



# Place matters

Stories of scientists and innovators across the UK

THE  
ROYAL  
SOCIETY

# Contents

Introduction .....	3
Professor Anne Osbourn OBE FRS.....	4
Professor Rebecca Fitzgerald OBE FMedSci HonFREng FRS.....	6
Dr Sam Richards.....	8
Professor Graham Morgan.....	10
Professor Jennifer Hastie .....	12
Professor Declan Keeney.....	14
Dr Zaki Ahmed.....	16
Professor Helen Maddock.....	18
Professor Wyn Meredith FREng .....	20
Professor Matthew Rosseinsky OBE FRS and Professor Andrew Cooper FRS.....	22

## Introduction



**Discovery research, translation and innovation are key to driving our economy and improving the quality of our lives. The UK has excellent research being carried out in universities, research institutes and businesses that is being applied to generate economic growth and societal good.**

Reading the stories in this booklet you can see how much that excellence is spread throughout the country, with associated spin outs, collaborations, clusters and hubs, small and medium sized enterprises and large international corporations.

Our universities and research institutes produce the people and ideas that are the seed corn for a high skilled economy. It is from that seed corn that clusters can build, attracting inward investment and creating jobs and growth.

The stories you can read here cover plant genomics, semiconductors, gaming, quantum, health, energy, materials, film and tv production, space missions. The work is exciting and inspirational, the sectors they cover are highly productive and globally important, and the clusters are beneficial to business, boosting local and regional jobs and economic growth.

The UK tech sector reached a valuation of \$1.2 trillion last year and it is estimated that there are roughly 6.4 million people employed in engineering and technology. But we must not be complacent. It is disturbing that the UK has dropped to sixth in the Global Innovation Index. We have the people and the ideas, but they need support and effective organisational structures to drive the research, and to ensure that discoveries get taken to the market. Lessons can be learned from stories in these pages, stories from across the UK.

**Paul Nurse**  
**President of the Royal Society**

## Professor Anne Osbourn OBE FRS

**Professor Anne Osbourn OBE FRS is Group Leader at the John Innes Centre, and Chief Scientific Officer and co-founder of the spinout company, Hothouse Therapeutics.**

An early interest in the natural world led Anne to complete a degree in botany at Durham University before undertaking a PhD in plant science at the University of Birmingham. Anne's PhD focused on a fungal pathogen of wheat and whilst she was undertaking her PhD revolutionary science was occurring that would greatly impact her career. The John Innes Centre, an international centre of excellence for plant science, had begun to apply molecular genetics to microbes, a technique previously not used on plant pathogens. Whilst Anne admits that by today's standards extracting DNA from a fungus may not seem revolutionary, it was at the time. Following her PhD, Anne worked at the John Innes Centre before moving to the newly established Sainsbury Laboratory set up close by, where she focused on molecular genetic approaches to understand plant disease and how to control it. Reflecting on her science, Anne believes that by accessing the knowledge and capabilities of the plant and microbial experts nearby, allowed her and her team to rapidly advance their research. It has also allowed Anne to move into new areas of plant genomics, an area that has lagged behind microbial and human genomics due to the complex nature of plant genomes that make them adept at making complex chemicals. In this, Anne saw an opportunity to co-found HotHouse Therapeutics.

A drug discovery platform at its core, HotHouse Therapeutics analyses complex plant genomes to create complex molecules that are beyond the reach of conventional labs. Using the transient expression of genes in plants, HotHouse Therapeutics reveals the chemical engineering capability those genes are encoding and utilises these for drug discovery purposes.

Based at the Norwich Research Park, Anne and her team still have access to the cluster of scientific institutions with complementary disciplines covering plant and microbial sciences to genomics and health, including the John Innes Centre, the Sainsbury Laboratory, the Earlham Institute and the Quadram Institute. Anne is seeing a greater number of plant-science based companies establish themselves at the Norwich Research Park.

Beyond her science, Anne is passionate about getting young children interested in science and has established the Science, Art and Writing Trust. Through the charity, Anne and her team run workshops that use science as a meeting place for scientific and creative exploration. Anne firmly believes in building a foundational knowledge and appreciation of science, something that she hopes will stay with young people as they move forward in their careers.



---

“The critical mass in terms of plant and microbial expertise allowed me to learn all kinds of things related to plant biology. All these skills around me meant I could develop my science and collaborate with different skill sets along the way.”

---

# Professor Rebecca Fitzgerald OBE FMedSci HonFREng FRS

**Professor Rebecca Fitzgerald OBE FMedSci HonFREng FRS is the Director of the Early Cancer Institute and Head of the Department of Oncology at the University of Cambridge and Co-Founder and Clinical Advisor for Cytel Health.**

After completing her early education at the University of Cambridge, Rebecca has spent much of her career at Cambridge where she has been able to utilise cross disciplinary thinking to further develop her work. Currently, Rebecca runs an academic research lab researching how cancer of the oesophagus and stomach develops and progresses. Further to this, she looks at how to develop new diagnostic and predictive tests for patients.

It was her time at Stanford University that impacted the trajectory of her career where she had a meeting with a clinician researcher who was working on a pre-cancer condition of the oesophagus known as Barrett's oesophagus. Having looked after patients who had oesophageal cancer who did not appreciate they had Barrett's oesophagus until it was too late, it struck Rebecca as an opportunity for early intervention. From this moment, she started research in this area, and her interest grew and eventually led her back to Cambridge. At this time the Medical Research Council (MRC) established a Cancer Unit, and Rebecca was able to take up the role of Junior Group Leader.

It was, however, a chat over a coffee that led to an idea for a 'bottle brush' for the oesophagus that would remove cells which could be screened to detect pre-cancer and other diseases of the oesophagus. It was this conversation that eventually led her to develop EndoSign®, a capsule sponge test that is now used in the NHS and further afield.

Reflecting on the early development of EndoSign®, Rebecca credits the proximity she had to MRC engineering workshops in Cambridge and other experts as being key to the development of the device. In parallel she worked with Pathologists, and PhD students to develop the laboratory tests that are crucial to identify the pre-cancerous Barrett's cells.

Whilst Rebecca had worked to develop the technology, she gives a large amount of credit to a PhD Student who asked to work with her: Dr Marcel Gehrung. Marcel had read about Rebecca's work and suggested they form a company to ensure that her technology could benefit patients. Several years later and Marcel is currently the CEO of EndoSign® while Rebecca sits on the Medical Advisory Board.

Working in the permissive and collaborative environment around Cambridge allowed Rebecca access to the cross-disciplinary skill sets required to commercialise her ideas. This included access to people with expertise in public health, statistics, clinical trials design and clinical pathology. In addition, a discussion with an investor visiting Cambridge resulted in the purchase of a contract research lab in Huntington that already was using digital pathology methods, providing a premises for the company.

---

“The environment I am in encourages people to take risks, follow their dreams and persevere to develop novel technologies. But is also small enough to allow cross-disciplinary collaborations to happen.”

---



## Dr Sam Richards

**Dr Sam Richards is the Founder and Director of the UK's Meridian Space Command, an organisation that supports clients in delivering successful space missions. Based at Space Park Leicester, Sam works with clients across the world, supporting the space industry with end-to-end mission management, operations and education.**

Whilst currently situated in Leicester, Sam's career has taken him all over the world. After growing up in Cornwall, Sam enrolled at the University of Hertfordshire where he studied astrophysics. During this time Sam undertook a research placement at the University of Sydney, Australia, something that would prove pivotal to his career.

Working in astrophotonics, Sam spent the year building an instrument in the lab. The instrument would come to be known as the Sydney-AAO Multi-Object Integral-Field Spectrograph, or SAMI for short. SAMI is a device that uses bundles of tiny optical fibres to capture detailed, multi-point measurements across galaxies. This gives astronomers a better idea of how galaxies work. The work Sam did in this year generated a great deal of interest to the scientific community.

This work led Sam to complete his PhD in Sydney and continue to develop this technology before securing a job at the National Aeronautics and Space Administration (NASA) in California. Working as a telescope operator, and eventually becoming a mission director, Sam then took his experience as a mission director to Japan. Here he helped the newly established ispace build out their operations portfolio to operate and land multiple commercial lunar expeditions.

Whilst his career has spanned various continents, circumstances eventually led Sam back to the UK. Returning to Leicester, Sam founded Meridian Space Command. While there were several factors to that contributed to his move to Leicester, Sam admits that it has become a strategic base for his work. Despite many international clients, Sam recognises the importance of being based in a rich ecosystem of collaboration. Being based at Space Park Leicester offers Sam access to companies ranging from startups through to established organisations.

Reflecting on the region's space heritage, Sam highlights the successful Millennium Project bid for the National Space Centre as a pivotal point that helped the sector flourish in the region. Since then, aerospace companies have established themselves locally, bringing skills and expertise that benefit the entire space industry.

Built on continuous research, engineering and instrument development, Leicester's heritage in space is one of the longest running in the UK. Over its 65-year history Space Park Leicester has been involved in major international space missions collaborating with leading space agencies and industry partners.

Sam also works closely with the University of Leicester, helping transfer mission-level knowledge into its research and engineering teams. Sam recognises that a lot of his work is secured through his own network and typically by word of mouth. Being located somewhere where there are regular in-person activities and events around the space sector helps a great deal.

---

“It’s always good to be based at a hub. With regular events and collaboration opportunities, it has helped to establish, build my business, and service a wider range of clients.”

---



# Professor Graham Morgan

**Professor Graham Morgan is the Head of the School of Computing and Professor of Video Game Engineering at Newcastle University.**

Graham leads Newcastle University's Game Technology Lab, which hosts the industry-led Game Engineering MSc. This MSc has supported the growth of many games companies such as Activision, Creative Assembly, Rockstar North, NVidia, Ubisoft and Rebellion. With over 500 alumni since the course's inception ten years ago, the MSc has allowed students to participate on many top selling video games and collaborate with industry.

Graham grew up in the North East in the 1980s, and like many teenagers had a ZX Spectrum computer which he used to programme games. After high school Graham completed a Higher National Diploma before being awarded a degree, a master's and finally a PhD from Newcastle University. His research focused on distributed systems and networking protocols which allowed him to take up a lectureship where he applied his knowledge to his first passion, video games.

At the time, the video game industry was growing in the North East and there was little academic interest or ecosystem. Graham consulted with his local industry contacts and asked what they needed. They identified the need for experts in the core technology and use of multi-core systems as well as good mathematical programmers who can solve partial differential equations. These equations are critical for giving game objects realistic physical properties and facilitating more immersive player interactions.

This conversation with industry was a pivotal point for Graham in the development of the video gaming industry in the region. Graham believes this meeting helped to cement and protect the UK's position as a world leader in the video game industry. Further to this Graham also credits the interest shown by the Engineering and Physical Sciences Research Council (EPSRC). Eager to engage with the video game industry, EPSRC provided support to Graham and his team to ensure they could attract and retain students.

Graham admits that it was a struggle to get uptake of students in the early days. But the support from the EPSRC and the local video games industry was pivotal in promoting the course, with the latter encouraging prospective employees to take up the course due to its close ties with industry. These close ties continue to allow many students to seamlessly transition into local jobs and apply the skills they've learnt in the real world.

Graham recalls countless students who have gone on to be employed in the local video games industry and start spinout companies in the North East. Reflecting on his career, he is most proud of what he and his team have developed and of their close alignment with industry in teaching the skills it needs.

---

“I’ve had offers to go overseas but I always come back to the North East because there is so much going on here for video games.”

---



# Professor Jennifer Hastie

**Professor Jennifer Hastie is based at the University of Strathclyde in Glasgow where she holds the position of Professor of Photonics. In her role Jennifer is helping to develop the photonic technologies that underpin the UK's emerging quantum capabilities. Jennifer works at the interface of laser engineering and quantum technologies, developing advanced laser systems that enable next-generation sensing, timing and navigation applications.**

Jennifer's career was shaped early by the opportunity to build her independence in Glasgow. While completing her PhD, she secured a Royal Academy of Engineering fellowship, allowing her to establish her own research direction immediately after finishing her doctorate. Later in her career, an Engineering and Physical Sciences Research Council (EPSRC) Challenging Engineering Award enabled Jennifer to expand into lasers for quantum technologies. This saw the beginning of Jennifer's collaborations with the UK quantum community, including the first National Quantum Technology Hub for Sensors and Metrology, and she is now a Deputy Lead of the UK Hub for Quantum Enabled Position, Navigation and Timing.

Scotland's central belt, in her view, has been particularly successful in photonics and quantum because it combines a high concentration of universities, long-standing industrial capability and a culture of academic collaboration built over decades. Institutions including the University of Strathclyde, University of Glasgow, University of St Andrews and Heriot-Watt University have developed strong links in physics and photonics, creating a connected research and innovation community.

Initiatives such as the Scottish Universities Physics Alliance have further strengthened these links, supporting collaboration and shared expertise across institutions.

Jennifer believes this environment has been critical to the region's success. In Scotland, academic excellence and industrial capability in photonics have grown side by side. This established strength has enabled the region to respond quickly to the rise of quantum technologies, where lasers and optical systems are fundamental.

Alongside academic research, Jennifer and her colleagues at the Institute of Photonics, where she recently served a 3.5-year tenure as the Director, have helped strengthen the translation of research into innovation. The Institute was established in 1996 with an applied, industry-facing mission, and she highlights its role in the creation of the Fraunhofer Centre for Applied Photonics in 2012, a UK leader in developing innovative photonics and quantum technology solutions in partnership with industry and academia. More recently, she has helped establish and lead the Photonics and Quantum Accelerator, an EPSRC Place-Based Impact Accelerator programme bringing together the above four universities, civic partners and Scottish Enterprise to support spinouts, partnerships and regional growth in the central belt.

Looking ahead, Jennifer hopes her work will help strengthen Scotland's position as a recognised centre for photonics and quantum technologies, supporting skilled careers, new companies and wider societal impact. For her, the region's success comes from its connectedness: a concentration of expertise, strong partnerships and a shared commitment to building capability over time.

---

“Scotland’s central belt has been able to pivot so effectively into quantum technologies because of its long-standing strength in photonics.”

---



# Professor Declan Keeney

**Professor Declan Keeney is the Chief Executive at Studio Ulster Ltd and Professor (Chair) of Screen Technologies and Innovation at Ulster University. Based in Belfast, Declan describes the city as one built on making.**

Once defined by shipbuilding and heavy industry, parts of its historic harbour are now home to a growing cluster of screen production and creative technology companies. Former industrial spaces are being repurposed into world-class production facilities. Declan Keeney, Chief Executive and Co-Founder of Studio Ulster and Chair of Screen Technologies and Innovation at Ulster University, sees this transformation as a powerful example of how place can shape innovation. Together, these strengths have helped Belfast develop into a centre for film, television and immersive media technologies.

Studio Ulster is a partnership with Belfast Harbour Studios and is a major creative technology facility working at the cutting edge of film, television, animation, games and immersive media. Developed by Ulster University, the studio launched in June 2025 and is a wholly owned subsidiary of the university. Part funded through the Belfast Region City Deal, it is supported by Northern Ireland Screen, to deliver a project that represents an investment of around £75 million bringing together a triple helix of academia, industry and public stakeholders within what is now one of the most advanced virtual production studio complexes in the world. The facility reflects Declan's long-standing focus on translating academic research and emerging technologies into commercially deployable production environments used by global studios.

Growing up in Donegal, Declan's interest in filmmaking began when his father first handed him a camera aged 8 and taught him how to develop photographs at home. By the age of fourteen he was taking photographs for local newspapers. After training in the United States, he joined the BBC as a technical trainee and spent more than a decade working internationally as a lighting cameraman across news and drama. Declan later moved into academia in Belfast, bringing his industry experience into higher education while continuing to work closely with the screen sector.

Over the past two decades, Declan has played an important role in shaping Northern Ireland's creative industries ecosystem, helping to connect research, education and industry to support the sector's growth. Major productions such as Game of Thrones demonstrated the region's potential and helped develop a highly skilled local workforce. Building on this momentum, Declan helped establish initiatives including Future Screens NI and the Ulster Screen Academy, expanding research activity in the sector and created new training pathways for students and companies working across film, immersive media and digital technologies.

Declan believes Belfast's success is rooted in its entrepreneurial culture and resilience. Having grown up during the years of conflict himself, he notes a strong determination in the region to build a better future. As traditional industries have declined, creative technology and screen businesses are becoming an increasingly important part of Northern Ireland's economy, creating new high-value jobs and supply chains.

---

“We weren’t looking  
for a place at the top  
table. We built the  
table ourselves.”

---



## Dr Zaki Ahmed

**Dr Zaki Ahmed is the founder and Chief Technical Officer at Pulsiv, a power conversion technology company with applications in solar energy. Prior to becoming an entrepreneur Zaki was an Associate Professor at the University of Plymouth where, as a young academic, he was tasked with teaching modules relating to renewable energy.**

A key element of the courses that Zaki lectured was for students to deliver a practical project, with a strong emphasis on producing a working prototype. Zaki therefore decided that he, with some help from the university technicians, would build something that takes power from a solar photovoltaic panel and pushes power back into the electrical grid, which is the basis of most solar power renewable energy. This process requires a device called a microinverter that converts the direct current produced from the solar cells into the alternative current in household power supplies.

Zaki soon recognised an opportunity to apply his knowledge of communication engineering principles, which uses different techniques to that in traditional power electronics, to improve the efficiency of the process. Zaki describes solar panels as operating in the opposite way to an LED. Rather than power producing light, light produces power which can be fed back into the local electricity grid. The development of these new approaches, and the patents that followed, eventually led to the formation of Pulsiv, a spin-out company based at Plymouth Science Park, founded in collaboration with Frontier IP Group.

Pulsiv's technology allows solar installations to harvest significantly more energy than conventional systems. The technology not only enhances solar generation but can also improve energy efficiency in consumer electronics such as televisions, mobile phones and laptops.

While Pulsiv has its headquarters in Cambridge, the South West is one of the UK's most promising regions for low-carbon energy, making it a natural home for Pulsiv's research and development laboratories. These are based in the Plymouth Science Park which Zaki describes as a "very creative space". He highlights that the UK has an environment that enables access to a range of skill sets essential for prototyping new technologies and early-stage research and development.

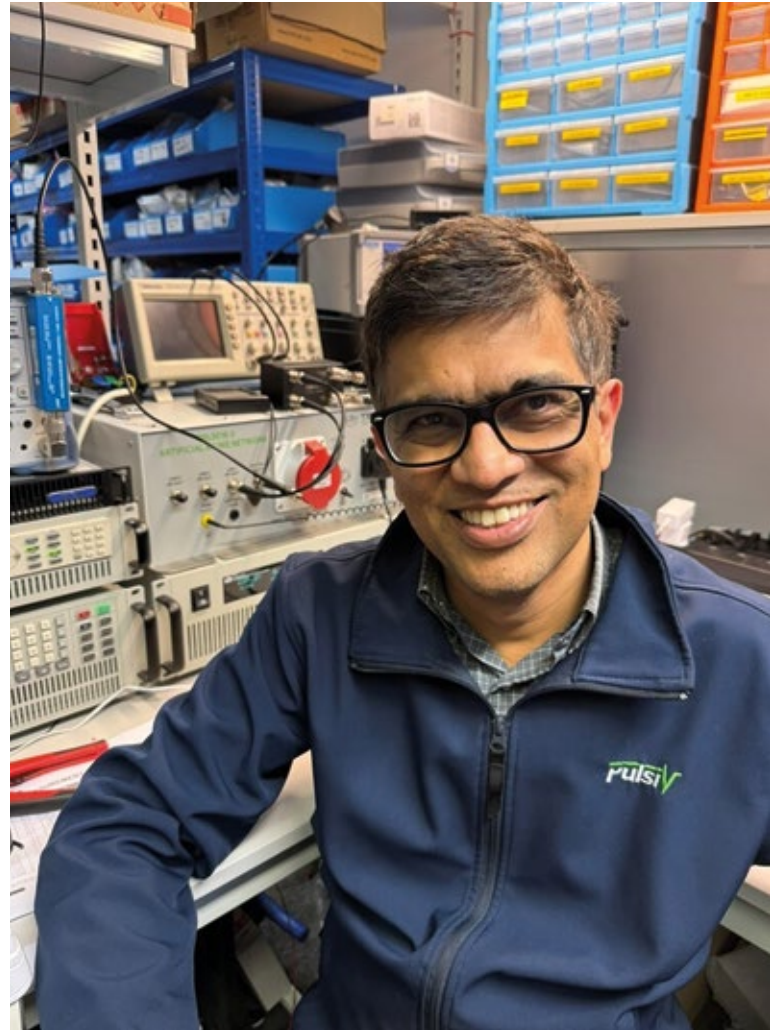
The location at the Research Park allowed interaction with other industry stakeholders. This included engineers from Toshiba as well as early access to the former Toshiba facilities for electromagnetic-compatibility testing. Access to these facilities proved critical for ensuring safety, reliability and regulatory compliance of electrical equipment.

Being in the South West has other advantages such as lower cost for renting laboratory space, lower cost of living for staff and proximity to other centres of renewable energy and electrical goods expertise. So, during the early phases of a startup, setting up a research lab space is a lot more easily done in the region.

---

“There’s a lot of enthusiasm in the South West for these technologies and if you know where to look there are great pools of talent to help develop them.”

---



# Professor Helen Maddock

**Professor Helen Maddock is the Founder, Director and Chief Scientific Officer of InoCardia, a Coventry University spin-out built on her research.**

InoCardia is a specialist provider of cardiovascular efficacy and safety drug screening services for pharmaceutical and biotech customers. The technologies help drug developers identify whether potential new medicines may negatively affect the cardiovascular system, as well as drug discovery for novel heart disease therapies. Beyond her duties at InoCardia, Helen is also Professor of Cardiovascular Physiology and Pharmacology and Associate Pro-Vice-Chancellor for Research and Innovation at Coventry University.

Helen's career has spanned both academia and industry and was shaped by her early experiences in the pharmaceutical industry, first at AstraZeneca and later through a PhD with GlaxoSmithKline.

Helen's subsequent postdoctoral work at University College London's Hatter Institute working directly with cardiologists and surgeons using donated human heart tissue increased her commitment to translational medicine. This experience fundamentally changed Helen's perspective on translational medicine. It became clear to her that one of the biggest barriers to drug development was the lack of predictive, human relevant, preclinical models. From her time in industry Helen witnessed how limitations in early drug screening contributed to expensive late-stage drug failure, and this was a challenge she felt should be addressed.

Joining Coventry University, Helen found an applied research environment that gave her this opportunity. Helen and her team developed an in-vitro cardiac model that replicated heart function. Mimicking the cardiac cycle, Helen and her team were able to predict the efficacy and cardiotoxicity of drugs. This work laid the scientific foundation for InoCardia.

Helen credits a strong culture of collaboration across the West Midlands as being key to InoCardia's growth and success. Working with the University of Birmingham, the University of Warwick, Aston University and the University Hospital Coventry and Warwickshire, Helen highlights a supportive and collaborative environment where there is a strong focus on the translational aspect of medicine.

Looking to the future, Helen sees potential for InoCardia's growth within the West Midlands due to the strong advanced manufacturing heritage in the region. To build market impact, Helen understands that InoCardia will need to scale, grow and industrialise their capability. Looking at the region's automotive industry Helen sees the utilisation of automation, robotics and digital systems as a key element to help her business progress. Already in conversations with her local networks, Helen appreciates the opportunity to be able to capitalise from learning from other industries in the West Midlands to advance and scale-up InoCardia's novel technologies.

Helen's career has been shaped by many factors, including becoming a mother and taking career breaks. Something she openly acknowledges is a reality for many women in science. Despite these challenges, Helen has built a company that is redefining human relevant preclinical drug development with the potential to accelerate the development of safer, more effective medicines.

---

“There’s a close-knit ecosystem here in the West Midlands. The universities, hospitals and industry partners are open to collaboration, and the mix of clinical, academic and industrial expertise has been vital to driving our work forward.”

---



# Professor Wyn Meredith FREng

**Professor Wyn Meredith FREng is Director of the Compound Semiconductor Centre, a company focussed on the commercialisation of research in advanced semiconductor materials and devices, originally formed as a joint venture between IQE Plc and Cardiff University.**

Wyn's early studies were outside of Wales where he completed a Physics degree at Cambridge and a PhD at Heriot-Watt University in Edinburgh, developing blue microchip laser sources for optical storage technologies in the mid-90s. After working in companies such as Ferranti, British Telecom Research, Sharp, and CST (now Sivers Semiconductors), Wyn joined IQE, a Cardiff-based global supplier of compound semiconductor materials.

Compound semiconductors (CS) are enablers of a wide range of photonic, radio frequency and power electronics devices which are essential components in electronics required for AI and communications hardware, defence and security systems, clean energy and electrification of transport.

Inspired by IQE's founder, Drew Nelson, there was a recognition that South Wales possessed the essential ingredients to develop a world-leading semiconductor ecosystem. With large industrial players across the semiconductor supply chain, historical research strengths at local universities, and a skilled manufacturing workforce, there was a clear opportunity for improved connectivity and a shared strategy to turn these elements into a globally relevant cluster. As a result, eight partners from industry, academia, local civic leadership in South Wales and Welsh Government co-developed a vision to establish an industry-led ecosystem, which was launched in 2015.

This vision led Drew and Wyn to co-found the Compound Semiconductor Centre in 2016 with critical support from the executive and academic staff at Cardiff University. The Centre's focus is to strengthen collaboration of all partners across the supply chain which spans design, materials, chip fabrication and tools through to integrated module manufacturing. Since its inception the Centre has delivered around £80 million of research activity and catalysed collaborative work in the region by instigating a £43 million project, 'CSconnected', funded by UKRIs 'Strength in Places' programme, aimed at growing high-value economic clusters.

The South Wales cluster has grown rapidly, and by its 10th anniversary in 2025 it supported roughly 3100 jobs, with an export output of more than £500 million of products and services. The ecosystem has attracted close to £1 billion of investment including £250 million of new research, development and innovation infrastructure at Swansea University (Centre for Integrated Semiconductor Materials), Cardiff University (Institute of Compound Semiconductors) and the Compound Semiconductor Applications Catapult in Newport. In addition, there has been roughly £650 million of investment commitment in manufacturing capacity expansion by global semiconductor companies such as KLA, IQE, Vishay and Microchip.

The ambitions for the semiconductor industry are both economic and cultural. CSconnected aims to double the workforce by 2030, grow exports to £1 billion, and help revitalise communities across Wales through the creation of well paid, high-value manufacturing jobs.

Beyond this, Wyn also hopes to see Wales established as one of the major European semiconductor clusters, underpinned by a persistent collaboration between industry, academia and government. It is this culture which Wyn believes is essential for any progressive, vibrant deep-tech economy.



---

“The results in South Wales reflect a long-term commitment to building not just technologies, but the ecosystems and skills that allow them to flourish – an impact that will shape Wales’s economic future for decades to come.”

---

## Professor Matthew Rosseinsky OBE FRS and Professor Andrew Cooper FRS

**Matt Rosseinsky OBE FRS Professor of Inorganic Chemistry, and Professor Andy Cooper FRS, Academic Director of the Materials Innovation Factory and Director of Leverhulme Research Centre for Functional Materials Design at the University of Liverpool.**

Andy and Matt work on the development of new high performing functional inorganic and organic materials, and the cutting-edge digital research methods required to discover these materials (artificial intelligence, computational chemistry, and robotics). Their work emphasises the integration of experiment with computational methods and collaborations with physicists, engineers and computer scientists.

Groundbreaking research in materials is essential for solving a wide range of problems, including net-zero energy generation, medicine, information technology and sustainability. The UK must stay at the forefront of this research to be competitive.

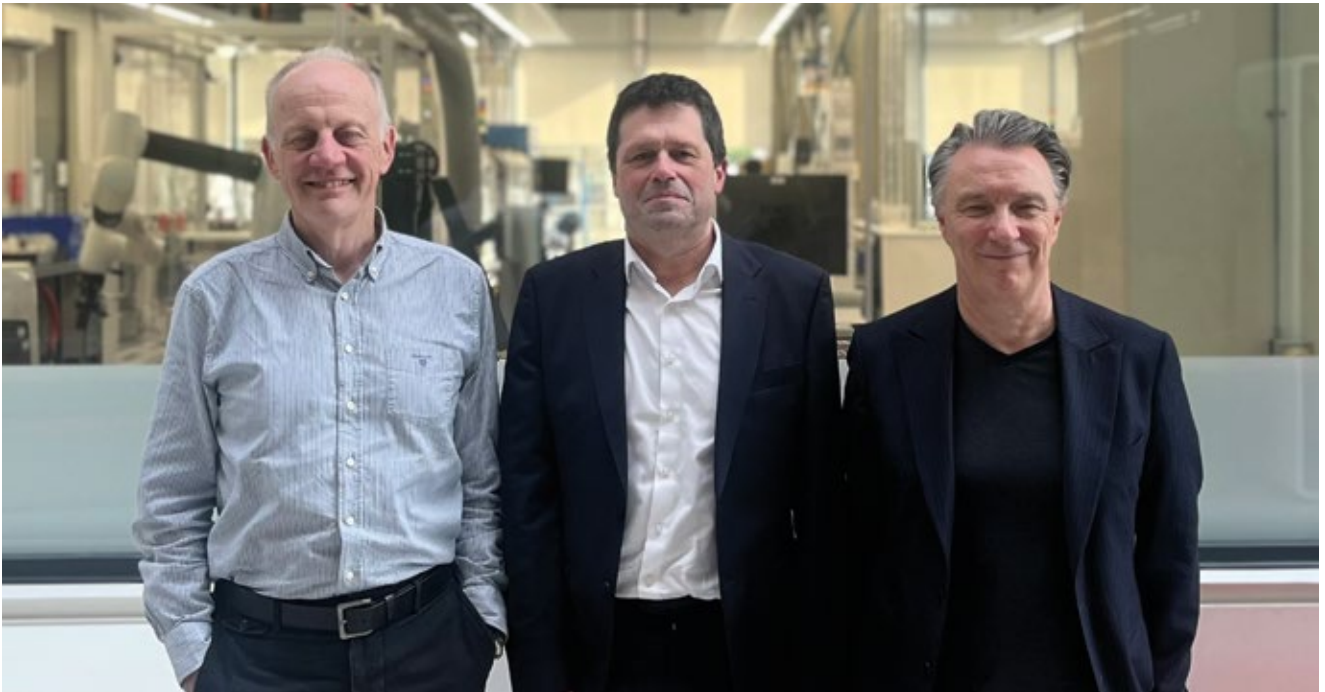
Liverpool is now home to a dynamic cluster of materials science activities – and Matt and Andy believe the region's advantage comes from research excellence, built up over two decades.

The University of Liverpool's leadership is based on more than 25 years of foundational materials science research. This academic excellence, coupled with an open-minded interest in collaborating with industry partners, has created a thriving cluster of research and innovation activities.

Long-term partnerships with companies like Unilever, NSG Pilkington, Ceres Power and Johnson Matthey have helped these companies and others to create significant economic value – for themselves and for the UK. These partnerships come from company interest in translating the results of unconstrained academic research which focusses on advancing knowledge, capability and understanding.

Matt and Andy believe that industry collaborations are best built through industrial partners sharing their broad strategic challenges. These technical problems can motivate academic research programmes to focus on building next-generation capability, rather than solving short-term commercial problems. Liverpool's material science cluster is evidence of the value created from investing in long-range fundamental science that focuses on "what's possible tomorrow".

The Liverpool ecosystem has benefitted from long-term investments in knowledge creation and facilities. For example, the Centre for Materials Discovery between 2006 and 2016, and the £82m Materials Innovation Factory (MIF) from 2013 onwards. These facilities embody an ambitious vision shared by both academic leaders and industry partners. This vision has attracted investment from the University of Liverpool, the Engineering and Physical Sciences Research Council (EPSRC), the Leverhulme Trust, Research England, industry partners and regional government. Patient continued investment at scale for over 20 years has been critical.



Liverpool City Region's devolved authority sees materials innovation as one of its strategic strengths. This is reflected in an ambition, shared with the University of Liverpool, to create a "materials supercluster" in the city. The MIF is already home to internationally leading academic science in digitally driven materials discovery, AI, and automation and a set of unique open-innovation platforms. The next phase of this plan is the AI Materials Hub for Innovation (AIM-HI), also located in Liverpool, which has the vision of establishing the UK as the global leader in the large-scale industrial application of AI to materials chemistry.

---

"Fundamental science discoveries open new possibilities, which visionary industry leaders can then harness to advance their agendas, and it is the unconstrained-by-the-technology-of-today creation of the science for the future, supported by patient funder re-investment, that has enabled such outcomes in Liverpool."

---

**Above**

(Left to right) Matthew Reed, Matthew Rosseinsky and Andy Cooper.

## The Royal Society

The Royal Society is a self-governing Fellowship of many of the world's most distinguished scientists drawn from all areas of science, engineering, and medicine. The Society's fundamental purpose, reflected in its founding Charters of the 1660s, is to recognise, promote, and support excellence in science and to encourage the development and use of science for the benefit of humanity.

### The Society's strategic priorities are:

- The Fellowship, Foreign Membership and beyond
- Influencing
- Research system and culture
- Science and society
- Corporate and governance

## For further information

The Royal Society  
6 – 9 Carlton House Terrace  
London SW1Y 5AG

**T** +44 20 7451 2500

**W** [royalsociety.org](http://royalsociety.org)



Founded in 1660, the Royal Society is the independent scientific academy of the UK, dedicated to promoting excellence in science

Registered Charity No 207043  
Issued: April 2026 DES9472\_1

### Cover image

Map of Edinburgh.

© iStock/lasagnaforone.