BLUEPRINT

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New Divisional Heads

The following people will be taking over as Heads of Division next academic year:

Maths and Physical Sciences Division – Professor Keith Burnett

Professor Burnett is currently Chairman of Physics, a position he has held since 2002. He is a Fellow of St John's College. He was elected Fellow of the Royal Society in 2001, and in 2004 he was awarded a CBE for services to Physics. His research interests are the effect of intense laser radiation on matter as a potential source of coherent X-rays or X-ray lasers; the study of ultra-cold atoms produced using laser and evaporative cooling; and developing atomic arrays for use in quantum computers. Professor Burnett will take up post on 1 September 2005.

Social Sciences Division – Dr Michael Spence

Dr Spence has been Chair of the Law Board since 1992 (though is on leave 2004–05). He is a Fellow of St Catherine's College. He is a consultant for the London firm Olswang, and teaches international intellectual property law for Boston University. His research interests are in Contract, Equity, and Intellectual Property. Dr Spence will take up post on 1 October 2005.

Humanities Division – Professor Sally Shuttleworth

Professor Shuttleworth is currently Professor of Modern Literature at the Department of English Literature of the University of Sheffield. She was Head of Department 1996–99 and Head of the newly-formed School of English 1998–99. She is Director of the Centre for Nineteenth-Century Studies at Sheffield and co-ordinates its associated MA programme, and was Dean of the Arts Faculty 2001–03. Her research interests are in Victorian Studies, with a particular emphasis on the relations between literature and science. Professor Shuttleworth will take up post in 2006.

Dr Ken Fleming will continue as Head of the Medical Sciences Division. A Head of the Life and Environmental Sciences Division has not been appointed.

Rob Judges

Eight honorands received their honorary degrees at Encaenia, the University's annual honorary degree ceremony, on Wednesday 22 June: business leader Sir William Castell, neuroscience writer Dr Oliver Sacks, physicist Sir Anthony Leggett, geneticist Dr Christiane Nüsslein-Volhard, psychopathologist Sir Michael Rutter, literature expert Dame Gillian Beer; author Toni Morrison, and artist Paula Rego. Two more, the Prime Minister of India, Dr Manmohan Singh, and film-maker Ken Loach, will receive their honorary degrees at ceremonies later in the year.

Simplifying Complexity

A European project to investigate complex systems, from biology to business, is to be coordinated from Oxford University.

MMCOMNET (Measuring and Modelling Complex Networks Across Domains) has been funded by the EU to the value of €1.5 million, of which €540,000 goes to Oxford to act as a coordinating center, with Dr Felix Reed-Tsochas at the Saïd Business School acting as overall coordinator.

It is a relatively recent discovery to science that complex systems in all areas of life, from biology to public transport to supermarket supply chains, share certain features. Studying complexity can illuminate our understanding of a surprisingly diverse array of systems in which agents, whether they be cells, people, buses or companies, interact. MMCOMNET seeks to develop new models, statistical techniques, and software tools to analyse these complex networks.

The MMCOMNET grant is one of the research activities of the CABDyN (Complex Agent-Based Dynamic Networks) research cluster in Oxford, which brings together researchers from 11 departments covering the sciences, social sciences, and business. The other universities involved in MMCOMNET are the Technical University of Dresden, INSEAD, the University of Stockholm, the Technical University of Warsaw, and ETH Zurich.

The project will base its investigation of complex systems around three systems representing biological, socio-economic and innovation networks: fungal growth, commercial supply chains, and the clustering of high-tech businesses. Datasets on public transport in Poland and traffic networks in Germany are also being analysed.

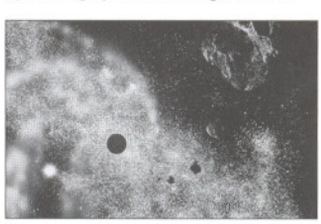
Dr Reed-Tsochas said: 'The project exploits advances in complexity science to elucidate the individual and collective behaviour of agents. It will improve our understanding of how the complex networks that surround us in everyday life function, and how and why they change over time.'

They're all around us.....

Astrophysicists from the Universities of Oxford and Rome have for the first time found evidence of ripples in the Universe's primordial sea of neutrinos, confirming the predictions of both Big Bang theory and the Standard Model of particle physics.

Neutrinos are elementary particles with no charge and very little mass, which are extremely difficult to study due to their very weak interaction with matter. Yet pinning down the physical properties of neutrinos is of paramount importance to scientists attempting to understand the fundamental building blocks of nature. According to the standard Big Bang model, neutrinos permeate the Universe at a density of about 150 per cm^3. The Earth is therefore immersed in an ocean of neutrinos, without us ever noticing. Although it is impossible to measure this 'Cosmic Neutrino Background' directly with present-day technology, physicists predict that ripples or waves in it have an impact on the growth of structures in the Universe.

In research published in the journal *Physical Review Letters*, Dr Roberto Trotta in the Department of Physics and Dr Alessandro Melchiorri of La Sapienza University in Rome were able to demonstrate for the first time the existence of ripples of primordial origin in the Cosmic Neutrino Background. The discovery, made by combining data produced by the NASA WMAP (Wilkinson Microwave Anisotropy Probe) satellite and the Sloan Digital Sky Survey, confirms the predictions of both the Big Bang theory and the Standard Model of particle physics. It shows that theories of the infinitely large (cosmology) and the infinitely small (particle physics) are in agreement.



Neutrinos permeate the universe, but are hard to detect