



SUPA Education & Outreach Focus Group – Discussion Paper

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Minor update, C Killow 13th May 2016

Overview

This document has been prepared as a discussion paper following three meetings of the SUPA Education & Outreach Focus Group on 10th December 2015, 3rd March 2016 and 15th April 2016. The members of the Group to date are listed below.

Alan Miller (Chair), Paul Cruikshank, Judy Hardy, Jim Hough, David Keeble, Christian Killow, Bill MacPherson, Anne Pawsey, Marco Piani, Fransisco Perez-Reche, Stuart Reid, Aidan Robson, Mat Wasley.

Motivation

This Group is one of three recently set up by SUPA, the other two being an Industry Focus Group and a Research Foresighting Focus Group. The purpose of this Group is to investigate where SUPA can contribute to the current activities in the areas of education and outreach, through providing a co-ordinated approach across the SUPA universities. This approach would be collaborative with other initiatives in education and outreach in Scotland, making best use of SUPA as a network of physics researchers and avoiding duplication. The ultimate aim is to encourage public engagement with physics-specific research across Scotland and increase the uptake of physics with a priority of improving the gender balance of those studying physics at school and undergraduate level.

Current Status of Public Engagement in SUPA

There are many activities already in place around Scotland that seek to support education and deliver outreach, and the SUPA universities are very active in these areas. Some of these activities are quite fragmented, and this suggests that SUPA could have a positive impact by bringing a higher degree of strategic direction to the current work. The work around the International Year of Light is a good example: SUPA worked with other partners, particularly the Institute of Physics (IOP), to promote this in a Scottish context and staff from several universities were involved to good effect. The scale of this example was facilitated by additional funding, and one of the challenges facing the Group is to find ways to have similar impact with what is likely to be small or no additional funding.

Whilst all of the SUPA universities have a person or a section, responsible for promoting and/or supporting public engagement they are not dedicated to physics. At the second meeting of the Group, however, it was reported that the University of Glasgow, University of Strathclyde, and the University of the West of Scotland have secured agreement for a shared physics public engagement officer, to be advertised soon. It is possible that this model could be adopted in other regions of Scotland. Encouraging physics-specific activity could be beneficial – current activities tend to the large scope (STEM programmes) or specific (sub-discipline focussed programmes by organisations such as Proteus and Quantic). There appear to be some gaps in the middle-ground, and the SUPA network is well qualified to address these.

The SUPA Annual Gathering will have a substantial public engagement component. There will be an exhibition highlighting the impact of physics in Scotland with contributions from the SUPA research facilities, companies with ties to SUPA, and researchers whose research has notable impact. Students from the SUPA Universities will present posters. There will also be a public lecture given by Professor David Miller, held in partnership with IOP Scotland. The exhibition will be available prior to the start of the public lecture in addition to during the Annual Gathering. This



is a model that could become an annual fixture. There will be posters from SUPA Graduate School students at the exhibition, and future Gatherings could include sessions organised by students.

Some members of SUPA currently interact quite extensively with Education Scotland and the Scottish Schools Education Research Centre (SSERC), and have generated videos and resources in collaboration. SUPA could provide Continuous Professional Development (CPD) for secondary school teachers, but this would require care not to duplicate work by the IOP or SSERC. One possibility is for SUPA to coordinate the development of a pairing system between teachers and physics professionals in universities in collaboration with IOP.

The Group consensus is that physics is generally not well represented at policy events, such as Science in Parliament, and this is an area that SUPA could target to raise the awareness of physics and its benefits at a government level. There are SUPA members who are involved in policy areas but this is not currently co-ordinated. The generation of a list of these people could be a good starting point.

The Group discussed the 'Lab-in-a-Lorry', which was very popular and effective. It is thought that the cost of such an outreach vehicle is now prohibitive as it could be of order £100k per year. There is, however, a Lab in a Lorry currently in Wales operated by the Institute of Physics in partnership with the Welsh government, the Schlumberger Foundation and STEMNET.

The IOP have received £40k funding to be used as salary specifically for outreach in Scotland. This could provide an opportunity to resurrect lab-in-a-lorry in a reduced form: "Lab-in-a-Van". SUPA could help with the design of such a facility and provide a network of researchers to staff it.

Proposals

- Create a SUPA public engagement network. The SUPA engagement network should support those practicing public engagement and provide a means to share best practice across SUPA.
 - The network should include practitioners and link to external partners including Education Scotland, SSERC, IOP Scotland, STEMNET, Beltane, Heriot Watt Engage (and equivalent West of Scotland organisations).
 - The Network should be launched at a physical event, possibly during autumn 2016, involving everyone in SUPA with an interest in public engagement to ensure the widest possible reach.
 - The launch event would provide an ideal opportunity to collate outreach contacts across SUPA as they would need to be invited to the event. It would also provide a starting point for further resource identification.
 - Potential partners for the SUPA public engagement work could also be invited.
 - The Education and Outreach Focus Group could evolve to form the steering group for the network. The membership of the steering group should be broadened and additional candidates identified.
- The £40k IOP funding to create a post in support of outreach in Scotland. SUPA could help the post-holder expand outreach activities, including any plans to resurrect Lab-in-a-Lorry in a reduced form, *e.g.* "Lab-in-a-Van". SUPA could help with the design and content of such a facility and provide a network of researchers to contribute to activities.
- Resource identification: The collation of information on SUPA-wide resources could be of benefit in a number of areas and help to avoid duplication of effort, and possibly resource sharing. Resource lists could include:



- Physical displays/stands/interactive demonstrations – both sub-discipline specific and generic physics. There could be potential for applying for funding to generate new displays that would be used all around Scotland.
- Virtual outreach resources – *e.g.* videos.

A forthcoming redesign of the SUPA webpages could provide a central 'shop-window' linking individual universities' education and outreach initiatives for external users (*e.g.* schoolteachers).

- Training of graduate students. The SUPA Graduate School will assess what outreach training its PhD students are currently exposed to with a view to ensuring all have the opportunity to get involved in this area, and are aware of the value of this activity. We will review what SUPA should be doing in the context of the current provision by the individual universities, such that we do not duplicate.
 - The Graduate School should create an expectation that its students should be STEM ambassadors.
 - This would also provide a network of physics graduate students to call on to promote physics at outreach events organised by SUPA members or by SUPA itself.
- Engagement with policy makers warrants greater exploration. SUPA currently has engagement with Education Scotland and this link might be a good way of determining how SUPA can make a positive impact. SUPA will also consider how physics can be better represented at Science in the Parliament.
- Promotional material: SUPA does not currently generate much promotional material. It would be useful to have leaflets, fliers, YouTube, etc, aimed at a range of different audiences, such as industry engagement and collaboration, supporting education, and outreach resources. This gives opportunities for graduate student involvement / leadership.
- Social media: This is an area that SUPA is currently working on generally, and the education and outreach agendas will be included in the planning.
 - SUPA has recently started producing a monthly e-newsletter, this could be publicised to school teachers. It is important to ensure that the newsletter is accessible and not highly technical. Input from Graduate School students will be encouraged.
 - The SUPA webpages will be redesigned in the coming months. Short articles are already being generated via the Newsletter. The intention of the redesign is to provide a site that is accessible to those in physics from outside of SUPA as well as those within. This will be the starting point for a more active social media presence through Twitter, Facebook, etc.