



Fire of imagination

As excitement builds for Imperial Festival, meet the researchers who will make it one to remember

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EDITOR'S CORNER

March on

Last Saturday, a group of Imperial staff and students joined thousands of others on a 'March for Science' starting from the Science Museum, finishing at Parliament Square – where they hoped to send a message to policy makers and the general public that **science is crucial** to the future of our society and economy. Among the marchers, was postdoc Dr Claire Morgan, who told me beforehand: "Marching on Saturday is important to me as I live and breathe science and the trend towards discrediting 'experts' is alarming. I just want to do my little bit to remind people that science has brought them medicine, iphones, spaceships, TVs and beer!" There will be another opportunity to perform this **public engagement** function at Imperial Festival on May 6–7. In this issue we spoke with a few of the exhibiting scientists (centre pages), including our cover star Dr Guillermo Rein, who told me he feels an obligation to do outreach as a taxpayer-funded researcher. "More to the point, I actually love it and I think I've become somewhat addicted!"

ANDREW CZYZEWSKI, EDITOR

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Set a date with discovery at Imperial Festival

Imperial's free annual festival is back, giving the public an opportunity to go behind-the-scenes and explore the latest research. It will run on Saturday 6 and Sunday 7 May at the College's South Kensington Campus.

The Festival has something for all ages to enjoy, from live interactive experiments, new technology demonstrations, in-depth talks, lab tours, musical and dance-based performances, and creative workshops within zones themed around Robots, Superbugs, Health & Body, the Future, and Energy and Environment (see pages 8-9).

In addition to the hands-on experiences in the research zones, there is plenty more to enjoy, including music and dance performances, a contemplative space to reflect on science and its role in the modern world. There is also plenty of delicious fresh food on offer throughout the



weekend from exciting artisanal vendors.

Sarah Umar, Festival Manager, said: "We're excited to welcome everyone on campus next month to experience Imperial Festival. Last year, more than 15,000 visitors came to learn more about the world around them through our hands-on

research exhibits, as well as to take in the sights, sounds and tastes on display.

"The 2017 Festival is set to wow thousands once more, with a host of brand new experiences for visitors of all ages to enjoy."

Imperial Festival runs 12-6pm on Saturday 6, 12-5pm on Sunday 7 May.

Developing synthetic biology in East Africa

Synthetic biology experts from Imperial headed to East Africa to help identify where the field could have a life-changing impact.

The field, which draws together elements of biology and engineering, harnesses living cells and their processes to create new tools for all aspects of life, from rapid medical sensors to generating biofuels and feeding the growing global population.

Representatives from Kenya, Tanzania, Uganda and Ethiopia met with UK researchers at a three-

day workshop, which took place in Nairobi last month.

Organised through the Kenyan National Commission for Science, Technology and Innovation (NACOSTI) and Imperial, the aim was to identify areas where emerging technologies could have an impact in everything from food security to industry, health and the environment.

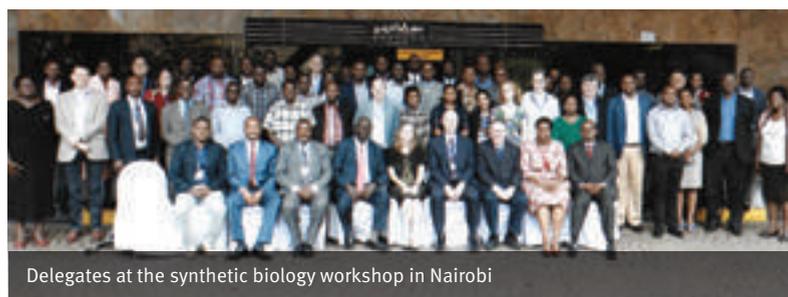
The organisers, led by Professor Paul Freemont, co-founder and co-director of the Centre for Synthetic Biology and Innovation at Imperial, have helped to forge

new working relationships, develop training and nurture collaborative partnerships.

"East Africa has an opportunity to move towards a far bigger bioeconomy, where it can put in place processes such as industrial biotechnology and not just focus on agriculture," explained Professor Freemont. "I think this workshop has allowed them to identify and audit their current capabilities in the region. They can use this meeting to identify gaps and then try and develop the technologies, training and infrastructure."

One of the most promising emerging areas is rapid, low-cost diagnostics tools for healthcare and the environment – such as monitoring land and water for pollutants.

—RYAN O'HARE, COMMUNICATIONS AND PUBLIC AFFAIRS



Delegates at the synthetic biology workshop in Nairobi

Uncertain times call for ‘patience and reflection’

Professor Alice Gast spoke about the importance of patience amid turbulent political change in her third annual address to the Imperial community.

Speaking to an audience of staff, students, alumni and friends, Professor Gast said: “The past year of unexpected political events, and the instability created by uncertainty has made many of us impatient.

“There are some things we must be proactive about. We need to know right now that Imperial’s

colleagues who are EU citizens will be able to remain in Britain. While to some, this is a negotiating point with Europe, I strongly believe this: government should

“The world looks very different now than it did in 2015.”

take a proactive, and unilateral, position to welcome Europeans who live here today, to stay.

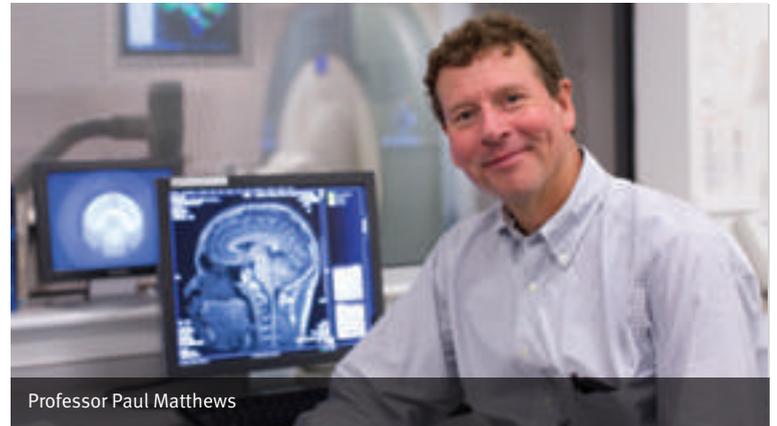
“Whenever there is a crisis, an abrupt change or a problem, our natural

human desire is to do something. While we all should be trying to do the right thing, to help out and to make our values clear, it seems to me that we also need to try our best to be patient.”

Professor Gast also spoke of the progress and development of the College’s strategy since its launch in 2015: “The world looks very different now than it did in 2015. Our strategy has evolved because of this, and that is good. But we have a lot yet to do and it is hard to be patient about it.”

During the address, she explored the theme of patience in five priority areas for the College: research, teaching, the translation of discovery, forging enduring partnerships and philanthropy.

—DEBORAH EVANSON, COMMUNICATIONS AND PUBLIC AFFAIRS



Professor Paul Matthews

Imperial wins bid to host new UK Dementia Research Institute centre

A new multidisciplinary UK Dementia Research Institute (UK DRI) centre is to open at Imperial later this year.

The College will join the University of Cambridge, Cardiff University, the University of Edinburgh, and King’s College London in hosting the centres which will form the new institute, whose headquarters is based at University College London. £55m is being invested in foundation programmes and resources across the centres in this first phase of the institute’s development.

The UK DRI at Imperial, which will be led by Professor Paul Matthews of the Division of Brain Sciences, will initially be based at the Hammersmith campus before moving in 2019 to the College’s new White City Campus, which is currently

under development in West London.

The UK DRI is being established by a joint £250 million investment into dementia research from the Medical Research Council (MRC) and its charity partners, the Alzheimer’s Society and Alzheimer’s Research UK.

Professor Matthews said: “Our multidisciplinary approach will harness Imperial’s technology and data expertise to address the challenges posed by dementia. In doing so, we are attracting experts from different fields who have exciting new ideas and have not previously been involved in dementia research.

“Being part of the UK DRI highlights Imperial’s commitment – since its foundation – to deliver solutions for major problems in our society by harnessing the best, most modern science.”

in brief

New Dean

Professor Nigel Brandon has been appointed Dean of Imperial’s Faculty of Engineering. Due to take up the role of Dean in October 2017, he will be responsible for providing strategic leadership, planning and coordination for the Faculty of Engineering, and for driving continuing excellence in research and education. Professor Brandon said: “It is a tremendous privilege to be asked to lead the Faculty of Engineering. Imperial



has hugely talented staff and fantastic students, and I am looking forward to us all working together to realise the opportunities ahead in both teaching and research”. Ahead of taking up appointment Professor Brandon will be Dean-Elect from 1 August 2017. He succeeds Professor Jeff Magee, who has held the role of Dean since 2011.

Cyber centre

Imperial has been recognised again as an academic centre of excellence in cyber security research. This recognition is

given by the National Cyber Security Centre (NCSC), the UK’s authority on cyber security, in conjunction with the Engineering and Physical Sciences Research Council. In 2012, Imperial was first recognised as an academic centre of excellence in this field. It was one of the first in the country to be given this prestigious status. For the past five years Dr Emil Lupu has been leading Imperial’s Academic Centre of Excellence.

Tumour tracker

A system that automatically classifies cancer biopsies, developed by an Imperial physicist, has won a Royal Society prize to help it get to market. The award of £246,552 is for scientists to develop a proven novel concept or prototype into a near-market ready product. Digistain, developed by Professor Chris Phillips (Physics) is a new way to more accurately and reliably detect the severity of cancer from tumour biopsies.





'Fantastic network' strengthens Imperial's Indian connections

Imperial's rapidly growing ties with India were celebrated at a series of events in Kolkata (Calcutta) and Bengaluru (Bangalore) last week.

More than 300 alumni, friends, collaborators, parents and future students met President Alice Gast and colleagues in the two cities, as media highlighted the College's extraordinary links with India.

In the past five years, Imperial researchers have published more than 1,200 joint papers with collaborators in India. Partner institutions include the Indian Institute of Technology (IIT) Delhi, the Indian Institute of Science (IISc) and the University of Delhi. Indian student numbers at Imperial rose above 300 this year.

During the visit, President Gast's third to India with Imperial, special events brought together alumni and friends in Kolkata and Bengaluru. Professor Gast also addressed the Confederation of Indian Industry (CII) in both cities and met leaders from universities and research institutes, including the Indian Institute of Science (IISc), Indian Institute for the Cultivation of Science (IACS), IIT Guwahati and IIT Kharagpur.

Rajive Kaul (Metallurgy 1971), President of the Imperial College Alumni Association in India, welcomed more than 150 alumni and friends event at his residence in Kolkata.

Mr Kaul introduced Bruce Bucknell, the UK's Deputy High Commissioner in the city, who said: "Imperial is one of the most successful universities for research, it is the UK's most international – it is almost without peers." He praised the College's "fantastic network around the world – I'm struck by the strength and depth of Indian connections at Imperial... and the warmth of the relationship between alumni and the institution."

—ANDREW SCHEUBER, COMMUNICATIONS AND PUBLIC AFFAIRS

National recognition

Imperial's Graduate School has won a Student Experience prize at the Guardian University Awards 2017 for its 'Researching Well Together' project.

The team saw off strong competition to take the award, which recognizes work to enhance the wellbeing of the College's 3,000 doctoral students.

Over the past two years, the Graduate School has developed, in partnership with staff and students, a package of support designed to enhance the wellbeing of research students. This is in line with the College's Strategy aim to prioritise the mental wellbeing of the student body, recognising this as both a moral imperative and a pre-requisite of academic success.

Professor Sue Gibson, Director of the Graduate School, said: "Here at



the Graduate School the whole team is committed to supporting our postgraduate community, so to have that recognised nationally is a real honour.

"There is growing evidence within higher education that shows a decline in the wellbeing of doctoral students. This initiative takes proactive steps to combat this trend and offer our postgraduates the support they need to succeed."

—JON NARCROSS, COMMUNICATIONS AND PUBLIC AFFAIRS

New scheme to support staff with dyslexia



Imperial's new Accredited Dyslexia Champions will help to build a dyslexia-friendly culture.

The champions can provide confidential advice on a range of issues related to dyslexia, from queries on how to pursue a Workplace Needs Assessment to advice for managers on supporting a member of their team. They are all existing members of staff who have received specialist training.

The scheme aims to build a dyslexia-friendly culture at Imperial, so that all staff are able to reach their potential. To contact one of the champions, staff should email the Equality, Diversity and Inclusion Centre at equality@imperial.ac.uk.

Emily Pearson (Medicine) Honorary Research Officer (right), said: "I am Dyslexic, so I understand how difficult it can be to come forward and to talk about it, especially in the workplace.



"Through this role I'm hoping to help reduce stigma towards neurodivergence and encourage people with processing differences to come forward so they can be supported to reach their full potential."

Steve Cousins (Business School) Client Relationships Manager (above), added: "A few years ago I had a screening and was diagnosed as dyslexic quite late in life. But there were lots of things I still didn't know about before starting the training.

"The programme gave me more clarity and understanding. Everyone is different, and dyslexia affects people in different ways. So you could have someone with dyslexia who has big difficulties with organisation and time management. Because there isn't much awareness that these can be symptoms of dyslexia, they may not have sought support. I want to change that."

—ELIZABETH NIXON, COMMUNICATIONS AND PUBLIC AFFAIRS



media mentions

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Could shared medical appointments help the NHS?

THE GUARDIAN ▶ 18.04.2017

Writing in the *Guardian*, Professor Ara Darzi, Director of the Institute of Global Health Innovation, explores the relative merits of shared medical appointments: “In medicine, the private one-to-one consultation is sacrosanct. Yet shared medical appointments have been used successfully for years at the Cleveland Clinic in the US. Here, then, is an innovation that could help the NHS, caught between rising demand and squeezed budgets, which is leading to longer waiting lists and growing discontent.”

What is Bitcoin and should I invest?

INTERNATIONAL BUSINESS TIMES ▶ 10.04.2017

If you're in any way interested in financial technology you will have heard of bitcoin, arguably the world's most popular form of cryptocurrency, the *International Business Times* reports. Many believe this digital money – and the blockchain foundation it's built upon – will drag traditional banking into an exciting new era. “Bitcoin is a form of digital currency, created



and held electronically,” explained Dr Catherine Mulligan (Business School), co-director of the Imperial Centre for Cryptocurrency Research and Engineering. “Rather than rely on intermediaries – i.e. banks – as we have until now, bitcoin uses a decentralised peer-to-peer network that has no central authority.” Mulligan continued. “Instead, every transaction is recorded by every node on the network, allowing anyone to verify that a transaction is valid.”

Will Brexit damage UK standards of living?

FINANCIAL TIMES ▶ 16.04.2017

The consequences of Brexit for UK standards of living are negative and highly uncertain,

economists have said as Britain and the remaining EU-27 member states prepare to start divorce talks. However, Professor David Miles (Business School) told the FT that the Treasury was ‘silly’ to talk about robust estimates when “the impact on labour productivity is massively uncertain – even if you knew exactly what Brexit would do to foreign direct investment and trade.”

Elon Musk's mission to the inside of your brain

SUNDAY TIMES ▶ 02.04.2017

The billionaire Elon Musk has an extraordinary record for pushing the boundaries of innovation, the *Sunday Times* reports. He has spearheaded the technology for electric and self-driving cars. The 45-year-old's company SpaceX has pioneered private space exploration with reusable rockets that look like something out of Thunderbirds. Now the co-founder of PayPal has announced a project called Neuralink, to connect human brains with computers to download and upload thoughts. This is not as far-fetched as it sounds. Dr Adam Hampshire, of the Division of Brain Sciences at Imperial, says: “This aim seems plausible, inevitable in the long term. On a fundamental level one could conceive of this as being an inevitable step in our evolution.”

awards and honours



ENGINEERING

Policy platform

Chemical engineer and PhD student Naima Ali has been awarded a highly competitive internship with the Government Office for Science (GoS). The scheme provides an opportunity for RCUK-funded PhD students to

work for three months in one of a selected group of highly impactful organisations relevant to UK policy. The GoS works to ensure that government policies and decisions are informed by the best scientific evidence and strategic long-term thinking. The placement offers the opportunity to work for the Government Chief Scientific Adviser, whose role is to advise the Prime Minister and Cabinet. Naima said: “I am honoured to have been awarded this internship. It will help me understand how scientific research influences government policies and how far scientific research is used to adjust current and future policy.”



MEDICINE

Blood work

An esteemed haematologist at Imperial has been recognised for a career of ‘exceptional commitment and leadership’ in the field. Professor Barbara Bain (Medicine), who is course director for haematology – the branch of medicine concerned with studying and treating the blood – was presented with a lifetime achievement award by the British Society for Haematology (BSH) at its annual meeting. Alongside developing courses and training clinicians, Professor Bain developed bloodmed.com, an educational tool and training platform used by almost all UK trainees and now incorporated into the BSH website.

COLLEGE

Cyber victory

Students from Imperial beat 12 other teams from universities designated as Academic Centres of Excellence in Cyber Security Research, to take the top spot at the Inter-ACE cyber challenge. The victorious team QWERTY from Imperial were awarded £6,500. Held at the University of Cambridge 18 March 2017, the competition involved teams earning points for hacking into each other's machines while defending their own. The competition was backed by the National Cyber Security Centre (NCSC), Cabinet Office, Leidos and NCC Group.

Breakaway Britain

Researchers have found evidence of how ancient Britain separated from Europe by analysing geophysical data combined with seafloor data.

Nearly 450,000 years ago, when Earth was in the grip of an ice age, ice stretched right across the North Sea, from Britain to Scandinavia. The low sea levels meant that the entire English Channel was dry land, a frozen tundra landscape, crisscrossed by small rivers.

The team show that the chalk ridge in the Dover Strait between Dover and Calais acted like a huge dam and behind it was a proglacial lake. This lake overflowed in giant waterfalls, eroding the rock escarpment, weakening it and eventually causing it to fail and release huge volumes of water onto the valley floor below.

The team believe that the huge holes that they analysed on the seafloor are plunge pools, created when water cascading over an escarpment hit the ground and eroded rock.

The researchers have also found evidence that a second event fully opened the Dover Strait. Later on, perhaps hundreds of thousands of years later, a new valley system, the Lobourg Channel, was carved by megaflood processes that crossed the Dover Strait.

Co-author Dr Jenny Collier, (Earth Science and Engineering), said: “We still don’t know for



Artist's impression of the Dover Strait around 450,000 years ago

sure why the proglacial lake spilt over. Perhaps part of the ice sheet broke off, collapsing into the lake, causing a surge that carved a path for the water to cascade off the chalk ridge. In terms of the catastrophic failure of the ridge, maybe an earth tremor, which is still characteristic of this region today, further weakened the ridge. This may have caused the chalk ridge to collapse, releasing the megaflood that we have found evidence for in our studies.”

Fellow co-author Professor Sanjeev Gupta

(Earth Science and Engineering) added: “The breaching of this land bridge between Dover and Calais was undeniably one of the most important events in British history, helping to shape our island nation’s identity even today. When the ice age ended and sea levels rose, flooding the valley floor for good, Britain lost its physical connection to the mainland. Without this dramatic breaching, Britain would still be a part of Europe.”

—COLIN SMITH, COMMUNICATIONS AND PUBLIC AFFAIRS

Buzzing the brain with electricity boost working memory

Scientists have uncovered a method for improving short-term working memory, by stimulating the brain with electricity to synchronise brain waves.

The hope is that the approach could one day be used to bypass damaged areas of the brain and relay signals in people with traumatic brain injury, stroke or epilepsy.

The brain is in a constant state of chatter, with this activity seen as brainwaves oscillating at different frequencies and different regions keeping a steady ‘beat’.

“What we observed is that people performed better when the two waves had the same rhythm and at the same time,” said research lead Dr Ines Ribeiro Violante (Medicine).

In the trial the team used a technique called transcranial alternating current stimulation (TACS) to target two brain regions – the middle frontal gyrus and the inferior parietal lobule.

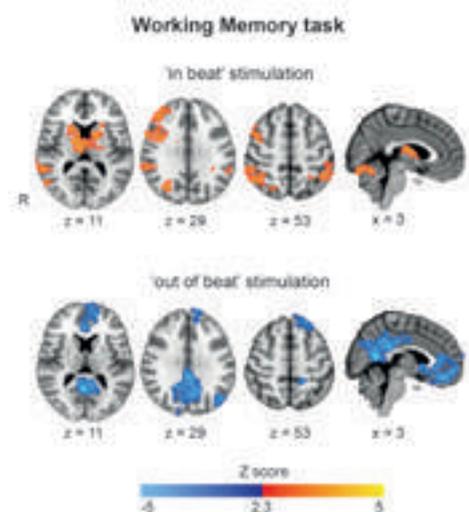
“We are very excited about the potential of brain stimulation to treat patients.”

These regions are known to be involved in working memory, used when people try to remember names at a party, telephone numbers or a short grocery list.

Ten volunteers were asked to carry out a set of memory tasks of increasing difficulty while receiving theta frequency stimulation to the two brain regions at slightly different times (unsynchronised), at the same time (synchronous), or only a quick burst (sham) to give the impression of receiving full treatment.

Results showed that when the brain regions were stimulated in sync, reaction times on the memory tasks improved, especially on the harder of the tasks requiring volunteers to hold two strings of numbers in their minds.

Senior author Professor David Sharp (Medicine) added: “We are very excited about the potential of brain stimulation to treat patients. I work with patients who often have major problems with working memory after their head injuries, so it would be great to have a way to enhance our



current treatments, which may not always work for them.

“Our next step is to try the approach out in our patients and we will see whether combining it with cognitive training can restore lost skills.”

—RYAN O’HARE, COMMUNICATIONS AND PUBLIC AFFAIRS



Artist's impression of a star evaporating a neighbouring star's protoplanetary disc

Star wars

Fledgling stars can prevent their neighbouring stars from birthing planets by evaporating material they hold in the surrounding dust and gas discs.

The new work sheds light on the complex dynamics of how exoplanets and solar systems other than our own home system form.

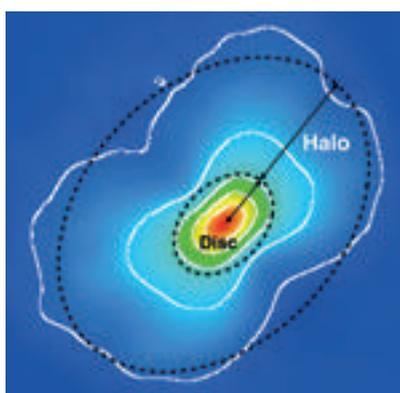
Newly formed stars are surrounded by a disc of dense gas and dust. This is called the protoplanetary disc and material sticks together within it to form planets.

Stars of different shapes and sizes are all born in huge star-forming regions. Scientists know that when a protoplanetary disc around a relatively small star is very close to a massive star, the larger star can evaporate parts of the protoplanetary disc.

However, it was thought this was only the case where very large stars shone on the protoplanetary disc. Now, researchers led by Imperial have discovered that a protoplanetary disc shone on by only a relatively weak star is also losing material. The protoplanetary disc studied, called IM Lup, belongs to a star similar to our Sun (see box).

Lead author Dr Thomas Haworth (Physics) said: "Because the light shining on this disc is so much weaker than that shining on known evaporating discs, it was expected that there would be no evaporation. We have shown that actually these stars can evaporate a significant amount of material.

"This result has consequences if we want to understand the diversity of exoplanet systems that are being



Disappearing act

The IM Lup system has an unexplained 'halo' of material around it, which reaches out to about 400 astronomical units (AU), where one astronomical unit is the equivalent distance from the Sun to the Earth. For comparison, the distance out to Pluto is about 40AU. This means the star cannot hold on to the disc's outer parts so strongly, as its gravity would be much weaker that far out, leaving the fringes at the mercy of evaporation. Dr Haworth and team modelled the flow and chemistry of the system to determine if the halo was the result of a nearby weak star heating up the system and evaporating away material (see main article). They estimate that the disc will lose about 3,300 Earth's worth of material over its 10-million-year lifetime. Dr Haworth said: "Our calculations show that if the disc started at 700AU in size, it would halve in size in the first million years of its life. Since IM Lup is less than a million years old, we've caught it in the act of rapid shrinking."

discovered. This phenomenon could significantly affect the planets that can form around different stars. For example, light from nearby stars could limit the maximum size a solar system can be."

—HAYLEY DUNNING, COMMUNICATIONS AND PUBLIC AFFAIRS

Beating the booze

Scanning the brains of alcoholics taking medication to beat their addiction has revealed new insights into how the treatments work.

Led by Professor Anne Lingford-Hughes (Medicine), a consultant psychiatrist and addiction expert, the group set out to explore the effects of nalmefene – a compound which modulates opioid receptors in the brain – in alcoholics.

Nalmefene has been successfully shown to treat alcoholism and also pathological gambling. It appears to work by effectively dulling the desire for alcohol, or the need for a 'win', but exactly how it affected the brain is unclear.

The Imperial team recruited 22 alcoholics who were not currently seeking treatment to see the effect of nalmefene. The volunteers were asked to perform tasks in an MRI scanner and were administered the single dose of the drug, (18 mg) as well as an intravenous infusion to bring their blood-alcohol levels up to the English drink drive limit (80 mg per 100 mL of blood).

Scans revealed that when patients took nalmefene with alcohol, activity in two areas of the brain, the dorsal and ventral striatum, decreased. Neuroscientists believe that these regions are key in habit-formation and so the drug seems to act to blunt their response.

The researchers believe nalmefene effectively reduces the anticipation of alcohol by interfering with the brain's dopamine-based reward systems.

"The findings indicate that the mechanism proposed to explain how the drug works is correct," said Professor Lingford-Hughes. "Certainly this fits with my clinical experience, where people describe how being on these opiate blocking drugs means that they may start drinking, but then they just don't want any more – they don't crave it, they don't desire it, it doesn't taste nice or give them a good feeling."

The team believes the findings could help to improve existing drug treatments for alcoholism by targeting them to those who are most likely to benefit, and even lead to the development of more effective treatments.

—RYAN O'HARE, COMMUNICATIONS AND PUBLIC AFFAIRS



"People on these drugs may start drinking, but they just don't want any more – they don't crave it."

ALL SET FOR FIERY FIFTH FESTIVAL

Imperial Festival is the one weekend a year when we throw open our doors and give the public an opportunity to go behind-the-scenes and explore ground-breaking research and exciting collaborations with our Albertopolis neighbours.

Want to journey to the edge of our galaxy, age 50 years in a matter of seconds, land a virtual reality plane, battle the superbugs that live on your toilet, or get behind the wheel of a sun powered racing car? All this and more will be on offer on Saturday 6 and Sunday 7 May, alongside delicious food and a variety of music and dance performances.

Here we take a sneak peek behind the scenes with some of the staff who plan to make it a Festival to remember.



Food for thought

↓ Healthy eating is often on many people's minds. Earlier this year, Imperial academics announced findings that a fruit and vegetable intake above five-a-day (and ideally 10) shows major benefit in reducing the risk of heart attack, stroke, cancer and early death. With this in mind, scientists from across the College will gather to delve into the science behind food at the Festival with an entirely new area called the Food Zone. With a range of interactive stands it will showcase the latest research and technologies across the food production chain, from "farm to fork".

One innovative product on show in the Food Zone is a powder derived from fibre found in onion and garlic. The powder produces a natural appetite suppressing agent, which can help prevent overeating, and therefore improve bodyweight management, while still providing the benefits of a high-fibre diet. With no detectable flavouring, the powder can be added to any food, such as soups, smoothies, or cereals as part of a healthy balanced diet.

Dr Edward Chambers (Medicine) one of the researchers behind the dietary fibre powder, said: "It is vitally important that we are fully engaged with the general public so that they can share the knowledge and benefits of our exciting research findings. These events also provide an opportunity for members of the public

to express their ideas to help shape future research programmes."



Spark of imagination

↓ “There is an ingrained human fascination with flames, almost certainly etched in our genetic code and reinforced by thousands of years living in caves and being dependent on fire,” Dr Guillermo Rein muses when we meet in the Imperial combustion lab – also called the Imperial Hazelab.

Guillermo is Reader in Thermal Energy (soon to be Professor of Fire Science) in the Department of Mechanical Engineering and his research is focused on heat transfer, combustion and fire. The chief purpose of his work is to reduce the worldwide burden of accidental fires and protect people, their property, and the environment.

Yet, fire is an extremely complex phenomenon and there is still much to learn about how it ignites, how it spreads, how it produces smoke and how it can be suppressed. Guillermo and his team attempt to answer these and other questions with a number of computer models and experiments in the Hazelab. One of the experimental demonstrations they use, dubbed Sirocco (after the hot Mediterranean wind), is a piece of kit that creates a tall and whirling flame or fire tornado. It consists of a dish holding a small pool of liquid fuel enclosed by an open-top chamber with asymmetric slots on the sides, which allow air into the fire. Once ignited the whirl flame develops and burns much faster and fiercely than a normal flame without the enclosure. Whirl flames can occur in nature, particularly in forest fires or large urban fires, due to asymmetric currents of air created by other trees, hills and surrounding buildings. They can whip up powerful winds that pick up and hurl burning debris, so it's important to understand them.

Sirocco will form the centrepiece of the Hazelab booth at the Imperial Festival, but there will also be other exhibits. Guillermo has long been intrigued by the role fire has played in historical events.

Recently, he has turned his attention to the Great Fire of London, which although well documented historically, is little understood in terms of fire dynamics.

“The first thing we realised is that the fire was so large and came out of the buildings so easily, that it behaved more like a forest fire than a typical residential fire. In the reports, the firemen talk about ‘firedrops’ – which are actually intense ember showers driven by the wind and what we now know to be a major mechanism of spreading in forest fires.”

To replicate the phenomenon the team constructed a new device, which they call the Imperial Dragon, which sprays ember showers in a controlled manner. They used the Dragon to perform an experiment on roofs typical of 1650. The results were quite surprising, and the charred remnants will be on show at the Imperial Festival alongside a video of the Dragon in action.

Fast thinking

↓ Imperial Festival has always been about showing rather than telling – but this year, interactive learning will be taken to the next level, with an exhibit allowing visitors to drive a Scalextric set using their thoughts alone.

It's the result of an engineering design project by second year Bioengineering students, led by Dr Ian Radcliffe. The students set about building a games control interface for pupils at John Chilton Special Needs School in Northholt, some of whom don't have the required arm function or capability to control things like a computer mouse or a joystick.

The students first selected off-the-shelf components, including an electroencephalogram (EEG) headset and a myoelectric band which fits over the forearm and can respond to small gestures. They adapted the devices and connected them to popular slot racing sets, including Scalextric. The result is a system that allows users

to control the speed of the car by either thinking intensely about going faster in the case of the EEG, or moving their arm up or down slightly with the myoelectric band.

The pupils of John Chilton School will have the first try of the games at the School's Day of Imperial Festival on Friday 5 May – followed by the general public on Saturday and Sunday.

“It's the first time we've done something designed with Imperial Festival in mind as an end goal – as opposed to just gathering some of our projects together and hoping people want to see them,” Ian says. “It's always quite a learning experience to do the Festival, because you get such a range of people there. But the feedback you get leads to new ideas and uses you never would have considered being in the classroom.”



IMPERIAL FESTIVAL

SAT
6 MAY
12.00–18.00

SUN
7 MAY
12.00–17.00

See the full programme ➔ www.imperial.ac.uk/festival

Global Exchange

A student delegation from Lee Kong Chian School of Medicine visited Imperial as part of the partnership between the two institutions.

Eighteen students from LKCMedicine visited Imperial from 5–11 March as part of the second LKCMedicine-Imperial College School of Medicine Exchange Programme.

The students visited the College as part of an exchange programme designed to enhance links between the two medical schools. As part of the exchange a similar delegation of Imperial's own students will visit LKCMedicine in Singapore later this year.

The visit offered an immersive experience to allow the students to explore what it is like to be a medical student in London. Over the week the group took part in a range of academic activities including Year 1 anatomy dissection and practicals, Year 2 lectures and clinical teachings and Year 5 general practice (GP) placements.

The students also got to experience the social and cultural side of London, visiting some of the city's best known attractions such as the London Eye, Shakespeare's Globe and St Paul's Cathedral during their visit.

LKCMedicine is a collaboration between Nanyang Technological University (NTU) and Imperial. With its innovative curriculum developed in partnership with Imperial, LKCMedicine pioneers the use of e-learning tools so students can make the most of their contact time with academics and patients.

Martin Lupton, Associate Dean and Head of the Undergraduate School of Medicine at Imperial, said: "We are extremely proud of our collaborative role in developing LKCMedicine with NTU in Singapore; and feel that it is important to continuously strengthen the connections between our Schools.

"The Imperial-LKCMedicine Exchange Programme was developed to enhance the student experience and maintain a close relationship between our two schools. The students experienced an immersion into medical student life at Imperial – participating in curriculum and social activities with Imperial Faculty of Medicine students, and experiencing the rich culture of London."

Following the visit a number of LKCMedicine students shared their experience of studying in Singapore and their reflections on Medicine at Imperial.

—JON NARCROSS, COMMUNICATIONS AND PUBLIC AFFAIRS



"The Programme was developed to enhance the student experience and maintain a close relationship between our two schools"

JOURNEY OF DISCOVERY

Elizabeth Wang

"It was great being able to meet our Imperial counterparts and forge friendships with them. One thing I enjoyed the most about the exchange was being able to go on an attachment with the GP Surgery Clinic as well as the Clinical Simulation at Charing Cross Hospital. They gave me insights on the NHS system and I was exposed to a variety of cases that are not commonly seen in the GP clinics we have in Singapore. It was also fun doing examinations on a real patient with pathology as we have always done examinations on patients with normal physiology. Moreover, the clinicians were very enthusiastic about teaching us and readily answered all questions we had. I am looking forward to having our Imperial counterparts over in Singapore and hope that they will have as much fun as we had!"

Adriel Kek

"Imperial provided excellent hosts for our short stay in London. Both students and faculty were extremely welcoming and went out of their way to ensure that our stay was a comfortable and enjoyable one. For instance, Professor Davies and Nicole from the London Office of LKCMedicine took the time out of their busy schedules to guide us around the South Bank, with highlights including stops at the Hunterian Museum as well as the oldest operating theatre in London. Overall, we enjoyed our stay here very much and would certainly like to come back again."

Kannan Ramanathan

"The LKC-ICL exchange was a unique experience for me mainly due to dissections. It was really an intriguing experience as I have never been inside a dissection room, let alone carried out a dissection. I had the opportunity to observe my counterparts during their lessons, learn from them and had the privilege of carrying out the dissection as well. The idea of using a human body to learn while maintaining respect for the donor is inspiring and I really hope to carry out more dissections in the future. I am truly grateful for Imperial's hospitality and efforts in making the exchange a fruitful one for me."



inside*

story

mini profile

Dr James Wilton-Ely is Senior Lecturer in the Department of Chemistry. An Imperial alumnus (Chemistry BSc and PhD), he returned to the College in 2009 after stints at Oxford, UCL and TUM (Munich)



What do you think sets Imperial apart?

I enjoy the place, the ethos and I think the emphasis on lab work makes it stand out compared to most chemistry courses in the country. Coming back, I've seen just how versatile Imperial is – the commitment to collaboration with colleagues from other disciplines, such as medicine and engineering. It all adds up to a dynamism I've not seen to the same degree anywhere else.

What is the focus of your work today?

A lot of it falls under the umbrella of chemistry applied to medicine. One of the main things I'm involved with is developing new tools for imaging in the body and combining these with targeting aspects to deliver a therapeutic effect. For example, injecting a cancer patient with nanoparticles that travel straight to a tumour site so that treatment can be more precisely targeted to avoid damaging healthy tissue. We are also looking at detecting carbon monoxide generated naturally in the body, something associated with how cells communicate and regulate themselves. We would like to

develop a diagnostic system that can monitor these changes when diseases are present.

What first enlivened your interest in chemistry?

I was fortunate to have a very good and inspiring chemistry teacher, Dr Moody, who had a PhD and had spent years in industry. This experience outside education really came through in lessons and it was exciting to hear of the impact chemistry makes in the world. This experience also made me passionate about teaching. One of the reasons I enjoy being here at Imperial is that having learned from so many great teachers and lecturers, I now have the chance to pass that on to the next generation. I'm also very involved in outreach. I have two kids and I know how important it is to inspire them with science. I give talks in schools and sixth form students come to my lab to shadow researchers. I have presented at the Imperial Festival previously and will be involved again this year, as part of the SPIN-Lab team, demonstrating magnetism and how we measure magnetic properties.

Miniature landscape of solar cells bags top photo prize

An Imperial physicist won second prize in the Innovation category of EPSRC's science photography competition for his image of a solar cell close up.

Dr Diego Alonso-Alvarez took the photo using his iPhone 4s looking down an optical microscope. It shows the surface of a silicon solar cell – the units that make up solar panels – at only the width of a human hair.

He titled the picture 'Pyramids in a Desert' due to its resemblance to Egyptian pyramids and sand dunes seen from directly above.

Dr Alonso-Alvarez said: "When doing science, we are so focused on the actual research that we forget that, very often, what we experience and see is amazing and only for our eyes.

"Entering this competition was a way of sharing those unique images and moments with other people, showing the most beautiful part of our daily life."

The competition seeks to showcase the work funded by the Engineering and Physical Sciences Research Council (EPSRC).

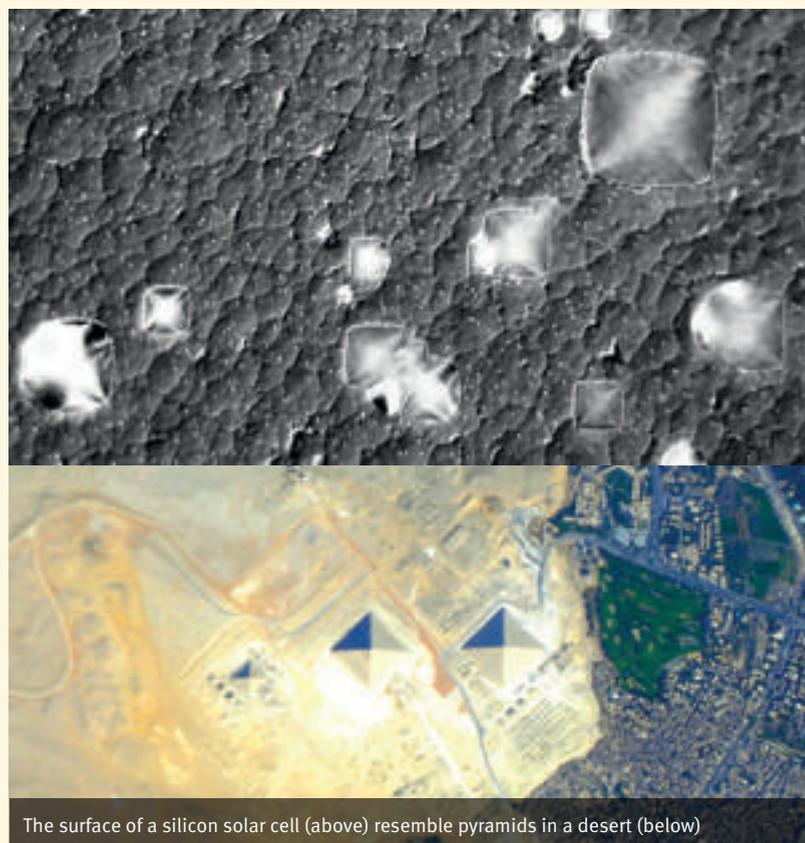
Dr Alonso-Alvarez studies the nanoscopic design of silicon solar cells in order to make them more effective at generating both electricity and heat.

He took the image while checking different surface treatments and etching recipes to control the size and shape of the silicon textures on the cell's surface.

Collaborators on the project from the University of Glasgow also won a prize in the competition for their image of a solar cell from a different angle. The teams hope to combine their findings in the near future.

Congratulating the winners and entrants, Professor Tom Rodden, EPSRC's Deputy Chief Executive, said: "The quality of entries into our competition demonstrates that EPSRC-funded researchers are keen to show the world how beautiful and interesting science and engineering can be. I'd like to thank everyone who entered; judging was really difficult.

"These stunning images are a great way to engage the public with the research they fund, and inspire everyone to take an interest in science and engineering."



The surface of a silicon solar cell (above) resemble pyramids in a desert (below)

By Women. For Women: Althea 2017

A leak proof, biodegradable and organic menstrual pad design has won the top prize in Imperial's pioneering entrepreneurial programme for women.

Olivia Ahn, a final year medical student, took home £10,000 of funding at the finale of the Althea-Imperial Programme – a unique collaboration between Imperial and the Althea Foundation, a social venture fund.

Olivia's start-up, WithLula, aims to re-think the way menstrual pads are designed and provide unique support for women during their periods through a machine-learning app.

The pads are entirely leak proof, biodegradable, organic and would be considerably cheaper to the consumer than other products on the market. Taking inspiration from the way flower petals redirect water on their surface, the WithLula pads use a layered structure to send liquid into the central highly-absorbent core and away from the edges of the pad.

Olivia said: "As a medical student I'd not really done anything entrepreneurial before.



Althea winner Olivia Ahn

Going into Althea really blew the doors open and changed my mind-set on how you can make a difference."

She's also developing an associated app, to allow women to track their periods and personalise the pads they need according to their specific requirements. The app uses machine learning to better predict the frequency

and duration of their period and predict their needs. The required pads are then delivered to their door.

"From a medical point of view I've always wanted to increase health awareness in women. So many women use pads and by using WithLula we want to get these women thinking and talking about their health too. It's a product made by women, for women. Period."

Olivia beat off competition from four other candidates to secure the top prize, after they all pitched their ideas to a panel of industry and business experts.

A second prize of £6,000 was awarded to Ana Luisa Neves (Surgery and Cancer) for her project Momoby, a revolutionary finger prick test that will bring prenatal care to pregnant women living in isolated areas in developing countries.

The third place prize of £4,000 went to Toni Semmence (Chemistry) of Sensidex, a compact and easy to use device which allows commercial kitchens to test food for the 14 most common food allergens.

—JON NARCROSS, COMMUNICATIONS AND PUBLIC AFFAIRS

Ultra-sound Idea

Student start-up Microsonix took home the £10,000 prize at the Venture Catalyst Challenge (VCC) final.

Founded by Bioengineering PhD students Hamid Soleimani and Graham Peyton (pictured below), Microsonix are shrinking the components of ultrasound machines down to a single chip. The outcome is a low-cost, portable medical

imaging device that can connect to tablets or smartphones.

Designed to be produced on a mass scale, their current model is around the size of a pen. The technology allows this life-saving medical imaging to be brought to developing nations where the cost of ultrasound machines can be prohibitive, or to remote areas where it isn't possible to transport the large, bulky machines.

Graham said: "We entered with an idea and the VCC really helped us understand the commercial possibilities for the product and how to convert it into a realistic business."

The team believes that their low-cost device can fill a gap in the market in developing countries such as Peyton's native South Africa, where current ultrasound equipment is prohibitively expensive for many clinics who instead rely on second-hand machines near the end of their lifespan.

This year's competition attracted over 300 applicants from across the Imperial student community. Microsonix was one of seven teams to make the final.

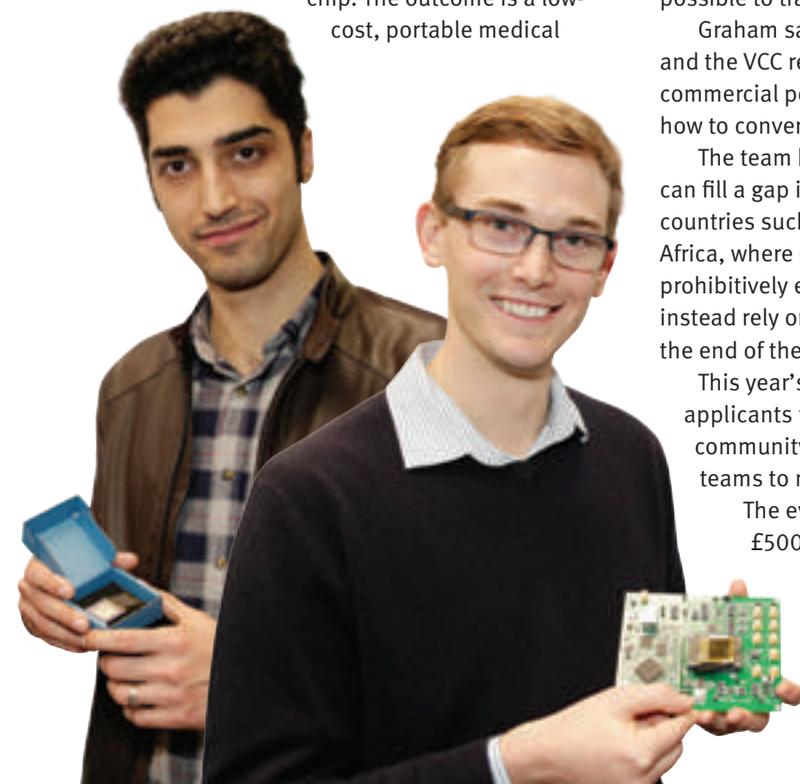
The event also saw two teams receive £5000 runner up prizes: Opensense – a low-cost paper pollution sensor designed to be stuck to smartphones, and ThinAir –



an innovative biomembrane which collects latent water particles from the air.

Professor Gann said: "Enterprise Week and the VCC showcase Imperial's enterprising talent, initiatives and culture. It is a wonderful celebration of all that Imperial does to enable staff, students and the local community to flourish in applying their ideas and gain practical, entrepreneurial experience."

—JON NARCROSS, COMMUNICATIONS AND PUBLIC AFFAIRS



Marathon duo run for global health

Two Imperial colleagues ran the London Marathon last Sunday to support a life-saving Imperial initiative.

Liz Hollenberg and Jane Whitton, (pictured below), both Programme Managers in the College's Schistosomiasis Control Initiative (SCI), have already surpassed their £30,000 target which will help the initiative treat thousands of people afflicted with parasite-borne illnesses.

Schistosomiasis afflicts more than 250 million people worldwide and can cause severe pain and life-long disability. The SCI, which is based in Imperial's School of Public Health, works to eliminate schistosomiasis and intestinal worms by supporting ministries of health in affected countries.

Liz and Jane prepared both in London and in the field. Speaking ahead of the event Jane said:

"Training in the field can be a challenge. Most of the time I'm based in Malawi and Uganda. The altitude and the heat can make it exhausting.

"Trying to find somewhere to run can also be difficult. Because it's so dry, every time a vehicle drives past I get showered with dust and the gyms don't tend to have air conditioning! In London it's much easier, we can nip out at lunchtime and train in Hyde Park."

Liz added: "Knowing that the SCI's work has such a huge impact on these communities is a huge motivator. The money we're raising will improve the lives of thousands of people across Africa. I'm proud to be running for this cause."

—DEBORAH EVANSON, COMMUNICATIONS AND PUBLIC AFFAIRS

Liz and Jane's marathon fundraising page is still accepting donations. Show your support at: bit.ly/go-together



Matthew Watkins, second from left, with Tiro Racing team

Racecar engineer makes world final

An Imperial workshop technician apprentice is heading to Kuala Lumpur, Malaysia in September to take part in the World Finals of the 'F1 in Schools' engineering competition.

Matthew Watkins co-founded the Tiro Racing team with fellow apprentices from Rolls Royce, Siemens, GSK and the National Physical Laboratory – all of whom are currently studying at Kingston College.

At the recent UK F1 in Schools Final at Silverstone, Tiro Racing came second overall (with 'best engineered car'), thereby booking their place to Malaysia.

F1 in Schools is the world's largest multi-disciplinary STEM competition. Students form teams of 4-6 members to design, manufacture and test a small-scale F1 car complying with a stringent set of regulations. The vehicles are raced on a straight drag strip, propelled by a gas canister. Alongside this, teams must consider identity, branding, marketing and sponsorship, similar to how a real Formula 1 team would operate. These teams must then compete against each other at a Regional, National and International Level, putting their handiwork through the tough scrutiny of a panel of professional judges.

Matthew said: "It hasn't really sunk in yet that we're heading to Malaysia, just a few weeks before the real F1 Grand Prix starts. The competition will be incredibly tough, but hopefully we can make some gains for example in the aerodynamics and the wheel bearings and put ourselves in the best possible position."

Paul Brown (Physics) is a Mechanical Instrumentation Workshop Manager in the Department of Physics at Imperial and helps run the College's workshop technician apprentice scheme. He said:

"F1 in Schools is now a major event and we're hugely impressed with Matthew and Tiro racing team's incredible achievement – their professionalism and team working is a real credit to them.

"All of us at Imperial will be rooting for Matthew and the team when they head out to Malaysia, and we look forward to welcoming him and putting his skills to use when he starts the next phase of his training at the College in July."

long
service

Staff featured in this column have given many years of service to the College. Staff listed celebrate anniversaries during the period 31 January–30 April 2017. The data are supplied by HR and correct at the time of going to press.

20 years

- Ying Yuan, Senior Finance and Programme Administrator, School of Professional Development
- Sam Tolhurst, Project Coordinator Mechanical Engineering
- Dr John Rowland, Research Associate Life Sciences
- Roy Ortiz, Senior Credit Controller, Finance Division
- Nina Maunders, Accounts Receivable Business Analyst, Finance Division
- Charles Leppington, Head of Library Liaison (Medicine and NHS), Library Services
- Dr Adrian Leach, Research Fellow Centre for Environmental Policy
- James Kissi-Hawkson, Buyer, Finance Division
- Emeritus Professor Alain Gringarten, Senior Research Investigator, Earth Science & Engineering
- Dr Saif Haque, Reader in Materials Chemistry, Chemistry
- Professor Uta Griesenbach, Professor of Molecular Medicine, National Heart & Lung Institute
- Dr J Simon Gibbs, Reader in Pulmonary Hypertension, National Heart & Lung Institute
- Dr Rosa Cordero, Research Officer, Medicine
- Dr Maria Charalambides, Reader in Mechanics of Materials, Mechanical Engineering
- Professor Terence Cook, Professor of Renal Pathology, Medicine
- Professor Maria Belvisi, Professor of Respiratory Pharmacology, National Heart & Lung Institute

30 years

- Tariq Rasheed, IT Support Analyst, ICT
- Peter O’Gara, Medical Laboratory Scientific Officer, National Heart & Lung Institute
- Professor Kate Hardy, Professor of Reproductive Biology, Surgery & Cancer
- Louise Green, Undergraduate Office Manager, Civil and Environmental Engineering
- Thomas Conway, Office Admin & PA to Director of Education Management, Faculty of Medicine Centre

40 years

- Professor William Jones, Mechanical Engineering
- John Darlington, Emeritus Professor of Computing

50 years

- Ashok Jamdagni, Visiting Researcher, Physics



Imperial celebrates long and strong relationship with Livery Companies

The relationship between Imperial’s Faculty of Engineering and the City Livery Companies was celebrated at the opening of the heritage area.

The heritage area is located in the City and Guilds Building at Imperial, which has been undergoing a £100 million refurbishment. When fully completed, the building will house both the Departments of Mechanical Engineering and Aeronautics.

On 28 March 2017, an event was held in the Heritage Area to celebrate the continued relationship between the City Livery companies and the Faculty. At the event, seventeen shields representing the City Livery Companies and the City of London Corporation were rededicated. As part of the refurbishment, the shields have been relocated to a specific area dedicated to recognising and celebrating

the heritage of the Faculty.

The Faculty has a strong historical link to the City & Guilds Institute (CGI) and sixteen City of London livery companies. It was these sixteen livery companies that established the City & Guilds Institute, which was to later found the constituent Engineering College of Imperial – the City & Guilds College.

Professor Jeff Magee, Dean of the Faculty of Engineering, said: “These shields underline the important role that our advocates, supporters and friends play. The Faculty of Engineering was founded through strong partnerships and we continue to value these to this day.

“Aeronautical Engineering will be moving in during the summer and with the refurbishment nearly complete, we are very happy to have this opportunity to again recognise our heritage by opening this

“ The Faculty of Engineering was founded through strong partnerships and we continue to value these to this day.

area with its display of shields of the original livery companies.”

Representatives from the Livery companies spoke during the ceremony. The first speaker, Mr Morton Neal, an alumnus of Civil Engineering (BEng ACGI 1953) and a past Master of the Carpenters’ Company spoke about the historical background to the Imperial-livery relationship. He was also the main driver behind the development of the shields.

—COLIN SMITH, COMMUNICATIONS AND PUBLIC AFFAIRS

Welcome

Moving in

Miss Zara Abba, ICT
 Mrs Nasreen Abidi, ICT
 Mr Pablo Achurra Gonzalez, Civil and Environmental Engineering
 Miss Malko Adan, Surgery & Cancer
 Miss Saima Ahmed, Bioengineering
 Miss Kamela Aliaj, Public Health
 Mr Diego Alonso Martinez, Institute of Clinical Sciences
 Mr Arman Amirzhan, Materials
 Mr Salim Arslan, Computing
 Ms Niki Ashra-Thakore, Finance
 Dr Kiron Athwal, Mechanical Engineering
 Mr George Avraam, Life Sciences
 Miss Melanie Beckley, Chemical Engineering
 Ms Georgia Bergson, ICT
 Mr Luke Bevan, Business School
 Mr Keith Boland, Public Health
 Miss Holly Brinkworth, Chemistry
 Mr Craig Buchanan, Civil and Environmental Engineering
 Miss Nancy Burley, Business School
 Mrs Mylene Cannon, ICT
 Ms Rita Carvalho, Surgery & Cancer
 Miss Joanna Cavell, Security Services
 Dr Oya Celiktutan Dikici, EEE
 Miss Jenna Collinson, HR
 Miss Yasmeen Conraad, Faculty of Medicine Centre
 Dr Nathaniel Cooper, Chemical Engineering
 Dr Danilo Cuccato, Chemical Engineering
 Dr Leah Cuthbertson, NHLI
 Miss Karen Davey, Medicine
 Miss Theresa Davey, Materials
 Ms Adinda de Wit, Physics
 Miss Irvine Dossa, Enterprise
 Dr Jessica Eddy, Medicine
 Dr Fadi El Haddad, Mechanical Engineering
 Mr David Ellis, Life Sciences
 Dr Pei Eng, Medicine
 Mr Christopher Fanning, Finance
 Dr Filiberto Fele, EEE
 Mr Maxime Ferreira Da Costa, EEE
 Dr Abdelkader Filali, Chemical Engineering
 Miss Paraskevi Filippousi, Chemical Engineering

Mr Shane Fleming, EEE
 Mr James Freeman, Chemical Engineering
 Mrs Naomi Friel, Public Health
 Dr Angela Gallagher, NHLI
 Dr Luisa Garcia-Haro, Faculty of Medicine Centre
 Miss Audrey Gaulard, Design Engineering
 Mr Alexander Gibberd, Mathematics
 Professor Vernon Gibson, College Headquarters
 Dr Josef Goding, Bioengineering
 Dr Darren Grafius, Civil and Environmental Engineering
 Dr Mashy Green, Aeronautics
 Ms Leah Grey, Medicine
 Dr Boram Gu, Chemical Engineering
 Dr Ajay Gupta, Chemical Engineering
 Dr Hebba Haddad, Centre for Environmental Policy
 Dr Nabil Hajji, Medicine
 Dr Balvinder Handa, NHLI
 Ms Kirsten Harvey, Medicine
 Dr Fei He, Life Sciences
 Ms Maria Herrando Zapater, Chemical Engineering
 Mrs Rachel Herries, HR
 Mr William Hollyer, Sport and Leisure
 Miss Amy Humphreys, Centre for Environmental Policy
 Mr Mostafa Jamshidiha, Life Sciences
 Ms Michelle Joyce, Advancement
 Ms Aruna Kalidoss, Mechanical Engineering
 Miss Sujin Kang, Public Health
 Mr Vikram Karde, Chemical Engineering
 Dr Shrikant Kawale, Materials
 Ms Brogan Keane, Surgery & Cancer
 Ms Daphna Kesary, Public Health
 Ms Jang Kim, Computing
 Ms Suba Kinga, Medicine
 Mr Toby Kirk, Mathematics
 Mr Nicolas Kylilis, Bioengineering
 Ms Deborah Lavin, Medicine
 Miss Georgia Lazarou, Chemical Engineering
 Mr Niccolo Le Brun, Chemical Engineering
 Ms Laura Leary, Surgery & Cancer
 Miss Inbar Levi, Surgery & Cancer
 Dr Xiang Li, Public Health
 Mr Martin Lisboa, Business School
 Dr Chengyuan Liu, EEE
 Mr Hengyan Liu, EEE

Mr Ling Liu, EEE
 Dr Amrit Lota, NHLI
 Mr Scott Lovell, Chemistry
 Dr Yuan Luo, Computing
 Mr Craig Lynch, ICT
 Dr Julia Makinde, Medicine
 Mr Saber Mamqaderi, Business School
 Mr Kristopher McGlinchey, Physics
 Dr Nicolas Melot, Computing
 Dr Anais Menny, Life Sciences
 Dr David Miller, Design Engineering
 Ms Fay Miller, Computing
 Mr Kaushik Mukherjee, Bioengineering
 Dr Neil Murphy, Public Health
 Mr Michael Nielsen, Physics
 Mr Eifion Nightingale, Design Engineering
 Miss Anke Nijhuis, Surgery & Cancer
 Mr Matthew O'Connor, Medicine
 Dr Ceyda Oksel, Medicine
 Mr Rodolfo Oliveira, ESE
 Miss Lucy Olliff, Centre for Environmental Policy
 Ms Margaret Osinowo, Public Health
 Dr Mahmoud Ouda, EEE
 Mr David Owen, Physics
 Ms Asheeka Padhiar, Research Office
 Dr Ajit Panesar, Aeronautics
 Mr Ed Parks, Finance
 Dr Neekhil Patel, Medicine
 Dr George Pelios, Computing
 Ms Gisela Pereira Barreto, Faculty of Medicine Centre
 Mr Andrea Petracci, Mathematics
 Miss Dorrit Pollard-Davey, Faculty of Medicine Centre
 Miss Laura Ratcliff, Materials
 Dr Quentin Rendu, Mechanical Engineering
 Mr Matthew Rickman, Bioengineering
 Mr Tom Rutland, Communications and Public Affairs
 Mr Samuel Sedon, Business School
 Mr Dilshan Senanayake, Finance
 Mr Thomas Sewell, Public Health
 Professor Murray Shanahan, Computing
 Mr Guillaume Sherlock, ICT
 Dr Matthew Sinclair, Computing
 Dr Charanjit Singh, Medicine
 Miss Rupa Sisodia, NHLI
 Miss Rebecca Smith, Medicine
 Mr Gareth Smith, ICU
 Ms Katharine Smith, Surgery & Cancer
 Mr Isaac Sosanya, Finance

Miss Sally Spurr, Surgery & Cancer
 Miss Ruth Stannard, School of Professional Development
 Miss Rebecca Stiffell, Life Sciences
 Mr Erick Sutherland-Carby, Estates Division
 Mr Yusuf Tamanna, Finance
 Mr Zinong Tan, Mechanical Engineering
 Dr Sofia Tapanelli, Life Sciences
 Ms Chrysanthi Taxiarchi, Life Sciences
 Mr Simon Tegart, Faculty of Medicine Centre
 Miss Kay To, Medicine
 Mr Evangelos Triantafyllou, Surgery & Cancer
 Miss Eleanor Tubman, Physics
 Ms Alicia Tulloch, Physics
 Mr Anthony Vaquero-Stainer, Physics
 Dr Vessela Vassileva, Surgery & Cancer
 Mr Ruben Vereecken, Computing
 Dr Petr Vikhorev, NHLI
 Dr Sinthuja Visahan, Public Health
 Dr Ivan Vujaklija, Bioengineering
 Miss Sigourney Waibel, Public Health
 Dr Jian Wang, Physics
 Dr Leigh Warren, Surgery & Cancer
 Dr Eilbhe Whelan, Surgery & Cancer
 Mr Ryan White, Design Engineering
 Dr Natalie Williams, Medicine
 Dr Saffron Willis-Owen, NHLI
 Dr Clare Wilson, Medicine
 Dr Michael Wiltshire, EEE
 Dr Lisa Yang, Medicine
 Ms Louise Young, NHLI
 Dr Jie Yuan, Mechanical Engineering
 Dr Kirsty Yule, Grantham Institute
 Dr Fessehayee Zemichael, Chemical Engineering

This data is supplied by HR and covers staff joining the College during the period 7 March – 24 April. 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.

Farewell

Moving on

Professor Karim Abadir, Business School (11 years)
 Dr Catarina Aires Fernandes, Computing
 Dr James Allinson, NHLI
 Dr Maya Al-Memar, Surgery & Cancer
 Dr Natalie Andrews, Life Sciences
 Dr Till Bartke, Institute of Clinical Sciences
 Mr Yanni Baveas, Faculty of Engineering
 Dr Rhiannon Beard, Chemistry
 Mr Harminder Bharj, Estates Division (17 years)
 Dr Ayan Bhowmik, Materials
 Mr Martin Billman, Medicine
 Dr Shabnam Bobdiwala, Surgery & Cancer
 Dr Anais Bompard, Public Health
 Mr Andy Boston, Faculty of Engineering
 Dr Markella Boudioni, Public Health
 Dr Georgios Bouliotis, Public Health
 Dr Reuben Brambleby, Civil and Environmental Engineering
 Mr Mads Brevadt, Surgery & Cancer
 Dr Serena Brusamento, Public Health
 Dr Joerg Burgstaller, NHLI
 Dr William Burns, Faculty of Engineering
 Dr Christopher Burrows, Mechanical Engineering
 Mr Paolo Cadinu, Bioengineering
 Mr Mikhail Caga-Anan, NHLI
 Miss Sheena Cardoso, HR
 Mr Paul Carter, ICT (14 years)
 Ms Louisa Cavaliero, Public Health (12 years)
 Ms Andreea Cetateanu, Public Health
 Dr Manigandan Chandrasekaran, Medicine
 Ms Karyn Chappell, Surgery & Cancer
 Dr Susu Chen, Bioengineering
 Miss Thameenah Choudhury, Surgery & Cancer
 Mr George Cleaver, EEE
 Miss Leah Colthurst, Public Health
 Dr Paul Corbett, Chemical Engineering
 Dr Paolo Costa, Computing
 Ms Ziva Cotic, Public Health
 Mr Walter Craw, HR
 Dr Hetal Dattani, Surgery & Cancer (9 years)
 Ms Franca Davenport, Communications and Public Affairs
 Miss Molly Davey, EYEC
 Mr Mark Davies, Business School (10 years)
 Dr Tiziana Denaro, Chemistry
 Dr Luca Di Mare, Mechanical Engineering (14 years)
 Dr Nazanin Dolatshad, NHLI
 Dr Beverly Donaldson, Medicine
 Dr Olga Ekkert, Chemistry
 Dr Ranti Fayokun, Medicine (10 years)
 Miss Rebecca Firth, Business School
 Dr Juan Garcia De La Cruz Lopez, Aeronautics

Dr Kevin Garwood, Public Health
 Mr Petros Giataganas, Computing
 Miss Cassie Gilbert, Business School (7 years)
 Dr James Gilbert, NHLI
 Dr Lucy Goff, Materials
 Miss Caroline Golden, Bioengineering
 Dr Ana Gonzalez Pelaez, Centre for Environmental Policy
 Mrs Batia Gourin, Medicine
 Dr Gael Grail, Aeronautics
 Miss Philippa Griffin, Medicine
 Miss Florence Gschwend, Chemical Engineering
 Dr Ankur Handa, Computing
 Mr Benjamin Hardcastle, Bioengineering
 Ms Ceara Hart, Business School
 Mr Richard Husbands, Estates Division
 Miss Soraya Jardim-Suarez, Estates Division (9 years)
 Mr Chris Jarrett, Finance (15 years)
 Miss Danielle Johnstone, Registry
 Mr Juhan Kahk, Materials
 Ms Theodora Kalessi, Business School
 Dr Ilkka Kalliala, Surgery & Cancer
 Dr Dalia Kasperaviciute, Medicine (5 years)
 Miss Rachel Kerr, Surgery & Cancer
 Mrs Eugenia Kidd, Civil and Environmental Engineering
 Miss Barbara Kobson, Public Health
 Dr Myriam Lambelet, ESE
 Dr Jacek Lapinski, Chemistry
 Ms Jessica Law, Public Health
 Dr Fanny Lebosse, Surgery & Cancer
 Mr Dominic Lee, HR
 Dr Juliane Liepe, Life Sciences
 Dr Dixi Liu, EEE
 Dr Ryan Luebke, Chemical Engineering
 Dr Vishal Luther, NHLI
 Dr Matteo Maggioni, EEE
 Ms Georgina Mann, Public Health
 Professor Neil Mansfield, Design Engineering
 Dr Matthew Markiewicz, Chemistry
 Miss Andrea Mason, Communications and Public Affairs
 Ms Pelagia Matalliotaki, Catering Services
 Dr Lorenzo Matteini, Physics
 Dr Maria Mazon Moya, Medicine
 Dr Ronan McCarthy, Life Sciences
 Miss Megan McIntosh, NHLI
 Mr Malcolm McLean, School of Professional Development
 Miss Celia Miguel Blanco, Life Sciences
 Mr Justin Miller, Education Office
 Dr Rishi Mistry, Physics
 Dr Anita Mitra, Surgery & Cancer
 Dr Michelle Moram, Materials (5 years)
 Dr Ignasi Moran Castany, Medicine
 Miss Alessandra Morelli, Surgery & Cancer
 Mr Neil Mosley, Business School
 Dr Simon Mouradian, ESE
 Dr David Moxey, Aeronautics (5 years)
 Dr Katy Murphy, ESE

Dr Elham Nabavi, Surgery & Cancer
 Dr Sara Nanchian, EEE
 Mrs Daiva Naudziuniene, Computing
 Dr Aiman Nazki, Chemical Engineering
 Mr Mathew Niania, Materials
 Mr Paul Nkyi-Acheampong, ICT
 Ms Mariam Noor, Faculty of Medicine Centre
 Ms Mirabell Nsofor, Research Office (8 years)
 Miss Fadumo Nur, Surgery & Cancer
 Ms Leyla Okhai, HR
 Dr Gani Olowojoba, Mechanical Engineering
 Dr Kathleen O'Reilly, Public Health (7 years)
 Dr Barbara Orellana Bobadilla, Civil and Environmental Engineering
 Ms Katie Overton, Faculty of Medicine Centre
 Mr Konstantinos Pagkalis, Mechanical Engineering
 Mr Kevin Palmer, Catering Services (24 years)
 Dr Gloria Palou Marin, Institute of Clinical Sciences
 Dr Eleftheria Panteleiou, Medicine
 Dr Dilip Patel, NHLI
 Dr Elaine Pegg, Life Sciences
 Dr Ana Pestana Gomes, Institute of Clinical Sciences
 Dr David Phelps, Surgery & Cancer
 Mr Jonathan Picken, Registry
 Mr Morgan Pinfold, Estates Division
 Dr Kristjan Poder, Physics
 Dr Stevin Pramana, Materials
 Dr Vivek Prasad, Public Health
 Miss Beth Prescott, Advancement
 Mr Simone Principe, Catering Services
 Dr David Pulido-Gomez, Life Sciences
 Dr Ubaid Qadri, Aeronautics
 Mrs Sarah Ranchev-Hale, Business School
 Dr Francesca Rauzi, NHLI
 Miss Hannah Reaney, Surgery & Cancer
 Dr Durga Reddi, Medicine
 Dr Graham Reed, Chemical Engineering (7 years)
 Ms Katharina Reeh, Chemistry
 Dr Olena Riabinina, Institute of Clinical Sciences
 Ms Kelly Ribeiro Alves, Finance
 Dr Alberto Riera Sanchez, Institute of Clinical Sciences
 Dr John Rippon, ESE
 Dr Francesca Rosini, Surgery & Cancer
 Dr Monica Ruiz Garcia, Medicine
 Dr Marieta Ruseva, Medicine (6 years)
 Dr Inaki Sainz de Murieta Fuentes, Bioengineering
 Miss Asha Salah, Medicine
 Mr Philip Sandwell, Grantham Institute
 Mrs Iris Scherwitzl, Medicine
 Ms Nina Sedlakova, Faculty of Medicine Centre
 Dr Chengguo Shen, Medicine
 Mr Robert Sherer, Civil and Environmental Engineering (5 years)

Mr Fengrui Shi, Computing
 Dr Tom Shire, Civil and Environmental Engineering
 Dr Alexandra Simperler, Chemistry (5 years)
 Mr Justinas Slikas, Life Sciences
 Dr Magdalena Sliwiska, Medicine
 Dr Cephas Small, Materials
 Dr Mohammadreza Sohbaty, EEE
 Miss Marwa Soussi, NHLI
 Mr Edward St John, Surgery & Cancer
 Mr Eugene Statnikov, Medicine (8 years)
 Dr Suren Sukiasyan, Physics
 Miss Kornelija Suveizdyte, NHLI
 Ms Olivia Swann, Life Sciences
 Mr Ge Tan, Institute of Clinical Sciences
 Miss Helen Thomas, Faculty of Engineering (5 years)
 Miss Philippa Thomas, Surgery & Cancer
 Ms Hafwen Thomas, NHLI
 Mr Paul Thomson, Computing
 Dr Tanya Tolmachova, NHLI (20 years)
 Mr Ronald Tootill, Catering Services (9 years)
 Dr Helen Tsui, Chemistry (13 years)
 Mrs Victoria Tsui, Surgery & Cancer (6 years)
 Dr Tomasz Tyranowski, Mathematics
 Dr Pinar Ulug, Surgery & Cancer (7 years)
 Dr Anthony Uren, Institute of Clinical Sciences
 Miss Eszter Vag, Faculty of Medicine Centre (8 years)
 Dr Anton Van Pamel, Mechanical Engineering
 Dr Erik van Seville, Grantham Institute
 Miss Mia Vega-Real, Estates Division
 Mr Chaitanya Vuppusetty, NHLI
 Dr Aurimas Vysniauskas, Chemistry
 Dr Thomas Warelow, Chemistry
 Mr Scot Wheeler, Grantham Institute
 Dr Ros Whiteley, HR
 Mr Tym Wong, ICT (20 years)
 Mr Graham Woodward, Finance (15 years)
 Dr Yang Yang, Chemical Engineering (5 years)
 Ms Sky Yarlett, ICU
 Dr Amelle Zair, Physics (8 years)
 Dr Liya Zheng, Chemical Engineering
 Dr Ju Zhu, Chemical Engineering

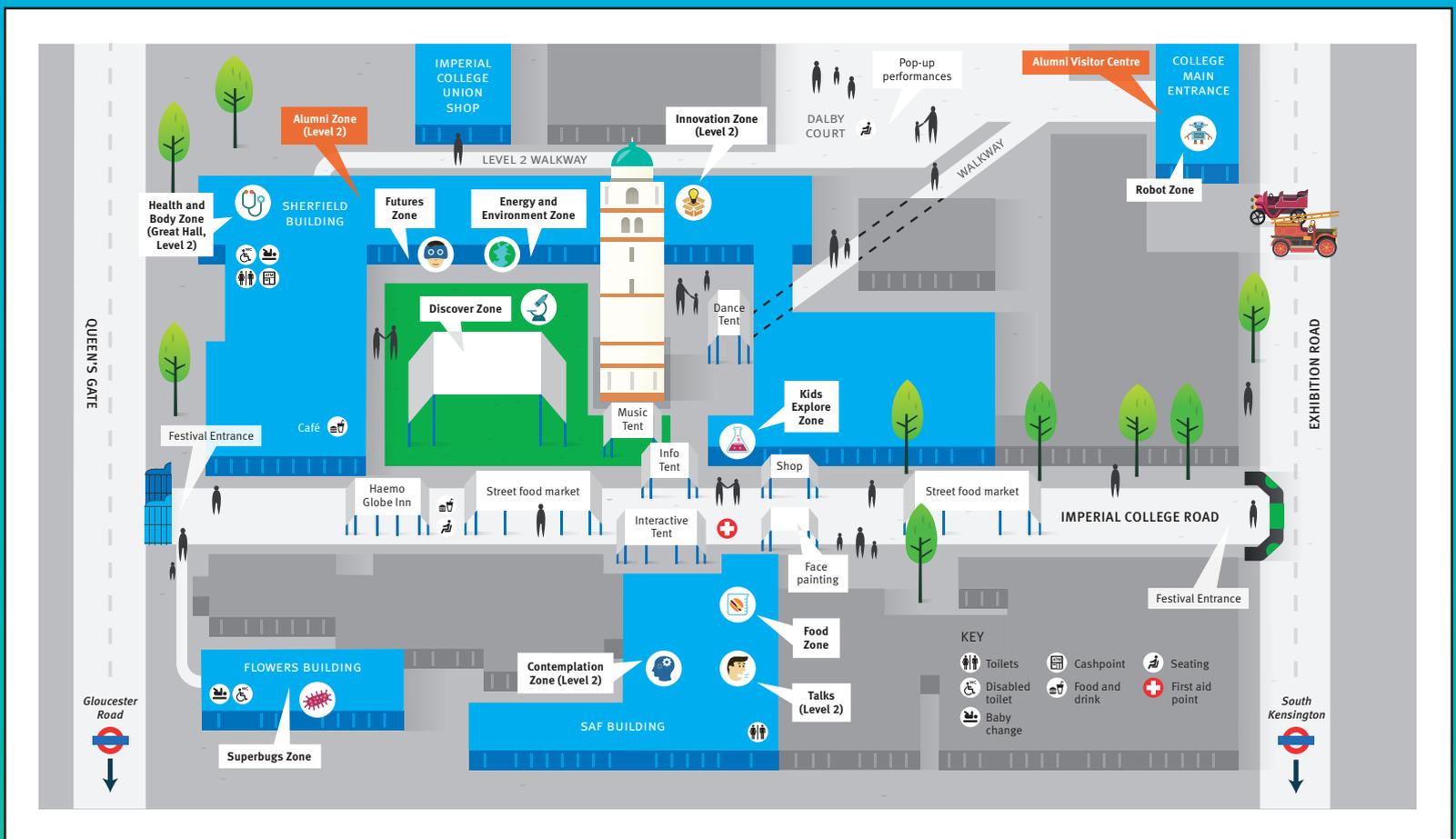
Retirement

Professor Thomas Barnes, Medicine (7 years)
 Mr Kevin Cope, Estates Division (41 years)
 Professor David Fisk, Civil and Environmental Engineering (15 years)
 Dr Halina Garavini, Medicine (10 years)
 Mr Carl Green, Security Services (14 years)
 Mr Ronald Knaap, Catering Services (16 years)
 Mr John Luke, Health and Safety (18 years)
 Mr John Punter, Finance (16 years)
 Mr Peter Sulsh, Chemistry (45 years)

IMPERIAL FESTIVAL

SAT 6 MAY 12.00–18.00 **SUN 7 MAY** 12.00–17.00

Explore the unexpected side of science with a weekend full of hands-on research activities, talks, music and dance for all ages



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