

IPPOG Meeting Apr 2017 – Swindon Office Public Engagement

E. S. Cunningham, Particle and Nuclear Physics Outreach Officer

7th April 2017

Institute for Research in Schools - CERN@school

<http://www.researchinschools.org/our-projects.html>

The Institute for Research in Schools – a charity that aims to engage school students and their teachers with fundamental research held the third CERN@school Symposium, which saw over 100 students coming together at the Rutherford Appleton Laboratory in November.

As well as presentations from expert speakers including Michael Campbell, of the Medipix 2 Collaboration at CERN, and laser-loving physicist Dr Ceri Brenner, they got to share with each other the fascinating projects they are working on. The key presentations can be viewed on the IRIS [YouTube](#) channel.

School and teacher visits to CERN

Using UK schools booking data provided by Steph Hills at CERN we have plotted an updates map of UK schools who have visited (and are planning to visit) CERN in the 2016/17 academic year. Along with previous data this should enable us to get a clear picture of any gaps in the UK.

We continue to email teachers before and after their trip to CERN. In October 2016 the feedback gathered from UK teachers who have taken a school group to CERN was updated to bring it in line with the STFC public engagement evaluation framework. We now have feedback from 38 teachers using the new questions. A summary of the data is given below; the values are averaged scores out of five:



Average rating out of five: 4.34

What age group of students did you bring to CERN? 87% (Over 16) 13% (14-16 years)

Do you intend to bring another group to CERN? 100% (Yes)

How did the visit/event make you feel?

I felt welcome: 4.50 I felt parts of the day were useful to me as a teacher: 4.38

I felt inspired: 4.41 I was able to join in and be part of the visit: 4.32

Was your visit to CERN...

Relevant to the curriculum? 4.54

Pitched at the right level for my students? 4.04

Useful for my teaching? 4.07

Inspirational beyond the curriculum? 4.54

What will you do next?

I would like to find out more about what I've learnt today when I get back: 3.79

I will use this CERN visit to add context to my lessons when talking about relevant topics in the classroom: 4.43

I would recommend a visit to CERN to others: 4.70

I would be interested in attending a CPD on this topic in the future: 3.89

This event will help me highlight possible careers to our students: 4.50

After attending this event...

I have learnt some new skills, activities or tools to take back to the classroom: 3.85

I know where to look to find out more: 4.07

The top three most common visits were:

- 1) Microcosm exhibition
- 2) Universe of particles exhibition
- 3) Visits: ATLAS & SM-18

The most useful/best parts of the visit were:

- 1) The guide/scientists
- 2) Visit to SM-18
- 3) Intro. lecture and guided tours: CMS & S'Cool lab

What could be improved:

- 1) Tours underground
- 2) Intro. lecture
- 3) More time/seating in CERN canteen & more personalised visit.

The most common complaints from teachers returning from CERN are that they didn't get to go underground or that the visits they went on were not as good as previously and they'd like to pick where they go: 'This is the second time we have done that particular 'tour' and it is very disappointing. I appreciate that we can't go underground, but other above ground tours still have that sense of wonder that the students are expecting from the CERN tour.'. Unfortunately with the operational nature of CERN there is nothing we can do to improve this aspect of the visit.

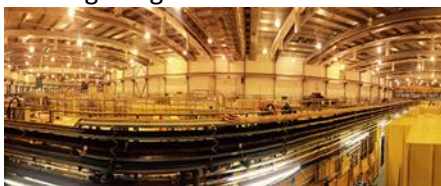
The introductory lecture appears both in 'the most useful part of the visit' and in 'what could be improved'. The comments for improvements were 'The sit-down talks were 45 minutes each and were a little long.' 'Introductory lecture could be a bit more creative and delivered with more enthusiasm'. This indicates the quality of the lecture is variable.

It is encouraging to see that the people/scientists the teachers and students meet and interact with at CERN are consistently regarded as being the best part of the visit.

Masterclasses

<http://www.stfc.ac.uk/public-engagement/for-schools/particle-physics-masterclass-programme/>

In the UK, 19 institutions have confirmed they plan to run particle physics masterclasses in 2017. STFC ran two masterclasses at their national laboratories in February/March at RAL (~700 students) and Daresbury (~300 students). At RAL for the first time we ran a photo competition on social media during the masterclass. The winning images are below:



STFC Public Engagement Funding Schemes

<http://www.stfc.ac.uk/pefunding>

No new PE awards have been announced since the last report. The last relevant rounds are listed below:

2016 Small Awards B	
<p>Dr Christopher Edmonds University of Liverpool</p> <p>‘acceleratAR’</p>	<p>This pilot project will allow students, pupils and the public to explore the accelerator facilities at Daresbury Laboratory virtually, as well as inviting them to bring aspects of real experiments into their classroom or home.</p> <p>The smartphone and tablet apps produced as a result of this pilot will be made publically available; the feedback received regarding these will inform the further development of the project.</p>
<p>Professor Cigdem Issever University of Oxford</p> <p>‘Building ATLAS in Minecraft’</p>	<p>This project will enable primary and secondary school pupils to build the ATLAS detector as a world map in the computer game Minecraft. The team plans to build the ATLAS detector, experimental halls, cavern and nearby aboveground buildings with the aim of educating children about particle physics, the detectors and the LHC.</p> <p>The resultant map will be freely distributed with the aim of it being used in classrooms for educating pupils about ATLAS and the LHC.</p>
<p>Professor Roger Jones Lancaster University</p> <p>‘Physics@WOMAD 2016’</p>	<p>This project will, for the first time, bring an explicitly science strand to the broad WOMAD cultural festivals. The wide family audience that attend WOMAD will be given the chance to learn about a range of subjects including LHC Physics, Solar Physics, Space Weather, Planetary Science and Gravitational Waves.</p> <p>The weekend will involve three six hour sessions; the first two hours being child-friendly, the remainder being aimed at a broader audience. The sessions will consist of talks, interactive discussions, stargazing and other activities.</p>
<p>Dr David Price Diamond Light Source</p> <p>‘Light for Wales - Diamond Light Source Exhibition at the National Eisteddfod of Wales’</p>	<p>This project will take the science carried out at Diamond Light Source (DLS) to the 2016 National Eisteddfod at Abergavenny.</p> <p>The work of DLS will be promoted to a non-typical audience. Other festival exhibitions that specifically cover research undertaken at DLS will also be supported and highlighted.</p>
<p>Dr Sarah Roberts University of Swansea</p> <p>‘QuarkNet Cymru’</p>	<p>QuarkNet Cymru is a pilot project designed to enthuse and engage secondary school students in the exciting topics of particle physics and cosmic rays. The programme will build upon two previously successful funding bids related to the purchase of HiSparc cosmic ray detectors. Specifically, the award will be used to produce and pilot the educational programme; evaluating the resources and CPD events with the schools involved.</p>

Large Awards 2015	
<p>Dr Rob Appleby University of Manchester</p>	<p>The core of the project is the development of the Tactile Collider event, consisting of a specially designed interactive talk coupled with</p>



<p>'Tactile Collider: an interactive event for the blind and partially sighted'</p>	<p>tactile exhibits based on particle and accelerator physics components and unique audio descriptions. The experience will be related to existing LHC and Higgs talks in scientific content but significantly adapted in terms of delivery to the audience. Specially created tactile components related to detectors and accelerators will be integrated with the talk, and an assistive reader (used by most VI people) and braille brochure developed.</p> <p>This exhibit will tour many of sight-related schools in the United Kingdom and the material will be used at science festival and Pi: Platform for Investigation events. The latter events will also reach the general public, providing education on the unique needs of blind and partially sighted people.</p>
<p>Professor Gail Cardew Royal Institution of Great Britain</p> <p>'Accelerators for humanity'</p>	<p>The project is intended to raise the profile of how particle accelerators are transforming lives through their uses in medicine and industry. 'Accelerators for Humanity' will deliver a curated programme of live events and digital video resources.</p> <p>The project will capture the dedication of particle accelerator researchers in STFC-funded facilities and highlight the varied ways in which their work is impacting on our lives in areas such as medicine, food safety and nuclear power.</p> <p>STFC-funded researcher, Suzie Sheehy will deliver a public talk about her work designing accelerators and their potential future applications in areas such as the treatment of cancer. This along with the expert panel discussion will be made available as a permanent digital resource.</p> <p>The Royal Institution will also produce a series of short films exploring the human stories of particle accelerator researchers working in STFC-funded facilities:</p> <ul style="list-style-type: none">- an animation exploring the challenges faced in building accelerators- a science demo video explaining the principle by which accelerators trap and transport charged particles- an interactive video providing a 360 degree view inside an accelerator <p>You Tube link: http://bit.ly/2eU9T1i</p>

Useful Websites

CERN@school: <http://www.researchinschools.org/CERN/home.html>

STFC PP Masterclass page: <http://www.stfc.ac.uk/public-engagement/for-schools/particle-physics-masterclass-programme/>

STFC Public Engagement funding: <http://www.stfc.ac.uk/pefunding>