

Data city

What can the digital economy do for us?

... CENTRE PAGES



ITUNES U LAUNCH

Innovative educational resource showcases Imperial life

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ARTSFEST 2011

Creative talents exhibited in week-long arts celebration on campus

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PROFESSOR AL FRASER

on the importance of collaborations with industry

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EDITOR'S CORNER

Strange happenings

Being greeted by a pink panther with a charity bucket at South Kensington tube station on Monday morning and seeing an array of fancy dress on campus can only mean one thing – **Raising and Giving (RAG) week** has rolled round again. Anything goes in this week of madness and I saw the RAG “hit squad” in action for myself last week while on my way to an interview. The Rector was walking ahead of me as I left the Faculty Building and, unbeknown to him, crouching behind the Queen’s Tower was a group of **animal-masked students** waiting for their prey to appear. As Sir Keith crossed the Queen’s Lawn the group encircled him clutching cream pies on paper plates. They paused tentatively before launching into the attack, pie-ing the Rector directly in the face! In true Imperial style the students threw themselves into RAG week activities whole-heartedly. Admirably, their purpose behind providing some light relief on campus was to raise money that will be donated to various charities including the children’s charity, Barnardos and the **SOS Children’s Village** in Bosnia-Herzegovina.

EMILY ROSS, EDITOR

Reporter is published every three weeks during term time in print and online. The next publication day is 24 March. Contact Emily Ross: reporter@imperial.ac.uk

Imperial plans to charge £9,000 tuition fees

Imperial confirmed in mid-February its intention to set fees at £9,000 for Home and EU students for 2012 entry, subject to agreement by the Office for Fair Access (OFFA), in order to maintain the excellence of the education the College provides to students.

The announcement was made at the meeting of the Court, Imperial’s formal stakeholder body, on 11 February following approval by the College’s Council. The decision

follows recommendations made by the College’s Fees and Financial Aid Working Group, which is chaired by the College Secretary, Dr Rodney Eastwood, and whose members include the President of the Students’ Union, Alex Kendall.

In a message to staff, Rector Sir Keith O’Nions explained the next focus for the Working Group: “We still have a way to go in our considerations about what forms of financial aid would attract and support the most able, but needy,



students. Our message to the outside world, though, must be that for those who can manage Imperial’s courses, the College will work to ensure they can manage its costs.”

The College will submit

its proposal to charge £9,000 for tuition fees, alongside details of its plans for financial support for students, to OFFA in April. OFFA is expected to inform the College of its decision by mid-July.

Climate survey: Blow a bubble and spot a contrail

Meteorologists and other scientists are asking everyone in England to take part in a new survey exploring the impact we have on our climate and how good we might be at adapting to its changes.

Open Air Laboratories (OPAL) launches its Climate Survey this month, led by the Met Office in collaboration with other OPAL partners. The data collected will play a key role in meteorological research.

Dr Geoff Jenkins of the Royal Meteorological Society explained: “We’re asking people to go outside and observe and measure the weather. What they see and record will be useful in checking the models we use for forecasting weather and predicting climate.

You don’t need any hi-tech equipment; just download a free survey pack. You’ll be spotting plane condensation trails to measure air temperature and humidity, watching cloud movement to record wind direction at cloud level, blowing bubbles to measure wind speed and noting the clothes you wear to get a better understanding of thermal comfort.”

Imperial is the lead partner of OPAL and Dr Linda Davies (Environmental Policy) is the project’s director. She said: “Everyone can take part in OPAL by exploring and discovering the natural world around them. OPAL wants to inspire a new generation of nature lovers and increase environmental awareness, which has both local and global relevance.”

The new insights will complement and build on existing research into the potential impacts of climate change through the twenty-first century.

— SIMON LEVEY, COMMUNICATIONS AND DEVELOPMENT

To download a survey visit: www.opalexplornature.org/climatesurvey



You can measure wind speed by blowing bubbles.

Imperial College
London

Professor Welton goes to Mars

In the 1 March edition of the Imperial College Podcast, Professor Tom Welton (Chemistry) talks about the book, luxury item and guest he’d take with him to Mars, and Science Communication lecturer Gareth Mitchell and science writer Simon Singh discuss whether UK libel laws have failed science.

Visit: www.imperial.ac.uk/media/podcasts



Imperial's new iTunes U channel



Imperial College London's new iTunes U channel launched on 21 February, offering more than 700 pieces of audio and video content covering all areas of the College's research, teaching and student activities. The channel allows users to download audio and video clips, including gems from the Imperial archive, scenes of modern campus life, and interviews with academics about their research.

First launched in 2007, iTunes U offers universities a global shop window to connect the public with their activities. Users across the world can tap into the expertise of university staff and students or gain insight into life on campus. There are now more than 75,000 files available to download on iTunes U from over 800 institutions and, last year, iTunes U surpassed 300 million downloads.

Elizabeth Atkin, Digital Media Coordinator and one of the driving forces behind the launch of the Imperial iTunes U channel, said: "Curating Imperial's wealth of content for iTunes U has been a demanding project, but we hope that the work has paid off in the final product

— an educational resource that can be used within the College community and more widely. We're keen for the amount of content to develop and grow. We're looking forward to staff and students getting involved, and creating and sharing their content on College life and activities."

— SIMON WATTS, COMMUNICATIONS AND DEVELOPMENT

Explore Imperial's iTunes U channel and find out how you can showcase your videos of Imperial life
www.imperial.ac.uk/itunesu

Which five videos are making the grade with the iTunes U community?

- 1 Christmas Lecture 2010: *Chemistry for a cleaner world*, Professor Tom Welton
- 2 Kohn Lecture 2010: *Cell cycle control*, Sir Paul Nurse
- 3 *Discovering the quantum Universe: The LHC Project at CERN*, Professor Tejinder Virdee
- 4 *Molecular cooking is cooking*, Dr Hervé This
- 5 Athena Lecture 2010: *No escape from stress*, Professor Julia Buckingham

Engineers and *Blue Peter* put Rapunzel to the test

Last month a team of Imperial engineers developed a contraption made of human hair, enabling presenters from the world's longest running children's television programme to test the theory behind the fairy tale, Rapunzel.

The producers of BBC TV's *Blue Peter* approached Imperial's Dr Andrew Phillips (Civil and Environmental Engineering) to ask him, and senior technician Ron Millward, to help them build a rig to test the strength of



Blue Peter presenter Andy Akinwolere hangs from the harness as co-presenter Barney Harwood demonstrates the strength of the ropes made of hair.

human hair. The TV show wanted to see if hair could support the weight of a person, as it did in the fairy tale, Rapunzel. In the fairy tale, Rapunzel throws her extremely long hair out of her window, allowing a prince to use it like rope and climb into her room at the top of a tower to attempt a rescue.

"Part of the reason for working with *Blue Peter* on this project is that we wanted to show a young audience that our bodies manufacture really incredible materials like hair, which has some amazing properties," says Dr Phillips. "For instance, hair can be as strong as aluminium and a full head of hair can support up to 12 tonnes in weight."

After Dr Phillips's team built the harness, incorporating ropes made of human hair, it was driven to the *Blue Peter* studio at the BBC Television Centre, where it was used to suspend presenter Andy Akinwolere one metre above the ground.

At the end of the TV experiment, the Imperial researchers were awarded *Blue Peter* badges for their efforts.

— COLIN SMITH, COMMUNICATIONS AND DEVELOPMENT

Watch the experiment: www.bbc.co.uk/cbbc/bluepeter/videos/hairstest

in brief



RAG week

RAG (Raising and Giving) Week takes place every year and sees students raising money for a variety of good causes. During the 2011 event, taking place over the week of 28 February, collections and auctions were held while students took part in challenges

across College campuses and beyond. Money raised will be donated to the children's charity, Barnardos, and to the SOS Children's Village in Bosnia-Herzegovina, amongst others. In keeping with tradition, and setting the tone for the week, the Rector, Sir Keith O'Nions, was 'pied' with cream pies on the Queen's Lawn in the run-up to RAG week.

Rector's Away Day

Senior staff gathered for the Rector's Away Day on 18 February to consider a range of topics of strategic importance to the College including tuition fees, outreach activities and Imperial's research priorities. There was also a broad discussion about the challenges facing the College, with students' changing expectations and the need to recruit and retain outstanding staff among the points highlighted. Reports will be emailed to all staff in early March.

Director of Corporate Partnerships

Dr Simon Hepworth, currently Corporate Partnerships Manager for the Faculty of Engineering, has accepted appointment as Director of Corporate Partnerships, with effect from 1 April 2011. Dr Hepworth will report to Mr Edward Astle, Pro Rector (Enterprise), and succeeds Dr Sarah Shepley, who will continue to work for the Enterprise Division while based overseas for 12 months.

“Arguably it is the translation of our core activities – broadening the reach and impact of our education and research – that brings most value to society.”

RECTOR SIR KEITH O'NIONS ADDRESSING HIS ROYAL HIGHNESS THE DUKE OF YORK, WHO VISITED THE COLLEGE ON 2 MARCH, TO HEAR ABOUT IMPERIAL ACTIVITIES TO TRANSLATE EDUCATION AND RESEARCH INTO HEALTHCARE BENEFITS.

KIRF Maternal Health Programme

Imperial medics and senior members of the Faculty of Medicine attended an event at the House of Lords on 26 January, to discuss the Kashmir International Relief Fund's (KIRF) project to develop maternal health-care services in Azad Kashmir.

Final year medical student, Adeel Iqbal, who won an Imperial Outstanding Achievement Award in 2009, has worked with the KIRF over the last year to pioneer a pilot programme delivering antenatal and postnatal care to women from poor backgrounds living in rural areas in Kashmir.

Adeel was selected by KIRF to

pioneer the project, based on his previous experience working with the Kashmiri government and the Medical Advisory Committee to Kashmir. When the project started in March 2010, Adeel discussed his ideas with Imperial professors, who suggested ways of carrying out the project, such as working with local teams to educate and treat patients.

The pilot project, which won Department for International Development and Voluntary Service Overseas funding was carried out over a six-month period involving a dedicated team of UK doctors and nurses who flew to Kashmir to implement many of Adeel's

ideas. They identified complicated cases, treated women who would otherwise have been abandoned, and provided healthcare literature and educational seminars to the community.

As a result of this pilot programme, KIRF and members of Imperial were invited to the House of Lords by Lord Avebury, to discuss avenues for extending this work, so that thousands more women could benefit. The event was attended by MPs, professionals and the media, as well as organisations such as Maternity Worldwide, the World Health Organisation and the Royal College of Obstetricians



Final year medical student Adeel Iqbal, who pioneered the maternal health programme.

and Gynaecologists.

Professor Alan Fenwick (Public Health) attended the event and spoke highly of the KIRF initiative. Addressing guests, he discussed the importance of collaboration, and the need to invest in resources and academic expertise in the developing world.



Artistic invasion on campus

At the end of February, staff and students on the South Kensington Campus enjoyed a week-long burst of creativity as many showcased their talents in music and the arts.

Running from 21–26 February, ArtsFest 2011 included art exhibitions and singing, dancing, and performance events, which were attended by staff and students whose donations went to support the British Heart Foundation.

Jonathan Silver, an undergraduate from the Department of Bioengineering and this year's ArtsFest Chair, said: "It's a way for us to discover the fantastic creativity that's going on under our own noses, give ourselves a pat on the back for being artistic scientists, and raise money for an excellent cause in the process."

Highlights included a speed dating evening that paired Imperial scientists with artists from the Royal College of Art to create art inspired by science; taster sessions in belly dancing, singing and drama; orchestral recitals and, for the first time in ArtsFest's history, a live bands night called RockFest, held at the Union nightclub, Metric. The line-up included Musictech Live, an experimental electronic music act.

—JOHN-PAUL JONES, COMMUNICATIONS AND DEVELOPMENT

Making fertility treatment safer



Grant funding of £2.5 million has been awarded to a research project investigating a drug intended to make IVF safer. The study involves collaboration between researchers Dr Waljit Dhillon, Professor Steve Bloom (both Medicine), Professor Deborah Ashby (Public Health) and Dr Geoffrey Trew (Surgery and Cancer).

The funds will be used to test a hormone called kisspeptin which could help women trying to conceive a baby using IVF treatment.

A drug called hCG is currently used to stimulate the ovaries to release eggs when women undergo IVF treatment. However, hCG sometimes causes a condition called ovarian hyper stimulation

syndrome (OHSS) which can be a life-threatening complication.

This translational research project aims to test the ability of kisspeptin to release eggs in IVF treatment while eliminating the risk of OHSS.

Symptoms of OHSS include producing too many eggs from the ovaries, bloating through fluid retention and a very swollen abdomen, and may require a patient to be hospitalised for weeks.

Principal investigator Dr Dhillon, Reader and Consultant in Endocrinology, said: "The study will see the development of the drug hCG taken to the next stage as Queen Charlotte's and Chelsea Hospital IVF patients begin to try it out and, hopefully, see its benefits."

“The study will see the development of the drug hCG taken to the next stage”

The scientists will look into how well kisspeptin works compared to hCG, how many eggs patients produce and the quality of the embryos which result.

This project has been jointly funded by the National Institute for Health Research, the Medical Research Council and the Imperial Biomedical Research Centre. The hormone kisspeptin is currently being manufactured for the trial and the study will start next year.

media mentions

—SAM WONG, COMMUNICATIONS AND DEVELOPMENT



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www.imperial.ac.uk/media/jointsignup

NEW SCIENTIST ▶ 5.2.2011

Breath sensor predicts asthma attacks



A handheld breath sensor can warn someone with asthma that an attack is imminent, buying them time to

take preventive medication, according to *New Scientist*. The sensor, developed by Siemens, detects a rise in levels of nitrogen monoxide, which can signal the beginnings of inflammation in the bronchial tubes. If unchecked, the inflammation will constrict the airways and trigger an asthma attack. Asthma researcher, Professor Peter Barnes (NHLI), told the magazine that he expected the device to be useful. I think it will work," he said, "but it will probably be of most benefit to people with unstable asthma, who have unexpected attacks quite frequently, and they may have to take measurements quite often."

DAILY EXPRESS ▶ 5.2.2011

Smart app can spot cancer

Scientists have developed a gadget that turns an iPhone into a medical tool that can detect skin cancer, according to the *Daily Express*. The £995 Handyscope device plugs into the smartphone and converts it into a dermatoscope, which doctors use when looking for melanoma. "This shows the way technology to help health can be applied to everyday areas of our lives," said Professor Justin Stebbing (Surgery and Cancer). Describing the benefits of the new technology, he said: "It will be particularly good at comparing changes in moles over time using images previously taken. This should be useful for raising initial concerns. Anything that raises awareness of melanoma is to be welcomed. It is one of the fastest growing cancers worldwide but if caught early enough it is often highly curable."



THE GUARDIAN ▶ 10.2.2011

Offshore wind powers industry

Engineering firms around the world are racing to produce mega wind turbines capable of matching the output of conventional generators, according to *The Guardian*. Robert Gross (Centre for Environmental Policy) says that although the huge turbines are currently manufactured overseas, the rise in offshore wind in Britain creates other opportunities for green industry in the UK. "One of the main myths about wind power is that because British-owned companies do not produce turbines there is no role for UK industry in offshore wind," he said. "In fact, UK companies are active in many parts of the supply chain, from specialist components used within turbines, to towers, foundations and cables."

MSNBC.COM ▶ 15.2.2011

Reasons to eat a berry good diet

Regularly eating berries and other foods high in compounds called anthocyanins can ward off Parkinson's disease, suggests a new study reported on *MSNBC.com*. Men and women in the study who consumed the most anthocyanins – a type of flavonoid – over two decades were about 25 per cent less likely to develop Parkinson's than those who consumed the least. Professor David Dexter (Medicine) said, "There are quite a few flavonoids that can get into the brain, but I think we need to do large, extended clinical trials to find them."



awards and honours



ENGINEERING

Computer whiz's work wows readership

A paper written by Dr Natasa Przulj (Computing), pictured above, that describes a software tool for analysing large networks, is currently listed as the second most accessed

study in the journal *BMC Bioinformatics*. The paper describes a computer tool called Graphcrunch, which Dr Przulj has developed to analyse different types of networks, including transport, biological and social.

ENGINEERING

Inspiring engineering lecturer recognised

The Royal Academy of Engineering has recognised Senior Lecturer Dr Sandra Shefelbine (Bioengineering) as one of the most inspiring lecturers in the UK, as part of the ExxonMobil Excellence in Teaching Awards. Dr Shefelbine is one of only five academics to receive a

prize of £10,000 as part of the award package, which also recognises the Department as a centre of teaching excellence.

NATURAL SCIENCES

Professor's theories bear fruit

Professor Darren Crowdy (Mathematics) has been awarded the Cherry Ripe Prize as judged by a panel of students from the Australian Maths Society. Professor Crowdy is recognised as one of the world's leading experts in applying the theory of complex, or imaginary, numbers to solving real-world problems. The Cherry Ripe Prize is given



annually at the society's annual conference for the best presentation by an established academic.

MEDICINE

Bluetooth innovator of the year

Professor Guang-Zhong Yang and his team (pictured above) from the Hamlyn Centre for Robotic Surgery

(Global Health Innovation) have won the Bluetooth Innovator of the Year Prize and also the Healthcare Category Award at the 2010 Innovation World Cup Awards, held in Munich in February. The awards recognise their development of wireless sensor technology worn behind the ear to measure balance, posture, activity level and heart rate.



Atom-thick sheets hold the key to new technologies

Scientists from the Departments of Materials and Chemistry have developed a new technique for splitting 'layered materials' into atom-sized nanosheets, which could lead to advances in energy storage technologies and electronic devices, according to research published on 4 February in the journal *Science*.

Layered materials are manmade and there are more than 150 types, including boron nitride, molybdenum disulfide and tungsten disulfide. These materials have the potential to conduct and store energy when they are split into microscopic layers called 'nanosheets'. For decades, scientists have been working on methods to create nanosheets but previous attempts have been time-consuming and resulted in the nanosheets being damaged, making them fragile and unsuitable for use.

The international study includes researchers from Imperial, the University of Oxford, Trinity College Dublin, Korea University and Texas A&M University. Dr Shane Bergin (Chemistry), who took part in the study, says:

"It is amazing to think that something the size of atoms can have so much potential, and that nanosheets could one day provide the basis for a whole new revolution in computing and electronics, which could rival the silicon based technology that we use today. Our study is the first step towards realising the potential of nanosheets as the building blocks for tomorrow's technology."

Professor David McComb (Materials), who was also involved in the study, adds: "Nanosheets could be used to advance a range of technologies, from sensors to batteries and super-strong materials. Nanosheets could also be combined with other conventional materials such as silicon to create new kinds of hybrid computing technologies."

—COLIN SMITH, COMMUNICATIONS AND DEVELOPMENT

Flu reduction policies don't need to start at the beginning of an outbreak



It might be better to implement policies to reduce the impact of a flu epidemic a few weeks after the start of an outbreak rather than straight away, according to a new study that uses mathematical models to simulate the effects of different interventions. The research was published on 11 February in the online journal *PLoS Computational Biology*.

When an outbreak of severe

influenza or another severe disease like SARS takes hold and grows rapidly, governments consider various 'social distancing' measures to limit

the impact of the outbreak, such as closing schools and public places, and placing restrictions on transport. However, the economic cost and

societal impact of these measures mean that it is undesirable to use them for a sustained period of time.

"We found that waiting a few weeks is as effective at achieving key public health aims as starting interventions immediately"

Researchers at Imperial and Utrecht University used mathematical models to consider the effectiveness of short-term interventions and to evaluate the best policies for a range of objectives, such as minimising the peak demand for public health services or minimising the social or economic costs of containing the outbreak.

The study was co-authored by Dr Deirdre Hollingsworth, a Junior Research Fellow from the Medical Research Council Centre for Outbreak Analysis and Modelling at Imperial, and Dr Don Klinkenberg, from Utrecht University in the Netherlands.

Dr Hollingsworth said: "We found that waiting a few weeks is as effective in achieving key public health aims as starting interventions immediately. If you take into account the impact that those policies will have on society, it might be better to hold back at the start."

—SAM WONG, COMMUNICATIONS AND DEVELOPMENT

Periodic table of shapes

Imperial mathematicians are creating their own version of the periodic table that will provide a vast directory of all the possible shapes in the universe across three, four and five dimensions, linking shapes together in the same way as the periodic table links groups of chemical elements.

The three-year project, announced on 16 February, should provide a resource that mathematicians, physicists and other scientists can use for calculations and research in a range of areas, including computer vision, number theory and theoretical physics.

The researchers, from Imperial and institutions in Australia, Japan and Russia, are aiming to identify all the shapes across three, four and five dimensions that cannot be divided into other shapes.

Project leader Professor Alessio Corti (Mathematics) explained: "We think we may find vast numbers of these shapes, so you probably won't be able to stick our table on your wall, but we expect it to be a very useful tool."

Professor Corti's colleague on the project, Dr Tom Coates (Mathematics), has created a computer modelling programme that should enable the researchers to pinpoint the basic building blocks for these multi-

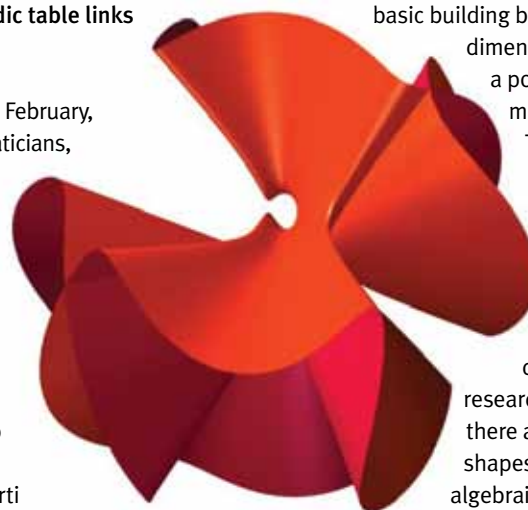
dimensional shapes from a pool of hundreds of millions of shapes.

The researchers will be using this programme to identify shapes that can be defined by algebraic equations and that cannot be divided any further. The

researchers calculate that there are around 500 million shapes that can be defined algebraically in four dimensions and they anticipate that

they will find a few thousand building blocks from which all these shapes are made.

—LAURA GALLAGHER, COMMUNICATIONS AND DEVELOPMENT



Fear of infection drives HIV decline in Zimbabwe



A huge drop in the numbers of people infected with HIV in Zimbabwe is due to mass social change, driven by fear of infection, according to an international study reported on 9 February in the journal *PLoS Medicine*. The scientists unravelling the reasons behind this unexpected downturn have revealed what they hope are the most important lessons in the fight against the disease for the rest of Africa.

Zimbabwe's epidemic was one of the biggest in the world until the number of people infected with HIV in Zimbabwe almost halved, from 29 per cent to 16 per cent, between 1997 and 2007.

Remarkably, this occurred against a background of massive social, political and economic disruption in the country.

The study's findings strongly show that people in Zimbabwe have primarily been motivated to change their sexual behaviour because of improved public awareness of AIDS deaths and a subsequent fear of contracting the virus. The researchers found that other important drivers have been the influence of education programmes that have shifted people's attitudes towards having multiple, concurrent sexual partners in extramarital, commercial and casual relations, and increased the acceptability of using condoms for casual sex.

Senior investigator on the study, Professor Simon Gregson (Public Health), said: "Very few other countries around the world have seen reductions in HIV infection and, of all African nations, Zimbabwe was thought least likely to see such a turnaround. This is why there was such an urgent need to understand its direct and underlying causes."

—SIMON LEVEY, COMMUNICATIONS AND DEVELOPMENT

Scientists weigh out ingredients for the perfect galaxy

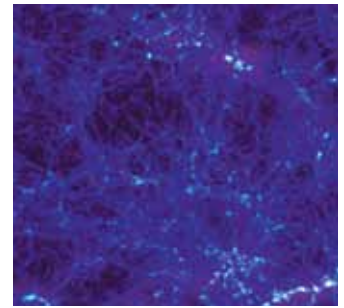
Imperial astronomers working with Europe's Herschel Space Observatory have found out just how much dark matter it takes to make a new galaxy bursting with stars.

The discovery is a key step in understanding how dark matter – an invisible substance that pervades our universe – contributed to the creation of massive galaxies early in the life of the universe, about 13.7 billion years ago.

According to the scientists' calculations, the recipe for a perfect galaxy requires just about 300 billion times the mass of our Sun of dark matter.

Herschel, the world's largest space telescope, launched into space in May 2009. The mission's large telescope detects far-infrared light from a host of objects, ranging from asteroids and planets in our own solar system to faraway galaxies.

Physicists from Imperial played a key role in conceiving, designing and developing Herschel's Spectral and



Distribution of dark matter in the Universe according to Herschel.

Photometric Imaging Receiver (SPIRE) instrument and HerMES, the Herschel Multi-tiered Extragalactic Survey, over the last 20 years.

Dr David Clements is one of the Imperial physicists on the international team. He said: "This work shows just how powerful the Herschel Space

Observatory is, allowing us to get new insights into the mysterious dark matter that is impossible for us to see directly. And this paper is based on only a small fraction of the data we're going to get from Herschel, so there's lots more exciting science to come!"

—ADAPTED FROM A NEWS RELEASE ISSUED BY THE UK SPACE AGENCY AND NASA

"We have made an important step forward in the hunt for dark matter, although no discovery has yet been made"

Babies born to mothers with HIV might be more vulnerable to infection

Babies whose mothers have HIV, but who are not HIV-infected themselves, are born with lower levels of specific proteins in their blood called antibodies, which fight infection, compared with babies not exposed to HIV, a new study has found. The finding, published on 8 February in the *Journal of the American Medical Association*, might explain, in part, why uninfected babies born to

women with HIV have a higher risk of illness and death early in life.

Major programmes using antiretroviral drugs have successfully reduced the rate of mother-to-child transmission of HIV from 20-30 per cent to around five per cent in some areas of South Africa and to less than one per cent in developed countries. However, HIV-uninfected infants born to HIV-infected mothers in Africa are more prone to

infections such as pneumonia and meningitis, and are up to four times more likely to die before their first birthday, compared with babies born to HIV-negative women.

The new study, by scientists from Imperial and Stellenbosch University in South Africa, found that babies born to HIV-infected mothers had significantly lower levels at birth of antibodies against a range of bacterial infections (Hib, pertussis,



pneumococcus and tetanus).

Dr Christine Jones (Medicine), the study's first author, said: "Although they appear more vulnerable in the first few months of life, the good news is that these babies respond well

to vaccination. We might be able to protect them even better against infections, either by vaccinating them earlier or by vaccinating the mother in pregnancy."

—SAM WONG, COMMUNICATIONS AND DEVELOPMENT



The new ghost in the machine

A silent, unseen trace remains of everywhere you've been. Almost every transaction – every journey, every tap of an Oyster card, every online order – generates computer data, and it is all being captured and recorded somewhere. Every day across the world vast oceans of digital data are created and stored.

Professors David Gann and Eric Yeatman believe that society's collected data is an untapped treasure trove for innovation. Through their new Digital Economy Lab, they plan to harness it to improve the decisions that public bodies make, define the sorts of businesses that will thrive tomorrow, and improve the way we live.

Eric, a micro-electro-mechanical systems expert and Deputy Head of the Department of Electrical and Electronic Engineering, wants to make data-gathering sensors smaller and cheaper. He believes that an environment rich in sensors could inter-

act with new breeds of device to share real-time data about what's going on in new and useful ways.

An example of this type of research is already happening at the College in the Centre for Pervasive

Sensing, where Professor Guang-Zhong Yang, Deputy Chairman of the Institute for Global Health Innovation, is pioneering the use of pervasive sensing with medical applications. He leads the Elite Sport

Performance Research in Training project, which focuses on developing body sensor networks that extract continuous information from

“In the future I envisage people will be using devices a bit like iPhones, which interact with the environment in real-time”

athletes in training and competition, enabling performance analysis and improvement.

One of Guang-Zhong's areas of research concentrates on developing wireless sensor technology that can be worn behind the ear to measure balance, body posture, activity level and heart rate. One potential application is to use the ear sensors to monitor the health of older people in the comfort of their own home. Eric believes sensors will revolutionise our lives.

“In the future I envisage people will be using devices a bit like iPhones, which interact with the environment in real-time,” he says. If sensors became ubiquitous in public areas, they could have a dramatic effect on healthcare, infrastructure and energy consumption. Hospitals could use them to track the use of medical equipment and help reduce CO₂ emissions and waste. Or they could simply help with the day-to-day grind: “They'll allow commuters to see how full the train ahead is before they decide whether to run to catch it,” says Eric.

Business

Gathering digital data in a more active and creative way is leading to transformations in businesses.

“As digital technology proliferates, more and more industries face serious challenges,” says David, Chair in Technology and Innovation Management in the Business School and the Faculty of Engineering. “It's opened up space for new services with innovative business models, but for those already there, innovating and taking advantage of digital opportunities are key to their survival,” he explains.

He cites the music industry as a case study. With Spotify, the free music streaming service, on a smartphone, the demand for a music megastore in every town diminishes. “The internet has revolutionised the way that people consume music, yet changes to how we buy and listen to music haven't spelt the death of the music industry, as many predicted,” says David.

To develop ideas on how digital technology can help create a smarter society, Imperial launched the Digital Economy Lab, a cross-faculty initiative coordinated by David and Eric, in September 2010. They hope to repeat the success of other College initiatives that use the multidisciplinary 'grand challenge' approach.

Funding

The Lab has already attracted interest from academic staff across the College who are keen to contribute their expertise to the evolving digital economy, which includes supporting a new MSc in Digital Business, run by the Business School. Applications are welcome from students interested in a career exploring digital solutions.

The research theme is not new to the College – the Business School has existing collaborations with Microsoft and IBM focused on digital technologies, and Imperial is already working closely with UCL on the ICT Labs, which is one of three Knowledge and Innovation Communities (KICs) set up by the European Institute of Innovation and Technology.

The themes of the KIC, which will see a digital economy hub created for London, include investigating how ICT can contribute to smart energy systems, health and well-being, intelligent transportation systems and digital cities, all of which resonate strongly with those of Imperial's Digital Economy Lab. To take the Lab's work further, Imperial has made a £6.5 million bid to Research Councils UK for projects ranging from sensor technology through to research into creating viable digital business models.

Projects

Swapping and sharing masses of data between different services in order to come up with novel uses is the goal of proposed work led by Eric and Professor Yi-Ke Guo (Computing).

"Many industries have vast quantities of measurable data locked up and no-one else can access it," says Eric. Their project wants to develop a standardised format of data so that it is possible to recognise interdependencies between sectors. For example, data on the amount of carbon being used and the pollution generated could be a goldmine for transport planners and consumers keen to curb their carbon footprints, if they had access to it and could easily make sense of it.

Professor John Polak (Civil and Environmental Engineering) and Professor Nilay Shah (Chemical Engineering and Chemical Technology) are looking at how to use ICT to better manage transport. They already have two projects underway that focus on using sensors to pick up emissions from buses and cars and feed this data into a computer system. Nilay wants to turn this data into real-time maps of pollution, which will help to find ways of managing traffic in order to reduce emissions. The long-term aim is to bring together all the emissions datasets coming out of London, to extract specific information and create a new energy consumption map of London.

Using new digital tools to create and visualise new services and businesses is another Imperial strength that is contributing to the digital economy. Researchers in the Medical Media Design Laboratory (MMDL) led by Mr Dave Taylor (Surgery and Cancer) use a multidisciplinary approach to study and redefine the way that new digital media is used in healthcare. Imperial academics from the MMDL have combined the computer program

Second Life with a 3D visualisation system in the Innovation Technology Centre at Design London – a joint initiative between Imperial and the Royal College of Art. The aim of this is to test how new healthcare services might perform, before they are built or commissioned.

"Imagine you are designing a new cancer service in a new health facility," says David Gann, "You can't test and optimise that service in the physical world, as the facility has not yet been built. However, if you build an exact digital replica of the service, staff it with virtual doctors and nurses and allow potential patients to explore the 3D digital environment, you can do just that."

Outward looking

New ventures and start-up companies will also benefit from the Lab through an incubation facility which the Business School plans to set up with Imperial Innovations, the company that commercialises technologies and discoveries emanating from the College. "Students and staff will be able to use the Incubator to develop new go-to-market propositions, apps and business models," David explains. "The lab will be a portal for the outside world to see the work that we are doing."

Such early exposure for new ideas is critical. Eric points out that the digital economy field is at a young age. "One of the interesting things here, is the chance not just to solve the known problems but also to look at possibilities that emerge, as more and cheaper technology becomes available. What's exciting is that we just don't know what all the applications are yet."

To find out more about Digital Economy Lab research, upcoming events and how you can get involved, see: www3.imperial.ac.uk/digital-economy-lab

“The lab will be a portal for the outside world to see the work that we are doing”



Professor Guang-Zhong Yang, Director of Medical Imaging in the Institute of Biomedical Engineering (IBE), working on the e-AR sensor. The activity-recognition sensor fits easily behind the ear and is able to transmit real-time information about the wearer's speed, stability and impact on the body, supporting the training of athletes.



Why are collaborations between universities and industry so important?

Reporter speaks to Professor Al Fraser, EGI Chair in Petroleum Geoscience (Earth Science and Engineering), who has spent 30 years working as an exploration geologist for BP before joining the College last year.

“I’ve always felt that there is a wonderful, symbiotic relationship between academia and industry and that they are natural collaborators. Big companies have easy access to large budgets and data-sets, and academics have the expertise and time to do research thoroughly and creatively – it makes sense to work together.

I was lucky enough to go straight into a job with BP after I graduated with a degree in geology from the University of Edinburgh in 1977. The key aim of my role was to seek out oil in petroleum basins around the world and, as a result, I got the opportunity to travel and see some amazing geology in places such as the Arctic, China and the Middle East.

Throughout my career, I was always more passionate about geology than the commercial side of the business, and I actively kept ties with people in the academic world and looked for ways to collaborate with universities.

Companies can get very introverted and often arrogant about their models. I found it rewarding to develop ideas and challenge industry paradigms with academics and students. These relationships often led to innovative solutions to long-term problems while also

helping with immediate concerns of locating gas and oil.

New insights

One of the first collaborations I was involved in was when I was working on a project focused on the North Sea in the early 1990s, a time when oil companies were unsure whether there was any further oil left in the area. By collaborating with academics at the Universities of Edinburgh and Manchester, who specialised in rocks in the North Sea, we were able to test and improve our models, and shed new light on the problem.

The researchers we collaborated with got the opportunity to use the North Sea as an immense laboratory for testing geological ideas and models. A paper was published as a result of one project co-authored by Professor John Underhill from the University of Edinburgh and Dr Mark Parkinson who worked in my exploration team in Glasgow. The paper described the discovery of a large thermal dome in the central North Sea, which had lots of implications for the petroleum geology

“Research collaborations are also great for helping students gain direct contacts in the industry”

of the area. These findings and others led BP to withdraw its exploration in the North Sea, and saved the company significant sums of money, which would otherwise have been spent on drilling dry wells.

Solving global problems

Today the oil industry is facing some major global challenges, in particular, the depleting oil and gas supplies, and the increasing demand from developing countries like China, India, Russia and Brazil. A question that concerns us all is where the next major source of oil and gas will be. My view is the Arctic but the exploitation of resources in this region will be highly controversial. Industry, in partnership with governments, will have to protect the interests of the indigenous populations and demonstrate that they can conduct operations safely in the harsh and fragile arctic environment.

I believe geologists can play a huge role in helping to come up with possible solutions and universities will be able to access funding to develop new research in areas of mutual benefit.



Christopher Hunter, Elizabeth Riley and Ben Said (all Earth Science and Engineering undergraduates) are undertaking offshore survival training during their summer internship at BP.

Opportunities for students

As well as all the other benefits I’ve discussed, research collaborations are also great for helping students gain direct contacts in the industry – which is increasingly important in this competitive market.

One of the reasons I decided to leave BP last year and return to academia was that I was attracted to Imperial by the considerable reputation of the MSc in Petroleum Geoscience. The course is really applied and is taught by an enthusiastic and knowledgeable mix of Imperial staff and industry guests. Importantly, there are opportunities for students to work together on real problems using data generously provided by oil companies.

As in my previous role, part of my job at the College is to stimulate collaborations between academia and industry but this time I’m on the other side of the fence. I actively encourage students to apply for internships to help them understand the industry before they graduate and get ahead of the game.

I’d really like to see even more industrial partners joining up in research collaborations with Imperial and look forward to building more bridges.”

—EMILY ROSS, COMMUNICATIONS AND DEVELOPMENT

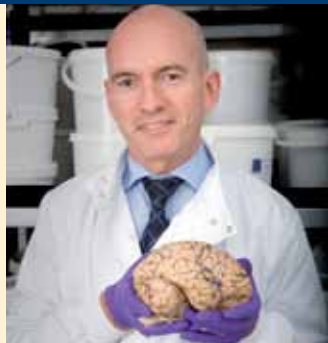
inside

story

mini profile

David Dexter

Dr David Dexter, Reader in Neuropharmacology (Medicine), talks to *Reporter* about taking part in a play called *Mind the Gap* at the Royal Albert Hall during National Science and Engineering Week.



Why did you become interested in public engagement?

I'm always looking for new ways of communicating my work to the public – it's important to encourage people to take an interest in medical research.

What is *Mind the Gap*?

It's a play for schoolchildren produced by a theatre company called Y Touring, which uses drama to enable young people to explore and debate scientific and ethical dilemmas such as mental health.

How did you get involved in the project?

The play evolved from a discussion I had about my research with a writer at a workshop about the brain at the Dana Centre. I specialise in Parkinson's and many of my patients have cognitive problems and memory issues – this play relates directly to them.

What's the play about?

Mind the Gap is set on a tube platform and has three

main characters. One, an elderly lady, has Alzheimer's, another is a drug addict, who once pushed a woman under a train, and there is also the victim's boyfriend, who has suffered from depression since her death.

What's your part in the play?

I sit on a panel of scientists and experts who take questions after the performance and lead a discussion with schoolchildren about the play's themes.

Why are plays like this important?

When I was in my late teens, my stepfather developed Alzheimer's. I saw first-hand how hard it was on him and on my mother as his carer. I would have been so much better prepared for it, if there'd been a play like this around at the time to explain all the issues to me.

— KATIE WEEKS,
COMMUNICATIONS
AND DEVELOPMENT

Mind the Gap is showing at the Royal Albert Hall from 14–18 March. To find out how you can get involved in future plays and get a free ticket, contact: e.lang@ytouring.org.uk



Tim Radford: Life as a simple scribe

On 19 January, science journalist Tim Radford came to Imperial to give a lecture about his varied career. Andrew Purcell, who is studying for an MSc in Science Communication, reports on the event:

“From author Primo Levi to sperm whale autopsies and from Dante to urine disposal in space, the range of topics covered in Tim Radford's journalistic career, which has lasted over half a century, is both enthralling and awe-inspiring.

Those in the lecture theatre who, like me, were hoping for a few insights into the world of science journalism, were certainly not left disappointed.

“The classic error in journalism is to overestimate what the reader knows”

Tim likened the challenge of writing about science to “writing about politics and having to explain who the Prime Minister is every time”.

He also cautioned against the dangers of “thinking you can get away with reporting something boring, just because it's science”.

In his 25-point manifesto for science journalism, which was published on *The Guardian* website to coincide with this event, Tim warned that: “The classic error in journalism is to overestimate what the reader knows and underestimate the reader's intelligence”.

Whilst the bulk of the lecture consisted of Tim regaling us with tales of his early journalistic career – I, for one,

spent much of the lecture straining forward on the edge of my seat – the event was perhaps most notable for the candour with which he tackled journalism's somewhat thornier issues.

Towards the end of the lecture, he declared, with as straight a face as I've

ever seen the line delivered: “Journalism is about defending democracy – that's what we're here for”.

This was, in fact, one of the rare occasions where the ingenuousness of this claim did not seem in doubt.”

To read Tim's 25-point manifesto for science journalism see: <http://bit.ly/fKzfwy>

▶ SCIENCE FROM SCRATCH

As explained by Thea Cunningham, MSc Science Communication



Hadron

Catapulted into the limelight following the launch of CERN's Large Hadron Collider (LHC), hadrons are particles found in the nucleus of atoms. The term ‘hadron’ derives from the Greek word *hadrós*, meaning stout or thick. It was coined in 1962 by Russian scientist Lev Okun to describe particles that strongly interact. A hadron comprises electrically charged particles called ‘quarks’, in a sea of particles called ‘gluons’. The gluons act a go-between for the strong force that holds the quarks together. Only a tiny part of the mass of a hadron is due to the quarks in it – the rest arises from the energy associated with the strong interaction. Hadrons containing two quarks are called ‘mesons’ and those containing three quarks are called ‘baryons’. Protons are a well-known example. Because of their positive electric charge, hadrons are affected by magnetic fields. In the LHC, beams of protons are steered using superconducting electromagnets in order to study particle collision.



IMPERIAL STUDENTS SHARE THEIR EXPERIENCES OF LIFE AT THE COLLEGE ON THE STUDENT BLOGGERS WEBSITE.

Student blogger Corrie on

Why cooking is better than chemistry:

blog
SPOT

1. You don't have to measure out ingredients to the fourth decimal place. In fact, sometimes, the rougher you are, the better the result.
2. You don't run the risk of killing your lungs with silica vapour, or accidentally inhaling too many fumes from the acetone dried samples.
3. You don't have to record every little step you took while you were cooking.
4. It doesn't take four weeks to cook a meal. Once the meal is made, no further effort – apart from mastication – is required.
5. Your future success does not depend on the outcome of each meal and your ability to critically analyse the results.



www.imperial.ac.uk/campus_life/studentblogs



Untethered at Blyth Gallery

As part of ArtsFest 2011, an installation of paper birds has been on display in the Blyth Gallery on the South Kensington Campus. The birds are made either from photos taken by members of the Photographic Society or from drawings by members of the Leonardo Fine Arts Society. Commenting on *Reporter* online, Caroline Jaffe-Castle (NHLI) said: "I was fortunate enough to walk through the evolving exhibition for *Untethered* last Wednesday...a young man was busy creating birds to the already beautiful display. The white space allows for fabulous shadows, giving a feeling that the birds are in flight. Fabulous display!"

Inside the Imperial College Women's Club

Lady Rita O'Nions, Chair of the Imperial College Women's Club (ICWC) and wife of Rector, Sir Keith, shares her experience of the organisation which brings together Imperial's women:



Attendees at the ICWC lunch in March.

"The last 12 months since Keith took up his post have brought a wealth of wonderful experiences, many of them provided by the ICWC.

The Club holds termly lunches in the Council Room of 170 Queen's Gate for women of all ages; academics and administrators, College-wide. These lunches provide sociable networking time followed by talks, given by a variety of speakers.

Through the Club I have met many women with a close connection to Imperial. The society provides relaxed, enjoyable events with opportunities to meet and connect. For me it has certainly fulfilled its mission of "Inspiring and Connecting the Women of the College".

Recent speakers at ICWC events have been the first female Chief Cashier of the Bank of England, Merlyn Lowther, whose signature has appeared on banknotes, and the author Calton Younger, who

“The society provides relaxed, enjoyable events with opportunities to meet and connect”

gave us an account of his experiences as a 20 year-old RAF navigator, shot down attempting his 13th mission in

1942. His book *On the Run* describes the eight days before he was captured, after which he spent three years as a prisoner of war. More books followed, alongside a long career running a grant-making charitable foundation.”

The ICWC is organising two events over the coming months. The first is Know Your Antiques, a presentation given by antiques expert Chris Gower on 22 March, and the second is on 12 May, featuring a talk, Human Evolution by palaeontologist Chris Stringer. See: www.imperial.ac.uk/womensclub

Going where no student has gone before

The College's Exploration Board, which supports exploratory trips that challenge students, has approved three new expeditions. In the summer of 2011, students will be mountaineering in the Reru Valley in India, trekking the Arctic in Svalbard and caving in North Africa.

Jonathan Phillips, a postgraduate from the Department of Materials, who was expedition leader on an expedition to scale unconquered peaks in the Himalayan Obra Valley in India in 2010, tells *Reporter* about one of the trip's highlights last summer.

"In the last few days before leaving the valley, we decided to attempt a peak called Ranglana. At 5,554 metres, it had been attempted five times without success by other teams and it was with some trepidation that we started up its hazardous slopes. After spending a bitterly cold night sleeping on a glacier below the Western Col, we crossed over it early in the morning and began climbing the south ridge.

The location was stunning, affording us a view covered with peaks as far as the eye could see. After several hours, we finally



made it on to the summit, facing the greatest difficulties in the last 50 metres. It was an amazing feeling to realise our goal and the confidence gained will remain with each member of the team through all the challenges they may face in the future. We stayed only briefly on top for some pictures, before being chased down to the valley by storm clouds building up around us.”

To see a slideshow of the expedition to the Obra Valley visit: <http://bit.ly/gVgP5U>

Demystifying science



Dr Alice Bell, Senior Teaching Fellow (Graduate Schools), is a firm believer in communicating science to the public and thinks everyone should have a go. She tells *Reporter* why:

“Thou shalt communicate! It’s one of those woolly commandments poured upon twenty-first century scientists (on top of admin, management, teaching, policy and, oh yes, research). Scientists today are expected to be good communicators, often without much direction or even support.

While I realise that it’s not always easy, science communication has lots of benefits. It can help you talk to your colleagues and think about your work in different ways. It can also have huge benefits for your research and your career prospects, as well as being fun and helping to build

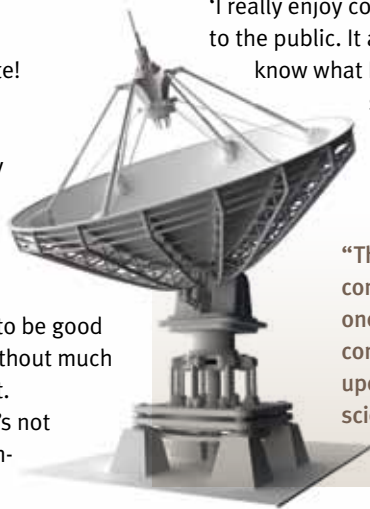
trust between science and the public.

Dr Zita Martins is a Royal Society University Research Fellow in the Department of Earth Science and Engineering, researching astrobiology. She has discussed her work on television, radio, and in newspapers and magazines across the world, and she clearly lists her media appearances on her College professional web page (PWP) at www3.imperial.ac.uk/people/z.martins. I asked her why she finds communicating her work so rewarding:

“Doing media work has been an important part of my career,” she says. “I really enjoy communicating my work to the public. It allows everybody to know what I do and understand (in a simple way) the origin of life and the wonders of the universe.

“Thou shalt communicate! It’s one of those woolly commandments poured upon twenty-first century scientists”

For me, it is very rewarding when I successfully inspire young students. It is also interesting to see that my most cited scientific articles are also the ones that got lots of media attention.”



The Heretic reviewed

Anoushka Warden (Imperial Innovations) reports on *The Heretic*, Richard Bean’s new play about climate change at the Royal Court Theatre.

“I refuse to use ‘a bag for life’ and I don’t buy energy-saving light bulbs. This is not a line from the play but, in fact, the terrible truth that I have kept hidden for years. I am an eco-sceptic. For me, the purpose of going to see *The Heretic* was to get some kind of reassurance that my views are shared by others.

The difference between myself and the play’s protagonist is that Dr Diane Cassell, played by Juliet Stevenson (pictured above left), is a lead academic in earth sciences and her climate change scepticism is based on her scientific findings. Measuring sea levels in the Maldives leads her to conclude they have not risen in 20 years. Her head of department (James Fleet – Hugo from the Vicar of Dibley) wants to delay the publication of her research for his own personal reasons. Diane is suspended after voicing her theory on *Newsnight*, in a brilliantly funny scene in which Jeremy Paxman himself makes a very comical appearance. The finale is action-packed and includes computer hacking, kidnap, and a life or death situation complete with helicopter and real snow.”

The Heretic is playing until 19 March at the Jerwood Theatre Downstairs at the Royal Court Theatre: www.royalcourttheatre.com/whats-on/the-heretic

iConnect Imperial brings discounts to community



At the end of January, students donned www.icconnectimperial.com T-shirts and handed out leaflets and free oyster card holders to staff and students on the South Kensington Campus to promote their new group-buying website. The website offers staff and students 20–50 per cent discounts mainly at restaurants and cafés in the South Kensington area. Final year Chemical Engineering and Chemical Technology student, Nigel Kheng, who co-founded the website and is also the President of Imperial’s Innovation Society, tells *Reporter* about the idea:

“iConnect is a project started by the Innovation Society. The idea is simple: if there are enough people willing to purchase the same product, it can be much

much cheaper. For example, you can get a 50 per cent discount for a theatre ticket if a group of at least 10 people go together, but organising that can be a hassle. Through our website, the group from Imperial is formed virtually, so everyone gets the discount without the need to form our own groups.

As well as giving lots of discounts to the Imperial community, the website also gives local businesses the opportunity to reach out to staff and students. All profits go to the Prince’s Trust charity, which helps young people in difficult situations to build meaningful lives.”

Nigel is keen to know what staff and students think of the website. Contact him at: imperial.icconnect@gmail.com

Is the future nuclear?



Andrew Purcell, who is studying for an MSc in Science Communication, reports on his experience of the *Is the Future Nuclear?* panel discussion hosted by *A Global Village*, Imperial's journal on international affairs:

"I've been to *A Global Village* events before, but I found myself feeling particularly excited as I waited for this one to start. Perhaps this is because the tricky issue of nuclear power has stalked me throughout my life. You see, my father works at a nuclear power plant but I like to think of myself as a closet eco-warrior. I spent most of my teenage years walking around with a CND (Campaign for Nuclear Disarmament) symbol hanging around my neck and I am somewhat partial to brown rice.

The debate about the role that nuclear power is likely to play in helping meet future energy demands was, on the whole, rather tame. The three speakers generally agreed that, while there are inherent dangers to consider, nuclear power is

probably more desirable than continuing to burn fossil fuels at our current rate. Perhaps Professor Jim Skea, Director of the UK Energy Research Centre, which is based at Imperial, was able to sum up the panel's collective opinion best: "Is the future nuclear? It's partly nuclear but there have to be other things involved as well."

Neil Hirst of Imperial's Grantham Institute for Climate Change added: "Carbon emissions need to peak by 2020, which is difficult, given the growth in countries like China and India. In these countries, coal is really cheap to access, so, not using nuclear power means that more coal will inevitably be burnt." In his concluding

remarks, Neil went on to summarise the situation by saying: "The detrimental effects of using nuclear power are greatly outweighed by the detrimental effects of not using it".

At the end of the event, the audience members were asked to vote either for or against the future proliferation of nuclear power. Perhaps surprisingly, the audience voted almost three to one in support of nuclear power. In case you're interested, I abstained."

“The detrimental effects of using nuclear power are greatly outweighed by the detrimental effects of not using it”

long service

Reporter features staff who have given many years of service to the College. Staff listed below celebrate anniversaries in the period 1–8 April. Data is supplied by HR and is correct at the time of going to press.

— EMILY ROSS, COMMUNICATIONS AND DEVELOPMENT



SPOTLIGHT

20 years

- Professor Nagy Habib, Professor of Hepato-biliary Surgery (Surgery and Cancer)
- Miss Fionnuala Ni Dhonnabhain, General and Postgraduate Office Manager (Civil and Environmental Engineering)
- Mrs Benita White, Higher Executive Office (Surgery and Cancer)
- Ms Betty Yue, School Manager, Marketing and Development (School of Professional Development)

30 years

- Professor Richard Jardine, Professor in Geomechanics, Head of Geotechnics (Civil and Environmental Engineering)
- Dr Philippa Cann, Research Fellow (Mechanical Engineering)

Dr Glen Powell (Life Sciences) 20 years

Dr Glen Powell joined Imperial as a Postdoctoral Research Associate in April 1991. He began on an 18-month contract at Silwood Park Campus but ended up working there for 10 years, investigating the signals that determine how aphids recognise plants and how this knowledge can be used to manipulate aphids' behaviour and protect crops. Glen moved to Wye Campus in February 2001 and became a Lecturer in horticultural crop protection. "It was great having the freedom to establish my own research group on aphid-plant interactions," he says, "It was a really collaborative environment and I was able to take my work in new directions, in particular, looking at molecular signalling and genetics of plant resistance to aphids and other insects". Glen was promoted to Senior Lecturer in 2006 and in 2008 his group moved to the South Kensington Campus. Glen is a Fellow of the Royal Entomological Society and enjoys communicating his research at international conferences. He will be leaving the College later this year following the restructuring of the Department of Life Sciences.



Celebrating 20 years service

On 21 February, Mrs Linda Childs, Administrative Officer (Security Services), attended a celebration for staff marking 20 years of service to the College in 2010. She describes her experiences:

"What a lovely evening! Sir Keith gave us an excellent speech mentioning how technology has evolved over the last 20 years. His words set the tone for the occasion and we all enjoyed discussing the many different changes we had experienced. Everyone I spoke to agreed that Imperial is a very inspirational place to work."

Welcome new starters

Mr Tomasz Aarnio, Catering
Mr Olle Akesson, ICU
Mr Feras Al Jayoosi, NHLI
Miss Rachel Amos, Medicine
Mrs Ranetta Athwal-McNair, NHLI
Dr David Barneda Ciurana, Surgery and Cancer
Dr Gareth Barnes, Medicine
Mr Emiliano Berni, ICU
Miss Margherita Bertuzzi, Medicine
Dr Damien Bigourd, Physics
Ms Isabelle Bisson, Clinical Sciences
Miss Ceri Bosedo-Alabi, Natural Sciences
Dr Alessandro Brancati, Aeronautics
Dr Pablo Brito Parada, ESE
Mr Gareth Brown, Environmental Policy
Dr Serena Brusamento, Public Health
Dr Ivan Campeotto, Medicine
Mr Ivan Carubelli, NHLI
Dr Luis-Miguel Chevin, Life Sciences
Mr Alistair Cott, ICU
Miss Emma Coxhill, ICU
Dr Wei Dai, EEE
Mr Clebson De Medonca, ICU
Ms Madeleine Dean, Medicine
Ms Elizabeth Dubois, Public Health
Mr William Edmands, Surgery and Cancer
Dr Salvador Eslava, Materials
Mr Pietro Ferrantino, ICU
Mr Jurijs Fjodorovs, ICT
Miss Tally Forte, Business School
Dr Claire Furlong, Civil and Environmental Engineering
Miss Frankie Galati, Business School
Dr Debbie Garside, Medicine
Mr Duncan Gates, Medicine
Mr Apostolos Georgiadis, Chemical Engineering and Chemical Technology
Miss Natalia Goehring, Chemistry
Ms Catherine Griffiths, Business School
Mr Thorsten Grohsjean, Business School
Dr Jiebin Gu, EEE
Dr Andrea Guerra, Medicine
Dr Hannes Guhl, Physics
Miss Ruzanna Gulakyan, Surgery and Cancer
Dr Chinmay Gupte, Surgery and Cancer
Dr Boumediene Hamzi, Mathematics
Mr Cai Heath, Public Health
Mrs Faaria Henry, Engineering
Dr Shanthi Herath, Medicine

Miss Joanna Higson, Medicine
Dr Candice Howarth, Environmental Policy
Dr Michiyo Iwami, Medicine
Miss Ellen James, Medicine
Miss Katie Judd, Medicine
Dr Narcis Kabatereine, Public Health
Miss Myrsini Kaforou, Medicine
Mr Joseph Kaplinsky, Chemistry
Ms Marie Kirsten, Chemistry
Miss Ewelina Kryzstofinska, Medicine
Miss Natalya Kusel, Library Services
Mr Romain Lara, Surgery and Cancer
Mr Alexander Lee, Life Sciences
Mrs Stacey Loghdey, Business School
Dr Vincenzo Mallardo, Aeronautics
Dr Tara Mangal, Public Health
Ms Eleni Manoli, Life Sciences
Mr Jan Marchant, Life Sciences
Dr Jason Maroothernaden, Surgery and Cancer
Mr Ioannis Marras, Computing
Ms Maria Martinez, Surgery and Cancer
Ms Eva McGuire, Materials
Mr Nicholas Morshead, Medicine
Mr Scott Mullaney, Medicine
Mr Richard Munday, Medicine
Mr Miguel Munoz Zuniga, Chemical Engineering and Chemical Technology
Dr Marloes Naarding, Medicine
Miss Agata Nowak, Medicine
Dr Eduardo Oliver Perez, Medicine
Ms Oghenevorhe Omeru, EEE
Mr Robert Osborne, ICU
Miss Sarah Parkes, Humanities
Dr Libuse Pazderova, Clinical Sciences
Mr Peter Pesl, EEE
Mr Manuel Pinuela, EEE
Dr Alan Poots, Medicine
Dr Tomas Prior, Surgery and Cancer
Mr Alessandro Pristera, Life Sciences
Mr Marco Proietti Tocca, ICU
Mr Spyridon Psarras, Aeronautics
Mr Reiaz Rashied, ICT
Dr Claudia Ribeiro de Almeida, Clinical Sciences
Dr Jaime Rosas, Medicine
Mr Michael Schaub, Chemistry
Ms Urvi Shah, Surgery and Cancer
Dr Ekaterina Shamonina, EEE
Mr Mansour Sharabiani, Public Health
Dr Clare Smith, NHLI
Mr Ian Smith, Health and Safety
Mr Clement Stevens, Humanities
Dr Benjamin Styles, Public Health
Dr Lei Su, Surgery and Cancer
Dr Andrea Suardi, EEE
Ms Christine Sweed, Medicine

Mr James Swingland, Medicine
Dr Farid Tariq, ESE
Miss Betelhem Tewoldemedhin, Sport and Leisure
Miss Lisa Thomas, Business School
Dr Vasiliki Tileli, Materials
Miss Severine Toson, Chemical Engineering and Chemical Technology
Miss Ana Vieira, Public Health
Mr Joseph Warren, Accommodation Services
Miss Anna Wheeler, NHLI
Dr Simone Wiesler, Life Sciences
Mr Oliver Windram, Life Sciences
Ms Fahriya Zandari, NHLI

Farewell moving on

Dr Abdul Ali, Mechanical Engineering
Miss Helen Alsop, Surgery and Cancer
Dr Fatin Altuhafi, Civil and Environmental Engineering
Miss Peita-Lee Ambrose, Medicine
Ms Sope Amidu, NHLI
Dr Assaf Anderson, Chemistry
Ms Marlene Attard, Public Health (5 years)
Dr Sarah Baker, Physics (6 years)
Dr Paul Barton, NHLI (22 years)
Miss Ioana Boureanu, Computing
Dr Minsuk Choi, Mechanical Engineering
Mr Dustin Connor, Bioengineering
Miss Carys Cook, ESE
Dr Michael Doube, Bioengineering
Professor Ron du Bois, NHLI
Ms Christina Duffy, ESE
Dr Robert Duller, ESE
Dr Cedric Duprat, Aeronautics
Mrs Karen Durham, NHLI
Dr Darren Ennis, Kennedy Institute
Mr Stephen Fox, Estates Division (28 years)
Dr Sabine Frenz, Mechanical Engineering
Dr Anil George, Surgery and Cancer
Dr Mazdak Ghajari, Aeronautics
Ms Tamaswati Ghosh, Life Sciences
Dr Stephen Goldring, Medicine
Dr John Goulding, NHLI
Dr Rosemary Greaves, Civil and Environmental Engineering
Mr James Grellier, Public Health
Mrs Agnieszka Grzybowska-Kowalczyk, NHLI
Dr Murtaza Gulamali, ESE
Mr Will Hargrave, ICT (9 years)
Dr Susannah Heck, Physics

Mr Edmund Henley, Physics
Dr Claire Imrie, ESE (11 years)
Dr Amanda Jackson, Life Sciences
Dr Mohammad Jahangiri, EEE
Dr Benjamin Jefferys, Life Sciences
Dr Sarika Kapoor, NHLI
Dr Emily Kay, Medicine (5 years)
Dr Andrew Kinloch, Kennedy Institute
Dr Murthy Konda, Chemical Engineering and Chemical Technology
Mr Sebastian Kroll, Chemistry
Dr Andrea Listorti, Chemistry
Dr Warren Macdonald, Bioengineering
Dr Kalle Magnusson, Life Sciences
Mrs Deborah Mckenna, Clinical Sciences
Mr Sohail Mushtaq, Physics
Mr Panos Navrozidis, Public Health
Mrs Lara Buchmayer Campos Palhares, Sport and Leisure
Dr Ardan Patwardhan, Life Sciences (12 years)
Dr Tudor Phillips, Surgery and Cancer
Mr Robin Pitman, Security Science and Technology
Dr Akos Putics, Medicine
Mr Adaikalavan Ramasamy, NHLI
Miss Anna Ramsay, Business School
Dr Ramon Rojas-Diaz, Aeronautics
Dr Anindita Roy, Medicine
Dr Ben Ryall, Life Sciences
Mrs Petronela Sasurova, Registry
Mr Andrew Scott, NHLI
Dr Zarrin Shaikh, NHLI
Dr Michiyo Shima, Global Health Innovation (7 years)
Dr Lukas Shrbeny, ESE
Dr John Silva, Life Sciences (6 years)
Ms Ruth Skeeles, Public Health
Miss Lenka Sykorova, Sport and Leisure
Dr Balint Takacs, EEE
Dr Sylvain Tollis, Life Sciences
Mrs Kate Turner, ESE (5 years)
Dr Kristian Unger, Surgery and Cancer
Miss Bethan Unsworth, NHLI
Dr Anthony Uren, Clinical Sciences
Ms Huijun Ying, Medicine (10 years)

retirements

Mr David Gray, Engineering (5 years)
Mr Colin Grimshaw, Communications and Development (45 years)

This data is supplied by HR and covers the period 24 January–14 February. This data was correct at the time of going to press.

One-to-one postdoc coaching



Dr Ati Sharma, Junior Research Fellow (Aeronautics), on how one-to-one coaching supplied by the Postdoc Development Centre (PDC) helped him find a new role.

“I had an interview at Sheffield coming up for a lectureship in the Department of Automatic Control and Systems

Engineering. When I heard about the one-to-one coaching the PDC offers, I decided to give it a go, as I know how important it is to get objective feedback.

In the first session, I worked through my CV with the Manager of the PDC, Dr Liz Elvidge. We considered whether it was targeted to the job, whether it reflected my experience,

abilities and character, and what could be done to improve it in terms of length and style.

My second session was with Dr Carol Spencely, Consultant at the PDC. We focused on which points to cover in the interview and what to emphasise, such as funding, research and teaching. She then set up a mock interview,

where I presented to a panel and got detailed feedback. It really helped me reconsider my talk from the point of view of the non-specialist.

The work was definitely worth it as I got the first job I applied for and the feedback from my prospective employer on my final presentation was excellent!”



17 MARCH ▶ TALK

Ig Nobel Awards Tour Show

The Graduate Schools are hosting the Ig Nobel Awards Tour Show for the sixth consecutive year. The show will be presented by Marc Abrahams, organiser of the Ig Nobel prizes, editor of the *Annals of Improbable Research*, and *Guardian*

columnist. It will feature a whole host of Ig Nobel Prize winners and other researchers whose work has been recognised for first making people laugh and then making them think. Entry to the show is by ticket only, limited to two per person. Further information about the Ig Nobel Awards and details of this year's performers can soon be found at: <http://bit.ly/gOHLS>



22 MARCH ▶ TALK

From 'big bang' to biosphere

How widespread is life in the cosmos? Should we be surprised that physical laws have permitted the emergence of the complexity of which we are part? Is physical reality even more extensive than the domain our telescopes can probe?

Advances in technology mean that astronomers have made astonishing progress in probing and understanding our cosmic environment, but they also raise new questions. Visiting Professor Lord Martin Rees (Physics), Astronomer Royal, presents the 2011 Kohn Lecture. Following the lecture, the Kohn Award will be presented to Lord Rees by Sir Ralph Kohn, who set up the Kohn Foundation.

take note

Share your passion for science



Every year the Nuffield Foundation provides 1,000 bursaries to Year 12 school students in science, technology, engineering and medicine to take up summer placements at universities, research labs and companies for a six-week period. Imperial College Outreach, via its partner organisation Exscitec, helps coordinate the scheme.

If you are interested in hosting a project in your department, contact: sarah.cooper@exscitec.com or visit: www.nuffieldfoundation.org/project-host-faqs

7-9 MARCH ▶ CONFERENCE

Mathematical challenges in molecular dynamics

Annual conference of the UK network



8 MARCH ▶ TALK

The responsibility of women in technology innovation: why should we care?

Sarah Williams-Gardener, IBM

8 MARCH ▶ SEMINAR

Dissecting the human T cell response to microbes

Dr Federica Sallusto, Institute for Research in Biomedicine, Switzerland

9 MARCH ▶ SEMINAR

Human joint and musculoskeletal modelling

Professor Frédéric Marin, University of Technologie of Compiègne, France



10 MARCH ▶ TALK

Adventures through a geek nation

Angela Saini, science journalist

16 MARCH ▶ TALK

Wizards and Luddites: science, Churchill and the Second World War

Professor David Edgerton (History of Science, Technology and Medicine)

16 MARCH ▶ LECTURE

Understanding how cell-generated forces shape tissue

Professor Karl Kadler, University of Manchester



16 MARCH ▶ LECTURE

The incredible shrinking laboratory

Professor Andrew de Mello (Chemistry)

17 MARCH ▶ TALK

Chaotic cards and dynamic dice

Dr Frank Berkshire (Mathematics)

17 MARCH ▶ INAUGURAL LECTURE

Bioresources for sustainable food and energy

Professor Stephen Smith (Civil and Environmental Engineering)

17 MARCH ▶ MUSIC

Lunchtime concert

Florian Uhlig, piano



21 MARCH ▶ LECTURE

Human sweat and insect repellents: the molecular biology of mosquito smell

Dr Leslie Vosshall, Rockefeller University

22 MARCH ▶ TALK

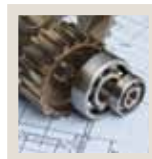
The role of business schools in an entrepreneurial economy

Panellists include Professor David Gann (Business School)

23 MARCH ▶ LECTURE

Mechanical Engineering research showcase 2011

Departmental research showcase and guest lecture



23 MARCH ▶ TALK

Musculoskeletal mechanobiology

Dr Mark Thompson, University of Oxford

MEET THE READER



Amna Siddiq, Events and Communications Officer, Communications and Development

What are you doing in the picture?

I'm in the north west of Bahrain visiting a family friend on my holiday. Bahrain is an island in the Middle East where I grew up – it is well known for its oil and gas industry and pearl diving. News of the protests in Bahrain since my return to the UK is obviously a concern for me.

What would you do if you were the editor of Reporter for a day?

To start with, I would introduce Imperial-branded gifts like chocolate bars, USBs and Post-Its, stuck onto the front of the publication – everyone loves a freebie!

Who would be your cover star?

I'd like to see Misha Levi, Sales and Events Executive (Catering Services) on the cover. I work with her a lot in my role and she always ensures that Imperial events run smoothly and without any hiccups!

Want to be the next reader featured in Reporter? Send in a picture of yourself with a copy of Reporter in your location of choice to: reporter@imperial.ac.uk

Stay in the loop

✉ Visit www.imperial.ac.uk/events for more details about these events and others. To sign up for regular updates about Imperial events please email: events@imperial.ac.uk

