**Public Engagement Small Awards - successful applicants in round 2013B**

**Professor Paul Roche**

**University of Glamorgan**

**The Mighty Sky UK**

**Award £9,500**

The overall aim of the Mighty Sky UK (TMS UK) proposal is to develop and evaluate a UK version of a successful US STEM education programme that engages students in learning astronomy through music. This will be achieved through production of classroom resources based around the 11 songs of The Mighty Sky UK album by Beth Nielsen-Chapman, combining STEM and music in a cross-disciplinary project that mainly targets key stages 2 and 3.

The specific aims of this project are:

- The development of UK versions of existing US-based resources
- Running 4 high profile events at which these resources are used alongside musical performances
- To make all resources freely available on-line
- To evaluate the impact and effectiveness of TMS UK and report results at relevant conferences and through publications

**Miss Victoria Welham**

**Systems Engineering and Assessment Ltd**

**MARSBalloon National Pilot**

**Award £9,954**

The MARSBalloon national pilot is an evolution of a successful local pilot carried out by Systems Engineering and Assessment Ltd (SEA) expanded to reach schools nationally.

This project will redevelop the existing school information pack used in the local pilot and create a permanent website for hosting this and a project FAQ.

Two launch campaigns will be undertaken during 2014. The first of these is targeted at years 9, 10 and younger with an announcement after Easter and launch in mid-June. The second is targeted at year 11 students with an announcement after the summer holidays and launch in mid-October.

**Mr Ben Connor**

**Bristol Natural History Consortium**

**Award £9,114**

**Nature Beyond the Skies**

This project aims to bring STFC science, particularly astronomy and space science, to a general public audience through the delivery of 6 activities within the 2014 Festival of Nature. This is a free outdoor, city-centre science festival that attracts up to 30,000 visitors each year.

STFC science is to be a central theme of the 2014 event. The activities developed within this project will allow a minimum of 6,000 visitors to interact with the project. The activities will take into account learning styles and differing levels of scientific interest.

Overall the project will inform and inspire thousands of visitors with ideas drawn from STFC funded science and provide an opportunity to reach a wider audience base. The project will add to the body of public engagement resources through the development of new activity models than can be used by other science communicators.

**Miss Katherine Leech**

**University of York**

**Astrocampus - An Outreach Facility for Engagement with Schools and the General Public**

**Award £9,974**

This project aims to use the inspirational nature of space science and astronomy to engage school students and the general public with Physics research. The University of York has a well-equipped 'Astrocampus' for the use of undergraduate students. This project aims to make these facilities accessible to the general public and school students and to use this exciting site as a backdrop to engage a wide range of people in STFC research.

Astronomy and Space Science are frequently in the media, with British involvement becoming more frequent and high profile. The aim is to capitalise upon this interest in order to inspire people who might not otherwise engage with Physics. Visitors will be able to use equipment that is completely beyond the resources of most individuals and also meet the scientists involved.

The project targets two groups in slightly different ways. Public observing evenings will draw the general public and families onto the site. Daytime activities for schools will use astronomy and space as an exciting context for a wide range of activities that will encourage students to remain in Physics.

This project has the potential to have a significant impact on a large number of people. It is anticipated than over 2000 people per year will be able to engage with Physics through the Astrocampus. The project is sustainable and can continue to inspire the general public and school students for many years to come.

**Dr Sarah Crowther**

**University of Manchester**

**Award £5,776**

The project incorporates several different aspects.

Design a Rover. The initial project led to the development of a simple application based around Rover exploration; this design will be expanded upon to develop an extensive program. The idea is to tie together the various areas of research, carried out by the group, into one currently topical theme. It promotes problem based learning by challenging participants to think about aspects of design and scientific procedure that they may not have considered before.

3D Craters. A set of three craters will be purchased and used to explain large scale planetary formation events, as well as being applicable to the meteorite impacting activity we regularly run

Laser Projectors. Complete sensory immersion is a daily feature of many people's lives and it is almost expected that science based public engagement will keep up with this trend. Museum displays often are better received, by both adults and younger audiences, if their displays and areas contain immersive features that may not be directly related to the actual conveying of the information. A set of laser projectors, capable of projecting vast star-scape scenes on walls or ceilings of rooms is an efficient and effective way of catching the public's imagination as well as attention. Whilst a feature like this may not directly impact on how we convey the science we carry out, it will certainly increase the impact and memorability of the event.

**Dr Robyn Wheldon-Williams**

**National Eisteddfod of Wales**

**Cosmology Exhibition at the National Eisteddfod of Wales 2014**

**Award £10,000**

This award will support a themed exhibition and activities on Cosmology as a major part of the 2014 National Eisteddfod, the premier cultural festival of Wales, held mainly in Welsh. It is an 8 day festival .

The site includes a main pavilion of capacity 3,500, with approximately 10 smaller satellite pavilions, including the Science & Technology pavilion, all surrounded by some 300 commercial and other stands. Attendance at the Science Exhibition has consistently been in excess of 27,000 over 8 days for each of the past 3 years. The Cosmology exhibition will be a major part of the 2014 exhibition.

The 4 primary objectives of the Eisteddfod Science and Technology programme are to

- Promote the Public Understanding of Science - to provide innovative opportunities for visitors to become better informed about various aspects of Science and Technology (STEM) subjects
- To provide Welsh "science-producing" bodies such as Universities with an opportunity to showcase their achievements locally, regionally and globally
- Create interest and excitement in STEM subjects leading to improved attainment in Science KS3, KS4 and KS5 and to motivate students
- To stimulate young people to consider careers in STEM subjects

**Miss Caroline Molyneux**

**Balshaws High School**

**Space 2014 - A Conference of astronomical proportions!**

**Award £5,160**

This project is to provide a high quality 3 day Space conference for pupils aged 14 to 16 in the South Ribble area.

Students from all of the 12 secondary schools in the South Ribble region will be asked to advertise for teams of students to either present or to produce a poster (in a very similar way to an academic conference) for the conference. This might be their own research or observations of space. Selected teams will be invited to attend the three day Space Conference to be held at Balshaw's CE High School in May 2014.

The conference will offer exciting opportunities for members of the local public to get involved with science - ones that they would normally have to venture further afield to get. On day two of the conference the Posters and formal presentations will be open to the general public and advertised throughout the region alongside visiting speakers throughout the day.

The project will have a particular focus on encouraging disadvantaged students from across the region to participate. Schools will be encouraged to put forward pupil premium students.

The project will also show the work of local Scientists. Scientists from local Universities and indeed STFC funded research groups will be invited to speak to the youngsters at the conference.

Science issues will be looked at in unorthodox, innovative and engaging ways; the aim being to try out new ways of scientific communication. Students will be given a rare opportunity to present their ideas, research and theories in a way that is normally research for university level academics.

**Professor Charles Cockell**

**University of Edinburgh**

**UKCA-NASA Astrobiology Summer Academy 2014**

**Award £8,535**

**This award**

The UK Centre for Astrobiology (UKCA)-NASA Astrobiology Summer Academy is a summer academy designed to give teachers and high school students the opportunity to experience research, engage with scientists and work at the interface of some of the most exciting cutting edge questions in science today, such as: How did life originate on the Earth? Is there life elsewhere?

With new discoveries of Earth-like planets orbiting distant stars and the landing of remarkable instruments such as NASA's Curiosity Mars rover, astrobiology is an area of vibrant activity that gives teachers and school pupils the opportunity to engage in a rapidly changing field of great public

interest. In essence, astrobiology can be used as a vehicle for teaching students interdisciplinary science.

This award is specifically for the week of teacher training aspect of the 2014 Academy. The aim of the Astrobiology Summer Academy teacher training is to:

- Expose teachers to researchers and the excitement of taking part in real science
- Give teachers ideas in astrobiology and interdisciplinary science that can be incorporated into lesson plans and the national curriculum
- Develop focused, fully integrated lesson plans that can be transplanted direct from the academy to the school environment, thus achieving national impact. The focus is on S4-S6
- Building a cadre of astrobiology teachers that can work with us in the future in advancing astrobiology teaching in the UK

**Dr John Wilson**

**University of Birmingham**

**Detecting cosmic rays with a spark chamber; connecting with particle physics and astronomy**

**Award £4,230**

This project is to continue our programme of demonstrating our spark chamber at schools, colleges and exhibitions – if invited, at any venue where science is being described and discussed. The spark chamber detects cosmic rays and shows convincingly that these particles from outer space are raining down on us. When triggered by a cosmic ray, the device makes an impressive crack and the line of sparks shows clearly the particle's path.

The proposal aims to show how particle detection can be understood without going beyond school physics and to give the audience confidence in their own intuition and understanding - particle detection is not science fiction. The spark chamber demonstration will be accompanied by a talk which illustrates that in modern experiments (e.g. the Large Hadron Collider at CERN) the principles of particle detection are exactly the same although the experimental techniques have changed. The talk leads naturally to a description of the current exciting results from CERN and elsewhere.

**Dr Harald Fox**

**University of Lancaster**

**Higgs Boson Decays in the Lancaster Particle Physics Package**

**Award £8,318**

The overall aim of this project is to interest young people in particle physics in general and in the continuation of Higgs physics at the LHC or another Higgs factory. The Lancaster Particle Physics Package allows users to control simulated particle collisions and to carry out various experiments.

This project is specifically for the production a new, seventh module as part of the Lancaster Particle Physics Package (LPPP). LPPP is a web-based program that aims to improve awareness and

understanding of modern High Energy Physics (HEP) among the AS/A2 level students, teachers, 1st year university students and interested members of the general public.

**Dr Lucie Green**

**University College London**

**Writer in Residence at the Mullard Space Science Laboratory (MSSL)**

**Award £9,628**

The overall aim of this project is to develop a new approach to public engagement at MSSL through a one-year 'writer in residence'. MSSL will capitalise on the recently developed relationship with the award-winning poet Simon Barraclough to enhance and improve the existing public engagement programme by having Simon spend a year at MSSL.

Although MSSL already has an extensive public and schools engagement programme that reaches thousands of people annually, there is a wish to improve the current programme by providing opportunities for staff and students to develop new skills and adopt a more creative approach to engagement activities.

During the project Simon Barraclough will be based at MSSL where he will collaborate with staff, students and members of the public to develop new poetic and creative written work inspired by the STFC-funded research carried out there. Four public events will be held over the course of the year involving readings, artistic collaborations and involvement from staff and the public.

These public events will feature other poets and artists and will be held in the grounds of the MSSL where possible, in public venues close to MSSL and in schools where MSSL has an existing link. Simon will write and perform new work related to the research and interests of every level of staff member at MSSL and will be available to work with staff and students who wish to collaborate on artistic projects.

It is envisioned that the project will culminate in the creation of a 'poetic inventory' of MSSL that is developed by Simon Barraclough, taking into account the history of the site, the amazing historical artefacts it contains, and its current and future work. This inventory will be published in pamphlet form and online and will be a lasting legacy of the project.

**Professor Colin Pillinger**

**Open University**

**The story of Philae: engaging the public throughout 2014 with the Rosetta cometary mission and the Philae lander at the UK site of the Philae obelisk**

**Award £10,000**

The overriding aim of this proposal is to raise awareness of the European Space Agency Rosetta comet chaser and the UK's key role in the mission through a display of the Rosetta mission, from launch in 2004 and following its journey through space to the climax of the mission in 2014.

The chosen location is the National Trust property at Kingston Lacy in Dorset, the home of the Philae obelisk.

The project aims to bring the Rosetta mission, both orbiter and Philae lander, to life to a large number of the public in a location which is primarily visited for a non-scientific experience.

The display will cover all aspects of comets, Rosetta and the lander with a strong focus on the UK involvement. Technological and scientific demands will be highlighted so that expectations of what the mission can achieve are seen in context of what Rosetta has already faced and the challenges to be encountered during 2014.