



# Human impact

The Business School researchers tackling big global social and economic issues ... **CENTRE PAGES**



## HEALTH REVOLUTION

New centre will unpick nature and nurture in human health

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## PARTICULAR PILGRIMAGE

Friends of Imperial visit the particle smasher at CERN

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New fossil named after Johnny Depp

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EDITOR'S CORNER

## The big picture

Imperial is **no stranger to invention**; it's one of the things the College is best known for. Advanced composites for motorsport, sensors to explore distant planets, vaccines for tropical diseases – all tangible things to come out of research here.

But there's also invention that's perhaps a little harder to pin down that relates to overarching processes – something that the **Business School excels at**. The best ideas can't flourish without properly thought-out ways of delivering them – whether that's in the healthcare, construction or environmental sector. This issue we take a look at how research done by academics at the Business School is having an impact on virtually every facet of society (pages 8 and 9).

**Looking at the bigger picture** is a theme that continues this month with the opening of the MRC-NIHR Phenome Centre, which moves on from the human genome project by looking at the effects of our genes, our lifestyle and our environment (page 3). With a more complete understanding of the 'nature-nurture' question it could revolutionise health and medical research.

ANDREW CZYZEWSKI, ACTING EDITOR

Reporter is published every three weeks during term time in print and online. The next publication day is 27 June. Contact Andrew Czyzewski: [reporter@imperial.ac.uk](mailto:reporter@imperial.ac.uk)

# East meets west

Imperial College London signed a memorandum of understanding on 15 May with Zhejiang University (ZJU), one of China's leading universities.

At the launch event in March of the vision for Imperial West, the College's new campus in White City, President & Rector Sir Keith O'Nions set out an idea for an innovative approach to creating a university campus.

The College invited proposals from potential global partners in business, industry and academia to co-locate on the campus and collaborate with Imperial's world-leading experts in science, technol-

ogy, engineering, medicine and business. The early response has been strong.

ZJU and Imperial agreed this week to explore the possibility of ZJU co-investing in a future R&D facility at Imperial West, as well as enhancing the two universities' academic links.

Sir Keith O'Nions said: "Our ambition for collaborating with other organisations at Imperial West – and certainly with ZJU – is to achieve a level of excellence together that would not be possible apart.

"We look forward to working with ZJU colleagues to establish how the two institutions will benefit from the potential partnerships."



An artist's impression of Imperial West. To see more visit: <http://youtu.be/iKwN1R3bXvQ>

## President & Rector thanks staff after roaring success of Festival



Imperial's President & Rector, Sir Keith O'Nions, extended a big thank you to everyone who took time to make this year's Imperial Festival such an enjoyable event.

The Festival, on Friday 3 May and Saturday 4 May, showcased the best of Imperial with hands-on science demonstrations, music,

comedy, dance and art for all ages.

Sir Keith said: "It made me very proud to see staff and students representing every single academic department across the College, engaging with thousands of visitors in creative and imaginative ways.

"The Imperial Festival is a tremendous opportunity for the College to showcase its activities to a whole host of guests including our alumni and the general public.

"I would like recognise the talent, energy and dedication of everyone who helped to bring the campus to life and create such a warm, vibrant and welcoming atmosphere."

This year, approximately 10,000 visitors attended the Festival, which was 50 per cent up for alumni and other guests from last year. It was organised and run by more than 400 academics, staff and student volunteers from the College.

— COLIN SMITH, COMMUNICATIONS AND PUBLIC AFFAIRS

To watch a selection of videos from the festival visit: [bit.ly/18KG8V4](http://bit.ly/18KG8V4) and for a special Festival edition of Imperial podcast visit: [bit.ly/12qCCjQ](http://bit.ly/12qCCjQ)

## Imperial College London

# Call to the summer ball

Imperial staff and their guests are invited to attend the Imperial College Union Summer Ball 2013 on Saturday 22 June. The theme for this year is '1920s Prohibition' and guests are encouraged to dress for this theme.

A funfair, fireworks and food stalls will be among the attractions at the festival-style open at 17.30 attending the dinner, 19.30 non-diners.

The first 550 tickets cost £35, with dinner an additional £:

For tickets visit [bit.ly/17VArG](http://bit.ly/17VArG)



## China alumni tour strengthens links

The President & Rector, Sir Keith O’Nions, hosted a series of events for alumni across China last month, featuring special academic lectures by College staff.

Over 100 Imperial alumni gathered at Tsinghua University in Beijing on 13 May for the College’s largest ever alumni event in the Chinese capital. Guests heard from Professor Jianguo Lin (Mechanical Engineering) about how his work in lightweight manufacturing is having an impact on the automotive and aerospace industries.

Among the guests was the President of Tsinghua University and Imperial alumnus, Professor Chen Jining (Civil and Environmental Engineering PhD 1992), who reminisced about his time at the College: “I miss a lot about Imperial and London: the weather, M&S, the BBC, Hyde Park and, most of all, student life. But I’m delighted

to see Imperial here. There’s a special link between Imperial and China and we are stronger together.”

At the Shanghai alumni event on 16 May, Professor Yike Guo (Computing) gave a special lecture on big data, discussing the realities, possibilities and challenges for universities and businesses.

The tour concluded in Hong Kong on 19 May, where Professor David Gann, Vice-President (Development and Innovation), described how Imperial is “innovating the innovation process” in science, engineering, medicine and business.

He introduced Imperial West as “a place where colleagues can come together and challenge preconceived ideas and solve big problems”.

One of the guests present, Ken Ho (Civil Engineering 1984, MSc 1985), current chair of the Imperial College Alumni Association of Hong Kong, explained why he gives his time to lead the work of the cause: “I fell in love with Imperial when a student. Through the association we bring together like-minded people, all holding a passion to pursue excellence.”

— ANDREW SCHEUBER, COMMUNICATIONS AND PUBLIC AFFAIRS



## New centre will unpick nature and nurture in human health

Yesterday saw the official launch of the Imperial-based MRC-NIHR Phenome Centre which will put the UK at the forefront of a revolution in health and medical research.

The new centre, a collaboration between Imperial, King’s College London, and analytical technology companies the Waters Corporation and Bruker Biospin, is funded by the Medical Research Council (MRC) and the National Institute for Health Research (NIHR).

The centre will enable scientists to better understand and tackle diseases that are triggered by environment as well as genetic causes, and increase the potential to develop strategies for their prevention and treatment.

Professor Jeremy Nicholson, Head of the Department of Surgery and Cancer, is the Director of the Centre. He said: “The sequencing of the human genome generated a lot of excitement among scientists and the public, but studying our genes has revealed less than we had hoped about common diseases such as cancer, diabetes and heart disease. By studying the phenome we can examine the effects of our genes, our lifestyle and our environment. What we discover about the causes of disease can be used to inform healthcare.”

The Centre has secured funding of £10 million from the MRC and NIHR for its first five years. During this time it will test the thousands of samples already stored by researchers working at the NIHR’s Biomedical Research Centres and Units. The centres and units are collaborations between hospitals and universities that focus on ensuring that patients benefit from the most promising medical research.

— KERRY NOBLE, COMMUNICATIONS AND PUBLIC AFFAIRS

### in brief

#### Survey of Imperial academics launched

The Business School is launching a survey of Imperial academics to gather views on essential aspects of academic life. The survey is being carried out as part of a larger research project supported by the Management Board called Academic Engagement at Imperial. It covers all activities in which academics work with industry, policy and practice, such as collaborative research, contract research, and entrepreneurial and advisory activities. The results of the survey will help inform policy at both the College and national level.

Staff will receive an invitation to participate shortly

#### Antibiotic use studied in hospitals

Doctors are influenced by ‘prescribing etiquette’ when deciding whether to give a patient antibiotics, according to new research by the Centre for Infection Prevention and Management at Imperial. The growing crisis of antibiotic resistance means doctors are under increasing pressure to cut down on their use. The study found that the cultural rules within doctors’ specialties most strongly dictate their decision to prescribe antibiotics.

#### Tooling up

Helping the UK to develop more hi-tech industries will be the focus of research at a centre, launched on 4 June. The Manufacturing Futures Lab (MFL) at the College is bringing together experts from around Imperial who are working on developing technologies and processes that will make manufacturing in the UK more efficient, cost effective and ultimately more profitable.



“The Queen’s Tower was built in 1887 as a commemorative building in honour of Queen Victoria’s Golden Jubilee.

The surrounding buildings were demolished in the early 1960s but the tower stands as a lasting monument.”

MARCUS REES-ROBERTS (DEVELOPMENT) ADDRESSES GUESTS AT IMPERIAL FESTIVAL TAKING TOURS TO THE TOP OF THE QUEEN’S TOWER.



## More deaths from surgery closer to the weekend

Patients undergoing planned surgery appear more likely to die if they have their operation at the end of the week, according to researchers at the School of Public Health and Department for Surgery and Cancer.

The team looked at over four million elective procedures conducted in NHS hospitals in England between 2008 and 2011. The mortality rate was lowest for patients having operations on Monday, and increased for each subsequent day of the week. The odds of death were 44 per cent higher for operations on a Friday than a Monday.

The risk of dying was higher still for planned procedures carried out at the weekend – 82 per cent greater odds than Monday – though the number of weekend operations was small.

**“The first 48 hours after an operation are often the most critical period.”**

The authors of the study, which is published in the *British Medical Journal*, suggest the

findings could reflect differences in the quality of care at the weekend.

“The first 48 hours after an operation are often the most critical period of care for surgery patients,” said Dr Paul Aylin (School of Public Health), who led the study. “So if the quality of care is lower at the weekend as some previous studies have suggested, we would expect to see higher mortality rates for patients operated on at the weekend. That is what we found.”

The study was conducted by the Dr Foster Unit at Imperial, funded by Dr Foster Intelligence, an independent healthcare information company, and the National Institute for Health Research.

—SAM WONG, COMMUNICATIONS AND PUBLIC AFFAIRS

## Physicists share in prize for Higgs boson detector

Two Imperial physicists have been praised as particle detector masterminds, following last year’s discovery of a Higgs boson at CERN.

In 2012, scientists revealed ground breaking results from the Compact Muon Solenoid (CMS) and A Toroidal LHC Apparatus (ATLAS) experiments at CERN; the discovery of a new particle, whose associated field gives mass to the fundamental particles, and is the last missing link of the Standard Model of particle physics.

This week it was announced that the 2013 European Physical Society High Energy Physics Prize will be awarded to the CMS and ATLAS collaborations for the discovery of a Higgs boson, and to three individually named scientists for their pioneering and outstanding leadership roles on those projects: Professor Tejinder (Jim) Virdee, Dr Michel Della Negra (both Physics) and Dr Peter Jenni from the Uni-



Professor Jim Virdee and Dr Michel Della Negra

versity of Freiburg.

As the founding fathers of the CMS, Professor Virdee and Dr Della Negra “contributed much to the conceptual design, then led the teams that designed, constructed and commissioned the CMS detector over the course of the 20 years”, according to the voting committee.

—SIMON LEVEY, COMMUNICATIONS AND PUBLIC AFFAIRS

## Independent committee to investigate animal research allegations

**Professor Steve Brown, the independent chair appointed to investigate allegations regarding the use of animals in medical research at Imperial, has announced his committee’s scope and its membership.**

Professor Brown, Director of the Medical Research Council’s Mammalian Genetics Unit at Harwell, was asked by Imperial in April to lead an investigation after the College received the allegations about animal research via a newspaper. His committee comprises scientists, clinical vets and experts.

The committee will investigate and assess the culture and approach to animal care and welfare at the College. In parallel to this inquiry, the College is working closely with the Home Office, which is conducting an investigation focused on the specific allegations, as required under its statutory obligations.

Once it has concluded its work, the committee chaired by Professor Brown will provide a report to the College detailing its findings and, if appropriate, any recommendations for improvement. The committee is expected to report in three to four months, and its findings and the College’s response will be made publicly available.

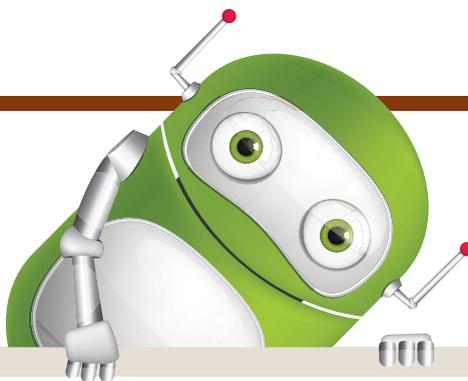
The College has also taken further action to ensure that all staff involved in using animals in research fully understand their responsibilities within the Animals (Scientific Procedures) Act – including the running of compulsory refresher training and development of a new quality assurance programme.

—JOHN-PAUL JONES, COMMUNICATIONS AND PUBLIC AFFAIRS

For more details on the scope, membership, and proposed terms of reference for the committee visit: [bit.ly/YW8c70](http://bit.ly/YW8c70)

## media mentions

—SIMON LEVEY, COMMUNICATIONS AND PUBLIC AFFAIRS



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### Curious about the red planet

BBC RADIO 4 ► 14.05.2013



Professor Sanjeev Gupta (Earth Science and Engineering) is one of only two geologists on the NASA Mars Curiosity mission, reported an episode of BBC Radio 4's *The Life Scientific*, which centred on Professor Gupta's career in science. He was chosen to join the team to study rock formations on the red planet thanks to his experience as a terrestrial geologist and expert in riverbed formations. Referring to the mission's point of touchdown, Professor Gupta said: "It was a very intense moment and when we finally got the signal that the lander had touched down safely the room just erupted, people were in tears. And then we got the first grainy images of the surface – it was just extraordinary."

### I, robot

NEW SCIENTIST ► 18.05.2013

Scientists have long sought to create artificial consciousness – but some believe we will never build a feeling machine using software. A team from the US recently built an experimental cognitive robot, dubbed XCR, that stores sensory information not via software, but through physical objects – in this case wires, resistors and diodes. If hit with sufficient force, it reverses direction – an avoidance response corresponding to pain. The team tentatively claims in *New Scientist* that it represents a primitive form of consciousness; but not everyone is convinced. "I would hesitate to call something conscious that had such a limited repertoire of responses," says Professor Murray Shanahan (Computing), who studies machine consciousness.

### Introducing the magnetic hose

PHYSICS WORLD ► 1.05.2013

European scientists have built a new device that can transmit a magnetic force over long distances, much the same way that a water pipe transports its contents without any escaping. According to *Physics World* it could be used to create new faster computing, using magnetic circuits instead of electric circuits. Professor John Pendry (Physics) explained: "A superconductor expels all magnetic fields and can therefore be regarded as a

perfect magnetic insulator, keeping the fields bottled up and preventing them from spilling all over the place."

### The squeezed middle

BELFAST TELEGRAPH ► 30.04.2013

For several years, average household wages have fallen short of national inflation rates leaving medium income families short of a few pennies, according to the *Belfast Telegraph*. Right across the UK this has affected consumers' spending habits and reduced the amount of disposable income available to normal working people, particularly in Northern Ireland. However, during a recent tour of companies in Belfast and County Antrim, Bank of England economist Professor David Miles (Business School) said this period could soon be over: "If wage settlements just stay at their current level, at least people's disposable income won't be falling significantly year on year, which is what we have been seeing."

## awards and honours

### MEDICINE

#### Distinguished service for Dale

Professor Roger Dale (Surgery and Cancer, pictured centre) has been awarded the Distinguished Service Medal of the British Institute of Radiology (BIR) in recognition of his support for the Institute's activities since 1976 and for his promotion of research in cancer radiobiology in particular. Professor Andrew Jones, BIR President, said: "Roger has been great servant to the BIR over many years and his dedication and commitment has helped to significantly modernise the British Journal of Radiology, allowing



it to emerge as a journal fit for purpose in the modern era, whilst maintaining its character and proud place in history."

### ENGINEERING

#### Toumazou completes trio of fellowships

Professor Chris Toumazou has been made a fellow of the Academy of Medical Sciences (AMS), becoming one of an elite few to have fellowships from all three

major academies – the Royal Society, Royal Academy of Engineering and AMS. It marks a stellar year for Toumazou, following the award of his Regius Professorship, which was granted to the College as part of the Queen's 60th anniversary celebrations in January.

### BUSINESS SCHOOL

#### Master's course gets government seal

The Department of Health has commended Imperial's Health Policy MSc course in an interim feedback report. Run by the Business School's Centre for Health Policy, the two-year, part-time course offers a chance for those working in the health sector to learn about important aspects of health policy from international

experts. The report stated that "the high quality and relevance of the programme may be positively affecting commitment to the Department [of Health] among the participants."

### ENGINEERING

#### Grad student set for UN nuclear placement

Chemical Engineering PhD student Yousef Alshammari has secured a prestigious internship award to undertake a research project at the International Atomic Energy Agency, the United Nations' nuclear watchdog. During his research placement he will be working on a technical and economic analysis of hydrogen production by nuclear energy in the Kingdom of Saudi Arabia.

# Johnny Depp immortalised in ancient fossil find

A scientist has discovered an ancient extinct creature with scissor-like claws in fossil records and named it in honour of movie star Johnny Depp.

The 505-million-year-old fossil *Kooteninchela deppi* – a distant ancestor of lobsters and scorpions – is helping researchers to piece together more information about life on Earth during the Cambrian period, when



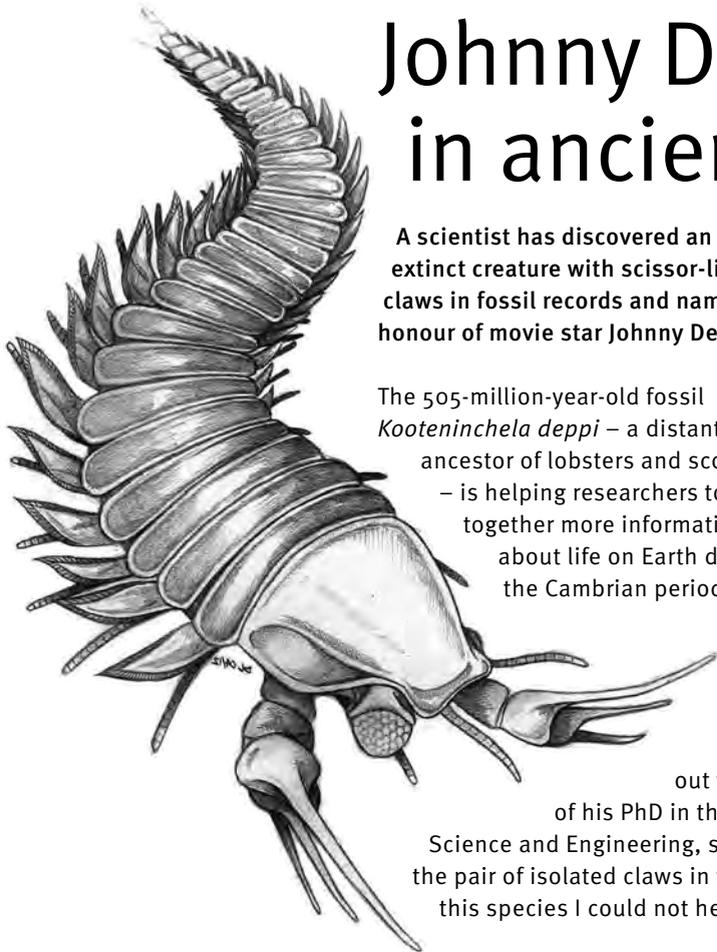
Scissorhands. Even the genus name, *Kooteninchela*, includes the reference to this film as ‘chela’ is Latin for claws or scissors. In truth, I am also a bit of a Depp fan, so what better way to honour the man than to immortalise him as an ancient creature that once roamed the sea?”

Legg believes that *Kooteninchela deppi* would have been a hunter or scavenger. Its large claws with their elongated spines may have been used to capture prey, or they could have helped it to probe the sea floor

looking for sea creatures hiding in sediment.

In the future, Legg intends to further his research and study fossilised creatures from the Ordovician, the geological period that saw the largest increase in diversity of species on the planet. He hopes to understand why this happened in order to learn more about the current diversity of species on Earth.

—COLIN SMITH, COMMUNICATIONS AND PUBLIC AFFAIRS



nearly all modern animal types emerged. David Legg, who carried out the research as part of his PhD in the Department of Earth Science and Engineering, said: “When I first saw the pair of isolated claws in the fossil records of this species I could not help but think of Edward

## Quantum technology to find uses in new markets

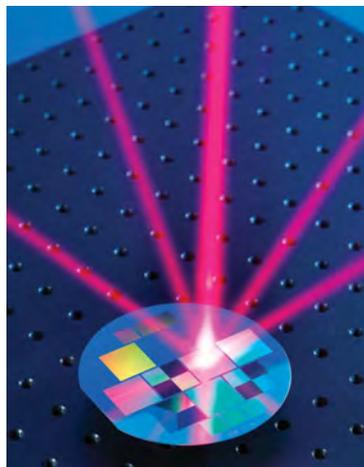
Quantum physicists have developed a portable laser device that superchills groups of atoms, potentially allowing them to be used for diverse applications including telecommunications, geological exploration and navigation.

The project is a joint collaboration between Imperial, the Universities of Strathclyde and Glasgow, and the National Physical Laboratory (NPL).

Atoms that are cooled to a temperature below one thousandth of a degree above absolute zero take on a new state of matter with strange but useful properties.

This is usually achieved by a large apparatus shining many focused laser light beams on atoms to slow them down using the Doppler effect.

In their latest work, the team of researchers developed tech-



nology that is far more compact but can still cool large numbers of atoms for use in portable devices. To achieve this they patterned the surface of a semiconductor chip to form a mesh grating, which splits the laser’s light into many beams to cool the atoms.

Study collaborator Professor Ed Hinds (Physics), who directs the Centre for Cold Matter at the College, explains: “These specially microfabricated diffraction gratings create the perfect laser beams for trapping and cooling

atoms.”

Portable clocks, magnetometers and accelerometers have wide-ranging applications, including navigation on earth and in space, telecommunications, geological exploration and medical imaging.

Dr Alastair Sinclair, Principal Scientist at the NPL, said: “The miniaturisation of atomic sensors using these optical gratings can make an important contribution to metrology and high-precision measurement.”



### Laser cooling

Perhaps owing to the world of science fiction, lasers are most commonly associated with burning or cutting, but they can also be used to cool. At the scale of atoms, heat can be understood in terms of energy or movement. Even at low temperatures, in a freezer, for example, atoms will be zipping around at the speed of a passenger plane. Only if you were able to somehow stop or slow down that movement could you cool the atoms any further. Because a laser is a stream of identical photons, its light can be made to collide precisely with atoms and slow them down to create the precious ultracold atoms.

Postgraduate students from the Controlled Quantum Dynamics Group at the College perform an outreach show – The Amazing Quantum World – in which Zachary Blunden-Codd (Physics) explains the concept of laser cooling: <http://youtu.be/PLhdOxD1jGo?t=10m50s>

## Body fat hardens arteries after middle age

Having too much body fat makes arteries become stiff after middle age, a new study has revealed.

In young people, blood vessels appear to be able to compensate for the effects of obesity. But after middle age, this adaptability is lost, and arteries become progressively stiffer as body fat rises – potentially increasing the risk of dying from cardiovascular disease.

“We don’t know for sure how body fat makes arteries stiffer, but we do know that certain metabolic products in the blood may progressively damage the elastic fibres in our blood vessels. Understanding these processes might help us to prevent the harmful effects of obesity,” said study co-author Dr Declan O’Regan (Clinical Sciences).

“the potential beneficial effects of weight loss may depend on your age.”

Obesity is known to be a major risk factor for heart disease but the reasons for this are not fully understood.

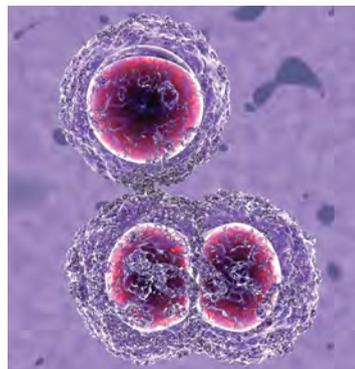
Researchers at the MRC Clinical Sciences Centre at Imperial scanned 200 volunteers to measure the speed of blood flow in the aorta, the biggest artery in the body. Blood travels more quickly in stiff vessels than in healthy elastic vessels, so this allowed them to work out how stiff the walls of the aorta were using an MRI scanner.

In young adults, those with more body fat had less stiff arteries. However, after the age of 50 increasing body fat was associated with stiffer arteries in both men and women.

“One implication is that the potential beneficial effects of weight loss may depend on your age and how long you have been overweight. This is something we plan to study further,” O’Regan said.

—SAM WONG, COMMUNICATIONS AND PUBLIC AFFAIRS

## New clues to antibiotic resistance in MRSA



Scientists have identified four new signalling receptors that may help bacteria such as MRSA thrive in different environments.

Their discovery provides scientists with vital clues in the hunt for new antibiotics, which are increasingly in need as bacteria become resistant to existing treatments.

The bacterium *Staphylococcus aureus* causes life-threatening diseases in hospital patients and in previously healthy people. Methicillin-resistant *S. aureus* strains, known as MRSA, are especially difficult to treat due to their antibiotic resistance.

A recently discovered molecule

called c-di-AMP appears to play a vital role as a messenger in many bacteria, carrying signals between parts of the cell. There is evidence that strains with more c-di-AMP are more resistant to antibiotics.

“What makes this molecule special, and a bit different from others like it, is that there is now growing evidence that many bacteria need to produce this molecule in order to grow and divide, so it’s an essential component of the cell,” said Dr Angelika Gründling (Medicine), who led the new study.

Signalling molecules work by binding to specific receptor proteins, which act as switches for cellular functions. In the new study Dr Gründling and her colleagues pinpointed four receptors for c-di-AMP in *S. aureus*.

Dr Rebecca Corrigan (Medicine), a postdoc who worked on the study, said: “We hope that these findings can be exploited in the future to develop new antibiotics that target the cellular pathways controlled by c-di-AMP. Such drugs might be effective against a broad spectrum of bacteria.”

—SAM WONG, COMMUNICATIONS AND PUBLIC AFFAIRS

## African strategy to grow more with less impact

Smallholder farmers in Africa can increase food production and reduce poverty without harming the environment, according to a new briefing paper.

Over the past 40 years agricultural production in the continent has barely increased while population has grown rapidly and shows little sign of tailing off. At present, African growers are only expected to be able to meet 13 per cent of the continent’s food needs by 2050.

The new paper by international experts from the fields of agriculture, sustainable development, trade, policy and global development calls on governments around the world to tackle this using ‘sustainable intensification’ – moving away from past schemes of financial and agricultural aid.



“African growers are only expected to be able to meet 13 per cent of the continent’s food needs by 2050.”

An example of this approach includes a novel method of conserving water by digging medium-sized holes called *zai* (or water pockets) in rows across the fields. Farmers add manure, which attracts termites that create an extensive network of underground tunnels to bring up nutrients from the deeper soils that

hold water better.

Farmers have also increased the quantity of maize production by planting their fields with a native African tree called *Faidherbia albida*.

Professor Sir Gordon Conway (Environmental Policy), who chairs the Montpellier Panel that wrote the report, explained: “The *Faidherbia* tree curiously sheds its leaves in the wet season. They turn to a nutritious compost on the wet ground providing a natural fertiliser to crops planted underneath, while allowing for sunlight to pass through during the growing season.

“Maize yields are boosted while decomposition of the tree’s dropped leaves actually captures carbon and buries it in the soil. This kind of ‘win-win’ example encompasses the main ideals of sustainable intensification.”

—SIMON LEVEY, COMMUNICATIONS AND PUBLIC AFFAIRS

# Human impact

## Researchers at the Business School are tackling global social and economic issues that affect millions

Over the past few years, academics at Imperial College Business School have been working hard to help tackle the big social, economic, health and environmental challenges of our age.

The impact of these projects stretches far beyond the realm of boardrooms and suits, and has the potential to improve people's quality of life – from patients cared for in their own homes thanks to new models for delivering remote healthcare, to the next generation of ambitious entrepreneurs able to thrive in a supportive business environment.

At the Business School's recent Research Exhibition on 24 May, *Reporter* looked in detail at three particularly topical areas of research that are having an immediate impact.

—MAXINE MYERS AND ANDREW CZYZEWSKI,  
COMMUNICATIONS AND PUBLIC AFFAIRS

## Coming to the rescue

Perhaps one of the most visible signs of the recent economic downturn in the UK is the decline of the high street and the demise of famous, well-loved brands – and with them, of course, many thousands of jobs.

According to figures released last month by the Office for National Statistics, unemployment is on the rise again and stands at around £2.5 million at present.

Not only is this bad for the individuals concerned but for the wider economy too, as Mike Wright, Professor of Entrepreneurship at the Business School, explains.

“There's this multiplier effect here, whereby if people are unemployed they've got less income, which means that they buy fewer goods, and the people producing those goods may find themselves out of work soon too.”

The Centre for Management Buyout Research (CMBOR) in the Business School, led by Mike, looks at the potential benefits of stable companies buying out financially struggling firms. It has a database of 30,000 companies and has been monitoring the performance of bought-out firms since the early 1980s.

This work shows that failing firms that have been

bought out by other companies display greater resilience, and are more likely to survive in a recession, than non bought-out firms, potentially reducing job losses in the process. Also, bought-out firms tend to experience improvements in employment conditions, such as greater workforce consultation and productivity.

“You might have a company that is a very big brand name and has been around for a long time, but it's now underperforming and probably needs to be a bit more entrepreneurial,” says Mike. “When another company takes it over, it may need to be restructured so that, in the longer term, it can be more profitable and grow. You might be able to save a subset of jobs that might, had you not intervened, have been completely lost with the rest.”

The CMBOR is creating an incredibly valuable body of evidence that will help people in various positions make better and more informed decisions. It might be struggling companies wondering what the next move should be; an ambitious and growing outfit calculating if it's worth coming to the rescue of another company; or politicians presiding over tax breaks for those willing to take the risk of a buyout.



“You might have a company that is a very big brand name and has been around for a long time, but it's now underperforming and probably needs to be more entrepreneurial.”

PROFESSOR MIKE WRIGHT

## Fertile ground

**What do the companies Facebook, Dyson and Virgin all have in common? They were all started by an entrepreneur with a new idea and grew to become large global outfits employing thousands of people.**

Entrepreneurship and the creation of start-up companies is now seen as particularly important for driving the growth in nations' economies – especially in times of recession.

“It’s essentially a trial and error process that drives the most productive and efficient ideas forward,” says Professor Erkkö Autio. “So, say you have a hunch that some business model might work, if it is ultimately successful then it’s likely to be more productive and efficient than previously existing models – and if it isn’t, well, then you just move on to do something else.”

Governments around the world are currently thinking of ways to kickstart entrepreneurship and nurture start-ups, but what would really help that process would be a way to measure how a country is performing.

And that’s exactly what researchers at the Business School, George Mason University in the US and the Universities of Strathclyde, Aston and Pécs

(Hungary) have now done.

The Global Entrepreneurship and Development Index (GEDI) ranks a country’s entrepreneurial activity and identifies the entrepreneurial strengths and weaknesses of their economies.

The UK is currently ranked 14th in the index and although performing well overall, it scores poorly in the subset measures of ‘aspirations’ and ‘attitudes’. It has also suffered more from the financial crisis relative to other countries.

Initiatives like technology clusters, such as the ‘silicon roundabout’ in east London, and, in time, Imperial West can help.

“There’s a good dynamic there; people in clusters can learn from one another,” says Erkkö. “The important thing is that it creates some positive buzz around the phenomenon and makes it attractive as a career choice.”

Erkkö argues that improvements could also be achieved through “well-targeted policy measures that encourage individuals to invest in start-ups.”

Indeed David Willetts, Minister for Universities and Science, recently talked about how GEDI helps the Department for Business, Innovation and Skills benchmark performance and set policy.



“Entrepreneurship is essentially a trial and error process that drives the most productive and efficient ideas forward.”

PROFESSOR ERKKÖ AUTIO

## Beating cancer... globally

**There has been considerable progress in tackling cancer in the developed world over the past few decades, thanks to more targeted treatments and sensitive diagnostic techniques that enable early intervention.**

Yet this progress has not been carried over to low and middle income countries – in fact people there are dying from cancers that are quite preventable in the developed world.

Part of the problem centres around a pernicious myth that cancer is a disease of affluence and not a priority for the developed world, according to Rifat Atun, Professor of International Health Management. Working with colleagues from Harvard Medical School, Rifat has now gathered a compelling body of evidence to dispel this.

They found that more than 80 per cent of patients with cancer live in low or middle income countries, yet these receive only five per cent of global financial resources to fight the disease. An even starker measure is that a child with cancer in Canada will survive 90 per cent of the time, whereas a child with the same condition in the developing world will die 90 per cent of the time.

The challenge now is to close that ‘cancer divide’

and for Rifat this means field studies to places like Africa and Brazil.

“You can’t study global health sitting in an office in South Kensington,” he says. “You have to be in the countries to really understand what the issues are and come up with context-specific solutions that are feasible and owned by local people,” he says.

For a start, he says cancer services can be integrated with existing healthcare infrastructure, building on programmes that have been successful in preventing and treating AIDS.

“In many countries we’ve built very good primary healthcare system, so there will be marginal cost in introducing preventative intervention,” says Rifat, noting that for cervical cancer there are very definitive stages of disease progression which can easily be screened for.

Also, for many cancers, there are drugs which are now off-patent and so won’t be prohibitively costly – what is needed is a drug manufacturing supply chain.

Last November, Rifat attended the World Oncology Forum, a meeting of the world’s top cancer experts in Lugano, Switzerland, where participants agreed a 10-point manifesto to close the cancer divide based on Rifat and colleagues’ recommendations. The strategy was published on World Cancer Day on 4 February 2013.



“80 per cent of patients with cancer live in low or middle income countries, yet these receive only five per cent of global funding for the disease.”

# Particular pilgrimage

Roderick Rhys Jones, Chairman of the Friends of Imperial College group, recalls their recent visit to the Large Hadron Collider at CERN in Geneva as guests of Professor Tejinder Virdee (Physics).

In the late eighteenth century visitors came from all over Europe to listen to philosopher and writer Voltaire, who, having been exiled from Paris for his revolutionary views, settled in a country house on the outskirts of the small hamlet of Ferney on the French-Swiss border.

Travellers today are flocking there anew. Now called Ferney-Voltaire, the town is a stone's throw from CERN headquarters and lies within the 27km ring of the Large Hadron Collider (LHC) – the must-see destination for scientists and philosophers from across Europe and beyond. The Friends of Imperial took 26 members there on a three-day visit at the end of April.

## Collision course

On the morning of Friday 26th, we gathered at CERN's visitor centre for a tour and talk by Dr Mario Campanelli, a CERN researcher. Mario explained how hydrogen atoms from prosaic-looking gas bottles are stripped of their electrons to create protons that are then accelerated in the LHC by successive superconducting electromagnets until they reach close to the speed of light. Two beams of these superfast protons are sent in opposite directions then brought into collision – at which point detectors sift through the wreckage looking for exotic new particles, hints at new laws of physics and even extra-dimensional universes.

## Below ground

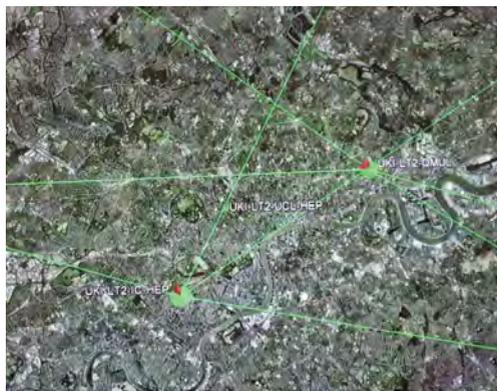
Twenty minutes by bus through the French countryside and we arrived at the spot along the LHC ring, where these cataclysmic collisions take place deep underground at the Compact Muon Solenoid (CMS) detector.

After being greeted by members of Professor Virdee's team we were escorted into the control room, which, when operating would be full of scientists monitoring the detectors far below us. In one corner was a collection of champagne bottles, each one marking another milestone in the success of the project.

With so much data generated by each of those



Roderick Rhys Jones with wife Sandi Rhys Jones at the LHC



collisions, CERN has chosen to spread the workload to computing centres and researchers around the world. Earlier, we had seen a screen in the computer centre showing the nodes on the global network and were all delighted to see that Imperial was the busiest institution in the UK at the time (pictured left).

We were given hard hats before descending 100 metres to the level of the LHC tunnel. Walking through a maze of rooms and passageways we eventually passed through the huge concrete shield surrounding the CMS.

The passageway opened out onto a viewing gallery about halfway up a vast cavern filled on both sides by the shining multi-coloured concentric circles of detectors. Everyone stopped to take breath. The size, complexity and precision leapt out at us. It was a sight to marvel at; a Taj Mahal moment of wonder.

## Lasting legacy

Some of the new technology developed at CERN has already found real-world applications in medicine and industry – including cancer treating hadron therapy and high-volume computing. There are also older technologies that have found new uses. Of particular note are the 80,000 scintillating lead tungstate crystals (heavier than iron, yet totally transparent) used in the detectors. Originally manufactured to protect the nose cones of Russian intercontinental ballistic missiles on re-entry, they are now being used for the international exploration of the beginning of the universe.

Swords into ploughshares, indeed. Voltaire would have approved.

Professor Virdee gave a public talk entitled *Unveiling the Secrets of the Universe* on 4 June. Look out for a video of the event at: [www.friendsofimperial.org.uk](http://www.friendsofimperial.org.uk).



## Friends of Imperial College

Friends of Imperial College is an association of people with an appetite for science. It supports the College by putting on public lectures, organising visits, and making donations to the Student Opportunity Fund and the Rector's Scholarship Fund. Friends has arranged behind-the-scenes visits to College research facilities for some years and has recently expanded to off-campus trips, including to Diamond Light Source at Harwell, and the three-day trip to Geneva taking in CERN and other local science attractions. Our party at CERN was a cross-section of our membership: some in their twenties, some in their eighties; some with multiple science degrees, some with none; some were alumni, some not, some living in Knightsbridge, some in Edinburgh. Everyone is welcome to join: [www.friendsofimperial.org.uk](http://www.friendsofimperial.org.uk)

*Roderick was recently awarded an Imperial College Medal for exceptional contribution to the College through his work with Friends of Imperial College*

# inside\*

## story

### mini profile

## Chiara Garattini

Dr Chiara Garattini is a socio-cultural anthropologist who investigates how people interact with technologies in health and life sciences. She is on Intel Corporation's UK Health Innovation team hosted at Imperial.



#### What is your role at Intel?

I am a user experience researcher in Intel's Health and Life Science group. I contribute to the design process by gaining deeper insights in the way people understand and interact with technology. We are trained to explore how people think about the technologies they use, both at a surface level and at deeper underlying levels.

I have a particular interest the challenges of translating technology from the lab to the real world.

#### Why are you now based at Imperial?

The Intel UK Health Innovation team is a group of Intel employees co-located at Imperial under a formal collaboration arrangement. We are here to work with the College to study technology needs and explore proofs of concepts in UK hospitals, the pharmaceutical industry and life science experts. We are hosted by Professor Guang-Zhong Yang at the Institute of Global Health Innovation and our multidisciplinary team will

bring together expertise in high-performance computing, bioinformatics, big data visualisation, health database management, interface design and user experience. We want to partner with academics who are bringing new, cutting-edge techniques to benefit patients.

#### What will be some of the key challenges?

“We are trained to explore how people think about the technologies they use.”

The clinical application of genetic sequencing and analysis, for example, will raise big challenges from a social, ethical, economic, regulatory, and medical point of view. Different stakeholders – from lab technicians, to doctors, pharmacists and patients – will have different skill sets, knowledge and expectations when interacting with these kind of data. By looking at the current workflow and dataflow in a research setting, we can gain a better understanding of these technologies and how they might be used more effectively.

—COLIN SMITH, COMMUNICATIONS AND PUBLIC AFFAIRS



## Polymer pageantry

A new display at the Science Museum's Antenna Gallery features advanced materials created by the Polymers and Composite Engineering Group led by Professor Alexander Bismarck (Chemical Engineering).

The group creates new and renewable composite materials from cellulose – a hugely abundant,

naturally occurring polymer found in plants and created by some bacteria. The materials are strong, lightweight and easy to recycle. Shown in the picture above is a block containing nano-cellulose fibril gel (above) alongside a Formula 3 steering wheel made from cellulose-reinforced material by the University of Warwick.



### ► SCIENCE FROM SCRATCH

As explained by Stephanie McClellan, MSc Science Communication

## What do biohackers do?

Biotechnology is a rapidly growing sector with diverse industrial applications ranging from biofuels to medical developments. It has the potential to touch every aspect of our lives – but who gets to do it? Who should influence the future of biotechnology?

There is a growing movement of people who believe that biotechnology should be accessible to everyone. These people have taken the term 'biohackers', embodying a hacker ethic as they experiment with biotechnology. They have set up non-institutionalised laboratories and networks, such as *DIYbio*, to harness the potential of democratic technological development. These creative labs are a place where children, citizen scientists, young biologists, or experimental bioengineers can learn and explore.

A recent example of the phenomenon in action is that of journalist Sascha Karberg, who is part of a biohacking group in Germany. Wanting to find out whose dog was leaving 'treats' on his street, he took samples for DNA analysis then threw tennis balls to each of the neighbourhood dogs, analysed their saliva, matched the dog and confronted the dog owner. Although a humorous side, it shows how biohacking can give citizens the opportunity to question the world around them.

Through DNA barcoding, you could analyse your caviar to make sure it's beluga, determine if your cereal is made from genetically modified crops, or identify species in your own backyard.

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

blog  
SPOT

## Student blogger Wouter on Croeso i Gymru (Welcome to Wales!)

This week I found out what happens to at least some of my tuition fees: a sponsored field trip to Wales – organised by our MSc programme! [Sustainable Energy Futures]. After a six-hour trip we arrived at Conwy. We enjoyed this beautiful fortified town at sea, climbed



the surrounding picturesque hills and had some fish and chips by the docks. The lead motive for this trip, though, was a visit to several power stations, including

a gas-fired power station Connah's Quay, a coal-fired power station at Fiddler's Ferry and a pumped storage hydroelectric power facility at Dinorwig. That last power station could contribute to a cleaner energy future.

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

## Become a tree detective

Researchers need help checking the health of Britain's trees using the Open Air Laboratories (OPAL) national survey on tree health.

Scientists are asking members of the public to examine the health of trees in their local area and report sightings of pests and diseases, particularly those affecting oak, ash and horse chestnut trees.

Using information in the free OPAL survey pack, people can learn to identify trees, measure their girth and height, examine the trunk, branches and leaves for signs of poor health, and record the presence of pests and diseases.

Imperial College London is the lead partner of OPAL, and the tree health survey is being developed with experts from the Food and Environment Research Agency (Fera) and Forest Research.

"Tree health is one of the most exciting and important OPAL surveys," says Dr Linda Davies (Envi-



ronmental Policy), Director of OPAL.

"It is designed for people of all ages and abilities to start exploring and recording local nature. And, whilst learning about local trees and gathering lots of interesting information, people can also contribute their findings to a national research programme investigating the condition of the nation's trees and the factors affecting them."

—SIMON LEVEY, COMMUNICATIONS AND PUBLIC AFFAIRS

*Download or request a free survey pack, including tree ID guide, field notebook and field guide and 'six most unwanted' card from [www.OPALexplorenature.org/treesurvey](http://www.OPALexplorenature.org/treesurvey)*

## St Mary's library revamp brings back memories

A historic College library that has played host to princesses, operas and balls, as well as revising students, has been given a new lease of life.

Staff, alumni, students, medical professionals and funders gathered to celebrate the reopening of the medical library at St Mary's Campus – renamed the Fleming Library – following a six-month restoration and refurbishment project.

The work was made possible by the combined efforts of the St Mary's Development Trust, and staff from the Faculty of Medicine and Imperial Library.

Designed by architect Sir Edwin Cooper, the library first opened in December 1933, the year King George V opened the existing medical school buildings in Paddington. As well as a



place of study, the library was regularly used for student plays, opera, concerts and balls until 1982. The building also saw the performance of Gilbert and Sullivan productions during the Christmas period, one of which

was attended by the then Queen and Princesses Elizabeth and Margaret in 1945.

For many it was a time to reminisce. Retired consultant obstetrician and gynaecologist, Alasdair Fraser, regularly used the library as a student in the 1950s: "The library was really the focal point of the school both for study and social events. It would be cleared so that exams could be held there and also for many social events in the evenings. The music and dramatic societies would perform there and there would be three formal balls a year."

The Fleming Library now has an internal staircase providing access to the gallery floor, improved heating, lighting, Wi-Fi, additional computers and study space, and a dedicated training room.

—LUCY HANDFORD, COMMUNICATIONS AND PUBLIC AFFAIRS

“The library was really the focal point of the school both for study and social events.”



**INVENTOR'S CORNER**

# Force feedback

Alison McGregor (Surgery and Cancer) is Professor of Musculoskeletal Biodynamics and an investigator at Imperial's Medical Engineering Solutions in Osteoarthritis Centre of Excellence, where she leads on an initiative to delay surgery for arthritic patients and thus extend their mobility and functionality.

**How are you approaching this issue?**

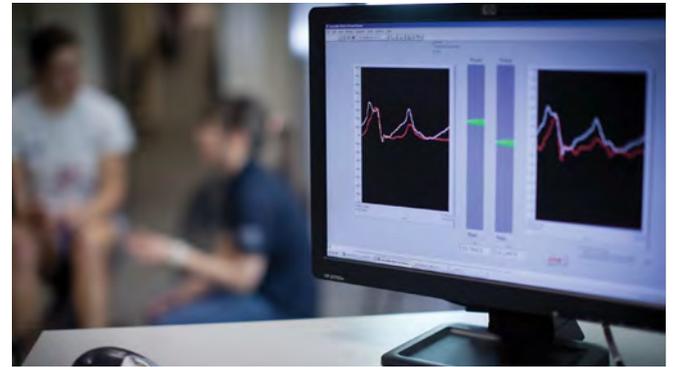
We want to implement a regular screening process for people over a certain age. This involves doing some very detailed testing to measure certain parameters like how the person walks and how the joints move, using technology similar to motion capture used in the animation industry. By applying mathematical and statistical models to these data, we can see if certain movements cause damage to the joints, identify who is more at risk of osteoarthritis and intervene early to try and manage it before surgery becomes the only option.

**What is the next step?**

We have developed a prototype for a discreet, wearable sensor, which we hope will act as a tool for biofeedback. It will incorporate our detailed analyses and simplify it, enabling clinicians to clearly show their patients how they are pro-



"Typically, athletes fail to engage with the idea that they are damaging their body until it is too late."



gressing and what exercises they need to do to improve. This is important as osteoarthritic patients often don't fully understand why they are doing these exercises and therefore lack motivation, so we have seen a need to develop a clear, simple feedback tool, which the patient is more likely to respond to.

**Tell us about your work looking at back pain and prevention with the British rowing team?**  
Typically, athletes fail to engage with the idea that

they are damaging their body until it is too late. By developing a simple visual system that used real-time biofeedback to illustrate how changing their movements could achieve maximum performance while doing minimal damage, we found that they were more likely to understand and implement the change very quickly.

—KAILEY NOLAN, IMPERIAL INNOVATIONS

For help in finding a commercial application for your research visit: [bit.ly/YQZ1Vi](http://bit.ly/YQZ1Vi)

## Film app lets you decide the narrative

A student from the Business School has developed a new mobile application that could change the way films are viewed on smartphones.

Chris Corbishley, who has just completed an MSc in Innovation, Entrepreneurship and Management at the Business School, worked with fellow filmmakers, Leo Bridle and Leo Powell to produce the app, which introduces a combined cinematic and gaming experience to iPhone users.

To demonstrate the technology, the trio devised a movie



called *In Limbo* that was set in the lobby of the Business School. The film follows the lives of eight characters as they pass their time in an airport departures lounge – including an irate wife quarrelling with her unfaithful husband and a travel writer who recounts stories

of previous voyages.

However, rather than sitting back and passively watching their stories unfold, the application enables viewers to select from a variety of narratives as the scene plays out by moving their phones left or right.

"There's nothing on the app

market that effectively merges 360 degree technology with narrative filmmaking," says Chris. "It challenges the passive nature of cinema by injecting a gaming quality to the world of film."

—ROSEMARY PETERS FOR COMMUNICATIONS AND PUBLIC AFFAIRS

The winners

**Best Teaching for Undergraduates**Dr Alasdair Donaldson,  
Department of Computing**Best Innovation**

Dr Jane Saffell, Department of Medicine

**Best Graduate Teaching Assistant**

Alan Zucconi, Department of Computing

**Best Teaching for Postgraduates**Professor Andrew Purvis,  
Department of Life Sciences**Best Tutoring**

Dr Sohag Saleh, Faculty of Medicine Centre

**Best Feedback**Dr Rebecca Bell, Department of Earth  
Science and Engineering**Best Support Staff**Anna Hikel, Department of Civil and  
Environmental Engineering**Best Supervision**Dr Rafael Palacios Nieto,  
Department of AeronauticsFor the short list visit: [bit.ly/Y7UJDM](http://bit.ly/Y7UJDM)

# Student-nominated staff pick up teaching awards

Academic and support staff were honoured at the inaugural Student Academic Choice Awards (SACAs) last month organised by Imperial College Union in recognition of excellence in teaching, supervision and support.

Over 400 nominations were whittled down to just eight category winners (see left) announced at the SACA Ceremony on 21 May in the Queen's Tower Rooms and attended by over 150 people from across the College.

Dr Alasdair Donaldson (Computing), winner of the Best Teaching for Undergraduates award was the first name to be called. He said: "Since I joined the Department of Computing in 2011, I've been constantly impressed by how bright, enthusiastic, questioning and hardworking the undergraduate students are. It's a privilege to have the opportunity to talk to the undergraduates about my favourite topics and I am hugely honoured to receive this praise of my lecturing skills from them – it really means a lot."

Anna Hikel, Undergraduate Office Administrator (Civil and Environmental Engineering), won the Best Support Staff award – the only SACA for non-academic staff. Anna, who has



worked at the College since 1980, said: "I heard about the nomination when I was emailed by the students' union and our Head of Department, so I was thrilled to receive the news that I had won the award. I am pleased that the students recognise my dedication to them."

—LUCY HANDFORD, COMMUNICATIONS AND PUBLIC AFFAIRS

It is hoped that the SACAs will take place annually. To find out more visit: <https://www.imperialcollegeunion.org/academicchoice>

## Let there be light

An award-winning social enterprise project run by Imperial engineering students is set to build on its work providing electricity to rural communities in Rwanda, after securing funding and specialist tools worth £13,000.

The project, named e.quinox, aims to find practical and sustainable ways to bring power to rural communities in developing countries and is managed by students from the Department of Electrical and Electronic Engineering. It works by providing villages with portable batteries from a kiosk, where they are charged up using renewable energy. Local people can then hire the batteries to power electrical devices, bringing lighting, refrigeration and a wealth of other benefits to areas without mains electricity.

The money raised by hiring out the batteries is channelled back into maintaining and developing the kiosk.

Students typically volunteer for a year and spend term time developing plans, with support from staff in the Faculty of Engineering. They then put the plans into practice by volunteering over the summer holiday, working in remote areas of Rwanda. So far, four solar-powered and one hydro-powered energy kiosks have been set up in Rwanda and Tanzania, providing electricity to around 500 households.

Support from the Institute of Technology and Engineering and construction technology company Hilti means that the students will be able to embark on several new projects this summer. In Rwanda they aim to create a second genera-



tion of kiosks in response to huge demand which will be fitted with data loggers allowing them to analyse the effectiveness of the project.

Third year mechanical engineering student Rushabh Mehta, e.quinox chairman, says: "We are thrilled to have secured this funding, which will enable us to expand our work and help more people light up their homes this summer.



The fully automated rural electrification system will provide basic power and lighting to over 350 more people in northern Rwanda, while providing a platform to serve many more in the future."

—LUCY HANDFORD, COMMUNICATIONS AND PUBLIC AFFAIRS

## Welcome new starters

Mr Rasaq Adeboye, EYEC  
Mrs Miriam Adesokan, NHLI  
Miss Allison Alcock, Faculty of Medicine  
Mr Ioannis Alexiou, Bioengineering  
Miss Tressa Amirthanayagam, Surgery and Cancer  
Ms Hima Anbunathan, NHLI  
Dr Nimalan Arinaminpathy, Public Health  
Ms Ada Armstrong, Surgery and Cancer  
Miss Olajumoke Arogundade, Faculty of Medicine  
Miss Sarah Atkinson, Business School  
Ms Nicola Bartlett, Accommodation  
Dr James Bentham, Public Health  
Dr Christos Bergeles, Faculty of Engineering  
Dr David Berry, Surgery and Cancer  
Dr Laura Bocchi, Computing  
Dr Robert Bracewell, Mechanical Engineering  
Mr Thomas Brain, Mathematics  
Dr Agnieszka Brandt-Talbot, Chemistry  
Ms Margaret Burdett, Business School  
Mr Fergal Burke, Estates  
Dr Rebecca Burton, NHLI  
Dr Oliver Buxton, Aeronautics  
Dr Vadzim Chalau, Surgery and Cancer  
Dr Rongjun Chen, Chemical Engineering  
Dr Davoud Cheraghi, Mathematics  
Dr Camilla Chung, Surgery and Cancer  
Dr Nicola De Tullio, Mathematics  
Ms Janet Deane, Surgery and Cancer  
Miss Andrea Dietrich, Accommodation  
Dr Beverly Donaldson, Medicine  
Dr Charlie Donovan, Business School  
Miss Ellen Dowell, NHLI

Ms Sarah Dupras, NHLI  
Dr Mohamed Elshiekh, Medicine  
Mr Paul Felton, Estates  
Miss Sandra Figueiredo, EYEC  
Dr Richard Gill, Life Sciences  
Dr Anantharaman Gopalakrishnan, Civil and Environmental Engineering  
Mr George Heaton, Surgery and Cancer  
Dr Verena Horneffer-van der Sluis, Surgery and Cancer  
Miss Farhana Hussain, NHLI  
Professor Philip Ingham, Medicine  
Dr Maria Izquierdo Arcusa, Chemistry  
Miss Madeleine Jammeh, Accommodation  
Mr Edward Johns, Computing  
Miss Natasha Khalife, Public Health  
Mr Tesilimi Koko, EYEC  
Dr Abas Laftah, NHLI  
Dr Harry Lamb, Bioengineering  
Miss Judith Lieber, Medicine  
Miss Signe Liepina, Outreach  
Dr Karine Macritchie, Medicine  
Miss Shilpa Madhparia, ESE  
Ms Lora Marinova, EYEC  
Mr Matt Martino, Faculty of Engineering  
Mrs Stephanie McDevitt, Medicine  
Mr Gabriele Micali, Life Sciences  
Dr Aleisha Miller, Public Health  
Mr Edward Mitchell, Physics  
Mrs Rama Nanguluri, Public Health  
Dr Shakunthala Narayanaswamy, Medicine  
Dr Anna Need, Medicine  
Miss Adrienn Orosz, Medicine  
Mr Tamlyn Peel, NHLI  
Miss Elizabeth Perry, Accommodation  
Dr Miquel Planells Dillunde, Chemistry  
Mr Angelo Pommella, Chemical Engineering  
Dr Ali Qaseminejad Raeini, ESE  
Mr Lateef Raheem, EYEC

Mr Damian Rivett, Life Sciences  
Mr Jose Rodriguez Manosca, Accommodation  
Dr Belinda Sandler, NHLI  
Dr Despoina Sarridou, Surgery and Cancer  
Dr Stephan Sauer, Clinical Sciences  
Miss Maria Savvopoulou, Surgery and Cancer  
Dr Bjorn Schuller, Computing  
Ms Lauren Schulte, Medicine  
Dr Abigail Speller, Surgery and Cancer  
Dr Igor Talzi, Computing  
Mr Geoff Thompson, Medicine  
Mr Alfredo Tomas Alquezar, Physics  
Miss Cristina Trento, Medicine  
Mr Yuksel Unver, Accommodation  
Mr Stephen Walker, Security Services  
Dr Klaus Wanisch, Medicine  
Professor Robin Williamson, Surgery and Cancer  
Ms Michelle Willows, Aeronautics  
Ms Agnieszka Yongue, Surgery and Cancer  
Mr Konstantinos Zavitsas, Civil and Environmental Engineering  
**Farewell  
moving on**  
Miss Funmi Abiola, NHLI  
Mrs Parvin Ahmed (5 years), Medicine  
Miss Olayinka Atiko (6 years), Estates  
Dr Margherita Bertuzzi, Medicine  
Dr Anamika Bhargava, NHLI  
Dr Lorenzo Botto, Chemical Engineering  
Dr Cameron Browne, Computing  
Dr David Carmena Jimenez, Clinical Sciences  
Mr David Charles, Life Sciences  
Dr John Charnley, Computing  
Dr Chun-ye Cheng, Chemical Engineering  
Dr Simon Colton (10 years), Computing

Dr Lucy Cook, Medicine  
Dr Joseph Cotter, Physics  
Mr Charles Crisp (17 years), Security Services  
Miss Mary Crossey (7 years), Medicine  
Mr Jeremy Dahan, Aeronautics  
Ms Antonia Desmond, Surgery and Cancer  
Mr Surinder Dio, ESE  
Mr Iason Filos, EEE  
Mr Sheldon Hall, Mechanical Engineering  
Dr Richard Harbottle (20 years), NHLI  
Professor John Harries (19 years), Physics  
Mr Robert Harvey-Wells (21 years), Estates  
Mr Kyriakos Hatzaras, Business School  
Professor Margaret Hodson, NHLI  
Dr Sufyan Hussain, Medicine  
Dr Frederic Jean-Alphonse, Surgery and Cancer  
Ms Ruth Jenkins, Library  
Dr Katie Judd, Medicine  
Dr Evangelia Kalyvianaki, Computing  
Dr Michael Kember, Chemistry  
Miss Siu-Teing Ko, Bioengineering  
Miss Sadie Lamb-Bentley, Public Health  
Mrs Leena Lindholm-White (6 years), ESE  
Mr Michael Mace, Mechanical Engineering  
Ms Rosa Macey, Chemistry  
Dr Sarah Mangles, Medicine  
Dr Elizabeth Mann, Medicine  
Dr Anca Margineanu (5 years), Physics  
Dr George Marketos, Civil and Environmental Engineering  
Dr Rebecca Metcalf, Medicine  
Dr Cecily Morrison, Public Health  
Miss Faye Murray, Aeronautics  
Dr Sobiya Nadaraja, Public Health  
Dr Flavia Niccolini, Medicine  
Mr Ioannis Papagiannis, Computing  
Dr Ankoor Patel, Materials

Dr Neki Patel, Chemistry  
Dr Alison Pease, Computing  
Dr Matthew Penny, Chemistry  
Dr Jerzy Pental, Chemical Engineering  
Mr Allan Petersen, Chemistry  
Mrs Camila Pinto Dunsmore, Medicine  
Mr Ben Pollard, NHLI  
Miss Caroline Prew (7 years), Communications and Public Affairs  
Dr Raluca Radu, Physics  
Ms Christine Rupperecht, Catering  
Dr Samantha Sampson (7 years), Medicine  
Mr Tудо Scheibner (14 years), ICT  
Miss Nisha Shah, Medicine  
Dr Ian Silverwood, Chemical Engineering  
Mrs Coralie Simmons (5 years), Life Sciences  
Mr Benjamin Stanier, Surgery and Cancer  
Ms Yijia Sun, Computing  
Mrs Samia Taufiq, NHLI  
Mr Craig Tipple, Medicine  
Miss Rosemary Tipples (6 years), Faculty of Engineering  
Dr Nurlan Tokmoldin, Chemistry  
Dr Nora Tusor, Medicine  
Dr Antonio Urbina, Physics  
Ms Elisa Voros, NHLI  
Ms Rachel Ward (7 years), Humanities  
Mr Joseph Willis (9 years), NHLI  
Dr Him Wong, Chemical Engineering  
This data is supplied by HR and covers the period 30 April–21 May. This data was correct at the time of going to press.

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

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



10 JUNE ▶ PUBLIC LECTURE

### Photoacoustic tomography: beating diffusion and diffraction

Photoacoustic tomography (PAT) is a new method of scientific and medical imaging that provides functional information at various

scales for different applications. In the 2013 annual Bagrit Lecture, Professor Lihong Wang, Washington University in St Louis, describes the technology, which has the potential to accelerate research translation from microscopic laboratory discoveries to macroscopic clinical practice.



13 JUNE ▶ PUBLIC LECTURE

### From geek to glamour via a desert island – how did I get here?

In the 2013 Athena Lecture Professor Athene Donald, University of Cambridge, describes her career path as an academic scientist, including

the obstacles and setbacks that came her way. From her youth when she simply expected to become a mother and housewife to her life today as a distinguished physicist, educationalist and subject of media interest, Professor Donald has had a fascinating journey with plenty of bizarre twists and turns along the way. She'll discuss her research into soft matter physics as well as the challenges of combining career and family.

7 JUNE ▶ SEMINAR

### Imaging neural circuit dynamics with voltage-sensitive fluorescent proteins

Professor Thomas Knöpfel (Medicine)



13 JUNE ▶ SEMINAR

### Asthma and COPD: differential and similar origins?

Professor Dirkje Postma, University of Groningen



26 JUNE ▶ SEMINAR

### ICB careers day

Talks and networking



27 AND 28 JUNE ▶ OPEN DAY

### Science and Engineering open day

For Year 11 and 12 students

3 JULY ▶ SEMINAR

### Centre for Infection Prevention and Management annual meeting

CIPM scientific meeting



9 JULY ▶ PUBLIC LECTURE

### In this house we obey the laws of thermodynamics

Professor Amparo Galindo (Chemical Engineering)

11 JUNE ▶ SEMINAR

### Reinventing Fire?

Amory Lovins, Chairman, Rocky Mountain Institute

12 JUNE ▶ SEMINAR

### Holography and its impact

Various speakers

12 JUNE ▶ PUBLIC LECTURE

### The life and times of Dennis Gabor

Professor Laszlo Solymar, University of Oxford



13-14 JUNE ▶ CONFERENCE

### Chemical biology joint CDT conference

Annual student-run conference

19 JUNE ▶ SEMINAR

### Fellowships for researchers event

Hosted by the Postdoc Development Centre

24 JUNE ▶ SEMINAR

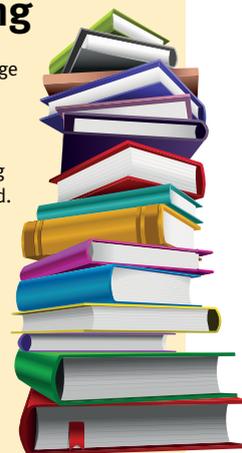
### State of ignorance: climate change and the biosphere

Professor Colin Prentice (Life Sciences)

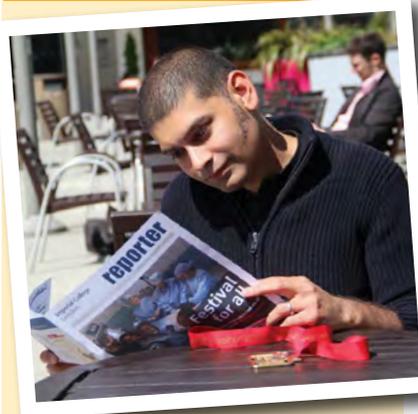
## take note

### Library services are changing

This summer it's all change at the Library – Library Search will become your one-stop shop for searching, and borrowing services will be simplified. Disruption will be kept to a minimum but some services will be suspended in July and August. For updates and to find out more go to: [www.imperial.ac.uk/library/changes13](http://www.imperial.ac.uk/library/changes13).



## MEET THE READER



Jamey Khan, Faculty IT support manager, ICT

### What are you doing in the pic?

Relaxing. Reading. Casually leaving my London Marathon medal lying around, as I'm modestly prone to do. I ran it this year as my first (and last) marathon. I've raised just under £2,000 for the Rainforest Foundation through various activities and emotional blackmail of colleagues!

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

Organisationally, we tend to know a lot about what people do, but I'd like to tap into the diversity of personalities and interests beyond that. I'd invite 50 people from across all sites, grades and departments to send in a photo of something they love doing outside College.

### Who would be your cover star?

Dr Trevor Hansel in the NHLI. He was my first manager here at College (many years ago...) and has always been an inspiration to me in terms of the dedication and energy he brought to his role and to the team as a whole.

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