Science & Technology Facilities Council
STFC Public Engagement Small Awards Panel

Grants funded at the 2015B Small Awards Round

Dr Martin Archer
Queen Mary, University of London
Grant Value: £8,500
36 months from 1st August 2016
'Cosmic Ray Muon Research in Schools'
The project will engage year 11-12 students with current neutrino particle physics experiments, highlighting the cosmic ray muons which serve as detected backgrounds in such work. It will enable school students to develop a better understanding of how scientific research works by conducting sustained independent research projects. Students will be given the opportunity to gain experience in university-style physics learning techniques including extended project work, experiment design and data analysis.

Mr Fraser Baird
Helia Photonics
Grant Value: £4,727
12 months from 1st January 2016
'Project Ferociously Awesome Balloons'
Project FAB is a student run science outreach program aimed at making primary school science more enjoyable, inspiring children to pursue a career in science and enabling senior high school students to teach younger pupils about scientific topics. The planned educational structure, drawn up with teachers in the partner cluster is for the undergraduate team to deliver workshops to senior students who express interest in teaching younger students to bring them up to speed with the topics. The undergraduate team will then visit the cluster primary schools to launch the project to all age groups through assembly addresses.

Dr Carol Davenport
Northumbria University
Grant Value: £9,998
18 months from 1st February 2016
'Think Solar Physics: imagining the sun'
Think Solar Physics project will engage with seven schools to facilitate cross-curricular learning around the theme of 'Imagining the Sun'. It will bring together artists, scientists and educators who have track records in working to support public engagement with world-leading science.

The project aims to:

- showcase UK solar physics research to young people and their key influencers

- build science capital in the North East through the linking of science and art, leading to a greater understanding of aspects of physics by young people, particularly girls
- encourage take up of physics-related subjects at A-level and above
- support teachers to use solar physics as a context for careers and curriculum teaching
- educate young people and the general public about DKIST

Dr Christian Diget
University of York
Grant Value: £7,970
23 months from 1st February 2016
'LEGO Chart of Nuclides: Inspiring Future Physicists'

The project will use a hands-on LEGO activity to engage school students and teachers with the underlying principles of nuclear physics and how these fundamental properties of matter lead to the development of applications. By demonstrating links between nuclear physics and areas such as astrophysics, fusion, fission energy, medicine and accelerator technologies the team is aiming to inspire a new generation of nuclear physicists.

Ms Lyn Francis
Clybiau Plant Cymru Kids' Clubs
Grant Value: £9,990
12 months from 1st April 2016
'Sky Play, The Out of School Way'
This project aims to inspire children aged 4 to 14 years old to engage with STEM subjects in a fun way learning through play in out of school club environments.

This grant will enable the development of the bi-lingual Sky Play activities resources that will be added to the existing resource pack that includes activities on Nature, Culture, Play and Youth. The resource will then be piloted and evaluated in South Wales.

The activities in Sky Play will include:

- Comets
- Asteroids
- Meteorites
- Impact cratering and mass extinctions
- Planets, stars and galaxies
- Space missions
- Light and colour
- Electricity and magnetism

Dr Peter Grindrod
Birkbeck College

Grant Value: £9,949
18 months from 1st January 2016
'Space 3D: A Pilot Study for Low-Cost Virtual Reality Space Exploration Learning'
The project team will use this grant to develop an app for Google Cardboard that will enable recent planetary data to be showcased in a new, and extremely low-cost, virtual reality system.

Once the app has been developed, the project will aim to get a broad-range of people interested in planetary science through immersive public talks/activities that can travel to different festivals across the UK, including some non-science festivals. The project will also engage school teachers with the technology and run a focus group to ensure best practice use of the app in classrooms.

The aim beyond this project is to ensure that the app is one of the most exciting methods of engaging with the ExoMars rover mission when it touches down in 2019.

Dr Jana Horak
National Museum of Wales
Grant Value: £3,423
6 months from 3rd January 2016
'Transit of Mercury, 9th May 2016 - an event programme for Cardiff'
This grant supports the museum's delivery of three events to promote and celebrate the transit of Mercury on 9th May 2016.

The first event allows for public viewing of the transit; this will comprise of indoor and outdoor observing opportunities.

Event two is a free public lecture on the transit and Mercury. This will be delivered by active astronomers and planetary scientists. The lecture will provide the opportunity for members of the public to engage informally with the presenters.

The third event is a two-part workshop delivered to art students – imagery and data from the Messenger mission will be used to give the students and insight into the remote world of Mercury and inspire their creativity. The second part of the workshop will be delivered by Ffotogallery and will teach new digital skills to the students.

Dr Ulrich Kolb
Open University
Grant Value: £9,949
12 months from 1st February 2016
'Science in the Stadium pilot programme'
This project aims to engage the crowd attending a Premier League match at Goodison Park, the home of Everton FC since 1892, with contemporary STFC-funded scientific research.

The crowd attending the match will be asked two questions: 'Is there life elsewhere in the Universe?' and 'Could life on Earth come from outer space?' Spectators will be given a leaflet

introducing the STFC search for life when they come through the turnstiles. Prior to kick-off, very short videos will be shown on the big screens within the stadium.

At half-time one of Everton's footballing heroes will introduce a short film about the STFC-funded science related to the questions above. The presentation will end with a short pre-recorded message from Tim Peake.

Ms Hannah Middleton
University of Birmingham
Grant Value: £3,300
18 months from 31st March 2016
'Catching the Wave: Gravitational Wave Exhibition at the Thinktank Science Museum'

A century after Einstein first developed his theory of general relativity, and after decades of technological development, Advanced LIGO is finally poised to make the first direct detection of a gravitational wave. This will be one of the greatest experimental accomplishments of the 21st century.

In partnership with the Thinktank Birmingham Science Museum, the University of Birmingham School of Physics and Astronomy will produce a dedicated exhibition on gravitational-wave astronomy and gravitational-wave detectors, opening in early 2016. Two exhibits, one a computer-based stand and the other a working scientific instrument will be featured prominently in one of the museum's main galleries, giving the team a great opportunity to engage a wide ranging audience with this field of science.

Dr Hugh Mortimer
RAL Space
Grant Value: £9,983
18 months from 11th January 2016
'Dance-Science-Music'

Rutherford Appleton Laboratory has initiated a unique collaboration with a team of award-winning performing artists with the aim of making space science research engaging and accessible to an arts audience.

The collaboration has two distinct but connected strands one of which is the development of a contemporary dance work inspired by solar science and including images and data from the Space Physics Division of STFC RAL Space. It will be created by choreographer Alexander Whitley, video artist Tal Rosner and composers Ella Spira and Joel Cadbury and toured throughout the UK and internationally by the Alexander Whitley Dance Company (AWDC).

This grant will enable the development of a creative learning programme combining concepts of choreography and space science that will be delivered alongside the performances of AWDC's work.

Ms Wendy Sadler
Science Made Simple

Grant Value: £9,900
15 months from 11th January 2016
'Exploring Mars'
This project will begin the development of an educational programme that will be in place in time for UK schools to access when interest in Mars will be very high due to events such as the upcoming ExoMars mission launch and landing.

The project will deliver in several ways:

- Interactive, engaging shows delivered to schools by Science Made Simple and focussing on the science of Mars exploration
- Delivery of 3D shows, using images from Open University researchers – red/green versions will also be created to allow YouTube users to view them without specialist equipment
- Mars content will be added to existing Primary and Secondary teacher training CPD events
- Create a classroom resource repository of teacher-approved STEM resources that have a Mars theme

Dr Lindsay Keith
The Refinery
Grant Value: £8,400
3 months from 14th December 2015
'SMASHfestUK 2016'
SMASHfestUK is a new science festival that uses culture and entertainment as a driver for STEM engagement for young people in London, with a particular focus on engaging with hard to reach audiences. This event will build upon the successful pilot project held in in 2015.

This year's programme will include solar observation, an innovative exhibition programme which matches scientists and artists in commissions specifically aimed at 11-18 year olds and rooted in the science and technology around a solar storm. The aim of this is to engage audiences and share knowledge about space, solar and planetary science with the community of South East London through entertainment, art and storytelling.

The SMASHfestUK team will enable the building of a geodesic dome in the garden of The Albany Theatre in Deptford. This will make use of found materials including PVC pipework, cardboard and wood. During the build process, visitors will learn about the principles of engineering and physics behind geodesic domes. The Dome will become a planetarium and performance space for the three full days of the festival – 18th to 21st February. There will a programme of talks and events in the Dome which will include a partnership with the Flamsteed Astronomers based at the Royal Observatory Greenwich.

The 'Young Science Explainers Programme' aims to build a large team of young science explainers that will be a core part of the event. Young explainers will be drawn from local secondary schools, colleges, youth groups and local community partners.

Mr Allan Trow
Dark Sky Wales Education Services Ltd
Grant Value: £9,900
12 months from 4th April 2016
'The Sky's Her Limit - A Women's Place in the Universe'
Through a series of talks delivered by the following inspirational female scientists; Professor Lucie Green, Professor Monica Grady, Professor Mary Kellet and Wendy Sadler, Dark Sky Wales and Chwaere Teg aim to engage and inspire a future generation of female scientists.

Events will be by invitation only to Year 8 and 9 female students in secondary schools within a reasonable driving distance of each venue. The mothers of the students will also be encouraged to attend in order to facilitate a change in attitude amongst parents, guardians, etc. towards science.

Events will, typically comprise:

- A mobile planetarium show, particularly emphasising the discoveries of female scientists like Jocelyn Bell Burnell
- A guest lecture by a female scientist who will describe their background, career pathway and experience of science; followed by a Q&A session
- Other activities provided by organisations local to the event

Ms Amanda Tyndall
Edinburgh International Science Festival
Grant Value: £6,143
4 months from 1st February 2016
'Beyond Planet Earth'
The Edinburgh International Science Festival is a long-standing event that has a history of success in promoting science engagement activities.

This year's festival will include 'Beyond Planet Earth' – an exploration of non-Earthbound challenges and opportunities.

From accessible introductions to astronomy, and the fascinating, but undeniably weird, quantum world, to updates from intrepid planetary robots and the latest on the search for extra-terrestrial life and personal space travel, Beyond Planet Earth will take audiences on a journey that is truly out of this world.

Dr Ventsislav Valev
University of Bath
Grant Value: £9,529
15 months from 1st March 2016
'Look into my eyes: colours, light and powerful lasers'

This educational outreach project for primary school children has been designed in a way to capitalise on truths that primary school children hold to be self-evident, such as ‘Robots are Cool!’, ‘Lasers are Cool!’ and ‘Alien Planets are Cool!’…in order to create or generate the more general understanding that ‘Science is Cool!’.

The children will follow a traditional lecture with a twist – the lecturer is a robot, a humanoid Nao robot to be more precise. The robot is a scientist called Photon who is both the ‘hook’ for the project and used to educate the children about the properties of colours and light.

The children will then work in smaller groups, facilitated by PhD students from the University of Bath, on activities aimed at five different learning styles:

- Visual
- Kinaesthetic
- Story-based
- Music-based
- Intrapersonal

Dr Carsten Welsch
University of Liverpool
Grant Value: £9,806
6 months from 11th April 2016
‘Schools' Accelerator Science Workshop’

The aim of this initiative is to provide an opportunity for pre-sixth form pupils from schools with low external science engagement to get a taste of hands-on practical science by building machines related to accelerator science in small teams supervised by researchers and/or students from the field. Girls will be particularly targeted and encouraged to take part and the schools will be targeted to ensure gender balance. Teachers will be invited to attend the workshop and resources will be developed in the form of 'how to...' worksheets which will be complemented by accessible videos made available via public web sites.

It is hoped that exposure to interesting and practical hands-on science projects where pupils build their own accelerator-related machines will encourage pupils to consider taking A-levels in science subjects to set them on a possible career pathway in science or engineering. The learning resources made available will also support this with videos to inspire other pupils and easy-to-follow instructions that would enable other teachers or science-promoters to replicate the projects. Thereby a lasting resource will be created for wider impact. The Public Engagement team from STFC Daresbury Laboratory will also gain from their involvement in the project as they will be able to deliver identical workshops as part of their activities.