Bug battling firm Byotrol, which researched and developed its revolutionary hygiene technology at STFC’s Innovations Technology Centre (I-TAC), has worked with McBrides, Europe’s leading provider of Private Label Household products, to launch a ground-breaking cleaning spray for Tesco.

Byotrol’s patented technology, which is used in wipes, sprays and mousses to combat the spread of viruses and superbugs, including MRSA, is the main bacteria-killing ingredient in Tesco’s own-brand multi-surface spray. In contrast to old technologies Byotrol contains no alcohol or bleach so is gentler on skin and the environment and is significantly longer lasting than traditional but harsher cleaning products currently on the market.

Manchester-based Byotrol relocated its entire R&D division from Germany to Daresbury’s I-TAC in 2009 to develop and enhance its patented technology. It became the first of 21 companies to benefit from £3million of cutting edge technology and laboratory facilities available to small businesses at I-TAC. Companies using I-TAC are also offered support from STFC’s skilled research staff and can also access the wider opportunities and benefits of being located at the Daresbury Science and Innovation Campus (DSIC), near Warrington, Cheshire.
Stephen Falder, the inventor of Byotrol, said: “Moving to the laboratory at Daresbury has given Byotrol access to an unrivalled range of equipment, specialists and networking opportunities from both across STFC and the Campus at Daresbury. This type of support was not available anywhere else. All of this has been aimed at achieving our ultimate goal of increasing our capacity to find a whole range of new and valuable uses for our technology.”

Dr Martin Morlidge, Manager at I-TAC, said “This is fantastic news for Byotrol and indeed for I-TAC. It is the aim of I-TAC to make it easier for companies to carry out the essential research they need to enable them to thrive in a competitive and increasingly global business environment. Access to the facilities and the expertise available at I-TAC and across STFC can so often be a barrier to scientific innovation for small companies. Byotrol have thrived in this unique environment and their growth shows the benefit of the facility we are offering here at I-TAC.”
Cryogenics Club event

On March 28th, STFC held a Cryogenics Club event hosted by University College London to bring together players from two specialized cryogenic sectors: space and research infrastructures.

The UK holds leading expertise in STFC laboratories, academia and UK industry but the diversity of applications for cryogenics has induced a specialization in the design and manufacture of cryogenic instrumentation for different markets.

The aim of the event was to explore the commonalities and crossover opportunities between two major sectors, space science and research infrastructures, and to stimulate the exchange of knowledge for UK cryogenics development.

Ian Hepburn from the Mullard Space Science Laboratory at UCL opened the morning session with a talk on Sub-kelvin cryo coolers. The Mullard Space Science Laboratory in UCL used an STFC Innovations IPS grant to develop a 26mK cooler in partnership with EADS Astrium. It was the world’s first flight level cryogen free milli-kelvin cooler - previous coolers were liquid helium based. The cooler was supplied to the European Space Agency (ESA) and the transfer of knowledge has expanded Astrium’s business in this area. We also heard about the other cryogenics work carried out at EADS, cryogenics for Tz detectors from QMC Instruments and the cryogenics work taking place in Leicester Space Science group.

The afternoon session focused on research infrastructure cryogenics. We heard about laboratory cryogenics from Oxford Instruments and cryogenics infrastructure for accelerators from STFC Accelerator Science and Technology Centre.

In the closing talk of the day John Vandore of Cryox Ltd, gave an overview of the extent of the UK cryogenic community and the value of the Cryogenic Cluster.

The Cryogenic Cluster is a unique cluster of developers, producers and users of cryogenic technology, concentrated in (but not confined to) the South East of England, unmatched anywhere else in the world. In 2009, the British Government launched a competition for the National Cluster Mark, and the Cryogenic Cluster was the regional winner in South East England.

A Cryogenic Cluster Day will be held at Rutherford Appleton on Sep 28 for ‘B Cryo’. For more information, e-mail cluster@bcryo.org.uk
BIS £20m management training fund will help small businesses grow

Skills Minister John Hayes today called on senior leaders in SMEs to take advantage of funding that will support leadership and management training to help them grow their businesses.

Around 13,000 small and medium sized businesses and social enterprises that demonstrate a potential for growth will benefit from the Leadership and Management development grant. This will help stimulate innovation and employment, boosting the economy and helping develop a bigger and more cohesive society.

A match funded grant of up to £1,000 can be spent on leadership training and coaching that helps grow the business, improving productivity and competitiveness. The programme also includes a free consultation with an expert adviser before the training commences, as well as a free follow-up to discuss the impact of the training and any further skills needs.

Skills Minister, John Hayes said:

“This Government will back businesses that want to boost their skills. We’re spending more than ever on apprenticeships, freeing up training providers from red tape, and focusing public spending where it is most needed to drive growth. Effective leadership can make the difference between survival and growth, and this fund will give vital support to entrepreneurs who want to continue to develop their businesses.”

Geoff Russell, Chief Executive, Skills Funding Agency added:

“This fund will help many leaders of small and medium sized enterprises grow their business through harnessing the talents of their staff. Skills are critical to the future development of businesses. By offering a helping hand to thousands of organisations we expect to see more leaders develop the skills they need to help their businesses achieve their potential.”

The fund will be promoted directly to businesses by the regional Leadership and Management Advisory Service and is available starting this month. SME leaders should contact the Leadership and Management Advisory Service, details available through www.businesslink.gov.uk, to book their free personal leadership and management assessment.
Collaboration accelerates UK towards billion pound market sector

The UK is poised to enter a highly lucrative market that could be worth more than £1 billion globally within the next ten years.

The market for supplying highly specialised technology for the construction of next generation light sources and particle accelerators, which enable breakthroughs in treatments for cancer and sources of cleaner energy, is a dynamic and growing industry. A collaboration between experts at STFC and Shakespeare Engineering Ltd, has given the UK the technical capability to supply key specialist components for these large international experimental facilities.

One hundred years after superconductivity was discovered, Superconducting Radio Frequency (SRF) has become the preferred technology for the design, development and construction of many of these large international experimental machines. Facilities such as the Large Hadron Collider and Diamond Light Source carry out world leading research in areas that include health, security, energy and the environment and are even solving the mysteries of the Universe.

Until now there has been no manufacturing capability for SRF in the UK. However, a collaboration between Essex-based company Shakespeare Engineering Ltd and ASTeC, STFC's accelerator science and technology division, means that the UK will soon be able to bid for work to supply SRF technology components for light source and particle accelerator projects around the world.

Graham Evans, MP for Weaver Vale, said: “This is an excellent example of how collaboration between research and industry can lead to new technologies and products, opening up market opportunities that can stimulate the economy, create new jobs and therefore benefit society.”
ASTeC and Shakespeare, in association with Jefferson Laboratories in the USA, have just reached a significant milestone in this collaboration, by completing the design, manufacture and validation of the UK’s first bulk Niobium SRF accelerating structure. Niobium SRF technology is a highly efficient way of accelerating beams through particle accelerators to very high energies and is a core technology in current and future particle accelerators. However, it is a highly specialised technology as the Niobium material must be extremely pure for accelerator applications, and any impurities will significantly limit acceleration performance.

Funded by STFC, the Mini Innovations Partnership Scheme (Mini-IPS) is designed to transfer technology and expertise developed by STFC scientists and engineers to the marketplace in partnership with UK industry and other academic disciplines.

Neil Shakespeare, Director of Shakespeare Engineering Ltd, said: “Through this collaboration with STFC and ASTeC, Shakespeare Engineering has been able to learn and develop the principle processes required for the fabrication, handling and validation of these critically sensitive devices. We are now on the verge of becoming an important addition to an extremely small list of companies globally who can offer accelerating structures of this type to a thriving accelerator community worldwide.”

Peter McIntosh of ASTeC said: “There is a range of current and proposed international projects for which this advanced technology is key – from next generation light sources, to a neutrino factory, muon colliders and high intensity proton facilities. It is fantastic news that, through STFC’s Mini-IPS Scheme and our collaboration, Shakespeare Engineering is now in an excellent position to enter into what is potentially a very profitable market for UK industry.”
The SKA and industry

As the SKA project moves through the design, development, construction and operational stages, industry will play a crucial role in the delivery and through-life support of the technologies and infrastructure. The scale of the SKA and the inherent requirement to ‘productise’ many of its components necessitates the engagement of industry at levels only beginning to be seen for radio-astronomy in projects such as the ALMA instrument, and the LOFAR pathfinder.

Industry participation with the SKA means early collaborations with a variety of organisations, among them niche R&D companies, followed by increasing engagement through commercial contracts with high-volume manufacturers, technology systems vendors, site services and installation firms, and power and data transmission specialists. Engagement will necessarily occur with larger technology and civil engineering firms, and is also encouraged with smaller local vendors, possibly including teaming arrangements and supply chains.

The SKA Industry Engagement Strategy spans the SKA project technology and infrastructure needs to around 2017 and beyond, covering the period when SKA project will invite industry involvement in the vicinity of €1.2 billion of funded procurements.

The international SKA project, and its associated national and regional consortia programs, welcomes interest from existing and potential industry partners.

For further information go to http://www.skatelescope.org/ska-industry/
Antibiotic progress for disease that causes half a million deaths every year

We speak to a scientist from King’s College London while he’s at ISIS to carry out his experiments

A team from King’s College London researching an antibiotic to treat a strain of meningitis that is responsible for half a million deaths a year worldwide have had a successful two days working on STFC’s ISIS facility in the past week (4 and 5 April 2011).

They have been trying to find an alternative to Amphotericin, a drug that until recently has been very effective in treating Cryptococcal Meningitis, a strain of the fungal disease especially rife in AIDS patients. There have been increasing reports that the fungi causing these infections are developing a resistance to Amphotericin. There are fears that if new drugs cannot be found, it could become untreatable.

Scientists need to understand Amphotericin and the aim is to create a new drug that works in a similar way to the old drug, but with a chemistry that stops the disease-causing fungi developing a resistance to the drug’s toxic effects. After using STFC’s ISIS facility, the team already has published results, in Biochimica et Biophysica Acta - Biomembranes. This week they have been extending that work.

Benjamin Park is a world leader in epidemiology of fungal infections including Cryptococcal Meningitis from the Centers for Disease Control and Prevention in Atlanta, Georgia said: "New treatment strategies are needed to reduce the mortality of this severe infection - any developments in this field can only be a good thing".

The full press release, issued earlier this week, provides further details on the work in the published paper - but here, we’ve spoken to the lead scientist on the project from King’s College London.

A molecular model of amphotericin
(Credit: D J Barlow - King’s College London)

A cartoon of a liposome
(Credit: UT-Houston Medicine, 2007)
An exciting research project to crack down on counterfeit whisky and wine is being supported by The Food and Drink iNet.

Experts at The University of Leicester’s Space Research Centre are working with colleagues at De Montfort University to create a handheld device which will detect fake whisky and wine – through the bottle.

The technology has already been developed by the Leicester University team to spot counterfeit medicines by scrutinising the packaging. Now the experts are working to transfer the technology to analyse liquids in bottles.

As well as helping to stamp out the big problem of counterfeit whisky and fine wine, this could also have major potential for airline security systems, they believe.

The project is one of five Collaborative Research and Development grants worth a total of more than £235,000 announced by the Food and Drink iNet, which co-ordinates innovation support for businesses, universities and individuals working in the food and drink sector in the East Midlands.

Funded by East Midlands Development Agency (emda) and the European Regional Development Fund (ERDF), the Food and Drink iNet is one of four regional iNets that has developed an effective network to link academic and private sector expertise and knowledge with local food and drink business innovation needs.

“Crack down on counterfeit whisky gets support for the Food and Drink iNet.

This is a fascinating research project between the University of Leicester, De Montfort University, the Scotch Whisky Research Institute and Leicestershire brewery Everards, which brings together space technology and the food and drink sector and offers real commercial benefit,” said Food and Drink iNet Director Richard Worrall. “Being able to test a liquid such as whisky or wine for authenticity without opening the bottle would bring major benefits to the drinks industry, as well as having opportunities in other fields, such as airport and airline security.”

“The Food and Drink iNet Collaborative Research and Development programme is designed to provide help for innovative research schemes that will benefit the food and drink sector in the future, and this is one of the more interesting and beneficial.”

The team has been awarded £50,000 towards the almost £71,000 cost of the research project.
The technique relies on detecting the differences between the characteristics of light reflected from printed packaging. Originally developed from a spectrometer designed and built by the Space Research Centre for astronomical research, the technique was adapted for use in the pharmaceutical world by the Leicester University team in conjunction with university spin-out firm Perpetuity Research and Consultancy International Limited which is a specialist crime and security consultancy.

Now the technology is being adapted again by the Leicester University team for use in detecting fake liquids, with experts at De Montfort University providing skills in product design and rapid proto-typing so that a handheld device can be created.

“The support from the Food and Drink iNet will allow us to take the technology and apply it in the case of whisky and fine wines,” said Tim Maskell, Knowledge Transfer Manager in the Space Research Centre at the University of Leicester. “The iNet funding will enable us to design, build and test a laboratory prototype that will allow us to prove the technology works. If we can then take the technology and do something similar with other liquids there are potential airport security opportunities too.”

The team is working with The Scotch Whisky Research Institute and Leicestershire brewery Everards to help with the research and product trials.

The Food and Drink iNet aims to build on the tradition of innovation in the food and drink industry in the region by helping to create opportunities to develop knowledge and skills, and to help research, develop and implement new products, markets, services and processes. It is managed by a consortium, led by the Food and Drink Forum and including Food Processing Faraday, Nottingham Trent University, the University of Lincoln, and the University of Nottingham. It is based at Southglade Food Park, Nottingham, with advisors covering the East Midlands region.

For more information visit www.eminnovation.org.uk/food
Dear colleague,

You are cordially invited to attend the ESA Technology Transfer Programme Technology Showcase. This event will allow you to learn more about the possibilities that are opened up to you through a selection of different space technologies and Industry Challenges.

Topics from a wide range of speakers include, challenges in Aerospace Engineering, Biomimetic wood wasp inspired drill, efficient motion synthesis, space robotics in healthcare, Compact space coolers and cryogenics, Autonomous and automated software systems, Introductions to ESA and the UK space agency.

Please follow link to see full programme and registration http://www.stfc.ac.uk/Business%20and%20Innovation/24990.aspx

The showcase is a free event but you need to register no later than the 15th of May due to limited spaces.
Grant for Research and Development

A new Technology Strategy Board scheme is offering funding to small and medium-sized enterprises (SMEs) to engage in R&D projects in the strategically important areas of science, engineering and technology, from which successful new products, processes and services could emerge.

Open from 4 April 2011, the Grant for Research and Development (Grant for R&D) scheme will support R&D projects which offer potentially significant rewards and could stimulate UK economic growth. In contrast to the Collaborative R&D programme, Grant for R&D funding is available to single companies.

Three types of grant are available:

• Proof of market
• Proof of concept
• Development of prototype

Any UK SME working in any sector may apply; applications are accepted on a rolling basis for assessment by independent experts.

Grant for R&D replaces the scheme previously offered by regional development agencies. The new scheme will work alongside existing programmes in Scotland, Wales and Northern Ireland.

Proof of market grant
This grant enables companies to assess the commercial viability of a project, through:
• market research
• market testing and competitor analysis
• intellectual property position
• initial planning to take the project to commercialisation, including assessing costs, timescales and funding requirements.

Projects will last up to 9 months, have a maximum grant of £25k, and up to 60% of total project costs may be funded.

Proof of concept grant
SMEs may use this grant to explore the technical feasibility and commercial potential of a new technology, product or process, including:
• initial feasibility studies
• basic prototyping
• specialist testing and/or demonstration to provide basic proof of technical feasibility
• intellectual property protection
• investigation of production and assembly options.

It also includes pre-clinical research studies for healthcare technologies and medicines, including target identification and validation.

Projects will last up to 18 months, have a maximum grant of £100k, and up to 60% of total project costs may be funded.
Development of prototype grant
This funding is used by companies to develop a technologically innovative product, service or industrial process, and can include projects such as:
• small demonstrators
• intellectual property protection
• trials and testing, including clinical
• market testing.

Projects will last up to 2 years and have a maximum grant of £250k; up to 35% of total project costs for medium enterprises, or up to 45% for small and micro enterprises, may be funded.

Further information
All pre start-ups, start-ups, and small and medium-sized businesses from all sectors across the UK may apply for the Grant for R&D programme.

We use the European definition of SME

In future we may also run themed competitions using the Grant for R&D scheme, aligned with our priority investment areas.

Further information including full guidance for applicants is available here.
First UK mini satellite 'Cubesat' to include 'pocket' space mission for the public

A 'pocket' spacecraft that will enable students and amateur astronomers to get involved in a space mission will be part of the UK's first mini satellite 'CubeSat' mission - UKube-1. The UK Space Agency has announced (17 March 2011) the results of its payload competition and revealed all of the instruments and experiments that will be launched into orbit onboard the spacecraft in 2012.

UKube-1 - a nanosatellite that will allow the UK to test new technologies and carry out new space research quickly and efficiently - is an exciting and novel collaboration between the UK Space Agency, industry and academia. It is envisaged as the pilot for a full national CubeSat programme. Among the other experiments chosen are the first GPS device to measure space weather, a camera that will take images of the Earth and test the effect of radiation on space hardware using a new generation of imaging sensor, and an experiment to demonstrate the feasibility of using cosmic radiation to improve the security of communications satellites.

The STFC is one of the funding partners for Ukube-1, and RAL Space, based at its Rutherford Appleton Laboratory (RAL) in Oxfordshire leads on the provision of three ground stations for the mission, including one based at RAL itself. The supporting ground stations are provided by Dundee and Strathclyde Universities. These crucial elements will provide the link to the orbiting spacecraft, as well as full planning of the operations.

More details can be found in the UKSA press release.