



INTERACT



Abstracts of Interact 2019 Sessions

Can I Ask You a Question? Session 1: 11.15 – 12.05 & Session 3: 14.30 – 15.20
<p>This will be a workshop looking at evaluation and impact monitoring.</p> <p>When it comes to evaluation asking the right question is crucial, but complex. This session will explore the science behind the survey giving you the skills you need to plan the perfect evaluation without a social science degree in qualitative analysis.</p> <p>Discover why some of the most commonly asked questions are also the most unreliable and how to fix this. The session will also explore how most projects could benefit not from more evaluation, but smarter evaluation.</p>
Evaluating drop-in activities Session 1: 11.15 – 12.05
<p>Drop-in interactive activities often present a challenge when it comes to evaluation, and we rely heavily on the number of interactions with visitors which cannot tell the full story. The session will cover some of the motivations for evaluating activities along with some tips for integrating the evaluation into the design of your activities.</p>
Engaging with Primary School Students through Practical Activities Session 1: 11.15 – 12.05
<p>The session will involve delegates being able to extract their own DNA following the method we use in the UCLan and Ri Young Scientist Centre with primary school groups. Come and see how we deliver this activity to a young age group!</p>
How to Change Children’s Stereotypes of Scientists Session 1: 11.15 – 12.05
<p>Ask children how they would describe scientists or other people who work in STEM and you will often get stereotypical answers.</p> <p>This interactive session will outline STEM Person of the Week, developed by NUSTEM at Northumbria University. This five week teacher-led whole-school activity has been shown to reduce stereotypical views of scientists, with the effects lasting for at least a year.</p> <p>Participants will have the opportunity to see the materials, and have a go at designing their own resource.</p>
Shattering Stereotypes Session 1: 11.15 – 12.05
<p>SEPnet workshop to combat the lack of girls studying physics</p>
Devising Interactive Meaningful Activities in Public Engagement Session 1: 11.15 – 12.05
<p>Coming up with ideas for meaningful activities to take into the classroom can be fun but can also be a little daunting. Sometimes too many options can get in the way of our creativity. In this interactive workshop, we’ll look to use a simple framework with a dash of play and competition to help you devise great activity ideas.</p>
SunSpaceArt Session 2: 12.15 – 13.05 & Session 3: 14.30 – 15.20
<p>The STFC funded SunSpaceArt team have been working with schools throughout the UK. Scientists and Artists have run workshops together in the schools, upper primary and lower secondary, to encourage creativity. The feedback has been excellent. We have worked with a diversity of children, including those with 'low science capital', deaf children and children with Special Educational Needs.</p> <p>PM Session: SunSpaceArt ‘Make It to the Moon’ moon related education & art projects</p>
Craigmillar Community Science Partnership: working for and with an Edinburgh community Session 1: 11.15 – 12.05
<p>I would like to present some work I have been doing for and with an Edinburgh under-privileged</p>

community. Over the past 2.5 years, colleagues and I have been working with the Craigmillar community in Edinburgh to raise the science aspirations of local children and families. We regularly involve local schools and community organisations in science-themed activities, with the culminating point being the yearly “Craigmillar Community Science Festival”. This festival takes place in local community spaces and focuses on local pupils delivering their own science activities. I would like to present the lessons we learnt along the way, including successes but also challenges we face, and how we developed our community focus over the years.

Examining the Sector - how to secure outreach & public engagement funding Session 1: 11.15 – 12.05 & Session 3: 14.30 – 15.20

We believe public engagement is an indispensable part of the research lifecycle but securing public engagement grants can be challenging. Join the Royal Society and other funders to find out what sources of public engagement funding exist and how to tailor your application to each one. Bring your questions and suggestions with you for unrestricted access to the people who award the money.

How to Get Started in Public Engagement Session 2: 12.15 – 13.05 & Session 4: 15.30 – 16.20

Are you new to public engagement? Not sure what to do or where to start? This workshop will help you to plan your engagement activity from the start right through to evaluation.

Planning: Why engage and what’s in it for you?

Doing: Who to engage with and identifying and understanding your audiences

- What techniques and approaches to use

Reviewing: Understanding why evaluation is important, and exploring a range of methods tailored to your audience

Driving and Sustaining Engagement in our Departments Session 2: 12.15 – 13.05

The last ten years have seen huge developments in public engagement and outreach in universities, particularly for STEM subjects. In this interactive panel discussion, we'll be hearing from those who have been leading the charge just what those developments have meant in practice. We'll discuss the value of external funding, and what happens when that money dries up, how the quantity and quality of engagement activity can be improved, and the challenges faced to fit this all in, and much, much more.

Our panel includes STFC Public Engagement Leaders, who have found creative ways to build engagement into their work, and Heads of Department who have had to manage expectations whilst enabling engagement in their departments. The panel is chaired by Dr Charlotte Thorley, a freelance public engagement and involvement consultant who put in place the outreach and engagement programmes for SEPNET (the South East Physics Network) as their first Director of Outreach before establishing the Centre for Public Engagement at Queen Mary University of London, which was awarded the first Gold level Engage Watermark by the NCCPE.

Changing Cosmic Perceptions: a collaborative art and astronomy exploration Session 2: 12.15 – 13.05

Changing cosmic perceptions was a collaborative participatory art project involving primary school pupils, an artist and astronomers. This hands-on session will look at some of the activities the group explored, as well as a discussion about forming equitable collaborations aiming to ensure active participation and ownership.

How to Undertake a Programme of Deep Research-based Engagement with Schools and Evaluate it Session 2: 12.15 – 13.05

School students rarely experience science in the same way as researchers and educational research has highlighted the limited impact of typical STEM outreach interventions. However, to address this there are a number of growing efforts for school students to undertake independent project work with direct links to current scientific research.

Queen Mary University of London’s Physics Research in School Environments (PRiSE) programme is one such example. Aimed at 14-18 year-olds, the programme currently consists of four projects whereby students and teachers are supported by active researchers. 50 diverse London schools have participated in these 6-month long projects thus far.

We present our template for these projects and their evaluation that can easily be adopted by other institutions. The programme has shown the significant benefits such experiences have on both students and teachers from all backgrounds, such as increased confidence and skills development. Furthermore, developing and delivering these projects can also impact upon researchers giving new context to their research topic and, in a small number of cases, producing novel and unexpected

scientific results. We finally highlight elements of good practice and the support available to apply this template to your own research area within your institution. Through discussions with participants, some easily implementable steps will emerge to trial these forms of engagement and evaluation yourself.

'I'm a scientist' Through a Science Capital Lens Session 2: 12.15 – 13.05

Improving science capital in geographically disadvantaged schools through online engagement is student-led online engagement can not only reach students in the Outer Hebrides as easily as those in Inner London it can also be a highly effective medium for improving Science Capital in previously disengaged students.

Breaking Barriers - Community University Partnership Session 2: 12.15 – 13.05

This talk will outline the Discovery Planet/University of Kent community workshop programme which is an ongoing collaborative project. It has brought inspiring and accessible science workshops to the heart of one of the UK's most disadvantaged communities. Events are designed to address barriers to participation, and weave activities into people's everyday lives by popping up in unexpected places, such as empty shops and market stalls. Workshops build on basic scientific concepts, to introduce cutting-edge research and relate it to participants' everyday lives. Academic staff and students can develop science communication skills, and participants' preconceptions about science and scientists are completely turned around. The talk will focus on lessons learned and future possibilities. The session will contain interactive elements from several of our pop up events.

The Interactions of Multiple Barriers to STEM: why intersectionality is important for reaching under-represented groups Session 2: 12.15 – 13.05 & Session 4: 15.30 – 16.20

For those interested in a more nuanced approach to public engagement with underrepresented groups, this workshop takes a sociological perspective to explore how a consideration of the interaction of race, social class, gender, etc. can improve understanding of the multiple barriers to participation and engagement in STEM. Drawing on theory (including that of which the concept science capital is based) and empirical studies, participants will have the opportunity to discuss how to improve their practice in order to make it both transformative and democratic.

Evidencing Impact in REF 2021 Session 3: 14.30 – 15.20

The next Research Excellence Framework (REF) in 2021 is a significant opportunity for the UK STEM community to highlight the excellent public engagement and outreach work that is undertaken with a wide range of different audiences, and for different purposes. But is there a commonly-held understanding of what constitutes a high quality REF impact case study that relates to public engagement? How should the UK STEM community construct meaningful impact case studies that demonstrate the quantifiable difference public engagement can make, and what evidence should we be including in those case studies?

This workshop, facilitated by the National Coordinating Centre for Public Engagement, draws upon the results of their extensive review of the impact case studies submitted to REF 2014. Participants will have a chance to explore the ingredients of a great REF case study, and discuss with peers what this means for REF 2021 and their work.

Aims and Objectives

Participants will:

- Share learning and good practice from the NCCPE's review of public engagement case studies in REF2014
- Enhance their understanding of impacts arising from public engagement and how they can be evidenced
- Discuss how REF2021 impact case studies submitted by the STEM community can be best focused, structured, and evidenced

The Physics Mentoring Project: Sharing best practice Session 3: 14.30 – 15.20

The Physics Mentoring project is a Pan-Wales project which aims to increase uptake of Physics A level (particularly by girls). UG/PG students from five Welsh universities are trained and sent in to local schools to use Physics concepts and mentoring theory to increase confidence in the mentees and provide a picture of where Physics qualifications can take you.

The project, based on the award-winning and highly successful Modern Foreign Languages mentoring scheme, is in its pilot year (funded by HEFCW until Jan 2020). We have learnt a huge amount in our first cycle of the project and will use this session to reflect on:

- Lessons learned/changes for cycle 2

- Parallels with MFL project
- Using mentoring theory and reflection in the sessions
- ...and anything else that discussion may prompt!

Communicating Science to a Visually Impaired Audience Session 3: 14.30 – 15.20

In this interactive workshop we will use the Tactile Universe project and its resources as an example of how to develop science communication resources and projects for a visually impaired audience. We will share our experiences in developing and delivering the project, and discuss best and worst practices for interacting with this particular audience.

We will introduce the concept of User Centred Design, or using feedback and input from your target audience to help you develop your project. We will use several generations of the Tactile Universe resources as an example of how this approach can affect design choices and evolution of developed resources.

We will end with an activity which will allow attendees to think about and practice the kinds of accessible language they can develop and use to describe their science, by going hands on with our tactile astronomy images in groups and describing the models to a blindfolded partner.

Music and Mutation Session 3: 14.30 – 15.20

Music and Mutation is a collaborative project between Dr Michelle Phillips (Royal Northern College of Music) and Dr Nicholas Weise (Manchester Institute of Biotechnology). Nick's research concerns genetic mutation - working with DNA, moving it between organisms and introducing changes to solve different problems using biotechnology. However, these common processes and techniques which underpin many areas of biological, environmental and medical research are often difficult to explain using standard visual and verbal means. As a solution to this problem, Nick and Michelle have developed an experimental method of expressing DNA sequences as musical works. Music is part of everyday life for the vast majority of people, often eliciting meaningful, shared emotional responses. As such, these non-verbal representations of different DNA sequences (sequences used in actual research) will allow the audience to 'hear' DNA in different organisms and the changes that can be made through mutations, thus bringing the science to life in a surprising way. It will also add an extra, unexpected yet relatable layer of intellectual accessibility to the more traditional verbal and visual channels, whilst also linking the science to people's interests and other areas of culture (music and the arts). An RNCM alumnus composer (Jingyu Chen) has created a three-movement piece for string trio which was premiered as part of MSF18 (performed by the RNCM Lux Trio). Each movement is preceded by a presentation by Nick on the process of mutation which the music will represent. The project will hopefully allow the underlying science to be disseminated to the large proportion of citizens which attend concerts, but are seen less frequently at science events. This format may also be useful as a way of engaging visually impaired visitors or those with learning difficulties who may struggle to grasp some of the concepts when they are only presented in a more traditional, and thus less inclusive, manner. The proposed talk will discuss the project, and results gathered from audience members on the success of the aims of the research.

Astrophysics for All Session 3: 14.30 – 15.20

We are hoping to enrich British Sign Language (BSL) with fifty new words related to modern astrophysics research advances. The brand-new set of signs will be designed to effectively communicate the key questions, methods and findings in current research.

We hope this step of bringing research closer to the deaf community will light pathways to a more inclusive research and higher education environment.

In the session, we will share our toolkit for making these new words in collaboration with the Scottish Sensory Centre, which hosts the BSL Glossary List for science terms.

Science through Story Session 3: 14.30 – 15.20

A talk charting the progress of Links to a Life science enrichment company. We work through biography and have one tried and tested intervention for Secondary Schools about Lise Meitner - toured to 22 schools to date. It includes five hours of participation and games with an hour-long play at the centre of the day. We are developing a second intervention about Henrietta Swan Leavitt. The talk will share our evidence-informed pedagogical practice

STFC's Wonder Initiative: Help us shape our national programme Session 4: 15.30 – 16.20

The Wonder initiative marks a long-term commitment by STFC public engagement to move our focus towards audience-driven public engagement with communities in the most socioeconomically-

deprived areas of the UK. We want more working with people, and less delivering to people: giving communities an equal voice by listening, understanding, and responding to what people want to know about science and technology. Our approach is built around three features: working in collaborative partnerships; supporting the right people, to work in the right places; and sharing good practice so that others can learn at the same time as we learn.

This workshop is your chance to hear about some of the work we have initiated so far; how we have changed our funding schemes and criteria; and determine how to make the case to your organisation for engaging new and different audiences in the future. In addition, you can contribute to our thinking: how can STFC best help you to work with these audiences and how can we most effectively share and communicate what we learn so that Wonder programmes create a legacy beyond their initial lifetimes?

Hands on Engagement: not one size fits all Session 4: 15.30 – 16.20

This workshop will look at several examples of events where demonstrations and interactive activities form the basis of your engagement. We will look at the motivation for participating, understand audiences and discuss best practice when developing these activities.

Future Places, Space and Faces (aka 'Public Engagement Tarot') Session 4: 15.30 – 16.20

Our Public Engagement Tarot game helps people developing engagement programmes to think about how to navigate challenges and opportunities. Working in groups, teams pick cards which determine the group's 'fate' i.e. the constraints and opportunities they are working to such as location, target audience etc. The game aims to develop skills in public engagement event planning, negotiating/perspective taking, flexibility and team work, as midway through the session teams will have to adapt to fortune and jeopardy, mimicking real life event planning where opportunities must be seized and last minute challenges dealt with. I developed the cards for the NCCPE's 2018 Engage conference which had a 'Futures' focus hence why I played on the idea of Tarot cards. These are not real Tarot cards of course, instead I created them and I will make a couple of new 'research category' cards to specifically respond to the physical science focus of Interact. I am happy to share a printable version of cards with attendees post-event for them to print at home.

Embedding Science within the Art World Session 4: 15.30 – 16.20

While art-science collaborations have become increasingly popular, it's not always clear that these are reaching a different audience to our usual engagement activities. This session will explore how, rather than trying to reinvent the wheel, embracing the processes and networks that already exist within the various sectors of the art world are important in reaching arts audiences who are not already engaged with science. Examples of good practice in infiltrating science into existing international independent film festivals, community-led carnivals, and local art exhibitions will be highlighted. Open discussions will touch on how to engage with artists effectively and where to give up some of the control for effective collaboration and co-creation. Share your own experiences and evidence too!

Creating a Conversation Session 4 : 15.30 – 16.20

This talk will discuss how the Understanding Animal Research schools outreach programme balances providing accurate information with supporting open discussion of a controversial topic. The Animal Research Conversation is a free schools outreach programme led by Understanding Animal Research for students aged 11 to 19. Our Animal Research Ambassadors share their experience working in the life sciences and lead hands-on activities to support young people to think critically about the use of animals in UK research. Activities are carefully structured to encourage student participation to answer questions, put forward ideas and share their opinions. Ambassadors are trained to set the tone of respectful discussion and diffuse any heated comments. Feedback from teachers and students has shown an increase in understanding of the science, knowledge of animal welfare measures and insights into the ethical considerations of animal research.