



# SUMMER NEWSLETTER

ISSUE 6 - JULY 2009



## Message from the Director

Dear Friends and Colleagues,

Another academic year has ended, and this term's newsletter highlights the extensive research activities and achievements by members of the 21st Century School.

Our \$50 million Matched Funding Challenge, launched by James Martin in March 2009, has already generated a large amount of philanthropic activity, wide-ranging interest in the School, and exciting new interdisciplinary partnerships and collaborations with world-leading academics. A new promotional video and further information about the Challenge is available on our website.

High on the list of topics absorbing our scholars' time and attention over the past few months was the swine flu pandemic, and so we have included a feature article in this summer newsletter, describing the role 21st Century School academics have played in the crisis. As well as a round-up of news stories from across our Institutes, we've also included a feature about James Martin Fellows. We thought it time to highlight this unique network of scholars working on globally significant challenges, and the contributions they make to the overall work of the 21st Century School.

Please contact us if you'd like details about any of the stories or announcements.

Best wishes,

**Ian Goldin**

Director, James Martin 21st Century School

## The Institutes



Science,  
Innovation &  
Society



Future of  
Humanity



Ethics of  
Biosciences



Ageing



Armed Conflict



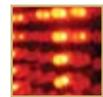
Migration



Environmental  
Change &  
Forests



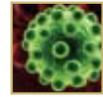
Oceans



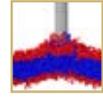
Energy  
Materials



Carbon  
Reduction  
in Transport



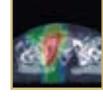
Emerging  
Infections



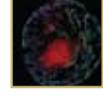
Nanoscience



Future of the  
Mind



Cancer  
Therapy



Stem Cells

# When a challenge goes global: The 21st Century School and the swine flu outbreak



The 21st Century School addresses diverse, globally significant challenges ranging from developing new forms of cancer treatments to studying the impact of ageing populations, from researching the promise of stem cells to understanding the emergence and spread of infectious disease. And so when isolated reports of swine flu infections developed into international headlines, scholars in the School's Institute for Emerging Infections found themselves at the receiving end of all sorts of questions and requests for information from friends, colleagues, journalists and policy makers. What could they tell us about the outbreak? Is this the global pandemic we all have feared? How many deaths should we expect? How can we protect ourselves?



Government advice to help prevent the spread of infection is the same today as it was over 50 years ago.

Emerging infections, particularly influenza, are highly unpredictable in nature, and scientists are often unsure as to how outbreaks and epidemics will unfold. However, the Institute for Emerging Infections, through its long-established links with the UK government and the World Health Organisation, is well-placed to offer policy advice on how best to combat the spread of infectious disease.

Much of this advice was in place long before the current pandemic arose: the stockpiling of antiviral drugs and policies that use such drugs very aggressively (see graph on opposite page) are the most prominent examples of the Institute's recommendations to government. As the current pandemic unfolds, James Martin Fellow Nim Patthy is actively involved in expert networks based in Geneva that address the questions arising as the properties of the new flu virus become clear.

In the early weeks of the swine flu outbreak, as the public became increasingly concerned about the prospect of a global pandemic, Professor Angela McLean (Co-Director of the Institute for Emerging Infections) contributed to a series of interviews and articles in the press to explain the

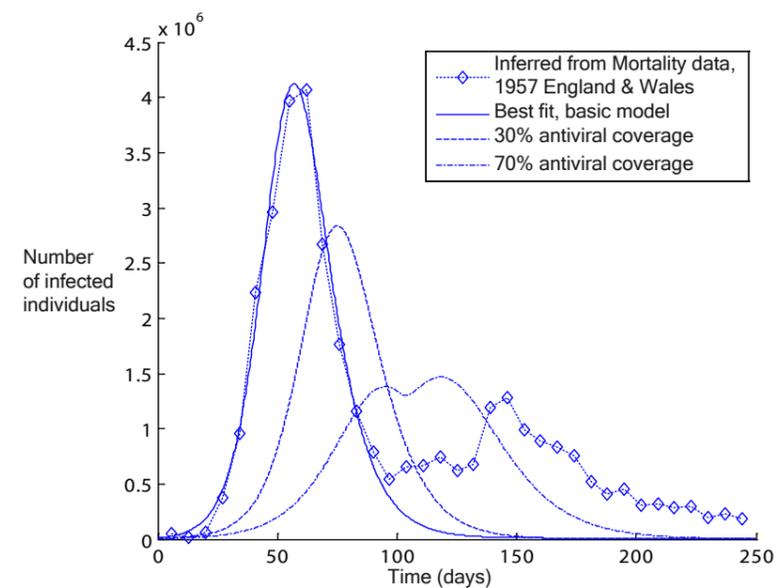
importance of keeping events in perspective. By balancing the seriousness of the potential risk and the consequences of a full-blown pandemic with the possibility of a rather more benign epidemic, McLean stressed the need to remain calm. She drew attention to the meticulously prepared contingency plans, which seem to be having the desired effects, and praised the UK government for listening to and acting upon independent scientific advice.

The challenges of our time are vast and varied, and crises will inevitably arise and spread from them. James Martin 21st Century School academics play a vital role in planning and decision-making nationally and internationally, not only through their direct policy recommendations but also through the scientific evidence and hard data they provide. Through media commentary and press interviews, they inform the general public and can offer a voice of reason in times of panic or fear.

It's a tremendous service when academics re-

spond to such a need, especially when further information is urgently sought. But we should also remember that they have been here all

along, conducting the research that will help us deal with challenges that could evolve into crises at any time.



How might the 1957 pandemic have progressed if antiviral drugs were available? This figure assumes a limited stockpile of drugs, that would be exhausted within three months through an 'aggressive' strategy of treating 70% of cases. The results overall indicate fewer cases and a lower epidemic peak, than a more drug-conserving strategy. Source: Institute for Emerging Infections



## RESEARCH HIGHLIGHTS

*The 21st Century School brings together some of the world's best minds to work at the cutting edge of academia. This term has seen innovative and interdisciplinary research on a wide variety of subjects published in textbooks, edited volumes and leading academic journals. Much of this research has received media coverage and recognition beyond academic circles, through interviews, editorials and magazine features.*

### Attempts to preserve world's forests falling short

According to a new study, co-authored by researchers from the *Oxford Centre for Tropical Forests*, attempts to preserve the world's forests currently afford protection to less than 10%. The study, "A global analysis of the protection status of the world's forests", published in *Biological Conservation* (May 2009), is the first to attempt to quantify what percentage of the world's forests enjoy such protection. It shows that, according to the criteria set out by the World Conservation Union (IUCN), only 7.7% are safeguarded.



*Tropical forests need more protection as a global resource.*

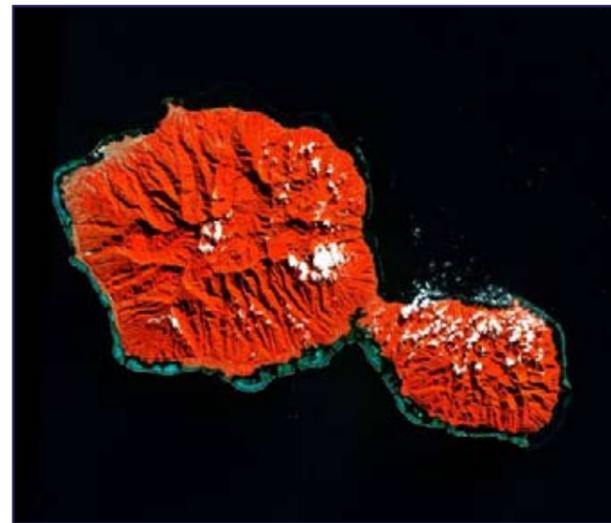
### The ethics of treating infectious diseases

The *Programme on the Ethics of the New Biosciences* and the *Institute for Emerging Infections* collaborated with Dr Michael Selgelid of the Australian National University to produce a special issue of the *Journal of Bioethical Inquiry*: "Infectious Disease Ethics: Limiting Liberty in Contexts of Contagion" (June 2009).

Because (in most cases) infectious diseases are spread from person to person, restrictions of liberty and incursions of privacy and confidentiality may be necessary to promote the public good. This raises a host of ethical issues related to liberty, responsibility, prioritisation, discrimination, equality, and distributive justice.

### Tahitian corals shed new light on ice ages

New research on fossilised corals from Tahiti, conducted by researchers from the *21st Century Ocean Institute*, shows that the behaviour of ice sheets is much more volatile and dynamic than previously thought, implying that there may still be unidentified natural phenomena driving the fluctuation in Earth's ice coverings. This work, led by Dr Alex Thomas and Prof Gideon Henderson, was featured on the front cover of *Science* magazine in May 2009.



*Tahitian island with coral reefs fringing the coastline. Source: Landsat images, NASA.*

### New developments for lightweight electric motor

A new lightweight electric motor brings exciting commercial possibilities in the near future. The motor was designed by Oxford University engineers, including Dr Malcolm McCulloch, Director of the *Institute for Carbon and Energy Reduction in Transport*. Dr Malcolm McCulloch said: "The motor was developed for the Morgan Lifecar in 2008, and we now have funding to adapt it for high-performance electric vehicles, and we're also looking at aerospace, renewable and industrial use." Engineering firm Delta Motorsport plan to install the motor in their new four-seat coupé, with track tests scheduled for the end of 2009.

### Other recent publications include:

- ◆ Neyland, D. and Goold, B.J., *New Directions in Surveillance and Privacy*, Willan Publishing, 2009.
- ◆ Hoff, A. and Perek-Bialas, J., *The Ageing Societies of Central and Eastern Europe: Some Problems - Some Solutions*, Cracow: Jagiellonian University Press, 2009.
- ◆ Brohe, A., Eyre N. and Howarth N., *Carbon Markets: An International Business Guide*, Earthscan, 2009.
- ◆ Dessai, S., Hulme, M., Lempert, R. and Pielke Jr, R., "Do We Need Better Predictions to Adapt to a Changing Climate?" *Eos*, Vol. 90, No. 13, 2009.
- ◆ Wilkinson, A., "Scenarios Practices: In search of theory. A response to the Graham Molitor's Scenarios: Are they worth the Effort?" *Journal of Futures Studies*, Vol. 13, No. 3, 2009.
- ◆ McGoey, L., "Pharmaceutical Controversies and the Exploitation of Uncertainty" *Science as Culture*, Vol. 18, No. 2, 2009.
- ◆ Kendall, T., McGoey, L. and Jackson, E., "If NICE was in the USA" *Lancet*, Early Online Publication, 24 April 2009.
- ◆ Sarasvathan, S., Dew, N. and Ventresca, M.J., "Unpacking Entrepreneurship as Collective Activity: Opportunities, Activity, and Context" *Advances in Entrepreneurship Theory and Research*, Vol. 11, 2009.

The Sheldonian Theatre was filled to capacity with over 800 people attending the lecture. Lord Stern explained his vision for a global deal to manage the challenges of climate change and poverty. He explored the importance of the way we invest, use energy, organise transport and manage forests over the next thirty years. As with all our Distinguished Public Lectures, a podcast and video of the event are available to view on our website.



*Professor Lord Stern speaking in Oxford's Sheldonian Theatre.*

### Managing the "personal genetic testing" industry

In May, the *Programme on the Ethics of the New Biosciences* held a workshop on "Direct-to-consumer genetic testing". Companies such as deCODE Genetics, 23andME and DNADirect are already marketing direct-to-consumer genetic tests to assess an individual's risk of developing conditions such as diabetes, breast cancer, heart attacks and strokes. However, there has been very little discussion about the potential benefits and risks of such tests.

This workshop brought together experts in ethics, science, business and law, to discuss the issues surrounding the development of this emerging market. The workshop formed a consensus on the need for standards to be set and enforced with respect to these companies and the services they provide. A particular emphasis was given to the need for individual consumers to be properly educated about the nature and limits of the information they receive from these companies.

## EVENTS HIGHLIGHTS

*Our events disseminate research, encourage networking and contribute to innovative, interdisciplinary collaborations among our Institutes and external partners. As well as a variety of interdisciplinary seminars and workshops, this term's highlights included a Distinguished Public Lecture by Professor Lord Stern, and a workshop on the issue of personal genetic testing.*

### Nicholas Stern sets out climate change blueprint

Professor Lord Nicholas Stern, a world-renowned economist and leading authority on climate change, came to Oxford on Thursday 7 May to give a lecture based on his most recent publication, *Blueprint for a Safer Planet*.



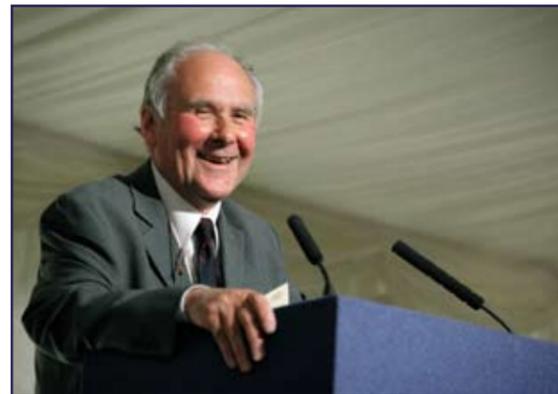
### Programme on the Future of Cities

On 24-25 June, the *Institute for Science, Innovation and Society* (InSIS) hosted a two-day workshop which brought together decision makers in government, the private sector and civil society with senior academics to launch the new collaborative and interdisciplinary Programme on the Future of Cities.

The £1.2 million Programme aims to take a long-term perspective on issues such as transportation and energy prices, infrastructure stress, changing demographics due to ageing, climate change and the rapid growth of cities in the developing world. Led by InSIS in collaboration with the *Environmental Change Institute* and the *Oxford Institute of Ageing*, the Programme will draw on the expertise of scholars across the James Martin 21st Century School and the wider University.

### 2009 UK Stem Cell Network Conference

In April, the *Oxford Stem Cell Institute (OSCI)* hosted the second annual UK National Stem Cell Network (UKNSCN) Conference at Oxford University's Examination Schools. The conference was a celebration of the latest in UK stem cell science, featuring keynote presentations from leading UK and international speakers and attracted almost 500 delegates. This was an important opportunity for the newly established Institute to showcase local research. Professor Sir Richard Gardner, a founding associate of OSCI, was among the contributors, giving a very stimulating and entertaining speech at the conference banquet.



Professor Sir Richard Gardner.  
Photo credit: Dr Lynn Butler.

### Other events included:

- ◆ **Royal Visit** - On 6 April, the *Institute for the Future of the Mind* celebrated the refurbishment of its laboratory space in the Department of Pharmacology with a visit and ribbon cutting ceremony by HRH the Duke of Kent. The Duke was given a tour of the space, which includes laboratories and offices for its researchers and support staff.



HRH the Duke of Kent at the ribbon cutting ceremony, with Professor Baroness Greenfield.

- ◆ **Proportionality and War** - On 21 May the *Oxford Institute for Ethics, Law and Armed Conflict (ELAC)* held a one-day symposium with military personnel, leading academics, NGO representatives, and international lawyers to explore the issues around collateral damage to civilians in situations of conflict.
- ◆ **Carbon and Computing** - On 22 May, the *Environmental Change Institute* held a conference: "Keeping IT Clean: Energy and the Networked Computing Environment". This followed on from a 2008 conference at the University of Oxford, entitled: "Towards Low Carbon ICT".
- ◆ **Forest Governance** - On 15 June, James Martin Fellows at the *Oxford Centre for Tropical Forests* organised a lecture by World Wildlife Fund Consultant, Dr Neil Burgess. He spoke on the Reduced Emissions from Deforestation and Degradation (REDD) programme.
- ◆ **Home and Place** - The *Oxford Institute of Ageing* held a Trinity Term seminar series on the subject of "Home and Place in an Ageing World". Subjects ranged from late-life homelessness, to neighbourhood design and the well-being of older people.

- ◆ **Science and Technology Studies** - The *Institute for Science, Innovation and Society* held a visiting speaker series this term, which explored broad topics such as science as a vocation, document authentication and engaging with ethics in the field.

## IMPACT AND OUTREACH

### Policy and Public Opinion

*Each of our Institutes is committed to advancing public understanding and influencing policy in their particular area of expertise. This is achieved by the dissemination of research findings in the press, engagement with the policy process and through delivering papers and presentations to audiences in academia and beyond.*

### Advisory roles

Dr Paul Fairchild, Co-Director of the *Oxford Stem Cell Institute*, has been advising the UK Department of Health's Gene Therapy Advisory Committee on the key questions in stem cell research. Stem cell therapy is a novel area of research and Dr Fairchild advised the Committee how it should begin to define the minimal regulatory requirements for clinical trials using stem cells. Dr Fairchild and Co-Director Prof Helen Mardon have also been invited to contribute to a government-sponsored workshop exploring possible collaborations between the UK and Spain in the field of stem cell biology.

Mr Dapo Akande, Co-Director of the *Oxford Institute for Ethics, Law and Armed Conflict* (currently on sabbatical at Yale), has been appointed as a Consultant by the African Union (AU). Mr Akande will assist the AU's Commission in preparing a review of the work of the International Criminal Court, including recommendations on the work of the ICC in relation to Africa.

Professor Sarah Harper, Director of the *Oxford Institute of Ageing*, has been appointed to the Ageing Advisory Board of the National Endowment for Science, Technology and the Arts (NESTA). She has also been appointed to the new Fairness, Equality and the Life Course Board, to be chaired by Baroness Prosser of the Equality and Human Rights Commission.

### Papers and presentations

Professor Bleddyn Jones, co-Director of the *Particle Therapy Cancer Research Institute* recently gave a talk on charged particle therapy (CPT) at the NHS Innovation Expo, held in London's Excel Centre. Prof Jones provided further information on cancer treatments, including CPT, providing valuable insights and information to the wide variety of participants from the health care field.

In April, Dr Max Boykoff, Research Fellow at the *Environmental Change Institute*, delivered a talk on media and climate change at the G8+5 Environment Ministers' Meeting. This meeting, which took place in Siracusa, Italy, was an opportunity for Dr Boykoff to present his research on the ways in which media coverage of climate change influences ongoing environmental policymaking in the run up to the United Nations Climate Change Conference in Copenhagen later this year.



G8+5 Environment Ministers' Meeting.  
Photo source: [www.g8ambiente.it](http://www.g8ambiente.it)

*Environmental Change Institute* researchers and staff, including Mr John Ingram, Dr Polly Ericksen, Dr Heike Schroeder, Prof Diana Liverman, Dr Emily Boyd and Dr Max Boykoff, attended and presented papers at the world's largest international science conference dealing with societal aspects of global change. Held in April at the World Conference Center, Bonn, the conference addressed the "Social Challenges of Global Change," providing a platform and meeting place for scientists, practitioners and policy makers.

In June, Oxford University launched its latest online Oxford Debate, with Dr Mark Sheehan, James Martin Research Fellow at the *Programme on the Ethics of the New Biosciences*, arguing that "The NHS should not treat self-inflicted illness". Oxford Online Debates are a termly event, in which





leading Oxford academics debate a topic of public and academic interest over a five-week period. They give the public an opportunity to interact with scholars at the forefront of their field and to engage with controversial topics over an extended period of time. The debate will conclude with a public vote between 13-17 July.

Dr Jayne Wallace, James Martin Research Fellow at the *Institute of Nanoscience for Medicine*, was an invited speaker at a meeting on "Assessment of the Biological Effects of Nanomaterials" in Stockholm. Her talk was entitled "Carbon nanotube interactions with biomolecules: a molecular dynamics study". In May, Dr Sonia Trigueros, also a James Martin Research Fellow, gave a course on nanomedicine in Cuba at the CNIC (Centro Nacional de Investigaciones Científicas).

#### Press and media commentary

Writing in the trade magazine for the CBI (the UK's largest business lobby organisation), 21st Century School Director Dr Ian Goldin argued that the world needs new ways of tackling systemic risks. *Business Voice*, 1 May.

Professor Angela McLean, Co-Director of the Institute for Emerging Infections, contributed several articles about swine flu to *The Telegraph*, clarifying the facts about the current pandemic. *The Telegraph*, 28 April, 1 May and 16 June.

In response to an article on the impact of global warming on the Amazon rainforest, Professor Yadvinder Malhi, Director of the Oxford Centre for Tropical Forests, argued forcefully against highlighting only the most catastrophic scenarios. *The Guardian*, 7 April.

Professor Baroness Greenfield, Director of the *Institute for the Future of the Mind*, sparked media debate around the world about the effects of computers and social media sites on the development of young children. *The Guardian*, 22 April.

#### Awards and Achievements

*It is a key aim of the School to ensure the excellence of its work and for its scholars to be recognised as among the best in the world. Over the past few months, Directors and Fellows across all the School's Institutes have been awarded prestigious prizes, external funding grants and other accolades for their outstanding work on addressing 21st century challenges.*

#### Practical guidance for families dealing with dementia

The *Oxford Institute of Ageing* was awarded a dissemination grant of over £18,000 by the Alzheimer's Society, to promote the results of a recent 21st Century School-funded study, "Managing Together: Helping families to manage the impact of Alzheimer's disease and related dementias upon the relationship between grandparents and their younger grandchildren". This grant is an exciting opportunity to increase the relevance and impact of the original research, by promoting the resulting report more widely and allowing a far broader audience to benefit from the research findings.

#### Migration processes and determinants

Dr Hein de Haas, a Senior Research Officer at the *International Migration Institute* (IMI), was selected to receive a five-year Starting Grant from the European Research Council. Dr de Haas will use the grant to study the determinants of international migration, a project which is expected to generate new insights in the way policies shape migration processes in their interaction with other migration determinants.

#### Interdisciplinary collaboration and international impact

The *International Migration Institute* (IMI) was awarded funding to conduct a new project entitled, *Theorizing the Evolution of European Migration Systems (THEMIS)*. The funds come from the NORFACE Research Programme on Migration in Europe - Social, Economic, Cultural and Policy Dynamics. The award provides recognition of IMI's growing international reputation for groundbreaking research in the field, as well as new opportunities for interdisciplinary collaboration and international impact. The IMI will collaborate with three European partner institutions to bring

together a multidisciplinary team for this four-year project. The collaboration aims to achieve an improved understanding of the evolution of migration systems across migrant groups, localities and time.

#### Complex systems and networks

A grant from the Engineering and Physical Sciences Research Council (EPSRC) will fund a 30-month-long project, entitled "Scaling in complex systems" at the *Institute for Science, Innovation and Society*, (InSIS). Prof Geoffrey West, President and Distinguished Professor at the Santa Fe Institute in New Mexico, will be visiting InSIS as an Associate Fellow, where he will work on the project with Dr Felix Reed-Tsochas, Director of Complex Systems. The Institute will organise a series of seminars and workshops in Oxford and London focusing on evolutionary ecology and scaling in complex social systems and networks.

#### Royal Society Fellowship

Professor Angela McLean, Co-Director of the *Institute for Emerging Infections*, was among 44 new Fellows elected to the Royal Society this May. This highly prestigious award is acknowledgement of Professor McLean's valuable contributions to the field of infectious diseases. The main criterion for election as a Fellow is scientific excellence, with Fellows appointed for life.

#### Top "emerging thinker" award

Professor Julian Savulescu, Director of the *Programme on the Ethics of the New Biosciences*, received an award from *The Weekend Australian Magazine*, naming him as Australia's top "emerging thinker". He won the category in the magazine's series of *Next 100 Emerging Leaders*, and was presented with the award by Australian Prime Minister, Kevin Rudd.

#### The Happy List

Dr James Martin was listed in the *Independent on Sunday's* "Happy List" 2009, the "Rich List" antidote celebrating 100 people who make Britain a better, happier place to live. Described as an IT guru and patron, and the largest ever single donor to a British university, Dr Martin was hailed for his vision in donating \$100m to the University of Oxford in order to create the ground-breaking 21st Century School.

## OTHER NEWS

### Vacancies

#### James Martin Professorship in Energy Materials

The University has created a new Professorship of Energy Materials that will be part of the 21st Century School, providing leadership on energy issues. This new post, based in the Department of Materials, will shape Oxford's strategic research portfolio in this area into a coherent and internationally recognised centre for world-class science in energy materials, including strong interactions with policy and socio-economic issues. The new chair will also develop and lead his/her independent research, preferably in either materials for new generations of nuclear energy or demand reduction. More details can be found at: <http://www.21school.ox.ac.uk/vacancies/>

### Forthcoming events

Details of all the following events can be found on our website at: [http://www.21school.ox.ac.uk/news\\_and\\_events/events/](http://www.21school.ox.ac.uk/news_and_events/events/)

#### 22 September - Discussion: The world in 2050

The 21st Century School will present a panel discussion in a special event hosted by Intelligence Squared. <http://www.intelligencesquared.com>

#### 28-30 September - International Climate Conference

The ECI hosts a three day conference, "Four Degrees and Beyond."

#### 12 November - Distinguished Public Lecture

Dr Mohamed El-Erian will explore the key forces that are shaping global finance and draw implications for markets, economies, and policies.

#### October-December - 21st Century School Seminar Series

A series of seminars on the theme of "Getting to Zero", in a range of contexts, including nuclear weapons, carbon emissions, bio-weaponry, poverty and infectious disease. Co-hosted with the *Oxford Institute for Ethics, Law and Armed Conflict*.





# James Martin Fellows:

*A UNIQUE NETWORK OF SCHOLARS FOR 21ST CENTURY CHALLENGES*

21st Century School funding contributes to a variety of needs, a crucial one being the recruitment of James Martin Fellows. The roles may be full-time, contractual positions for people early in their career, or visiting fellowships to bring high-level academics to Oxford in a programme of exchange and collaboration.

Through their membership of the 21st Century School, these Fellows create a unique, interdisciplinary network of dynamic and innovative academics, all of whom are working on a global challenge of the 21st century. The School's regular Fellows' meetings, interdisciplinary workshops, collaborations and informal partnerships help these scholars to find new ways of working together and also to disseminate their work beyond the academic community, to policy makers and the general public.

Dr Claire Timlin, who recently joined the Particle Therapy Cancer Research Institute as a James Martin Fellow, explained why the interdisciplinary aspect of the School was so important to her: "By encouraging networks of researchers that bridge disciplines, the 21st Century School allows researchers such as myself to obtain an overarching perspective of a particular issue. This is extremely important with regards to charged particle cancer therapy, where an understanding of the physical, biological and clinical aspects of treatment is essential. The opportunity for interdisciplinary engagement is not only vital for my research; it's also good for my career."

Speaking about what it means to be a part of the 21st Century School's network of scholars, Dr Max Boykoff, a former James Martin Fellow at the Environmental Change Institute, said: "Being a James Martin Fellow has been a tremendous opportunity for me. It has given me access to new ways of working and thinking that I wouldn't otherwise have encountered. I am also excited by the prospect of meeting all around the world other former James Martin Fellows as an alumni network of Fellows builds up. In fact, I will soon be taking up a post as Assistant Professor at the University of Colorado at Boulder, where I will be working with James Martin alumnus Prof Roger Pielke Jr, in the Center for Science and Technology Policy Research, and its Environmental Studies Program."

We are delighted to welcome the following James Martin Fellows to the 21st Century School:

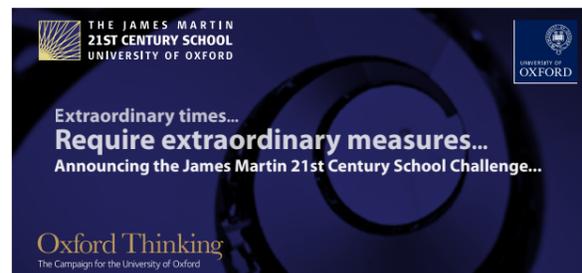
- ◆ Mr Martino Tran and Dr Justin Bishop: Institute for Carbon and Energy Reduction in Transport
- ◆ Dr Adam Candy and Dr Laure Zanna: 21st Century Oceans Institute
- ◆ Dr Lauren Coad and Dr Connie McDermott: Oxford Centre for Tropical Forests
- ◆ Dr Claire Timlin: Particle Therapy Cancer Research Institute
- ◆ Dr Maria Porter: Oxford Institute of Ageing
- ◆ Dr Seth Lazar: Oxford Institute for Ethics, Law and Armed Conflict

Among our former James Martin Fellows, listed with their current positions, are:

- ◆ Dr Emily Boyd: Lecturer in Environment and Development, University of Leeds (from October 2009)
- ◆ Dr Max Boykoff: Assistant Professor, University of Colorado at Boulder (from September 2009)
- ◆ Dr Dave Frame: Deputy Director of the Smith School of Enterprise and Environment, University of Oxford
- ◆ Dr Cameron Hepburn: Senior Research Fellow at the Smith School of Enterprise and the Environment, University of Oxford
- ◆ Dr Rafaela Hillerbrand: Director of "Ethics for Energy Technology" at the Human Technology Centre, RWTH Aachen University
- ◆ Prof Roger Pielke, Jr.: Professor of the Environmental Studies Program at the University of Colorado, and a Fellow of the Cooperative Institute for Research in Environmental Sciences
- ◆ Prof John Schellnhuber: Founding Director of the Potsdam Institute for Climate Impact Research and recently appointed "Chief Sustainability Scientist" for the German government

For more information about the James Martin Matched Funding Challenge, contact Sophie Hackford at:

sophie.hackford@21school.ox.ac.uk  
<http://www.21school.ox.ac.uk/challenge/>





twitter

You Tube

flickr™



### On the Web...

Follow the work of the 21st Century School online:

**Twitter:** [www.twitter.com/21school](http://www.twitter.com/21school)

An easy way to get updates on all the School's work, incorporating news highlights, event summaries and blogs.

**School blog:** [www.21school.ox.ac.uk/blog](http://www.21school.ox.ac.uk/blog)

Provides a summary record of all public 21st Century School events.

**YouTube:** [www.youtube.com/user/21school](http://www.youtube.com/user/21school)

Watch videos of School events and presentations, including presentations from our Davos "IdeasLab".

**Flickr:** [www.flickr.com/photos/21c-school](http://www.flickr.com/photos/21c-school)

A collection of photos from recent School events.

**iTunesU:** [www.ox.ac.uk/itunes\\_u/](http://www.ox.ac.uk/itunes_u/)

Audio podcasts of lectures and special events are available on Oxford iTunesU site.

*Join our Mailing List.  
Keep up to date with event and news  
across the School by subscribing to our mailing  
lists online at:*

[www.21school.ox.ac.uk/?redirect=131](http://www.21school.ox.ac.uk/?redirect=131)

**Contact Information:**

*The James Martin 21st Century School  
Old Indian Institute  
34 Broad Street, Oxford  
OX1 3BD, United Kingdom  
tel: +44 (0)1865 287430  
web: [www.21school.ox.ac.uk](http://www.21school.ox.ac.uk)  
email: [info@21school.ox.ac.uk](mailto:info@21school.ox.ac.uk)*