason: a Fresh Look at the Effect of Radiation on Life

Since the Cold War, radiation has received bad press. Building on the arguments in his recent book, *Radiation and Reason*, Prof. Allison will show that the fear surrounding this fascinating phenomenon is not backed up by the facts.
www.radiationandreason.com.

KENT • 23 October, 7.30 p.m. • Dr David S Berman

Theoretical Physics and String Theory

Theoretical physicists around the world dream of finding a unified theory of fundamental physics. In his talk, Dr Berman will review this goal and discuss how string theory might one day achieve this objective.

LONDON • 31 October, 6.30 p.m. • Prof. Monica Grady

Astronomy by Microscope

Studying meteorites in the lab through a microscope can teach us about the formation of our solar system. In this lecture, Prof. Grady will describe how instruments designed to look at the very small can enhance our understanding of the stellar processes that have shaped the very big.

November 2012

HERTS • 7 November, 7.00 p.m. • Dr Steve Kane

The Physics of Finance

Excellent numeracy skills mean that physicists are wanted by many industries – and finance is no exception. In this talk, Dr Kane will give an overview of how physics is being used in the industry, and in particular, how techniques have been developed to help model uncertainty in the financial markets.

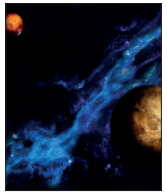
MILTON KEYNES • 13 November, 7.30 p.m. • Ian Butterworth

From Seeing Sound, to Killing Tumours with Ultrasound: Acoustic Research at the National Physical Laboratory

This talk will discuss two areas of research: "Seeing Sound" will show laser-based approaches to the visualisation of sound and included high-fidelity videos of acoustic fields."Ultrasound as a Medical Treatment" will look at new applications of ultrasound that used to kill cancerous tissues through intense localised heating.

KENT • 20 November, 7.30 p.m. • Dr Suzanne Aigrain

Exploring the Diversity of Exoplanets



Over the past 20 years astronomers have been discovering hundreds of exoplanets – many of which are challenging our theories of planetary formation. Dr. Aigrain will discuss the highlights and challenges of exoplanet exploration, outlining how we are detecting a wider range of planets, including some that may harbour life.

LONDON • 21 November, 6.30 p.m. • Prof. Stephen Swithenby

The Working Brain: What Physics Can Tell Us About Autism, Shopping and Learning Algebra

With modern scanners now able to image brain function, Prof. Swithenby, will talk about how magnetoencephalography (MEG) imaging is making a big contribution to our understanding of complex processes in the brain. (L&SE Branch Dinner to follow.)

December 2012

LONDON • 5 December, 6.30 p.m. • Dr Cyril Isenberg

The Magic of Bubbles

In an exciting visual demonstration Dr Isenberg will show the hidden properties of bubbles and liquid drops. The demonstration will not only reveal the spectacular visual properties of bubbles, but also show how bubbles can help answer questions like, "what is the minimum number of roadways needed to link a set of cities?".

HERTS • 5 December, 7.00 p.m. • Dr. James Grime

Alan Turing and the Enigma Machine

Alan Turing was a pioneer of computer science and one of the great mathematicians of the 20th century. He is best remembered for his brilliant insight that helped crack the Enigma machine during World War II. Dr Grime will talk about Turing's achievement with the aid of an original Enigma machine.

MILTON KEYNES • 11 December, 7.30 p.m. • Laurie Winkless

Raiders of the Lost Amp – Energy Harvesting Techniques

The energy crisis is about more than just fossil fuels verses renewables: it is also about reducing inefficiencies. Scientists are developing more efficient ways to use the energy that we already produce. The talk will look at one way of doing this, called energy harvesting (EH).

Information about the 2013 lecture programme will be posted at **http://london.iop.org** and will be circulated in our spring leaflet.