

RSC NEWS

OCTOBER 2015 www.rsc.org

The results are in –
our pay and reward
survey

Creating
researcher links
around the world
p10

A summer of
chemistry
p12





▲ Festivals

Our Education Coordinators spread the positive message of chemistry all year – see p12 for the full story of their summer of festivals.

▼ Honorary FRSCs

Two Nobel Laureates for the price of one.... There's more about Eric Betzig and William E Moerner's involvement with our Faraday Discussion and poster session in the Snapshot on p4.



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Snapshot

A look at the latest news from around the world

INBRIEF

Open House 2015

On 19 September, the Royal Society of Chemistry greeted 2,319 visitors at Burlington House as part of London's Open House event. Open House London encourages people to appreciate the architecture and design of the city, and allows rare access to many buildings that are typically closed to the public.

Enthusiasts of architecture, art, and chemistry were among the guests, as well as those who had just happened across the building on the day. They were welcomed by our volunteers who explained the different features of the building, its art, and its history. Chemistry had pride of place, as colleagues demonstrated oxidation of methylene blue, and indigo carmine, in colour change experiments. The visitors also learned how lemon juice can be used as an invisible ink.

The history of the Royal Society of Chemistry was also popular with visitors who observed the bust of Robert Boyle by Giovanni Battista Guelfi, Priestly's pump, the stained glass windows on the main staircase, and the RSC war memorial. Our collection of paintings and books drew lots of attention – from the 1855 rendering of Michael Faraday's Royal Institution Christmas Lecture to the more contemporary 2012 portrait of Lesley Yellowlees, president from 2012 to 2014.

Event organiser Carrie Boyce from our Outreach team said: "Burlington House provides a great range of attractions for visitors, and the volunteers from RSC staff really see the building with fresh eyes as they have a chance to explain the different rooms, as well as our activities promoting the chemical sciences. It's an amazingly busy day but we see plenty of smiles to make it all worthwhile."



Volunteers gather in the Library at the start of Open House London on 19 September.

Faraday Discussion welcomes Nobel Laureates

We welcomed two of 2014's Chemistry Nobel Prize winners at our latest Faraday Discussion, on Single-Molecule Microscopy and Spectroscopy.

Both William E Moerner (Stanford University) and Eric Betzig (Howard Hughes Medical Institute), who alongside Stefan W Hell (Max Planck Institute for Biophysical Chemistry) won the prestigious award "for the development of super-resolved fluorescence microscopy" last October, offered their perspectives on the field and highlighted recent developments, at the three-day event at Burlington House.

The Nobel Prize winners were also presented with Honorary Fellowships by our President Dominic Tildesley, who recognised their significant contributions to the field of microscopy.

Moerner, who opened the event, spoke about his work in single-cell microscopy, describing how his life had changed since winning the prize. "My life has changed significantly with so many new responsibilities and invitations to speak at many places all over the world," he said. Moerner, while attending his first Faraday Discussion. "The original work was done 26 years ago, and since then there have not been many advances and discoveries of different properties of singular molecules, which are very exciting."

He noted that as a Nobel Laureate there are more opportunities to both influence decision makers and to explain scientific concepts, such as climate change, to broader audiences. "We as scientists have to be able to explain our work to the broader public for many, many reasons – not just for support, but to raise people's awareness of what science can do," said Moerner. "The RSC honorary fellowship is an exciting recognition and I'm very happy to receive it."

Eric Betzig, who spoke about the challenges and trade-offs in live cell super-resolution imaging, said winning the Nobel Prize was testament to his team's work and all those who have supported him over the years. He said: "I'm very happy for the honorary fellowship and honoured to get it. I work with some good chemists who get me what I need, so I'd like to feel whatever awards I get in chemistry are a reflection of that team effort and recognition of what they've also contributed to it too."

The Faraday discussions have been run by the Faraday Division of the Royal Society of Chemistry for more than 100 years, with a focus on rapidly developing areas of physical chemistry.

▼ Our president, Dominic Tildesley, presenting the Nobel laureates with their honorary fellowships at Burlington House.



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Chemical Landmark for Penzance's most famous son

We unveiled our latest blue Chemical Landmark plaque – celebrating the enduring influence of Sir Humphry Davy – in Penzance on 17 September. Professor Jim Feast CBE, our past president, presented the plaque to Mr Jon Symons JP, representing the Symons family who have occupied or owned 1 Market Place for most of the period since Davy's life. Mayor of Penzance, David Nebesnick, Derek Thomas MP, and Lord St Levan of St Michael's Mount were among the attendees.

Professor Feast said: "As the world's leading chemistry community, we want to help everybody appreciate why chemistry matters – from the 26,000 students who attended a Royal Society of Chemistry event last year, to the 1.6 million visitors to our award-winning free education website, Learn Chemistry.

"Our Chemical Landmarks are a great way of helping people discover the history of chemistry in their daily lives. I am delighted we are recognising Sir Humphry Davy, one of the most inspiring chemists of the nineteenth century, here in Penzance where he began his illustrious career."

Humphry Davy is possibly one of the few historic scientists to be widely known to the general public. Many people would know him primarily through his invention, two hundred years ago this year, of a miner's safety lamp, which in contrast to previous oil lamps did not explosively ignite 'fire-damp' (methane) in mines.

Davy was born in Penzance in 1778. In 1795, he was apprenticed to an apothecary at 1 Market Place, Penzance. In 1798, Davy's master, John Bingham Borlase, recognising Davy's outstanding ability, released him early from his indentures to move to the Medical

Pneumatic Institution in Bristol. In 1801, Davy moved from Bristol to the Royal Institution in London and became one of the great scientists of his time, applying the recently discovered electric battery to isolate, for the first time, six metallic elements including sodium, potassium, and calcium.

At the presentation, Frank James, professor of the history of science at the Royal Institution, gave a lecture on the role of Cornwall in Davy's life, said: "Humphry Davy formed his Romantic approach towards nature and exploring it experimentally during his teenage years in Cornwall, which never really left him in his later career."

The award of our distinctive blue plaques emphasises public visibility, in addition to recognising sites where the chemical sciences have made a significant contribution to society. In doing so, we hope to give everyone an insight into the relevance of chemistry in their everyday lives. Ranging from sites where important chemists were born, lived or died to those where major discoveries were made, these might include schools, town centres or even holiday cottages.



INBRIEF

Inspirational Member and Committee Awards

These awards recognise the inspirational efforts of members supporting our community through member-led activities. The awards recognise committees that have initiated novel activities or approaches in order to engage or provide services for their communities.

This might include initiatives to make the committee or events more inclusive to engage new members, an activity which has had a significant demonstrable impact in the community, or other activity which demonstrably supports our wider strategy. The award for individuals recognises those who have been instrumental in driving and delivering activities that have had a demonstrable impact on their community.

Nominations are invited annually from representatives of all of our member networks although any member of the Royal Society of Chemistry may also make a nomination.

Inspirational Member Award

Professor Adrian Dobbs in recognition of his championing diversity and international collaboration as part of the Heterocyclic and Synthesis Group committee.

Dr Ann Hubbard in recognition of her outreach work reaching new audiences as part of the Downland Local Section committee.

Professor V Peesapati in recognition of his diverse range of activities as part of the Deccan Local Section committee.

Inspirational Committee Award

Biological and Medicinal Chemistry Sector in recognition of the diversity and breadth of impact of the outreach work undertaken by BMCS.

Applied Catalysis Group in recognition of the annual careers events run to demonstrate the breadth of careers in this field in addition to their scientific programme.

East Midlands Local Section in recognition of the commitment shown by the committee to maintain a diverse and balanced representation of their whole community on both the committee and in their programme of activities.

The winners will receive their awards at the 2015 General Assembly in Manchester – we'll have a longer piece about this and other GA action in the December issue of RSC News.

Teesside Training Enterprise and the University of Teesside awards ceremony

Students who completed vocational training in Teesside were presented with their certificates for Registered Scientist and Registered Science Technician at the celebration evening held at the University of Teesside on the 22 September. The Young Scientist Programme and Laboratory Apprenticeship coordinated by Teesside Training Enterprise (TTE) were accredited earlier in the year by our Admissions Committee for these awards.

Teesside and the surrounding area have had a long history with chemical industry; ICI dominated the landscape at Billingham and Wilton before the AzkoNobel takeover. At its height, around 40,000 people were employed at ICI in the 1960s, in its

wake more industries developed, such as Huntsman at Wilton.

These vocational programmes were developed to address the scientific skills gap facing many in the chemical science industry today. Learners are placed with local employers such as Lotte Chemicals UK, Huntsman Pigments and Johnson Matthey whilst completing the formal aspects of their studies at TTE and the University of Teesside. Through this combination, the learners develop the skills highly valued by employers such as taking responsibility for safe working practices and contributing to continuous performance improvement. For most this leads to permanent employment and a chance to complete their Chemistry degree.

One to one

Take advantage of a wide range of member services

Professional development with Online Career Management

As part of your ongoing professional development we offer a suite of online services including lunchtime skill-training webinars, tailored advice via email and an online professional development record to create your plan, set your goals and track your progress.

Professional development is the key to developing your career. Did you know that we have an online professional development recording system that you can use to set objectives for yourself, record your activities and plan for the future? Over 700 members have already chosen to set up their own personal, confidential record. It's a simple way to keep all of your professional development activities and thoughts in one place. Register at rsc.org/careers/cpd or contact us for further information at careers@rsc.org

Our team of qualified careers consultants organises monthly lunchtime career skills webinars which might be something to consider as part of your professional development plan. For example, in July, representatives from Johnson Matthey and Isomarse Therapeutics joined us to answer questions about the qualities they look for in employees and in September we had a webinar about finding a placement. Coming up on 21 October, at 12:30pm BST, we are hosting a webinar looking at planning for retirement. Every webinar is available to watch afterwards on our YouTube channel: youtube.com/user/wwwRSCorg

A week of webinars

During October we are organising a week dedicated to career-skills webinars. We have planned over 15 broadcasts covering different careers within the chemical sciences, and professional development advice. If you are interested in attending any of the webinars, register at my.rsc.org/chemcareers

The programme includes:

- Advice on how to find the job you want and how to make a career move (19 October).
- Career stories from people working

in academia and industry including a session on toxicology (20 October).

- Making the most of a recruitment fair, preparing for technical interviews and ensuring your applications work for you. (21 October). This day will be especially useful to members who are planning to go to Chemistry World Jobs Live.
- How to become a consultant (22 October).
- Working in an SME, where to look for SMEs, progressing your career through networking online + offline (22 October).
- Becoming a teacher (23 October).

Manage your profile online

We understand the world is changing rapidly and, with it, the skills required to help you manage your career. One of the aspects of career management we are most commonly asked about is managing your online profile. New to 2015, we are offering local workshops where you can get advice and discuss ways to create a professional and up-to-date profile online, using LinkedIn and other social media platforms. Email careers@rsc.org to find out more.

One of our aims is to provide you with information and advice that is relevant, useful, and timely in managing your career so you can find us on LinkedIn and Twitter ([@CharlieCareers](https://twitter.com/CharlieCareers), [@LauraCareers](https://twitter.com/LauraCareers), [@ChemistryJulie](https://twitter.com/ChemistryJulie), [@JobSquadRob](https://twitter.com/JobSquadRob)).

Delivered through personal accounts so you can find a careers consultant who is right for you, we offer tips, share interesting articles, let you know what we're up to and collect feedback to improve our services and listen to your ideas in real time.

Our tailored e-advice is one of our most popular online career management services. It is a very convenient way to get support wherever you are in the world. Make sure you are highlighting your potential effectively by asking for an expert opinion on your CV, cover letter or application form. To use this service simply email careers@rsc.org with your question.

We also publish award-winning online career management information. For 14-18 year olds, *A Future in Chemistry* offers engaging ways to find out about career and study options in chemistry. It has already attracted over 39,000 users and 150,000 website sessions in 2015.

One member commented:

"Wow! This is a fantastic resource for parents, students and teachers. Really liked the real-life examples of those who studied chemistry and the jobs they do now. A good, diverse mix".

See for yourself at rsc.org/careers/future/

Throughout 2016 we will be providing online career management resources across all professional stages.

To find out more about the RSC's online career management go to rsc.org/careers



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Profile

A closer look at members of our community and their interests



Jack Heal is a postdoctoral research assistant in the school of chemistry at the University of Bristol. Image © Richard Jephcote

Jack Heal

Meet the stand-up scientist creating chemistry with audiences at the Edinburgh Festival Fringe

Q Do Scientists Dream of Synthetic Sheep? What's that all about and how does it involve the Royal Society of Chemistry?

A It is based on my work as a postdoctoral research assistant in Dek Woolfson's group at the University of Bristol. We are protein designers, trying to use our understanding of chemistry to build and engineer new protein molecules that nature has not yet discovered.

My background is in maths and I try to apply bits of mathematical knowledge to our work in chemistry. We're creating molecular machines that do useful and interesting things. Examples of things that we're currently making include artificial enzymes and drug delivery systems.

I received a medium grant from the Royal Society of Chemistry's Outreach Fund to support the development and delivery of the show at the Edinburgh Festival Fringe.

Q Who came to the show?

A We billed it as the Fringe's first ever comedy lecture on synthetic biology. As a hybrid between a science talk, a stand-up comedy routine and a debate, it was a platform for discussions about genome sequencing, synthetic life, de-extinction projects and genome editing. We managed to attract audience members from a wide range of backgrounds including comedians, families, students, a few scientists and – on one occasion – a dog.

Q What do you think is the importance of reaching new audiences?

A By reaching out to new audiences, we spread the word about our science and get people talking about it. This is hugely important because the general public fund the science, but also because by entering into discussion with people you get honest reactions to big concepts, and you often get asked questions that you would not otherwise have contemplated.

I was trying to interest the public in science, but I also came back feeling hyped about the research we're doing now.

The beauty of the Free Fringe is that it's open to anyone, and the fact that all the shows are free encourages people to take risks in their choices of which shows to see. This spirit is perfect for science outreach events which have to try hard to avoid becoming 'by scientists, for scientists'.



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I also did a stand-up comedy show at the Fringe, and would advertise the two shows together to broaden the audience I could attract. I loved it when we had audience members who had been dragged to the show by one of their friends, only to end up enjoying the show and getting heavily involved in the discussions afterwards.

Q What's next for you? More science or more comedy?

A I really hope it's both. I'm enjoying science hugely at the moment and I think that as a group we are doing some great work in the area of protein design.

I'm particularly keen to do more science-based comedy. I plan to apply for follow-up funding to take another show to the Fringe next year, and I would love to take Do Scientists Dream of Synthetic Sheep? to schools and to other festivals.

For a much more in-depth exploration of the current outlook in Jack's research group, go to:

chm.bris.ac.uk/org/woolfson/papers/paper116.pdf

"I'm enjoying science hugely at the moment and I think that as a group we are doing some great work in the area of protein design."

OUTREACH FUND

The next deadline for applications to the Outreach Fund is 30 October 2015.

Through the fund, we support advocates of chemistry to develop projects that raise awareness of the place of chemistry in people's everyday lives, and/or develop the science communication skills of people who are highly trained in chemistry.

See examples of projects that we have previously supported and apply now at rsc.li/outreach-fund

The results are in – our pay and reward survey

Earlier this year we ran our biennial pay and reward survey (previously known as *trends in remuneration*), collecting data from our members to produce an authoritative report on salary, employment benefits and career satisfaction in the chemical sciences. Thank you to all of our members who took the time to complete this survey

This year's response

This year, more than 6,000 of you responded to the survey, giving us the best response rate we've seen since moving the survey online – 23%. Not only was it the largest response we've seen but it was also representative of our membership demographic, which is a huge bonus for us when it comes to interpreting the results.

The survey enabled us to build an up-to-date picture of what the salaries and benefits our members receive in their employment look like, taking into account their various circumstances e.g. location. In addition to this all members were asked to self-assess their level of responsibility.

This year's trends

The results this year did not show many differences in pay and reward trends from the previous survey in 2013, as would be expected. For example, it's no surprise that as a person's age and level of qualification increases, so does their level of responsibility and average salary.

However, in addition to building up a picture of the trends in members' salaries, this year we also focused our attention on finding out more about members' job satisfaction and what they look for and prioritise in their employment.

This year's highlights

Members with chartered status are generally found to be in positions with a higher salary than those without chartership. Although age tends to play a part in when members apply for chartered status, this trend holds true throughout all age brackets between 30 and 65, and Chartered Chemists are found to have significantly higher earning potential.

Within the British Isles, members with the highest average income were found to be in the Republic of Ireland, closely followed by those who work 'in the field' and do not have a permanent work base. Unsurprisingly, members based in South East England and Greater London are not far behind. A more detailed breakdown of salaries by location, along with age and experience, can be found in the report.

"...in addition to building up a picture of the trends in members' salaries, this year we also focused our attention on finding out more about members' job satisfaction and what they look for and prioritise in their employment."



The survey results show that the gender pay gap may show signs of closing, as there is a marked decrease, in comparison with the results of our last survey in 2013. The fact that the gap appears to be closing at the lower end of the age range may be due to the fact that employers are more flexible in how they enable their employees to work, for example by offering flexible working hours. We hope that the overall trend of a closing gap will continue in years to come, across the whole age range. The trend in pay by gender is something that we will be closely monitoring in future surveys, as we want to support both male and female members throughout their careers.

Overall, almost two in three members are satisfied with their salary and benefits, with over 80% reporting that they wish to remain with their current employer. Those who are not satisfied report that they receive fewer or lower levels of benefits than those who are.

Almost six out of ten members report that the organisation they work for offers flexible working conditions; a benefit which is highly valued by employees. This is reflected in the survey: maintaining a work-life balance is a resounding priority that members look for, closely followed by fair financial remuneration. In addition to this, over half of our members place the benefit of flexible working hours as being most important within any future employment.

This is the 41st edition of the survey, through which we provide the chemical sciences community with up-to-date information on levels of salary and benefits packages. We care about our members and want to provide the best support we can for them in their career progression.

The inclusion of more questions focusing on the benefits packages offered in employment has helped us to paint a better picture of what members want and what services we can develop to support them. We hope that the survey will also support employers in identifying what shifts they may look to take to recruit and retain the best staff to take their businesses forward.

The survey was run in partnership with an external market research agency, Research by Design, who assisted us in collating responses in the strictest confidence. The full report is already available to our members that took part in the survey. This will be available to all Royal Society of Chemistry members – free of charge – from 1 November on our careers pages, at rsc.org/careers. There will also be a *Tableau* dashboard available for members to compare their pay and reward with members of a similar demographic. For non-members this is available for £250.

WORDS

GERI KITLEY AND
JULIE FRANKLIN



Creating new researcher links

Connecting researchers from around the world helps to foster new ideas and scientific exchange – benefitting individuals and the projects they work on

Through our operational alliance with the British Council, we're one of the organisations involved in co-funding Newton Fund researcher links grants, which create new bilateral partnerships between the UK and scientifically developing countries through co-organised workshops. The first workshop we helped to fund took place in Pretoria, South Africa in September focusing on the topic of materials-based hydrogen storage.

"Hydrogen storage is currently a hot topic globally," says Prof. Robert Mokaya, of the University of Nottingham, who proposed the workshop with co-organisers from the Council for Scientific and Industrial Research (CSIR) in Pretoria. "The UK has some world-leading research efforts including in materials for hydrogen storage. More generally, sustainability with respect to energy provision is high on the research agenda for both the UK and South Africa. The work done in the two countries is complementary so we decided to build on Nottingham's links with the CSIR – in the form of ongoing collaboration between myself and Dr Henrietta Langmi – by bringing together researchers in the two countries to showcase their best research and foster collaborations and capacity building."

Hydrogen bond

The Newton Fund researcher links workshops are targeted at early-career researchers, while more experienced research colleagues attend as senior mentors. The workshop was hosted by CSIR in Pretoria, and organisers there were also keen to highlight the connections with the UK.

"South Africa has a National Hydrogen and Fuel Cells Technologies initiative known as Hydrogen South Africa or HySA," explains co-organiser Dr Henrietta Langmi of CSIR. "Within HySA one of the key research aspects is the development of hydrogen storage technologies. To the best of my knowledge, there has never been a workshop held in South Africa focusing specifically on hydrogen storage materials. I was motivated to organise this workshop so that early career researchers will get to know their peers both in South Africa and the UK, and also deepen their knowledge of the research within the hydrogen storage space. The need to further develop the link with Professor Mokaya was another motivating factor for me."

Participants from a range of universities in the UK and South Africa presented during the four-day event. There was also the opportunity to tour the CSIR laboratories, and to experience the culture and natural environment around Pretoria.

"We had an excellent group of participants, both from the UK and South Africa," says Prof. Mokaya. "The range of participants – mainly early-career researchers was just right, having been selected from a strong pool of applicants in both countries. The presence of some leading researchers as mentors worked very well. The range of topics covered by the talks meant that all participants learnt something new."

There was positive feedback from the participants too – researchers like Dr Valeska Ting from the University of Bath even tweeted through the presentations explaining how interesting they were, and talking about the beautiful surroundings.

Below and right: Lab tour of the hydrogen storage labs at CSIR.



Participants for Newton Fund workshops receive funding for travel and accommodation – allowing early-career researchers to forge new connections without extra financial burden.

"The funding we put in is matched by the British Council via the Department of Business, Innovation, and Skills. These workshops are designed to promote a positive exchange of ideas, and the strengthening of UK and international science, with the benefit of a broad base of collaboration overseas," says Dr Dave Clark, Royal Society of Chemistry head of international development.

"It was exciting to see the range of people who attended in Pretoria, and their energy for the subject. We hope that this event will prove to be the start of long-term connections between them, and that they will also encourage others to get involved in researcher links workshops," he says.

More opportunities ahead

The successful workshop in South Africa is just the beginning of our involvement in the Newton Fund. The next RSC co-funded workshop is scheduled for January 2016, in Indonesia, and the results of the two 2015 British Council calls will be known before the end of the year. More workshops will be funded from these calls.

"We are hoping to see applications from chemistry researchers during every call – the countries nominated for each call are stated on the British Council website at britishcouncil.org/education/science/newton. You can expect to see calls two or three times a year, and I look forward to seeing what partnerships emerge," says Dave.

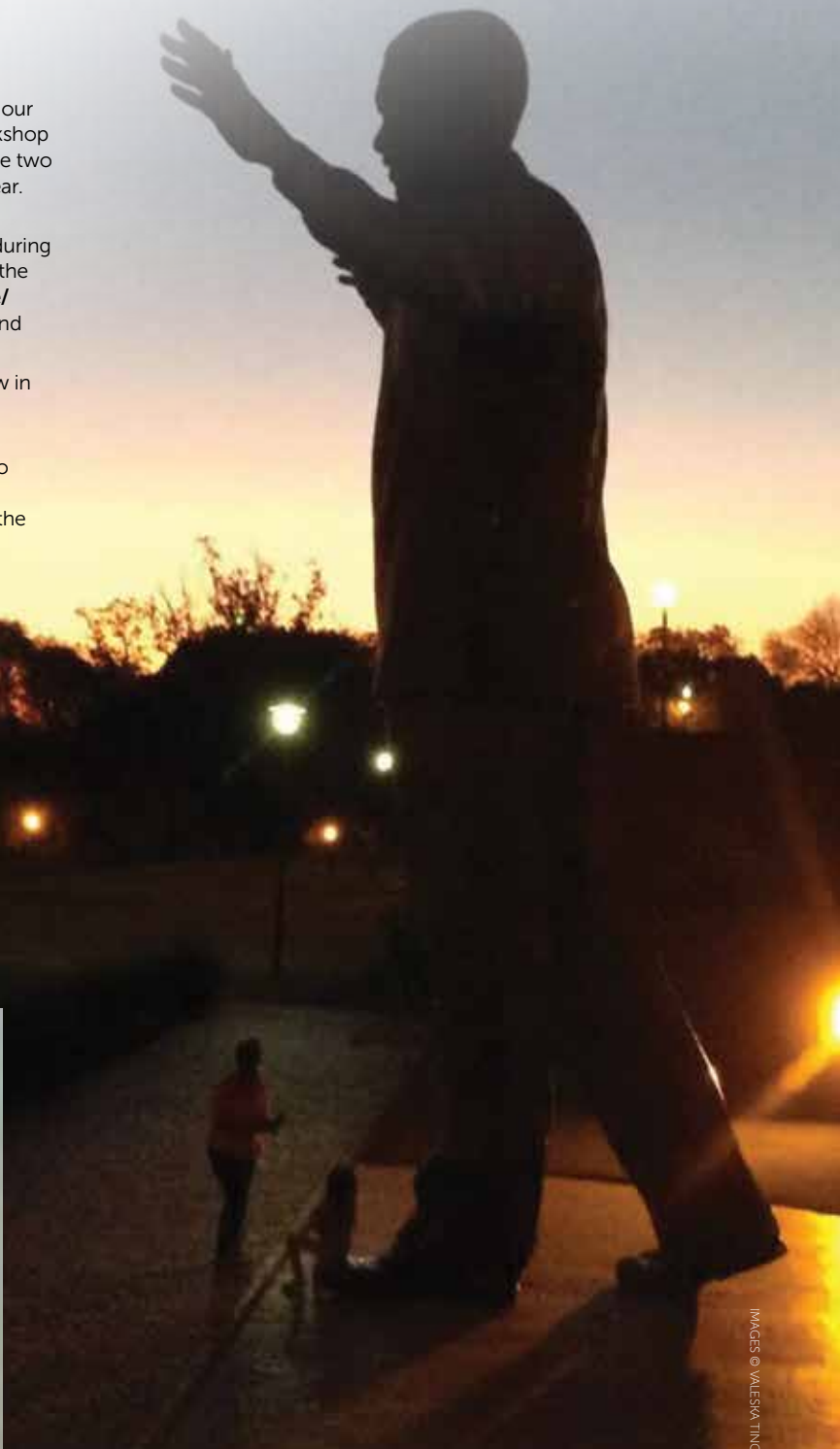
The organisers of the first workshop are keen for others to follow in their footsteps:

"I would certainly recommend the experience to others," says Prof. Mokaya. "I would advise those seeking to run a workshop to choose the topic carefully to enable a good pool of participants, and to have an overseas partner who is able to address most of the local arrangements."

"I would absolutely recommend the experience to others," adds Dr Langmi. "For me, organising this workshop has been very rewarding as it was my first time to take on a task of this nature and in my opinion the workshop was a resounding success. My advice to future applicants is that no event is too small. Organising an event like this workshop requires a bird's eye for details. So start the planning well in advance and just go for it!"

WORDS

RUTH MCAVINIA



IMAGES © VALESKA TING

Festival season

As autumn closes in, it's nice to remember a summer of chemistry at a wide range of festivals and other summer events. Our Education Coordinators keep us involved in communities up and down these islands, all year around. Here are some of the exciting things they have been doing

Big Bang North West

"Both Liverpool and Manchester Local Sections supported the RSC stand at Big Bang North West on 8 July. Five RSC STEM ambassadors from Mexichem, University of Liverpool and Office for Nuclear Regulation crewed the stand which incorporated the RSC's 2015 Global Experiment looking at hydrogels in nappies and the 'Viking Nappies experiment' from the new STEM resource for primary called Experimenting with Vikings – it's on the Learn Chemistry page. Nearly 6,000 schoolchildren attended the event at Aintree Racecourse organised by the amazing team at MerseySTEM.

The Big Bang North West also hosted the semi-finals of this year's National Science and Engineering Competition. The Liverpool and Manchester local sections agreed to sponsor an RSC Prize for Experimentation. Tom Blain, Rhys Evans, Ella Boswell, and Sam Morris from Mary Webb School and Science College won this prize for an experiment which looked to see if music improved productivity in the classroom."

Katayune Presland, Education Coordinator, North West.

CazFest Bishops Stortford

"We had a very busy stand on a very sunny Saturday 11 July at Cazfest, a music festival in Bishops Stortford. We had over 200 interactions with people at the festival and got some lovely compliments for the stand. It's an unusual festival – it was set up in memory of Caroline Johnstone (Caz) who died very suddenly and unexpectedly from a heart condition in 2008. The money raised from the festival contributes to research into the condition and also to screening for local teenagers. We were also helped by some year 12 students from the school Caz attended, Bishops Stortford High School."

Sue Thompson, Education Coordinator, East of England.

Lancashire Science Festival

"In June 2015 supported by funds from Lancaster & District Local Section we had a stand on the science show floor at the Lancashire Science Festival. The festival took place over three days at UCLan, attracting over 10,000 visitors. Hundreds of children interacted with our stand looking at the properties of water, and its place in global challenges – they could test the pH and phosphate content of water to check if it was safe to put back into a river; we looked at hydrophobic Magic Sand; we experimented with surface tension; and visitors tried out the 2015 Global Experiment on hydrogels.

We had wonderful support from our local section and volunteers – eight local section members, four STEM ambassadors and two students. Thanks to them all for making it a success!"

Charlotte Still, Education Coordinator, North West.



WORDS
RUTH MCAVINIA



Bournemouth Air Festival

"Enthusiastic members from the Mid-Southern Counties region brought their passion for chemistry to the Bournemouth Air Festival in August. Our stand gave members of the public a chance to explore smell chemistry by guessing the smell of different ice cream flavours. Our display investigating how sun cream protects our skin resonated particularly with one visitor who has had skin cancer, and was very interested to hear how research in nearby university chemistry departments using spectroscopy can speed up diagnosis. In all, our beach-themed stand welcomed more than 300 visitors, many of whom had in-depth conversations with our volunteers"

Sarah Thomas and Beth Anderson, Education Coordinators, South West.

Edinburgh Mela

"RSC members and University of Edinburgh staff and students from the School of Chemistry joined with scientists from across Scotland to illuminate and entertain over 3,000 people in August at Edinburgh Mela, Scotland's biggest festival of world music and dance. We funded the Science of Spice stall to engage more people with chemistry. Thousands of adults and hundreds of children enjoyed colourful chromatography, playing with pigments, and guessing the smells of some of our favourite flavours.

It was a pleasure and a privilege to explore the chemistry of curry at Mela, we had essential oils, raw ingredients and molecular models on display giving people the chance to find out about antibacterial garlic, why onions make you cry and how cloves help toothache."

Heather McFarlane, RSC's Education Coordinator based at the University of Edinburgh.

National Science Learning Centre

"I devised 'Edible Experiments', and successfully trialled it at the National Science Learning Centre to 221 local students and parents. The experiments relate to individual ingredients and to how certain foods taste or how they interact with each other. In the experiments, participants are invited to try different foods before being asked some basic questions about how they taste to them, and then they find out about the chemistry behind why they taste the way they do.

This year has also seen the 'our future scientists – lighting the spark and fanning the flame' conference for North Yorkshire teachers, the 'Exploring STEM for girls' event, and the first Town Centre Science Fair at Leeds Kirkgate market. Trained ambassadors delivered a range of hands-on activities to members of the public over the course of the day.

"We tested why orange juice tastes horrible after you brush your teeth, which included trying a range of toothpaste flavours including mint, berry and watermelon (eugh!). I also worked with chocolate!"

Jo Buckley, Education Coordinator, North East.

Welsh National Eisteddfod

"We represented chemistry at the National Eisteddfod in Wales, one of Europe's largest and oldest cultural festivals. Looking at our empty sticker sheets, we know that we interacted with over 860 children, and over 1,000 adults at our stand in the science pavilion. The days on the stand were long and busy, but we had 17 member volunteers helping out – some travelling for hours to get there and get involved.

This year, we had new Welsh language stickers and literature as well as some Welsh language volunteers to help celebrate Wales during the eight-day festival in August."

Delwen De Jong, Education Coordinator, Wales.

RSC Regional Programme Manager Vicki Aldmington said: "I'm delighted with the range of events we've been involved with this summer. There's no real off-season, though. We have more activities throughout the calendar, and of course, we are also looking forward to Chemistry Week in November.

"Our regional Education Coordinators do a great job in inspiring and encouraging activities around the country, and with our amazing band of volunteers we have a chance to give people a real connection to chemistry, and to enjoy it as much as we do."

Opinion

Letters and comments on RSC activities and issues

FROM THE EDITOR



Earlier this year we asked for your help with our pay and reward survey. It's great to see just how many of you responded to the call – see p8 for a feature on how

your record response gives us an in-depth, up-to-date picture of the salaries and benefits our members receive.

Through an alliance with the British Council, we're one of the organisations co-funding *Newton Fund* researcher links grants, creating partnerships between the UK and scientifically developing countries. Find out how we're connecting researchers to foster new ideas and scientific exchanges on p10.

Last, but by no means least, our Education Coordinators keep us involved in communities throughout the UK and Ireland all year around. I'm very pleased to be able to acknowledge the excellent contribution they make and capture some of the inspirational work they've been involved in during the sunnier months. See p12 for that feature and the inside cover for more photos from a summer of chemistry.

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

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



@RSC_Newsroom



facebook.com/RoyalSocietyofChemistry

Climate change

Good to see the RSC (*RSC News*, September, p8) showing an interest in the problems and the opportunities associated with tackling Climate Change. Further improving the energy-harvesting efficiency of solar panels, with their useful contribution to our renewal energy mix, improving carbon capture techniques, and developing methods of using the recovered carbon, are all worthy goals along with the better use of waste that you mention.

Dr J B Davis, FRSC Harpenden, UK

Grad RIC

Thought I could contribute a more formal UK academic validation of GRSC equivalence. During completion of the GRSC at Manchester Polytechnic in 1986, a short course in corrosion led me to investigating UMIST's Corrosion and Protection Centres taught MSc. I was offered a place, subsequently an unexpected phone call asked if I was interested in undertaking a PhD by research. Apparently my results were good enough for the SERC to support my direct entry to PhD studies, usually requiring a 2:1 Honours degree.

Dr Neil Bretherton CChem CSci FRSC Balmedie, UK

I can only admire those who achieved their GRIC entirely by part-time study. By the time I had done ONC and one year of HNC in 1955 I couldn't face any more. At the suggestion of my ICI boss who became impatient at my moaning, I applied to Sir John Cass College to attend a Chemistry degree course full time for three years but to take a final GRIC exam rather than a degree.

Dr John Baldwin MRSC Darlington, UK

As one whose normal first stop on getting *RSC News* is to scan the obituaries I was moved, somewhat unexpectedly, by the article on GradRIC.

I gravitated to courses leading to HNC and parts 1 and 2 GradRIC in 1954 on my starting work, having been unable to take up the university place that I had been offered on the strength of my A Level results. It was a hard row to hoe and those of us who made it through did have a sense of achievement. I can remember awaiting the notice from the Institute. A thin envelope contained just a letter to say that one had failed to satisfy the examiners, a thick one meant that one's name was on the list of the < 20% that had passed, the list giving the thickness to the missive.

I was disappointed when Grad RIC disappeared. The reasoning behind this was faultless but I did have the feeling that my efforts had been devalued. Reading Messrs Davison and Villiers' letter gave a welcome boost to my ego.

W E D Buckland C Chem MRSC Chipping Campden, UK

I must have been be one of very few Certificate of Education trained science teachers in a state secondary school able to gain graduate status through part-time day release from school. I began my teaching career in 1967 and soon became aware that graduate status was needed to progress. The school management timetabled my 'free periods' into one day and I was off. Surely there is a case for reintroducing this part-time route for those wishing to pay as you go and to avoid horrendous debts from university fees and government loans.

B L Cramp C Chem MRSC Earsham, UK

60 up

I would just like to take this opportunity to say a sincere thank you for the recently received certificate showing 60 years of Membership. I am and always was very proud to be a Member.

I have always been a keen advocate of the Royal Institute of Chemistry (as it then was) and afterwards the Royal Society of Chemistry.

Eric Robins CChem MRSC Fleet, UK

Questions remain on future of shale gas in the UK

Ron Hester drills into the divide between government and public opinion on hydraulic fracturing

It is only in the last few years that an awareness of hydraulic fracturing – or ‘fracking’ – has become commonplace in the UK, though it has been a controversial issue in the USA for at least 20 years. Concern for energy security has led the UK government to favour the development of fracking, but public opinion appears to be largely opposed to it. The recent decision by the Lancashire County Council to reject a second application by Cuadrilla for fracking at a site near Blackpool has been met with delight by some and dismay by others. Democracy itself is under examination.

So what is fracking and why is it so controversial?

Geopolitical considerations, coupled with the depletion of conventional natural gas reserves in the US, led to the development of a new technology involving deep horizontal drilling and the injection of high pressure water (containing various chemicals and sand) in order to release unconventional gas from underground shale deposits. Hydraulic fracturing of shales to release the trapped gas – mainly methane – became known as ‘fracking’.

Commercial exploitation in the US is credited with many benefits, including lowered energy costs and increased national security associated with reduced dependence on imports of oil and gas. However, a number of environmental problems, including contamination of water supplies, air pollution, creating minor earthquakes and contributing to climate change, have been identified and have led to the banning of commercial fracking in several countries (including Germany and France) and even within the US (most notably in New York state).

On the local scale, the recent Lancashire council decision to reject the Cuadrilla application was made on the grounds of visual impact and unacceptable noise. Objectors also point to heavy traffic movement on small local roads, involving transportation of large quantities of water and toxic chemicals to and from the site. Some of the chemicals may be carcinogenic.

Advocates of fracking point to the high demand for energy, which far exceeds the current capacity of renewable sources such as wind and solar farms. The intermittent nature of wind and solar energy also militates against them. Furthermore, coal-fuelled power stations remain an important component of the

electricity generating industry and it is argued that gas from fracking represents a much cleaner fuel than coal. The US experience shows how using shale gas as a fuel can reduce energy costs.

Opponents of fracking point to the fact that shale gas, as with conventional gas, is a fossil fuel that generates carbon dioxide when burned and thus contributes to climate change. The internationally agreed target for restricting greenhouse gas emissions (mainly carbon dioxide) if dangerous climate change is to be avoided dictates that shale gas should at best be viewed as a ‘transition fuel’ and may well be a ‘stranded asset’ if agreed carbon budgets are to be protected. Moreover, the US experience on energy costs is unlikely to be relevant to the UK where *world* rather than *internal market* pricing would apply.

Environmental impact

The risk of groundwater contamination due to leakage of fracking fluids is a subject of much debate. The cocktail of chemicals used in fracking varies greatly with the company involved but typically includes substances to modify pH, surface tension and viscosity, as well as sand to prop open the fissures in the shale rock caused by injection of fluid at high pressure. Wells are drilled vertically through the rock strata, including the water table, to reach shale deposits at depths of several kilometres. Multiple horizontal channels that can extend a further 1–1.5 km are then drilled into the shale.

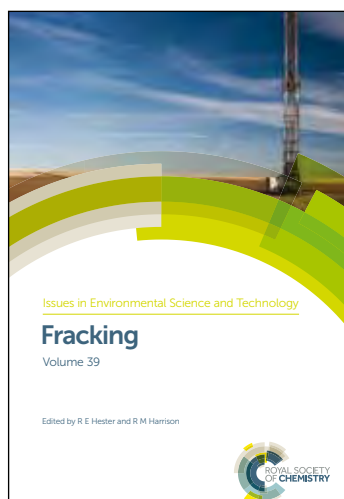
Failure of the well containment casings, perhaps due to earth movement or incorrect installation, could allow leakage of toxic fluid into underground aquifers. Careful regulation and monitoring are required to assess and minimise such risks. Large quantities of water are needed for fracking and most of the (contaminated) water returns to the surface

as ‘flowback’. This imposes requirements for a plentiful water supply and for storage, treatment and disposal facilities at the site. These requirements all carry cost implications as well as environmental risk.

The Royal Society of Chemistry has recently published *Fracking* – Volume 39 in the book series *Issues in Environmental Science and Technology*. This multi-authored book is edited by Professor Roy Harrison OBE and me. The issues outlined above all are covered in the book in much greater detail by an international group of experts, providing a well-balanced and authoritative treatment of these issues.



Ron Hester is an emeritus professor of chemistry at the University of York.



“Concern for energy security has led the UK government to favour the development of fracking, but public opinion appears to be largely opposed to it.”

Diary

Your guide to all important events

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NOTICES



Find out who won the National Schools' Analyst Competition on p22.

Further information

To find out more about any event on this page, see www.rsc.org/events

Call +44 (0) 1223 43 2254/2380

Or email events@rsc.org

RSC conferences

MANA-RSC Symposium: Materials for Energy Generation and Storage

15-16 October 2015
Tsukuba, Japan

Poster abstract submission: 17 September 2015

The MANA-RSC symposium: Materials for Energy Generation and Storage is an event for the energy materials community, co-organised by the Royal Society of Chemistry and MANA (International Centre for Materials Nanoarchitectures). Over two days, top local and international speakers will present their research in energy storage and generation across topics including batteries, bio-fuel cells, fuel cells, hydrogen production and storage, solar cells and supercapacitors.

Registration is now open until 1 October.

If your research aligns with the world of energy generation and storage, you have until 17 September to submit an abstract – don't miss out on your chance to showcase your work in Japan.

<http://rsc.li/mana-rsc-symposia>



Faraday Discussion

Chemistry in the Urban Atmosphere

6-8 April 2016
London, UK

Oral abstract submission deadline – 20 July 2015

This meeting will address the key questions and over-arching issues related to understanding chemistry in the urban atmosphere.

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:

- Chemical Complexity of the Urban Atmosphere and its Consequences
- Timescales of Mixing and of Chemistry
- Urban Case Studies
- Numerical Modelling Strategies for the Urban Atmosphere

Join us in London, April 2016 – register now.

With the increasing urbanisation of human populations, the chemistry of the urban atmosphere – including air pollution in the context of human health and accurate numerical modelling – is growing in importance. Spaces for this meeting are limited and will fill up fast, so secure your place by registering online now.

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



ANNOUNCING



Chemistry in the Urban Atmosphere (Faraday Discussion)

6-8 April 2016
London, UK

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

DATES AND DEADLINES

Challenges in Organic Materials and Supramolecular Chemistry (ISACS 18)

19-21 November 2015
Bangalore, India

Final registration deadline – 19 October 2015

<http://rsc.li/isacs18>

Nanoparticle Assembly: From Fundamentals to Applications

7-9 January 2016
Mumbai, India

Poster abstract deadline – 26 October 2015

Early bird registration deadline – 16 November 2015

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

Nanoparticles with Morphological and Functional Anisotropy (Faraday Discussion)

4-6 July 2016
Location

Oral abstract deadline – 19 October 2015

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

Events

Further information

The RSC News Diary this month lists Royal Society of Chemistry events from October to November 2015 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

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

EASTERN

Mid-Anglia Section

Behind the Scenes at the Cambridge Museum of Zoology

1 October
Cambridge University Museum of Zoology, Cambridge
The museum is currently undergoing a major redevelopment and refurbishment, so we are very privileged to have been granted access. Museum staff will take us around the new collection stores to see some of the hidden treasures and learn about the new museum.

Contact John O'Toole
+44 (0)1223 894174
john.otoole9@btopenworld.com

Fireworks and Waterworks – A Spectacular Chemistry Demonstration

5 November
University of Cambridge
We are delighted to welcome Dr Andy Szydlo for this year's Bonfire Night Spectacular Chemistry lecture. He will dazzle, entertain and educate his audience with a series of spectacular science demonstrations. We welcome anyone over the age of eight – not suitable for those with a nervous disposition.

Contact John O'Toole
+44 (0)1223 894174
john.otoole9@btopenworld.com

Other events

Colloid and Interface Science Group/ Formulation Science and Technology Group

MIBio 2015: Stability of Biopharmaceuticals – from Molecular Interactions to Successful Products

21 October
Magdalene College, Cambridge
This conference will engage world-leading experts from industry

and academia in a discussion on how molecular interaction based discoveries can be exploited in biopharmaceutical formulation.
Contact Deborah Reed-Aspley
+44 (0)115 922 9422
deborah@constableandsmith.com

INTERNATIONAL

Canada

University Roadshow – McMaster University

21 October
McMaster University, Ontario, Canada.
This free-to-attend event welcomes including undergraduates, graduate students, postdocs, faculty, and librarians. Featured afternoon presentations will be followed by a reception where attendees can ask questions and network with the publishing staff.

Contact Dr Jenny Lee
+1 202 772 4268
leej@rsc.org

University Roadshow – University of Waterloo

23 October
University of Waterloo, Ontario, Canada
This free-to-attend event welcomes everyone to participate including undergraduates, graduate students, postdocs, faculty, and librarians. Featured afternoon presentations will be followed by a reception where attendees can ask questions and network with the publishing staff.

Contact Dr Jenny Lee
+1 202 772 4268
leej@rsc.org

China

NSFC-RSC International Symposium on Emerging Frontiers in Organic Synthesis

8-10 October
Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, Shanghai, China
This free symposium will bring together leading international experts in organic synthesis, including established scientists and outstanding early career researchers, in order to share expertise and best practice and discuss cutting edge research and applications. In addition, this symposium will also feature some insights and opinions on what challenges there will be in the field of organic synthesis in the next 10-20 years. Young research fellows and students are also encouraged to participate and present flash talks and posters.
Contact RSC China Events
+ 86 10 5982 2317
chinaevents@rsc.org

3rd Roche and RSC Chemistry Symposium on Leading Science for Drug Discovery

24-25 October
Roche Training Center, Shanghai, China
This two-day scientific symposium will bring together leading international experts in drug discovery research, particularly in the anti-infectious disease arena, covering organic chemistry, chemical biology, structural biology and drug discovery technologies. With six outstanding young Chinese scholars, also the Roche Chinese Young Investigator Awardees, the first-day symposium will focus on pioneering research by emerging Chinese Scholars on topics in the fields of asymmetric catalysis, cross-coupling reactions, heterocyclic synthesis, and chemical and structural biology, particularly related to infectious diseases. The second-day symposium will showcase several cutting-edge talks and case studies of drug or drug candidate molecules by leading experts from both academia and industry.
Contact RSC China Events
+ 86 10 5982 2317
chinaevents@rsc.org

ChemCareers 2015

19–23 October

Get ready for your perfect job

<http://rsc.li/chemcareers>

#ChemCareers

International Symposium on Analytical Biosensors – Xi'an

1 November
Shaanxi Normal University, China
This symposium is one of three one-day meetings. Each meeting will feature a selection of lectures covering the properties and applications of biosensors, and provide opportunities to highlight recent developments and to identify emerging and future areas of growth in this exciting field. This symposium is free to attend.
Contact RSC China Events Team
+86 (10) 5982 2317
ChinaEvents@rsc.org

International Symposium on Analytical Biosensors – Changsha

3 November
New Chemistry Building Hunan University, China
This symposium is one of three one-day meetings. Each meeting will feature a selection of lectures covering the properties and applications of biosensors, and provide opportunities to highlight recent developments and to identify emerging and future areas of growth in this exciting field. This symposium is free to attend.
Contact RSC China Events Team
+86 (10) 5982 2317
ChinaEvents@rsc.org

International Symposium on Analytical Biosensors – Fuzhou

5 November
Fuzhou University, Qishan Campus, China
This symposium is one of three one-day meetings. Each meeting will feature a selection of lectures covering the properties and applications of biosensors, and provide opportunities to highlight recent developments and to identify emerging and future areas of growth in this exciting field. This symposium is free to attend.
Contact China Events Team
+86 (10) 5982 2317
ChinaEvents@rsc.org

EVENTS

India

ISACS18: Challenges in Organic Materials and Supramolecular Chemistry

19-21 November
Indian Institute of Science, Bangalore, India
The conference will be the culmination of the International Symposia on Advancing the Chemical Sciences (ISACS) series in 2015 and will bring together exceptional researchers to share scientific developments in organic materials and supramolecular chemistry through a plenary programme, complemented by contributed talks, together with extensive poster sessions that will provide many networking opportunities.

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

Ireland

Science & Stormont 2015

12 October
Parliament Buildings, Stormont
This event is designed to develop closer links between the scientific community in Northern Ireland and the Northern Ireland Assembly and Executive. This year's scientific presentations are based on the theme of Energy & The Environment.

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

Japan

Environment, Sustainability and Energy Division

MANA-RSC Symposium: Materials for Energy Generation and Storage

15-16 October
National Institute for Materials Science (NIMS), Tsukuba, Japan
Top local and international speakers will present their research in energy storage and generation over two days, across topics including batteries, bio-fuel cells, fuel cells, hydrogen production and storage, solar cells and supercapacitors.

Contact Hiromitsu Urakami
+81 (0)3 5577 4360
UrakamiH@rsc.org

Kenya

PACN Congress 2015: Healthcare: From Discovery to Delivery

17-19 November
University of Nairobi, Kenya
The conference will be attended

by leading international experts in healthcare in order to share expertise and best practice and discuss cutting edge research and applications. It will reflect the diversity of science and research that impacts our understanding of healthcare in Africa.

The conference is a three day event with international and African speakers from academia and industry.

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

USA

University Roadshow – Cornell University

19 October
Cornell University, Ithaca, USA
This free-to-attend event welcomes everyone to participate, including undergraduates, graduate students, postdocs, faculty, and librarians. Featured afternoon presentations will be followed by a reception where attendees can ask questions and network with the publishing staff.

Contact Dr Jenny Lee
+1 202 772 4268
leej@rsc.org

RSC-US Section Annual General Meeting 2015

21 November
The Princeton Club, New York City, USA

The meeting shall begin with a social, followed by a dinner and then a presentation. The meeting shall also include a short business for the group.

Contact Kishore K. Bagga, PhD, MRSC
+1 215 493 4914
kbbagga@verizon.net

MIDLANDS

Other events

Education Division – Midlands

Molecules of Murder

13 October
University of Birmingham, School of Chemistry
A lecture for Sixth Form pupils and their teachers. There is no charge for tickets but registration is required.

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

A Diet Fit For A King? Isotope Analysis of the Remains of Richard III

3 November
The University of Birmingham, School of Chemistry
A lecture for Sixth Form pupils and their teachers.

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

Advanced Level Chemistry: Ideas for Practical Work. A CPD Meeting.

10 November
King Edward VI High School for Girls, Birmingham
Teachers will be able to choose from a variety of experiments those to try out and to discuss with other practising teachers.

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

The Periodic Table of Videos

17 November
The University of Birmingham, School of Chemistry
A lecture/demonstration for Sixth Form pupils and their teachers. Tickets are free but registration is required.

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

Chemistry Biology Interface Division

2015 Antibiotic Resistance Mechanisms Workshop (ARM 2015)

26-27 November
Holiday Inn, Birmingham city centre
The workshop will offer researchers investigating mechanisms of antimicrobial resistance the opportunity to meet to consolidate and extend their expertise, providing a much-needed forum to allow the sharing of knowledge between all grades of researchers, including PhD students and technicians.

Contact Esme Carruthers
+44 (0)121 236 1988
ECarruthers@bsac.org.uk

NORTH EAST

Hull and East Yorkshire Section

Development of Ruthenium-based Drugs

21 October
University of Hull
A presentation by Professor Paul Dyson, winner of the RSC Bioinorganic Chemistry Award 2015 for his contribution to bioinorganic and medicinal chemistry through the development of ruthenium-based drugs.

Contact Jia Min Chin
+44 (0)1482 466408
j.chin@hull.ac.uk

Fluorinated Carbon Rings and Things

28 October
University of Hull
A presentation by Professor David O'Hagan, winner of the RSC Organic Stereochemistry Award 2015 exploring the properties of stereoisomers of differently configured multiple C-F bonds.

Contact Jia Min Chin
+44 (0)1482 466408
j.chin@hull.ac.uk

Cafe Scientifique – Personalised Medicine and the Miniature Lab

28 October
White Horse Inn (Nellies), Beverley
John Greenman, Professor of Tumour Immunology, considers an innovative, microfluidic model system for the study of cellular and molecular interactions in real-time.

Contact Mark Lorch

+44 (0)1482 465687

m.lorch@hull.ac.uk

Newcastle upon Tyne and North East Section

Molecules of Murder

16 October
The Alnwick Garden
Dr John Emsley, author of *Molecules of Murder*, is coming to The Alnwick Garden to talk about poisons used by infamous murderers and famous victims. He looks at the target molecule itself, its use in medicine, its toxicology and its effects on the human body then investigates a famous murder and reveals the modus operandi of the poisoner and how they were caught.

Contact Remya Norris
+44 (0)7753 276600
remya1@hotmail.com

Other events

Careers Consultations: Leeds

26-28 October
The Queens
The Royal Society of Chemistry's team of qualified careers specialists will be in your area and available for free one-to-one, confidential consultations on managing your career.

Contact RSC Careers
+44 (0)1223 432231
careers@rsc.org

The Chemistry of Collaboration

3 November
Hardwick Hall Hotel, Sedgefield, Co Durham,
We've joined forces with the North East Process Industry Cluster (NEPIC) to create an opportunity for chemical science organisations of all sizes, from across the north east and beyond, to meet and network with potential clients and collaborators. The day's focus is the value of collaboration, and there will be talks, presentations and one-to-one discussions on this theme, including a keynote speech by innovation expert Professor Roy Sandbach.

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

NORTH WEST

Cumbria Section

Self Adhesives

12 November
The Chase Hotel, Whitehaven
The talk will be given by Stephen Winterbottom of James Walker & Co and is on the history and technology of self-adhesive tapes, covering everything from plasters through masking tapes to packaging tapes.

Contact Kevin Webb
+44 (0)1946 779264
kevin.j.webb@nnl.co.uk

Lancaster and District Section

The Sun-Earth Connection

6 October
University of Central Lancashire, Preston
The influence the sun has had on the earth over millions of years
Contact Harry Clarke
+44 (0)1995 640003
hclarke906@btinternet.com

The Scientists of World War II

20 October
University of Central Lancashire, Preston
An evening lecture at University of Central Lancashire
Contact Harry Clarke
+44 (0)1995 640003
hclarke906@btinternet.com

How to Make Gold

24 November
University of Lancaster
This is an evening lecture.
Contact Harry Clarke
+44 (0)1995 640003
hclarke906@btinternet.com

Manchester and District Section

Manchester & District Dalton Lecture 2015

7 October
The Royal Northern College of Music, Manchester
This year's lecture will be presented by Dr Tony Bristow, associate principal scientist at AstraZeneca. Entitled The Arsonist, the Martian and a Cat Meet Floyd, Walt and Jesse, the lecture will focus on mass spectrometry.
Contact Katharine Sullivan
+44 (0)161 275 6982
KatharineSullivan@manchester.ac.uk

Other events

Careers Consultations: Liverpool

13-14 October
Holiday Inn Liverpool
The Royal Society of Chemistry's team of qualified careers specialists will be in your area and available for free one-to-one, confidential consultations on managing your career.
Contact RSC Careers
+44 (0)1223 432231
careers@rsc.org

Speciality Chemicals Sector Chemistry in the Oil Industry XIV Chemistry: Challenges and Responsibilities

2-4 November
Hilton Manchester Deansgate
Focus is on Unconventional Resources & New Chemistry to enhance the profitability of new fields or to extend the economic life of mature wells.
Contact Laura Dickinson
+44 (0)1625 540560
Laura.Dickinson@rscspecialitychemicals.org.uk

Protein and Peptide Science Group**Early Stage Researcher Meeting**

13 November
Collingwood College, University of Durham.
The one-day meeting is a showcase for PhD students, postdocs and early stage researchers working in any area of peptide or protein chemistry to present their work as either talks or posters. The day will end with a plenary lecture from Professor David Spring, the 2015 RSC Medimmune Protein and Peptide Science Awardee.
Contact Professor Alethea Tabor
+44 (0)20 7679 4695
a.b.tabor@ucl.ac.uk

Chemistry World Jobs Live Manchester

18 November
Mercure Manchester Piccadilly
At Chemistry World Jobs Live you'll discover the support you need to harness and exploit your talent and ambition. Join us in to meet a selection of employers and take part in discussions and workshops.
Contact RSC Careers
+44 (0)1223 432231
careers@rsc.org

SCOTLAND

Other events

2nd Asian-European Symposium on Organic Optoelectronics

27-29 October
Royal Society of Edinburgh, Edinburgh
This symposium will discuss progress in the areas of plastic electronics and organic optoelectronic devices. Covering molecular electronics, from fundamental research such as materials design and engineering, physical properties and modelling studies, to optimisation of processes and commercial applications. We hope that the symposium will help to identify the next generation of emerging organoelectronics and the challenges facing this field. We expect participation from leading scientists from academia, government, and industry.
Contact RSC Events
+44 (0)1223 434048
events@rsc.org

International Network of Environmental Forensics / Water Science Forum**Can we afford not to monitor priority pollutants?**

24-25 November
The Royal Society of Edinburgh
This conference brings together leading experts in the field of priority substances listed in Annex X of the Water Framework Directive. The event will discuss potential issues with implementing Directive 2013/39/EC relating to Priority Substances in water policy and disseminate information on the development and validation of new test methods for monitoring priority pollutants. This meeting will aim to establish what is cost-effectively feasible to meet the proposed environmental quality standard limits associated with the new directive. The event will showcase emerging innovation and research in the area of priority substance management which will include projects recently awarded development grants through the SBRI call in Scotland.
Contact Richard Allan
+44 (0)1382 568952
Richard.Allan@hutton.ac.uk

SOUTH EAST

Chilterns and Middlesex Section

Daniell Lecture

21 October
King's College London
21st annual Daniell lecture for senior school pupils, speaker Professor Lesley Yellowlees, Edinburgh University, title 'Challenge Chemistry'.
Contact Stephen Robinson
+44 (0)208 5467940
stephenrobinson_3@hotmail.com

Retired Members' Lecture and Lunch

30 October
The Royal Society of Chemistry, Burlington House London
A lecture entitled Sir Thomas Gresham and his Vision for Gresham College followed by lunch.
Contact Stephen Robinson
+44 (0)20 8546 7940
stephenrobinson_3@hotmail.com

EVENTS

Thomas Graham Lecture

20 November
University College London
The speaker will outline strategies for climate change remediation by increasing planetary albedo and then focus on the UCL proposal to cover a few percent of the ocean surface with persistent foam.
Contact Stephen Robinson
+44 (0)20 8546 7940
stephenrobinson_3@hotmail.com

Kent Section

Shepherd Neame Brewery Tour

13 November
Shepherd Neame Brewery, Faversham
During this visit you will have an exclusive 80-minute tour of the brewery, a tutored tasting session and an ale supper. There are two staircases on the tour route; therefore, the tour may be difficult for visitors with limited mobility and is not suitable for wheelchair users. An alternative 'virtual tour' – with a guide for such visitors – can be arranged.
Contact Sam Booth
+44 (0)7793 679884
s.e.booth@gre.ac.uk

Other events

Marketing Group

Food for Thought – Food Production, Security, Safety and Fraud – Professor Jim Scudamore

8 October
The Royal Society of Chemistry, Burlington House, London
Food production, especially meat and fish, is often hit by real or perceived threats to security of the consumers, one example being the horsemeat scandal.
Contact Mark Scudamore
+44 (0)20 8241 9080
markscudamore@blueyonder.co.uk

Automation and Analytical Management Group / Chemical Information and Computer Applications Group

Measurement, Information and Innovation: Digital Disruption in the Chemical Sciences

20 October
The Royal Society of Chemistry, Burlington House, London
Challenges, opportunities and issues arising through the digital transformation of laboratory work. Over the last few decades, chemistry laboratories have experienced a steady transition from traditional manual work and analogue measurement techniques to the adoption of new systems

and processes based on digital technologies. In practical terms this means that work in the chemistry laboratory is changing, not only in day-to-day operations, but also in long-term processes for storing, maintaining, finding, using, interpreting and understanding scientific data and information. This has significant implications for chemistry and laboratory chemists.
Contact Helen Cooke
helen.cooke100@gmail.com

Law Group

The RSC Patent Debate – Does Chemistry Benefit from the Patent System?

28 October
The Royal Society of Chemistry, Burlington House, London
Patents are often justified on the basis they provides inventors with an incentive to invest in research and development of new products, and to disclose valuable technical information to the public which would otherwise have remained secret. However, arguments have been put forward that not only are many restricted in benefitting from a patent's contribution to science but also that due to the sheer number of patents innovation has been stifled.
Contact Maggi Churchouse
+44 (0)1359 221004
maggi@maggichurchousevents.

Marketing Group

Silicones – Their Chemistry, Applications and Markets

2 November
Royal Society of Chemistry, Burlington House
Silicone is a polymer that has an unusual structure and composition which results in its remarkable properties. It is available as oil, rubber and resin. Characterised by low toxicity and reactivity, coupled with excellent thermal stability, high gas permeability, UV resistance and low surface energy, silicone is the polymer of choice in many applications. These include construction, electronics, water proofing, food and pharmaceutical, beauty products and foam control. The synthesis of millions of tonnes of silicone per annum will be explored as will the relationship between its unique chemistry and uses.
Contact Julian Perfect
julianperfect@hotmail.com

Biological and Medicinal Chemistry Sector

1st RSC / SCI symposium on Fibrosis Disease: Medicinal Chemistry Progress from Biological Target to the Clinic

10 November
UCB, Slough
Fibrosis disease is the result of a dysregulated wound healing process and is responsible for considerable patient mortality affecting multiple organs in diseases such as idiopathic pulmonary fibrosis (IPF), diabetic nephropathy, steatohepatitis and systemic sclerosis. Fibrosis disease pathology is often complex and this inaugural symposium on fibrosis will provide mechanistic insight and progress in medicinal chemistry and drug discovery from experts across the world.
Contact Maggi Churchouse
+44 (0)1359 221004
maggi@maggichurchousevents.co.uk

REACH Registration: Are you Ready for 2018?

17 November
The Royal Society of Chemistry, Burlington House, London
Everyone who manufactures or exports a chemical substance within the EU is likely, to some extent, to be affected by REACH (the Regulation of Registration, Evaluation, Authorisation and Restriction of Chemicals). If you have a basic understanding of these regulations but need to know more about the complex registration process for the 2018 deadline, we can help. We've joined forces with REACHReady to give you the training you need. Small workshop training sessions will make sure you get the most out of the day – with plenty of opportunities in the breaks to chat with our presenter and get your company-specific questions answered by a REACH expert.
Contact RSC Events Team
+44 (0)1223 434048
events@rsc.org

Analytical Division – East Anglia

Perspectives on Analytical Data Integrity in a Pharmaceutical Quality System

17 November
The Royal Society of Chemistry, Burlington House, London
This seminar will focus on the forms of data generated and the associated challenges in the pharmaceutical/biopharmaceutical GMP regulated Quality Control laboratory environment and will examine the impact of the MHRA Guidance for Industry regarding the maintenance of GMP data

integrity throughout its lifetime. The seminar will be of interest to Laboratory Managers and Scientists, QA / IT Personnel and QPs working in these regulated areas.
Contact Brian Woodget
+44 (0)7899 910954
bwoodget1@sky.com

Law Group

IP Case Law Seminar

18 November
The Royal Society of Chemistry, Burlington House, London
The annual seminar will focus on recent high profile intellectual property law developments in the field of chemistry. The seminar will conclude with a networking drinks reception. The RSC Law Group annual general meeting will precede the seminar.
Contact Maggi Churchouse
+ 44 (0)1359 221004
maggi@maggichurchousevents.co.uk

Chemistry Biology Interface Division/Environment, Sustainability and Energy Division

Renewable Chemicals from Waste – Securing the Molecular Value from Waste Streams

20 November
The Royal Society of Chemistry, Burlington House, London
As we face increasing levels of waste produced by a growing global population with decreasing natural resources we need to change our thinking about waste. The UK Government's recent report, Building a high value bioeconomy – opportunities from waste, has highlighted the need to view waste as a resource and to develop processes to better exploit currently under-utilised agricultural and municipal wastes, among others, in preference to the use of virgin biomass or fossil resources. With this in mind our symposium will bring together chemists, biologists, engineers and other experts to discuss the latest research developments in this area. It will provide a focus for industry, funding agencies and academic researchers to come together to build the necessary collaborations to take the next steps forward.
Contact RSC Events Team
+ 44 (0)1223 434048
events@rsc.org

Chemistry World Jobs Live London

25 November
The Royal Society of Chemistry,
Burlington House
At Chemistry World Jobs Live you'll
discover the support you need to
harness and exploit your talent
and ambition. Join us to meet a
selection of employers and take
part in discussions and workshops.
Contact RSC Events Team
+ 44 (0)1223 434048
events@rsc.org

Separation Science Group What Can Ion Mobility do for Me?

26 November
The Royal Society of Chemistry,
Burlington House, London
Contact Sam Whitmarsh
+ 44 (0)1189 765480
samuel.whitmarsh@bp.com

Organic Division RSC Organic Division Poster Symposium 2015

30 November
The Royal Society of Chemistry,
Burlington House, London
The symposium offers final
year PhD students a chance to
showcase their research to their
peers, leading academics and
industrial chemists, and is open to
all branches of organic chemistry.
Contact RSC Events Team
+44 (0)1223 434048
events@rsc.org

SOUTH WEST

Thames Valley Section

Family Chemistry Trail

4 October
Reading
Open to members, families
(children of all ages but especially
9-16). Under 18s must be escorted
by a parent or guardian who will
take responsibility. No booking
needed.
Contact John Oversby
oversby61@gmail.com

Virtual Flipped Science and Technology Education Conference on STEM for Justice

23 October-6 November 2015
Contact John Oversby
oversby61@gmail.com

Chemistry Week – Chemistry Detective Trail

21 November
A chemistry detective trail across
Reading. Joining times and
locations to be announced.
Contact John Oversby
oversby61@gmail.com

WALES

South East Wales Section

Recent Advances in 'Living' Crystallization-Driven Self-Assembly

5 October
Cardiff University
The lecture will be given by
Professor Ian Manners. No
registration is required, but parking
at the venue is very limited so please
enquire if you require parking.
Contact James Redman
+44 (0)2920 876273
redmanje@cardiff.ac.uk

Reprogramming the Genetic Code

12 October
Cardiff University, School of
Chemistry
The lecture will be given by
Professor Jason Chin (University
of Cambridge). Registration is not
necessary, but parking at the venue
is very limited, so please enquire if
you require parking.
Contact James Redman
+44 (0)2920 876273
redmanje@cardiff.ac.uk

Animal Navigation Using Magnetically Sensitive Photochemistry

19 October
Cardiff University
The lecture will be given by
Professor Peter Hore. Registration
is not necessary but parking at
the venue is very limited. Please
enquire if you require parking.
Contact:
+44 (0)2920 876273
redmanje@cardiff.ac.uk

Process Integration in Sustainable Technologies

26 October
Cardiff University
The lecture is given by Dr Laura
Torrente Murciano. Registration
is not necessary but parking at
the venue is very limited. Please
enquire if you require parking.
Contact James Redman
+44 (0)2920 876273
redmanje@cardiff.ac.uk

Molecular Organisation: Working with Molecules on the Nanoscale

2 November
Cardiff University
The lecture will be given by
Professor Neil Champness.
Registration is not necessary but
parking at the venue is very limited.
Please enquire if you require
parking.
Contact James Redman
+44 (0) 2920 876 273
redmanje@cardiff.ac.uk

Directing the Synthesis of Functional Molecular Materials

9 November
Cardiff University
The lecture will be given by Dr Kim
Jelfs. Registration is not necessary
but parking at the venue is very
limited. Please enquire if you
require parking.
Contact James Redman
+44 (0) 2920 876 273
redmanje@cardiff.ac.uk

Following Photochemical Reactions on a Femtosecond Timescale

16 November
Cardiff University
The lecture will be given by
Professor Helen Fielding.
Registration is not necessary but
parking at the venue is very limited.
Please enquire if you require
parking.
Contact James Redman
+44 (0) 2920 876 273
redmanje@cardiff.ac.uk

The role of Criegee Intermediates in Tropospheric Chemistry

23 November
Cardiff University
The lecture will be given by
Professor Carl Percival. Registration
is not necessary but parking at
the venue is very limited. Please
enquire if you require parking.
Contact James Redman
+44 (0) 2920 876 273
redmanje@cardiff.ac.uk

Artificial Photosynthesis

30 November
Cardiff University
The lecture will be given by
Dr Erwin Reisner. Registration is
not necessary but parking at
the venue is very limited. Please
enquire if you require parking.
Contact James Redman
+44 (0) 2920 876273
redmanje@cardiff.ac.uk

Other events

Careers Consultations: Bangor

12-13 October
The Management Centre, Bangor
The Royal Society of Chemistry's
team of qualified careers specialists
will be in your area and available
for free one-to-one, confidential
consultations on any aspect of
managing your career.
Contact RSC Careers
+44 (0)1223 432231
careers@rsc.org

Notices

North West region triumphs at Analytical Division's National Schools' Analyst Competition

Robert Gordon University (RGU) in Aberdeen hosted the final of this year's National School's Analyst Competition, with deputy principal, Professor John Harper welcoming the attendees to RGU.

Dr Graeme Kay and Professor Andrew Morrisson from RGU devised a programme of experiments around a pharmaceutical theme for the finalists. The teams had to carry out an EDTA titration, UV/visible spectroscopy, infra-red spectroscopy and high performance liquid chromatography.

The winning team came from Ruthin School, representing the north west region of our Analytical Division and won £1,000 and an engraved trophy for their school, while each team member received Amazon vouchers of £50.

The runners-up were from Blundell's School, representing the western region, with Catholic High School, from Chester/northwest region, in third.

The judges for this year's competition were Dr Kay, Professor Morrisson, Dr Kerr Matthews, Dr Carlos Fernandez, Dr Catherine Inverarity and Prof. Pat Pollard (Robert Gordon University) and Professor John R Dean, who chaired the judging panel and awarded the prizes.

Heats of the competition start again in early 2016 through each of the Analytical Division Regions and will culminate in the final to be held at Keele University in June 2016.



L-R front row:
The winning team of Xiao Ma, Caitlin Pierce and Elin Wynne accompanied by their teacher Sue Frencham; back row: Professor Andrew Morrisson, Professor John R Dean and Dr Graeme Kay.

Make a nomination for our honorary fellows

Members of Council, division presidents, section chairs and other interest groups are invited annually to make nominations for new honorary fellows of the Royal Society of Chemistry.

Any member may submit a nomination at any time throughout the year to be considered by the honorary fellow selection panel for recommendation to Council.

Who may become an honorary fellow?

An honorary fellow may have contributed significantly to the chemical sciences generally or to the work of the Royal Society of Chemistry in a number of ways.

The panel will review the nominations based on the merits of the candidate that is deemed to cross the broad spectrum of advancing the chemical sciences.

"The Council may admit to the Society as an Honorary Fellow any person who is distinguished in the science or profession of chemistry or whom the Council may consider it desirable to admit as an Honorary Fellow for any other sufficient reason" (By-law 27)

For consideration in 2015, nominations must be received by the closing date, **Friday 9 October 2015**.

In consideration of your nomination we wish you to give thought to the representation of the breadth and diversity of nominees, with reference to backgrounds, geographical spread, gender, ethnicity and age range.

Members may request a nomination form and guidance notes for submitting a nomination by email to secretariat@rsc.org or phone +44 20 7440 3341.

A list of our current honorary fellows is available at www.rsc.org/honfrsc

Chemistry in the school fabric

An unusual and creative way of teaching and learning chemistry vocabulary has kept students of all ages busy at Didcot Girls' School. The project to create a chemistry quilt developed from the need to help dyslexic students with some of the complicated words they encounter in their science lessons. Rather than having a written definition, the students were encouraged to draw a picture to help them to remember and understand a new word. Coincidentally, the tactile process of converting a donated raw fleece into felt proved an ideal way to introduce very reluctant students into working in the school labs.

Combining these two activities, panels of students chose the best drawings of key words and these were converted into appliqué designs and sewn onto felt panels by our vocational studies group. When they ran out of time before the end of term, the rest of the school rallied to help, with other classes and the science club stepping in. While cutting and stitching the designs, the students started to chat about the abstract concepts being represented. Students of all abilities worked with enthusiasm on this project and everyone's contribution, whether discussion, drawing, felt-making, designing, choosing colours, cutting out or stitching combined to make a beautiful and unique whole of which they were very proud. The school discovered that many of the most striking designs were produced by students who had not historically been the highest achievers.

The school hopes the completed quilt will be a colourful and creative way of making abstract concepts more accessible to everyone.



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Deputy chief executive heads home!

The guest speaker at the 2015 Northern Ireland Local Section Annual dinner was Stephen Hawthorne, deputy chief executive of the Royal Society of Chemistry, who addressed a record crowd. Stephen is a native of Northern Ireland and holds his degree from the Queens University of Belfast.

He received a great reception from the 100 Members and guests in the beautiful surroundings of the Ulster Reform Club.



L-R: Stephen Hawthorne, Duncan Thorburn Burns, Paul Stevenson and Trudy McMurray.

Remembering Dan Eley

Professor Daniel Douglas Eley OBE FRS FRSC died on 3 September 2015, less than a month short of what would have been his 101st birthday. Dan, as he was universally known, was an exceptionally productive physical chemist who worked on an amazing range of fundamental problems during his active research career and remained a passionate scientist right up to his death.

During his career, Dan's work pushed the boundaries of our understanding of chemistry across the whole discipline and into biology and physics. Perhaps, more than anything, Dan's name is forever linked with that of his PhD supervisor, Eric Rideal, in the Eley-Rideal mechanism for hydrogenation on heterogeneous catalysts. Read the full tribute from Dan's colleagues in Nottingham at rsc.li/obituaries



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Dan Eley (right), with his son Rod, at last year's 100th birthday celebration.

Deaths

Mr Bernard Sidney Bell MRSC
Consultant. Died 12 August 2015, aged 68

Mr David Michael Bratby MRSC
Retired. Died 13 July 2015, aged 77

Dr John Buckingham CChem FRSC
Editorial consultant, CRC Press/Informa. Died 28 August 2015, aged 72

Mr Philip Lambert Cook CChem MRSC
Retired. Died 31 August 2015, aged 81

Dr George Godric Dearing CChem FRSC
Retired head field management studies, Liverpool Institute of Higher Education. Died 24 July 2015, aged 85

Professor Evelyn Algenon Valentine Ebsworth CBE CChem FRSC
Retired vice chancellor and warden, University of Durham. Died 16 July 2015, aged 82

Mr John George Foster CChem MRSC
Retired P.P.T.O., British Nuclear Fuels Ltd. Died 9 July 2015, aged 81

Dr Alan Lyle Gray MRSC
Retired research fellow, University of Surrey. Date of death not supplied

Mr Derrick Grunwell MRSC
Retired technical executive, Glaxo Production & Engineering Services Ltd. Died 25 July 2015, aged 89

Mr Geoffrey Peter Hall CChem MRSC
Retired. Died 22 July 2015, aged 78

Mr Alfred Hanusch CChem MRSC
Honorary lecturer, University of Leeds. Died 16 August 2015, aged 92

Dr Kenneth Urmston Holker CChem FRSC
Retired manager, metal finishing, Albright & Wilson Ltd. Died 26 August 2015, aged 84

Mr Jack Holman CChem MRSC
Retired assistant collector, Inland Revenue. Date of death not supplied

Dr Suren Husinec MRSC IHTM
Center for Chemistry Died 9 August 2015, aged 61

Mr Roland William Lewis MRSC
Retired. Date of death not supplied

Mr Michael John Lidgard CChem MRSC
Tutor, Franklin College. Died 4 June 2015, aged 66

Professor Craig Edward Lunte
Professor, University of Kansas. Died April 2015, aged 57

Dr Donald James Mackenzie MRSC
Retired development co-ordinator, Gallaher Ltd. Died 29 June 2015, aged 83

Mr Charles McBride MRSC
Retired school teacher, Liverpool Education Committee. Died 23 June 2015, aged 84

Mr John Mockridge CChem MRSC
Retired. Died 22 July 2015, aged 96

Reverend Keith Charles Overton MRSC
Retired. Died 30 August 2015, aged 87

Dr Graham Parry CChem MRSC
Retired project engineer, Rolls-Royce Marine Power. Died 30 July 2015, aged 66

Mr Norman Robert Payne CChem MRSC
Retired. Died 26 July 2015, aged 97

Dr Sigthor Petursson CChem MRSC
Retired Professor. Date of death not supplied

Mr James Gordon Raitt CChem FRSC
Retired. Died 31 July 2015, aged 85

Dr George Alan Rose CChem FRSC
Retired chemical pathologist, St Peters Hospital. Date of death not supplied

Mr Peter George Rout CChem MRSC
Retired production & development manager, PAID Ltd. Died July 2015, aged 86

Mr Roger Stuart Sach CChem MRSC
Retired senior research officer, Berkeley Nuclear Laboratories. Died 7 July 2015, aged 80

Mr Paul Ashley Smith MRSC
Technical director, William Sinclair Horticulture Ltd. Died 24 July 2015, aged 58

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. *See www.rsc.li/obituaries for obituaries.

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THE QUEEN'S AWARDS
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