

# Innovations

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## Free use of World-leading laboratory facilities up for grabs for UK businesses

*Innovative companies which are developing products geared towards making a big impact in the environment, healthcare or energy sectors are being offered the chance to win free access to cutting-edge research and technology facilities to further innovate and develop their ideas. On Tuesday 28th September, STFC launched a challenge that offers any UK company or organisation researching products and services in these sectors the chance to work at the Science and Technology Facilities Council's Innovations Technology Access Centre (I-TAC) for periods of up to six months, for free. [more](#)*

International Space Innovation Centre

Innovations  
Club

## Free use of World-leading laboratory facilities up for grabs for UK businesses

I-TAC is a unique facility offering a suite of flexible laboratories based on the Daresbury Science and Innovation Campus. Winners of the I-TAC Futures Challenge will also have access to the expertise of STFC scientists. Organisations entering simply need to show that they are working in the key areas of energy, healthcare or environment and how they would benefit from access to lab space and equipment. As part of the entry process, companies are strongly advised to visit I-TAC to see the facilities and equipment that are available, to help them prepare their application.

I-TAC manager Dr Martin Morlidge said; *"Companies can benefit massively from access to I-TAC's world class facilities. Each prizewinner will be supported by STFC staff to ensure that they get the most out of their time here. To win the competition could mean the difference between a start-up company with an idea that could help address some of society's key challenges, to one that really can make a difference."*

The launch event took place at the Daresbury Business Breakfast Network, a highly successful monthly event at Daresbury Science and Innovation Campus. The events provide a networking opportunity for regional, national and international businesses.

The closing date for entries is 30 November and the winners will be announced on 10 December 2010. All awards will then start early in 2011.

More details about the competition can be found here:  
[www.itac.stfc.ac.uk/Locating+at+I-TAC/19708.aspx](http://www.itac.stfc.ac.uk/Locating+at+I-TAC/19708.aspx)



## World class experimental science is made possible by world class technology

From the very small to the very large the breadth of technology that STFC supports is enormous. STFC Technology is instrumental in engineering and building LHC experiments.

Brand new ideas for the particle accelerators of the future, with applications as broad ranging as treatments for cancer, production of pharmaceuticals to cleaner greener options for fuel, depend on the engineering skills we provide.

The latest Technology highlights brochure illustrates some of the many international projects STFC is playing a vital role in.





# University of Leicester puts space technologies to work

**In 2010 the University of Leicester celebrates 50 years of involvement in space research.**

The University of Leicester houses one of the foremost academic space centres in Europe. Devices designed and built in Leicester have been operating in space for every year over the past forty years. Sensors and imaging devices designed and built at Leicester are currently in active service on six space missions, with a further six instruments under development.

The Space Research Centre – part of the University's Department of Physics and Astronomy – is involved in the research, design and build of 'one-off' sensors and instruments for space missions primarily for High Energy Astrophysics, Planetary Science and Earth Observation.

The extreme conditions encountered in space exploration missions impose special constraints on the design and build of space bound equipment. In recent years the Space Research Centre has been actively applying the unique technical expertise and experience it has gained in meeting the demands of

space-bound instruments to provide solutions to unsolved earth-bound problems – and with some success.

Three new spin-out companies have been created in the past five years to exploit the commercial opportunities arising from transferring space technology to solve problems in markets as varied as stem cell research, the imaging of early stage cancerous tumours and the



Scientists in the Space Research Centre laboratory clean room

identification of counterfeit drugs. Other spin-out opportunities originating from the Space Research Centre activities are in the pipeline – examples are a remotely operating automatic sample processing system with medical, environmental and forensic applications (developed from a device that will be used to test for life on Mars), a three-dimensional urban air quality monitoring system and a novel real-time integrated medical diagnostic unit that is being developed jointly with colleagues in the University's Chemistry and Medical departments and the Leicester Royal Infirmary.

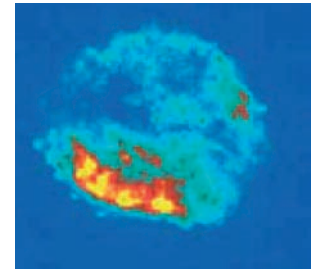
The Space Research Centre has an excellent track record of collaborations with regional, national and international businesses. In 2009 alone the Centre's collaborations were shortlisted for six regional and two national awards for the excellence of their commercial interactions and innovations. A new Technology Transfer team is already in place and a new centre (G-STEP) has recently been established at Leicester to promote the use of earth observation data collected from space missions to enhance the development of new and improved environmental forecasting and surveillance activities.

As the work of the Space Research Centre demonstrates, the technical outcomes from the University of Leicester's space research activities are already illustrating the clear beneficial impact space technology can have on the UK economy and society.

And to capitalise on this the Space Research Centre has just secured funding for a new £2m Knowledge Transfer initiative that will be the spearhead for future earth bound applications of its space research technologies, expertise and facilities.

For further information contact  
Tim Maskell  
STFC IPS Fellow and KT Manager  
Space Research Centre, University of Leicester  
Leicester LE1 7RH

Email : [twom1@le.ac.uk](mailto:twom1@le.ac.uk) Tel: +44 (0) 116 223 1372



A Supernova Remnant taken by the ROSAT HRI microchannel plate x-ray camera

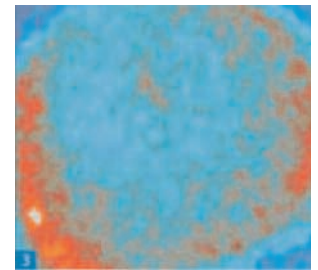


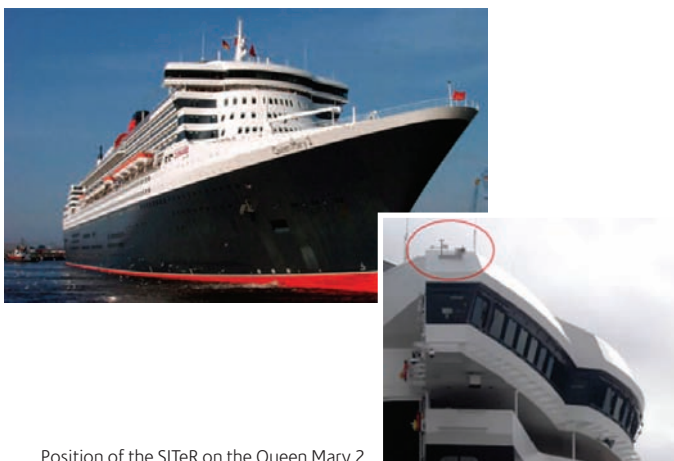
Image of early stage cancerous tumour (Institute of Cancer Research)

## RAL Space on the Queen Mary 2

**An instrument developed by the RAL Space, for the validation of satellite based measurements of Sea Surface Temperature measurements, has just been deployed on the Queen Mary 2, the flagship of Cunard line.**

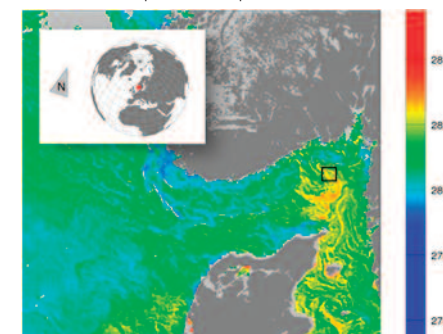
A partnership between STFC and the Carnival Group UK (Cunard's parent company) has culminated in a collaboration whereby the Sea Surface Temperature monitoring instrument, SISTeR (Scanning Infrared Sea Surface Temperature Radiometer), has been fitted to the QM2 in a project aimed at validating satellite measurements and improving climate records.

Sea surface temperature (SST) is considered one of the essential climate variables and is critical in the understanding of how oceans exchange energy with the atmosphere. Not only are SST's important in understanding climate change but they are also used as input parameters to the meteorological models which are in turn used to generate accurate weather forecasts.



Position of the SISTeR on the Queen Mary 2

Sea surface temperature map



Global measurements of SST are performed by satellite borne radiometers that detect the thermal radiation emitted from the 'skin' of the sea. To ensure that the satellite measurements are accurate, SISTeR is used to provide a calibrated validation. The ground truthing is provided when the satellite and SISTeR measurements coincide and the SST is recorded at the same location by both instruments.

The Queen Mary 2 is the largest ocean liner in the world and provides the ideal platform from which to perform these measurements. SISTeR is positioned at the prominent vantage point, high on the starboard bridge wing, giving a perfect view of unbroken water. The mixture of transatlantic crossing, (from Southampton to New York) and tropical round the world cruises give an ideal combination of hot and cold water measurements which can be used to validate satellites over the wide variety of Sea Surface Temperatures.

# EO Satellites Seminar 2010

**Joint IET/CEOI Seminar on 29th November 2010 at the IET in Savoy Place, London**

The joint IET/CEOI Seminar on Earth Observation (EO) Satellites is taking place on 29th November 2010 and will bring together end-users with the EO manufacturers, the business analysts and investors. This one day seminar will showcase applications of EO data from three of the main users of these technologies - the military, the United Nations and environmental monitoring bodies.

Confirmed speakers include:

- Dr David Williams, Chief Executive, UK Space Agency
- David Purll, Head of Optical Systems, SSTL
- Prof Alan O'Neill, Director, National Centre for Earth Observation
- Dr Barbara Ghinelli, Head of Business Development and ISIC project, STFC
- Dr Rob MacKenzie, Lancaster University
- Wing Commander Gordon MacLeod, JARIC
- Paul Stephens, Sales and Marketing Director, DMCii

Full details and registration are available at <http://www.theiet.org/events/2010/eo-satellites.cfm>

