

# RSC NEWS

FEBRUARY 2016 [www.rsc.org](http://www.rsc.org)

Celebrating  
175 years of our  
community

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ROYAL SOCIETY  
OF CHEMISTRY



**175** YEARS

[rsc.li/175](http://rsc.li/175)



### Celebrating 175 years of our community

Pictured clockwise from top left are some of the many notable presidents we've had throughout our history:

**Thomas Graham**, first president of the Chemical Society, 1841-1843 and 1845-1847 (founder member).

**Sir Edward Frankland**, president of the Chemical Society, 1871-1873 and first president of the Royal Institute of Chemistry, 1877-1880.

**Sir Ewart Jones**, president of the Chemical Society, 1964-1966, president of the Royal Institute of Chemistry, 1970-1972 and first president of the Royal Society of Chemistry, 1980-1982.

**Dr Alfred Spinks**, final president of the Chemical Society, 1979-1980.

**Professor Sir Richard Norman**, final president of the Royal Institute of Chemistry, 1978-1980 and president of the Royal Society of Chemistry, 1984-1986.

**Professor Lesley Yellowlees**, first female president of the Royal Society of Chemistry, 2012-2014, with **Professor Dominic Tildesley**, our current president.

There's a wealth of fascinating information available to you as a member from throughout our history – just search for *historical collection* on our website.



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**Photography:**

Cover © Royal Society of Chemistry /  
Terry Moore

Left © Royal Society of Chemistry

**Cover:** Bestselling author  
Bill Bryson, one of our inspirational  
175 faces of chemistry.



THE QUEEN'S AWARDS  
FOR ENTERPRISE:  
INTERNATIONAL TRADE  
2013



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A warm welcome to our community



# Snapshot

A look at the latest news from around the world

## IN BRIEF

### Chemists' Community Fund

We told you last year that we were reviewing our benevolent fund to ensure it continues to be relevant for our modern community. For many people we spoke to, the name was seen as old-fashioned, and it didn't represent the non-financial support we offer.

From now on it will be called the Chemists' Community Fund, reflecting the increased scope to helping those in our community who are at risk of becoming in poverty.

You may recall from December's *RSC News* that we have already introduced some new services to alleviate this risk through legal advice, counselling support and an intensive career programme. Look out for more details on what else we're planning in future editions of *RSC News*.

### Approving new courses for teachers

Our education and accreditation teams have started a new joint collaborative project to formally recognise chemistry Subject Knowledge Enhancement (SKE) courses in England, with Approved status. The aim is to address the needs of the community and apply a form of quality assurance to this aspect of teacher training, which is otherwise lacking. The first submission for this new project was from the University of East London.

Members of both teams visited UEL in November along with assessors, with the view of formally approving their two SKE courses; an 8 week and 24 week course. The assessors recommended both courses for approval and this was validated by the committee in December.

These are the first chemistry SKE courses that have been approved in the UK, with UEL the first of three institutions that we plan to visit during the pilot of this project. We plan to finish the pilot in September 2016, after which we will roll out the approval process more widely.

## Our Global Experiment heads for the stars

This year we are calling on schools, community groups, and science clubs around the world to take part in the Royal Society of Chemistry's global experiment – *Mission: Starlight*.

Introduced by British astronaut Tim Peake, your mission is to investigate materials that block or limit UV light using UV colour-changing beads.

*Mission: Starlight* consists of four standalone experiments. They have been designed to challenge all ages and abilities, with all the resources being readily sourced and easily affordable.

As part of our 175th anniversary we want to open up this year's Global Experiment to the largest number of participants yet.

Collaborating with thousands of students from around the world, pupils can conduct this experiment at home or in the classroom, then post their data and add a picture to our website to see how their results compare with others around the world.

Check out the website at <http://rsc.li/mission-starlight> (the site will be live from 4 February 2016).



## New Year's Honours 2016

Congratulations to those in our community who have been recognised in the New Year's Honours list for 2016.

### CBE

#### Professor Catherine (Cait) Elizabeth MacPhee CBE BSc PhD FRSC

Professor of Biological Physics, University of Edinburgh  
Joined as a Member in 2008. Became a Fellow in 2012.

#### Professor Peter John Matthews CBE DSc CChem FRSC

Chair – Natural Resources, Wales.  
Joined as a Graduate in 1969. Became a Fellow in 2009.

#### Professor Paul O'Brien CBE BSc PhD DSc CChem FRSC FLSW FRS

Professor of Inorganic Materials Chemistry, University of Manchester  
Joined as a graduate in 1980. Became a Fellow in 1993.

### OBE

#### Dr William Barton OBE MA FRSC

Chief Executive Officer – WillB Consulting.  
Became a Fellow in 2006.

### Early careers researchers take their work to Parliament

On 7 March, early-stage researchers from across the country will be heading to Parliament to present their research at SET for Britain, an annual poster competition aimed at engaging MPs with current science, engineering and mathematics research in the UK.

Along with other learned societies and commercial sponsors, we are helping to sponsor the event, which is a great opportunity for those invited to raise their profile at Westminster and for MPs to see what scientists in their constituencies have been working on.

The competition is open to researchers in both academia and industry, and returners and those starting a second career are encouraged. The presenters will be judged not only on scientific merit but on their enthusiasm and ability to get their concepts across to a lay audience. Winners in five categories will be presented with cash prizes, and the overall winner will receive the Westminster Medal, awarded in memory of the late Dr Eric Wharton, who provided the inspiration for the first event in 1997.

Last year's winner in the Chemistry category, Yuval Elani, claimed the gold medal for his research on the development of artificial cells that mimic biological ones for medicinal and drug delivery applications. "This was a different experience from scientific conferences," he said, "It will encourage me to try to engage more with non-scientists and engage people with some of the great science that is happening in the UK".

Look out for an announcement of the winners in our April edition of *RSC News*.



Last year's winners receiving their certificates at Westminster.

## New elements complete the 7th row of the periodic table

One of our Council members, Professor Polly Arnold of Edinburgh University, was quoted in the *Telegraph* and the *Guardian* discussing the recent discovery of four new elements by scientists in Japan, Russia and America. Our news and media team also arranged for her to appear on Radio 4's PM programme, discussing the discovery at length with a fascinated Eddie Mair.

The newly discovered elements are numbered 113, 115, 117 and 118 and they complete the 7th row of the periodic table.

Polly explained in the *Telegraph* that: "The reason scientists have only just made them is because they are so difficult to make.

"You slam light nuclei into each other and then track the decay of the radioactive superheavy elements that you form. They only last a tiny amount of time, fractions of seconds".

Now begins the difficult task of choosing names for the new elements.... Responsibility falls to the International Union of Pure and Applied Chemistry (IUPAC) and they have already received petitions to name them in honour of such luminaries as best-selling author Terry Pratchett and – as the new entries are all heavy metals – Lemmy, front man of rock legends Motörhead.

We'll bring you news of IUPAC's decision in a future edition of *RSC News*.



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## Workers education association partnership

The World Museum in Liverpool was the venue for the launch of our new adult education project on 15 January. The Workers Education Association have received a £50,000 grant from our Outreach Fund to develop a chemistry curriculum for their learners. This is part of a wider project to enhance the WEA's science offering.

Our Outreach Programme Manager, Dom McDonald, spoke at the event and explained how the project fits with the RSC's wider public engagement strategy. "This funding is going to enable us to take the chemical sciences to thousands of adults who wouldn't normally engage with science at all. "By showing them how chemistry is relevant to their everyday lives, we are building on the

results of our Public Attitudes to Chemistry study, as well as research that shows that parents' attitudes are a key factor in children's career choices."

This year the courses are being piloted in the North West of England, along with courses funded by the Royal Astronomical Society. The project will be rolled out nationally in 2017.

Our Outreach Fund provides financial support to individuals and organisations to enable them to run chemistry-based events and activities for public audiences.

The fund helps support our members, and other advocates, to engage with different audiences, and provide people with an entry point into the chemical sciences.

# One to one

Take advantage of a wide range of member services

## What could you do with your 175 minutes for chemistry?

Help us celebrate our 175th anniversary by getting involved in our member networks and some of their numerous activities.

We are the oldest chemical society in the world and in 2016 we're celebrating 175 years of progress and people in the chemical sciences. To mark this anniversary, we are asking our members and supporters around the world to give 175 minutes of their time to chemistry throughout the year. From inspiring people through outreach to exploring what membership of the Royal Society of Chemistry can do for you, there are many opportunities for you to get involved.

If you are interested in meeting other members, attending events or even organising activities, with or for, other members, then exploring what our member networks can offer is a good place to start.

Our member networks are made up of enthusiastic and hardworking members who dedicate time to advancing the chemical sciences within their communities by organising numerous events, offering grants and co-ordinating awards to recognise their members. Why not use our anniversary as a chance to find out more about what the networks offer and how you can get involved?

### Share scientific interests

Our interest groups span the length and breadth of the chemical sciences, covering topics from agriculture, chemical nanoscience and nanotechnology to law and the history of chemistry. Take a look at our website for the full list of 72 groups. You could dedicate your 175 minutes to chemistry by attending one of the many events organised by our interest groups: they range from international symposia to one-day workshops, networking evenings and career events.

We also offer opportunities to attend events, so you could attend a scientific symposium organised by one of our nine divisions, which cover the broad areas of chemistry. Or you could apply for a travel grant to attend one of our conferences or, if you are interested in organising your own scientific event, you could even apply for a division small grant.

### Get involved locally

If you would prefer to meet members who have a similar interest in the chemical sciences in your local area – or introduce your friends or family to the world of chemistry – you could explore local section events. We have approaching 60 local sections across the world, each of which offers an annual programme of events. These include scientific lectures, public lectures, schools activities, science fairs and social events.

Each local section activity is directed by a committee of volunteers. In countries where there are not enough volunteers to form a committee, we have RSC representatives who act as a country-wide point of contact. If you enjoy meeting new people and planning and organising events, why not contact your local section committee (our member networks team can put you in touch) to find out how you can help out at an event, or volunteer as our representative if your country has no local section?

### Volunteer your time

Another way for you to get more involved in our activities this year is by becoming a benevolent fund volunteer visitor.

Our fund makes a difference to the lives of our members and their families who face financial hardship or other difficult circumstances. The fund has a network of volunteers who provide individual support by offering a caring service that involves a listening ear and practical support at a local level. The work of our volunteer visitors is gratefully received by our beneficiaries and is vital to the work of the benevolent fund. If you are interested in volunteering, please get in touch at [benfund@rsc.org](mailto:benfund@rsc.org)

### Encourage others

If you are already on a committee, could you use your 175 minutes to encourage your peers to find out more about the work of your group and to participate in its events and activities? Enthusiastic members of our East Midlands Local Section used our Public Attitudes to Chemistry toolkit to organise an activity to communicate chemistry in an entertaining and interesting way to their colleagues as part of our anniversary celebrations. They explained areas of chemistry that were specific to that business, such as quality control, foam control, surfactants and ended with a Thermite reaction. We look forward to many more activities in which our members share their enthusiasm for chemistry with others throughout the year.

### Find out more

If you've been inspired to use 175 minutes to get involved in our networks or some of the activities and events that they organise, keep an eye out for upcoming events at [rsc.org/events](http://rsc.org/events) or explore our networks at [www.rsc.li/connect](http://www.rsc.li/connect)



BACKGROUND IMAGE © SHUTTERSTOCK

# Profile

A closer look at our members and their interests



Motaza Khater is Chemistry Professor at Cairo University.

## Motaza Khater

Meet the inspirational Egyptian chemist connecting scientists and decision-makers

### Q When did you first become interested in science?

**A** At school I enjoyed all subjects and tried to be one of the best girls in my class. I was born in a small town called Hehya, located in the agricultural province of Sharkia, Egypt, where I was one of the few middle class girls allowed to complete education up to university level.

I found science and mathematics easy to understand at secondary school and I enjoyed entering class competitions in both of these subjects. We had excellent teachers and well equipped labs, so my interest continued to grow.

When I was thirteen I read *The Life of Madame Curie* for my English Literature course. I really admired Marie Curie's determination as she struggled at the start of her career – before becoming one of the most famous women in science. Her story inspired me to study chemistry and later to go into research. With the help of my mother, uncle and teachers, I was able to enrol to study chemistry at the Faculty of Science at Cairo University.

I graduated in June 1958, joining a team working to implement the five-year industrialisation plan of Egypt. It was a really important time in my career, to test what I had learned at university and apply my knowledge to real life situations.

In 1959, I moved to the Chemistry Department at the Faculty of Science completing a Master's degree in Analytical Chemistry and a PhD in the structure and applications of coordination compounds. I continued my research at the University of Austria and represented Egypt in the Working Party of Analytical Chemistry (WPAC) and the Federation of European Chemical Societies (FECS).

### Q Where did your research take you next?

**A** I was active in research, but also spent lots of time working on a number of boards, as well as connecting researchers from different countries. I was appointed as the Egyptian Cultural Counsellor at the Egyptian Embassy in Austria and represented Egypt in the Working Party of Analytical Chemistry (WPAC) and the Federation of European Chemical Societies (FECS).

I attended the Ethiopian Society of Chemistry Conference in 2006, where we founded the Federation of African Societies of Chemistry (FASC) and I was elected vice president. This involved bringing together

scientists and decision-makers from across the world to solve societal problems in Egypt, Arab and African countries. The aim was to encourage young scientists to also engage with multilateral projects to solve problems. I really enjoyed the opportunity to use analytical chemistry to provide a better quality of life.

I was also politically active and took on leadership roles for the women's section of both the Socialist Union and Egypt's Party.

### Q How did your education influence career decisions?

**A** Education has been a big part of my life. I've always sought to increase my knowledge and use it to positively influence others. I've always recognised the crucial role teachers play in preparing their students for roles in science and the difficulties that can arise when science is not taught properly. It is difficult for many Egyptian and African children to enter a scientific career because of the lack of good teachers and facilities in schools.

As a result, many students prefer to study literary subjects that are generally perceived to be easier than scientific ones. Unfortunately, some Arab and African teachers and politicians still underestimate the importance of providing enough resources to ensure proper education of scientific subjects and they do not fully comprehend its vital role in the development of society.

The advice I'd give to anyone who feels underrepresented in their scientific field is don't ever give up on your dreams, spend time and effort updating your knowledge and keep following advanced and new applications.

"I really enjoyed the opportunity to use analytical chemistry to provide a better quality of life."

### 175 FACES OF CHEMISTRY

For more of our 175 faces of chemistry, see p8 of this issue and the 175 faces website at [www.rsc.li/175-faces](http://www.rsc.li/175-faces)

**175** YEARS  
[rsc.li/175](http://rsc.li/175)

# 175th anniversary exhibition

In a special exhibition to mark our 175th anniversary this year, we're highlighting stories of inspirational individuals – our 175 faces of chemistry

Each of our stories features someone involved in the chemical sciences – role models and champions for an inclusive culture and diverse future generation of scientists – and together they represent diversity in the broadest sense. The exhibition will be open to everyone and runs from 22 February to 4 March at Burlington House, Piccadilly, London, weekdays 10am to 4pm.

Two of our 175 faces of chemistry – Heston Blumenthal, celebrity chef and Michelin-starred proprietor of the Fat Duck in Berkshire, and Bill Bryson, bestselling author of popular science and travel literature – share their stories of how they became fascinated with science.

**WORDS**  
GERI KITLEY



**"I'm proud to be one of the Royal Society of Chemistry's 175 faces of chemistry"**

**HESTON BLUMENTHAL**

In an exclusive interview, Heston Blumenthal spoke with us about how he became the pioneering chef he is today.

"The weird thing is, as a kid I never would have called myself inquisitive", he explains.

That all changed in 1985 when Heston read Harold McGhee's book *On Food and Cooking – the Science and Lore of the Kitchen*, about the science of everyday life. McGhee said that browning meat doesn't seal-in liquid, which challenged a fundamental aspect of French cooking Heston thought he knew.

"When McGhee went on to explain why it wouldn't seal in the juices, it was obvious! At this moment it was like an epiphany for me. I thought how many other things have I been learning in classical French cooking, that I just took as gospel, but aren't true? Then I went the other way and questioned everything, and it was this approach that has helped shape my cooking."

This pivotal moment for Heston led him to want to share a more inquisitive approach to cooking.

"It was really important for me over the years to try and bring some accessibility through to everyday food," he says.

"I started doing this with writing. So the first book was *Family Food* – getting the kids involved by giving them a greater understanding of where their food comes from, but also flavour experiments."

Questioning everything helped to shape Heston's current attitude to cooking and the kitchen. "For me this whole new world opened up and I wanted to pass this on. You don't have to have a nuclear physics degree to feel justified or that you've got permission to ask the questions."

This not only changed his cooking but also his awareness of science: "I learnt a lot about science and scientists – there is this perception out there that somehow scientists are men in lab coats with clipboards walking around in very sterile rooms with no emotion. I left school with an A-level in art – I failed my O-level chemistry – I was scared of it, totally. But through cooking I found this whole world – a whole new solar system available to me.

"So, do not be scared. Ask questions. Rather than thinking you need a degree in nuclear physics, just experiment. When things start to happen, you become inquisitive."



"I'm very honoured and astounded, and even a little embarrassed that I'm one of the Royal Society of Chemistry's 175 faces of chemistry"

**BILL BRYSON**

Bill Bryson explains why he first became interested in writing a book about science and why he believes that science communication is so important. "I was not good at sciences at school," he says. "Science was taught in quite a dull way. I paid no attention."

He says that, like many students, he found science hard and the teaching was focused on those who found it easy. "But I grew up with this conviction that there had to be some level on which I could engage with science, because I found as an adult that I was watching programmes on television or reading articles on science in newspapers and magazines and, like anybody, I was interested in who we are and how we got here and where we're going – all those things that science tells us."

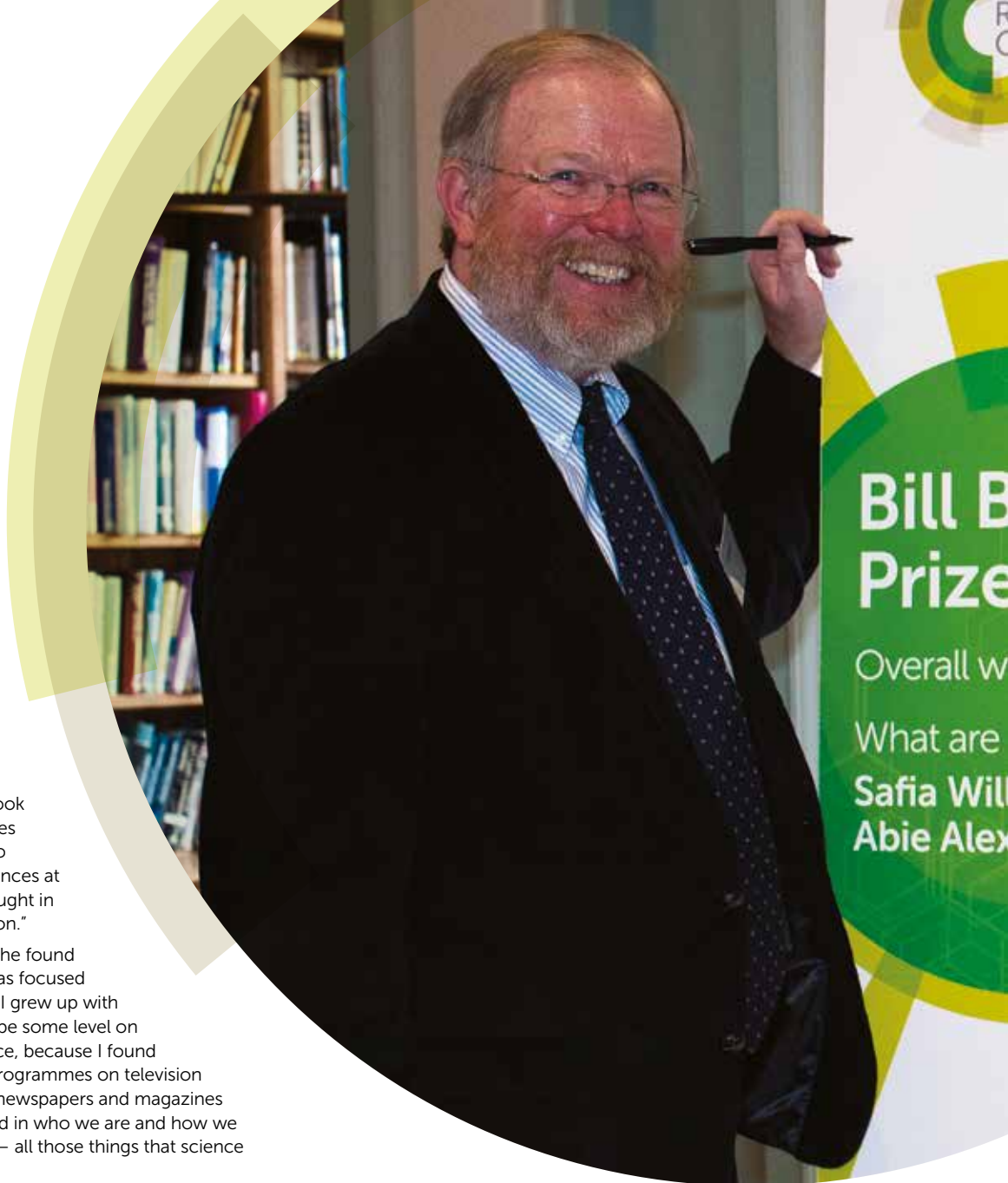
It was this conviction that led Bill down the road of science writing, communicating science in *his* terms, without the impenetrable language.

"The one advantage I had in doing *A Short History* was my ignorance. I was pretty much a blank slate, so everything I was learning was exciting to me. The great thing about science is that every time you learn one little thing it leads to questions about other things."

Bill says he is very honoured to be one of our 175 faces and, while he feels that there are so many more deserving people, he believes it a good thing that, in showcasing diversity, we are representing people from such different walks of life.

Bill is passionate about the importance of science communication in today's society: "I think it's really important that everybody who's professionally involved in science, whether they're teachers or industrial chemists, realise that they are ambassadors for something really, really important. One of the questions I asked every single person I interviewed for *A Short History of Nearly Everything* was "why did you become a scientist"?

"Almost every time they had to stop and think – and they would remember this magical moment that changed their lives – but they hadn't thought about it very often for years. I think everybody who works professionally in science should stop and think from time to time – what is magical about what I do – and not lose sight of that and just convey it to people."



Bill and Heston are just two of 175 inspirational individuals that we've profiled over the past three years. Our 175th anniversary exhibition showcases all 175 faces, giving visitors the opportunity to explore their stories, showing the incredible diversity in the chemical sciences.

In addition to this exhibition, we are encouraging our members and supporters from all over the world to share their stories with us and give 175 minutes to chemistry in some form in 2016. This might be spent in visiting our 175th anniversary exhibition, attending a chemistry conference, doing an outreach event, or even taking up a member benefit. For more ideas go to [rsc.li/175](http://rsc.li/175) or see what others are up to, on Twitter using **#Time4Chem**

Keep an eye out for the full video interviews of Heston Blumenthal and Bill Bryson, which will be released in the next few weeks on our 175 faces of chemistry website. For more information about our anniversary and how you can get involved, go to [rsc.li/175](http://rsc.li/175)

**175** YEARS

[rsc.li/175](http://rsc.li/175)

# How is chemistry funded in the UK?

Rich Walker takes you through the complexities of the UK's funding system and what you can do to engage with it over the coming months...

The research funding system in the UK is probably worthy of its own academic field. Here at Royal Society of Chemistry towers there are flocks of reports, gigabytes of spreadsheets, and drawers of business cards all for the purpose of understanding the government position on science funding. With your help, we've used the last couple of years to mount a high profile campaign to influence the national agenda on science and innovation support.

In last month's *RSC News*, Robert Parker summarised what George Osborne's recent Spending Review means. We wanted to use this month's feature to do three things: give you some of our own highlights on the work we do, a little more detail on what this new system actually means, and our perspective on what's likely to come next.

## What have we been doing?

In the simplest sense our job over the last two years has been split into three; researching the benefits of investment in chemistry, determining a set of recommendations to government, and convincing government to do it. Our science, communications, and public affairs teams – and many of our members – have contributed to that work. We've responded to consultations on the research councils, the structure of the REF, the government's science and innovation strategy, as well as the regular flow of budgets and autumn statements.

Hundreds of our members have written to their constituency MPs, we've met dozens of those MPs in parliament, and supported a parliamentary debate, which had 19 MPs from across the political spectrum speaking on the Treasury's role in supporting science.

In July, we were delighted to be able to showcase some of the most exciting economic impacts of science, launching our *Inspirational Chemistry for a Modern Economy* report, alongside a similar effort from the Institute of Physics. That brought world-leading scientists into the House of Commons to talk to MPs about the value their research has brought to the UK. This was one of many occasions of cross-science collaboration over the course of our campaign – having led this project from inception to launch was a real highlight for me.

Throughout this time our headline message has remained constant: the UK's science and innovation system is world-leading and brings great economic, social, and intellectual value, but is grossly underfunded and risks our future prosperity.

We often say that in the UK "we punch well above our weight" – that's probably most clearly explained looking at our levels of investment in research and development. Despite ranking first or second for the quality and impact of our research the UK invests less than 1.7% of our GDP on R&D, whilst countries like the US and Germany invest around 2.7% and others like South Korea (4.1%) invest even more.

In light of this, our long-term goal has been for both public and private spending to rise, with government increasing public spending to at least the OECD average (0.7% GDP), and with shorter-term targets around making sure we didn't drift even further in the wrong direction.



## So who funds chemistry research at universities in the UK now?

To answer this question it's best to start by looking at where things were prior to the Spending Review and working forward. The Higher Education Statistics Agency helpfully tracks university finances fairly well and from this chart (see right), you can see that 55% of chemistry departmental funding comes from the UK Government, 51% of which comes from the research councils.

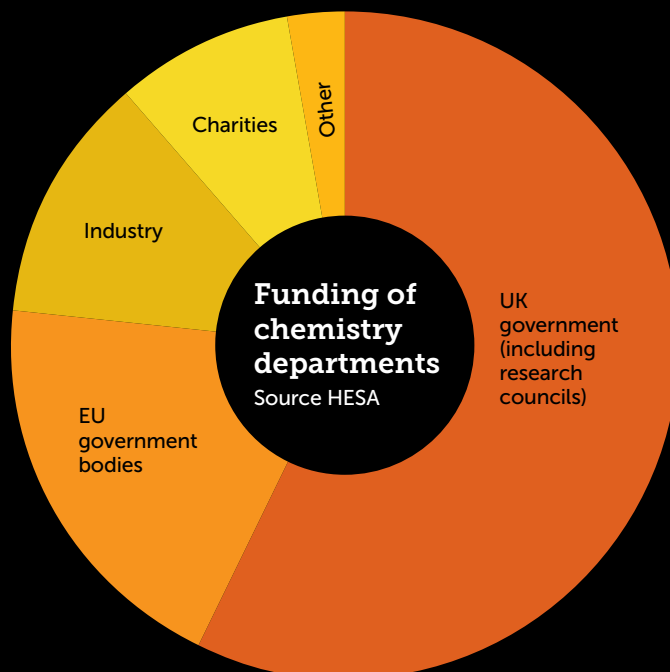
There are currently seven research councils, with all of them having contributed some funding to chemistry departments over the last five years, with the largest share (74%) coming from the Engineering and Physical Sciences Research Council (£80m in 2013/14), and the smallest (0.05%) from the Arts and Humanities Research Council (£24k in 2013/14).

Each of the research councils is currently a distinct legal entity, operating independently under a semi-formal umbrella body called Research Councils UK. The strategy and delivery plans of each research council is determined separately and there have been occasional concerns that research that crosses the boundaries between them can fall between the cracks.

The project-based funding awarded by the research councils forms one half of the so-called dual-funding model at work in the UK. The other half, referred to as Quality Related (QR), is delivered via the Higher Education Funding Councils (HEFCE in England) to institutions with a proven track-record in research. This funding route is slightly less well-known as it goes to a university centrally, rather than individual departments or researchers. However, that level of funding is determined by the Research Excellence Framework (REF) – which many in our community have been involved in submitting to – and it accounts for a ca. £1.5bn annual budget, making it the size of two EPSRCs (or half of the RCUK budget).

Together the non-capital components of RCUK and QR funding make up the 'Science Budget', which has been held at a 'flat-cash' value of £4.6bn between 2010 and 2015, having its spending power reduced year-on-year with inflation. As we approached the Spending Review last year it became clear that our overarching target of raising government R&D spending to the OECD average was too ambitious in the economic climate. Instead, we focused our efforts on forestalling the effect of inflation and asked for real-terms protection of the science budget.

Rich Walker and Chris Green MP.



## So what's happening now?

In short, not everything's clear, but we have some idea. What is certain is that we were delighted to hear that the government agreed with our (along with other learned societies') proposal and the Science Budget will now rise with inflation until 2020-21 – protecting its value in real-terms.

Aside from that top-line figure, things are a little more complicated. It was announced that the recommendations from Sir Paul Nurse's review of the research councils would be implemented. The largest single change proposed by Nurse is the creation of a new legal entity, Research UK, which encompasses but does not formally merge the current research councils. This new structure has been likened to a university: with an overarching strategy, but semi-autonomous departments.

How this new structure will function in practice is unknown though, and there are other question marks. There will be a new 'Global Challenges' fund, worth £1.5bn over five years, held centrally by RUK. Some of this funding will come from the Department for International Development to support research benefitting developing nations, but a further undefined amount will be split out from research councils. The Higher Education Green Paper proposes that HEFCE be abolished, and the REF and England's QR funding will move into RUK, but the legislative time required to achieve this has yet to be tabled.

## Get involved

The next few months will see consultations on the future of the REF (the Stern Review), a likely second run through many of the issues raised in the Higher Education Green Paper, in the form of a White Paper, as well as the delivery plans for many of the individual research councils. We'll be working on all of these, and as practising chemists we really value your input, so please do get in touch at science@rsc.org with your views and experiences.

Finally, whilst the Spending Review result was hugely positive, we're still a long way from even the average levels of spending on research by either the public or private sector in other countries. We'll continue to make the case for chemistry and I know we can rely on your support.

**WORDS**  
RICH WALKER

# Opinion

Letters and comments on RSC activities and issues

## FROM THE EDITOR



I was lucky enough to interview Bill Bryson for a *175 Faces of Chemistry* profile recently. He has long been a friend of the Royal Society of Chemistry, so it was

hugely encouraging to hear the warmth with which he speaks about the work our community does in inspiring future scientists. Read what Bill has to say, along with the equally inspirational and enthusiastic Heston Blumenthal, on p8.

We have consistently argued that if the UK is to continue to produce those future generations of innovative, inspirational chemical scientists, investment in the science budget is crucial. See p10 for an insight into some of the important work our colleagues do in raising our voice to decision makers, as well as an explanation of the complications of how funding works in the UK.

Apart from that, this issue includes a very special anniversary on p19, another of our inspirational *175 faces* on p7, and more ideas for how you can celebrate our anniversary on p6.

Edwin Silvester  
rscnews@rsc.org

RSC News welcomes letters, which should be concise (normally less than 300 words) and timely. Those selected for publication are subject to editing for clarity and length. Letters should be marked 'for publication'; letters are not routinely acknowledged.  
[rscnews@rsc.org](mailto:rscnews@rsc.org)

You can also let us know your thoughts and comments via Twitter or Facebook.



@RSC\_Newsroom



[facebook.com/RoyalSocietyofChemistry](https://www.facebook.com/RoyalSocietyofChemistry)

## Virtuous circles

Converting household and agro processing wastes to useful chemicals is a laudable goal (December, p10), but must be tempered with reality. The case in point is d-Limonene from dried orange peels as an alternative to toluene.

If all the orange peels produced around the world was converted, we will have about half a million tons of d-Limonene.

The global production and consumption of toluene exceeds 30 million tons! The current production of d-Limonene is only 70,000 tons per annum (Chem. Commun., 2014, 50, 15288). Furthermore, there are concerns of health hazards associated with the oxidation products of d-Limonene.

While our anxiety to reduce consumption of fossil resource derived chemicals is genuine, we should also aim to create solutions that are more sustainable and practical. While use of d-Limonene in specialty application may grow, to state that it has the potential to become an alternative to toluene sounds like an overstatement.

**Dr Swaminathan Sivaram**

National Chemical Laboratory, Pune, India

## Virtuous circles and supercritical water

The article by M Smith in the December 2015 issue of *RSC News* noted that the European Commission will very soon present a strategy for a circular economy in the EU.

The RSC should provide input to the development of this plan so that the unrivalled potential of supercritical water alone for the transformation of a variety of essentially useless polymeric organic wastes into more valuable low molecular weight units is emphasized and not overlooked.

**Professor Graham Allan, FRSC**

University of Washington, Seattle, USA

Many thanks for your letters, which raise some very interesting points.

With regard to limonene, we acknowledge that some 'sustainable alternatives' do not in themselves completely address the issue concerned, but often provide a partial solution.

Thank you also for highlighting the potential of supercritical water in the transformation of organic wastes – the technologies employed in moving us into a more sustainable future are an important topic of discussion within our membership and the wider community, and we will continue to foster these discussions at various levels going forward.

**Dr Michael Smith, MRSC**

Cambridge, UK

# Crossing boundaries – linking academia and industry

## Universities building partnerships with industry for quality and impact of research, and preparing students for employment

The Confederation of British Industry published the *Inspiring Growth* report in July 2015, indicating that university-business collaborations are becoming increasingly important, with 35% of businesses looking to extend their interactions with Higher Education institutions. Over the next six months, as part of the Industry and Science Strategies, the Royal Society of Chemistry will be running a project to build a picture of how university chemistry departments currently interact with business, and how best to support and advance these activities. This University-Business Engagement project will be carried out in close collaboration with Heads of Chemistry UK (HCUK) and with input from our division councils.

### Benefits for students, science and society

Collaborations between university chemistry departments and businesses are essential for translating pioneering research into the products, materials and medicines that both improve our standard of living and contribute to the economy.

Equally, engagement from industry in university teaching and curriculum development can increase the employability of a department's graduates, adding to the technical abilities and wider transferable skills developed by industrial placement schemes.

Relationships with people working in industry can sharpen academics' and students' entrepreneurial skills and commercial awareness, making intellectual property marketable and potentially leading to spinout companies. Academics engaged in industrial research partnerships often see a direct impact of their work in a real-world application.

On a personal level, I have found that my interactions with companies such as BASF, Kodak and GSK have enriched my work. They have introduced me to interesting new problems and to fantastic scientists who provided different perspectives on my research.

Under the UK's dual funding system, around 30% of the funding awarded for university research is quality-related, with quality being assessed by the Research Excellence Framework (REF). Economic and societal impact was one of the chemical sciences' strong performance areas in the REF last year, highlighting many existing examples of collaboration and translation between academia and industry.

UK academic chemistry already benefits significantly from industry involvement and the University-Business Engagement project will help to identify practices and schemes that work particularly well. For companies of all sizes, collaborations with the academic community are becoming an important mechanism for sharing the risk involved in investing in R&D, speeding up the generation of novel or improved technologies and providing access to new expertise and equipment.

### So why now?

University-business engagement has been a topic of government and wider conversation in recent years because of its central role in linking research with innovation and skills. The Royal Society of Chemistry provided evidence for the *Dowling Review of Business-University Research Collaborations*. The review, published last July, stressed the need to do more to facilitate partnerships between academia and industry, enabling businesses to make full use of the UK's world-class research base. Professor Dame Ann Dowling said: "New collaborations could be encouraged if successes were publicised more widely" and one of the goals of this project is to highlight the effective university-business interactions already taking place in chemistry.

*The Wakeham Review of STEM Degree Provision and Graduate Employability* is also due to report this spring and will provide another perspective on the role industry plays in supporting the successful transition of graduates from university to the workplace.

In an initial research phase of the University-Business Engagement project, we have developed an online survey, which has been sent to 70 university chemistry departments across the UK and Ireland.

The survey explores three key dimensions:

- research and its impact;
- staff / student enterprise and university spinouts;
- teaching and training designed to increase the employability of chemistry students.

The outcome of this research will provide an overview of the current environment and specific examples of how universities engage with businesses in chemistry, albeit at this stage from a university perspective. It will also explore potential links between business engagement and established outcomes such as research quality, research impact and student destinations, enabling individual departments to benchmark their activities against the sector as a whole.

### Get involved

The preliminary findings will be the focal point of the HCUK conference in spring 2016, including a workshop on university-business interactions. The project will allow us to develop an informed, inclusive view on what business engagement looks like within the chemical science sector. With a greater understanding, both HCUK and the Royal Society of Chemistry can then further champion and support university-business collaboration.

We are seeking as much information on university-business engagement as possible and would welcome any stories of your own experiences of collaboration between academia and industry, whether your engagement has been as an academic or as an industry partner. For more information or to give feedback, please email [UBESurvey@rsc.org](mailto:UBESurvey@rsc.org).



**Tom Welton** is Dean of the Faculty of Natural Sciences at Imperial College, a member of Royal Society of Chemistry Council and leads the Heads of Chemistry UK group.

"Relationships with people working in industry can sharpen academics' and students' entrepreneurial skills and commercial awareness ..."

# Diary

Your guide to all important events

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## NOTICES



80 years as a member – see p19.

## Further information

To find out more about any event on this page, see [www.rsc.org/events](http://www.rsc.org/events)

Call +44 (0) 1223 43 2254/2380

Or email [events@rsc.org](mailto:events@rsc.org)

## RSC conferences

Faraday Discussion

### Liquid Salts for Energy and Materials

11-13 May 2016  
Ningbo, China

**Poster abstract submission deadline – 29 February 2016**

This Faraday Discussion focuses on energy and materials in relation to the understanding and applications of liquid salts, particularly at elevated temperatures. It is a unique opportunity for scientists and engineers from academia and industry to present, discuss and debate recent discoveries and future developments.

To be considered for an oral presentation and associated published paper, submit your abstract on one of our four key themes:

- benefits to energy efficiency and environmental impact;
- improvements of energy conversion and storage;
- developments for nuclear reactors and spent fuels processing; and
- advancement in knowledge of phenomena and processes.

Join us in Ningbo, May 2016 – secure your place by registering online now.

<http://rsc.li/liquidsalts-2016>



Faraday Discussion

### Nanoparticles with Morphological and Functional Anisotropy

4-6 July 2016  
Glasgow, UK

**Full paper submission deadline: 15 February 2016**

Anisotropy at the nanoscale is a critical factor in the mechanical, optical, electronic and magnetic properties of nanoparticles. This Faraday Discussion brings together some of the most active and recognised chemists, physicists, theoreticians, engineers and biomedical researchers to discuss the use of anisotropy as a tool to design, organise and provide special functions to nanoparticles of various kinds.

Submit your abstract now if you want to be considered for an oral presentation and the chance to showcase your research in one of four key themes:

- anisotropic nanoparticles;
- janus and patchy particles;
- particles at interfaces; and
- biomedical applications.

**Registration is now open.** Join us in Glasgow, July 2016 – secure your place by registering online now.

<http://rsc.li/anisotropy-fd2016>



## ANNOUNCING



### Carbon Capture and Storage (Faraday Discussion)

18-20 July 2016

Location

Sheffield, UK

<http://rsc.li/ccs-fd2016>

## DATES AND DEADLINES

### Challenges in Organic Chemistry (ISACS19)

20-23 March 2016

Irvine, USA

Final registration – 22 February 2016

<http://rsc.li/isacs19>

### Advanced Vibrational Spectroscopy for Biomedical Applications

21-23 March 2016

Cambridge, UK

Final registration deadline – 22 February 2016

<http://rsc.li/vibspec-fd2016>

### Designing New Heterogeneous Catalysts

4-6 April 2016

London, UK

Final registration deadline – 7 March 2016

<http://rsc.li/catalysis-fd2016>

### Chemistry in the Urban Atmosphere (Faraday Discussion)

6-8 April 2016

London, UK

Final registration deadline – 7 March 2016

<http://rsc.li/atmosphere-fd2016>

# Events

## Further information

The RSC News Diary this month lists Royal Society of Chemistry events from February to March 2016 that are held on our conference database. Further details on any of these meetings can be obtained from the named contact or from our conference website at [www.rsc.org/events](http://www.rsc.org/events)

You can search events by name, date or keywords and have the option to browse by location, subject area and event type.

## EASTERN

### Essex Section

#### Annual General Meeting

16 March  
Brentwood School  
**Contact Colin Ward**  
+44 (0)1375 407361  
[colinward@blueyonder.co.uk](mailto:colinward@blueyonder.co.uk)

### Other Events

#### Biological and Medicinal Chemistry Sector 5th RSC/SCI Symposium on Ion Channels as Therapeutic Targets

14–15 March  
The Wellcome Trust, Hinxton, Cambridge  
Ion Channels are important targets for therapeutic intervention due to their extensive roles in human physiology and the pathophysiology of disease. Many successful drugs targeting ion channels have been discovered for diseases such as hypertension, epilepsy and chronic neuropathic pain, but few were rationally designed until recently. Advances aiding design of new therapeutics include: refinement of high-throughput electrophysiology platforms; the genetic association of ion channel targets with human disease providing validated targets; the successful determination of the 3-dimensional structures of several ion channels; and the demonstration of antibodies capable of specifically modulating channel subtypes. The conference will be organised around a series of plenary lectures and seminars delivered by international leaders in ion channel science and drug discovery from academia and industry. In addition there will be a poster session, an exhibition and opportunities for informal networking.

**Contact Maggi Churchouse**  
+44 (0)1359 221004  
[maggi@maggichurchousevents.co.uk](mailto:maggi@maggichurchousevents.co.uk)

#### Biological and Medicinal Chemistry Sector/Speciality Chemicals Sector

#### SCI/RSC Continuous Flow Technology III

14–16 March  
Robinson College, Cambridge  
The meeting is directed at individuals with an interest in what flow is and how it may benefit them or their organisations (covering aspects from microfluidics to production scale manufacture) and those people already involved in the area (by highlighting the latest developments and cutting edge research to further stimulate appetites). This meeting will be of particular interest to synthetic chemists, process development chemists, chemical engineers and plant managers operating in pharmaceuticals, agrochemicals and the fine and speciality chemicals industries. To reflect the mix of interests and applications across the chemistry community, the symposium is structured as two back to back events with options for attending two consecutive days or all three.

**Contact Patricia Cornell**  
+44 (0)20 75981561  
[patricia.cornell@soci.org](mailto:patricia.cornell@soci.org)

#### Faraday Division Advanced Vibrational Spectroscopy for Biomedical Applications: Faraday Discussion

21–23 March  
St Catharine's College, Cambridge  
This discussion meeting aims to bring together scientists involved at the cutting edge of vibrational spectroscopy and development of clinically relevant diagnostic tools to discuss the current challenges and emerging opportunities.

**Contact RSC Events Team**  
+44 (0)1223 434048  
[events@rsc.org](mailto:events@rsc.org)

## Teacher Training Scholarships

Inspire the next generation  
Find out if you qualify

 <http://rsc.li/scholarships-teach>



## RSC Organic Division South Eastern Regional Meeting

23 March  
University of East Anglia  
Half-day symposium with organic chemistry talks from members of the South East Region, a keynote lecture from the 2015 recipient of the RSC Harrison-Meldola Memorial Prize: Dr Robert Paton (Oxford), and poster presentations.  
**Contact Maria Paz Munoz**  
+44 (0)1603 597157  
[m.munoz-herranz@uea.ac.uk](mailto:m.munoz-herranz@uea.ac.uk)

## INTERNATIONAL

### Nigeria

#### RSC–P&G Symposium: Chemical Sciences and Technology Enabling Growth in Africa

11–12 February  
Eko Hotel, Lagos, Nigeria  
We aim to continue to build strong collaborative partnerships between the PACN and the RSC with industry partners like P&G, along with governmental partners such as the Science and Innovation Network of the British Embassy in Nigeria. The scientific program will feature a mixture of international and African thought leaders and speakers, and there will be a poster session for researchers to share their latest work. In 2016 we aim to continue to boost knowledge and skills in research and publishing, while empowering African students through opportunities such as internships. We also aim to engage local entrepreneurs and provide a forum for cross sharing and learning, in the form of an entrepreneurs business forum.  
**Contact RSC Events Team**  
+44 (0)1223 434048  
[events@rsc.org](mailto:events@rsc.org)

### USA

#### ISACS19: Challenges in Organic Chemistry

20–23 March  
University of California, Irvine, USA  
The conference will bring together world leading experts in the field of organic chemistry and synthesis and will provide an outstanding programme, complemented by extensive poster sessions forming a key part of the symposium. There will be questions after each talk and delegates will be exposed to new areas of research, which will encourage the cross fertilization of ideas.

Contact RSC Events Team  
+44 (0)1223 434048  
[events@rsc.org](mailto:events@rsc.org)

## IRELAND

### Northern Ireland Section

#### From Rationing to Obesity

18 February  
Somme Museum, Newtownards  
Is it romanticism to believe that diet during the Wars was more healthy than today's plenteous supply of palatable, convenient and clean food? Professor Gibney from the Institute of Food Hygiene and Technology will address this question and tell us how modern nutrition science can help us with current health concerns. There is no charge for attendance and it may be possible to arrange a tour of the Somme Museum prior to the lecture.

**Contact Dermot Hanna**  
+44 (0)7894 309840  
[hughdiarmaid@btinternet.com](mailto:hughdiarmaid@btinternet.com)

## MIDLANDS

### East Midlands Section

#### Annual General Meeting

10 March  
British Geological Survey, Keyworth  
Members are invited to a tour of the British Geological Survey laboratory facilities, followed by the AGM, Undergraduate Practical Prize Presentations and a lecture by Dr Michael Watts, Head of Inorganic Geochemistry in the Centre for Environmental Geochemistry.  
**Contact Sarah Hill**  
+44 (0)7718 191115  
[rscemsecretary@gmail.com](mailto:rscemsecretary@gmail.com)

### Other Events

#### Midlands Regional Meeting

4 February  
Science Centre, Stoke Sixth Form College  
The meeting is open to all those involved in our Boards, Committees and our Representatives and members. The meetings are chaired by a member of council, and start with presentations from the Royal Society of Chemistry, on our strategy and events and activities happening in your region. The presentations are then followed

## EVENTS

by an opportunity to network with other members and staff over a buffet and drinks.

### Contact RSC Member Networks Team

+44 (0)1223 432274  
networks@rsc.org

Education Division – Midlands

### Chirality, Smell, Drugs and Chemistry

9 February

University of Birmingham  
A lecture for Sixth Form pupils. Tickets for the event are free of charge but registration is required.

### Contact N Briggs

+44 (0)1827 311205  
briggswmctc@btinternet.com

Education Division – Midlands

### Chemical Engineering of Chocolate Creme Eggs

15 March

University of Birmingham  
The secrets of the creme egg revealed. A lecture for Sixth Form pupils. Tickets for the event are free of charge but registration is required.

### Contact N Briggs

+44 (0)1827 311205  
briggswmctc@btinternet.com

Dalton Division – Dalton 2016

29–31 March

University of Warwick  
A meeting bringing together researchers from the breadth of inorganic chemistry to this conference organised by the Dalton Division and associated Interest Groups in the 250th anniversary year of John Dalton's birth. With a number of UK and internationally based plenary lecturers and RSC Prize Winners.

### Contact Richard Walker RSC

+44 (0)1223 432234  
walkerr@rsc.org

## NORTH EAST

### Other Events

### North East Regional Meeting

3 March

Mercure Hull Royal Hotel, Hull  
The meeting is open to all those involved in our Boards and Committees, and our Representatives and members. The meetings are chaired by a member of council, and start with presentations from the RSC, on our strategy and events and activities happening in your region. The presentations are then followed by an opportunity to network with other members and staff over a buffet and drinks.

### Contact RSC Member Networks Team

+44 (0)1223 432274  
networks@rsc.org

Biological and Medicinal Chemistry Sector

### The BMCS Mastering MedChem II: 2nd RSC–BMCS Symposium on Mastering Medicinal Chemistry

9 March

3M Buckley Innovation Centre, Huddersfield

In the main there are two types of drug discovery programmes: those that hit serious problems and those that are going to hit serious problems. The difference between success and failure is how we, as medicinal chemists, tackle and resolve the problems.

### Contact Maggi Churthouse

+44 (0)1359 221004  
maggi@maggichurthouseevents.co.uk

Analytical Division

### NMR Discussion Group Spring Meeting – In Situ Monitoring by NMR: What is it all About?

17 March

The University of York  
This one-day meeting will be of interest to NMR spectroscopists who are actively involved in either the development or application of NMR based in situ monitoring, and will be of particular value to spectroscopists who would like to learn more about the potential of the technique in this discipline. Equally, process chemists/engineers or molecular biologists may find the programme to be of interest. In addition to presentations from international leading practitioners of in situ monitoring by NMR, there will be an opportunity to meet the principal vendors of hardware and software. By implication, the meeting will allow insights with respect to the future direction of the technologies.

### Contact Stephen Byard

+44 (0)1665 608544  
stephen.byard@covance.com

## NORTH WEST

### Cumbria Local Section

### The Chemistry of Paper

25 February

The Chase Hotel, Whitehaven  
Talk given by Leslie Webb.

### Contact Kevin Webb

+44 (0)19467 79264  
kevin.j.webb@nnl.co.uk

### Annual General Meeting

24 March

The Chase Hotel, Whitehaven  
Review of the Section's activities over the previous year and an opportunity to become more involved. Followed by AGM.

### Contact Kevin Webb

+44 (0)19467 79264  
kevin.j.webb@nnl.co.uk

### Lancaster and District Section

### The Braer Oil Disaster: The Clean Up

9 February

Lancaster University  
AGM followed by a lecture.

### Contact Harry Clarke

+44 (0)1995 640003  
hclarke906@btinternet.com

### Liverpool Section

### Retired Members' Lunch

23 March

Catalyst Science Discovery Centre, Widnes

A presentation on the Mersey Gateway Project followed by a buffet lunch.

### Contact Dr Bob Lee

+44 (0)1513 347875  
drboblee@msn.com

### Other Events

### North West Regional Meeting

11 February

Bluecoat, Liverpool

The meeting is open to all those involved in our Boards and Committees, and our Representatives and members. The meetings are chaired by a member of council, and start with presentations from the RSC, on our strategy and events and activities happening in your region. The presentations are then followed by an opportunity to network with other members and staff over a buffet and drinks.

### Contact RSC Member Networks Team

+44 (0)1223 432274  
networks@rsc.org

Education Division – North West

### NW A-level Chemistry TeachMeet

17 March

Bolton School Boys' Division  
Discussions include practical work in the new specifications, Level 2 mathematics requirements topics new to the specifications and hard to teach.

### Contact Kristy Turner

KLt@boltonschool.org

## SCOTLAND

### Mid-Scotland Section

### The Stars are Ours!

19 February

Ineos Exhibition Centre, Grangemouth  
Through colourful historical anecdotes and science this talk leads from a lonely death in a cold stone tower over 400 years ago to the discovery of the ultimate energy source for humanity – the biggest payoff of all time. Hear stories of wealth and poverty, castles and dungeons, kings and princes, sailors and maidens, sea battles and Shakespeare, as we look back at the improbable, unpredictable path that gave us the Power of the Stars.

### Contact Mark Dennis

+44 (0)1324 494622

### Tayside Section

### Annual General Meeting

1 February

St Andrews Brewing Co, St Andrews

### Contact Daniel Dawson

+44 (0)1334 463865  
dmd7@st-andrews.ac.uk

### Other Events

### Analytical Division – Scottish Schools Analyst Competition 2016 (South Scotland Heat)

7 March

Edinburgh Conference Centre, Heriot-Watt University  
The Scottish Analytical Division of the RSC extends an invitation to schools to apply for a place in the 2016 contest. Places will be allocated on a first-come first-served basis. The competition is open to teams each made up of three pupils studying Higher Chemistry (normally in year 12/S5 or equivalent) and is designed to stimulate interest in analytical chemistry and to give school pupils a brief glimpse of university life.

**Contact Gillian MacKinnon**  
+44 (0)1355 270142  
Gillian.MacKinnon@glasgow.ac.uk

### Food Safety: Analytical, Toxicological and Regulatory Aspects

8 March

The University of Strathclyde, Technology and Innovation Centre  
A one-day meeting on current analytical and toxicological challenges in food safety.

**Contact Kate Jones**  
+44 (0)1298 218435  
kate.jones@hsl.gsi.gov.uk



### Analytical Division – Scottish Schools Analyst Competition 2016 (North Scotland Heat)

10 March

Robert Gordon University, Aberdeen

The competition is open to teams each made up of three pupils studying Higher Chemistry (normally in year 12/S5 or equivalent) and is designed to stimulate interest in analytical chemistry and to give school pupils a brief glimpse of university life. The competitors work as a team (each school may only field one team) to complete and report on three practical analytical chemistry experiments. The winners will each receive a small prize, the winning school will become holder of the RSC trophy and the winners will be invited to participate in the UK final in June 2016.

**Contact Eva Krupp**  
+44 (0)1224 272901  
e.krupp@abdn.ac.uk

### Scotland Regional Meeting

17 March

The Merchant's Hall, Edinburgh  
The meeting is open to all those involved in our Boards and Committees, and our Representatives and members. The meetings are chaired by a member of council, and start with presentations from the RSC, on our strategy and events and activities happening in your region. The presentations are then followed by an opportunity to network with other members and staff over a buffet and drinks.

**Contact RSC Member Networks Team**  
+44 (0)1223 432274  
networks@rsc.org

## SOUTH EAST

### Chilterns and Middlesex Section

#### Retired Members' Visit to Spencer House, Followed by Lunch in Burlington House

15 February, 11:30-14:30

Spencer House, London  
The house is one of the few remaining private palaces in London and is a great showcase of sophisticated 18th century aristocratic taste. The guided tour will be followed by a lunch with wine in Burlington House.

**Contact Stephen Robinson**  
+44 (0)20 85467940  
stephenrobinson\_3@hotmail.com

### Thames Valley Section

#### Senior Members Pub Lunch

8 February

Houses of Parliament, London  
Tour of Houses of Parliament followed by lunch at a pub that was used by Clement Attlee and Winston Churchill.

**Contact John White**  
+44 (0)1491 872371  
john.869white@btinternet.com

### Other Events

#### An Introduction to Regulatory Affairs

3 February

The Royal Society of Chemistry, Burlington House, London  
Every company working in the chemical sciences must comply with the regulations that affect their business. The course gives you the knowledge you need to work with these regulations. You'll use that knowledge to improve efficiency, gain confidence within your specialist market and make sure that you know the full impact of the regulatory framework on your business. It will be especially relevant if you work in a role that needs regulatory compliance knowledge day-to-day, for example quality assurance, health and safety, formulation or environmental monitoring.

**Contact RSC Industry Team**  
+44 (0)1223 432519  
enterpriseplus@rsc.org

#### Public Lecture – Explosives: the Past, Present and Future

4 February

The Royal Society of Chemistry, Burlington House, London  
Join Professor Jackie Akhavan (Professor of explosives chemistry at Cranfield University) as she introduces the various types of explosions and explains the conditions under which a chemical reaction becomes an explosive. Jackie will explore the inputs to initiate the explosive and the subsequent outputs. In looking at the past, she will cover explosive mixtures and introduce the concept of molecular explosives, which are used today. Looking forward, she will highlight current research activities. This event is free to attend, however booking is required.

**Contact RSC Events**  
events@rsc.org

### Joint Pharmaceutical Analysis Group

#### Solving Problems with Spectral Imaging

4 February

The Royal Society of Chemistry, Burlington House, London  
Hyperspectral spectral imaging brings great advantages to pharmaceutical analysis by combining the best in spectroscopy and imaging. This symposium brings leading experts to give solutions to the big issues, top tips, best practice and current developments.

**Contact JPAG Events**  
events@jpgag.org

### Biological and Medicinal Chemistry Sector

#### 3rd New Perspectives in DMPK: The Impact of Drug Design

8–9 February

The Royal Society of Chemistry, Burlington House, London  
This meeting will provide a forum for medicinal chemists, drug discovery scientists, pharmacologists and toxicologists – from academia and industry, for the exchange of ideas between principal members of the DMPK research community. The agenda will include keynote talks from industry leaders, who will frame specific topic discussions with more global views of how DMPK can bring value to the process of informing drug discovery. The programme will consist of invited oral contributions, short talk presentations and poster presentations.

**Contact Maggi Churchouse**  
+44 (0)1359 221004

### Energy Sector

#### Early Career Energy Sector Chemists Symposium

16 February

The Royal Society of Chemistry, Burlington House, London  
All chemists working in the energy area in the early stages of their careers are invited to attend. Abstracts are invited from younger members from academia and industry for a competition for posters to be displayed during this event. If you would like to book a slot with the RSC Careers Service please email [careers@rsc.org](mailto:careers@rsc.org).

**Contact Paul Brack**  
+44 (0)1509 263171  
p.brack@lboro.ac.uk

### The 3rd Organic Chemistry Frontiers International Symposium

1 March

University of Oxford  
The symposium will feature lectures from Organic Chemistry Frontiers Editorial Board members and invited local speakers, who are leading researchers in the field of organic chemistry. The symposium this year is co-organized by the RSC and Professor Stuart Conway from the University of Oxford. The event is free to attend.

**Contact Dr Wenjun Liu RSC**  
orgchemfrontiersed@rsc.org

### Applied Catalysis Group

#### Perspectives on Applied Catalyst Characterization

8 March

The Royal Society of Chemistry, Burlington House, London  
Catalyst characterization is an essential and strategically important area of academic and industrial catalyst development, a field of huge importance to addressing many of today's big global challenges. The symposium will bring together academic and industrial speakers to share exciting developments and examples of applying catalyst characterization tools to real world catalysts as well as their perspectives on the future of this stimulating field. The event will include 8 perspective talks from a mix of industrial and academic invited speakers, as well as the opportunity to network and for students or younger members to present posters.

**Contact Simon Beaumont**  
+44 (0)191 3342598  
ACG.Event@durham.ac.uk

### Marketing Group

#### Pollutants, Human Health and the Environment: A Risk Based Approach

10 March

The Royal Society of Chemistry, Burlington House, London  
Dr Nikolaos Voulvoulis, an international expert in water and environmental management and Reader in Environmental Technology at Imperial College London, will provide an up-to-date overview of environmental pollutants that are of current concern to human health. The talk will also include insight into the various risk assessment frameworks and regulations covering the main pollutants.

**Contact Tilele Stevens**  
tilele.ts@gmail.com

## EVENTS

### Joint Pharmaceutical Analysis Group

#### The Use of in Silico Modelling in Drug Development

17 March

The Royal Society of Chemistry, Burlington House, London  
In silico tools can rapidly profile large data sets without the need for analytical testing. It is this predictivity, allied to the significant time and resource savings, that makes these tools so attractive within pharmaceutical research and development. Within discovery there has been significant effort to develop more 'drug like' molecules. This involves enhancing both the physicochemical and biopharmaceutical properties. In silico tools have been widely used to enhance solubility and permeability. PBPK modelling also supports formulation efforts to optimise in vivo exposure. This symposium brings leading experts to give solutions to the big issues, advice, best practice and current developments.

**Contact RSC Events**  
events@jpag.org

#### Chemistry World Science Communication Competition Live Final

21 March

The Royal Institution, London  
Come and hear the finalists of the 'Chemistry World' science communication competition give their presentations to a live audience and panel of expert judges. An opening talk will be given by author Bill Bryson, who will lead the judging panel.

**Contact Philippa Matthews RSC**  
+44 (0)1223 432203  
matthewsp@rsc.org

### Environmental Chemistry Group

#### Geoengineering the Climate

22 March

The Royal Society of Chemistry, Burlington House, London  
A one-day symposium organised by the Environmental Chemistry Group of the Royal Society of Chemistry. The 2016 ECG Distinguished Guest Lecture will be provided by Professor Alan Robock (Rutgers University).  
**Contact Rowena Fletcher-Wood**  
+44 (0)7708 824013  
ecg.dgl@gmail.com

### SOUTH WEST

#### Mid-Southern Counties Section

#### Lunch for Retired Members and Their Guests

15 March

The Three Lions Restaurant, Stuckton  
The cost of the 3 course lunch is £26.00 for members and their partners and will include wine and a glass of sherry or soft drink. Non-members are welcome to attend and the cost will be £32 per head. Those wishing to attend are asked to notify the organiser by 17th February.

**Contact Ian Anderson**  
ian\_anderson@consult\_igma.co.uk

### Other Events

#### South West Regional Meeting

25 February

Grand Harbour Hotel, Southampton  
The meeting is open to all those involved in our Boards and Committees, and our Representatives and members.

The meetings are chaired by a member of council, and start with presentations from the RSC, on our strategy and events and activities happening in your region. The presentations are then followed by an opportunity to network with other members and staff over a buffet and drinks.

**Contact RSC Member Networks Team**  
+44 (0)1223 432274  
networks@rsc.org

### WALES

#### South East Wales Section

#### Norman Heatley Award Lecture

14 March

Cardiff University, School of Chemistry  
The lecture will be given by Prof Mark Wallace. No booking required.

**Contact James Redman**  
+44 (0)29 20876273  
redmanje@cardiff.ac.uk

### Other Events

#### Inspire to Teach: Chemistry Teaching Information Event

4 February

School of Chemistry, Cardiff University  
Thinking about teaching chemistry? Not sure what's involved, or how to go about it? Come along to our Inspire to Teach event to find out all you need to know about what it's really like to teach chemistry; how to apply for teacher training; what teacher training courses involve; scholarships and bursaries for trainee teachers; and the support the Royal Society of Chemistry offers teachers.

The event will include short presentations by tutors from teacher training courses, followed by a networking lunch with the opportunity to chat with the tutors, current trainee chemistry teachers, teacher training mentors and a representative from the RSC.

**Contact Dayna Mason RSC**  
masondn@cardiff.ac.uk

#### Inspire to Teach

9 February

Bangor University, The Chem Tower  
Whether you're an undergraduate or you're interested in a career change, come along to get information on scholarships, opportunities to improve your CV, and a chance to meet your local tutor. There will be catering, so grab some food, have a chat and get support for your career in teaching!

**Contact Delwen de Jong RSC**  
+44 (0)1248 382759  
de-jong@bangor.ac.uk

#### Wales Regional Meeting

10 March

Ramada Plaza, Wrexham  
The meeting is open to all those involved in our Boards, Committees and our Representatives and members. The meetings are chaired by a member of council, and start with presentations from the RSC, on our strategy and events and activities happening in your region. The presentations are then followed by an opportunity to network with other members and staff over a buffet and drinks.

**Contact RSC Member Networks Team**  
+44 (0)1223 432274  
networks@rsc.org

## Emerging Technologies Competition is open for entries

Would you like ongoing, tailored support from a multinational company? To raise your profile through promotional opportunities and receive up to £20,000 to develop your technology?

In the last three years, we've seen technologies with powerful potential become outright success stories as a result of entering the competition.

We're looking for disruptive ideas in the fields of

**Health & wellbeing**      **Food & water**  
**Energy & environment**      **Materials**

Enter before 14 March 2016 at [rsc.li/EmTech16](http://rsc.li/EmTech16)

If your idea is shortlisted, we will invite you to present to a panel of expert judges at the competition final, taking place at Chemistry Means Business 2016.

Pitch and business training: 15-16 June 2016

**#RSCEmergingTech**



# Notices

## Celebrating 80 years as part of our community

Pictured is Dr Fred T Hamblin CBE CCHEM FRSC, who at the age of 101 has recently received a certificate celebrating his 80th year as a member of the Royal Society of Chemistry and its predecessor, the Royal Institute of Chemistry.

RSC News contacted Dr Hamblin to ask him what it means to him to remain part of our community. In reply, Fred gave us a fascinating insight into his long life and career. He explains: "I joined the Royal Institute of Chemistry in 1935 soon after I graduated with a 1st class honours degree in Chemistry from the University of Bristol. I subsequently obtained my PhD for work in the use of artificial radioactivity to monitor chemical reactions (including building one of the first Geiger counters and artificial neutron sources in the country).

"After leaving university, I joined ICI Plastics Research department until the end of the war – developing the first large sheets of Perspex that were later used in aircrafts. I then became engaged in setting up plastic companies with ICI know how and selling plastic throughout the world for, among others, the new applications of packaging and signage.

"In 1963, I became Head of ICI Germany as well as Chairman and Managing Director of ICI Switzerland. In 1970 I returned to England to reorganise the British Plastics Federation and later acted as consultant to a number of companies.

"I finally retired when I was 90, and still find the information contained in the RSC journals of great value in keeping me up to date, especially with the speed of development in the chemical industry over my lifetime."

David Barr, our head of membership, says: "I would like to congratulate Dr Hamblin on his incredible 80 years as a member of our community.

"It is a pleasure both to be able to mark such a milestone and to see that Fred is still so engaged with the Royal Society of Chemistry and developments in the chemical sciences."



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## Top Chemistry A Level Student in Northern Ireland

The Northern Ireland Local Section award a prize each year to the student who achieves top marks in Chemistry at A-Level. The award this year was given to Garry Mallett from St Columb's College in Derry.

Past alumni of St Columb's include Seamus Heaney, Martin O'Neill and Brian Friel. Garry, who received his award of a cheque, certificate and a bag of RSC Goodies, is currently studying medicine at Oxford University.

Pictured below are Dermot Hanna, Paul Stevenson, Trudy McMurray (NI Local Section), Garry Mallett, Elaine Lennox (NI Local Section) and Anne-Marie Duffy of Council for the Curriculum, Examinations and Assessment.



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## EuChEMs chemistry congress

26 Topic Plenary Speakers have now been announced for the sixth EuChEMs congress, which will be taking place in Seville from 11-14 September this year. They are some of the most prestigious minds in chemistry from all over the world.

See <http://euchems-seville2016.eu> for more information.

## Student member engagement quiz winners

We've now picked the lucky winners from our latest quiz, which went out in December, fittingly with the theme of Christmas.

Our winners this time are:

- Nessa Carson, University of Illinois at Urbana-Champaign, USA
- Craig Wilson, University of Liverpool, UK
- Brian Shaw, University of Edinburgh, UK

Congratulations to all of them – they each win a £20 Amazon voucher.

## Royal Society of Chemistry to award Chartered Environmentalist

The Royal Society of Chemistry has gained a licence from the Society for the Environment (SocEnv) to award Chartered Environmentalist (CEnv) status. This professional qualification provides a respected benchmark for individuals in all sectors working to mitigate and solve environmental challenges. Becoming a CEnv demonstrates commitment to environmental best practice and more than 7,000 people have already gained the status through other licensed professional bodies.

We will begin accepting applications in May 2016 and, with over 10% of our 54,000 members being part of our Environment, Sustainability and Energy Division (ESED), we anticipate strong interest.

Our director of membership and external affairs, Clare Viney, explains that: "The chemical sciences are inextricably linked to the environment, especially in vital sectors such as agrochemicals and the water industry. Over the years, businesses both large and small have made commitments to protecting the environment, meaning more chemical scientists have an environmental focus to their role.

"There are also growing numbers of academic researchers and educators specialising in sustainability within the chemical sciences. We want to recognise and highlight relevant expertise and commitment by awarding Chartered Environmentalist to our members and we're also excited by the prospect of working with the Society for the Environment to develop environmental policies."

CEnv joins the existing portfolio of chartered designations we offer – Chartered Chemist (CChem), Chartered Scientist (CSci) and Chartered Science Teacher (CSciTeach) – giving a further option for members in roles where the environment and sustainability are a key focus of their work.

For more details contact [membership@rsc.org](mailto:membership@rsc.org)



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## Conference on exposure to environmental hazards

Our Pakistan local section recently organised a conference highlighting children's health and environment, as well as exposure to hazards, such as neurotoxicity of the chemicals in E-waste (e.g. obsolete electrical products). Delegates also heard about a cross-sectional survey concerning feeding patterns and predictions of severe malnutrition in infants belonging to poor economic areas of Pakistan.

According to the World Health Organization, in 2015 almost six million children below five years of age died, many due to preventable diseases. The under-five mortality rate in low-income countries was 76 deaths per 1000 live births – about 11 times the average rate in high-income countries.

The conference also looked at global threats posed by climate change, from infectious diseases to loss of biodiversity, degradation of Eco-systems, desertification and famine. In those scenarios, children suffer from inadequate food supplies and lack access to clean water. Malaria, typhoid, stomach disorders and diarrhoea are very common amongst children due to unhygienic environments.

During discussions various types of indoor / outdoor pollution were thoroughly elaborated in terms of their health impacts and the measures to be adopted to mitigate their ill effects.

## Our Inclusion and Diversity Committee needs you!

We are very pleased to say that from July 2016 there will be two vacancies to serve on our Inclusion and Diversity Committee, a committee whose members have responsibility for driving and monitoring progress in our diversity policies, procedures and activities.

We are aiming for our committee to represent the broad diversity of our membership, and for individuals who have an interest in promoting and improving inclusion and diversity in chemistry and the chemical sciences.

If you are interested in getting involved please email [diversity@rsc.org](mailto:diversity@rsc.org) and for more information on the work of the committee, chaired by our former president, Professor Lesley Yellowlees, simply search for 'Inclusion and Diversity Committee' on the [rsc.org](http://rsc.org) website.



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## Chemistry of Dragon Fire

Over 200 children and adults attended the Chemistry of Dragon Fire at Ulster University on Friday 11 December.

Scientific Sue McGrath astounded the audience explaining the chemistry of 'dragon breath', which one minute can be fiery and the next a cold fog. She also explained the process of dragon digestion that delivers the gases responsible for fire and cold.

Our Northern Ireland Section organised the event in collaboration with the School of Engineering at Ulster University.



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## Vacancies and Elections

We would like the members serving on our governance bodies to represent the breadth and diversity of the chemical sciences.

We have a number of vacancies on our boards and divisions. The closing date for nominations for these positions is 4 March 2016. Further information on our vacancies can be found at <http://rsc.li/vacancies-elections>

If nominations exceed vacancies, Mi-Voice will manage the election, counting the electronic and postal votes and reporting the results back to us.

Our 2016 elections will be conducted by an electronic service only. If you would like to update your email address, please contact [membership@rsc.org](mailto:membership@rsc.org) before 18 March.

For our members who wish to continue casting their vote by post, Mi-Voice, on our behalf, have set up a request telephone line +44 (0)2380 762877 and website link [www.rscpostalballotrequest.org](http://www.rscpostalballotrequest.org) to enable you to request a postal ballot paper to be sent. Both are available until 22 April 2016.

Members to be eligible to vote in the elections are required to have paid their 2016 membership subscription by 1 April and be subscribed to any of the divisions they wish to vote in.

## Save the date

Our annual flagship event, the Royal Society of Chemistry Summer Party, will be held on Thursday 21 July 2016, from 7.30 to 10.00pm at the Royal Academy of Arts, at Burlington House in London. Look out for more details in *RSC News* later in the year.

## Correction

Due to an administration error, we incorrectly listed Mr Reginald Thomas Darge FRSC in the deaths section of December's issue of *RSC News*.

We have spoken to Mr Darge and sincerely apologised for the error, and put processes in place to avoid a similar error in the future.

# Admissions January 2016

## Fellow (FRSC)

Mohamad Alazab Alnaqbi, Hala Al-Easa, Onditi Ouma Anam, Matthew David Barfield, Sanjay Batra, Rao Bezwada, Russell Binions, Paul Brennan, James Bruce, John A Capobianco, Maurizio Casarin, Edward Cleator, Christopher Cooper, Gareth Crapper, Abhaya Datye, Anthony Davies, Ian Davies, Wagner De Almeida, Heloise De Oliveira Pastore, Paul Desmond, Stephen Mark Dew, Gregory Doughty, Christopher Dudfield, Christopher Edge, Pedro Fardim, Joerg Feldmann, Edward Fewkes, Neil Filkin, Paul Findlay, Steve Foots, Franz Geiger, Ryan Gilmour, Yury Gogotsi, Debabrata Goswami, Aldo Guiducci, Michael Guiver, Andrew Hector, Conor Hogan, Harry Hoster, Christopher Howle, Hanmin Huang, Jurriaan Huskens, Yasuhiro Iwasawa, Anthony Jackson, Hongrui Jiang, Zhongyi Jiang, Shuqiang Jiao, Andrew Joiner, Simon Jones, Glenn Jones, Huangxian Ju, Brendan John Keely, Ali Khademhosseini, Nigel King, David Kingston, Saulius Klimasauskas, Janusz Kozinski, Fernando Langa, James Ian Langridge, Simon Lawson, Christophe Len, Janusz Lewinski, David Lewis, Rui Hai Liu, Fraser MacMillan, Hiromitsu Maeda, Hamisi Masanja Malebo, Gopal Mallavarapu, Arumugam Manthiram, Karen Elaine Marshall, Anthony P McHale, Steven McIntosh, Purnachandrashekar Movva, Joe Muscat, Graham Myatt, Oscar Navarro, Mark Omotola Afolayan Oladipo, Suzana Pereira Nunes, Jim Philp, Shirley Price, Michael Pritchett, Chandra Shekhar Pundir, Munish Puri, John Pyle, Shizhang Qiao, Robert Raja, Keith Rodgers, David Roper, Alberto Saiani, Robert Scoffin, Ayusman Sen, Tapas Sen, Rakesh Sharma, Thomas Paul Sheehan, Jianlin Shi, Ragahavan B Sunoj, Marcel Swart, Mauricio Terrones, Peter Thompson, Anne Margaret Tinsley-Bown, Deniz Uner, Owen Wallace, Jinfang Wang, Lianzhou Wang, Xin Wang, Xun Wang, Hui Wei, Bayden Wood, Jianliang Xiao, Lixin Xiao, Yingjian Xu, Michael Zaworotko, Joe Zhao.

## Member (MRSC)

Saber Abdel Hamid, Fatwa Abdi, Khadijat Abdulwahab, Osama Abou-Zied, Hanaa Abuzeid, Alison Ackroyd, Aaron Acton, Heather Adams, Joanne Addison, Rajesh Adhikari, Louis Adriaenssens, Pedro Aguiar, Emmanuel Agyeman-Duah, Christophe Aissa, Richard Aitken, David Akinosho, Haider A J Al Lawati, Bayan Al-Dabbagh, Hassan Refat Hassan Ali, Md Eaqub Ali, Mansoura Ali Abd El Maksoud, Mohammed Alkattan, Mohammed Almeetani, Nnamdi Amatobi, Susmitha Ambadipudi, Yann Aminot, Athina Anastasaki, Sesugh Ande, Mohammad Ansari, Tariq Aqeel, Ahmad Zaharin Aris, Stelliios Arseniyadis, Gary Astill, Bamprasad Bag, Mainak Banerjee, Nirjhar bar, Paul Barton, Victoria Barton, Paula Sarah Battersby, Matthew Bennett, Helen M Betts, Sean Bew, Sunita Bhagat, Maninder Bhamra, Pranabes Bhattacharyya, Norris Bingham, Alexander Bissember, Lisa Helen Blair, Alcindor Bonamy, Amadeu Bonet, Julie Boothby, Dorota Boufal, Damion Box, Jack Branch, Josephine Brannon, Claire Brechin, Paul Brooks, Asma Buanz, Alex John Bunn, Roland Werner Burlit, Nicole Burmeister, Charlene Butler, Katherine Butler, Donna Cahill, Ian Calderwood, Fiona Campbell, Ana Campo Rodrigo, Giacomo Canciani, Gillian Carse, Benjamin Kenneth John Carter, Christopher Cassidy, Celia Castaneda Rios, Samantha Catarelli, Indranil Chakraborty, Chee Yooi Chan, Pauline Chan, Andy Mike Chapman, Amrita Chatterjee, Pushpalata Chaur, Ahmed Mubarak Chawdhri, Anitha Cheruvamkala Kumar, Jitkai Chin, Owen Svinurayi Chitsamatanga, John Churchley, Val Clay, Emma Clay, John Stewart Clifford, Scott Connors, Thea Cooper, Emma Irene Corcoran, Paul Coxon, Kari Crane, Mathew Creese, Fabio Cucinotta, Chaohua Cui, Laura Daubney, Caroline Davies, Mekibib Dawit, Riza Dervisoglu, Tania Dey, Ranjan Dey, Benjamin Dobson, Sarah Donnelly, Shishan Dou, Richard Doveston, Marijana Dragosavac, Gordon William Driver,

## ADMISSIONS

Anna Duch, Sri Maha Vishnu Dunaboyina, Jamie Durrani, Sumitra Duvvuri, Aneta Dwojacka, George Easdown, RuAngelie EdradaEbel, Peter William Edwards, Felicia Ndidi Ejiah, Marwa El-Hussieny Awad, Heba ElMaghrabi, Doina Raluca Enachi, Chern Chiet Eng, Jorge Escorihuela, Teresa Esteves, Alexander Neil Fairhead, Rawil Fakhrullin, Francesco Falcioni, Tristan Farrow, Amos Fatokun, Foestar Cajetan Fernandes, James Lyman Feron, Katie-Louise Finney, Bright Makafui Foli, Stephanie Foltran, Aline Fornear, Matthew Forster, Victoria Frankland, Raluca Maria Fratila, Gitti Frey, Anna Fryszkowska, Jin Geng, Abhijit Ghosh, Latifa Giaffar, Rebecca Giesecking, Nicholas Gilmour, Cristina Giordano, Amanda Jane Gisby, John P Graham, Katie Green, Yaser Elhanafy Mohamed Greish, John Griffin, Daniel Griffin, Gregorio Guisado Barrios, Stefan Guldin, Jody Haddow, Rachael Hall, John Hardy, Stephen Harrison, Sascha Hartmann, Robert Hartshorne, Michael Harvey, Elizabeth Hassall, Paul Hastings, Brianna Heazlewood, Hassan Hefni, Chitrakara Hegde, Patric Helbig, Sarah Hendley, Hapukotuwe Chanaka Herath, Christopher Herron, Adam Hilderley, Ulrich Hintermair, Roger Hiorns, Helen Hogg, Yaovi Holade, Katherine Hollywood, L Jaye Hopkins, Chris Huener, Alan Hughes, Michael Humphreys, Nicolae Hurduc, Jenny Hurst, Yasmin Syed Hussain, Shahidul Islam, Poobalasuntharam Iyngaran, Cameron Jackson, Matthew Jackson, Monika Jain, Agata Jarosz, Alice Jensen, Mohammed Jiva, Jamie Johnson, Jennifer Jones, Christopher Jones, Rosemary Jones, Rachel Kahan, Jegatheepan Kanapathipillai, Natascha Kappeler, Radha Karamched, Phaneendrasai Karri, Daniel Keddie, Oscar Kelly, Gurprit Khanba, Emad Khudaish, Gordon Kidd, Denis Kiely, Samuel Kilsby, Hyun Kyung Kim, Callum Kirk, Paul Kirkman, Piotr Kleszyk, Jordan Knapp, John Knight, Wei Kong, Radhika Konigari, Santosh Kumar, Casper Kunstmann-Olsen, Shiva Kumar Kyasa, Megan Lake, Alexandra Lamacraft, Garry Laverty, Richard Lidster, Chih-Wei Lin, Tao Liu, Christian Lorenz, Yuexiang Lu, Konstantin Luzyanin, Antonios Lygidakis, Tianyi Ma, Roddie MacDonald, Ronnie MacLean, Richard Malpass-Evans, Hayley Manners, Mona Mansour, Daisy Martin, Jaime Martin Perez, Sayed Marzouk, Ashit Mazumder, Daniel McArthur, Craig McCaffrey, Margaret Mccaul, Stewart McCutcheon, Anne Marie McDonnell, Paul McGonigal, Fiona McGuinness, Fiona-Mairead McKenna, Alison McMullan, Laura McNamee, Paul D McNaughter, Cristian Menzel, James Mercurio, Filippos Michopoulos, Alina Mihailova, Kevin Mills, Gavin Milne, Farouk Modather, Mubina Mohamed, Hamid Mohammad Pouran, Beth Moore, Wayne Gerald Morley, Daniel Mucs, Abdul Munam, Aaron Tapiwa Muringani, James Murray, Aditya Nayak, Phillip Nejmam, Sven Nerding, Kalyan Srinivas Nidadavole, Mahmoud Reyad Noor El Din, Simon Norris, Samuel Nwogu-Ubani, Charles Nyanyira, Sebusi Odisitse, John O'Donoghue, Daniel ODonovan, Arinze Ojinaka, Lois O'Leary, Anna Karolina Olesiejuk, Mayca Onega, Paul O'Neill, Rosalind Elizabeth Onions, Demetrius Onoufriou, Emmanuel Olajide Oyelude, Sasidhar Palagummi, David Palomas-Dona, Mrituanjay D Pandey, Katie Pardoe, Rusmi Chandrakant Parekh, Rajan Patel, Lucy Paton, Thomas Penfold, Qian Peng, Luigi Petrone, William Peveler, Andreas Phanopoulos, Ian Phillips, Oliver Pickup, Rebecca Pinnell, Michael Piperakis, Mateusz Pitak, Srinivasarao Popuri, Graeme Potts, Nicholas Power, Raquel Prado Garcia, Jamie Pratt, Christopher Pudney, David Pugh, Patricia Ragazzon, Mohammad Sharifur Rahman, Jahangir Rather, Andrew Reeder, Marc Reid, Jianwei Ren, Aurelie Rexach, Peter Richardson, Sarah Bethan Riddick, Charlotte Rivas, Alexander Joseph Robinson, David Rockett, Judith Rommel, Peter Roth, Christopher Rowse, Marina Ruths, Julie Rutter, Amit Sachdeva, Giacomo Saielli, Eric Salazar, Alaa Salem, Enrico Salvadori, Balaji Sambandam, Sergio Sanchez Segado, Nicky Savjani, Michela Scagnetti, Vincent Scalfani, David Scapens, Tara Schiller, Gita Sedghi, Rengaraj Selvaraj, Adama Maire Sesay, Lidong Shao, Dmitry Shchukin, Masaki Shimizu, Matthew Simmonds, Davy Sinnavee, Tom Sizmur, Catherine Skidmore, Jeni Sligo, Simon Smith, Gillian Smith, Scott Sneddon, Jill Sollenberger, Jun-Ling Song, Yaouba Souabou, Laura Anne Spawls, Carolyn Spencer Kerridge, Katherine Springham, Fotios Spyropoulos, Sudharsan Sridharan, Charlotte Still, Ailsa Stroud, Reynier Suardiaz, Yusran Sulaiman, Fakhreldin O Suliman, Rajkumar Sundaram, Jagadeesh Sure , Liz Belane Suveg, Imran Hasan Syed, Kiran Kumar Tadi, Bencan Tang, Muhammad Tauuab, Michael James Taylor, Ryan Telchadder, Gilberto Teobaldi, Julia Thomas, Stephen PP Thomas, Maria Thompson, Natalie Dawn Jayne Thompson, Charnsak Thongsornkleeb, Sergio Torija De Lucas, Troy K Townsend,

Andrew Tsados, Franklin Ifeanyi-chukwu Uba, Oguejiofo Theophilus Ujam, Daiki Umeyama, Miriam Unterlass, Alexander Vakurov, Andrea Valente, Mohammed Sameem Valliyengal, Alfredo Vargas, Linso Varghese, Laia Vila-Nadal, Cristina Vilela, Alexander Vorontsov, Gavin Wadsworth, CarrieAnn Wakerley, Olivia Walker, Thomas Walsh, Mengye Wang, Kelly Warner, Elizabeth Wasbrough, Elizabeth Welbourn, Ian Wilkes, Ben Wilkes, Hannah Wilson, Michael Wong, Raymond Wong, Weichang Xu, Quan Xu, Zhaoqi Yang, Paul Young, Waleed Zalloum, Raniero Zazzeroni, Qiqing Zhang, Ping Zhang, Wei Zhang, Tingting Zheng, Tao Zhou.

## Associate Member (AMRSC)

Noor Azura Zuhairah Abdul Aziz, Ahmad Shamsuddeen Abdullahi, Namila Abeysirigunawardena, Adedeji Adelodun, Segun Abidemi Aderibigbe, Caleb Mawuli Agbale, Fazia Adyani Ahmad Fuad, Oluwafemi Segun Aina, Iman Al Timimi, Matteo Aldeghi, Anna Aletti, Shams Ali, Naomi Alleyne, Faisal Almalki, Laila AlMaqbali, Mabkhoot Alsaari, Abdulrahman Alsimaree, Ekwu Ameh, Kasra Amini, Andrew William Anderson, Natalia Aniceto, Josephine Anuonye , Robert Arbon, Ana Maria Bago Rodriguez, Matthew Bain, Thisath Bandara Alahakoon, Susmita Bandyopadhyay, Jorge Banuls Ciscar, Gregory Barbante, Richard Barfoot, Axel Bartholome, Joseph Marshall Bateman, Daniel Beech, Jonathan Bell, Emily Benson, Gabriele Benzi, Enrico Berardo, Patrick Edward Bergstrom Mann, Karel Berka, Aaron Berko, Lucka Bibic, Cory Black, Simon Boothroyd, Mohanish Borana, Aleksandra Borisova, Andryj Borys-Smith, George Brade, Luis Branco, Ruair Brannigan, Laura Bravo Diaz, Tom Britten, John Brook, Gemma Brooke, Lee Brown, Nick Brownbill, Sandy Budi Hartono, Jean Charles Buffet, Henry Burch, Tom Burnham, Amy Burton, Susana Bustos Rodriguez, Samuel Buxton, Ricardo Callejo, Rafael Cano, Bo Cao, Davide Carta, Laura-Jane Carter, Luke Cartwright, Orlando Delfim Carvalho Couto De Azevedo, Ailis Chadwick, Anthea Chandi, Veeren Chauhan, Jiajia Cheng, Lucy Clark, Harriet Jane Clarke, Nathan Thomas Coles, Eduardo Jose Collado Esteban, Gillian Collins, Dominic William Peter Collis, Daniel Conole, Philippa Cooper, Anita Cooper, David Corcoran, Alice Cordwell, Cristina Cotillas Lucas, John James Coward, Christopher Crooke, Massimiliano Curcio, Eufranio Da Silva, Lucia D'Andrea, Ronald Davies, Jonathan Andrew Davies, Robert Davis, Robert Day, Keana De Guzman, Oliver Degerstedt, Lydia Dewis, Fergus Dingwall, Patrick Lionel Djonwouo, Claudio Dos Santos, John Doyle, Dongwei Du, Sriparna Dutta, Louise Eagling, Jessica Eastwood, Samantha Eaves, James Eillis, Ekram El-Ads, Leopoldo Enciso Maldonado, Simon Engelke, Estrella Espada Bellido, Amir Fakeeh, Martin Fallows, Simone Famiani, Philip Ferguson, Adam Fisher, Edward A FitzGerald, Theo Flack, James Fleming, Shauna Flynn, Ana Folgueiras, Chuan Yi Foo, Veronica Forcina, James Fordham, Andrew Fowell, James Fox, Grace Frost, Stefan Markus Furegati, Jessica Gabb, Danielle Gabbert, Abdul Hadi Gaddah, Pietro Gancitano, Benjamin Gardiner, Stacey Garnett, Charles Gell, Laura Ghandhi, Suvojit Ghosh, Connor Gibson, Beth Glaisyer, Andrew Gomm, Sanchita Goswami, Enda Greaney, Phoebe Kate Greenway, Xiaolu Gui, Ang Guo, Jiaqi Guo, Jennifer Hack, Rebekah Hailes, Hugh Hamilton, Donna Hanks, Catherine Hansel, Ross HeatlieBranson, Luke Hedley, Stuart Henry, John Hey, Christopher Hill, Lloyd Hollis, Joshua OConnor Holloway, Nicholas Holmes, Pavla Holubcova, Debbie Hooper, Kate Horner, Geoffrey Horsman, Bethany Huddart, Gonzalo Huelga Suarez, Sam Hughes, Magaji Ilu Barde , Kenneth Inglis, Emmanuel Okechukwu Iro, Mohammad Nashriq Jailani, Tomasz Jakubek, Michael James, Robin Jeanneret, Daniel Ray Jenkinson, Ashley Johns, Michelle Jones, Rita Jorge, Hagar K Hassan, Yaroslav Kalinovskyy, Paraskevi Kasapidou, Georgios Kasparis, Roohi Ummer Kaushik, Bethany Kate Kazmierski, Rhys Kelham, Jeremy Kennon, Saleha Suleman Khan, Alice King, Verena Klaus, Madeleine Knight, Alastair Knights, Hansjochen Koeckert, Laszlo Andreas Kondars, Qendresa Krasniqi, Amogh Kulkarni, Vineet Kumar, Rajen Kundu, Siaw Cheng Lau, Corentine Laurin, Oluwasola Lawal, WeiTsung Lee, Jingong Leng, Olivia Alexandra Lennon Butler, Lok Chun Rogen Leung, Ting Li, Jian Liu, Jack Lownes, Robert Luck, Stephen Luckman, Mary Paymwua Luka Anzah Kagoro, Thomas Luxford, Martin Mbugua Magu, Cuc Mai, Irene Maluenda, Alexander John Maryan-Instone, Philippa Matthews, Irene Mayoral Soler, Stuart McCluskey, Cormac McElhinney, Catriona Mcfarlan, Chris Medcraft, Elliot Menkah, Howard John Millman,

Layla Mir Bruce, Siti Syuhaida Mohamed Yunus, Rachel Moore, Maurizio Morbidoni, Jessie-May Morgan, Rami Y Morjan, Daniel Morris, David John Moulding, Chris Mulligan, Sheri Murrell, Mohd Azizi Nawawi, Arvind Singh Negi, Edward Negro, Chi Huey Ng, Sean Nicholson, Nik Muhammad Azhar Nik Daud, Tammy Jessica Nimmo, Antonio Noguera, Helen Norton, Anwuli Tracey Nwabuebo, Lisa Oakey, Elizabeth Oberlin, Helen Mary O'Connor, Ayodele Odularu, Michael O'Hagan, Oluwarotimi Stephen Ojo, Ololade Luca Omotaje, Jennerson Ong, Anamaria Orza, Ahmed Osman, Gboyega Nathaniel Oyekoya, Vittorio Pace, Nicola Palmer, Elliott Palmer, Cesar Palmero-Palos, Heena Panchal, Bhawana Pandey, Christopher Parkins, Alexander Pashley, Ashton Peat, Yoann Peperstraete, Chris Percy, Giulia Pergolizzi, Rajitha Nuwanga Pethiyagoda, Mohammad Peyman, Paulina Piotrowski, Visweswara Sharma Pokkuluri, Victoria Pollard, Jeffrey Chun Yin Poon, Corinna Marina Preuss, Viola Previtali, Katherine Pugsley, Ashish Punia, Indra Purnama, Toby Pye, Laura Quinn, Ronnie Ragbirsingh, Gerardo Raggi, Robin Rajan, Ram Prasad Rajasekharan Nair Radhika, Zainab Rashid, Mahesh Raundhal, Benjamin Rawe, Mayamin Razali, Elise Michelle Ridgway, Alexander Riley, Leni Ritmaleni, Elliott Roberts, Aiden Robertson, Isolda Roger Barba, Taylor Rottreau, Kyle Rugg, Nikhil Sahotra, Olabode Maleek Salawu, Luke Sanderson, Christopher Savory, Reece Saxby, Matthias Schnellmann, Samuel Scott, Adam Sedgwick, Emilie Marie Therese Sellier, Toni Semmence, Megan Seymour, James Shaw, Mengjie Shen, Mukesh Kumar Singh, Adam Skiredj, Graeme Sloan, Andrew Smith, Joanna Sneddon, Lukasz Sobala, Albert SolDaura, Lori Somner, Katie Spalding, Rebecca Sparkes, Joanna Sparks, Kara Spilstead, Samuel Richard John Spreadbury, Sahra St.John-Campbell, Martin Stanford, Steven Stanton, Hannah Stern, Emilia Streng, Alexandra Stuckmann, Vinsensia Sugiawati, Tze Han Sum, Tze Jing Sum, Helen Swainston, Claudia Swanson, Shruti Talashi, Amina Tariq, Jeroen Ten Dam, Kunal Tewari, Abigail Thomas-Verweij, James Thompson, Lee Thompson, Lisa Alice Thompson, Griffydd Tilley, Vanessa Timmermann, Priti Tiwari, John Tobin, Henry ToombsRuane, Alex Tribe, Louise Tucker, Boontida Uapipatanakul, Ugochukwu Christian Umeobika, Stephanie Urwin, Ime Usen, Josefa Vidal Laveda, Pratap Vishnoi, Amy Waddington, Franceska Waggett, John Walsby-Tickle, Georgina Walters, Wan Mohd Kairul Wan Mohamed Zin, Yiduo Wang, Catherine Emma Warrilow, Daniel Antony Eamon Warrilow-Brennan, Lindsay Wheeler, Hannah Whitmore, Ryan Williams, Richard Winder,

Ellen Winstanley, Nicholas Wogden, Benjamin Woods, Phillip Harold Worboys, Bing Wu, Shiment Wu, Chuhui Xiao, Abu Yaya, Liyang Yu, Ziyi Yu, Angharad Zastapilo, Junliang Zhang, Hui Zhou, Kailong Zhu.

### Chartered Chemist (CChem)

Yasmin Ahmed, Emmanuel Oladeji Ajayi, Robin F Aldworth, Sanjeev Bagga, Bimal Krishna Banik, Nicolas Barry, Angelo Bella, Daniel Bridgewater, Robert William Burrows, Alan Clark, Stephen Costello, Robin Cowley, Shirley Dickinson, Catherine Jane Duckett, Peter Durham, Tamara Fanjul Solares, Merennege Dilan Anush Fernando, Clifford Harris, Samantha Louise Hazelwood, Jane Holmes, Elizabeth Jones, Nicola Julie Kay, Anna Kutner, Fredrick Lai Shing Leong, Carlos Lledo-Fernandez, Andrew Logsdail, Carolyn Anne McCavera, Laura Jayne McIntyre, Andrew McLaren, Saul Moorhouse, Philip Mpagi Bwogi, Kirsty Muirhead, Amy-Jayne Newman, Koh Sing Ngai, David Nixon, Edwin Ntainjua Ndifor, Simranjit Rai Bhatti, David Ritson, Ashley Robinson, Thomas Shaw, Philip Jeffrey Stackhouse, Hazel Stephenson, Jayathirtha Rao Vaidya, Toni Warwick, Simon Webster, Keith Whiston, Rebecca Williams.

### Chartered Scientist (CSci)

Yasmin Ahmed, Emmanuel Oladeji Ajayi, Hugh Allen, Sanjeev Bagga, Nicolas Barry, Martin Paul Bartlett, Susana Del Rio Gancedo, Catherine Jane Duckett, Samia El-Ali, Theodora Georgaki, Amy Ruth Godfrey, Nicola Julie Kay, Andrew Kendrick, Anna Kutner, Elizabeth Lancaster, Carlos Lledo-Fernandez, Ian Mabbett, Edwin Ntainjua Ndifor, Xi Peng, Andrew Timothy Russell, Richard Thomas William Scott, Michael Joseph Scotter, Geetha Srinivasan

### Registered Science Technician (RSciTech)

Hannah Vincent, William Jones, Stephen Paul Ramsey, Emma Quane, Jennifer Botham.

### Registered Scientist (RSci)

Emma Brooke, Jack Davy, Oliver Degerstedt, Christine Heinz, Rosemary Jones, Callum Kirk, Megan Lake, Diane Lambert, Jasmin Morfoot, Samuel Page, Margaret Spence.

## Deaths

**Mr John Barklie MRSC** Died 14 November 2015, aged 33

**Mr Gordon Barron CChem MRSC** Retired organics division, ICI Ltd. Date of death not supplied

**Mr Antony Beahan CChem MRSC** Project leader, analytical services, Baker Petrolite Ltd. Died 10 November 2015, aged 54

**Mr Allan Bowers CChem FRSC** Retired principal biochemist, Lancashire Area Health Authority. Died 9 April 2015, aged 88

**Professor Joseph Frederick Bunnett MRSC** Emeritus Professor of chemistry, University of California, Santa Cruz. Date of death not supplied

**Dr John Keith Carter CChem MRSC** Retired consultant pathologist, South East Thames Regional Health Authority. Died 11 November 2015, aged 89

**Professor Malcolm Harold Chisholm CChem FRSC** Professor, Ohio State University. Died 20 November 2015, aged 70

**Dr Peter Coackley CChem FRSC** Retired reader, civil engineering department, University of Strathclyde. Died 17 November 2015, aged 87

**Mr James Sidney Double MRSC** Retired quality assurance officer, Vinamul Ltd. Died 20 September 2015, aged 83

**Ms Ghazala Ehsan AMRSC** Trainee science teacher, Manchester Metropolitan University. Date of death not supplied

**Mr Alexander John Fairweather MRSC** Retired. Date of death not supplied

**Mr Bryan Adrian Jones MRSC** Retired. Died 6 December 2015, aged 76

**Professor Kyosti Kontturi FRSC** Retired school of science and technology, Aalto University. Died 28 September 2015, aged 66

**Mr Michael Robert Perryman CChem MRSC** Retired teacher, Trinity School. Died 16 November 2015, aged 82

**Mr John Anthony Potter CChem FRSC** Retired public analyst and consultant, Dr Bernard Dyer & Partners Ltd. Died 26 November 2015, aged 88

**Dr David James Poulton CChem MRSC** Retired. Died 12 July 2015, aged 66

**Dr Agnes Jean Shenton CChem FRSC** Retired. Date of death not supplied

**Dr Arne Pieter Ter Borg MRSC** Director, Duker Research. Died 4 October 2015, aged 86

**Mr Peter Barry Twaits CChem MRSC** Retired Beecham Foods Ltd. Died 9 September 2015, aged 92

**Mr Edgar Hugh Wiggins CChem FRSC** Retired. Died 18 November 2015, aged 89

**Dr Geoffrey Roger Woodman MRSC** Retired. Died 20 August 2015, aged 74

To inform us of the death of an RSC member or to submit an obituary, please contact our membership team on 01223 432141 or [membership@rsc.org](mailto:membership@rsc.org). See [www.rsc.li/obituaries](http://www.rsc.li/obituaries) for obituaries.



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