



**Imperial College
London**

Faculty of
Natural Sciences

**LET'S
CREATE A
REACTION**

Corporate partnerships

TOGETHER WE'LL ANSWER THE BIG QUESTIONS



Professor Tom Welton,
Dean, Faculty of Natural
Sciences

Maximising Impact through Collaboration

Imperial is home to the greatest concentration of high-impact research of any major UK university. Our Faculty's world class research offers exciting opportunities for collaboration and engagement. We strive to provide an environment where collaborations between academia and industry can flourish, enabling us to work towards solving global problems.

Our Faculty receives funding from a wide range of sources and this publication provides an overview of the breadth and quality of research that we undertake with industrial partners. These partnerships, along with the support from alumni and other sources, allows our research to have a real impact that strengthens the

economy through improved business performance and creation of new business, as well as providing solutions for the benefit of our society through improved health, policy and public understanding - an important part of Imperial's founding charter.

If you are interested in collaborating with our outstanding researchers, we offer exceptional and compelling opportunities for engagement, and look forward to talking with you.

Faculty of Natural Sciences' mission

- To make discoveries in the physical, mathematical and life sciences and to educate the scientists of the future
- To integrate research across these areas in a multidisciplinary manner
- To apply these discoveries to the benefit of humanity



STFC/Imperial College London

**THE LHC PROJECT AT CERN:
EXPLORING PHYSICS, MOMENTS
AFTER THE BIG BANG**

OUR STRATEGY

Faculty research strategy

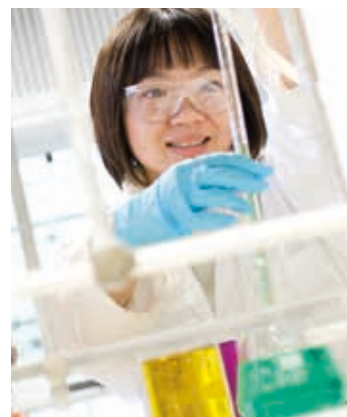
The Faculty of Natural Sciences research strategy harnesses the strengths and breadth of our research to meet the changing needs of society, industry and healthcare; and it addresses the global challenges of climate change, energy, global health and security.

Faculty key research objectives:

- Support and sustain excellent science
- Strengthen the culture of global collaboration and partnership with stakeholders in private and public sectors
- Help to catalyse the translation of research into products and policies that benefit humanity
- Train future generations of scientists

Faculty process to achieve objectives:

- Develop responses to natural science issues
- Deliver on the priorities of our funders
- Create a supportive environment for knowledge transfer and outreach
- Use a multidisciplinary approach to work across our departments, institutes and centres
- Working in partnership with industry, universities, government organisations, schools and museums
- Continue to develop our students' quality of education and training



Faculty Departments

The Faculty is comprised of five departments:

- Chemistry
- Life Sciences
- Mathematics
- Physics
- Centre for Environmental Policy

Imperial's Research Institutes

Our multidisciplinary centres and institutes facilitate collaboration across Imperial's department structure. Imperial's research institutes include:

- The Energy Futures Lab
- The Institute for Security Science and Technology
- The Grantham Institute for Climate Change
- The Institute of Global Health Innovation
- The Institute of Chemical Biology
- The Institute of Shock Physics
- The Institute of Systems and Synthetic Biology

WHY WORK WITH US?

- **Gain exposure to world-leading research**
- **Utilise educational and training excellence**
- **Connect to expertise in translation and knowledge transfer**
- **Collaborate with world-renowned academics**
- **Access a global pool of talented students**
- **Join a network of partners and public funding bodies**
- **Grasp the opportunity to influence on a global scale**



Imperial's South Kensington Campus

WORK WITH THE BEST

Educational and training excellence

Access world-class students

Our approach to education draws the brightest students from the global talent pool. Corporate engagement with our departments through bursaries, industry funded research projects or internships, will give you access to our students.

Leading training centres and bespoke courses

Our innovative Centres for Doctoral Training produce multidisciplinary scientists with the skills to tackle major world challenges. The Master's courses run within our departments, and the short courses within our School of Professional Development, can enable discipline hopping and be tailored to meet the needs of industry. We can work with you to deliver training programmes for your employees at all stages of their career.

Exposure to world-leading research

World top ten university

The research we conduct is recognised globally and Imperial is consistently ranked in the world's top ten universities, reflecting our reputation for excellence.

Advanced research facilities

Imperial has an extensive range of research facilities, including unique and bespoke instrumentation that can be accessed by our partners.

Working across disciplines

Our multidisciplinary approach, bringing together physical sciences and engineering with biological, biomedical and clinical sciences helps to catalyse cutting-edge, high-impact research.

The Imperial College Mission

"Imperial College embodies and delivers world class scholarship, education and research in science, engineering, medicine and business, with particular regard to their application in industry, commerce and healthcare. We foster interdisciplinary working internally and collaborate widely externally."



Supportive translation and knowledge transfer environment

Translation is an integral component of our strategy. The activities of the Pro-Rector (Enterprise) include developing our commercial strategy, strategic partnerships, commercial projects and consulting activities. Imperial Innovations, our technology transfer company, provides support for spinouts and licensing.

Medical campuses driving translation

Imperial has a number of medical campuses attached to London hospitals, including those of our Academic Health Science Centre (AHSC) through partnership with the Imperial College Healthcare NHS Trust. This along with close links with several other NHS Trusts provides opportunities for direct translation of research into the clinic.

Imperial College Business School

The Imperial College Business School's Entrepreneurship Hub develops the entrepreneurial and technology transfer skills of our staff, students and partners through structured programmes and online tools. The Executive Education team develops programmes for partners in a range of industries.

An opportunity to influence

Working together to influence the world

It is our strategic aim to anticipate, understand and shape the thinking of stakeholders and policy makers worldwide, including in government, academia and industry. Our London base affords us close links with government and leading research institutions, including the Francis Crick Institute. We have a broad international network with academia and industry, including alumni who have risen to positions of influence in industry.



Imperial's Hammersmith campus

HOW CAN YOU MAKE A DIFFERENCE?

Engaging with the Faculty of Natural Sciences

We enable partnerships across a broad spectrum of disciplines and departments. Below are some examples of how you can collaborate with us.



How you can work with us

Through project funding:

- Direct funding for single projects
- Large, strategic partnerships
- Spinouts and venture capitalist funding
- Commercialisation and technology transfer activities
- Leveraged and matched funding for research and training through government sponsors such as Research Councils UK (RCUK), the Technology Strategy Board and other government departments

Through people and training:

- Access to our skilled undergraduate and graduate student pool through industry sponsored studentships and internships
- Industry sponsored fellowships, including through Imperial's Junior Research Fellowship programme
- Short or long term secondments of academics into industry, or industry partners into Imperial
- Continuing Professional Development, Master's courses and educational programmes tailored to meet the needs of industry
- Consultancy services
- Access to facilities and associated expertise

Supporting collaboration through public funders

RCUK, the Technology Strategy Board and the European Commission (EC) invest in collaborative research and training with industrial partners through a number of mechanisms. Imperial also helps funding bodies deliver their research objectives and maximise the impact of their funded research at Imperial. Examples of these schemes include:

- **Collaborative research initiatives** support a range of research activities from basic grants between two partners, through to complex multi-partner research programmes
- **Collaborative training schemes** fund collaborative studentship projects between academia and industry, vocational courses, and training in entrepreneurship
- **People and information exchange** funding enables academic and industrial researchers to exchange ideas and experience by moving between environments and cultures. Activities supported range from networks and industry clubs through to personal fellowships and secondments

- **Commercialisation and development**
Our funders offer a range of schemes that enable researchers to explore the commercial potential of their research, to acquire business skills to develop it, and to move towards commercialisation



WE CAN MAKE GREAT THINGS HAPPEN

CASE STUDY

SYNGENTA UIC

The Syngenta University Innovation Centre (UIC) is a Syngenta funded programme aiming to establish methodologies to model and predict “unknown” data in projects aligned with Syngenta commercial interests.

Systems biology seeks to determine how complex biological systems function by integrating experimentally derived information with mathematical and computing solutions.



The Syngenta UIC on Systems Biology at Imperial

Syngenta and Imperial established the UIC via a collaborative research model to support a major project in systems biology modelling and to facilitate further interactions.

Predictive modelling

With incomplete and complex data, Imperial offered Syngenta expertise in mathematical modelling and machine learning that would exploit experimental data. The UIC undertook two pioneer projects; ‘Tomato Ripening’ and ‘Predictive (cancer) Toxicology’.

Spin off project

A third project on ‘ecosystems modelling’ was created. ‘Eco-modelling’ applies the mathematics of the small scale (cells, genes and metabolites) to that of the large-scale organisms and fields.

Benefits to Imperial and Syngenta

- Knowledge Transfer: Imperial and Syngenta personnel undertake lectures, tutorials and seminars at both Jealott’s Hill (Syngenta) and Imperial
- Syngenta gained exposure to the global talent pool of Imperial’s students and academics, and allowed them insight into the commercial world
- Predictive modelling of crop behaviour and understanding of crop technology is pivotal to the commercial drivers for Syngenta’s core business

Benefits to wider public

- The potential of the UIC research projects to help address the grand challenge of global food security is an exciting opportunity

Food production: a growing concern

Since 2008 the Syngenta University Innovation Centre on Systems Biology at Imperial College London have been using predictive modelling to understand crop behaviour.

The perfect tomato through predictive modelling

The objective of this project is to build a predictive model of tomato ripening and fruit quality, which would allow Syngenta to identify the main genetic control points in this process. Syngenta’s goal is to exploit this knowledge through conventional breeding programmes to develop tomato breeds with quality traits meeting both retailing requirements (e.g. tomato texture) and customer satisfaction (e.g. taste).



“The UIC has enabled us to evaluate hypotheses in key business areas that would have been impossible without predictive systems biology. It has also strengthened the relationship with Imperial across the board”

**Professor Stuart J Dunbar –
Senior Syngenta Fellow + Group Leader**





**WE FIND THE
ANSWERS IF
YOU ASK THE
QUESTIONS**

IMPLEMENTING SOLUTIONS

Reducing environmental impact

Case study 1

Department of Life Sciences researchers in collaboration with the Sime Darby Foundation, Sabah Foundation and Benta Wawasan, are establishing one of the world's largest ecological experiments in the rainforests of Borneo. The Stability of Altered Forest Ecosystems project (SAFE) allows scientists to understand the ways in which logging, deforestation and forest fragmentation modify the functioning of tropical rainforest, impair its ability to deliver ecosystem services, and reduce its capacity to support the diversity of life.



Case study 2

Sainsbury's is partnering with the Grantham Institute for Climate Change to develop technologies and solutions that will lower its carbon footprint. The team has trialled new ways of improving the way that energy is used such as developing new work processes and has implemented new energy saving technologies in Sainsbury's Hythe store. Since the start of the project in February 2012, the store has reduced energy demand by 13%, which equates to savings of 60,000 kilowatt hours or 57 tonnes of CO₂.

Case study 3

Microsoft Research and Department of Life Sciences researchers are applying advanced computational methods to conservation science challenges facing the world's tropical rainforests. This includes detailed models of road construction in the Brazilian Amazon and deforestation across the wet tropics of Central Africa,

South America and Southeast Asia. These models are being applied to understand time lags in the release of carbon emissions from tropical deforestation. Working with regional NGOs, they are helping to target on-the-ground conservation actions in the Amazon.



Case study 4

Researchers within our Centre for Environmental Policy have worked with a number of water companies, including Anglian Water, Yorkshire Water and Thames Water, to address environmental practices and sustainability needs through evidence-based research.

Working with the electronics sector

Siemens, Corporate Technology and Department of Chemistry researchers, are jointly exploring the potential of solid-state nanopores for single-molecule biosensing. The focus is on DNA and protein analysis with the aim of enabling new diagnostics technology.



Working with the finance sector

A collaboration between Department of Mathematics researchers with Capital One, Lloyds TSB, Alliance & Leicester and Abbey, with funding from the Engineering and Physical Sciences Research Council (EPSRC) aims to develop a statistical model to identify credit card fraud more effectively. This will benefit both banks and their customers and improve the anti-fraud systems used in the retail financial sector.



Working with oil and gas companies

Researchers within the Department of Chemistry work with a number of petrochemical companies including BP and INEOS to help develop new catalysts and catalytic processes.



Let's become invisible

Metamaterials research within our Department of Physics has captured the imagination of the world's media and attracted great involvement from industry. Professor Sir John Pendry designed a series of completely novel materials with properties not found in nature whilst working as a consultant at Marconi, which has led to the development of the first ever 'invisibility cloak'.

CASE STUDY

THE INSTITUTE OF SHOCK PHYSICS

The Institute of Shock Physics (ISP) is a multidisciplinary research organisation established in 2008. It is supported by an industrial contract from AWE and with major support from Imperial.

The Institute aims to provide a UK focus for fundamental shock physics research to further our understanding of the science of shock waves, ultrafast material phenomena and what happens to matter under extreme conditions. It also educates the next generation of scientists and engineers in shock physics through PhD training, an undergraduate module in hydrodynamics and shocks, a Master's course, a short course series and many other outreach activities.

Shock physics applications

The research is applied in many ways, including analysing the effect of meteorite impacts on planets, spacecraft and satellites, understanding how tsunamis are formed and understanding the high-pressure conditions that occur at the core of planets.

Man-made high pressure has aeronautical and national security related applications. These include studies on force protection,

understanding how biological materials behave when exposed to shock waves and developing improved energetic materials.

Benefits to Imperial and AWE

AWE funding has enabled Imperial to establish a centre of research and training excellence in shock physics, underpinned by unique capabilities, that were simply not present in the UK five years ago. Benefits to both organisations are:

- Two-way transfer of technical expertise and equipment
- AWE provides training on short courses to students and academics, enabling knowledge transfer between Imperial and AWE
- AWE benefits from access to individuals who have been trained by experts in a world-leading university for collaboration and recruitment
- AWE interacts with the ISP's wide network of collaborators providing access to a network of knowledge and technology
- AWE is able to conduct research in the public domain, enabling joint research publications in peer reviewed journals

- AWE funding for a PhD on understanding how biological materials behave when subjected to shock waves has enabled the ISP to become part of the Centre for Blast Injury Studies at Imperial, funded by The Royal British Legion. The ISP-led theme is on Blast Force Protection. www.imperial.ac.uk/blastinjurystudies

Benefits to the wider public

The ISP research enables the development of materials that are better able to withstand forces, leading to safer manufacturing methods, stronger vehicles for civilian and military use, better protection against acts of terrorism and natural disasters, and more reliable satellites.



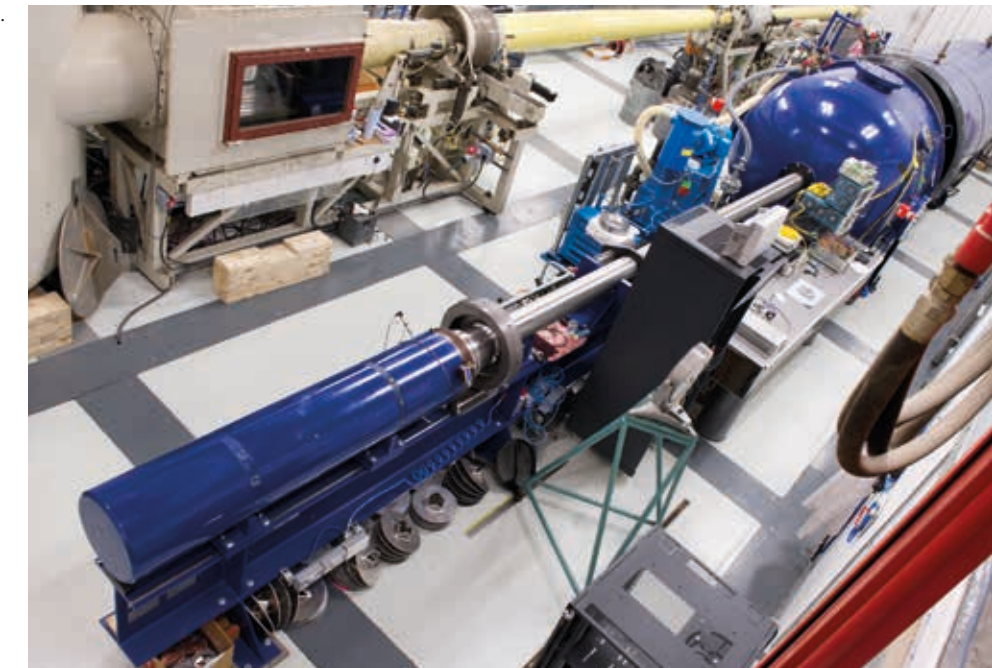
TOOLS TO HANDLE THE GRAND CHALLENGES

Imperial has a long history of developing tools and technologies which can be applied to the grand challenges through multidisciplinary research endeavours. In collaboration with AWE, other partners from the UK and from overseas, the Institute of Shock Physics undertakes research over multiple scales, from seconds to picoseconds and from bulk to atomistic level which address defence, automotive, aeronautics, space and energy grand challenges. It does this using a range of state-of-the-art experimental platforms, diagnostics and modelling capabilities developed to meet the requirements of testing the behaviour of matter under extreme conditions. This includes a 100 mm, single stage Gas Gun, a 2 MA, 300ns rise time pulsed power facility and an 8-channel, multi-generation HETV system.

ISP'S GAS GUN FACILITY PROVIDES THE OPPORTUNITY TO INVESTIGATE HOW MATERIALS BEHAVE UNDER HIGH PRESSURES AND TEMPERATURES

Commercial opportunity

Having developed these tools within Imperial and utilised them for research, the tools often have industrial functions and can be made commercially available. For example the Imperial Gas Gun and other capabilities within the Institute are already being used for collaborative projects with defence and security, automotive and aeronautical applications.



CASE STUDY

CENTRE FOR PLASTIC ELECTRONICS

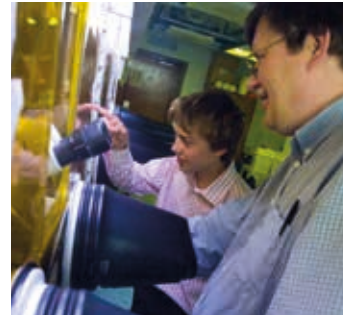
Imperial's Institutes and Centres provide vital training, research and collaborative facilities for Imperial students and staff, and Imperial's partner organisations. The Centre for Plastic Electronics is a centre founded on interdisciplinary research of electronics and their applications.

The Centre for Plastic Electronics (CPE) at Imperial performs high-impact and cutting-edge research and development in the broad area of plastic electronics. It covers a wide range of applications including organic photovoltaics, organic light-emitting diodes and organic thin film transistors.

Formally launched in 2009 after almost a decade of strategic investments by Imperial, the Centre comprises 24 academic members and more than 150 students and researchers. The CPE take a multidisciplinary approach to solving current multi-faceted scientific challenges by bringing together academics from across departments and training students from a variety of backgrounds.

The CPE Affiliates Programme

The CPE Affiliates Programme was initiated in 2012 to leverage the expertise in plastic electronics within academic groups across campus, and promote joint research and interactions with interested collaborators.



Plastic Electronics Centre for Doctoral Training

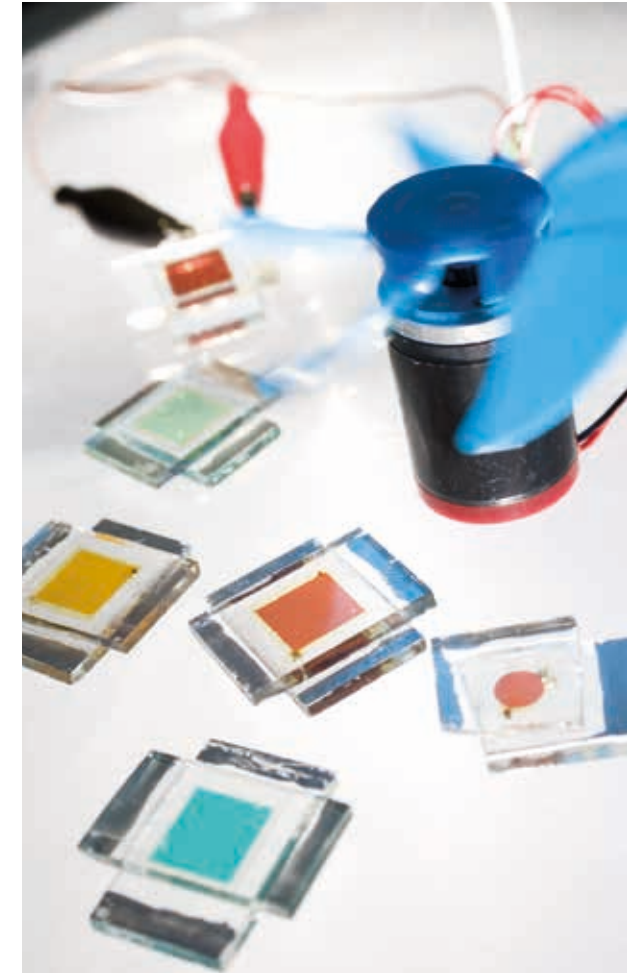
In addition to the Centre, research in plastic electronics at Imperial is supported by EPSRC's national Centre for Doctoral Training (CDT) in plastic electronics. Through training and the transfer of knowledge, this £7.2 million programme aims to develop the next generation of researchers to tackle a wide range of technological and industrially relevant problems in this burgeoning field. The breadth of expertise in the CPE provides an ideal environment for training, giving students the skills to confidently engage in multidisciplinary team working.

An advisory board, which includes several industrial representatives such as BASF, DuPont and Cambridge Display Technology, offers advice to help guide and shape the programme. The programmes encourage students to have a commercial awareness with the delivery of additional courses on entrepreneurship, intellectual property, project management and ethics.

Sponsored research

Over the course of their PhD, the students have the opportunity to perform high-impact cutting-edge research in different aspects and areas of plastic electronics. CDT research includes synthesising new materials for organic photovoltaics, multiscale modelling of materials, photophysics and device performance and the fabrication and testing of high-performance thin film transistors and circuits.

ORGANIC AND DYE SENSITISED SOLAR CELLS RESEARCH IN THE CENTRE FOR PLASTIC ELECTRONICS



LET'S TURN IDEAS INTO OPPORTUNITIES

Investment in spinouts via venture capital, angel investment, leveraged EC research funding and RCUK funds have enabled a number of successful businesses to be developed from our cutting-edge research.



Molecular Vision

Molecular Vision (MV) is an R&D stage in vitro diagnostic company that has developed a low-cost technology for multiplexed analysis on bodily fluids. The disposable point-of-care device is able to measure previously incompatible parameters on a single test from a single sample, providing lab-quality information. This technology has been applied to contract work undertaken by MV for a variety of customers addressing analysis problems relating to kidney and cardiac health, pathogen identification and cosmetics.

Abingdon Health Group (AHG), a specialist medical diagnostics company, acquired a majority stake in MV as a key component of its strategy to create a fully integrated UK business that can compete in the multi-billion pound global immunodiagnosics market.

QuantaSol

QuantaSol was spun-out from research at Imperial with the challenging goal to become the world's leading supplier of high efficiency III-V based solar cells.

QuantaSol pioneered the application of quantum well nanostructures for solar photovoltaics. Using its unique, patented technology, the company manufactured triple-junction concentrator solar cells operating at 40% efficiency.

This world-leading photovoltaic technology delivers greater conversion efficiency, along with better spectral performance than competing cells. After several rounds of Venture Capital investment totalling around £7.5m, QuantaSol was acquired in 2011 by JDS Uniphase Corporation, who manufacture cells with efficiency above 41% using the technology.

Econic Technologies

Building on groundbreaking and award-winning technology developed by Professor Charlotte Williams (Department of Chemistry), Econic Technologies is developing catalysts that convert waste CO₂ feedstock into commercially useful polyurethanes and polycarbonates. Polyurethanes are used for products ranging from car seats to insulation foam and polycarbonates are used for products ranging from drinking bottles to coatings.

Reduced environmental impact

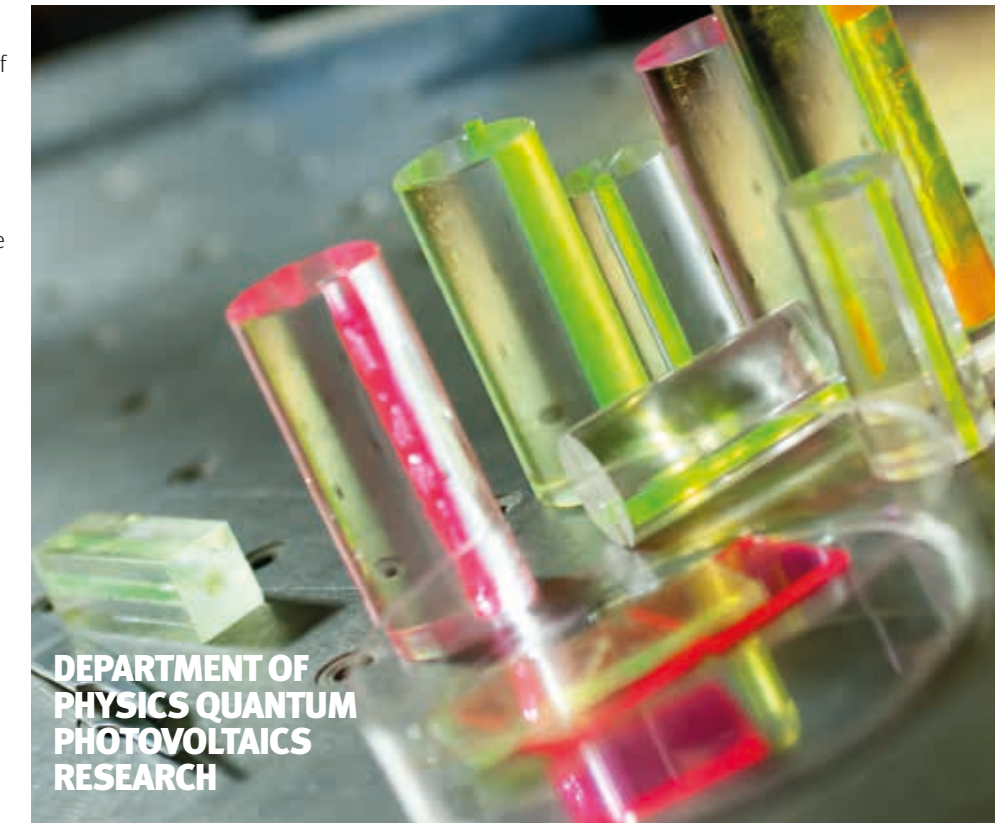
As a consequence the proportion of petrochemicals in these materials is reduced. Raw materials costs can account for up to 80 per cent of the sales price of the finished product, and so a reduced petrochemical content will translate to reduced production costs for a range of polymers. The catalysts have significant potential across the global polyurethanes and polycarbonates markets, which are worth around US\$20 billion and US\$11 billion respectively.

Improved sustainability

These new catalysts are active at just 1 atmosphere pressure of carbon dioxide and show excellent turn-over-numbers and turn-over-frequencies. Some of the new catalysts display comparable activities to the literature catalysts but operate at a fraction of the carbon dioxide pressure (1/10 or 1/60 of the pressure) – this significantly improves the sustainability of the process.

Further funding

Econic recently secured funding from Imperial Innovations and Norner Verdandi, a technology consultancy firm and partner for polymers and materials industries. This funding is being used for research and development purposes, through inward investment of Professor Williams's research group, as well as scaling up production.



DEPARTMENT OF
PHYSICS QUANTUM
PHOTOVOLTAICS
RESEARCH

A world of opportunity

The Faculty of Natural Sciences is an outstanding centre for research, education, and training and offers multiple opportunities for collaboration and access to our talent, knowledge and experience. Our expertise in fundamental and multidisciplinary science, translational strengths, talented student pool, global reputation and links with national and international academia, industry and policy makers allow us to provide invaluable support and contribute to the needs of our industrial partners.

Imperial Enterprise team groups

The groups within the Enterprise team aim to maximise socio-economic returns for Imperial, industry and society as a whole by working closely with our faculty and partners. The groups include:

Corporate Partnerships

The Corporate Partnerships team forms the core interface between Imperial and the needs of industry, driving the creation of strategic research collaborations. Corporate Partnerships support the formation and development of strategic alliances that lead to research collaborations of value to both partners. Projects can take many forms, such as sponsoring an institute or a student, or collaborative research and development.

Imperial Consultants

Imperial Consultants handle contractual negotiation and administrative details concerned with commercial use of research facilities and the provision of consultancy expertise from our staff.

Imperial Innovations

Imperial Innovations team is Imperial's technology transfer company, which focuses on commercialisation of ideas generated by academic researchers. Their projects are usually initiated when a researcher – either from within or outside of Imperial – approaches them with new intellectual property.

Imperial Business Partners

Imperial Business Partners (IBP) adds value for its members by building links and providing exclusive forums for discussion that enable them to improve their access to Imperial. Their events and services aim to inform and stimulate board-level thinking about the impact of science, technology and innovation on business, policy and society. It aims to develop and implement new solutions to shared strategic issues and support the development of a new business model that maximises the returns from industrial-academic collaboration for both partners.

Funders of research

We are grateful for the support of numerous organisations that currently fund research within the Faculty of Natural Sciences including:

- UK Research Councils
- UK and overseas industrial sponsors
- UK and overseas charities, including Wellcome Trust, Leverhulme Trust, Cancer Research UK, British Heart Foundation, Bill and Melinda Gates Foundation
- UK national academies (Royal Society, Royal Academy of Engineering, British Academy) and other organisations (National Physical Laboratory, Big Lottery Fund)
- Other organisations including European Commission, UK government departments, UK Space Agency and European Space Agency, World Health Organisation, US Government and United Nations



LET'S BE ENTERPRISING

LET'S INTERACT

Key people

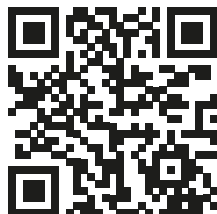
Dean – Professor Tom Welton
Corporate Partnerships – Dr Rebecca Wilson
Research Strategy – Dr Rebecca Nadal
Development – Patrick Stewart

For more information

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Collaborative Research

Working with pharma

Researchers within our Department of Life Sciences are working with GSK to help them understand the mechanisms of action of a group of receptor proteins and aid effective drug design.

The Japan-based pharmaceutical company, Ono Pharmaceutical Co Ltd, and researchers within the Departments of Life Sciences worked together to develop new technology useful for identifying novel compounds targeting sodium channels.

Working with the food industry

Imperial's Centre for Synthetic Biology and Innovation is working on a number of projects with Dairy Crest to investigate how synthetic biology applications may improve the quality, sustainability and freshness of their products.

Researchers in the Department of Life Sciences and the MRC Centre of Molecular Bacteriology and Infection are collaborating with the French company, Danone Research to develop and test probiotic dairy fermented products.

Collaboration through training

Our Department of Mathematics has a number of industry sponsored studentships from Citigroup, Lloyds TSB, Nomura and RBS covering research areas such as probability and stochastic analysis. Such collaborations offer both the students and academics connections and insight into the commercial environment.

Researchers within our Centre for Environmental Policy are collaborating with the Veolia Group in the Veolia Imperial Pathfinder Programme (VIP Programme) to develop and deliver academic training, research and innovation. The aim of the programme is to implement environmental and economic sustainability more quickly and efficiently into the world of business.

Collaborative Consortia

Researchers from across our departments work with a number of companies in consortia. AGRI-net facilitates the translation of novel tools and technologies, bringing together chemical biology and agri-science research communities from academia and industry in partnership with policymakers to develop research targeted at the grand challenge of crop sustainability.

Pharmacat fosters collaboration between chemists, chemical engineers and industry (AstraZeneca, GlaxoSmithKline, Pfizer, Syngenta and Lilly) to support pre-competitive research in the area of the catalysis of organic reactions. Aims include developing innovative chemical technologies to effect best routes and processes for the production of pharmaceuticals, incorporating quality-by-design, as well as better environmental credentials.



**TOGETHER
WE CAN MAKE
GREAT THINGS
HAPPEN**

Collaboration through facility sharing

Through a partnership with Agilent, the research instrument manufacturer, the Department of Chemistry obtained access to complex and expensive equipment and exposure to industrial practices for its students.

In exchange for use of Chemistry's clean laboratory environments and specialised infrastructure, the company housed an atomic force microscope in the department as part of a demonstration site, enabling students to be taught hands-on research and instrument testing skills.