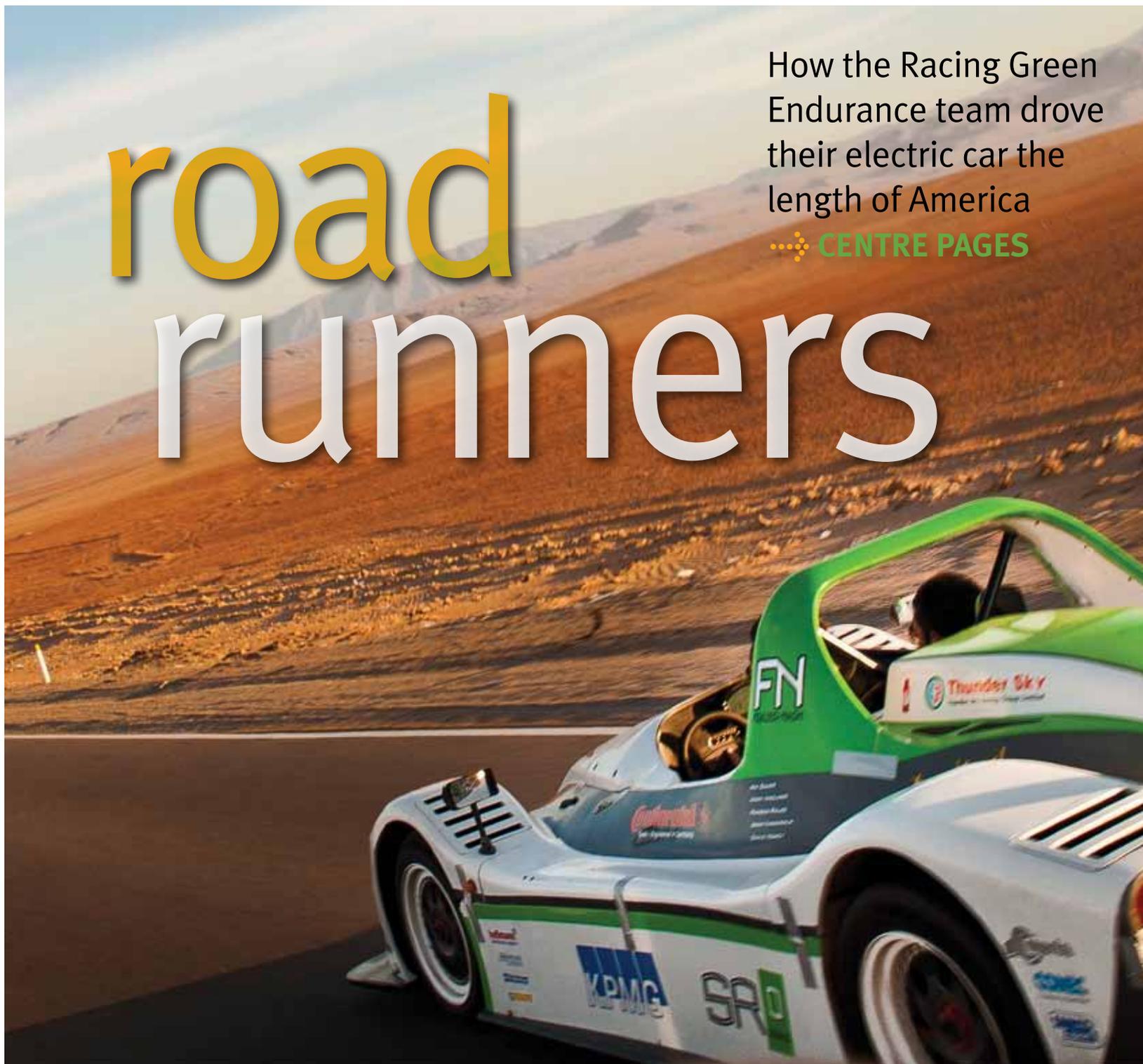


# road runners

How the Racing Green  
Endurance team drove  
their electric car the  
length of America

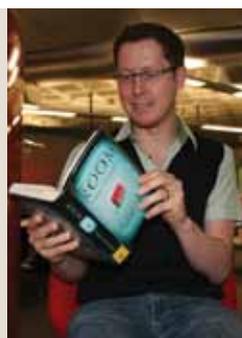
◆ CENTRE PAGES



**IMPERIAL  
INNOVATIONS**  
£140 million  
cash boost  
supports new  
inventions  
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**FACE-TO-FACE**  
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Beck reviews  
his book of  
the year  
**PAGE 12**



EDITOR'S CORNER

## Wrapping up

December is the month when everyone runs around trying to **tie up loose ends** before the winter break. Frustratingly, many of us have had problems getting in to work as the transport system has struggled to cope with the snow, but our minor battles were put into perspective when the Rector, Sir Keith O'Nions, received a call from the Moon Regan team on 2 December as they reached the South Pole after traversing 1,500 km in -43 degrees centigrade in the **Winston Wong Bio-Inspired Ice Vehicle** – a major landmark in their 3,600 mile scientific expedition across Antarctica. Ray Thompson from the Centre described how the team were wearing 'digital plasters' designed by scientists in the Institute of Biomedical Engineering, which were monitoring their vital signs in the extreme temperatures. Hearing Ray describe the icy Antarctic conditions, I felt grateful that **jumpers and ear-muffs** suffice in the London climate! Enjoy the break!

To hear Sir Keith's conversation with the team visit: [www3.imperial.ac.uk/news/moonregan](http://www3.imperial.ac.uk/news/moonregan)

EMILY ROSS, EDITOR

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## Launch of tribology centre

A new research centre focused on improving the performance of mechanical systems, such as cars, aeroplanes and industrial equipment, by reducing the friction between moving parts in their machinery, officially opened at Imperial on 2 December.

The College and SKF, a company which makes high performance bearings, seals and lubrication systems for industrial machinery, opened the SKF University Technology Centre in Advanced Modelling and Measurements in Tribology. Tribology is the science of how surfaces interact with one another in relative motion. By reducing friction between parts, the researchers hope to enable machinery to run more efficiently and reliably, leading to energy savings, lower costs and reduced carbon emissions.

The five-year collaboration will see

researchers at the College working in close cooperation with the SKF's Engineering Research Centre in the Netherlands, developing new advanced testing techniques, theoretical studies and computer models that will help SKF to develop solutions for prolonging the life of bearings, which enable parts in machines to move smoothly.

One area that researchers will focus on is analysing a group of lubricants used for bearings in the gearboxes of a range of machinery, from wind turbines to Formula One racing cars. These components are routinely subjected to extremely high pressures and stresses, causing friction, wear and tear, and the eventual replacement of parts.

—COLIN SMITH, COMMUNICATIONS AND DEVELOPMENT



Work at the Centre could see new bearings for use in gearboxes, creating less friction and increasing vehicle efficiency.

## Imperial mathematician wins Leverhulme Prize



Dr Tom Coates, Reader in Pure Mathematics (Mathematics), has been awarded a Philip Leverhulme Prize. The prize comes with a research grant of £70,000 and is awarded to outstanding scholars under the age of 36, who have "made a substantial contribution to their particular field of study, recognised at an international level, and where the expectation is that their greatest achievement is yet to come". Dr Coates studies the geometry of manifolds, or curved spaces, using techniques inspired by theoretical physics. Examples of manifolds include the surface of a sphere or the surface of a bagel, which are both curved two-dimensional spaces, or the curved four-dimensional

space-time that, according to Einstein's general theory of relativity, makes up the fabric of the universe.

Dr Coates intends to use the Leverhulme Prize to tackle a fundamental problem in geometry which has resisted attack for more than 70 years: finding the list of Fano manifolds. Introduced by the Italian mathematician Gino Fano in the 1930s, these are 'atomic building blocks' in geometry. Many other manifolds can be broken down into pieces that are Fano manifolds.

"I was surprised and delighted to receive a Leverhulme Prize. It will give a huge boost to one of my most promising research projects," Dr Coates said. "I will use the prize money to bring my collaborators, who are scientists based in Tokyo, Kyoto and Moscow, to Imperial for extended visits. Collaboration in person is always much more effective than working over email," he added.

—ADAPTED FROM A PRESS RELEASE ISSUED BY THE LEVERHULME TRUST

Imperial College  
London

## A healthier you!

Ethos is offering a basic health check for just £10. A basic health check includes body fat analysis, blood pressure, lung capacity and height or weight checks, and a calculated body mass index.

All bookings include a free follow-up health check in six months' time, so you can ensure that you are on the right track to a healthier lifestyle.



## £140 million innovation investment boost following fundraising by Imperial Innovations

On 7 December, Imperial Innovations Group plc announced to the London Stock Exchange a fundraising worth £140 million, which will boost support to inventions inspired by research at the College.

Imperial Innovations commercialises technologies and discoveries arising out of Imperial's research. The fundraising makes it the largest company in the UK investing in university inventions. The funds raised will accelerate the number and size of investments that can be made in Imperial spin-out companies, so that they can achieve their commercial goals more quickly.

Innovations is the first and only university-owned commercialisation company to be publicly listed on the stock exchange. It supports academic staff at the College with the translation of their ideas and discoveries for the commercial market, through licensing or by establishing new companies. Since April 2005 a technology pipeline agreement has been in place, giving Imperial Innovations the right, subject to certain exceptions, to exploit and commercialise the College's unencumbered intellectual property.

Rector, Sir Keith O'Nions, said: "The College was founded in 1907 with the express goal of applying its research for the benefit of society. In recent years, Imperial Innovations has played a fundamental role in



enabling us to realise that vision, and we are delighted that the company is going from strength to strength. With increased capacity to invest in companies, Imperial Innovations will enable the ideas and discoveries with the greatest potential to be fully supported and translated into products and services that can be used in industry, healthcare, and in a wide range of other applications."

Imperial Innovations also intends to invest in companies originating in other universities carrying out intensive scientific research. "Imperial welcomes the opportunity to work with colleagues at Oxford, Cambridge and UCL on technology commercialisation activities that may lead to interesting joint ventures between us," Sir Keith added.

—SIMON WATTS, COMMUNICATIONS AND DEVELOPMENT

## Lord Darzi's iPhone app



A new iPhone application, which empowers patients to make more informed decisions and better manage their health, was launched on 17 November.

The application, named *Wellnote by Dr Darzi*, is the first smartphone health portal of its kind that allows patients to rate the healthcare services they use, as

well as maintain their own health records, and set medication and appointment reminders.

Developed by Professor Lord Darzi and his team at the College and Imperial College Healthcare NHS Trust, the technology allows users to anonymously rate healthcare services in England in the same way that music can be rated on iTunes. These scores, along with official ratings by the government's Commission for Care Quality, are then available for all users to see and compare.

Users can also enter their medical history into the application, including any medical problems, allergies and test results. This information can then be easily emailed to their doctor or shown to a clinician in the event of an emergency.

The application has a list of more than 2,000 medications to help patients enter their prescriptions. Users can create alerts to remind them when to take which tablets – a particularly useful feature given that up to half of patients do not take their medication correctly.

Professor Darzi, Chair of the Institute of Global Health Innovation at the College and consultant surgeon at Imperial College Healthcare NHS Trust, said: "*Wellnote* will empower the public by giving them the tools they need to make informed decisions about their health and well-being.

"By designing a new way for patients to share their knowledge based on personal experience, we will continue to drive up the quality of healthcare services in this country," he added.

—SAM WONG, COMMUNICATIONS AND DEVELOPMENT

### in brief



#### Centre for Health Policy

On 13 December the new Centre for Health Policy launched at Imperial within the Institute of Global Health Innovation (IGHI). The Centre, a joint venture between the Faculty of Medicine and the Business School, will play a key role in fulfilling the

IGHI's remit to influence health policy. It aims to help governments, clinical leaders and other decision-makers around the world to develop policies that will improve the health and well-being of their citizens. The Centre will be co-directed by Professor Lord Darzi, Chair of the IGHI, and Professor Peter Smith, Professor of Health Policy (Business School).

#### New postgraduate certificate

On 1 December, the Education Office held a symposium to discuss new ways to give more tailored support to staff with a role in teaching and learning. As part of this approach, the Educational Development Unit plans to introduce new Postgraduate Certificate, Diploma and Master's qualifications. It is intended that the PG-Cert, which is designed for any Imperial staff with appropriate experience and interest in teaching, will offer a flexible, tailored approach that focuses on practice-based learning. The Unit expects that those presently working towards the Certificate of Advanced Study in Learning and Teaching (CASLAT) will be able to count this towards the new programme. Those who have already completed CASLAT can develop their interest further through the new Diploma and Master's.

#### Chief Financial Officer and Support Services Divisions

The following changes to responsibilities will come into effect from 1 January 2011, following the departure of Dr Martin Knight, Chief Operating Officer, who leaves the College on 31 December 2010 after 18 years of service. Mr Andrew Murphy, Director of Finance, will become Acting Chief Financial Officer, reporting to the Rector. Professor Stephen Richardson, Deputy Rector, will assume responsibility for the following Support Services Divisions: Capital Projects and Planning, Commercial Services, Facilities and Property Management, Human Resources, ICT and the Reactor Centre. Professor Richardson will also assume responsibility for liaison with the College Fund and retain his responsibility for the Research Office.



## Lord Winston leads science outreach

Schoolchildren from seven academies in south London visited the Reach Out Lab at Imperial last month for an inspirational evening of science masterclasses led by Lord Robert Winston, Professor of Science and Society (Humanities).

Over the two evening events 48 pupils from Harris Federation Academies in areas including Crystal Palace, Bermondsey and East Dulwich were given the opportunity to get hands-on experience of science and medicine in action.

In a surgery simulation inside an inflatable operating theatre, they donned full surgical kit to work alongside Professor Roger Kneebone, Reader in Surgical Education (Surgery and Cancer), and his medical team, to stem the flow of blood from a knife wound on a life-sized prosthetic dummy. They also participated in a workshop to remove lesions from prosthetic limbs and a rat dissection masterclass led by Professor Winston. One event was targeted at pupils aged 16 and over, and another was aimed at younger students.

Events such as these, suggested Lord Winston, are a necessity to redress the relative failure of science teaching in our schools. "Almost 30 per cent of schools don't even have science labs," he said. "We need to inspire science teachers as much as the pupils...we need to give them the opportunity to inspire their students through practical experiments."

— SIMON WATTS, COMMUNICATIONS AND DEVELOPMENT

Hear what schoolchildren thought about the Reach Out lab experience: [www3.imperial.ac.uk/news/reachoutlab](http://www3.imperial.ac.uk/news/reachoutlab)

# Horizon awards ceremony



An awards ceremony was held at the College on 7 December to celebrate the achievements of three cohorts of Imperial staff, who have completed the Horizon Leaders Programme.

The programme, developed and coordinated by Judy Barnett, Talent Development Manager (HR), focuses on Professional Services staff, who have been identified as having the ability and potential to work at a more senior level within the College.

Dr Martin Knight, the College's Chief Operating Officer, presented the 42 participants, ranging from departmental administrators to specialists in the support services, with their certificates. Congratulating them, Dr Knight said:

"If you have talented people in the organisation, it is very important to give them responsibility. The Horizon Leaders Programme is all about supporting talent in the College."

The Horizon programme lasted for 10 months, beginning with a two-day Learning and Development Centre workshop. Alongside modules and masterclasses, participants had the opportunity to be involved in cross-College projects. They also received coaching support and shadowed a senior member of staff.

—JOHN-PAUL JONES, COMMUNICATIONS AND DEVELOPMENT

To hear more about the programme from some of Horizon's participants visit: [www.imperial.ac.uk/reporter](http://www.imperial.ac.uk/reporter)

## Researchers and innovators blitz two IET award ceremonies

Three leading researchers from the College, a visiting professor and an Imperial spin-out company won a trove of awards at two ceremonies organised by the Institution of Engineering and Technology (IET), held in London on 24 November.

At the IET Achievement Medal ceremony, which recognises the exceptional achievements of individuals working in engineering and technology, Professor Donal Bradley, Deputy Principal of the Faculty of Natural Sciences, received the IET Faraday Medal, which is the organisation's highest honour. From the Department of Electrical and Electronic Engineering, Professor Erol Gelenbe received the Oliver Lodge Medal for Achievement in Information Technology, Professor Ron Hui received the Crompton Medal for Achievement in Power, and Professor Vincent Poor, a visiting professor from Princeton University and member of the US National Academy of Engineering, received the Ambrose Fleming Medal for achievement in communications.

At the IET 2010 Innovation Awards gala ceremony and dinner, Imperial spin-out company DNA Electronics won three awards in the electronics, emerging technologies and healthcare categories. The company is developing a prototype healthcare device that assesses whether patients are genetically predisposed to suffering adverse reactions to prescription drugs.

—COLIN SMITH, COMMUNICATIONS AND DEVELOPMENT



Winners of the IET Achievement Medal  
Pictured top, left to right: Professor Ron Hui, Professor Vincent Poor, Professor Donal Bradley and Professor Erol Gelenbe.

Winners of the IET 2010 Innovations Awards  
Pictured bottom, left to right: Sam Reed, Director of Product Development, Leila Shepherd, Chief Technology Officer, Suzi Perry, Presenter of Award, and Professor Chris Toumazou, CEO and Founder of DNA Electronics.

## media mentions

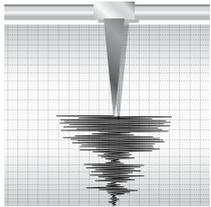
—SAM WONG, COMMUNICATIONS AND DEVELOPMENT



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

NEW SCIENTIST ▶ 18.11.2010

### Panama canal due a big earthquake



A seismological survey of faults around the Panama Canal has warned that it could be in serious

danger of a catastrophic earthquake, *New Scientist* reported. The research revealed that two known faults adjacent to the canal are far more active than previously thought, raising the possibility of a major quake. “The study puts forward a convincing argument for them to be linked, and the longer the fault, the larger the potential earthquake magnitude,” said Clark Fenton (Civil and Environmental Engineering), a senior lecturer in seismic hazards. He added that Panama City was also in serious danger: “As one of the oldest cities in Central America, it has an abundance of heritage buildings that will have very little resistance to strong seismic shaking.”

THE TIMES ▶ 19.11.2010

### Questions over mental health laws

More information is needed to ascertain whether changes to mental health laws in 2007 have improved patient care, wrote Professor Anthony Maden (Medicine) in *The Times*. Compulsory treatment orders in the community were introduced to allow patients to continue their treatment out of hospital. But figures from the Quality Care Commission suggest that many patients receiving these orders are seriously ill. “The main attraction of the new measure was that it would help patients to remain out of hospital when they were relatively well,” Professor Maden wrote. “Research is urgently needed to determine whether some patients are being discharged prematurely.”

THE GUARDIAN ▶ 20.11.2010

### Mine explosion “alarming and puzzling”



The Pike River mine explosion, which led to the deaths of 29 miners in New Zealand, was surprising because of the country’s high standards of safety, according to *The Guardian*. Coal mines remain the most dangerous because of the risks of methane gas build-ups and coal dust explosions. “What’s really surprising is this is a very modern mine in a country which has stringent enforcement of all regulations,” said mining expert Professor Dennis Buchanan (Earth Science and Engineering). “Therefore there would be a heightened awareness of this kind of risk. It’s in New Zealand within a modern mine using the latest technology – in that sense it’s very alarming and puzzling.”

THE WALL STREET JOURNAL ▶ 25.11.2010

### Price hikes hit libraries

British research libraries are calling for journal publishers to exercise restraint in pricing as their budgets come under increasing pressure, *The Wall Street Journal* reported. Publishers plan to increase subscription prices by three to six per cent, just as the government cuts funding for universities and library budgets are being capped. Libraries might be forced to cancel many subscriptions. “It’s a complete mismatch,” said Deborah Shorley, Director of Library Services at Imperial. “They don’t seem to understand that we just don’t have the money.” Publishers insist that libraries are getting more content each year and seeing higher levels of usage.



## awards and honours

ENGINEERING

### IChemE recognises Maitland



Professor Geoffrey Maitland (Chemical Engineering and Chemical Technology) was awarded the Chemical Engineering Envoy Award by the IChemE (Institution of

Chemical Engineers) at a gala dinner in Manchester on 10 November. Professor Maitland was recognised for his outstanding efforts in providing scientific expertise to the media during the high-profile oil spill disaster in the Gulf of Mexico earlier this year.

NATURAL SCIENCES

### Young Scientist Award on Environmental Issues

Research Associate Dr Rocio Araceli Diaz-Chavez (Environmental Policy) has been awarded the Young Scientist Award on Environmental Issues by the Scientific Committee on Problems of the Environment (SCOPE) and Zhongyu Environmental Technologies Corporation. Dr Diaz-Chavez was recognised for her research related to environmental

management. The award was presented at the International Symposium on Urban Futures and Human and Ecosystem Wellbeing in Shanghai by UNESCO, the Chinese Academy of Sciences and SCOPE at the end of October.

ENGINEERING

### Nethercot joins ATSE



Professor David Nethercot, Head of the Department of Civil and Environmental Engineering, has been elected as a fellow of the Australian Academy of Technological Sciences and Engineering (ATSE). ATSE is an independent, non-governmental organisation, promoting

the development and adoption of existing and new technologies to improve and sustain Australian society and economy.



NATURAL SCIENCES

### Maier wins new fellowship

Stefan Maier, Professor of Nanophotonics (Physics), has been awarded the Fellowship of the Optical Society of America for his outstanding contributions to the fundamentals, technology and applications of plasmonics. A medal will be presented to Professor Maier at a prestigious conference on lasers and electrooptics (CLEO) held in Munich in May 2011.

## Stone Age humans needed more brain power to make big leap in tool design



Stone Age humans were only able to develop relatively advanced tools after their brains evolved a greater capacity for complex thought, according to a new study, published in *PLOS One* on 3 November, led by Dr Aldo Faisal (Bioengineering and Computing). The research investigates why it took early humans almost two million years to move from razor-sharp stones to a handheld stone axe.

Researchers used computer modelling and tiny sensors embedded in gloves to assess the complex hand skills that early humans needed to make two types of tools – razor-sharp flakes and handheld axes – during the Lower Palaeolithic period, which began around

2.5 million years ago. The cross-disciplinary team employed a craftsman called a flintnapper to faithfully replicate ancient tool-making techniques.

The team deduced from their results that using an axe tool required a high level of brain processing in the overlapping areas of the brain, that are responsible for a range of different functions, including vocal cords and complex hand gestures.

Dr Faisal said:

“Interestingly, our study reinforces the idea that tool making and language evolved together, as both required more complex thought, making the end of the Lower Palaeolithic a pivotal time in our history.

“Our study reinforces the idea that tool making and language evolved together”

After this period, early humans left Africa and began to colonise other parts of the world.”

This is the first time that neuroscientists, archaeologists, anthropologists and flintnappers have teamed together to develop a deeper understanding of early human evolution. In the future, the team plans to use its technology to compare tools made by Neanderthals, an extinct ancestor of humans, to glean insights into their brain development.

—COLIN SMITH, COMMUNICATIONS AND DEVELOPMENT



## Genome of barley disease reveals surprises

Imperial scientists have sequenced the genome of a major fungal disease that affects barley and other cereal crops. The research, published on 9 December in *Science*, suggests that parasites within the genome of the fungus help the fungus to adapt and overcome plant defences. The findings could advance our understanding of how plant diseases evolve and improve food security.

The research, led by Dr Pietro Spanu (Life Sciences), decodes the genome of *Blumeria*, which causes powdery mildew in barley. Plants become covered in powdery white spots that prevent them from cropping, which has a devastating impact on agricultural yield.

*Blumeria* often evolves too rapidly for current prevention methods, such as fungicides and crop rotation, to be effective. The new research suggests that this rapid evolution occurs because the fungus genome contains multiple parasites, known as transposons, which help the fungus disguise itself and go unrecognised by the plant's defences. It is as though the transposons confuse the host plant by changing the target molecules that the plant uses to detect the onset of disease.

The researchers discovered that *Blumeria* had unusually large numbers of transposons within it. “It was a big surprise,” said Dr Spanu, “as a genome normally tries to keep its transposons under control. But in these genomes, one of the controls has been lifted. We think it might be an adaptive advantage for them to have these genomic parasites, as it allows the pathogens to respond more rapidly to the plant's evolution and defeat the immune system.”

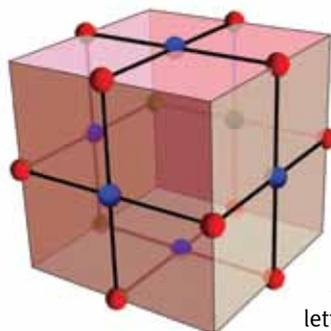
—KATHERINE BARNES, COMMUNICATIONS AND DEVELOPMENT

## Quantum computers a step closer

Quantum computers should be much easier to build than previously thought because they can still work with a large number of faulty or even missing components, according to a study from the Department of Physics published on 9 November in *Physical Review Letters*.

Computers built at the quantum level have parts made of just single atoms and electrons. Instead of using ‘bits’, the building blocks normally used to store electronic information, quantum systems use quantum bits or ‘qubits’, made up of an arrangement of entangled atoms. This should, in theory, enable quantum computers to perform powerful calculations much faster than a normal computer. But the machines have been notoriously hard to build and were previously thought to be very fragile and prone to errors.

However, Dr Sean Barrett (Physics), working with Dr Thomas Stace from the University of Queensland, has now found a way to correct errors where qubits are lost from the computer altogether. They used a system of error-correcting code, which involved looking at the context provided by the remaining qubits to decipher



the missing information correctly.

“Just as you can often tell what a word reads when there are a few missing

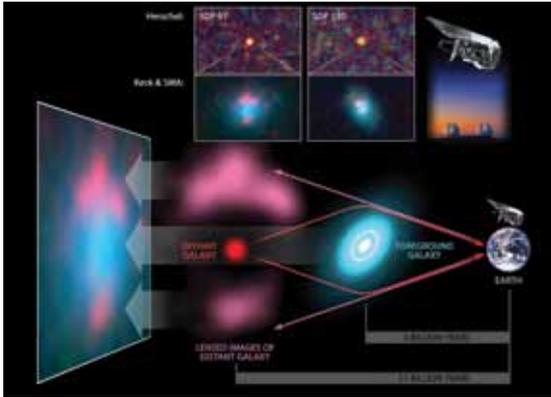
letters, or you can get the gist of a conversation

on a badly connected phone line, we used this idea in our design for a quantum computer,” said Dr Barrett.

This surprising discovery brings scientists one step closer to designing and building real-life quantum computing systems – devices that could have enormous potential across a wide range of fields, from drug design to electronics and even code-breaking.

—KATHERINE BARNES, COMMUNICATIONS AND DEVELOPMENT

## Researchers peer into distant galaxies using cosmic zoom lenses



Astronomers have discovered a new way of finding cosmic zoom lenses, which allow them to peer at galaxies in the distant universe, using the European Space

Agency's Herschel Space Observatory. The results were published on 5

November in a study in the journal *Science*, co-authored by researchers from the Department of Physics.

When light from a very distant object passes

a galaxy much closer to us, its path can be bent by gravity so that the image of the distant galaxy is magnified and distorted. These alignment events are called

'gravitational' or 'cosmic zoom' lenses. The magnification they provide allows astronomers to study much

fainter galaxies, and to see in more detail than would otherwise be possible. The events are the key to understanding how the building blocks of the

**"Lensing is a great new way to study dusty objects at great distances"**

universe have changed since their infancy.

As with a normal glass lens, the alignment is crucial, requiring the position of the lens – in this case a galaxy – to be just right. This is very rare and astronomers have to rely on chance alignments, often involving sifting through large amounts of data from telescopes.

Most methods of searching for cosmic zoom lenses have a very poor success rate, but Herschel's panoramic imaging cameras have allowed astronomers to find examples of these lenses by scanning large areas of the sky in far-infrared and sub-millimetre light.

Dr David Clements (Physics), co-author of the study, said: "Lensing is a great new way to study dusty objects at great distances."

— ADAPTED FROM A NEWS RELEASE ISSUED BY THE SCIENCE AND TECHNOLOGY FACILITIES COUNCIL

## X-rays illuminate mechanism used by HIV to attack human DNA

Scientists from Imperial have used data collected at Diamond Light Source, the UK's national synchrotron facility, to advance our understanding of how HIV and other retroviruses infect human or animal cells. The research, which was funded by the Medical Research Council, was published in *Nature* on 12 November.



Using Diamond's finely tuned pinpoint X-ray beams, the researchers were able to determine 3D structures of the key molecular machine used by viruses, such as HIV, to insert copies of their genetic material into host DNA.

This fundamental knowledge will facilitate the design of better drugs to fight AIDS and may also have an impact on pioneering treatments, such as gene therapy, an experimental technique using 'tamed' versions of viruses to treat genetic disorders. One of the main problems with the current method is that retroviral integration is too random, but the new structural information from this study will now help researchers to tweak the retroviral integration

machinery to make it more suitable for practical applications.

"It has truly been a breathtaking ride," said lead researcher Dr Peter Cherepanov (Medicine). "Only 18 months ago, we had a rather sketchy understanding of retroviral integration. Now we have obtained snapshots depicting the whole process in atomic detail. The new 3D structures capture the retroviral integration machine in action."

One condition which this new research could help to treat is 'bubble boy' disease, where a defective gene causes sufferers to have little or no immune system, sometimes forcing them to live permanently inside a sterile environment to avoid infection.

— ADAPTED FROM A NEWS RELEASE ISSUED BY DIAMOND LIGHT SOURCE

## 'Space-time cloak' can conceal events

Scientists have developed a recipe for manipulating the speed of light as it passes over an object, making it theoretically possible to 'cloak' the object's movement, according to a paper published on 16 November in the *Journal of Optics* by researchers led by Professor Martin McCall (Physics).

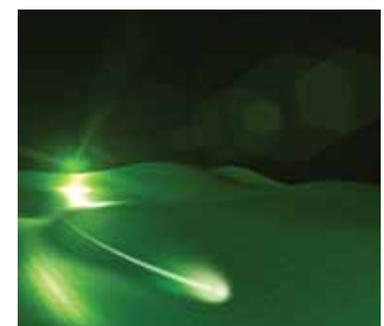
The study involves a new class of materials called metamaterials, which can be artificially engineered to distort light or sound waves. With conventional materials, light typically travels along a straight line,

but with metamaterials, scientists can exploit a wealth of additional flexibility to create undetectable blind spots. By deflecting certain parts of the electromagnetic spectrum, what is seen can be altered or made to look like the object has disappeared.

Previously, a team led by Professor Sir John Pendry (Physics) had shown that metamaterials could be used to make an optical invisibility cloak. Professor McCall's team has now mathematically extended the idea of a cloak that conceals objects to one that conceals events.

Such a space-time cloak would open up a temporary corridor through which energy, information and matter could be manipulated or transported undetected. "If you had someone moving along a corridor, it would appear to a distant observer as if they had relocated instantaneously, creating the illusion of a Star Trek transporter," said Professor McCall. "So, theoretically, this person might be able to do something and you wouldn't notice!"

Metamaterials is an expanding field of science with a vast array of



potential uses spanning defence, security, medicine, data transfer and computing.

— KATHERINE BARNES, COMMUNICATIONS AND DEVELOPMENT

# Electric dreams

On 17 November after 140 days of travelling, including 70 days at the steering wheel, a team of Imperial undergraduates, postgraduates and alumni drove their all-electric Radical SRZero supercar to the finish of a 26,000-kilometre journey. *Reporter* finds out how the talented team designed and built the electric car in just nine months before driving it down the Pan-American Highway, conquering some of the world's hardest roads and overturning common perceptions about electric vehicles.



## Beginnings

When the 10-strong Racing Green Endurance team began planning their ambitious trip through the Americas in 2009, they had a number of key aims: to demonstrate the exciting potential of Electric Vehicles (EVs) as a low carbon form of transport, to encourage a younger generation to take up science and technology subjects, by presenting to school children in every country they drove through, and to communicate their experiences to the public through the international media.

Alexander Schey, Project Manager of Racing Green Endurance and a Mechanical Engineering graduate, explains that the team wanted to challenge the notion that electric cars are slow, have a limited range, take too long to charge and are generally far too boring to compete with the excitement of an internal combustion engine car. By driving an electric car down the longest road in the world, across varied terrain and extreme climates, they would prove the robustness of EVs.

To maximise the amount of attention the electric car received along the route, the team decided to design something flamboyant, sporty and memorable.

"Public perception is important because if people still believe that electric cars are slow and boring, then big car companies will never have the incentive to mass produce EVs in a big way, as the market would be too small. Mass production is really important in the face of depleting fossil fuels," Alex explains.



## Planning

The planning and design of the electric car took just nine months, with the team working round the clock in a garage they rented in Maida Vale. Academics, including Professor Nigel Brandon, Director of the Energy Futures Lab, Dr Ricardo Martinez-Botas (Mechanical Engineering) and Postdoctoral Researcher Dr David Howey (Mechanical Engineering), offered the team advice on the design, engineering and mechanics of the car and also helped them to manage the team's finances and health and safety issues.

Ricardo explains that ensuring the electrical and mechanical robustness of the car was paramount. "We followed College procedures for health and safety in the same way as we would for any research project, and the team conducted safety audit and risk assessments on every aspect of the development."

The main design challenges were finding an appropriate waterproof packaging solution for the many batteries and other components in such a small car. Other challenges came in working out the bugs in the control software they had developed and keeping the car safe.

The skills the team learnt from their engineering degrees helped with the technical side of designing the car, boosted by their involvement in the Faculty of Engineering's Imperial Racing Green project, which introduced them to the technicalities of building electric vehicles.



1. Team members Toby Schulz and Alexander Schey working hard on the electric vehicle in the Radical Sportscars factory in Peterborough.

2. Driving through the heat of the Atacama desert, Chile.

3. Clemens Lorf and Alexander Schey speak to the public at a KPMG media conference in Mexico City.

4. Throughout the journey, schoolchildren were attracted to the bold appearance of the Racing Green Endurance vehicle.



2

### Sponsorship

Sponsorship was essential for the programme to succeed and the students worked hard to pull in money to cover publicity and travel, and to buy individual components for the car.

The team ended up with 35 sponsors. Some, such as KPMG, Continental and Capris, provided cash, while others, such as Radical Sportscars, which makes petrol-powered track racers, Imperial spin-out EVO Electric and battery company, Thunder Sky, provided the team with the chassis and bodywork, motors and batteries. They were assisted by the legal team at Imperial, who helped them draw up contracts. Commenting on the team's success in acquiring so much funding in the heart of the recession, Dr David Howey, Staff Manager of the project, says: "They

are a very resourceful and tenacious bunch – they just kept pushing and never gave up."

### Journey

After months of logistics, rigorous checking and trial runs, the team set off from Alaska on 3 July 2010. Fourteen-hour driving shifts were exhausting but Alex says that the experience of driving the electric car made it all worth it. "Before you know it, you are silently gliding along at 100mph with just the noise of the wind and the tyres on the road to accompany you. The direct steering makes for an unbelievable handling experience," he adds.

The weather was one of the team's key concerns before they left, as the car had an open top. The team coped by layering-up in the higher altitudes, and sporting swimming shorts and



3

flip flops in the torrential rain in Central America.

As for the car, Ricardo was impressed with its durability. "In terms of the mechanics, the performance of the car in these extreme conditions and terrains – from the Andes to the desert – was fantastic: this alone is a massive achievement for the team," he comments.

The team kept in close contact with the College throughout the trip but only reported a couple of minor problems. "Having a shock absorber fail while driving and causing me to spin off the road was definitely the scariest part," Alex confesses. "Fortunately there was no oncoming traffic and the car came to rest in soft soil, but this could easily have spelled disaster!"



4

### Outreach

While the drive was a key attraction for the team, it was the outreach activities that really made their trip. One of Alex's highlights included talking to pupils who met the team at the finish line in Ushuaia, Argentina. "Our presentation skills honed during our time at uni helped us significantly," Alex said.

The bold appearance of the car had the desired effect and drew in the crowds wherever they went. "We had literally thousands of people come up to us in the street and ask what it is, why we're doing it, and how an electric car could be this cool," says Alex.

The only undergraduate in the team, Pambo Palas (Mechanical Engineering), adds: "Being able to tell the crowds that the vehicle can travel some 340 miles on a single charge for only £5 and seeing how surprised they were, made me feel incredibly happy. We most definitely changed the way they look at electric vehicles!"

To communicate their experiences to the wider public the team wrote a blog, used Facebook and Twitter and uploaded countless photos. They also managed to get Claudio von Planta, a world-famous documentary film maker, to join them on the trip and, as a result, a documentary series of the project will begin airing on BBC World News on 1 January.

### Future

While the official journey is over, the work continues for one of the Racing Green Endurance team members, PhD student Clemens Lorf, who has collected vehicle and battery degradation data from the whole journey, which will provide a tremendous research database for Imperial. Ricardo, Clemens' PhD supervisor, says: "Data on the durability of batteries is very scant and no-one has ever collected this type of info on a journey of this scale."

Speaking about the team's success, Nigel Brandon says: "It is very exciting to see what a motivated and talented team of Imperial's young engineers can achieve – both the team and the programme are fabulous ambassadors for Imperial and its students."

—EMILY ROSS, COMMUNICATIONS AND DEVELOPMENT

For films, videos and to read a blog of the journey visit: <http://racinggreenendurance.com>



# Personal touch

Reporter speaks to Imperial College Union President Alex Kendall.

## Why did you decide to stand for President?

I've always been involved in clubs and societies, in particular the Fellwanderers, and I wanted to give something back to student activities by getting people involved and engaged with the Union.

## How are you different to previous presidents?

I like to think that I'm more visible; I prefer having face-to-face meetings rather than emailing, as I think it's a better way of building relationships. I've started to have weekly surgeries at the Student Hub in the Sherfield Building, where I sit for an hour and a half and people can come to talk to me. Some students come to speak to me about issues, such as finances, and others come to me with suggestions, for example about the farmers market in Beit Quad

or interfaculty competitions.

I think that if MPs can hold surgeries when they have many more constituents, then the Union can. Having said that, the MP for Westminster doesn't hold surgeries, so I've beaten him on that one!

## What's it like working at Imperial rather than being a student?

I think it's a strange situation because other people who work for the College start at the bottom and work their way up, but I've been suddenly thrust into a top position. I like interacting with Heads of Departments about ideas, whether they relate to academic faculties or administrative departments, and seeing big changes happen. The College staff are very open to new ideas and are far more student-friendly than many students seem to think!

## What are the key problems that the Union faces?

We've had a bit of a problem with visibility. The clubs and societies do a lot of work to promote themselves, but we could do a lot better with communication, especially with events that we run such as nights in *Metric* or campaign weeks. I'm trying to improve this by using our Facebook group to promote our events more, and in the last three months, I've managed to double the number of members of the Facebook group to 1,600.

## Is there anything you would like to change about the College?

It would be brilliant if postgraduate students were represented on Union committees and committees for clubs and societies in the same proportion as they are in the College as a whole. Postgraduates are less likely to get involved in clubs and societies, partly because they don't all have Wednesday afternoons off to participate in meetings, as undergraduates do. I hope that we can get to the point where there are enough societies tailored to postgraduate needs for them to get more involved. At the beginning of this term we organised a postgraduate mingle, which was a great success, drawing in over 1,100 postgraduates.

## You recently spoke out in support of the Browne Review. Were you concerned about going out on a limb?

I might have been if my friends and others at Imperial hadn't agreed with my opinions. The vast majority of people on the Union Council voted in support of the Browne Review's suggestions. Students should take more responsibility for their education. When I was at school, university was seen as the automatic next step, but I don't think it should be. There are many more options

available, such as apprenticeships and internships. Those of us who enter higher education need to recognise its value, and be willing to contribute to the cost.

“College staff are very open to new ideas and far more student-friendly than many students seem to think!”

## What do you hope to achieve this year?

I want to achieve charity registration for the Union, which is part of the greater goal of getting all the right administrative and financial checks and balances in place. This doesn't sound exciting, but it means that the Union will have a more secure future. The implementation of the Charities Act (2006) means that we now have to register, and part of the process is to write a five-year strategic plan. As well as this, I'm keen to achieve greater student participation in Union activities.

## What are your plans for after your presidency?

I'm applying for a PhD in plant science. I'm also applying to the Exploration Board for funding for myself and a group of my friends to spend a month in the summer trekking across Svalbard, an Arctic archipelago at the northernmost point of Norway. We're going to ask if any departments need data to be collected. Polar bears are the biggest consideration in the risk assessment – we have to get a firearms licence and carry a rifle at all times, so that we're prepared for any attacks. We're also having cross-country skiing lessons, which are great fun.

—KATHERINE BAYLISS, COMMUNICATIONS AND DEVELOPMENT

# inside

## story

### mini profile

## Katie Anders

Reporter speaks to Katie Anders, a social scientist working with the Postdoc Development Centre and the Graduate Schools. Her work focuses on how doctoral and postdoctoral researchers at Imperial see the role of creativity in their research, and the main factors that help, or hinder, their creativity.



between groups or departments; and the relationship researchers have with their supervisors or PIs.

### Why do we want to encourage more creativity in research at Imperial?

Creativity is a very significant skill for STEM researchers to develop and employ – it's central to the doctoral enterprise, and to personal and professional researcher development as a valuable and versatile transferable skill.

### How have you researched creativity at Imperial?

I've interviewed 35 PhD students, postdoctoral researchers and principal investigators (PIs) across the faculties, and combined the findings from these interviews with literature on creativity.

### What are the best environments for creativity?

We have identified several core environmental factors that might have a significant influence in helping, or hindering, creativity at Imperial. These include: the wider research culture of a department/working group; the frequency and quality of communication within and

### Did you discover a tension between science and creativity?

Many participants initially associated creativity with artistic rather than scientific endeavour, which they thought of as being freer from constraint. Some participants saw a difference between doing 'good', rigorous science and doing creative research. On the other hand, others perceived creativity as an essential part of innovative scientific research.

### How will your results be used?

As well as publishing key research findings in academic journals, one of the main objectives of the project is to communicate our findings in a series of good practice guides. We plan to publish three – one for PhD students, one for postdocs and one for supervisors and PIs.

*The good practice guides are due for publication in January 2011. Keep your eyes peeled for an update in Reporter.*

## Panel discussion on the global food crisis

Second year PhD student, Neave O'Clery (Bioengineering), who edits Imperial's new student union journal on international affairs, *A Global Village*, reports on a panel discussion on the global food crisis which she helped to organise.

"On 20 October, staff, students and visitors filled the Read Lecture Theatre in the Sherfield Building for an event focused on the role of the scientific community and international organisations, such as the United Nations World Food Programme (WFP), in tackling global food shortages, particularly in areas such as nutrition and catering for the millions affected by chronic disease.

The conference was chaired by the charismatic champion of neglected tropical diseases, Professor Alan Fenwick (Public Health), and the panellists were Professor Don Bundy, a leading specialist on school health and nutrition at the World Bank, Professor Peter Smith, Professor in Health Policy (Business School), and Caroline Hurford from the WFP. The panel was challenged to respond to tough questions on approaches to tackling hunger and catastrophic fluctuations in global food prices.



Speaking out on the global food crisis (L-R): Professor Alan Fenwick, Professor Peter Smith and Caroline Hurford.

Citing firsthand experience, a student from Kenya demanded to know why surplus milk stocks were allowed to spoil following a prolonged drought in the region in 2009. Many audience members voiced concern over population growth and the sustainability of feeding programmes in the future.

In response, Caroline Hurford emphasised the efforts of the WFP in buying and storing local produce where possible, and the role of education in reducing birth rates in developing countries.

Summing up the need for an integrated approach to nutrition and food distribution, Professor Smith encouraged the audience to think about the system as a whole, highlighting the interconnecting roles of science, engineering, organisation structure and economics."

### ▶ SCIENCE FROM SCRATCH

As explained by Hala Elhaj, MSc Science Communication

## Chromosomes

Chromosomes are long structures of DNA wrapped tightly around a chain of bead-like proteins called histones. The term 'chromosome' was coined when scientists first noticed that these structures can be strongly stained with some dyes used in the lab. It originates from the Greek words *chroma*, for colour, and *soma* meaning body. Chromosomes are found inside the nuclei of cells and carry the genetic information needed for development. The number of chromosomes differs greatly from one species to another; it can range from six in mosquitoes to 1,260 chromosomes in the cells of the Indian fern plant. For humans, plants and animals, the chromosomes are arranged in pairs, whereas cells of bacteria can host a single circular chromosome. In human cells there are 46 chromosomes, except in the sperm and egg cells, which carry only a single chromosome from each of the 23 pairs, so that when they merge during reproduction the new cell has the full set of chromosomes from both parents.



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

## Student blogger David on Frosty London:

blog SPOT

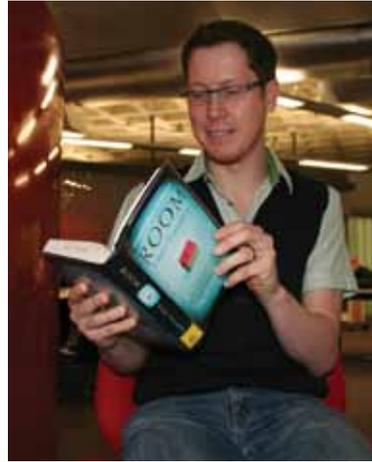
I'm Australian. That means that, when I wake up in the middle of the night for a drink and my breath is clouding the air inside, I'm out of my comfort zone. Fortunately, my flatmate explained how to use my heater the other day, so I'm now sitting in a 'toasty' 15°C room and looking out at a frosty lawn. It couldn't be much more different from what I get up to back home on the Gold Coast in Queensland. On the last day of winter this year, I was swimming at the beach in board shorts. It was a little chilly, but manageable. Here? Hmm... nah.

[www.imperial.ac.uk/campus\\_life/studentblogs](http://www.imperial.ac.uk/campus_life/studentblogs)

# Book review

**Book title and author:** *Room* by Emma Donoghue

**Reviewer:** Dan Beck, Principal Library Assistant, Business and Humanities, Central Library.



only by Ma's 'gone' days, when she can't bring herself to get out of Bed, and by the menacing visits of Old Nick, whose malignant arrival is announced by the beeping of Room's automated door lock. At these times, Jack is thankful of the safety of Wardrobe, where he sleeps safely away from

"Jack is five years old, and has lived his entire short life within the cramped confines of Room. Here, Jack lives a happy existence with Ma, their days filled with television shows, daily chores and games. This peaceful existence is darkened

the reach of Old Nick and his unwelcome intrusions. Will Jack and Ma ever escape Room and the clutches of Old Nick for the outside world? And how will they cope if they do?

*Room* is a poignant and affecting novel, nominated for the Booker Prize 2010. It was recommended to me by a colleague at Imperial, and it has been a hit in the Library office. The appeal of *Room* is in its ability to rise above the dark subject matter. This is admirably achieved by the use of an unexpected point of view. *Room* is very much Jack's story, and it is his innocent and honest narration that steers the plot through dark waters. The empathy I felt for Jack and Ma swept me up in their plight and kept me turning the pages."

*Pick up Room from the Central Library today.*

# Green ambassadors

Edoardo Borgomeo, MSci Environmental Geoscience, and Tom Wesby, MSci Geology and Geophysics, are ambassadors for the College's carbon reduction campaign, *StepChange*. Reporter finds out why they got involved in the project and what simple things we can do on a daily basis to be more sustainable.

## How did you get involved with *StepChange*?

**EB:** This summer, together with three other students, I entered a competition sponsored by the energy company npower that encouraged university students to promote sustainability in their community. We researched the environmental policy currently implemented at Imperial and immediately realised the importance of the *StepChange* campaign promoted by Facilities Management. The *StepChange* campaign

provided a platform to coordinate the efforts towards a more sustainable Imperial.

## What have you learnt from being involved in the campaign?

**TW:** I've always wanted to study at an institution that took environmental issues seriously and the College's *StepChange* campaign has given me the opportunity to help out. Working with Facilities Management has made me understand that becoming environmental isn't just about making changes to buildings: we need to change people's mindsets to have a lasting impact.

## What does it mean to be a *StepChange* ambassador?

**EB:** We act as a bridge between our Departments and Facilities Management. The key aim of our role is to help communicate issues and share information regarding wasteful energy use, recycling and other sustainability related issues. By working directly within the community, we hope we will also be able to evaluate the effectiveness of the *StepChange* campaign.

**TB:** We want Ambassadors to feel they can make a difference in the best way they know. They identify their



L-R: *Stepchange* ambassadors Tom and Edoardo

own problems and set about researching them through staff and students. They also collect feedback on energy usage problems from their areas. Often the kind of problems they identify have two positive outcomes – they may lower the thermostat to make a room more comfortable, and at the same time this also lowers the energy usage! This project is just as much about the future welfare of Imperial's employees and academics as it is about being green.

## What can staff do during their working day to help?

**TW:** Hit the sleep button when you are not using your computer and change your lab equipment only when necessary.

**EB:** Lead by example, suggesting best sustainability practices to your students and colleagues, and become involved in the *StepChange* campaign.

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



Professor Daniel Rueckert is Professor of Visual Information Processing (Computing) and co-founder of IXICO, an Imperial spin-out company and provider of imaging solutions to the pharmaceutical and medical devices industries.

### What has your group discovered which will help people with Alzheimer's?

By looking into computing techniques our group has developed algorithms that can extract clinically useful information from medical

## INVENTOR'S CORNER Detecting Alzheimer's

images. We are aiming to develop techniques that can detect, at a very early stage, whether a patient has Alzheimer's disease and what type it is.

### How will you do this?

Through an approach driven by computer science, which trains the algorithms or software to automatically extract biomarkers (criteria or numbers you can measure which strongly correlate with how the disease is progressing) from the images. This means that, instead of a clinician spending hours looking at and identifying images, it can be done automatically.

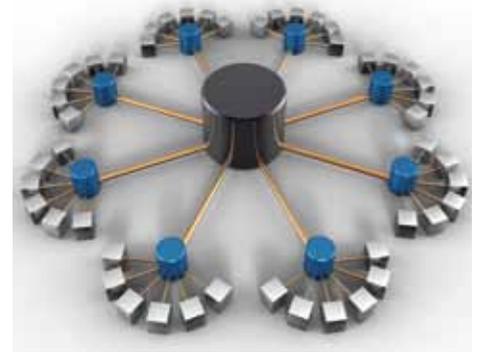
### What are the next steps?

Firstly, we want to use them to aid clinical trials. Treatments

for Alzheimer's are under development and being able to establish the various forms of the disease using our technique will help to target these developments. The biomarkers will help to chart how a drug reduces or slows down the disease.

Secondly, in relation to individual diagnosis, we want to develop a decision-support system that can help a clinician to come up with a better diagnosis for a particular patient. After an image has been taken, this technology will help the clinician to derive an index that will tell them what form of the disease the patient has, what stage it is at and its likely progression.

— ANOUSHKA WARDEN, IMPERIAL INNOVATIONS



## Successes in international development

Calum Handforth, Administrator (Environmental Policy), reports on an event he attended on 18 October at the Science Museum, where Bill and Melinda Gates gave a lecture on behalf of their foundation about successes in international development.

"At a time of unprecedented cutbacks and re-evaluation of global spending, Bill and Melinda Gates presented their *Living Proof* project at the Science Museum. The aim of the evening was to explain the real, demonstrable results that have occurred throughout the past few decades in terms of improvements in global health, reductions in disease prevalence, and successes in many other sectors of international development.

I went along, as I am currently working on a project at Imperial funded by the Gates Foundation that is advocating increased, and more appropriate, European donor support for agricultural development in sub-Saharan Africa.

Bill and Melinda thanked many representatives from the Department for International Development for the UK government's continued investment in international development. Coming only days before the UK's Comprehensive Spending Review, the event's focus was on demonstrating a 'return on investment', to ensure that the considerable audience present (and the significant number of webcast viewers) understood that international aid is not continually lost, diverted or used incorrectly, but can be a source for good, progress, opportunity and success."

## Neonatal Update



Dr Matthew Hyde, Research Associate in the Department of Medicine, describes his experience of helping out at Neonatal Update 2010 – an annual event specialising in neonatal medicine held between 15–19 November.

"Professor of Neonatal Medicine, Neena Modi, annually hosts Neonatal Update, an international conference on the science of newborn care. Throughout this year's event I helped out by shepherding delegates, carrying microphones and advertising the event.

Highlights included a lecture by Sir Ian Chalmers, who founded the Cochrane Collaboration, a powerhouse for

evidence-based medicine. Professor Alan Bittles from Edith Cowan University in Australia spoke on marriages between close relatives, a current hot topic in clinical, social and political spheres. Professor Douglas Altman from the University of Oxford, inventor of the Bland-Altman plot, a method of data plotting, lectured on how poor use of statistics can mislead and potentially harm lives in medical research.

Lively debate followed a lecture by alumnus and journalist Simon Singh, as delegates scrutinised the scientific merit of complementary medicine and discussed the ethical issue of selling products that may only have value through the placebo effect. The lecture included a salutary warning concerning UK libel laws and the risk they pose to scientists, as learned from Simon's lawsuit for libel following comments about the chiropractic practice."

## Vision conference

Ann Sturdy, a fifth year medical student, reports on being in the Vision outreach team, part of a scheme run by students from the School of Medicine, which aims to encourage students from state schools to study medicine.

"Being from a non-university family background, I was keen to be involved in outreach activities at Imperial and have helped with Vision since its first conference in 2007. This year the senior conference was held in September for year 13 students and the junior conference in November for students from years 10-12. In total, over 320 students attended and got the chance to develop their personal statements and interview skills, with over 50 medical students running tutorials and mock interviews. With the current uncertainty surrounding the future costs of studying medicine, I believe that outreach activities like these are more important than ever."

## obituaries



### MRS KAREN JONES

Karen Jones, Senior HR Administrator, died on 16 July 2010. Shirley Baker (Finance), Kim Everitt and Natasha Tubbritt (both HR) pay tribute to Karen on behalf of all her colleagues and friends at Imperial:

“Karen started working at Imperial on 1 August 1987 as a Payment Clerk in the Finance Division, where she worked with a number of col-

leagues who became close friends. Luckily for us in Human Resources, when Karen left Finance she joined the then Personnel Department as a Personnel Administrator. She was the key HR link for the academic departments and was very much a ‘frontline’ person, working hard helping to solve human resources issues.

Karen moved to the ICIS support and information team in September 2001. One of her key roles there was supporting teams managing staff contracts. She was responsible for producing reports on issues including leave, new starters and probation, and her knowledge of the College and the needs of academic and support departments helped her to understand how best to provide information and what would be most useful.

Karen was warm, gentle, understanding and kind. Everything about Karen was neat – from her desk to her coordinated clothes to her immaculate hair. She was incredibly methodical and organised, and this was reflected in the way she conducted her work, which was well respected throughout the College. Karen was very committed to Imperial and worked throughout her illness.

Outside work, Karen loved going to the gym and travelling but, most of all, she adored her husband, Bob – they would have celebrated their 20th anniversary in 2011. Karen also leaves behind her stepson, Andrew. Karen was a much loved colleague and friend, and we miss her more than words can say.”

Share your memories of Karen: [www3.imperial.ac.uk/news/karenjones](http://www3.imperial.ac.uk/news/karenjones)



### JOHN GREENWOOD

John Greenwood, Senior Security Officer (Security Services), lost his fight against pancreatic cancer on 14 September 2010. Terry Branch, Head of Security, pays tribute: “John Greenwood joined the Security Department on 9 December 2002, as a Security Officer at South Kensington. It did not take long for

his enthusiasm and incredible work ethic to make him extremely well-liked and respected by his peers.

In 2006 he was promoted to Senior Security Officer with a responsibility for all criminal investigations and also for liaising with the College’s halls of residence over security issues. As a result of his dedication, many crimes were solved and the police often commented on what an asset he was, not only to the College but also to the Metropolitan Police. John was a great communicator and was keen to improve staff and students’ perception of Security Services, greatly improving the reputation of the department. He enjoyed working here immensely and was very proud of his job, gaining great satisfaction in helping victims of crime.

John was a dedicated family man who leaves behind his wife, Yvonne, and son, Jonathan, who he was immensely proud of. John will be greatly missed by his family and by all those who knew him at Imperial, not only as a colleague but as a great friend.”

Share your memories of John: [www3.imperial.ac.uk/news/johngreenwood](http://www3.imperial.ac.uk/news/johngreenwood)

long  
service

Reporter features staff who have given many years of service to the College. Staff listed below celebrate anniversaries in the period 17 November–11 December. Data is supplied by HR and is correct at the time of going to press.

### 20 years

- Mr Daniel Harvey, MSc Laboratory Manager (Electrical and Electronic Engineering)
- Miss Michelle Hammond, Senior Group Administrator (Electrical and Electronic Engineering)
- Professor Andrew Walden, Professor of Statistics (Mathematics)
- Mrs Cindy Lai, Head of Research Support (Research Services)
- Mr Andrew Paice, Departmental Facilities Manager (Electrical and Electronic Engineering)
- Dr Ji-Quan Shi, Research Fellow (Earth Science and Engineering)

### 30 years

- Mr Nigel Wheatley, Academic Registrar (Registry)



## Wear it Pink Day

The Outreach Office held a cake sale on 29 October, as part of Wear it Pink Day, in support of breast cancer awareness month. The team also held a raffle with prizes, including a choice of specially commissioned cakes, and a ticket to a Championship League fixture donated by Sport Imperial. To add to the fun, the scientists on the team made fresh strawberry ice cream with liquid nitrogen.

Raffle prizewinners were Ian Gillett (Health and Safety), Jo Shearer (International Office), Marcus Rees-Roberts

(Communications and Development) and Sarah Wilkins (HR). A grand total of £677.66 was raised. Mel Thody, Director of Outreach, commented “It is vital to raise awareness of breast cancer in women of all ages and also to raise money to continue research and diagnostic advances. I’m delighted that our team has contributed so much to the cause.”

— SUE STONE, OUTREACH MANAGER

Breast Cancer Campaign currently supports around 106 projects worth £16.3 million in 38 centres across the UK and Ireland. For more information visit: [www.wearitpink.co.uk](http://www.wearitpink.co.uk)

## Welcome new starters

Ms Katie Anders, Human Resources  
 Mr Jeremy Bartosiak-Jentys, Biology  
 Mr Steve Beales, Global Health Innovation  
 Mr Rob Bell, Human Resources  
 Ms Ligia Bernardeli, Catering  
 Miss Ioana Boureau, Computing  
 Dr Clemens Brechtelsbauer, Chemical Engineering and Chemical Technology  
 Mr Michael Breza, Civil and Environmental Engineering  
 Mr Aidan Brown, Chemistry  
 Mr Duncan Casey, Chemistry  
 Dr Paul Chadderton, Bioengineering  
 Dr Sangwon Chung, Materials  
 Miss Sonia Coton, NHLI  
 Miss Danielle D'Lima, Surgery and Cancer

Mrs Karen Durham, NHLI  
 Dr Jennifer Goldblatt, Medicine  
 Mr Pavel Gonzalez, Computing  
 Ms Michelle Goritzka, NHLI  
 Mr Rajesh Gurrula, Medicine  
 Miss Laura Harreman, Commercial Services  
 Mrs Beverley Hull, Medicine  
 Mr Naz Hussain, Business School  
 Mr Robert Jackson, Catering  
 Dr Daniel Jones, Public Health  
 Miss Ros Jones, Reactor Centre  
 Miss Julia Kettlewell, Business School  
 Mr Sang Yun Lee, Bioengineering  
 Mr Akos Lokai, Catering  
 Dr Sarah Mangles, Medicine  
 Miss Ramona Mannino, Surgery and Cancer  
 Miss Theresa Manns, Catering

Mr Mardit Matian, ESE  
 Mr Lee Matthews, Physics  
 Ms Deborah Mckenna, Clinical Sciences  
 Ms Fiona McLean, NHLI  
 Mr Matthew Minns, NHLI  
 Mr William Morgan, Medicine  
 Mr Lehlohonolo Ngobene, Catering  
 Mr Nicolas Nouvel, Chemistry  
 Dr Yolanda Olmos, Surgery and Cancer  
 Dr Priti Parikh, Business School  
 Miss Dilkushi Poovendran, Medicine  
 Dr Xueping Quan, Life Sciences  
 Dr Anna Reynal Verdu, Chemistry  
 Miss Jelena Skulic, EEE  
 Dr Clare Smith, NHLI  
 Mr William Sonnex, Computing  
 Dr Carol Stanier, Materials  
 Mr Paul Su, Medicine

Mr Barry Thomas, Human Resources  
 Mr Antoine Vernet, Business School  
 Miss Claudia Vitolo, Civil and Environmental Engineering  
 Miss Katie Weeks, Communications and Development  
 Mr Dongxu Xu, Centre for Environmental Policy

Dr Isobel Okoye, Medicine  
 Miss Katherine Ouseley, Business School  
 Miss Holly Plumley, Sport and Leisure  
 Mr Amir Shahzad, Aeronautics  
 Dr Tara Stanne, Life Sciences  
 Mrs Blagica Stojceska, EYEC  
 Dr Daniel Sykes, Computing  
 Dr Kazunori Tomita, Medicine  
 Mrs Katie Wilkinson, Surgery and Cancer  
 Dr Muhammad Yaqoob, Chemistry

## Farewell moving on

Dr Faisal Ali, NHLI  
 Mr Alexandre Almeida, Catering  
 Dr Audrey Aupoix, Chemistry  
 Ms Eteri Bakhsoliani, NHLI  
 Mr James Bromfield, ICT  
 Dr Anna Dart, Life Sciences  
 Miss Maria Gonzalez Gonzales, Medicine  
 Dr Jingling Liu, Materials  
 Mr Andrew McDonagh, Medicine

This data is supplied by HR and covers the period 6–26 November. This data was correct at the time of going to press.

## Success story

Dr Martin Knight, Chief Operating Officer, will leave the College at the end of December after an association with Imperial spanning 18 years. Reporter speaks to him about his achievements at Imperial and the changing financial landscape.

After being on the Council for 10 years, how did you come to work at Imperial?

The former Rector, Sir Richard Sykes, asked me to come on board to complete the implementation of the College's financial strategy. I decided to go for it – it seemed an ideal opportunity to combine my past experience working in the City with my knowledge of Imperial which I'd acquired as a governor.

“I've been able to devise a financial strategy and implement it – not many people have that opportunity.”

In your role as Chief Operating Officer, you've been responsible for Support Services. What aspect of their work are you most proud of?

Today every member of the Support Services team feels that they are part of an endeavour to provide a service to the academic community. They have collective responsibility which I think is very

powerful – it drives up the quality of the service so that it's significantly higher.

What's been the most rewarding part of your role?

I've been able to devise a financial strategy and implement it – not many people have that opportunity. Frequently, that strategy gets burned apart or you do a bit of it but you can't

do the rest as you run out of resources. Also, there are lots of capital projects that have been completed in the last six years that are noteworthy, such as *Ethos*, the whole redevelopment of Prince's Gardens, the reinvigoration of Dalby Court, and the renovation of the main dining hall and the library.

How do you think the current economic climate will affect the College?

The availability of government funding is not going to be the same in the next five years as it has been in the past five. The College understood that likelihood and devised a financial strategy that would provide some balance against that. We knew we couldn't rely forever on consistently high levels of government funding, which by definition is either fickle or variable. To that extent, it's a financial strategy that's stood the test of time.



Why are you leaving?

Mission accomplished! I've done what I set out to do here. There comes a time when you've done your bit and hand onto the next generation.

What will you miss the most about Imperial?

I'll miss the academics. I like the challenge of working with extremely intelligent and articulate people – it's one of the charms of the place.

—AMNA SIDDIQ, COMMUNICATIONS AND DEVELOPMENT



15 DECEMBER ▶ CAROL SERVICE

## Carols by Candlelight

At the end of term, the Carol Service held at the Holy Trinity Church, Prince Consort Road, offers a space to reflect on the past year. The service includes a collection of well-known carols for the congregation to sing, as well as special

Christmas choral pieces sung by the Imperial College Chamber Choir. Mince pies and drinks will be served after the service. Organised by the Chaplaincy, the event is open to staff, students, alumni and friends of the College. For further information, contact Andrew Willson: [a.willson@imperial.ac.uk](mailto:a.willson@imperial.ac.uk)



16 DECEMBER ▶ LECTURE

## Molecular medicine: lessons from the past for future developments

The 2010 Hammersmith Christmas Lecture will be presented by Professor Sir David Weatherall,

physician and researcher in molecular genetics, haematology, pathology and clinical medicine. Professor Weatherall, Regius Professor of Medicine, University of Oxford, will talk about his translational research in molecular medicine and how it can be applied directly to the study of human disease from cancer to AIDS. Sir David founded the Institute of Molecular Medicine at Oxford in 1989.

14 DECEMBER ▶ MUSIC

### Lunchtime concert – Tamsin Waley-Cohen, violin

Programme to include works by Mozart and Ives

15 DECEMBER ▶ CAROL SERVICE

### Carols by Candlelight

Organised by Imperial College Chaplaincy

16 DECEMBER ▶ MUSIC

### Lunchtime concert – Onyx Brass

Main Entrance, South Kensington Campus

16 DECEMBER ▶ LECTURE

### Molecular medicine: lessons from the past for future developments

Sir David Weatherall, Regius Professor of Medicine, University of Oxford

17 DECEMBER ▶ LECTURE

### Future trends in inflammation: a retrospective

Emeritus Professor Timothy Williams, NHLI

UNTIL 9 JANUARY ▶ ICE SKATING

### Natural History Museum ice rink

Tickets from: [www.nhm.ac.uk/visit-us/whats-on/ice-rink/tickets/index.html](http://www.nhm.ac.uk/visit-us/whats-on/ice-rink/tickets/index.html)

26 JANUARY ▶ LECTURE

### Operon-like gene clusters for adaptive evolution of plants

Professor Paul Freemont, Molecular Biosciences

## PHOTO EXPO

*Festive spirit on campus: the beautifully decorated tree in the College Main Entrance; the stone lions at the foot of the Queen's Tower in the snow; and Lord Robert Winston lighting the Chanukah candles in front of the Queen's Tower on the South Kensington Campus.*



## Stay in the loop

✉ Visit [www.imperial.ac.uk/events](http://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](mailto:events@imperial.ac.uk)

## take note

### Supporting postdocs

A new publication, offering details of career support on offer to postdocs, is available to staff. The document includes case studies and good practice from departments, highlighting the value of comprehensive induction processes, and ongoing development support throughout a postdoc's time at Imperial and towards the end of their contract. Produced by the Postdoc Development Centre, the publication emphasises the support offered to departments to assist with their aim of producing world class researchers.



[www.imperial.ac.uk/staffdevelopment/postdocs1/publications](http://www.imperial.ac.uk/staffdevelopment/postdocs1/publications)

## VOLUNTEERING

### Help the homeless at Christmas

Organisation: Crisis  
 Location : various centres around London  
 Dates: 23–30 December



If you are homeless or living in hostel accommodation, Christmas can be a lonely and depressing time. For the past 39 years, Crisis at Christmas has helped to alleviate that loneliness. Crisis is looking for more than 6,000 sociable and helpful people to work on a variety of tasks, such as welcoming guests to the centres, serving food, sorting bedding and generally making sure that things go to plan. A big part of your job will be getting to know the guests.

No special expertise is needed, just a general willingness to get involved and a desire to do something positive for the homeless this Christmas.

To find out more about being a general volunteer at Christmas visit: [www.crisis.org.uk/pages/general-volunteer.html](http://www.crisis.org.uk/pages/general-volunteer.html)

To sign up, visit: <http://www.crisis.org.uk/pages/sign-up-as-a-volunteer-for-2010.html> or contact Crisis : 0844 251 0111

