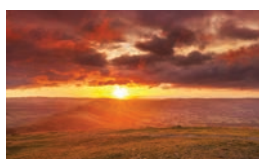


MANCHESTER
1824

The University of Manchester



ANNUAL REVIEW

2013/14

REVIEW OF THE YEAR

This was a year in which we took significant steps towards achieving some of our strategic goals. At the same time, we were able to identify those areas where we need to do more work to meet our very ambitious targets.

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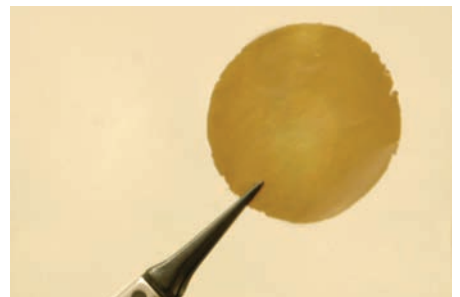
Professor Dame Nancy Rothwell



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scoops *Guardian* University Award



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Global challenges,
Manchester solutions



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Graphene paints a
corrosion-free future

It was very pleasing that we generated an operating surplus for the year of £45 million. Generating an operating surplus is crucial for the University in order to invest in our priority activities.

In terms of the research agenda, 2013/14 was dominated by preparing our submission for the Research Excellence Framework (REF) exercise, the independent assessment of research quality conducted by the UK funding councils for higher education. This enormous exercise covered 35 units of assessment with around 2,000 colleagues involved in providing material and preparing the entries. The results are published in December 2014 and, although the judgements made will be retrospective, our performance will have a major impact on our reputation and future funding.*

George Osborne, Chancellor of the Exchequer, marked the topping out ceremony of our £61 million National Graphene Institute with a speech praising revolutionary science at the University. This was followed just a few months later by our announcement of the building of the £60 million Graphene Engineering Innovation Centre. Construction is almost complete on the new building for the Manchester Cancer Research Centre and the extension to the Whitworth Art Gallery.

I attended Buckingham Palace to collect a Queen's Anniversary Prize for the University's innovation in imaging facilities. Royal honours were also awarded to Professors Carole Goble and Douglas Kell, both of whom received a CBE, with other staff receiving various recognitions from professional and academic bodies. More locally, Professors Andre Geim and Kostya Novoselov were awarded the Freedom of the City of Manchester in honour of their work on graphene, which won them the Nobel Prize for Physics in 2010.

We continue to invest in providing an outstanding learning and student experience for our students. While we had hoped for further improvement, the results of the National Student Satisfaction Survey (NSS) showed that our score remained at 85% overall satisfaction, consolidating our previous increases. The students' responses to many of the detailed questions showed further improvements. Throughout 2013/14 there has been a specific focus on student employability, with a new partnership model developed between the Directorate for the Student Experience, Faculties and Schools. It was very pleasing to see,

therefore, that the number of students in positive graduate destinations has increased.

There remains work to do to reach our targeted position in the upper quartile of NSS results of the Russell Group. I was delighted that one of our largest investments in the student experience, the Alan Gilbert Learning Commons, a bespoke learning space designed with in consultation with our students, won us the Facilities Project Award in the 2014 *Guardian* University Awards.

We also enjoyed another strong year for student recruitment. We welcomed 16,972 new students on to our courses, exceeding our targets in areas such as full-time undergraduate home students and full-time postgraduate international students. It is very pleasing to see that Manchester continues to be a destination of choice for prospective students from across the globe.

It also gives me great pride to see that we outstripped the Office for Fair Access's targets for recruitment of students from low-participation neighbourhoods and lower socioeconomic groups. Our Manchester Gateways Programme was recognised in the inaugural NEON Awards, which celebrate widening access to higher education.

This year saw the University engage with an even wider and more diverse cohort of learners with the launch of our first massive open online courses – or MOOCs. We worked with Coursera, the leading MOOC platform provider, becoming just the third UK university to do so.

It is vital that Manchester promotes itself as a university that has an impact on real lives. Since the establishment of our dedicated Office for Social Responsibility, we have coordinated our social responsibility activities more effectively. The strong 'Making a Difference' campaign, conducted online and across campus at the start of the 2013/14 academic year, promoted the work done by countless colleagues, students and alumni to contribute to this important agenda. In September 2014, we appointed Professor James Thompson as Associate Vice-President for Social Responsibility to lead this agenda at a University level.

There have been some great successes among the University's signature programmes for social responsibility. The success of The Works, our

initiative to help local unemployed people to prepare for and return to work, either with the University or with local employers, has been huge. We made 773 appointments, putting us ahead of our two-year target with a year still to go and bringing the number of new appointments since the programme's launch to 1,931. The Works gained national recognition, claiming the *Times Higher Education* Award for Outstanding Contribution to the Local Community.

Our cultural institutions play an important role in engaging with the public, welcoming 790,000 visitors in 2013/14. The Jodrell Bank Discovery Centre is set for expansion, having won a Wolfson Foundation grant of £250,000. The Whitworth Art Gallery closed just a month into the year for a £15 million redevelopment, with 15,000 people visiting on its final weekend. While the doors have been shut, our colleagues have been busy overseeing the creation of a new gallery that reaches out into the neighbouring parkland.

People are by far our most important asset and we are one of the largest employers in the region. Our Measuring the Difference report commissioned earlier this year showed that the University and our students helped to create and support 21,000 new jobs in the previous 12 months. Meanwhile, our commitment to the representation of women in the workplace was illustrated by five further Athena SWAN awards.

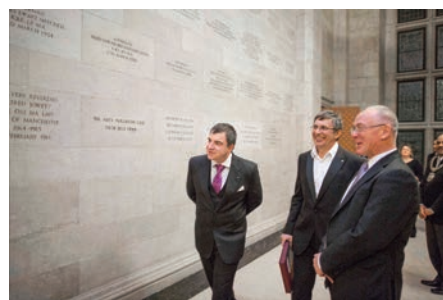
The fact that we have generated a surplus and are making good progress with our ambitious Campus Masterplan, against a backdrop of global economic uncertainty, should signal to the wider world that we are a confident and well-run institution. While important choices will have to be made over the coming months and years, we will continue to invest strategically in staff, facilities, the student experience, excellence in research and higher learning, in pursuit of our Manchester 2020 goals.

Colleagues from across the campus work hard to deliver the outstanding achievements demonstrated in this annual review. I would like to end by paying tribute to the endeavour of all who play their part in our progress.

Professor Dame Nancy Rothwell
President and Vice-Chancellor



10 CULTURE AND COMMUNITY
Report reveals economic impact of our social responsibility



12 PEOPLE
Freedom of the city for Nobel laureates

*The University received the results of the Research Excellence Framework as this annual review went to press. These results confirmed Manchester's place as one of the UK's leading research universities across a wide range of subjects.

83% of our research activity was judged to be 'world-leading' (4*) or 'internationally excellent' (3*), and we were ranked in fifth place in terms of research power (calculated by grade point average times number of staff submitted or by 4*/3* times number of staff submitted).

The REF exercise also recognised our excellent research environment and how our research is having a genuine influence of the real lives of people, as evidenced by a series of impact cases studies, from new drugs and inventions to public policy.

IMAGING RESEARCH HONoured BY THE QUEEN

The Queen presented the University with a prestigious award in recognition of its world-leading imaging techniques and extensive knowledge base in advanced materials technology.

Professor Dame Nancy Rothwell, President and Vice-Chancellor, accepted the Queen's Anniversary Prize for Further and Higher Education from Her Majesty at a ceremony at Buckingham Palace in March.

Professor Rothwell was accompanied at the Palace by University Chancellor, Tom Bloxham, Vice-President and Dean of the Faculty of Engineering and Physical Sciences, Professor Colin Bailey, Professor of Materials Imaging, Peter Lee, Professor of Nuclear Materials, Paul Mummery, and Phil Withers, Professor of Materials Science, and five students from the School of Materials also attended the event.

Manchester is at the forefront in developing new techniques for the 3D imaging of structures and defects in materials, and interpreting the state of stress, microstructure and damage in engineering materials and components. To date, the University has supported a wide network of 90 companies and 35 institutions providing unique insights into materials behaviour and failure, enabling innovation and direct impact to UK plc.



Professor Dame Nancy Rothwell and Professor Phil Withers accept the Queen's Anniversary Prize

ALAN GILBERT LEARNING COMMONS SCOOPS GUARDIAN UNIVERSITY AWARD

The University of Manchester Library has won the Facilities Project category in the 2014 Guardian University Awards for its innovative and highly collaborative project, The Alan Gilbert Learning Commons.

The *Guardian* University Awards recognise and reward working projects in universities that demonstrate genuine innovation in the sector, collaborative delivery on the ground, and meaningful impact both inside their institutions and beyond, with the potential to inspire others.

The Facilities Project Award is given to a capital project that has positively enhanced the student and/or staff experience on campus.

"We are delighted that all the hard work on this important project has been recognised with this award," said Jan Wilkinson, University Librarian.

"Student involvement, from start to finish, has produced a building that really meets their needs. The successful implementation of this remarkable project stands out as an example of what can be achieved through wide-scale partnership between professionals across a large UK university."

The £24 million Learning Commons was conceived by former President and Vice Chancellor Professor Alan Gilbert, who sadly died just after his retirement in 2010. The building is a tribute to his vision.



The Alan Gilbert Learning Commons

NEW CANCER IMAGING CENTRE

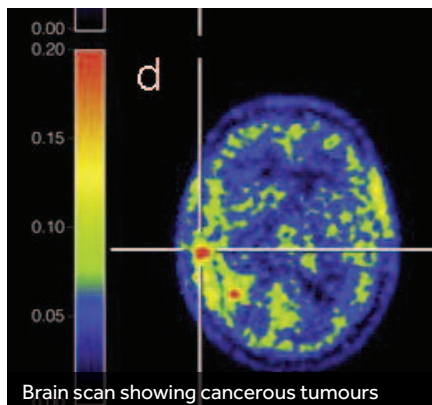
Manchester was selected as one of four new prestigious Cancer Imaging Centres in the UK being set up by Cancer Research UK and the Engineering and Physical Research Council (EPSRC) in a £35 million boost to research.

The University will team up with the University of Cambridge to form the Cambridge Manchester Cancer Imaging Centre (CMCIC).

It will see scientists in Manchester, led by Professor Alan Jackson, develop studies to revolutionise drug development and cancer treatment. Their current work involves looking in greater detail at how drugs used to treat a brain tumour are delivered and distributed around the brain to kill cancer.

Their work also involves analysing how treatment of cancerous tumours with a second drug may increase take up of the first cancer drug. The technology can identify recurrent tumours not seen on conventional scans.

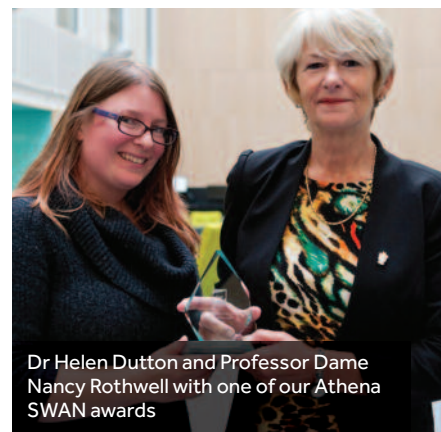
Professor Ian Jacobs, University Vice-President and Dean of the Faculty of Medical and Human Sciences, said: "This is an exciting development



which will provide added value to our efforts in cancer research by investing in and linking the expertise and research resources in cancer imaging in Manchester and Cambridge.

"We can anticipate that it will, in due course, result in advances in cancer knowledge and cancer care that will save lives and benefit people in the north-west, across the UK and worldwide."

CELEBRATING EQUALITY AND DIVERSITY



Dr Helen Dutton and Professor Dame Nancy Rothwell with one of our Athena SWAN awards

In November 2013 the University was awarded five Athena SWAN Awards, which recognise and celebrate good practice in recruiting, retaining and promoting women in science, technology, engineering, mathematics and medicine in higher education.

That took our total to eight Schools carrying the honour – three with Silver awards and five with Bronze.

The Schools of Chemistry, Dentistry, Psychological Sciences, Nursing, Midwifery and Social Work and Medicine – which includes six Institutes and Manchester Medical School – were presented with the awards.

UNIVERSITY AND UNILEVER SIGN PARTNERSHIP AGREEMENT

The University committed to a long-term partnership with Unilever, one of the world's largest companies.

The strategic relationship will make Manchester a key partner for Unilever's research collaborations in a number of specific fields of science.

Professor Luke Georghiou, the University's Vice-President for Research and Innovation, said: "Unilever recognises that access to university research can give their organisation a new vantage point. Strategic alliances of this nature are helping to put innovation and research at the heart of economic growth in the UK."

Unilever will support the University to carry out research across all four of our Faculties in areas covering sustainable consumption, process engineering, biophysics and systems biology, as well as aspects of inflammation, toxicology and hair biology.

Professor Jim Crilly, Senior Vice-President, Unilever Strategic Science Group, said: "At Unilever, we believe that to continue to be successful we need to collaborate with the very best partners to access new ideas and technologies to create superior and sustainable products. I am delighted that The University of Manchester has become a strategic partner with whom we believe we can develop those winning capabilities."



Professor Luke Georghiou and Dr Cameron Jones, Vice President of Research and Development at Unilever

FIRST MOOCS LAUNCHED

Last year the University delivered a number of MOOCs (Massive Open Online Courses), an exciting new development in online education that allows Higher Education institutions to reach out to audiences that might not otherwise have access to their teaching material.

MOOCs are taught entirely online, and are freely available at no cost to anyone in the world with an internet connection. They last six to eight weeks and are taught mostly through videos, supplemented by discussion forums, self-test quizzes and reading or web research activities.

Titles of the courses, delivered in partnership with world leading MOOC platform provider Coursera, were: Introduction to Population Health, Water Supply and Sanitation Policy in Developing Countries, Introduction to Physical Chemistry, and Global Health and Humanitarianism. Our next course – Our Earth: Its Climate, History and Processes – is due to launch in 2015.

The courses had almost 31,000 active participants. Of those surveyed, 93% of participants rated their course as excellent or good.

FUNDING BOOST FOR WORLD'S MOST POWERFUL TELESCOPE

The University was awarded more than £6 million towards its part in the design work for the international Square Kilometre Array (SKA) radio telescope.

The Science and Technology Facilities Council (STFC) confirmed the funding – together with a further £13 million for other UK partners – to pay towards key SKA development and design work over the next three years.

The SKA, which has its headquarters at the University's Jodrell Bank Observatory in Cheshire, will be the most powerful radio telescope array in the world when scientific observations start from 2020 and will address fundamental unanswered questions about the Universe.

Manchester scientists are leading the SKA Signal and Data Transport consortium, which will be responsible for solving the challenges around handling, processing and transporting the huge amount of data that will be generated by SKA.

NEW RECORD FOR ALUMNI SUPPORT

A record number of alumni are supporting the University, according to figures released by the Division of Development and Alumni Relations.

In the financial year 2013/14, 4,601 alumni chose to support the University by making philanthropic gifts.

Many supported the regular giving programme, with these small, regular gifts adding up to a record amount of £550,219, bringing the total donated to this programme to £1,375,713 since 2011.

As a result, the 2014/15 academic year will see more than 760 students attend the University on donor-funded undergraduate or postgraduate

scholarships, representing an increase of about 25% on last year.

Many of these students come from backgrounds under-represented in higher education in the UK, or are talented but economically deprived students from some of the poorest countries in the world.

More than £300,000 has been directed towards University research into global issues such as cancer, dementia and poverty.

If you would like to support University students or research, visit www.manchester.ac.uk/donate.

£1.37m

Donated since 2011

Small regular gifts adding up to a record amount of £550,219

760

Donor-funded students to attend Manchester in 2014/15



George Osborne meets Professor Sir Kostya Novoselov

£60M GRAPHENE ENGINEERING INNOVATION CENTRE TO BE BASED IN MANCHESTER

During a visit to the University's graphene laboratories, the Chancellor of the Exchequer George Osborne announced funding for the creation of the Graphene Engineering Innovation Centre (GEIC).

The £60 million facility will be critical in the development of commercial applications and in maintaining the UK's world-leading position in graphene and related 2D materials.

The GEIC will be partially funded by £15 million from the Higher Education Funding Council for England's UK Research Partnership Investment Fund (UKRPIF), £5 million from the Technology Strategy Board and by £30 million from Masdar, the Abu Dhabi-based renewable energy company owned by Mubadala that focuses on advancing the development, commercialisation and deployment of clean technologies and solutions. Additional funding for the centre and its programmes will be provided by other research funds and institutions.

Vice-President and Dean of the Faculty of Engineering and Physical Sciences, Professor Colin Bailey, said: "The world-leading knowledge base is here in Manchester and to harvest this knowledge, for the benefit of the economy and society more widely, urgent infrastructure facilities are required."

Meanwhile, construction work progressed on campus on the £61 million National Graphene Institute, which will provide a centre for industry and university academics to work side-by-side on emerging graphene applications.

OUR MEDICS' BATTLE TO SAVE STRANDED TYPHOON VICTIMS

Manchester medics played a role in treating the victims caught up in the typhoon in the Philippines.

A 12-strong team led by Professor Tony Redmond, from the Humanitarian Conflict Response Institute, were involved in the UK's first joint civilian and military humanitarian response effort.

The model saw part of the team board HMS Daring to treat hundreds of people cut off on remote islands by the typhoon which struck in November 2013, while the other half assisted at a hospital in Tacloban.

Professor Redmond said: "The Navy got us to the islands that nobody else could get to. Some of the islands had no jetties so we had to wade waist-high in the water carrying all the medical kit above our heads.

"It was very moving when we flew over the first island in the helicopter, they'd seen helicopters before but no one had landed. They had written 'help' in the sand and everyone ran out of their homes waving towels to bring us in."

Once the medics, who also included Dr Amy Hughes from the University, arrived at each island they worked with community leadership groups, known as barangays, and their captains who let the team know what type of medical assistance was needed and the numbers of casualties.

Clinics were then put in place which ran from dawn to dusk, mainly treating wounds which had not been treated and had become infected, chest infections and diarrhoea.



Left to right: Rob Holden (Save the Children), Deb Lau (UKIETR), Tony Redmond (UKIETR), Sean Hudson (UKIETR), Karen Livingstone (UKIETR), Amy Hughes (UKIETR), Andy Hill (DFID), Anthony Roberts (UKIETR) and Ulysses Almocera (Merlin/Save the Children)

FIRST LIVE PRESIDENT'S QUESTION TIME



The panel responded to questions from the audience and from Twitter

Staff members had their first ever chance to put questions to the President and members of her Senior Leadership Team face to face.

Held in response to the 2013 Staff Survey, the event saw more than 50 members of staff from across the University gather in a temporary studio in the Manchester Dental Education Centre.

Alongside the President were Karen Heaton, Director of Human Resources, Steve Mole, Director of Finance, and Professor Martin Humphries, Staff Survey Steering Group Chair.

They responded to questions on topics selected by colleagues in an online poll: staff career development, the University's financial situation and the Staff Survey (behaviours, leadership,

performance and development reviews, and reward and recognition).

As the first ever President's Question Time went live, the event trended on Twitter. Staff joined in with comments and questions on Twitter during the event.

The positive feedback from staff included: "The session was appreciated ... a live question-and-answer session with a streamed webcast shows a willingness to discuss topics and not hide behind the written word. It makes the communication seem more genuine."

President's Question Time had 350 views during its live broadcast on StaffNet, the University's intranet.

UNIVERSITY LAUNCHES JOHN RYLANDS RESEARCH INSTITUTE

The John Rylands Research Institute officially launched in October, bringing together the world-class expertise from the Faculty of Humanities and the University of Manchester Library.

Professor Peter E Pormann, Director of the Institute, said: "The Institute will bring together library and academic staff from inside and outside the University to explore our breathtaking Special Collections. Experienced curators and conservators look after this national treasure of global importance, which has rich, untapped potential for research and discovery."

Rachel Beckett, Head of Special Collections at the University of Manchester Library and Associate Director of the Institute, said: "The close collaboration between Library staff and academic colleagues will help us to reveal the riches of the Rylands, which is home to many of the finest collections of rare books, manuscripts and archives in the world."

GLOBAL CHALLENGES, MANCHESTER SOLUTIONS

At Manchester we're working to solve some of the world's most critical problems to ensure a brighter future for society. These five beacons of research show how our expertise is already helping individuals, businesses and institutions.

Advanced materials

The breadth of our work in advanced materials is enabling us to find new ways forward for the energy, fuel and aerospace industries. We're world-leading at developing new and existing materials for extreme environments.

We're at the forefront of characterisation of materials – measuring and exploring materials to help us fully understand their properties and potential.

And then there is graphene. One-atom thick, this material is set to revolutionise the material world. Our team of more than 200 graphene and related two-dimensional materials researchers are constantly coming up with new ways to improve and transform current products, from providing clean water for millions in third-world communities to creating sustainable energy storage devices.


Industrial biotechnology

We're at the forefront of a revolution in industrial biotechnology, leading the way both nationally and across Europe, in the creation of next-generation chemicals for industrial and healthcare needs. Using biological resources such as plants, algae, fungi, marine life and micro-organisms, industrial biotechnology is revolutionising how we manufacture chemicals and materials, as well as providing a source of renewable energy.

At the Manchester Institute of Biotechnology, the University has one of Europe's leading industry-interfaced institutes with world-leading capabilities in chemicals synthesis and manufacture. Supported by a grant portfolio of more than £100 million we partner with some of the world's leading companies from across the chemistry, biotechnology and biopharmaceutical sectors – including GlaxoSmithKline, Shell, Unilever and Pfizer – to drive the creation of new, bio-based chemicals.

Our expertise helped Rolls Royce to develop stronger fan blades



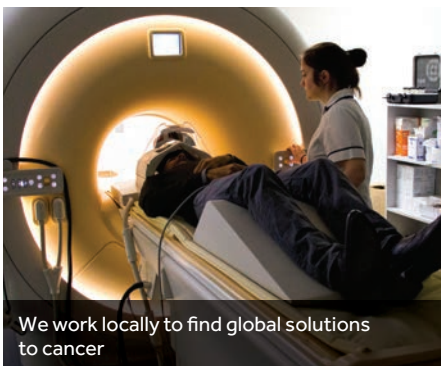


We're helping to pioneer the industrial processes and energy systems of tomorrow

Cancer

We're committed to the full spectrum of combatting cancer, from understanding the molecular and cellular basis of cancer to the development and testing of novel drugs and other therapeutic approaches. Through our nursing, psychology and policy work, we're researching and putting into practice solutions to cancer's physical, emotional and economic impact. And our collaborations with companies like AstraZeneca and GlaxoSmithKline bring new drugs to the market more quickly.

Our partnerships make for an unrivalled beacon of research, where outstanding clinical work is leading to new techniques and innovative personalised treatments. We work closely with the NHS and have strong links with charities including Cancer Research UK, giving us access to funds and equipment that place us at the forefront of cancer treatment.



We work locally to find global solutions to cancer

Energy

Our expertise is enhancing the efficiency and viability of renewable energy sources such as solar, wind, tidal and bioenergy. It's supporting partners in the bridging fuel sectors, such as oil and gas, to continue to meet demand. At our Dalton Nuclear Institute, the most advanced academic nuclear research capability in the UK, we're guiding the UK government's industrial strategy for the civil nuclear sector.

We provide UK network partners with the knowledge to deliver reliable and sustainable power, and we're developing techniques to store energy so it's available at times of peak demand when usage may exceed generation.

We're also finding out more about how today's urban society uses energy, blending expertise from engineering and the social sciences to learn more about demand and how it can be met.

Addressing global inequalities

Bringing together some of the best academic minds in applied medicine, business, law and social sciences we're challenging inequalities head on, creating and sharing knowledge to end poverty and inequalities across the globe.

International governmental organisations, national governments, multinational corporations and global charities and non-governmental organisations partner with us to change the way they work and govern. Our research directly influences policies that make positive changes for



Our medics are making a difference internationally

people living in poverty and inequality. For example, our insight helped Cadbury's to launch its £50 million Cocoa Partnership to support cocoa farmers and their communities. The company also converted its entire range of Cadbury Dairy Milk and Green & Black's chocolate bars to Fairtrade.

With years of research in global development, healthcare, education, employment, and equality and diversity we help to deliver real-world benefit.

ETHNICALLY DIVERSE NEIGHBOURHOODS 'SAFER'

Residents of ethnically diverse neighbourhoods can expect to experience fewer assaults than residents of neighbourhoods with little or no ethnic diversity, according to a new way of measuring violence.

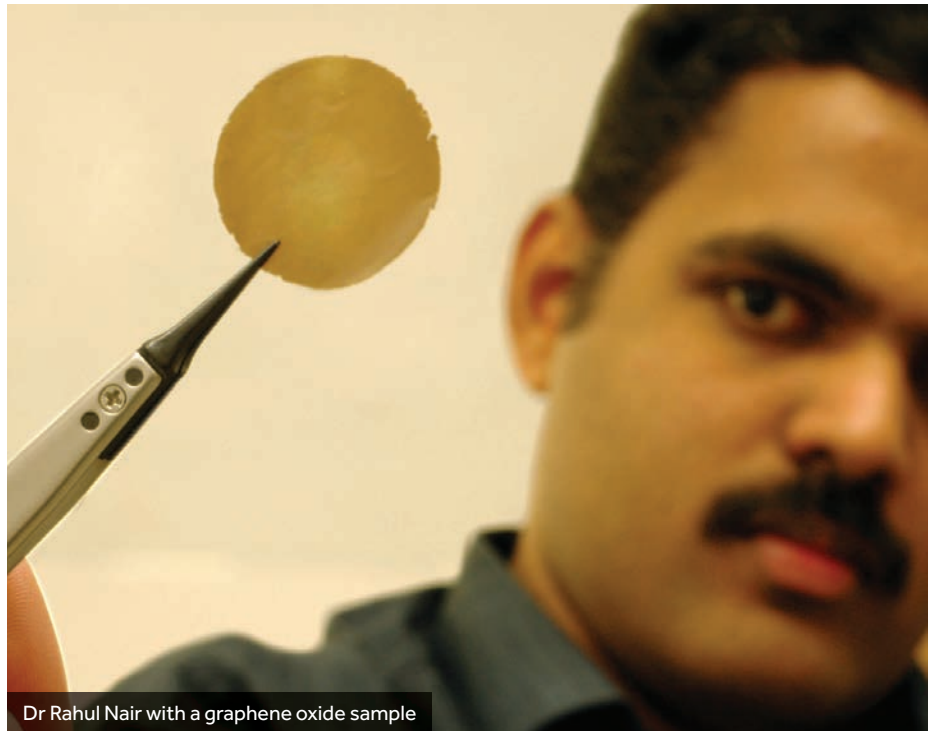
Ian Warren says public health data on assaults – from ambulance service, A&E and hospital admissions records – give a more reliable picture of criminality than official police figures, criticised by the UK Statistics Authority early in 2014.

The research found people living in poor neighbourhoods are ten times more likely to attend the emergency department as the result of an assault than people in the most advantaged neighbourhoods.

Ian said: "Interpersonal violence is under-reported and under-recorded. I hope this work, and other work like it, will focus the attention of policy-makers and all those interested in reducing the burden of violence on the police and the NHS.

"These findings show ethnic diversity dampens the relationship between poverty and violence in Greater Manchester. Higher levels of poverty and residential instability were both shown to result in higher levels of violence."

GRAPHENE PAINTS A CORROSION-FREE FUTURE



Dr Rahul Nair with a graphene oxide sample

A thin layer of graphene paint can make impermeable and chemically resistant coatings which could be used for packaging to keep food fresh for longer and protect metal structures against corrosion, new findings show.

Graphene oxide is a form of graphene that could have a significant impact on the chemical, pharmaceutical and electronic industries. Applied as paint, it could provide an ultra-strong, non-corrosive coating for a wide range of industrial applications and can paint various surfaces ranging from glass to metals to even conventional bricks.

In an article in *Nature Communications*, the team, led by Dr Rahul Nair and Nobel laureate Sir Andre Geim, demonstrate that glassware or copper

plates covered with graphene paint can be used as containers for strongly corrosive acids.

Further graphene research recently published includes:

- Sandwiching layers of graphene with white graphite could produce designer materials capable of creating high-frequency electronic devices.
- Electrons that break the rules and move perpendicular to the applied electric field could be the key to delivering next generation, low-energy computers.



Professor David Ray

BODY CLOCK LINK COULD AID OBESITY TREATMENTS

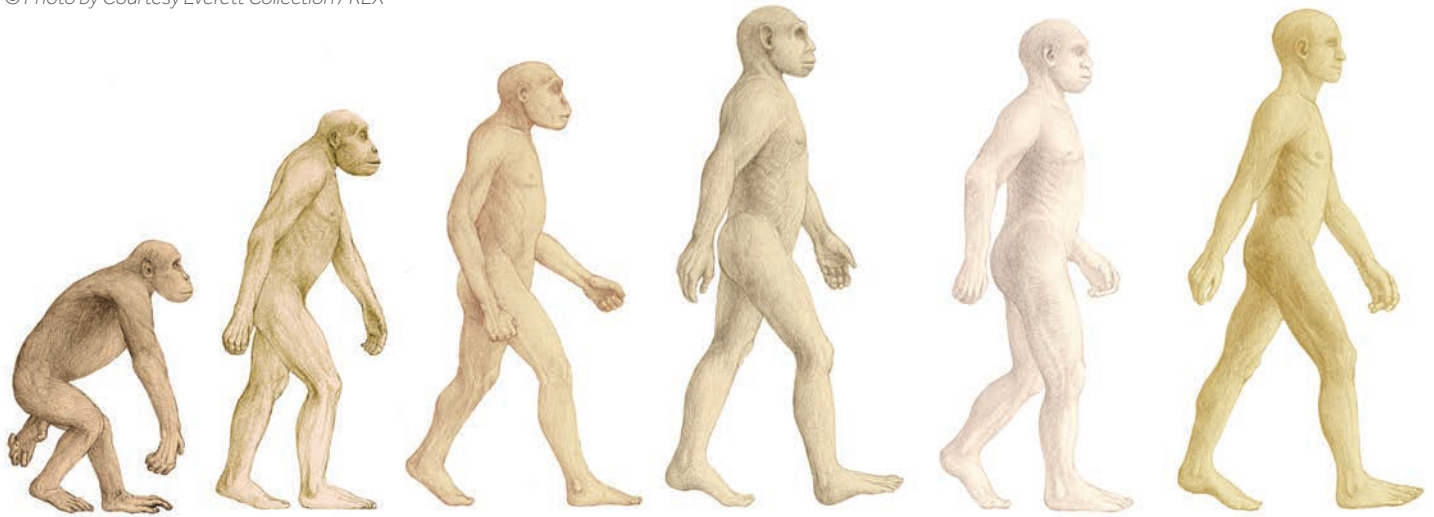
University scientists have discovered that the body clock plays an important role in body fat. Their findings are helping to develop new ways of treating obesity and the fatal diseases linked to being overweight.

The researchers, led by Professor David Ray, not only looked at the role of the body clock in fat tissue in mice, but also collected samples from patients undergoing weight loss surgery. Fat and blood samples taken both before and after surgery allowed the researchers to compare their biochemistry.

The team found that the REVERB protein affects obesity-related inflammation by regulating both a hormone that comes from fat, adiponectin, and a master regulator of inflammation A20. Mice lacking REVERB had enhanced fat storage but without the expected inflammation. They also registered higher levels of the hormone adiponectin, suggesting the hormone has an anti-inflammatory role.

Professor Ray says: "We believe our research could open up a novel way to treat obesity without surgery. There is the potential for drug development that could stop so many people dying of obesity-related diseases."

© Photo by Courtesy Everett Collection / REX



HUMAN EVOLUTION DRIVEN BY CLIMATE CHANGE

Early human evolution was driven by short pulses of rapid environmental change in East Africa, according to research involving the Faculty of Life Sciences.

Researchers found a link between the waxing and waning of huge lakes in the East African Rift valley and the brain expansion and migration of early human species.

Co-author Dr Susanne Shultz said: "We found that around 1.9 million years ago a number of new species appeared, which we believe is directly

related to new ecological conditions in the East African Rift valley, in particular the appearance of deep-freshwater lakes. Among these species was early *Homo erectus* with a brain 80% bigger than its predecessors."

The researchers compiled all the known occurrence of lakes over the last five million years from the north of Ethiopia down to Tanzania. Using statistical modelling, the team compared the lake and climate records with evidence of human evolution, providing the strongest evidence to date for their hypothesis.

HAZARDOUS WASTE-EATING BACTERIA DISCOVERED



The Peak District

© Photo by Neale Clark / Robert Harding / REX

Tiny single-cell organisms discovered living underground could help with the problem of nuclear waste disposal, say University researchers. Microbes that can survive in the very harsh conditions expected in radioactive waste disposal sites were found in the Peak District.

The specialist 'extremophile' bacteria thrive under the alkaline conditions expected in cement-based radioactive waste. The fascinating biological processes they use to do so are being studied by the Manchester group, as well as the

stabilising effects of these humble bacteria on radioactive waste.

Professor Jonathan Lloyd of the School of Earth, Atmospheric and Environmental Sciences said: "We are very interested in these Peak District microorganisms. Nuclear waste will remain buried deep underground for many thousands of years so there is plenty of time for the bacteria to become adapted to the conditions.

"Our next step will be to see what impact they have on radioactive materials."



The papyrus fragment

ONE OF WORLD'S EARLIEST CHRISTIAN CHARMS FOUND

A 1,500-year-old papyrus fragment found in the John Rylands Library has been identified as one of the world's earliest surviving Christian charms.

The remarkable document contains some of the earliest documented references to the Last Supper and 'manna from heaven'. It is the earliest surviving document to use the Christian Eucharist liturgy as a protective charm.

The Greek 'amulet' was found among thousands of fragments of unpublished historical documents kept in the library's vaults.

REPORT REVEALS ECONOMIC IMPACT OF OUR SOCIAL RESPONSIBILITY

A report revealed the amazing impact our University is having on the economy and the lives of people across the region and beyond.

Measuring the Difference: the Economic and Social Impact of The University of Manchester was commissioned by the Office for Social Responsibility. Among its findings were:

- Our University helped to create and support more than 21,000 new jobs in the previous financial year.
- Of these, 18,000 were in Manchester, representing 6% of new employment across the city.
- In partnership with a number of employers and training providers, we also helped to take more than 1,000 unemployed people into full-time work through our unique project, The Works, creating £16 million of economic value in the previous financial year.
- Student volunteers on one programme alone, the Manchester Leadership Programme, contributed £266,000 of economic value to the city region, through working in a variety of organisations across the city.
- We enjoyed a turnover of £807 million in 2011/12 – more than Manchester United, Manchester City and Manchester Airport combined. As a non-profit making organisation, all of the University's income goes to support its educational and research mission.
- Total output generated by University amounted to £1.9 billion and our contribution to Britain's GDP in 2011/12 totalled £1.05 billion.
- We achieved that fastest growth in school governors of any University in the UK, contributing £0.75 million in value from staff time volunteered.

MAKE A
DIFFERENCE

Contribute to
the success of
the local, national
and international
communities

125

of our staff are
school governors

1,143
students on MLP
have created
£266,611
of value from
volunteering

Produce
graduates who
exercise social
leadership and
responsibility

WHITWORTH DIRECTOR CURATES STAR-STUDDED FESTIVAL



Maria Balshaw curated the Pop-up Whitworth

Our Whitworth Art Gallery, closed to the public while undergoing a £15 million redevelopment, found a temporary home in the city centre in February.

The Pop-up Whitworth – an in-store version of Manchester's gallery in the park – was one of a variety of artistic attractions curated by Maria Balshaw, Director of the Whitworth Art Gallery, as part of the Selfridges Festival of Imagination.

The festival also welcomed giant of British sculpture and photography Richard Wentworth, multi-award winning author Jeanette Winterson, and interior designer Ben Kelly, whose client list includes the Hacienda nightclub.

MUSEUM HAS OBJECTS IN MIND



An Objects in Mind handling session. Photo by Paul Cliff

Museums have long maintained that using their collections can improve people's mental health and a project at Manchester Museum put that into practice.

As part of Damian Scully's 18-month Diploma in Culture and Heritage, he developed an innovative programme, Objects in Mind, to create unique museum experiences to enhance visitors' mental health.

Damian, a Heritage Lottery Fund Skills for the Future trainee, explained: "We consider what the people who made it thought, what did the object mean to them and how does that influence our viewpoint."

Key to the progress that Damian made was a partnership with colleagues in the Faculty of Medical and Human Sciences, such as Yvonne Awenat, a Research Fellow in the School of Psychological Sciences whose work includes involving people in the design and implementation of research studies.

"Objects in Mind fits into the ethos of the kind of work we're doing here – conducting research that aims to improve the lives of people with psychological distress and offering opportunities to be involved in the research process," said Yvonne.

"This can often help them make sense out of an experience that they didn't want, they didn't like and has been very difficult for them."

MANCHESTER SCOOPS TOP COMMUNITY PRIZE AT THE AWARDS

The University of Manchester won the Outstanding Contribution to the Local Community Award at the 2013 Times Higher Education Awards.

Manchester won the award for The Works, our initiative to help jobseekers in neighbouring areas to improve their skills and employment prospects.

The Works, which was developed by the Directorate of Human Resources, offers local jobseekers help to improve their skills and, crucially, employment opportunities. This has been achieved through a partnership with other large local employers, including Royal Mail, Barclays and Manchester Metropolitan University, that ensures that a number of jobs at the university and beyond are ring-fenced for local people.

Steve Grant, Assistant Director of HR at the University, said: "This programme has positioned the University as an employer of choice among communities adjacent to our campus.

"We intend to build on this work which has led to the award and we look forward to working with other employers across Greater Manchester in furthering the development of this initiative and perhaps introducing others in the future."



The University's team collects the Times Higher Education award



Professors Sir Kostya Novoselov and Sir Andre Geim with Sir Richard Leese, Leader of Manchester City Council

Sir Andre Geim and Sir Kostya Novoselov were awarded the Freedom of the City of Manchester.

The scientists, who won the Nobel Prize in Physics in 2010 for their groundbreaking experiments with graphene, were recognised for their importance to the growth and regeneration of the city.

At a ceremony at Manchester Town Hall, Sir Andre and Sir Kostya were honoured by the Lord Mayor of Manchester Councillor Naeem ul Hassan.

Sir Andre said: "It is a great honour to be awarded the Freedom of the City of Manchester. Manchester has been my home now for almost 14 years and is very close to my heart."

Sir Kostya said: "I'm thrilled to have been awarded the Freedom of the City. Manchester was home for the largest proportion of my most exciting experiments, and the local support we get is tremendous."



COLLEAGUES CELEBRATE NEW YEAR WITH QUEEN'S HONOUR

The Queen's New Year Honours list last year included three members of University staff.

Lenox Green, Postgraduate Office Administrator in the School of Maths, was awarded an OBE for his voluntary work helping youngsters, families and homeless people in Manchester.

Twenty years ago, Lenox and wife Heather re-mortgaged their home to set up the Rainbow Christian Centre in Hulme, now open four days a

week and offering support and inspiration for the local community such as helping families with housing, benefits, education and a weekly food bank.

Professor Carole Anne Goble, from the School of Computer Science, was made a CBE for her services to science.

Carole is a leading authority on the Semantic Web - a means of enriching the web with knowledge - having an impact on bioinformatics, e-science,

open science and applied computer science.

Professor Douglas Kell, from the School of Chemistry and the Manchester Institute of Biotechnology, was awarded a CBE for his services to science and research.

Douglas is a leading figure in the field of systems biology, the multidisciplinary approach to tackling complex biological problems using theory, computer modelling and experimentation.

HONOUR FOR OUR STATESIDE CHAMPION

Tony Thornley received the University's Medal of Honour, the highest award the University can bestow, for his work to develop and lead the North American Foundation for The University of Manchester (NAFUM) and his continuous commitment to the University.



Professor Dame Nancy Rothwell with Tony and Gillian Thornley

Tony (BSc (Hons) Chemistry 1967) has been involved with the University for many years in his roles as President of the NAFUM board (2007–13) and now in his role as a Director of the board; as well as his active and committed membership of the University's Global Leadership Board.

His commitment, dedication and enthusiasm to the leadership of NAFUM has been integral to the development of the board and its activity in the States.

Tony and his wife Gillian's support for the University has included funding for master's students, seed funding for a highly innovative partnership with Harvard in the area of regenerative medicine, and most recently a landmark gift to support a new Chair and clinical Fellow in Regenerative Medicine.

Tony said he was "humbled" by the award, adding: "Gillian and I have been very fortunate in our lives and want to give back where we can. Giving to the University is particularly effective as the recipients of our gifts have consistently and considerably leveraged our gifts with other donations and grants and have done groundbreaking research as a result.

"Donations also help students who would otherwise not be able to enjoy the Manchester experience and those students, both local and from around the world, enrich the experience for everyone involved."

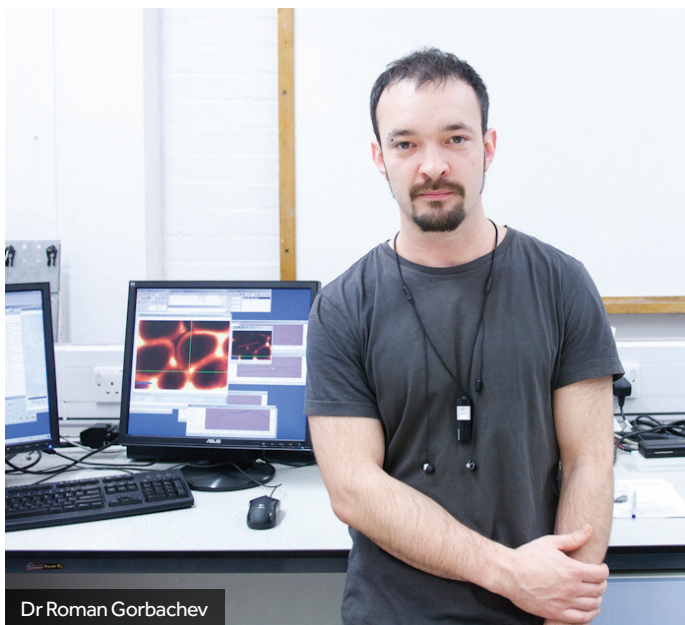
ROYAL SOCIETY FELLOWSHIPS FOR GRAPHENE RESEARCHERS

Two University graphene and 2D materials scientists were awarded Royal Society Research Fellowships.

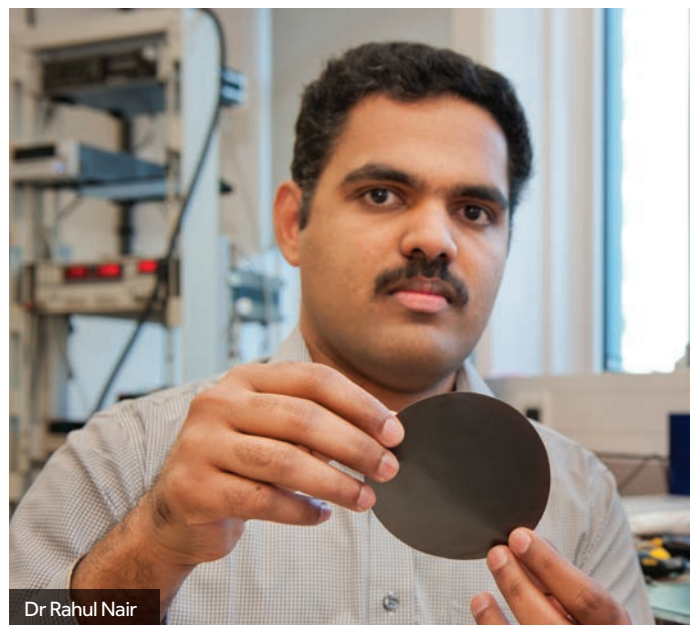
Dr Rahul Nair and Dr Roman Gorbachev were selected alongside 43 other UK academics in a scheme that aims to give scientists with the potential to become leaders in their chosen fields the opportunity to build an independent research career.

Dr Nair leads research into graphene oxide membranes, thin layers that act as highly-effective barriers. One potential application could be providing safe drinking water by filtering clean water from dirty water in real time.

Dr Gorbachev works with graphene and related 2D materials, combining the one-atom thick material with others to create multi-layered stacks, called heterostructures. These stacks can be created to have specific properties – allowing for designer materials tailored to the specifications of individual companies or researchers.



Dr Roman Gorbachev



Dr Rahul Nair

CELEBRATING DISTINGUISHED ACHIEVEMENT



Winners of the Distinguished Achievement Awards

The University presents its Distinguished Achievement Awards to recognise outstanding performances and significant contributions across the University.

The winners were:

Professional Support Services, Library and Cultural Institutions

Small Team Winner: Student Support and Guidance Team – School of Arts, Languages and Cultures, FHUMS. Large Team Winner: Research Excellence Framework Administration Team – pan-University membership.

Individual Award Winners: Karen Badat, Senior International Officer, Student Recruitment and International Development, DSE; Mike Hughes, Laboratory Technician, School of Chemistry, FEPS; Rosie Jones, Learning Commons Development Manager, Library.

Researchers of the Year

Professor Dame Tina Lavender, School of Nursing, Midwifery and Social Work, FMHS; Professor Jill Rubery, Manchester Business School,

FHUMS; Professor David Leys, FLS; Professor Lin Li, School of Mechanical, Aerospace and Civil Engineering, FEPS.

Postgraduate Students of the Year

Dr Christopher Miller, Institute of Cardiovascular Sciences, FMHS; Denis Volkov, School of Arts, Languages and Cultures, FHUMS; Dr Charlotte Brassey, FLS; Andrew Welfle, School of Mechanical, Aerospace and Civil Engineering, FEPS.

Undergraduate Students of the Year

Miriam Leach, Manchester Medical School, FMHS; Ibrahim Olabi, School of Law, FHUMS; Hayley Leung, FLS; Jessica Hart, School of Electrical and Electronic Engineering, FEPS.

Teachers of the Year

Harsha Parmar, Manchester Pharmacy School, FMHS; Dr Paul Middleditch, School of Social Sciences, FHUMS; Professor Graham Pavitt, FLS; Dr Richard Neville, School of Computer Science, FEPS.

MANCHESTER'S HEROIC C CREW IS SECURITY TEAM OF THE YEAR



Left to right: Roger Morgan, AUCSO Chair, Glenn Farrant of Critical Arc (award sponsor), David Collinson and Christian Rainford of C Crew.

The University's C Crew security team received a national award from the Association of University Chief Security Officers (AUCSO).

In November 2013, C Crew (David Collinson, Christian Rainford, Christopher Warden and Barry Needham) were called to an incident on campus in which a male with his face covered had walked up to a male student and produced what appeared to be a handgun.

A struggle followed, in which the security officers intervened with little regard for their own safety, detaining the suspect until police arrived. During a search, a gas-powered BB gun fell from the suspect's clothing, which was indistinguishable from a real firearm.

The award citation concluded: "The actions of the security team were truly outstanding and they displayed exceptional bravery in the circumstances. This shows extraordinary service to the University, which is over and above what would be expected as part of the security officer's job."

University Security Manager, Gary Rowe, said: "The actions of these security officers were truly outstanding and they displayed exceptional bravery in the circumstances ... Fortunately, violent crime is rare on campus, but by taking sensible precautions, students and staff can reduce the risk still further."

HUMAN RIGHTS CAMPAIGNER JOINS UNIVERSITY

Shami Chakrabarti, one of the nation's leading human rights campaigners, was made an Honorary Professor of Law at the University.

The appointment gives our law students and staff an exciting opportunity to meet with the Director of Liberty, the campaigning organisation for the protection of rights and freedoms.

Shami is a regular contributor to Question Time, Newsnight and the Today programme. In February, she was judged to be one of the 100 most powerful women in the United Kingdom by Woman's Hour on BBC Radio Four.

She was invited to be one of six independent assessors advising Lord Justice Leveson in his Public Inquiry into the Culture, Practice and Ethics of the UK Press and also one of eight Olympic Flag carriers dressed in white at the London 2012 Summer Olympics opening ceremony.

She said: "Liberty began with the struggles of the hunger marchers 80 years ago, and Emmeline Pankhurst hailed from Manchester. So it's an honour indeed to join a great northern law school at a time when rights and freedoms are once more on the line."



Shami Chakrabarti



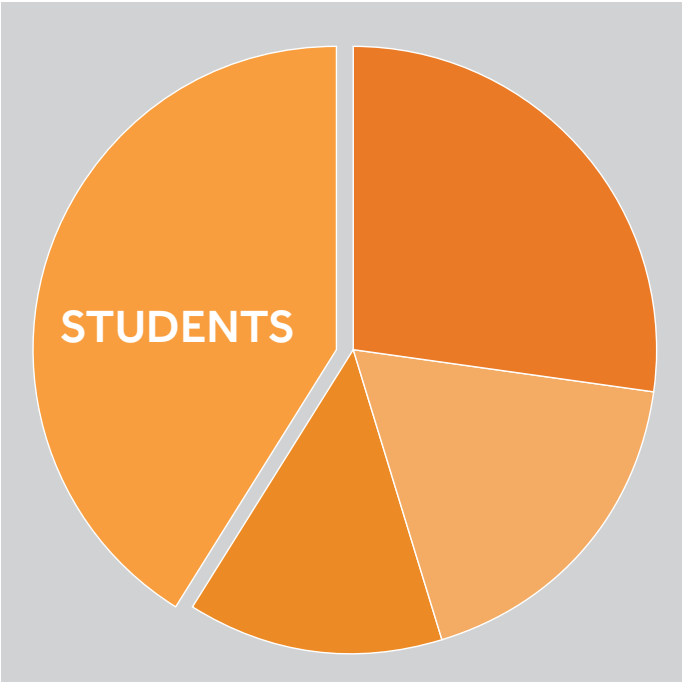
Professor Jim O'Neill

RENOWNED ECONOMIST JOINS UNIVERSITY

The economist Professor Jim O'Neill – who coined the term BRIC economies back in 2001, predicting that Brazil, Russia, India and China would become future powerhouses of the world economy – joined the University as Honorary Professor of Economics.

Brought up in Gatley, Manchester and a life-long Manchester United fan, Jim worked for Goldman Sachs Group between 1995 and 2013. He was Chairman of Goldman Sachs Asset Management and the firm's chief economist from 2001 to 2011.

He has recently presented four programmes on BBC Radio 4 on what he predicts will be the next group of growing economies, coining a new acronym – MINT – which stands for Mexico, Indonesia, Nigeria and Turkey.



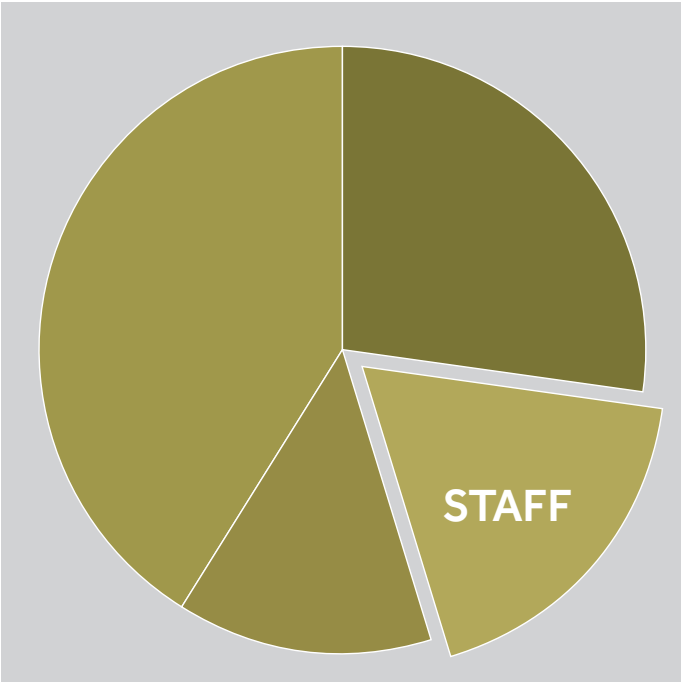
STUDENTS

We have the largest student community of any campus-based university in the UK. Of the 37,925 students registered at the University, 26,485 are undergraduates and 11,440 are postgraduates. In addition, we have 4,240 students studying wholly outside the UK who are either registered with us or are studying for a University of Manchester award. *

	HOME/EU	OVERSEAS	TOTAL
Undergraduate study	21,480	5,005	26,485
Postgraduate taught	4,560	3,175	7,735
Postgraduate research	2,405	1,300	3,705
TOTAL **	28,445	9,480	37,925

* Source: aggregate offshore return student numbers

** Source: HESA standard registration population (excludes writing-up students, dormant students, incoming visiting and exchange students and students who have left within two weeks of the anniversary of their start date)

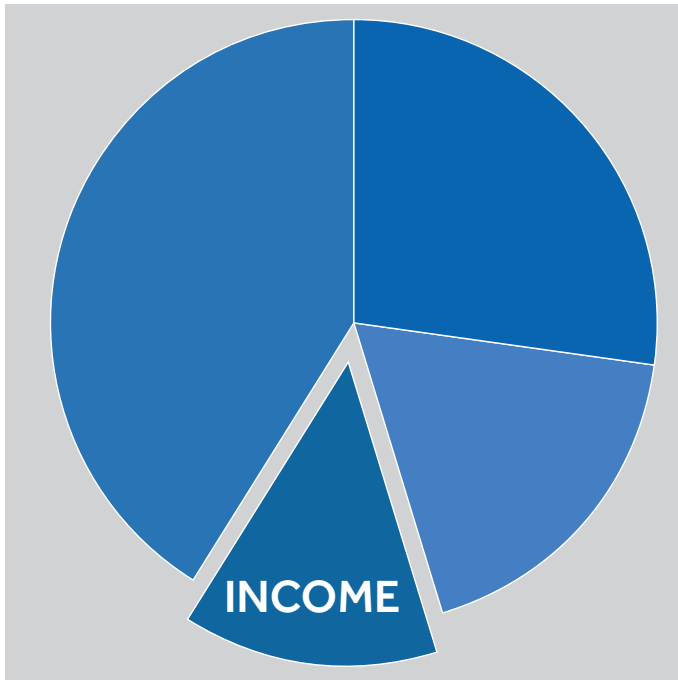


STAFF

With more than 11,000 staff, we are one of the largest employers in Greater Manchester.

HEADCOUNT FIGURES AT 31 JULY 2014*	
Academic (including 1,715 teaching-only staff)	3,635
Research	1,995
Academic support	1,600
Clerical/secretarial	1,700
Administrative/management	1,350
Manual/craft	745
TOTAL	11,025

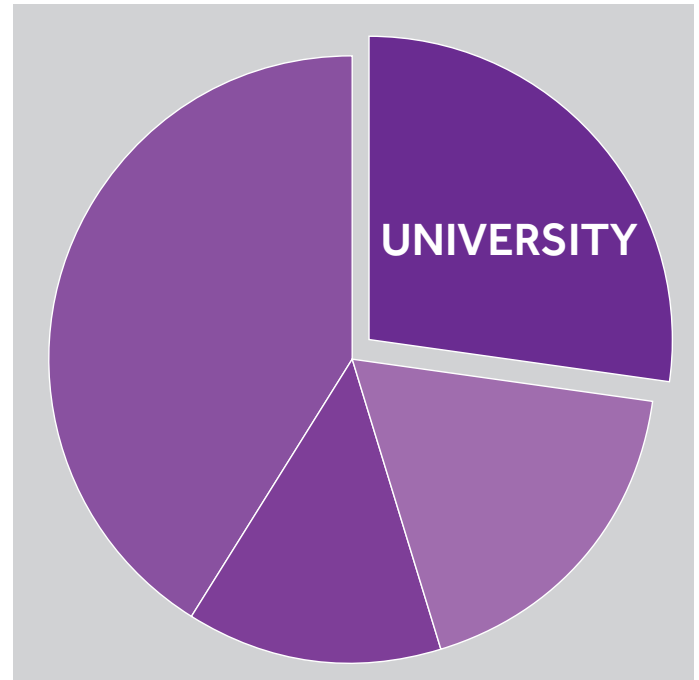
*Numbers rounded to the nearest five



INCOME

We have an annual income of £886 million.

INCOME	
Tuition fees and educational contracts	£352m
Funding council grants	£162m
Research grants and contracts	£214m
Other operating income	£138m
Endowments and investments	£20m
TOTAL	£886m



THE UNIVERSITY AT A GLANCE

Mission and vision

"By 2020 The University of Manchester will be one of the top 25 research universities in the world, where all students enjoy a rewarding educational and wider experience; known worldwide as a place where the highest academic values and educational innovation are cherished, where research prospers and makes a real difference, and where the fruits of scholarship resonate throughout society."

SENIOR OFFICERS	
President and Vice-Chancellor	Professor Dame Nancy Rothwell
Deputy President and Deputy Vice-Chancellor	Professor Rod Coombs
Chancellor	Tom Bloxham
Pro-Chancellor and Chairman of the Board of Governors	Anil Ruia
Pro-Chancellor	Gillian Easson

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