

Over land and sea

Students plot a course
for adventure in record
year for Imperial
expeditions

◆ CENTRE PAGES



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Gast leads
an Imperial
delegation
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EDITOR'S CORNER

New frontiers

When legendary mountaineer George Mallory was asked in 1924 why he wanted to climb Everest, he responded with the famously pithy line: “Because it’s there”. For him the question made little sense; **exploration and discovery** were simply hard-wired into his very being. I think a similar thought process drives many researchers and scholars to explore what to others might seem niche and esoteric areas of science. So it’s not surprising that many members of our scientifically-minded community tend to also make curious **travellers and explorers** – as this issue’s main features about student expeditions and a notable alumnus testify (pages 8–10). Cynics might say there’s little left to explore on our seemingly shrinking globe – but the students keep finding new routes and innovative methods. Just as physicists try to reach beyond the well-trodden path of the standard model or biologists look for deeper levels of cellular control. True explorers will always find something ‘there’, waiting to be conquered.

ANDREW CZYZEWSKI, EDITOR

Reporter is published every three weeks during term time in print and online. Contact Andrew Czyzewski: reporter@imperial.ac.uk

Dialysis device a step closer to patients

A project to develop technology that could improve outcomes for people with kidney disease has received a boost, following a £1 million grant.

More than 2.5 million people worldwide have kidney conditions that require their blood to be routinely filtered by a dialysis machine. Most patients undergo a surgical procedure before starting treatment to create a fistula which is then connected to a dialysis machine. However, fistulas can

block up and require repeated costly repair operations – to the tune of \$4.6 billion annually in the US.

Now researchers from Bioengineering are developing the first minimally invasive procedure that uses a synthetic tube, called a stent graft, to form the fistula for dialysis. The team have also developed the prototype technology for inserting the stent graft with precision and accuracy.

The device is called an Electronic Percutaneous

Anastomosis Technology for Haemodialysis or ePATH. The researchers have received the £1 million funding from the NHS National Institute for Health Research to further develop the system and take it through patient trials.

The underpinning research was carried out at Imperial in 2014 by Sorin Popa (now a Visiting Researcher) while doing his MRes in Medical Device Design and Entrepreneurship, co-supervised by Dr Robert Dickinson and Professor James Moore Jnr.

Popa and Dickinson have formed the spinout company Stent Tek to further develop the technology and bring it to the market.

“There is a real and growing problem with patients around the world who are having repeated operations to repair their failing fistulas. A major challenge is getting new technologies like ePATH to patients to improve their treatments,” Popa said, adding: “Imperial offers one of the only master’s courses in Europe that gives researchers like me a solid grounding in business planning.”

—COLIN SMITH, COMMUNICATIONS AND PUBLIC AFFAIRS



Dr Jeremy Levy, Director of the AHSC's Clinical Academic Training Office, in the dialysis unit of Charing Cross Hospital

Project seeks to make new plastics from old straw

Imperial scientists are joining a European consortium that will assess how waste agricultural products can be used to make biodegradable packaging.

The ADMIT BioSuccInnovate Consortium will investigate the use of agricultural wastes and residues, such as wheat and maize straw – as well as low-maintenance energy crops elephant grass and willow – as the raw materials to produce biosuccinic acid, a chemical building block used in producing bioplastics.

The environmental drive to move away from plastics made from fossil fuels has over the past few years generated a number of innovations in bioplastics, including the process of extracting the biosuccinic acid building blocks from corn

and wheat grain. However, demand for these raw materials in the food and animal feed industries has led to concerns about competition.

Imperial lead Dr Jeremy Woods (Centre for Environmental Policy) said: “To move forward with bioplastics, we need to investigate cheap, readily available and sustainable alternatives that are also economically viable and socially acceptable.

“This project is an excellent example of the kind of ‘whole-systems’ thinking that is needed if we are going to move to more sustainable ways of using the land, and at the same time mitigate and adapt to climate change.”

—LAURA GALLAGHER, COMMUNICATIONS AND PUBLIC AFFAIRS





President Alice Gast and Professor Yike Guo at a round table discussion in China

Imperial expands links with Chinese innovators

Imperial's President Professor Alice Gast led a delegation to China to promote education, research and innovation ties earlier this month.

President Gast was joined in China (from Monday 7 September) by immunologist Professor Maggie Dallman, data scientist Professor Yike Guo and synthetic biologist Dr Karen Polizzi. The trip comes ahead of President Xi Jinping's first state visit to the UK.

Imperial is the UK's number one academic research partner with China, with collaborators including Huawei, CSR, Tsinghua University and Zhejiang University.

President Gast said: "Imperial is pleased to collaborate with China's leading businesses and universities while educating many of the country's finest students. We have much to learn from each other, and we can achieve a lot together."

President Gast also spoke at the World Economic Forum in Dalian on 10 September, emphasising how the public and private sectors can successfully collaborate to boost innovation, research and development. Colleagues working in the emerging field of synthetic biology later presented their latest research findings and how they could be put to industrial benefit.

During a series of Beijing high school visits, Professor Maggie Dallman, Associate Provost (Academic Partnerships) emphasised the ways in which creativity and innovation are vital skills – alongside academic excellence – for successful scientists.

Professor Dallman said: "Almost every day I meet brilliant Chinese students at Imperial who are willing to take risks, and to apply their outstanding intellectual skills to tackling societal problems. They are helping defeat climate change, cure diseases and to create new opportunities for economic growth. I look forward to exchanging ideas with more young scientists in China."

—ANDREW SCHEUBER, COMMUNICATIONS AND PUBLIC AFFAIRS

President thanks staff for strategy contributions

Imperial held a thank you reception this week for staff who played a central role in the development of the Strategy 2015–2020.

On Tuesday 22 September at the Ognisko Club on Exhibition Road, the President and the Provost welcomed members of the community who had been part of the workstreams and the Strategy Project Group, as well as those who fed in content and provided editorial and design expertise.

Speaking in advance of the event, Professor Alice Gast said: "We are all very grateful to the volunteers who made our strategy so forward-looking and comprehensive. This celebration is but a small token of our appreciation. The discussions we had, and the content we produced, helped us set out our ambitions for the College. Now we are all eager to put the strategy to work."

Katie Bayliss, Strategic Planning Officer, attended the event. She said: "I've been involved in the development of the strategy since work began over a year ago, and it's great to see the final publication. I'm looking forward now to seeing how we embed the strategy into our day-to-day work."

—ELIZABETH NIXON, COMMUNICATIONS AND PUBLIC AFFAIRS

Further resources are now available online to support staff in using the strategy in their work: bit.ly/strategy-res
To find out more about the strategy visit, bit.ly/imp-strat



in brief

Robot recognition

Imperial robotics spin-out company Q-Bot has won best start-up at the Invention and Entrepreneurship in Robotics and Automation Awards in Seattle, USA. Co-founded by Professor Peter Childs (Head of the Dyson School of Design Engineering) and managed by alumnus Mathew Holloway, Q-bot uses a small robot to survey and apply insulation to the underside of floorboards.



The system has already been trialled with a number of social housing clients including Camden council, Peabody and CityWest Homes.

Satisfaction on the rise

Imperial has scored an all-time high in this year's National Student Survey results which sees it rise 15 places in the national NSS rankings. This year's survey saw 88% of survey participants "definitely" or "mostly" agree that their overall experience

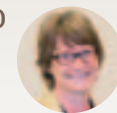


was satisfactory – 2% higher than the national average of 86%. The College maintains its position as the joint top Russell Group university in London alongside Queen Mary, finishing ahead of UCL, LSE and Kings.

Top euro innovators

Imperial has been rated as Europe's most innovative university in a new analysis by international news agency Reuters. The criteria focused on academic papers and patent filings, which point to an institution's interest in commercializing its discoveries. Imperial came in at number 11 overall in the world, with US institutions filling the top nine places and Imperial collaborator KAIST (Korea Advanced Institute) at number 10.

“Sue Gibson was a tutor of mine many years ago and I'm still convinced she is one of the main reasons I stayed on, passed and retained a fondness for organic chemistry.”



ONLINE READER AND ALUMNUS MAXIM KABANOV RESPONDS TO NEWS OF PROFESSOR SUE GIBSON'S RECOGNITION BY THE ROYAL SOCIETY OF CHEMISTRY (SEE PAGE 11).



Competition to name Imperial's supercomputer

The Imperial community is invited to take part in a competition to name one of the College's supercomputers.

Many supercomputers or High Performance Computing (HPC) systems around the world have been named after great scientists or inspired by Greek mythology – Harvard University hosts Odyssey while the University of Cambridge has Darwin.

Now, Imperial aims to join their ranks by running a competition open to all staff, as well as students and alumni of Imperial to name its supercomputer 'CX2'.

Following its upgrade, CX2 will be able to run multiple models concurrently, to help researchers tackle some of the world's complex challenges such as the future impacts of climate change. It can model complex scenarios, such as understanding how hundreds of moving parts will work in a prototype engine. CX2 also serves as the 'staging post' that enables academics to test out their models before applying for valuable processing time on some of the world's most powerful supercomputers.

Professor Peter Haynes, academic lead for HPC at Imperial and Head of the Department of Materials, said: "Imperial is spending £2 million per year to expand our HPC facilities to ensure they provide a world class service that meets the diverse requirements of our researchers. This competition is one way to bring our service to the attention of potential users across the College, as well as having some fun considering the achievements of past and present members of the Imperial community."

—COLIN SMITH, COMMUNICATIONS AND PUBLIC AFFAIRS

To enter the competition, which closes on 28 September, visit: bit.ly/super-comp
To find out more about Imperial's HPC facilities, visit: bit.ly/imp-hpc

Imperial celebrates as over 100 academics move up

The 2015 round of academic promotions has recognised 108 members of academic staff in fields as diverse as brain injury and catalysis across the Faculties of Engineering, Medicine, Natural Sciences, and the Business School.

Stephen Richardson, Associate Provost (Institutional Affairs), said: "It's always a privilege to read through the promotion applications, and their high standard reflects the excellence in research and teaching that goes on at the College year-round. I am delighted to congratulate the members of staff across the College's faculties who have been promoted – each promotion is the result of much hard work and dedication."

Reporter spoke with three academics. The full list of promotions can be found at: bit.ly/prom-15

Esther Rodriguez Villegas (Electrical and Electronic Engineering) Promoted to Professor of Low Power Electronics.



Esther's recent research focuses on wearable health technology and she has developed AcuPebble – a small wireless device which sticks on the patient's neck or chest to continuously monitor the heart and respiratory system, transmitting data to a doctor. Esther leads a multi-disciplinary team of 13 postdocs and PhD students.

"For me my team is not just a group of people gathered in the same location for many hours doing work. It is a bit like a second family," she says. "We all share the same goals, care about each other, are happy when things in the lab go well and help each other out when our work doesn't bear fruit."

"For me my team is not just a group of people gathered in the same location for many hours doing work. It is a bit like a second family"

Dr Robert Dickson (Surgery and Cancer) Promoted to Senior Lecturer.



In 1998, Robert and his colleagues discovered how xenon gas interacts with the human nervous system to bring about anaesthesia. He is now researching new applications of xenon to reduce the devastating consequences of traumatic brain injury. "Imperial is such a fantastic place to be doing this research. Working

with highly talented students and staff from all over the world is the secret to our success as a team. In addition, the opportunities for public engagement have been invaluable. People who have experienced brain injury from an accident or stroke have shared their stories at events and this has been tremendously motivating for the research team," said Robert.

"Working with highly talented students and staff from all over the world is the secret to our success as a team."

Dr Lara Cathcart (Business School) Promoted to Associate Professor of Finance.



Lara is the Academic Director of the MSc Finance and MSc Risk Management and Financial Engineering programmes. Reflecting on her career in the traditionally male-dominated world of finance, Lara offered some advice for female academics: "Find a really good mentor to help guide you in the early stages and make

sure you build up a strong network among your peers. It's also important to find out about the criteria for promotion so you can properly plan your career path."

"Find a good mentor to help guide you in the early stages and build up a strong network among your peers."

media mentions

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How design can make healthcare better

GUARDIAN ▶ 08.09.2015

Writing in the *Guardian*, Professor Lord Ara Darzi (Surgery and Cancer) notes that Imperial College NHS trust, where he carries out surgical procedures, has some of the best cancer outcomes in the country yet is ranked among the lowest for patient satisfaction. “We asked a team of designers to examine the patient pathway for breast cancer and see how it could be simplified. When they laid it out, it covered a table measuring two metres by four metres. It is not surprising patients feel confused – we doctors do too. Now the team has come

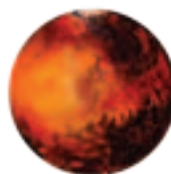


up with a greatly simplified explanation of the pathway, presented in a leaflet that sets out what will happen and who to pose questions to. The source of the redesigned cancer leaflet is the Helix (Healthcare Innovation Exchange) Centre – a joint project between the Royal College of Art and the Institute of Global Health Innovation at Imperial, which I lead, where designers can work in close contact with clinicians to identify challenges and provide solutions.” (See also page 13).

Terraforming Mars

IBTIMES ▶ 13.09.2015

SpaceX and Tesla Motors CEO Elon Musk has made one of his outrageous statements in the media again, this time suggesting that the best way to warm Mars up for human colonisation would be to launch nuclear weapons at the plane. “He has a point,” Dr Matthew Genge (Earth Science and Engineering) told *IBTimes*. “If we wanted to terraform Mars quickly, the way to do it would be to evaporate those ice packs, but I don’t think we can turn enough ice into gas using nuclear weapons. It would take 10 centuries,” he said.



What came before the big bang?

NEW SCIENTIST ▶ 05.09.2015

Pause. Rewind. Suddenly the outward rush of 200 billion galaxies slips into reverse. Instead of expanding at pace, the universe is now imploding like a deflating balloon, until the entire cosmos is squeezed into an inconceivably hot, dense pinprick. According to big bang theory everything exploded from nothing about 13.8 billion years ago. Cosmologists have been able to wind things back to within a tiny fraction of a second of this moment. But now they’re stuck. The trouble is, our understanding of space-time is built from general relativity, whereas the extreme conditions of the very early universe can only be described by quantum mechanics. No one knows how to reconcile the two to take us further back. “The rules we have simply don’t work in that regime,” Carlo Contaldi, Professor of Theoretical Physics (Physics), tells the *New Scientist*. He says we need a working theory of quantum gravity and a new understanding of time. Without that “I don’t think we have the tools to even pose the questions properly.”

awards and honours

NATURAL SCIENCES

Super scholar

Dr Alexandre Strapasson has received the Sir Geoffrey Vickers Memorial Award from the International Society for the Systems Sciences (ISSS) at its Annual Conference in Berlin. The award was a recognition of his PhD thesis on bioenergy and land use dynamics, which was supervised by Dr Jeremy Woods and Professor Nilay Shah. Dr Strapasson is now an Honorary Research Associate in the Centre for Environmental Policy.

COLLEGE

Creative licence

The Centre for Languages, Culture and Communication has granted awards for outstanding work in 2014/15. The Sir Arthur Acland Prize for Excellence in Languages for was jointly given to Zeinab Hamid and Insa Roemgens (both Chemistry) for outstanding effort and achievements in Spanish and French studies respectively. Meanwhile, the Sir Arthur Acland Prize for Science, Culture and Society and Global Challenges went to Cassandra Yong (Mathematics) for her original piece of creative writing and accompanying explanatory essay. Her supervisor Dr Aifric Campbell commented: “Cassandra’s outstanding work was inspired by

her research into an extraordinary family history. Her short story told the story of a young Chinese girl who was forced into an arranged marriage in Kuala Lumpur in 1918 and her critical essay offered an intriguing insight into the narrative treatment of historical data.” The President’s Prize for Communication Skills went to Emma Lisle (Life Sciences).

MEDICINE

The King and I

Dr Amin Hajitou, (Medicine) has been awarded a Royal Medal of Morocco and named an Officer of the Order of Ouissam Alaouite for his work in developing new treatments for cancer. Presented by King Mohammed VI, who chooses recipients personally,



the Royal Medal is the country’s highest and most coveted official honour. The award was given as recognition for the work that Dr Hajitou and his team are doing to develop targeted therapies for cancer, using bacteriophages – small viruses that can seek out and destroy cancerous cells within the body.

Breaking bacterial defences

Scientists have exposed a chink in the armour of disease-causing bugs, with a new discovery about a protein that controls bacterial defences.

Bacteria react to stressful situations — such as running out of nutrients, coming under attack from antibiotics or encountering a host body's immune system — with a range of defence mechanisms. These include constructing a resistant outer coat, growing defensive structures on their surface or producing enzymes that break down the DNA of an attacker.

The new research shows that a protein called sigma54 holds a bacterium's defences back until it encounters stress, at which point the protein rearranges its structure to trigger the defences into action.

Lead author Professor Xiaodong Zhang (Medicine) said: "Bacteria are increasingly developing resistance to antibiotics and with the rise of resistant strains of bacteria that cause diseases like tuberculosis, we desperately need to find new ways of tackling this problem.

"If we can find ways to harness sigma54's ability to control bacteria's defences, we can



Salmonella Bacteria Cells

potentially inhibit bacteria from functioning normally, or prevent them from defending themselves."

Co-author Professor Martin Buck (Life Sciences) added: "Many important bacteria, such as Salmonella and Klebsiella, rely on this mechanism to trigger their stress responses and defences, which makes the prospect of manipulating it all the more tantalising."

—LAURA GALLAGHER AND SIMON LEVEY, COMMUNICATIONS AND PUBLIC AFFAIRS



Lighting the way

The team used Diamond Light Source, the UK's national synchrotron facility based in Oxfordshire. The cutting-edge laboratory is a research and training facility for scientists interested in solving the 3D structures of membrane proteins by X-ray crystallography. They used it to explore sigma54's structure and function in minute detail. For the first time they showed how sigma54 directs an essential cellular machine called RNA polymerase (RNAP) to sit on the bacterial DNA, where it is poised to build the bacteria's defences. The RNAP-sigma54 complex can only work when it is activated by stress.

“We can potentially inhibit bacteria from defending themselves.”

Scientists predict the economic effect of major rail projects

A new mathematical model suggests that major rail infrastructure projects, such as High Speed 2 (HS2) and London Crossrail, will cause some businesses and homeowners to lose out financially, when other destinations become better connected.

The scientists derived their results using the mathematics of networks and existing models of human mobility from physics, which are used to model many things that rely on human interaction, such as disease transmission.

They assessed the rail projects by looking at how many new social ties it was possible for people to make in different city regions — based on how easily they can reach one another via cars, rail, walking and cycling networks — and used this to predict the economic productivity in GDP (Gross Domestic Product).

The scientists applied their model to analyse the effect of the proposed High Speed 2 (HS2) 'phase one' Birmingham to London route.

Phase one of HS2 has been estimated to create £6 billion annually in increased economic output, according to a report commissioned by the Department for Transport. However, the new study predicted that phase one would create only £3.6 billion annually in increased economic output; less than one per cent of current output of both cities.

The psychological process known as time-budgeting explains how people are prepared to invest a certain amount of time travelling to achieve a certain task, and different amounts of time for different types of activities.

"When I'm looking for a launderette to have my shirts cleaned, I wouldn't travel much beyond the high street, so businesses like this

probably won't see much benefit, if any, from HS2," said study co-author Dr Aaron Sim (Life Sciences). "On the other end of the travelling-time budget scale, when I'm looking for highly specialised financial services, say, I would be willing to travel for as long as it takes to meet the right company. In this particular context, HS2 will be of little benefit as far as building new connections across cities is concerned."

The authors plan to further test and validate the model on new global cities that are undergoing rapid growth in both population and infrastructure.

—SIMON LEVEY, COMMUNICATIONS AND PUBLIC AFFAIRS



HS2's London to Birmingham railway may create just over half of the total economic gains predicted by the UK Government

Flesh approach to more lifelike CGI

Engineers have developed a model of how the skin deforms through facial expressions at the microscopic level which could pave the way for more realistic characters in computer games and computer generated actors in movies.

Film and game producers currently use technology called motion capture scanning to record an actor's body movements while they are performing. This is translated into a computer and used to generate a character's actions. Facial performances are also captured by the technology, but the incredibly subtle expressions created through folds in facial skin, especially around the eyes, nose and mouth, cannot be captured. As a result computerised faces are less lifelike.

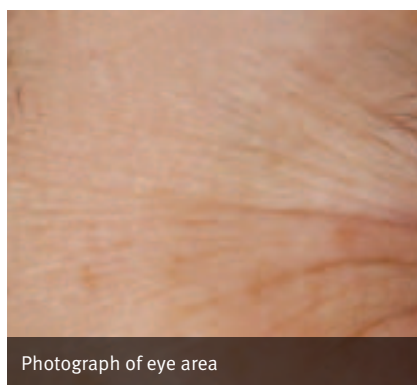
Now researchers from Imperial and USC Institute for Creative Technologies (part of the University of Southern California) have developed a method for capturing the details of skin at resolution levels around ten microns or 0.01 millimetres. The technology images the microscopic geometry of patches of facial skin in various states of stretch and compression, which is then analysed and compared to the neutral uncompressed state of the skin.

Imperial's lead researcher Dr Abhijeet Ghosh (Computing) said: "Digital faces are becoming increasingly realistic when their facial expressions are static. However, the challenge going forward is to develop realistic faces when they are animated, which would heighten the movie and gaming experience for users. Our work takes us one step closer to that goal."

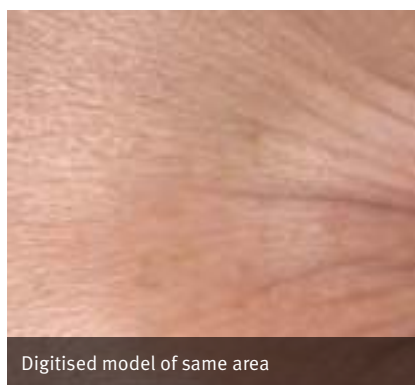
They were able to show with their digitised face model how the skin became shinier when it was stretched and rougher when it was compressed. Other features captured included how the skin microstructure blurred in the direction of stretching and sharpened in the direction where it was compressed.

—COLIN SMITH, COMMUNICATIONS AND PUBLIC AFFAIRS

Watch a video about the work: bit.ly/skin-model



Photograph of eye area



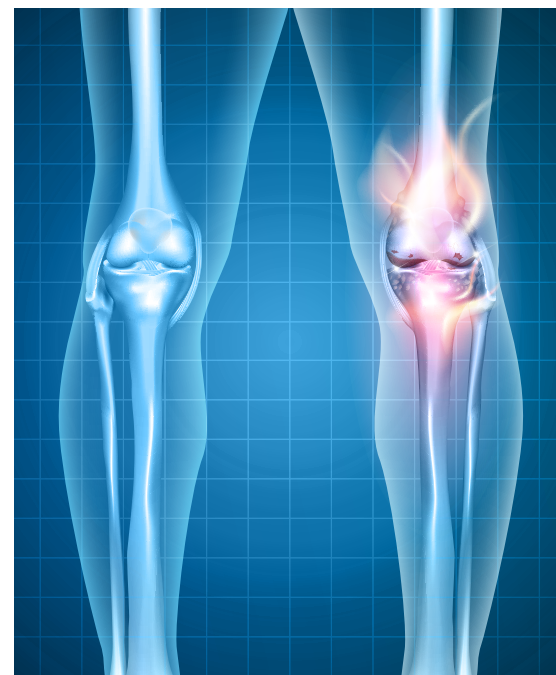
Digitised model of same area



Complex complexion

Human skin is complex tissue comprised of many layers. It exhibits a range of effects when it is deformed by facial movements at both mid-range and microscopic scales. To measure this, the team developed an experimental set-up that consisted of a camera with a macrophotography lens that enables the researchers to take high resolution images of a patch of facial skin, and a specialised LED sphere to illuminate

the skin patch with polarised spherical gradient illumination. This enables skin texture, shape and reflectance to be measured. The device also contains a skin measurement gantry that consists of callipers that either compress or stretch patches of the subject's facial skin, which is recorded by the camera macro lens. The information is relayed to a computer, which builds a computerised map of the face on a microscopic level.



New knees for worn out athletes

Patients who have damaged their knees could in the future get help from a new Imperial spinout, which is aiming to develop an artificial meniscus.

The knee meniscus is a structure that supports the mechanical integrity of the knee and helps to distribute impact. Meniscal tearing is a very common injury and often leads to severe pain, restricted movement, and osteoarthritis. These tears occur most often in athletes and the elderly and rarely heal. There are treatments such as human tissue implants, but they are not widely available and it is still not clear if they are effective.

Now, researchers at Orthonika, a new business created by Imperial scientists jointly with the company Sierra MedTech, are developing an artificial knee meniscus that mimics the complex fibrous structure of a real one, which is able to cope with the high stresses and loads associated with the knee.

The lead investigators at Imperial are Professors Andrew Amis, (Mechanical Engineering and Surgery and Cancer) and Justin Cobb (Surgery and Cancer).

Professor Amis said: "The meniscus has an extremely complex structure and is subject to high stresses. It needs to be both elastic and strong, capable of adapting to an individual's movement. Our team has studied the structure of a natural meniscus and how it reacts to different forces to design a substitute. We have also designed a surgical insertion procedure and a secure means of fixation to the bone."

The next steps for Orthonika will be to develop methods for how the technology can be applied in clinical settings and move towards obtaining the relevant regulatory approvals in the UK.

—COLIN SMITH, COMMUNICATIONS AND PUBLIC AFFAIRS

Destination: adventure

For nearly 60 years, intrepid Imperial students have set out to every corner of the globe on unique and daring expeditions combining adventure with research – supported by the College’s Exploration Board. They have climbed unconquered peaks in Alaska; trekked through the Amazonian jungle; and even studied the practise of entomophagy (insect eating) in West Africa.

Each trip is meticulously planned and risk-assessed then scrutinised by the Board’s diverse panel which counts Everest mountaineers and health experts among its members. In some years only one or two expeditions might gain the Board’s approval. Yet, 2015 has proved a watershed, with a record 12 bids for trips supported – much to the delight of Exploration Board Chair Dr Lorraine Craig (Earth Science & Engineering). “The thirst for adventure amongst the student body remains undiminished,” she says. “Students now undertake innovative expeditions that might not previously have been possible, taking advantage of improved equipment or greater accessibility to areas.”



We take a closer look at four unique expeditions »»»



“The surfaces are highly frictioned, crumbly and jagged – In the end my trainers were shredded!”



Running the gauntlet

Iceland is a place of extreme contrast, with great glaciers interspersed with active volcanoes and hot geysers.

How best to take in the full spectrum of this rugged and largely inaccessible country? For maths undergraduate Ellie Johnstone and alumnus Jack Redvers Harris (Aeronautical Engineering, 2014) the answer was traversing the entire island from south to north using fastpacking. This technique is a cross between backpacking and fell running, using lightweight kit – stove, tent and supplies – enabling exponents to cover great distances over challenging terrain, almost entirely self-sufficiently. “Jack and I had both done three day fastpacking trips. We came to the realisation that it might just be possible to go for longer.” During July, Ellie and Jack covered 400km in just 12 days, averaging around a marathon in distance a day. They had arranged for a limited number of food pick-up points along the route, but otherwise intake has to be carefully rationed. “Surprisingly we never found ourselves that hungry. Your stomach shrinks to adapt and we both lost weight. It’s really all about striking the right balance in fastpacking. For example, if you run too fast, you’ll run out of water too quickly, but if you go too slow it will take longer and you’ll need more water.” One of the biggest challenges was running over recent solidified lava flows. Their route took them over areas that were volcanically active as early as February. “The surfaces are highly frictioned, crumbly and jagged – you’ve got to place your feet carefully. In the end my trainers were shredded!”





Arctic ascension

Growing up in Vancouver, Canada, surrounded by water, Frances Wensley starting sailing small dinghies aged just five. She raced competitively throughout university, where she also became interested in longer voyages further off-shore. With time to kill after completing her medicine degree, she took the opportunity to put into action an ambitious plan to sail from England to the Arctic Circle, before looming hospital placements made such a trip impractical. The idea was to take a 35 ft Halberg-Rassy yacht from Ipswich through the North Sea up the west coast of Norway then across the Arctic Ocean to Svalbard. "The Exploration Board were absolutely instrumental in making this a reality by getting us to actually plan things properly, get the permissions we needed and also putting us in touch with other groups and useful contacts."

Frances and her crew faced large swells, plummeting temperatures and hazardous icebergs as they ventured further north. "The hardest aspect was the sheer cold – it saps your energy and leaves you with no reserves. It was a battle of wills at times just to keep positive and to come up on deck and do your watch." Still, the crew were rewarded for their perseverance on approaching land with stunning views of the Norwegian coastline with huge glaciers and wildlife abound – including a pod of orcas and walrus. For the final leg of the journey Frances and crew sailed further North to 80 degrees latitude, just 600 miles from the North Pole – the most northerly point travelled by an Imperial expedition student.

Read Frances' journal here: bit.ly/fran-sail

ARCTIC
CIRCLE



Cycling the Silk Road

Many of Imperial's student expeditions have a geological or scientific slant, but some also have strong sense of history and culture. In August and September, Imperial medical students Robert Bennett, Chris Holt and Kamil McClelland cycled 2000 miles along the Silk Road – the ancient network of trade and cultural routes that connected West and East in antiquity. The trip was conceived after Kamil, whilst volunteering, struck up a friendship with a 100-year old former archaeologist who had worked in Helmand and surrounding regions. "When we decided an adventure for our final long summer was needed, I knew it had to be Central Asia," says Kamil. "The ultimate melting pot of the world, it sat at the crossroads of history's greatest civilisations, absorbing influences from all its borders like a cultural sponge dripping with intrigue and conflict."

The team spent seven weeks in the saddle travelling from Kyrgyzstan to Kazakhstan via Uzbekistan and Tajikistan, with searing mid-summer heat, punishing hills climbs, and multiple mechanical failures to content with. Along the route they encountered the fascinating people, culture and cuisine of this region. Highlights included attending the opening of a new multi-faith English school in Kyrgyzstan and stumbling upon the ruins of a 7th century citadel destroyed by marauding Mongols in the 12th century.

Read their journal here: tourdestan.co.uk

Going deeper underground

For claustrophobic lovers of the light, it's the stuff of nightmares, but for seasoned cavers the appeal of crawling through completely uncharted underground passages is simply obvious. "These days anyone with a smartphone can get an accurate, high resolution satellite views of almost the entire surface of the globe. That's great, but for us the appeal is going beyond, where there are few if any maps to draw upon," says physics PhD student Jack Hare, who was part of an eight-person, two-week expedition to explore caves in the Takaka Hill area of New Zealand in April. Despite bad weather hampering access to key cave entrances, they uncovered new passages in existing cave systems, which they playfully named Weta than Ever, Black Helix and Red Dog. Jack explains that one of the most important attributes in caving is actually patience. "Sometimes it takes a little imagination to get past an obstacle and you have to wait to ensure all members of the team can pass safely. Risk assessment is particularly important in caving because in the event of something going wrong you're virtually inaccessible – you cannot simply fly a helicopter into the heart of a mountain."

Read their report at: bit.ly/Takaka-Hill

NEW
ZEALAND



For more information about the Exploration Board and updates on the other expeditions taking place this year visit the official page: bit.ly/imp-explore

To infinity...

Dr Andreas Mogensen is an astronaut, Imperial alumnus, and veteran of two Exploration Board trips. *Reporter* caught up with him before he launched for a 10-day mission to restock the International Space Station and carry out zero gravity science experiments.

How does it feel to be achieving such a lofty goal as going into space?

I am incredibly excited and proud, but you don't achieve such an ambitious goal in one step. It requires a lot of smaller goals along the way, such as completing my MEng in Aeronautical Engineering at Imperial and PhD in Aerospace Engineering at Texas University, of which I am almost as proud of as becoming an astronaut. I look at it as more of a journey that hopefully won't end with this mission.

I understand your career in exploration effectively began while you were a student at Imperial?

That's right. Imperial's Exploration Board supported two trips to South America on which I was a team member, then team leader. The first one in 1996, called Netspedition, involved canoeing to inaccessible areas of the Venezuelan Amazon to document butterfly biodiversity. The unique thing about that trip was that we sent regular digital reports and photographs via satellite phone to be uploaded to the embryonic internet, so that scientists around the world could track our progress and collaborate virtually. That's very much common place for field trips now of course, but it was quite pioneering at the time. The second expedition in 1999 involved kayaking along the Urubamba-Ucayali River in Peru. During the interview rounds for the astronaut selection, I was asked about both expeditions and European Space Agency (ESA) definitely saw it as a positive thing.

You obviously still place great importance on communication as a keen blogger and tweeter?

I think we have seen a revival in interest in space exploration amongst the public and partly this is due to social media, which allows the public to participate much more closely in the discoveries that we are making. We have seen this not



only with astronauts aboard the International Space Station, but also with robotic missions like Rosetta and New Horizons, which 'live-tweet' their findings. More importantly, I think that scientists also have a responsibility to engage the public, not only to explain the purpose of their research and why it is important, but also to increase science literacy in general. This is especially true for scientists who receive public funding.

What are the key attributes of any intrepid explorer?

Curiosity, a sense of wonderment at the beauty of our world, and a desire to explore and discover not only our surroundings but also our own mental and physical limits. This is what drives me and seems to be common among most explorers.



Were there any high points from the training for the upcoming 'iriss' mission?

Living underground for a week and exploring some of the large cave systems on Sardinia is certainly one of the highlights as is living in the Aquarius habitat for two weeks at 20 meters depth on the seafloor during the NASA NEEMO missions. These experiences are special and unique on their own right, even if I never make it into space for whatever reason.

I understand you're planning some experiments in space?

I have a packed program of science experiments and technology demonstration projects during my ten day mission. On the science side, we are particularly interested in studying human physiology and the effects of weightlessness on astronauts. Endothelial cells are just one type of human cells that we are looking at to better understand the cell cycle and how the cell functions are affected by weightlessness. This will give us greater insight into cells in general and how they function on Earth. On the technology side, I will test a new Skinsuit that will imitate the longitudinal loading on the spine from gravity, amongst other things.

What's next for you?

I will continue, at least for the foreseeable future, as an astronaut with the ESA and hopefully I will have an opportunity for a second mission. I would also very much like to be part of future space exploration missions, either manned or unmanned beyond low earth orbit. There are so many exciting places in our solar system to explore in more detail.

Update: Andreas and crew launched successfully on 2 September from Baikonur cosmodrome in Kazakhstan, docking with the ISS on 4 September, then safely returning and landing on the steppe of Kazakhstan on 12 September.

inside* story

mini profile

Dr Mark Richards

Dr Mark Richards is a Senior Teaching Fellow in Physics and leads outreach activities in the Department. He is also a technology entrepreneur and DJ.

You were recently awarded for your work with the Amos organisation – tell us more.

The Amos Bursary helps young men of British African and Caribbean heritage from schools across London to gain entry into university – with financial assistance, internships, work experience and networking. One of the things I've implemented is a six week programme of physics 'master classes' to help bring A-level students to a level from which they could apply to top universities. Independent school generally know how to get a B student to A, whereas I think a lot of state schools just aren't resourced or equipped to bridge that gap.

Your company Duvas Technologies is aimed at addressing air pollution – how is it doing that?

First we need to get a better understanding of the problem. At present air pollution monitoring in the UK

is based on a limited number of large, very expensive fixed modules that monitor over a certain period of time, with averages taken for say 8hrs or 24hrs then fed into models. The problem is that air pollution is very transient in time and space – so if you move just a few yards further away you'll get a completely different reading. Our company specialises in delivering mobile, wireless air sensing networks to facilitate real-time air pollution mapping. But legislation has to change before it will get real traction, in the UK at least.

With music going digital how has that effected your DJ business?

There was a time when I used to supply record shops across London with pressed vinyl remixes we had produced independently. It was on a sale or return basis and then it was clear what the business model was. That's now been turned on its head. On the flipside though the digital revolution has empowered you to become more creative because you can obtain music easier and experiment with various apps, such that if I have a remix in my head I can immediately test it out on my laptop. Back in the day I had to go to record shops to buy acapellas and then test them using turntables.



Imperial features among 175 Faces of Chemistry

Imperial staff have been selected to feature in the Royal Society of Chemistry's campaign to celebrate diversity in the field.

Professor Lesley Yellowlees, Past President of the RSC, said: "Having launched 175 weeks before the anniversary, we aim to engage our members and the general public in building up a portfolio of individuals that reflect the diversity of people in chemistry and act as role models, champions or ambassadors to a diverse, future generation of scientists."

Professor Sue Gibson

Sue holds a Chair in Chemistry at Imperial, and is also Director of the Graduate School. She was awarded an OBE for her services to Chemistry and Science Education in 2013, and is part of the RSC's diversity working group. Sue highlighted the range of careers available within chemistry: "There are many chemists who in many different ways are working to inspire future generations to address issues such as climate change, food, energy and water provision, and personalised medicine."



Dr Hanadi Hassan-Nixon

Hanadi has returned to scientific research after a 12 year career break, taking up a Daphne Jackson Trust Fellowship at Imperial. She is currently working to develop a diagnostic device that will help clinicians decide on appropriate treatment for patients suffering from hay fever and asthma. Hanadi said: "I encourage any person to resume their scientific career even after a long break. It is amazing what the brain retains and what you can contribute from your previous scientific and life experience."



Professor Tom Welton

Tom is Dean of the Faculty of Natural Sciences at Imperial, having previously been Head of the Department of Chemistry. Speaking about his experience of being gay in the scientific world, Tom said: "I have always thought that it's not so much that I am 'out' about being gay, but more that I have never had any desire to pretend otherwise. I have only ever been dealt with as a professional going about my career, with the vast majority of people who I have met being kind and supportive."



Dr Martha Annie Whiteley (1866–1956)

Martha gained her PhD at the Royal College of Science, and then became part of Imperial when it was formed in 1907. With 18 other female chemists, she attempted to change the male-only admission criteria to become a fellow of the RSC's oldest predecessor, the Chemical Society – finally succeeding in 1920, and later being elected to the Society's council. Martha was awarded an OBE for her research at Imperial during WWI, where she analysed samples from battlefields and bombsites, including studying mustard gas.



Pathways to medicine: one year on

Secondary school students marked the end of their first year on a pioneering outreach programme at Imperial in August.

Pathways to Medicine, which welcomed its first cohort of students last year, is a three year programme – run in partnership with the Sutton Trust – which aims to improve opportunities in medicine for state-school students from low and middle-income homes.

It consists of a programme of initiatives that run throughout year 11 and sixth form to help students make strong and informed applications to study medicine at university. All students on Pathways to Medicine are guaranteed access to work experience in a healthcare setting.

“It was really fascinating – I had the opportunity to put on scrubs and watch real surgeries take place.”

Earlier this month, students gathered at Imperial for a week-long summer school to introduce them to life at university and reflect upon their first year on the programme. Throughout the week they attended workshops to help them with their Medical School applications, as well as trying their hand at practical experiments with Imperial academics, including a surgery simulation.

Reflecting on her time on Pathways to Medicine, 17 year old participant Carmen Ho from Thomas Tallis School in Kidbrooke said: “Thanks to the programme, I was able to secure work experience at Charing Cross Hospital working with an anaesthetist. It was really fascinating – I had the opportunity to put on scrubs and watch real surgeries take place. Apparently lots of students faint the first time they watch surgery, but I was really eager to see more. It gave me a really valuable insight into the work doctors do on a day to day basis, which is nothing like what you see on TV.”



Dr Kevin Murphy works with sixth form students on an endocrinology practical

Dr Kevin Murphy, Admissions Tutor for Widening Participation in the Faculty of Medicine, is leading the project at the College. He said: “It was great to see the progress that students on Pathways to Medicine have made, and to hear first-hand how much they had enjoyed their work experience placements during

the year. The activities they have been involved in will, we hope, allow them to demonstrate that they have the skills and the commitment to make excellent medical students and doctors when they apply for medical school later in the year.”

—DEBORAH EVANSON, COMMUNICATIONS AND PUBLIC AFFAIRS

Imperial students donate tonnes of goods to charity

Since 2009, Imperial’s Estates Facilities and Residential Services teams have been working in partnership to promote student re-use schemes, organising the collection of both food and household items which are no longer wanted by students moving out of halls at the end of the academic year.

This year, a new approach was taken in order to make sure as much as possible was reused. The College worked with the British Heart Foundation (BHF), who organised collection of unwanted clothing, books and crockery from dedicated collection points set up at Imperial’s student halls. Over five tonnes of material were donated to be sent to the BHF’s charity shops, with an estimated value of £8,800.

Alongside this, boxes were left in student kitchens for non-perishable food items and unwanted cutlery, which a team of student

volunteers helped to collect. A total of 1.7 tonnes of food and 0.14 tonnes of re-usable cutlery was donated to the charity Emmaus, which works with formerly homeless people.

Greg Davidson, Business Manager at



Imperial has partnered with the British Heart Foundation to collect over five tonnes of goods to sell in the Foundation’s charity shops

Emmaus Colchester, said: “We’re delighted Imperial has seen our dedication towards recycling and reuse, choosing our charity to donate tonnes of food and saving it from going to waste.

“Many of our companions have a strong interest in cooking, wishing to pursue it as a career. This donation will allow us to equip them with the resources and skills they need in order for them to progress in the future.”

Helen Swanton, Waste and Recycling Officer at Imperial, said: “This is the first year that we have worked with the BHF and Emmaus on this scheme, and it is great to see such a large amount of good-quality items go to such worthy charities. I would like to thank all the students that donated so generously and the student volunteers who helped to make this operation such a huge success.”

—ELIZABETH NIXON, COMMUNICATIONS AND PUBLIC AFFAIRS



Mark, far left, with the GB tennis team at the 2015 World University Games in South Korea

A sporting summer in South Korea

Maths student and BUCS tennis champion Mark Whitehouse, was selected to represent Great Britain in the men's singles tournament at the 2015 World University Games in South Korea. He reflects on his experience.

"The University Games, also known as the Universiade, is the second biggest sporting event in the world after the Olympics, with nearly 10,000 athletes competing in Gwangju.

The GB tennis team left for South Korea on Sunday 28 June – and after around 20 hours of travelling we finally arrived in the athletes' village. With just four days before the tournament started, we had a lot to acclimatise to in training. Jet lag lingered from the eight hour time difference and it was also incredibly hot and humid which made it quite draining to play tennis. The courts also bounced a lot higher than the surfaces we have in Britain, so we needed time to adjust our game.

The opening ceremony of the games was held at the athletics stadium, gathering all athletes and officials from every country (there were over 150 nations present). Teams went in alphabetically, so as the United Kingdom we had to queue for four hours and were one of the last to enter! But it was worth the wait, as the stadium crowd was packed and the atmosphere



"After many hours spent inventing GB chants, there was no doubt which country had the best supporters at the tennis centre."

inside was unbelievable as we walked around the track. South Korea put on a spectacular – if slightly bizarre – show which included the lighting of the universiade torch (which started its journey in Paris).

The standard of tennis was incredibly high, and both GB men's singles players, Joe Salisbury and I, lost close matches in the third round. I then resolved to focus on supporting the remaining doubles teams. After many hours spent inventing GB chants, there was no doubt which country had the best supporters at the tennis centre!

And it was needed, as the GB men's doubles reached the finals against a South Korea team buoyed

by a partisan home crowd. They staged an incredible comeback to win GB's first tennis gold in over a decade. The next day the mixed doubles also secured silver.

Besides watching my teammates pick up medals, the real highlight of the games was getting to meet athletes from so many different sports – something I would have never done otherwise. On Monday 13 July we made the long journey back to London, rounding off the most incredible fortnight. I must give a massive thank you to all the athletes and staff, who made the experience truly unforgettable."

Open house @HELIX

The HELIX Centre opened its doors to the public this month to demonstrate how it is applying design to tackle key healthcare challenges.

The Healthcare Innovation Exchange (HELIX) based in St Mary's Hospital, is a joint initiative between Imperial's Institute of Global Health Innovation and the Royal College of Art, involving a multi-disciplinary team of designers, engineers and doctors.

As part of the 2015 London Design Festival, the HELIX design team invited the public, hospital staff and patients to explore their pioneering pop-up studio. Visitors were asked to contribute their thoughts and ideas to help the Centre solve its current healthcare challenge – how design can help provide better care and more choice toward the end of a patient's life.

Over the four days, the Centre also hosted an exhibition of other HELIX design projects which are helping to make a difference in patient care, including a smartphone app to help young children better manage their asthma.

Professor the Lord Darzi of Denham, Director of the Institute of Global Health Innovation at Imperial and co-director of the Helix Centre, said: "Our design studio, embedded in a hospital, provides a unique petri dish for collaborative innovation between designers, clinicians, patients and members of the public. We are delighted to open our studio doors during the Design Festival." (See also page 4).

—DEBORAH EVANSON, COMMUNICATIONS AND PUBLIC AFFAIRS

The HELIX studio open days runs until 26 September



long
service

Staff featured in this column have given many years of service to the College. Staff listed celebrate anniversaries during the period 1 August – 30 September 2015. The data are supplied by HR and correct at the time of going to press.

20 years

- James Andrewes, Teaching Office Manager, Life Sciences
- Nena Buenafe, Library Assistant: Faculty Support Services, Library Services
- Ann Kelly, Head of Faculty Operations & Senior HR Manager FoM, Human Resources Division
- Emeritus Professor David Mayne, Senior Research investigator, Electrical and Electronic Engineering
- Thomas Miller, Director of Communications and Public Affairs
- Professor Andrew Rice, Professor of Pain Research, Surgery & Cancer
- Professor Michael Seckl, Professor of Molecular Cancer Medicine, Surgery & Cancer
- Professor Spencer Sherwin, Professor of Computational Fluid Mechanics, Aeronautics
- Dr Tony Tarragona-Fiol, Divisional Manager, Surgery & Cancer
- Professor Graham Williams, Clinical Professor of Endocrinology, Medicine
- Professor Robert Zimmerman, Chair in Rock Mechanics, Earth Science & Engineering

30 years

- Geoff Green, Technician, Physics
- Liam Madden, Director of Course Operations, Bioengineering
- Garry Stakalls, Technician, Materials

50 years

- Dr Patricia Haslam, Emeritus Reader, National Heart and Lung Institute

SPOTLIGHT

Liam Madden, Director of Course Operations, Bioengineering
30 years



After graduating in 1978 in electronic engineering, I first worked in medical imaging at GE before going on to the Royal National Institute for Blind People (RNIB) where I developed an automatic braille music transcription system.

In 1985 I joined the Department of Electrical Engineering as it was then as a Research Officer.

It was thrilling to be a colleague of my former lecturer and source of inspiration, the late Professor Abe Mamdani, whose work in fuzzy logic led to the development of autofocus in cameras. The first project student I supervised, John Stinson, was equally remarkable. He was an exemplary engineer who funded his studies by playing piano in a nearby hotel, despite suffering the arthritic condition ankylosing spondylitis.

Throughout my career I have been at the leading edge of high technology but my personal highlight was rather low tech solution. A friend of mine has severe cerebral palsy with poor motor control and speech and could only type with his nose. This was a problem when writing-up his PhD dissertation as he needed to use of simultaneous keystrokes for mixed cases. I soldered a simple toggle switch to his keyboard to enabling him to switch. My tenacious friend was able to successfully complete his doctorate.

In 2011 I transferred to my spiritual home, the Department of Bioengineering as Director of Course Operations. As admissions tutor I have reached the point where I am processing applications from the children of my former students! Bioengineering is a special department for many reasons. I am fortunate to be in an environment of kindred spirits, using engineering to solve healthcare problems. They will make, and indeed are making, the world a better place.



Engineering's family day inspires budding young scientists

The Faculty of Engineering held their second annual Bring Your Child to Work Day last month. On Tuesday 4 August 68 children and 45 parents and carers attended a packed morning of activities delivered by the Departments of Mechanical and Chemical Engineering, the Science Museum and the company Octopus Parties.

Alongside face-painting and games, children had the opportunity to learn more about forces through tug-of-war and closer looks at the Leaning Tower of Pisa and the Highland Games. Practicals demonstrated how different materials change under load as well as the different forms of carbon dioxide.

Senior lecturer Zahid Durrani (Electrical and Electronic Engineering) was one of the parents whose children took part: "The whole day was very well organised, lots of fun! My son had a great time. It's very nice indeed to see such an event in College, it creates an excellent, very welcoming environment."

The Faculty event was set up to support its working families and give them the opportunity to showcase some of the College's work to their young audiences. As well as experience of a university campus the enthusiastic budding scientists even received their own labcoats.

Parent Matthew Greetham (Civil Engineering) said: "The range of activities was great, from the explanation of forces and then hands-on making to seeing the type of work done in the university labs.

Each activity built on the other and my sons came away really enthused about Imperial and engineering. The gifts were really appreciated especially the lab coats from Mechanical Engineering – they didn't take them off until bed time. My sons now think I work somewhere 'really cool'."

—JOHN-PAUL JONES, COMMUNICATIONS AND PUBLIC AFFAIRS



Welcome

new starters

Dr Khalil Abu Dahab, Public Health
 Miss Yewande Adeleke, Medicine
 Dr Vincentius Adi, Chemical Engineering
 Dr Arash Aframian, Surgery & Cancer
 Mr Charles Aigbokhai, Faculty of Natural Sciences
 Dr Sriranganath Akavarapu, Medicine
 Ms Najwa Al Abdallah, Public Health
 Mr Rohan Alexander, Public Health
 Dr Zaina Al-Kanaani, Public Health
 Mrs Parisa Amjadi, Medicine
 Ms Geraldine Anderton, Surgery & Cancer
 Ms Sheena Ando, School of Professional Development
 Miss Pelin Arabacilar, NHLI
 Dr Arash Arami, Bioengineering
 Mr James Arthurs, School of Professional Development
 Miss Lisa Aufegger, EEE
 Miss Christina Banks, Public Health
 Dr Ioannis Bantounas, Materials
 Mr Diego Barcena Menendez, Life Sciences
 Mr Ash Barnes, Library
 Mr Kai Barron, Centre for Environmental Policy
 Mr Simon Barron, Library
 Ms Kulbir Basra, Faculty of Medicine Centre
 Mr Christian Baumgartner, Computing
 Dr Nicoleta Baxan, Medicine
 Miss Diana Begum, Faculty of Natural Sciences
 Mr Andrew Bell, Chemistry
 Mr Will Bennett, ICT
 Ms Natasha Bennett, Development
 Mr Martin Benson, Estates Division
 Miss Elaine Berry, Clinical Science
 Dr Antonio Bertei, ESE
 Mrs Janis Best-Lane, Surgery & Cancer
 Professor Bruno Biaisi, Business School
 Miss Gifty Boakye, ICT
 Mr Zsolt Bodai, Surgery & Cancer
 Dr Matteo Bonini, NHLI
 Professor Frank Bonner, Surgery & Cancer
 Mr Thomas Bragg, Climate KIC
 Mr Timothy Brauner, Aeronautics
 Mr James Budzak, Life Sciences
 Miss Marie Burianova, HR
 Dr Nuala Calder, Medicine
 Ms Katherine Campbell, Business School
 Mr Shane Canavan, Civil and Environmental Engineering
 Mr David Carrasco de Busturia, Chemistry

Ms Alvina Carrington, Estates Division
 Ms Liza Caruana-Finkel, Medicine
 Dr Thanapong Chaichana, Faculty of Engineering
 Mr Jaxom Champion, Medicine
 Dr Yi-Wah Chan, Clinical Science
 Dr Nikolaos Chastas, Physics
 Dr Patricia Chaves Guerrero, NHLI
 Dr Hung-Yang Chen, Chemistry
 Mr Reid Ching, College Headquarters
 Miss Helene Coleman, Centre for Environmental Policy
 Dr Alexander Comminos, Medicine
 Miss Laura Connell, Medicine
 Dr William Culhane, Computing
 Professor Adnan Custovic, Medicine
 Mr Simone Dagnino, Advancement
 Mr Stefano Dal Forno, Physics
 Dr Nigel de Kare-Silver, Public Health
 Dr Antonio de Paola, EEE
 Dr Benjamin Deadman, Chemistry
 Mr Rishi De-Kayne, Life Sciences (Silwood Park)
 Mr Liam Dempsey, Mathematics
 Miss Hayley Dunning, Communications and Public Affairs
 Mrs Eleonora Dyakova, Medicine
 Mr William Elliott, Advancement
 Ms Maria Ellis, ICT
 Professor David Evans, Mathematics
 Dr Marina Fabrega Ribera, Medicine
 Mr Jordan Farrar, HR
 Miss Aina Fernandez Rodriguez, Medicine
 Mr Sheridan Few, Grantham Institute
 Miss Sandra Fisher, Chemistry
 Ms Alexandra Fitzsimmons, School of Professional Development
 Mr Antonio Forte, Mechanical Engineering
 Ms Kate Freeman, College Headquarters
 Mr Phil Freestone, School of Professional Development
 Dr Vanessa French, NHLI
 Mr Corey Fulop, Chemistry
 Mr Danny Furnivall, Public Health
 Dr He Gao, Public Health
 Mr Georgios Garas, Surgery & Cancer
 Ms Lorraine Gaston, Centre for Environmental Policy
 Mr Eugene Geidelberg, Public Health
 Ms Tian Geng, Life Sciences
 Dr Joachim Geske, Business School
 Dr Parthenia Giannakopoulou, Public Health
 Miss Lydia Gladstone, Medicine
 Ms Joanne Glass, Registry
 Miss Katy Glazer, Student Recruitment & Outreach
 Dr Robert Godin, Chemistry
 Mr Simon Goff, School of Professional Development
 Mr Jacob Goldberg, Medicine
 Miss Gemma Golding, Faculty of Medicine Centre
 Mr Jacek Golebiowski, Materials

Dr Ana Gonzalez Pelaez, Centre for Environmental Policy
 Mr Dominic Greves, Centre for Environmental Policy
 Dr Gustavo Grinblat, Physics
 Dr Nir Grossman, EEE
 Dr Elinor Gunning, Public Health
 Dr Nidhi Gupta, Centre for Environmental Policy
 Dr Andras Gyorgy, EEE
 Mr Matthew Hadrill, School of Professional Development
 Miss Abisola Hammed, Public Health
 Dr Matthew Harris, Surgery & Cancer
 Mr David Haw, Public Health
 Mr William Hawthorne, Life Sciences
 Mr Andy Haywood, School of Professional Development
 Dr Claire Heaney, ESE
 Ms Patricia Henne, Medicine
 Mr George Hicks, Physics
 Mrs Anne-Marie Hilder, Mathematics
 Miss Beth Hoblyn, Estates Division
 Dr Brian Hollis, Life Sciences (Silwood Park)
 Dr Rebecca Holloway, Student Recruitment & Outreach
 Mr Patrick Hudson, Sport and Leisure
 Miss Elena Ioannou, Medicine
 Mr William Jackson, Medicine
 Mr Mostafa Jamshidiha, Life Sciences
 Dr Christopher Jones, Medicine
 Dr Wilfried Jonkers, Life Sciences
 Ms Emma Joy, Faculty of Engineering
 Mr Ubert Kadatcham, Security Services
 Mr Christos Kampouris, Computing
 Dr Ulrike Kauscher, Materials
 Dr Emma Keeling, Public Health
 Dr Daniel Ketover, Mathematics
 Ms Leona Khaira, Finance
 Dr Ramzi Khamis, NHLI
 Mr Irfan Khan, HR
 Miss Alicia King, College Headquarters
 Dr Cherry Kingsley, Medicine
 Miss Katie Kissick, Medicine
 Dr Nadja Kobold, Public Health
 Ms Ramona Kopton, NHLI
 Dr Petar Kormushev, Design Engineering
 Mr Kieran Kotecha, Estates Division
 Dr Anna Kowalewski, Public Health
 Dr Ferry Kwakkel, Mathematics
 Dr Thomas Lanyon-Hogg, Chemistry
 Dr Marie-Amelie Lawn, Mathematics
 Dr Stephane Le Vu, Public Health
 Mr Junyi Lee, Mechanical Engineering
 Mr Jianmo Li, Mechanical Engineering
 Mr Tao Li, Chemical Engineering
 Dr Yen-Hung Lin, Physics
 Ms Jessica Cheng Lin, Medicine
 Dr Mark Little, Chemistry

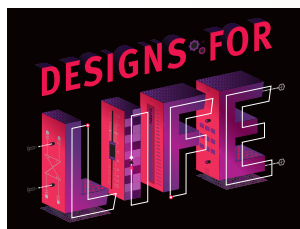
Dr Maria-Cristina Loader, Medicine
 Miss Jessica Loftus, Advancement
 Mr Nicholas Longford, Medicine
 Dr Brais Lopez Paredes, Physics
 Dr Yimeng Ma, Chemistry
 Ms Jazz Mack Smith, Surgery & Cancer
 Dr James Mackrill, Design Engineering
 Dr Matteo Maggioni, EEE
 Dr Eleni Makrinou, Surgery & Cancer
 Miss Sophie Malakouti, Surgery & Cancer
 Miss Emma-Jane Mallas, Medicine
 Mr David Mann, School of Professional Development
 Dr Masue Marbiah, Life Sciences
 Mr Lorenzo Marconi, Aeronautics
 Mr Tiemo Mathijssen, Chemical Engineering
 Mrs Shonali Mathur, Faculty of Medicine Centre
 Dr James Maurice, Surgery & Cancer
 Ms Anna McCormick, EEE
 Dr Christopher McDonald, Chemistry
 Mr Leon McFarlane, Medicine
 Mr Michael Mchugh, Public Health
 Miss Gillian McKenna, School of Professional Development
 Dr Nicholas Medjeral-Thomas, Medicine
 Mr Edward Meinert, Public Health
 Ms Lusiana Messer, Medicine
 Dr Krystian Mikolajczyk, EEE
 Miss Xenia Miliara, Life Sciences
 Dr Claire Mitchell, Physics
 Dr Wayne Mitchell, Medicine
 Dr Davide Moia, Physics
 Dr Abigail Morbi, Surgery & Cancer
 Ms Anu Mukherjee, Faculty of Engineering
 Dr Benjamin Mullish, Surgery & Cancer
 Dr David Mummery, Public Health
 Miss Kayleigh Murphy, Campus Services
 Mr Kevin Murray, EEE
 Mr Patrick Murray, Business School
 Mrs Clare Mylchreest, Public Health
 Dr Antonis Myridakis, Surgery & Cancer
 Dr Ashwini Nandoskar, Medicine
 Mr Andy Navedo, School of Professional Development
 Dr Johannes Nicaise, Mathematics
 Dr Lei Nie, Computing
 Mrs Emma Nino-French, Surgery & Cancer
 Mr Dan Nir, ESE
 Mr Richard Oberdieck, Computing
 Mrs Juliet O'Rourke, ICT
 Ms Eleana Overett, Grantham Institute
 Ms Anna Pacelli, Clinical Science
 Mr Wei Pan, Computing
 Professor Lubos Pastor, Business School
 Dr Dilip Patel, NHLI

Mr Jayneil Patel, Life Sciences
 Mr Varun Pathak, Medicine
 Miss Laura Payne, Medicine
 Professor Peter Pearson, Centre for Environmental Policy
 Dr Ryan Pedrigo, Bioengineering
 Dr Claudia Perdigao Dias Custodio, Business School
 Mr Andreas Phanopoulos, Chemistry
 Miss Karen Picken, Medicine
 Ms Selene Pirola, Chemical Engineering
 Mr Hasan Polat, Estates Division
 Mr Aleksej Popel, Materials
 Dr Lucia Possamai, Surgery & Cancer
 Dr Maria Predecki, Medicine
 Miss Yasmine Rahman, ICU
 Dr Amita Ranger, Medicine
 Dr Timothy Rawson, Medicine
 Ms Patience Renias-Zuva, Public Health
 Mrs Louise Rowland, Mathematics
 Ms Rosemary Russell, Library
 Dr Aakash Sahai, Physics
 Mr Chun San, ICU
 Mr Juan Sanchez Nieto, NHLI
 Dr Paul Sapin, Chemical Engineering
 Ms Mariem Sarghini, Medicine
 Dr Susanne Sattler, NHLI
 Dr Travis Schedler, Mathematics
 Dr Pauline Scheelbeek, Civil and Environmental Engineering
 Dr Julia Schroeder, Life Sciences (Silwood Park)
 Miss Ewa Scibor-Rylska, Estates Division
 Miss Fiona Sender, Registry
 Mr Boris Serafimov, Public Health
 Dr Shayan Sharifi, Design Engineering
 Ms Helen Sharman, Chemistry
 Miss Kate Sharples, Life Sciences
 Dr Caroline Shaw, Surgery & Cancer
 Mr Haydn Shaw, Estates Division

This data is supplied by HR and covers staff joining the College during the period 1 August 2015 – 30 September 2015. 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.



24 SEPTEMBER, 17.00

Imperial Fringe: Designs for Life

Imperial Fringe is back with a unique opportunity to meet the College's scientists and engineers using design to improve our lives. With the chance to get behind the wheel of a zero emission racing car or design your

own London skyscraper, discover how Imperial and some of its Exhibition Road neighbours are combining creative design, ground-breaking science and innovative engineering at this vibrant collection of new technologies and ideas.



29 SEPTEMBER, 17.30

Virgin Galactic: the journey to space

Space travel is no longer solely the domain of governments and space agencies. Since the turn of the century, commercial companies have been working on launch capabilities and today private organisations

regularly deliver payloads to the International Space Station. Join Senior Vice-President at Virgin Galactic and Imperial alumnus Jonathan Firth for a voyage through the history of Virgin Galactic and a glimpse into the future of space travel.

take note

Back-2-School

Need to brush up on your Spanish for holiday? Want to make sense of all those abstract doodles at the Tate Modern?

Imperial's exciting programme evening classes could be just the thing for you. Offering a discounted rate for staff and students, the programmes run from mid-October until the end of March.

New courses this year include: Modern Art and Design, Beginners Hebrew, Europe's 20th Century and Introduction to Science.

For more information and to enrol visit:
bit.ly/eve-class



25 SEPTEMBER, 16.00

Science Uncovered at the Natural History Museum

Imperial scientists head down Exhibition Road with a variety of interactive exhibitions that demonstrate the different ways we and our animal cousins are able to manipulate light.

26 SEPTEMBER, 11.00

The time-travelling operating theatre

Travel through time to learn about the changes in medical operations and the future of surgery. This event will take place in Leeds.

29 SEPTEMBER, 13.45

SpaceLab 2015

The annual conference returns to encourage new collaborations and increase translation activity between Imperial's researchers and the space sector.

29 SEPTEMBER, 18.00

Thinking legally: Energy, climate change and the law

Alain Bucaille, Director of Research and Innovation for Areva, discusses the legal side of coping with the possible new order on energy and climate change.

30 SEPTEMBER, 18.45

Science Museum Lates – Food, Drink and Cravings

Imperial researchers explore the tastier side of science at the latest Science Museum Evening Lates – and yes, there will be chocolate!



01 OCTOBER, 12.30

Research showcase on Big Data

The Faculties of Engineering, Medicine, Natural Sciences and the Business School each give their own unique perspectives on the issues of big data during this series of interactive presentations.



02 OCTOBER, 14.00

High Performance Computing launch

Join this celebration of the new High Performance Computing service which includes a message from the Provost and poster presentations from the Imperial research teams it supports.

06 OCTOBER, 18.00

A show about nothing: getting rid of carbon dioxide with a whole lot of holes

Dr Matthew Hill (CSIRO, Australia), in conversation with comedian Adam Hills, to discuss a class of materials used in gas storage & separation.

07 OCTOBER, 18.00

The future of utilities, utilities of the future

Dr Fereidoon P. Sioshansi, President of Menlo Energy Economics, discusses how technological innovations in distributed energy resources will reshape the future of the power sector.

08 OCTOBER, 18.00

I&E START! Challenge Final 2015

Watch the final three teams present their business ideas to a panel of venture capitalists and angel investors in a Dragons Den style challenge to win the £10,000 prize.

14 OCTOBER, 17.30

Ironman

Hear about the testing, simulation and design of stainless steel structures at the inaugural lecture of Professor Leroy Gardner.



14 OCTOBER, 17.00

The Althea Imperial Programme 2015/16 Launch Event

Find out more about the College's new personal and professional development programme aimed at women studying at Imperial to help them develop their own enterprising ideas.

20 OCTOBER, 18.00

IP Wise Up showcase

Student teams from the Intellectual Property Office funded initiative present projects around the application of intellectual property best practice.

21 OCTOBER, 17.30

Composite materials: separation anxiety and memory

Aeronautics' Professor Paul Robinson explains how morphable, shape-changing materials could revolutionise aircraft wing design.

22 OCTOBER, 17.00

Imperial Fringe: Cities of the future

An Imperial Fringe to showcase city planning engineering and urban development in the coming years.



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