

# RSC NEWS

JANUARY 2016 www.rsc.org

## The Royal Society of Chemistry Past, present, future

Your membership,  
your say p10

Chemistry Week  
reaching new  
audiences p12



**T**O ALL AND SIN

Esquire, Commander of the Royal Victorian Order  
Sir Anthony Richard Wagner, Knight, Commander of the  
Clarenceux King of Arms and John Philip Brooke Bro  
Send Greeting! Whereas John Robert Ruck Keene, Esquire, C  
versity of Cambridge, Secretary General of THE ROYAL SOCI  
of Norfolk, Companion of the Most Honourable Order of the Bath, Com  
ferred the Decoration of the Military Cross, Earl, Marshal, and Herald

...the second day of November 1848 and The Institute of Chemistry was incorporated by Royal Charter bearing date the Thirteenth day of June 18  
...Institute have found that the general advancement of Chemical Science has been better achieved by collaboration and co-ordination of  
...and a great majority are members of The Chemical Society and that whereas the governing bodies of The Chemical Society and The  
...to be further advanced and promoted if the activities of both bodies were wholly integrated in one body and for this and for divers other  
...graciously pleased to grant and declare that as upon a certain date videlicet the First day of June 1980 all persons who are members of The  
members of The Chemical Society and all such persons as may hereafter become members thereof and their successors shall for ever hereafter (so long as they  
name of The Royal Society of Chemistry, having by such name perpetual succession and a Common Seal and that whereas the government and control of  
having established and recorded under lawful authority Armorial Bearings and Supporters he as Secretary General of The Royal Society of Chemistry, en  
of His Grace's Warrant for Granting and assigning such Arms and Crest and in the same Patent such Supporters as He deem suitable to be borne  
in accordance with the Laws of Arms And forasmuch as the said Earl, Marshal did by Warrant under his hand and Seal bearing date the Sixteenth  
ial Ensigns accordingly Know Ye therefore that We the said Garter, Clarenceux and Norroy and Ulster in pursuance of His Grace's Warrant and by ve  
these Presents grant and assign unto THE ROYAL SOCIETY OF CHEMISTRY the Arms following that is to say- Per pale Gules and  
for Silver Copper Tin Lead Iron and Mercury Sable a Sun in Splendour and all within a Bordure Gold And for the Crest Upon a Helm with a  
James Argent a Phoenix Gules having Dragon's Wings displayed Azure gontty Argent, Mantled Azure doubled Or And by the  
ROYAL SOCIETY OF CHEMISTRY the Supporters following that is to say- Dexter  
and conjoined Azure Sinister a Unicorn Argent armed langued  
hereof more plainly deicted to be borne and used for ever hereafter by The  
said Garter, Clarenceux and Norroy and Ulster Kings of Arms have to these Presents subscri  
the second by the Grace of God of the United Kingdom of Great Britain and Northern Ireland and of Her other Dominions and Territories Queen  
and nine hundred and eighty one.

ROYAL SOCIETY  
OF CHEMISTRY

175  
YEARS

rsc.li/175



Above and right: Read about how AWE have celebrated a decade of their successful RSC-accredited scheme, as well as their 100th successful candidate on p23.



Above: Find out what our Finnish local section colleagues are doing at an event known as a SitSit on p23.



Right and below: For more from the 2015 RSC Organic Division Poster Symposium, see p22.



# Contents

JANUARY 2016

**Editor:** Edwin Silvester

**Design and production:**  
Vivienne Brar

**Contact us:**

RSC News editorial office  
Thomas Graham House  
Science Park, Milton Road  
Cambridge, CB4 0WF, UK

**Tel:** +44 (0)1223 432294

**Email:** [rscnews@rsc.org](mailto:rscnews@rsc.org)

Burlington House, Piccadilly  
London W1J 0BA, UK

**Tel:** +44 (0)20 7437 8656



@RSC\_Newsroom



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

**Photography:**

Cover: © Royal Society of Chemistry /  
Media Wisdom

Left: AWE images © AWE; Organic  
Division images © Royal Society of  
Chemistry / MPP Image Creation;  
SitSit image © Royal Society of  
Chemistry



© Royal Society of Chemistry 2016  
Registered charity number 207890



## REGULARS

### 4 Snapshot

News and updates from around  
the organisation

### 6 One to one

Quality approved training for  
chemical scientists

### 7 Profile

Our latest 175 Faces of Chemistry profile,  
Professor Chunli Bai, president of the  
Chinese Academy of Sciences

### 15 Opinion

Ensuring policy decisions are  
well-founded in evidence



## FEATURES

### 8 Our 175th anniversary

The Royal Society of Chemistry –  
past, present and future

### 10 Your membership, your say

Find out about our 2016 Member Survey

### 12 #chemistryweek

A round-up of events from all over the UK



## DIARY

### 16 Conferences

Upcoming meetings and deadlines

### 17 Events

Your guide to events by region and section

### 21 Notices

Awards, prizes, new standards and a SitSit!



# Snapshot

A look at the latest news from around the world

## IN BRIEF

### Professor Ben Feringa receives prestigious prize



One of our Council members, Professor Ben Feringa from the Netherlands, has been awarded the prestigious 2015 "Chemistry for the Future Solvay Prize". Ben was founding editor of our Organic & Biomolecular Chemistry journal and serves as chair of the editorial board for *Chemistry World*.

He receives the prize for his groundbreaking research on molecular motors, a research field that paves the way to new therapeutic and technological applications with nanorobots.

"The Solvay Prize rewards decisive breakthroughs in scientific research achieved today and destined to shape the chemistry of the future. The research by Professor Ben Feringa allows us to anticipate a variety of scientific developments, chiefly in healthcare, and underlines chemistry's essential role, as a science and as an industry, in delivering solutions for society and help human progress. We wish Professor Feringa and his team every success in their research," said Solvay CEO Jean-Pierre Clamadieu.

Professor Feringa said: "I am greatly honoured by the prestigious Solvay Prize which is also a superb recognition for my team of talented students whom I've had the privilege to guide beyond the frontiers of the chemical sciences. Inspired and intrigued by the machinery of life we went on a quest to control motion at the nanoscale.

"Our ability to govern dynamic functions, as we demonstrated with our molecular motor, is essential for the development of responsive molecular systems that will form the basis for a whole range of smart products in the future. I am convinced that the creative power of synthetic chemistry will bring unimaginable solutions to the sustainable society of the future and to the wellbeing of mankind."

## Accelerating innovation with the Emerging Technologies Competition

The Emerging Technologies Competition is back for a fourth year and it's bigger than ever before.

We first launched our innovation initiative in 2013, as a way to accelerate the commercialisation of the cutting-edge research taking place in small companies and universities. Although the essentials of the competition have remained the same – with winners receiving support from leading multinational companies, PR opportunities and a cash prize – we've been developing it every year, to maximise its impact.

Back in the competition's first year, three winners were selected from the UK. They received tailored support from the three multinational companies we had partnered with, along with a cash prize of £3000 and a profile in *Chemistry World*. Four years on, we are expecting applications from across Europe and will have 12 winning technologies. The winners will be given the chance to work with our nine partners: AkzoNobel, AstraZeneca, Croda, GE Healthcare, GSK, P&G, Schlumberger, Pfizer and Unilever. And we've significantly increased the prize money too!

To make the competition accessible to all branches of chemistry, we've introduced a brand new competition category this year –

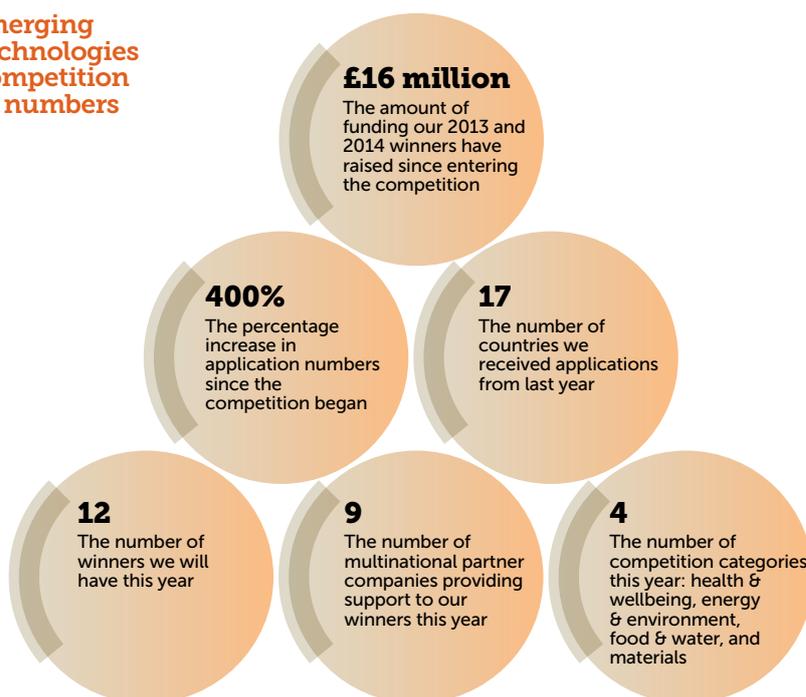
food & water. This will be in addition to our existing categories of health & wellbeing, energy & environment and materials.

We want the Emerging Technologies Competition to support as many aspiring entrepreneurs as possible and so now offer all 40 shortlisted entrants an entire day of specialised business training. We've also merged the competition final with our flagship industry event – Chemistry Means Business – allowing each shortlisted entrant a chance to showcase their technology at an exhibition and make crucial connections from across the entire chemical sciences industry.

We keep in touch with our past winners and have been delighted by the success they've experienced as a result of the competition. This has included securing new commercial contracts as a result of featuring in *Chemistry World* and winning major funding bids – including Innovate UK and the Bill and Melinda Gates Foundation – because of help from our competition partner companies. In addition to this, we often hear how important winning the competition has been in raising individual researchers' profiles as well as that of their business. We hope to hear of successes like these for years to come.

**We open for applications 11 January 2016.**

### Emerging Technologies Competition by numbers



## SAFEA visit continues UK-China partnership

On 30 November 2015, we welcomed a senior delegation from the State Administration of Foreign Experts Affairs (SAFEA) in London at Burlington House. The delegation was led by Mr Jianguo Zhang, Vice Minister of Ministry of Human Resources and Social Security, Administrator of SAFEA in China and Mr Fengyun Lei, Director of SAFEA in London.

The delegation consisted of senior directors from the various SAFEA departments: Culture and Education, Overseas Training, Policies and Regulation and General Administration based in China. We were extremely delighted to be also joined by the newly appointed Minister Counsellor for Science & Technology at the Embassy of the People's Republic of China based in London, Mr Sunan Jiang, and his First Secretary Mr Dongbo Guo.

One of the outcome of the visit was the commitment of the Chinese government to make Chinese visa applications more

smooth for the UK experts who come to China on the SAFEA-RSC Visiting Researchers Programme.

SAFEA and the Royal Society of Chemistry have committed to support UK-China collaborations via a memorandum of understanding which was initiated in 2009 and renewed in 2014 for the next five years.

Dr Kathleen Too, our international development manager for Asia, says: "This collaboration between SAFEA and RSC has resulted in positive outcomes such as UK experts being made visiting professors in China and publishing joint papers together. We are really proud of our collaboration with SAFEA and look forward to supporting more UK-China collaborations in the future".

▼ Mr Jianguo Zhang, Vice Minister of Ministry of Human Resources and Social Security, Administrator of SAFEA, China, with Dr Robert Parker, chief executive of the Royal Society of Chemistry.



IMAGES © ROYAL SOCIETY OF CHEMISTRY

### IN BRIEF

#### Latest in *Frontiers* journal series launched with Chinese Chemical Society

*Materials Chemistry Frontiers* – the international, high quality journal for topical and multi-disciplinary research on all aspects of materials chemistry.

We are very pleased to announce the latest launch in our series of international journals, developed by the Chinese Chemical Society and the Institute of Chemistry at the Chinese Academy of Sciences.

*Materials Chemistry Frontiers* focuses on the synthesis and chemistry of exciting new materials, and the development of improved fabrication techniques. Characterisation and fundamental studies that are of broad appeal are also welcome.

This is the ideal home for studies of a significant nature which further the development of organic, inorganic, composite and nano-materials.

#### Who is involved?

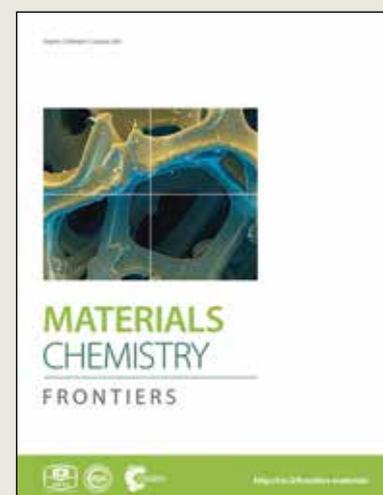
The executive editor is Daping Zhang, with deputy editor Wenjun Liu and Helen Saxton as editorial production manager. Benzong Tang, from the Hong Kong University of Science and Technology, will be the editor-in-chief.

Daping says: "It is so exciting to see the third *Frontier* journal, *Materials Chemistry Frontiers*, has been launched. It is one of a series of journals involving collaboration between the Royal Society of Chemistry and Chinese Chemical Society.

"I am happy to see this project come to fruition. The collaboration with the Chinese Chemical Society will continue in many aspects including publishing."

#### How can you find out more?

Go to the website at [rsc.li/frontiers-materials](http://rsc.li/frontiers-materials) or email: [MaterChemFrontiersED@rsc.org](mailto:MaterChemFrontiersED@rsc.org)



# One to one

Take advantage of a wide range of member services

## Quality approved training for chemical scientists



We recently told you about some of the things we offer to help you develop as a professional and advance your career, including careers skills webinars and online career management resources. These can help you take stock of your career and identify the types of activities that will support your progression. For many people, technical and professional skills training is a key part of their professional development journey – you extend your knowledge, learn new skills and gain confidence, all of which can help you take the next step in your career.

### The right course for you

There are loads of courses out there and we want to make sure that our members are accessing training that meets our standards and is appropriate to your needs. So just over a year ago, we launched a programme to formally approve training courses, and a new database where you can find approved courses easily: [www.rsc.org/cpd/training](http://www.rsc.org/cpd/training)

Up to now we have approved around 80 training courses and this number continues to grow as more training providers apply; they span a diverse range of subject areas so whatever your industry sector or research field, you could find the right course for you. These include:

- gas and liquid chromatography;
- mass spectrometry;
- hazard awareness;
- environment, health and safety management;

- regulatory affairs;
- quality control and assurance;
- metabolic profiling;
- teaching chemistry; and
- leadership in science.

You can search by keyword, subject area, course level and location and we also list the course duration, cost and any pre-requisites. Once you've found what you're looking for simply click through to the training provider's website to book your place.

### In-depth assessment

Our training course approval is a peer review process, with courses assessed by subject experts who have knowledge and experience of training and development. As well as checking that the content of the courses is accurate and up-to-date, and that the course authors and tutors have appropriate qualifications and experience, they assess against a broader set of criteria. These include expectations that the training provider will: provide participants with appropriate and timely information and learning aids; collect participant feedback, which is then analysed and acted upon where needed; ensure participant health and safety; and provide additional support where needed to make sure the course is accessible.

### Benefits for training providers

Training providers value the rigorous nature of our approval process as the feedback they receive from the assessors can help them to develop their courses in line with good practice. They also gain new course bookings as people access our database and are signposted to their websites.

Course approval can also lead training providers to get involved in some of our other activities. In November, course tutors from two providers of approved training – Anthias Consulting Ltd and The REACH Centre – joined the Royal Society of Chemistry theatre at *Lab Innovations 2015* and provided taster training sessions. These sessions formed

part of a diverse programme including speakers from industry, academia and science broadcasting and this is just one of the ways we are engaging more with providers of approved training. We also list each newly approved course in *Chemistry World* and offer substantial discounts on further advertising options, in print and online.

Diane Turner of Anthias Consulting Ltd said: "The show was a good experience for us, and presented a great opportunity to network with our partners and customers. We also had excellent feedback from the delegates who attended our session at the show – they were positive about what they had learned on the day, and were keen to find out more on what further training we offer."

### Benefits for members

In choosing an approved training course, you can feel assured that the quality of the course meets our standards. Remember to make a record of your experience of the course and how it benefits your work, which you can do using our online tool at [www.rsc.org/cpd](http://www.rsc.org/cpd). This type of reflective practice can form valuable evidence for applying for registered or chartered status or if you are asked to provide your professional development record as part of our annual revalidation requirements for members that hold CChem, CSci, CSciTeach, RSci or RSciTech.

Providers of approved training offer at least 10% discount to individual members of the Royal Society of Chemistry, so don't forget to request this when you book onto a course.

If you have any questions or comments we'd be happy to hear from you: [email\\_cpd@rsc.org](mailto:email_cpd@rsc.org) or telephone 01223432670.

### TRAINING VOUCHERS

If you work for a small or medium-sized company that is part of our *EntreprisePlus* scheme you could apply for one of our training vouchers, worth up to £1000. For more information visit <http://www.rsc.org/sme/training-vouchers>

# Profile

A closer look at our members and their interests



## Chunli Bai

How the President of the Chinese Academy of the Chemical Sciences uses his own experience to help the next generation of chemists to flourish

**Chunli Bai HonFRSC** is President of the Chinese Academy of Sciences (CAS), President of the World Academy of Sciences for the Advancement of Science in Developing Countries and Professor of Chemistry at CAS Key Laboratory of Molecular Nanostructure and Nanotechnology, Institute of Chemistry, Beijing.

### Q What led you to a career in chemistry?

**A** My father was a school teacher with a real passion for learning. It was his enthusiasm that inspired me to pursue an academic career. Ultimately, it was my interest in how things worked at the most fundamental level that inspired me to study chemistry. So after I completed high school, I enrolled in a chemistry course at Peking University.

### Q What route did your career take after that?

**A** After graduating from university, I went on to complete a Master's degree and PhD with the Chinese Academy of Sciences. My research interests then took me to the USA, and I worked as a postdoctoral researcher at the California Institute of Technology for two years.

It was during this time that I became fascinated by Binnig and Rohrer's groundbreaking invention of the scanning tunnelling microscope (STM) and began using it for my own research. So when I returned to China in 1987, I worked with a team to build the country's first ever STM.

This didn't come without challenges. Funding for basic science in China was extremely poor at the time and resources were limited. This meant that we had to manufacture all the components and electronics for the microscope from scratch. We failed more than once, but our hard work and persistence paid off!

The STM allowed us to 'see' how molecules worked. And it offered enormous potential for our studies. Since these early days, the area has expanded greatly. It now includes the design and preparation of molecular nanostructures, self-assembly, novel nanomaterials, molecular nanodevices and single molecule detection. It has really opened up the world in ways we could not have imagined.

"It is really gratifying for me to see so many Chinese scientists making so many achievements that were utterly impossible to imagine 20 years ago."

### Q How have things changed for researchers in China since these early days?

**A** I remember that, in the 1980s, scientists in China received little governmental funding and had limited resources. But it has changed greatly since then. It is a good time to be a scientist in China now, as our nation's continued economic development has allowed the government to invest heavily in science and technology.

It is really gratifying for me to see so many Chinese scientists making so many achievements that were utterly impossible to imagine 20 years ago.

### Q You have been president of the Chinese Academy of Sciences (CAS) since 2011. What does this involve?

**A** As CAS president I aim to positively influence chemistry in China in many ways. One of the changes I have overseen during this time is the transformation of the Graduate School of CAS into the University of CAS (UCAS). With over 40,000 students, it is now one of the world's largest graduate institutions.

I believe that it is essential to train future scientists and engineers to support China's economic expansion. Therefore I have also implemented a number of schemes that are aimed at connecting students at UCAS with real-life research at different CAS institutes.

### Q What has your journey so far taught you?

**A** I have had to overcome a number of challenges throughout my career, especially at the start, but I believe that nothing is difficult if you put your heart into it.

My advice to young people would be to follow your passion, and you will be rewarded. You will also need to keep your curiosity and treat research work as a pursuit of interest, instead of just a means of subsistence.

Chunli Bai is one of our 175 Faces of Chemistry. You can read his and many more profiles at [rsc.li/175-faces](http://rsc.li/175-faces)

To find out more about the different ways in which we are celebrating our 175th anniversary this year, turn to our feature on p8.

# The Royal Society of Chemistry – past, present, future

In this special year of celebration we are launching a number of projects to highlight some of the most fascinating stories of our from our community



How might you spend your 175 minutes for chemistry?

## Easy

Inform yourself about developments in chemistry by watching one of our webinars at [rsc.org/chemistryworld/webinars](http://rsc.org/chemistryworld/webinars)

On 23 February 1841, Robert Warington – the son of a ship victualler, who worked as a chemist for the brewers Messrs. Truman, Hanbury & Buxton – convened a meeting to discuss the immediate formation of a Chemical Society. Those present voted unanimously in favour and the Chemical Society of London, the precursor to our very own Royal Society of Chemistry, was born.

The first president was Scotsman Thomas Graham, pioneering chemist and inventor of dialysis, after whom our Cambridge office is named. The Chemical Society started just round the corner from our modern day home at Burlington House, with just 77 members meeting in rented rooms at the Royal Society of Arts, just off the Strand. That small group volunteered their time to further the pursuit of chemical knowledge and today there are well over 50,000 of us spread far and wide around the globe.

We are the oldest chemical society in the world and this year we celebrate our 175th Anniversary. We want to take this opportunity to look back at our long and successful history, and celebrate our rich heritage with all of you.

## Diversity

The first project is a showcase of diversity in the chemical sciences. The Chemical Society first raised a motion to admit women in 1888. The motion was defeated, again and again, apparently considered 'not expedient'. Finally, in 1908, the first Lady Subscribers were admitted, the first small victory for diversity in the chemical sciences.

We are now an international community, and we champion diversity in all its forms. Our membership covers countries from Australia to Brazil and Qatar to Thailand and people from a huge range of backgrounds, including scientists, librarians, teachers, students, and people who share a passion for and fascination with chemistry.

Over the past three years our 175 Faces pages has been profiling one person a week, highlighting diversity in all its forms – showing not only the breadth of backgrounds that a chemical scientist can come from but also the huge range of roles and career paths that they can fulfil.

## Celebration event

We are pleased to announce the launch of the 175 Exhibition, which will run from 22 February to 4 March 2016, at Burlington House. This will bring together our celebration of diversity with the rest of our anniversary celebrations. It will be open to the public, giving visitors the opportunity to learn more about our history, as well as interactive activities emphasising diversity in the chemical sciences.

## Give your time

Finally, we are encouraging each of our members to give 175 Minutes of their time this year to chemistry, above and beyond their day to day role. Some of you may already give far more than this in the form of outreach activities or attending events. If you do, we want to hear from you and we want you to encourage others to do the same. You might also want to try something new, like taking advantage of your member benefits – consulting one of our specialist careers advisers for example. We want to collect stories showcasing the diverse nature of chemical science activities, and see how much time we can give to chemistry together. (Use **#Time4Chem** on Twitter).

### Medium

Get involved in one of our campaigns on government science support or specialist teaching by writing to your local MP. Find more information about our campaigns, and instructions for how to contact your MP at [rsc.org/campaigning-outreach/campaigning](http://rsc.org/campaigning-outreach/campaigning)

### Challenging

Get involved with outreach near you by contacting your local Education Coordinator at [rsc.org/locations-contacts/contact-us/campaigning-outreach/education-coordinators](http://rsc.org/locations-contacts/contact-us/campaigning-outreach/education-coordinators)

### Suze Kundu, one of our 175 Faces and a science communicator who describes herself as 'a nanochemist, literally and professionally', talked to us about how she will be spending her 175 minutes

"What I'd like to do, aside from the schools outreach, is talk to more people around me. Both my parents are economists. They are so far removed from things I do and I have happily gone along with that. But in their lives they *do* understand it. There is chemistry in my mum and dad's lives all the time. One of the things I would like to do speak to them a bit more, flag it up and be proud of it."

Giving 175 minutes can be as involved or as straightforward as you'd like to make it. We encourage you to take this opportunity to find out more about what it means to be a member of the Royal Society of Chemistry. Perhaps you could spend a few hours browsing our website, reading *Chemistry World* or looking up chemistry events in your local area (Royal Society of Chemistry or otherwise). You might even want to get involved in your Local Section and join the committee. If you are not already a STEM ambassador, look into becoming one, and if you are one already, let us know what you've been up to.

Let's make this a year to build on the legacy of our original members, to be proud of our community and of the things we can achieve together.

#### WORDS

LIZZY RATCLIFFE AND  
GERI KITLEY

# Your membership, your say

Later this month you will receive an email asking you to take part in our 2016 Member Survey, to give your views on the Royal Society of Chemistry and your membership

It's important to us to make sure that we keep membership relevant to chemists at all stages and our member survey is key in helping us to do this. Through the events and activities we run, we speak with many of you regularly, but it is through this survey that we get the opportunity to hear from all of you and about what's important to you. The feedback that you provide is vital in informing our strategy and any new activities.

**"We're always pleased to hear from our members and value the opinions they share with us. Over the past two years we've shaped our activities and strategies based on the responses from members in 2014. We want to encourage our members to take the time to complete this year's survey and help us develop support for our community and profession."**

Clare Viney, Director, Membership and External Affairs at the Royal Society of Chemistry

We want to share with you some of the things we've done as a result from our last survey.

## Member benefits and pride

We were really pleased to hear in our last survey that most of our members, 84%, are proud to be a part of the Royal Society of Chemistry. That's one of the reasons we strive to ensure that it's relevant to chemical scientists at all stages of their lives and careers. While that figure is encouraging, the survey showed us where there was a need for more support. We always look to reassess the benefits we provide to members and the results of our biennial member survey are a key method of informing us how we should change.

Over the past two years we have developed a mentoring scheme for our members, partnering mentors and mentees to develop relationships, supporting them in their career, as well as aspects of their personal life that they wish to discuss.

**"We set up the mentoring scheme in response to feedback from members and whilst we had done a mentoring scheme in the past we felt that this was the right time to try again. The response we have had has been overwhelmingly positive and in eight months we have trained and matched 63 members as mentors or mentees with over 30 relationships currently on-going. The benefits of mentoring are so diverse and are mutually beneficial to both mentee and mentor almost in equal measure. We are so pleased to be able to offer this valuable service and develop further over the coming months."**

Charlotte Ashley-Roberts, Careers Specialist at the Royal Society of Chemistry

To find out more about our mentoring scheme, email one of our careers specialists, [careers@rsc.org](mailto:careers@rsc.org).

We've known for a while that the awareness of our benevolent fund amongst members has been low. By using the results from our last survey we were able to understand why this is and how we might go about raising awareness and highlighting its relevance to members. We were able to follow up with members who were happy to be contacted, carrying out focus groups, which helped us to further develop the service specifically to the needs of our members.

## The future of the chemical sciences

From our last survey, we know our members feel it's important that we continue to campaign for the chemical sciences and provide access to latest developments. We feel it's important that we not only continue our work in this area but that we involve our members along the way. Earlier this year we ran a campaign to protect the science budget in real terms, providing you with pre-written letters to edit and send on to your local MP. The positive impact of this was seen in the spending review in November when Chancellor George Osborne announced the protection for the science budget in real terms (see page 15 for more on that). We're continuing to look for new and engaging ways we can support members, involving them in campaigning for science.

Overall, we're pleased to report that most of our members are satisfied with their membership, echoing a feeling of pride and support. However, some of you working in the Industry sector feel there is more that we could offer and are less likely to feel as supported. This is something that we've been aware of and have been working on over the past few years.

Feeding these responses into our strategy, we have continued to increase our support for the chemical sciences industry. Professional development and recognition of chemists in industry, accelerating innovation and supporting small companies are at the top of our agenda. The development of both our EnterprisePlus scheme and Emerging Technologies Competition focused on two of these priorities, particularly supporting smaller companies and also in driving links between academia and industry, an area which you fed back to us as being the top area where we should increase our activities.

We don't just use the top-level feedback from the survey. We also drill down into the data to understand what specific segments or demographics of our community think or feel, particularly when we are looking at how we should develop activities. As an example, we used the data from 2014 to understand better how our members in Ireland perceive our support, and acting on this we have since introduced more regional support staff and more targeted education support. We have also looked at the particular needs of our early career members and, following some further work on this, we launched the Early Career Network this year.

It's really important to us that as many members as possible respond to the survey, as that really improves our understanding of the needs of different groups of members in as much detail as possible. There are many other areas in which your feedback through the membership survey has informed our plans and thinking, which is why it is so important for us to get your up-to-date thoughts in this next survey.

### **This year's survey**

You will receive an email invitation on or around 19 January, so you can have your say on your membership. This will contain a personal link to the survey and all you need to do is click on it and answer the questions.

To ensure that the survey and all results are kept completely anonymous and comply with the Market Research Society Code of Conduct, we have partnered with an external market research agency, Research by Design.

They will be sending out the email on our behalf, so you can be sure that we can't identify individual respondents.

We need your input to help us improve your membership, your services and your benefits.

Please do let us know what you think!



**WORDS**  
GERI KITLEY

# A wealth of activities for #chemistryweek

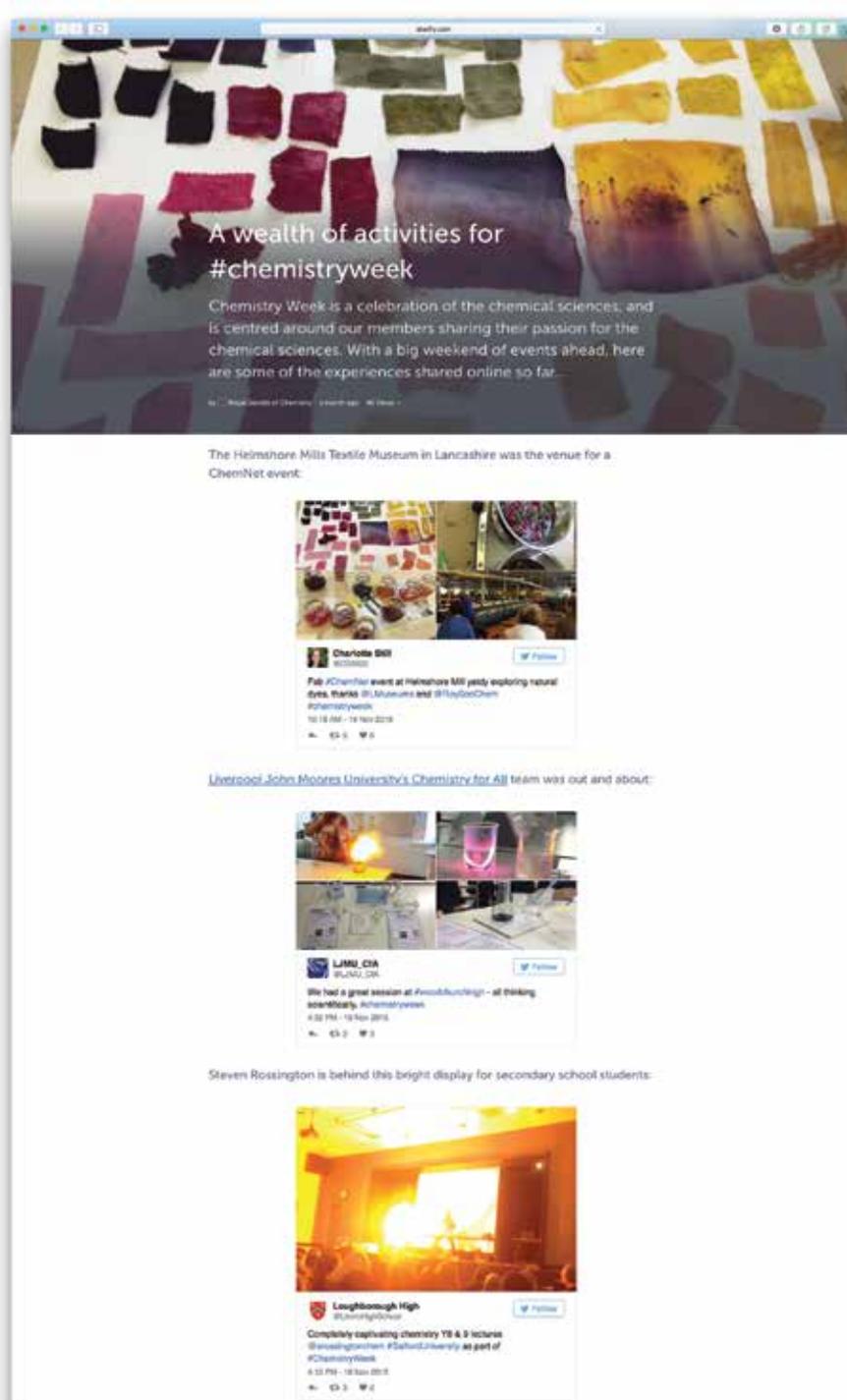
Chemistry Week, which took place at the end of November, is a celebration of the chemical sciences, and is centred around our members sharing their passion for chemistry. Here are just some of the experiences shared online...

## Chemistry Week 2015

To support existing local and regional networks to develop and deliver events during Chemistry Week, we organised an outreach conference, which took place in June 2015 in Manchester. We also offered grants up to £1,000 towards the organisation of events and activities during the week.

Volunteers have been sharing their love of chemistry all over the UK and Ireland.

► Helmsore Mills Textile Museum in Lancashire hosted a ChemNet event, Liverpool John Moores University's Chemistry for All team was out and about, and Steven Rossington is behind this bright display for secondary school students.



Magda van Leeuwen, who managed Chemistry Week activities for our Outreach team, sums up what we achieved this year. She says: "We had an amazing Chemistry Week that saw members in local sections organising a huge range of activities to engage new audiences. With activities ranging from chocolate and gin tasting to art exhibitions and market stalls these events engaged with thousands of people who wouldn't ordinarily have the confidence to talk about chemistry.

"By sharing personal experiences and stories about chemistry we instil an emotional connection with people and we're better able to demonstrate how chemistry impacts our everyday lives.

"We hope the theme of reaching new audiences will live on through the new relationships that were forged this year with by working closely with community groups in the lead up to and delivery of Chemistry Week."

Turnbull High School in Bishopbriggs, Scotland, set up a scavenger hunt that also involves the local community. Pupils were tasked with making models of a selection of 'everyday' molecules using molymod® kits to be hidden in shops nearby.



Andres Tretiakov shared some beautiful images online to mark the occasion.



Andres Tretiakov (@AndresT200) shared 4 photos  
Shiny Metal crystals for #ChemistryWeek Postbrooches from L to R: lead, copper, iron and Bismuth  
13:21 PM - 17 Nov 2015

Ireland has also been celebrating Science Week. Chemistry at University College Cork devised a chemistry magic show, which will be shared with schools worldwide for free in the coming weeks.



UCC Chemistry (@uccchemistry) shared 1 photo  
Tonight we film the @UCC Chemistry Magic Show as part of #ScienceWeek & #ChemistryWeek. Production meeting underway!  
8:21 PM - 13 Nov 2015

All this chemistry just takes over the brain sometimes!

H x (@Cormac\_H) shared 1 photo  
I just realised the word 'tonic' as 'tonic'. You can take the girl out of #Chemistry... #sciencepragmatics #ChemistryWeek  
4:20 PM - 18 Nov 2015

While beauty was also on show at the Art of Chemistry exhibition at Lancaster.



LICA (@LICA Lancaster) shared 2 photos  
Take a look at some of the works from #ChemistryWeek at The Storey - on @Wednesday! @LancasterRSC @ChemLancaster  
8:53 PM - 18 Nov 2015



Charlotte Bill (@Cbill2002) shared 2 photos  
Beautiful art of chemistry sculptures @LancasterRSC opening night @LancasterRSC  
7:19 PM - 18 Nov 2015

Volunteers have been sharing their love of chemistry all over the UK Ireland.



Saeeda O'Sullivan (@Saeeda) shared 1 photo  
Great day @Liverpool to celebrate #ChemistryWeek in engaging, enjoyable and informative talk by @SaeedaChemistry  
12:48 PM - 17 Nov 2015



Sturley Brown (@SturleyBrown13) shared 1 photo  
@RSCLiverpool Bob & Sandy by the Chemistry Week stand at @EskersmeadPartLibrary #ChemistryWeek  
7:48 PM - 18 Nov 2015

▲ Turnbull High School in Bishopbriggs, Scotland, set up a scavenger hunt that involved the local community. Pupils made models of 'everyday' molecules using molymod® kits to hidden in shops nearby. Andres Tretiakov shared some beautiful images.

◀ Beauty was also on show at the Art of Chemistry exhibition at The Storey in Lancaster, and Chemistry at University College Cork devised a chemistry magic show, which will be shared with schools worldwide for free.

WORDS  
EDWIN SILVESTER

# Opinion

Letters and comments on RSC activities and issues

## FROM THE EDITOR



As we look forward to a new year, 2016 also gives us an opportunity to celebrate our rich heritage. After 175 years, we're bigger and better than ever, so it's a

pleasure to be part of the thriving Royal Society of Chemistry community at this exciting time. See p8 for some of the ways we're celebrating our anniversary.

But we won't be resting on our laurels this year, and we want to hear from you to find out how we can make your membership work even better for you. Find out about how you can contribute to our member survey on p10.

December's *RSC News* focused on the incredible ways in which you volunteer your time for chemistry and once again we have a selection of those stories in Notices, from p21, as well as a look back to some of the fascinating things you got up to in Chemistry Week on p12.

I look forward to hearing about the many projects, activities and events you're involved in this year – let me know about them, by email, post or social media.

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

I was interested to read the article (words by Michael Smith) on virtuous circles. I thought the connections with chemistry, energy, and resource management were highly pertinent.

George Mills MRSC Chem and CEnv  
Ludlow, UK

Thank you for your letter George. The recent COP21 climate change agreement in Paris, while promising, leave some significant questions to be answered. Rest assured Michael and his colleagues in our science team will continue to be involved in bringing together the world's chemical scientists at our conferences and symposia, as well as reporting back to our community in these pages.

See also the opposite page for more examples of the work we do on policy and public affairs.

Edwin Silvester, editor *RSC News*, Cambridge, UK



## Grad RIC/RIC Research Diploma

I attained my Grad RIC by part-time study (1955-1959). I greatly enjoyed my work at ICI New Metals Division, Witton. When I got my A level grades my employers strongly recommended that I should proceed to Grad RIC.

After 1959, the final RIC examinations were conducted 'internally' as a Special Relationship Scheme in conjunction with selected Colleges of Advanced Technology (CATs)-which subsequently became universities. I was one of the first batch of students to take the internal final RIC examinations.

I then spent three enjoyable years studying for the RIC Research Diploma. I should be very interested to know what is the current status of the Research Diploma?

Dr John Oliver C. Chem MRSC  
Salisbury, UK

Thank you for all of the memories and suggestions many of you have made around Grad RIC courses, graduations and qualifications. If you have further questions, please email our qualifications specialist on [CSci@rsc.org](mailto:CSci@rsc.org)

Edwin Silvester, editor *RSC News*, Cambridge, UK

# Ensuring decisions are well-founded in evidence

Building and managing relationships with policymakers, and influencing them, is an important pillar of our efforts

Readers of these pages over the last few months will have seen pieces highlighting our policy and public affairs work. Building and managing relationships with policymakers, and influencing them, is an important pillar of our efforts, and indeed forms part of the mission laid out in our Royal Charter:

**“to serve the public interest by acting in an advisory, consultative or representative capacity in matters relating to the science and practice of chemistry”**

Working with our members and governance committees, we develop policy positions that take account of opinions from across our community.

That allows us to speak with the voice of our well over 50,000 strong membership and wield far larger influence than would be possible on an individual scale. We aim to ensure that decisions made in government are well-founded in evidence and of benefit to both the research community and society more widely. Our consultation responses and political work are heavily interlinked and we've contributed to or commented on all of the recent high profile announcements - on the Nurse review, the Spending Review and the HE Green Paper.

I write this piece only a few days after the Chancellor stood up in Parliament to outline this government's spending priorities over the next five years. In the lead up to that announcement we have been fighting hard to make the case for investment in science, together with those in our sister societies, and with your support we've helped to turn the tide. On a tangible level we've worked personally with countless MPs and civil servants, placed comments in the national press, and submitted policy reports and recommendations in support for science in the UK.

## Spending Review

The Spending Review itself marks the culmination of activity that began with the publication of the Research Excellence Framework results, and includes recent work on Sir Paul Nurse's review of the research councils, as well as a Higher Education Green Paper. Big decisions are still to be made and more detail is needed on the implications of those ventures. Our policy colleagues will be unpacking some of the details in the February edition of *RSC News*, but this is where I think we stand now:

The Spending Review itself was critical, with broad implications for all areas of public policy for the remainder of this parliament. Since 2010, the science budget has been held at 'flat cash', meaning the amount of money for science in the budget pot was protected but didn't rise in line with inflation. With cuts anticipated across government departments, this was broadly seen as the best the sector could hope for in

November's announcement. Beating expectations, George Osborne met our campaign ask of real-terms protection for science spending (which means it rises with inflation), and reaffirmed his commitment to science capital spend too. And it's not just research that did well, both schools funding and investment in STEM subjects in further and higher education were protected in real terms, and significant commitments were made to both energy innovation and health R&D.

## Nurse Review

Looking further into the detail, one of George Osborne's commitments to science was to implement Sir Paul Nurse's review of the research councils. Published only days before the Spending Review announcement, this report outlines a number of principles for research funding and adjustments to the structure of funding bodies. Perhaps the largest proposed change is the creation of Research UK, a new overarching body for the existing research councils (and possibly Innovate UK), which will have a budget of its own to support interdisciplinary research. Research UK will be led by a chief executive, appointed by ministers, who will be the single accounting officer to the government for all research councils. To put that in context, this new structure has been likened to a university structure, with a single head but multiple departments focusing on different subjects. We'll be talking to government and the research councils as this new arrangement is implemented, so if you have any comments we'd be pleased to hear them.

## HE Green Paper

The other big announcement recently was the publication of the HE Green Paper. This draft bill lays out a potential widespread shake-up of higher education in the UK, including the abolishment of HEFCE, the introduction of a Teaching Excellence Framework, a reduction in the costs of the Research Excellence Framework, and proposals towards widening access and encouraging diversity. There have been mixed responses to the announcement, with concerns voiced by student bodies among the points we will be tracking. We will be responding to the green paper jointly with Heads of Chemistry UK.

**If you'd like to support our work, please visit [rsc.org/campaigning-outreach/campaigning](http://rsc.org/campaigning-outreach/campaigning)**

**“The Spending Review itself was critical, with broad implications for all areas of public policy for the remainder of this parliament.”**



**Dr Robert Parker FRSC, CChem**, is chief executive of the Royal Society of Chemistry.

# Diary

Your guide to all important events

## IN THE DIARY

Conferences	16
Events	17
Eastern	17
International	17
Ireland	17
Midlands	17
North East	18
North West	18
Scotland	18
South East	18
South West	19
Vacancies	20
Notices	21
Deaths	23

## NOTICES



Find out how we're combating antimicrobial resistance, on p21.

## 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

### Reaction Rate Theory

19–21 September 2016  
Cambridge, UK

**Oral abstract submission deadline – 18 January 2016**

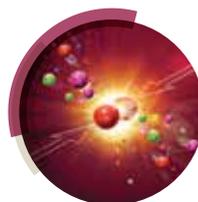
Reaction rate theory has developed rapidly in recent years and is being used to interpret and simulate an ever-growing range of challenging rate-processes in chemistry, physics and biology. New theories and methodologies have been developed to treat processes including coupled proton and electron transfer, enzyme catalysis, nucleation and transport through cell membranes. Underlying these disparate areas of rate-theory are a common language, techniques and methodology.

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

- fundamentals;
- non-adiabatic reactions;
- new methods for rare event sampling; and
- large systems.

Join us in Cambridge, September 2016 – register online now.

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



Faraday Discussion

### Aggregation Induced Emission

18–20 November 2016  
Guangzhou, China

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

Aggregation-induced emission (AIE) offers a new platform for exploration of practically useful luminescent materials. This meeting will focus on the issues associated with development of new fluorescent and phosphorescent AIE-active luminogens (AIEgens) – particularly advanced functional AIEgens with stimuli-responses – and exploration of their high-tech applications, especially in the area of biomedical research.

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

- new and efficient fluorescent and phosphorescent luminogens;
- advanced functional luminogens in the solid-state;
- biomedical applications of luminogens; and
- optoelectronic devices of high efficient luminogens in the solid state.

**Spaces are limited: register now**

This meeting will discuss the progress made in the field, current challenges and potential breakthroughs in the near future.

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



## ANNOUNCING

### Challenges in Nanoscience (ISACS)

10–13 November 2016  
Beijing, China

<http://rsc.li/isacs21>

## DATES AND DEADLINES

### Challenges in Organic Chemistry (ISACS19)

20–23 March 2016  
Irvine, USA

Poster abstract deadline – 11 January 2016

<http://rsc.li/isacs19>

### Advanced Vibrational Spectroscopy for Biomedical Applications

21–23 March 2016  
Cambridge, UK

Early bird registration deadline – 1 February 2016

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

### Designing New Heterogeneous Catalysts

4–6 April 2016  
London, UK

Early bird registration deadline – 15 February 2016

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

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

6–8 April 2016  
London, UK

Early bird registration deadline – 15 February 2016

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

### Liquid Salts for Energy and Materials (Faraday Discussion)

11–13 May 2016  
Ningbo, China

Poster abstract deadline – 29 February 2016

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

# Events

## Further information

The RSC News Diary this month lists Royal Society of Chemistry events from January to February 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

### East Anglia Section

#### Gourmet Evening and Annual General Meeting

26 January  
City College Norwich  
Talk: Meat Misconduct and Olive Oil Offences: Fighting Food Fraud Using Analytical Chemistry, presented by Dr Kate Kemsley, from the Institute of Food Research, followed by dinner. The talk will be preceded by the Section's AGM.  
**Contact Tharin Blumenschein**  
+44 (0)1603 592963  
t.blumenschein@uea.ac.uk

### Other Events

#### Eastern Regional Meeting

21 January  
Stevenage Arts & Leisure Centre  
The meeting is open to all those involved in our Boards, Committees and our Representatives and members who live in the area where the meetings are held. 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 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

## INTERNATIONAL

### Africa

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

11-12 February  
Eko Hotel, Lagos, Nigeria  
The scientific programme 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. 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 entrepreneur's business forum.  
**Contact RSC Events Team**  
+44 (0)1223 434048  
events@rsc.org

### India

#### Faraday Division Nanoparticle Assembly – From Fundamentals to Applications: Faraday Discussion

7-9 January  
Mumbai, India  
This Faraday Discussion will focus on the rapidly evolving field of nanoparticle self- and driven assembly, with a view to understanding how evolving developments in the fundamentals can be translated into science / property principles underpinning applications. There is a need for the study of disordered self-assemblies of nanoparticles, in contrast with the focus in the literature which has been on ordered nanoparticle assemblies. The meeting will also be an opportunity to consider the implications of these ideas for the broader field of soft matter.

## Teacher Training Scholarships

Inspire the next generation  
Find out if you qualify

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



**Contact RSC Events**  
+44 (0)1223 434048  
events@rsc.org

## IRELAND

### Other Events

#### Ireland Regional Meeting

28 January  
Hastings Europa Hotel Belfast  
The meeting is open to all those involved in our Boards, Committees and our Representatives and members who live in the area where the meetings are held. 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 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

## MIDLANDS

### North Staffordshire Section

#### Top of the Bench Regional Heat

16 January  
Lennard-Jones Laboratories, Keele University  
This year we are not running a preliminary round, but are inviting schools directly to the Regional Heat. Each team should be made up of two students from year 9, one student from year 10 and one student from year 11. In order to widen participation we ask that only students that have not taken part in the competition previously are nominated.  
**Contact Sue Blake**  
sueblake62@gmail.com

### Other Events

#### Biomaterials Chemistry Group Meeting

7-8 January  
University of Birmingham  
This Special Interest Group provides a focus for groups in UK universities and industry working on the synthesis and characterisation of biomaterials.

There will also be a dinner and social event held in Birmingham city centre.

**Contact Kathleen Hynes**  
+44 (0)121 414 5347  
k.m.hynes@bham.ac.uk

### Education Division – Midlands Nanotechnology

19 January  
University of Birmingham  
A lecture for Sixth Form pupils. Nanotechnology is the science of the infinitely small and is likely to be increasingly important in its leading to significant developments in medicine, manufacturing and computing. Tickets are free of charge but registration is required.  
**Contact N Briggs**  
+44 (0)1827 311205  
briggswmctc@btinternet.com

### 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 who live in the area where the meetings are held. 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 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. Many carbon compounds contain a chiral carbon atom and this leads to two forms (enantiomers) of the same compound. Chemically they are similar but they may have different properties and behaviour. Tickets are free but registration is required.  
**Contact N Briggs**  
+44 (0)1827 311205  
briggswmctc@btinternet.com

## EVENTS

### NORTH EAST

#### Hull and East Yorkshire Section

##### Café Scientifique – The Science of Skincare

27 January  
The White Horse Inn (Nellies),  
Beverley  
**Contact Mark Lorch**  
+44 (0)1482 465687  
m.lorch@hull.co.uk

#### Newcastle upon Tyne and North East Section

##### Seminar – Molecular Simulation Methods for Ensemble-Based Drug Design

13 January  
University of Sunderland  
Dr Julien Michel, University of  
Edinburgh, will discuss molecular  
simulation methods for ensemble-  
based drug design. All welcome.  
**Contact Graeme Turnbull**  
+44 (0)191 227 4228  
g.turnbull@northumbria.ac.uk

### NORTH WEST

#### Cumbria Section

##### Joint Institution Group Student Aspiration Workshops Part 2: Getting Selected

14 January  
Lakes College, Workington  
A short, no-nonsense workshop,  
giving you real insight from real  
professionals to get you ahead in  
your selection process. We will  
guide school students through  
the typical stages of the selection  
processes used by employers,  
colleges, universities and voluntary  
organisations.  
**Contact Kevin Webb**  
+44 (0)19467 79264  
kevin.j.webb@nnl.co.uk

##### Christmas 2015 Meal

22 January  
The Manor House Hotel,  
Cockermouth  
The event is held in January to  
avoid clashes with other Christmas  
events. People must contact the  
secretary to attend. A contribution  
of £10 per head is required.  
**Contact Kevin Webb**  
+44 (0)19467 79264  
kevin.j.webb@nnl.co.uk

##### Test the Chemist Pub Quiz

28 January  
The Chase Hotel, Whitehaven  
Our annual quiz is mainly on  
general knowledge with free entry,  
prizes and refreshments available.  
See below for contact if you wish  
to enter a team.  
**Contact**  
+44 (0)19467 79264  
kevin.j.webb@nnl.co.uk

#### Lancaster and District Section

##### Annual General Meeting Followed by a Lecture – The Braer Oil Disaster: The Clean Up

9 February  
Lancaster University  
**Contact Harry Clarke**  
+44 (0)1995 640003  
hclarke906@btinternet.com

#### Other Events

##### North West Regional Meeting

11 February  
The Bluecoat, Liverpool  
The meeting is open to  
all those involved in our  
Boards, Committees and our  
Representatives and members who  
live in the area where the meetings  
are held. 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  
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

### SCOTLAND

#### Other Events

##### Organic Division 44th Scottish Regional Meeting of the Organic Division

13 January  
University of Aberdeen.  
Plenary, Prof A P Davis, University  
of Bristol, RSC Physical Organic  
Chemistry Award Winner 2014  
**Contact Marcel Jaspars**  
+44 (0)1224 272895  
m.jaspars@abdn.ac.uk

### SOUTH EAST

#### Downland Section

##### Top of the Bench

11 January  
Sir William Perkins's School,  
Chertsey  
A heat of the Top of the Bench  
schools' competition.  
**Contact Chris Williamson**  
+44 (0)1372 451499  
chris\_williamson@btopenworld.  
com

##### Top of the Bench

14 January  
City of London Freemen's School,  
Ashted  
A heat of the Top of the Bench  
schools' competition.  
**Contact Chris Williamson**  
01372 451499  
chris\_williamson@btopenworld.  
com

##### Top of the Bench

21 January  
Lancing College  
A heat of the Top of the Bench  
schools' competition.  
**Contact Chris Williamson**  
+44 (0)1372 451499  
chris\_williamson@btopenworld.  
com

#### Thames Valley Section

##### Senior Members' Pub Lunch

8 February  
Houses of Parliament  
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

##### Radiochemistry Group Frontiers in Environmental Radioactivity

6-7 January  
The Royal Society of Chemistry,  
Burlington House, London  
The symposium will focus on  
recent and future advances in  
Environmental Radioactivity  
research with an emphasis on  
the use of advanced techniques  
including Synchrotron, Laser,  
Neutron, and Scientific Computing  
facilities.  
**Contact Oliver Street**  
+44 (0)161 275 7596  
envradnet@manchester.ac.uk

##### Inorganic Biochemistry Discussion Group / Dalton Division RJP Williams Memorial Symposium

7 January  
University of Oxford  
The programme will feature  
a range of scientists with  
connections to Professor Williams.  
There will be a dinner in the  
evening at Wadham College.  
**Contact Nick Le Brun**  
+44 (0)1603 592699  
N.Le-brun@uea.ac.uk

##### Heterocyclic and Synthesis Group January Meeting and Annual General Meeting

8 January  
Institute of Cancer Research,  
Chelsea  
Three plenary sessions plus three  
supporting lectures, from UK and  
European speakers.  
**Contact Sharon Rossiter**  
+44 (0)1707 285205  
s.rossiter@herts.ac.uk

##### South East Regional Meeting

12 January  
The Royal Society of Chemistry,  
Burlington House, London  
The meeting is open to  
all those involved in our  
Boards, Committees and our  
Representatives and members who  
live in the area where the meetings  
are held. 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  
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

##### Energy Sector Next Generation Materials for Solar Photovoltaics

13 January  
The Royal Society of Chemistry,  
Burlington House, London  
A symposium on recent advances  
in Solar Photovoltaics with a focus  
on materials for organic, inorganic  
and hybrid thin film cells. Six guest  
speakers plus contributing oral and  
poster presentations.  
**Contact Nigel Mason**  
+44 (0)7799 657962

##### UK-Korea Symposium on Lithium and Sodium Batteries

18-19 January  
The Royal Society of Chemistry,  
Burlington House, London  
This symposium will be a joint

meeting organised with Ulsan National Institute of Science and Technology (UNIST). The focus for this symposium will cover all aspects of lithium-ion, sodium-ion and metal-air batteries (for e.g. Li, Na and Zn). It will feature talks showcasing some of the best research from Korea and the UK with opportunities to highlight recent developments and identify emerging and future areas of growth in this exciting field.  
**Contact RSC Events Team**  
 +44 (0)1223 434048  
 events@rsc.org

### An Introduction to Regulatory Affairs

3 February  
 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

### 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, 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  
 maggi@maggichurchousevents.co.uk

## SOUTH WEST

### Mid-Southern Counties Section

#### Give Me Strength!

9 January  
 University of Southampton  
 It is the energy stored in chemical substances that makes life possible and releasing that energy to show you can be a lot of fun! Nick Barker runs a schools outreach programme at Warwick University's Department of Chemistry and in this practical demonstration lecture he will explain (and at times explode) the reactions that quite literally run our lives.  
**Contact Prof Gill Reid**  
 +44 (0)2380 593609  
 G.Reid@soton.ac.uk

### Other Events

#### Analytical Division – Western RSC School's Analyst Competition: South West

27 January  
 Centre for Chemical Sciences, Plymouth University  
 This national competition is run by the Analytical Division for first year 6th Form or equivalent. The competition has two stages: regional heats and a national final, where up to 16 regional heat winners compete for the Challenge Shield and significant cash prizes for themselves and their schools.  
**Contact Lindsey Cooper**  
 +44 (0)1752 587984  
 lindsey.cooper@plymouth.ac.uk

#### South West Regional Meeting

Grand Harbour Hotel, Southampton  
 25 February  
 The meeting is open to all those involved in our Boards, Committees and our Representatives and members who live in the area where the meetings are held. 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 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

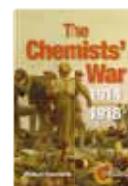


# 35% discount

for Royal Society of Chemistry members

on 1,300 books like these...

1. Colour Chemistry
2. The Chemists' War
3. Exploring Materials through Patent Information



Only available at  
[www.rsc.org/books](http://www.rsc.org/books)

(enter your membership number at the checkout)



Registered charity number: 207890

## Royal Society of Chemistry Approved training course database

Did you know we approve classroom based, lab based and e-learning activities?

### Apply for the Royal Society of Chemistry seal of approval:

- list your course in our new database specifically for chemical scientists
- receive discounted advertising in *Chemistry World*
- feature the Royal Society of Chemistry logo on your promotional material

### Find out how to apply

For full details contact us at [cpd@rsc.org](mailto:cpd@rsc.org)



Registered charity number: 207890

# Vacancies for elected positions on boards and divisions

We would like the members serving on our governance bodies to represent the breadth and diversity of the chemical sciences, with reference to industrial and academic backgrounds, geographical spread, gender, ethnicity and age range. We are now looking for our members' nominations to fill the vacancies below, to help us achieve this goal. All vacancies will be filled in accordance with the current by-laws and electoral regulations at the Annual General Meeting to be held in London on 6 July 2016.

## Board vacancies

Vacancy for one elected member of Membership and Qualifications Board (MQB) and one elected member for the Science, Education & Industry Board (SEIB). For further information go to <http://rsc.li/vacancies-elections>

## Division vacancies

### ANALYTICAL

Vacancies for president-elect of the division, honorary treasurer and two elected members of the division council [rsc.li/analytical-division-council](http://rsc.li/analytical-division-council)

The Analytical Division Council announces **Professor Duncan Graham CChem FRSC FRSE**, University of Strathclyde as their nominee for president-elect and **Professor John Dean CSci CChem FRSC**, Northumbria University as their nominee for honorary treasurer.

### CHEMISTRY BIOLOGY INTERFACE

Vacancies for president-elect of the division and two elected members of the division council [rsc.li/cbid-council](http://rsc.li/cbid-council)

The Chemistry Biology Interface Division Council nominee for president-elect is **Professor Robert Field CChem MRSC**, John Innes Centre, Norwich.

### DALTON

Vacancies for two elected members of the division council [rsc.li/dalton-division-council](http://rsc.li/dalton-division-council)

### EDUCATION

Vacancies for president-elect of the division and two elected members of the division council <http://rsc.li/education-division-council>

The Education Division Council nominee for president-elect is **Professor Simon Lancaster CChem FRSC**, University of East Anglia.

### ENVIRONMENT, SUSTAINABILITY AND ENERGY

Vacancies for president-elect of the division and two elected members of the division council <http://rsc.li/esed-council>

The Environment, Sustainability and Energy Division Council nominee for president-elect is **Professor Mercedes Maroto-Valer FRSC FRSE**, Heriot-Watt University.

### FARADAY

Vacancies for two elected members of the division council [rsc.li/faraday-division-council](http://rsc.li/faraday-division-council)

### INDUSTRY AND TECHNOLOGY

Vacancies for president-elect of the division and two elected members of the division council [rsc.li/itd-council](http://rsc.li/itd-council)

The Industry and Technology Division Council nominee for president-elect is **Professor Roy Sandbach FRSC**, National Centre for Ageing, Science and Innovation.

### MATERIALS CHEMISTRY

Vacancies for two elected members of the division council [rsc.li/mcd-council](http://rsc.li/mcd-council)

### ORGANIC

Vacancies for two elected members of the division council [rsc.li/organic-division-council](http://rsc.li/organic-division-council)

Nomination forms, electoral regulations and guidance for candidates are available through the above links. General information on Royal Society of Chemistry governance can be found at [rsc.org/about-us/our-structure](http://rsc.org/about-us/our-structure)

## Election procedure

If you would like to go up for election for one of these vacancies, please submit your nomination using the form that is available on the Royal Society of Chemistry website.

It incorporates a signed declaration by the nominee that he/she is willing to make the necessary commitments if elected. A nomination must also be supported by the number of members specified. Members can only support the nomination of one candidate.

Members may also request a nomination form and additional information by emailing [election@rsc.org](mailto:election@rsc.org), or by post to Hilary Beckett, Royal Society of Chemistry, Burlington House, Piccadilly, London, W1J 0BA or phone (+44 20 7440 3341).

The vacancy for which the information is required must be indicated.

**Nominations must be received by the closing date, 4 March 2016.**

The Royal Society of Chemistry will contract with Mi-Voice to manage any elections that are required.

Our 2016 elections will be conducted by an electronic service only however a request telephone line and website link will be provided for our members who require a postal ballot pack to be sent.

**Further information will be provided in the February 2016 edition of RSC News.**

# Notices

## Combining expertise to tackle antibiotic resistance

Coinciding with George Osborne's funding announcements in support of infectious disease research, we held the Antibiotics Resistance Mechanisms workshop (ARM 2015) in Birmingham from 26-27 November.

The British Society for Antimicrobial Resistance (BSAC) have organised this meeting since 2006, providing a forum for researchers to share expertise and knowledge. For the first time, we partnered on the two-day workshop which included a broad range of topics covering clinical research, cell biology, molecular biology, structural biology, medicinal chemistry, natural product chemistry, organic chemistry and chemical biology.

By 2050, antimicrobial resistance could kill an extra 10 million people every year and cost the world's economy around \$100 trillion, reducing global GDP by 2.24%. Hendrik W van Veen, Chair of ARM 2015, said: "Solving the problem of microbial drug resistance requires input from several different sources, including chemistry, pharmacology, microbiology, and the clinical sciences. The interaction between BSAC and the Royal Society of Chemistry brought together scientists from exactly these areas".

130 delegates from over 40 institutions participated in the workshop including excellent talks and posters across the two days, as well as opportunities for scientists to network and exchange ideas. This activity is part of programme aiming to support the chemical sciences research community to fully contribute to tackling antibiotic resistant infections. Find out more about our activities at [rsc.org/health](http://rsc.org/health)



## Changes in Standards required for the award of Chartered Scientist (CSci)

The award of Chartered Scientist is a professional qualification offered by the Royal Society of Chemistry under licence from the Science Council. This award is available to those with a Masters level knowledge of science and suitable professional experience. The Science Council have recently revealed plans to change the skills applicants need to evidence for this award.

**The new competencies will be:**

A	Application of knowledge & understanding
A1	Use specialist experiential knowledge and broader scientific understanding to optimise the application of existing and emerging science and technology
A2	Exercise sound judgement in the absence of complete information and in complex or unpredictable situations.
A3	Demonstrate critical evaluation of relevant scientific information and concepts to propose solutions to problems
B	Personal responsibility
B1	Work autonomously and take responsibility for the work of self and others
B2	Promote and implement robust policies and protocols relating to health, safety and security
B3	Promote and ensure compliance with all relevant regulatory requirements and quality standards
B4	Oversee the implementation of solutions with due regard to the wider environment and broader context.
C	Interpersonal skills
C1	Demonstrate the ability to communicate effectively with specialist and non-specialist audiences
C2	Demonstrate effective leadership through the ability to guide, influence, inspire and empathise with others
C3	Demonstrate the ability to mediate, develop and maintain positive working relationships
D	Professional practice
D1	Scope, plan and manage multifaceted projects.
D2	Demonstrate the achievement of desired outcomes with the effective management of resources and risks.
D3	Take responsibility for continuous performance improvement both at a personal level and in a wider organisational context.
E	Professionalism
E1	Demonstrate understanding and compliance with relevant codes of conduct
E2	Demonstrate a commitment to professional development through continuing advancement of own knowledge, understanding and competence

If you would like further information regarding the award of CSci please email Kim Smith on [CSci@rsc.org](mailto:CSci@rsc.org)

## Biological and Medicinal Chemistry Sector prizes

The Royal Society of Chemistry Biological and Medicinal Chemistry Sector is proud to announce the winners of the Malcolm Campbell Memorial Prize for 2015. The prize has been awarded to Miles Congreve, Fiona Marshall and Malcolm Weir for the seminal contributions to GPCR drug discovery made by Heptares Therapeutics Ltd since it was founded in 2007. This has included building the world-renowned StaR© technology platform for X-ray crystallography of GPCRs. The winners are particularly commended on their outstanding publication record, and on their willingness to release data into the public domain.



► Dr Nadia Ahmad from the Biological and Medicinal Chemistry Sector committee presented our past president, Sir Simon Campbell, with the lifetime achievement award in medicinal chemistry at the 18th RSC-SCI Medicinal Chemistry Symposium. Dr Ahmad described Sir Simon as "a medicinal chemist who has successfully overcome multiple obstacles in delivering not only clinical candidates but actual successful medicines", and explained that, during his 26 years at Pfizer, "Sir Simon was part of many teams, working on numerous therapeutic targets and disease areas".

◀ Sir Simon Campbell (left) presenting to the winners from Heptares: Miles Congreve, Fiona Marshall and Malcolm Weir.



IMAGES COURTESY OF NIGEL SWAIN

## Organic Poster Symposium

The 2015 RSC Organic Division Poster Symposium took place on 30 November at Burlington House in London. The symposium, supported by headline sponsor F Hoffmann-La Roche Ltd, provided a fantastic opportunity for 40 final year organic chemistry PhD students to showcase their research and network with peers, leading academics, and industrial chemists.

Professor Stuart Conway, from the University of Oxford and chair of the scientific committee, emphasised the importance of communicating scientific research in the opening remarks.

Our judges, Jonathan Clayden (University of Bristol), Veronique Gouverneur (University of Oxford) and David Rees (Astex Pharmaceuticals) were impressed with the high level of work on display and the enthusiasm of the students as they presented their posters.

After lengthy deliberations, the judges awarded first prize to Hiroki Wada, from Professor Christopher Moody's group at the University of Nottingham, for his work on the total synthesis of plantazolicin A demonstrating a protocol for potential antimicrobial compounds

Second prizes went to Keith Andrews from the University of Nottingham and Giacomo Criszenza from the University of Bristol.

The industry prize was awarded to Joanne Sadler, from the University of Strathclyde and GlaxoSmithKline, for her poster on the development and understanding of NovO as a biocatalyst for the Friedel-Crafts alkylation and fluoroalkylation.

Finally, all of the presenters were asked to vote for their favourite poster. The winner of the participants' prize was Jorge Gonzalez from the University of Edinburgh.



© ROYAL SOCIETY OF CHEMISTRY / MPP IMAGE CREATION

## The Roy L Whistler International Award in Carbohydrate Chemistry 2016

The International Carbohydrate Organization is delighted to announce that the Roy L Whistler International Award in Carbohydrate Chemistry for 2016 has been awarded to Professor Benjamin G Davis, Professor of Chemistry at the University of Oxford.

In 1984, the International Carbohydrate Organization established the Award in honour of Professor Whistler, to recognise scientists 'who have made contributions of excellence in carbohydrate chemistry and biochemistry and with promise of continuing significant contributions'. The Award is recognised with a plaque, a cheque for US \$25,000, and an invitation to present the opening lecture at the International Carbohydrate Symposium (ICS). The next ICS will be held in New Orleans, USA from July 17 to 22, 2016. Prof Davis has published over 200 papers, a book (*Carbohydrate Chemistry*, with Antony Fairbanks), and more than 30 patents, and has founded two companies (Glycoform and Oxford Contrast). He was a recipient of the RSC Corday-Morgan Medal, and was elected as a fellow of the Royal Society earlier this year.

## Seville EuCheMS congress is on its way

You are warmly invited to the sixth European Congress of the Association of Chemical and Materials Societies (EuCheMS) in Seville, Spain, on 11 September 2016. Plans are developing for a wonderful celebration of chemistry, with plenary, invited and contributed lectures on topical areas of modern, fundamental and applied chemistry, by some of Europe's and the world's most distinguished chemists.



## A century and celebration of accreditation

AWE have celebrated a decade of their successful accredited scheme, as well as their 100th candidate through the scheme. Dr Jenny Boxwell from AWE says: "I feel privileged to have been part of the RSC-Accredited Scheme, in one way or another, for the 12 years it has existed. I was very proud to be one of the first three (female) members of staff to achieve chartership via the scheme in 2005.

"I was appointed as a Royal Society of Chemistry Site Representative soon after being awarded CChem and have since worked closely with Duncan Broughton, Head of Profession Chemistry and Materials, to manage the Accredited Scheme.

"The HoP Chemistry and Materials Support Team meet regularly with a focus on enhancing the profile of the RSC at AWE. It is wonderful to recognise the 10th anniversary of the scheme, as well as the 'graduation' of the 100th candidate from the scheme." **See inside cover for images.**

## Finnish SitSit celebrates chemistry

Our Finnish Local Section held its annual SitSit dinner at the end of October, at Aalto University Campus in Otaniemi, Espoo (Finland). A SitSit is traditionally a dinner party organised by students in Finland and in Sweden, and it has been adapted to the RSC Finnish Local Section where every year, since 2008, there is a distinguished invited speaker followed by a relaxed evening to share science, good food and drinks. This year, the guest speaker was Mervyn Richardson, EurChem, CChem, FRSC.

Mervyn is more than 80 years old but is still very active and now lives permanently in Vilnius, Lithuania. Mervyn has enjoyed over 60 years of RSC membership, was twice a Council member, edited a number of RSC Books, and was chairman / Founder Member of the Toxicology Group and Water Forum. Mervyn spoke on his many years of enjoyable RSC Membership, emphasising the advantages both professionally and financially of being a Chartered Chemist and gave examples of 'culinary delights experienced by a UN Field Officer'! His examples contrasted with the excellent food provided by the RSC Finnish Section executive committee.

Our Finnish Section has around 45 members and is headed by Dr Maria Soledad Peresin (VTT, Finnish Research Centre), pictured with Mervyn and his wife, Dr Anolda Richardson.



© ROYAL SOCIETY OF CHEMISTRY

## Deaths

**Mr Stephen John Baldwin CChem MRSC** Senior analyst, AstraZeneca Pharmaceuticals. Died 25 October 2015, aged 56

**Dr David William Bassett MRSC** Retired lecturer in chemistry. Died 4 October 2015, aged 81

**Mr Peter Joseph Belling CChem MRSC** Retired, Severn Trent Water. Died 21 August 2015, aged 84

**Dr Frederick Alan Burden CChem MRSC** Retired. Died 29 October 2015, aged 95

**Mr Brian Cyril Burdett CChem MRSC** Retired executive manager, British Textile Technology Group. Died 11 October 2015, aged 81

**Dr Dan Anton Ciomartan MRSC** Self-employed. Died 24 September 2015, aged 77

**Dr Brigid Cummins CChem MRSC** Retired science teacher, Rathdown School. Died March 2015, aged 81

**Professor John Alastair Duffy CChem FRSC** Emeritus Professor of chemistry, University of Aberdeen. Died 2 November 2015, aged 83

**Miss Maureen Josephine Easton MRSC** Retired. Died 13 August 2015, aged 62

**Mr Thomas Bruce Fox CChem MRSC** Retired section leader, British Nuclear Fuels Plc. Died 20 August 2015, aged 79

**Miss Sandra Elizabeth Goodwin MRSC** Technical quality assurance specialist, Abbott Diabetes Care Ltd. Died 30 October 2015, aged 47

**Professor Gilbert Pierce Haight MRSC** Retired affiliate professor, University of Washington, USA. Died 27 April 2015, aged 92

**Mr Michael Geoffrey Hall CChem MRSC** Retired. Died 19 October 2015, aged 88

**Mr Derek Halliday CChem FRSC** Retired technical inspector / consultant, Crown Agents. Died 27 October 2015, aged 84

**Mr Harry Hinchcliffe CChem MRSC** Retired research chemist, ICI Plc. Died 5 November 2015, aged 82

**Mrs Paula Frances Kernaghan MRSC** Senior chemist, Alex Stewart Agriculture Ltd. Died 27 July 2015, aged 50

**Mr Raymond Reginald Knowland CBE CChem FRSC** Retired managing director, BP Plc. Died 14 October 2015, aged 85

**Professor Akira Kogure MRSC** Retired Professor, Osaka Commercial University. Died 13 October 2015, aged 99

**Dr Peter Frederick Lloyd CChem FRSC** Honorary research fellow, Bangor University. Died 20 October 2015, aged 88

**Dr Thomas Reid Lowther CChem FRSC** Retired. Died 30 June 2015, aged 88

**Mr Leslie Albert Stanley Mallows CChem MRSC** Retired research chemist, Unilever Research. Died 28 October 2015, aged 91

**Mr Philip Edward Milsom CChem FRSC** Retired science manager, John & E Sturge Ltd. Died September 2015, aged 92

**Dr Raymond Oliver CChem MRSC** Self-employed chemistry tutor. Died 6 September 2015, aged 68

**Dr Ernest Ronald Page CChem FRSC** Retired, Medinol Ltd. Died 24 September 2015, aged 91

Mr Jonathan Partington CChem MRSC Retired chief chemist, Lee Valley Water. Died 2 April 2015, aged 81

**Professor Anthony John Poë MRSC** Emeritus Professor of chemistry, University of Toronto. Died 23 August 2015, aged 86

**Professor Ian Durham Rattee OBE CChem FRSC** Retired company chairman, Textech (UK) Ltd. Died 15 May 2015, aged 89

**Mr Peter John Rennie CSci CChem MRSC** Retired. Date of death not supplied

Mr George Allen Stoddart MRSC Retired head of biology department, Glaxo Operations (UK) Ltd. Died 10 October 2015, aged 86

**Mr David Sloan Thirkell MRSC** Retired senior chemist, Tasmanian Government Analyst Laboratory. Died 14 September 2015, aged 87

**Miss Nan Williams CChem MRSC** Retired. Died 21 March 2015, aged 93

**Dr Derek Ernest Wright CChem FRSC** Retired physical science manager, Phone-Roulenc Rorer. Died 6 October 2015, aged 86

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.



# Stay part of the world's leading chemistry community

Renew your membership to the Royal Society of Chemistry

## Pay online

Go to <http://rsc.li/member-renewal> and enter your membership number and password

## Set up a direct debit

Set up a monthly or annual direct debit online at <http://rsc.li/member-direct-debit> or by returning the direct debit request form that is attached to your payment slip

## Renew by post

If you have received a subscription renewal form, simply fill in your details and return it to our Membership department

## Any questions?

Call our Membership team on +44 (0)1223 432141 or email us at [membership@rsc.org](mailto:membership@rsc.org)

Your membership fee is now due

[www.rsc.org/renew](http://www.rsc.org/renew)

Registered charity number: 207890



THE QUEEN'S AWARDS  
FOR ENTERPRISE:  
INTERNATIONAL TRADE  
2013