



Public Engagement with Science and Technology

Strategic Plan 2013 - 2016



Science & Technology
Facilities Council



Strategic Plan for Public Engagement with Science and Technology, 2013-16

A. STFC THE ENGAGED RESEARCH COUNCIL

STFC is one of Europe's largest publicly-funded science and technology organisations, supporting research in Universities and Laboratories, providing facilities, developing technologies, and providing skilled people, knowledge exchange & public engagement (PE). We support a very wide range of research areas, including the physical and life sciences: from the depths of space to the sub-atomic world, we help UK researchers discover how the world works. We operate research facilities that reveal the secrets of the Universe, can break atoms apart with laser light, reveal the molecular causes of disease and help make aircraft safer.

The STFC Corporate Strategy 2010-20¹ includes the theme, 'Inspire and Involve' because we passionately believe in doing this. We have signed the *National Concordat for Public Engagement with Research*, which requires our strategic commitment to PE; our support, recognition & reward for researchers; and periodic reviews.

STFC's work can inspire an interest in science that can last a lifetime.

National austerity brings a threat to science funding, so we need to articulate a convincing rationale for engagement. The drivers for PE include public accountability; transparency; the need to engage audiences on the outcomes and applications of our work; the continuing need for a strong UK research base; and the wider need for STEM² skills for the economy³. A Government priority in this area is to have a diverse STEM workforce, to include the best talent. Personal engagement with science – and the process and people of science – can engender awareness, understanding and trust in publicly-funded science. Laboratories should engage with their local communities.



*Pupils engage with
cutting edge particle
physics research*

¹ STFC Corporate Strategy 2010-20, www.stfc.ac.uk/2458.aspx

² Science, Technology, Engineering and Mathematics

³ For example, Confederation of British Industry- Survey of Employers 2011, www.cbi.org.uk/business-issues/education-and-skills/in-focus/education-and-skills-survey/

As one of the seven UK Research Councils, STFC participates fully in the collective (RCUK) programme for public engagement with research⁴. This aims to recognise and respond to public views, inspire young people, and support researchers. It has emphasis on encouraging culture change in the Higher Education sector towards public engagement, for example via

- funding schemes for Universities to embed PE at institutional level
- the School-University Partnerships Initiative
- sponsorship of the expert National Co-ordinating Centre for Public Engagement (NCCPE)

The UK's 'landscape' of public engagement has changed significantly in the past five years. The Impact agenda is partly expressed through the Research Excellence Framework *REF* and the RCUK's *Pathways to Impact policy*. There are new opportunities: there is a recognised need for consultation, dialogue and debate around future research directions. National expert centres such as the NCCPE and *ScienceWise* (for consultation and public dialogue) now provide expert advice. There is an appetite for co-produced research, e.g via *Citizen Science* projects, and for public dialogue. The rise of electronic communications, including new and social media, provides new engagement methodologies.

STFC the *Engaged Research Council* needs to work with public audiences, business, local communities, the mass media, stakeholders and politicians, and this document forms part of our overall approach to engagement. The present refreshed PE strategic plan is aligned with the RCUK and BIS engagement strategies.

B. OUR MISSION AND AIMS

We seek to inspire and involve the wider public in STFC-supported research, to create a culture where scientific endeavour is highly valued by society; opportunities to engage are open to all; and young people from all backgrounds are inspired by science & technology. In 2013-16 we will increase the reach and significance of our engagement.

We will involve the public and support the UK 'STEM agenda' by

- Stimulating and responding to public interest in research and its outcomes
- Linking STFC science and technology with young people
- Capacity building through the encouragement and support of researchers and the embedding of engagement in funded research programmes, projects and facilities
- Engaging publics with the work of the STFC National Laboratories through a distinctive high-quality offer with vigorous activities and national & regional partnerships



*Dr Maggie Aderin-Pocock, MBE
Space Scientist and STFC Engagement Fellow*

© Max Alexander/STFC

⁴ Research Councils UK, www.rcuk.ac.uk/per/Pages/Home.aspx

C. PARTICIPANTS

STFC will have a balanced programme, engaging

- The general public, often science-inclined
- New public audiences who have had only limited engagement with STEM, particularly as our contribution to helping achieve a more diverse UK STEM workforce
- Teachers of science at school & college level
- Young people, especially 10-14 year olds where attitudes to science are formed, but also younger groups for general inspiration and older groups to link closely with 'real science' activities and frontier research. Regarding schools, much of our work is in the 'enrichment & enhancement' area, and we emphasise experience with hands-on 'real science'
- Other influencers of young people, such as parents, family, and group leaders.

D. COMMUNITY, PARTNERSHIP AND COLLABORATION

We will strengthen partnerships with our research communities, including grant-holding groups and users of our facilities and will continue to work closely with STFC's partner research organisations such as the Diamond Light Source, CERN, European Southern Observatory, the European Synchrotron Radiation Facility, Institut Laue-Langevin and the UK Space Agency.

Effective partnerships
are the key to effective
delivery of our objectives

We will strengthen relationships with delivery partners, such as education and outreach organisations, learned societies, astronomy societies, engineering bodies, science centres, and other national bodies. We will continue to support arts-science partnerships to engage new audiences. STFC Laboratories will engage local communities by working in partnership with regional, and occasionally national partners, for example local STEM providers and national providers of teacher CPD such as the Institute of Physics and the Science Learning Centres. We will also work with the NCCPE and *ScienceWise* to develop good practice in engagement and any public dialogue work.

Co-produced research, such as *Citizen Science* approaches, is growing as a style of investigation which includes engagement and often life-long learning. STFC, in collaboration with RCUK, will develop policy and investigate partnership with UK initiatives in this area.

E. EQUALITY AND DIVERSITY IN ENGAGEMENT

We believe that opportunities for engagement in science and technology should be open to all. Our activities will therefore target under-represented audiences to address current imbalances in participation. For example, the fraction of girls taking A-level Physics remains at only 20%; individuals in geographically remote areas often do not have the same opportunities for engaging with research facilities and universities; pupils from deprived socio-economic backgrounds often have much lower levels of participation in higher education. We will encourage practitioners to target our chosen priority areas:-

- Girls and young women in engineering and physics
- Groups in areas geographically remote from STEM activity
- Schools underperforming in STEM (often in multi-deprived areas)

We will also aim to ensure that researchers who wish to participate in PE activities are encouraged and supported. We recognise the current diversity (e.g., gender, ethnicity) of STFC staff who are STEM Ambassadors and will deploy their talents to engage with target audiences.

F. STFC AND SOCIETY: ETHICS, DIALOGUE AND RESEARCH

Society's expectations of STFC as a publicly-funded and accountable body are drivers for an emerging STFC Ethics Policy which in part implements *RCUK Expectations on Good Research Practice*⁵. The PE programme is participating as a stakeholder in this policy development, and will articulate to fundholders appropriate ethical practices in public engagement. We encourage researchers to discuss any ethical or societal issues about their research with the public. Lastly we will from time to time run public dialogue activities, including a dialogue project on 'Space Weather', which will affect research priorities for STFC and partners such as NERC and UK Space Agency.

G. DELIVERING THE PROGRAMME

There is a range of scales supported, from use of the national media, exhibitions, lectures, discussions, websites and visits through to all-day Masterclasses and teacher Professional Development sessions. Our main goals are to increase the quality and reach of engagement.

Themes and Campaigns

We will organise some of our work through selected timely *Engagement Themes*⁶. Astronomy and Space are major attractors for many audiences, and two 'themes' are in this area. Also, we will support the National Space Academy, the UK Space Education Office, the Cosmic Rays for Schools project providing 'real science' for young people, and will enhance our popular Lunar Samples & Meteorites Loan Scheme. We will run a public dialogue project on Space Weather, a topic on the Government's National Risk Register.

- *Dark Sky* – linking audiences (often in geographically-remote areas) with the night sky and thus with cutting-edge astronomy research
- *Big Telescopes* – operating across the electromagnetic spectrum, needed to answer big science questions – and the technology behind them
- *Large Hadron Collider and the work of CERN* – schools' and public engagement with this high-profile exciting work, with the recent discovery of the Higgs Boson and discoveries to come
- *Materials Science and Crystallography* – timed for the centenary of the Braggs' work and the United Nations-declared International Year, we will produce publications, provide national facilitation, hold events and consider producing a new resource for schools on this theme
- *Computer Science* – STFC relies on brilliant programmers and high-performance computing. We will address the national shortage of computer scientists by offering audience engagement with our facilities, Masterclasses in programming, and teacher CPD courses, for example

We will build on existing success - the current programme engages 91,000 primary school students; 243,000 secondary; 17,677 teachers; and 1.08M general public pa.

⁵ <http://www.rcuk.ac.uk/Publications/researchers/Pages/grc.aspx>

⁶ These are not a list of STFC research priorities, but of timely topics suitable for pulses ('campaigns') of engagement and communications work.

General National Programme

We will run responsive-mode funding schemes across a range of project scales ('Small & Large Awards'), open to all but with substantial involvement of STFC-linked researchers. Many projects use new & social media or involve personal interaction. We will invest in 'champions' for STFC science and technology through PE Fellowships for researchers with a track record in outreach. In partnership with the Institute of Physics and the Institution for Engineering & Technology, we offer Small Grants for schools & colleges to enrich their teaching of physics. We will support research groups and consortia who are awarded space in the UK's prestigious Royal Society Exhibition.

In addition we will invest in major pro-active partnership projects, building on success with work such as 'Leading Space Education', 'Large Hadron Collider Engagement' (including touring exhibition), 'Explore Your Universe' (run by the UK science centres' sector organisation), and the Dark Sky Discovery Network.

National Laboratories Programme

STFC's UK Laboratories⁷ have a distinctive offer, including direct engagement with the very inspiring technology and engineering that underpins the amazing work in the national facilities and other departments.



*Harwell Oxford
Science and
Innovation
Campus*

They will have a co-ordinated programme of engagement, including similar activity at each site, and will strengthen their national and regional partnerships. They have the vision of being a leader/focus in their region/nation for STFC science. All Departments should participate, supported at each site by an expert engagement team. The main objectives will be

- Capacity and capability building:
 - staff who engage feel valued and recognised
 - all interested can contribute and receive training and updates in communications and engagement skills, to improve quality
 - there is a supported community of practitioners
 - there is support for users of national facilities

⁷ Rutherford Appleton Laboratory (RAL) on the Harwell Oxford Campus; Daresbury Laboratory (DL) on the SciTech Daresbury Campus, Cheshire; the UK Astronomy Technology Centre (UK ATC) in Edinburgh; and Chilbolton Observatory in Hampshire.

- Collaboration with regional & national partners, and with campus partners such as the *Diamond Light Source*, Space organisations at *Harwell Oxford*, and the *Cockcroft Institute* at *SciTech Daresbury*.
- Delivery through
 - Public and schools' lectures; education access days for visiting groups; visits
 - Engineering competitions and projects
 - Teacher programmes, including visits, formal/informal teacher professional development, and engagement with trainee teachers
 - Work experience placements
 - Open sessions for specific facilities, such as site open day, astronomical observing
 - Masterclasses, for example in Particle Physics and in Computer Science

Wider Capacity Building

We will fund access to media and public communication training courses for researchers, and media fellowships run by the British Science Association. Our partnership with our research communities – grant-funded and facility-user – involves joint work (e.g. via the 'Engagement Themes') and facilitation. The latter will include regular community PE Symposia, whose aims are to share good practice, build links with researchers and partners, and consult STFC research communities on the programme. We will promote researchers' access to the expertise of the National Coordinating Centre for PE.

Embedding Engagement

The cross-Council *Pathways to Impact framework*⁸ provides a basis for embedding PE through research grant applications. These must include PE plans, which are reviewed with feedback given. We will better embed PE across the organisation's departments and across activities held with our research communities, including developing researchers' and manager's generic engagement skills, working with the UK Government's ScienceWise programme.

H. GOVERNANCE AND ADVICE

An external advisory panel containing researchers experienced in outreach and national experts will provide strategic and policy advice to STFC. The Panel currently reports annually to STFC's Science Board. The PE programme would be included in any future STFC general Programmatic Review.

I. QUALITY: DOING ENGAGEMENT WELL - AND ARTICULATING THE IMPACT

Our aspiration is that all PE should be done well, and so formative and summative evaluation are both important. STFC policy is that all PE work must be evaluated, with the effort commensurate with the scale of the project. Working with RCUK and the NCCPE, we will supply evaluation guidelines (and in some cases, mentors) for fund-holders. Evaluation of funded projects will be based on assessment of impact, quality, reach and value for money, together with testing achievement of the project's specific objectives. Evaluation of the overall programme and its impact will be enhanced, including better collection of metric data on diversity of audience, together with case studies, and the programme will be reviewed annually.

⁸ Research Councils UK, www.rcuk.ac.uk/kei/impacts/Pages/home.aspx



Science & Technology
Facilities Council

STFC KEY CONTACTS

STFC Headquarters, Swindon Policy

Dr Robin Clegg,
STFC Head of Public Engagement
Robin.Clegg@stfc.ac.uk
01793 442010

Finance, Administration and Grants

Andy Thompson, Office Manager
Andy.Thompson@stfc.ac.uk
01793 442098

National Laboratories

Head of Public Engagement with National Laboratories

Dan Hillier, UK Astronomy Technology
Centre, Edinburgh
Dan.Hillier@stfc.ac.uk
0131 668 8406