



Hidden gems

Scientists unravel the secrets of proteins in Imperial's
Oxfordshire outpost at Diamond Light Source ... **CENTRE PAGES**



**£6 MILLION
LABS OPENED**
Facility to
explore ways
of storing CO₂
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FEATURE FOCUS
Getting to know
new College
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John Neilson
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**"IT'S BEEN A
PRIVILEGE"**
Professor
Kinloch reflects
on his time
as HoD
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EDITOR'S CORNER

Starting out

With the glamour and excitement of the Olympic and Paralympic Games fading into our memories, Imperial has returned to its regular cycle – **welcoming new starters** to the College for the autumn term. And it's not just students who are joining the Imperial community for the first time – over 150 new staff members will also be finding their feet this month. I remember starting in my role over four years ago and feeling amazed by how many people undertaking such diverse research existed across the campuses. Luckily things fell into place after a couple of months. If you're a new starter this year, I hope that *Reporter* plays a part in helping you get to know what's going on and who people are. We are always keen to **highlight new writing talent** so if you fancy writing for *Reporter* over the coming year, do get in touch at the address below. We are keen to get as many members of the community involved as possible!

EMILY ROSS-JOANNOU, EDITOR

Reporter is published every three weeks during term time in print and online. The next publication day is 11 October.

Contact Emily Ross-Joannou: reporter@imperial.ac.uk

Imperial physicists help to make accelerator science go faster

The John Adams Institute for Accelerator Science (JAI) is expanding, with a new research base at Imperial joining two existing centres at Royal Holloway, University of London and the University of Oxford.

Scientists at the Institute are researching ways to improve particle accelerator technology and its applications in science and medicine. New funding from the government's Science and Technology Facilities Council will

help accelerator science develop beyond its current use for research in fundamental physics, such as the hunt for new bosons at the Large Hadron Collider.

Experts at Imperial will now help to develop advanced medical treatments, such as new forms of cancer radiotherapy that avoid damaging tissue surrounding a tumour. Future developments would help to reduce the size and cost of machines, making them accessible for use in smaller

hospitals or research centres.

Professor Zulfikar Najmudin, JAI's deputy director (Physics), said: "The JAI now connects the world-leading efforts on laser plasma acceleration that were developed in Imperial's Plasma Physics Group and Oxford's Atomic and Laser Group. It creates new opportunities for developments of laser plasma acceleration applications and new instruments, in particular compact X-ray light sources."

—SIMON LEVEY, COMMUNICATIONS AND DEVELOPMENT

AHSC Director appointed

Professor David Taube, one of the country's leading kidney experts and the UK's only Professor of Transplant Medicine, was appointed Director of the Imperial College Academic Health Science Centre (AHSC) on 1 September.



Professor Taube, former medical director at Imperial College Healthcare NHS Trust and Professor of Transplant Medicine at Imperial, brings more than 25 years' experience in research, education and clinical leadership to the role. The AHSC was established as a partnership between the College and the Imperial College Healthcare NHS Trust in 2007 with the aim to transform healthcare by translating research discoveries into medical advances in as fast a timeframe as possible.

Reporting jointly to the Principal of the College's Faculty of Medicine and the Chief Executive of the Trust, Professor Taube will drive the AHSC and facilitate close collaboration between the partners.

Welcoming the appointment, Mr Mark Davies, Chief Executive of Imperial

College Healthcare NHS Trust, described how Professor Taube embodies the tripartite mission of the AHSC:

"He is one of the country's finest nephrologists, a prolific translational researcher with a proven track record of raising education and training standards, and of driving the adoption of innovative practice in the largest renal and transplant centre in the UK."

Professor Dermot Kelleher, incoming Principal of the Faculty of Medicine, said: "Professor Taube will play a vital role in steering the AHSC to deliver academic and clinical excellence. His energy and outstanding reputation as a medical leader mean he is well equipped to develop the AHSC to deliver world class healthcare to local, national and global populations."

—CAROLINE DAVIS, COMMUNICATIONS AND DEVELOPMENT

Investigating the science of cyber security

A new academic research institute to improve understanding of the science behind the growing cyber security threat was announced on 13 September. The initiative will enable leading cyber security academics from seven universities, including Imperial, to collaborate with social scientists, mathematicians and computer scientists from across the UK.

The institute is a virtual organisation funded by a £3.8 million grant, as part of a government commitment to increasing the nation's academic capability in all fields of cyber security.

“This research will help businesses, government and individuals to better protect themselves from cyber threats”

Researchers from the Institute of Security Science and Technology at Imperial were selected through a tough competitive process in which they worked with Queen Mary and Royal Holloway colleges, University of London, to devise new

research programmes for security science.

Congratulating the successful teams, David Willetts, Minister for Universities and Science, said: "This new research institute will draw on the leading expertise in our universities from both technological and behavioural disciplines to address key challenges. It will help businesses, government and individuals to better protect themselves from cyber threats so they can make the most of the opportunities the internet presents."

—ADAPTED FROM A JOINT PRESS RELEASE BY GOVERNMENT COMMUNICATION HEADQUARTERS AND THE ENGINEERING AND PHYSICAL SCIENCES RESEARCH COUNCIL

Business secretary shares his vision for UK industry during Imperial tour

The Secretary of State for Business, Innovation and Skills, Dr Vince Cable MP, introduced his vision for British industry during a visit to Imperial on 11 September, before taking a tour of the College's £2 million pilot plant in the Department of Chemical Engineering.

In a speech which praised British universities as a strong export industry, he outlined how government can support and work with business in the long term. The new industrial strategy includes plans for partnerships to expand sectors such as aerospace and new approaches to translate academic research into commercial developments. Dr Cable also announced that an Innovation and Knowledge Centre for Synthetic Biology would be created.

The event was hosted by Professor David Gann, Deputy Principal of the Business School, and guests including representatives from industry, the media, Imperial and the College's corporate partners.

Welcoming Dr Cable to the College and to the



Business School, Professor Gann, who is also Head of Innovation and Entrepreneurship, said: "This is an apt setting for the launch of your strategy today. Here at Imperial we are always looking to the future, and our own research and teaching is focused on translating ideas into practice."

Following his speech, Dr Cable toured the Department of Chemical Engineering's carbon capture pilot plant. The facility was developed as part of a partnership between the College and industry, and demonstrates to students how CO₂ emissions can be captured by a power plant of the future.

PhD student Amelia Foo gave a demonstration in the plant. She said: "We had a mock emergency situation to demonstrate one of our training scenarios for him. It was a great opportunity for us to raise awareness about the world class training we get at Imperial."

—JOHN-PAUL JONES, COMMUNICATIONS AND DEVELOPMENT

Rock solid research gets a boost

On 13 September, four new laboratories were opened at the College that will enable scientists to study in high detail carbonate rocks and how fluids flow in them. These rocks are the predominant reservoir type in the Middle East, storing more than 70 per cent of the world's oil and gas reserves underground.



The laboratories were officially opened by Mr Saad Al-Kaabi, Director of Oil and Gas Ventures for Qatar Petroleum, Mr Peter Voser, Chief Executive Officer of Shell, and Dr Tidu Maini, Executive Chairman of the Qatar Science and Technology Park.

The Imperial researchers working in the £6 million labs are developing a deeper understanding of what happens to these emissions at the microscopic level by carrying out experiments to observe CO₂ within the rock under reservoir conditions and modelling how it flows through tiny pores in the rock. This is then linked to imaging experiments and models on a larger scale, so that the researchers can predict what happens to CO₂ when it is stored in carbonate rock reservoirs, which can be hundreds of kilometres in size.

The research is part of the Qatar Carbonates and Carbon Storage Research Centre (QCCSRC) run jointly by researchers in the Departments of Chemical Engineering and Earth Science and Engineering at Imperial. Professor Geoffrey Maitland, Director of QCCSRC (Chemical Engineering), said:

"A deeper understanding will enable us to improve processes such as carbon capture and storage and enhance oil recovery. These rock formations, which are located all around the world, including the Middle East, could provide us with a valuable repository for storing CO₂, but more work needs to be done to understand how to lock away these greenhouse gas emissions effectively."

—COLIN SMITH, COMMUNICATIONS AND DEVELOPMENT

Watch a video about the work being done in one of the new labs at: <http://bit.ly/rocksolidvid>

in brief



New head for Mechanical Engineering

Professor Peter Cawley has been appointed as the next Head of the Department of Mechanical Engineering

He will lead the Department from 1 October, succeeding Professor Anthony Kinloch who retires after 28 years. Professor Cawley joined the College in 1981 as a lecturer and, after a series of promotions, was appointed Professor in 1996. He has served as Deputy Head of the Department since October 2007. His research aims to solve problems in industrial inspection and monitoring.

See page 13 for an interview with Anthony Kinloch.

Singapore medical school appointment

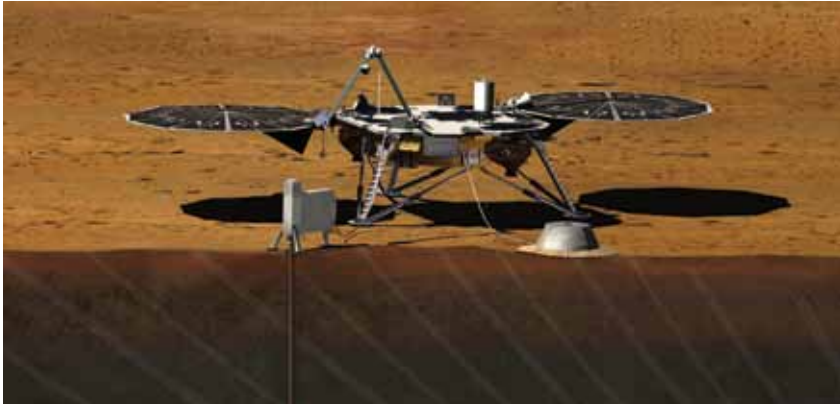
Professor Dermot Kelleher, the incoming Principal of the Faculty of Medicine at Imperial, has been appointed Dean of the Lee Kong Chian School of Medicine in Singapore, founded as a partnership between Imperial and Nanyang Technological University. As Dean, Professor Kelleher will lead the next phase of the development of the School to train more doctors to meet Singapore's future healthcare demands.

Second term for Welton

Tom Welton, Professor of Sustainable Chemistry, has been appointed as Head of the Department of Chemistry for a second term. Professor Welton joined Imperial in 1993 as a Lloyds of London Tercentenary Fellow. Following a series of promotions, he became Professor of Sustainable Chemistry in 2004. He held the position of Director of Undergraduate Studies within the Department from 2002–2007 and became Head of the Department on 1 August 2007. His research focuses on making chemicals and related industries environmentally and economically sustainable.

Planning approval for Imperial West

Imperial West, the new campus located on the former BBC site on Wood Lane received planning permission from the London Borough of Hamlets in July. The 88,000m² site will allow Imperial to bring together research and teaching facilities, postgraduate accommodation, commercial and residential space, and new retail and leisure services. Plans include a 20,000m² business incubator, a publicly accessible square and improved pedestrian and cycle routes.



Imperial to develop 'Marsquake' technology

Technology for detecting 'Marsquakes' will be developed by an Imperial engineer as part of NASA's next unmanned mission to the red planet, it was announced at the end of August.

Dr Tom Pike (Electrical and Electronic Engineering) will develop miniaturised seismometers, based on silicon chip sensor technology, to detect Martian seismic activity, known as Marsquakes, on Earth's nearest neighbour as part of the Insight mission to Mars. The mission's aim is to understand the formation and evolution of rocky planets by investigating Mars' internal structure.

This is the second mission that Dr Pike has been involved with. In 2008, as part of the Phoenix mission, he developed technology for holding samples of Martian soil and helped NASA to detect water in the form of ice, just below the surface, as part of the search for evidence of past or present habitability on the planet.

Dr Pike said: "In some ways the Insight mission will see history repeating itself as we will be using the same spacecraft design that we used for the Phoenix mission. However, on board will be a very different payload with instruments to help us to peer deep into the Martian interior. This could help us to understand more about the early evolution of planets like the Earth."

The Insight mission is due to launch in March 2016 and touch down on the Martian equator in September that year. The lander will be equipped with a geophysics station that will be used to carry out three experiments that include measuring tremors below the surface with the seismic experiment for interior structure instrument package; determining the precise rotation of Mars using the spacecraft's onboard communications system, and working out the temperature inside the planet with the heat flow and physical properties package.

—COLIN SMITH, COMMUNICATIONS AND DEVELOPMENT

Heavens above! MBA alumnus wins The Angel on Sky 1

Business School alumnus Yakub Zolynski, pictured right, won £100,000 investment for his business idea in August after competing in Sky 1's new entrepreneur show The Angel.



"My worst fear was going out in the first round. I kept on thinking about the grief I would get from my friends!"

Yakub came up with the idea for Market Mavens, a recruitment agency for business school graduates, while studying for his MBA in 2009. Looking for opportunities to grow his idea into a successful business, Yakub decided to enter the game show after noticing the advert on Imperial's LinkedIn page.

With a £100,000 investment up for grabs, contestants are put through their paces with four rounds based on first impressions, teamwork, a sales pitch and a final interview. The 'angel' is billionaire John Caudwell, a successful entrepreneur who created mobile telecoms company The Caudwell Group in 1987. The company is best known for the high street chain Phones4U.

Competing against four other hopefuls, Yakub fought his way through the rounds and emerged as the winner, securing investment for his business.

Commenting on the competition Yakub said: "My worst fear was going out in the first round. I kept on thinking about the grief I would get from my friends if I let this happen. I did actually find myself in the firing line in every single round but managed to get through."

—TANYA GUBBAY,
COMMUNICATIONS AND
DEVELOPMENT

New charter for working together

A new student charter, setting out the principles by which Imperial staff and students work together, has been signed by Imperial's President & Rector Sir Keith O'Nions and the President of Imperial College Union, Paul Beaumont.

The new initiative follows recommendations by the Student Charter Working Group, established by the government in partnership with Universities UK and the National Union of Students, which suggested that each higher education institution should have a high level statement setting out the mutual expectations of universities and students.

Imperial's version, Our Principles, was developed by

academic and support staff in partnership with undergraduate and postgraduate student representatives, and will be reviewed annually. It outlines expectations of how the College and students can work together across four categories: what Imperial will provide

"[The Charter] will be an accessible way for students to learn what to expect from Imperial"

through its staff, what it will provide its students with, what students should expect to do, and what Imperial College Union will do.

Paul Beaumont said: "Our Principles will be an accessible way for students to learn what to expect from Imperial. It highlights that studying here is a two-way agreement that relies on students working hard, through which they will be rewarded with support in all their endeavours."

—JOHN-PAUL JONES, COMMUNICATIONS AND DEVELOPMENT

Read Our Principles here:
www.imperial.ac.uk/students/ourprinciples

media mentions

—TANYA GUBBAY, COMMUNICATIONS AND DEVELOPMENT



✉ JOIN OUR MAILING LIST
for regular news alerts: www.imperial.ac.uk/media/jointsignup

Screening failure

BBC RADIO 4 ▶ 31.7.2012



Areas with the highest tuberculosis (TB) rates in the UK are failing to implement screening programmes for high-risk groups, *Radio 4's* File

on 4 reported. There are often no visible symptoms of TB infections, so migrants from areas where TB is prevalent are supposed to have blood tests to check for the bacteria. However, Imperial research found that many primary care providers are not performing the tests. "Those areas with the highest rates are devoting all their resources to the daily burden of treating active TB disease, but what that leaves below the surface is the vast reservoir of latent TB," Professor Ajit Lalvani (NHLI) said. "It's frightening and it's part of the reason why TB has been progressively increasing for the last two decades in Britain."

Rise of the machines

DAILY MAIL ▶ 7.8.2012

These are exciting times for robotic surgery, according to Emeritus Professor Brian Davies (Mechanical Engineering), who invented the first robot to remove tissue from a living human in 1991. Today's robots are transforming treatment for joint problems, irregular heartbeats and many other conditions, and their accuracy makes it possible to carry out complex operations with minimal trauma to the patient. Speaking to the *Daily Mail* he noted that "Robots can work much more accurately than the human hand, which is fantastic now that we are seeking minimally invasive surgery through a tiny incision where precision is key."

Physicists seeking superpartners

NBC NEWS ▶ 8.8.2012

Following their detection of the elusive Higgs boson, scientists at CERN are now trawling through data produced in the Geneva research centre's Large Hadron Collider for signs of what they call 'SUSY', reported *NBC news*. Formally known as supersymmetry, SUSY is the idea that every one of the elementary particles that make up the universe and everything in it has an almost, but not quite identical, 'superpartner'. "SUSY is still a very valid option and we have just started to constrain it on the energy scale," said Dr Oliver Buchmueller (Physics). "There are many regions on the map of where it should be that we have still to explore."

Sex differences neglected

DAILY MAIL ▶ 28.8.2012



Alzheimer's disease researchers are giving insufficient attention to differences in

how the condition affects the sexes, according to scientists speaking to the *Daily Mail*. Recent research showed that the disease tended to cause more rapid deterioration in men than in women and to affect different parts of the brain between the genders. Professor Glenda Gillies (Medicine) said that there have not been enough studies addressing such discrepancies. "We need much better data about gender differences," she told the newspaper. "It's women who are losing out because of this. And because they live longer, at any one time significantly more women will have the disease than men. So we need to know a lot more about what works for them."

awards and honours



MEDICINE

Barnes becomes a Master Fellow

Professor Peter Barnes (NHLI) has been elected as a Master Fellow of the American College of Chest Physicians in recognition of his contributions to

international research and teaching in respiratory medicine. Only one award is made each year. Professor Barnes will receive his award in October 2012.

ENGINEERING

Pistikopoulos recognised

Professor Stratos Pistikopoulos has received the 2012 Computing in Chemical Engineering Award by the Computing and Systems Technology Division of the American Institute of Chemical Engineers. Professor Pistikopoulos was honoured as a world leading authority in process systems, with innovative and breakthrough technologies recognised by an ERC award and industrially applied by companies such as Shell.



MEDICINE

UNESCO Women in Science Award

Dr Katrina Lythgoe (Public Health) has received a L'Oréal UNESCO For Women in Science Award, recognising her work in applying ecological and evolutionary theory to better predict the evolutionary dynamics of infectious disease in humans and other species. The results were announced on 28 June at a ceremony at the Royal Society

and each of the winners received £15,000 to fund their research.

MEDICINE

DSc for Taylor

Graham Taylor, Reader in Communicable Diseases (Medicine) has been awarded the DSc degree of Imperial College London for his work on the human T-lymphotropic virus type 1 (HTLV-1) which belongs to the family of viruses called retroviruses. Since joining Imperial in 1992, Dr Taylor has developed a research team to provide care for patients with HTLV-1 infection and associated diseases, determine the frequency and spectrum of disease, understand the causes of disease, develop tests to monitor the infection and to study novel treatments.



Universal health coverage improves health for all

Evidence suggests that progress towards universal health coverage generally results in substantial improvements to population health, according to a new paper from researchers at Imperial published on 7 September.

The issues surrounding universal health coverage – how an adequate standard of healthcare can be provided to all people, while ensuring that use of health services does not expose people to financial hardship – have never been more controversial or politically relevant than now. Dr Rodrigo Moreno-Serra and Professor Peter Smith, from the Business School and the Centre for Health Policy, provided a comprehensive assessment of the current evidence for the effects of universal coverage on people's health in the first of a series of papers on universal health coverage published in *The Lancet*.

The researchers found that the evidence available suggests that broader health coverage leads to better access to necessary care and improved population health, particularly for the poorest people. Countries that rely on out-of-pocket payments to finance their health systems are often in a worse position to guarantee access to care and protect their citizens from the financial risks of illness, which tends to be damaging to people's health.

Dr Rodrigo Moreno-Serra, the paper's lead author, says: "Progress towards universal health coverage may be at risk in the current financial climate and, if financial pressures result in universal health coverage being neglected in some countries, this is likely to have an adverse effect on people's health and their broader welfare. For example, in Greece and Spain the global economic downturn has led to an increase in user payments for health services."

—ADAPTED FROM A NEWS RELEASE ISSUED BY THE LANCET

Drug improves vaccine response in HIV patients

The drug maraviroc could help some vaccines work more effectively in people with HIV infection, according to a study by researchers in the Department of Medicine.

HIV causes a progressive weakening of the immune system, which results in patients responding poorly to vaccinations and becoming increasingly vulnerable to infectious diseases.

Maraviroc is already used in combination with other treatments for HIV as it prevents the virus from entering white blood cells, but now a clinical trial has found that it also enhances the body's response to immunisation. The findings were published on 7 August in the journal *Molecular Medicine*.

Forty-seven patients with HIV were given either maravi-

roc or a placebo in addition to their normal combination of antiretroviral drugs in a trial at Chelsea and Westminster Hospital, sponsored by St Stephen's AIDS Trust. The patients were vaccinated against meningitis, tetanus and cholera, and the researchers measured their biological responses.

After being given an injected meningitis vaccine, the levels of antibodies in the blood rose in the maraviroc group, but did not rise significantly in the placebo group. The maraviroc group also showed an increased response to an HIV protein, unlike the placebo group.

Dr Samantha Westrop (Medicine), the study's first author, said: "People with HIV are vulnerable to infectious diseases and they don't respond as well to vaccinations, so there is interest in how to improve their immune



response. The outcomes of our trial using maraviroc were very encouraging and we think as a result clinicians may, in future, be interested in prescribing maraviroc in conjunction with certain vaccines."

—SAM WONG, COMMUNICATIONS AND DEVELOPMENT

Flu is transmitted before symptoms appear



A study from the Department of Medicine examining influenza transmission in ferrets suggest that the virus can be passed on before the appearance of symptoms. If the finding applies to humans, it means that people pass on flu to others before they know they're infected, making it very difficult to contain epidemics.

The research, published in the open access journal *PLOS ONE* on 29 August, was supported by the

Imperial National Institute for Health Research Biomedical Research Centre.

Knowing if people are infectious before they have symptoms is important to help authorities plan for an epidemic, but it has been difficult to establish this from data collected during outbreaks. Previous research using mathematical models estimated that most flu transmission occurs after the onset of symptoms, but some happens earlier.

The new study is the first to investigate this question experimentally in an animal model. Ferrets with flu were put in contact with uninfected ferrets for short periods at different stages after infection. Transmission

occurred before the first symptom, fever, appeared, both when the ferrets were in the same cage and when they were in adjacent cages.

Professor Wendy Barclay (Medicine), the study's lead author, said: "This result

"The spread of flu is very difficult to control, even with self-diagnosis and measures such as temperature screens at airports"

has important implications for pandemic planning strategies. It means that the spread of flu is very difficult to control, even with self-diagnosis and measures such as

temperature screens at airports. It also means that doctors and nurses who don't get the flu jab are putting their patients at risk because they might pass on an infection when they don't know they're infected."

—SAM WONG, COMMUNICATIONS AND DEVELOPMENT

Maser power comes out of the cold

Imperial scientists have demonstrated that they can operate a ‘maser’ at room temperature for the first time using new technology, paving the way for its widespread adoption. The research was published on 16 August in the journal *Nature*.

Maser (microwave amplification simulated emission of radiation) was invented by scientists more than 50 years ago, before laser technology was developed. Instead of creating intense beams of light, as in the case of lasers, masers deliver a concentrated beam of microwaves. However, the maser has had little technological impact because it was inconvenient to use, only functioning in high magnetic fields, a vacuum and at temperatures close to absolute zero (-273°C).

Now, the team from Imperial and the National Physical Laboratory (NPL) have developed technology that enables masers to be operated at room temperature and without the need for an external magnetic field.

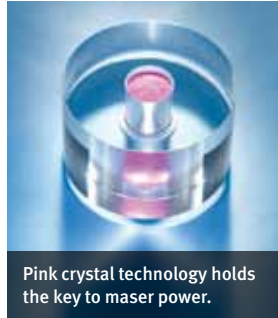
“When lasers were invented, no-one quite knew exactly how they would be used and yet, the technology has flourished”

The researchers suggest that the maser could be used in a range of applications including more sensitive medical instruments for scanning patients and improved chemical sensors for remotely detecting explosives.

Professor Neil Alford, co-author and Head of the Department of Materials, said: “When lasers were invented, no-one quite knew exactly how they would be used and yet, the technology flourished to the point where lasers have now become ubiquitous in our everyday lives.

We’ve still got a long way to go before the maser reaches that level, but our breakthrough does mean that this technology can literally come out of the cold and start becoming more useful.”

—COLIN SMITH, COMMUNICATIONS AND DEVELOPMENT



Pink crystal technology holds the key to maser power.

Study suggests benefits of TB vaccine have been underestimated

The BCG vaccine used to prevent tuberculosis (TB) has a bigger role in protecting children than previously thought, according to an international study led by investigators at Imperial and published in the *American Journal of Respiratory and Critical Care Medicine* on 15 August. BCG was understood to prevent severe illness from tuberculosis, but not to prevent infection with TB bacteria. Now data collected from five countries in Europe suggest that the vaccine is also effective at preventing infection.

The BCG vaccine is made from a weakened form of bacteria closely related to human TB. The vaccine is 70-80 per cent effective against the most severe forms of TB.

TB is the second biggest killer, after HIV/AIDS, out of all infectious diseases worldwide. It is caused by bacteria called *Mycobacterium tuberculosis* that infect the lungs, but people can be infected for years without showing any symptoms.

The new study, by a network of paediatricians from Europe called ptbnet, analysed skin test and blood test results from 1,128 children in Greece, Spain, Italy, Bulgaria and the UK to establish whether BCG prevents TB infection.

The senior author of the study, Professor Beate Kampmann (Medicine), said: “We set up a paediatric tuberculosis network in Europe in 2009 which has enabled us to compile a much bigger dataset than we’ve had before. This has given us the opportunity to answer important questions about childhood TB, such as how the blood test performs in children and what role the BCG vaccine plays in preventing infection.”

—SAM WONG, COMMUNICATIONS AND DEVELOPMENT

Black belts’ white matter shows how a powerful punch comes from the brain



Brain scans have revealed distinctive features in the brain structure of karate experts, that could be linked to their ability to punch powerfully from close range. Researchers from Imperial and

UCL found that differences in the structure of white matter – the connections between brain regions – were correlated with how black belts and novices performed in a test of punching ability.

Karate experts are able to generate extremely powerful forces with their punches, but how they do this is not fully understood. Previous studies have found that the force generated in a karate punch is not determined by muscular strength, suggesting that factors related to the control of muscle movement by the brain might be important.

The study looked for differences in brain structure between 12 karate practitioners with a black belt rank and an average of 13.8 years’ karate experience, and 12 control subjects of similar age who exercised regularly but did not have any martial arts experience.

The researchers tested how powerfully the subjects could punch. The participants also wore

infrared markers on their arms and torso to capture the speed of their movements.

“The karate black belts were able to repeatedly coordinate their punching action with a level of coordination that novices can’t produce,” said Dr Ed Roberts (Medicine), who led the study published on 14 August in the journal *Cerebral Cortex*.

“We think that ability might be related to fine tuning of neural connections in the cerebellum, allowing them to synchronise their arm and trunk movements very accurately,” he said.

—SAM WONG, COMMUNICATIONS AND DEVELOPMENT

Diamond discoveries

Simon Levey (Communications and Development) goes on a guided tour of Imperial's Membrane Protein Lab

A short train journey from Paddington station followed by a taxi ride through a sleepy village and rolling green fields brings into view a space-age aircraft hangar rising out from behind a clump of trees.

I arrive in the reception hut of what looks like a gleaming metallic fortress and a massive aerial photo on the wall shows that the building I'm in actually bears more than a passing resemblance to a Krispy Kreme doughnut nestled in the Oxfordshire landscape (pictured right).

According to my tour guide Dr Isabel de Moraes (Life Sciences), last winter's heavy snowfall even gave it a topping of thick white icing.

Set inside the futuristic doughnut is the Membrane Protein Laboratory (MPL), a multimillion pound research centre established by Imperial, the Wellcome Trust and Diamond Light Source, the UK's national synchrotron science facility and the building's primary occupant.

Diamond Light Source is the only facility of its kind in the UK, Isabel says. This spring marked 10 years since it came into existence, when the government and the Wellcome Trust signed a joint venture agreement to create Diamond Light Source Ltd. It opened its doors five years later in 2007, replacing a 28-year-old synchrotron at Daresbury in Cheshire. "You've heard of a particle accelerator?" Asks Isabel. "Well, the synchrotron is a particle accelerator for electrons." Powerful magnets guide electrons around the doughnut in a 562-metre-long circular path at speeds so fast that they complete 555,000 circuits every second. Unlike the accelerator at CERN, which smashes particles head-on at one of several giant underground detectors, scientists at the Diamond facility use accelerated electrons to create an extremely bright light, which they siphon off in a beam into one of 20 experimental laboratories around the ring, where they sit like junctions on the M25.

Scientists and engineers use these



powerful beams of light to illuminate topics as diverse as earthworm digestion, nano-electronics and super-thin solar panels. The synchrotron light beam allows them to see details that ordinary light microscopes cannot.

Diamond jubilation

Set up in 2006 by Imperial's Professor So Iwata (Life Sciences) and University of Oxford's Professor Dame Louise Johnson FRS, the MPL team have earned themselves a global reputation for their combination of knowledge and expertise. Over the years they have brought new understanding to the biological secrets behind pain, allergy and photosynthesis by helping other scientists to fully visualise the proteins at the heart of these research fields. In fact, they are so proud of their discoveries that models of three of these proteins are immortalised in fist-sized blocks of perspex on a windowsill for all to admire.

Isabel joined the team two years ago from drug discovery company Evotec in nearby Abingdon. She manages the laboratory and

its external scientific collaborators, whilst directly supervising three Imperial postgraduate students and 11 external PhD students and postdoctoral scientists.

Their well-furnished laboratory sits just across the hall from the beam called I24. It boasts an extensive range of high-tech equipment that can be used by visiting scientists and postgraduate students. There Isabel works with technician Matthew Jennions and alongside colleagues Dr Konstantinos Beis and Dr Alex Cameron (all Life Sciences).

Studying proteins is Alex's passion. "These bundles of molecules, strung out in twisted, winding chains and intricately folded in on themselves form some of the most complex biological machines in our bodies, few more than one ten billionth of a metre in size," he explains enthusiastically. "Each protein has its own superpower, the ability to grab a passing molecule or release a waste product from a cell. Almost all these superpowers are activated by a protein subtly changing its shape," he adds.

To illustrate an application of their work, Alex explains that pharmaceuticals work by

interacting in some way with proteins in our bodies, and changing how they behave. For example, antihistamines prevent specific receptors on cells from binding to the molecules that cause allergic reactions. Using new insights gained from work at the laboratory, scientists in pharmaceutical development can design new types of drugs that have fewer side effects – an important concern when it comes to drugs for chronic pain, cancer treatments and antihistamines for common allergies.

Crystal clear

An important step in understanding a protein is creating an accurate 3D model of it, Isabel explains later, which is a straightforward process for around five per cent of proteins that have potential to form new drugs. For the remaining 95 per cent of promising drug targets, the process is more complicated. These are proteins that control what enters or leaves a cell through its surrounding membrane, and are at the centre of many health problems.

To build a 3D model of any protein, scientists need to gather information about it using the beam, often lining up lots of the same type of protein to magnify the image.

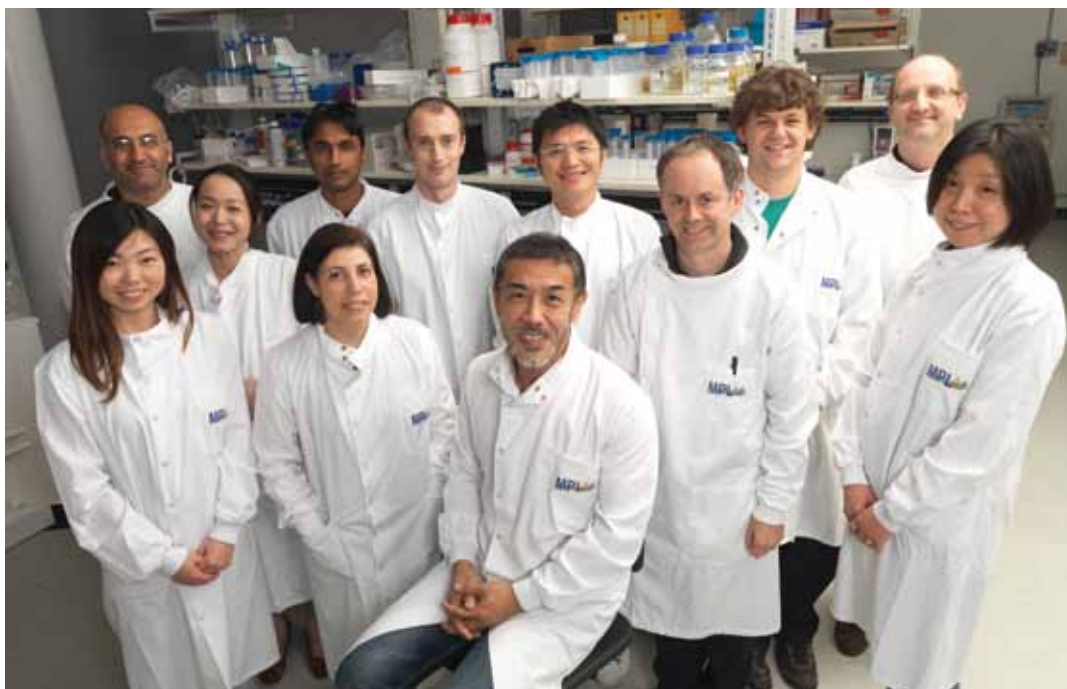
However, these more complicated membrane proteins unravel and become floppy outside the special conditions that would normally hold them together in the cell, and this makes them very difficult to prepare. Isabel explains that instead, scientists in the laboratory spend many hours painstakingly trying to arrange proteins into the perfect configuration by assembling them into a rigid and uniform pattern called a crystal. Once they have achieved this, the crystals can be stored at a set temperature in giant incubators or fridges before being carried across the hallway to be scrutinised in the beam. “This is a great benefit for the scientists at the MPL,” says Isabel, “otherwise we’d have to transport crystals to labs in Europe or across the Atlantic on a journey many of these delicate structures would not survive.”

According to So Iwata, one of the most

“Each protein has its own superpower, the ability to grab a passing atom or release a waste product from a cell”

exciting things to come out of the laboratory was first seeing a membrane protein, called Mph1, take on three different shapes: “It had long been hypothesised that proteins changed shape in order to perform their superpower, but nobody had been able to provide clear evidence of it happening. Then the beam detected the three steps by which this protein grabbed a passing molecule and spat it back out somewhere else.” This discovery was made by So in 2006, and led other scientists to realise the power of the technique.

Since 2008 the laboratory has helped to unveil the structure of 13 new proteins, but rarely is this research all plain sailing, says Isabel. “Often you need to grow the crystals under really unusual or extreme conditions. This means that sometimes you just can’t put an end date on a project. For example, it may take a long time to experiment and work out what temperature makes them grow.” In one strand of work she is looking for new targets for chemotherapy drugs with the help of scientist Dr Anastasia Mylona from Cancer Research UK, although, despite two years of



The MPL team. Back row: Yilmaz Alguel, Mutsuko Grant, Indran Mathavan, James Birch, Nienjen Hu, Matthew Jennions, James Foadi. Front row: Tian Geng, Isabel Moraes, So Iwata, Alex Cameron, Momi Iwata.

successful experiments, they have not yet had the breakthrough they are hoping to see.

“The MPL plays an important role in developing new technologies for molecular biology,” says Professor Paul Freemont (Life Sciences), who heads up several research units on the South Kensington Campus. “It performs a fantastic service for Imperial researchers and external scientists by allowing them to access the equipment, as well as the expertise at the lab.” Paul has recently taken up a position on Diamond Light Source’s scientific committee, establishing further ties between the College and the facility.

The sun is beginning to set as I say goodbye to Isabel and the team, but the outlook for the lab looks brighter than ever. Imperial has just been awarded a Wellcome Trust grant to help fund new equipment and increase the laboratory’s potential.

As the train carries me home to more familiar urban surroundings, I think back on everything I have seen over the course of the day and reflect that even though this Oxfordshire outpost isn’t based on one of our main campuses, it clearly embraces the Imperial ethos of excellence. I hope to hear about many more discoveries from the Membrane Protein Laboratory over the coming 10 years.

—SIMON LEVEY, COMMUNICATIONS AND DEVELOPMENT



People person

Imperial's new College Secretary and Registrar, John Neilson, took up his post in May after 30 years working in government, including six as Director of the Research Base in the Department for Business Innovation and Skills. John spoke to *Reporter* about how he has settled into life at the College.

How would you describe the role of College Secretary and Registrar?

My role has a number of parts. First, I am concerned with the effective governance of the College. At the same time, I have direct management responsibility for some of the underpinning areas of the College – from the research reactor to the Registry and the school outreach work. I also share responsibility for developing

Imperial's strategic direction, thinking through the challenges on the horizon over the next five to 20 years, and am involved in nurturing external relations for the College, in particular with government and funding bodies.

What do you enjoy most about your current role?

So much of what Imperial does is at the cutting edge of research and teaching. It's great being part of that, and being able to hear firsthand what people are working on. I've been fascinated by some of the research I've heard about through attending inaugural lectures. I also have a personal link to Imperial; my father was a Master's student here in the 1950s, studying aeronautical engineering.

“In the week Imperial welcomes its new students, I'll be dropping my daughter off at Oxford to study Geography”

Are you looking forward to the start of term?

Yes, it has particular resonance because in the week Imperial welcomes its new students, I'll be dropping my daughter off at Oxford to study Geography. Both my children followed in their mother's footsteps in their choice of degree. As a mathematician, I did however lure them into A Level Further Maths!

What are your interests outside work?

Apart from acting as the family taxi driver, I play golf and have a season ticket to support Harlequins. I like going to concerts, and enjoyed hearing the College choir perform in St Stephen's Gloucester Road earlier in the summer.

What personality traits are useful in your role?

I think boundless enthusiasm is helpful! I hope colleagues find I'm approachable, make myself available, and that I enjoy meeting people. So many interesting things happen in College – there's a lot to communicate, outside Imperial as well as within.

Do you wear any other hats within the College?

I'm also the Disability Champion, chairing the Disability Action Committee. We have a responsibility as a world class institution to support all our staff, and that means we're as helpful as possible to anyone with a disability. It's particularly important to be aware of mental health issues, which often fall beneath the radar because they are less visible. I was impressed by an excellent series of articles called *Unseen Imperial* in *Felix* recently, which explored some of these issues.

What are your upcoming challenges?

We need to keep focused on our strategy for the College's future – how we can develop partnerships with others and mitigate sensibly the risks we might face. Continuing the excellent efforts to enhance the student experience remains a top priority. I am particularly keen to support further collaboration across Imperial, so we remain at the forefront of multidisciplinary working in research, teaching and translation, which is already one of the greatest strengths of the College.

—JOHN-PAUL JONES, COMMUNICATIONS AND DEVELOPMENT

inside*

story

mini profile

Charles Dumoulin

Visiting Professor Charles Dumoulin, Scientific Director of the Imaging Research Centre at Cincinnati Children's Hospital, USA, who has worked with researchers at Imperial since the 1980s, is giving two guest lectures this month (see page 16 for more details). Reporter caught up with him to find out why he wants to see MR – a new type of MRI scanning – readily available for premature babies.

What is an MRI?

Magnetic resonance imaging (MRI) is an imaging technique used in medicine to diagnose disease. It employs large magnets but, unlike X-rays, it does not use ionising radiation.

What is the current problem with MRI scanners?

Premature babies in neonatal intensive care units (NICUs) are among the most fragile patients treated by doctors today. They are very sensitive to light, sound, temperature and physical disturbances. While NICU babies have many medical conditions that could be diagnosed with modern imaging techniques, in reality babies are rarely sent out of the NICU for advanced imaging exams, such as MRI, as the risk of moving them typically outweighs the medical benefits of the exam.



You have carried out a study trialling a new type of MRI scanner. Could this improve neonatal care?

The NICU MR scanner that we have developed is considerably smaller and easier to site than a conventional MR scanner. This is expected to have a substantial impact in reducing the cost of MRI for premature babies. By making MR readily available to premature babies, therapies that manage and minimise trauma can be more quickly and accurately applied.

How would you like to see this technology used in the future?

In light of the value that MR brings, it is not unreasonable to expect that, in addition to medically-indicated scanning, every NICU baby may one day be MR scanned on admission and/or discharge from the unit.

—COLIN SMITH, COMMUNICATIONS AND DEVELOPMENT

Debating sustainable energy

A panel discussion on sustainable energy policies for the so-called BRIC countries – Brazil, Russia, India and China – was held at Imperial on 16 August.

The event featured experts including Professor Paul Ekins, Director of the UCL Institute for Sustainable Resources, Minister-Councillor Rodrigo de Azeredo Santos from the Brazilian Embassy, and Mr Magued Eldaief, the Executive Director, Energy Accounts, GE Energy. Students Edo Abraham (Electrical and Electronic Engineering) and Bing Feng Ng (Aeronautics), President and Publications Officer of the Imperial College Energy Society, who helped to organise the event in collaboration with the Imperial College Brazil Forum, report:

“With the big emerging economies like Brazil, Russia, India and China driving the global agenda on sustainable energy, there is a question over whether these new economies should model their development and policies around the path taken by developed western nations. The consensus of the panel was that they should not. Professor Ekins explained the

imperative for separating material consumption growth from financial growth.

He showed two projected GDP growth scenarios for the next 20 years – one for an economic policy with stringent climate change mitigation and one without. A policy for climate change mitigation is one that tries to decrease the causes and effects of climate change (or global warming); one example of this is the European and UK 2020 (and 2050) targets to decrease emissions.

Professor Ekins estimated that mitigation would cost the economy only one year's growth by 2030. His conclusion was that it is the lack of political will, not economic cost or lack of technology that is the main constraining factor for environmentally sustainable economic growth.

Mr Eldaief discussed the best and worst policy scenarios for investment in sustainable energy development in the BRIC nations. He also highlighted the policy risks and opportunities faced by energy companies like GE in doing business in these countries.”

Hear an audio recording of the event and see the presentation slides at: www.ic-energy.org



Exploring Slovenia's longest cave

During a summer caving expedition under the mountain of Tolminski Migovec, Imperial students and postdocs discovered the longest cave in Slovenia, pictured above.

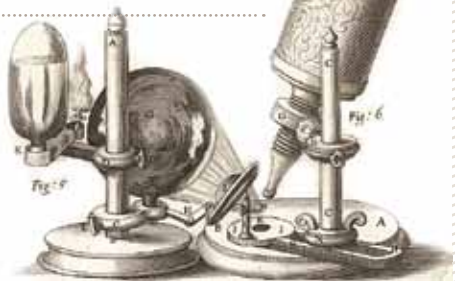
Read the full story here: <http://bit.ly/newcaves>

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

Student blogger Bernadeta on illustrating science:

“If there’s one thing that I would like to see more of in science education it’s teaching of scientific illustration. Today’s science illustration is based on computer animation and Photoshop-edited images – which is not bad – science in all its forms has to keep up with all technological advancements, especially because it helps to promote it. However, I cannot help feeling jealous of scientists from previous decades or ages who, at the same time as being scholars, were also real artists. If you have ever seen illustrations in Robert Hooke’s ‘Micrographia’, well ... even mind-blowing doesn’t describe it!”

www.imperial.ac.uk/campus_life/studentblogs



blog
SPOT

Adrenalin-fuelled creativity

Dr Duncan Casey is a postdoc working on the Proxomics project in the Department of Chemistry, developing the tools needed to probe cells at a microscopic level, in order to identify the changes that they undergo during ageing and in diseases like cancer. He reports on a creativity workshop he attended in June.

“The course was held at Cumberland Lodge – a fantastic old venue in the shadow of Windsor Castle – and funded through a grant awarded to Dr Laura Barter (Chemistry) by the Postdoc Development Centre and the Institute of Chemical Biology at Imperial. It developed from the ‘sandpit’ events that the Engineering and Physical Sciences Research Council (EPSRC) has



Participants of the creativity workshop that Duncan attended.

established, in which you’re thrown into a five-day, £10 million competition with around 30 total strangers to put together a proposal to work on a strategic, multidisciplinary target. It’s certainly an intense, high-adrenaline way to plan your next project.

The best, but also the hardest, thing about the idea is that you’re working with people with wildly different skill-sets and experience. I helped develop a synthetic biology proposal with a plastic electronics designer and an economist, amongst others. Fortunately, the event came equipped with a group of facilitators and trainers from EPSRC and the Biotechnology and Biological Sciences Research Council, and talks included one from an ex-editor at Nature, who spent a day helping cram some showmanship and theatricality into dry scientific presentations. It was great to hear that EPSRC would like postdocs to start appearing at the full sandpit events, and I’m very keen to get stuck into one.”

Demonstrating excellence



Getting to know the research excellence framework (REF)

With departments preparing to demonstrate the quality of their research through the new Research Excellence Framework, *Reporter* caught up with Director of Strategic Planning, Michelle Coupland, to find out more about the new system and what it means to the College.

What is REF?

REF is the exercise that is used to assess the quality of research in UK universities – it is used by the Higher Education Funding Council for England (HEFCE) to determine the research funding we get from them.

How does it differ from the Research Assessment Exercise (RAE)?

The main difference between REF and RAE is that there is a new requirement to demonstrate and measure the impact of research.

Why is REF important for Imperial?

Aside from the funding impact, we have always done well in previous research assessment processes so it is vital for our reputation. The results of REF will affect whether people want to work or study at the College.

What is the code of practice for REF?

All higher education institutions making submissions to REF are required to have a code of practice which governs the processes to determine which staff will be included in the REF. The code contains information about how, and by whom, the decisions will be made, how the College will communicate those decisions and how submission patterns will be monitored.

What are the key milestones for REF?

Academic staff must be in post on 31 October 2013 in order to be considered for inclusion in the REF submission. We will return our submission to HEFCE on 29 November 2013. During 2014 the assessment panels will meet and we’ll hear the results in December 2014.

For more information see: www3.imperial.ac.uk/ref



INVENTOR'S CORNER

Brain power

Dr Aldo Faisal is a lecturer in neurotechnology, jointly based in the Departments of Bioengineering and Computing. Neurotechnology fuses together the principles of neuroscience and engineering and the Faisal lab was set up two and a half years ago to understand the brain in terms of its engineering design principles and apply this knowledge to technology. As a result, researchers have developed an eye movement tracker that enables patients who are movement impaired to operate an ordinary computer.

How did you come across this idea?

The brain can move the body as long as it is operational. But when the links break down due to injury, old age or illnesses such as Parkinson's, MS or stroke, we need another way to harness the brain's power to interact with the world – for example, by controlling computers or wheelchairs. Curiously, eye movements are not affected by these types of motor disorders and readily convey a person's interaction intentions by how they observe an object or the environment, so we looked at using them to interact and control things.

“To interact with a computer we simply make the mouse cursor follow your eyes on the screen and a wink enables the click of the mouse”

How does this work?

We have two small cameras mounted into framed spectacles, which allows us to observe where your eyes are looking. If you're looking at a computer screen and want to interact with the computer, we simply make the mouse cursor follow your eyes on the screen and a wink enables the click of the mouse. In a test, we asked subjects to play fast-paced arcade video games

and, excitingly, we saw that people who used this system for the first time for just 10 minutes could reach the performance level of able-bodied players within a 15 per cent range.

How does this differ from what is currently on the market?

Measuring eye movements is not a new concept but systems typically cost tens of thousands of pounds. We

have reverse-engineered video game hardware, aiming to maximise the performance of cheap cameras by using smart software, allowing us to make systems costing less than £40. A recent study by the NHS showed that over five million people in the UK alone would benefit from our eye tracking hardware and software, so there is clear low-cost, high-volume commercial potential.

—KAILEY NOLAN, IMPERIAL INNOVATIONS



A pleasure and a privilege

Professor Anthony Kinloch is retiring in October as Head of the Department of Mechanical Engineering – a post he has held for the past five years. *Reporter* caught up with Professor Kinloch to hear about his career highlights and his plans for the future.

The good news is that you are not leaving Imperial entirely. What is your new role?

I am donning a lab coat once again to take on the part-time role of Senior Research Investigator. I aim to further my research, developing tougher plastics used in adhesives and to bind composite materials together.

What does your wife think about your retirement?

She says that she does not want me at home for more than one day a week. For the other four days, I am allowed to do research only – no more admin.

What is your first memory of Imperial?

I joined Imperial from the Department of Defence in 1984 as a Reader under a government initiative to recruit new academic blood to universities. I remember being told at the interview by the then Head of Department (HoD) that while I might aspire to become a professor, I could never be the HoD because I was not a mechanical engineer – I am a materials scientist by training. I replied by asking him to please put his comments in writing, as a guarantee for the future.

How has the College changed over the years?

The addition of the Faculty of Medicine to the College has been a really important change, which has enabled medical engineering research in our Department to flourish. It has meant that our engineers can take part in clinical trials with their medical colleagues and see their work taken from the lab bench to the bedside to improve patient care.

What has been your favourite thing about your time at Imperial?

It sounds really clichéd, but being able to teach and undertake research at Imperial has been a real pleasure and a privilege.

—COLIN SMITH, COMMUNICATIONS AND DEVELOPMENT

**WELCOME
WEEK**

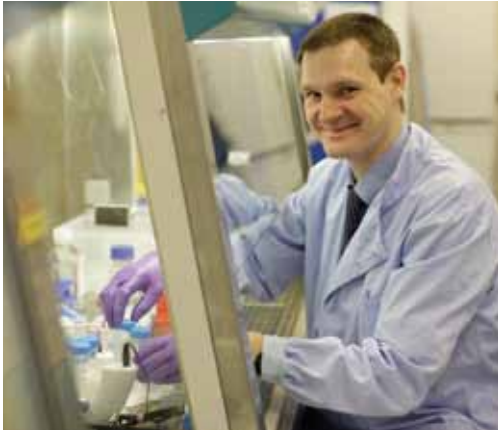
Volunteers wanted!

Are you available for a half day on:
Saturday 29 Sept–Sunday 30 Sept
or Monday 1 October?

Enjoy the buzz on campus as term begins by joining the team of volunteers to give new students a warm welcome. If you can spare a few hours please contact:
e.fielding@imperial.ac.uk

More about Welcome Week 2012: <http://bit.ly/aboutwelcomeweek>

obituaries



DR JOSEPH FOOTITT

Dr Joseph Footitt, Walport Clinical Lecturer in the Airway Disease Infection Section, (NHLI), died in an accident on 13 June 2012, aged 37.

Joseph trained at Guy's and St Thomas' medical school in London and joined Imperial in 2007 and started a period of research, registering for a PhD under the supervision of Professor Sebastian Johnston, Professor Ian Adcock and Dr Patrick Mallia (all NHLI). He undertook a clinical study on inflammation in chronic obstructive pulmonary disease (COPD) aiming to make discoveries about the mechanisms that cause acute attacks of the disease which could lead to new approaches to prevention and treatment. In 2011 Joseph returned to his clinical training within the NHS before joining the NHLI as a Walport Clinical Lecturer following the award of his PhD in February 2012.

Sebastian Johnston, Professor of Respiratory Medicine and Allergy, said: "I worked with Joseph over the last five years, and was looking forward to working closely with him into the future. He was an extraordinary man in the true meaning of the word – energetic, extremely talented and universally liked with a great sense of humour. His loss is devastating to many, both personally and professionally. My thoughts are with his wife, his parents and all those friends who were lucky enough to enjoy his wonderful company. We will miss him enormously."

"Joseph was an extraordinary man in the true meaning of the word – energetic, extremely talented and universally liked"



PROFESSOR DAVID BINNIE

David Binnie, Emeritus Professor of Physics, who died on

31 May 2012, was Deputy Head of the Department of Physics from October 1992 for three years. Emeritus Professor William G. Jones (Physics) pays tribute to his colleague:

"David first joined Imperial in 1961. He helped to pioneer new types of detectors of fundamental particles in experiments carried out at what was then the new CERN laboratory in Geneva using its first accelerator, the synchrocyclotron, which was tiny compared with today's Large Hadron Collider at CERN. Later he became head of the 'Counter Group' in the High Energy Nuclear Physics Group and developed a new technique for studying fundamental particles. The approach involved detecting neutrons and measuring their velocity using accurate timing devices, thereby computing the mass of the particles produced. David and his team went on to develop high resolution cylindrical multiwire drift chambers which were used on the LEP electron-positron collider in CERN. David was an inspiring teacher and developed the 'Quantum Lab' which enabled students to confront some deeply puzzling aspects of quantum mechanics through making their own observations and measurements. Following his retirement in 1996 David joined a medical physics group at the Royal Marsden Hospital and his contributions to solving physics problems in diagnostic imaging resulted in better treatment for cancer patients. David continued his association with the College as a Senior Research Investigator and, latterly, as a Distinguished Research Fellow. He will be sorely missed by his many colleagues and ex-students at Imperial."



CORRECTIONS AND CLARIFICATIONS

Reporter would like to apologise to Emeritus Professor Bob Spence (Electrical and Electronic Engineering) who we inaccurately reported as serving 30 years at the College in issue 249, published on 20 July. Bob has in fact been a staff member for an impressive 50 years starting as a lecturer in 1962. Above, Bob is pictured at the wheel on his way to the Royal Academy of Engineering's New Fellows Dinner in 1993.

long service

Staff featured in this column have given many years of service to the College. Staff listed below celebrate anniversaries during the period 1 August–1 September. The data is supplied by HR and is correct at the time of going to press.

20 years

- Dr Graham Taylor, Reader in Communicable Diseases, Medicine
- Mr John Anderson, Chief Executive Officer of the College Fund, Finance
- Professor Andrew George, Professor of Molecular Immunology, Medicine
- Professor Jonathan Halliwell, Professor of Theoretical Physics, Physics
- Mrs Sandra Scott, Research Nurse, NHLI
- Dr Simon Leather, Reader in Applied Ecology, Life Sciences
- Professor Gad Frankel, Professor of Molecular Pathogenesis, Life Sciences

30 years

- Mr Stefan Algar, Laboratory and Concrete Operations Manager, Civil and Environmental Engineering
- Dr Alan Swann, Director of Occupational Health, Occupational Health Service
- Emeritus Professor Mino Green, Senior Research Investigator, EEE

40 years

- Professor John Laycock, Professor of Endocrine Physiology, Medicine

Welcome new starters

Mr Edo Abraham, EEE
 Mr Christian Adams, International Office
 Dr Helal Ahmed, Graduate School
 Dr Katja Ahoniemi, Business School
 Mrs Victoria Allen, Humanities
 Mr Diego Alvarez Feito, Mechanical Engineering
 Dr Anita Alvarez Laviada, NHLI
 Miss Nadine Amersi, Mathematics
 Mr Luca Anneschino, Bioengineering
 Dr Elihu Aranday Cortes, NHLI
 Mr Tim Arbazadah, Imperial College Union
 Dr Hena Arif, Medicine
 Miss Aparna Ashok, ESE
 Dr Elham Ashoori, Mathematics
 Dr Christina Atchison, Public Health
 Ms Rebecca Atkinson, Medicine
 Dr Beeta Balali-Mood, Chemistry
 Mrs Tammy Barrett, Medicine
 Ms Nicola Bartlett, Accommodation
 Mr Paul Beaumont, Imperial College Union
 Ms Martina Bertini, ESE
 Dr Neha Bhatnagar, Medicine
 Ms Jennifer Biggs, Clinical Sciences
 Dr Mark Bolstridge, NHLI
 Professor Anne Bowcock, NHLI
 Dr Joseph Boyle, NHLI
 Professor Damiano Brigo, Mathematics
 Dr Matthew Brown, Bioengineering
 Dr Samantha Bryan, Life Sciences
 Dr Peter Budd, Business School
 Mr Oliver Bujanowski-Duffy, ESE
 Mr Lukasz Bukowski, Life Sciences
 Mr Matthew Carney, Accommodation
 Ms Meg Cassamally, Humanities
 Professor Richard Challis, Mechanical Engineering
 Dr Deepthi Chana, Security Science and Technology
 Miss Kiara Chang, Public Health
 Mr Yao Chen, EEE
 Mr Faerique Choudhery, Faculty of Engineering
 Mr Enrico Cocchi, Business School
 Ms Melissa Collins, NHLI
 Ms Sara Contu, Life Sciences
 Mr Lee Coppard, ICT
 Ms Serena Coultrass, Computing
 Dr Steven Cowman, NHLI
 Ms Emma Critchley, Grantham Institute
 Dr Rosenildo da Costa, Chemistry
 Mr Peter Damerell, Life Sciences
 Dr Christopher Dancel, Physics
 Mr Brian Daughton, Humanities
 Dr Timothy Dawes, Medicine
 Mr Charles Dean, Chemical Engineering
 Miss Tamara Diamond, Clinical Sciences
 Dr Zsolt Diveki, Physics
 Dr Sourabh Diwan, Aeronautics
 Miss Lara Dooley, Accommodation
 Mr Thomas Dray, ESE
 Dr Audrey du Cauze de Nazelle, Environmental Policy

Professor Fionn Dunne, Materials
 Mr Ihekumwure Duru, Accommodation
 Miss Catherine Eames, International Office
 Miss Victoria Edwards, Medicine
 Mr Dirk Ekelschot, Aeronautics
 Mr Stefanos Eleftheriadis, Computing
 Mr Gray Elkington, Public Health
 Dr Christoph Engl, Life Sciences
 Mrs Josephine Evans, NHLI
 Dr Davide Fabozzi, Chemical Engineering
 Dr Olivia Fandino Torres, Chemical Engineering
 Ms Maria Farkas, Business School
 Ms Nasheed Faruqi, Library
 Mr Riccardo Feasey, Central Secretariat
 Miss Sarah Feehan, Accommodation
 Dr Remy Flechais, Medicine
 Dr Jake Foster, Surgery and Cancer
 Ms Paula Fyans, Public Health
 Mr Benjamin Ganesh, Accommodation
 Dr Alejandra Garcia Cattaneo, NHLI
 Dr Kevin Garwood, Public Health
 Dr Chiara Gattinoni, Mechanical Engineering
 Miss Rebecca Glover, Faculty of Medicine
 Dr Alexey Glukhov, NHLI
 Mr Rishi Goburdhun, Bioengineering
 Dr Carolyn Goh, Bioengineering
 Miss Nicolle Grace, Surgery and Cancer
 Mr Davide Grandolfo, NHLI
 Dr Lisa Grover, Research Office
 Dr Sabine Guenther, Surgery and Cancer
 Mr Matthew Haddrill, Humanities
 Dr Lisa Haigh, Chemistry
 Mr Amir Hakim, NHLI
 Mr John Hall, Accommodation
 Dr Jie Hao, Surgery and Cancer
 Dr Rui Hao, Materials
 Mr Simon Harding-Roots, Colledge Headquarters
 Dr Sally Hargreaves, Medicine
 Dr Katharine Harman, NHLI
 Dr Sondus Hassounah, Public Health
 Dr Edwin Hawkins, Life Sciences
 Miss Faye Hemsley, Accommodation
 Dr Carmelo Herdes Moreno, Chemical Engineering
 Mr Pierre Herman, Humanities
 Miss Heli Hietala, Physics
 Dr Samantha Hill, Life Sciences
 Miss Allison Hills, Surgery and Cancer
 Dr Yonek Hleba, Life Sciences
 Mr Kevin Hochstenbach, Medicine
 Mr Lawrence Hudson, Life Sciences
 Sir Tom Hughes-Hallett, Global Health Innovation
 Mr Doug Hunt, Imperial College Union
 Professor Rustam Ibragimov, Business School
 Dr Henry Jacobs, Mathematics
 Miss Sarah James, EYEC
 Dr Christopher Johnson, Chemistry
 Miss Courtney Johnson, Accommodation
 Dr Maximilian Johnston, Surgery and Cancer

Dr Andras Juhasz, Mathematics
 Dr Petri Jylha, Business School
 Mr Mendel Kaelen, Medicine
 Dr Manuja Kaluarachchi, Surgery and Cancer
 Dr Santanu Karan, Chemical Engineering
 Dr Kalesh Karunakaran Nair Anandamma, Chemistry
 Mrs Ramandeep Kaur, NHLI
 Miss Anna Kazarian, NHLI
 Mr Andrew Keegan, Business School
 Miss Joanna Kefas, Accommodation
 Professor Dermot Kelleher, Faculty of Medicine
 Dr Mark Kennedy, Business School
 Mr Angus King, Life Sciences
 Mrs Jayne King, Faculty of Medicine
 Mr Kostas Konstantinidis, ICT
 Miss Manisha Kumar, Accommodation
 Mr Kevin Ladhams, Physics
 Miss Sadie Lamb-Bentley, NHLI
 Miss Rebecca Lane, Imperial College Union
 Mr Mohamed Latheef, Civil and Environmental Engineering
 Miss Roslyn Lavery, Mathematics
 Dr Sebastien Leurent, Physics
 Dr Chong Lim, Medicine
 Mr Craig Lindo, Accommodation
 Mr Martin Lisboa, Business School
 Dr Cong Liu, Chemical Engineering
 Mr James Lockley, Library
 Professor Michael Lovett, NHLI
 Dr Natalie MacDermott, Medicine
 Mr Thirukumar Maheswaran, Accommodation
 Dr Susannah Maidment, ESE
 Mrs Yasmina Mallam Hassam, Careers
 Dr Noel Malod-Dognin, Computing
 Dr Cristina Manolache, Mathematics
 Miss Severine Marechal, Civil and Environmental Engineering
 Miss Sonia Marquardt, Public Health
 Mrs Shonali Mathur, Medicine
 Dr Lorenzo Matteini, Physics
 Mr Kyle Matthews, Accommodation
 Mr James Mc Govern, Public Health
 Mr Christopher McCully, Accommodation
 Dr Grainne McDermott, Surgery and Cancer
 Mr Ian McGilloway, ICT
 Miss Aimee Mckeon, Accommodation
 Mr Glen McKeon, Accommodation
 Mr Ali Mehmanparast, Mechanical Engineering
 Mr Matthew Merker, Accommodation
 Miss Carina Mill, Bioengineering
 Miss Naomi Miller, Physics
 Miss Florencia Minuzzi, Medicine
 Mr Badr Missooui, Mathematics
 Miss Heena Mistry, Business School
 Dr Brian Mitchell, Humanities
 Ms Aikaterini Mitsaki, Humanities
 Mr John Moola, Commercial Services
 Mr Andre Moretti Raimundo, Sport and Leisure
 Mr Samuel Morris, Communications and Development

Dr Cecily Morrison, Public Health
 Ms Sian Morriss, Medicine
 Miss Elisa Mountain, Public Health
 Dr David Mozley, Research Office
 Dr Catherine Mulligan, Business School
 Miss Katie Murray, Life Sciences
 Mr Symeon Nikitidis, Computing
 Ms Kerry Noble, Communications and Development
 Miss Alison Nolan, Life Sciences
 Mr Stefan Nubert, Imperial College Union
 Miss Esther Ogundeji, Accommodation
 Ms Leyla Okhai, Equalities Unit
 Miss Bhee Olaganathan, Business School
 Ms Suat Ooi, Medicine
 Mr Michael O'Shea, EEE
 Miss Ireti Oyejola, Human Resources
 Mr Ioannis Panagakis, Computing
 Mr Jehan Pasangha, Accommodation
 Dr Emma Passmore, ESE
 Miss Deepviya Patel, Medicine
 Mr Rakesh Patel, Bioengineering
 Dr Johann Peltier, Life Sciences
 Ms Fiona Persaud, NHLI
 Dr Ajay Perumal, Physics
 Dr Jasmine Pham, Life Sciences
 Mr Karl Phillips, Accommodation
 Dr Emmanuelle Porcher, Life Sciences
 Dr Eryl Price-Davies, Professional Development
 Mr Thomas Prince, Mathematics
 Dr Daniela Proppentner, Materials
 Dr Georgios Raikos, EEE
 Dr Deepa Rajagopal, Medicine
 Dr Sasha Rakovich, Physics
 Dr Masooma Rasheed, Life Sciences
 Mr Bandula Ratnasekara, Physics
 Dr Bonnie Razzaghi, Medicine
 Miss Sophie Rehman, Life Sciences
 Dr Juan Ribes Fernandez, Medicine
 Mr James Richards, Surgery and Cancer
 Mr Steven Riddiough, Business School
 Miss Rebecca Robey, Medicine
 Dr Neesha Rockwood, Medicine
 Dr Claren Ross, NHLI
 Mr Reuben Rowe, Computing
 Mr Thomas Rylett, Faculty of Medicine
 Miss Farhana Saloo, Mathematics
 Dr Sheila Samsatli, Chemical Engineering
 Mr Sergio Santos, Graduate Schools
 Ms Anida Sarajlic, Computing
 Dr Gregory Scott, Medicine
 Miss Farah Seedat, Medicine
 Dr Alexandra Sevko, Medicine
 Mr Sachin Shah, Medicine
 Mr Xia Sheng, Life Sciences
 Mrs Nataliya Shiraz, Business School
 Dr Thomas Siegel, Physics
 Dr Donald Simmie, Computing
 Miss Fiona Singh, Faculty of Engineering
 Dr Rudy Sinharay, NHLI
 Dr Dinesh Sivakumar, NHLI
 Miss Emily Skiggs, Humanities

Mrs Rebecca Sleap-Ireland, Communications and Development
 Miss Joanna Smees, NHLI
 Miss Emma Spearing, NHLI
 Ms Christina Spencer, Public Health
 Dr William Spinner, EEE
 Mr Worrawat Srirakul, Business School
 Dr Elizabeth Starren, NHLI
 Dr Jean-Philippe St-Pierre, Materials
 Dr Jessica Strid, Medicine
 Dr Dilveer Sualy, NHLI
 Mrs Christine Swift, Medicine
 Dr Daniel Sykes, Computing
 Mr Adam Szczepanski, NHLI
 Dr David Taborda, Civil and Environmental Engineering
 Mr Steve Tauroza, Humanities
 Mrs Mafalda Teresa Novo, EYEC
 Mr Jamie Thomas, Accommodation
 Mr Timo Tiirikka, Life Sciences
 Dr Richard Till, NHLI
 Dr Pawel Tokarczuk, Clinical Sciences
 Ms Zoe Townsend, Chemical Engineering
 Dr Anna Trenaman, Life Sciences
 Miss Clare Turner, International Office
 Dr Joris Vankerschaver, Mathematics
 Dr Eirini Velliou, Chemical Engineering
 Mr Shiv Vohra, Imperial College Union
 Dr Rakesh Vora, Medicine
 Dr Apostolos Voulgarakis, Physics
 Dr Sann Wai, Medicine
 Mr James Walker, NHLI
 Dr Yiqun Wang, Medicine
 Mr Li-Pen Wang, Civil and Environmental Engineering
 Miss Vivienne Watson, Careers
 Ms Hilary Watt, Public Health
 Dr Claire Westwood, Public Health
 Mr Barry Whiteside, Physics
 Mr Henry Whittaker, Imperial College Union
 Ms Maria Woringer, Public Health
 Miss Elisa Zanini, Surgery and Cancer
 Dr Yingsong Zhang, EEE
 Dr Yunbo Zhao, Chemical Engineering
 Mr Frank Zhao, Life Sciences
 Miss Ann Zielonka, EYEC

This data is supplied by HR and covers staff moving in from 25 June–2 September 2012. See the online supplement at <http://bit.ly/Reporterpdfs> for staff moving on and retirements

✉ Please send your images and/or comments about new starters, leavers and retirees to the Editor at reporter@imperial.ac.uk

The Editor reserves the right to edit or amend these as necessary.

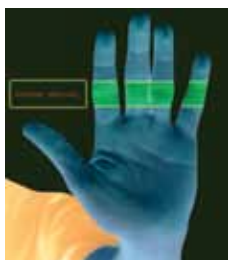


10 OCTOBER ▶ PUBLIC LECTURE

Brain sex differences: the new equality

Evidence shows fundamental differences in the brains of men and women, primarily due to the different hormonal and genetic environments in which fetuses develop. These structural and

functional differences are thought to underpin the different characteristics between the genders in brain disorders such as Parkinson's and depression. In her inaugural lecture, Professor Glenda Gillies (Medicine) explains why this understanding is needed in order to develop optimal therapeutic strategies for both sexes.



17 OCTOBER ▶ PUBLIC LECTURE

Defining the legal and ethical boundaries of the cyber frontier

Developing effective, strong strategies for dealing with the cyber threat will require societies to answer key legal and ethical questions, such as: when is a cyber attack a genuine act of war, what

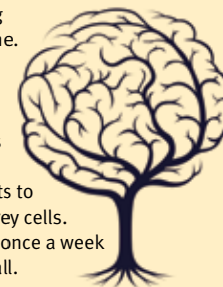
is the line between the development of offensive versus defensive cyber capabilities, and how can law enforcement most effectively combat cyber crime and cyber terrorism while maintaining civil liberties and privacy? Ex-Secretary of the US Department of Homeland Security, the Hon. Michael Chertoff, discusses these issues at the 2012 Vincent Briscoe Annual Security Lecture.

take note

Thirst for knowledge?

Get back into the classroom this autumn and give your brain a workout with the College's evening course programme.

From Mandarin to Opera and Creative Writing to French, there's something for anyone who wants to limber up their grey cells. Courses are held once a week and are open to all.



www.imperial.ac.uk/humanities/evening

25 SEPTEMBER ▶ SEMINAR

Neonatal MRI – a new approach

Professor Charles Dumoulin, Cincinnati Children's Hospital, USA

26 SEPTEMBER ▶ SEMINAR

MR guided vascular interventions

Professor Charles Dumoulin, Cincinnati Children's Hospital, USA

26 SEPTEMBER ▶ MUSIC

Evening concert

Mozart's *Kegelstatt Trio* and other works

27 SEPTEMBER ▶ PUBLIC LECTURE

Open access: going for gold?

Panellists from Research Councils UK and *Nature News*

28 SEPTEMBER ▶ PUBLIC EVENT

Science Uncovered

Imperial researchers at the Natural History Museum evening event

2 OCTOBER ▶ PUBLIC LECTURE

Food and sex: intimately related, hormonally controlled

Professor Waljit Dhillon (Medicine)

4 OCTOBER ▶ PUBLIC LECTURE

Curing cancer – overcoming problems on the line

Professor Justin Stebbing (Surgery and Cancer)

10 OCTOBER ▶ PUBLIC LECTURE

Tracking program footprints: guaranteeing what computers do

Professor Philippa Gardner (Computing)

19 OCTOBER ▶ PUBLIC LECTURE

Imperial business insights

Dinesh Dhamija, former CEO of Ebookers.com

22 OCTOBER ▶ PUBLIC LECTURE

The changing shape of UK energy supply

Charles Hendry, Minister of State, Department of Energy and Climate Change

MEET THE READER



Leyla Okhai, Staff Disability Adviser (Equalities Unit)

What are you doing in the picture?

I'm about to go to the Paralympics women's wheelchair basketball quarter finals. I'm particularly interested in the Games as I support disabled staff at Imperial. The Paralympics are said to be sold out for the first time, so I was thrilled to get tickets.

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

I would focus the issue on what disability encompasses, how disabled staff bring both skills and expertise to a job, as well as fresh perspectives due to their own personal journey and the way they see the world. For example, staff with mental health problems often have huge powers of empathy making them willing to go the extra mile in their jobs.

Who would be your cover star?

I'd feature alumna Alexandra Rickham (Environmental Policy 2006), a tetraplegic who just won bronze for sailing in the 2012 Paralympics – she is a great role model.

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



PARTY IN THE PARK

Students cool down with a 'soak the scientist' game, pictured left, at this year's uncommonly sunny Silfest on 21 July, which attracted over 300 revellers at Silwood Park Campus. With face painting, jousting and dancing to DJ sets til 03.00, the event had something for everyone.

See <http://bit.ly/silfest> for the full story and a slideshow

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