

On the path to
reducing Imperial's
carbon footprint

••• CENTRE PAGES

step
by step



STUDENT SURVEY

Spotlight
on tutoring
and Master's
provision

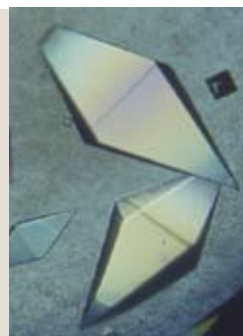
PAGE 3



SUSAN EISENBACH

How less
assessment
could help
students

PAGE 10



**INVENTOR'S
CORNER**

How crystals
can advance
drug design

PAGE 13



EDITOR'S CORNER

Compost confessions

Compost is a subject close to my heart. In my previous job, writing for the environmental trade website *letsrecycle.com*, I travelled up and down the UK interviewing composters about their different technologies and speaking to Local Authorities about the work they do to **encourage the public to recycle** food waste. Throwing waste food into landfill produces a staggering 15 million tonnes of carbon dioxide every year, making recycling food scraps a key objective for all organisations looking to reduce their **carbon footprint**. This month, I was thrilled to discover that Imperial has begun composting food waste, using a processing technology developed by academics in the Department of Civil and Environmental Engineering. Imperial is the first university to take this approach to **on-site composting**, with the whole operation taking place in an innocuous portacabin on the South Kensington Campus. Look out for issue 219, published on 20 May, to read the full story about the College's food waste recycling.

EMILY ROSS, EDITOR

Reporter is published every three weeks during term time in print and online at www.imperial.ac.uk/reporter. The next publication day is 20 May. Contact Emily Ross: reporter@imperial.ac.uk +44 (0)20 7594 6715

Imperial and MD Anderson in sister act

The sister institution relationship between Imperial and the University of Texas MD Anderson Cancer Center has been renewed and expanded, following the signing of a new agreement before Easter.

The relationship sees the two institutions cooperating in oncology training, treatment and research, with a particular focus on translational research. Under the expanded agreement, future areas of collaboration include medical robotics, surgical oncol-

ogy and imaging and new drug discovery. Professor Stephen Smith, Principal of Imperial's Faculty of Medicine and Chief Executive of Imperial College

Healthcare NHS Trust, said:

"MD Anderson is one of the great world centres for understanding cancer in depth and turning that knowledge into improved treatments, so I'm very pleased indeed that our relationship is going from strength to strength.

"As the UK's first Academic Health Science Centre, Imperial and its associated Trust are leading the way on this side of the Atlantic in integrating the structures that support research, teaching and healthcare

"MD Anderson is one of the great world centres for understanding cancer in depth and turning that knowledge into improved treatments"



From left: Dr John Mendelsohn, President of MD Anderson Cancer Center and Professor Stephen Smith.

and getting new breakthroughs out to patients as quickly as possible. Collaborating with MD Anderson to focus on a disease that affects so many people will greatly enhance our ability to do that."

—ABIGAIL SMITH, COMMUNICATIONS

New lab space for researchers to tackle metabolic diseases



Scientists developing an artificial pancreas for people with type 1 diabetes received a boost to their research

with a new laboratory at Imperial, opened on 25 March.

The Metabolic Technology Lab was officially opened by Justin Webb, from the *Today* programme on BBC Radio 4. The lab is part of the Winston Wong Centre for Bioinspired Technology in the Institute of Biomedical Engineering and is located in the Bessemer Building on the South Kensington Campus.

Scientists working in the lab are developing technology to help people with a range of metabolic diseases, which affect the body's chemical processes that are critical in providing different cell types with the energy they need to function.

The opening of the lab also represents a significant step forward in the development of an artificial pancreas, giving researchers a

dedicated space in which to carry out their work. The team is developing a microchip device that takes glucose readings from a monitor and continuously infuses insulin into the body, so that people with type 1 diabetes can do away with regular insulin injections.

Other technologies that will be developed in the lab include new sensors for measuring body chemistry, intelligent microchips to control metabolism and novel approaches for the management and monitoring of chronic disease.

—COLIN SMITH, COMMUNICATIONS

To hear Dr Pantelis Georgiou and Dr Nick Oliver (Biomedical Engineering) talk about the artificial pancreas and how it will revolutionise patient care in the UK, visit: www.imperial.ac.uk/news/diabetes

Imperial College
London

breathe easy

New smoke-free spaces have been introduced on the South Kensington Campus. Smoking is no longer permitted in the paved areas outside the Queen's Tower Rooms and the Central Library.

Smoking is not permitted inside any College building, nor in the immediate vicinity of building entrances.



For a map of the South Kensington Campus showing all smoke-free outdoor spaces, visit: www.imperial.ac.uk/hr/procedures/health/smoking

Stamp down our carbon footprint

Staff and students have been called upon to identify examples of wasteful energy use across the campuses, in a bid to help Imperial cut its carbon emissions by 20 per cent by 2014.

The StepChange campaign, officially launched this week, aims to engage the whole community in tackling the 20 per cent target. In the campaign's first phase, Amazon vouchers are also being offered for the best ideas for reducing the College's carbon footprint.

In 2008–09, the baseline year for the campaign, the College emitted 84,026 tonnes of carbon dioxide. Almost 99 per cent of emissions were the result of energy consumption, with the remainder due to water consumption and sending waste to landfill.

According to the Carbon Management Plan, developed by Facilities Management and endorsed by the Carbon Trust, staff and students taking action could reduce the College's energy consumption by up to 10 per cent. The remainder of the cuts will be achieved through central projects, ranging from steps to avoid over-cooling or over-heating buildings to purchasing more energy efficient computers. A key



Sir Keith sporting a StepChange T-shirt.

tool supporting the plan is the web-based Carbon Desktop, which shows the energy usage of all College buildings on a day by day basis.

Rector Sir Keith O'Nions said, "Imperial's research into climate change and clean energy sources seeks solutions to global problems. But a commitment to tackling these issues starts at home. We need to cut our own carbon footprint, with every member of staff and student playing their part. If we all take small steps, such as turning off our computer screens or doing more to recycle, we'll achieve our goal."

—CAROLINE DAVIS, COMMUNICATIONS

For more on what Imperial is doing to cut carbon emissions see pages 8–9.

Students TOLE it like it is

Students' opinions on tutoring and provision for taught post-graduates have been revealed in two new surveys, the results of which have been sent to all departments.

TOLE (Tutorial Online Evaluation) and MOLE (Master's Online Evaluation) solicit feedback from students on issues including the structure and organisation of lectures and their interactions with Personal Tutors. Results and comments are sent to members of staff concerned and to each department's Director for Undergraduate or Postgraduate Studies and, for TOLE, the Senior Tutor.

In its first year, TOLE's overall response rate was 44 per cent. 72 per cent of respondents rated the ease with which they can contact their personal tutor as good or very good, and 59 per cent rated their tutor's advice on study skills as good or very good. Feedback also included praise for the friendliness, approachability and sense of humour of many tutors. Other comments, however, showed that some students find that pressure on their tutors' time makes it difficult to arrange meetings, and would like regular get-togethers to be scheduled automatically.

MOLE, with a response rate



of 35 per cent, showed a high level of satisfaction with many aspects of the experience of being a Master's student. Over 70 per cent of respondents rated as good or very good the organisation and structure of

lectures, the explanation of concepts by lecturers and the approachability of lecturers. However this fell to under 60 per cent in questions on the timeliness and

relevance of feedback. Professor Julia Buckingham, Pro Rector, Education, says:

"This feedback is immensely valuable at both a College-wide and departmental level and it will have a direct affect on how these services are organised in future. I hope that students will see that, and that future response rates will be much higher."

—ABIGAIL SMITH, COMMUNICATIONS

For an extended version of this article, and more details about the results, visit: www.imperial.ac.uk/news/tole

"This feedback is immensely valuable at both a College-wide and departmental level"

in brief



Volcanic ash strands staff and students

Over 400 students and 140 staff were

affected by the disruption to air travel caused by volcanic ash in mid-April. During the week commencing 19 April the Registry received over 400 emails from students concerned that they may not be back in London for the start of term. Among those stranded abroad were 53 students and four academics from the Department of Earth Science and Engineering who were generously hosted by the University of Texas at El Paso (pictured) when they were unable to return to the UK after a field trip. For advice on the disruption, visit: www.imperial.ac.uk/alerts.

Imperial's Summer Ball

The line-up for Imperial's Summer Ball, taking place on 19 June has been announced. This year, an outdoor festival-style stage on the Queen's Lawn will feature acts including Noisettes, Plan B, Tinie Tempah and Jo Whiley. The event, which is open to staff and students, includes a formal four-course dinner, fireworks, a funfair, marquees and light shows. Tickets go on sale on 30 April.

For more information visit: www.union.ic.ac.uk/summerball

May podcast

Imperial's latest monthly podcast hears from Director of Music Richard Dickens on the music scene at Imperial as he looks forward to conducting in the Royal Albert Hall on Post-graduate Awards day, plus Dr Michael Coppins (Physics) on nuclear fusion and Professor Elio Riboli (Public Health) on links between cancer and nutrition.

Download the podcast from 30 April at www.imperial.ac.uk/media/podcasts

"We have a unique opportunity to draw on our excellent research expertise and student base. I have been struck by the level of enthusiasm of members of staff and students to get our own house in order."

PROFESSOR RALF TOUMI (PHYSICS), ACADEMIC CO-CHAIRMAN OF THE CARBON MANAGEMENT GROUP, TALKING TO REPORTER ABOUT THE COLLEGE'S CARBON MANAGEMENT CAMPAIGN.

Imperial College Healthcare NHS Trust

Trust staff star in annual awards ceremony

Almost 200 people swapped scrubs and uniforms for sparkling dresses and tuxedos to attend the first OSC&Rs annual staff awards ceremony on 12 April.

The event, supported by Imperial College Healthcare Charity, saw the presentation of six prestigious awards to individuals or teams embodying each of the Trust values of respect, innovation, care, achievement and pride.

A special chairman's award was also presented in recognition of the individual or team that went above and beyond the call of duty to deliver outstanding service and care to benefit patients.

In true Oscars style, video clips were shown of the four finalists in each of the six categories. Winners, who were chosen from more than 500 nominations, included nursing and chemotherapy teams, a senior sister, an ordering and stock controller, a waiting times coordinator and a volunteer.

The Chairman of the Imperial College Healthcare NHS Trust, Lord Tugendhat, said: "The finalists were very impressive but there were lots of other teams and individuals who were also nominated, so it was quite difficult to choose. I hope this will give further encouragement to continue to help us raise standards."

The host for the evening was Professor David Taube, the Trust's Medical Director (Clinical Services) and Professor of Transplant Medicine in the College's Department of Medicine. "It's been a wonderful night and I've really enjoyed presenting," he said. "It really does demonstrate the great people we have working for the organisation."

—IMPERIAL COLLEGE HEALTHCARE NHS TRUST PRESS OFFICE

Boat naming ceremony



The boat-naming ceremony took place at the Head of the River race. Pictured from left to right: Dr Simon Archer, Dr Martin Knight, Sir Keith O'Nions and Steve Trapmore.

The annual Head of the River boat race on 27 March on the Thames saw two new four-man boats named at the Imperial Boathouse in Putney.

The first was named after Dr Martin Knight, Chief Operating Officer, in recognition of his support for sport within the College. The second was named after Dr Simon Archer, Senior Lecturer (Life Sciences) and

chair of the Boathouse Management Committee, for his support for rowing at Imperial.

The Rector, Sir Keith O'Nions, christened the boats by pouring champagne over them and announcing their names.

Steve Trapmore MBE, Imperial's Head of Rowing and Olympic Ambassador, thanked the Rector and led the group to the Bill Mason Club Room to watch 420 crews participate in the race, in which

Imperial crews secured two pennants and two top 20 places.

Speaking about the naming of the boats, Dr Knight said: "It's a privilege to be honoured in this way. My family and I came along to the ceremony and really enjoyed the whole day down at Putney."

Dr Archer added: "I am delighted to have my name associated with student activities: I hope it brings good luck to the crews that use her."

Inspiration from Earth 700 million years ago

Being immersed in freezing water isn't how you'd expect to be rewarded for coming up with a good idea. However three students from the Department of Earth Science and Engineering are looking forward to this experience, alongside other safety training, required as part of their preparations to join BP's North Sea operations for eight-week internships this summer.

The geology students won the internships earlier this month after coming first in a BP competition that challenged UK students to come up with imaginative ideas

to cut the carbon emissions of gas fired power stations. Inspired by their knowledge of the Earth's history, the team proposed the creation of 'BioPlants' that process CO₂ by using single cell microorganisms called Anabaena which, when supplied with light, CO₂ and calcium, produce the compound calcium carbonate that can easily be disposed of, as well as useful by-products including substances that could be sold to the chemical market.

Team member Chris Hunter

said: "Studying palaeontology as part of our course, we took inspiration from the freezing of the Earth's surface 700 million years ago, which is linked to a massive drop in CO₂. We knew the importance of certain bacteria in this process and thought it'd be great to apply the idea to carbon issues today."

Chris, Benjamin Said and Lizzie Riley will begin their offshore survival training in July to prepare

"The entry was technically advanced and well thought through"



The winning team (from left to right): Benjamin Said, Lizzie Riley and Chris Hunter.

for spending time offshore in Norway and in Scotland working on a number of BP projects including thermal power generation.

—JOHN-PAUL JONES, COMMUNICATIONS

media mentions

—JOHN-PAUL JONES, COMMUNICATIONS



✉ **JOIN OUR MAILING LIST** for regular news, information and website alerts:
www.imperial.ac.uk/media/jointsignup

FINANCIAL TIMES ▶ 6.4.2010

Cities still need cars says Professor

A balanced approach to transport management is needed, rather than a narrow focus on decreasing car use, says Professor Stephen Glaister, Professor of Transport and Infrastructure in the Centre for Transport Studies (Civil and Environmental Engineering). Explaining to the *Financial Times* that roads remain vital to cities for supplying shops, restaurants and other key parts of city life, he said: "I just don't see how you can make a big city work without cars." He added, however: "Most reasonable-sized cities have a dense centre. Clearly, you cannot meet all the movement needs there by car." For suburban areas Professor Glaister went on to say: "There's a lot you can do to discourage very short car trips that could be done by walking or cycling."



NEW SCIENTIST ▶ 7.4.2010

Stress effects on fetuses

Scientists at Imperial and Johns Hopkins University have been examining the effects of pregnant women's stress levels on fetuses. Research at Johns Hopkins indicated that babies of women who reported higher stress levels during pregnancy scored higher on brain maturation tests, with the stress hormone cortisol being linked to brain maturation. However Professor Vivette Glover (Surgery and Cancer) told *New Scientist* that her research suggests some women with high cortisol went on to have children who showed poorer mental and physical development at 18 months, though only in the case of children who failed to form a close bond with their mother.

THE GUARDIAN ▶ 11.4.2010

What makes a good read?

New England researchers in sciences and the arts have joined forces to uncover the science behind a good read. They will give volunteer readers a range of reading materials. Readers' brain reactions will be monitored through MRI scans which will measure blood flow to the firing synapses of their brain cells, allowing a team of scientists and literature professors to study how and why human beings respond to complex fiction such as the works of Marcel Proust, Henry James or Virginia Woolf. Professor Richard Wise (Medicine) told *The Guardian*: "Reading is a very hard-wired thing in our brains. There are brain cells that respond to reading and we can study them."



THE DAILY TELEGRAPH ▶ 12.4.2010

Dynasty death highlights dangers of septicaemia

The death from septicaemia of former *Dynasty* star Christopher Cazenove has refocused media attention on the causes of the disease. Speaking to *The Daily Telegraph*, Professor Mark Enright (Public Health) explained that septicaemia occurs when toxins produced by bacteria in the bloodstream hyper-stimulate the patient's immune system. He said: "Your body is trying to fight the infection by pumping more blood around, so you get far too hot, which can lead to organ failure." Origins of the infection are often unknown but the disease can progress rapidly, with around a third of patients dying. Professor Enright added: "Before the advent of antibiotics, the mortality rate for staphylococcal septicaemia was 80 per cent."



awards and honours

ENGINEERING

Professor Stevens's research internationally acclaimed



Professor Molly Stevens received the second Polymer International-IUPAC award for creativity in applied polymer science or polymer technology in January this year. Professor Stevens, from the Department of Materials and the Institute of Biomedical Engineering, received the prize of \$5,000 for her novel

approach to tissue engineering, which could lead to the development of new bone-like materials that could be used to repair bones damaged by disease.

COLLEGE-WIDE

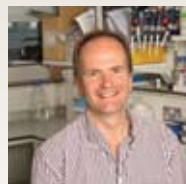
One laptop per child

Imperial students Hemal Mehta and Kok Yeen Cheek (Electrical and Electronic Engineering), Krupa Hirani (Business School) and Sona Parmar (Life Sciences) won the One Laptop Per Child Global Case Challenge hosted by the Imperial College Consultancy Society on 13 March. The charity's mission is to empower the children of developing countries to learn by providing one connected laptop to every school-age child. The Imperial team presented a business model which

showed how the charity could substitute the \$160 laptops they currently provided for laptops which can be produced for around \$40.

MEDICINE

Williams wins Society for Endocrinology Medal



Professor Graham Williams (Medicine) has been awarded the

Society for Endocrinology Medal for 2011 in recognition of his studies in Endocrinology and Metabolic Medicine. He will present the medal lecture in Birmingham at the British Endocrine Societies' Annual Conference in April 2011.

MEDICINE

Murphy recognised for Rheumatology research

On 21 April Dr Chris Murphy, Senior Lecturer, Kennedy Institute of Rheumatology was presented with the Michael Mason Award by the Heberden Committee of the British Society for Rheumatology at the Rheumatology 2010 conference in Birmingham. The prize is named after Michael Mason who was a renowned clinical rheumatologist. Dr Murphy received a plaque, the Michael Mason Medal and a cheque for £1,000 in recognition of his excellent scientific research in the field of rheumatology. Dr Murphy also presented his work, entitled *Hypoxia, a force for good in cartilage – implications for joint repair*, in the conference's plenary session.

Playing 'Pong' with the blink of an eye



Imperial students have developed a computer game that is operated by eye movements, which could allow people with severe physical disabilities to become gamers for the first time.

The students from the Department of Computing have adapted an open source game called 'Pong', where a player moves a bat to hit a ball as it bounces around the screen. The adaptation enables the player to move the bat using their eye.

To play the game, the user wears special glasses containing an infrared light and a

webcam that records the movement of one eye. The webcam is linked to a laptop where a computer program synchronises the player's eye movements to the game.

One of the major benefits of the new technology is that it is inexpensive, using off-the-shelf hardware and costing approximately £25 to make. Eye movement systems that scientists currently use to study the brain and eye motion cost around £27,000, say the researchers.

The team's supervisor Dr Aldo Faisal (Computing and Bioengineering), said:

"Remarkably, our undergraduates have created this piece of neurotechnology using bits of kit that you can buy

in a shop, such as webcams. The game that they've developed is quite simple, but we think it has enormous potential, particularly because it doesn't need lots of expensive equipment. We hope to eventually make the technology available online, so anyone can have a go at creating new applications and games with it, and we're optimistic about where this

“We hope it could ultimately provide entertainment options for people who have very little movement.”

might lead. We hope it could ultimately provide entertainment options for people who have very little movement. In the future, people might be able to blink to turn pages in an electronic book, or switch on their favourite song, with the roll of an eye.”

—COLIN SMITH, COMMUNICATIONS

Breakthrough in magnetism

Researchers from Imperial's Department of Physics have created a structure that acts like a single pole of a magnet, a feat that has evaded scientists for decades. The researchers say their new *Nature Physics* study takes them a step closer to isolating a 'magnetic monopole.'

Magnets have two magnetic poles, north and south. 'Like' poles, such as north and north, repel one another and 'opposite' poles, such as north and south, attract. Whichever way a magnet is cut, it will always have these two poles.

Scientists have theorised for many years that it must be possible to isolate a 'magnetic monopole', either north or south, on its own. In late 2009, various teams of scientists reported they had created monopole-like behaviour in a material called 'spin ice'. In these materials, monopoles form only at extremely low temperatures of -270 degrees Celsius.

Now researchers at Imperial have enabled tiny nano-sized magnets to behave like magnetic monopoles, by arranging them in a honeycomb structure. The researchers' structure contains magnetic monopoles at room temperature.

Dr Sam Ladak (Physics) commented on the team's



Tiny nano-sized magnets can be made to behave like magnetic monopoles at room temperature, by arranging them in a honeycomb structure.

new discovery: "One of the reasons why I'm really interested in this is because from undergraduate days, we've been told by teachers and lecturers that these fundamental magnetic monopoles cannot exist – you can't find a north pole or south pole on its own. It turns out, in our structures, we see defects that look very similar to a magnetic north or south pole, which can exist on their own and act independently, as long as they are confined to our artificial honeycomb structure."

—LUCY GOODCHILD, COMMUNICATIONS

To hear the researchers explain their research in more details visit: www.imperial.ac.uk/news/magnetism

Clue to cause of motor neurone disease

Imperial researchers have discovered a fifth genetic mutation associated with typical motor neurone disease, or amyotrophic lateral sclerosis, that has a similar pathological effect to certain genetic mutations revealed in earlier studies. The researchers hope that understanding what is causing motor neurone disease (MND) will lead to new avenues for treatment.

MND is a progressive neurodegenerative disease that attacks the upper and lower motor neurones. Degeneration of the motor neurones leads to weakness and wasting of muscles, causing increasing loss of mobility in the limbs, and difficulties with speech, swallowing and breathing.

The new research, published on 7 April in the journal *Proceedings of the National Academy of Sciences*, provides strong further genetic evidence that the disease is caused by proteins clumping

“Our finding is one valuable piece in the puzzle to show what's happening with the disease”

together in motor neurones, which are the cells that help to control the movement of muscles.

The newly discovered mutation, known as R199W-DAO, has been found in a family with a genetic history of MND. R199W promotes toxic protein aggregation inside motor neurones. It also interferes with levels of D-serine, which modulates the transfer of information between neurones. D-serine accumulates in the spinal cord in people with the sporadic form of MND, suggesting that this plays a role in the disease.

Professor Jackie de Bellerocoe (Medicine), the lead author of the study, said: "Our finding is one valuable piece in the puzzle to show what's happening with the disease. Unfortunately we're a long way from finding a cure for MND, but it's only through understanding how MND works that we'll be able to find new ways to treat it."

—LAURA GALLAGHER, COMMUNICATIONS



Creepy crawly cockroach ancestor revealed

An early ancestor of the cockroach that lived around 300 million years ago is unveiled in unprecedented detail in a new 3D 'virtual fossil' model, in research published on 14 April in the journal *Biology Letters*.

Scientists at Imperial have made a comprehensive 3D model of a fossilised specimen called *Archimylacris eggintoni*, which is an ancient ancestor of modern cockroaches, mantises and termites. This insect scuttled around on Earth during the Carboniferous period 359–299 million years ago, which was a time when life had recently emerged from the oceans to live on land.

The study reveals for the first time how *Archimylacris eggintoni*'s physical traits helped it to thrive on the floor of Earth's early forests. The fossils of these creatures are normally between 2–9cm in length and approximately 4cm wide.

The lead author of the study, PhD student Russell Garwood (Earth Science and Engineering), said: "The Carboniferous period is sometimes referred to as the age of the cockroach because fossils of *Archimylacris eggintoni* and its relatives are amongst the most common insects from this

"People joke about it being impossible to kill cockroaches and our model almost brings this one back to life."



Archimylacris eggintoni; the ancient ancestor of cockroaches, mantises and termites.

time period. They are found all over the world. People joke about it being impossible to kill cockroaches and our model almost brings this one back to life. Thanks to our 3D modelling process, we can see how *Archimylacris eggintoni*'s limbs were well adapted for all terrains, as it was not only adept in the air but also very agile on the ground."

—COLIN SMITH, COMMUNICATIONS

Download the 3D model of the *Archimylacris eggintoni* from YouTube at: www.youtube.com/watch?v=mN1RHlfSuxQ

Link between lower birth weight and type 2 diabetes

Two gene regions that affect a baby's size at birth have been uncovered by a large international team of researchers, made up of scientists from several UK and international centres including Imperial. One of the regions is also associated with type 2 diabetes.



The research, published in *Nature Genetics*, is the first robust evidence that a well-known link between lower birth weight and susceptibility to type 2 diabetes has a genetic component.

The team analysed over 38,000 Europeans from 19 studies of pregnancy and birth. Two genetic variants showed strong associations with birth weight. One of the variants, in a gene called *ADCY5*, has recently been linked with susceptibility to type 2 diabetes. Individuals who inherit two risk copies of this variant are at a 25 per cent higher risk of diabetes in adulthood than those who inherit two non-risk copies.

Professor Marjo-Riitta

Jarvelin, Chair in Lifecourse Epidemiology (Public Health), and one of the leaders of the research, said: "We have, for nearly two decades, tried to discover the factors which may explain why smaller fetal size associates with so many later life chronic conditions such as heart disease...Our own studies have demonstrated that a number of environmental factors influence fetal growth and that some fetuses are more vulnerable to those than the others. I believe that our genetic landmark discoveries will give us opportunity to answer these puzzling questions in the near future."

—ADAPTED FROM A NEWS RELEASE ISSUED BY THE WELLCOME TRUST

Frisky yeast knows who to 'shmoo' after two minutes

Yeast cells decide whether to have sex with each other within two minutes of meeting, according to new research published in *Nature* on 18 April. Dr Vahid Shahrezaei (Mathematics) says the new insights into how yeast cells decide to mate could be helpful for researchers looking at how cancer cells and stem cells develop.

Yeasts are single-celled microbes that scientists often use as model organisms, to help them understand how cells work. They usually reproduce asexually, by a process called budding, where a part of the cell is pinched off and becomes a new cell, identical to the original.

Sometimes yeast cells reproduce sexually by mating. The mating process involves one cell of each sex joining together, then mixing their DNA

and splitting apart again. To do this, the cells each have to produce a nodule that they can join together, called a shmoo. The process of shmooing takes around two hours.

In the study, researchers from Imperial and collaborators determined that a yeast cell's decision to mate is controlled by a chemical change on a single protein. This change occurs two minutes after the cell detects a pheromone produced by the opposite sex, so the decision to mate occurs more quickly than scientists had thought.

"This switching process at a certain pheromone concentration may have evolved to make sure the cells only get prepared for sexual reproduction if a mate is sufficiently close enough and able to mate," said Dr Shahrezaei.

—LUCY GOODCHILD, COMMUNICATIONS



Dr Vahid Shahrezaei combines analytical and computational methods to investigate the temporal and spatial dynamics of biochemical networks to work out principles, such as the models behind the process that cause yeast cells to 'shmoo'.

step by step



As Imperial coordinates its efforts to reduce its carbon emissions by **20 per cent** by **2014**, *Reporter* looks at the drivers and arguments for sustainability and what everyone at the College can do to help.

With the rising cost of utilities, HEFCE's intention to base funding, in part, on carbon reduction performance, and an institution's green credentials increasing in importance to all staff and students; carbon management is fast becoming a priority for all universities.

In June 2009, the College signed an agreement to reduce its carbon emissions by 20 per cent by 2014 as part of the Carbon Trust's Higher Education Carbon Management Programme [see *Reporter* 207]. Today, Facilities Management – the professional service responsible for energy management at the College – is drawing up a carbon management plan to show how the College will meet this target.

But reducing Imperial's carbon consumption isn't going to be easy. Last year Imperial emitted the equivalent of

84,026 tonnes of CO₂ at a cost of £16.4 million and, with the College's facilities constantly being updated and refurbished to provide world class research, the College's energy consumption is increasing at a rate of two per cent a year.

Research postgraduate student Yael Kisel (Biology), who was president of the Green Club at Silwood for two years, thinks Imperial's status as a research intensive university is too readily used as an excuse for the College's large carbon footprint. "I think Imperial's greatest failing is that there isn't a culture of sustainability. Perhaps Imperial can't have as small a footprint as a liberal arts college with a tiny student body, but there are a lot of steps it could take to reduce its footprint. I have heard this used as an excuse many times, and it just annoys me," she says.

Professor Nigel Brandon, Director of the Energy Futures Lab – Imperial's multidisciplinary, cross-faculty hub for energy research is familiar with the challenges organisations face in trying to reduce their carbon dependency. He sees it as an opportunity for the College to draw on its environmental expertise. "We need to be pragmatic and deliver real solutions and prove that even a laboratory and IT-intensive organisation like Imperial can tackle the carbon challenge," he says.

Imperial has a strong energy knowledge base with researchers in the Energy Futures Lab, the Centre for Environmental Policy and the Grantham Institute for Climate Change, who specialise in energy efficient technologies and influence the policies being put in place to address the energy challenge across the globe. "If we can

use this expertise to successfully reduce the energy consumption within our own organisation, we will become a showcase for our research – a clear example that we can walk the walk as well as talk the talk," adds Nigel.

Facilities Management has already begun a carbon reduction programme targeting individual buildings at the College. Kevin Cope, Head of Building Operations, explains that the first stage was to introduce a metering system in 2008 to monitor how much energy individual buildings were consuming. Using this new information the Facilities Management team was able to analyse where efficiencies could be made in energy usage, focusing first on the laboratory areas in the Flowers Building on the South Kensington Campus, used by the Faculty of Natural Sciences and the Faculty of Medicine.

2008–09

Imperial's
energy
emissions



84,026
TONNES
of CO₂



£16.9
million

2014–15*

Imperial's
target energy
emissions



67,221
TONNES
of CO₂



£13.4
million

* Target to decrease emissions by 20 per cent factors in 'business as usual' increases in energy demands over the five-year period. Predicted cost incorporates expected increases in utility charges.



The Flowers initiative

From the start of the project the Facilities Management team worked closely with academics who used the building's facilities. "This helped us to understand

what energy needed to be consumed in order for the academics to conduct their research in a safe and effective way, while at the same time identifying areas where there was flexibility for change," says Kevin.

Facilities Management identified two key ways to save energy in the Flowers Building – tapping the voltage and reducing the air flow. The College's building transformers are traditionally commissioned to supply over 240 volts, which means that motors, plant and equipment operate at higher voltage levels than needed, leading to high electricity consumption. By reducing the voltage supply to 235 volts, the team were able to cut consumption significantly with no impact on research activities.

As in most labs at Imperial, airflow in the Flowers Building was being controlled in the same manner during the week, overnight and over the weekends, and Facilities Management recognised that the stringent levels of air management weren't always necessary. Working with the academics and Safety Department to ensure they weren't

jeopardising the research environment, Facilities Management staff began a programme to alter the volume and pressure of the air going into the labs overnight and at the weekends. They also looked at experiments and pieces of equipment which needed to be kept cool on a constant basis and ensured they were located in side rooms off the main labs. They then installed 'dampers' which were activated overnight and at the weekend supplying cooling to the side rooms but shutting off the air in the main lab space, which meant energy was only used where it was needed.

Last year these initiatives in the Flowers Building saved the College 122 tonnes of CO₂ equating to nearly £20,000. In February the project was shortlisted for a Green Gown Award in the national scheme, which recognises sustainable initiatives being undertaken by universities and colleges.

Facilities Management plans to take the lessons learned in the Flowers Building and apply them to all of the College's buildings over the next five years. It's not just the research-intensive facilities which are being targeted; the air handling controls during weekends in the Faculty Building on the South Kensington Campus have already been turned off, as few administrators work there over that time period – this alone has saved 60 tonnes of CO₂ and £10,000 per year.

But Nick Roalfe, Director of Facilities Management, says that it's not just up to

Facilities Management to cut down the College's carbon usage – both staff and students need to help out. "Small things like turning your computer monitor off when you go to lunch, using the stairs instead of the lift, and turning off lights and equipment when you aren't in the room, can all make significant difference to the overall carbon consumption of the College," he says.

Carbon Desktop

Supporting the campaign, Facilities Management and IT software company Camco have developed a web-based programme called 'Carbon Desktop' to enable staff and students to see the gas and electricity consumption for each building shown both in terms of CO₂ and the associated costs for the College.

Nick describes the aim of the website: "Carbon Desktop will allow staff and students to see how the building they work or study in is contributing to the problem." All buildings will be graded with a traffic light system so if the building is reducing its emissions it will be green and if the levels are increasing or staying the same it will be red. "Over the next five years, I'd like carbon friendly thinking to become as integral to the College as health and safety," says Nick.

—EMILY ROSS, COMMUNICATIONS

"Small things like turning your computer monitor off when you go to lunch ... can all make significant difference"

stamp your feet!



To meet the target of cutting carbon emissions by 20 per cent by 2014, all staff and students need to get involved, stamping their feet and telling Facilities Management about how the College could do more to save energy.

Share your ideas for cutting our energy waste

Send Facilities Management your examples of wasteful energy usage and also your ideas for saving it – whether local to your workplace or relating to the whole College. All ideas and examples will be published on the Sustainability website.

» GET MARCHING

Pick up a flyer from your nearest reception desk and return it with your ideas to the Estates Helpdesk.

» BOOT UP AND VISIT THE WEB

Submit your suggestions at: bit.ly/stampyourfeet2

» SPUR US ON BY EMAIL

Send your ideas to: sustainability@imperial.ac.uk

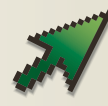
» KICK OFF VIA THE MOBILE WEB

Take a photo of this QR code with your mobile phone or web camera. Need the QR code scanner? It's easy, simply Google 'QR reader' with your device name and download a free reader.



Respond by 31 May for your chance to win

£150 Amazon vouchers



To access the Carbon Desktop, visit:

www.imperial.ac.uk/facilitiesmanagement/energy/carbondesktop



A holistic view of education

Reporter speaks to the Dean of Learning and Teaching, Professor Susan Eisenbach, about providing students with the skills they need to tackle life and the dangers of too much assessment.

Professor Susan Eisenbach can't remember a time when she didn't think that educating the next generation was fundamental. "I came from a family who valued education above everything but happiness and health," she says. After completing an undergraduate degree in Computing at Vassar College, USA, she moved to the University of London to gain postgraduate qualifications, then began working her way up the educational ladder starting as a school maths teacher and finally coming to Imperial in 1983 to work as a lecturer. In 1994 she was promoted to Director of Studies in the Department of Computing, a role she held for 15 years before becoming the College's Dean of Learning and Teaching last September.

Student experience

Susan chose to become an academic to ensure students had the best chance in life and a holistic view underpins her philosophy on teaching. She sees education as being wider than simply the subject students are taught and is interested in the welfare and skills development of the 'whole student'. Susan is keen for lecturers to also try and develop in students, a full range of skills, such as problem solving, communication and the confidence to teach themselves new things.

Susan says that trying to understand what students want is integral to being a good teacher. "I have been told very clearly by the students there are things we could improve," she says. "I want to help tutors across the College to make the necessary changes so we can continue to provide a world class education."

Assessment culture

One of the key things Susan wants to tackle in her role is the 'assessment culture' at Imperial, something she has seen pervading the school system and UK universities since the 1980s. Over the last 30 years, universities have introduced coursework which counts towards the final degree mark as students found that just sitting end-of-term exams which determine their degree was too stressful. But this has had an unintended consequence, explains Susan: "Today we have degrees made up of so many assessed components that if you don't give marks for something, the students don't want to complete it."

Susan believes it is time to turn back the clock and see if the amount of assessment lecturers are currently setting could be reduced. "By removing the marks we are saying to students: you work for yourself because you want the knowledge – the end result is not the mark, the mark is saying you have achieved what you set out to do in the first place," she says.

Five years ago Susan led an

experiment in the Department of Computing to see what would happen if marks were no longer given for first year assignments. Susan evaluated the exercise in a paper, published in October 2009 in the *European Journal of Engineering Education*, which showed there had been no discernible degradation in student attendance, submission rates and performance in either the weekly exercises or end-of-year examinations.

Susan is aware that getting rid of all assessed coursework isn't going to be appropriate for all subjects but she'd like to see departments across the College consider reducing the load where they can.

NSS

Another aspect of setting too much assessed coursework is the amount of time staff have to spend marking it and giving feedback. Susan says that the results of the 2009 National Student Survey – the annual survey of final year undergraduate students at UK universities – clearly reflect that the College's current approach isn't working. While Imperial's overall satisfaction rating of 85 per cent

was above the national average, and the library services gained a satisfaction rating of 94 per cent, the College's satisfaction rating for assessment and feedback of 52 per cent was well below even the relatively poor sector

average of 64 per cent. "Feedback is the Achilles heel of all universities," Susan says. She believes Imperial does less well than many other institutions because our courses incorporate so much coursework.

Susan would like to see academics consider how useful a piece of coursework really is, before setting assignments. If the approach is appropriate, students should be clear how long it will take for them to receive feedback. "Managing students' expectations is half the battle," she says.

– EMILY ROSS, COMMUNICATIONS

To read Susan's paper, Changing the marks-based culture of learning through peer-assisted tutorials visit: www.informaworld.com/smpp/content~content=915674321&db=all

“We are saying to students: you work for yourself because you want the knowledge”

inside

story

mini profile

Alison Telfer

Last year the Division of Molecular Biosciences hosted an event in honour of freelance scientist Dr Alison Telfer's contribution to our understanding of photosynthesis. Here, Alison tells us about her unusual career path and why she loves plants.

How did you end up working on photosynthesis?

My father was in the Royal Air Force so we travelled a lot when I was young. I was always interested in plants wherever we went and I went on to study botany. I worked at Imperial, from 1972, on photosynthesis in spinach but in 2003 I started looking at microbes called cyanobacteria.



Cyanobacteria microbes, which are the subject of Alison's research.

What do you enjoy about your subject?

To get information useful to clean energy research, I look at the way cyanobacteria get their energy from sunlight, in order to understand the process in different organisms. I've had the chance to learn more about marine biology and how the microbe I work on grows by travelling to beautiful places like



Heron Island in Australia, which has been fantastic.

How have you juggled family and work?

I worked part-time after having my two children and I would come in occasionally with a baby in a pram. It was difficult in a way but I had lots of support here.

What led you to become a freelance scientist?

The BBSRC changed their grants system and I was made redundant in 1996. I was given an honorary position at Imperial and I've stayed on here ever since. As a freelance scientist, I ran a European Science Foundation workshop and then started getting regular travel grants to work in Berlin and Paris. Every two years the College says: "do you want to stay?" and I say: "yes please!"

What keeps you at the College?

I really like being hands-on in the lab. I also try to help students in my various collaborative projects and hope the scientific community gets some benefit from my work.

—LUCY GOODCHILD, COMMUNICATIONS



Neuroplastic playground

In 2009, Dr Ioannis Spyridon Gousias (Medicine) won the Medical Research Council's NOBELini Award, for his concept of a new-age interactive playground called 'ALBERT in Neuro-Plastic Land' inspired by ALBERT (A Label-Based Encephalic ROIs Template) – a powerful magnetic resonance imaging tool for monitoring brain plasticity and brain development in neonates and young children.



Ioannis presented his exhibition dressed as the Mad Hatter to reflect the parallel with Lewis Carroll's *Alice in Wonderland*. "I was the Mad Scientist or Hatter of NeuroPlastic Land!" he says.

This February Ioannis exhibited his first prototype in the Science Museum's Dana Centre in South Kensington. He describes his experience:

"My research is into brain atlas, which involves segmenting the brain into anatomical regions of interest to allow for a better understanding of brain development.

The first aim of my project was to integrate the principles, the findings and the aesthetics of brain atlas into industrial design. This led to an application which I hope will help children whose brain development is restricted – the creation of a playground where the space and the games are made from colourful materials, which encourage children to interact with them.

Brain plasticity is crucial in the first

“Brain plasticity is crucial in the first years of a person's life.”

years of a person's life. I hope my model will provide new sources of enhanced external stimuli and increase brain

activity patterns in young children whose brains are not developing at a normal rate, as a result of disease or a disability. By stimulating the brain in this way, I hope the healthy parts of the brain could partially compensate for functions

that have been lost.

At my exhibition in the Dana Centre, visiting Imperial scientists and designers were able to interact with the colourful playground made up of textiles, developed by MRI acquisition into 3D imagery and embossed onto reflective plastic in a range of neon colours.”

▶ SCIENCE FROM SCRATCH

As explained by Sarah Barker, MSc Science Communication



Red giant stars

Red giant stars are big, bright stars edging towards their final days. Most stars spend their lives fusing hydrogen into helium in what is called the 'main sequence stage'. This is what the Sun is doing now, but when stars like the Sun exhaust the hydrogen supplies at their core, nuclear reactions stop and the core contracts under gravity. This contraction heats the outer core, initiating new nuclear fusion reactions that cause the outer layers of the star to expand enormously. Red giant stars may be 100 times bigger than their main sequence selves, and up to 10,000 times more luminous. The Sun will become a red giant star in roughly five billion years, engulfing the inner planets, and possibly the Earth, as it does so. The largest red giant stars, such as Betelgeuse in the Orion constellation, are called Supergiants, and can be a million times more luminous than the Sun.

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

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

Student blogger Chris on it being too nice to revise:

blog
SPOT

Thursday was gorgeous. It all began in the morning, when the sun finally conquered the high peak of my neighbour's rooftop and I was woken by its satisfied glow. I went outside and was able to rip off my jacket and jumper with minimal discomfort as the winter season finally made an exit. The most effective way I can describe a day like this to students is to say it was: far too nice to revise.

Instead, I decided the only way I could effectively use my time would be to call some old friends and interrupt their revision schedules.



www.imperial.ac.uk/campus_life/studentblogs

Performing Mozart in Johannesburg

In January, 60 members of the Imperial College Symphony Orchestra arrived in South Africa as guests of the Johannesburg International Mozart Festival to give three concerts. Director of Music Richard Dickens reports on the experience:

"After a long flight, leaving a snowy London behind us, we arrived in the warmth of the South African summer. Our first concert comprised a first half of English music and a second half of Rachmaninov's Second Symphony. We didn't know what the audience response would be, but the standing ovation at the end of the first half told us that we'd scored a hit. The ovation at the end of the concert was even bigger.

A trip to the Pilansberg Game Reserve the following day was another wonderful experience – none of us will ever forget being that close to a pair of lions! On the third day, as well as performing two Mozart symphonies, the orchestra collaborated with internationally renowned violin soloist Lidia Baich and a rock band in Saint-



Imperial College Symphony Orchestra backstage before their first concert in South Africa.

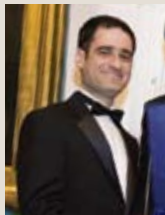
Saens's Introduction and Rondo Capriccioso. When we asked what the microphones were for, it transpired that the concert was being broadcast live by the South African Broadcasting Corporation.

“It transpired that the concert was being broadcast live by the South African Broadcasting Corporation”

Then, suddenly, it was our last day in Johannesburg. We got up early and drove to the township of Alexandra and ran an outreach event for some of the local children. After a short performance of Elgar's

Pomp and Circumstance we invited the children to share the stage whilst we performed and let the children have a go as we repeated the excerpt! It was really special to see the children interacting with Imperial students.”

creative science



Imagining the science of the future

Last month, the winners of the 2010 Science Challenge competition – an 800-word essay competition run by volunteer officers of the Royal College of Science Union at Imperial were revealed. Entrants chose to investigate one of a number of topics picked by the judging panel: the Rector, Sir Keith O'Nions, The Times' science editor, Mark Henderson, Cambridge Professor Athene Donald and Shell's Fuels Innovation Manager, Andrew Harrison.

Imperial's overall winner was postgraduate Matt Silver (Mathematics), who is studying for a PhD in neuroimaging genetics and attempting to discover how our genetic make-up might influence the brain's structure and function. Matt, who also triumphed in the Science Challenge competition last year, describes his entry, which answers the question: *How will genetic advances change medicine and society by 2020?*

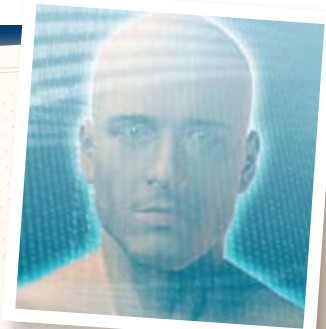
"My essay was set at a time in the future where people are able to upload their personal genomes onto the web. For me this was a way to consider some of the interesting ethical problems associated with having a very important, and hitherto private, aspect of one's identity out in the public domain.

For me, all writing is difficult until you have a good idea and a plan for how to turn it into a compelling narrative. So, once I had the idea, it became a lot easier!"

An excerpt from Matt Silver's competition-winning essay:

Following recent press speculation MyFace wishes to re-iterate that in line with UK government legislation, the uploading or sharing of personal genomes is strictly forbidden.

"Stuff that!" Anna dismisses the alert. She knows about the offshore social networking sites offering new genomic services like full life prediction. Of course there are ethical issues. As a med student she's sat through countless lectures highlighting the dangers of full genome disclosure. The long-term depression arising from an untreatable future diagnosis; families torn apart by the discovery of a deadly heritable disease; discrimination in the workplace (only last month she'd read some crazy story about a company pre-selecting candidates on the basis of mandatory, genetic, cognitive skill-scoring)... And of course any privacy guarantees for an offshore site are going to be next to useless. But a saliva swab in the post, a small payment and she has a file containing her 3 billion-letter genome sitting in her inbox. Now she can establish the truth."



To read more about the competition visit: www.rcsu.org.uk/sciencechallenge



INVENTOR'S CORNER

Naomi's nucleant

Professor Naomi Chayen, Head of the Crystallisation Group in Biomolecular Medicine (Surgery and Cancer), on how the structure of crystals can help design better medicines.

What does your research focus on?

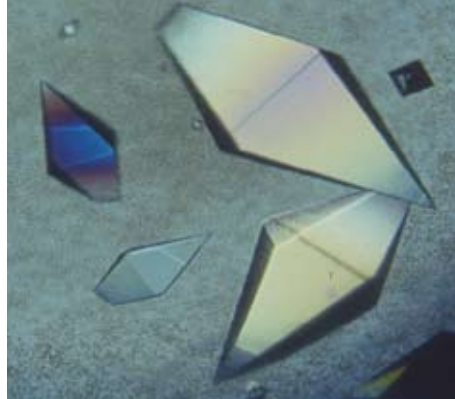
I am looking at creating improved methods for converting proteins and other biological molecules into 3D crystals. The aim of this crystallisation process is to create 3D structures that can be examined to advance rational drug design.

Why is your research important?

The medical world needs to determine the structures of thousands of proteins in order to know their function, which in turn will lead to better design of new medicines. It is often not the genes themselves that are the targets of potential drugs but the thousands of proteins encoded by these genes. The most effective technique for determining protein structure is X-ray crystallography which requires high quality crystals, but obtaining such crystals is not a refined process, so there is a need for new and improved crystallisation techniques.

What did you discover?

I've come up with a successful method for obtaining these improved crystals. The invention involves the design of a 'raft' for molecules of the protein to cling to. I worked with



Larry Hench, Emeritus Professor of Ceramic Materials, who invented a material called Bioglass in his research, which is used as a scaffold for bone regeneration. The idea was to use Bioglass for protein crystallisation with pores similar in size to the protein molecules, to entrap them and once a few become attached, more molecules would then pack onto them, and form a crystal lattice.

Does it have a patent?

Yes, the product is called 'Naomi's Nucleant' and is sold by Molecular Dimensions – a company that specialises in tools for aiding crystallising proteins for crystallographers like me – with exclusive licence from Imperial Innovations.

— ANOUSHKA WARDEN, IMPERIAL INNOVATIONS

www.imperialinnovations.co.uk

Knowledge transfer in action

Imperial was recently awarded £1.96 million by the Engineering and Physical Sciences Research Council (EPSRC) for Knowledge Transfer Secondments (KTS), to aid collaboration with industry and to provide industrial placements for Imperial staff.

Research Associate Dr Thomas Lafitte (Chemical Engineering and Chemical Technology) was awarded a year's salary this February to take part in the KTS scheme with industrial collaborators at Process Systems Enterprise (PSE) – a provider of advanced modelling technology to the process industries and their technology suppliers. He reports on his experience:

"I was keen to work with PSE to move my previously successful EPSRC-funded research closer to application. My research activity in the EPSRC-funded Molecular Systems Engineering project has led to the development of the most accurate version to date of an advanced equation that can predict a wide variety of thermodynamic properties of mixtures based on a firm molecular foundation. It's called the statistical associating fluid theory, or SAFT. Tools developed using the theory can be widely applied, for example in solvent screening in the pharmaceutical industry, or formulation of complex fluid mixtures with targeted properties. They have attracted a lot of interest from industrial collaborators at PSE. I'm looking forward to seeing our theory being used for large-scale modelling."

Applications for the second round of funding are now open. For more details, visit: www.imperial.ac.uk/researchstrategy/knowledgetransfer



Representing the College

Jitin Verma, a fifth year medical student, joined the Rector's Ambassadors scheme this year. The scheme, organised by the International Office with help from Outreach, offers students from a range of departments the opportunity to represent the College at recruitment events and show off Imperial's campuses to prospective students. Jitin describes what he has been up to:

"It's been a fantastic experience; we have been trained in the history of Imperial and how to give a good tour of the College, we've also learned a lot about public speaking. So far I've helped out

at the Postgraduate Open Day, an American Associates fair and a few campus tours. At the American fair there were different stalls representing Imperial's clubs and societies and a raffle at the end. I went on stage and offered the prizes, which was a lot of fun!

The social atmosphere amongst the Ambassadors is great. We come from various disciplines, and there is a bit of healthy competition and banter. We all get on really well and that's really important for a team. I'd definitely recommend becoming a Rector's Ambassador. It's so useful to develop links with other faculties and represent Imperial in the best way possible."



If you know a student who might like to become a Rector's Ambassador, ask them to log onto: www.imperial.ac.uk/international/students/rectorsambassadors. Applications for this year's scheme must be submitted by 10 May 2010.

obituaries



DR ALASTAIR HOSIE

Dr Alastair Hosie (Biophysics), who joined the College in October 2007, died suddenly on 1 March 2009. His colleague, Professor Nick Franks (Biophysics), pays tribute: “Alastair joined the Biophysics Section of our Division in 2007, and rapidly established himself as a productive and well-

liked member of staff. Alastair studied neuroscience at Edinburgh before doing a PhD at Cambridge with David Sattelle on insect GABAA receptors, work which led to more than a dozen publications. In 1998 he moved to work with Trevor Smart at UCL, where he researched the modulation of GABAA receptors, which led to a landmark publication in *Nature* that identified the binding sites for neurosteroids. This achievement laid the foundations for his work at Imperial, where he was pursuing the idea that the intoxicating effects of alcohol might be mediated by neurosteroids; this was a novel and promising line of inquiry and Alastair rapidly won funding from both the MRC and the Royal Society.

Alastair Hosie was one of our most promising young investigators and his sudden death at the age of 39 has left his family, friends and colleagues devastated by the loss. As well as his achievements, Alastair was an individual of rare warmth and kindness. He invariably found time for undergraduates and project students, and turned nobody away. Alastair contributed to all aspects of College life and will be greatly missed. He is survived by his wife Emma and his daughter Phoebe.”

long
service

Reporter shares the stories of staff who have given many years of service to the College. Staff featured celebrate anniversaries in the period 27 May–31 July. Data is supplied by HR and is correct at the time of going to press.

—AMNA SIDDIQ, COMMUNICATIONS

20 years

- Professor Ian Adcock, Professor of Respiratory Cell and Molecular Biology (NHLI)
- Mr Steve Annett, Mechanical Engineering Workshop Technician (Physics)
- Mr Jagmel Bharj, Training Manager (ICT)
- Ms Margaret Brown, Reactor Centre Administrator (Reactor Centre)
- Mr Paul Brown, Mechanical Instrumentation Workshop Manager (Physics)
- Professor David Holden, Professor (Medicine)
- Mr Nima Khandan-Nia, Senior Research Officer (Medicine)
- Ms Sara Muir, Buildings Manager (Facilities Management)
- Mr Stephen Pullen, User Coordinator, FoM Redevelopment Projects (Medicine)
- Miss Maria White, Accounts Payable Assistant (Finance)

30 years

- Professor Nancy Curtin, Professor of Muscle Physiology (NHLI)
- Mrs Jane Giles, Accounts Receivable Assistant (Finance)

SPOTLIGHT

Karen Lyle, Centre Manager (Institute for Mathematical Sciences) and Departmental Operations Manager (Centre of Environmental Policy) 20 years



Karen Lyle joined Imperial in April 1990 as an Accounts Clerk at St Mary's Hospital Medical School. In 1993, she was promoted to Senior Accounts Clerk and three years later, she moved to the South Kensington Campus as a Finance Administrator for the Department of Physics. Karen remained in that role until January 2008, when she applied for the role of Departmental Administrator within the Faculty of Natural Sciences. This year Karen was promoted to the dual position of Centre Manager for the Institute for Mathematical Sciences, and Departmental Operations Manager for the Centre of Environmental Policy. Karen enjoys her work as she is involved with all elements of running a department including finance, building management, human resources and accounts. Karen says, “The College is full of good people and I've made some wonderful friends. There are always opportunities for career progression.” Karen is involved with the Horizon Leadership Programme at the College and enjoys its networking aspect.

Hands-on teaching

Dr Steve Gentleman, Reader and Head of the Neuropathology Unit, was presented with a Rector's Award for Excellence in Teaching on 20 April at Education Day. He describes his approach to teaching:



“I try to be interactive and engage with my audience by asking them questions as I go along, whether it's a small tutorial group or a lecture theatre of 320 students. The lecturers I remember from my own university days are the ones who didn't just stand up and talk at us in a monotone for an hour. I'm lucky enough to specialise in two very practical and visual disciplines with anatomy and pathology and I will always encourage students in practical sessions to take a hands-on approach, i.e. don't take my word for it, have a look for yourself.”



Long servers party

On 22 March, Arthur Spirling, Director of ICT, who has worked at Imperial for 45 years, attended a celebration for staff marking 35, 40 or 45 years of service to the College in 2009. He describes his experience:

“At dinner I mused with others as to why I had served so long. It is because the College has been, and will continue to be, an exciting and challenging place to work with, in my case, a delightful customer base of very stimulating, but always courteous, staff and students.”

Welcome new starters

Dr Yuriy Alexandrov, Physics
 Mr Mohamed Amsaad, Catering
 Mrs Mary Anderson, Alumni and Development
 Dr Kriangkrai Arunotayanun, Civil and Environmental Engineering
 Dr Jens Balzer, Physics
 Mr Lee Barker, Public Health
 Miss Anna Batcheler, Registry
 Miss Sophie Bell, Biology
 Mr George Bowman, ESE
 Mr Robert Branch, Security
 Dr David Bray, Mechanical Engineering
 Dr Pauline Brocard, Public Health
 Miss Jingqi Cai, Mechanical Engineering
 Miss Gaynor Campbell, NHLI
 Mrs Sally Campbell, Medicine
 Dr Amarnath Challapalli, Surgery and Cancer
 Dr Edward Chambers, Medicine
 Dr Andrew Chew, Clinical Sciences
 Miss Stefanie Cordier, Medicine
 Dr Blair Crewther, Biomedical Engineering
 Ms Lisa Curry, Public Health
 Mr Vassilios Dallas, Aeronautics
 Mr Omisore Dickson, Catering
 Dr Anna Donaldson, NHLI
 Miss Kerry Fey, Registry
 Mr Kiyohiko Funai, Chemistry
 Dr Philipp Geipel, Mechanical Engineering
 Dr Vincenzo Giannini, Physics
 Miss Cassie Gilbert, Business School
 Mr Simon Gorry, Security
 Mr Paul Greliak, Surgery and Cancer
 Mr Josef Habib, NHLI
 Mr Christopher Harvey, Finance
 Mr Adam Harvey-Thompson, Physics
 Mr Amir Horowitz, Cell and Molecular Biology
 Mr Lucio Iannone, NHLI
 Ms Ehi Idahosa-Taylor, Medicine
 Mrs Princy Imthiyaz, EYEC
 Miss Mehwaesh Islam, Cell and Molecular Biology
 Mr Dhiren Kara, Physics
 Dr Elias Kassa, Mechanical Engineering
 Ms Loukia Katsouri, Medicine
 Dr Stephane Kena-Cohen, Physics
 Dr Julius Klein, Bioengineering
 Miss Polyxeni-Margarita Kleniati, Chemical Engineering and Chemical Technology
 Mr Martijn Kool, Mathematics

Mr Ireneusz Kopp, Support Services
 Miss Joanna Lacey, Catering
 Mr Francesco Lala, Medicine
 Dr Fiona Lamont, Surgery and Cancer
 Ms Irene Larkay, Catering
 Ms Helga Laszlo, Public Health
 Mr Pierre Leroy, Catering Services
 Dr Jindong Liu, Computing
 Miss Lojini Logesparan, EEE
 Mrs Helena Mapanzure, Surgery and Cancer
 Dr Ilaria Marigo, Medicine
 Dr Michela Mazzon, Medicine
 Miss Toni McCloggan, Catering
 Mr Andrew McKeown, Security
 Mrs Vikki Meredith, Catering
 Dr Stephanie Miot, Aeronautics
 Mrs Catherine Morfopoulos, Biology
 Mrs Christiane Morgan, Grantham Institute
 Ms Kelly Morrison, Physics
 Mr Piotr Nowak, Molecular Biosciences
 Ms Lorraine Parish, Biology
 Mr Tassanai Parittotokkapor, Mechanical Engineering
 Ms Christina Peters, Kennedy Institute
 Dr Anthony Price, Clinical Sciences
 Dr Laura Price, NHLI
 Miss Silvia Prieske, Division of Medicine
 Miss Elizabeth Regan, Registry
 Miss Emma Robinson, Computing
 Mr Ramon Rojas-Diaz, Aeronautics
 Mr Antonio Roldao Lopes, EEE
 Dr Salma Samsuddin, NHLI
 Miss Prescilla Sawmynaden, Public Health
 Dr Emily Schmidt, Kennedy Institute
 Miss Anna Schmukle, Medicine
 Dr Jimmy Seiberger, Chemistry
 Miss Joana Silva Martins, Kennedy Institute
 Mr Chris Skinsley, Registry
 Ms Sophie Smith, Physics
 Mrs Shahnaz Sohail, Medicine
 Dr Dmitry Stetsenko, Bioengineering
 Ms Pavla Strnadova, Medicine
 Dr Mingjun Sun, Medicine
 Dr Ryo Takeda, Mechanical Engineering
 Dr James Tomlinson, Clinical Sciences
 Miss Danielle Tucker, Business School
 Dr Win Tun Latt, Computing
 Mr Thomas Wall, Physics
 Dr Jonathan Weaver, Materials
 Miss Helen Whitmore, ESE
 Miss Lucy York, Registry
 Mr Konstantinos Zavitsas, Civil and Environmental Engineering

Farewell moving on

Mr Omer Abdelrahman, EEE
 Dr Jun Akai, Clinical Sciences
 Miss Stephanie Ascough, Medicine
 Mr Mohammed Baklar, Materials
 Ms Giulia Bolasco, NHLI
 Miss Andrea Brum, NHLI
 Miss Victoria Cadman, NHLI
 Dr Maryke Carstens, NHLI
 Mr Piers Cornwell, ICT (5 years)
 Mr Eike Cser-Tarnai, Library
 Ms Sally Davidson-von Holt, Medicine
 Mr Paul Dearie, NHLI
 Professor Mark Enright, Public Health
 Mr Paul Francis, Catering
 Miss Lisa Gardner, Kennedy Institute
 Mr Tomasz George, NHLI
 Mr Kostas Georgiou, Physics (8 years)
 Dr Heinner Guio Chunga, Medicine
 Dr Matthias Hohenberger, Physics
 Mrs Marilyn Holderness, Surgery and Cancer
 Mr David Hopkins, Cell and Molecular Biology (30 years)
 Dr Joaquin Hortal, Biology
 Dr Wendy Howard, Medicine
 Mr Stanley Huang, Cell and Molecular Biology
 Mr Ashok Jamdagni, Physics
 Mr John Jeffs, Estates (14 years)
 Miss Helen Kefali, Engineering (5 years)
 Miss Sarah Knight, Biology
 Dr Karsten Koehler, Cell and Molecular Biology
 Dr Debbie Lee, NHLI
 Dr Mirna Lerotic, Biomedical Engineering
 Dr James Leung, Chemical Engineering and Chemical Technology
 Miss Karen Lewis, EEE
 Dr Chee Lim, Physics
 Dr Sophia Lin, Medicine
 Professor Steve Lin, Surgery and Cancer
 Dr Mark Little, Public Health (10 years)
 Mr Federico Lorenzoni, Mechanical Engineering
 Ms Janet Lyons-Lewis, Surgery and Cancer
 Dr Gerasimos Marinakis, Surgery and Cancer
 Ms Emily Moss, Catering
 Mr Craig Nash, Estates
 Dr Adam Paige, Surgery and Cancer (6 years)
 Dr John Park, NHLI
 Mr Anthony Parker, Estates
 Ms Sue Patterson, Medicine
 Dr Marine Pomarede, Biology

Dr Alex Powlesland, Molecular Biosciences
 Mr Nikolaos Rizopoulos, Computing (8 years)
 Mr Alban Rochel, Physics
 Dr Alan Salama, Medicine (6 years)
 Dr Carsten Schmidt-Weber, NHLI
 Mr Thomas Sloan, Biology
 Dr Andrew Smith, Computing
 Mr Borja Sordo De La Pena, Finance
 Miss Monpichar Srisa-Art, Chemistry
 Dr Oliver Stein, Mechanical Engineering
 Dr Markus Stoye, Physics
 Dr Yu Su, ESE
 Dr Kostas Triantaphyllopoulos, NHLI
 Dr Michael Trupke, Physics
 Dr Frances Turner, Molecular Biosciences
 Dr Maria Vigliotti, Computing
 Miss Kelly Walton, Medicine (14 years)
 Mr Junsheng Wang, Materials
 Mr Elliott White, Business School
 Mrs Stella Yap, College Headquarters
 Mrs Sharlene Yardley, Development and Corporate Affairs
 Dr Pirre Yla-Maihaniemi, Chemical Engineering and Chemical Technology

retirements

Professor Margaret Hodson, NHLI (31 years)
 Emeritus Professor Ravinder Maini, Kennedy Institute (30 years)
 Mr Nick Royall, Materials (31 years)
 Miss Carol-Anne Shaw, NHLI (21 years)

This data is supplied by HR and covers the period 14 March–23 April. 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.

✉ 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.

moving in. moving on.

VOX POP

How can the College become more environmentally friendly?

Reporter asked members of the community for their ideas on stamping down the College's carbon footprint.



as a whole.”

KAH ANN FONG, FIRST YEAR MATHEMATICS STUDENT

“I recycle a lot as I live in the residence halls, mainly because the bins are convenient and available. If they weren't then maybe that wouldn't be the case. I think that there should be more paper recycling bins around the College campuses



waste of resources.”

ELIZABETH RIBERIO, CATERING SERVICES

“I've noticed that staff and students are not interested in getting receipts from the cashier. I think we should stop printing them because it's a waste of paper and no one looks at them. If they want one, they'll ask. It's a complete



more of that culture here.”

DR FINN GIULIANI, LECTURER, MECHANICAL ENGINEERING

“To be honest, like most people, I am better with my recycling habits at home than I am at work. I used to live in Sweden for a few years and they are far more dramatic and advanced with their environmental campaigns and are strong believers in reduction and waste management. I'd like to see



19 MAY ▶ GRANTHAM INSTITUTE FOR CLIMATE CHANGE ANNUAL LECTURE

Energy; climate; action: what next in a world of denial?

In this talk Professor Chris Rapley, Director of the Science Museum, will link human energy use with climate change and provide evidence that,

despite recent controversies, human-induced climate change is happening and requires a response. He will discuss the various ways to progress, and potential pitfalls. Chris' interests are in climate change and earth system science, as well as communication of science. Chris was awarded the 2008 Edinburgh Science Medal for making 'a significant contribution to the understanding and wellbeing of humanity'.



8 JUNE ▶ FRIENDS OF IMPERIAL LECTURE

The hunt for Higgs Boson and the unknown

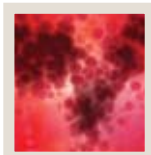
Professor Jordan Nash and the Imperial High Energy Physics team are searching for the Higgs Boson and other unknown and unexpected forms of matter using the Large Hadron Collider at the

European Organization for Nuclear Research known as CERN, near Geneva. In his lecture he will explain how evidence is emerging and what its implications are for our understanding of the universe. Professor Nash has been working on the project for the last two decades and is the CMS electronics coordinator, which involves making sure that all the electronics that read the experiment's results.

4 MAY ▶ ALMROTH WRIGHT LECTURE

New functions of wild type and mutant p53

Professor Karen Vousden, Beatson Institute for Cancer Research, Glasgow



6 MAY ▶ LUNCHTIME CONCERT

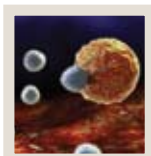
Florilegium

Read Lecture Theatre

11 MAY ▶ ALMROTH WRIGHT LECTURE

Evolution and aurgury in autoimmune disease; FcRs, malaria and CD8 T cells

Professor Ken Smith, University of Cambridge



12 MAY ▶ TALK AND FREE TOUR

Would you ever have thought such a thing possible?

Kevin Brown, Curator, Alexander Fleming Laboratory Museum St Mary's Campus

12 MAY ▶ INAUGURAL LECTURE

Touching a raw nerve: neuropathic pain in HIV/AIDS

Professor Andrew Rice, Professor of Pain Research

18 MAY ▶ LUNCHTIME CONCERT

Lendvai string trio

Wolfson Education Centre, Hammersmith Campus

18 MAY ▶ ALMROTH WRIGHT LECTURE

Asthma: a simple concept but a complex disease leading to new therapeutic opportunities

Professor Stephen Holgate, University of Southampton

19 MAY ▶

GRANTHAM INSTITUTE FOR CLIMATE CHANGE ANNUAL LECTURE

Energy; climate; action: what next in a world of denial?

Professor Chris Rapley, Director, Science Museum and Professor of Climate Science at University College London



25 MAY ▶ ALMROTH WRIGHT LECTURE

Anti TNF therapy: the foundation of anti-cytokine medicine

Professor Marc Feldmann, Kennedy Institute of Rheumatology

1-11 JUNE ▶ EXHIBITION

An exhibition promoting the work of Imperial's Outreach Office

Blyth Gallery

8 JUNE ▶ FRIENDS OF IMPERIAL LECTURE

The hunt for Higgs Boson and the unknown

Professor Jordan Nash, Department of Physics

8 JUNE ▶ LUNCHTIME CONCERT

Leonid Gorokhov (cello), Caroline Palmer (piano)

Wolfson Education Centre, Hammersmith Campus

16-18 JUNE ▶ DRUID CONFERENCE

Imperial College Business School

17 JUNE ▶ SEMINAR

Annual scientific research meeting

Centre for Infection and Prevention Management

22 JUNE ▶ LUNCHTIME CONCERT

Tippett Quartet

Wolfson Education Centre, Hammersmith Campus



take note

Learning Needs Survey

To gather information on the changing development needs of Imperial staff and inform the delivery of training and development programmes, the Learning and Development Centre is conducting a Learning Needs Survey and would welcome feedback.



Please take a few moments to consider the skills you need for your role and complete the survey: www.survey.bris.ac.uk/imperial/lna

VOLUNTEERING

Classroom support volunteer

Project ID: 2316
 Organisation: Westminster Libraries
 Date: Ongoing
 Location: Queen's Park, Paddington, St John's Wood and Charing Cross

Westminster Libraries are looking for committed and reliable volunteers to be adult learning classroom assistants helping IT teachers in the classroom. All volunteers will need to be CRB checked. The successful applicants will be trained and provided with teaching materials before they start volunteering. Most of the work will be at

Queen's Park Library Learning Centre but the volunteers will be needed at other sites, including Paddington, St John's Wood and Charing Cross Libraries.



For more information

To take part in a scheme or to hear

more about volunteering in general, contact Petronela Sasurova:

☎ 020 7594 8141
 ✉ volunteering@imperial.ac.uk

For full details of over 250 volunteering opportunities please visit: www.imperial.ac.uk/volunteering

✉ Subscribe to the weekly newsletter by emailing volunteering@imperial.ac.uk

Stay in the loop

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

