



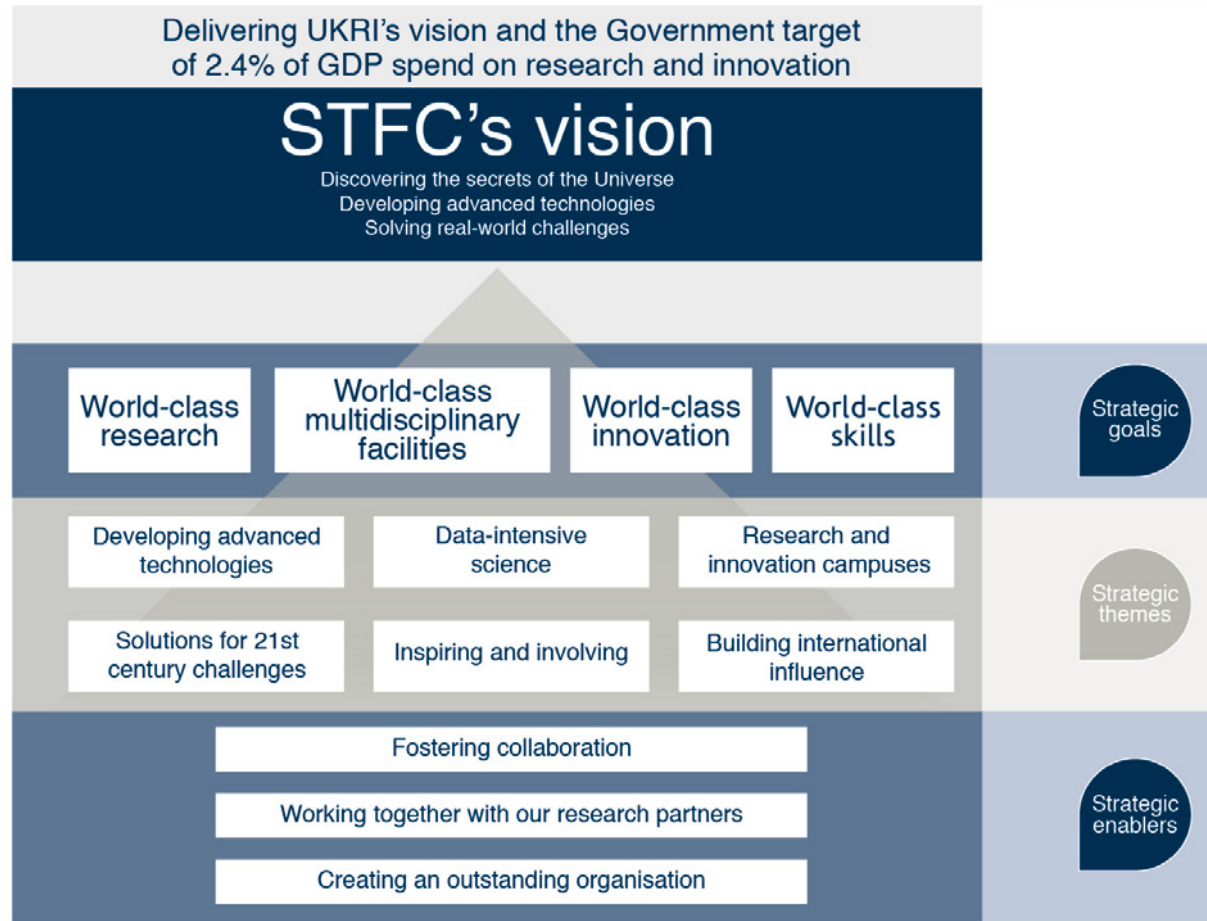
Science and
Technology
Facilities Council

STFC External Innovations and 21st Century Challenges Schemes

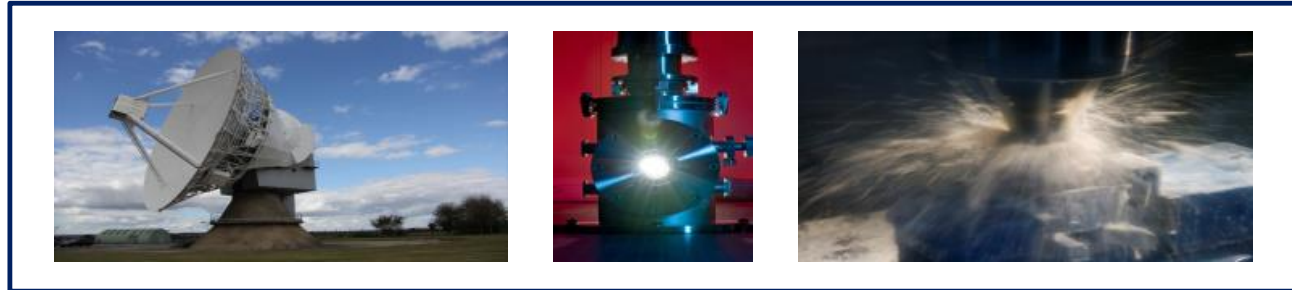
Stephen Loader, Ed Mansfield, Andi Kidd

November 6th 2019

Our Strategy



What we do



World class research, innovation and skills

- Broad range of physical, life and computational sciences
- Access for 7,500 scientists to world-leading, large-scale facilities
- Science and Innovation Campuses at Daresbury and Harwell
- Globally-recognised capabilities and expertise in technology R&D
- Inspiring young people to undertake STEM

Where we are



...and around the world

Our science programme



Particle physics/particle astrophysics

- Revealing the structure and forces of nature – CERN

Ground-based astronomy

- European Southern Observatory
- Square Kilometre Array

Space-based astronomy

- European Space Agency
- Bilaterals – NASA, JAXA, etc.

Nuclear physics

- Nuclear Skills for - medicine, energy and environmental applications



Nurturing the wonder of science

Working with Universities

- Physics degree courses up ~32% since 2010, compared to overall decline
- Funding >1,700 academic researchers in the UK

Investing in skills

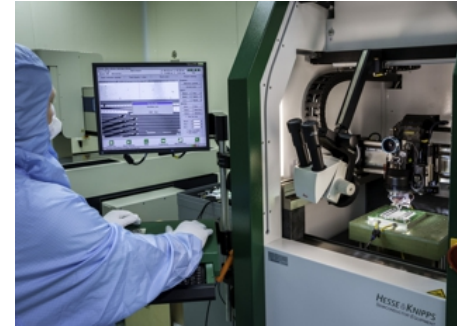
- £74m to support university groups deliver skills training to rolling cohort of >900 PhDs
- ~half STFC's PhDs continue in research that sustains UK's scientific excellence

Developing industrial skills

- Transfer knowledge/skills to industry through staff, researchers and collaborative programmes

Engaging people

- 58 million people reached through PE schemes since 2009, e.g. Large Hadron Collider Roadshow and 'Explore Your Universe'





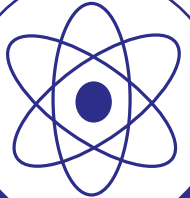


Industrial CASE Studentships

- Provides support for PhD students to work in collaboration with a non-academic partner
- Competition opens each year (early August, closed 3 October)
- Joint supervision of student with RO and non-academic partner
- Minimum time at industrial setting 9 months over duration of PhD period
- SME contributions to host and student's stipend are covered by the STFC
- Industrial CASE-Plus – student spends a further year working full-time at the non-academic partner at the end of the CASE award
- Doctoral Training Partnership students can be converted to Industrial CASE and Industrial CASE-Plus
- Examples of industrial partners: MoD/e2v/NHS/Rapiscan Systems Ltd/Micron Semiconductor Ltd/National Physical Laboratory



More information: <http://www.stfc.ukri.org/funding/studentships/industrial-case-studentships>
E-mail: studentships@stfc.ukri.org

Public Engagement Grants

				
Leadership Fellows	Spark Awards	Nucleus Awards	Legacy Awards	Reaction Awards
<ul style="list-style-type: none">○ Personal awards○ PE activity○ Capability building○ Annual call	<ul style="list-style-type: none">○ PE projects○ Pilot ideas○ Shorter-term○ Two calls p/a○ £15K limit	<ul style="list-style-type: none">○ Larger projects○ PE activity○ Networks○ Annual call○ £100K limit	<ul style="list-style-type: none">○ Continuation of previous success○ Annual call○ Match funding	<ul style="list-style-type: none">○ Fast response to developments○ Always open○ Strict review○ £5K limit

Innovation from STFC

People, Training, and Knowledge Exchange

- iCASE Studentships
- RSE Enterprise Fellowship
- IPS Fellows
- Knowledge Transfer Partnership
- GCRF and Newton
- IAA

Brokerage and Engagement

- 21st Century Challenge Networks
- Exploration Awards
- IPS Fellows
- IAA

Commercialisation, Translation, and Company Creation

- Follow on Fund
- Innovation Partnership Scheme
- CLASP
- Innovations Technology Access Centre
- Business Incubation
- UK Innovation & Science Seed Fund
- RSE Enterprise Fellowship
- IAA

21st Century Challenges

Ensures that innovative science, technology, applications and expertise developed through the STFC Science programme are harnessed to provide solutions to 21st Century Challenges

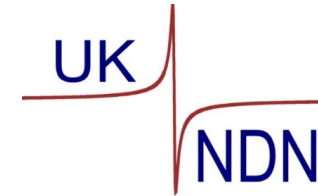
	Networks	Exploration
Brief	Create new multidisciplinary research communities with the inclusion of government departments, agencies, industry and academic communities	Exploration of challenge-led priorities and identification of where STFC-funded capabilities can be applied to help provide solutions to these
Max duration	3-4 years	Up to 12 months
Max fEC cost	£300-600k	<£25k

Current networks



STFC Air Quality Network

Advanced Radiotherapy



Cancer Diagnosis Network+



THE GLOBAL NETWORK ON SUSTAINABILITY IN SPACE

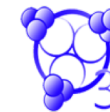


Previous networks



SpacE weather REsearch Network (SEREN)

STFC/NERC Bioinformatics & Environmental 'Omics Network

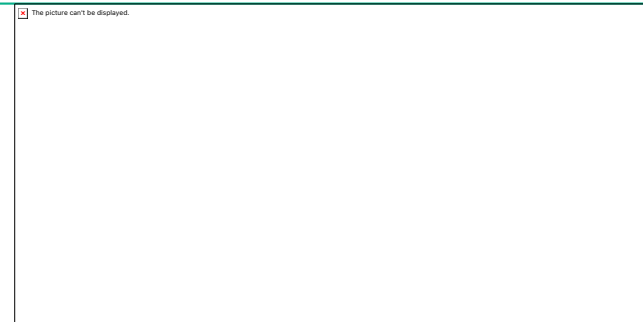
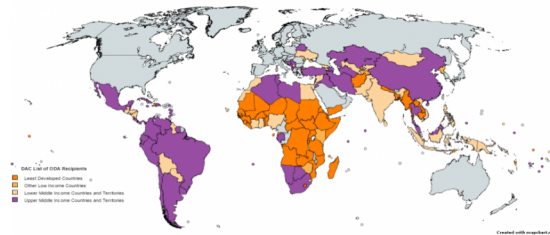


Network on Tropospheric Ozone



Official Development Assistance Funding

	GCRF	Newton
Brief	To deliver tangible outcomes and maximise the practical impact of research and innovation to improve the lives and opportunities of the global population	To strengthen research and innovation partnerships between the UK and emerging economies
Matched funding needed?	No	Yes
Partner countries	Any DAC listed country	Previous partnerships
ODA compliant	Yes	Yes



More information

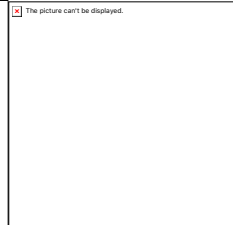
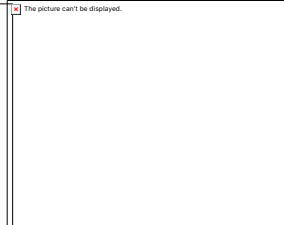
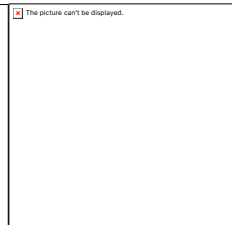
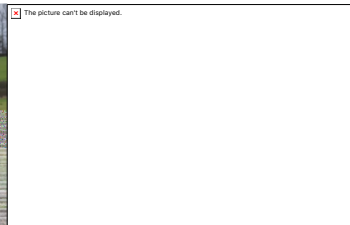
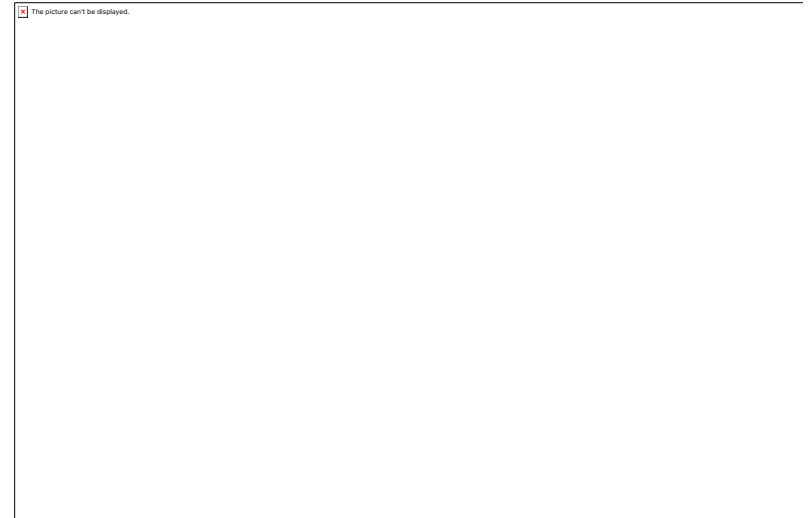
<http://www.newtonfund.ac.uk/>

<https://stfc.ukri.org/funding/research-grants/funding-opportunities/gcrf/>

E-mail: Stephen.Loader@stfc.ukri.org

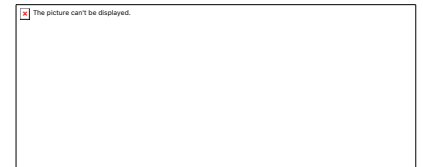
GCRF projects funded in our two calls include:

- Robotics & Remote Sensing for Humanitarian Mine Action
- Understanding Cadmium Uptake by Cocoa Plants via Cd Isotope Analyses
- Applying Astronomy Capability to Map an Invasive Weed: Leveraging Satellite Surveys to Inform "Famine Weed" Policy in Pakistan
- Build a training network in data intensive science in southern Africa
- Mass spectrometry for rapid detection of adulteration of milk powder and vegetable oils in developing countries
- Astro-ecology: astrophysics algorithms to support conservation biology
- Instrumentation development to measure lead contamination of food and water
- Strengthening collaboration in Nuclear Physics between physicists in the UK, South Africa and other African nations; transferring knowledge and skills and opportunities for education and training



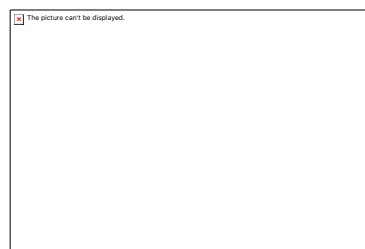
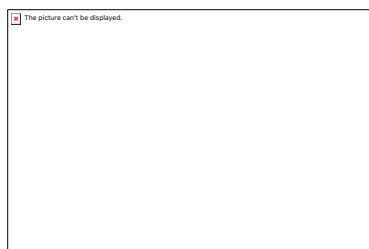
Newton Fund Programme

- A £735 million programme which aims to promote economic development and social welfare of 17 partner countries through building science and innovation partnerships.
- Supports the development of partner countries' research and innovation capacity for long-term sustainable growth.
- In-country strategies – meeting the needs of partner countries
- Importance of equitable partnerships
- Part of the UK's official development assistance (ODA). UK committed to spending 0.7% of Gross National Income on International Development.
- STFC supports projects working with nine of the 17 Newton Fund countries: South Africa, Mexico, Colombia, Chile, Thailand, Indonesia, India, China and Jordan.



Knowledge Exchange Schemes

	IPS	Follow on fund	IPS Fellowships	CLASP
Brief	To use STFC funded research or technology to develop or enhance a new product or technique	To provide proof of concept funding to develop an idea which could lead to a commercial endpoint	To work alongside academics and encourage industry engagement with the university.	Themed call to apply STFC funded research/technology to help address societal challenge areas
Max duration	3 years	1 year	4 years	3 years
Max fEC cost	£450k	£110k	No max cost	No max cost
Industry support?	Essential	Not required	-	Advised



Challenge Led Applied Systems Programme (CLASP)

- Supports the de-risking of the R&D process for industry/users
- Development of technology demonstrators and industry-ready prototypes
- Draw on technology and expertise from the STFC research community
- Provide solutions to four global research challenges
- Demonstrable potential economic and/or societal benefits

Two stage application process – outline and full proposal

Shortlisted applicants:

- Develop full proposals with advice from CLASP Panel
- Present their final proposals to Panel
- **2020 joint themes are Security and Environment**
- **2021 joint themes are Healthcare and Energy**



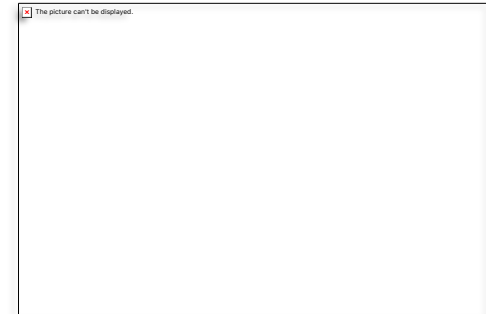
CLASP 2020

Security areas

- Cyber security
- Food security
- Nuclear security
- Border security
- National/international security
- Responding to security disasters
- Monitoring chemical exposure

Environment areas

- Natural environment
- Air quality
- Space environment
- Urban environment
- Waste management
- Predicting and/or responding to environmental disasters
- Pollution monitoring



KE 2020

	Call opens	Call closes	Panel meeting
CLASP EOI	6 th November 2019	8 th January 2020	February 2020
CLASP full stage	9 th March 2020	20 th May 2020	August 2020
KE February 2020	4 th December 2019	20 th February 2020	May 2020
KE September 2020	3 rd June 2020	3 rd September 2020	December 2020

Tips from the Panel

IPS	CLASP
Clear route to Market	Support from end-users
Strong IP protection and policy	Project partner
Competitor analysis	Understand regulatory pathways
Data modelling and simulation	Developed a proof of concept
Strong project partner involvement	Strong and thorough business plan

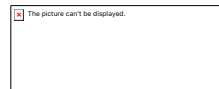
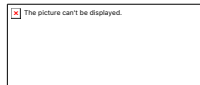
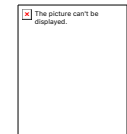
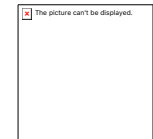
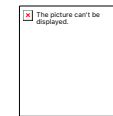
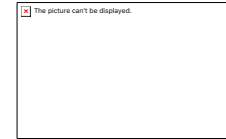


**READ AND UNDERSTAND
THE CALL GUIDANCE**

Impact Acceleration Accounts

Flexible funding provided directly to top 30 institutions

- Enabling knowledge exchange
- Proof of concept projects
- Market analysis
- Industry engagement



More information
E-mail: Andi.Kidd@stfc.ukri.org

Project Outcome and Impact Scheme

- We want to know what's happening with your research
- Connecting with the community
- Impact case studies
- Building relationships: IPS Fellows, TTO Offices, IAA recipients, Academics



Plasma-catalysed Sterilization of Packaged Consumer Goods (University of Glasgow)



- 12 month **Follow on fund**
- Developed from research into plasma-generated ozone
- Developing a new method of enhancing the shelf life of food and food production, resulting in less pesticide use
- Key beneficiaries: agrochemical industry, food industry
- Outcomes: Spin-out company launched, Anacail Ltd. with £2M investment from InnovateUK



A commercial THz imaging system using Lumped Element Kinetic Inductance Detectors (Cardiff University)



The Sequestim scanner being tested at Cardiff airport

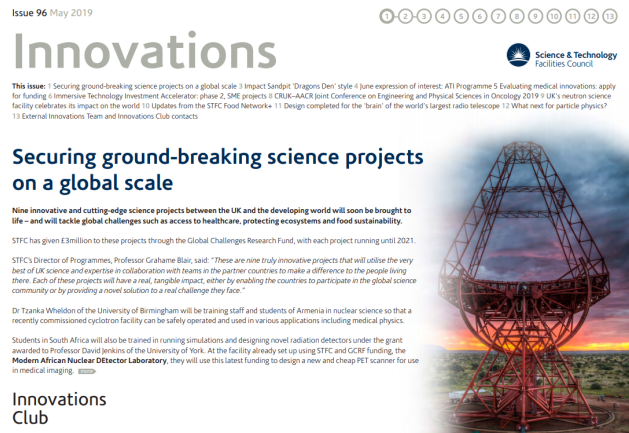
- Funded through 3 year **IPS** and **IAA**
- Developed from imaging systems used to look for hidden spots in the universe
- Developing a new detector for security scanners in airports
- Key beneficiaries: Security forces, border security
- Outcomes: >£700,000 funding from home office, Sequestim Ltd spinout company, trials being conducted at Cardiff Airport



<http://www.sequestim.com/>
<https://www.bbc.co.uk/news/uk-wales-46439329>



Stay connected



STFC Innovations Club

The Newsletter provides information on STFC technology development, knowledge transfer, and enterprise activities. It also disseminates information about our programmes and upcoming events and activities



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Thank you



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