



# Safe hands

Institute for Security Science and Technology  
seeks academics to join global security mission

... CENTRE PAGES



## QATAR BIOBANK LAUNCHED

Collaboration  
will help treat  
chronic diseases  
in Qatar

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## ROSS ETHIER

on how  
biomedical  
engineering has  
transformed  
healthcare

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## IMPERIAL AT NIGHT

What the  
College looks  
like when most  
of us clock off

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EDITOR'S CORNER

## Speaking out

Every generation is accused of apathy but last week students stood up in droves to express their anger about government proposals to increase the **cap on tuition fees**. It is easy to focus on the scenes of broken windows and burning placards that filled the papers when the **50,000-strong march** in London turned ugly. But we shouldn't forget that only a very small minority were involved in the violence. Back at the College, the ICU President Alex Kendall also **stood up for what he believed**, offering support to the majority of the Browne Review's proposals on his blog: "Students need to take more responsibility for their choice in going to university...we should take an active approach to helping to bring the deficit down," he said. It's heartening to see that all sides in the debate recognise the value of what universities offer to students and want to **protect UK higher education** for generations to come. The government will publish its proposed legislation on tuition fees and put it to a parliamentary vote before Christmas, it says, leaving just four more weeks for this debate to play out.

EMILY ROSS, EDITOR

Reporter is published every three weeks during term time in print and online. The next publication day is 13 December. Contact Emily Ross:

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## Official signing for new medical school in Singapore

Nanyang Technological University (NTU) and Imperial signed an official agreement to jointly establish Singapore's third medical school on 29 October. The initiative was previously announced by Prime Minister Lee Hsien Loong at the National Day Rally 2010 in August. Presently, the working name for the school is Imperial College London-Nanyang Technological University Medical School (ICNMS).

To start in 2013, ICNMS will be positioned to meet

Singapore's healthcare demands and needs of the future. It will also provide more opportunities for Singaporeans to study medicine locally. With a joint degree awarded by both institutions, the programme will be based on Imperial's medical curriculum and standard of teaching.

Speaking at the event in Singapore, Rector Sir Keith O'Nions (pictured far left) said: "Imperial is delighted to be strengthening its links with Singapore and cementing our medical school partnership with NTU. Working hand in



hand, we will help to meet Singapore's future healthcare needs by creating the Imperial College-Nanyang Technological University Medical School. We hope the new medical school will be a source of great pride for all involved in its development, especially Imperial's community of nearly 2,000 alumni based in Singapore."

—SIMON WATTS, COMMUNICATIONS AND DEVELOPMENT

## Remembering Lord Flowers

The College remembered one of Imperial's longest serving and most popular Rectors, Brian Flowers, at a memorial event held on 11 November. Lord Flowers served as Rector from 1973–85 and steered Imperial through difficult economic times, nurturing the strengths of staff to build a better College.

Friends, family and colleagues came together in the Great Hall on the South Kensington Campus to celebrate Lord Flowers' life and work. Guests included Lord Owen, Baroness O'Neill, Professor David Rhind and Baron Rees of Ludlow. Former Rectors, Sir Eric Ash and Sir Richard Sykes, were also in attendance.

Current Rector, Sir Keith O'Nions, paid tribute to "a moderniser whose reforms remain visible today" who invigorated the College with new approaches to academic activities. Lord Flowers' visionary framework for medical education in London led to one of the most significant developments in Imperial's history – the integration of a number of medical schools with the College.

John Smith, former College Secretary, also paid tribute, recalling Lord Flowers' great gift of "being able to relate to people," adding: "Nobel Laureate or office cleaner, you mattered."

Lord May, former chief scientific advisor to the government and past president of the Royal Society, spoke about the indelible mark Lord Flowers left on the physics community.

Sir Gordon Conway, Professor of International Development, recalled Lord Flowers as a "man of strong principles and great integrity". He reflected on initiatives that changed the College, such as the creation of the Centre for Environmental Technology, as well as the sociable atmosphere that Lord Flowers and his wife, Mary created at Imperial.

—SIMON WATTS, COMMUNICATIONS AND DEVELOPMENT

To hear tributes from the memorial service:  
[www3.imperial.ac.uk/news/remembringlordflowers](http://www3.imperial.ac.uk/news/remembringlordflowers)



The memorial ceremony included performances by Imperial College Choir (pictured beneath a portrait of Lord Flowers).

## Imperial College London

### Are you an emerging artist?

The Blyth Gallery on the South Kensington Campus is looking for exhibition proposals for the next academic year 2011–12. Any individual or society currently working or studying at Imperial, as well as emerging or mid-career artists from outside Imperial, can apply.

[www.imperial.ac.uk/arts/visualart/blythgallery/applyingforanexhibition](http://www.imperial.ac.uk/arts/visualart/blythgallery/applyingforanexhibition)

Deadline for proposals:  
31 May 2011



## International success for parasite detector project

A project to develop a prototype device for detecting water-borne parasites has led a team of Imperial undergraduates to win a range of awards at an international competition, held this month.

The team, comprising 10 second and third year students from the Departments of Bioengineering and Life Sciences, won two major prizes and a gold medal at the International Genetically Engineered Machine Competition (iGEM). They won the awards for their prototype device, called Parasight, which detects the Schistosoma parasites that cause the disease Schistosomiasis, affecting 200 million people worldwide. In children, it can cause anaemia, impaired learning ability and stunted growth. In adults, it causes liver disease and bladder cancer, accounting for an estimated 280,000 deaths around the world every year.

At the competition,



Imperial's victorious iGEM 2010 team

the Imperial undergraduates won the Best Wiki category for their online research diary developed for their project. They also received the Best Human Practices Advance category prize for their work with researchers from the London School of Economics, exploring the ethical issues surrounding their project and developing an outreach programme for schools to showcase their research. The team were also gold medal finalists in the Grand Prize section of the competition.

Team member Ben Miller, a third year

undergraduate from the Department of Bioengineering, said: "We want to develop the Parasight device further, so that it can provide an inexpensive, rapid and easy-to-use tool that enables people to take control of their health and monitor water in their communities, so that diseases like Schistosomiasis can be eradicated in the long term."

The iGEM team was co-led by Professor Richard Kitney (Bioengineering) along with Professor Paul Freemont and Dr Geoff Baldwin (Life Sciences).

—COLIN SMITH, COMMUNICATIONS AND DEVELOPMENT

For the full story visit: [www3.imperial.ac.uk/news/igem](http://www3.imperial.ac.uk/news/igem)

## Huge 'biobank' for research into major diseases



A 'biobank' of samples and clinical measurements from tens of thousands of people is to be established in Qatar with the assistance of Imperial to help scientists understand the causes of major diseases and develop new treatments.

The project was announced on 28 October at the Royal Society in the presence of Her Highness Sheikha Mozah bint Nasser Al-Missned, during the Qatari state visit to the UK.

The Qatar Biobank is being established by the Qatar Foundation for Education, Science and Community Development, and Qatar's Supreme Council of Health, and public health experts from Imperial will have a crucial role in the design and implementation of the project.

The biobank will collect a wealth of medical data from up to 100,000 volunteers and store samples of their blood and urine in a high-tech storage facility over many years. This will allow scientists to look at diseases already present in the population, as well as to follow up the participants to see who develops disease in the future.

Professor Elio Riboli, Director of the School of Public Health, pictured above left, said: "Qatar is an extremely interesting population from a medical point of view. It's a population in rapid transition towards more western lifestyles. Qatar is home to residents from different regions of the world, which means we can look at disease risk factors in multiethnic populations in detail and on a very large scale."

Professor Paul Elliott, Head of the Department of Epidemiology and Biostatistics (Public Health), pictured above right, added: "We will be using state-of-the-art technology to collect and analyse samples from an extremely large set of participants. We also plan to carry out imaging of the whole body with MRI – this has never been done before on such a huge scale."

—SAM WONG, COMMUNICATIONS AND DEVELOPMENT

To watch a video about the biobank visit: <http://bit.ly/biobank>

### in brief



#### Principal of the Faculty of Engineering

Professor Jeff Magee, Deputy Principal (Research) of the Faculty of Engineering and Head of the Department of Computing, has been appointed Principal of the Faculty of Engineering, with

effect from 1 January 2011. He will succeed Professor Stephen Richardson, who has held the roles of Principal and Deputy Rector concurrently since November 2009. Professor Magee joined Imperial as a postgraduate, obtaining an MSc in Computing Science in 1977 and a PhD in Computing Science in 1984. He then joined the Department of Computing as a lecturer, becoming a professor in 1999. He was appointed Head of the Department in 2004.

#### Creative Futures event

The fifth Creative Futures event was hosted at Imperial this month. The event was designed to inspire young black and minority ethnic pupils from London schools about science and higher education. The students were given motivational talks by speakers including the Jamaican High Commissioner, His Excellency Anthony Johnson. Medical student Sian Mitchell, who was asked to attend the workshops to act as a role model, said the event was "the perfect pedestal for pupils to realise their dreams".

See: [www3.imperial.ac.uk/news/creativefutures](http://www3.imperial.ac.uk/news/creativefutures)

#### New Faculty of Medicine leadership positions

- Professor Stephen Smith, Principal of the Faculty of Medicine, has been appointed Pro Rector (Health) with effect from 1 December 2010. He will continue in his existing role of Chief Executive of Imperial College Healthcare NHS Trust.
- Professor Sir Anthony Newman Taylor, Deputy Principal of the Faculty, will succeed Professor Smith as Principal from 1 December 2010, initially until 2012.
- Professor Jenny Higham, Director of Education in the Faculty, will become Deputy Principal, succeeding Sir Anthony, from 1 December 2010.

See: [www3.imperial.ac.uk/news/prorector](http://www3.imperial.ac.uk/news/prorector)

#### Supercomputer rankings

One of Imperial's high performance computing (HPC) systems, cx2, has appeared for the first time this month in the rankings of the world's most powerful computers. Imperial's HPC service has three computer systems which are linked into a shared environment. Researchers use the HPC's processing power to run complex data models and calculations.

See: [www3.imperial.ac.uk/news/hpc](http://www3.imperial.ac.uk/news/hpc)

## Celebrating 10 years of the Graduate Schools



Imperial's Graduate Schools celebrated their 10th anniversary with an event on 15 November.

Professor Ron Laskey, Charles

Darwin Professor of Embryology at the University of Cambridge, gave a lecture entitled *New roles for old proteins: stem cell identity, mRNA export and cancer screening*. Professor Laskey was a guest when the Graduate School of Life Sciences and Medicine (GSLSM) was launched in 2000, at the inaugural symposium hosted by the Graduate School's founding Chair, Professor Mary Ritter.

Guests were welcomed by Professor Julia Buckingham, Pro Rector (Education and Academic Services), who spoke about the significance of the anniversary. Professor Richard Kitney, the Director of the Graduate School of Engineering and Physical Sciences (GSEPS), pictured left, then presented Professor Paul Langford (Medicine), pictured right, with the first Graduate Schools' Directors' Award for Transferable Skills Training. This award recognises the outstanding contribution to and support for the Graduate Schools' transferable skills training programme amongst Imperial academics.

Professor Langford has been involved with the Graduate Schools' programme since 2003, training students in research development and presentation skills. The award also recognised the transferable skills training he has delivered to students in Singapore, Hong Kong and Beijing in recent years.

—JOHN-PAUL JONES, COMMUNICATIONS AND DEVELOPMENT

[www.imperial.ac.uk/graduateschools](http://www.imperial.ac.uk/graduateschools)

## New Institute of Chemical Biology



Imperial's Chemical Biology Centre, which celebrates its 10th anniversary this year, has been reconstituted as the Institute of Chemical Biology (ICB), in recognition of its continuing growth and success. The ICB joins other cross-faculty institutes at Imperial that have the task of bridging world class research activity across the College's faculties and departments.

The new Institute's mission is to develop and foster links between Imperial's community of physical and life scientists and engineers and clinicians, harnessing their expertise to develop novel tools and techniques to solve challenges in biological and biomedical sciences.

Professor David Klug, co-chair of the Institute, said: "Many of the tools and technologies supported by the Institute are unique to Imperial. This successful combination of physical sciences and engineering 'push' with biological and biomedical 'pull' gives us a real edge in this highly competitive area. Our elevation to an institute is a reflection of the maturity of the ICB community and the significant progress made by its contributing research teams. This allows us to build on what we have created and start to translate some of the breakthroughs for the benefit of the wider community."

—JOHN-PAUL JONES, COMMUNICATIONS AND DEVELOPMENT

For more information on the Institute: [www.imperial.ac.uk/chemicalbiology](http://www.imperial.ac.uk/chemicalbiology)

## Awards for Teaching Excellence for NHS Teachers

Winners of the Faculty of Medicine's 2010 Awards for Teaching Excellence for NHS Teachers were honoured at a ceremony on 10 November.

Presented by Professor Stephen Smith, Principal of the Faculty of Medicine and Chief Executive of Imperial College Healthcare NHS Trust (pictured centre), the awards recognise excellence in clinical teaching. The presentation was followed by the inaugural lecture by 2008 Teaching Fellow, Professor Karim Meeran (Medicine).

The awards were instituted in April 2003 to mark the contributions of over 800 NHS staff in west London, who help deliver

the curriculum for undergraduate medical education at Imperial. Ten winners are announced every year.

The awards panel, which includes student representatives and the Faculty of Medicine's Director of Education, Professor Jenny Higham, assessed applications on criteria such as the extent of the nominee's teaching commitment, evidence of significant contributions they have made to the organisation of the course, and any innovations they have implemented to the teaching programme.

Award winner Dr Richard Morgan, Honorary Senior Lecturer at Imperial and



Clinical Director at Chelsea and Westminster, said: "I am delighted to be receiving this award. Recognition by one's peers and by the students is most gratifying. Medical education has come a long way from just being something that all

doctors do, to now being a special skill and responsibility, which is as important as top class research."

—JOHN-PAUL JONES, COMMUNICATIONS AND DEVELOPMENT

For the full list of winners, see: [www3.imperial.ac.uk/news/hefce](http://www3.imperial.ac.uk/news/hefce)

## media mentions

—JOHN-PAUL JONES, COMMUNICATIONS AND DEVELOPMENT



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[www.imperial.ac.uk/media/jointsignup](http://www.imperial.ac.uk/media/jointsignup)

THE TIMES ▶ 27.10.2010

### Students taking Mandarin to expand horizons



More university students are developing their language skills to stay one step ahead of the game in the employment market in the current climate, according to *The Times*. Students are responding to the economic downturn by learning Mandarin, to open up job projects linked to China's growing economic position and influence. Third year Imperial student Callista John (Earth Science and Engineering) has chosen the subject as an option alongside her geo-physics course. She told the newspaper, "China is the new frontier." Discussing her future career options she added: "I can see myself working on a research ship looking for oil and natural resources in the Arctic, for example. This keeps my options open as I could work for a Chinese company."

DAILY MAIL ▶ 27.10.2010

### Solar power's overload danger

A German energy expert has warned that relying heavily on solar power could overload Germany's powergrid, according to the *Daily Mail*. Stephan Kohler, an advisor to the country's government, said that a system in which citizens fit solar power panels on their homes and sell surplus power to the national grid could lead to serious congestion issues for the grid. Professor Tim Green (Electrical and Electronic Engineering) told the newspaper that the affected areas of the grid needed to be strengthened: "You lose flexibility on the supply side, so you need to gain some on the demand side."

DAILY MAIL ▶ 02.11.2010

### Heart saving bulldog clip

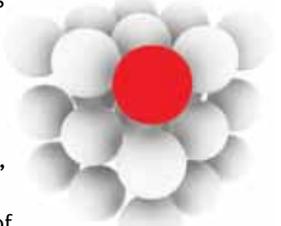
A tiny bulldog clip known as the mitraclip, could one day help many patients avoid open heart surgery, the *Daily Mail* reported. One to two per cent of adults have mitral valve regurgitation, or a leaking heart valve. While procedures to fix the valve have become far less invasive over time, these techniques still require the heart to be stopped. Using the mitraclip, pioneered in the UK two years ago, surgeons can tackle the problem by making a small incision and feeding the clip up through a tube to the valve flaps where it is needed. Dr Chris Baker (NHLI) said: "This is a wonderful operation that could one day save many more people from open heart surgery."



BBC ONLINE ▶ 04.11.2010

### Metamaterial brings invisibility cloak one step closer

British scientists have hailed a step forward in attempts to develop an invisibility cloak, following the demonstration of a new film that acts as a flexible metamaterial, according to *BBC Online*. A metamaterial consists of small structures that can manipulate light by channelling its flow in a particular way. This channelling is dependent on having a structure that corresponds to the length of light waves in its size, and has previously been limited to work on longer wavelengths, which are already invisible to the naked eye. The new film contains the tiny structures required to render objects invisible. Professor Ortwin Hess (Physics) said: "It clearly isn't an invisibility cloak yet – but it's the right step toward that."



## awards and honours

### MEDICINE

#### Schneider recognised by Duke



Professor Michael Schneider, Head of Imperial's National Heart and Lung Institute, was

presented with a Distinguished Alumnus Award by Duke University, North Carolina on 15 October. Professor Schneider undertook medical training at Duke from 1976–78, before embarking on a distinguished career in cardiovascular research.

Among his most notable achievements is the discovery that latent stem cells exist in the heart in both mice and humans.

### COLLEGE

#### UCDA awards

The Communications and Development Division has won four awards in the US-based University and College Designers Association



One of the winning Boat Club portraits featuring first year student Rory Sullivan (Civil and Environmental Engineering).

(UCDA) 2010 annual design competition, which pitted Imperial's creative design work against the best work produced by US educational institutions. The College won:

- a silver medal for the entire *Undergraduate Prospectus 2011 Entry* website.
- a silver medal for one of the College's *StepChange* sustainability campaigns in the Going Green category.
- an award of excellence in the recruitment/viewbook category for the *Undergraduate Prospectus 2011 Entry*.
- an award of excellence in photography for portraits of members of the Imperial College Boat Club.

Check out the Imperial College Boat Club photoshoot: [www3.imperial.ac.uk/news/waterside](http://www3.imperial.ac.uk/news/waterside)

### ENGINEERING

#### Prestigious Royal Society fellowship



Research Associate Dr Rosalind Coggon (Earth Science and Engineering) is one of 10 new

Dorothy Hodgkin Fellows for 2010 by the Royal Society. The fellowship supports excellent scientists and engineers at an early stage of their career. It is designed to help successful candidates across the UK to progress to permanent academic positions. Dr Coggon started at Imperial in 2007 and her research focuses on the chemistry of the ocean.

## Researchers invent high quality tabletop X-ray device



Producing tightly focused beams of high energy X-rays to examine everything from molecular structures to the integrity of aircraft wings could become simpler, according to research led by Dr Stefan Kneip (Physics), published on 24 October in *Nature Physics*.

High power, high quality X-ray sources are typically very large and very expensive. For example, the Diamond Light Source synchrotron facility in Didcot, Oxfordshire, is 0.5km in circumference and cost £263 million. However, the researchers have demonstrated a tabletop instrument producing synchrotron X-rays, whose energy and quality rival that produced by some of the largest X-ray facilities in the world. Their micro-scale system uses a tiny jet of helium gas and a high power laser to produce an ultrashort pencil-thin beam of high energy and spatially coherent X-rays.

The X-rays produced from the

new system have an extremely short pulse length and originate from a small point in space, about one micron across, which results in a narrow X-ray beam that allows researchers to see fine details in their samples. These qualities are not readily available from other X-ray sources.

“We have taken the first steps to making it much easier and cheaper to produce very high energy, high quality X-rays”

“This is a very exciting development,” said Dr Kneip. “We have taken the first steps to making it much easier and cheaper to produce very high energy, high quality X-rays. Although our technique will not now directly compete with the few large X-ray sources around the world, for some applications it will enable important measurements, which have not been possible until now.”

—RAY MATHIAS, COMMUNICATIONS AND DEVELOPMENT

## Babies born with key networks already formed in their brains

Full-term babies are born with a key collection of networks already formed in their brains, according to research from Imperial’s MRC Clinical Sciences Centre, published on 1 November in the journal *Proceedings of the National Academy of Sciences*.

Researchers used functional MRI scanning and a four-dimensional brain atlas, developed with the Department of Computing, to look at ‘resting state’ networks in the brains of 70 babies, born at between 29 and 43 weeks of development, who were receiving treatment at Imperial College Healthcare NHS Trust.

Resting state networks are connected systems of neurons in the brain that are constantly active, even during sleep. The researchers found that these networks were at an adult-equivalent level by the time the babies reached the normal time of birth.

One particular resting state network identified in the babies, called the default mode network, was previously thought to be involved in introspection and daydreaming and to develop during early childhood.

Professor David Edwards, lead author of the study, said: “Some researchers have said that the default mode network is responsible for introspection, but the fact that we found it in newborn babies suggests either that being a foetus is a lot more fun than any of us can remember – lying there happily introspecting and thinking about the future – or that this theory is mistaken. Our study shows that babies’ brains are more fully formed than we thought.”

The next step for this research is to find out how these networks are affected by illnesses and to see if they can be used to diagnose problems.

—LAURA GALLAGHER, COMMUNICATIONS AND DEVELOPMENT



“Our study shows that babies’ brains are more fully formed than we thought”

## Europe risks failing to help transform food production across Africa

Europe risks squandering a rare opportunity to transform food production across Africa, according to a report released on 26 October by a panel of European and African development experts, led by Imperial’s Professor Sir Gordon Conway (Environmental Policy).

The analysis, by the Montpellier Panel, notes that there is a gap between Europe’s pledge, at a G8 summit in 2009, to provide billions to aid African agriculture and a reality that has failed to channel new investment to promising projects.

The panel is particularly concerned that European donors have not used their influence and abilities to create a safety net. A system of grain reserves, for example, could prevent another

round of price shocks to commodities markets from spreading malnutrition to millions more Africans, as they did in 2007 and 2008.

“We want to see European donors paying closer attention to immediate threats to food security, while simultaneously increasing support for African-led efforts that, for the first time in generations, show that African governments are determined to literally grow their way towards health and prosperity,” said Sir Gordon.

EU countries, collectively, are already the largest agriculture development donor in Africa. For example, they have been the largest donor to the Consultative Group on International Agricultural Research (CGIAR), whose crop improvement work in Africa is essential to improving nutrition there. The panel calls for deepening Europe’s commitment to Africa’s agriculture development efforts through increased support that brings more focus and coordination to the activities



Women farmers in Benin happy with their harvest from nerica rice.

already underway, and shifts attention from short-term humanitarian aid to long-term capacity building.

—ADAPTED FROM A NEWS RELEASE ISSUED ON BEHALF OF THE MONTPELLIER PANEL BY BURNES COMMUNICATIONS



## Alcohol is the most harmful drug

A new system that ranks drugs on the basis of harm caused to both the user and others, places alcohol as the most harmful drug, above heroin and crack. The scale, developed by drug experts led by Imperial's Professor David Nutt (Medicine), was published online on 1 November in *The Lancet*.

When Professor Nutt and colleagues attempted this assessment previously in 2007, they engaged experts to score each drug according to nine criteria of harm, ranging from the intrinsic harms of the drugs to social and healthcare costs. This analysis provoked major interest and public debate, although it raised concerns about the choice of the criteria.

To rectify this, the authors undertook a review of drug harms with the multicriteria decision analysis (MCDA) approach. The new analysis uses nine criteria that relate to the harms that a drug produces in the individual and seven to the harms to others, both in the UK and overseas. Drugs were scored with points out of 100, with 100 assigned to the most harmful drug on a specific criterion. Zero indicated no harm.

Overall, MCDA modelling showed alcohol was the most harmful drug (overall harm score 72), with heroin (55) and crack (54) in second and third places.

"What a new classification system might look like would depend on what set of harms – to self or others – you are trying to reduce. But if you take overall harm, then alcohol, heroin and crack are clearly more harmful than all the others," said Professor Nutt.

—ADAPTED FROM A MEDIA RELEASE ISSUED BY THE LANCET

## Anti-inflammatory drugs may prevent post-operative cognitive decline

Anti-inflammatory drugs currently used to treat diseases, such as rheumatoid arthritis, may also help to prevent cognitive problems after surgery, according to a new study by researchers in Imperial's Department of Surgery and Cancer and the University of California, San Francisco (UCSF).

The research, published on 1 November in the journal *Proceedings of the National Academy of Sciences*, reveals for the first time that a specific inflammatory response in the brain may explain why many patients experience memory loss or other forms of cognitive dysfunction after surgery or critical illness.

Previous studies have linked post-operative cognitive decline with the rise in blood levels of a signalling chemical called

interleukin-1 beta (IL-1 $\beta$ ), which is involved in inflammation. For this study, Professor Sir Marc Feldmann, Head of the Kennedy Institute of Rheumatology, and colleagues studied another signalling chemical called TNF-alpha, which is known to regulate the immune system's inflammatory response before interleukin-1 is produced.

The team gave a single dose of anti-TNF antibody to mice before giving them surgery. They found that the treatment decreased blood levels of IL-1 $\beta$ , limited inflammation in the brain and prevented the mice from showing behavioural signs of cognitive decline.

Lead author Professor Mervyn Maze, who began the research in the Department of Surgery and Cancer at Imperial before moving to UCSF, said: "Antibody therapies already are widely used against cytokines to prevent or treat inflammation, so we know that these are effective in humans. This study suggests that one day we also might be able to use these



“One day we also might be able to use these therapies as a single, pre-surgical dose to prevent cognitive decline in susceptible patients”

therapies as a single, pre-surgical dose to prevent cognitive decline in susceptible patients.”

—SAM WONG, COMMUNICATIONS AND DEVELOPMENT

## Mutated influenza virus sabotages lungs' clearing mechanism

A variant of last year's pandemic influenza linked to fatal cases carried a mutation enabling it to infect a different subset of cells lining the airway, according to new research published in the *Journal of Virology* on 22 October by the Department of Medicine, the Medical Research Council National Institute for Medical Research and the University of Marburg.

The 2009 pandemic of H1N1 influenza caused thousands of deaths worldwide

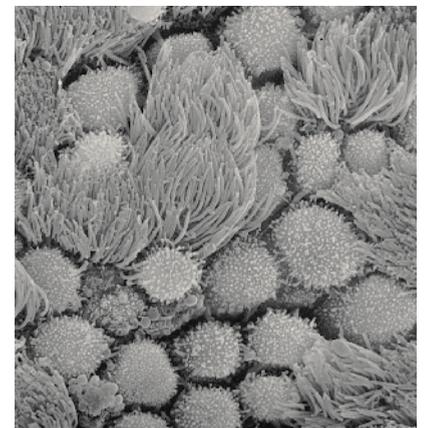
but the majority of cases were relatively mild. However, people infected with a variant of the virus, which carried a mutation termed D222G in a protein on its surface, were more likely to have a severe and fatal illness.

The new research shows that flu virus with the D222G mutation has an increased capacity to infect ciliated cells. These cells, found in the lining of the airway, have hair-like projections called cilia. The cilia sway back and forth to move

mucus with trapped particles upward toward the mouth and this is normally swallowed or coughed up. When ciliated cells become infected, the cilia stop moving and

this vital clearance function is impaired. Inhaled viruses and bacteria can then reach the lung more easily, where they can potentially cause pneumonia.

"This simple mutation, which swapped one building



The mutated virus was more able to infect these ciliated cells in the airway lining, which sweep debris away from the lungs.

block of a virus protein for another, apparently resulted in a more virulent version of the H1N1 virus," said lead author Professor Ten Feizi (Medicine). "If the mutant virus were to acquire the ability to spread more widely, the consequences could be very serious."

—SAM WONG, COMMUNICATIONS AND DEVELOPMENT

# Setting the global security agenda

With the publication of the national security strategy and the discovery of explosives on a Chicago-bound plane last month, security issues are at the forefront of the public's imagination. *Reporter* speaks to Professor Chris Hankin, Director of the Institute for Security Science and Technology (ISST), about finding ways to harness science and technology to improve national security and resilience by building up a community of Imperial academics with an interest in security.

The ISST was set up in November 2008 to lead on research tackling issues of counter-terrorism, critical infrastructure protection and environmental security. Professor in Computing Science, Chris Hankin, has been involved with the Institute as a cyber security researcher since its formation. He was appointed as Director of the ISST in January, taking up the reins from Sir Keith O'Nions on his appointment as Rector.

The ISST is one of four Imperial institutes that draw together academics from around the College to tackle global issues. Chris explains why having an institute to focus on security is so important. "Security is a major issue for the world that isn't going away," he says. "As a world-leading science and technology institute Imperial has a social responsibility to contribute to this area, particularly as many of the solutions to the problems will be found in science and technology."

There are a number of other university-based security science institutes around the UK including the Jill

Dando Institute of Security and Crime Science at UCL.

Chris explains that many of these centres focus on specific areas such as cyber security, whereas the ISST covers a whole range of security-related issues.

In particular, Imperial has a unique foothold in chemical, biological, radiological, nuclear and explosives (CBRNE) threat reduction research. "We have a much stronger science and technology focus at Imperial, whereas most other centres are focused on policy and social sciences," says Chris.

“As a world-leading science and technology institute Imperial has a social responsibility to contribute to this area”

## Working with departments

One of the key aims of the ISST is to work closely with departments to help them instigate new funding for security-related projects. Chris points to the Making Sense project which is being conducted by academics in the Departments of Computing, as an example. The project is funded by an Engineering and Physical Sciences Research Council Ideas Factory grant of £2.2 million and led by Imperial, in collaboration with eight other universities. It aims to provide support to people who are investigating acts of serious crime or terrorism and who have to make decisions on the basis of data from various sources.

Key to the project is visual analytics, an emerging science that focuses on making sense of large data sets. Visual representations can show associations and relationships between large, mixed-format and loosely-coupled data sets, such as unstructured reports, news feeds, photos and databases. In addition, by enabling



changes in viewing perspectives, for example, rotating, reordering or recollating the visual representation of the information, it will facilitate the chance discovery of unanticipated connections between the data.

This research will be particularly helpful for police investigating an individual or a group, and the data related to their activities and behaviour. Visual analytics could help detect unusual patterns of behaviour, which could be symptomatic of wrong doing.

### Multidisciplinary research

Chris explains that security science isn't a discipline in itself – it is more a repackaging of existing ideas, techniques and technologies from a number of disciplines. For example, expertise in cyber security research comes primarily from the Departments of Computing, Electronic and Electrical Engineering, Mathematics and Physics. These departments have a broad range of expertise that is relevant to issues including network security, access control and language-based security.

Another example can be seen in how the Department of Civil and Environmental Engineering (Faculty of Engineering) and the Centre for Environmental Policy (Faculty of Natural Sciences) are contributing to research in bio and environmental security. In the Centre for Environmental Policy, Professor John Mumford is involved in an EU project on food security and Dr Michael Templeton (Civil and Environmental Engineering) is doing work in the area of clean water.

### Seeking solutions

The ISST is all about solutions and Chris is keen to emphasise that it was not set up to do blue skies research. "Our mission is to expose our academics to real challenges of national security and resilience faced by government and industry and to help them realise how their research can be turned into solutions."

The ISST is a strong supporter of innovation and works closely with spin-out companies. It acts as a conduit by introducing them to new partners who can help them get security-related products into the market.

One example of an Imperial spin-out working with the Institute is Cortexica Vision Systems, which creates technology inspired by biology, for interpreting images. The company, led by Dr Anil Bharath (Bioengineering), is now working with the ISST to find opportunities for its fast, low-

latency technology in security monitoring, where poor light levels often cause traditional image and video analysis methods to fail.

The ISST is also working with another Imperial spin-out – DUVAS

Technologies Ltd – set up under the supervision of Dr John Hassard, also an Associate Director of the ISST, and Dr Mark Richards (both Physics). DUVAS' technology is capable of detecting multiple pollutants simultaneously from both portable and vehicle-mounted sensors. However, since the technology is not specific to pollution gases, there is interest from the security sector in detecting other gases and ISST has been instrumental in establishing an interface between DUVAS and a large defence contractor.

Dr Norbert Klein (Materials) has also benefited from working with the Institute with his spin-out company, EMISENS, which he set up before he came to Imperial. In close collaboration with the Department of Materials and the National Physical Laboratory, EMISENS is developing

novel devices for security applications, such as a handheld, microwave body scanner for the detection of metallic and non-metallic threat items attached to the body of an individual. "The Institute provides an excellent basis for the coordination of these activities, which need the industrial component and the solid research background in material science and electrical engineering. They have helped us to make important contacts and identify funding opportunities," Norbert explains.

### Building a community

Last month the Institute held its first annual security lecture which was well attended by people from across the College as well as the external security community. Chris is keen to build on this interest and develop a community of academics who are engaged with the ISST. He has set up a virtual forum to allow College staff to talk to each other, and with industry partners, about security sciences and technology. "Once the forum gets going, I'd like the members to set the agenda and identify three or four flagship programmes, that the Institute should focus on," says Chris. "The idea is that staff will then take ownership of these programmes and forum members will work together to get funding. I also hope our government partners will join."

As for the future of the Institute, Chris says: "As international terrorism becomes more and more sophisticated, the key security challenge for the government in protecting the nation is staying ahead of the game. We want the ISST to be the natural choice for the government to turn to."

— EMILY ROSS, COMMUNICATIONS AND DEVELOPMENT

*The ISST Forum is for people who have an interest in security science to discuss, share and learn about the latest news and events in this domain. To become a member please register at [www.imperial.ac.uk/securityinstitute/isstforum](http://www.imperial.ac.uk/securityinstitute/isstforum)*

## About the Institute

The ISST works in partnership across public, private and academic sectors. Its multidisciplinary research areas include:





# Transforming healthcare

From the design of heart monitors, anaesthesia equipment and ultrasound scanners, to biomaterials used in artificial ocular lenses and the creation of artificial heart valves, biomedical engineers have revolutionised healthcare. *Reporter* speaks to Professor Ross Ethier, Head of the Department of Bioengineering and Director for the Institute of Biomedical Engineering (IBME), about the work being done to raise the profile of the discipline and the exciting advances in the area.

**What is the difference between bioengineering and biomedical engineering?**

Bioengineering is the application of engineering principles to the study of living systems, while biomedical engineering applies bioengineering knowledge to the solution of medical problems.

**How well recognised is the discipline?**

Even though bioengineering has been around in the UK since the 1960s (when it first emerged from two groups at Imperial in the Departments of Aeronautics and Electrical and Electronic Engineering), it has only really been recognised as a discipline in the last 10 years. In fact this is the first year we have a proper entry in the UCAS handbook.

**What are you doing to help raise the profile of bioengineering?**

We have a dedicated Outreach Officer, Dr Helen Findon, who visits around 30 schools a year to tell them about what we do in the Department and the Institute. We also have lots of visitors coming in to Imperial to see bioengineering in action.

“The Institute is an active, vibrant centre where engineers, clinicians and scientists can come together”

**How would you like the public to view the discipline?**

I'd like them understand that biomedical engineering is responsible for devices and techniques that can transform people's lives. For example, here at Imperial Professor Molly Stevens (Materials) focuses on creating materials which can be implanted into the body. So, if you have a bad bone fracture, instead of using plates and screws to knit the bones back together you can fill the void with a biomaterial that promotes the growth of bones and forms a scaffold that the bones can grow into, so the gap is bridged in a natural way. Next time you are in a hospital, look at the kit: most of it was developed by bioengineers!

**You became Director of the IBME in September 2010 – what are your plans for your role?**

I'm delighted to be able to lead the Institute and build on the outstanding successes of Professor Chris Toumazou who showed great vision as the founding director. I look forward to working with him as Chief Scientist to further raise the profile of IBME and the Department of Bioengineering.

**There have been a number of changes in the IBME – what does this mean for the future?**

The key change is that academic staff who were formerly appointed to the Institute are now appointed to a department. The Institute is an active, vibrant centre where engineers, clinicians and scientists can come together to solve important

healthcare issues using the state-of-the-art kit. As a result of the changes we have been able to expand the scope of the Institute and have made new appointments, for example Dr Jon Weaver who is working in the Departments of Materials and Bioengineering. He brings exciting new expertise in polymer chemistry which he will be applying to biological problems.

**What area of bioengineering excites you?**

Synthetic biology is very exciting and is an area that is going to grow significantly. At Imperial, Professors Dick Kitney (Bioengineering) and Paul Freemont (Life Sciences) and their team are doing some great work in this field. One exciting area in synthetic biology is bioremediation, which involves growing bacteria that metabolise toxins. So, for example, instead of disposing of contaminated soil in landfill, we could put bacteria into the soil that 'naturally' makes the soil benign for humans.

**How has bioengineering research evolved at the College?**

Research has evolved in several ways. Firstly we are developing ever-smarter and more capable medical devices and bio-inspired devices – focusing on the integration of technology and healthcare. Secondly, we are exploiting the remarkable advances in biology to quantify what happens in living systems at the cellular and molecular level – fundamental to understanding disease processes such as atherosclerosis, for example. And we are also expanding into new areas; for example, we have had a major push in the area of neurotechnology, which has now become a Faculty and College priority.

**Last month CNNmoney.com identified bioengineering as the number one growth area of all careers – how do you envisage the future of the sector?**

There is huge scope for using bioengineering to solve healthcare and societal problems. Whether that's through personalised medicine, tissue engineering or improved surgical technology it's going to take engineers working together with clinicians and scientists to make it happen.

—EMILY ROSS, COMMUNICATIONS AND DEVELOPMENT

# inside story

## mini profile



## Abigail Woods

Imperial's Centre for the History of Science, Technology and Medicine has won a five-year Wellcome Trust programme grant, worth over half a million pounds. The Centre's project will investigate the history of how scientists have approached human and animal disease since the 19th century. Dr Abigail Woods, the project's Principal Investigator, spoke to *Reporter* about her work.

### How differently do researchers treat animal and human health?

At the moment scientists are talking a lot about 'one health', a concept which focuses on bringing human and animal health closer together to help deal with the challenges both fields face. Quite a lot of scientists look to legitimise the concept through reference back to a 19th century 'golden age' before the fields became distinct. Taking an historical point of view we want to investigate the realities behind this idea.

### Why is the concept of 'one health' so prominent at the moment?

There are three drivers: Firstly, 70 per cent of emerging diseases are zoonoses, which means they circulate from animals to humans, so tackling them together makes much more sense. Secondly, climate change is altering insect vectors behind disease, and this will affect both humans and animals. Lastly there is the issue of food security; in order to feed a growing population we need healthy and efficient animals.

“70 per cent of emerging diseases...circulate from animals to humans”

### Is it important to understand the history of science?

I discovered just how important it is when I was doing my PhD on

foot and mouth disease, when the epidemic struck in 2001. My knowledge of the history of the disease was in demand from the media, because referring to what had been done in the past helped in giving context to the government's response. It made me realise just how important history can be for current developments in the world. We see the audience for our research being not just the community of science historians but also scientists and policy makers today.

—JOHN-PAUL JONES, COMMUNICATIONS AND DEVELOPMENT

🎧 Listen to the latest Imperial podcast for an interview with Dr Woods: [www.imperial.ac.uk/media/podcasts](http://www.imperial.ac.uk/media/podcasts)

## Trauma '10

### Inspiring the next generation of trauma surgeons

At the end of October Imperial College School of Medicine (ICSM) Surgical Society hosted a two-day conference on trauma medicine for medical students around the world. Elinor Edwards and Dimitris Reissis, publicity officers for the committee organising the event, report on their experience of Trauma '10.

“Two hundred and eighty delegates attended the fifth national conference on trauma medicine and participated in a series of lectures and practical and interactive sessions, which included observing an inflatable operating theatre developed by Imperial.

Throughout the weekend, Professor Boffard, the keynote speaker, gave small groups an insight into the realities of a career in trauma surgery and no doubt inspired the next generation of trauma surgeons. To the delight of the Surgical Society, Professor Boffard has now agreed to become a patron of the Trauma conference.

Further speakers at Trauma '10 were leading surgeons and physicians including Reader in Surgery, Mr Paraskevas Paraskeva (Surgery and Cancer).

A unique attraction at this year's conference was the state-of-the-art inflatable operating theatre where



Professor Kenneth Boffard, an eminent South African trauma surgeon and current President of the International Society of Surgery, was the keynote speaker at the conference.

students witnessed a simulated real-time trauma scenario. The complexities of performing emergency surgery in a high-pressure environment were acted out by clinicians and senior medical students.

Trauma '10 also held its annual trauma medicine poster competition, which shortlisted 17 entrants from all over the world. Chief judge Professor Boffard awarded first prize to Bosnian medical student, Sejla Hodzic.

The Trauma conference is one of only a few of its kind for medical students, addressing a much neglected aspect of the medical curriculum. ICSM Surgical Society is delighted that the conference was a huge success.”

[www.imperialtrauma.org](http://www.imperialtrauma.org)

## ▶ SCIENCE FROM SCRATCH

As explained by Hala Elhaj, MSc Science Communication

## Zygote

The word zygote originates from the Greek word *zugoun*, meaning to yoke or to join.

The zygote is produced when the male's sperm cell fuses and fertilises the female's egg cell, forming a cell carrying genetic information from both parents. The sperm and egg cells each carry half the number of chromosomes, so when they fuse, the zygote produced is the first cell in the new organism carrying the complete set of chromosomes. After formation, a human's fertilised egg remains as a zygote for approximately four days before it begins to divide and grow, eventually developing into an embryo inside the mother's uterus. Sometimes the fertilised egg splits into two whilst still at the zygotic stage; this forms two identical embryos that grow to produce identical twins. These twins are referred to as monozygotic twins because they originated from the same zygote.



Is there a phrase or term you would like us to explain? ✉ Email the editor: [reporter@imperial.ac.uk](mailto:reporter@imperial.ac.uk)

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

Student blogger Maciej on visiting Silwood Park Campus:

blog SPOT

“Silwood Park is a truly beautiful place to be. True, it is in the middle of nowhere, and getting there is a pain – but once you get there, and you see thousands of bunny rabbits hopping around you – you’ll immediately fall in love with this place. In many ways, it is like a posh boarding school – far away from any civilisation, with pretty sights, wild animals etc. I truly recommend going for a sunrise walk around the campus grounds – a breathtaking experience. Sightings of deer and other wild fauna very likely.”

For more of his insights into College’s campuses visit: [www.imperial.ac.uk/blog/studentblogs/maciej](http://www.imperial.ac.uk/blog/studentblogs/maciej)



## A question of energy: virtual lecture series



Over the last month, Dr Tara La Force, a lecturer in petroleum engineering in the Department of Earth Science and Engineering, has been hosting an EPSRC-funded public lecture series entitled *The Future of Low-Carbon Energy*, in collaboration with Nature Publishing Group. The series has been designed to share information and opinions about the future of energy, in particular the low-carbon energy options. Five talks have been broadcast in the 3D virtual world Second Life, and

students and members of the public from round the world

have taken their seats in a virtual amphitheatre (pictured above) to participate.

“I think there is a serious lack of communication about the energy crisis and we are keen to bring the public into the debate,” explains Tara.

“The plan was to provide a forum where members of the public could ask scientists questions directly, and to encourage a free dialogue between the two”

“To do this, we have invited eminent scientists to present in an accessible way. The plan was to provide a forum where members of the public could ask scientists questions directly, and to encourage a free dialogue between the two. We want to see if there is something the public feel we should be doing scientifically that we haven’t thought of.”

To catch up with the lectures you have missed including Professor Nigel Brandon, Director of the Energy Futures Lab, talking about fuel cells,

and Mr Steven Sorrell, who works for the Sussex Energy Group at the University of Sussex, talking about the likelihood of a peak in oil supplies in the future, visit: [www.imperial.ac.uk/earthscienceandengineering/research/publicseminarsonenergy](http://www.imperial.ac.uk/earthscienceandengineering/research/publicseminarsonenergy)

Tara has created a Facebook group on low carbon energy to allow the debate to continue, join at: <http://on.fb.me/cnTD1l>

## Science is vital

They came, they sang, they protested. On Saturday 9 October, thousands of scientists gathered outside the Treasury in Westminster to protest against threatened cuts in UK science spending. Stephen Curry, Professor of Structural Biology (Life Sciences), who has been closely involved in organising the Science is Vital campaign, reports:

“The rally was a high point of the whirlwind Science Is Vital campaign that was sparked on 8 September when Liberal Democrat MP Vince Cable warned of deep cuts in the science budget. The campaign, coordinated by a dedicated committee, operated largely online to garner support from across the UK.

By the day of the rally, nearly 25,000 people had signed the petition. About a

tenth of these supporters turned up at the Treasury to hear speakers including British neurobiologist Professor Colin Blakemore, author Dr Simon Singh and British science writer Dr Ben Goldacre argue passionately against reductions of the science budget. At one point, the crowd even joined in with Liberal Democrat Dr Evan Harris’s protest song. I was pleased to see the faces of many Imperial staff and students among those present.

The rally was followed by a lobby of Parliament and the delivery of a petition with 33,000 signatures to Downing Street on 14 October, which prompted an invitation to the organisers to meet with the Minister for Science, David Willetts.

The campaign message – part of a



Dr Evan Harris led the crowd in a hastily-written protest song.

broader front taking the economic argument for science to the government – appeared to strike home, since the recurrent science budget was frozen, rather than cut, in the Comprehensive Spending Review announced on 20 October. The news came as a huge relief.”

For a slideshow of pictures from the day visit: [www3.imperial.ac.uk/news/vital](http://www3.imperial.ac.uk/news/vital)



## INVENTOR'S CORNER

# Versatile sensors

Dr Danny O'Hare is a reader in sensor research in the Department of Bioengineering. Medermica, a technology development company focused on diagnostic and sensor technologies for laboratory and healthcare applications, has recently licensed some of his work.

### What have you designed?

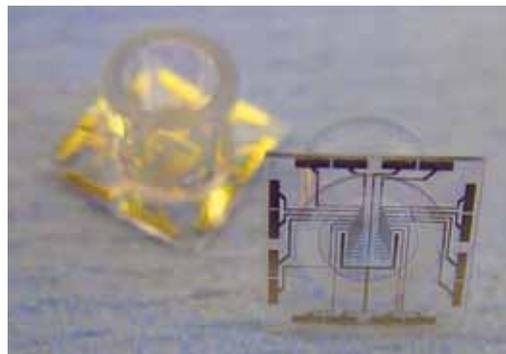
Alongside Dr Peter Knox from Medermica, I have patented a pH sensor comprising of electrodes, which are capable of measuring extremely small volumes without the need for calibration. The electrodes can be integrated into multiple pieces of laboratory equipment, like pipette tips.

### Why does the science world need this technology?

Current pH electrodes are made of fragile glass that have to be calibrated continuously. This consumes valuable research time and is costly, as relatively large volumes of expensive reagents – substances added to a system in order to bring about a chemical reaction – are required for accurate measurements.

### What are the benefits of your technology?

The benefits are twofold. Firstly, it significantly reduces the time required to take accurate pH measurements, which translates into a more efficient use of a scientist's time. The disposable sensors are individually vacuum packed and useable immediately upon removal from the packaging. Secondly, the technology reduces expenditure on expensive reagents, as the sensors can



operate with much smaller quantities, whilst still giving accurate measurements.

### Where will this technology be used?

As a result of its ability to measure exquisitely small volumes, the pH sensor will revolutionise the measurement of pH across multiple industry sectors. The fact that pH is such a widely used control parameter for almost any biological or chemical process, means its application could range from soil testing through to high-end applications, like pharmaceutical manufacturing.

### What are you looking into next?

The general area I'm interested in looking at is how cells respond in the first few minutes of being stimulated by a physical or pharmacological intervention. Microfabricated arrays of these and similar sensors will enable us to measure things like the cells' energy balance and how they signal to each other, in other words, allow us to characterise the cellular responses at the very early stages.

— ANOUSHKA WARDEN, IMPERIAL INNOVATIONS

If you have an idea with commercial potential, visit: [www.imperialinnovations.co.uk](http://www.imperialinnovations.co.uk) or email [info@imperialinnovations.co.uk](mailto:info@imperialinnovations.co.uk)

## course review



By course attendee Dr Oliver Dreeson, a research fellow in the A\*STAR Institute of Medical Biology, Singapore.

## Research Leaders' programme

### What did the course cover?

The two-day course held in Singapore was run by Dr Liz Elvidge, Manager of the Postdoc Development Centre at Imperial. It offered guidance on a variety of topics that any aspiring investigator should be aware of, such as different styles of management, how to develop short and long-term visions for your laboratory, how to screen CVs and interview candidates for positions, and how to resolve conflict.

### Why were you interested in the course?

As scientists, we spend a large amount of our time in the laboratory. Disputes are almost inevitable and range from authorship issues to performance or motivation problems. We all know that such episodes can waste a lot of time and cause a considerable amount of frustration. In many instances, these conflicts could be avoided if the problems were detected earlier and expectations or goals communicated more clearly.

### What did you learn from the course?

By discussing case studies and participating in role plays, we became aware of how such conflicts could be avoided or resolved more effectively.

To find out how Imperial is supporting postdocs in the UK visit: [www.imperial.ac.uk/staffdevelopment/postdocs1](http://www.imperial.ac.uk/staffdevelopment/postdocs1)

## Learn to relax

Celine Jaquet, Departmental Administrator (Occupational Health), runs free meditation classes to help staff and students at Imperial to relax. "It's important to create time and space to relax your mind. When you learn to meditate, you can relax anytime, anywhere. It also ensures you stay awake and alert, with no temptation to nod off!" she explains. Here are some of Celine's meditation exercises that you can try yourself:

### Muscle relaxation

Breathe slowly and deeply. With each breath, relax all the muscles in your body from your feet, legs, stomach muscles, along your back up to your shoulders, to your neck and facial muscles.

### Slow down

Slow down your thoughts and allow your thoughts to pass through, like clouds in the sky. Feel your mind becoming clear like

the blue sky. Steer your attention away from external events, the to do lists and the pressures, and gently guide yourself towards your inner peace. Anchor your focus in your inner peace and let peace flow through you.

### Creative visualisation

Quick mental getaways to refresh energy levels. Take a hot air balloon ride or explore a deserted beach, all without leaving your seat.

Enjoy meditation sessions every Tuesday, 13.15–13.45, in Room G.02, Royal School of Mines, South Kensington Campus: [www.imperial.ac.uk/occhealth/guidanceandadvice/meditationclasses](http://www.imperial.ac.uk/occhealth/guidanceandadvice/meditationclasses)



## obituaries



### DR JUDIT NAGY

Dr Judit Nagy, Research Fellow in the Department of Chemistry, died on 18 October 2010.

Dr Katy Brown (Life Sciences) and Professor Tony Cass (Chemistry) remember their friend and former colleague:

“Judit was born in Hungary and obtained a Bachelor’s degree in Chemistry in 1986

and a Master’s degree in the field of neutron activation analysis in Budapest in 1984. She always wanted to pursue a PhD in biochemistry and, in 1993, she began working in Dr Katy Brown’s laboratory, co-supervised by Professor Tony Cass, in the Department of Biochemistry. Her research involved functional studies of catalase-peroxidase, an enzyme that plays a key role in the activation of isoniazid used to treat tuberculosis.

In 2000, she began to establish her own independent research activities, as the manager of the proteomics facility in the newly established Centre for Molecular Microbiology and Infection, and in 2006 she moved her laboratory into the Institute of Biomedical Engineering. She had particularly strong links to emerging scientific institutions in Malaysia and the Middle East, where she acted both as an advisor to research institutes and as an active collaborator.

Judit always made time for her students and was a natural teacher, who inspired all those she trained in proteomics. Her professionalism, collegiality, enthusiasm for science and genuine friendship are amongst the many traits that made her such a valued colleague to so many people.”

To read the full obituary and to share your memories of Judit, visit: [www3.imperial.ac.uk/news/juditnagy](http://www3.imperial.ac.uk/news/juditnagy)

A fund will be established in Judit’s memory to provide childcare support for PhD students in need. Reporter will publish further details in due course.



### DR FRANK ELLIS

Dr Frank Ellis, who died on 3 September, was a member of the academic staff of the Department of Mechanical Engineering from 1949–82.

Professor Alan Swanson, former Head of the Department, writes: “Frank came to the Department in 1946 as an undergraduate with a Whitworth

Scholarship. In 1949 he graduated top of his year receiving the Bramwell Medal, and joined the staff as an assistant lecturer, working part-time for a PhD under Dr (later Sir) Hugh Ford. In due course, Frank became a lecturer and, in 1961, was awarded a PhD for his work on the plastic deformation of metals. He was someone absolutely sound, reliable and quiet. When groups of us were putting the world, or perhaps only the College, right over coffee, Frank would say less than anyone else, but everything he said was worth taking seriously. Any job he did was done faultlessly, which sometimes, as with constructing the timetable, was critical. Unfortunately, he never did enough of the things which bring promotion but the Department was a better place for his being in it.”

Frank’s wife died in 1990; he is survived by five children, 10 grandchildren and four great-grandchildren. Frank is pictured above at the wedding of one of his grandchildren earlier this year.

To share your memories of Frank visit: [www3.imperial.ac.uk/news/frankellis](http://www3.imperial.ac.uk/news/frankellis)

long  
service

Reporter features staff who have given many years of service to the College. Staff listed below celebrate anniversaries in the period 1–12 November. Data is supplied by HR and is correct at the time of going to press.

### 20 years

- Ms Kim Everitt, Human Resources
- Dr Ewa Paleolog, Kennedy Institute
- Ms Patricia Watson, Accommodation Services

### 30 years

- Ms Dawn Beaumont, ICT

### 40 years

- Professor Nigel Bell, Environmental Policy

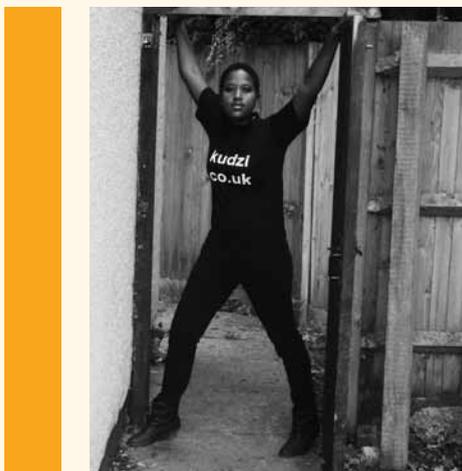


## Ghosts, tunnels and sunrises: exploring Imperial at night

Claire Primrose, an MSc Science Media Production alumna, reports on her group’s experiences of filming a documentary at Imperial over the summer.

“Our final project for our Master’s degree was to produce a documentary looking at what happens at science institutions at night, when people think nothing goes on. And where better to film than Imperial? We talked to the security team, maintenance workers and a few enthusiastic PhD students, who work into the wee hours of the morning. Under the supervision of Building Managers, John Grover and Peter Schreiber, and Head of Maintenance Operations, Chas Guirey, we went up on to the roofs to film the sunset and sunrise over London, then down in to the maze of tunnels underneath the campus, which was very hot. We even tried to do a bit of ghost hunting but came to the conclusion that there really weren’t any. We also learnt all about the nightshift workers: what they do in their spare time, how they came to work in their profession and why they wanted to work specifically at Imperial. Each one of them had inspiring or funny stories to share. We found that Imperial isn’t the desolate, haunted place at night that people may have thought.”

To see a slideshow of photos taken at Imperial at night visit: [www3.imperial.ac.uk/news/atnight](http://www3.imperial.ac.uk/news/atnight)



## Imperial-inspired music

Third year medical student, Florence Kashora, has just released an album *Black Tokens* under the stage name Kudzi. *Reporter* discovers out how science inspires her music.

### What excites you about performing?

On stage you can reinvent yourself and enjoy yourself, whether people are cheering you on or not. There is so much freedom in that. In my 'other' life as a medic you would never see me screaming my lungs out or 'shaking it', whilst presenting a patient to a consultant doctor!

### Do science and music mix?

Science and music definitely mix, simply because scientists are human beings who like and make music. In my music I wouldn't write about a scientific theory, for example, but I would write about how science affects us as humans. As a medical student, you meet patients who inspire you to write about a variety of human struggles.

### Tell me about your single and what inspired it?

The single is called *Witches of the Wild West* and it is from my debut album, *Black Tokens*. I actually came up with the chorus whilst jogging around Imperial and Hyde Park, when I used to live in halls.

### What is your music about?

In general, the songs on my album are about the everyday things people go through and will relate to, no matter what race, gender and age or religion they are. If studying medicine has taught me one thing, it's that humans are very similar when it comes down to it.

To download Florence's album and single visit: [www.kudzi.co.uk](http://www.kudzi.co.uk)

## Welcome new starters

Mr Mark Allen, Security  
 Miss Janice Anastasia, NHLI  
 Mr Assaf Anderson, Chemistry  
 Mr Amr Aswad, Life Sciences  
 Dr Shakil Awan, Bioengineering  
 Dr Simon Bailey, Grantham Institute  
 Dr Mustafa Bayazit, Chemistry  
 Mr Francesco Bottone, Mechanical Engineering  
 Dr Neil Brown, Chemistry  
 Miss Bianca Bulmer-Thomas, Medicine  
 Dr Tabinda Burney, NHLI  
 Dr Ailsa Butler, Public Health  
 Dr Maryke Carstens, NHLI  
 Mr Yann Casas, Catering  
 Mrs Maria Catley, Medicine  
 Ms Elizabeth Cecil, Public Health  
 Miss Faye Chalmers, NHLI  
 Mr Amir Chasson, Communications and Development  
 Mrs Fu Chen, Catering  
 Miss Kathryn Cole, ESE  
 Mr John Cooper, Medicine  
 Dr Violetta Cordon-Preciado, Clinical Sciences  
 Mrs Anne Cori, Public Health  
 Dr Michael Cowley, Chemistry  
 Mr Edward Davies, EEE  
 Dr Jaideep Dhariwal, NHLI  
 Dr Kathryn Dyl, ESE  
 Miss Lina Eliasson, Medicine  
 Ms Rosie Evans, Medicine  
 Professor Majid Ezzati, Public Health  
 Mrs Lorraine Fincham, Medicine  
 Ms Dina Fonseca, Life Sciences  
 Miss Shari Friedman, Business School  
 Mr Neil Galloway-Phillipps, NHLI  
 Dr Rashid Ganeev, Physics  
 Miss Sophie Ganjavian, NHLI  
 Mr Marco Genoni, Physics  
 Mr Kevin Gouder, Aeronautics  
 Miss Katerina Goudevenou, Medicine  
 Miss Nicola Guess, Medicine  
 Miss Emily Guilmant, NHLI  
 Ms Nisha Gupta, ICT  
 Professor Jeff Hand, Clinical Sciences  
 Ms Jie Hao, Surgery and Cancer  
 Mr Edmund Henley, Physics  
 Miss Susanne Herbst, Medicine  
 Mrs Rosalind Hopwood, Physics  
 Mrs Debbie House, Security  
 Dr Peter How, Surgery and Cancer  
 Mr Peter Howitt, Surgery and Cancer  
 Miss Tharshika Jeganathan, Medicine  
 Miss Anna Jensen, Surgery and Cancer  
 Mrs Aruloly Kamalakaran, Medicine  
 Mr Nachiket Kapre, EEE  
 Dr Tae Kim, EEE

Dr Khurum Kiyani, EEE  
 Dr Artemis Kosta, Life Sciences  
 Dr Zhaolei Lang, EEE  
 Miss Katharine Langford, Public Health  
 Miss Heather Lewtas, Physics  
 Mr Lung Ling, Medicine  
 Dr Ylenia Lombardo, Surgery and Cancer  
 Dr Mariella Lomma, Life Sciences  
 Mr Stefano Longo, EEE  
 Miss Maria Lopez Ruiz, Life Sciences  
 Dr Carsten Mehring, Bioengineering  
 Mr Robert Metcalf, ICT  
 Mr Maxime Mioulane, NHLI  
 Miss Diane Morris, Surgery and Cancer  
 Mr Christopher Moss, Security  
 Mr John Murrell, Chemistry  
 Miss Alicia Nagar, Human Resources  
 Mrs Deborah Papadopoulou, Medicine  
 Professor Thomas Parisini, EEE  
 Miss Anushka Patel, Business School  
 Miss Rebecca Pearson, NHLI  
 Ms Camille Pelat, Public Health  
 Dr Sima Riahi Moghaddam, NHLI  
 Dr Steven Riley, Public Health  
 Mr Francis Russell, Computing  
 Ms Maja Rynko, Business School  
 Mr Mohammad Saidi, Library  
 Miss Eleanor Saunders, International Office  
 Dr Mariam Sbaiti, Public Health  
 Mr Mansoor Shah, Medicine  
 Dr Jemma Shipton, Aeronautics  
 Dr Ian Silverwood, Chemical Engineering and Chemical Technology  
 Miss Jennifer Smith, Public Health  
 Mr Jeremy Smith, Physics  
 Dr Jamshid Sorouri Khorashad, Medicine  
 Miss Konstantina Spagou, Surgery and Cancer  
 Dr Neil Tarrant, Humanities  
 Mr Frazer Twyman, Surgery and Cancer  
 Mr Martin Walker, Public Health  
 Miss Lorraine Ward, Security  
 Dr Lucy Weinert, Public Health  
 Miss Judith Williams, Medicine  
 Mr Peter Winskill, Public Health  
 Mr Pan Zhang, Mechanical Engineering  
 Mr Guidong Zheng, Humanities  
 Dr Hongliang Zhong, Chemistry

Miss Amandine Brosse, Civil and Environmental Engineering  
 Ms Mary Cavanagh, NHLI  
 Dr H.J. Chang, EEE  
 Professor Marinou Dalakas, Medicine  
 Dr Ursula Ellinghaus, Medicine  
 Dr Michelle Fernando, Medicine  
 Dr Ana Garcia-Sagrado, ESE  
 Dr Lucy Garvey, Medicine  
 Mr Francis Gray, Finance (19 years)  
 Dr Emanuel Habets, EEE  
 Ms Jola Hajri, International Office  
 Dr Gareth Jenkins, EEE  
 Dr Lijun Ji, Materials  
 Miss Natasha Khalife, Surgery and Cancer  
 Ms Eleni Kotsiou, Medicine  
 Miss Aiva Kukulite, Catering  
 Professor Marc Laruelle, Medicine  
 Dr Karim Lekadir, Computing  
 Mr Adrien Lorenzi, Security Science and Technology  
 Mr Peter Marks, Catering  
 Mr Edwin Martin, Security (38 years)  
 Mr Stefano Miraglia, Business School  
 Dr David Morris, Medicine  
 Dr Sebastien Nola, NHLI  
 Dr Maïke Paramor, Life Sciences (5 years)  
 Dr Vishal Patel, Surgery and Cancer  
 Mr Christopher Pinder, Medicine  
 Dr Mark Potter, Aeronautics  
 Miss Bhawana Poudel, NHLI  
 Miss Kristine Rajamanikam, Imperial College Union (7 years)  
 Dr Ben Rhodes, Medicine  
 Miss Amy Roberts, Medicine  
 Mr Scott Rutherford, Research Services (6 years)  
 Mr Nick Sheahan, Estates (22 years)  
 Dr Shivani Singh, Medicine  
 Miss Maria Timponi De Moura, Catering  
 Dr Monika Voigt, Physics (5 years)  
 Professor Tim Vyse, Medicine (13 years)  
 Dr Neil Ward, NHLI  
 Mrs Diane Watling, Surgery and Cancer  
 Mrs Sharon Williams, Computing  
 Dr Abigail Witherden, Medicine (6 years)  
 Dr Ivan Yap, Public Health

## retirements

Dr Roger Watson, Medicine (14 years)

## Farewell moving on

Miss Deeqa Aden, Medicine  
 Mrs Kirsty Anderson, Medicine  
 Dr Paula Barros Fernandez, Medicine  
 Dr James Bentham, Medicine  
 Dr Rolando Berlinguer Palmieri, Biomedical Engineering  
 Dr Guillaume Besnard, Life Sciences  
 Dr Ruth Branford, NHLI

This data is supplied by HR and covers the period 16 October–5 November. It was correct at the time of going to press. Years of service are given where an individual has been a member of College staff for over five years. Asterisk (\*) indicates where an individual will continue to play an active role in College life.



1 DECEMBER ▶ CHILDREN'S CHRISTMAS DEMONSTRATION LECTURE

## Chemistry for a cleaner world

Our society is dependent on the chemicals industry but the production of these chemicals can harm the environment. In this lecture, Professor Tom Welton (Chemistry) will reveal

just how many chemical products we use in everyday life. He will show how some of these are made and look at what we can do to reduce their impact on the environment. Professor Welton is the world's first professor of sustainable chemistry. Sustainable chemistry involves the implementation of sustainable techniques in the production and use of chemicals and the application of chemistry.



8 DECEMBER ▶ OPEN DAY

## Postgraduate student open day

The open day is for anyone interested in pursuing postgraduate study, whether an MSc or a PhD, at Imperial. Each department will have a stall with members of staff

who will be able to advise on research opportunities and taught Master's programmes available at Imperial. Applicants will also be able to gain advice on the application process, accommodation, fees and funding. The Postgraduate Open Day will take place between 12.30–16.00 in the Great Hall, Sherfield Building.

18 NOVEMBER ▶ COURSE

## Patient advocacy and quality improvement

Run by the Faculty of Medicine, this course coincides with EU Antibiotic Awareness Day



24 NOVEMBER 2010 ▶ SEMINAR

## Sex and the city: are we ready for the post feminist era?

Imperial College Women's Club lunch with Merlyn Lowther

1 DECEMBER ▶ CHILDREN'S CHRISTMAS DEMONSTRATION LECTURE

## Chemistry for a cleaner world

Professor Tom Welton (Chemistry)



1 DECEMBER ▶ SEMINAR

## Fundamental limits on the suppression of molecular fluctuations

Ionnis Lestas, Fellow of Clare College and Director of Studies in Engineering, University of Cambridge

7 DECEMBER ▶ ONE-DAY SUMMIT

## UK~IRC Innovation Summit

One-day summit on best practice methodologies and assessing the impact of innovation

8 DECEMBER ▶ SEMINAR

## Conditions for propagation and block of excitation in an asymptotic model of atrial tissue

Radostin Simitev, Lecturer in Applied Mathematics, School of Mathematics and Statistics, University of Glasgow

8 DECEMBER ▶ OPEN DAY

## Postgraduate Open Day

For those interested in pursuing postgraduate study at Imperial



8 DECEMBER ▶ SEMINAR

## Inner workings of an ATP-driven DNA damage sensor

Dr David Jeruzalmi, Harvard University

14 DECEMBER ▶ LECTURE

## Development of novel vaccines against pertussis and other respiratory illnesses

Professor Camille Locht, Research Director, Inserm

15 DECEMBER ▶ CAROL SERVICE

## Carols by Candlelight

Holy Trinity Church, Prince Consort Road



## take note

### Imperial podcast returns



Are your headphones feeling neglected? Never fear – the Imperial podcast is back, and is more appetising than ever before. Version 2.0 will be serving up fresh slices of audio delight from around the College every three weeks. In the first edition, the pod squad discover an enormous gun in Aeronautics and send biologist Professor Stephen Curry (Life Sciences) to Mars with a famous friend.

Download the latest edition at [www.imperial.ac.uk/media/podcasts](http://www.imperial.ac.uk/media/podcasts) or subscribe on iTunes.

Send your feedback or get involved by emailing [l.gallagher@imperial.ac.uk](mailto:l.gallagher@imperial.ac.uk)

## VOLUNTEERING

### Careers in focus

Project ID: 2364  
Organisation: IntoUniversity  
Date: From November 2010  
Times: Monday to Friday at 16.00, during school term time.



IntoUniversity is looking for scientists to talk to year nine students about their careers and give them an insight into working at Imperial. IntoUniversity aims to address under achievement and social exclusion among young people by offering a programme of out of school study, mentoring, aspirational coaching and personal support, in partnership with universities. The programme helps young people to make informed decisions when choosing a career.

For more information contact Aisha Lalloo: [intouniversity@imperial.ac.uk](mailto:intouniversity@imperial.ac.uk) or visit: [www.intouniversity.org](http://www.intouniversity.org)

Stay in the loop

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