

The Norah Boyce Science Lectures 2009-2010

This lecture series will continue to be held in the Sackler Lecture Theatre of the Institute of Astronomy on Tuesdays.

In the academic year 2009-10, the lectures will start 15 minutes later than last year, i.e. at 5.45 pm.

There will be three lectures in Autumn Term, five in the Spring Term, and two in the Summer Term.

The Institute of Astronomy is up a side road, marked 'University of Cambridge, Madingley Rise', on the North side of the Madingley Road, roughly opposite J.J.Thomson Ave.

It is 300 yards from the bus stop.

Leaving the Madingley Road, there is a car park on the right hand side and the Institute of Astronomy is the second building on the right further on, if the first car park is full, continue past the Institute and bear right for a second car park.

The OS map reference is 543050 259390 or TL430594.

Autumn 2009

Tuesday 13 October

Climate Change and Sustainable Energy

Dr Hugh Hunt

Hugh is a Senior Lecturer in the University's Department of Engineering, and a Fellow of Trinity College. He is interested in gyroscopes and boomerangs, and he also runs a course on Renewable Energy. Hugh's talk will draw on material from David Mackay's extraordinary book "Sustainable Energy - without the hot air" <http://www.withouthotair.com/> which has gained many plaudits including "a tour de force" (The Economist) and "this year's must-read book" (The Guardian). David has spoken to the U3AC in the Wednesday afternoon series within the last two years, but this subject is of such overwhelming importance that it seemed a good idea to air this topic again for the Norah Boyce Science Lectures.

Tuesday 20 October

Brain Gender

Professor Melissa Hines

Melissa is a Professor in Cambridge University's Department of Social and Developmental Psychology and a Fellow of Churchill College.

Her interests are summed up on her book, "Brain Gender":

<http://www.oup.com/us/catalog/general/subject/Medicine/Neuroscience/?view=usa&ci=9780195188363>

Which has been described as “. . . a remarkable book, a wonderful resource that belongs on one's bookshelf for frequent reference to the many times gender, sex, and brain questions come to mind . . . well written, easy to read . . . Tucked within the pages of this fascinating book are intriguing observations . . . The author has done an excellent job of getting us to think about some of the most fundamental questions in the science of reproduction.”

Tuesday 24 November

Disease, Experiment and Physiology

Professor James Fitzsimons, M.D., and F.R.S.

James was Director of Studies in Medicine at Gonville and Caius College for many years. More recently he was the President of Caius, and is Emeritus Professor of Medical Physiology.

James has pioneered our understanding of how animals and man respond to depletion of body fluids by the development of thirst and sodium appetite and the involvement of a hormone, angiotensin, in these behaviours. When these regulatory mechanisms malfunction, consequences can include the development of high blood pressure.

Spring 2010

Tuesday 19 January

Polar Insects: Survival of Cold and Climate Change

Professor Bill Block

Bill Block is an Emeritus Fellow at the British Antarctic Survey and worked for some 25 years on the effects of cold on polar insects, with fieldwork in both the Arctic and Antarctic.

He currently holds Honorary Professorships at the Universities of East Anglia and Abertay Dundee and is a Senior Member of Wolfson College, Cambridge.

In the U3A he has run a very popular course "Antarctica in a Nutshell" at the BAS and a Polar Study Group at the Scott Polar Research Institute. He will describe the effects of cold on invertebrates such as insects and mites, including some of the mechanisms to tolerate sub-zero conditions and highlight the constraints and opportunities for such animals in polar environments. The results from field experiments in the maritime Antarctic and Spitzbergen will be used to predict the effects of climate change on their populations.

Tuesday 9 February

Stem Cells: Hope or Hype?

Dr Kate Quinlan & Professor Roger Pedersen

Roger Pedersen is a refugee from the science policies of President George W. Bush. The USA's loss is Cambridge's gain, and Roger has set up the Laboratory of Regenerative Medicine within the University Department of Surgery at Addenbrooke's. Roger is a coauthor of "Essentials of Stem Cell Biology", the second edition of which came out in June 2009.

Kate Quinlan is a Biomedical Fellow at the Laboratory of Regenerative Medicine, and participates in Cambridge University's 'Rising Stars' programme, which provides training in public communication about science for University academics.

Tuesday 2 March

Paul Dirac: Britain's Einstein

Graham Farmelo

"Moving, funny, sad and intensely readable, this is a fascinating insight into the psychology of genius." So said the judges in announcing the Costa Biography of the Year Award for 2009 to Graham Farmelo for his book "The Strangest Man: The Hidden Life of Paul Dirac, Quantum Genius." One of many glowing reviews of the book can be found at <http://www.guardian.co.uk/science/2009/apr/02/paul-dirac-strangest-man-farmelo-quantum> Graham will talk to us on Tuesday 2nd March on the subject of 'Paul Dirac - Britain's Einstein'. "My talk will focus on PD and his 'religion of mathematical beauty'. If the word 'mathematical' in there might be off-putting, just drop it - my talk will be easy for non-mathematicians to follow."

Tuesday 9 March

Post-War Ornithology in Cambridge

Peter Bircham

Peter has led a remarkable double-life. For his "day job" he has worked for many years as a laboratory technician, starting in the Department of Physiology and now in the Department of Pharmacology where he is Principal Technician. His other life is as an ornithologist – studying, teaching and writing about birds and how people have studied birds. He teaches courses in ornithology for the University's Institute of Continuing Education. In 1989, Peter published "The Birds of Cambridgeshire".

In his most recent book: "A History of Ornithology",

http://www.nhbs.com/a_history_of_ornithology_tefno_139151.html

Peter has written an "extremely authoritative and engrossing account, full of fascinating stories and extracts from poems and journals, which should appeal to the wider birding community."

Tuesday 16 March

Discovering What Genes Do by Knocking Them Out: Control of Puberty and Fertility

Professor Bill Colledge

Bill is Professor of Reproductive Physiology in Cambridge University's Department of Physiology, Development and Neuroscience. He previously

worked in the laboratory of the Nobel Prize winner, Professor Sir Martin Evans, FRS where he generated several mutant mouse strains to study human diseases such as cystic fibrosis and cardiac arrhythmias. Bill's current research interest relates to understanding the genetic factors that control puberty and fertility.

Summer 2010

Tuesday 11 May

The Science and Beauty of Nebulae

Dr Carolin Crawford

Carolin is an astronomer at the Institute of Astronomy, researching the properties of the most massive galaxies in the Universe, using a combination of the largest ground-based and space telescopes.

A Fellow of Emmanuel College, Carolin combines her research and teaching with her other passion, communicating her love of astronomy to as wide an audience as possible. She runs an ambitious outreach programme at the Institute of Astronomy and is a regular contributor to BBC Radio 4. In 2009 she was noted as one of the UKRC's Women of Outstanding Achievement for the communication of science with a contribution to society.

In this talk Carolin will discuss interstellar space; not truly a vacuum devoid of matter but inhabited by vast large clouds of gas and dust that appear as glorious and complex multicoloured structures. She will showcase some of the most spectacular images of such 'nebulae', including many taken by the Hubble and Spitzer space telescopes. A few of these may be familiar - such as the iconic 'pillars of creation' - but we shall look at them with new eyes, dissecting the pictures and learning how to 'read' what they tell us about the turbulent story of the birth and death of stars, revealing the science behind the beauty.

Tuesday 25 May

Moving in an Uncertain World: How the Brain Controls the Body

Professor Daniel Wolpert, MD, Ph.D.

The ease with which we move our body masks the true complexity of the processes involved. While computers can beat grandmasters at chess no

robot comes close to matching the dexterity with which a young child can manipulate a chess piece.

This talk reviews a major factor that makes control hard, the uncertainty about our body and the world. To understand the mechanisms used by the brain to control movement Daniel will cover topics that include why you can't tickle yourself, why fights tend to escalate and what you can learn by poking yourself in the eye.

Daniel's first degree was in medicine. He now holds a Professorship in the University's Department of Engineering where he is Head of the Computational and Biological Learning Group. He is a Fellow of Trinity College.

More information at <http://www.wolpertlab.com>