

UNIVERSITY OF
Southampton

Mix things up.
Interdisciplinary
Research Week



23–27 March 2014

4th Annual Interdisciplinary Research Week

23–27 March 2014

Mix things up

Bringing together adventurous minds to achieve the impossible

Today's big societal issues are now a strategic focus for universities, government, research councils, business and industry across the globe. Southampton is breaking new ground with its innovative integration of perspectives from the arts, humanities and social sciences with methods drawn from mathematics, engineering or the physical sciences to forecast the likely behaviour of complex systems (social, natural or engineering) and developing new intervention strategies.

Join us for Interdisciplinary Research Week for a programme of activities and events aimed at showcasing some of the different aspects of interdisciplinary work being undertaken at the University of Southampton.

To register visit interdisciplinaryweek.eventbrite.com
or email: interdisciplinary@southampton.ac.uk



Follow us on Twitter @intersoton & #IDRW2014

www.southampton.ac.uk/interdisciplinary

Programme

Sunday 23 March 2014

TEDx Southampton University – Flourishing in the 21st Century

Venue: Nuffield Theatre

Time: 10:00 – 17:00

Monday 24 March 2014

Question time; Trust, Truth and Trolling: How We Handle the Web

Speakers: Pro Vice-Chancellor Judith Petts, Professor Dame Wendy Hall, Dr Lisa Harris, Professor Les Carr and Dr Sophie Stalla-Bourdillon

Venue: Garden Court, Highfield Campus

Time: 09:45 – 11:45

Keynote: Endangered Foods: The Loss of Agricultural Biodiversity and Slow Extinction of What We Grow and Eat

Speaker: Simran Sethi

Venue: Building 34, Room 3001, Highfield Campus

Time: 12:30 – 15:00

Poetry and Science: The Litmus Project

Venue: Hartley Library Gallery, Level 4, Highfield Campus

Time: 17:00 – 18:00

Tuesday 25 March 2014

Flooding in Coastal Cities plus poster display by PhD students

Speaker: Professor Robert Nicholls

Venue: The Nuffield Theatre, Lecture Theatre A, Highfield Campus

Time: 10:00 – 12:00

Perspectives on Food Security

Speakers: Professor Tim Benton, Professor Gail Taylor and Professor Robert Nicholls

Venue: Lecture Theatre A, Nuffield Theatre

Time: 14:00 – 16:00

Wednesday 26 March 2014

Creating the Right Atmosphere: Why it Matters for Public Health

Speakers: Dr Tracey Newman, Professor Guy Poppy and Dr Matt Loxham

Venue: Somers Lecture Theatre, IDS Building, Southampton General Hospital

Time: 10:00 – 12:00

Computationally Intensive Imaging Art Exhibition

Venue: Observatory, Level 7, Building 85, Highfield Campus

Time: 12:00 – 14:00

Keynote mini symposium: Environmental Carbon Cycling

Speakers: Professor Rachel Mills with short talks by Dr Jessica Whiteside, Dr Nefeli Tsagalou and Professor George Attard

Venue: Building 67, Room 1027, Highfield Campus

Time: 14:00 – 18:00

Thursday 27 March 2014

International, Interdisciplinary and ‘On the Move’ - The Digital University

Speaker: Dr Graeme Earl

Venue: The Nuffield Theatre, Lecture Theatre A, Highfield Campus

Time: 09:00 – 11:00

Future trends in Metamaterials and Silicon Photonics

Speakers: Professor Nikolay Zheludev and Professor Graham Reed

Venue: Building 53, Room 4025, Highfield Campus

Time: 14:00 – 17:00

Register online at:

www.southampton.ac.uk/interdisciplinary

Further events may be added to the programme. Please refer to the website for updates.

Refreshments will be provided at all events. Please see individual listings for details.

Sunday 23 March

TEDx Southampton University – Flourishing in the 21st Century

Venue: Nuffield Theatre, Lecture Theatre A, Highfield Campus
Time: 10.00–17.00

The first TEDxSouthamptonUniversity was held in 2013 and featured a range of talks that explored issues related to Sustainability. In 2014, TEDxSouthamptonUniversity will focus on what we can do to not only sustain but flourish. It will examine new ways of living in a new world. We may have to navigate dangers, some from the natural world, some from ourselves, but we can and arguably must also build a vision of what a good life is and how we and future generations can flourish in the 21st Century.

TEDx

Southampton University

x = independently organized TED event

Not just sustaining ourselves but flourishing



Monday 24 March

Question Time; Trust, Truth and Trolling: How We Handle the Web

Speakers: Pro Vice-Chancellor Judith Petts, Professor Dame Wendy Hall, Dr Lisa Harris, Professor Les Carr and Dr Sophie Stalla-Bourdillon

Venue: Garden Court, Highfield Campus

Time: 09:45 – 11:45

Since Professor Tim Berners-Lee had the idea for the Web in 1989, it has grown faster and huger than anyone ever imagined it would and our efforts to manage it always seem to lag slightly behind its proliferation. It allows things to happen on an enormous scale. Is it out of control?

Come and hear researchers at the cutting edge as they set out the issues that the existence of the Web presents us with right now. Join Pro Vice-Chancellor Professor Judith Petts as she introduces Dame Wendy Hall who has just launched the brand new discipline of Web Science; Dr Lisa Harris who is Chair of the Digital Economy USRG; Professor Les Carr, web scientist, open access advocate and Director of our Web Science doctoral training centre and Dr Sophie Stalla-Bourdillon who specialises in Law and the Web. Hear them, have your say and enjoy free coffee and muffins!

A woman with dark hair, wearing a bright red coat, is laughing joyfully with her head tilted back. The background is a clear, bright blue sky. The image is positioned on the left side of the page, with the text on the right.

Keynote: Endangered Foods: The Loss of Agricultural Biodiversity and Slow Extinction of What We Grow and Eat

Time: 12:30 – 14:30 including lunch (12:00 – 12:30) and Q&A

Simran Sethi is an award-winning journalist, strategist & educator who teaches & reports on sustainability, environmentalism & social media for social change. Named “the environmental messenger” by Vanity Fair & a “top ten eco-hero of the planet” by the UK’s Guardian, Simran is dedicated to a redefinition of environmentalism that uses innovative forms of engagement & includes voices from the prairie, urban core & global community.

The Food and Agriculture Organization of the United Nations estimates 75 percent of crop varieties have disappeared since 1900. This shrinkage of genetic variance echoes through every link in our food chain and strips inputs, crops, livestock and aquatic life of their ability to adapt to changes in the environment, thereby putting our entire food supply at risk. This extinction of food is a process: buried in the soil, hidden within feedlots and immersed in the sea. Journalist and educator Simran Sethi will detail this slow loss of biodiversity and explain solutions that are innovative, compelling and delicious.

Simran Sethi

Poetry and Science: The Litmus Project

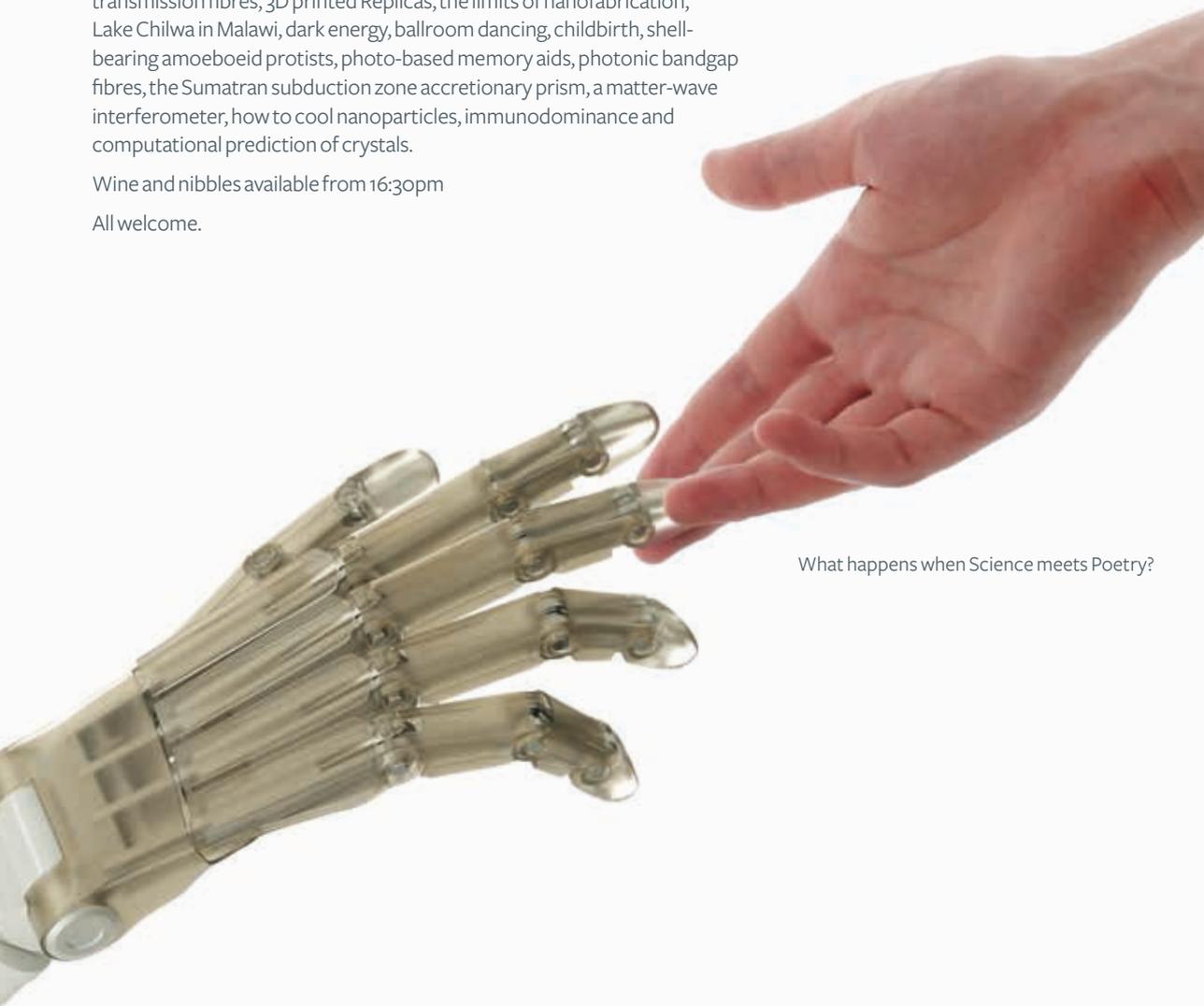
Venue: Hartley Library Gallery, Level 4, Highfield Campus

Time: 17:00-18:00pm

Science imagines what might be there and then proves it exists. Poetry uses imagination to describe those things imagined first and existing second. What happens when poets and scientists meet? Come and see the results of these volatile interactions as literary skills meet optical power transmission fibres, 3D printed Replicas, the limits of nanofabrication, Lake Chilwa in Malawi, dark energy, ballroom dancing, childbirth, shell-bearing amoeboid protists, photo-based memory aids, photonic bandgap fibres, the Sumatran subduction zone accretionary prism, a matter-wave interferometer, how to cool nanoparticles, immunodominance and computational prediction of crystals.

Wine and nibbles available from 16:30pm

All welcome.



What happens when Science meets Poetry?

Tuesday 25 March

‘Flooding in Coastal Cities’ plus poster display by PhD students

Speaker: Professor Robert Nicholls

Venue: The Nuffield Theatre, Lecture Theatre A, Highfield Campus

Time: 10:00 – 12:00

We have all seen the devastation that storms can bring to cities and communities in coastal areas of the world. The vital research of Professor Robert Nicholls focuses on long-term coastal engineering and management, especially issues of coastal impacts and adaptation to climate change, with an emphasis on sea-level rise. The future of deltaic areas, the most threatened coastal settings in the coming century, is in our hands. Come and hear about how this research is developing a tool to forecast what the UK’s coastline will look like in the future. Learn more about what can be done and browse through the posters that showcase this work.

Perspectives on Food Security

Speakers: Professor Tim Benton (UK Champion for Global Food Security), Professor Gail Taylor and Professor Robert Nicholls

Venue: The Nuffield Theatre, Lecture Theatre A, Highfield Campus

Time: 14:00 – 16:00

In this event, jointly hosted by the Energy and Sustainability Science USRGs, we will examine the topic of global food security. The session will be chaired by Professor Guy Poppy who leads Southampton’s BBSRC DTP on Food security and the IFLS’s food and environmental security theme. Professor Tim Benton will talk to us about his work as the UK Champion for Global Food Security, covering food production and waste in the supply chain. Gail Taylor, Professor of Plant Biology, will give an overview of her work on increasing the sustainability of biofuels by using alternative plants to the food crops that are traditionally used to produce bioethanol. Robert Nicholls, who is Professor of Coastal Engineering, will talk about the ESPA Deltas project that he leads on, focusing on deltas which are food baskets of the world and yet highly vulnerable to environmental change.

Wednesday 26 March

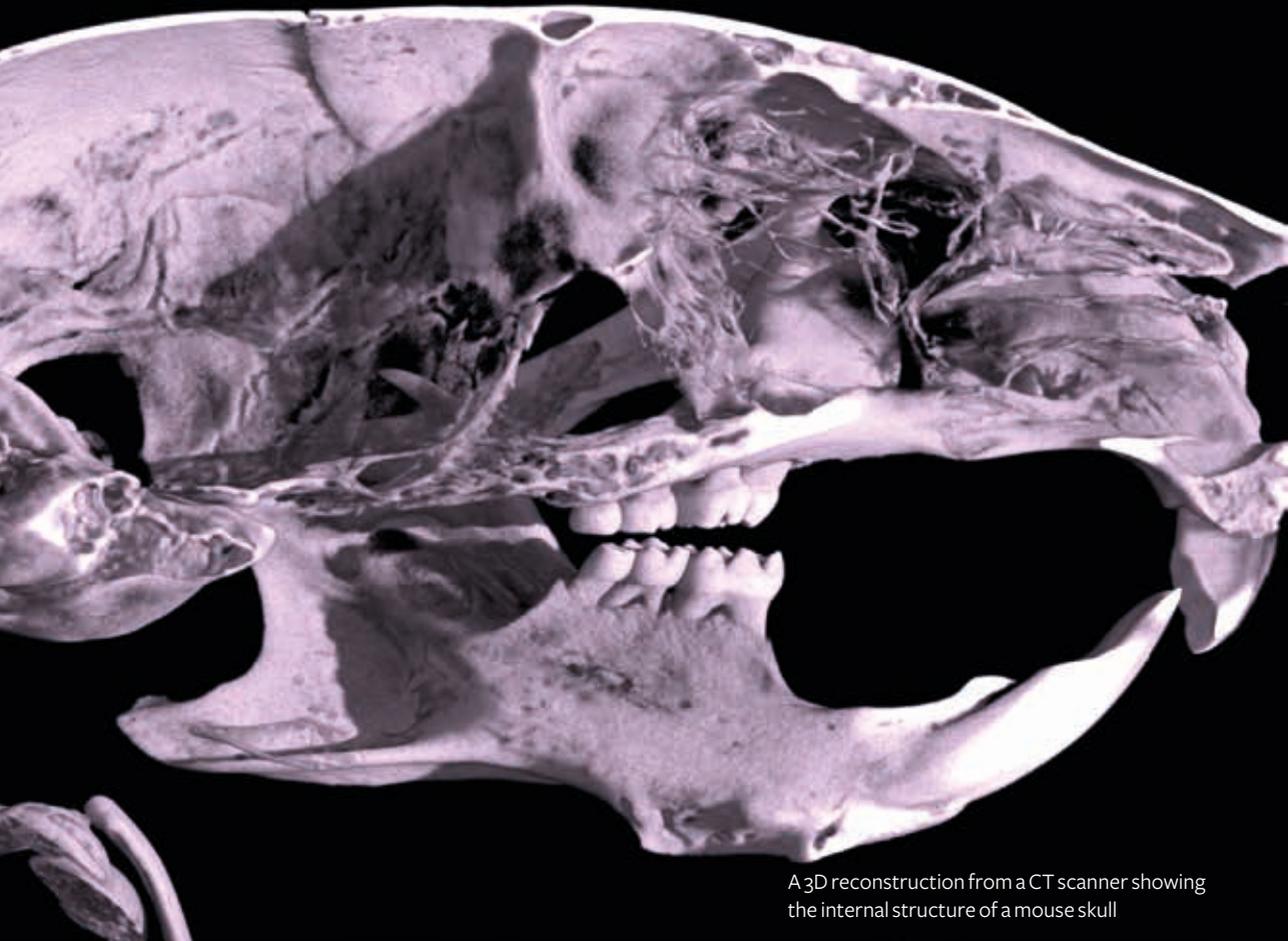
‘Creating the Right Atmosphere: Why it Matters for Public Health’ introduced by The Vice Chancellor, Professor Don Nutbeam

Speakers: Dr Tracey Newman, Professor Guy Poppy and Dr Matt Loxham
Venue: Somers Lecture Theatre, IDS Building Southampton General Hospital
Time: 10:00 – 12:00

All land dwelling species interact with airborne chemistry on a minute by minute basis, and there is now a growing recognition of the need to control airborne emissions from a number of anthropogenic sources. Whilst we are all aware of the risks of smog, we are less aware of the effects of other pollution events on our daily lives. This short series of talks will demonstrate how research being led in Southampton, is revealing the impact of pollutants on human health, and the public health agenda that this highlights. In a big city environment, is the underground a better option than walking beside traffic congested roadways? As well as the direct impact of one mode of transport (the underground) on human health, we explore the effects on one of the key pollinator species in the UK. The honeybee not only directly influences the crop production of plants that deliver essential macro and micro nutrients to human health, it also provides an ideal indicator species for the study of the impact, on both humans and our planet's ecology, of industrialization and our choice of fuel sources.



Honeybees are under threat



A 3D reconstruction from a CT scanner showing the internal structure of a mouse skull

Computationally Intensive Imaging Art Exhibition

Venue: Observatory, Level 7, Building 85, Highfield Campus

Time: 12:00 – 14:00

The ability to exploit data processing/mining, visualisation, inverse modelling, large scale computation and best practice in data handling produces fundamental challenges in the information available, making computation a core element of virtually all major imaging developments. Southampton is well placed in supporting this reality of contemporary imaging. Commonality is identifiable across the Southampton activities in terms of both their computationally intensive nature and their interdisciplinarity. This exhibition will showcase some of the amazing 2D and 3D images used in research by members of the Computationally Intensive Imaging USRG who will also be on hand to explain the techniques used in creating these images.

Keynote Mini-Symposium: Environmental Carbon Cycling

Speakers: Professor Rachel Mills, Dr Jessica Whiteside,
Dr Nefeli Tsagalou and Professor George Attard

Venue: Building 67, Room 1027, Highfield Campus

Time: 14:00 – 18:00

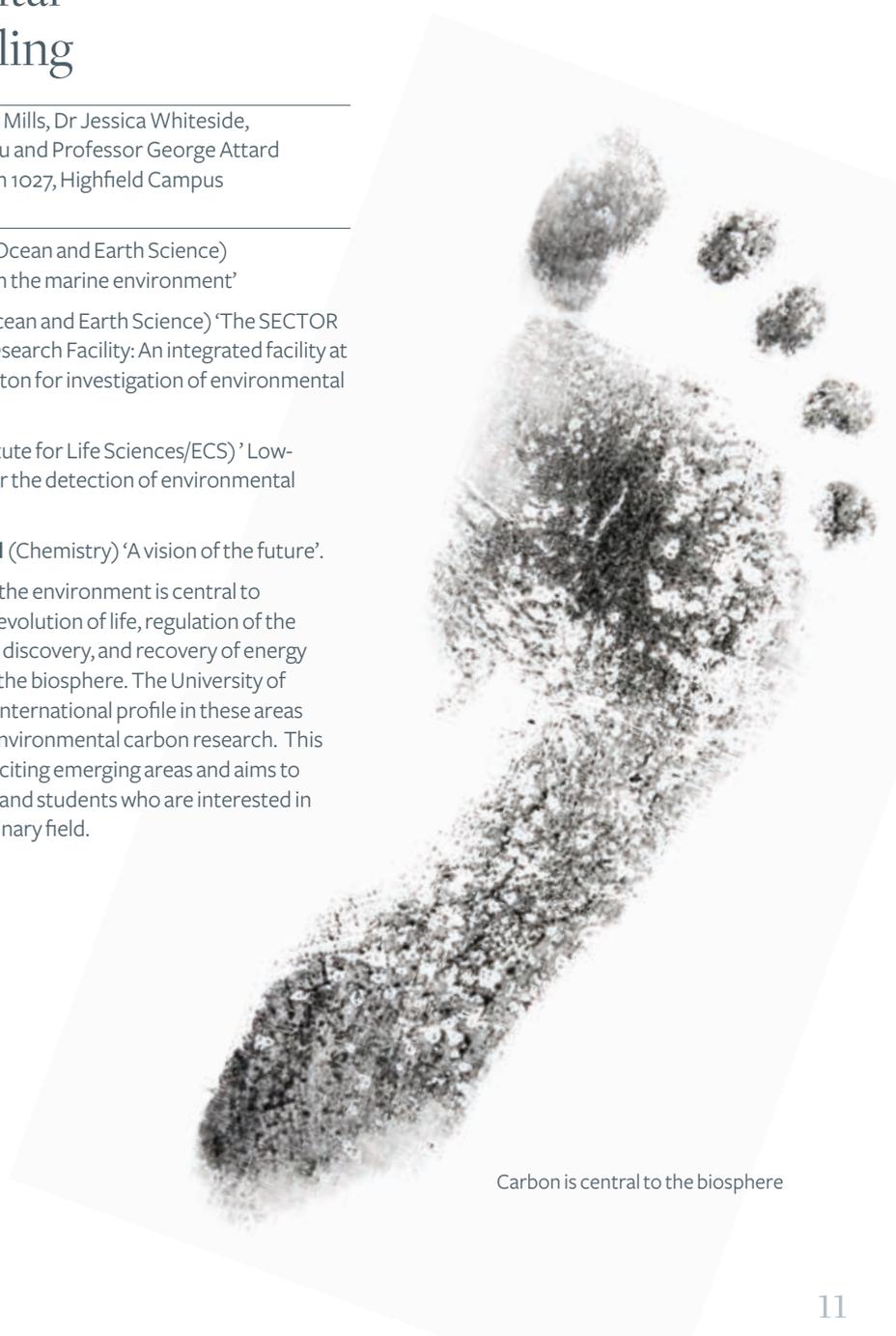
Professor Rachel Mills (Ocean and Earth Science)
‘Interdisciplinary research in the marine environment’

Dr Jessica Whiteside (Ocean and Earth Science) ‘The SECTOR
Multidisciplinary Carbon Research Facility: An integrated facility at
the University of Southampton for investigation of environmental
carbon’

Dr Nefeli Tsagalou (Institute for Life Sciences/ECS) ‘Low-
cost microfluidic devices for the detection of environmental
pathogens’

Professor George Attard (Chemistry) ‘A vision of the future’.

The behaviour of carbon in the environment is central to processes as diverse as the evolution of life, regulation of the Earth’s climate, the genesis, discovery, and recovery of energy resources, and pollution of the biosphere. The University of Southampton has a strong international profile in these areas and many related fields of environmental carbon research. This session showcases some exciting emerging areas and aims to bring together researchers and students who are interested in engaging in this interdisciplinary field.



Carbon is central to the biosphere

Thursday 27 March

WUN - International, Interdisciplinary and 'On the Move' - The Digital University

Speaker: Dr Graeme Earl

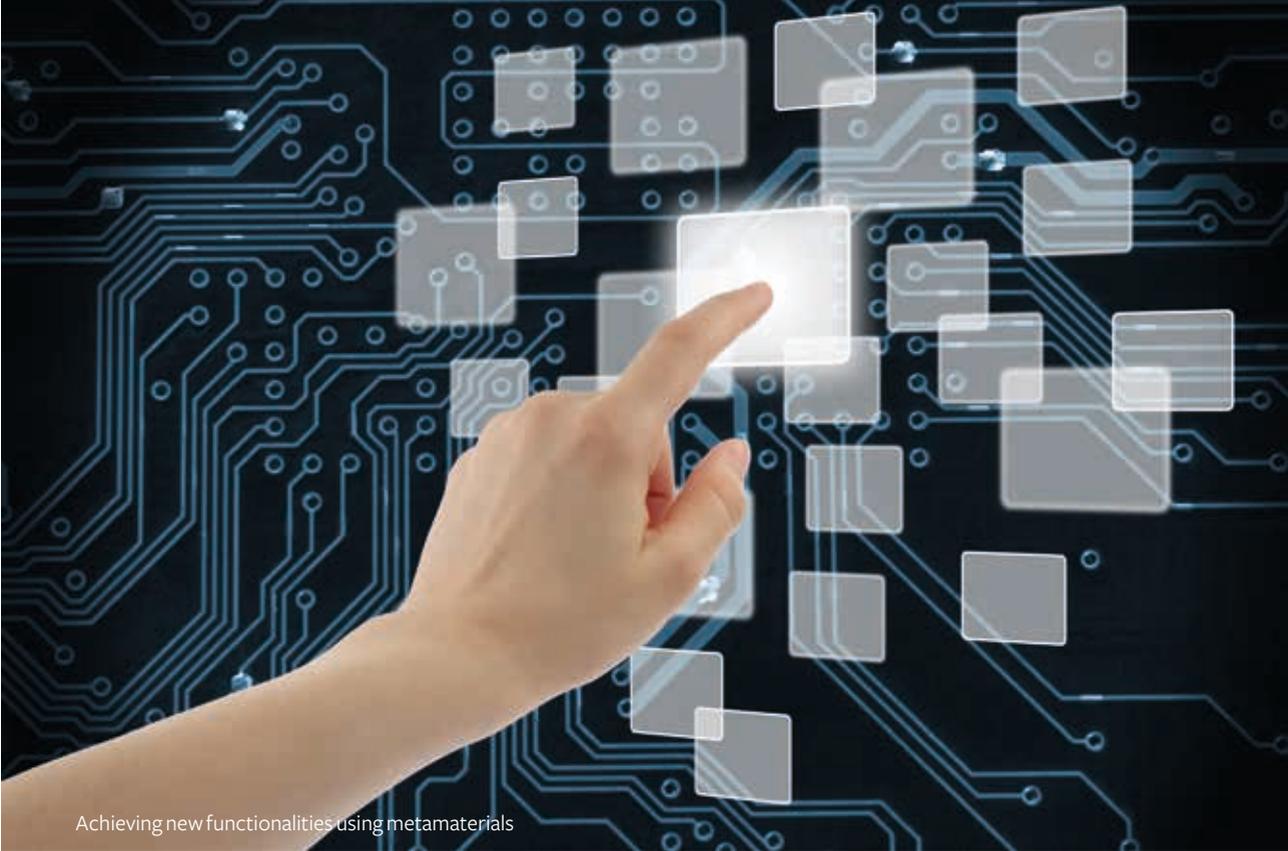
Venue: The Nuffield Theatre, Lecture Theatre A, Highfield Campus

Time: 09:00 - 11:00

The Worldwide Universities Network (WUN) seeks to create new, multilateral opportunities for international collaboration in research. This session will explore how collaborations can be carried out within geographically dispersed research groups. All early career researchers (PGR and Post docs) are welcome to hear from experts and join in the discussion to find out how the community can benefit from and actively participate in on-going projects. In the second half, there will be an online speed dating session with other researchers across the world. Don't miss this chance to network live, find out more and enjoy doughnuts and coffee.



WUN @Southampton:
The Digital University –
how to participate in and
contribute to worldwide
international research
wherever you are



Achieving new functionalities using metamaterials

Future trends in Metamaterials and Silicon Photonics

Speakers: Professor Graham Reed and Professor Nikolay Zheludev with introduction from Professor Hywel Morgan

Venue: Building 53, Room 4025, Highfield Campus

Time: 14:00–16:30

Metamaterials

Professor Nikolay Zheludev,
Optoelectronics Research Centre

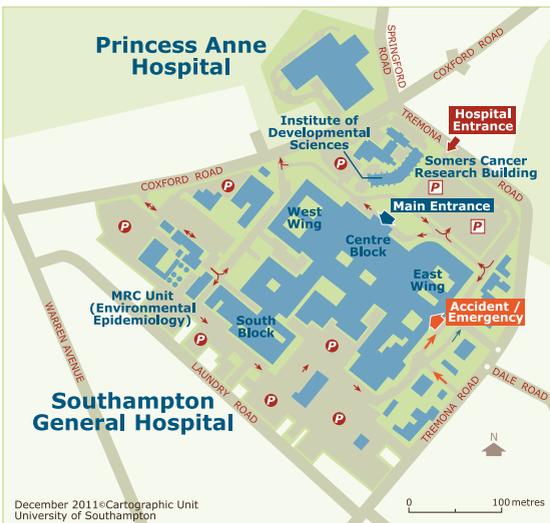
Metamaterials, artificial electromagnetic media achieved by structuring on the subwavelength scale, were initially suggested as negative index material for the “superlens” and for transforming electromagnetic space to control propagation of waves in applications such as the “electromagnetic cloak”. The research agenda is now shifting to achieving tunable, switchable, nonlinear, gain and sensing functionalities using metamaterials. We show how engaging the changing balance of forces, structural transformation, light confinement and coherent effects at the nanoscale brings about the emerging field of metadevices that we define as devices with unique and useful on-demand functionalities achieved by structuring of functional matter on the subwavelength scale.

Silicon Photonics

Professor Graham Reed,
Optoelectronics Research Centre

Silicon Photonics was seen a technology for “short reach” communications links, but now a plethora of other applications are emerging. The technology is seen as the most likely candidate for inter-chip and perhaps intra-chip communications, but also for use in data centre interconnect, fibre to the home transceivers, and as a platform for lab-on-a chip sensors. The field has made dramatic progress in the last 5 years, to the extent that commercialisation is now inevitable. This talk will introduce the technology as well as discussing some of the work being carried out at Southampton.

Campus maps



To find out more about how you can get involved visit:

www.southampton.ac.uk/interdisciplinary

The Interdisciplinary Research strategy is led by Pro Vice-Chancellor Professor Judith Petts and Director of Interdisciplinary Research Strategy Professor Guy Poppy. The co-ordinating staff are based in Research and Innovation Services. The University of Southampton has currently identified 11 USRGs and 4 Institutes that build on our current areas of expertise. Each theme draws together researchers from across the University, combining our research in engineering, social sciences, biological and physical sciences, medicine and health technologies as well as law, management and art.

To find out more or to become a member of a particular group please contact:
interdisciplinary@soton.ac.uk

Interdisciplinary Research Groups at the University of Southampton

Ageing and Lifelong Health

Complexity in Real-World Contexts

Computationally Intensive Imaging

Digital Economy

Energy

Health Technologies

Nanoscience

Neurosciences

Population Health

Sustainability Science at Southampton

Work Futures Research Centre

Institute for Life Sciences

Southampton Marine and Maritime Institute

Web Science Institute

Zepler Institute

Interdisciplinary Research Week 2015

If you have an event you would like to include next year, please get in touch! Contact details can be found at:
www.southampton.ac.uk/interdisciplinary/contact.page

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