

Spark of inspiration



The new Imperial partnership
supporting UK primary science

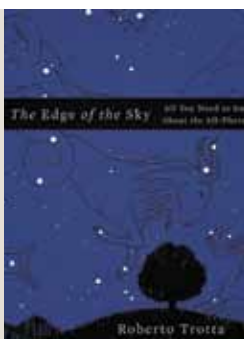
... CENTRE PAGES



EQUALITY IN ENTERPRISE

New prize for
entrepreneurial
female students

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refreshing new
addition to pop
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EDITOR'S CORNER

Opening doors

I have a strong memory from when I was younger of my father telling me that **everything around us** – including the chairs we sit on, air we breathe and even our bodies – is made up of tiny particles called atoms, so small that millions of them would fit in a pin head.

The notion that there was something going on ‘behind the scenes’ from what we can see in everyday life really captivated me. I was lucky that my father was a chemist, but every child, no matter their background, should be able to walk through that **door of discovery** whether they intend to be scientists or not.

As a world leading science institution, quite simply it makes sense for Imperial to get involved with school science education as early as possible. That’s the aim of a new online resource for primary school teachers developed through a pioneering College partnership. It’s early days, but there’s some **real excitement** about what it, and schemes like it, might achieve for future generations (centre pages).

ANDREW CZYZEWSKI, EDITOR

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Imperial and Houston Methodist explore medical collaborations



Houston Methodist, one of the United States’ most prestigious medical centres, is to explore joint education and research opportunities with Imperial.

The aim of the collaboration is to develop new medical technologies, as well as educational opportunities for Imperial medical students, postgraduates and postdoctoral fellows to study in Houston.

The news comes six months after the Mayor of

London Boris Johnson visited Imperial to launch MedCity: an initiative to position London and the greater south east as a world-leading region for life science research, development, manufacturing and commercialisation.

Imperial’s Professor David Gann, Vice President (Development & Innovation), and Professor Dermot Kelleher, Vice President (Health), signed the Memorandum of Understanding with Houston Methodist Research Institute President and CEO Dr Mauro Ferrari after a tour of Houston Methodist’s clinical and scientific facilities. Imperial’s Provost Professor James Stirling also signed the MoU.

Professor Kelleher said: “Houston Methodist Research Institute has outstanding strengths in the clinical and translational medical areas and Imperial is excited to be exploring the development of new collaborative research and education programmes.

“There is great synergy between our biomedical, science and engineering strengths that potentially unlocks new clinical and scientific student exchange programmes, new clinical trials capabilities and new approaches to therapeutic and medical device development.”

–ANDREW SCHEUBER, COMMUNICATIONS AND PUBLIC AFFAIRS

New programme to inspire future female entrepreneurs

Imperial has teamed up with the Althea Foundation to invest \$100,000 in a three-year pioneering entrepreneurship programme and prize for women students.

Female undergraduates and postgraduates across the College were invited to submit their business ideas.

The Althea-Imperial programme will now help them develop these ideas through a range of mentoring sessions and workshops featuring business leaders before pitching to a judging panel in May 2015.

Leading figures and supporters of women in entrepreneurship gathered on 24 October to celebrate the launch of the Althea-Imperial programme.

Entrepreneurs and keynote speakers Sherry Coutu and Dame Stephanie Shirley joined Imperial’s President Alice Gast and programme champion Professor Maggie Dallman, Associate Provost (Academic Partnerships) Designate. They talked about their experiences, shared their entrepreneurial wisdom, and encouraged female students to apply to the programme.

Professor Alice Gast. “If we are serious about economic growth, we must find more ways to support women in STEM fields and encourage them to pursue their ideas and start their own businesses. We look forward to working with mentors and business leaders



Dame Stephanie Shirley, British businesswoman and philanthropist

to inspire, invest in and unlock the talent of the UK’s next generation of women entrepreneurs.”

Alexis de Raadt St. James, Founder and Chairman of The Althea Foundation, added: “Although more women are studying for STEM degrees than before, over 70% of them drop out of STEM careers. This new programme aims to reverse this loss of investment and talent by providing support for female Imperial students to pursue their entrepreneurship ambitions, and become the business leaders of the future.”

–NATASHA MARTINEAU, COMMUNICATIONS AND PUBLIC AFFAIRS

Flying robots lab gets the go ahead



A new £1.25 million arena for flying the next generation of aerial robots will be constructed at Imperial thanks to a generous donation.

The global market value of unmanned aerial robot manufacturing is expected to reach an estimated \$US 89 billion in the next ten years. These robots have a range of potential applications including search and rescue, wildlife conservation and inspection and repair of

industrial facilities, particularly in hazardous environments.

Imperial aims to capitalise on its position as one of the UK's leading centres for aerial robotics research with the development of a new state-of-the-art laboratory at its South Kensington Campus – made possible thanks to a gift from Mr Brahmal Vasudevan, an Imperial alumnus. Based in Malaysia, Mr Vasudevan is the founder and Chief Executive Officer of one of Asia's leading private equity firms Creador.

Imperial's President, Professor Alice Gast, said: "Aerial robotics has a tremendous range of applications, and Imperial is well-equipped to play a pivotal role in this nascent industry. Brahmal Vasudevan's generosity and vision will allow our students, academics and industrial partners to rapidly advance research and innovation in this exciting field."

The Brahmal Vasudevan Aerial Robotics Lab will consist of a two storey laboratory and workshop, hosted by the City and Guilds building, on its roof. It will have teaching facilities for undergraduates and postgraduates, housing a workshop for manufacturing aerial robots and an enclosed arena for safely carrying out test flights. Dr Mirko Kovac (pictured above) will serve as Director of the new Brahmal Vasudevan Aerial Robotics Lab.

—COLIN SMITH, COMMUNICATIONS AND PUBLIC AFFAIRS

Singaporean President visits Imperial as collaborations grow

The Singaporean President Tony Tan Keng Yam visited Imperial on Friday 24 October as the university celebrated and strengthened its deep links with Singapore.

As well as Singaporean students forming one of the College's largest groups from overseas, Imperial's connections with the city state include the joint medical school with Nanyang Technological University, LKCMedicine, and a new cybersecurity research agreement signed this week (see below, in brief).

President Tan's visit marks the second occasion that Imperial has hosted a State Visit within a year, after President Park Geun-hye of South Korea visited in November 2013.

At the end of President Tan's four-day visit to the UK, he viewed some of Imperial's education and research accomplishments, including the College's four-storey Carbon Capture Pilot Plant – the most advanced of its kind in the world. Both the British and Singaporean governments have made carbon capture technology national priorities.

President Tan was welcomed by Imperial's President Alice Gast, who also sits on the Singaporean Ministry of Education's Academic Research Council.



President Tan meeting some of Imperial's 400 Singaporean students

"By working together, the UK and Singapore can greatly extend their capacity to produce high-quality research, tackle grand challenges and commercialise new technologies. Together we are driving innovation for the UK, Singapore and the whole world."

During a State Banquet for President Tan on Tuesday evening, Her Majesty The Queen highlighted LKCMedicine's work, saying: "Today Imperial College is helping to train a new generation of Singaporean doctors, just one of many important partnerships that it and other UK universities are building with Singapore."

—ANDREW SCHEUBER, COMMUNICATIONS AND PUBLIC AFFAIRS

in brief

Protecting industrial infrastructure

Making infrastructure more safe and secure will be the focus of a new partnership between Imperial and the Singapore University of Technology and Design (SUTD). The two have signed a five-year agreement that aims to improve the trustworthiness of critical infrastructure, and to protect the devices for regulating them called industrial control systems, from cyber threats. The relationship will enmesh the two universities via academic research and

student programmes at the PhD level. At Imperial, the partnership will be led by the Institute in Industrial Control Systems in conjunction with the Institute for Security Science and Technology, both headed by Professor Chris Hankin.

Athena SWAN success

Four Imperial Departments have been recognised with Athena SWAN awards for their work to promote female academics. The Department of Chemical Engineering and the National Heart and Lung

Institute were both successful in renewing their Silver Awards, while the Department of Surgery and Cancer and the Institute of Clinical Sciences & the MRC Clinical Sciences Centre achieved Bronze. Athena SWAN awards recognise and celebrate good practice in recruiting, retaining and promoting women in STEM (Science, Technology, Engineering, Medicine and Mathematics) in higher education, with each award lasting for three years.



“It took years of unrecognised effort classified as ‘Friday afternoon’ research – considered so unpromising that it was not backed as an official research project.”

PROFESSOR DONAL BRADLEY, VICE PROVOST (RESEARCH) HAILS THE NOBEL PRIZE FOR PHYSICS AWARDED TO JAPANESE PROFESSORS ISAMU AKASAKI, HIROSHI AMANO AND SHUJI NAKAMURA FOR INVENTING THE BLUE LED.

Main animal research allegations against Imperial not upheld



An extensive Home Office investigation has not substantiated the main allegations made in April 2013 by the anti-vivisection organisation that infiltrated Imperial.

The Animals in Science Regulation Unit Inspectorate report found no evidence to substantiate the main claims of the allegations by BUAV that there was “appalling animal suffering on a very large scale” or “wholly inadequate care of animals by Imperial staff”.

The report also notes that during Home Office inspections there was “evidence of researchers making innovative refinements to procedures to reduce distress to the animals and of researchers being trained... to reduce pain and distress”.

Of the 180 individual allegations made by BUAV, 175 were found to be unsubstantiated and five instances of individual non-compliance were substantiated. These were classed as categories A and B, on a scale of A-D where A is the least severe, and they have now been addressed. The report also details institutional shortcomings in the management and culture around animal research, which were raised with the College earlier this year.

The Home Office has confirmed that it is satisfied with the College’s Action Plan to address the issues identified, which includes revising its governance structure, improving its ethical review process, strengthening support for operational management and implementing better systems for training and sharing good practice through stronger communications.

Provost James Stirling said: “We are pleased that the investigation recognises the quality of care provided by our staff and the work of our researchers. We recognise that there have been problems with the culture and management around our animal research. We are sorry for these shortcomings and we have addressed them through considerable efforts and investment in our animal research infrastructure, to improve our culture of care and to ensure that we meet the very highest standards in our animal research.”

—LAURA GALLAGHER AND NATASHA MARTINEAU, COMMUNICATIONS AND PUBLIC AFFAIRS

President Gast’s first address to graduates

More than 2,200 undergraduate students gathered at the Royal Albert Hall on 22 October to receive their degrees at Imperial’s Commemoration Day ceremonies.

The ceremonies, attended by some 6,600 guests, were the first for Imperial’s new President Professor Alice Gast.

Congratulating the students she said: “I hope that you take all that you have learned and experienced at Imperial and put it to work for yourself, your family, your community and the world.”

Imperial also honoured others who have made contributions to the College, research and wider society with honorary degrees and Imperial College medals.

Imperial staff among them included Her Excellency Professor Maha Barakat, who was awarded an Imperial College Medal in recognition of the outstanding contribution she has made as co-founder of the Imperial College London Diabetes

Centre in Abu Dhabi, which since 2006 has helped more than 100,000 people afflicted by the condition.

Professor Jenny Higham, Vice Dean (Education and Institutional Affairs) for the Faculty of Medicine, was presented with an Imperial College Medal to mark her outstanding contributions to the establishment of the Lee Kong Chian School of Medicine in Singapore, a partnership with Nanyang Technological University.

Six members of staff also received President & Rector’s Medals at the ceremony, including Professor Mary Morrell (Faculty of Medicine) Dr William Knottenbelt (Computing), Dr John Gibbons (Mathematics), Dr Rudiger Woscholski (Chemistry), Dr Maria Toro-Troconis, (School of Medicine) and Mr Ian Gillett (Safety Department).

Student Awards for Outstanding Achievement were also presented to Caroline Wood (Chemistry) and Alireza Tahmasebzadeh (Bioengineering) for excellence in extracurricular activities.



Imperial’s President Alice Gast (left) and Chair Eliza Manningham-Buller speak with graduates

media mentions



Animal rights exposés ‘nothing of the kind’

THE GUARDIAN ▶ 7.10.14

The UK Home Office recently published the findings of its investigations into allegations of animal suffering, made after undercover infiltrations at animal research facilities including Imperial. “We now know that the stories were largely untrue,” writes Fiona Fox, Chief Executive of the Science Media Centre, in *The Guardian* (also see page 4 *Reporter*). “There is no excuse for any lapses in animal welfare and I fully support the right of activists and the media to uncover and expose abuses,” Fox says, adding: “However, the huge discrepancy between the allegations reported prominently in national newspapers and the truth should worry anyone who cares

about the accurate reporting of science in the media.”

Face of woe behind the gold mask

SUNDAY TIMES ▶ 19.10.14

Scientists have produced the most detailed images yet of the face and body of the ancient Egyptian pharaoh Tutankhamun, which suggests that he had an overbite, feminine hips and a club foot. The research, which is based on than 2,000 computerised tomography (CT) scans and a study of Tutankhamun’s lineage, forms the basis of a forthcoming television documentary. Hutan Ashrafian (Surgery and Cancer) who worked on the programme, told *The Sunday Times* that there is clear evidence of a hereditary illness. “Only his immediate line were dying early and they were dying earlier each generation,” he says. “The one thing that links them all is a hormonal imbalance.”

EU emission targets ‘will fail to protect climate’

BBC NEWS ▶ 20.10.14

Europe’s leaders are about to consign the Earth to the risk of dangerous climate change, a UN



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expert says. Professor Jim Skea, a vice-chair of the Intergovernmental Panel on Climate Change, says the EU’s plan to cut CO₂ emissions by 40% by 2030 is too weak. “I don’t think many people have grasped just how huge this task is,” he said to *BBC News*. “It is absolutely extraordinary and unprecedented. My guess is that 40% for 2030 is too little too late if we are really serious about our long-term targets.”

UK life sciences seek angel investors

FINANCIAL TIMES ▶ 21.10.14

City professionals will be urged to pour some of their personal wealth into medical research and technology this week as part of a push to attract more angel investment into UK life sciences, the *FT* reports. Launched on Wednesday, the latest scheme is part of the broader MedCity project aimed at establishing London and the southeast as Europe’s top life science hub. MedCity was launched in April by Boris Johnson, Mayor of London, to increase collaboration between Imperial College, King’s College and University College London.



awards and honours

ENGINEERING

Boost for stand-out student engineers

Four Imperial students have been awarded a prestigious grant of £1,000 each from the Institution of Engineering and Technology (IET). The IET grants are part of its awards and prizes scheme, which, in 2013, provided over £1,000,000 to celebrate excellence and innovation in the sector and encourage the next generation of engineers and technicians. This year, the IET awarded ten grants of £1,000, for students starting their second, third or fourth year of an IET-accredited degree course in autumn 2014. Four of

these went to Imperial students Henrik Hagemann, Bianca de Blasi, Matthew Murchie and Teodora Negoita.

MEDICINE

Glycobiology pioneer



Professor Ten Feizi is the recipient of the 2014 Rosalind Kornfeld Award for Lifetime Achievement

in Glycobiology. The honour is bestowed by the Society of Glycobiology in recognition of her many achievements in the fields of structure analysis, immunology and function of glycans over nearly 50 years. She developed her research group

at the Medical Research Council Clinical Research Centre, which has evolved over the years into what is now the Glycosciences Laboratory of Imperial, holding the largest and most diverse library of carbohydrate materials in the world.

MEDICINE

Faraday Medal for Toumazou

A leading inventor of medical device technology has been awarded the highest honour from the UK’s Institution of Engineering and Technology (IET). Professor Chris Toumazou, Regius Professor of Engineering, has been awarded the IET’s 2014 Faraday Medal for his pioneering work in inventing semiconductor DNA sequencing with the ability to revolutionise healthcare and save lives.

NATURAL SCIENCES

Quantum Knight honoured



Quantum physics expert Professor Sir Peter Knight has become an Honorary Fellow of the Institute of Physics, its highest honour. Sir Peter, an Emeritus Professor at Imperial and its former Deputy Rector for Research, has been recognised for his major contributions to physics, as well as his influential leadership roles and his service to the Institute of Physics (IoP).

First images of breast cancer susceptibility protein aids understanding

Scientists have taken pictures of the BRCA2 protein for the first time, showing how it works to repair damaged DNA.

Mutations in the gene that encodes BRCA2 are well known for raising the risk of breast cancer and other cancers. Although the protein was known to be involved in DNA repair, its shape and mechanism have been unclear, making it impossible to target with therapies.

Now researchers have purified the protein and used electron



microscopy to reveal its structure and how it interacts with other proteins and DNA.

The study was led by Professor Xiaodong Zhang (Medicine) and Dr Stephen West at the London Research Institute.

“This study improves our understanding of a fundamental cause of cancer,” he said. “It’s our first view of how the protein looks and how it works, and it gives us a platform to design new experiments to probe its mechanism in greater detail. Once

we have added more detail to the picture, we can design ways to correct defects in BRCA2 and help cells repair DNA more

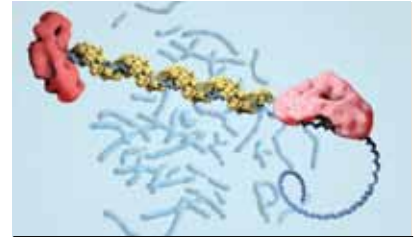
effectively to prevent cancer. We can also think about how to make the repair process less effective in cancer cells, so that they die.”

The study found that BRCA2 proteins work in pairs – which the researchers found surprising since BRCA2 is one of the largest proteins in the cell.

BRCA2 works in partnership with another protein called RAD51. BRCA2 helps RAD51 molecules to assemble on strands of broken DNA and form filaments. The RAD51 filaments then search for matching strands of DNA in order to repair the break.

The research was funded by the Medical Research Council and the Wellcome Trust.

—SAM WONG, COMMUNICATIONS AND PUBLIC AFFAIRS



In the genes

Around one in 1000 people in the UK have a mutation in the BRCA2 gene. The lifetime risk of breast cancer for women with BRCA2 mutations is 40 to 85 per cent, depending on the mutation, compared with around 12 per cent for the general population. Many women who test positive for BRCA1 and BRCA2 mutations choose to undergo surgery to reduce their risk of breast cancer. Mutations can also raise the risk of other cancers, such as ovarian, prostate and pancreatic cancer. The BRCA1 and BRCA2 genes encode proteins involved in DNA repair. The DNA in our cells undergoes damage thousands of times a day, caused by toxic chemicals, metabolic by-products and ultraviolet radiation. Repair mechanisms correct most of this damage, but unrepaired damage can lead to cancer.

Understanding how the cold virus can trigger asthma attacks



QUICK FACTS

235 million

people suffer from asthma worldwide and asthma is the most common noncommunicable disease among children

5.4 million

people in the UK are currently receiving treatment for asthma

Researchers have identified a molecular mechanism that could explain why the common cold can bring on life-threatening asthma attacks and also suggest potential targets for new drugs that could be more effective than existing treatments.

Although illnesses caused by rhinoviruses are usually relatively mild for most people, they can also infect the lungs and, in people with respiratory diseases such as asthma, they can trigger severe attacks, sometimes leading to hospitalisation.

The new study confirmed that a small molecule or cytokine called IL-25 may play a central role in the effects of rhinoviruses on asthmatics.

Dr Nathan Bartlett (National Heart and Lung Institute), joint lead author, said: “IL-25 appears to trigger a chain of events that causes attacks. By targeting this molecule at the top of the cascade, we could potentially discover a much-needed new treatment to control this potentially life-threatening reaction in asthma sufferers.”

The research team compared cells taken

from the lungs of asthmatics to cells from healthy volunteers and demonstrated that, when infected with a rhinovirus, asthmatic lung cells produce around 10-fold higher levels of IL-25. To examine IL-25 expression directly in the airways the researchers then infected asthmatic and healthy volunteers with a rhinovirus and found that asthmatics had a higher level of IL-25 in nasal secretions.

Professor Sebastian Johnston (NHLI), joint lead author, said: “Asthma attacks are still a huge healthcare problem. Existing medication containing inhaled steroids, are highly effective at controlling regular asthma symptoms, but during an attack the symptoms worsen and can lead to the patient going to hospital. This new study provides exciting results about potential ways to address this big unmet medical need.”

The next steps are to test blocking IL-25 in humans, and to investigate other possible pathways that could be important in asthma attacks and pool this knowledge to develop effective treatments.

—FRANCESCA DAVENPORT, COMMUNICATIONS AND PUBLIC AFFAIRS



World record laser heralds new data communication potential

Scientists have designed a record-breaking laser that could potentially open up applications in fast, optical data transfer.

A team from Imperial and the Friedrich-Schiller-Universität Jena, in Germany, used semiconductor nanowires made of zinc oxide as a laser medium and placed them on a silver surface to create ultra-fast lasers.

Key to their setup was the ability to shrink their nanowires down to just 120 nanometres in diameter – around a thousandth the diameter of human hair – by using surface plasmons, which are wave-like motions of excited electrons found at the surface of metals.

Using these surface plasmons they were able to squeeze light into a much smaller space inside the laser, which allowed it to interact much more strongly with the zinc oxide, increasing the speed the laser beam could be switched.

The researchers believe that theirs is one of the fastest lasers recorded to date, in terms of the speed at which it can turn on and off on demand – recording in the terahertz frequency range (10^{12} times per second).

One of the uses of this technology could be to improve communication technology by generating faster data connection speeds and speeding up the transfer of information, as lead author Themis Sidiropoulos (Physics), who is currently completing his PhD, explains.

“Turning a laser on and off quicker means more information carrying 1s and 0s per second, allowing much faster data communications. In fact, these lasers are so much faster than conventional electronics that we had to develop an optical switching method to

measure their speed.”

Senior author Dr Rupert Oulton (Physics) added: “This work is so exciting because we are engineering the interaction of light and matter to drive light generation in materials much faster than it occurs naturally. When we first started working on this, I would have been happy to speed up switching speeds to a picosecond, which is one trillionth of a second. But we’ve managed to go even faster, to the point where the properties of the material itself set a speed limit.”

—GAIL WILSON, COMMUNICATIONS AND PUBLIC AFFAIRS



Laser basics

There are several different types of lasers that use different types of laser medium – either solid, gas, liquid or semiconductor – to create light with different characteristics. But all have certain essential features in common. When operated, the laser medium must first be ‘pumped’ to get its atoms into an excited state, typically done with very intense flashes of light or electrical discharges. The laser medium now contains a collection of atoms with their electrons sitting in excited levels. Just as the electrons absorbed some amount of energy to reach this excited level, they can relax back and in doing so release this energy. This emitted energy is released in the form of photons of light energy that are of a very specific wavelength (colour), are coherent (each photon is organised and moves in step with the others) and very directional (a tight, concentrated beam). In the new lasers the researchers designed, light is squeezed into a compact space where it interacts more strongly with the atomic excitations. This allows the laser to emit its energy faster than it would if used in a larger laser system.

Wearable sensor warns of respiratory disease

Researchers have developed a wearable, wireless device which sticks onto a person’s neck or chest to detect sounds emanating from the heart and respiratory system.

AcuPebble uses advanced algorithms to sift through a range of sounds to determine only the ones that may indicate deteriorating health or illness in patients.

The researchers believe that AcuPebble could be used to improve the diagnosis of a range of respiratory and cardiac conditions, including sleep apnoea, whooping cough, pneumonia, chronic obstructive pulmonary disease.

Dr Esther Rodriguez-Villegas (Electrical and Electronic Engineering), who has led the research and development for the past five years, points out that hundreds of millions of people suffer every day from chronic respiratory diseases.

“It is almost certain that many of us will be faced with these health conditions in our lives,” he said. “However, there aren’t sufficient resources for doctors to give an early and quick diagnosis to everyone. We need accurate and reliable technologies that can speed up diagnosis and free up resources in hospitals, while also improving the quality of life for patients. We believe that AcuPebble can provide an easy-to-use diagnostic tool, making personal health information accessible to trusted sources anywhere in the world, ultimately improving how we look after ourselves.”

AcuPebble could be used in a range of clinical settings including as a diagnostic tool, a health monitor and as an early warning device. The hope is that the sensor will collect data in real-time and transmit this information to an application that could be downloaded onto any smart device, so that doctors can monitor their patients anywhere in the world.

—COLIN SMITH COMMUNICATIONS AND PUBLIC AFFAIRS

The research group, known as team GUES, are now in the final round of the \$US 2.25 million Nokia Sensing XCHALLENGE, an international competition to develop breakthrough medical sensing technologies. To vote, visit: <http://bit.ly/teamgues>



The AcuPebble device is slightly larger than a pound coin



A Spark of inspiration

More than 40 members of Imperial staff have helped create a unique online resource to aid primary school teachers spread the wonder of science in their classes.

“When I was a child in South Africa, my Dad loved looking at the planets, and he built his own telescope – so the first view I had of Jupiter and Saturn was from my front garden. I always thought it would be really cool to get involved in planetary science, but I never thought I would be able to do it.”

That child grew up to lead an experiment on a space mission currently orbiting around Saturn and is leading another experiment heading to Jupiter in 2022. Professor Michele Dougherty’s early experiences are not uncommon among successful scientists – many can recall a moment when they felt that first kindling of discovery.

Clearly what followed for Michele and others was a lifetime of hard work and dedication, but those early influences shouldn’t be underestimated. Indeed, fostering such inspiration in as many children as possible is an important aim for us as a society, laying the path for future professional scientists, engineers and medics – but also developing an entire generation that is able to think more critically about an ever more complex world.

As a step towards addressing this need, Imperial has recently partnered with primary science resource Tigtag to provide continuing professional development (CPD) support to primary school teachers.

Known as ‘Reach Out CPD’, the web-based programme will equip teachers with resources and ideas to support their teaching and engage primary school children across the UK in the wonder of primary science.

The scheme is being led by Professor Debra Humphris, Vice Provost for Education, and Professor Maggie Dallman, Associate Provost for Academic Partnerships Designate (see Maggie’s piece, opposite page) and is championed by Lord Robert Winston, Professor of Science and Society.

Debra says: “Our staff and students already undertake a huge amount of outreach work with schools. We’ve traditionally done this with the secondary sector but there’s evidence that we need to start at a much younger age to inspire children about science.”

Lord Winston adds: “If you’re going to single out one of the most important jobs in our society it has to be teaching. We need to nurture, value and promote teachers. To give them the career



professional development and support they need is so important. If you really want to change your society, you've got to invest in the youngest children."

More than 40 members of Imperial academic staff – including Michele Dougherty, Lord Winston and Professor Sir Steve Bloom as well as more junior researchers – have been involved in the production of Reach Out CPD, explaining their work alongside key scientific concepts in specialist films produced by Tigtag.

One such academic is Dr Peter Vincent (Aeronautics), Senior Lecturer and EPSRC Early Career Fellow. He appears on film in Imperial's Honda Wind Tunnel, describing how understanding patterns of air flow over racing cars and aircraft can translate into a better understanding of blood flow in the human body, which can be used to tackle clinical challenges in patients. It was the first time Peter had ever undertaken any dedicated outreach activities.

"We had to do a number of re-takes, with the producers telling me to bring the difficulty level down each time! But it was fun and certainly worthwhile. Clearly the technical details won't be there at primary level, but if we can introduce the principles of scientific inquiry and an element of quantitative and rational thinking, that's the key.

"Also it would be good to challenge preconceptions in some quarters that science is boring and art is creative. Both my parents went to the Royal College of Art and I grew up making things, so for me it was perfectly natural to then move into science – I've always viewed research as an extremely creative process."

“If you really want to change your society, you've got to invest in the youngest children.”

The first 20-minute Reach Out units to be released cover topics ranging from energy to the digestive system. Each includes videos and interactive elements that highlight the applications of

science and encourage learning through peer discussions and reflective self-analysis. By early 2015 units covering all of the UK curricula will be available.

"The joy of the resources being online is that they can be accessed anywhere and at anytime," says Debra Humphris. "So, while we can't reach all teachers physically, we hope to be making an impact in primary schools across the UK."

There's evidence that teachers have already responded enthusiastically to the resources. Sam Sims, Headteacher of Meadows Primary School in Ipswich, says: "I've just taught a lesson on rocks and was able to use some of the examples I saw in the films. I'm not a science specialist so it's great to have that information at your fingertips that you can use in the classroom that same day."

At the end of Michele's film piece she talks about how future generations of scientists will explore the outer edges of the solar system and even other galaxies. Who knows, perhaps the primary school children benefiting from this latest initiative might be among those pioneering adventurers.

BACK TO SCHOOL



As part of the launch of Reach Out CPD, project lead Professor Maggie Dallman returned to her former primary school, Hayes School in Bromley, to promote the initiative and carry out some of the experiments detailed in the online toolkit. Maggie recalls the experience below.

"Being the first time I'd ever returned to the school, it was rather strange. My overriding memory was of the big beautiful playing fields, since I was very sporty at both primary and secondary school. My fear was either that they'd been sold off, as so many have, or that they were much smaller than I imagined. But thankfully they were there in all their glory. There was also a jolting memory as I was walking down the corridor of warming up our milk bottle provisions on the radiators when they were frozen in the winter. I can still taste that luke-warm icicle-laced mush!

After explaining to a class that I had attended the school when I was a girl, I posed perhaps a rather dangerous question in asking the children how long ago they thought it had been. After a lengthy silence someone tentatively put up their hand: '...about 120 years ago?' Luckily the next suggestion was nearer the mark at 40 years.

On a serious note though, it does bring it home the point that it's difficult for children to think about the future – what they will be doing and how the future will affect them. That's part of why we wanted to go back to the school because Reach Out CPD is all about the future engagement of children with science and if we don't capture their excitement at that level, we might have lost them as potential scientists of the future.

Not all of those primary children are going to turn out to be scientists. But increasing the general level of science literacy is really important, because we're making decisions every day in our lives – about what we eat and drink, our behaviour and lifestyle – that are made on the basis of very difficult to interpret and often contradictory evidence from the media. I'm not saying we're going to change things overnight, but we want to engage across the lifespan of an individual to try and get them questioning more.

We carried out some very simple experiments, replicating aspects of digestion, with basic kitchenware and ingredients. The really important part was that each and every child got to do some part of the experiment – and it's that hands on aspect of science that can really capture their imagination. They loved it obviously, as it's revolting, but at the same time you're explaining how it relates to what's going on in their own bodies.

Lastly, we went through the online resource with some of the teachers on screen. Once they realised that they could use this to form a lesson plan and that there was a facility to make notes, they became even more positive about the resource and could see immediately how it could help them in a very practical way. We've got a long way to go to get it being used in every primary school, but there's been lots of enthusiasm so far.

Making excellence routine

Imperial's Operational Excellence (OE) initiative is well underway at the College, with more than 75 staff trained to use the method to improve the processes they work with

OE is a College-wide programme that aims to establish more joined-up, systematic and efficient processes to support the College's academic mission and better meet the needs of staff and students.

There are two projects currently running under the OE banner – the Student Information Management Programme (SIMP) – which examines the processes around how student information is managed across the student life cycle at Imperial, and the Staff Recruitment Project – which looks at the administrative procedures involved in staff recruitment activities.

David Parrott, Admissions Officer in the Faculty of Natural Sciences, shared his experience of OE training and how he is putting the skills to use.

What is your role at the College?

I'm the Admissions Officer for the Faculty of Natural Sciences – my team is responsible for the receipt and processing of all student applications to the



Faculty. We check them to make sure they are valid and meet various compliance requirements before they are handed over for academic consideration – for example ensuring that students have the appropriate English language requirements or immigration status. After the academic decision about whether to admit an applicant has been made, we then process the offers to our prospective students.

How are you involved with Operational Excellence?

I sit on an admissions user group for the Student Information Management Programme, which at present is considering how to ensure that we provide the best service possible for prospective students and applicants. I have been involved with mapping and reviewing current admissions processes across the

“The perspective I gained from the Operational Excellence training has allowed me to see my own team with a fresh pair of eyes.”

College – identifying best practice and areas for improvement and considering how these processes should look going forwards. These groups provide a valuable forum for debate and discussion, ensuring that the views of



those involved in the processes being reviewed are heard.

What was the Operational Excellence training like?

It was an intense but very valuable three days. We began by learning the theory behind OE and models that underpin it. One such example involved a methodological approach to identifying those processes which add value and eliminating those that aren't needed or waste our time and resources. Like many of the methodologies behind OE, this approach began in industry or manufacturing, and it was interesting to see how it could be translated to complex organisations such as Imperial. With this in mind we then considered how we could apply OE to analyse the processes and procedures that we work with.

How have you used this knowledge?

As well as allowing me contribute to the broader

SIMP project, the perspective I gained from the OE training has allowed me to see my own team with a fresh pair of eyes, and has already helped me to spot ways we can improve in our day-to-day work. Principally this involves ensuring that we are working as effectively and efficiently as possible – by tackling duplication of work and ensuring consistency in our practice across the team.

What happens now?

We'll be piloting some of the proposals to come from the SIMP admissions user group over the next few months, and I'll be interested to see how these develop and affect wider change across the College. This doesn't mean that the task is over though – we'll be continuing to review the work that we do to make sure that we are providing the best possible service to our colleagues and prospective students.

–DEBORAH EVANSON, COMMUNICATIONS AND PUBLIC AFFAIRS

inside*

story

mini profile

Tim Green

Professor Tim Green is the Director of Imperial's Energy Futures (EFL) Lab in addition to serving as Deputy Head of the Department of Electrical and Electronic Engineering.



What are the main challenges in bringing sustainable energy to the UK?

There are several, but perhaps the biggest challenge will be taking the population with us on that journey. That will mean significant changes in lifestyle, such as adapting to modes of transport that are less emitting and thinking more about when and where we use energy so it matches when and where sustainable energy can be produced. The technology challenges are enormous, but I think the policy and social challenges are at least as big if not larger.

What's your vision for the UK's energy mix in 20 years' time?

I think the UK has been extraordinarily lucky with energy. The economic strength of this nation can be traced back to the industrial revolution of the 19th Century, founded on coal. This good fortune continued when oil and gas were discovered in the 1970s in the North Sea and now we enter a new era where we find ourselves with quite abundant wind and marine energy resources, so we've got to exploit that. But it's going to be a mixed energy picture; we're

not going to suddenly stop using fossil fuels, but what we need to do is start using carbon capture and storage technology to lessen the climate impact.

Can the EFL have a global role?

Clearly moving to sustainable energy is not something an individual nation can do on its own. I think it's important that the UK takes a leading position and Imperial has a strong role in influencing what the UK does. We also need to work with partner organisations around the world.

You've an interest in old steam trains, why?

It's the combination of the romance of travel from an era when travel was glamorous with the moving parts of the steam train being on display – it's almost like the art of engineering.

-COLIN SMITH, COMMUNICATIONS AND PUBLIC AFFAIRS

For the full interview visit: bit.ly/ProfTGreen

The really wild Silwood show

On a sunny September Saturday, scientists at the Silwood Park campus invited the public to connect with the nature on their doorstep. Gail Wilson, Research Media Officer for Natural Sciences went along to explore for herself.



Whether it was hunting for bugs in the woods, fishing for crayfish in the Silwood pond, holding crested geckos or identifying species caught in camera traps in the Kenyan countryside, there were lots of activities on offer, to entertain visitors of all ages. The event was co-hosted by two Imperial initiatives – Grand Challenges in Ecosystems and the Environment and Open Air Laboratories (OPAL).

Professor E.J. Milner-Gulland (Life Sciences), Director of Grand Challenges said: "Scientists are not the only people who can help to conserve species. The public can also play a pivotal role in helping our natural world to thrive. I'm absolutely thrilled that so many people have come to visit Silwood Park to not only have a fabulous family day out, but also find out more about how to monitor and protect our wildlife."

Fishing for crayfish in Imperial's Silwood Park pond



"How big are the crayfish?" asked an excited 7 year old boy – "Big enough to give you a nasty nip on the finger," replied PhD student Sam Lloyd, leading the fishing trip to Silwood Park's pond. Sam explained to the audience that the crayfish he had captured, a species called *Pacifastacus leniusculus*, were an invasive species that had outcompeted native crayfish originally found in the pond.

Monitoring species from your laptop or smartphone

In another exhibit the public got the chance to monitor species as far away as Mongolia, Indonesia and Kenya without leaving the grounds of Silwood Park. Instant Wild, a conservation project run by the Zoological Society of London (ZSL), saw children and adults helping scientists to identify rare species pictured in camera traps in the rainforests and great plains of our planet earth.

Conserving the countryside in Western South Africa

Showcasing a documentary film about conservation in South Africa, Dr Andrew Knight (Life Sciences), a Senior Lecturer in Conservation Practice at Imperial, said to visitors: "Conservation is not just about animals, it's about people too". Dr Knight explained why focusing on animals is simply not enough to save endangered species.





Author and physicist Dr Roberto Trotta

All you need to know?

Could you explain the long and complicated story of our universe using only the most common thousand words in the English language?

Sounds like an almost impossible task, but in his first book, *The Edge of the Sky: All You Need to Know About the All-There-Is*, Dr Roberto Trotta (Physics) does exactly that.

Dr Trotta tells the tale of the big bang and the birth of the universe all the way through to theories of its destiny.

Following a young female scientist from sunset to sunrise, the story explains what she sees through her telescope, or what Dr Trotta refers to in his book as 'Big-Seer'.

Writing a book about an expanding universe, planets, alien worlds, particle physics, galaxies and telescopes without being able to use any of these words, creates a unique science story that is entertaining, metaphorical and magical in places, but educational and enlightening at the same time.

"For more than a decade I've been looking for a language to communicate my excitement about my science – dark matter, dark energy, the universe, the big questions about why are we here – with the public. At the beginning it was very frustrating because I had all these words, which are the bread and butter of cosmology, that I wanted to use but couldn't.

"But little by little I started coming up with a different vocabulary and different ways of expressing cosmology. So a planet became a 'crazy star', galaxies became 'star crowds', and our Milky Way galaxy became the 'White Road'. And so little by little a new voice started to emerge from the format that I'd given myself. I started to think about it as some sort of poetic straight jacket that forced me into expressing cosmology concepts in a new, and hopefully refreshing, way, that gave me childlike new eyes on the universe."

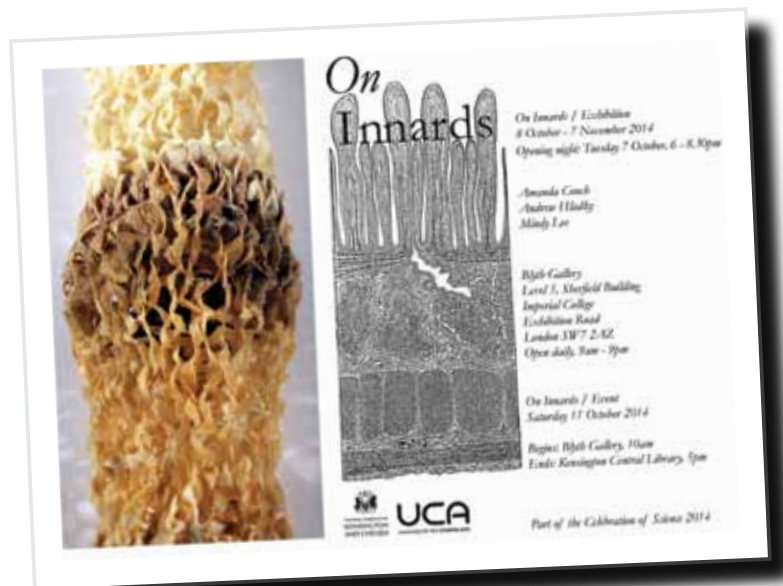
The Edge of the Sky is published by Basic Books and available from most high street book stores and online retailers.

–GAIL WILSON, COMMUNICATIONS AND PUBLIC AFFAIRS



Feast for the senses

Take a moment to ponder how often you are at the behest of inner bodily functions, particularly digestion. Are you hungry right now, fantasising about a certain food, or perhaps even in discomfort? How is that affecting your mind-set and sense of self?



These are just a few questions posed by a recent multidisciplinary creative project, *On Innards*, by artists Amanda Couch, Andrew Hladky and Imperial staff member Mindy Lee, who curates the Blyth Gallery, where some of the work was exhibited.

Around a year ago the three, who knew of each other professionally, realised that they had a common interest in exploring the changing conceptualisations of guts and digestions. Together they presented some early ideas at the International Body Horror Conference in Athens last November.

That set in motion a period of research and artistic development – they were fascinated to discover recent medical research suggesting a more prominent role for the digestive system as sensory organ and even second brain which facilitates complex interactions with the external world.

"We try very hard to keep this part of our lives and our bodies hidden and private – it is partly hidden of course and we strive to keep it that way. So I see this work as a sort of creative disembowelment," says Andrew.

The three artists cut across media, with Mindy creating a large smorgasbord platter of images regurgitated from art history – "the remnants of a feast". Meanwhile, Amanda looked to provoke a visceral audience reaction from her tall vertical pillar of knitted of salami skins. Lastly, Andrew painted with oil and cocktails sticks invoking bodily functions, building up layers in a texture that grows out of the board and shifts as you move around it.

Acknowledging the challenging nature of the work Mindy says: "When you've transformed the ideas into a piece of art, that then provides a safe environment to explore them further in your own imagination and in doing so you can cut across taboos and boundaries that you tend not to discuss in real life situations."

The three also led a participatory and experiential day-long event on 11 October. It brought together researchers such as Dr Simon Gabe (Surgery and Cancer) a consultant gastroenterologist who talked about his experiences with patients and artificial nutrition – and yoga practitioner Kerry Gallagher who led a session aimed at strengthening and cleansing the digestive system. Amanda also delivered an artistic performance which involved feeding audience members tripe and gauging their responses and feelings, whilst she talked about the cultural history of offal as a celebratory delicacy.

On Innards runs at the Blyth Gallery until 7 November

Walking the corridors of power

Dr Ling Ge is Process and Systems Manager at Enterprise, Imperial's dedicated division for industry interactions and business ventures. She recently spoke at a reception for the British Red Cross Tiffany Circle at Number 10 Downing Street, hosted by Samantha Cameron, wife of the Prime Minister.

"Being a scientist by training, I never thought my career would take me to the corridors of power in Westminster; but this year I've been lucky enough to go there twice! I was invited by the Speaker of the House of Commons, John Bercow to attend a reception for Women of the Future Awardees at the State Rooms of the Speaker's House in March, which was a fascinating eye-opener. Then in October I was asked to go to Number 10 to celebrate the 2nd anniversary of the British Red Cross Tiffany Circle. It's a leading women's philanthropy group and members join a long line of women who have played a key role in the British Red Cross since it was founded in 1863.

In the UK Tiffany Circle members have already raised over £850,000 to ensure the British Red Cross can be there for those who need them the most – whether helping women in crisis in the UK, communities severely affected by HIV in South Africa or supporting children affected by war in Sierra Leone.

I chair the newly formed Young Tiffany Circle and we're currently planning a number of fundraising events, so it was great to network and speak to potential benefactors. The reception and venue were great fun – Number 10 had such an air of elegance and grandeur, and there were classical and modern artworks all over the walls. During the reception and dinner I spoke to Dames, CBEs, FTSE directors and an Indian princess and business heiress! I also chatted to the chairman of British Red Cross David Bernstein CBE who is also the chairman of Ted Baker, a director at Tiffany & Co., and a director at Burberry who promised to support our upcoming fashion show fundraiser of the Circle.

My primary role with the Circle is to drum up support with events here in the UK, but you never know, someday I might get out there with Red Cross workers in the field on humanitarian missions."



Dr Ling Ge at 10 Downing Street

Imperial celebrates the opening of its new sports ground

Staff and students gathered on 15 October to mark the opening of the College's new 27 acre sports ground in Heston.

The occasion was marked with an afternoon of sport and activities,

which saw student teams taking to the new pitches as they competed in football, rugby and hockey. There was also an opportunity for attendees to see the site's indoor facilities in use, with a number of

performances from student societies including cheerleading and ballroom dancing.

Debra Humphris, Vice Provost (Education) welcomed the guests, saying: "Today has been a long time in the making but it's great to finally be here and to open this amazing new facility. It is just the latest phase in the evolution of sports facilities at Imperial."

The site's facilities include tennis and netball courts, cricket pitches as well as grass space for 5 football and 2 rugby pitches and a shooting range. While indoors there is a large theatre and dance hall, squash and basketball courts as well as bars and social spaces.

Later in the afternoon sports

teams gathered for the official opening of the new Teddington Bar. The bar, one of three on the site, features a photographic tribute to the College's old Teddington Sports Ground.

Tom Wheeler, Imperial College Union President, said: "It was great to see the facilities at Heston filled with student sport and activity today. I'm excited for the future of student sport here at Heston, and look forward to the achievements that take place in the future.

"The ground at Teddington had an incredibly rich heritage and history in the hearts of many students and alumni at the College and it's great that these associations are preserved at Heston through the Teddington Bar."

—JON NARCROSS,
COMMUNICATIONS AND
PUBLIC AFFAIRS



long
service

Staff featured in this column have given many years of service to the College. Staff listed celebrate anniversaries during the period 1 November–30 November. The data are supplied by HR and correct at the time of going to press.

20 years

- Andrew Priest, Research Services Administrator, Faculty of Natural Sciences
- Professor David Dexter, Professor of Neuropharmacology, Medicine
- Dr Lidia Lonergan, Reader in Geotectonics, Earth Science & Engineering

30 years

- Sukwinder Singh, Campus Health & Safety Manager, Faculty of Medicine

SPOTLIGHT

ANDREW PRIEST, RESEARCH SERVICES ADMINISTRATOR, FACULTY OF NATURAL SCIENCES 20 years



I've worked in Research Services for the full 20 years. Looking back to my first week I remember that it seemed all I did was filing, since the group produced a lot of printed data for cataloguing and being the new member of office staff I was the one to perform this riveting job. I nearly died of boredom, but thankfully I stuck to it and soon was trained to do more challenging work! The role has changed beyond recognition from what we used to do. I remember standing next to our latest Fax machine listening to counterparts over in Russia getting all excited that they were getting a Fax from 'Imperial'. Now we think nothing of emailing anyone anywhere.

obituaries

COLIN BESANT

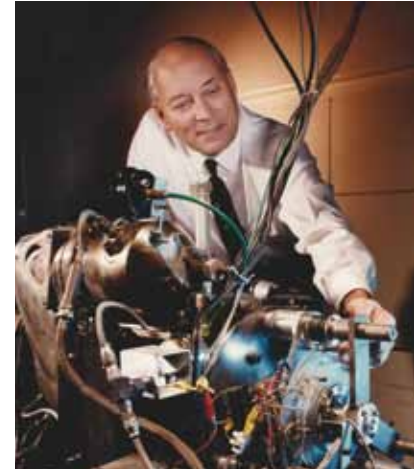
Emeritus Professor Colin Besant (Mechanical Engineering), died suddenly on 19 July, aged 78 whilst on holiday in Canada. His friend and colleague from the Department, Dr Mike Ristic, pays tribute.

Colin obtained his PhD from Imperial in 1965 in nuclear reactor engineering – a field of research he would make his name in during the ensuing decades. Working for Rolls Royce and Associates he helped design pressurised water reactors used in nuclear submarines, before going on to join the UK Atomic Energy Authority as Senior Scientific Officer designing experimental reactors at Winfrith.

He returned to Imperial as a Lecturer in Mechanical Engineering in 1968, researching, amongst other things, fast breeder reactors. Notably, he was one of the first engineers in Europe to become involved in Computer Aided Design and Manufacture, pioneering the use of mini-computers in design applications and building up a large research group.

Colin was highly respected in industry, which supported much of his group's research and participated in the commercialisation of several spinout companies specialising in CAD and robotics. He was made a Fellow of the Royal Academy of Engineering in 1997.

Such was Colin's versatility and vision, he switched focus in the early 1990s to research high-speed permanent magnet electric machines with applications in hybrid electric vehicles and distributed power generation. This technology was subsequently



commercialised through Turbo Genset (now Turbo Power Systems).

As Emeritus Professor, Colin devoted much of his time to supporting new British engineering companies and of course encouraging new research in his Department and across the College.

Throughout his career he has been an inspiration for numerous young engineers and researchers, many of whom have gone on to become highly successful industrialists and entrepreneurs.

His enduring optimism, wisdom, good humour and support will be deeply missed by many at the College.

From the archives: early physics research at Imperial and at CERN

Former student Dr Colin West (Bsc Physics 1960, PhD 1965) recently attended a specially-organised Imperial alumni trip to Geneva over the weekend of 10–12 October 2014. He had an additional reason for wanting to attend – to the best of his knowledge he was the very first Imperial student to work at CERN.

"I was involved in an early particle physics project at Imperial in which we constructed a liquid hydrogen bubble chamber. The size of it meant that there was no room in the

Physics Department, so it was housed in a large tent behind the building on Prince Consort Road and remained there when the new Blackett Laboratory was opened in October 1960.

A few years later the students working on it were reassigned and I went to CERN to work initially on the CERN/ETH cloud chamber experiment on neutral K-meson decays. This was with my PhD supervisor Peter Astbury. The cloud chamber experiment was measuring the branching ratios of K_0^0 decays.

When this was



finished, the cloud chamber was replaced by spark chambers and it was used to study a series of K meson scattering experiments. I read somewhere that the glass cloud chamber was subsequently used as an aquarium in CERN – at the alumni event I went looking around the restaurant area to see if I could find it, but I couldn't!"

Welcome

new starters

Mr Abdulshakur Abdullah, Public Health
 Ms Aliza Abeles, Surgery & Cancer
 Ms Ololade Adeniji, Chemistry
 Ms Mojisola Akintoye, EYEC
 Dr Jade Alglave, Computing
 Mr Chanpreet Arhi, Surgery & Cancer
 Dr Hajra Ashraf, Surgery & Cancer
 Dr Mark Attard, Medicine
 Ms Jennifer Ayers, Surgery & Cancer
 Mr Daniel Ayres, Mechanical Engineering
 Miss Hafsa Aziz, NHLI
 Mr Hakan Bagci, Clinical Science
 Mr Guillermo Barinaga, Medicine
 Mr Nathan Barlow, Chemistry
 Mr Iain Barr, Physics
 Dr Emily Barrow, Surgery & Cancer
 Dr Heather Battey, Mathematics
 Dr Sean Bello, NHLI
 Dr Adrian Benito Mauricio, Surgery & Cancer
 Dr Victoria Blackmore, Physics
 Dr Francesca Boem, EEE
 Dr Nicholas Bristowe, Materials
 Miss Abigail Brobbey, Medicine
 Miss Susann Bruche, NHLI
 Ms Roisin Buckley, Civil and Environmental Engineering
 Mr Joshua Buckman, Public Health
 Ms Cristina Budau, Catering Services
 Dr William Burns, Faculty of Engineering
 Ms Mariah Bush, Communications and Public Affairs
 Ms Helene Butz, School of Professional Development
 Dr Adam Byrne, NHLI
 Mr Stephane Camuzeaux, Surgery & Cancer
 Mr Samuele Cani, Catering Services
 Dr Elliot Carr, ESE
 Mr Ivan Carromero Manzano, Catering Services
 Dr Joseph Challenger, Public Health
 Dr Rama Chinnam, Materials
 Dr Ann Chu, Faculty of Medicine Centre
 Dr Stefano Ciammaroni, School of Professional Development
 Dr Alexander Clark, Physics
 Mr Valerio Converso, Chemistry
 Mr Rodney Coppard, Estates Division
 Mr Willoughby Cosgrove, Medicine
 Mr Luke Crook, Catering Services
 Mr Joseph Crowdy, Library
 Dr Xianjin Cui, Materials
 Dr Daniel D'Andrea, Medicine
 Mr Robert Davidson, Chemistry
 Ms Berengere Decroux, School of Professional Development
 Miss Ayse Depsen, Surgery & Cancer
 Mr Georgios Deskos, Civil and Environmental Engineering
 Mr James Dilley, Surgery & Cancer
 Dr Sophie Doran, Surgery & Cancer
 Mr Robert Doran, Chemistry
 Mr Justas Dovydaitis, Catering Services
 Mrs Teodora Dukova, Catering Services
 Ms Julia Dunn, Public Health
 Miss Azuka Ezeaniefuna, Catering Services
 Miss Khatra Farah, Catering Services
 Dr Joy Farnaby, Chemistry
 Dr Daniel Farrell, Grantham Institute
 Dr Jessica Farren, Surgery & Cancer
 Mr Roman Fedoryshchak, Chemistry
 Mr Sidney Fernandes, Catering Services
 Ms Ivona Filovkinova, Catering Services

Mr Tobias Fischer, EEE
 Mr Shane Fleming, EEE
 Miss Jessica Fleminger, Medicine
 Dr Cecilia Flori, Physics
 Ms Kimberley Foley, Public Health
 Miss Ying Fu, School of Professional Development
 Miss Andrea Galanska, Catering Services
 Mr Yang Gao, Computing
 Dr Almudena Garcia Sanchez, Chemical Engineering
 Miss Ella Garnham, HR
 Mr James Garvie-Cook, Physics
 Ms Siobhan George, NHLI
 Ms Slavina Georgieva, Imperial College Union
 Dr John Gibbons, Mathematics
 Dr Steffen Gielen, Physics
 Mrs Britta Giersche, School of Professional Development
 Ms Jacqueline Goddard, Catering Services
 Mr Erik Goeke, Catering Services
 Dr Sunir Gohil, Surgery & Cancer
 Mr Marton Gonter, Catering Services
 Mr Jevgeni Gordejev, Catering Services
 Ms Michelle Goritzka, NHLI
 Dr Martin Gould, Mathematics
 Mr Grzegorz Grabe, Medicine
 Mrs Rama Greenfield, Public Health
 Dr Tom Griffin, Physics
 Dr Giulia Gubitosi, Physics
 Miss Paulina Gutierrez Cortes, Catering Services
 Mr Bo Han, Civil and Environmental Engineering
 Dr Gareth Hardy, Medicine
 Miss Melanie Hargreaves, Civil and Environmental Engineering
 Ms Chieko Harms, Catering Services
 Dr Julia Harris, Life Sciences
 Miss Yasmin Hassen, Surgery & Cancer
 Dr Tobias Heinrich, School of Professional Development
 Miss Laura Heseltine, School of Professional Development
 Ms Patricia Ho, Chemistry
 Dr Jessica-Rose Holley, Medicine
 Ms Bidan Huang, Computing
 Miss Emma Hudson, Surgery & Cancer
 Ms Sarah Huf, Surgery & Cancer
 Professor Alan Hughes, Business School
 Dr Lucy Irving, School of Professional Development
 Mr Nazmul Islam, ICT
 Mr Roman Ivanovs, Catering Services
 Mr Omar Jarrah, Surgery & Cancer
 Miss Elita Jauneikaite, Medicine
 Mr Mayuka Jayasekera, Surgery & Cancer
 Miss Bhavika Jessani, Business School
 Dr Keisuke Jindai, School of Professional Development
 Mr Thomas Johnson, Mathematics
 Dr Euihun Joung, Physics
 Mrs Michele-Andree Kaba, Catering Services
 Ms Okdeep Kaur, Medicine
 Ms Barnabas Kazari, Catering Services
 Mr Tarun Khanna, Chemistry
 Miss Roulin Khondoker, ESE
 Mr Bulat Khusainov, EEE
 Ms Erika Kibildiene, Catering Services
 Dr Astrid-Caroline Knall, Chemistry
 Miss Romi Korotana, Chemistry
 Mr Evangelos Koutanis, Catering Services
 Mr Panagiotis Kouvaros, Computing
 Mr Michael Kyriakides, Surgery & Cancer
 Dr Gerald Larrouy-Maumus, Life Sciences
 Mr Andrei Lascu, Computing
 Dr Din-Houn Lau, Mathematics
 Dr Christoph Lees, Surgery & Cancer
 Mr Daniel Leff, Surgery & Cancer

Mr Wing-Kit Leung, Medicine
 Dr Stefan Leutenegger, Computing
 Miss Tingting Li, Faculty of Engineering
 Miss Ziwei Liang, Clinical Science
 Miss Hannah Lines, Student Recruitment
 Miss Hannah Lishman, Public Health
 Mr Zijing Liu, Chemistry
 Mr Charles Luzzato, Aeronautics
 Dr Artem Lysenko, NHLI
 Miss Natasha Madge, NHLI
 Dr Victor Magron, EEE
 Dr Christopher Malone, School of Professional Development
 Ms Henrietta Martin-Fisher, Finance
 Mr Mihai Matei, EYEC
 Dr Mazo Vega, Materials
 Miss Erin McAlister, Medicine
 Mr Gary McDermont, Sport and Leisure
 Dr Paul McFadden, Physics
 Dr Ailsa McKay, Public Health
 Dr Parul Mehta, Life Sciences
 Mrs Komal Mehta, HR
 Mr Luis Melgar Del Pozo, Physics
 Miss Krystle Merino, Catering Services
 Mr Thomas Mickleburgh, Chemistry
 Dr Michael Mielewczik, NHLI
 Miss Toma Mikulskyte, Catering Services
 Mr Hemel Modi, Surgery & Cancer
 Miss Sara Mohtashami, EEE
 Mr Wouter Mooij, Chemistry
 Ms Cerys Morgan, Computing
 Dr Thomas Morris, Medicine
 Mr Dominic Moseley, Physics
 Ms Kathryn Nehemiah, Centre for Environmental Policy
 Dr James Newton, Mathematics
 Miss Romyana Neykova, Computing
 Ms Joanna Nicholls, Surgery & Cancer
 Dr Laura Nicolau Fernandez, Mechanical Engineering
 Ms Elizabeth Noble, Chemistry
 Mr Daniel Nolte, Bioengineering
 Mr Christopher Novakovic, Computing
 Dr Naomi Nowlan, Surgery & Cancer
 Dr Miguel Nunes Da Costa Da Graca Matias, Life Sciences (Silwood Park)
 Mr Claran O'Driscoll, Public Health
 Ms Etsuko Okahisa, School of Professional Development
 Dr Dominic Orchard, Computing
 Mr Juan Orjuela Mendoza, Centre for Environmental Policy
 Dr Thomas Ouldrige, Mathematics
 Dr Bryn Owen, Medicine
 Mr Mitchell Pallett, Life Sciences
 Mr Nikolaos Papachristou, Public Health
 Mr Christos Papatakis, Catering Services
 Miss Tereza Pashaj, Catering Services
 Miss Laura Payne, Medicine
 Dr Teresa Peiro-Salvador, NHLI
 Mr Nicholas Penney, Surgery & Cancer
 Mr Christopher Pettengell, Surgery & Cancer
 Miss Jenni Phillips, Sport and Leisure
 Mr William Pitchford, Chemistry
 Dr Daniel Pomerleano, Mathematics
 Mr Joram Posma, Surgery & Cancer
 Dr Matthew Prime, Surgery & Cancer
 Mr Stefan Pszczolkowski Parraguez, Computing
 Ms Erica Pufall, Public Health
 Dr Martin Rajchl, Computing
 Reina Dr Ramirez, Chemical Engineering
 Mr Pedro Ramirez Torrealba, EEE
 Dr Prasun Ray, Mathematics
 Mr Fabian Renn-Giles, Physics
 Mr Nicholas Roberts, Medicine
 Dr Salvador Rodriguez-Lopez, Mathematics
 Mr Jorge Roldan-Real, Catering Services

Miss Caroline Roney, NHLI
 Mr Ewan Ross, Medicine
 Mr Henry Rothery, Communications and Public Affairs
 Miss Kirsty Roy, Materials
 Miss Jonata Sakalauskaite, Catering Services
 Ms Almudena Sanchez-Villen, School of Professional Development
 Ms Camilla Sanger, Medicine
 Miss Sukhpreet Saran, EYEC
 Dr Ory Schnitzer, Mathematics
 Miss Daiane Segalla de Souza, Catering Services
 Dr Matthew Shun-Shin, NHLI
 Dr Cristoforo Silvestri, Bioengineering
 Ms Sophie Sim, Chemistry
 Miss Philippa Skett, Imperial College Union
 Miss Anita Solanke, Catering Services
 Miss Eleonora Steinberg, Life Sciences
 Ms Ekaterina Stoeva, Catering Services
 Mr Mladen Stojanovic, Chemistry
 Miss Anna Suliman, Surgery & Cancer
 Mr David Sunkersing, Public Health
 Miss Kelley Swain, School of Professional Development
 Mr Dominic Swift, Life Sciences (Silwood Park)
 Miss Christine Tabano, Surgery & Cancer
 Dr Olivier Taibi, Mathematics
 Dr Mattia Terenghi, Chemistry
 Mr Quentin Thiburce, Physics
 Miss Genevieve Timmins, Medicine
 Dr Joanne Tonkin, NHLI
 Mr Antonio Torres Mendez, Life Sciences
 Ms Tammy Tran, Public Health
 Mr Henry Travers, Life Sciences (Silwood Park)
 Dr Sana Usman, Surgery & Cancer
 Miss Karin van Veldhoven, Public Health
 Dr Marta Vazquez-Ortiz, Medicine
 Dr Isabel Wagner, School of Professional Development
 Mr Kamal Wahab, Public Health
 Miss Josephine Wales, Communications and Public Affairs
 Dr Lu Wang, Mathematics
 Dr Zihua Wang, Chemical Engineering
 Mr Gerben Wedekind, CHECK INDIVIDUAL
 Mr Ahmad Wehbi, Catering Services
 Mr Paul Whelan, Business School
 Ms Jocelyne Winter, School of Professional Development
 Miss Chantalle Woolner, Communications and Public Affairs
 Dr Yungui Xu, ESE
 Dr Jie Yang, Public Health
 Ms Alice Yao, School of Professional Development
 Mr Qi Yuan, Chemistry
 Mrs Morag Zelisko, Medicine
 Miss Yue Zhang, Life Sciences
 Miss Zhe Zhang, Life Sciences
 Mr Heng Zhang, Chemistry
 Mr Robert Zielinski, Sport and Leisure

Farewell

moving on

Dr Dafne Accoroni, Accommodation
 Miss Tahira Arshad, Public Health
 Dr Alison Atrey, NHLI
 Mr Zaid Awad, Surgery & Cancer
 Ms Georgia Bergson, Communications and Public Affairs
 Mr Sean Carroll, Business School
 Mr Marco Castelli, Medicine
 Mr Alan Cheung, Sport and Leisure
 Mrs Valentina Cimaroli, Centre for Environmental Policy
 Dr Thomas Cundy, Surgery & Cancer
 Miss Punam Dahya, NHLI
 Mr Christopher Davie, Physics
 Mr Christopher Douse, Chemistry
 Ms Sarah Dupras, NHLI
 Dr Julia El-Sayed Moustafa, Public Health
 Rebecca Sally Geary, Public Health
 Dr Margarida Gouveia Sancho, NHLI
 Mrs Mutsuko Grant, Life Sciences (6 years)
 Dr Simon David Guest, Mathematics
 Dr Stephen Anthony Hodge, Chemistry
 Ms Ann-Marie Howell, Surgery & Cancer
 Miss Victoria Jones, NHLI
 Mr Murtaza Kaderbhai, Surgery & Cancer
 Mr Xiaoran Lai, Mathematics
 Mr Martin Lisboa, Business School
 Dr Suyu Liu, Surgery & Cancer
 Miss Toni McCloggan, Catering Services
 Dr Imran Patel, Materials
 Dr Anna Reynal Verdu, Chemistry
 Dr Craig Ritchie, Medicine (7 years)
 Dr Nataliya Shiraz, Business School
 Mr Pritam Singh, Surgery & Cancer
 Dr Kate Skinner, Medicine
 Mr Jeremiah Smith, Computing
 Dr Alvar Sootla, Bioengineering
 Ms Anna Spragg, Faculty of Engineering
 Dr Ioanna Stamatii, Chemistry
 Dr Izabela Szostkiewicz, Life Sciences
 Dr Naomi Walker, Medicine
 Ms Lindsey Wu, Public Health
 Dr Sebastian Wuestner, Physics
 Mrs Sharlene Yardley, School of Professional Development

retirement

Professor Michael Crawley, Life Sciences (Silwood Park) (35 years)

This data is supplied by HR and covers staff joining the College during the period 1 – 22 October 2014. This data was correct at the time of going to press. For Moving On, visit the online supplement at www.imperial.ac.uk/reporter

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

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



12 NOVEMBER, 17.30
Shedding new light on Schrödinger's cat

Nobel Laureate Professor Serge Haroche delivers the annual Erwin Schrödinger Lecture, in the Great Hall, South Kensington Campus. Recent technological advances in quantum science have allowed us to control and observe isolated systems such as atoms,

molecules, photons or superconducting microchips. These advances open fascinating perspectives for new applications in which quantum strangeness could be directly harnessed to achieve tasks that are impossible with classical physics.



12 NOVEMBER, 18.00
The road to Paris 2015

Join this Franco-British conference to discuss what needs to be done to secure a successful global deal at the UN climate conference in Paris in December 2015. Speakers Sir David King, UK Foreign Secretary's Special Representative for Climate Change, Pascal

Canfin, Senior Adviser for International Climate Affairs at the World Resource Institute, and Professor Sir Brian Hoskins, Chair of the Grantham Institute, will be led in their discussions by Damian Carrington, Head of Environment at The Guardian.

5 NOVEMBER, 12.30
Imperial 600 network lunch

Opportunity for LGBT+ staff and postgraduates to meet Muir Sanderson Imperial's Chief Financial Officer and this Equality and Diversity network's executive sponsor.

5 NOVEMBER, VARIOUS TIMES
Stress: the balancing act

National stress awareness day themed events running throughout the day, including meditation, healthy living, and awarding of the prize for best dressed stress cow.

5 NOVEMBER, 17.30



Choral Evensong with Imperial College Chamber Choir

Choir anthems and musical settings for bible texts at Holy Trinity Church, Prince Consort Road.

6 NOVEMBER, 12.30
TITLE

Dr Sheila Lecoer (Centre for Co-Curricular Studies) presents this lunchtime seminar about the deportation of Jews from Rhodes and Kos in July 1944 and the Italian administration of the Dodecanese Islands.



6 NOVEMBER, 13.00
Lunchtime concert

Maggini Quartet perform Haydn String Quartet in F minor Op 55 No 2; Mendelssohn String Quartet in Eb major Op 12.

6 NOVEMBER, 18.30
The Greenergy experience

Co-founder of a £15 billion company, Andrew Owens talks about his novel approach to entrepreneurship funding at this Imperial Business Insights Series lecture.

7 NOVEMBER, 16.00

An analytic approach to the sound generated by aeroengines

Dr Lorna Ayton, University of Cambridge, talks about the sound generated by the interactions between high-frequency gusts and aerofoils in this Department of Mathematics seminar.



12 NOVEMBER, 13.00
Messages from the field

Talks on the uncertain outcomes of agricultural development, with Dr Carol Ellison, CABI UK Invasive Species Group, Dr Jennifer Baka, London School of Economics, and Lee Pearson (Centre for Environmental Policy)

13 NOVEMBER, 18.00
Modelling the molecules of life

Ernst Chain Lecture with Nobel Laureate Professor Michael Levitt, Stanford University (event full)

13 NOVEMBER, 18.00

Battlefield to South Kensington: blows, bombs, blast, biomechanics, bioengineering and better care

Professor Anthony Bull (Bioengineering) delivers the Consort Club lecture, open to members of staff from Imperial, the Royal College of Art and the Royal College of Music.

13 NOVEMBER 18.30
Digital communication – changing landscape for the future of business?

Colin Byrne, UK CEO of global PR company Weber Shandwick, discusses the extent to which digital has impacted the communications and marketing functions of the world's largest firms.

20 NOVEMBER, 13.00

Lunchtime concert

Onyx Brass perform Jason Rebello Inevitable Outcome; Tchaikovsky (arr Hollings) Miniature Overture`

Find out more about our new programme of public events online at www.imperial.ac.uk/news

take note

Fireworks at Heston



Staff and students are invited to a Fireworks Display at the newly acquired Heston Sports Ground on Wednesday 5 November from 17.30 (display starts at 19.30). Tickets cost £4 for children, £8 for adults and £22 for families of four and can be purchased in advance on the night. Hot food will be available on the night and bars will be open.

Visit: tickets.baclubs.com

MEET THE READER



Dr Marion Watson (Medicine) Quality Assurance Manager

What are you doing in the picture?
 Volunteering for a day in October to assemble and plant remembrance poppies at the Tower of London. When completed there will be 888,246 ceramic poppies covering 60 acres – one poppy for each British fatality during World War 1. It is a spectacular sight when looking down from the observer rails but actually in the moat the enormity of the collection hits home. The thought that each poppy represents a person really emphasises the human cost of the war.

What would you do if you were editor of Reporter?

I would spend the day at Imperial sites outside of South Kensington to find out more of about activities in research and education plus social and cultural events happening across the community.

Who would be your cover star?

My cover star would be Emeritus Professor Raanan Gillon (School of Public Health) and his experience of medical ethics; how has it changed during his career – or are ethical principles constant?

Want to be the next reader featured in Reporter? Send in a picture of yourself to: reporter@imperial.ac.uk

Stay in the loop

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

