



June 2014

Chemistry Athena SWAN News

“...be the change you want to see...”

...is a quote from Gandhi, and while it might seem incongruous to use a quote from such a great leader in a humble departmental newsletter, it contains a very relevant message for all members of the Chemistry Department. The equality cause has made great strides forward in the last five years. The 2010 Equality Act rationalised the existing laws, and good-practice accreditation schemes such as Athena SWAN, Project Juno and Stonewall's Diversity Champions Programme have provided universities with a framework within which to aim for and measure quantifiable progress. But notwithstanding these schemes, no real progress would have occurred without people getting up and doing something about it, often above and beyond what the day-job required.

The commitment and energy of members of this Department really has brought about changes in the way we think and a difference in the way we do things. We all contribute to shaping the culture of our working environment, and this is why it is so important that we continue to share, discuss and debate the issues affecting our equality – directing our curiosity as scientists towards problems such as how unconscious bias affects decision-making and how its effects can be compensated. This newsletter celebrates the progress we've made so far, but it also invites you all to join in the continuing effort to make our Department the place we want it to be.

Paul Walton, chair of Athena SWAN working group

Athena SWAN Gold Award reconfirmed

The Chemistry Department's submission for renewal of its Athena SWAN Gold Award in the November 2013 application round resulted in a reconfirmation of the award for one year. We will resubmit in April 2013. We are very pleased to retain the Gold award for a further year, but it is clear that we need to work towards the resubmission. In this regard, the AS group is looking forward to addressing the issues raised by the Athena SWAN panel, as a necessary strand of our work to pursue and shape best practice in all areas of the Department's activity.

Congratulations go to the Biology Department, which has won its first Athena SWAN Gold Award.

Westminster Briefing: Gender and STEM – where next for universities?

On 12 June Kirsty Penkman represented the Chemistry department at a Westminster briefing event



on "Gender and STEM - where next for universities?" (#GenderSTEM). The Chair of the Science & Technology Select Committee, Andrew Miller MP, gave an overview of the House of Commons report on "Women in Scientific Careers" (see April's newsletter), with some strong messages for universities to take on board regarding their responsibilities as employers.

Discussions included the implications of the recent

House of Commons report and Government response, examining what funding bodies are doing and considering the impact on staff and students.

For an event on universities, a surprising amount of time was spent discussing primary and secondary education; it is clear that societal pressures emerge early on in STEM discrimination, with 10-year-olds already gender-stereotyping professions. An inspirational talk by Prof. Jane Clarke (an ex-York biochemist undergraduate and now deputy head of the Chemistry department at Cambridge) pointed out that we have a responsibility to talk about the upsides of a career in STEM, as well as discussing the problems: "Women see the hurdles - show them the goal."

Kirsty Penkman

New Government campaign to attract more women into STEM careers



The Chancellor, George Osborne, launched the [Your Life](#) campaign at the Science Museum on May 7. The aim of the campaign is to contribute to the government's aspiration to double the number of female engineering and technology undergraduates by 2030.

Your Life brings together business, educators and government, to show how studying science and maths leads to exciting, successful careers. It aims to make the most of all our talents and to grow the number of women in science, technology and engineering.

The campaign is part of the government's response to the report by the Commons Science and Technology Committee on women in science -

(<http://www.publications.parliament.uk/pa/cm201314/cmselect/cmsctech/701/701.pdf>)

which criticises "biases and working practices" that "result in systematic and cumulative discrimination against women throughout STEM study and academic careers".

The government's response also cites several other existing initiatives to boost the number of women in science, such as the Athena SWAN awards and Research Councils UK's Statement of Expectations for Equality and Diversity. But it says that their effectiveness will be monitored and "if significant progress is not observed over the next three years, [the] government will consider further action". The government also supports the committee's recommendation that diversity and equality

training should be provided to all students and staff. It notes that the research councils are currently introducing training on unconscious bias, progress on which will be reported later this year.



The government stops short of explicitly endorsing the select committee's call for fewer short-term research contracts, which the MPs say has a particularly detrimental effect on women, noting that short-term contracts "allow the research base to be flexible and responsive". But it notes that Vitae's Concordat to Support the Career Development of Researchers recommends that research posts should only be fixed-term when there is a "recorded and justifiable reason". It also says the research councils' shift to providing longer, larger grants could have "benefits ... in terms of contract length".

It notes that figures suggest the percentage of full-time research-only academic staff on fixed term contracts has fallen since 2003, but if further "significant progress" is not made the government will "consider undertaking a review of the academic career structure".

For full THE article see: <http://www.timeshighereducation.co.uk/news/women-in-stem-campaign-aims-to-bridge-gender-gap/2013207.article>

Helen Coombs

Inspiring Scientists: Diversity in British Science



The Royal Society commissioned [National Life Stories](#) at the British Library to undertake an oral history project interviewing scientists from a variety of educational and minority ethnic backgrounds. "Inspiring Scientists" records the life stories of ten British scientists with minority ethnic heritage and covers issues such as being a minority in science, influences in their childhoods and the fun and importance of science both to themselves and to the wider community.

Interviewees range from PhD students to Professors and the focus on science is wide, covering academia, big industry and individual entrepreneurship, with scientists working across a range of scientific disciplines from food science to space science.

The report from the project and video clips from the interviews can be viewed at the Royal Society website: <https://royalsociety.org/policy/projects/leading-way-diversity/inspiring-scientists/>

Helen Coombs

Financial risks for postdocs of taking maternity leave

One postdoc shares her personal experiences to highlight the risks of taking maternity leave as an early career academic:

<http://www.theguardian.com/higher-education-network/blog/2014/apr/19/early-career-academics-forfeit-research-funding-maternity-leave>

Unconscious bias: the evidence

The recent presentation to the Chemistry Board of Studies by Caroline Dessent and Paul Walton on the effects of unconscious bias has provoked thought and debate: key evidence is summarised here:

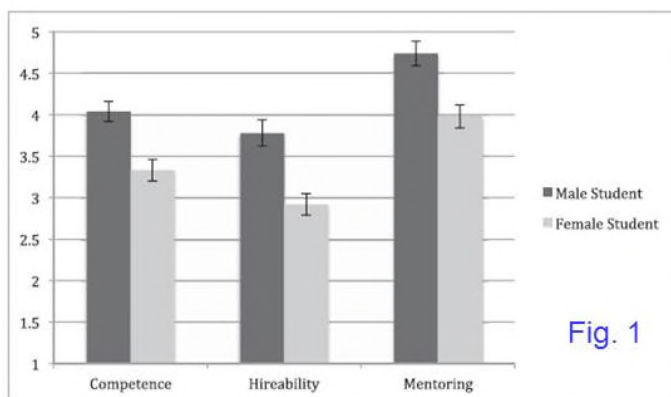


Fig. 1

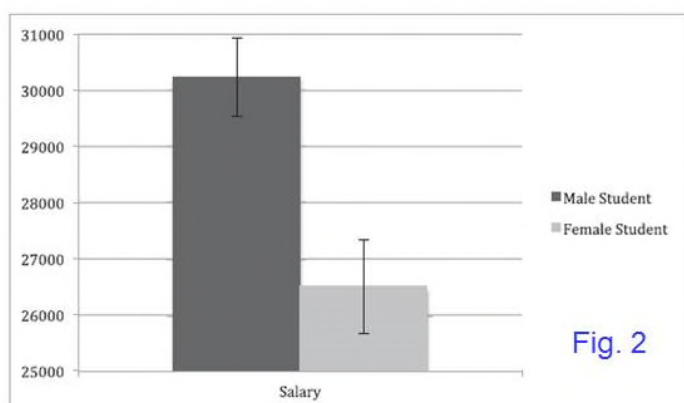


Fig. 2

Moss-Racusin *et al.*, 2012. Science faculty's subtle gender biases favor male students. *PNAS*

Lab manager position: applications identical but randomly assigned either a male or female name.

Male applicant rated by faculty as significantly

- more competent
- more hireable
- offered more career mentoring than the (identical) female applicant (Fig. 1)

Also selected a higher starting salary for the male (Fig 2)

Gender of the faculty did not affect responses, **both female and male faculty equally likely to exhibit bias** against the female student.

Chemistry's equality activity on the national and international stage

Recently Paul Walton has been busy talking about equality both here in the UK and around continental Europe. This has included a visit to an RSC-sponsored lunch (*see below*) where he, along with Pratibha Gai and Dave Smith, were able to talk directly to MPs and members of the House of Lords about equality. Paul has also given several Athena SWAN seminars across Europe, most notably at the FemEx conference in Oslo (*see report below*), to the senior management group at the University of Limerick, and at a gender equality conference at the University of Rijeka in Croatia.

York chemists attend RSC event at Houses of Parliament

Dave Smith, Paul Walton and Pratibha Gai attended a parliamentary lunch on 10 June, hosted by Professor Lesley Yellowlees CBE, the Royal Society of Chemistry and Valerie Vaz MP to focus on the issue of diversity in science. The event also celebrated Professor Yellowlees's tenure as President of the Royal Society of Chemistry.

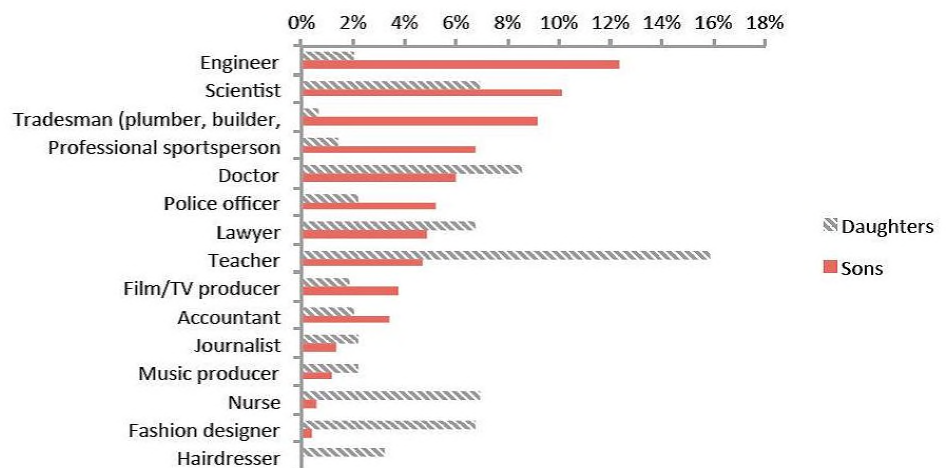
The event was an opportunity for policymakers, diversity campaigners, business leaders, and academics to discuss the issues raised by continuing inequalities in science - and the way ahead. It included speeches from Professor Lesley Yellowlees and others.

Improving Diversity in STEM: key findings

A new report by the Campaign for Science and Engineering (CaSE) on Improving Diversity in STEM subjects looks at issues relating to gender, disability and ethnicity. Key findings are:

- A change in culture is required within the workforce to remove any stigma surrounding flexible working. In academia the prevalence of short term contracts is also a major issue for early career researchers. CaSE supports the Science and Technology Committee’s recommendation for Government to work with the HE sector to review the academic career structure and increase the number of more stable and permanent post-doc positions.
- The report welcomes returner schemes such as those run by the Daphne Jackson Trust, the Wellcome Trust, and some universities, to support researchers who wish to return to science after a career break. Government should increase support for the Daphne Jackson Trust.
- Parental expectations of children’s career choices are shaped by gender perceptions: the bar chart below shows data collated on this subject, and needs no commentary.

Figure 8 – Parents’ responses^{vi} to the question “What type of job would you most like your child to pursue when they finish their education?” show gender bias¹⁴⁰



[figure reproduced from the report: ‘Improving Diversity in STEM’]

- Unconscious bias training should be made mandatory for all members of grant-awarding boards and panels across all seven Research Councils.
- The Government should commit to adequate funding to support the ongoing work of the Equality Challenge Unit on the Athena SWAN Charter.
- Primary schools should nominate an expert subject leader for science. Resources to nurture science subject leaders should be initially focused on schools in deprived areas.
- Schools should be adequately funded to ensure that student choice within science is never restricted due to cost. The Government should look at the infrastructure for practical science and target investment to improve science education for the most disadvantaged.
- Diversity should be made a central consideration in the development and implementation of all government policy-making for STEM, including apprenticeships, teacher training, university funding, curriculum reform and careers advice.

The full report can be found at <http://sciencecampaign.org.uk/CaSEDiversityinSTEMreport2014.pdf>

Robin Perutz

No sexuality please, we're scientists

Dave Smith's article questioning the low profile of LGBT members of the scientific community appeared in the RSC's *Chemistry World* in April. Read it in full here:

<http://www.rsc.org/chemistryworld/2014/03/no-sexuality-please-were-scientists>

Athena SWAN Good Practice Workshop

On 9th June Catherine Foster and Derek Wann travelled to the Royal Society of Chemistry in London to take part in an Athena SWAN Workshop. In total 44 delegates attended the meeting, coming from all over the UK to represent their University or Research Institute. Those present came from Departments that hold Gold, Silver, and Bronze Athena SWAN awards, as well as those that aspire to get there soon.

The programme for the day included an up-to-date outline of the application procedure for Athena SWAN. There followed a presentation from Zoe Pikramenou on the process that Chemistry in Birmingham had undertaken to win their first bronze award, and then a colourful talk from Tom Welton on how he views the recent Gold Award to Chemistry at Imperial College as merely the start of the process.

The networking lunch was a great excuse to discuss with old friends and new acquaintances the novel approaches being taken in our Departments to make them better places to work. Catherine and I were struck by the very collegiate nature of all the discussions, with people only too willing to share stories (both good and not-so-good) on practices in their institutions.

Derek Wann

Women preside over all three leading scientific societies



The Royal Society of Chemistry's president, Professor Lesley Yellowlees, joined the presidents of the Institute of Physics and the Society of Biology on 13 May to celebrate the first time in history that all three leading scientific societies have been led by women.

Professor Yellowlees, together with Dr Frances Saunders (President of the Institute of Physics), and Dame Nancy Rothwell (President of the Society of Biology), took part in a question and answer session with A-level students, undergraduates and early career researchers at the Museum of

Science and Industry in Manchester. The event was chaired by Baroness Verma, Parliamentary Under Secretary of State at the Department of Energy and Climate Change.

Ahead of the event, the three presidents appeared on BBC Breakfast to talk about their experiences of making it to the top in science.

The three presidents also issued a joint statement on their aspiration to see 'absolute equality' for all in science: the statement can be found in full on the RSC's website: <http://www.rsc.org/AboutUs/News/PressReleases/2014/three-women-presidents.asp>

Abby Storey joins RSC's 175 Faces of Chemistry

Abby Storey, the Chemistry Department's Chief Scientific Glassblower, has been named as one of the RSC's 175 Faces of Chemistry. Huge congratulations to Abby on a well-deserved accolade; read more of Abby's route to her current role at the link below. <http://www.rsc.org/diversity/175-faces/all-faces/abigail-storey>

The Confidence Gap

An article in *The Atlantic* entitled "The Confidence Gap" discusses evidence indicating women are less self-assured than men—and that to succeed, confidence matters as much as competence.

<http://www.theatlantic.com/features/archive/2014/04/the-confidence-gap/359815/>

The issues discussed in the article will resonate with many female students and staff in Chemistry.

The authors (Katty Kay and Claire Shipman) had conversations with females at the top of their profession, and were inspired to write a book uncovering whether a lack of confidence might be holding women back.



They concluded that there is a vast confidence gap that separates the sexes. Compared with men, women don't consider themselves as ready for promotions, they predict they'll do worse on tests, and they generally underestimate their abilities. A growing body of evidence shows just how devastating this lack of confidence can be. Success, it turns out, correlates just as closely with

confidence as it does with competence. No wonder that women, despite progress, are still woefully underrepresented at the highest levels.

Key findings included:

- Men initiate salary negotiations much more often than women do, and that when women do negotiate, they ask for a significant percent less money than men do. It is believed that this comes from a lack of confidence.
- In studies, men overestimate their abilities and performance, and women underestimate both. Their performances do not differ in quality. When asked to carry out tests, what

doomed the women was not their actual ability to do well on the tests. They were as able as the men were. What held them back was the choice not to try.

- In general, women apply for a promotion only when they meet 100 percent of the criteria. Men apply when they meet 50 percent.
- In sports, girls lose confidence, so they quit competing, thereby depriving themselves of one of the best ways to regain it.
- If a woman walks into her boss's office with unsolicited opinions, speaks up first at meetings, or gives business advice above her pay grade, she risks being disliked or even—let's be blunt—being labelled a bitch. The more a woman succeeds, the worse the vitriol seems to get. It's not just her competence that's called into question; it's her very character.
- The natural result of low confidence is inaction. When women hesitate because they aren't sure, they hold themselves back.
- Perfectionism is a confidence killer and studies confirm that it is largely a female issue. Women watch male colleagues take risks, while they hold back until they're sure they are perfectly ready and perfectly qualified.



Reasons for the differences in confidence levels between males and females are complex, but are thought to involve differences in brain structure, hormonal influences (particularly oestrogen and testosterone), life experiences, and the feedback received as children.

The conclusions of the article are that confidence is an essential human trait, as it is the factor that turns thoughts into judgments about what we are capable of, and that then transforms those judgments into action. The notion that confidence and action are interrelated suggests a virtuous circle. Confidence is a belief in one's ability to succeed, a belief that stimulates action. In turn, taking action bolsters one's belief in one's ability to succeed. So confidence accumulates—through hard work, through success, and even through failure.

The human brain changes over the course of life, in response to shifting thought patterns and behaviour. So females can change their brains, channel their talent for hard work, and boost their brains' tendency to self-confidence. This means that the confidence gap can be closed.

Helen Coombs

Expert Advisory Group on Gender set up for EC Horizon 2020 programme

Four new Expert Advisory Groups for key cross-cutting issues within Horizon 2020 have been set up by the European Commission. These are in the areas of: Science with and for Society; Spreading Excellence and Widening Participation; International Cooperation; and Gender.

The mandate of the four new Expert Advisory Groups is to "provide consistent and consolidated advice to the Commission services during the preparation of the relevant Horizon 2020 work programmes", hence they will be influential.

Promoting Female Excellence in Theoretical and Computational Chemistry



The FemEx-Oslo conference ran from 13-16 June at the stunning Soria Moria hotel, on top of a mountain overlooking Oslo. The full title of the event was "Promoting Female Excellence in Theoretical and Computational Chemistry II" and it consisted of 6 plenary lectures, 26 invited speakers and 12 short communications alongside poster sessions containing a total of 43 posters.

Over 100 participants attended from 20 different countries. A few even brought their young children along (though they didn't attend the lectures). This gave a wonderful atmosphere to the event where family life and work life combined in a completely harmonious manner showing that raising children and having a successful scientific career do not have to be mutually exclusive. The conference did also include men, with several male speakers. Asked how they felt about attending an event aimed at excellence of women, the male participants responded that their interest was in high quality science regardless of author gender. However, several speakers noted that it was unusual to stand on the stage and see so many female faces looking back at them.



The level of science over the weekend was exceptionally high and many of the speakers were truly inspirational. For example, Hilke Bahmann from Berlin gave a wonderful lecture on her work developing local hybrid density functionals. She spoke with great authority and held the attention of everyone, even those who normally don't enjoy such work. Not only did her talk earn her a prize, but while she gave her lecture, her husband and small child were in a room nearby so she could enjoy time with her family whilst also making a name for herself as an exceptional chemist. Many congratulations to Hilke! She inspired me a great deal, even joining me in making terrible jokes about the cylindrical approximation of our dinner to chicken.

Overall it was a fantastic, though tiring event, which hopefully will be repeated in a few years' time. I think it gave us all an increased sense of community and made us all feel far more accepted into the world of theoretical chemistry.

Kate Horner

Dr Meghan Halse appointed to new Chemistry lectureship

Meghan Halse has been appointed as a new lecturer in the Chemistry Department with effect from summer 2015. She is currently an EPSRC-funded postdoctoral researcher working with Robin Perutz and Simon Duckett. Her research expertise covers a range of theoretical and practical aspects of magnetic resonance, particularly involving solid-state and low field NMR spectroscopy.

Female scientists arrive in Legoland



Photograph: Lego

Toy manufacturer Lego is to launch a series of female scientist figures, a development proposed by Stockholm-based geochemist Dr Ellen Kooijman. The figures will include a chemist with laboratory equipment, an astronomer with a telescope, and a palaeontologist with a dinosaur skeleton. Kooijman submitted the proposal to the company via its 'Lego Ideas' product development scheme, and her winning idea is set to hit toy-shop shelves in August 2014.

Lego has attracted criticism in the past for the gender stereotyping in its products. Kooijman said, "As a female scientist I had noticed two things about the available Lego sets: a skewed male/female minifigure ratio and a rather stereotypical representation of the available female figures. It seemed logical that I would suggest a small set of female minifigures in interesting professions to make our Lego city communities more diverse."

Catherine Foster

US study reviews gender and diversity balance in PhD education



A recent report, "Trends in PhD Productivity and Diversity in Top-50 US Chemistry Departments: An Institutional Analysis" (Laursen, S. L. and Weston, T. J. J. Chem. Ed.; DOI: 10.1021/ed4006997) examines doctoral education in the US and attempts to identify individual departments which stand out in their representation of women and other minorities in their doctoral graduates. The

authors look specifically at certain departments to investigate the effect of local cultures and the resultant environment on women and minorities. The 50 departments selected account for 60 % of all chemistry PhDs awarded each year.

The study found that the percentage of women receiving PhDs grew substantially over the past 50 years and that though a smaller proportion of women received PhDs than Masters or Bachelors degrees, the rates of increase for each degree were comparable. They also found that larger departments tended to be less gender-balanced, awarding relatively fewer PhDs to women than smaller departments. They suggest this could be due to different recruitment and retention methods used at smaller institutions.

The authors were keen to study the effect of female staff numbers within the departments on the number of female PhD students. Interestingly, they found that departments with a greater number of female graduates actually had fewer women faculty. They also discovered a high disparity between departments, with some awarding PhDs to women at twice the national average but others

showing a negative trend over time. Washington, Florida and Michigan State had nearly gender-equitable graduating classes, with above-average growth rates for women's representation.

The study concludes that better representation of women can be helped by appropriate recruitment techniques coupled with improvement of retention e.g. better mentoring, peer mentoring, and earlier and more frequent progress benchmarking.

Kate Horner

Unconscious bias demonstrated by US professors



New research has found that US university professors exhibit a bias in favour of their white male students: information that, while perhaps not unexpected, is seriously bad news for the nation's aspiring academics. (http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2063742)

Researchers emailed 6,500 professors from 89 disciplines at the top 259 schools, pretending to be students. These emails replicated the same message; the only variable was the sender's name — for example, "Brad Anderson, Meredith Roberts, Lamar Washington, LaToya Brown, Juanita Martinez, Deepak Patel, Sonali Desai, Chang Wong, Mei Chen" — deliberately crafted in order to test the racial and gender bias in professor response.

The type of student who garnered the most responses? The white male. The researchers found that professors "ignored requests from women and minorities at a higher rate than requests from white males. ... We see a 25-percentage-point gap in the response rate to Caucasian males versus women and minorities."

<http://www.policymic.com/articles/88731/wharton-study-shows-the-shocking-result-when-women-and-minorities-email-their-professors>

Helen Coombs

Farewell to Sue Couling



Sadly, Sue Couling will be leaving the Chemistry Department at the end of this term. When I asked some of our researchers about what Sue did for them, these were some of the responses: "always welcoming with a smile", "thoughtful", "positive", "very good demonstrator training", "worked tirelessly to promote networking opportunities for postgraduates", "made sure postgraduates were well rounded ... with good communication and networking skills", "provided a positive and noticeable female role model". Another comment was "I didn't appreciate the time management course until

afterwards when I realised that I had not been managing my time well”.

Sue devised herself the courses and events she ran for graduates and postdocs. She started the postdoc induction and Researchers’ Days, and has provided one-to-one careers advice, invited alumni speakers, and fostered contacts between researchers at the postdoc forum – all of this alongside her work as a Teaching Fellow.

Two months ago Sue was a keynote speaker at a conference in Durham on Women and Change in Higher Education. Apart from Sue’s obvious enjoyment of sudden VIP status, the invitation illustrates how Sue has built up the reputation of the University (not just the Department) for addressing the issues facing women in science. This is one of several occasions where Sue has acted as an ambassador for York: she has worked tirelessly within Chemistry’s AS group to formulate policies and develop good practice, and through the University’s AS committee she has played an important role in helping other departments to appreciate and achieve AS recognition. Sue also helped the University achieve the European Commission’s 'HR Excellence in Research' Badge very early, via the Concordat to support the Career Development of Researchers.

So, a big thank-you to Sue for all that she has done, and we all wish her good luck for the future. I’m sure that she will keep enjoying the great outdoors, whether kayaking down the Colorado River or careering down the ski slope.

Robin Perutz

Chemistry networking event for pre- and post-doctoral researchers a success

On 4 June Sue Couling and Kirsty Penkman coordinated a Networking Event for postgraduate and postdoctoral chemists. It provided an opportunity for researchers in the Department to get to know each other, and develop their skills to help with networking at future external events, and identification of non-advertised career or development opportunities.



Those attending were split into groups of 4 or 5 and each took it in turn to prepare brief introductions to themselves and their research, receiving feedback from the rest of the group to help refine it to be clear, concise and interesting to the audience. The groups then undertook an activity to identify what constitutes networking – it is about listening just as much as talking!

Finally, these skills were put into practice in a speed-networking activity: researchers were paired with someone from a different research group and each had 1 minute to give an ‘elevator pitch’ and then 2 minutes to present a problem or issue, to which the other person would suggest possible solutions or ideas to consider. Repeating this exercise several times with different pairings helped hone listening skills and generated quite a buzz of conversation.

The event prompted some lively discussions – possibly aided by the availability of free beer!

Pioneering chemist and inventor Stephanie Kwolek dies at 90

Stephanie Kwolek, the American chemist who invented Kevlar, has died at the age of 90. She worked for the DuPont chemical company for 40 years, during which time she synthesized the first liquid crystal polymer and invented the high-strength fibre Kevlar, which is now used in body armour as well as tyres, aeroplane parts and firefighting suits. A full obituary is on the *Guardian* website:

http://www.theguardian.com/world/2014/jun/21/stephanie-kwolek-inventor-kevlar-dies?CMP=tw_t_gu

Daphne Jackson Fellowships in medical research in Scotland



[Medical Research Scotland](#) is looking to sponsor up to three Daphne Jackson Fellowships in subjects related to biomedical research, to be held at any Scottish university.

The deadline for this opportunity is September 1st 2014. For further details about the Trust and our Fellowship scheme, please visit www.daphnejackson.org

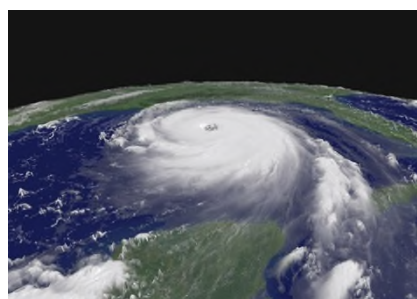
Daphne Jackson Fellowships offer STEM professionals wishing to return to a research career after a break of two or more years the opportunity to balance an individually tailored retraining programme with a challenging research project in a suitably supportive environment.

Medical Research Scotland seeks to encourage and develop those wanting to build careers in biomedical research in Scotland and supports research into any disease or condition.

Please outline your area of research interest and, if you have identified a department within which you would like to work, include the name and contact details of a potential supervisor in that department. Please email your submission to the Daphne Jackson Trust office at djmft@surrey.ac.uk stating clearly "Medical Research Scotland Sponsored Fellowship Application" **by September 1st 2014.**

and finally...

The female of the species is more deadly than the male...?



New research has been interpreted as suggesting that hurricanes with female names claim more victims than those with male names, because people don't take them as seriously.

Read the full article at:

<http://sciencealert.com.au/news/20140306-25605.html>

However, the reporting of this story has itself unleashed a backlash, as commentators criticise the gender stereotyping in the conclusions drawn from the original research data. Read the response at:

http://www.slate.com/articles/health_and_science/science/2014/06/stereotyped_social_science_reporting_the_new_york_times_washington_post.html