UKRI Coronavirus Hub

The UKRI Coronavirus Hub gives you the latest information on the vital work of UKRI and our community in response to the crisis, what grants and awards we have made, and our continuing call to fund your ideas to limit the outbreak and protect life.

For more information please go here
STFC Calls

Knowledge Exchange Funding

STFC offers a diverse portfolio of knowledge exchange schemes, designed to allow funding of projects from initial development right through to commercialisation. These schemes are designed to facilitate the transfer of STFC funded research into an industrial setting over a number of different stages of commercialisation.

**Innovation Partnership Scheme (IPS)**
- To transfer technology and expertise developed through STFC funding to the marketplace in partnership with industry and other academic disciplines.

**Follow-on Funding (FoF)**
- To support proof of concept for a project following on from STFC funded research. Partner not permitted.

**IPS Fellowships**
- To develop an institution’s capacity for knowledge exchange and commercialisation from STFC-funded research.

The next funding call for all of these schemes opened on the 3rd of June with a closing date of 3rd September 2020.

For more information, please go [here](#)

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**CLASP 2021; Healthcare and Energy**

The key challenge areas for Challenge Led Applied Systems Programme (CLASP) 2021 call have been identified as Healthcare and Energy. Call guidance and potential themes to follow.

The Expression of Interest stage of this call will open on the 10th of November with a closing date of 14th January 2021.

For more information on the CLASP scheme go [here](#)
Using digital technology to support psychological therapies (SBRI competition)

Organisations can apply for a share of up to £345,000 (including VAT) to develop new solutions using digital technology to provide psychological support.

**Competition opens:** Monday 20 July 2020  
**Competition closes:** Wednesday 9 September 2020 11:00am

This is a Small Business Research Initiative (SBRI) competition funded by NHS Scotland. Successful applicants will receive 100% funding and have access to advice from NHS Grampian.

The aim is to increase availability of psychological care at Royal Aberdeen Children’s Hospital for children and young people (CYP) with significant gastrointestinal symptoms but no underlying medical disease. Where there are no biomedical solutions, digital psychological support allows CYP and their families to self-manage symptoms and live a fuller life.

Your proposed solution must adjust to individual needs in ways that are engaging and effective.

This is phase 1 of a potential 2-phase competition. A decision to proceed with phase 2 will depend on the outcomes from phase 1. Only successful applicants from phase 1 will be able to apply to take part in phase 2.

For more information please go [here](#)
Energy Catalyst round 8: clean energy access - industrial research

Organisations can apply for a share of up to £20 million to develop and demonstrate innovative solutions for clean, affordable and secure energy access in sub-Saharan Africa, South Asia or South East Asia.

**Competition opens:** Tuesday 16 June 2020

**Competition closes:** Wednesday 16 September 2020 11:00am

The aim of this competition is to support highly innovative, market-focused energy solutions in any technology or sector.

Your project must encourage the development of products and services that help countries in sub-Saharan Africa, South Asia, South East Asia or multiple regions access secure, low cost and low carbon energy. They must be targeted at people, public services and local enterprises who are unable to afford or access existing solutions, or who lack the time or expertise to successfully use those solutions.

Your proposal must also address all 3 elements of the energy ‘trilemma’:
- cost
- emissions
- security of supply and energy access

There are 3 options to apply into this competition. These are referred to as strands and will be run in parallel. The strands are dependent on the stage your project is at:

1. **Early stage for feasibility studies.**
2. Mid-stage for industrial research (this strand).
3. **Late stage for experimental development.**

This is the mid stage competition for industrial research. It is your responsibility to make sure you submit your application for the correct stage.

Your mid stage project's total eligible costs must be between £50,000 and £1.5 million.

For more information please go [here](#)
UK space sector gets a boost with the installation of a giant new satellite test chamber

The UK’s space industry has received a major piece of new equipment to help get larger, more complex satellites ready for launch. A 16m long space test chamber, amongst the giants of Europe, has been installed in the UK’s National Satellite Test Facility in Oxfordshire.

- The Large Space Test Chamber will test spacecraft for the harsh conditions of space including extreme temperatures from -180°C to +100°C.
- It has been installed in the National Satellite Test Facility, a UK government investment to build the UK’s largest set of co-located equipment for testing spacecraft which will be opened by the Science and Technology Facilities Council’s (STFC) RAL Space in 2022.
- UK and international businesses will be able to test spacecraft up to the size of a minibus as well as fleets of shoebox-size satellites supporting the growth of the UK’s £14.8 billion sector.

The enormous chamber will be used by the space industry to test spacecraft up to 7 tonnes for the harsh conditions of space. The chamber can be heated and cooled using nitrogen cooled shroud panels to achieve a temperature range of 95 Kelvin to 373 Kelvin to (-180°C to +100°C) so that satellites can be tested for missions into the chill of deep space or near to the Sun. It will be operated by STFC’s RAL Space, and alongside other test equipment at the National Satellite Test Facility will enable UK businesses to bid competitively for new contracts and remain a world leader in space technologies.
The chamber completed a long and complex journey from the manufacturers Angelantoni Test Technologies Srl based in Massa Martana, Italy, to be installed in the facility at the Harwell Campus in Oxfordshire. A team of specialist commissioning engineers will travel from Italy to Harwell to complete the installation and testing of the vacuum vessel later in the year.

Professor Chris Mutlow, Director of RAL Space said: "This has been an incredible feat of engineering and logistics. The installation of a facility of this scale is at the best of times fraught with complexities but this has been made even more challenging because of coronavirus. I am delighted that the chamber has completed its epic 5800km journey and is now safely in position in the National Satellite Test Facility where it will offer a new capability to the space community as part of the only set of co-located space test facilities at this large scale in the UK."

Weighing more than 98 tonnes in total, the chamber was transported in sections on 6 lorries accompanied by 6 police outriders and 5 support vehicles. The convoy from Portsmouth Harbour to Harwell Campus was one of the largest single road movements the UK has ever seen. Each of the 8m diameter sections then had to be lifted into place and carefully positioned in order to be sealed perfectly later in the year. The final walls of the building will now be constructed around the chamber.

Sean Stewart, STFC’s National Satellite Test Facility Project Manager said: “The installation of the large space test chamber would have been an extraordinary endeavour at the best of times. In the current challenging circumstances, the team worked tirelessly through lockdown, first in Italy and then in the UK, to get the space test chamber into place. The final walls will now go up around the chamber and once complete, the National Satellite Test Facility will play a key role in securing end-to-end capability to build, test and launch satellites from the UK.”

Alongside the space test chamber, the National Satellite Test Facility will also offer vibration and pyro-shock equipment, electromagnetic compatibility (EMC) and antenna measurement system and acoustic testing. Construction will be complete in 2021 and operational from 2022. It builds on the existing suite of environmental test facilities and expertise at RAL Space which include a further 10 space test chambers ranging from just 1m in diameter to 5m diameter.

Science Minister Amanda Solloway said: “The UK is a world-leader in space technology and this impressive new chamber, backed by government funding, will significantly bolster our satellite testing capabilities. Importantly, it will ensure that our space industry has the first-class facilities they need to test large, complex spacecraft as we work towards the UK’s first satellite launch.”

Dr Graham Turnock, Chief Executive of the UK Space Agency, said: “The installation of the state of the art satellite test chamber is a huge boost for the UK space sector and demonstrates our commitment to strengthening the UK’s national space capabilities. The National Satellite Test Facility will make UK industry more competitive when bidding for national and international contracts and encourage new businesses to come here from all over the world.”

The National Satellite Test Facility has been funded by the Department for Business, Energy and Industrial Strategy as part of the Industrial Strategy Challenge Fund.
Harwell Space Cluster launches ambitious growth strategy

Harwell Space Cluster has published its **10 year growth strategy**, supporting its ambition to become the most compelling global gateway to the space sector and making it an even more powerful engine of growth, innovation and investment for the whole of the UK. The strategy sets out the cluster’s aim to number 200 organisations collectively employing 5,000 people by 2030.

The strategy builds on the cluster’s success over the last 10 years, which has seen it grow to 105 organisations, and cemented its role as a platform for UK space companies and for international companies looking to get a foothold in the UK space market. For the next 10 years the cluster will focus on broadening application of expertise and facilities to complex challenges, strengthening existing skills, facilities and business support and increasing engagement around the world to create more opportunities.

The cluster aims to continue putting in place infrastructure and enhancing the environment that will support companies in times of economic uncertainty. Continuing to deliver projects during COVID-19, such as the construction of the UK government-funded National Satellite Test Facility by STFC RAL Space, will ensure that vital national infrastructure is in place to help cluster companies as they emerge from COVID-19.
Professor Chris Mutlow, Director of STFC RAL Space, said: “At RAL Space we’ve watched the Harwell Space Cluster grow around us. We stand ready to support as it sets out to deliver this ambitious strategy. Our expanding facilities, expert workforce and ability to tackle complex challenges help make Harwell the perfect place for our global partners to work with the UK space sector, and for UK organisations to springboard out into the world.”

Supporting start-up space companies through an ecosystem of facilities, research and business expertise is key to the cluster’s strategy. The STFC-managed European Space Agency Business Incubation Centre United Kingdom (ESA BIC UK) provides funding, business advice, access to space expertise and laboratories to start-ups wanting to break into the space sector. One company benefiting from funding and support is Lanterne which has developed an application that facilitates social distancing using space-enabled data. Despite the current challenging markets, two ESA BIC UK alumni incubated at Harwell, Flox (formerly Thrive MV) and Orbital Witness have recently raised equity capital. In total 85 companies have been incubated by ESA BIC UK and the alumni has collectively raised over £73m.

The Harwell Space Cluster currently comprises 105 organisations, collectively employing 1,100 people including the UK and European Space Agencies, STFC RAL Space and the Satellite Applications Catapult as well as start-ups and SMEs through to medium and multinational firms.
Designing new radiotherapy technologies to treat cancer in low and middle-income countries

A new project supported by STFC aims to design and develop new radiotherapy technologies to give more cancer patients in Sub-Saharan Africa access to radiotherapy, and save lives.

Bringing together international experts in accelerator design, medical physics and oncology, alongside IT experts and health system researchers, the project will design and develop a new type of radiotherapy machine that is affordable and robust enough to be used in more challenging environments reliability, and is specifically designed to meet the needs of African hospitals.

By 2040, there will be 27.5 million new cancer cases worldwide each year, leading to more than 13 million deaths. Up to 70% of these will occur in low and middle-income countries (LMICs).

However, for many LMICs in Africa there is an acute shortage of radiotherapy machines. In fact, in the lowest income countries only four percent of cancer patients that need radiotherapy treatment can access it. There are currently only 385 radiotherapy machines in the region, and 60 per cent of these are located in just three countries – South Africa, Egypt and Morocco. A recent report \(^1\) published by the Lancet Oncology Commission estimated that by 2035 at least 5,000 additional radiotherapy machines would be needed to meet radiotherapy demands in low and middle-income African countries.

\(^1\) Global Task Force on Radiotherapy for Cancer Control (GTFRCC) of the Union for International Cancer Control (UICC) in September 2015.

STFC’s Dr Deepa Angal-Kalinin will lead the accelerator design
In the first phase of this innovative project, which is funded by STFC and led by the Universities of Lancaster and Oxford, the team will define the persistent shortfalls in basic infrastructure, equipment and specialist workforce, which remain barriers to effective radiotherapy delivery in Sub-Saharan Africa, and develop new solutions leading to a detailed specification and conceptual design. The project, known as ITAR (Innovative Technologies towards building Affordable and equitable global Radiotherapy capacity), will then progress to a prototype development phase of a medical linear accelerator for radiotherapy, at STFC’s Daresbury Laboratory.

The University of Lancaster’s Professor Graeme Burt, also of the Cockcroft Institute, is leading the first phase of the ITAR project. He said: “Current radiotherapy machines are optimised for use in western countries. The ITAR project aims to design specifically for use in Africa making it far more tolerant to the local environment, which will greatly increase the capacity for more lives to be saved.”

STFC’s Professor Deepa Angal-Kalinin, also of the Cockcroft Institute and University of Manchester, will lead the accelerator design. She said: “I am keen to apply the knowledge and expertise at Daresbury Laboratory to develop a novel medical linear accelerator design in this phase of the project which will prepare us to build a prototype to test our new ideas.”

The ITAR project is a critical part of a larger international project that includes the International Cancer Expert Corps (ICEC), CERN, STFC (Daresbury Laboratory), and led by Lancaster and Oxford Universities. It brings together partners from the Cockcroft Institute, STFC’s Accelerator Science and Technology Centre (ASTeC), the John Adams Institute, Swansea University, King’s College London, National Hospital Abuja, Botswana-UPENN Partnership and Princess Marina Hospital alongside many other international partners.

Oxford University’s Professor Manjit Dosanjh, also of CERN and a member of the ICEC Board of Directors, said, “I am really excited that this idea, first presented by the International Cancer Expert Corps in 2014, continues to flourish. Having Lancaster and Oxford Universities, along with Daresbury Laboratory and others working on this with STFC’s critical support and ICEC’s expertise, is a significant step in addressing the need for a novel medical linear particle accelerator to generate the radiation for LMICs and other challenging environments.”

Read the full Lancaster University press release for more detailed information about the ICEC project and its international partners.
Preliminary trial results find dexamethasone reduces death in hospitalised patients with severe respiratory complications of COVID-19

The ‘RECOVERY’ trial has released preliminary results showing low-cost dexamethasone reduces death by up to one third in hospitalised patients with severe respiratory complications of COVID-19. The RECOVERY trial (which stands for ‘Randomised Evaluation of COVid-19 thERapY’) was funded by UKRI as part of the UKRI/DHSC/NIHR COVID-19 rapid research response.

To provide real-time information in the pandemic, the results have been announced as quickly as possible, so it should be noted that the findings have not yet been peer-reviewed and accepted in a journal.

A range of potential treatments have been suggested for COVID-19 but nobody knows if any of them will turn out to be more effective in improving survival than the usual standard of hospital care which all patients will receive.
Professor Peter Horby and Professor Martin Landray, chief investigators of the trial, said in a statement: ‘In March of this year, RECOVERY was established as a randomised clinical trial to test a range of potential treatments for COVID-19, including low-dose dexamethasone (a steroid treatment). Over 11,500 patients have been enrolled from over 175 NHS hospitals in the UK.’

On 8 June, recruitment to the dexamethasone arm was halted since, in the view of the trial Steering Committee, sufficient patients had been enrolled to establish whether or not the drug had a meaningful benefit.

A total of 2104 patients were randomised to receive dexamethasone 6 mg once per day (either by mouth or by intravenous injection) for ten days and were compared with 4321 patients randomised to usual care alone. Among the patients who received usual care alone, 28-day mortality was highest in those who required ventilation (41%), intermediate in those patients who required oxygen only (25%), and lowest among those who did not require any respiratory intervention (13%).

Dexamethasone reduced deaths by one-third in ventilated patients (rate ratio 0.65 [95% confidence interval 0.48 to 0.88]; p=0.0003) and by one fifth in other patients receiving oxygen only (0.80 [0.67 to 0.96]; p=0.0021). There was no benefit among those patients who did not require respiratory support (1.22 [0.86 to 1.75; p=0.14).

Based on these results, 1 death would be prevented by treatment of around 8 ventilated patients or around 25 patients requiring oxygen alone.

Given the public health importance of these results, we are now working to publish the full details as soon as possible.

Overall dexamethasone reduced the 28-day mortality rate by 17% (0.83 [0.74 to 0.92]; P=0.0007) with a highly significant trend showing greatest benefit among those patients requiring ventilation (test for trend p<0.001). But it is important to recognise that we found no evidence of benefit for patients who did not require oxygen and we did not study patients outside the hospital setting. Follow-up is complete for over 94% of participants.

Peter Horby, Professor of Emerging Infectious Diseases in the Nuffield Department of Medicine, University of Oxford, and one of the Chief Investigators for the trial, said: "Dexamethasone is the first drug to be shown to improve survival in COVID-19. This is an extremely welcome result. The survival benefit is clear and large in those patients who are sick enough to require oxygen treatment, so dexamethasone should now become standard of care in these patients. Dexamethasone is inexpensive, on the shelf, and can be used immediately to save lives worldwide."

Martin Landray, Professor of Medicine and Epidemiology at the Nuffield Department of Population Health, University of Oxford, one of the Chief Investigators, said: "Since the appearance of COVID-19 six months ago, the search has been on for treatments that can improve survival, particularly in the sickest patients. These preliminary results from the RECOVERY trial are very clear – dexamethasone reduces the risk of death among patients with severe respiratory complications. COVID-19 is a global disease – it is fantastic that the first treatment demonstrated to reduce mortality is one that is instantly available and affordable worldwide."

The RECOVERY trial is conducted by the registered clinical trials units with the Nuffield Department of Population Health in partnership with the Nuffield Department of Medicine. The trial is supported by a grant to the University of Oxford from UK Research and Innovation/National Institute for Health Research (NIHR) and by core funding provided by NIHR Oxford Biomedical Research Centre, Wellcome, the Bill and Melinda Gates Foundation, the Department for International Development, Health Data Research UK, the Medical Research Council Population Health Research Unit, and NIHR Clinical Trials Unit Support Funding.

The RECOVERY trial involves many thousands of doctors, nurses, pharmacists, and research administrators at over 175 hospitals across the whole of the UK, supported by staff at the NIHR Clinical Research Network, NHS DigiTrials, Public Health England, Public Health Scotland, Department of Health & Social Care, and the NHS in England, Scotland, Wales and Northern Ireland.

The RECOVERY trial also recently announced preliminary results showing no effect on mortality from the use of hydroxychloroquine in patients admitted to hospital with COVID-19.

Based on content provided by the University of Oxford.
£70m funding to secure UK position as a world-leader in quantum technology

On 15 June Science Minister Amanda Solloway announced 38 new UK projects that will benefit from more than £70 million government investment to help mark the start of Quantum Tech Digital Week.

The new projects aim to solve global challenges and address key industrial challenges, from developing batteries for electric vehicles to innovating energy storage systems that will reduce greenhouse gas emissions, via the use of advanced quantum technologies.

The £70 million government investment is part of its Quantum Technologies Challenge, led by UK Research and Innovation (UKRI). The projects involve over 80 companies and nearly 30 universities and research organisations across the UK including the University of Glasgow, University College London and the National Physical Laboratory.

One project being led by Adaptix, a medical imaging company, in collaboration with the University of Manchester will use enhanced imaging to allow surgeons to effectively differentiate between healthy tissues and tumours in cancer surgery.

In addition, QLM, a start-up from Bristol, in collaboration with BP and the National Grid will use the funds to develop quantum enabled gas sensors that detect industrial leaks, helping to prevent natural gas being lost to the atmosphere and contributing to greenhouse gas emissions.
Speaking at the Quantum Tech Digital Congress, Science Minister Amanda Solloway said: “The UK is home to some of the world’s most advanced quantum technology companies tackling some of the most pressing challenges - from speeding up the diagnosis of cancerous tumours to detecting harmful gas leaks. I am delighted the government is able to provide this thriving sector with the backing it deserves. The projects I have announced today will help to maintain the UK’s status as a world leader in quantum technology.”

Other quantum technology projects receiving funding include:

- Developing one of the world’s first quantum computer operating systems. Riverlane, one of the UK’s first quantum software companies, will partner with the chip-designer ARM, and the UK’s leading computing hardware start-ups to develop this innovative operating system which will be used across all major quantum computing hardware technologies, helping businesses to unlock commercial opportunities.

- Powering battery technologies with quantum. Phasecraft, one of the UK’s emerging quantum software start-ups will use quantum technology to overcome limitations in battery material designs and help predict their performance. This could break new ground in battery development across sectors from large-scale energy storage and high-performance electric vehicles, as well as lead to the development of more powerful battery devices.

Roger McKinlay, Challenge Director, UKRI, said: “Many of these projects have managed to start during lockdown which is very good news. The funding competitions were over-subscribed, illustrating the vibrancy and rate of growth of the UK’s emerging quantum technology sector. About one third of the projects concern quantum computing, demonstrating that the UK is becoming the go-to place for this game changing technology, with a growing community of thriving spin-outs, led by world-class teams. Quantum computers will be exponentially faster than classical computers at certain kinds of complex problems, solving in seconds what would take the best classical computers thousands of years.”

The investment is part of a wider package delivered by The National Quantum Technologies Programme which is set to see more than £1 billion of public and private investment over its lifetime.

The grants that have been awarded will be matched with over £30 million of private investment into the sector, driving the UK’s leading position in quantum technologies.
New Executive Director announced for UK's Science and Technology Facilities Council (STFC)

The Science and Technology Facilities Council (STFC) has announced that business development expert, Paul Vernon, will take the helm as the new Executive Director of Business and Innovation. He will play a critical role in helping STFC shape and deliver a business and innovation strategy.

Welcoming Paul Vernon to the role Professor Mark Thomson, Particle physicist and Executive Chair of STFC, said: "Paul brings significant expertise to the role and is joining STFC from the University of Chester, where he was the CEO of Thornton Science Park in Cheshire and Senior Executive Director of Commercial Operations at the University. We are delighted to be able to say that we are also welcoming back someone who has a significant amount of experience in our field and is a trusted and respected former colleague."

Between 2002 and 2014 Paul Vernon worked for STFC and was responsible for spinning out five technology businesses, establishing business development activity and heading up campus development for the National Science and Innovation Campuses.

Paul Vernon, who will take up the post in coming weeks said that he is looking forward to working closely with the business and innovation team at STFC to help develop the organisation: "It's a challenging time for everyone involved in science and innovation in the UK right now but with this comes priorities and opportunities. I am looking forward to connecting with former colleagues and building new relationships at STFC, as I take overall responsibility for the provision of high-calibre professional services to departments. One of my areas of focus will be developing and exploiting commercial relationships and business opportunities. I will also be working to support collaborative ventures and programmes with partner organisations, such as universities."

As a member of the Executive Board, Paul will also help to shape STFC’s overall future priorities and plans.
The External Innovations team manages the activities that aim to realise the impacts and benefits that flow from STFC’s investments in science and technology towards commercialisation through one to one brokering, events and a range of funding schemes.

If you wish to contact the teams for more information please see the following contacts and email addresses.

Innovations club: innovationsclub@stfc.ukri.org

**External Innovations – 21st Century Challenges**

*Jason Green* Associate Director, External Innovations and 21st Century Challenges  
Email: Jason.green@stfc.ukri.org

*Stephen Loader* Head of Innovation and International Development  
Email: stephen.loader@stfc.ukri.org

*Wendy Carr* Senior Programme Manager External Innovations  
Email: Wendy.carr@stfc.ukri.org

*Isabella Panovic* Senior Programme Manager Solutions to 21st Century Challenges  
Email: Isabella.Panovic@stfc.ukri.org

*Helen Randell-Sly* Senior Programme Manager AIT-NEO  
Email: helen.randell-sly@stfc.ukri.org

*Tahmina Aziz* Senior Programme Manager NQTP  
Email: tahmina.aziz@stfc.ukri.org

*Kamalam Vanninathan* Programme Manager 21st Century Challenges  
Email: kamalam.vanninathan@stfc.ukri.org

*Edward Mansfield* Programme Manager External Innovations  
Email: edward.mansfield@stfc.ukri.org

*Allanah Bayliss* Programme Manager External Innovations  
Email: allanah.bayliss@stfc.ukri.org

*Andi Kidd* Senior Programme Manager Impact Acceleration Accounts  
Email: andi.kidd@stfc.ukri.org

*Pauline Thompson* Programme Support  
Email: pauline.thompson@stfc.ukri.org

The Innovations Club newsletter contains a selection of articles drawn from our partner organisations that we think you will find interesting. We welcome your comments innovationsclub@stfc.ukri.org