



Partners in science

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EDITOR'S CORNER

Pulling together

As a journalist I'm naturally a little cynical when it comes to the latest buzzwords and trends from government, business and academia. Of course some of these have real substance and are genuinely transformative. So it is with 'collaboration'. Clearly we can't tackle [big global challenges](#) with an isolationist stance. As Science and Universities Minister David Willetts noted at the College last week, Imperial has always been 'outward facing' and so is ideally placed to take advantage of collaborative opportunities. That was the central theme of the Korean President's visit, marked by agreements to foster [greater links](#) with Imperial (page 3). In recent issues we've also covered the new joint medical school in Singapore and a collaborative centre to study blast injuries. Elsewhere in this issue we look at the Education Strategy which captures the input of students, staff and external groups (centre pages). And lastly, the new College pub, h-bar, a venture by Campus Services and the Student Union (opposite). [Cheers to partnerships.](#)

ANDREW CZYZEWSKI, ACTING EDITOR

Reporter is published every three weeks during term time in print and online. The next publication day is 16 December. Contact: reporter@imperial.ac.uk



Staff and postgrads toast new pub

On 9 November staff and student representatives gathered for the launch of h-bar, the new staff and postgraduate student pub and café on the South Kensington Campus.

The facility, which is run by Imperial College Union and Campus Services, is part of a larger redevelopment of Level o of the Sherfield Building.

For h-bar's opening night Provost Professor James Stirling and Imperial College Union President David Goldsmith tried their hands at pulling inaugural pints.

Welcoming the attendees Professor Stirling said: "I'm delighted that h-bar is open for business and would like to thank everyone involved in the project for their work.

"Often when we talk about Imperial's excellent facilities we think in terms of state-of-the-art labs, mass spectrometers and the like, but given that Imperial's most

powerful asset is the people who work and study here, the amenities we have on campus which enhance their overall experience are very important."

David Goldsmith added: "H-bar will facilitate what is great about the Imperial postgraduate experience and the collaborative nature of research between students and academics."

A committee including staff and students, drawing on suggestions submitted by the College community, selected the name 'h-bar', physics shorthand for the quantum of angular momentum.

—JOHN-PAUL JONES, COMMUNICATIONS AND PUBLIC AFFAIRS

Women MBA numbers at all time high

Women now make up almost half of the students who are enrolled on the full-time MBA course at the Business School.

Dr Anjali Bakhru, MBA Programme Director at the Business School, suggests that the surge is down to women deciding to invest in their careers as the UK economy improves.

Dr Bakhru said: "It is a real step forward. Perhaps we are reaching a tipping point where we will see an end to the biased gender representation on MBA programmes as more women evaluate their careers and decide to invest in their future."

The Business School is addressing the challenges that women face in rising to the top jobs through a range of new initiatives in the MBA course. These include inviting female business leaders to come and talk to MBA students about their careers. Equality in the business world has also recently received a boost with the European Union proposing that FTSE 100 companies must ensure that women account for at least 40 per cent of non-executive board members.

Current full-time MBA student Kara Settle believes that this could be an essential step forward to ensure female representation.

"I think that the best person should always get the job but the reality is that the glass ceiling will often prevent the best person from getting the job if they are a woman. Boardroom quotas would be a sad but necessary step to make a quantum leap forward in the way that women are perceived in the workplace."

—MAXINE MYERS, COMMUNICATIONS AND PUBLIC AFFAIRS



PhDs to develop solutions for changing planet

One hundred and twenty five PhD students will join Imperial over the next five years in a new Doctoral Training Partnership (DTP) worth over £6 million.

Announced by the Science and Universities Minister David Willetts, Imperial's DTP will focus on *Science and Solutions for a Changing Planet*.

It aims to tackle global environmental change by bringing together postgraduate students from a range of different academic disciplines and preparing them to become effective policy makers, entrepreneurs and business leaders. The students will address issues such as how UK homeowners and businesses can handle their risk of flooding; how agricultural production can deal with the rising threat of invasive species on UK trees and plant life; and how to deal with challenges around water quality and scarcity.

The National Environment Research Council (NERC) is providing over £6m funding for the DTP, which is one of fifteen created across the UK. It is a collaboration between the College, six key research partners and 27 other private and public sector partners.

Twenty five new students will join the DTP every year for five years, receiving in-depth, advanced research training, as well as training in professional and transferable skills. Partners will offer training and secondment opportunities designed to enhance the students' employability.

—LAURA GALLAGHER, COMMUNICATIONS AND PUBLIC AFFAIRS



Korean President hails UK science at Imperial

Park Geun-hye, President of the Republic of Korea, addressed leading figures from science, industry and government at Imperial earlier this month.

The UK-Korea Creative Economy and Future Science Forum at Imperial was the landmark science and innovation event of the President's state visit to the UK, taking place at the invitation of The Queen from 5 to 7 November.

President Park outlined her vision for a 'creative economy', driven by science, R&D and innovation, in partnership with leading scientific nations like the UK.

Speaking at the event she said: "It gives me great pleasure that we have gathered at the world renowned Imperial College London – famous for its cutting edge research in science and technology – together with

scientists, businessmen and experts from the UK and Korea to discuss the future of the creative economy."

On her tour of the College, President Park viewed an 'invisibility cloak' demonstrating the potential of metamaterial technology (see front cover) and witnessed a live surgical simulation.

Professor James Stirling, Provost of Imperial, said: "We are honoured that President Park has chosen Imperial for such a significant part of her state visit.

"Britain and Korea are united by our shared passion for science and innovation, and Imperial is playing a major role in forging these bonds. Imperial academics published over 1,000 research papers with Korean colleagues in the last decade alone." The programme also featured workshops for academics, investors and entrepreneurs from both nations to explore additional UK-Korean collaboration and development, for example in future innovative technologies (see below, in brief).

Top US economists to head pioneering financial centre

The world's two leading experts on financial contagion, Professor Franklin Allen and Professor Douglas Gale, are leaving top US universities for London to head the Brevan Howard Centre for Financial Analysis at the Business School.

The new Brevan Howard Centre has been hailed by leading figures in government, economics and academia on both sides of the Atlantic, including former US Treasury Secretary Larry Summers who said it will "make our financial system work better and make financial policy much wiser".



The Brevan Howard Centre has been launched thanks to one of the largest donations in business education history, £20.1 million. The gift comes from Brevan Howard, the world's third largest hedge fund, at the behest of its co-founder Alan Howard, an Imperial alumnus (MEng Chemical Engineering & Chemical Technology 1986).

The formation of the Centre "marks a leap forward for the Business School," according to its new Dean Professor G. 'Anand' Anandalingam, who has also joined Imperial from the US.

The Brevan Howard Centre's new Executive Director Franklin Allen currently serves as Professor of Finance and Economics at the Wharton School, University of Pennsylvania, while Director of Research Douglas Gale is Professor of Economics at New York University.

Frequent collaborators, Professors Allen and Gale are renowned for their pioneering research into financial crises and market contagion – that is, when relatively small shocks in financial institutions spread and grow, severely damaging the wider economy.

Sir Keith O'Nions, President & Rector, said: "Alan Howard's extraordinary vision and Brevan Howard's outstanding generosity in making this unprecedented gift will help transform the Business School into a global leader in financial economics."

—ANDREW SCHEUBER, COMMUNICATIONS AND PUBLIC AFFAIRS

in brief

UK-Korea agreements signed

Ahead of the Korean President's visit to Imperial this month, Provost Professor James Stirling, and Professor Taihyun Chang, Provost of Pohang University of Science and Technology in Korea, signed a Memorandum of Understanding that paves the way for further engagement in hydrogen and fuel cell technology research between the two countries. It will stimulate work between the UK's Imperial-led H₂FC Supergen Hub and Korea's POSTECH-hosted Hydrogen & Fuel Cell Test Bed Centre. Imperial also signed a strategic partnership with the Korean Advanced Institute of Science and Technology (KAIST).

Top tweeters ranked

Academics at Imperial have launched a tool that can rank the most influential tweeters on any topic. So far they have collected millions of tweets as part of their analysis on subjects such as David Cameron, Manchester United and the Glastonbury Festival. Their method gives Twitter users a score, called the T-index, based on how active they are and how often their posts are retweeted. Unlike other measures of influence produced by social media analytics companies, the T-index is specific to a particular topic of interest, and the process that calculates the score is transparent.

David Gann leads debate at major economic forum

Professor David Gann, Imperial's Vice President (Development & Innovation) moderated the main digital tech event at the 9th World Islamic Economic Forum on 30 October at the Excel Centre in London. The event brought together global thought leaders, including the prime ministers of the UK, Malaysia and Pakistan, the presidents of Afghanistan, Bangladesh and Kosovo, monarchs from Brunei, Jordan and Bahrain. Professor Gann led a discussion on 'Developing global connectivity through digital technology.'

Presidential audience for metro experts

Transport experts from the College met last month with the President of Chile, Sebastián Piñera, to advise about the latest developments in urban railways. It was part of the annual meeting of the Community of Metros (CoMET), held this year in Santiago. CoMET is an international metro benchmarking group managed by the Railway and Transport Strategy Centre (RTSC) at Imperial. Richard Anderson, Director of the RTSC, and Professor Daniel Graham (Civil and Environmental Engineering) spent time with the president, along with senior metro managers from around the world.

media mentions

—MAXINE MYERS, COMMUNICATIONS AND PUBLIC AFFAIRS



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On-field knocks take toll on NFL players

REUTERS ▶ 17.10.13



Scientists have found ‘profound abnormalities’ in scans of brain activity in a group of retired American football players, adding to evidence indicating that repeated blows to the head can trigger longer-term aggression and dementia. Although the former National Football League (NFL) players in the study were not diagnosed with any neurological conditions, brain imaging tests showed unusual activity that correlated with the number of times they had left the field with a head injury during their football careers. Dr Adam Hampshire (Medicine), who led the study, told Reuters that the ex-NFL players showed “some of the most pronounced abnormalities in brain activity” he had ever seen.

Big boost for ET hunters

THE GUARDIAN ▶ 04.11.13

Data from the Kepler space observatory suggests planets capable of supporting life are far more common than previously thought. Our galaxy probably contains at least two billion planets that, like Earth, have liquid water on their surfaces and orbit around their parent stars in the ‘habitable zone’ for life. Speaking to *The Guardian* about the latest findings, Dr Subhanjoy Mohanty (Physics), an astrophysicist who was not involved with the study, said: “This is the first estimate of the frequency of Earth-like planets around sun-like stars, in orbits large enough to lie in the habitable zone of their stars.” He added that the latest analysis increased the chances that there might be life somewhere among the stars.

China-UK relations: the time is now

THE FINANCIAL TIMES ▶ 17.10.13

Writing in the Financial Times, Dean of the Business School Professor G Anandalingam argues that the UK and China have never been so well placed to forge new alliances beyond the worlds of commerce and industry. “China is

swapping its unfair reputation for imitation with one defined by innovation, and partnership between our universities are at an all-time high,” Professor Anandalingam says. “Excellent Chinese students are choosing to study in the UK – and returning home as ambassadors for the UK after their graduation.”

Welsh solar hub planned

WALES ONLINE ▶ 16.10.13

A multi-million pound solar energy research centre has been launched in Wales. The Ser Solar initiative at Baglan Energy Park is being backed by £6m of Welsh Government funding and will be chaired by pre-eminent solar energy research scientist Professor James Durrant (Chemistry). The research centre will be based alongside Swansea University’s SPECIFIC project at the Innovation and Knowledge Centre. Professor Durrant told *Wales Online*: “Solar energy is already big business with over \$140bn invested globally last year. This investment by the Welsh Government offers a fantastic opportunity to accelerate the pipeline from materials discovery through to commercial manufacture, and thus puts Wales, and the UK, at the heart of the growing solar revolution.”

awards and honours



NATURAL SCIENCES

Postgrad gets boost with prestigious fellowship

Postgraduate James Palles-Dimmock (Physics) has received a prestigious Industrial Fellowship from the Royal Commission for the Exhibition of 1851 to complete a PhD developing next generation

solar cells. He is working both at Sharp Laboratories of Europe Ltd and the Quantum Photovoltaics group in the Department of Physics. The Commission awards eight science and engineering graduates annually, each worth over £80,000.

MEDICINE

Making a stand for science

Professor David Nutt (Medicine) is the winner of the 2013 John Maddox Prize for Standing up for Science. The international prize is awarded for courage in promoting science and evidence on a matter of public interest, despite facing difficulty and hostility. The judges awarded the prize to Professor Nutt in recognition of the impact his thinking and actions have had

in influencing evidence-based classification of drugs, in the UK and elsewhere in the world.

ENGINEERING

Royal honour as graduating students celebrate

Imperial conferred its Regius Professorship on Professor Chris Toumazou, as part of the College’s Commemoration Day ceremonies last month. He was joined by over 2,200 graduating students and 6,400 guests at the Royal Albert Hall. Alongside academic accomplishments, a number of students were also recognised for their achievements. Receiving Student Awards for Outstanding Achievement were Ali Rezaei Haddad, Rory Fenton (both Faculty of Medicine), and Franca Hoffman

(Mathematics) who have all been nominated for their contribution to College life and international outreach.

MEDICINE

Scientists’ influence recognised

Three Imperial scientists have been named on a list of highly influential biomedical researchers based on citations by other academics. Professors Peter Barnes (NHLI), Philippe Froguel (Public Health) and David Brooks (Medicine) are among the 400 scientists worldwide with the highest scores according to citation data from 1996 to 2011. The analysis is compiled by US researchers and published in the *European Journal of Clinical Investigation*.

‘LEGO-brick’-style solar panels gather more light

A new design for solar panels that incorporates tiny ‘LEGO brick’-style studs on the surface could be up to a quarter more efficient than standard ‘flat’ designs, new research shows.

Most solar cells used in homes and industry are made using thick layers of material to absorb sunlight, but have been limited in the past by relatively high costs. Newer, low cost designs are also limited since their layer of light-absorbing material is too thin to extract enough energy.

In an effort to overcome these barriers, a team of researchers from the Department of Physics attached rows of aluminium cylinders – just 100 nanometres across – to the top of the solar panel. These studs interact with passing light, causing individual rays to change course and become effectively trapped inside the solar panel, where they travel further through its absorbing layer.

“As the absorbing material alone can make up half the cost of a solar panel our aim has been to reduce to a minimum the amount that is needed,” said lead author Dr Nicholas Hylton (Physics).

“The success of our technology will take us a long way down the path towards highly efficient and thin solar cells available at a competitive price.”

This technology also opens up the possibility of making thin, flexible solar panels, which could be fitted to power everything from domestic appliances to portable electronics like laptops.

—SIMON LEVEY, COMMUNICATIONS AND PUBLIC AFFAIRS



Power plants

How some plant species evolved super-efficient photosynthesis had been a mystery. Now, scientists have identified what steps led to that change, knowledge that could be used to breed better crops.

Around three per cent of all plants – including crops like maize, sugar cane and millet – use an advanced form of photosynthesis, which allows them to capture more carbon dioxide, use less water, and grow more rapidly. Overall this makes them over 50% more efficient than plants that rely on the other form of photosynthesis.

A new study has traced back the evolutionary paths of all these plants to find out how they evolved the same ability despite not being directly related to one another.

The research was led by Dr Iain Johnston (Mathematics) and plant biologist Dr Ben Williams from the University of Cambridge.

“My main interest is in using tools from maths to make some concrete progress in a problem of real biological and social value,” said Dr Johnston.

The study’s authors say this knowledge could be used to improve key agricultural crops that only use the less efficient form of photosynthesis, for example by breeding super-crops such as faster growing, drought-resistant rice.

“Encouragingly, we found that several different pathways lead to the more efficient photosynthesis – so there are plenty of different recipes biologists could follow to achieve this.”

—SIMON LEVEY, COMMUNICATIONS AND PUBLIC AFFAIRS

Untangling nanotubes releases their digital potential

Researchers have demonstrated how to produce electronic inks for the development of new applications using the ‘wonder material’ carbon nanotubes.

Carbon nanotubes are lightweight, strong and conduct electricity, which makes them ideal components in new electronics devices, such as tablet computers and touchscreen phones. However, they cannot be used without being separated out from their natural tangled state.

Dr Stephen Hodge and Professor



Milo Shaffer (both Chemistry) have been addressing the challenges of unravelling and applying carbon nanotubes in the laboratory and how this might be scaled up to meet the requirements of industrial manufacturing.

By giving the nanotubes an electrical charge, they are able to pull apart individual strands. Using this method, nanotubes can be sorted or refined, then deposited in a uniform layer onto the surface of any object.

“Nanotubes love to stick together so applying a voltage, creating a

positive charge, allows them to repel each other – so much so that they then dissolve into a solution of our choosing,” Dr Hodge said.

“Now that we have made these positively charged nanotubes we’ve been able to access a lot of new chemical reactions so that now we can tailor the properties of the nanotubes for specific applications,” Dr Hodge said.

Working with an industrial partner, Linde Electronics, they have produced an electrically-conductive carbon nanotube ink, which coats carbon nanotubes onto ultra-thin sheets of transparent film that are used to manufacture flat-screen televisions and computer screens.

—SIMON LEVEY, COMMUNICATIONS AND PUBLIC AFFAIRS

To watch a video exploring the work of Dr Hodge and Professor Shaffer visit: <http://bit.ly/19aJaDM>



Nanotubes

Carbon nanotubes are hollow, spaghetti-like strands made from the same material as graphene; only one nanometre thick but with theoretically unlimited length. This ‘wonder material’ shares many of graphene’s properties, and has attracted much public and private investment into making it into useful technology.

Educating Imperial

Last month Imperial launched the Education and Student Strategy and Action Plan. Hundreds of staff, students, alumni and critical friends helped to set the strategy, which is focused solely on education and the experience of our students. *Reporter* met the catalyst for this engagement, Professor Debra Humphris, Vice Provost (Education), to find out why it was needed and what it means for students and staff.



Across the globe, higher education is undergoing a period of dramatic change. Students have more choice than ever before, new institutions are emerging, others continue to rise in the rankings and the delivery of education is being fundamentally rethought. Domestically too, higher tuition fees and a renewed emphasis on the student experience all contribute to a dynamic landscape.

It's a situation that Professor Debra Humphris, Vice Provost (Education), argues we should embrace. "It really matters that we recognise the challenges and changes happening in the world," she says. "No institution can stand still and let the world rush past them."

A guiding philosophy

Within those manifold challenges are many opportunities, and it's those that are of particular interest to Debra. Fortunately, capitalising on opportunity

is something that she knows well, as evidenced by what she refers to as her 'portfolio' career.

Originally trained as a nurse, Debra now holds a position on the senior team here at one of the world's leading universities. In between, she's worked for various medical and educational institutions, including St George's Hospital Medical School and her previous employer, the University of Southampton.

Her position today means that she is responsible for overseeing the strategy for education across the entire College – from the activities of Outreach, aimed at school children, through to the development of the next generation of research scientists. Debra's passion for education comes from the first-hand experience she has witnessed the transformative effect that it can have on people's lives. And in turn, that power of education is echoed in her ambitious vision for the College: "Our task is to prepare

“It really matters that we recognise the challenges and changes happening in the world.”

students to become great, radical, creative leaders of the next generation," she says.

Far and wide

So how do you even begin to craft a strategy with such lofty goals? A clue to the answer is provided by Debra's description of her ideal day in the office. "I wouldn't be in the office! My job is to be in other people's spaces. There are such fantastic things people are doing across the Imperial community, and I won't find that out by staying in these four walls," she says, gesturing at her office surroundings.

And so the Strategy's key ideas, driving questions, and overall priorities have come from corners far and wide – students, staff and alumni, as well as external groups like schools and employers have all contributed to the year-long project. "It's vital to involve everyone who has a stake," says Debra. "You use the energy

Q&A

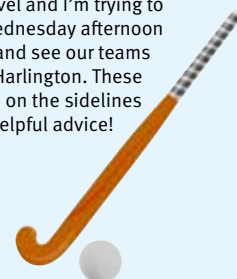
You seem to be a quite prolific Twitter user; what's the appeal?
I do find it a fantastic tool, because there's so many things that I have to keep an eye on – What is the latest policy from HEFCE? What's going on in the Students Union? I see Twitter as a really useful stream of news, comment and great ideas – all in bite-sized chunks.

We've also heard you've got some green fingers?
Indeed, I have an allotment where I live in West Sussex. I love growing vegetables; there's history of gardeners in my family, and I find it deeply satisfying to be able to dig up some potatoes, leeks or pick my own strawberries!



Any interesting homegrown creations?
Well, yes, but there's a limit to how much pumpkin soup you're ever going to eat! The chef in the family is my nephew, who at 14 is producing creations such as tarragon pannacotta with a raspberry coulis. My partner Caroline and I have been encouraging this talent by taking him out to lunch one Saturday a month – last week he gave us a tutorial on tempering chocolate and a new gadget called a thermospatula!

Do you have any other hobbies?
I used to play hockey at quite a serious level and I'm trying to free up a Wednesday afternoon so I can go and see our teams play out at Harlington. These days I stand on the sidelines and share helpful advice!



and the wisdom that there is in the organisation, add in the external drivers and you try to create the conditions to let people be bold.”

One of the groups with whom Debra has worked closely is Imperial College Union. “For me it’s really important that we have a strong and engaging relationship with them,” she argues. “They bring an essential perspective to what it’s like being a student in 21st century London, living and getting by in a fast-paced city, studying hard and dealing with the day to day reality of student life.”

Building on the past

The Strategy itself contains a total of 24 action points across four key themes (see box-out), including the development of some new initiatives, like a plan to encourage students to return to their schools, colleges and employers in order to share their experiences of the College more widely.

But it also includes a number of actions marked as ‘on-going’, meaning that they are fundamentally

extensions of some of the many programmes already in place. This positioning is important: while the strategy provides a roadmap for the future, it also embodies Imperial’s long history of educational innovation. Recent examples include Imperial Mobile, the smartphone app that enables students to access information and services anywhere at any time and the Carbon Capture Pilot Plant, a unique hands-on education experience.

Debra has had an overwhelmingly positive response from staff she has approached for help. “Everybody has said yes!” she says.

It is evident that both academic and professional staff will have a part to play in realising the longer term vision. “How somebody interacts with students in Registry, in Catering, in Halls or in Careers matters just as much as how a professor describes a vital concept in physics or civil engineering. All of us in the College community play a role in the education and experience of our students,” she says.

—JESSICA ADAMS, COMMUNICATIONS AND PUBLIC AFFAIRS

Strategic Thinking

The Education and Student Strategy sets out the College’s ambitions for enhancing the education and student experience for the next three to five years, together with a series of 24 action points to support realising those ambitions. The action points focus on Imperial achieving international recognition across four areas:

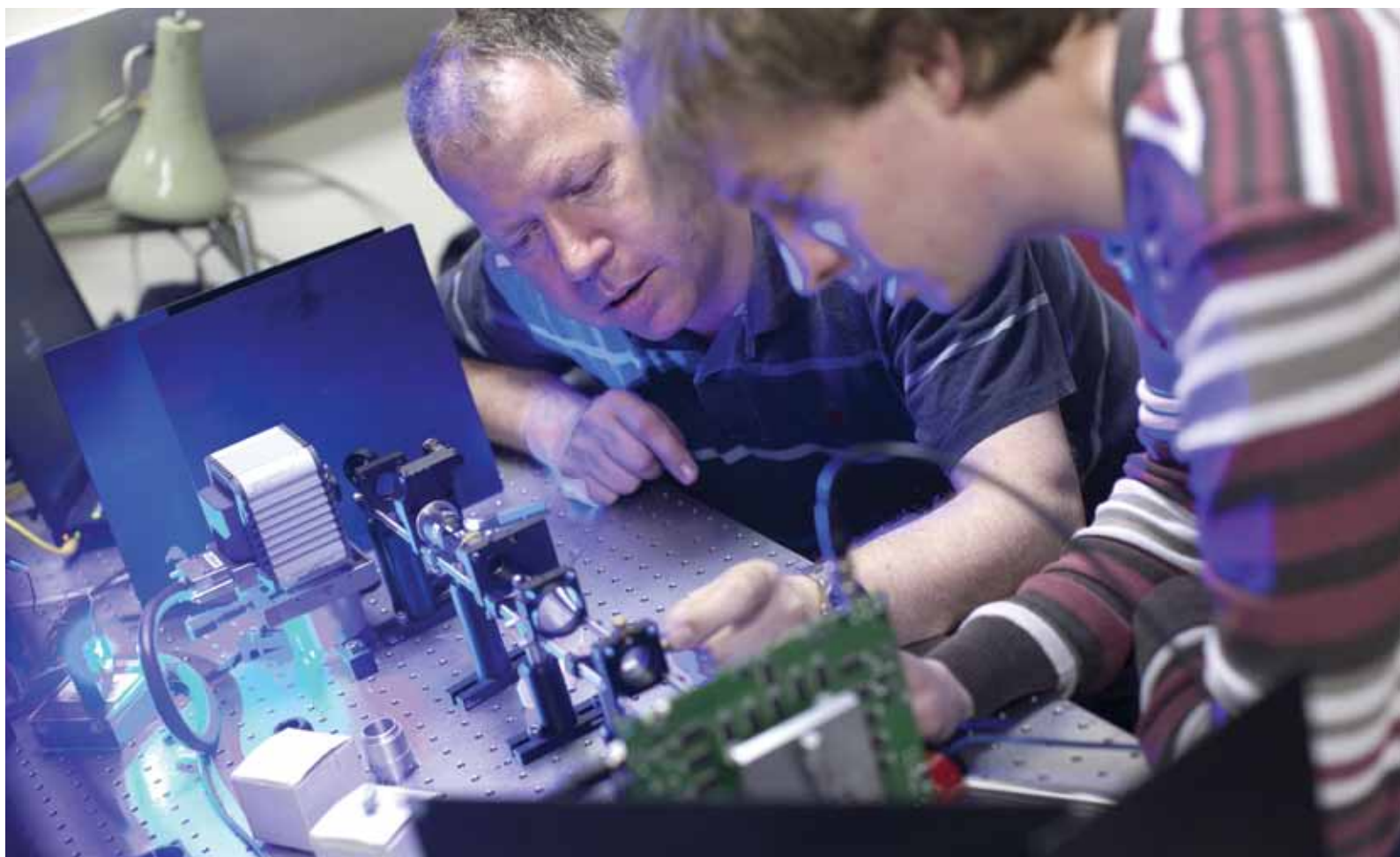
- as a global community of the most talented students
- for its commitment to innovation in teaching and learning and in the wider student experience
- for its distinctive education
- for its outstanding academic and professional service infrastructure.

Following the launch, Professor Debra Humphris wants to ensure that the College community continues to engage as widely as possible.

“The strategy needs to be a living document. It’s not been designed to sit on a shelf somewhere, it’s intended as a positive plan for change, involving everyone. If any area within the Strategy and Plan catches your imagination and you would like to get involved, please get in touch.”

Each action point in the plan has its own page on the Education and Student Strategy website. The pages list who is responsible for the action point, terms of reference, timetables and progress update.

Visit: <http://www3.imperial.ac.uk/education-and-student-strategy>



inside*

story

mini profile

Tommaso Valletti

Tommaso Valletti is a Professor of Economics at the Business School and has recently been appointed by the European Commission (EC) to give advice on competition policy.

Why is competition policy so important?

Competition policy ensures that businesses compete with one another by preventing or correcting any anti-competitive behaviour such as price fixing where companies work together to set prices of goods or services. It is important to promote healthy competition between businesses to ensure that prices for goods and services are as low as possible for consumers.

How have competition policies improved our lives?

In the mid-20th Century many of Britain's major industries were nationalised by the Government, limiting competition, which ultimately led to many becoming uncompetitive. When Britain joined the EC in 1972 the economy was subject to EC Competition Laws, which increased competition. One area that has benefited is the European aviation industry. EC policies introduced in 1993 led to the growth of more airlines companies, which in turn led to increased competition, making flying more affordable for



passengers. Another example is the telecommunications industry. The cost of making calls and surfing the internet in Europe has been dramatically reduced following proposals made by the EC in the past few years.

What are the key challenges European competition regulators are facing now?

It centres on the emergence of new types of monopolies and the erosion of competition policy during the economic downturns of 2008. Also, the rise of new companies such as Google, for instance, has called into question whether they are being monopolistic in their business practices.

Would you describe yourself as a competitive person?

Academia is very competitive. But as academics, we are all also truly passionate about our research fields. Hence, I am perhaps 'passionately competitive'.

For the full interview with Tommaso visit: <http://bit.ly/Hr1Bv2>

—MAXINE MYERS, COMMUNICATIONS AND PUBLIC AFFAIRS



Devil in the detail

There's a scene in the cult science fiction film *The Matrix* where protagonist Neo sees the world in a series of streaming 0s and 1s of binary data code. In a sense that's not far from the truth, as the world we live in is increasingly underpinned by 'big data.'

That theme was explored at a recent Imperial Fringe event, *Your Number's Up*. Over 300 people turned up to find out more about what Imperial is doing to address some of the challenges created by the ever-increasing amount of data being generated. Who owns it? Who can access it? How should it be stored and used?

The exhibits included demonstrations about ecology, finance, astronomy and assistive technology. It also explored the potential of 'citizen science', by capturing data from visitors.

Researchers from the Centre for Environmental Policy talked to visitors about the Open Air Laboratories (OPAL) project, which encourages people to carry out nature surveys in their local parks and gardens, focusing on real problems such as tree pests and diseases. "Of course there's a strong element of fun with OPAL, but for school kids if they know they're taking part in a real science experiment and their data is going to be used then there's a reward and it brings it to life," said Dr Poppy Lakeman Fraser.

Also on display was the latest prototype technologies developed by engineers using powerful programming and data techniques.

There was a face recognition system (above) where participants could virtually transplant their faces with those of celebrities and even their friends at the event. The technology works by rapidly identifying key landmarks on the participant's face then accurately superimposing the avatar's face, so that it creases and responds to facial expressions and small movements.

"We have a database of roughly 10,000 images, so that's 10,000 different faces, all landmarked, and classified; it's been more than a year's worth of hard work," said Dr Akshay Asthana (Computing).

The evening came to a close with a performance from dance company *Combination*, which explored how cancer develops as a result of errors in our DNA data, and the real life impact that can have on patients and their family.

For many visitors at the Fringe, it was clear that they'd never look at data in quite the same way again.





▶ INVENTOR'S CORNER

Soothing joint pain

Dr Kim Midwood, previously a senior lecturer in the Department of Medicine, is on a mission to help ease the debilitating pain of people who suffer from rheumatoid arthritis, through the work of spin-out company Nascent, which she formed in 2012 with the assistance of Imperial Innovations.

Isn't arthritis just general wear and tear?

No, not in the case of rheumatoid arthritis, here the problem is caused by a continual and aberrant inflammatory response in the joints. One key aspect of this response is the extracellular matrix – the dense network of proteins and other supporting molecules that give a tissue structure and communicates with resident cells. When a tissue is injured or when the body becomes infected, then the matrix plays an important role in sensing that and telling the cells to mount a temporary inflammatory response. In rheumatoid arthritis this system appears to have gone awry and we are trying to understand why.

What have you found?

Many previous studies have shown that an extracellular matrix protein called tenascin-C is present at high levels in the joints of people with rheumatoid arthritis but not in healthy tissue. We further demonstrated a functional link between inflammation in the joint of patients with arthritis and tenascin-C, discovering that this molecule interacts with a receptor on the surface of immune cells which persistently activates inflammatory signalling pathways.

How can you exploit this to develop treatments?

We showed that tenascin-C continues to accumulate in the joints as disease progresses and that blocking this inflammatory signal by removing tenascin-C or by inhibiting its function could reduce inflammation. It was at this point that we set up the company Nascent to help develop agents to block tenascin-C and determine if this strategy will be an effective treatment for patients with rheumatoid arthritis.

—KAILEY NOLAN, IMPERIAL INNOVATIONS



Banish workplace stress!

Stress is now directly cited as the biggest cause of work-related absence, and indirectly responsible for many other causes including mental health illnesses and musculoskeletal disorders.

In an effort to tackle stress at the College, the Occupational Health Service, in conjunction with the Learning and Development Centre and Human Resources, have developed a stress toolkit to enable individuals to identify which workplace stressors may be relevant to them.

Using this tool, employees can prioritise the issues that are causing them most concern, then they will be signposted towards existing support resources as well as encouraged to have a discussion about stress with their line manager. Information has also been produced to help line managers to understand the type of adjustments or support which can be put in place.

The toolkit was launched at an event this month to coincide with National Stress Awareness Day, which involved a breakfast briefing followed by activities such as a seminar about resilience, a lunchtime power walk and even a meditation coaching session.

Speaking at the event, Louise Lindsay, Director of Human Resources, said: "Together we're building up a package that recognises that stress is something we can talk about; everybody at some point will experience stress and what we want to do is provide people with tools, activities and initiatives that enable them to deal with it in their daily lives so they don't have to keep those things inside and face them alone."

To identify your workplace stressors visit: bit.ly/17ivjOt and to find out about the workshops and support for staff visit: bit.ly/1dXMKfa

Candid cat cam

It might look similar to your average house tabby, but this is in fact an exceedingly rare snap of the little-known bay cat, *Pardofelis badia*, which has reddish fur and a long distinctive tail with a black and white tip. It was captured using a remote trigger camera setup as part of the SAFE tropical forest conservation project in Borneo, led by Imperial and the Zoological Society of London.

PhD researcher Oliver Wearn (Life Sciences) says: "We discovered that randomly placed cameras have a big influence on the species recorded. This is something I was taught in

school – I remember doing a project on which plant species were most abundant on our playing field, and being taught to fling quadrats over my shoulder in a random direction before seeing what plants lay within it, rather than placing it somewhere that looked like a good place to put it – the same principle applies here.

"Camera traps have transformed how information is collected for many species of mammals and birds. Many of these species are exceedingly good at spotting, and avoiding, conservationists who spend time in the field seeking them. Camera traps, on the other hand, sit silently in the forest often working for months on end come rain or shine."



The elusive bay cat in the forests of Borneo

Park life

Many people across College will know Diana Anderson (Life Sciences) as the first port of call for all things Silwood Park-related. After 25 years as Campus Administrator there, she is now retiring.

Can you describe your role at Imperial?

The role of Campus Administrator has grown and developed over the years with the main emphasis being on supporting the senior academics and PhD students, helping with all recruitment and of course the management of the campus and all that entails. It's a role that is constantly changing – you never know what each day will bring in the way of challenges!

How did you end up at the College?

Before I came to Imperial I was a ship's purser for two years with P&O Cruises. I travelled all around the world including the Panama Canal and Glacier Bay, Alaska and met some amazing people including the producer of *Star Trek*. Then one day I was looking for an exercise bike in the local paper and saw a job advert for a PA to the Director of Silwood

Park. I applied, having no real idea what it involved and the rest, as they say, is history.

What are you most proud of from your time at the College?

I'm very proud to have been involved in both the Golden and Diamond Jubilee celebrations for the Silwood Park Campus and latterly the Grand Challenges in Ecosystems and the Environment initiative. Silwood is entering a new and exciting phase in its development and I feel very privileged to have been there from the beginning. I feel sure that our new cohort of staff will be among tomorrow's scientific superstars. The Silwood Fellowship Award, which was given to me by the students, is also very special.

What are your future plans?

Firstly, a trip to Sharm el Sheikh in Egypt for some winter sunshine! Also I sit on the Education Appeal Panels for two local authorities (presiding over cases where a child doesn't get into their parent's school of choice) and have been asked to train to become a chairperson.



obituaries



PROFESSOR GRAHAM NEALE

Professor Graham Neale, Visiting Professor in the Department of Surgery and Cancer, died on 5 October, aged 85. Professor Charles Vincent (Surgery and Cancer) pays tribute.

Graham Neale was a remarkable doctor as well as a colleague and friend to many of us at the College. He was best known for his clinical acumen and dedication to his patients – but above all his compassion and unfailing generosity.

Graham trained and worked as a doctor in Bristol, going on to practice at the Postgraduate Medical School at Hammersmith Hospital, Trinity College Dublin and then Addenbrookes

Hospital – where he began his tireless work supporting patients who had been the victims of error and poor practice.

Graham was the clinical lead of the first study of harm to patients in the course of their care in the UK, uncovering the now oft-quoted figure that 10% of patients are in some way harmed. In 2002 he moved to join the Clinical Safety Unit in the Department of Surgery at St Mary's Campus where he was a mentor, friend and inspiration to all of us. My abiding memory is of Graham bounding into my office with a new idea, a newly published paper and enough ideas for ten years of research.

Graham was remarkable for his intellect, his extraordinary memory and range of interests, but mostly for his utter lack of self-importance. No matter how eminent or how junior, everyone received his absolute attention, his sharp intelligence and unfailing help. To the very end of his life, when he could no longer speak, he was still working to support family, friends and patients.

long service

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

20 years

- Judith Baylis, Senior Group Administrator in Optics, Department of Physics
- Dr Stuart Haslam, Reader in Structural Glycobiology, Division of Molecular Biosciences
- Amanda Sale, Technician, Department of Medicine

30 years

- Anna Dowden, Technician, Department of Chemical Engineering
- Ian Wright, Technician Head of Section/Dept Safety Officer, Department of Mechanical Engineering

40 years

- Professor Brian Jarman, Senior Research Investigator, School of Public Health

SPOTLIGHT

Anna Dowden, Technician, Department of Chemical Engineering
30 years



Not knowing what to expect after 21 years of ladies hairdressing prior to coming to Imperial, I have thoroughly enjoyed the last 30 years. After a very brief interview one Thursday in 1983, I was in College the following Monday serving tea and refreshments to undergraduates between lectures and staff on their breaks. I have come across so many interesting people of different nationalities. Some of the thousands of students I have served over the years still remember me when they return for a visit.

Welcome

new starters

Miss Adulis Afowerki,
Faculty of Medicine Centre

Dr Mubarak Arshad,
Surgery & Cancer

Dr Mark Bambury,
College Headquarters

Dr Luca Biancofiore,
Mechanical Engineering

Mr Alessandro Bolis,
Aeronautics

Mr Benito Brogna,
Faculty of Medicine Centre

Mr Alexander Carter,
Surgery & Cancer

Miss Soo Chee, Chemistry

Ms Hannah Clarke,
Development

Mr Jake Clements, Medicine

Ms Deborah Collymore,
Faculty of Medicine Centre

Dr John Davies, School of
Professional Development

Ms Linda Dekker,
Life Sciences

Mr Mark Evans,
Estates Division

Professor Roger Evans,
Physics

Miss Lisa Goers, Life Sciences

Mr Andrew Greenan,
Faculty of Medicine Centre

Mr Matthew Gribble,
Life Sciences

Mr Benjamin Harris,
Faculty of Medicine Centre

Mr Jeremy Huddy,
Surgery & Cancer

Ms Catherine Irving, HR

Miss Agnes Jacobs, Careers

Miss Gabriella Kerr-Gordon, HR

Ms Annamaria Kozma,
Catering Services

Dr Everett Kropf, Mathematics

Mr Sarantos Kyriakopoulos,
Chemical Engineering

Miss Aurore Lavigne,
Public Health

Mrs Amanda Ledlie, Medicine

Ms Laura Lennox, Medicine

Mr Suyu Liu, Surgery & Cancer

Mr Michael Lytrides,
Estates Division

Dr Jenny McGovern,
Life Sciences

Ms Gabrielle Newton,
Business School

Tu Ms Nguyen, Medicine

Mrs Emma Nino-French,
Surgery & Cancer

Miss Shelley Oman,
Catering Services

Dr Magdalena Opanowicz,
Medicine

Mr Pawel Orzowski,
Chemical Engineering

Ms Holly Page, Centre for
Environmental Policy

Dr Ilaria Palmisano, Medicine

Miss Maria Pipi,
Surgery & Cancer

Mr Ubaid Qadri, Mathematics

Professor Carsten Rahbek,
Ecology and Evolution

Dr Mezan Rahman, Materials

Miss Laura Rogers,
Faculty of Medicine Centre

Ms Sarah Rosenberg-Wohl,
Public Health

Dr Pierre Sacre, Mathematics

Miss Muge Sarper,
Bioengineering

Mrs Lorraine Sheehy,
Business School

Miss Helene Skarparis, EYEC

Mr Christopher Spicer,
Materials

Mrs Teodora-Bianca Suciuc,
Catering Services

Miss Louise Sullivan,
Campus Services

Dr Oleg Tolmachov, NHLI

Dr Victoria Tsiouri, Medicine

Dr Kirika Uchida, Physics

Mr Hendrik Utzat, Chemistry

Ms Tara Vernhes, Centre for
Environmental Policy

Dr Tobias Warnecke,
Clinical Science

Professor Michael Way,
Medicine

Mr Mark Weber, Finance

Dr Matthias Weidlich,
Computing

Mr Gary Wilkes, Physics

Ms Josie Worner, Development
& Corporate Affairs

Mr Chin Yau, Chemistry

Farewell

moving on

Miss Melissa Aghimien,
Accommodation

Miss Sun Ahn,
Accommodation

Miss Jummy Alabi,
Accommodation

Miss Lorraine Anek-Ogol,
Accommodation

Miss Pearl Anteh,
Accommodation

Miss Mariam Balogun,
Accommodation

Mr Sandeep Bhogal,
Finance (6 years)

Ms Zula Boguslawska,
Catering Services

Miss Rosaline Breen,
Catering Services

Miss Tamara Carboo,
Accommodation

Dr Alex Casson, EEE

Miss Mahalia Chambers,
Accommodation

Mr Adam Connolly,
Aeronautics

Ms Demi Corr,
Accommodation

Miss Verity Cox,
Accommodation

Miss Eleanor Cropp, Medicine

Miss Victoria Doran,
Accommodation

Mr Oliver Foss,
Accommodation

Miss Lochani Ganegoda,
Catering Services

Dr Polly Gravells, Medicine

Mr Lorcan Grimes,
Catering Services

Mr Michael Hale,
Accommodation

Miss Teresa Jambur,
Catering Services

Miss Madeleine Jammeh,
Accommodation

Miss Courtney Johnson,
Accommodation

Dr Daniel Jones, Public Health

Miss Audrey Kerloc'h,
Medicine

Dr Ramzi Khamis, NHLI

Dr Terhi Korhakangas,
Surgery & Cancer

Mr Valdas Kriauciukas,
Catering Services

Mr Satyam Ladva,
Accommodation

Dr Stephen Laidlaw, Medicine
(7 years)

Miss Megan Lawrence,
Medicine

Miss Sophie Lee,
Accommodation

Mr Ernesto Lembcke,
Accommodation

Miss Jennifer Lewsey,
Accommodation

Dr Vincenzo Libri, Medicine

Mr Thirukumar Maheswaran,
Accommodation

Miss Golda Mamudu,
Accommodation

Mr Jared Marklew, Chemistry

Mr Jowayne Marks,
Accommodation

Mr Michal Matuszak,
Catering Services

Mr Cormac McCann,
Catering Services

Dr Niall McGlashan,
Mechanical Engineering
(16 years)

Ms Catherine McLean,
Medicine

Dr Sara McSweeney, NHLI

Dr Maria Mencia Torrubian,
Humanities

Mr Matthew Merker,
Accommodation

Miss Emilia Michael,
Accommodation

Mr Michael O'Shea,
Accommodation

Dr Christos Panos,
Chemical Engineering

Miss Poonam Parmar,
Accommodation

Mr Karl Phillips,
Accommodation

Mr Abdul Qazi,
Accommodation

Professor Irene Roberts,
Medicine (24 years)

Mr Jose Rodríguez Manosca,
Accommodation

Mr Christian Rowlands,
Accommodation

Dr Majid Sadeqzadeh,
Chemical Engineering

Mr Yassine Saidat,
Catering Services

Ms Shaivali Shah,
Public Health

Miss Anita Solanke,
Accommodation

Miss Emily Sparey,
Accommodation

Mr Simran Sroya,
Accommodation

Mr Robin Stone, Careers

Mr Andrew Styles,
Accommodation

Ms Katarzyna Swiatek,
Accommodation

Mrs Christine Swift, Medicine

Mr Yuksel Unver,
Accommodation

Miss Beatriz Valverde Ribera,
Accommodation

Miss Jemma Whelan,
Accommodation

Dr Shelby Yamamoto,
Medicine

Mr Tomasz Zamacinski,
Catering Services

Dr Hongliang Zhong,
Chemistry

This data is supplied by HR and covers staff leaving the College during the period 12 October–29 October. This data was correct at the time of going to press. For Moving In, see 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.



10 DECEMBER ▶ PUBLIC TALK

The future of next generation humanitarian technology

Dr Patrick Meier, Director of Social Innovation at the Qatar Computing Research Institute, is a crisis mapper and the world's foremost expert in humanitarian technology. In this

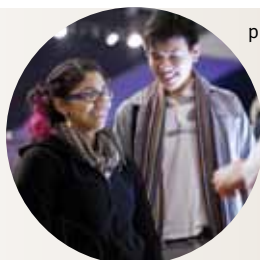
special lecture, hosted by the Qatar Foundation, he will share his vision for the future relating to crowd sourcing, multitasking, big data, data science and open data. He will also discuss how emerging technologies in these areas are reshaping the response to crises such as floods, hurricanes, earthquakes and poverty.



12 DECEMBER ▶ FRINGE

Imperial Fringe: Fluid thinking

With the festive season upon us, quench your curiosity as Imperial's researchers lay bare the mighty and mysterious



power of liquids. From the chemistry of cocktails to ground water and blood flow, work up a thirst while you marvel at the complex role fluids play in our lives, and wet your whistle at the cash bar afterwards.

19 NOVEMBER ▶ PUBLIC TALK

The Life of Bayard Rustin: Film and talk

Dr Rob Berkeley, Director of the Runnymede Trust

19 NOVEMBER ▶ PUBLIC TALK

Spacecraft missions to Jupiter and Saturn

Professor Michele Dougherty (Physics)

20 NOVEMBER ▶ SEMINAR

Industry touchpoints lunch

Hosted by Corporate Partnerships



20 NOVEMBER ▶ SEMINAR

The development of carbon pricing – examples from around the world

Adam Whitmore, Chief Advisor, Energy and Climate Change Policy, Rio Tinto

20 NOVEMBER ▶ SEMINAR

Towards a cure for HIV?

Dr Sarah Fidler (Medicine)



20 NOVEMBER ▶ PUBLIC TALK

The sophistication is in the simplicity: modern terrorism's technological trajectory

Professor Bruce Hoffman, Georgetown University, USA

26 NOVEMBER ▶ PUBLIC TALK

Anthropocene: the closing doors of climate targets

Professor Thomas Stocker, University of Bern, IPCC Climate Science Chair

26 NOVEMBER ▶ PUBLIC TALK

Fair society, healthy lives

Professor Sir Michael Marmot, UCL

27 NOVEMBER ▶ SEMINAR

Student challenges competition

Institute of Global Health Innovation's annual competition

27 NOVEMBER ▶ PUBLIC TALK

Going to greater lengths: quantum-mechanical simulations of real materials

Professor Peter Haynes (Materials)



28 NOVEMBER ▶ SEMINAR

Rock 'n' Roll and kicking back against everyday disablism

Actor and journalist Mik Scarlet

4 DECEMBER ▶ OPEN DAY

Postgraduate Open Day 2013

5 DECEMBER ▶ SEMINAR

Engineering the artificial pancreas

Professor Francis Doyle, University of California Santa Barbra

5 DECEMBER ▶ SEMINAR

The poetry of madness

Featuring top performance poets for Disability History Month



17 DECEMBER ▶ PUBLIC TALK

It is rocket science: Children's Christmas demo

Dr Simon Foster (Physics)

take note

Basketball tickets offer



Sport Imperial is offering discounted tickets to see London's only premier league basketball club, The London Lions, play at the Copper Box Arena in the Olympic Park. Thanks to a partnership with the team, fans at Imperial can get two tickets for £10 on Ticketmaster using the exclusive code 'IMCL10.'

For details on upcoming fixtures visit: bit.ly/HKv81q

MEET THE READER



Dr Tommaso Tufarelli (Physics) Research Associate

What are you doing in the picture?

Celebrating placing third in the 800m freestyle for the 25–30 years age group at the National Masters Swimming Competition in Sheffield last month. In case you are wondering, 'masters' swimming is a branch of amateur competitive swimming accessible to people of all ages (25–80+ years), and a good excuse to keep in shape as well as a distraction from the 'real' world!

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

I would gather researchers from different areas at Imperial, and get them to explain their work in simple terms to a non-specialist audience. In research we tend to focus so much time and energy on one specific scientific question that we hardly know what is being studied one floor down!

Who would be your cover star?

Probably the whole quantum controlled dynamics group where I work, specifically I would capture one of our 'breakfast meetings': a bunch of people sitting around a table eating lots of food while arguing physics with the poor speaker.

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

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