

THE JAMES MARTIN
21ST CENTURY SCHOOL
UNIVERSITY OF OXFORD

NEWS

WINTER 2009 | ISSUE NO 7

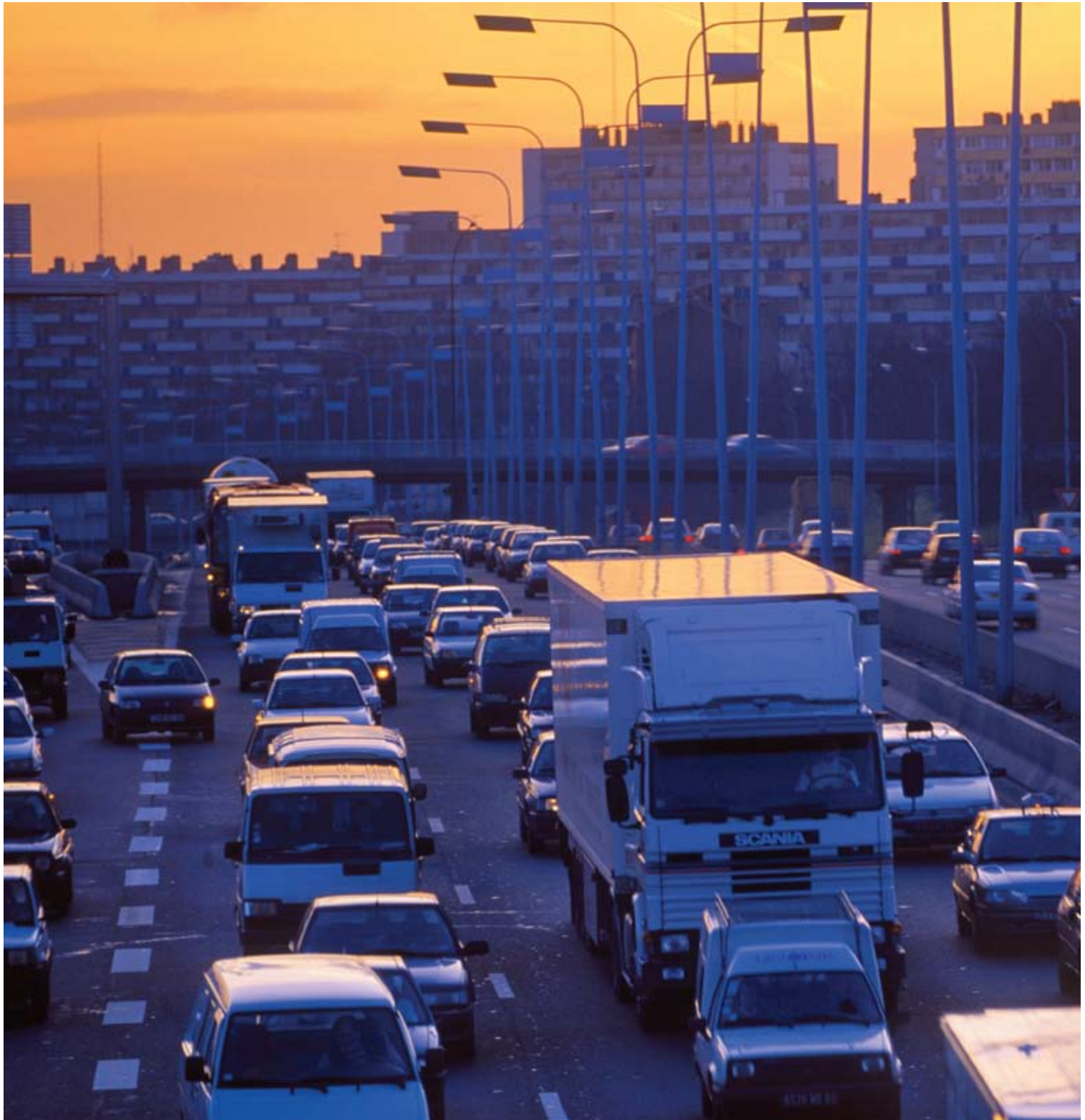
CONTRIBUTIONS TO
COPENHAGEN

'GETTING TO ZERO'

MATCHED FUNDING
UPDATE

HIGH IMPACT EVENTS

RESEARCH
HIGHLIGHTS



UNIVERSITY OF
OXFORD



Dear Friends and Colleagues,

Welcome to our new look newsletter for the 2009-2010 academic year. With more in-depth insights into the quality and scope of 21st Century School research, as well as a more dynamic layout, we hope you'll find the newsletter both interesting and valuable to your understanding of our aims and impacts.

Our first feature article provides a summary of research activities relevant to the upcoming climate change conference in Copenhagen, and shows how Oxford academics have been contributing to the negotiations. It also links to a briefing paper that we produced to highlight the range of work being undertaken by 21School researchers to help leaders in business, politics and society take effective decisions to prevent climate change.

We have been delighted to see a great number and diversity of Oxford scholars and potential donors rising to the challenge of Dr James Martin's \$50 million matched funding scheme. Many innovative and collaborative projects are being developed that bring exciting promise for addressing 21st century problems. The School's Management Committee (which includes Oxford's four division heads and two Pro-Vice-Chancellors) has the difficult task of assessing the many and varied proposals against the School's rigorous criteria for membership. We are confident that the resulting size and shape of the 21st Century School will reflect the best of Oxford's most innovative, collaborative and high impact research on future challenges and opportunities.

We hope you enjoy this newsletter. Please contact us if you'd like further details about any of these stories or announcements.

Best wishes for the holiday season and the New Year,

Ian Goldin

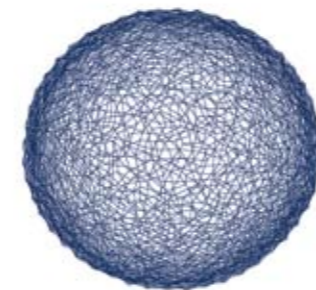
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COPENHAGEN



COP15
COPENHAGEN
UN CLIMATE CHANGE CONFERENCE 2009

On 7 December 2009 world leaders, journalists, academic experts and environmental activists will gather in the city of Copenhagen for a two-week conference, where they hope to agree an ambitious new strategy to combat climate change. This is a pivotal chance to negotiate a set of targets stringent enough to ensure that global temperatures do not pass the internationally accepted danger threshold of 2°C.

Researchers from the 21st Century School have been actively involved in the run-up to the conference, and have been talking to the public, press, policymakers and other major stakeholders about their research on climate-related issues. The Copenhagen conference provides an important opportunity to tackle an incredibly complex global challenge, and here we highlight some of the 21st Century School's climate research, policy initiatives, special awards and innovative collaborations that will play a vital role in achieving a new global climate change strategy.



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FOUR DEGREES AND BEYOND

In September the **Environmental Change Institute** co-hosted a three-day conference to consider the consequences of a global temperature rise of 4°C. Since the late 1990s, greenhouse gas emissions have increased at close to the most extreme scenarios predicted by the Intergovernmental Panel on Climate Change, meaning that rates of warming will likely be faster than expected. The conference highlighted the need for more informed and bolder decision-making in order to develop effective mitigation and adaptation strategies for dealing with climate change. A full audio record of this conference is available online: www.eci.ox.ac.uk/4degrees/index.php

CLIMATE POLICY

Prof Steve Rayner (**Institute for Science, Innovation and Society**) gave a lecture in Copenhagen on carbon trading, geo-engineering and climate policy making. Prof Rayner also contributed to two high-profile reports on carbon trading:

- *'How to Get Climate Policy Back on Course'* (July 2009) was a joint publication by the Institute for Science, Innovation and Society and the Mackinder Programme at the London School of Economics. It argued that the world should draw inspiration from the Japanese *Mamizu* climate strategy, which rejects carbon trading in favour of renewable energy and improving energy efficiency.

- *'A Dangerous Obsession'* (November 2009) claimed that carbon credits are being packaged into increasingly complex financial products similar to those surrounding sub-prime mortgages. Prof Rayner wrote the foreword to the report, which was produced by Friends of the Earth, and is being distributed to decision makers, media and campaigners ahead of the Copenhagen conference.

BLUE SKIES AWARD FOR OCEANS RESEARCH

Prof Gideon Henderson (**21st Century Ocean Institute**) received a Royal Society 'Theo Murphy Blue Skies Award' for a research programme focusing on ocean flows at the sea floor. This new award scheme provides funding for novel, groundbreaking research, where a lack of evidence would make it hard to find support from traditional grant schemes. Prof Henderson plans to use the award of £44,800 to assess the supply of iron from marine sediments into the oceans. As part of this project, Prof Henderson will lead a research expedition to the South Atlantic in 2010.

GEOENGINEERING

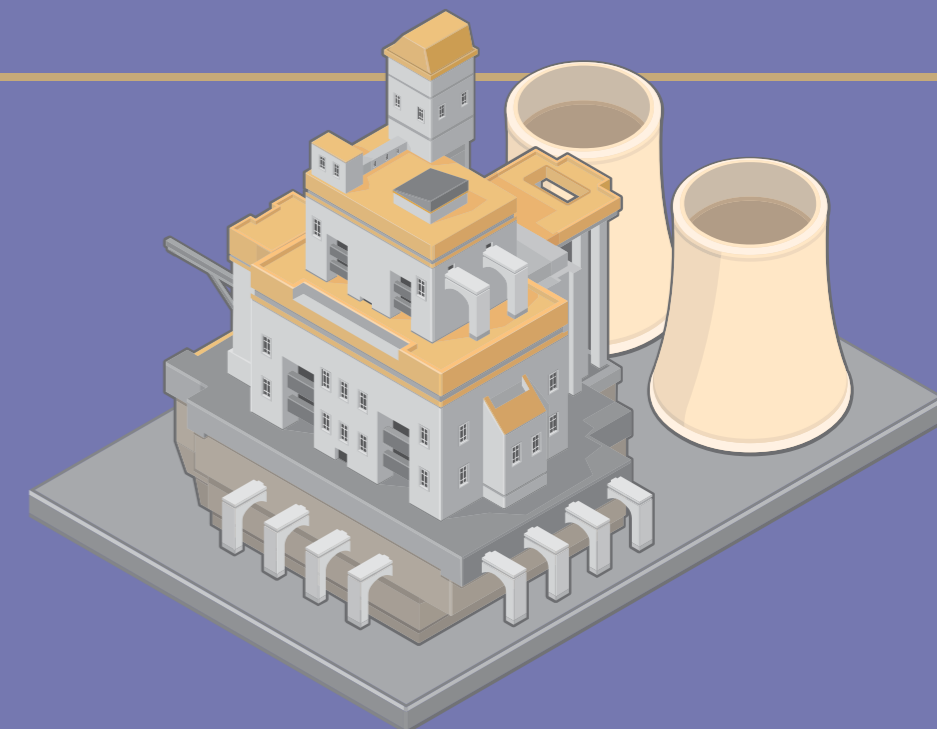
A number of Institutes have contributed to research on geoengineering, furthering the debate, forging connections, and creating unique collaborations to address the issues involved with understanding and developing geoengineering techniques:

- Prof Steve Rayner (**Institute for Science, Innovation and Society**) co-authored a Royal Society report on geo-engineering. Published in August, the report provided the first comprehensive analysis of possible geoengineering solutions to climate change. It advised that governments and industry need to work together to ensure that a governance framework is in place to prevent potentially catastrophic consequences from geoengineering.
- In November the **21st Century Ocean Institute** brought to Oxford the lead author of this Royal Society report, Prof John Shepherd, to deliver a special lecture on the findings of this influential study.
- Also in November, the **Programme on Ethics of the New Biosciences** and the **Institute for Science, Innovation and Society** invited Dr Jason Blackstock, Research Scholar at the International Institute for Applied Systems Analysis in Austria and a Fellow at the Centre for International Governance Innovation in Canada, to speak at Oxford. In two separate seminars, Dr Blackstock explored the socio-political and ethical issues associated with geoengineering technologies and potential repercussions for international governance.
- A new organisation called Oxford Geoengineering was established in September to facilitate the attainment of knowledge and its distribution to scientists, governments, NGOs, corporate entities and the wider public. It is currently a virtual organisation, providing a means of building links between disciplines and institutions which share an interest in furthering public understanding in the field of geoengineering. Prof Gideon Henderson (**21st Century Ocean Institute**) and Prof Julian Savulescu (**Programme on the Ethics of the New Biosciences**) serve on its advisory board.

See our 21School Briefings for more information:

REDUCING TRANSPORT EMISSIONS

A new spin-out company, Oxford Yasa Motors, has been set up to commercialise a lightweight electric motor developed by Dr Malcolm McCulloch's research group in the Department of Engineering Science. Dr McCulloch is the Director of the **Institute for Carbon and Energy Reduction in Transport** (iCERT), which combines expertise in engineering and the social sciences with the aim of producing a 'whole system model' of the transport sector. This model will be capable of analysing the performance of a wide range of engine and fuel types, eventually providing policy recommendations on how to reduce energy demand in transport. As part of this work, Dr David Bonilla, (a Senior Research Fellow at iCERT) has been gathering data on greenhouse gas emissions and demand for alternative vehicles in British and Japanese car markets. It is also hoped that performance data on Dr McCulloch's new engine will eventually be fed back into this model. A thorough understanding of this data will be crucial if the UK is to achieve key targets agreed in Copenhagen.



WHAT ROLE FOR NUCLEAR TECHNOLOGIES?

Following a preliminary meeting in March 2009, the **21st Century School** hosted a second high-level meeting on New Nuclear Technologies on 23 September. The meeting attracted some of the most high profile participants in the debate on the future of energy provision. Chaired by Sir Crispin Tickell (Director of the 21st Century School's **Policy Foresight Programme**) discussions focused on the part that nuclear power can play in meeting the world's energy needs in the next century.

ARTISTIC COLLABORATIONS FOR CLIMATE CHANGE

A number of Institutes have developed unique collaborations with artists and cultural organisations to explore alternative responses to climate change:

- In late June a collaboration between the arts organisation Cape Farewell and the **Environmental Change Institute** brought together scientists and artists for an expedition to the Peruvian Andes. The project, which aimed to encourage a cultural response to climate change that is founded in scientific research, culminated in an exhibition of work created by the artists involved at the UK's Southbank Centre and the Eden Project.
- Prof Yadvinder Malhi (**Oxford Centre for Tropical Forests**) was a key advisor to a special exhibition which appeared in London's Trafalgar Square in November. The *'Ghost Forest'* exhibition featured 10 immense rainforest tree stumps from Ghana, and aimed to raise public awareness of the connections between deforestation and climate change. After their week in Trafalgar Square, the tree stumps will be on display in Copenhagen at the UN Climate Change Conference.



NEWSHIGHLIGHTS



THE END OF BUSINESS AS USUAL?

On Thursday 12 November Dr Mohammed El-Erian, CEO and Co-CIO of PIMCO, the world's largest bond fund, and one of the world's most respected economic analysts, delivered a **21st Century School** Distinguished Public Lecture at Oxford's Sheldonian theatre. In a lecture entitled *'The End of Business as Usual: Navigating the New Normal'*, Dr El-Erian spoke about the state of the global economy in the wake of the recent financial crisis, and shared his thoughts on what this might mean for the future.

www.21school.ox.ac.uk/?redirect=273



CREATIVE SOLUTIONS TO GLOBAL CHALLENGES

Following the successful IdeasLab session held at the World Economic Forum's Davos meeting in January, the School was invited to hold a further session at the WEF's Dalian (China) meeting. Dr Ian Goldin was joined by Prof Gideon Henderson (**21st Century Ocean Institute**), Prof Sarah Harper (**Oxford Institute of Ageing**), Dr Paul Fairchild (**Oxford Stem Cell Institute**), and Prof John Ryan (**Institute of Nanoscience for Medicine**), to deliver presentations that offered innovative insights into new concepts and policies that could aid economic recovery and help governments prepare for future systemic shocks.



ADVISORY COUNCIL CONVENES IN OXFORD

On 21 September the Advisory Council of the **21st Century School** convened in Oxford for its annual meeting. Council members were briefed by Institute Directors on the progress of 21st Century School research and on the School's \$50m matched funding initiative. The Advisory Council consists of international business leaders, academics and public figures who have made a commitment to enhance the impact and significance of 21st Century School research. They contribute valuable advice on the School's work programme and strategic direction. In one of his first acts as the incoming Vice-Chancellor of the University of Oxford, Prof Andrew Hamilton, presided over the meeting as Chair of the Advisory Council.

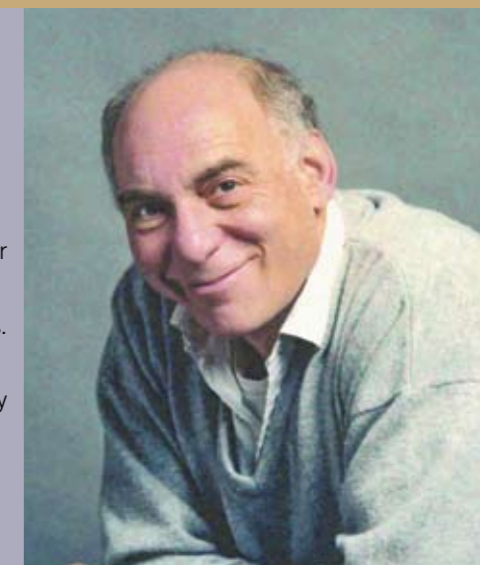
TRANSATLANTIC COLLABORATION

On 20 October the **21st Century School** hosted a group of scholars from Columbia University's Earth Institute, including world renowned economic advisor Professor Jeffrey Sachs, with the aim of identifying areas of mutual interests and new opportunities for collaboration. The discussions will be followed up through joint collaborations and future events between our two organisations. Following the daytime meetings, Prof Sachs gave a lecture on 'Repairing Economic Governance' to a packed lecture theatre at the University Museum. He argued there was an urgent need for a shared 'global ethic' in our global decision-making processes.

www.21school.ox.ac.uk/?redirect=277

CHANGES AT THE INTERNATIONAL MIGRATION INSTITUTE

In September 2009 the Directorship of the **International Migration Institute** (IMI) was officially assumed by Prof Robin Cohen, as Prof Stephen Castles stepped down to take up a Research Chair in Sociology at the University of Sydney. Prof Castles continues to hold the position of Associate Director of the International Migration Institute and remains actively involved in various IMI projects. Since its inception in 2006, the IMI has developed a reputation as a world-leading centre of expertise on the ways in which human mobility is changing the face of global society. It has recently been awarded several prestigious research grants, opening up new opportunities for international impact. The continued expansion of the IMI research team has allowed the Institute to move to new premises with the Department of International Development at Queen Elizabeth House.



UPDATE: MATCHED FUNDING

In March 2009 Dr James Martin, founder of the **21st Century School**, pledged \$50 million in a year-long funding initiative to match new donations that will enable both the expansion and integration of cutting-edge research projects in the 21st Century School. This matched funding Challenge has generated a large amount of philanthropic activity, wide-ranging interest in the School, and exciting new interdisciplinary partnerships and collaborations.

The Challenge has already allocated funds for new research, including programmes that will develop innovative approaches to understanding biodiversity, exploring the future of cities, and advancing the frontiers of medicine. We are delighted to see once again how the vision of our founder has enabled the development of pioneering and collaborative research programmes that aim to have a positive impact on our global future.

www.21school.ox.ac.uk/challenge

UPDATE: MASTERS PROGRAMME

Over the summer the School conducted a stakeholder survey to assess interest in and feasibility for a proposed new Masters degree in 21st century challenges. Having received overwhelmingly positive feedback about such a course, the School is working with potential collaborative partners to create its content, focus and practical implementation. The aim is to develop a graduate programme that would both draw on the School's forward-looking research and deliver teaching in wide-ranging skills and perspectives to assess and interpret future challenges. It is anticipated that the course will be developed for a 2011 start date.

A PANEL DISCUSSION WITH GEORGE SOROS

At the time of going to press, George Soros is scheduled to come to Oxford on Friday 11 December to lead a **21st Century School** panel discussion on the theme of: "Lessons from Financial Crises: Paradigm Failure and the Future of Financial Regulation". The aim of the event is to invite discussion among both the panellists and the audience to engage with Soros's ideas about financial risk and economic theory.

www.21school.ox.ac.uk/?redirect=286

RESEARCH HIGHLIGHTS

THE RESPONSIBILITY TO PREVENT

The Australian Responsibility to Protect Fund has awarded the **Oxford Institute for Ethics, Law and Armed Conflict** (ELAC) a grant of almost £100,000 to establish a new research project entitled: 'Responsibility to Prevent'. The Responsibility to Prevent refers to the duty of all States to intervene in order to prevent serious human rights violations before they occur. The project, which runs until December 2011, will help to establish a robust set of principles for dealing with mass atrocities in the future.

TECHNOLOGY AND NEW PATTERNS OF BEHAVIOUR

The **Institute for Science, Innovation and Society**, in collaboration with other University researchers, will be examining the electronic records of 7m mobile phone calls, as well the impact of social networking sites such as *Facebook*, in order to find out whether new trends and patterns of behaviour are emerging. This new project, funded by the European Commission, aims to help policy makers understand more clearly how behaviour is changing due to new communication technologies.

IMI LAUNCHES NEW EUROPEAN COLLABORATION

In October the **International Migration Institute** launched a new collaborative research project: '*Eumagine: Imagining Europe from the Outside*.' Funded by the European Commission under the Seventh Framework Programme, this three-year research programme will examine perceptions of democracy and human rights in four 'source' countries: Morocco, Turkey, Senegal and Ukraine.



DEVELOPING AGEING POLICIES IN SINGAPORE

On 14 September the **Oxford Institute of Ageing** (OIA) launched an innovative new collaboration with Singapore's Council for Third Age, an independent body promoting 'active ageing'. The programme aims to assist Singapore's government to develop national policies on ageing, based on the latest expertise in the field. This Programme is the first undertaking in a three-year collaboration between the OIA and the Council of Third Age.



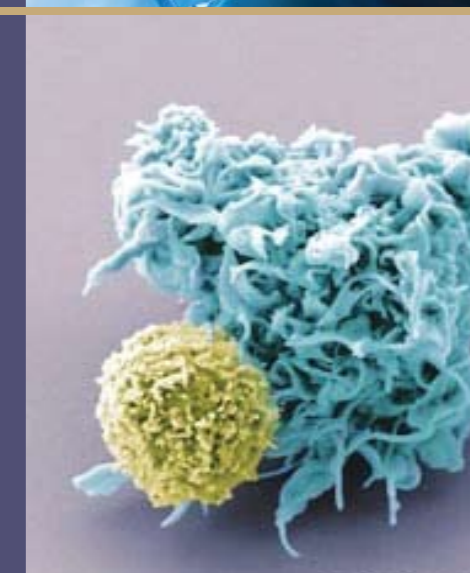
ENERGISING STEM CELL RESEARCH

In October the **Oxford Stem Cell Institute** awarded its second round of seed-funding grants for collaborative research projects in the stem cell field. Grants aim to energise new stem research across the University. The five projects approved in this round focus on the exciting possibilities promised by new technologies such as induced pluripotency. The previous round of seed-funding was highly successful and has already resulted in the establishment of a new neural stem cell facility in the John Radcliffe Hospital.



SOME RECENT ACADEMIC PUBLICATIONS...

- A. Katzourakis, R.J. Gifford, M. Tristem, M.T. Gilbert, and O.G. Pybus, 'Macroevolution of Complex Retroviruses,' *Science*, vol. 325, 2009, p. 1512.
- D. Akande, 'The Legal Nature of Security Council Referrals to the ICC and its Impact on Al Bashir's Immunities,' *Journal of International Criminal Justice*, vol. 7, 2009, pp. 333-352.
- N. Arinaminpathy and A.R. McLean, 'Evolution and Emergence of Novel Human Infections.,' *Proceedings Biological Sciences*, vol. 276, 2009, pp. 3937-43.S
- N. Bostrom and A. Sandberg, 'Cognitive Enhancement: methods, ethics, regulatory challenges,' *Science and Engineering Ethics*, vol. 15, 2009, pp. 311-341.
- B. Jones, 'Particle Beams for Cancer Therapy,' *Cochrane Database of Systematic Reviews*, 2009.
- T. Lacroix, 'Migration, Développement, Codéveloppement : quels acteurs pour quels discours?,' *Institut Panos Paris*, 2009, pp. 1-55.
- S. Lazar, 'Responsibility, Risk, and Killing in Self-Defense,' *Ethics*, vol. 119, 2009, pp. 699-728.
- R.M. May and N. Arinaminpathy, 'Systemic risk: the dynamics of model banking systems.,' *Journal of the Royal Society Interface*, 2009.
- D. Rodin, 'Treating Terrorists As Criminals,' *War On Terror: The Oxford Amnesty Lectures*, Manchester University Press, 2009, p. 336.
- S. Tseng, et al., 'Generation of Immunogenic Dendritic Cells From Human Embryonic Stem Cells Without Serum and Feeder Cells,' *Regenerative Medicine*, vol. 4, 2009, pp. 513-26.
- B. Jones, 'Joint Symposium 2009 on Carbon Ion Radiotherapy,' *The British Journal of Radiology*, vol. 82, 2009, pp. 884-9.



IMPACT AND OUTREACH

TED UNIVERSITY 2009

TED
IDEAS WORTH SPREADING

On 21 July Dr Ian Goldin launched TED University at the TEDGlobal 2009 Conference in Oxford. Famous for its highly engaging lectures, TED holds a series of yearly conferences devoted to the simple concept of 'ideas worth spreading'. Dr Goldin's presentation on 'Navigating our Global Future' was recently highlighted on the TED website, and has been the subject of widespread coverage and comment in the blogosphere.



INTELLIGENCE SQUARED: THE WORLD IN 2050

Nearly 600 people congregated at the Royal Geographical Society on 22 September to find out more about 'The World in 2050'. Hosted by the internationally renowned debating forum Intelligence Squared (IQ²), this panel discussion brought together four academics (Prof Savulescu, Dr McCulloch, Dr Goldin and Prof Harper) from the **21st Century School** to give their insights into the kinds of systemic risks and the extraordinary opportunities that are possible in the next few decades. This event marked the beginning of an exciting new partnership between the School and IQ², which includes such initiatives as a special web channel hosted by IQ² and another collaborative event to be held in June 2010.

www.21school.ox.ac.uk/?redirect=272

SYDNEY FESTIVAL OF DANGEROUS IDEAS

In October Prof Julian Savulescu (**Programme on the Ethics of the New Biosciences**) was invited to talk at the high-profile Sydney Festival of Dangerous Ideas at the Sydney Opera House. Prof Savulescu presented '*Unfit For Life: Genetically Enhance Humanity or Face Extinction*'. His talk has attracted much media interest and been broadcast by online publications such as *SlowTV*.

DISCOURSE AT THE ROYAL INSTITUTION

On Friday 30 October Dr Ian Goldin was invited to give the prestigious *Friday Evening Discourse* at the Royal Institution. First introduced in 1826, *Friday Evening Discourses* are formal events in which experts share innovative scientific advances with members of the Royal Institution. Dr Goldin's lecture, '*Humanity at the crossroads: 21st century risks and opportunities*', drew on the work of **21st Century School** researchers to address the implications of technological innovations and societal change for individuals, business and public policy.

HONORARY DEGREE RECOGNISES JAMES MARTIN'S VISION

On 15 July Dr James Martin was presented with an honorary degree from the University of Warwick in recognition of his contributions to information engineering and to innovative, integrated scholarship. Dr Martin is the founder of the **James Martin 21st Century School** at the University of Oxford. He is an alumnus of Keble College, Oxford and has honorary doctorates from universities on all six continents.

NEW 21SCHOOL BRIEFINGS

This term the 21st Century School launched a new series of general briefing documents. The ongoing series of online and printed materials aims to build a better understanding of the impact of research around the School. In the run-up to the Copenhagen conference, our first briefing focused on the role of the academic in providing clear guidance and potential solutions on some of the biggest challenges raised by global climate change. Subsequent briefings highlight the International Migration Institute's contribution to the UN's 2009 Human Development Report, and an intriguing new approach to the problem of drug resistant bacteria.



ENHANCED MEDIA PLAYER

The **Future of Humanity Institute** (FHI) and the **Programme on Ethics of the New Biosciences** (BEP) have collaborated to produce an innovative new media player for their websites. The new player enables the Institutes to integrate background and supplemental media such as slides, papers and digital footnotes into video lectures, increasing the learning potential for novices and experts alike. The initiative was part-funded by the School's new Collaboration Fund, which allocates extra resources for Institutes to collaborate on special projects.

BEP: http://www.bep.ox.ac.uk/video/human_enhancement

FHI: http://www.fhi.ox.ac.uk/multimedia/video/global_catastrophic_risks

PROF ROBERTSON WINS WADDINGTON MEDAL

Prof Elizabeth Robertson, an associate of the **Oxford Stem Cell Institute**, has been awarded the 2009 Waddington Medal from the International Society of Developmental Biologists. The Waddington Medal is the Society's most prestigious prize, being awarded to an outstanding individual who has made major contributions to an aspect of developmental biology in the UK.

NICK BOSTROM WINS GANNON AWARD

Prof Nick Bostrom (**Future of Humanity Institute**) has been named the winner of the 2009 Gannon Award for the Continued Pursuit of Human Advancement. The Gannon Award offers public recognition and a small monetary prize to honour those who commit their lives to the betterment of humanity through creative or academic means.

ROYAL INSTITUTION BRINGS UNDER-PRIVILEGED STUDENTS TO OXFORD

Facilitated by Prof Baroness Susan Greenfield (**Institute for the Future of the Mind**), the 21st Century School welcomed a visit from 20 under-privileged students from South Africa and Australia, who were brought to the UK by the Royal Institution (Ri). The students and their teachers came to the UK to participate in the Ri's 2009 Christmas Lectures, a series of interactive, demonstration-packed events for young people, and also to visit centres of culture and science across the UK. For their day in Oxford, the students toured laboratories at the Institute for the Future of the Mind, experienced an interactive learning session at the Clarendon Laboratory, and participated in a practical discussion about future challenges and opportunities with Prof Nick Bostrom and Dr Anders Sandberg (**Future of Humanity Institute**).

PRESS AND PUBLICITY HIGHLIGHTS

TAKING THE LONG VIEW

The **21st Century School** collaborated with the UK's top business organisation, the CBI, to produce a series of articles for a new feature called 'The Long View'. *Business Voice* is distributed to senior executives and managers in leading companies around the world, as well as to key policy makers. Articles are based around various 21st century challenges, such as systemic risk, ageing, migration and pandemics.

WORLD IN MOTION

Global population shifts will continue to increase – and policymakers need to face up to the challenges this presents, says Professor Stephen Castles.



PARTICLE THERAPY: EDUCATING THE NHS

As part of the ongoing effort to educate NHS professionals about the significant advantages that particle therapy can offer in the treatment of cancer, Prof Bleddyn Jones (**Particle Therapy Cancer Research Institute**) published an in-depth article in *Re:Source*, the NHS Evidence newsletter. NHS Evidence is a resource for health professionals in specialties such as cancer, helping them keep up-to-date with the latest developments in their field.

NOTABLE MEDIA APPEARANCES...

- As part of TEDGlobal 2009, **21st Century School** Director, Dr Ian Goldin, took part in 'The Forum', a *BBC World Service* discussion, touching on systematic approaches to problem solving or risk. **26 July.**
- Prof Steve Rayner (**Institute for Science, Innovation and Society**) was a panellist on the *BBC Radio 4* programme 'The World Tonight' where he discussed possible outcomes of the Copenhagen conference. **10 November.**
- Prof Jennifer Welsh (**Oxford Institute for Ethics, Law and Armed Conflict**) appeared on *Al Jazeera English* to talk about the UN. She asked whether the Security Council could live up to its utopian ideals under the new US administration, or whether it is being superseded by other global institutions. **30 September.**
- Prof Nick Bostrom (**Future of Humanity Institute**) believes it is time to open the ethical debate surrounding human enhancement. His views formed the basis of a feature, 'The Future of Human Enhancement', published in *Time* magazine. **9 September.**
- Prof Baroness Susan Greenfield (**Institute for the Future of the Mind**) spoke to the *New Statesman* about her research and the challenges of being a woman in science. **8 October.**
- Prof Julian Savulescu (**Programme on the Ethics of the New Biosciences**) appeared on the acclaimed Australian TV programme *Insight* to discuss genetic testing and the ethics of new screening technologies. **12 October.**
- Dr Rafael Ramirez, (**Institute for Science, Innovation and Society**) wrote a blog for *Reuters*, on five overlooked risks the world is confronting as it works its way through the recession. **15 September.**
- 'Planetary Boundaries', a *Nature* feature co-authored by Prof Diana Liverman (**Environmental Change Institute**), received coverage in *The Times*, *Independent*, *Sydney Morning Herald* and *Scientific American*. **September 2009.**

EVENTS

THE FUTURE OF TRIDENT

On 20 November the **21st Century School's Policy Foresight Programme** and the **Oxford Institute for Ethics, Law and Armed Conflict** co-hosted a high-level policy symposium: '*Nuclear Deterrence: Prospects for Disarmament and the Future of Trident*'. Recent developments have created an opportune moment to reconsider the future of Trident. This event brought together leading academics, policy makers and government officials to review and debate related legal and ethical issues.

PRACTICAL DEMENTIA GUIDANCE

On 24 September the **Oxford Institute of Ageing** held a workshop on '*Managing Together*'. This was the first in a series of outreach initiatives arising from a recent research project exploring the impact of Alzheimer's disease and related dementias on the relationship between grandparents and their younger grandchildren. The workshop conveyed the results of that study to professionals, including health care staff, social workers, teachers and voluntary workers. Forthcoming initiatives will include further workshops, leaflets and other practical guidance materials for health care professionals.

NANOSCIENCE COLLABORATION IN CUBA

Over the summer Dr Sonia Trigueros (**Institute of Nanoscience for Medicine**) travelled to Cuba to convene a five-day course for Cuban academics. '*Nanotechnology in Medicine*' was aimed at raising awareness of the ground-breaking advances being made in this dynamic field. Dr Trigueros explained some of the principles behind her work, which seeks to improve understanding of how nanostructures interact with cell compartments, in order to establish design principles for such delivery methods.



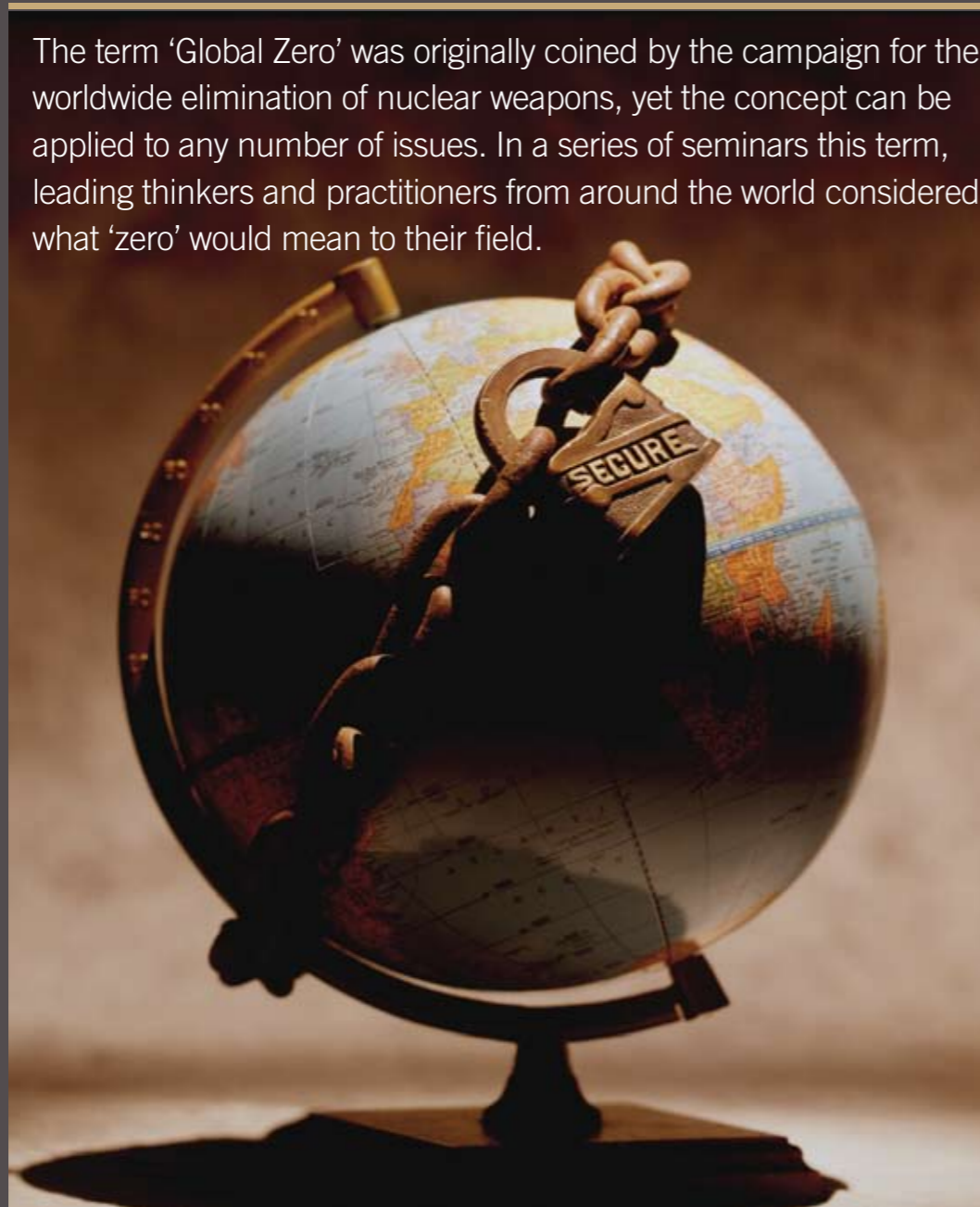
OTHER NOTABLE EVENTS...

- The first annual Sir Richard Gardner lecture:** Held to mark the retirement of Oxford's most eminent stem cell biologist, this lecture hosted by the **Oxford Stem Cell Institute** brought John Gurdon, winner of the *2009 Albert Lasker Basic Medical Research Award*, to Oxford for a lecture on nuclear reprogramming.
- Ageing from a medical perspective:** This seminar series, hosted by the **Oxford Institute of Ageing**, brought together experts from many different disciplines to look at ageing from a variety of different perspectives.
- A better brain:** On 28 October, in Munich, Prof Baroness Susan Greenfield (**Institute for the Future of the Mind**) debated with Prof Julian Savulescu (**Programme on the Ethics of the New Biosciences**) on the topic of 'a better brain'.
- Physics meets biology:** On 3 November Professor Michael Goitein of Harvard Medical School gave a special introductory seminar hosted by the **Particle Therapy for Cancer Research Institute** on the role of protons and heavy ions in the treatment of cancer.

LESSONS FROM 'GETTING TO ZERO'

In a century of globalization, when the life of every individual is directly affected by a vast network of forces beyond their control, the concept of 'Global Zero' has the power to inspire action on some of the most intractable problems of our time.

The term 'Global Zero' was originally coined by the campaign for the worldwide elimination of nuclear weapons, yet the concept can be applied to any number of issues. In a series of seminars this term, leading thinkers and practitioners from around the world considered what 'zero' would mean to their field.



The 21st Century School seminar series focused on the concept of 'getting to zero'. Hosted in association with the **Oxford Institute for Ethics, Law and Armed Conflict (ELAC)**, the series aimed to generate fresh insights on translating bold concepts into concrete action.

While some presentations explored in-depth the concept of 'Global Zero' as it relates to the campaign for the elimination of nuclear weapons, others considered what 'zero' would mean in a variety of fields, from weapons control and poverty, to disease and the environment.

The seminars covered a wide range of issues. Participants generally agreed that despite the immense difficulties faced by any 'Global Zero' campaign there could be tremendous value in working towards the total elimination of a particular threat. Many participants spoke of a new optimism about the potential to tackle problems that only a few decades ago would have seemed insurmountable: participants referred to President Obama's Prague speech

on nuclear weapons, the current global campaign to eradicate polio, and a new sense of energy surrounding climate change negotiations.

Dr David Rodin, who convened the seminar series, commented: "I have been impressed by the practical lessons that have emerged about how an ambitious multi-lateral regulatory project can be advanced by a dedicated combination of NGOs, civil society and responsible State and regional organisations. Successful campaigns often do not start with universal buy-in, but move forward with a core of participant States who are willing to sign up to a robust set of norms."

It was also highlighted that the real value of the 'Global Zero' concept was in its ability to breathe new life into campaigns on complex global problems. It is the very effort involved in 'getting to zero' that brings the real potential for positive change. While a 'Global Zero' on nuclear weapons would be an incredible achievement, there can be

few who would argue that a world with fewer nuclear weapons, less pollution, less poverty and less disease would not be a better place.

The scale of the challenges involved in eradicating poverty, disease or pollution were fully acknowledged in the presentations, but many managed to offer practical solutions, often drawing inspiration from unrelated fields – from previous success in eliminating smallpox and banning the use of landmines and chemical weapons, or from progress made in the original 'Global Zero' campaign itself.

Ultimately, the most important lesson to arise from this fascinating series was: when dealing with complex global challenges, look for inspiration beyond your immediate field of expertise.

For more information on individual seminars, please read the summaries on the 21School Blog. You can also listen to podcasts of individual lectures:

www.21school.ox.ac.uk/resources/podcasts.cfm

COMPLEXITY

Next term's seminar series aims to generate broad perspectives and shared lessons on 'Complexity and Systemic Risk'. Research on complex systems can provide novel insights into the often unanticipated consequences of interactions in the fields of global finance, ecosystem resilience and epidemiology. Convened by Dr Felix Reed-Tsochas of the CABDyN Complexity Centre and held in association with the **Institute for Science, Innovation and Society**, these seminars will shed new light on the nature and variety of systemic risks that we face in the 21st century.

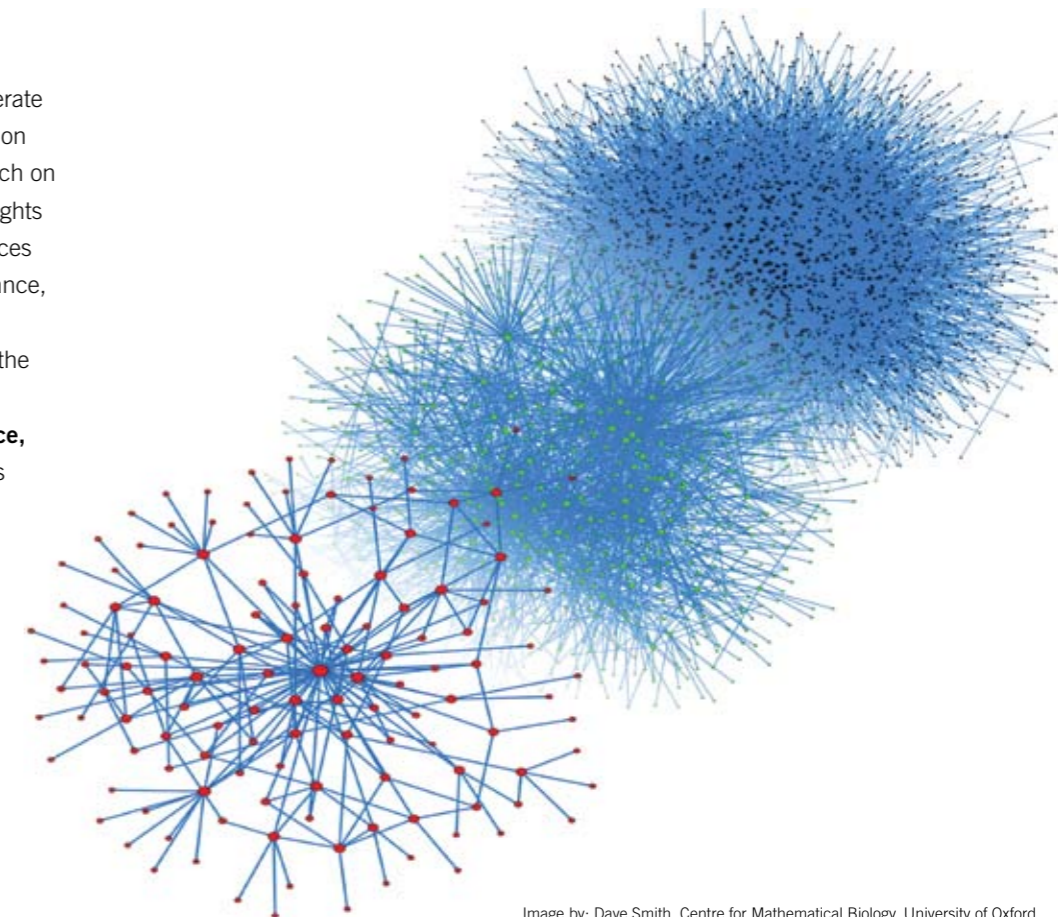


Image by: Dave Smith, Centre for Mathematical Biology, University of Oxford

ON THE WEB

If you are interested in finding out more about any of these stories, please contact us on the number below, or see our website:

www.21school.ox.ac.uk.

PUBLIC LECTURES:

All our public lectures have been recorded as podcasts and videos which can be found in the Resources section of the site:

www.21school.ox.ac.uk/resources/podcasts.cfm

www.21school.ox.ac.uk/resources/video.cfm

GETTING TO ZERO SEMINARS:

Blogs and podcasts are available for each the seminars in our recent 'Getting to Zero' series:

www.21school.ox.ac.uk/blog/

www.21school.ox.ac.uk/resources/podcasts.cfm

Additional resources are available from the following sites:

Twitter: www.twitter.com/21school

YouTube: www.youtube.com/user/21school

Flickr:

iTunesU: www.ox.ac.uk/itunes_u/

THE INSTITUTES OF THE 21ST CENTURY SCHOOL

- 21st Century Ocean Institute
- Environmental Change Institute & Oxford Centre for Tropical Forests
- Future of Humanity Institute
- Future of the Mind Institute
- Institute for Carbon Reduction in Transport (ICERT)
- Institute for Emerging Infections
- Institute for Science, Innovation & Society
- Institute of Nanoscience for Medicine
- International Migration Institute
- Oxford Institute for Ethics, Law and Armed Conflict
- Oxford Institute of Ageing
- Oxford Stem Cell Institute
- Particle Therapy Cancer Research Institute
- Programme and Chair in Energy Materials
- Programme on Ethics of the New Biosciences

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