

May

MK • 1 May • Prof. Mohammed Sobhy

Colour Vision

Colour vision involves physics, physiology, psychology and neurology. It is not enough to relate each colour to a specific wavelength, as may be implied by studying the visible spectrum. The presentation will explain, through demonstrations and examples, how humans perceive colours.

LONDON • 16 May • Dr Suzie Sheehy

Accelerated Dreams

Particle accelerators play an integral part in modern life. Find out more about this remarkable technology and get a glimpse of how they may be developed in the future.

HERTS • 30 May • Dr Steve Kane

The Physics of Finance

Physicists have developed many techniques for modelling and controlling the uncertainty of physical systems. Steve will show how these can be applied to financial markets.

June

LONDON • 13 June • Prof. Mohammed Sobhy

Colour Vision



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AWE • 14 June • Jonathan Mather

Designing the Best 3D Display

It should be possible to replicate precisely the experience of looking through a window with an electronic display, but how feasible is this? How do 3D televisions and mobile “glasses-free” 3D displays work? This talk will give an overview of all 3D display technology, and explain how they might be improved in the future.

Information

- All of our lectures are free to all, and last about one hour.
- All venues are wheelchair accessible.
- Details listed herein are subject to possible alteration.
- Any views expressed are not necessarily those of IOP.
- Join us on **Twitter@IOPLSE**

Lecture venues and times are as follows:

LONDON

- Refreshments are served from 6.00 p.m. on day of lecture.
- Lectures held at 6.30 p.m. at The Institute of Physics, 76 Portland Place, London, W1B 1NT.
- Closest underground stations are Great Portland Street, Regent's Park and Oxford Circus.
- Please book your place at least a day in advance by calling 020 8845 2295 or e-mailing **londonse@physics.org**.

AWE

- Lectures held at 7.30 p.m. in the William Penney 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 usually held in the Lindop Building, University of Hertfordshire, College Lane, Hatfield AL10 9AB.
- For further information on this season's events, contact Dr Diane Crann (e-mail **d.crann@herts.ac.uk**, tel 07770 444 614).

KENT

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

MK

- 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 Mackintosh **r.mackintosh@open.ac.uk**

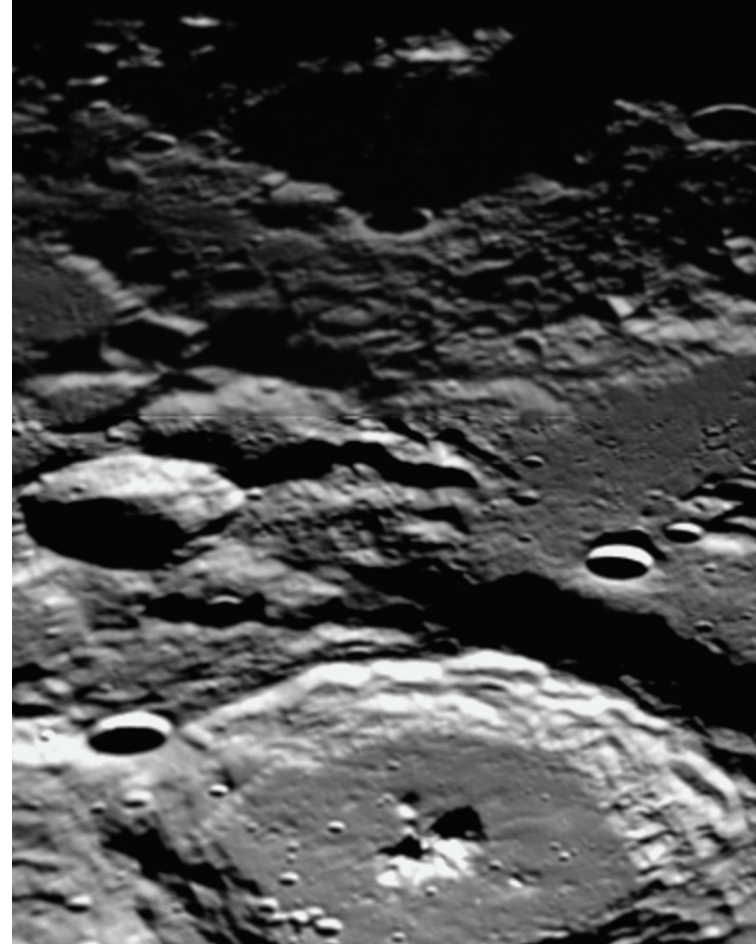
Changes and updates to lectures are at <http://london.iop.org>

Cover photo: NASA and the NSSDC/Clementine



London & South East Events

February – June 2012



IOP Institute of Physics

London and South East Lecture Programme

February

LONDON • 1 February • Dr Cyril Isenberg **Detecting Earthquakes and Nuclear Explosions**

The study of seismic waves has enabled the location of earthquakes and nuclear explosions, and revealed the solid-liquid-solid structure of the Earth. This lecture-demonstration will review our knowledge of this field.

KENT • 14 February • Dr Dirk Froebrich **Astrophysics and the Anthropic Principle (Joint meeting with SEKAS)**

Astrophysicists are often asked “Why is the universe the way it is?” Dr Froebrich will address the astrophysical implications of this question; specifically, he will discuss the “Beryllium – 8 problem” in the nucleosynthesis of carbon in stars.

MK • 14 February • Prof. Alan Davies **The Physics of Superheroes**

How does Magneto levitate? How strong is the gravity on Krypton? We shall show how many of our heroes’ “unbelievable” super powers can be explained by the laws of physics.

LONDON • 15 February • Prof. Dame Jocelyn Bell-Burnell FRS **The End of the World in 2012? The Astronomical Evidence**

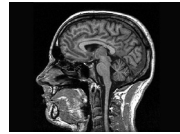
What’s all this about the end of the world in 2012? In this talk, we’ll look at the astronomical phenomena that will reputedly cause the end of the world in 2012, and reflect on what this has to say to us about science education and about the communication of science.

HERTS • 22 February • Prof. James Hough **Do We Owe Everything to the Stars?**



The discovery of extra-solar planets has raised the possibility of discovering life elsewhere, yet the origin of life on Earth remains one of the key questions for science. Prof. Hough will describe the role of stars in producing the molecular structures that are the building blocks of life.

KENT • 28 February • Dr Peter Dawson (Vista Diagnostics) **What Shadows We Are and What Shadows We Pursue?**



Medical imaging is one of the most important applications of physics. Dr Dawson will outline the physical principles involved, with particular emphasis on magnetic resonance imaging.

LONDON • 29 February • Prof. Alan Davies **The Physics of Superheroes**



How does Magneto levitate? How strong is the gravity on Krypton? We shall show how many of our heroes’ “unbelievable” super powers can be explained by the laws of physics.

March

AWE • 5 March • Dr Richard Pinch **Modern Cryptography (Joint meeting with IMA)**

Symmetric or secret key cryptography, historically used by the government, has evolved to meet the needs of life in cyberspace. This talk will describe how we achieve confidentiality and authentication, and how we can reduce the need for an elaborate infrastructure while maintaining security.

MK • 13 March • Prof. Michael Rowan-Robinson **Precision Cosmology**

In 2001, astronomers determined high-precision values for the Hubble constant and other cosmological parameters. Other studies showed that the expansion of the universe is accelerating, and demonstrated the need for a cosmological constant. Is the cosmological problem solved?

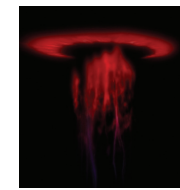
LONDON • 14 March • Dr Andrew Norton **Exoplanets and How to Find Them**

With the help of some fun demonstrations, Dr Norton will explain the techniques used to detect planets around other stars and give a brief summary of the recent discoveries in this area.

KENT • 20 March • Prof. Mohamed Sobhy **The Contributions of Photography to Art and Society**

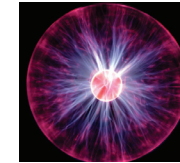
Prof. Sobhy will outline the relationship between art and photography, showing how they have influenced each other, and society, since the 19th century. He will also discuss candid photography, photojournalism, and the work of Erich Salomon, Dorothea Lange and Henri Cartier-Bresson.

LONDON • 28 March • Peter McLeish **A Collaboration Based on Red Sprites**



Red sprites are upper atmospheric optical phenomenon associated with thunderstorms. Peter, a painter and multimedia artist, will present two short films, *The Hundred Year Hunt for Red Sprites* and *Lightning’s Angels*, which he produced with scientist Walter A Lyons.

HERTS • 28 March • Dr Michael Tarbutt **How Round is an Electron and Why does it Matter?**



The physical shape of electrons is a property connected to the basic symmetries of nature. Dr Tarbutt will show how this shape can be measured, and how it relates to the flow of time and the balance between matter and anti-matter.

April

MK • 17 April • Prof. Panicos Kyriacou **Optical Sensing in Medicine**

Light is used in sensors that aid the prognosis, diagnosis and treatment of disease and the rehabilitation of patients. This talk will describe recent developments in medical optical sensors, and include real-world examples.

LONDON • 25 April • Dr Michael Tarbutt **How Round is an Electron and Why does it Matter?**

The physical shape of electrons is a property connected to the basic symmetries of nature. Dr Tarbutt will show how this shape can be measured, and how it relates to the flow of time and the balance between matter and anti-matter.

HERTS • 25 April • Prof. Chris Budd **Maths and the Making of the Modern World**

Almost all modern technology relies on maths but its contribution can sometimes be hidden away. In this talk Prof. Budd, currently the professor of mathematics at the Royal Institution, will expose some of the maths behind Google, the internet, mobile phones, credit cards, Facebook and sat nav devices.