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UNIVERSITY OF
BIRMINGHAM

Pioneering Physics

Provost's *view*



Provost and Vice-Principal, Professor Adam Tickell

Our Chancellors have always been an integral part of the fabric of University life

YOUR BUZZ

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Front cover image: David Charlton,
Professor of Particle Physics

As you will already know, Lord (Karan) Bilimoria is to be the University of Birmingham's seventh Chancellor.

The Chancellor is unpaid and the responsibilities are simply to confer degrees and chair the Annual Meeting of Court. However, whilst each has defined the role differently, our Chancellors have always been an integral part of the fabric of University life. The first, Joseph Chamberlain, was probably England's finest local politician and was the driving force behind our foundation. The University, he said, would be: *'A school of universal instruction, not confined to any particular knowledge but taking all knowledge in its province. A place in which those who come to teach shall continue to learn and in which the work, the most important work, of original research shall be continuously carried on under favourable circumstances.'*

On 12 November, 1918 – the day after the Armistice was signed to end the Great War – Robert Cecil, Viscount of Chelwood, used his inauguration speech to outline the architecture for a League of Nations, that ultimately unsuccessful attempt to create a machinery to prevent another conflict in Europe (and for which he won the Nobel Peace Prize). Cecil was succeeded in 1944 by Anthony Eden who combined his duties to us with serving as Foreign Secretary and Prime Minister. Eden resigned as Premier after the disastrous Suez Crisis but continued as Chancellor until 1973. Suez represents, as much as any other single event, the decline of British power and one of Eden's legacies to us are private papers from this period.

Eden was the last of our Chancellors to have a political career, but not the last to make a contribution to public life. Sir Peter Scott (1973–83) was a founder of the World Wide Fund for Nature and the Slimbridge wetlands sanctuary. Sir Alex Jarratt (1983–2002) had a distinguished career in business but is best known for authoring an inquiry into higher education that – whilst controversial at the time – helped lay the foundations for the internationally recognised excellence of British universities that we take for granted today.

Sir Dominic Cadbury (2002–2013) was Chairman of both Cadbury Schweppes and the Wellcome Trust. Dominic was an exceptional Chancellor who saw himself as an ambassador who could help to raise philanthropic support. Under Dominic's leadership and guidance, the University's Circles of Influence campaign exceeded our expectations and he will be much missed.

Lord Bilimoria will sit well within such illustrious company. Born in India, Lord Bilimoria founded Cobra Beer and is an active Crossbench Peer. Although not an alumnus himself, his mother, uncle and grandfather all studied here and he has long been a member of the Business School Advisory Board. Like all of our Chancellors, Lord Bilimoria will shape the role but I have no doubt that he will do so with distinction and dedication.

Adam Tickell
Provost and Vice Principal
Professor

Global impact in Engineering and Physical Sciences: leading the way in computer science and electrical engineering

Samantha Williams learns more about the important partnership between the College of Engineering and Physical Sciences and the University of Science and Technology China

Information science research is transforming the future landscape of our world at a rapid pace. Thanks to technology being developed by the University in collaboration with Chinese scientists, Birmingham is leading the way, from tracking consumer behaviour and pioneering smartphone capability to mapping underground energy systems and healthcare technology.

The University of Birmingham has partnered the University of Science and Technology China (USTC), the country's leading institution for science and technology, for more than a decade and has seen growing scholarly exchange and knowledge transfer. Building on the success of a dedicated research laboratory for Nature Inspired Computation and Its Applications, set up in 2003, the institutions established a formal research institute, The USTC-Birmingham Joint Research Institute in Intelligent Computation and Its Applications, in 2010.

Professor Xin Yao, Professor of Computer Science and Director of the joint USTC-Birmingham Research Institute, and Professor Ian McLoughlin, Professor in Electronic Engineering and Information Science at USTC and Birmingham alumnus, have embraced travel in their research endeavours and understand first-hand the significance of international collaboration.



Professor Xin Yao

Professor Xin Yao, who received his PhD from USTC, leads the USTC-Birmingham Joint Research Institute in Intelligent Computation and Its Applications.

'The Research Institute focuses on two main areas: adaptive optimisation and advanced data analysis and mining.'

By working closely with engineers and technicians, the Institute develops applied operations research using nature-inspired

approaches. Such cross-disciplinary approaches provide solutions to everyday concerns such as vehicle routing challenges.

The Institute's other focus, data analysis and mining, is an important challenge of the digital age. The research is of significant commercial value with internet companies competing to understand consumer behaviours.

Xin's team is able to analyse data collected from users to map trends and are engaged with Baidu (China's Google) to take this information one step further and consider predictions connected to browser pathways.



Professor Ian McLoughlin

Professor Ian McLoughlin's 22-year career, including work across three continents for multinationals, big and small industries,

charities, consultancies and academia, began at the University's School of Electronic, Electrical and Computer Engineering, where he received his undergraduate degree. He returned to the University for his PhD. He joined USTC as Professor in the Department of Electronic Engineering and Information Science in 2012.

'Working in China was a long-term ambition for me and I was delighted to make the move two years ago. USTC seems to have recently begun a significant drive to increase the number of international professors working in the University, and the number of international students studying there. This coincided with the setting up of a National Engineering Laboratory relating to speech – which is my main research area.'

Ian's research in speech processing looks at the conversion of whispers to

speech aided by computer technology.

'This research has extremely important applications: for some classes of patients who have lost their voice, perhaps due to disease, or as a result of a surgical procedure, the technology can be life-changing.'

Ian's projects have commercial value. While whisper conversion was initially envisaged as a technique applicable to voice loss, it is becoming more viable as a technology for mainstream users who wish to talk to (and whisper to) their intelligent devices. Ian is working with international mobile phone manufacturers.

'International collaboration is a win-win situation for the institutions and researchers. It can play to the strengths of both teams, avoiding local weaknesses and leveraging on special talents present in both teams.'

The collaboration enables Xin to map research focuses and demands onto expertise among colleagues in both Birmingham and USTC to ensure a critical mass that can pioneer developments. He said: *'There is a good match between expertise at Birmingham and USTC and the Institute brings together a range of skills and approaches as well as local and international knowledge.'*

Ian added: *'International collaboration is a win-win situation for the institutions and researchers. It can play to the strengths of both teams, avoiding local weaknesses and leveraging on special talents present in both teams.'*



New Chancellor announced

In May it was announced that Lord Karan Bilimoria of Chelsea CBE has been appointed as our seventh Chancellor, following in the footsteps of our enormously distinguished Chancellors including the Right Honourable Joseph Chamberlain, the Right Honourable Sir Anthony Eden, and Sir Dominic Cadbury, who stepped down last December after 11 years in the role.

The Indian-born founder of Cobra Beer, Lord Bilimoria is a highly respected global businessman and one of the UK's leading international entrepreneurs. He is also a Crossbench Peer who is active in Parliament across a wide range

of matters including commerce, entrepreneurship, education, diplomacy, minorities' contributions, and academia. Lord Bilimoria has a long association with the University; he has been a member of the Business School Advisory Board since 2005 and his mother, uncle, and maternal grandfather all studied here. As well as his significant business achievements, Lord Bilimoria has also been acknowledged as an ambassador for Britain, India, and the Parsi Community.

Lord Bilimoria will officially take up his role in July following his Installation Ceremony. A more in depth feature will appear in the next edition of *buzz*.

Staff shortlisted for THELMA Awards

The 2014 Times Higher Education Leadership and Management Awards celebrate the sector's leadership, management, financial and business skills. The University's International Relations team have been shortlisted for the Outstanding International Strategy Award and the Academic Services team are in the running for the Outstanding Registry Team and the Outstanding Leadership and Management Team awards. The winners will be announced at an awards ceremony in London on 17 June.

Academics take the stage at Hay

Is the quest for physical perfection something an individual chooses freely or a constraining and dominating ideal imposed by a society seemingly obsessed with looks? Contemporary – and increasingly global – notions of beauty formed one of the University of Birmingham's talks that, as *buzz* went to press, were due to take place at this year's Hay Festival of Literature from 23–31 May.

The full line up of Birmingham academics were: Jonathan Boff: 'Sleepwalking to war: Britain in 1914

and 1939'; Heather Widdows: 'Perfect Me!'; Abigail Rokison: 'Romeo and Juliet for the young viewer – interpretation and adaptation'; Philippa Semper: 'Who wants to live forever: Mortals, immortals and the undead'; David Gange, 'Dialogues with the Dead: Egyptology in British culture and religion'; and Richard House: 'Digital publishing: pixels vs paper. *The Kills*.'



Photo: Finn Beales

Birmingham Professional Forum

Monday 30 June, 2.30–3.30pm
Great Hall, Aston Webb Building

The Birmingham Professional Forum is a termly event for all Professional Services colleagues (administrative, support and technical staff) from across the University. Introduced by the Registrar and Secretary, Lee Sanders, the forum is a great opportunity to hear from colleagues on a wide range of topical subjects for both staff and the University. Further information will be available at: intranet.birmingham.ac.uk/staff/events/bpf.aspx.



Gilbert Orchid House opened following legacy donation

Staff at Winterbourne House and Garden have been busy rehoming the tropical plant and rare orchid collection, thanks to a donation that enabled the construction of a new glasshouse. The Gilbert Orchid House, named after donors Professor Geoffrey and Mrs Lilo Gilbert, officially opened last month. Geoffrey and Lilo, who worked in the Department of Chemistry between 1947 and 1985, loved spending time at Winterbourne and left a gift in their will to ensure future generations continue to enjoy the house and grounds.

Winterbourne's curator Lee Hale was delighted with the gift: '*the orchid house is a very popular garden feature but the old house was in need of renovation. The Gilberts' support has enabled us to*

create an improved, more accessible glasshouse and we're extremely grateful for their donation.'

For more information about gifts in wills, contact Emma Hazlewood in the Development Office on 0121 414 7957 or e.j.hazlewood@bham.ac.uk.

More information on visiting Winterbourne House and Garden: www.winterbourne.org.uk





NAME OF THE GAME

WHAT'S THE *NAME OF THE GAME*?

A new interactive campaign is giving you the chance to name the gym in the University's new sports centre.

You can help to name the University's new state-of-the-art gym by voting for your favourite sporting hero who has pledged their support for the facility. Paralympian swimmer Ellie Simmonds, test cricketer Gladstone Small, and World Ironman Champion Chrissie Wellington (BSc Geography, 1998) are all backing the Name of the Game campaign – who will get your vote?

The £55 million sports centre will include Birmingham's first 50m swimming pool, and a wide range of other facilities designed to cater for students, staff, and the wider community.

Who are our Name of the Game sporting heroes?

Ellie Simmonds OBE

A four-time Paralympic Champion with ten world records to her name. Ellie won her first Paralympic medal at the age of 13, this was the start of a string of firsts as she

went on to become the youngest winner of the BBC Young Sports Personality of the Year in 2008, and the youngest recipient of an MBE at the age of 14. Ellie received her OBE in the 2013 New Year's Honours in recognition of services to Paralympic sport.

Gladstone Small

A former cricketer who played in 17 Tests and 53 One Day Internationals for England. He also played for Warwickshire and South Australia, and helped England retain the Ashes in 1986–87, taking 5–48 and being named 'Man of the Match'. Gladstone is renowned for his commitment and enthusiasm as a team player, and as one of the most popular characters in county cricket.

Chrissie Wellington MBE

A four-time Ironman Triathlon World Champion, Chrissie is the only triathlete to have won the Ironman World Championship less than a year after turning professional,

and the first British athlete to hold the title. In 2009 Chrissie was voted 'Sunday Times Sportswoman of the Year' and in 2010 was awarded an MBE. She is a passionate and active University of Birmingham alumna and member of the Birmingham Running and Triathlon Club to this day.

To find out more about our Name of the Game champions, and to cast your vote, head to www.birmingham.ac.uk/nameofthegame. The website also offers a sneak peek at what the finished facilities will look like.

You can also vote by texting 'GLADSTONE', 'ELLIE' or 'CHRISSIE' to 70099.

Texts cost £1 plus standard rate text message charge. A minimum of 97p depending on your service provider will be received by the University of Birmingham.

CAMPUS CURIOSITIES



What is it?

A webcam to follow new campus developments

Where is it?

The top of Old Joe

Watch the changing face of campus live from the top of Old Joe!

Our Edgbaston campus is being transformed with new facilities that will be for the benefit of students, staff and visitors. Campus developments will deliver the city's first 50m swimming pool, create an

outstanding academic library with a cultural hub and open up a striking green park at the heart of campus, and you can watch the transformation take shape with our new building webcams.

Positioned at the top of Old Joe the cameras provide a live bird's eye view of construction work on the University's new £55 million sports centre, and state-of-the-art library. View the action as it happens and find out more about these and other campus development projects at www.birmingham.ac.uk/building



Transforming *our* campus



The campus redevelopment is taking shape

Anyone who has taken a stroll around campus over the last few weeks cannot fail to have noticed the various construction projects which are now getting underway as the redevelopment of our beautiful campus starts to take shape. And if you take a closer look, you will see earth being moved, foundations dug and, before long, buildings starting to emerge from the ground.

The projects currently underway form part of the central campus masterplan – the transformational scheme to create a campus fit for the 21st century while retaining the legacy of previous plans, most notably, the approach to Chancellor's Court and the clock tower from North Gate on Pritchatts Road. This axis was conceived as part of Aston Webb's original plan for campus but was truncated by the current library building. The new developments will once again open up this space, giving staff, students and visitors a beautiful green heart in the centre of campus to enjoy, and unparalleled views of the clock tower.

This green heart will be opened up once the current library is demolished – and the brand new library which is under construction will have spectacular views across campus as a result. The new library will sit alongside University Centre, and provide outstanding facilities for a new generation of students and researchers. It will embrace new and emerging technologies to provide an enhanced user experience.

The building will also provide a more efficient use of space, and an improved layout of the collections, facilities and staff

resources, which will benefit all users. For our students, the library will house a variety of learning spaces to cater for different modes of study, including an audio listening room and four video editing suites.

For our researchers, the new building will include a state-of-the-art, designated research area. A Research Annexe will also be constructed to better accommodate and preserve our low use, but important heritage print collection. This annexe located in the lower ground level of the building will include 50km of shelving for the collection.

The old running track has now been removed for the construction of the library to begin, and our current planning approval includes permission for the construction of a new running track on the Munrow Sports Centre site once the centre is demolished.

That demolition will take place once the new sports centre which is currently being constructed on the site on the corner of Bristol Road and Edgbaston Park Road is open. Work to build this state-of-the-art centre, which will include, among other facilities, Birmingham's first 50m swimming pool, is well underway. The site is currently being levelled, and the Gun Barrels pub is due to have been demolished by the time you read this.

The location of the sports centre will ensure that this busy junction benefits from a prominent and public face of the University, encouraging members of the local community to visit and use the facilities.

As well as the swimming pool, staff,

students and community members will be able to benefit from one of the largest gyms in Europe, a large sports hall and squash courts. There will also be a purpose-designed performance centre, as well as a section of the gym for rehabilitation following injury and illness.

A third element of the campus developments – the redevelopment of the Aston Webb C Block – is rather less visible, but integral to the project, as it will become a natural link for pedestrians – especially students – from Chancellor's Court to the new sports centre.

This project is taking place entirely within the walls of the Aston Webb Building and will see a dramatic transformation as a student services and learning hub is created, with a range of support for students on offer, as well as a 250-seat lecture theatre and suite of other learning spaces.

The scheme will see student activity increased in Chancellor's Court and the Aston Webb Building, and the walkway between C Block and the Bramall will provide a natural pathway to and from the sports centre, linking that site with the centre of campus.

The developments are not confined to these projects though, with a postgraduate teaching centre planned for a disused contractors' car park to the north of Muirhead Tower. Work should start later this summer. And at the Research Park,



the steel frame of the Biomedical Hub being constructed there is growing ever more visible. Meanwhile, at the Vale, the skyline has altered dramatically in recent weeks with the demolition of the Chamberlain Hall tower, previously known as High Hall. The replacement tower and associated residences blocks there will be ready for the 2015 student intake.

Ian Barker, Director of Estates at the University, said: *'The current phase of development is particularly interesting. In addition to providing the high-quality facilities that we need to attract and retain the best staff and students, it will have a major impact on the quality and sustainability of the wider campus.'*

'The plans pay great attention to the routes through campus and the new spaces that will be created – as well as the buildings themselves – with the intention of creating a more coherent campus environment that is more legible, has a stronger sense of place and is more sustainable.'

As the projects which have been mulled over, discussed and planned for so many months begin to take shape and grow, staff can keep up-to-date by visiting the dedicated webpages at www.birmingham.ac.uk/building – where webcams overlooking the sports centre and the library developments can also be found, for anyone who wants to keep an eye on proceedings.



The exciting developments are not confined to campus, and within the immediate environs of the main campus, two more exciting projects are well underway.

To the east of campus, the new **Dental Hospital and School** is nearing its topping out phase – that is, reaching its highest point. Staff and students from the School of Dentistry will be joining us in Edgbaston from autumn 2015 and will benefit from a new four-storey dental hospital, housing a range of services for the public including walk-in emergency dental care, Restorative, Oral Surgery, Oral Medicine, Orthodontics and Paediatric Dentistry.

The public will access all dental services in one wing of the building with a second wing providing world-class research facilities and a modern learning environment for more than 600 undergraduate and postgraduate students and trainees.

To the south west of main campus, on our Selly Oak campus, readers may well have noticed that work has begun on preparing the ground for the **University of Birmingham School**, which will open to pupils in September 2015. Planning permission was granted earlier this year, and contractors appointed soon afterwards.

This pioneering institution will be a free, mixed ability, co-educational state school for students aged 11-16, with a broad, academic sixth form. Although the location is close to main campus, the School will take pupils from across the city, helping to meet the anticipated shortfall in secondary school places across Birmingham. When the School opens in September 2015 it will be with intakes into Years 7 and 12, and it will grow to its full capacity of 1,150 pupils in five years.

Even further afield, the University has an exciting project getting off the ground in Ansty, near Coventry. The University of Birmingham and Rolls-Royce are establishing a **High Temperature Research Centre (HTRC)** which builds on a longstanding successful collaboration between the two organisations. It is funded through a £40 million investment by Rolls-Royce, matched by a £20 million government grant through the Higher Education Funding Council for England's (HEFCE) UK Research Partnership Investment Fund (UKRPIF).

The Centre will be a unique casting, design, simulation and advanced manufacturing research facility, and will focus initially on the key design and manufacturing aspects of investment casting relating to aerospace and other industrial sectors. It will also work in education and research with a variety of other partners in the UK and internationally.

The new facility will offer the opportunity for the University and Rolls-Royce to build upon their existing relationship with the Manufacturing Technology Centre (MTC), which is also located at Ansty Park.

OUR IMPACT...

How research at the University has changed the world

When the University asked staff, students and alumni to nominate Birmingham academics whose research has changed the world, more than 100 names flooded in.

They came from across all Colleges and all areas of expertise. Some were past luminaries; many are present-day research pioneers. What they have in common is that each one has blazed a global trail of knowledge and invention. They have met some of the world's biggest medical science challenges, changed the course of a world war and deepened our understanding of the workings of the universe.

The names have now been whittled down to ten finalists, who will feature in a booklet detailing the impact Birmingham's research has had over the past 100 years. They will also appear on 'top ten' coloured light bulb-shaped posters to be displayed around campus.

Professor David Charlton features on the front and back of this issue of *buzz*, but who are the other nine?

Sir John Randall and Dr Harry Boot

Two names whose research had a major impact on the past and also play a big part in our present way of life are physicists Sir John Randall and Dr Harry Boot. On 21 February 1940 in Birmingham, they first operated the Cavity Magnetron – the main generator of high power centimetre-wavelength electromagnetic radiation – to produce radar waves. This was immediately used to power airborne radar, which greatly influenced the outcome of the Second World War. It is also a key component in microwave ovens, which transformed modern cooking.

Otto Frisch and Sir Rudolf Peierls

Research by another two Birmingham physicists, Otto Frisch and Sir Rudolf Peierls, also influenced the outcome of the Second World War: The Frisch-Peierls Memorandum, written in 1940 while they were working together at the University, detailed for the first time the feasibility of developing an atomic bomb. It contained new calculations about the size of the critical mass needed for such a device and laid the foundations for the Manhattan Project, which produced the first atomic bombs of the Second World War, heralding the beginning of the end of the conflict.

Professor Alan Rickinson

A finalist whose work has led to huge strides being taken in the field of cancer research is Professor Alan Rickinson, who spearheaded the development of the Institute of Cancer Studies (now the School of Cancer Sciences) from 1983 to 2001. He oversaw the Institute's expansion from a small, non-clinical research department into a huge research centre integrating basic work on cancer genetics, viral oncology and tumour immunology with translational studies in gene/immunotherapy and what has become one of the largest cancer clinical trials units in the UK.

From 2001 until he officially retired in April 2014, Professor Rickinson worked tirelessly to maintain Birmingham's position as an international centre of excellence for work on human tumour viruses, leading a large research group focusing on

the Epstein-Barr virus, a common human pathogen associated with several types of cancer such as Hodgkin's lymphoma.

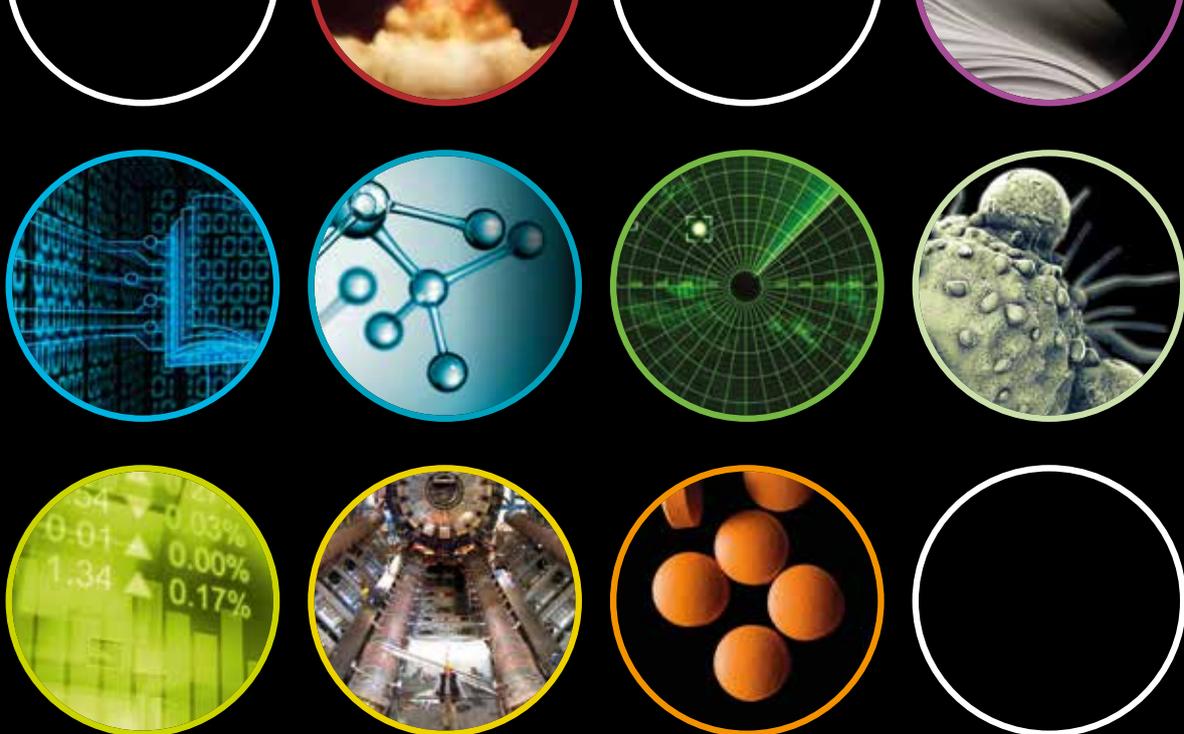
Sir Paul Nurse

The University has produced eight Nobel Prize winners, the most recent being geneticist and cell biologist Sir Paul Nurse, who was honoured in 2001 for his seminal discoveries of protein molecules that control the division of cells in the cell cycle. His research enabled the development of new treatments and medicines for cancer.

A Birmingham graduate, he went on to become the Director General and Head of the Cell Cycle Laboratory at the Imperial Cancer Research Fund. He then headed up the world's biggest volunteer-supported cancer research body, Cancer Research UK, before moving to the United States in 2003 to become President of Rockefeller University. He is now President of the Royal Society.

Sir Peter Medawar

Sir Peter Medawar, Professor of Zoology at the University between 1947 and 1953, spent many years conducting experiments proving that tissue grafts were rejected by immune responses but tolerated if the host and donor were genetically related or if the host had been exposed to cells of the donor during foetal life. This work was fundamental to the practice of tissue and organ transplants, and won him the Nobel Prize in 1960.



Sir Norman Haworth

Another Nobel Prize winner is Sir Norman Haworth – Mason Professor of Chemistry at Birmingham for 25 years, from 1925 to 1948 – who devoted his life to pioneering research into carbohydrates. He made extensive discoveries in the field, culminating in the synthesis of vitamin C in 1933, which significantly helped to improve health and food production.

His research defined the basic features of starch, cellulose, glycogen, inulin and xylan, and this knowledge has had broad impact far outside the remit of chemistry.

David Lodge

David Lodge is one of the most celebrated contemporary novelists and literary critics, and was at the University for 27 years.

He was Professor of English Literature at the University until 1987, a CBE and now Emeritus Professor, he is best-known for his satirical 'campus' novels that broke new ground. He has also written insightful books on the art and craft of fiction.

His literary criticism has helped generations of students to get to grips with new ideas.

Frank Hahn

One of the world's most distinguished economists, Professor Frank Hahn, was Lecturer, then Reader, in Economics at the University from 1948 to 1959.

His research incorporated money into the analysis of the growth and instability of economic systems: he was an exponent

of 'general equilibrium', a branch of economics that tries to explain supply and demand. His book, *The Share of Wages in the National Income*, published in 1972, anticipated the heated debate current today. He reformulated and refined previous economic theory as the basis for decision-making on public policy.

COBUILD

The last of the ten finalists is not, in fact, a person – but a research project! COBUILD (Collins Birmingham University International Language Database), a research project set up in 1980 and funded by Collins publishers, has transformed the study of English across the globe by a radical and highly innovative use of corpus-linguistic technologies to analyse computationally multi-million-word databases of the English language.

Led by Professor of English Language John Sinclair, the COBUILD team's original approach description of English transformed the design and use of dictionaries and grammars for learners of English and has since led to novel approaches to linguistic theory and practice.

Although there are no women in the 'top ten', such a list would almost certainly look very different a decade from now: supporting women in traditionally male-dominated research fields is high on the University's agenda, with 2013-14 being designated a year of Advancing Equality in Employment. Birmingham has also won a clutch of awards from the Athena SWAN Charter, which recognises commitment

to advancing women's careers in science, technology, engineering, maths and medicine (STEMM) employment in academia.

A number of eminent women featured on the longlist, including Charlotte Anderson, who became the first female professor of paediatrics in the UK when she was appointed Leonard Parsons Professor of Paediatrics at Birmingham Medical School in 1968. She is best known for identifying wheat gluten as the cause of coeliac disease.

Also on the list were Professor Pamela Kearns, Director of Birmingham's Cancer Research UK Clinical Trials Unit – one of the largest in the country – and bioscientist Dr Angela Murray, who has developed a way to efficiently extract platinum, palladium and rhodium from road dust. Dr Tansin Benn was longlisted for her work on the effects of culture and religion on sport participation among Muslim females.

Did you know?

- The University still employs a glass-blower to make specific items for precise experiments
- Researchers at the University discovered a major ceremonial monument less than one kilometre away from Stonehenge, completely changing our understanding of Stonehenge and its landscape
- The University of Birmingham was chosen as the first of a unique chain of Cancer Research UK centres in the country because of its research and medical expertise

Robots reaching out to children with autism

Donations from University alumni, staff, and students are further improving how researchers at the Autism Centre for Education and Research (ACER) can support children with autism.



Nao the humanoid robot has become even better at helping children with autism, thanks to a collaborative student project funded by alumni.

University researchers had been taking Nao into Topcliffe Primary School in Castle Vale, Birmingham with positive results but, while Nao was able to show actions for the children to imitate, it was harder for the robot to recognise what the children were doing.

Using alumni funding, students from the Schools of Education and Computer Science developed a game that used artificial intelligence to help Nao recognise emotions.

'Understanding communication as a two-way process is a key area for children with autism, so for Nao to be able to respond like this is important' says Dr Karen Guldberg, Director of the Autism Centre for Education and Research (ACER). *'The tasks within the game were designed to help children recognise emotions by focusing on body language.'*

As well as enhancing the robot's capabilities, the project also benefited the students. *'It was incredible seeing the children trying to comfort the robot when it cried, or talking into its ears,'* says Tristan

Bell (second year, BSc Computer Science). *'The project showed the value of an interdisciplinary team, and made clear how different children with autism can be when working with robots. It was a fantastic experience.'*

So how might the project change how Nao works in the future? Dr Nick Hawes, Lecturer in Intelligent Robotics, explains: *'In writing the software, the students focused on trying to enrich interactions but the project showed that actually the interaction needs to be simpler. For example, we thought the robot's responses were slow, whereas we know now this is perfectly suited to children with autism who need a lot of processing time.'*

Dr Guldberg adds: *'Nao is making a real difference to the lives of these children. The transformation in them when they see Nao is incredible; they absolutely adore it. I would like to thank everyone whose gifts made this happen, because the project would not have been possible without their support.'*

This feature first appeared in *Old Joe* magazine, the University's bi-annual publication for Birmingham alumni. Visit www.birmingham.ac.uk/oldjoe to find out more and to watch a short video of Nao in action.



Alumni, staff, and students showed their support for the University's autism research by raising almost £500 as part of World Autism Awareness Day in April. Activity for the day included an ecard to alumni sharing details of ACER research and a #sillysockday run on Twitter by @birminghamalum. Participants helped to raise awareness of autism research by

donating cash, wearing their silliest socks, and 'tweeting their feet'. Our favourite image from the day is here, but you can view all of the #sillysockday fun at www.storify.com/birminghamalum.

To find out how you can help to change a child's life by donating to the University's vital research visit www.birmingham.ac.uk/alumni/giving/autism.aspx.



Coaching Academy

Whether you're a senior academic or a member of the University's professional support staff, work-related problems crop up all the time. How you go about solving them can help to set you apart from your peers.

Staff with an aptitude for resolving difficulties themselves – and for helping others to do the same – now have the opportunity to train as a coach or mentor, and so fan out their problem-solving and leadership skills across campus.

Birmingham is the first university in the country to set up its own Coaching Academy. Launched last year, it offers a range of development options, including an Institute of Leadership Management (ILM) Level 5 qualification in Coaching and Mentoring, which provides training in how to coach on-the-job and development in mentoring skills. Its qualified coaches also offer direct coaching support to those who need it.

'The Academy is proving really popular,' says Leigh Casey, Head of People and Organisational Development (POD), which runs the Academy through the HR Department. *'We had 14 members of staff on the first ILM programme and 12 on the second. Soon we will have trained nearly 70 people to be coaches who, as well as developing their own skills, can in turn go out and coach other staff.'*

'The Coaching Academy is an initiative to drive the University forward – so it's organisational development as well as personal. The aim is to develop a coaching culture as part of our leadership framework,

so we can help to ensure all members of staff give of their best.'

Non-directive coaching is aimed at developing people's skills at problem solving, while mentoring, also offered through the Academy, is more about giving experience-based advice to colleagues. *'In both cases, we're trying to build leadership capabilities.'*

Leigh, who is also Assistant Director of HR, says the Coaching Academy has already attracted interest from outside the University.

'We've had interest from other, smaller higher education institutions who want to send people to train with us. As well as generating a modest income, it is also about us contributing to the sector.'

As well as coaching and mentoring, the annual Personal Development Reviews often lead to staff joining a raft of professional development courses run by POD. These include:

Open Programmes

Wide-ranging courses and workshops, from 'having constructively challenging conversations' and 'grant writing' to 'developing resilience' and 'enhancing your role in attracting students'. These are aimed at developing people's influencing skills as well as helping them to become better managers. Courses are held locally to help solve real-life issues and problems as well as centrally at POD House at 31 Pritchatts Road. Each college and corporate service has its own POD consultant.

New brochures are available from 2 June showing all offerings not just for POD but also CLAD, IT, Workplace Wellbeing, HAS,

Library Services and the Project Office.

There are separate brochures for academic, academic-related and support staff on the POD website at intranet.birmingham.ac.uk/staff/development.

Senior Leadership Programme (SLP)

The SLP, which has been run for the past four years, is aimed at heads of school and equivalent Grade 10 professionals.

'This is a combination of workshops, a project, 360-degree work – where you ask a selection of people you work with to give you feedback on you; a tool for highlighting your talents as well as identifying your blind spots – action learning sets, where you get together in small groups to help each other problem solve, and work exchanges,' explains Leigh.

Sponsored by the Vice-Chancellor, about 100 senior managers have so far gone through the programme, and there are plans to support the development with options for alumni.

Emerging Leaders' Programme

Launched this year, this is a five-month programme aimed at the talent of the future, especially aspiring heads of school and Grade 9 professional staff.

'This is about individuals looking at themselves as leaders in the making – to develop their leadership DNA and bring their unique talents to the organisation. We don't go along with the one-size-fits-all approach to leadership.'

People and Organisational Development Case Studies



Christopher Anthony

Since completing his ILM5 qualification in Leadership and Management earlier this year, Christopher Anthony has jumped a grade and now manages an eight-strong team of sports coaches and 300 student volunteers.

Although his promotion wasn't a direct result of gaining the certificate, the skills he learned on the programme have been invaluable in his new role.

'My job involves looking after all the sports clubs,' says Chris, whose title is Club Development Manager with UB Sport. 'Until recently, I was Grade 6 and managing about 300 student volunteers; where I am now is Grade 7 and I'm managing a team of eight sports coaches, an administrator and the student volunteers, which allows a more holistic approach to management of sports at Birmingham. It's not a direct result of going on the ILM Level 5 programme, but it certainly didn't do me any harm as I've been able to apply what I learned.

'What I found particularly helpful was that the course makes you think about

other points of view: It's not just about what you may think, it's about a wider process and taking into account all the different viewpoints and different styles of how people like to work and applying different processes. So it's helped me to develop a more structured approach.'

It has given Chris more confidence, too. *'You feel more knowledgeable in having the tools with which to back up the work you have done because you have given due diligence to the process. And that makes you more confident.'*

One of the most interesting and relevant aspects of the ILM5 programme for Chris was around communication – *'How important it is to communicate effectively to all the various stakeholders and how often it is misunderstanding and miscommunication rather than what you're trying to do that is the problem. So even if what you're trying to do isn't 100 per cent backed up, it's how you go about it that is the most important thing. Now that I've got a larger team to manage, I am able to make sure everyone has the right level of information.'*



Michelle Khan-Price

The practice coaching sessions Michelle Khan-Price did as part of her ILM5 qualification went so well that one of her 'models' decided to train to be a coach herself.

Michelle, Learning and Development Coordinator in Hospitality and Accommodation Services, was chosen to join the first Coaching Academy cohort – and no sooner had it finished than she was coaching University staff for real.

'I believe a coaching culture will be extremely useful, because it can build and develop the staff we already have and bring new focus to the University as a business.'

She feels that going through the Academy has not only helped her do her job better, but has shown her that coaching will be an important element in enabling the University to become an even better business.

'I was very excited to be part of this new initiative,' says Michelle. 'I really enjoy working with people and it's a big element of my role here, so learning how to coach married quite nicely with my existing skills and has taken them to a new level. For example, I've really tuned into my listening skills – to hear what people are really saying.'

'I was keen to join the programme not so much for my own development – although it is very helpful in my role – but to see how it can benefit and develop staff across the

University. I believe a coaching culture will be extremely useful, because it can build and develop the staff we already have and bring new focus to the University as a business.

'I coached three people during the programme, all of whom were very different,' she says. 'Even though they were classed as practice sessions, the preparation and thought processes were the same as if you were doing it for real. One of the women I coached went on to join the Academy's second cohort – so she must have enjoyed it! Another woman said how impressed she was by the coaching process and how it had really changed her way of thinking.'

Michelle says it's important for people to understand that coaching is not counselling.

'Everything about coaching is positive – it's about enhancing communication and embarking upon new challenges. It can help people learn how to delegate better, how to communicate on different levels and how to progress in their career. And it improves your confidence. Joining the programme has shown me just how powerful a tool coaching can be.'



Professor Deborah White

Despite having risen through the ranks, Professor Deborah White didn't originally see herself as a natural leader.

'I've never been someone to loudly step forward – I've always been quite reserved – so in that sense I didn't really think of myself as a leader,' she explains. 'On the other hand, as well as being Professor of Dental Public Health, I am also the Director of Education at the School of Dentistry, which involves many leadership skills. I guess I wanted to do

something that would affirm that role.'

So, last year, Deborah joined the POD Senior Leadership Programme (SLP) and has since become a mentor on the Aurora leadership programme for women, part of the University's Advancing Equality in Employment initiative. This year she is hoping to join the Coaching Academy.

'Because the School of Dentistry is based in the middle of town, it's not easy to forge links with other parts of the University, so I saw the SLP as a way to find out more about how the University works in a strategic sense. As part of the programme, we had to do a project and I found it really interesting to work with group of people from across the University who had the same goal but were on slightly different paths and had different perspectives. Some of the contacts I made have been really helpful.'

Deborah, who is also the School of Dentistry's Senior Welfare Tutor, now mentors two fellow academics, one of whom is Dr Laura Jones.

'I've always had a really strong belief in equality for women, so I was keen to get

'There is always room to learn how to do things more effectively.'

involved in the Aurora programme,' says Deborah. 'Laura was fairly new to the University, so I felt I could help her build some links across the University. Her research area is really interesting, so I feel as if I've got as much out of it as she has. I didn't really know how it would work, but we meet about once a month, and we talk about a range of topics, both personal and professional.'

'I do feel that both the SLP and the Aurora programme have expanded my role as a leader and given me new ideas about how I can work better and deal with challenging relationships that everyone faces at some time or other. Not only do I have more confidence, I also realise that everyone has to deal with difficult situations and that there's no recipe book to solve problems – there is always room to learn how to do things more effectively.'



Dr Laura Jones

Young and ambitious, Dr Laura Jones had been at Birmingham just under six months when she heard about the Aurora leadership programme for women, part of the University's Advancing Equality in Employment initiative, and decided to sign up.

'At the time, I was still relatively new to Birmingham – I arrived in April 2013 – and I was looking for opportunities for my professional development,' explains Laura, a lecturer in qualitative and mixed-methods

health research within the School of Health and Population Sciences.

Like her mentor, Professor Deborah White, she saw Aurora as a way to widen her network of contacts and meet academics and non-academics at different stages in their career, with a range of experiences in leadership and professional development.

'I know more about the skills I need to continue to develop so that I stand out in a competitive environment.'

'A paper entitled Women and Higher Education: Absences and Aspirations by Professor Louise Morley suggests that the number of women in senior positions in higher education is actually falling rather than increasing, so I was interested in whether there might be gender-specific issues as well as issues common to both sexes.'

Laura, 31, who was a senior research fellow at The University of Nottingham before taking up her first lectureship, is keen

to gain as much experience as possible as she climbs the career ladder.

'What the Aurora programme has done is help me to map out where I fit into the wider professional network, who has power and influence and how I might change how I behave and operate so as to achieve the outcome I want. It has shown me the pathway to promotion and given me ideas for navigating my way through.'

Having Deborah as a mentor was particularly rewarding, says Laura.

'I have a mentor in my School, but it was great to have someone else, working in a different area and who's a female professor, that I could talk to and ask questions of, such as how you balance teaching and admin with doing your research – which is what you are judged on – to ensure you do all three to the best of your ability.'

Having recently completed the six-month programme, Laura is confident she's on the right career track.

'As well as keeping up the contacts and networks I've made, I know more about the skills I need to continue to develop so that I stand out in a competitive environment.'

BRITISH SCIENCE FESTIVAL



The British Science Festival (BSF) 2014 is to be hosted by the University in September and was officially unveiled at the Library of Birmingham in April with the help of a number of the University's academics and colleagues from Aston University and Birmingham City University.

Anatomist, TV presenter and author Alice Roberts, Professor of Public Engagement in Science at the University, was joined at the launch by colleagues including Dr Nick Hawes, lecturer in Intelligent Robotics, who was accompanied by a programmable 'Nao' robot. Visitors to the library were inspired with the excitement of science, enjoying a flavour of what to expect from the festival in September. The BSF, which visits a different city each year, is aimed at celebrating all things scientific; organised by the British Science Association, the event encourages researchers to share their work with the public.

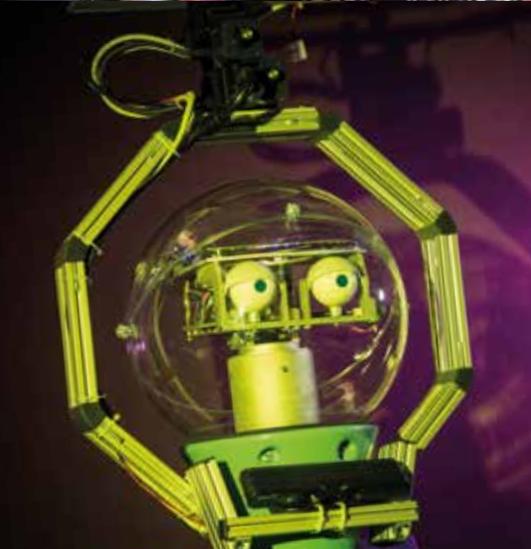
Imran Khan, the British Science Association's CEO spoke at the launch saying: *'Birmingham is one of the world's great scientific cities and we are delighted to be able to work with the city's amazing researchers.'*

Community Day is moving to September

This year's annual Community Day will be moving from its usual date in June to September so that we can join up with the BSF. We hope that by enhancing the day with our BSF 2014 guests we can deliver an even bigger family event for all the community. Don't forget to pop the date in your calendar – Sunday 7 September 2014 – and tell all your friends.

A festival vibe on campus

The Festival will be open to everyone and organisers wish to invite all staff to attend events. The festival will be focused around Chancellor's Court and there will also be a marquee on the lawn serving refreshments. We hope staff will drop in to enjoy the festival vibe.



SATURDAY 6 SEPTEMBER

Family activity in city centre using the Library and Centenary Square and the Rep Theatre. On campus at the University there will be a programme of general interest talks and workshops.

SUNDAY 7 SEPTEMBER

The University's annual Community Day is being moved to coincide with the Festival and Sunday will be a family day, with activities suitable for all ages.

DURING THE WEEK

Weekday activities will include a series of scientific talks and debates for adults at the University, shows, and workshops for students aged 14+ and apprentices. We also intend to have rolling hands-on, drop-in activity on Chancellor's Court during the lunchtime period.

EVENINGS THROUGHOUT THE FESTIVAL

Join us for a programme of star speakers, debates, science comedy, science drama, workshops for adults and family shows.

Speakers already confirmed include:

- Mark Wolport, Chief Scientific Adviser to the government
- Jim Al-Khalili, Physicist and broadcaster
- Richard Wiseman, Psychologist and author
- Maggie Aderin-Pocock, Space Scientist and broadcaster, recently named as successor to Patrick Moore as presenter of *The Sky at Night*
- Alice Roberts, Scientist and broadcaster, Professor of Public Engagement at the University of Birmingham
- David Nutt, controversial ex-Chief Scientific Advisor to the government
- Paul Nurse and Tim Hunt, Biologists and Nobel Prize winners
- Julia King, Engineer, government Advisor and Vice Chancellor of Aston University

EVENING ENTERTAINMENT

In addition to the evening talks and debates there will also be a programme of entertainment shows and comedy events which will take place on and off campus at venues across the city, including The REP and mac birmingham.

For more information about the Festival visit www.birmingham.ac.uk/BSF14 or email Claire Doggett, British Science Festival Project Manager Birmingham 2014 c.j.doggett@bham.ac.uk.



news+views

Our regular feature gives *buzz* readers a quick tour of the latest University news hitting the headlines and activity among our online community.

in the news...

Many articles about Birmingham research and expertise appear in local, national and international press every day. Here are just a few examples of our recent highlights.

Professor Rob MacKenzie, Director of the Birmingham Institute of Forest Research, was interviewed about the Saharan dust and air pollution that affected the country in early April. Professor MacKenzie was interviewed by *BBC Breakfast*, *BBC News Channel*, *BBC Radio 4's Today* programme, *Sky News*, *Channel 5 News*, *BBC Radio WM*, *BBC Radio 4's Farming Today* and *The New York Times*.

A University of Birmingham study into sharing 'selfie' photographs was featured in an article in *The Times*. The feature considered how browsing friends' photographs on social media sites is linked to negative feelings about body image.

Dr Kataryna Wolczuk, Professor Stefan Wolff and Professor Scott Lucas were called upon to discuss the Ukraine crisis and its impact on the relationship between the US and Russia. Dr Wolczuk featured on *BBC News*, *BBC Radio 2* and *BBC Radio 5 Live*. Professor Wolff was interviewed on *BBC Breakfast* and several regional radio stations, and Professor Lucas spoke on the continuing crisis for *BBC Radio WM*.

Professor Vince Gaffney was featured in an article on the BBC discussing archaeological evidence from the North Sea which suggests a tsunami destroyed a prehistoric 'Atlantis'.

The University's new agreement with the UK Anti-Doping agency to begin the process to gaining a Clean Sport University Accreditation was discussed in an article in the *Birmingham Mail*.

Dr Chris Allen was featured in an article in *The Daily Telegraph* concerning claims of infiltration by Islamic extremists in Birmingham schools.

Martin Killeen from Special Collections was interviewed for an article in the *Birmingham Mail* about Quakerism and pacifism in the First World War. Mr Killeen was also involved in a *Birmingham Mail* article about newly discovered images of the 1st Southern Cross Hospital at the University during the First World War.



feeling social...

Staff, students and alumni have been helping the next generation of potential students by telling them why they love Birmingham.

We asked people to let us know on Twitter, Facebook and Instagram using #hellobrum.

Over the Easter period we posted our applicants a speech bubble and asked them to let us know why they were choosing Birmingham in 2014 and send us their photos.

The campaign generated a fantastic response, and #hellobrum became a popular term for the University's social media, mentioned more than 300 times in April alone.

You can view the photos on the #hellobrum Storify at www.storify.com/unibirmingham/hellobrum

Dr Karen Guldberg was featured in an article on the *Daily Mail Online* about the use of robots in the education of autistic children.

Dr Will Palin was featured on *BBC One's Fake Britain* testing the differences between fake and real dentistry products.

Professor Laura Piddock's research into antibiotic resistance received widespread coverage including quotes in the *Daily Mail*, *The Telegraph*, *The Guardian*, the *Chicago Tribune* and several other international newspapers.

Join the UoB online community

Follow us on Twitter at @unibirmingham.

If you use social media

at work and would like to increase your visibility, get in touch with our Digital Marketing and Communications Team via k.connolly@bham.ac.uk

If you would like to work with the press office, or find out more about how they can help you promote your research, email pressoffice@contacts.bham.ac.uk or call 0121 414 6029

David Charlton... in my own words



David Charlton, Professor of Particle Physics at the School of Physics and Astronomy, is Spokesperson of the ATLAS Collaboration at the Large Hadron Collider within the European Organization for Nuclear Research (CERN) near Geneva. He has been voted one of the University's 'top ten' luminaries whose research has changed the world.

I probably overuse the word “fantastic”, but it really is fantastic to be Spokesperson, or scientific head, of the experiment that discovered the Higgs boson, the “missing link” of the Standard Model of Physics, which gives mass to fundamental particles.

The Large Hadron Collider (LHC) is the largest and most powerful particle accelerator ever built. What it does is steer together beams of protons at a velocity almost the speed of light, causing the beams to collide with each other. The resulting events are studied by 3,000 scientists from around the world, including a team from Birmingham.

To begin with in 2012, we could only say that the new particle we'd discovered was Higgs-like, but in March last year we were able to say it really is a Higgs boson. We don't know if it's a Higgs boson as in the Standard Model, or a different type: there is a great deal more to be done to measure its properties much more precisely.

The LHC is in the middle of a two-year shutdown for repairs, during which I've been spending a lot of time looking at longer-term upgrades that will ensure continuing excellent performance when the LHC collision rate increases further, later this decade and in the next. Securing the necessary funding from about 40 funding agencies around the world is a challenging task.

When the LHC turns on again next year, there is a lot of potential for new discoveries. Unless Nature has something very surprising for us, it will take six months to two years or more of collecting and analysing data before new physics might be seen. The fact the Higgs is so light is surprising: it is much more natural in the theory that it should be a lot more massive. This is one strong hint that there's going to be more physics to discover.

There's another driver: when astronomers look at the universe, they see the effects of a lot of mass. It doesn't seem to be in the form of atoms, but rather some other, “dark”, matter. We don't know what it is, but one elegant answer would be provided by supersymmetry. This predicts a partner particle for

each particle in the Standard Model, and also allows a light Higgs boson – in fact there should be at least four more Higgs particles to discover. If the theory is right, we should see supersymmetric particles at the LHC. It would be a huge breakthrough, because it would go way beyond the Standard Model.

Over the years, Birmingham has often had a very high profile in experiments, both at CERN and DESY (a national research centre in Germany that operated particle accelerators used to investigate the structure of matter), and it's great to be continuing the tradition. The team here at Birmingham is outstanding.

It was Birmingham's high profile in another high-energy physics experiment, the UA1 experiment that ran at CERN's Super Proton Synchrotron accelerator-collider in the 1980s, that brought me to the University to do a PhD after gaining my first degree at Oxford. Birmingham was one of only two universities in the UK involved in UA1 from the start. It was this Nobel Prize-winning experiment that revealed the existence of the W and Z bosons.

I started in Birmingham as a Royal Society University Research Fellow in 1994, based initially at CERN. Then for ten years I was based in Birmingham, before moving back to CERN in 2007. My department has been very understanding in terms of allowing me to spend time at CERN.

I was drawn to this area of science during the 1970s, when there was another phase of discovery – including particles such as the charm and bottom quarks – that generated a lot of publicity and excitement. Of course, I could never have imagined that one day I would become part of the team that discovered the Higgs boson.

Much of the past year has been spent looking to the future: the LHC was 20 years in design and construction and we expect to run it for a further 20 years. My dream now is to be part of the next discoveries at the LHC – we have such an exciting time ahead. **]**