



Professor Mark Weller Department of Chemistry



The Research

Mark is a materials chemist, studying “hard” functional materials that are used in everyday life. His research covers topics such as pigment chemistry (for example, the pigments that go into paint and inks) alongside the study of rechargeable battery materials, the materials that go into detergents and compounds that can be used for harvesting solar radiation. He specifically looks at how environmentally-friendly elements can be incorporated into such materials, as well as means to improve the efficacy of the materials and / or to address scarcity or toxicity issues.

The Engagement:

The key ‘publics’: Industry (e.g. Maerck), general public (especially children and young people).

The type of engagement: Inspiring, informing and educating others, building their capacity to make informed choices or to influence others.

Mark has over 10 years’ experience of undertaking public engagement with research and has received a mixture of both large and small grants for activities from research councils such as the **Engineering & Physical Sciences Research Council** and the **Science & Technology Facilities Council**. His audiences have varied dependent on the grant, but have largely involved primary and secondary school children. He has also exhibited twice at the **Royal Society’s Summer Science Exhibition**, a unique opportunity for members of the public to interact with scientists and ask them questions about their work.

Through all these activities, Mark has looked to both inform and inspire audiences, helping them to understand the role of research in science:

“I think it’s crucial that those at the ‘coalface’ – those doing the research – are the ones doing the engagement as they’re the ones who are most enthusiastic about the research and who can best convey its importance.”

Mark has undertaken a **range of dialogues** with the public, prompting debate around his research areas. For example, the yellow pigment that has been used in double-yellow lines contains lead and chromate, both of which are toxic. There is also, as yet, no red or yellow pigment that can stay out in sunlight for years without fading. Dialogues help the public to think on these issues.

Mark also holds dialogues with his industrial partners. These are usually focused upon setting the parameters of research, discussing how legislation and general public opinion might impact upon what can or cannot be done, or utilised, in the research.



The Motivation:

Through working with industry, Mark can envisage where developments from his research will eventually be used, and this is motivating:

"A lot of my research is not on the 'pure' science – I like to see that my research is going somewhere. I think as I scientist that I should be able to explain why I'm doing some particular research, and where it's likely to lead."

It was important for Mark that, when he got into public engagement, funding bodies were offering distinct funding streams for public engagement activities. Such funding streams do still exist both within and without research councils and, in the case of the research councils, **any researcher can also apply for support for engagement activity through the Pathways to Impact section of the Je-S application form.**

"Engagement is an important way to help enhance public understanding of the funding of science which is important given that much research is funded by the taxpayer."

The Professional Development:

Mark believes that his public engagement experiences have helped him when it comes to writing grant proposals chiefly because they have caused him to think carefully about the eventual beneficiaries, and general benefits, of his research:

"Public engagement causes you to think about why you are doing your research and where you would like it to lead 10 or 20 years down the road. This kind of thinking is really important to convey in grant applications."

For example, Mark is developing a large grant application about the grid-scale storage of energy from solar and wind farms. Given increasing government interest in renewable energies, thought to how they may be stored on a large-scale is timely. Mark found that through his public engagement experience, he was better able to elucidate in the grant the importance of the research and its potential impact on a range of non-academic audiences.

In addition, Mark believes that his experience of writing a range of University-level text books and school-level articles has helped him to communicate advanced research ideas in an accessible way, a skill crucial across his engagement activities.

The Learning:

The importance of relating research to people's everyday lives makes for good engagement, Mark believes. He always tries **to offer people a hands-on experience, or an everyday or visually impressive object to spark their thinking.** This could be something as simple as people taking out their mobile phones and looking at the batteries, as a way into conversations on the toxic elements found in the batteries or on how battery life might be extended.

A fall in the number of distinct funding streams for public engagement activities from research councils in favour of activities funded through *Pathways to Impact* statements in Je-S applications is a challenge. The temptation is, Mark thinks, for researchers to focus on their research in these grants rather than on how they might convey the research benefits. Yet *Pathways to Impact* also provides an opportunity to properly fund engagement activities. The Public Engagement Unit and the Research Development & Support Office can advise on completion of *Pathways to Impact* statements.

"There are already so many public engagement opportunities out there – festivals, cafes, exhibitions and the like – that, as long as you can spare the time, it should be easy to find something to take part in."

Top tip:

"Try to find a handle that will grip your audience. Think about something that people will be able to relate to, so that they can see the relevance and benefit of your research. If people see the relevance of what you're doing, it'll make engagement easier."