



# Voice

The quarterly magazine of the Royal Society of Chemistry

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# Latest from the editor

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Welcome to the April edition of *Voice*. I do not think that any of us could have predicted at the start of 2020 where we would be at this point in the year, with a global pandemic touching the lives of each and every one of us. Even as I write, it is difficult to know where we will be on COVID-19's trajectory in just a few days' time, let alone weeks. I hope that between now (mid-March) and when this editorial reaches you, our global membership community remain safe and well.

As an organisation, we were alert to the impact that the new coronavirus was having in China through our colleagues in Beijing and Shanghai in mid-January – just at the point I took on my role of Acting CEO. The early realisation of the challenges faced by the China team gave us some opportunity to plan for even greater disruption to our community as the virus took hold in south-east Asia and then across to Europe, the US and then globally. I must pay tribute to our teams in China and Japan who have worked through the disruptions in their own locations with professionalism and resilience. From their lead, we have been able to put in place plans for our teams across the globe.

The impact on our community is significant. The RSC Editors' Symposium, which we've held every three to four years since 2001, is an international meeting for all of our editorial boards and committees. With more than 380 delegates, including 50 from China, it would have been inconceivable to run the planned 2020 event in February with a significant number of our valued community not present. Our decision to cancel this event was not taken lightly but was widely endorsed by the community. This, of course, proved to be only the start of a number of international, and then local, events that have had to be cancelled or postponed.

Of course, with every challenge comes an opportunity, and this is the opportunity to think differently about how we can enable networking and sharing of knowledge without the need to travel or to be present in person. I will not be the first to point out how remote meetings and innovative uses of social media platforms can help to address the current challenge as well as advance both an inclusion and sustainability agenda. The Royal Society of Chemistry is no different. In March, more than 700 scientists displayed posters in our sixth Twitter Poster Conference – could this become a model to supplement or replace other meetings when travel is restricted?

It is likely that many members, and people in our wider community, will be looking for support and guidance in the coming weeks and months – and in this issue we're highlighting some important information about what the RSC can do for you (p10). Particularly important is the Chemists' Community Fund, which offers a huge range of support services. It's a vital and sometimes overlooked part of how we support chemical scientists. Do not hesitate to get in touch if you need confidential help.

During these testing times, it is important that we continue to recognise the important work done across our diverse membership community to support and advance the chemical sciences. In this edition of *Voice* we share the impact achieved from our work to celebrate the International Year of the Periodic Table, made possible by the incredible efforts of RSC members around the world. Last month I was honoured to take to the stage with our President, Professor Dame Carol Robinson, for an event celebrating International Women's Day, and we look back at that on p12. And we also look at our new campaign to inspire young people to study chemistry – if you liked our *Not All Chemists Wear White Coats* posters, I'm sure you will love this modern spin for a new generation of teenagers (p6).

I am confident that while we deal with the immediate challenges presented by COVID-19 we will continue to support our members, deliver our strategic priorities, inspire the next generation of chemical scientists and think innovatively about how we can change and adapt to better connect our community, no matter which global challenge we need to address.

Please do continue to share your stories and thoughts with us. The next three months will no doubt provide an opportunity for all of us to both reflect and innovate and I feel very proud to be leading the organisation at such a significant time.

# Voice April 2020



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# New Synergy report outlines a route to tackling corrosion

**A new report from the Royal Society of Chemistry – put together by a diverse group of experts – identifies the next steps needed to enable businesses to adopt non-metals as an alternative to corroding metals.**

Corrosion of metals affects most of the world around us – from rail to aerospace, and from batteries to wind turbines. This costs the global economy £1.9 trillion per year – it is not sustainable to keep protecting, repairing and replacing corroding metals.

Sustainable, non-metallic materials could present a non-corroding alternative to traditional materials like steel, bringing major benefits to industry and the global economy. However, adopting these materials is a multi-faceted long-term challenge too complex and risky for any single organisation to solve alone. Before businesses can adopt non-metals, they need a high level of confidence in how these materials will perform throughout their lifetime.

Tackling a challenge of this nature requires collaboration across the supply chain, multidisciplinary research and development efforts, and appropriate policies and regulations to enable the new materials to be adopted.

Last year, the Royal Society of Chemistry brought together a diverse group of experts representing independent and governmental technology organisations and multiple industries and sectors, to share knowledge and begin to tackle this challenge. This formed part of Synergy, our programme for UK businesses who want to tackle complex chemistry topics collaboratively.

The findings of this group have now been published in a new report.

The report discusses reasons that industry may wish to adopt sustainable non-metals in the future. These drivers include public perception and environmental awareness, future regulatory changes, climate change, business requirements, and advancements in key technologies.

As well as the trends influencing innovation on this topic, the report also outlines the technical challenges and potential gaps in existing knowledge. It identifies specific opportunities for cross-industry collaboration, and lists five key areas that will be important for enabling collaboration.

To find out more about our latest report or to give us feedback, please send an email to [synergy@rsc.org](mailto:synergy@rsc.org)



## Commonwealth Chemistry's president elected

**Commonwealth Chemistry, an international federation of chemical sciences societies, has elected Dr Vicki Gardiner as its first president.**



Currently serving as President of the Royal Australian Chemical Institute, Vicki's two-year term will begin in May 2020. She will be supported by newly-appointed executive board members from Australia, Botswana, Canada, Ghana, India, New Zealand, Singapore, South Africa, Sri Lanka, Trinidad & Tobago and the United Kingdom.

At its first meeting, the executive board agreed that the federation's annual general meeting and inaugural chemistry congress, scheduled for May 2020, should be postponed due to COVID-19. New dates will be confirmed for both events.

Commonwealth Chemistry is the result of international collaborative work we took part in throughout 2019.

With the countries of the Commonwealth being home to 12% of the world's researchers and an estimated 60% of its population being under the age of 30, we expect it to play an ever more important role in finding scientific solutions for the world's future benefit.

Under its guiding principles of equality and inclusivity, Commonwealth Chemistry will have representation from all Commonwealth nations, with recognition that those with greater resources will contribute more in order to assist those with fewer resources.



## RSC launches transparent peer review

*RSC Chemical Biology* has become the first Royal Society of Chemistry journal to adopt transparent peer review – meaning that reviewers' comments can be read publicly.

As part of our commitment to make research and our decision-making processes more open, robust and accessible, authors are encouraged to opt in for the publication of an article's peer review history. This includes reviewer comments, author responses and editorial decision letters.

Transparent peer review is optional for authors submitting to *RSC Chemical Biology* – 50% of submitting authors have decided to take part so far. Authors can opt out at any decision stage throughout the process, and reviewers will be anonymous unless they choose to sign their report.

*RSC Chemical Biology* is a new gold open-access journal for exceptional findings in chemical biology. Article publication charges for the journal are waived until mid-2022, meaning it will be free to read and free to publish in for its first two years.

We'll continue to monitor the uptake and usage of transparent peer review on *RSC Chemical Biology*, with expansion to further journals in mind.

To find out more visit [rsc.li/rsc-chembio](https://rsc.li/rsc-chembio)

## Events cancellation

In light of the ongoing Covid-19 pandemic, we are now cancelling or postponing all events that were planned between now and the end of June 2020, and we have asked that any Member Networks running events on our behalf take the same approach.

For events from July onwards, please check with the organiser nearer the time before planning to attend any event.

## #RSCPoster 2020

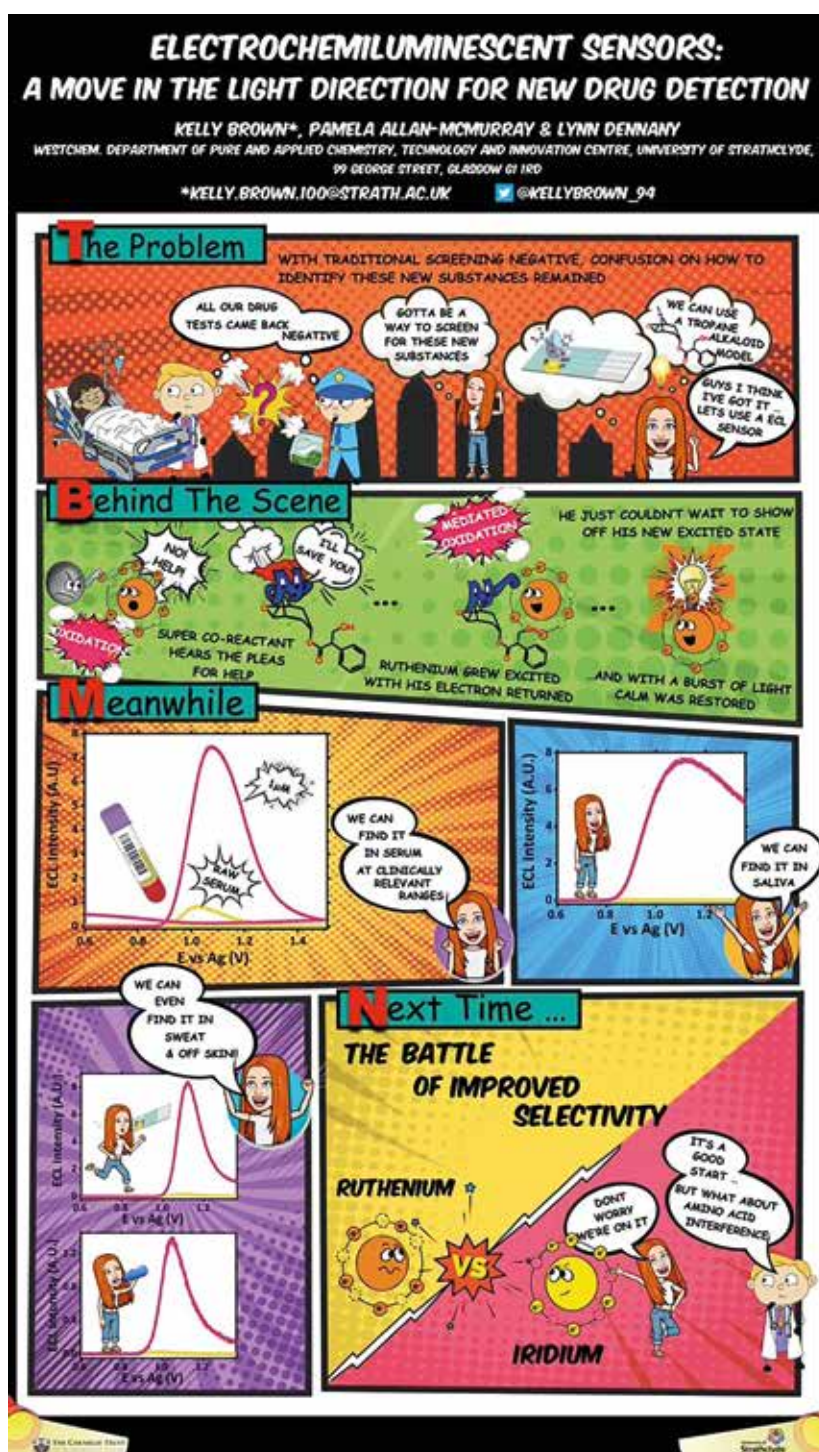
The sixth edition of our virtual poster conference #RSCPoster was the biggest yet, with almost 800 entries submitted from 59 countries around the world.

The event took place over 24 hours on 3 March, with 4700 conference attendees – accounts which used the hashtag #RSCPoster – taking advantage of the event's global, cost-free and low-carbon format.

Scientific discussions took place between presenters and attendees at every career stage, with over 9,900 tweets leading to a potential audience of 32 million Twitter users.

Whatever their research, however they worked, #RSCPoster 2020 united the global chemistry community, and was a conference with clear advantages.

To see a list of all the winners, please visit [rsc.li/poster-winners-2020](https://rsc.li/poster-winners-2020)



# Making the difference

One of the Royal Society of Chemistry's most important roles is inspiring the next generation of chemical scientists. Members and staff alike love to share their passion for chemistry so that the pupils of today become the chemists of tomorrow.

In January, we launched an exciting new campaign called 'Chemistry: Making the difference', with the goal of inspiring teenagers to study chemistry and pursue careers in the chemical sciences. It is based around a series of videos and careers profiles showing the wide range of possibilities available to people who have studied chemistry.

We developed it to engage the Generation Z audience – a demographic that is highly motivated by the issues facing the world, and more determined than ever to impact on them. They are ambitious for a career that is driven by a cause, wanting to make a difference to the world in which they live – locally and globally.

In three months since its launch, the campaign has got off to a flying start: we know from insights and digital measurement that lots of the right people are watching the videos and accessing the website.

## Design led by research

The campaign began by asking questions: what kinds of messages and stories will the target audience – teenagers – find interesting and inspiring? What kind of media should we use to reach them? And how will we know if we've chosen these correctly? Working with a specialist agency, we researched teenagers' preferences and behaviours.

We discovered that this generation of teenagers is especially interested in going on to a career that makes a real difference in the world – and particularly helping to solve the global challenges we face today, like sustainable energy, water and food, and climate change. We know that chemistry will be at the heart of the solutions to these challenges, so we knew we could make a clear and attractive link between the two.

In some ways, today's teenagers get their information very differently. When we launched Not All Chemists Wear White Coats, a popular campaign with similar aims, Google and Facebook didn't even exist. Mark Zuckerberg hadn't even been born. We have a new range of communications channels to reach our next-generation audience – primarily YouTube, Facebook and Instagram – and so we built the campaign mainly around those.

But in other ways, teenagers get information in much the same way as they always have: from their friends, teachers, careers advisers and families. We know we need to target not only the students themselves, but the adults that will influence their decisions. This means thinking more broadly about the channels and messages we use for these important secondary groups.

## Reaching the target demographic

In January we launched the campaign, focused on a set of new videos and a refresh of our "A future in chemistry" careers website, with the aim of raising awareness and increasing visits to the website. We used paid-for social media advertising as well as relying on our own profile and networks to get the message out.

It's clear that so far the campaign has been a brilliant success. Our videos and adverts have appeared more than 20 million times across the social media channels we're working on. We've attracted 50,000 new visitors to "A future in chemistry", and the YouTube videos alone have had tens of thousands of views in total. Furthermore, we're able to use the analytics data from these social media channels to determine that the vast majority of those viewers and visitors are aged 13–17: exactly our target demographic. We know we're reaching the right people.

## Expanding the audience

This is only the beginning. We've already begun to use the videos, posters and messages from the campaign across a wider range of media, to raise even more awareness.

We recently conducted a survey of young people – of whom a quarter said they are inspired to pursue a career that helps to battle climate change because of the school-age activist Greta Thunberg. Releasing this finding to the press resulted in lots of positive coverage across the web and broadcast media – including across all ITV regional networks – highlighting our new campaign and the benefits that a career in chemistry can bring.

We have even more planned: we want to use the campaign to build more resources specifically for teachers and schools – keep an eye out for more communications about those.

## How you can support the campaign

We want as many young people as possible to see these videos and be motivated to pursue a career in chemistry. Please do share the videos on any social media that you use, and also share them directly with any teenagers you know are thinking about their future careers.

We all know it's vital to inspire the next generation of chemists. We know our new campaign hits the right notes – help us spread the word and support the future of chemistry, young people, and the whole world.

Watch the videos on our refreshed careers website [edu.rsc.org/future-in-chemistry](https://edu.rsc.org/future-in-chemistry)



# CHEMISTRY. MAKING THE DIFFERENCE.

# Periodic success

A lasting legacy from the International Year of the Periodic Table



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Last year was designated by UNESCO as the International Year of the Periodic Table (IYPT), marking the 150th anniversary of the Mendeleev periodic table. It remains an iconic image of chemistry and a vital tool to all who learn and work in science, at all stages of their learning and careers.

IYPT allowed us to celebrate our profession, our members and our communities and we were able to work with our communities to engage people with both the periodic table and what we offer as the Royal Society of Chemistry.

We planned lots of exciting and diverse activities throughout 2019 – including public lectures, teaching resources, public outreach, grants to our member networks and communities to fund IYPT specific activities for their respective communities, and themed journals and books. This gave us an opportunity to develop new resources and raise awareness, to inspire people of all ages, experience and backgrounds.

Gemma Wood, RSC special projects and IYPT programme manager, coordinated our IYPT efforts across the organisation. She said: “IYPT was a brilliant example of what can be achieved when our sector works together for a common goal. To celebrate our most fundamental tool so publicly, engaging such staggering numbers of both scientific and non-scientific audiences was a huge achievement.

“I was particularly proud to see the nation lit up with periodic tables, and the value of grants awarded throughout the year reflects how engaged our wider community was with IYPT. My personal highlight? When a (non-scientist) friend sent me a message on NYE 2019 saying how sad she was that IYPT was finished – my work was done!”

## IYPT in numbers

Our IYPT themed content was hugely popular with teachers, students, and people with both a long-standing and new-found

interest in chemistry. Our RSC.org IYPT pages hosted visitors from 182 countries around the world!

We organised 20 free-to-attend IYPT public lectures across the UK and Ireland in association with science centres, universities and other scientific societies – they attracted over 2,000 members of the public.

We gave out more than £83,000 in grants to enable members of our community to celebrate IYPT with us. This included funding for projects around the world, with our international sections in India, Italy, Belgium, South Africa, New Zealand, Finland, Nigeria and Tunisia all organising IYPT outreach events.

Our spectacular IYPT light show lit up 11 universities in the UK and Ireland for Chemistry Week. It was also livestreamed on social media channels, including into simultaneous events at the Scottish Parliament and Royal Institution.

We commissioned Andy Brunning, mastermind of Compound Interest graphic designs, to produce 118 elemental infographics, which we released one-by-one throughout the year. The social media statistics are staggering. Compound Interest’s #IYPT2019 graphics alone were seen by more than 4.5 million people on Facebook, while on Twitter @CompoundChem’s content was seen by 1.8 million people, with a further 1.7 million reached on Instagram.

Hosting the graphics on the Compound Interest website resulted in 268,526 views of the graphics page alone, with 2.1 million unique visitors to the website over that time – and this number continues to rise.

Andy Brunning said: “The reaction to the #IYPT2019 campaign has been incredible, with people from all over the world sharing periodic tables made from the graphics and showing other ways they’ve been using them.

“The graphics have longevity beyond IYPT and will continue to be a valuable educational tool for years to come. The campaign

Above: One of our flagship IYPT activities saw a light show illuminating universities around the UK and Ireland for Chemistry Week.

Right page, clockwise from bottom left: The Restart Project demonstrates how they can dismantle and repair phone; our expert panellists speak at a Precious Elements event held at the Royal Institution; Cambridge Regional College created a knitted periodic table; and the Gymnasium St. Antonius in Switzerland turned the whole front of their school into a periodic table. Find out more about these stories at [www.rsc.org/news-events/](http://www.rsc.org/news-events/)



© Cambridge Regional College



© Royal Society of Chemistry



© Royal Society of Chemistry



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“I am delighted that EuChemS – through its (reimagined) periodic table highlighting element availability and vulnerability, including elements that can come from conflict minerals and those in smart phones – has been able to play a part in this crucial campaign. Some of the elements in smart phones are projected to be dispersed within 20 or 50 years. We must develop ethical ways of recycling and incentives for handing in used electronic goods. The Royal Society of Chemistry’s campaign is a major step on the way to doing this.”

– Professor David Cole-Hamilton

but young people now own so much technology that it points towards a problem of increasing importance. Worse, very few individuals knew how to recycle unused devices.

Our campaign to hit the headlines launched on August 21, and by the end of the day our original article on BBC News had been followed up with extended coverage on BBC Radio 2’s Jeremy Vine show, BBC Radio 1, 1 Extra, a Channel 5 News feature, Mail Online, The Times, The Telegraph, EuroNews, CCTV2 in China and Reuters.

Consumers were made aware of something they didn’t even realise was an issue. When our colleague Elisabeth Ratcliffe appeared on BBC Radio 2’s Jeremy Vine show, people called in from all across the country to express their surprise at being part of the issue, with reactions echoed across news coverage and social channels.

During the following days we received an incredible 576 pieces of coverage across print, radio, trade, consumer tech, TV and web, right across the UK and internationally

Professor David Cole-Hamilton, Vice-President of the European Chemical Society, created a special IYPT periodic table to show the relative scarcity of the elements we have on Earth and supported our #PreciousElements campaign, including appearing as part of our media outreach. He said: “The Royal Society of Chemistry’s campaign to highlight the problem of recycling of elements from electronic devices including smart phones is crucial to the development of the circular economy, which must start now. Elements in phones left in drawers are simply lost to the resource pool.”

Our IYPT campaign has been recognised as a communications success by industry professionals and we have been shortlisted for campaign awards by Memcom, Better Society and Edie. We hope to bring you news of the continued success of IYPT’s legacy in a future edition of *Voice*.

helped the Compound Interest website reach 4.8 million page views last year – an unprecedented figure for the site.”

Phase two will see continued publicity and targeted online activity for the infographics, as we have translated them into Hindi, simplified Chinese, Spanish, French, Italian and German.

**Precious elements**

Sustainability is perhaps the biggest long-term challenge facing us all today, so with the aim of reaching as wide an audience as possible, IYPT got us to thinking about elements in everyday technology: our smartphones, tablets and computers. A number of rare elements are found in the average gadget and, while evidence existed that these devices were not being recycled, we didn’t know why.

Finding out would help us tackle the issue and raise the notion of sustainable technology within the national consciousness, so we commissioned extensive research to look at consumer habits, asking:

- what electronic devices households owned,
- how many unused electronic devices they had,
- the age of the oldest unused device they had,
- what they planned to do with unused devices,
- if they weren’t planning to recycle them, why not?

We discovered millions of UK households are stockpiling old technology, with up to 40 million old devices stored away after being superseded by new models. All age groups were stockpiling,



© Getty Images

# Our response to COVID-19

As a multi-national organisation we have prioritised our work to ensure the safety and well-being of our employees so that we can continue to provide support to our 50,000 members and to our global community.

“We are well prepared as an organisation and our teams are working incredibly hard to keep the RSC operating during such uncertain times. I very much value the support of our members, our partners and our community in the work that we do.

One way you can support the community is to make people aware of the Chemists' Community Fund and the help it can provide during these challenging and uncertain times – see below for more details.

On behalf of our Trustees and our Leadership Team, I would like to ask all of our community to stay safe and work with us to continue advancing the chemical sciences.”



Helen Pain, Acting CEO

## Ensuring business continuity

We have established and tested business continuity plans in place, which we are continuing to refine in response to the COVID-19 outbreak. Our crisis management team is led by our Deputy Chief Executive, Paul Lewis, and supported by senior leaders from across the organisation, all with a strong understanding of the needs of their employees, customers and stakeholders.

We successfully introduced measures to ensure that we could continue to deliver services remotely in our key China market during the initial outbreak, and

are applying these learnings as well as those gained from a full scale business continuity exercise held in early March to our UK operations as well as our other international locations.

The crisis management team meets daily in order to respond to the needs of our community and staff. We will continue to review our plans in line with the latest advice regarding COVID-19 to ensure that the RSC can perform its normal activities as far as possible.

## Closing our UK offices

Please check our website for the latest information. At the time of writing (end March):

- Burlington House (London), including all public areas, the Library and Members' Room, is closed until 30 June 2020
- Thomas Graham House (Cambridge) is closed until 30 April 2020

We are aiming to operate as close to normal as possible while our staff are working remotely. In advance, we apologise for any inconvenience this may cause.

## Cancelling events until end of June 2020

We are now cancelling or postponing all events that were planned between now and the end of June 2020, and we ask that any Member Networks running events on our behalf take the same approach.

This is to ensure that we are supporting our community to follow advice of social distancing measures. While the landscape and public health information is changing rapidly, we wish to give certainty to both organisers and delegates and we do not wish to exclude those in our community who may need to self-isolate over this period.

If you have any concerns or need any support on this decision, then please do not hesitate to contact the networks team on +44 (0)1223 432269 or at [networks@rsc.org](mailto:networks@rsc.org)

## Continued support for our membership

The membership team are transitioning to working from home so there may be a slight delay in responding to you over the next few days, but you are still able to contact them through the usual channels on +44 (0)1223 432141 or [membership@rsc.org](mailto:membership@rsc.org)

## Other updates and actions

- Teachers of chemistry can find free teaching resources, support and guidance on our education website. To help those who suddenly need to teach

remotely, we are developing a series of resource packs and online Q&A sessions facilitated by our education coordinators.

- Members receive unlimited access to the *Chemistry World* website as a benefit of their membership. Choose the 'I am a member' option if you are prompted to sign in and enter your usual member number and password to gain access.
- If you are planning to submit a paper or book manuscript to us, please do so in the usual way – authors should not experience any delays to service.
- All Royal Society of Chemistry-published research papers related to COVID-19 are available to read now as part of a free-to-access collection.
- Our staff are working with our Division Councils and wider community to ensure continuity of our division awards, events and grants. We will provide more information on our plans as soon as we can.

## Chemists' Community Fund – contact us if you are in need

For 100 years our Benevolent Fund – now known as the Chemists' Community Fund – has been helping RSC members and their loved ones in times of need.

If current events are having a negative financial impact on you, your partner or dependants – especially if they have led to changes in your regular income – please speak to us. While we recognise that the support we can offer will be limited, we may be able to offer you financial assistance as a Royal Society of Chemistry member.

If you would like to discuss or request financial support, the Fund offers a completely confidential service. Please get in touch by phoning +44 (0)1223 432227 or by emailing us at [ccfund@rsc.org](mailto:ccfund@rsc.org)

The team can talk through the application process and our specialist caseworkers may be able to point you in the direction of other avenues of support. Our caseworkers are ready to respond rapidly, especially to requests for urgent financial support.

## Social phone calls when self-isolating or socially distancing

Many members will be self-isolating or socially distancing themselves on government advice. We are hoping to offer our members telephone calls to enable a regular social conversation with another RSC member, or a member of staff. If this would be of interest to you call us on +44 (0)1223 432141 or email [membership@rsc.org](mailto:membership@rsc.org)

“Thank you so much! I have been bowled over at how quickly my application has been processed and I would like to express my sincere gratitude to the Fund for awarding me this grant to help my family.”

Member who recently received financial support

# International women's day

On the evening of Thursday 5 March, our headquarters at Burlington House played host to a very special event – a conversation between our president, Professor Dame Carol Robinson, and our acting CEO, Dr Helen Pain – in honour of this year's International Women's Day.



All photos © Royal Society of Chemistry

Left to right: Dr Helen Pain, Dame Carol Robinson and Dr Suze Kundu

The conversation was chaired by the brilliant Dr Suze Kundu: chemist, science communicator, and Head of Public Engagement at Digital Science.

## Every career path is different

**Dr Suze Kundu:** Can you give us an overview of your careers so far?

### Professor Dame Carol Robinson, president of the Royal Society of Chemistry, Chair of Dr Lee's Professor of Chemistry at the University of Oxford, and Co-founder and Director of OMass Therapeutics:

I started as a laboratory technician at Pfizer – seven very happy years. I then did a PhD, and then I had a seven year career break, which is very unusual nowadays, to raise my three children.

I came back as a postdoc, and then got a fellowship, which transformed my life, and then went on to be a research professor, and now I'm the president of the Royal Society of Chemistry, so I'm very proud to be that person.

### Dr Helen Pain, Acting CEO of the Royal Society of Chemistry:

I did my degree and PhD down at Exeter and I knew from early on that I wanted to work with chemists.

When I saw the job at the RSC advertised – Younger Chemist Liaison Officer as it was called at the time – I thought "that's something I can do".

I've worked my way through the organisation, overseeing and working with most of the teams, and taking on new opportunities probably every couple of years, until I found myself as Deputy CEO. Then this year – my gosh – I'm Acting CEO.

## The importance of failure

**Suze:** I think that in the chemical sciences we're not very good at talking about failure. I personally think there's a lot of value in failing, because it's a step towards success.

**Carol:** When I came back from my career break I applied for my first fellowship. I put so much effort in and I didn't get it. I remember getting this thin envelope – it was my son's birthday and I had to pretend everything was fine but I was really devastated.

I decided I would like to know why I wasn't considered, so I rang them and asked. They said it was because I was "not very international". I had three young children so it was hard to travel. I explained this and they said "you just need to get some international referees".

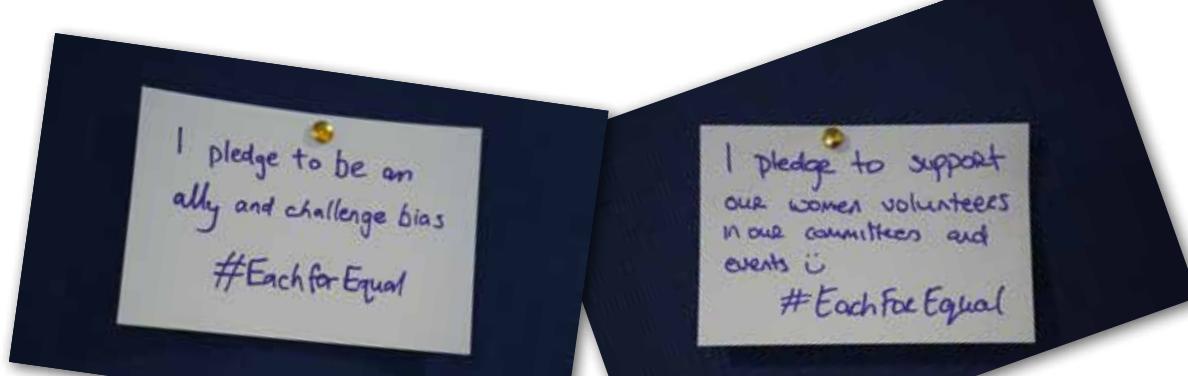
So then I fixed that very simple thing and the next year I got it. And my career completely changed. I always say now if you don't get the position you want you have to make that difficult call. Ask for some pointers. Failure can be good, because you can build on it and learn from it.

**Helen:** Science is all about experimentation, and experimentation is about failing and succeeding. So we should be able to talk about failure.

I chose a double honours subject for university – chemistry and maths. But at the end of my first year, I found that I hadn't done so well in my maths exams, and I wasn't sure I would be able to carry on into my second year.

That sense of failure was enormous and I had to really compose myself and make some quick decisions about my next steps. I spent all my time that summer revising to resit my exams, around my job in a bank, and luckily when I got to that exam I did really well.

What I learned from the experience was how to really gather my resilience, focus on what I could do, and how I could get control and make a difference to the situation. I do wonder whether, if I hadn't gone through that, whether I would have had the



strength to do some of the things I've done later on in my career.

#### Celebrating success

**Suze:** Now we've talked about failures, what are your greatest successes so far?

**Helen:** Ten years ago I led a project here to refurbish this library. Every time I'm in this room – for a meeting or a dinner or an event – the sense of pride is amazing. You can find me stroking the walls sometimes!

**Carol:** Something very new to me is my spinout company. We had a few great discoveries in our group and I happened to be talking about it and someone said, "I'd like to give you a million pounds to make it into something".

We took over a brownfield site and made a nice new swanky building, and it's created a huge number of jobs for people all over the world. I don't think of myself as an entrepreneurial sort of person, and I never thought I'd be sitting here saying I had a spinout company, but I've very proud of it now.

#### Be confident

**Suze:** If you could give anyone in the early career

stage on piece of advice, or go back and give some advice to your younger self, what would you say?

**Carol:** I'd tell my younger self to be more confident. Really celebrate your difference. Don't go around pretending it's a bad thing – make it a good thing. I guess as you get older you just think "this is me".

#### Making a commitment for gender equality

The theme of International Women's Day 2020 is "Each for Equal", which asks every individual to consider what they will do to forge a gender equal world. Guests at Burlington House on 5 March, as well as members of staff from both our UK offices, were invited to add a commitment to our "Pledge Wall", saying what they will do to help forge a gender equal world.

"I will leave the chemistry culture in a better place than I found it." – **Carol Robinson**

"I will listen, learn from others and share my experience." – **Helen Pain**

"I pledge to be visible and available to younger researchers."

– **Madeleine Watson**

"My pledge is to challenge any unconscious bias that I may have."

– **Hassun Al-Zafar**

"My pledge is to value my own contribution to my work and to actively support other women to take their place." – **Kerry**

"I pledge to have more courage and more confidence to pursue what I want to and what I believe in." – **Nichole**

"I pledge to offer encouragement and support to early career researchers, whatever their background." – **Serena Best**

# Technical excellence



**VERONICA DOBBYN**

Veronica Dobbyn is Chief Technical Officer at Dublin City University's school of chemical sciences. After her team won our Higher Education Technical Excellence award, we spoke to her about the importance of upskilling technical staff, bringing their work into the digital age, and how to recognise the increasingly broad role technicians are required to fill.

In March we released our "Technician Commitment" – an action plan to help universities, research institutions and industry place technical staff at the forefront of what they do. As part of a Science Council-led initiative, our plan (see [rsc.li/technician-commitment](https://www.rsc.li/technician-commitment)) aims to increase visibility, recognition, career development and the sustainability of technicians in the chemical sciences.

This will be achieved by our range of grants, awards, networking, discounted training, and mentoring – alongside professional accreditation and registration (RSci/RSciTech). In addition to supporting individual technicians, we are encouraging organisations to get in touch with us for assistance in achieving their own goals with regard to technical staff.

Taking place at Burlington House, London, the launch included presentations on securing status and opportunities for technical roles, alongside improving health, safety and accessibility in higher education laboratories. It finished with the presentation of our 2019 Higher Education Technical Excellence Award to Dublin City University's (DCU's) school of chemical sciences, in recognition of their health and safety work. We spoke to their Chief Technical Officer, Veronica Dobbyn, to shine a spotlight on their achievement.

#### How does it feel to win?

At the time I found it very daunting as we are not used to getting awards. There's the old adage that we are

"just" support staff – but that is starting to change now. Recognition is important – as reflected in the RSC's Technician Commitment launch yesterday. It was a great honour to visit Burlington House: the medals are fantastic and the certificates will go up on the wall here.

#### What has your career path been?

Straight from school I went to a technological institute and took a diploma before working for a pharmaceutical company called Elan. I worked there in a QC capacity for two years before moving to DCU in 1988 – and I've been here since.

At DCU I worked my way up. It began with basic laboratory classes for first and second year students, progressing to years 3, 4 and masters

classes. Through this I worked on different instruments, such as LC, GC, and AA, and specialised in SEM. I was a Technical Officer (TO) for 18 years before the Chief Technical Officer role came up. This is very different – less hands-on, with more administration, HR management, budgets, and procurement. This role and my career have changed and grown as the department itself has.

#### Any tips for a technician to progress their career?

For a TO, you hit a point where you don't progress if you don't have a masters qualification. We're at a stage where most of the team have a masters now, and it makes sense to upskill people. I'm not sure this happens in every university or individual department currently – but it should, and if it doesn't you should ask for it.

#### What skills are most important for a technician?

The job is incredibly broad! TOs need to be adaptable – you need to be open to learn, apply, and take on new tasks willingly. I found one of my team here last week drilling holes in a piece of wood because that was the best solution to a certain problem for a researcher.

You also need to have an interest in





“At times the job can be like a specialised practical teaching role, running technical classes, or supervising entire student research projects.”

teaching students and imparting your own interest in science – to encourage them to be as enthusiastic about their own career path as they can be.

**Your award was specifically for health and safety, can you tell us more?**

One of our biggest process innovations was the introduction of an electronic form and database for hazardous substances. It took the team several years to develop, and is essentially an Irish version of the COSHH system, adapted in line with directions from our own authorities. It reduces paperwork and saves time via drop-down menus, it makes students aware of any dangers, and guides me in what needs to be contained or stored in a particular way.

I think young students don't always realise that what they work with now can affect them when they are older – particularly carcinogens, or something that affects their reproductive health. When I first trained, health and safety wasn't as stringent as it is now. Then when I was planning my own family I had an experience that really made me question what I had been in contact with. It's always in my mind that chemists should take care of themselves – all the way through their career.

**How is your work environment changing?**

We currently have an injection of capital from the Irish government to change how we engage the newer type of student that is out there. For instance, we are looking at artificial intelligence and preparing for a future workplace that will be very much robotic by integrating IT and coding skills into teaching of fundamental principles.

**What are you most proud of?**

I'm proud that as a team we are very much seen as an integral part of running the department. Sadly, when I speak to technicians from other institutes I get the feeling that's not always the case. I have the power to close the lab here if needed, we are invited a lot to give opinions on various committees – particularly health and safety – and our opinions are very well respected and applied across many faculties. This is probably because we are accommodating, and very accessible: while we may say “no” sometimes, we would always offer a solution.

**What more can be done to support technicians?**

Similar to the Technician Commitment, we are meeting here in spring to discuss our own support for technical

staff – career paths and development in particular. This needs to reflect the evolving demand of the role. At times the job can be like a specialised practical teaching role, running technical classes, or supervising entire student research projects. On the other hand, some universities in Ireland have separate salary scales for “experimental officers”, who are technicians branching out into being highly skilled on a specific instrument and away from teaching.

We are also becoming involved in delivering lectures – the job title doesn't reflect this, so once you've

crossed the bridge between technical and academic, what happens? If you choose to go for advertised teaching positions do you then leave the technical role entirely? If you directly assist research projects should you be named co-authors on papers? We need to at least secure a remuneration for all those extra hours and skills that technicians provide as the scope of the role develops.

**Read our Technician Commitment request help with your organisation's own action plan at: [rsc.li/technician-commitment](https://rsc.li/technician-commitment)**



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# Cooperation and negotiation



**Stephen Elliot**

Chief Executive of the Chemical Industries Association (CIA)

Stephen discusses future regulation and policy in the wake of Brexit, explaining the importance of cooperation, and answering the question “Where should the UK start?”

Great strides have been made by the chemical industry over the past decade, whether that’s towards achieving cleaner manufacturing sites, reducing waste and improving circularity, or contributions – direct or indirect – towards a low carbon economy.

On the products front, the EU REACH regulation has seen businesses across Europe working collaboratively to develop one of the world’s largest databases, with more than 90,000 registrations for 22,000 substances. Over 10,000 of these registrations have been submitted by the UK, accounting for over 5,000 substances, making UK companies the second highest contributor to the number of REACH registrations after Germany. It should come as no surprise, therefore, that in looking to shape future policy, industry is urging Government to find a way to build on the progress and investment made to date and to avoid the duplication of direct cost and resource. Securing a deal with the EU that guarantees tariff-free trade, close regulatory cooperation and access to skilled people continues to be of critical importance for the chemical industry. With well-established supply chains and materials crossing the channel multiple times for even basic products, a vital aspect of a future agreement is to ensure the future UK/EU trading relationship is as frictionless as possible.

On regulations, industry has continuously pushed for a cooperation agreement that would see the UK formally connected to the European Chemicals Agency (ECHA) and related EU regulations. This would be the most effective approach to regulate chemicals, enabling Government to deliver on its future environmental ambitions whilst minimising the cost to the UK’s manufacturing industry to compete globally. Without such an agreement on chemicals regulations, the UK is expected to set up its own regulatory regimes, and lose access to scientific data submitted by companies to ECHA and 10 years of investment in compliance. The cost of duplicating EU REACH alone in the UK is estimated to exceed £1 billion for UK businesses, directly affecting the future viability of products, potentially forcing duplicate testing and seriously questioning the environmental benefits in informing future policy, such as the forthcoming national chemicals strategy.

With the launch of formal negotiations, both the UK and EU chemical industry need an agreement that recognises the economic and environmental logic of remaining closely connected, particularly with regard to the REACH regulation. More specifically, industry welcomes a chemicals sector-specific annex as part of the trade agreement, looking to a commitment in developing a Memorandum of Understanding to enhance further cooperation as well as the possibility to agree data and information sharing mechanisms. However, in pursuing this approach, and in order to build on progress made to date on regulations such as REACH, industry is urging negotiators to agree as a minimum:

1. A close regulatory cooperation between the UK and the EU that goes beyond the level of technical cooperation ECHA have with other countries under existing agreements.
2. A mechanism to share data between respective authorities that would enable both the EU and

UK to evaluate and take decisions on chemicals from a common data pool.

Such an approach would mean the UK could evaluate and take decisions on chemicals, informed by what is acknowledged as one of the most comprehensive databases on chemicals, whilst minimising future divergence. In this way, the UK can help create a policy environment that is sensitive to innovation and growth – strengthening the chemical industry’s capability to deliver sustainable solutions across the whole economy and wider society and tackle the major challenge of climate change and decarbonisation.

Both the UK and EU chemical industry need an agreement that recognises the economic and environmental logic of remaining closely connected.

## A sustainable chemicals revolution



**Tanya Sheridan –  
Policy & Evidence  
Manager at the  
Royal Society of  
Chemistry**

The chemical sciences and the chemicals sector are important

contributors to sustainable development, now and in the future. They revolutionise our lives with new products and solve grand challenges, through the development of new materials, new science, new technologies, new ways to keep us healthy and new ways of assessing the risks of chemical hazards.

According to the United Nations Global Chemicals Outlook II (GCO II) report ‘From Legacies to Innovative Solutions’ published in June 2019, chemicals production and consumption is set to double by 2030, from a \$5 trillion industry globally in 2017 – with production set to increase mainly in emerging economies. If chemicals production is doubled, chemical pollution must not double as a consequence.

Current attempts at the massive undertaking of addressing chemical pollution are not working. For the world to solve the major environmental and health challenges we face, there must be a sustainable chemicals revolution. It is time for governments and civil society to take a fresh look at working together to develop a revolutionary global chemicals strategy – a strategy that delivers on the vision of economic growth and on delivering new, life-changing chemical products.

Scientists in our community have engaged actively with us in round tables and workshop events to help develop our vision for a chemicals strategy. This work, although done in the context of new chemicals strategy development in the UK, sets out principles applicable elsewhere. Together, we have identified four pillars on which any chemicals strategy has to be based: education, innovation, circular economy and regulation.

In our new policy document, “A chemicals strategy for a sustainable chemicals revolution”, we have outlined our vision for the year 2030, with respect to these four pillars.

**Education.** Successful chemistry education



# Transition priorities



## Dave Bench

Director – Chemicals at the Health & Safety Executive

Dave provides an update from the Health & Safety Executive (HSE), explaining what their priorities are over the Brexit transition period.

After leaving the EU on 31 January this year, the UK is now in a transition period that will end on 31 December 2020. During the transition period EU law and frameworks continue to apply, with some changes, but from 1 January 2021 we will be operating standalone chemicals regimes.

The responsibility to protect the health and safety of people, and the environment, remains the same during the transition period and will be the same when we leave the transition period. HSE will continue to maintain an effective regulatory system for the management and control of chemicals to protect people and the environment, both during and after the transition period.

During the transition period, EU legislation and the current terms of market access will continue to apply to the chemicals industry. Our priorities are to:

- Ensure the effective and safe management of chemicals to safeguard human health and the environment.
- Respond to emerging risks.

gives students the understanding and skills that will enable them to become scientifically literate and responsible citizens, and provides a sound basis for future study and careers in a range of fields. The curriculum at all levels should support students in gaining the necessary skills and understanding to make and use chemicals safely and sustainably for a modern world.

**Innovation.** Chemical science innovators have the power to create solutions to some of society's biggest challenges – from climate change to combating disease. When researchers and businesses come together with international collaborators, we can implement new approaches and inventions to tackle the biggest of global challenges, including plastic pollution and climate change.

**Circular economy.** Circular economy approaches are becoming increasingly possible. New data and digital technologies enable more transparent communication, data sharing and better managed chemical supply chains, although challenges remain. The EU has been leading the way in developing circular economy strategies,

- Allow trade with the EU and the rest of the world that is as frictionless as possible.

In the transition period, HSE is no longer acting as a 'leading authority' in conducting certain assessments within the EU regulatory systems. During this time, UK-based businesses have the same rights as EU-based businesses to have their submissions accepted and processed by 'leading authorities' based in EU member states.

All registrations, approvals, authorisations and classifications of chemical substances and products

a new regulatory decision is made or an existing expiry date is reached. EU decisions relating to REACH and any decisions on active substance approvals or Maximum Residue Levels (MRLs) will also apply in the UK during the transition period. After the UK leaves the transition period, future EU decisions will not apply in Great Britain, but may apply in Northern Ireland under the terms of the Northern Ireland Protocol. HSE will communicate more detail about this distinction as soon as the details have been agreed.

Our relationship with the EU and its Member States during the transition period will be conducted as an independent country. Where there are opportunities for the UK to engage, influence and promote UK positions, we will do so.

that were already in place before the UK left the EU remain valid now, and will remain valid after the end of the transition period. That will change only when

and the UK could be a strategic partner in the near future. Circular economy approaches could become a reality through new targeted initiatives in the chemicals sector, including in electronic, plastic and food wastes.

**Regulation.** Regulators and industry work together to ensure chemicals are made and used in a safe and sustainable way – to benefit society and to create a level playing field for trading chemicals and products. We support risk-based regulation (wherein not only the hazards of chemicals are considered but exposure too) as informed by the best science evidence on exposure, toxicology and considering socio-economic factors, to enable pragmatic and effective decisions to benefit society best.

Science needs to be at the heart of all chemicals strategies. Governments should seek maximum cooperation and consistency with the United Nations Strategic Approach to International Chemicals Management (SAICM). We are making the case for UK chemicals strategies to enshrine high standards, cooperation and consistency with EU chemicals policy 2030 and the EU Green Deal.

HSE is continuing to process product applications under the Plant Protection Products Regulation and Biocidal Products Regulation for the UK market and that process will be broadly similar after the transition period. During the transition period any applications will be considered against current EU rules and standards.

Our relationship with the EU and its Member States during the transition period will be conducted as an independent country. Where there are opportunities for the UK to engage, influence and promote UK positions, we will do so.

At the point that we leave the transition period all of the existing rules and standards will remain the same, but a degree of divergence from EU decisions is likely over time. This is because we will be taking independent decisions on the basis of our assessments, and potentially at different times to the EU regime. In due course, the Government will decide on the nature of a future work programme for chemicals regulation in the UK. The Government may also, following the usual consultation, propose changing some of the chemicals regulation regimes to better suit our position as an independent country.

Once the outcome of the trade negotiations between the UK and EU is known, HSE will provide further information on how the chemicals regimes will operate in the UK from 1 January 2021 and any preparation that may be required before then, through the guidance on the HSE website. You can also sign up for HSE's e-bulletins where changes to our guidance will be announced.

# Member survey 2020

The results of our biennial member survey are in. Find out what we learned, and what steps we're taking to improve your membership experience.

Every two years, the Royal Society of Chemistry surveys you, our members, to gather information on perceptions, opinions and overall satisfaction. This is your opportunity to share your experiences with us by feeding back on all aspects of being a member of the professional body for the chemical sciences.

We use this to improve your experience by listening to your honest feedback. Whilst opportunities for discussions at events and activities are numerous, we value the wide and varied responses you provide to us in this research – which covers all facets of RSC membership and the wider organisation.

The results of this biennial investigation form the basis for decisions taken around future development and professional support for our members at every stage of their career.

We would like to extend a big thank you to everyone who took the time to complete this year's set of questions and provide us with some really useful detail and insight.

## The headlines

Over 6,000 of you shared your views during the four-week window, with respondents ranging from those working in industry to teachers and lecturers, and from academics to consultants and researchers. Of those surveyed, 93% rated the RSC positively, with 46% selecting *excellent* and 47% saying *good*, representing an overall positive increase of 4% from 2018.

There were also increases in the number of members feeling proud to be a member of the RSC, feeling a sense of belonging, and rating member benefits and services as *excellent* or *good*.

## Volunteering

We were overwhelmed by how important volunteering is to you. There are a large number of ways you can volunteer as a member of the RSC, whether that's engaging with your local section and interest groups, being a member of a working group, delivering outreach activities, speaking at events, or peer-reviewing our publications.

The survey highlighted that you want more local options for volunteering and participation. As a result we will continue to address the scheduling and location of different kinds of RSC events and build on online access to services and products for members.

The survey showed more than half of participants *not* currently involved indicated an interest in one or more volunteer opportunities, in particular those earlier in their career. We will build added guidance and communication to help you access wider opportunities to support us at every career stage in the coming months.

## Career planning

When it comes to making plans for future career steps, we want to support all of our members at

every stage.

As early career chemists, you told us that enhancing your skill set and taking on new responsibilities are your main priorities. A key tool for supporting early development is our approved training courses database, which encompasses topics and techniques across the whole spectrum of the chemical sciences. Booking is available at a discounted rate for members.

Mid-career chemists frequently responded to this section saying that they were looking to improve their skill set, but also to take on a more senior role. Our mentoring scheme is the perfect platform for individuals to get a flavour of what is involved and to gain some valuable CV-building experience.

Our in-house career management team are on hand to provide support for our whole membership, at any stage of your career – whether you are a recent graduate or you are planning your retirement.

Of our career and professional development support, you valued the access to specialist advisors most highly, alongside a number of allied services.

We will be using the responses you have provided to begin a broader review of all of these activities to ensure that you continue to get first-class guidance throughout your career.

**Find out more at:** [rsc.li/careers](https://rsc.li/careers)

## Professional awards

Our registered and chartered professional awards are the cornerstone of our professional development platform for our members – and over a third of respondents currently hold, are working towards, or are familiar with our flagship Chartered Chemist award.

Of those who hold or are working towards an RSC professional award, 81% told us that they feel it has contributed to promoting their career success. Many commented on how the award has increased their

professional credibility and given them a sense of achievement and pride.

If you are thinking about achieving a professional award, or manage individuals who would benefit from this framework for professional development, our accreditation and qualifications team can provide expert help on selecting the right award.

Some respondents said they would like assistance with the different steps required to achieve a professional award. Our team can help with this, right through from application to building a report or portfolio and assessment.

Over the coming year we will be working to increase support across the board for our registers and chartership applicants.

**Find out more at:** [rsc.li/professional-recognition](https://rsc.li/professional-recognition)

## Chemists' Community Fund

As a member of the RSC you have access to our Chemist's Community Fund. The fund exists to provide support to you and your family when life gets challenging (read more on p11 of this issue).

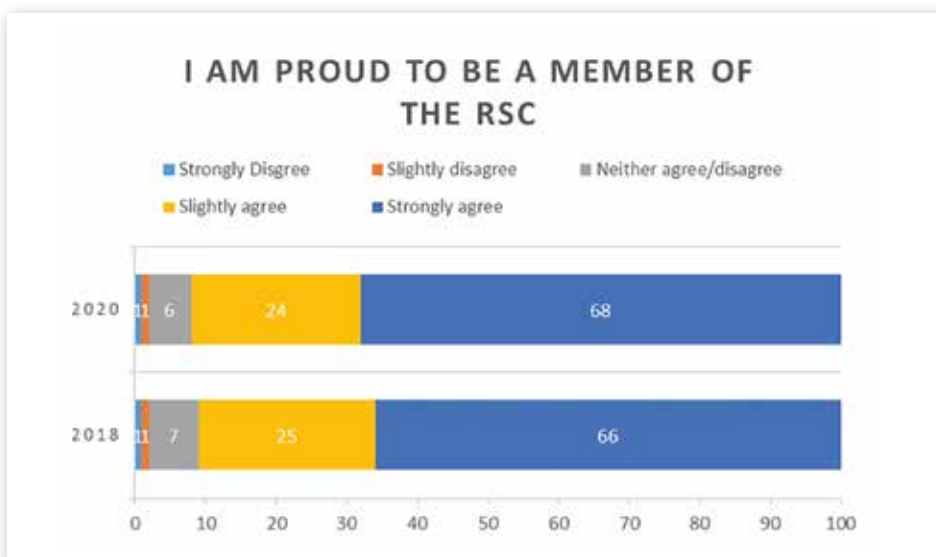
Over two-thirds of participants were aware of the fund and the numerous ways it can provide support in times of hardship: from legal advice to coping with bereavement, and from financial support to health and wellbeing services. However not all of you felt confident in how to access it.

We will continue to increase promotion of this key offering for our membership in order to combat the numbers who are unsure of how to access it, or who are unsure of their eligibility. This year is the fund's 100 year anniversary so we have many planned activities that will help to answer these concerns.

**Find out more at:** [rsc.li/chemists-community-fund](https://rsc.li/chemists-community-fund)

## Inclusion and diversity

This year's survey asked your opinions on inclusion



and diversity within the chemical sciences.

Some of our most recent research has focused on these areas, such as support for women within the profession as laid out in our 'Breaking the barriers' insights, which highlighted challenges to women's retention and progression in the chemical sciences, and our collaborative efforts with the Institute of Physics and the Royal Astronomical Society on the report 'Exploring the workplace for LGBT+ physical scientists', which emphasised the need to create working environments where all employees feel comfortable and can therefore flourish.

With our new in-depth diversity data monitoring questions, we align our data collection with current best practices such as those used by Stonewall, The Royal Academy of Engineering, the Science Council, the Higher Education Statistics Agency (HESA), and the Office for National Statistics (ONS).

From 2020, we have committed to report publicly on our diversity data, and data from our membership survey will form a large part of this. This will collectively empower us to provide more accurate analysis and reports to improve our services and provide the best possible offering to our community.

#### Looking to the future

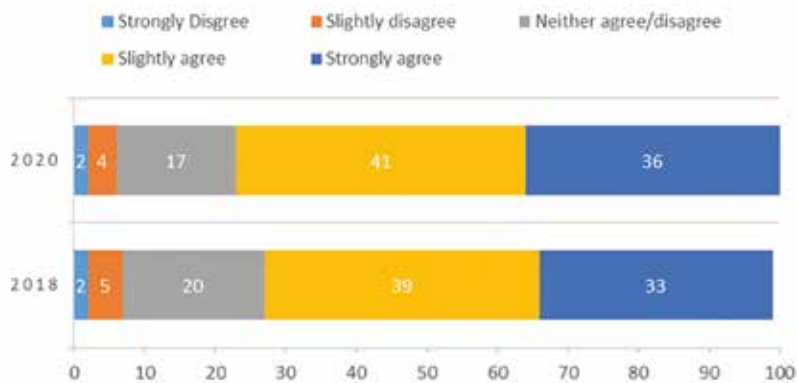
Over the coming weeks and months we will continue to explore the responses that you provided, identify trends in membership groups and begin to plan future projects, products and services that will help you in your day-to-day roles as well as more broadly across your work and home life.

Every answer is valuable to us, so your time, enthusiasm and experience gives us confidence in using this research to build a stronger membership for every part of our community.

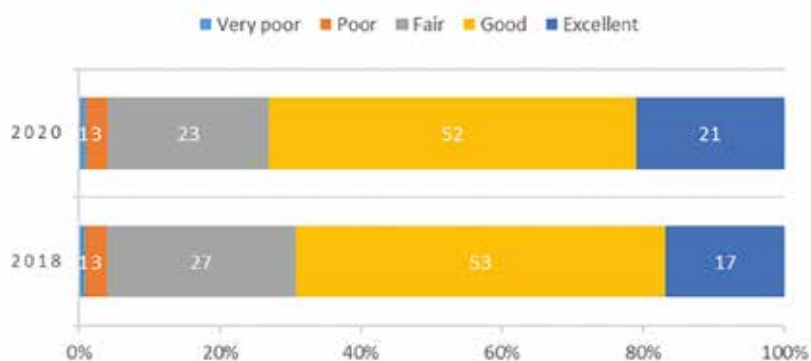
#### Supporting you during the COVID-19 outbreak

We understand that this will be a very difficult time for many of our members. You can find out more about our respond to COVID-19, including the support available to you, on p11.

### I FEEL A SENSE OF BELONGING TO THE RSC



### RATING MEMBER BENEFITS AND SERVICES



# Lithium shuffle

Lizzie Driscoll, PhD student at the University of Birmingham, produced a fun, informative video explaining how rechargeable Li-ion batteries operate. She also rolled out the activity as a playground game for schools.

By Lizzie Driscoll

Through the development and successive commercialisation of the Li-ion battery, which established the portable electronic industry over 20 years ago, the world's infrastructure and social mobility has drastically changed. These batteries are found everywhere – from mobile phones to laptops, and, more recently, electric vehicles.

With the technology so widely available, it is important for the public and school children to understand how they work, and what research is being done to improve them. The most common demonstration to introduce batteries is the potato-/lemon-electrolyte batteries. Although this is a great demo to introduce the concepts of electrochemistry and non-rechargeable batteries, it can't be used to explain the rechargeable types.

This led us to create a visual aid to show how these batteries work so as to create a useful learning tool for battery education suitable for introductory (secondary) up to degree level.



© Lizzie Driscoll

# Inspiring school children with chemical biology

Dr Wael Houssen from the University of Aberdeen has developed an initiative to inspire primary school children with chemical biology.



© University of Aberdeen



© University of Aberdeen

Wael Houssen

This initiative, supported by a small grant from the Royal Society of Chemistry's Outreach Fund, aims to inspire the proportion of children who prefer biological subjects with chemistry – by showing them how chemistry and biology are interlinked and how chemistry could fulfil their passion for understanding biological phenomena.

Although chemical biology looks more suitable for mature children

at secondary school level, in effect there is a lot that can be presented to younger children. It is also important to target children at a very early age when the impact of such activities is maximal.

Experiments include the use of chromatin dyes to see chromosomes at different stages of mitotic division, and the isolation of DNA from fruits. Activities involved the use of physical models and Lego parts to explain how

the information on DNA is translated into proteins and how DNA and protein folds in our body.

Some fun activities include observation and monitoring of heat-induced denaturation of proteins while making differently-shaped boiled eggs. Then an explanation of a similar analogy with straightening hair was provided.

The children were excited and understood the concept that DNA is

a chemical substance that carries the information on which protein is going to be produced in our body. They enjoyed solving chemistry crosswords and puzzles where clues were written as DNA sequences. They translated the codons in these sequences into amino acid single letter code and used these letters to solve the puzzle.

**Read more and watch the video at:**  
[rsc.li/community-news](https://www.rsc.li/community-news)



@LizzieDiscall

We received a grant from the Royal Society of Chemistry's Outreach Fund, which was of enormous help. It enabled us to purchase props and T-shirts for filming, and sports bibs for using this activity as an educational playground game.

The day of filming was slightly chaotic but a great success. A wide range of people volunteered to take part – from senior battery chemists and materials scientists to PhD students and undergraduates.

The people playing the part of the lithium ions and the metal current collectors did a perfect job of moving and throwing the beach balls – representing the electrons – while I shouted “charge” and “discharge” out of shot!

I also led a series of primary school workshops. One of the memorable ones involved some Year 4 students, a workshop that I ran with Dr Gavin Harper, Faraday Institution Research Fellow, in November.

We started the workshop off by asking students to think about what is in batteries and the responses were amazing. At the age of 8 or 9, I found it amazing how much they know about batteries, and how well they made connections to the everyday. I was further impressed with how they co-operated in the workshop activity to demonstrate charging and discharging rates. We used bean bags to represent lithium ions and each pair of students represented the two electrodes.

**Read more and watch the video at:**  
[rsc.li/community-news](https://rsc.li/community-news)

## Talking science to policymakers

STEM for Britain – the poster competition where early career researchers showcase their work to Members of Parliament – took place in Westminster on 9 March.

From midday, exhibitors, judges, MPs, and representatives from learned societies gathered in the Attlee Suite, in Portcullis House, in the Houses of Parliament. Each exhibitor received a visit to their poster from at least two of the judges – all leading academics and industry experts.

STEM for Britain differs from the usual type of poster competition, in that it places an emphasis on being able to communicate science to a non-scientific audience. It's an opportunity for policy makers, most of whom do not themselves have a science background, to learn more about the work being carried out by researchers in their constituency.

The competition is held annually, and exhibitors present their posters under the categories of physics, chemistry, mathematics, engineering and biosciences. Gold, silver and bronze medals are awarded in each category, out of a shortlist of 30 exhibitors.

### Gold medal winner

Florence Gregson, a PhD student at the University of Bristol, won gold. Florence, who grew up in Derbyshire, studies how liquid aerosol droplets crystallise and dry from solid particles.

She explains: “It's very important for industrial applications like spray drying, also important for inhaler therapy and atmospheric chemistry. Drying is everywhere!”

In response to winning gold, she added: “I'm absolutely thrilled. The judges were all very kind about my work, so that was nice, and all my peers – the other competitors – here have been really supportive. I am hoping to print my PhD this week and hand it in – so I'm right at the end. This gives me a bit of a boost for the final hurdle.”

### Silver medal winner

Fabienne Bachtiger, a postgraduate at the University of Warwick, took home the silver medal. She grew up in Switzerland but moved to the UK when she was 12 and went to Durrington High School in Worthing.

Fabienne uses computational methods to find out how to stop large ice crystals from forming in biological materials – for example blood samples or the storage of other fluids.



@JohnDeehan

(l-r) Gemma Smith, bronze medal winner, Florence Gregson, gold medal winner and Fabienne Bachtiger, silver medal winner.

She said: “Being able to communicate what you do to lay people is really important for policymaking – it informs policy, it informs other people that might actually want to be involved but don't necessarily have that level of expertise – but you can make that accessible by explaining what you do at a more friendly, user level.”

### Bronze medal winner

Gemma Smith, from Tunbridge Wells, is a postdoctoral researcher at the University of Manchester and won the bronze medal.

Gemma studies porous materials with a view to using them for the capture of sulphur dioxide gas. Sulphur dioxide is made by burning fossil fuels and is harmful to human health and the environment, so it's important to be able to capture it before it is released into the atmosphere.

She said: “The fact that my research has a very real application is really motivating, especially when we get positive results.”

**Read more at:** [rsc.li/community-news](https://rsc.li/community-news)

# Science at CoCoMAD 2019

Science had a huge presence at Birmingham's CoCoMAD festival for the third year in the row, thanks to a collaboration between local organisations.

By Chris Hamlett

It is the first Saturday of July and through the music, arts, and dance of the annual CoCoMAD festival comes the deafening enthusiasm of scientists!! Since the RSC first awarded a group of local science communicators (BrumSciComm) an Outreach Small Grant to run a chemistry tent and busking activities at the CoCoMAD festival in 2017, science has been a staple of the festival. But this year's activities were upgraded to an entire science field!

BrumSciComm teamed up with University of Birmingham's 'Research in the Heart of Brum', ChemBAM, Barber Institute and Lapworth Museum in addition to both ThinkTank and Mondelez to deliver

more than fifteen stalls of outreach activities across a range of scientific disciplines for people of all ages.

To celebrate the 150th anniversary of the periodic table the University of Birmingham's School of Chemistry and the School of Metallurgy and Materials showcased research into Li-ion batteries, demonstrated by a dinosaur and a game of Jenga (Prof Peter Slater and Prof Emma Kendrick's groups), and recycling demonstrated by activities involving both waste separation (Dr Chris Hamlett, 'Discover Materials') and reuse of plastics (Prof Andrew Dove's group).

In addition, an RSC IYPT award was used to make a periodic-table-themed chill out area consisting of elemental

cushions, wooden periodic table, neon lighting and even some pots of elements for people to peruse at their leisure. The School of Chemistry from the University of Birmingham also attended with over 15 student and staff volunteers, from undergraduates to professors. They presented their "ChemBAM" experiments including: extraction of DNA from fruit, fragrance chemistry, chromatography, alginate slime and adapted Jenga sets to explain the workings of lithium ion batteries.

In total at least 2000 people visited the science field to see these activities, engage with our science busking activities and listen to the science talks ranging from nanomaterials (Dr Ilija Rasovic,

University of Birmingham) to building a space base (Dr Ian Whitaker, Nottingham Trent University), green polymers (Dr Josh Worch, University of Birmingham) and even how microbes build biofilm fortresses (Ana Martins Pinto De Magalhaes, University of Birmingham).

Following the success of three years of science at CoCoMAD, weekly science clubs were run in the park during the school summer holiday (using kit purchased with funding from the RSC) and monthly clubs run by local science enthusiasts are ensuring that the legacy of the initial RSC Small Outreach funding is going strong – roll on 2020.

**Read more at:**  
[rsc.li/community-news](http://rsc.li/community-news)

# National recognition for chartered chemist

Rebecca Ballantyne was recognised at two separate awards ceremonies celebrating female talent, alongside being named on the 2020 Global Shakers list.

By Rebecca Ballantyne

In late October I was thrilled to find out that I had been shortlisted for two national awards – for my work in science at Sellafield Ltd and my additional work undertaken in Cumbria to encourage our younger generation to pursue STEM subject choices at school/university and then onto STEM careers. This was an even bigger surprise when I realised that the awards ceremonies were just two days apart.

The ceremonies took place in London in the first week of November and the award nominations were as follows:

- "Outstanding Contribution to Widening Participation, Diversity and Inclusion in STEM" at the STEM Inspiration Awards, held at the House of Lords
- "Outstanding contribution to Science" at the Women of the Future Awards, held at the Hilton Park Lane

The STEM Inspiration awards provided an opportunity to celebrate STEM Ambassadors whose enthusiasm for their subject is inspiring! The awards seek to recognise STEM Ambassadors that are making a real impact on young people, firing up interest in STEM subjects and careers. I received the highest commendation award for my work in the local community on encouraging children and young adults to pursue STEM subjects at schools and universities. I also received special recognition for my work in taking an active role in challenging gender equality and wider diversity issues that can be encountered in many STEM areas.

I then attended the Women of the Future Awards a few days later. The Women of the Future program is an international platform for young, successful, future female leaders. Now in their fourteenth year, the awards continue to unearth and recognise



Rebecca at the STEM Inspiration Awards

the inspirational stars of tomorrow across diverse sectors. I was shortlisted for my contribution to science, both in my work here at Sellafield Ltd and for my work in challenging gender equality.

Here, I received my second highly commended award of the week. I was able to meet so many inspirational women; it really was so humbling to have been shortlisted alongside so many fantastic women given the amazing achievements they all had accomplished. Part of my STEM session work with primary-aged children is based around interactive storytelling to explore the sometimes hidden, underlying science woven into all stories. I received special recognition for this aspect of my work with recommendations that my teaching methodologies should be rolled out across the

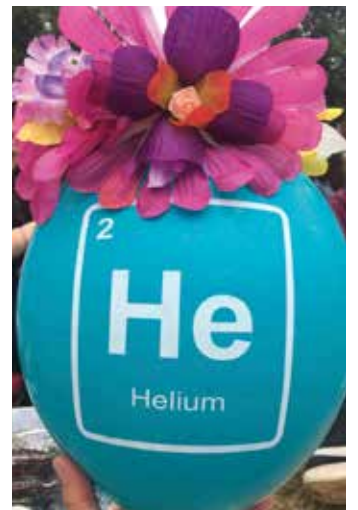


Rebecca at the Women of the Future awards

curriculum. I also met Theresa May at this event where I had the opportunity to briefly discuss my work.

On 11 February, the International Day of Women and Girls in Science, I found out that I'd been placed in the top 20 female scientists in the world by Global Shakers. I'm completely blown away by this – I'm listed alongside astronauts and pioneering doctors, which is unbelievable.

I'm incredibly grateful to those that took the time to nominate me for these awards, as it gave me the opportunity to discuss topics that I'm very passionate about on a national stage. I'm really excited for the future: I've already begun working on new collaborations to build upon the success of the awards.



# Supporting our community through Covid-19

In these extremely challenging times, remember that the Chemists' Community Fund is here to offer impartial guidance, helpful connections and financial support to all Royal Society of Chemistry members.

While we recognise that the support we can offer will be limited, we may be able to offer financial assistance to you and your family as a Royal Society of Chemistry member.

Our specialist caseworkers can also point you in the direction of other avenues of support.

We are here to offer you, and your family, confidential help that is as unique as your situation.

When life feels uncertain, let our support be something you can count on.

Call **+44 (0)1223 432227**

Email **ccfund@rsc.org**

Visit **rsc.li/chemists-community-fund**

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