

Successful and Over-subscribed IYC 2013 Event at Birkenhead School

On the evening of 11th November 2013, the RSC Liverpool Section's IYC 2013 event took place at Birkenhead School. The Head of Science at Birkenhead School, Mr. Mike Hayward, was the host and he was assisted by the students and staff at the school.



The school's GCSE and A-level students conducted the experiments, which were demonstrated to cub scouts. The cub scouts participated in the experiments. The event was designed to allow the cubs to participate, and thereby allow them to gain their 'Scientist' badge.

All the cub scout packs in Birkenhead, Wallasey, West Wirral and Bebington were invited, and the event proved to be extremely popular and was over subscribed with 100 cub scouts attending. Consequently, it is anticipated that a second and/or third event will take place in March 2014, to enable cubs from the other packs that missed out to take part.

All the cubs carried out the following experiments:

~ Hydrogen peroxide and oxygen release - relighting a glowing splint.



Hydrogen peroxide and oxygen test



More Oxygen testing

~ An 'Alka-Seltzer' and hydrochloric acid in a capped plastic film cartridge, showing the carbon dioxide release 'popping' the cap. This was very popular!



Alka Seltzer & CO² test

~ pH test with hydrochloric acid and sodium hydroxide in various combination to indicate the different pH colours using universal indicator. This was then used to colour filter paper in a 'chromatography/filter paper' experiment.

After about one and a half hours activity, everyone went to the lecture theatre - where Mike Hayward conducted a talk and demonstrations with a little more complexity. Even so, the cubs were invited to 'give a helping hand' with a variety of demonstrations such as:

~ Using a Bunsen Burner to show the difference between a closed and open air hole.
~ The ignition of a cotton wool and Oxygen mix, to demonstrate the flash that follows, and various other oxygen gas experiments.

~ In the darkened room, using a water fountain jar and a little solvent

(which was allowed to evaporate in the jar), igniting the mix to give a very loud bang and bright flash!

~ Igniting Hydrogen/Helium balloons to give more flashes and bangs!

~ Using an air blower and a roll of paper, creating an 'Andrex-like' paper streamer all over the lecture theatre!

At the end of the evening, plenty of RSC 'goodies' were handed out: biros, sticky tags etc. A vote of thanks was given to the RSC (HQ and Liverpool Local Section) for sponsoring the event from the IYC fund for 2013, and also to Mike Hayward, Birkenhead School, for hosting the event.

Thanks to everyone. A great time was had by all!!!!

Len Pollock, RSC Liverpool Local Section

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The Future of the RSC North West Trust

With the agreement of the RSC, the North West Trust was established in 1995 when surplus funds were transferred from the N W Industrial Division which was disbanded by the RSC at a period of major re-organisation of the Society.

The new Trust's Rules of Governance specified that the funds should be used to support chemistry projects in the Cumbria, Lancaster, Liverpool, Manchester and North Wales regions (the old N W Industrial Division region). It also included the commitment to produce North West Chemistry News twice a year to inform approximately 5,500 members living in the five regions of all the events and other chemistry-related activities in the area.

Since its inception, in addition to financing NW Chemistry News, the Trust has donated well over £125,000 towards a range of events, mainly through the local sections. Examples include the Wrexham Science Festival, numerous projects at the Catalyst Science Discovery Centre, the North Wales Young Scientists Symposium, the Dalton Bicentenary publications, pledges to help local schools to gain science college status, exhibitions at the Northwich Salt Museum and many more.

From 2005, a decision was taken by the Trustees to make the support of activities at primary school level a major priority. Support for the Schools Science Festival in North Wales primary schools, the 'Chemistry with Cabbage' initiative, the Deanery School in Wigan's Primary 'Sciences Boxes' initiative and Bangor

Science Festival funded by RSC's North West Trust

Early in 2013, Schools Science Festival offered three presentations to primary schools across the counties of Wrexham, Flintshire, and Denbighshire. In addition some Conwy and Cheshire schools were also invited.

The three presentations were Acid Fizz!, Elements & Materials and Biochemistry. Each had four sessions. Acid Fizz! was the most popular presentation and most of the children remembered the 18 acids they had been introduced to in the session.

The Elements & Materials sessions were taken up more slowly, but were well received in the end - so well received that one child tasted the 'manufactured'

University's 'Flash Bang' shows are all examples of this.

Initiated in 2008 and with the 2011 International Year of Chemistry on the horizon, the Trust under the leadership of Professor Alan Heaton, launched a major project with Sue Halliday at Catalyst and Lorelly Wilson of 'Chemistry with Cabbage' to produce a DVD for primary teachers illustrating simple experiments for children using everyday items and ingredients. The project has been a great success and to date 8,000 copies of the DVD have been distributed.

At its inception, it was envisaged that the Trust would function for ten years or so until funds ran out. Thanks to generous support from the RSC Speciality Chemicals Sector, to whom the Trust reports, from surplus funds accumulated from successful conferences, the Trust has been active for nearly 20 years.

Sadly, we have now reached the stage where by the end of 2014, the Trust will no longer be financially viable. It is therefore anticipated that the Trust will close. There will be a September 2014 issue of NW Chemistry News and the RSC Speciality Chemicals Sector may still be able to provide limited, continued support to some of the Trust's former activities. We will keep you fully informed as 2014 progresses.

Meantime, on behalf of the Trustees, we would like to thank all those who have supported the Trust and its many activities over the years.

David Karsa, Chairman, RSC NW Trust

Prussian Blue (!) made from iron extracted by electrolysis from a nail.

It is likely that teachers saw little of interest in Biochemistry presentations or thought it too difficult for primary school children. However the school that did choose the one Biochemistry session enjoyed it and immediately agreed to take part in the 'Zinc Project' later in the year.

Most of the pupils seemed to enjoy the presentations and would frequently ask to repeat the experiments if time allowed - often missing break because they wanted to continue with the experiments

Steve Conway, SSF Organiser

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Chemical Sciences

Industry & Technology Division

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RSC Student Bursaries for Conference Travel

The RSC Manchester & District Local Section are making available small grants (£400) to support members in their career development through attendance at international conferences. Awards are competitive, and will be made only to Student Members or Younger Members (under 35) of the RSC studying, working, or domiciled within the area covered by the section: see www.rsc.org/Membership/Networking/LocalSections/ManchesterAndDistrict/index.asp).

Awards are specifically for attendance at international conferences where members will be presenting a talk or poster.

Awards are intended to complement other sources of funding, and to act as leverage to secure such other funds. Awards are available annually.

For more information, please contact Dr D. Mills, Manchester University Chemistry Dept, Oxford Road, Manchester, M13 9PL, or email david.mills@manchester.ac.uk

Chemicals Northwest ends 2013 on a high note and gets ready for 2014 and beyond



The Chemicals Northwest team have been non-stop since the last edition of the North West Chemistry News was published.

Our main event for 2013 and the culmination of months of work was the Chemicals Northwest Awards Dinner which took place on 10th October at the Imperial War Museum, Manchester. The dinner was a “SELL OUT” success with 250 people in attendance and even a waiting list for tickets at one point. The award entry forms that were received were outstanding and narrowing them down to just one winner was a hard task for the judges. The awards, which were made by students on the Fine Arts course at Wirral Metropolitan College, were taken home by eight Chemicals Northwest member companies. Feedback received from the event was excellent. Plans are now being made for the next awards dinner – please keep your eyes and ears peeled for this.

Since the last edition of the Northwest Chemistry News went to press, three Chemicals Northwest breakfast events have taken place:

The Science and Technologies Facilities Council's (STFC) Daresbury Laboratory hosted the Chemicals North West breakfast event on the 16th July. Presentations were made on unpacking the UK's science infrastructure including the UK's supercomputer, latest accelerators, virtual engineering capabilities, SME laboratory space and also covered how companies can gain access to the latest technologies coming out of the European Space Agency (ESA) and CERN as well the funding structure around the UK and Europe. The event ended with a site tour which incorporated the Hartree Centre for supercomputing, Virtual Engineering Centre, VELA Accelerator, I-TAC and the wider Sci-Tech Daresbury Campus.

Industry Connect was the next breakfast event and was held on the 18th September - this was also a sold out

event and was sponsored by the Royal Society of Chemistry and Cogent. A presentation was made by Stuart Ross on ‘Tripling Bottom Line’. Stuart spoke on the commercial opportunity presented to business by the environmental challenge and the concept of sustainability as well as discussing the practical application of the principle of The Triple Bottom Line. Ciara Dempsey spoke about REACH and how the REACH regulation is extremely complex and many companies are unsure of how it affects them. This talk provided an overview of the obligations of downstream users under REACH. Clare Wilson talked about ‘Support for Small Companies’ and how the Royal Society of Chemistry has recently launched the first phase of a package aimed at small companies. The talk described the support and benefits available. Kate Griffiths spoke about ‘Performance Benchmarking for the Process Industries and the SME Performance Benchmarking Tool’.

The third breakfast event took place at the Heath Business Park on the 18th November and was sponsored by Kelly Services. Andrew Corness presented on employee retention and how it is becoming an increasing challenge for employers as we move out of the recession. The presentation covered findings from the 2013 Kelly Global Workforce Index that surveys over 122,000 global respondents. Colin Smalley spoke about Tracerco and how it originated in 1958 as a small research team within Imperial Chemical Industries (ICI) in Billingham, Teesside, UK. Today, Tracerco is part of the Process Technologies Division of Johnson Matthey and is a world leader in its field. Grant Roxburgh from RSS Structure Inspections presented on ‘Built Infrastructure Sustainability and Regulatory Compliance on Chemical Sites’. He gave a brief overview of how to achieve exemplary standard buildings, structures and secondary & tertiary containment measures. Mick McGrath

from Oranmore Environmental Services gave a talk on the company's civil structures maintenance services and a new repair coating from the US called ‘Ultracoat’.

Our Chemical Elements events have also been continuing to take place:

We held an event on ‘Chemical Incidents - Emergency Preparedness and Minimising the Impact’ on 25th September 2013 which was sponsored by 24-7 Response, OAMPS Petrochemical and Bureau Veritas. The event showed delegates how emergency planning, staff training, exercises and response procedures all help to reduce the likelihood of risk of incidents occurring. Highlights of the event showed why it pays to have a reliable 24hr emergency telephone number to cover premises as well as the transport and supply of products. Expert speakers in incident management and environmental remediation used examples to demonstrate how incidents are resolved and stressed the importance of being able to call on specialist responders at the time of a spill. The speakers gave advice on how to minimise liability and the financial consequences of both spillages and legacy environmental events, particularly when a third party's property is affected. There was an interesting insight into how the front line emergency services deal with chemical incidents.

On Monday 18th November, we held a ‘Meet the UKTI Vietnam Chemicals Commercial Officer’ event. Ngo Minh Hang (Ms) from the British Embassy in Hanoi was in attendance at the Heath Business Park to meet companies in the Chemicals Northwest network. Ms Hang covers the chemicals, textiles and mining sectors for UKTI Vietnam. The presentation covered the following topics: the top industries carrying out manufacturing in Vietnam, overview of the chemical manufacturing industry in Vietnam, overview of the textile manufacturing in Vietnam, overview of the mining industry in Vietnam, general tips on doing business & business culture in Vietnam, assistance offered by UKTI Vietnam and expressions of interest in a NW trade mission. There was also the opportunity for attendees to have a 20 minute one-to-one meeting with Hang after the event.

Continued overleaf

The 28th November event entitled 'Showcasing Success in the Northwest' was sponsored by FMC Chemicals and focused on the successful practices that resulted in eight Chemicals Northwest companies winning awards at our dinner in Manchester. Winners of the awards explained why they came out on top. The innovation category was particularly strong and as a result we dedicated the opening session of the event to include the winner and several other innovation finalists. Feedback received from the event was excellent. It is always very motivational to hear stories regarding leading edge work within the chemicals sector and in essence stories that regionally we should all be proud of.

John Roche, Head of Responsible Care Cell at the Chemicals Industries Association and Operations Manager for Chemicals Northwest, also continues to Chair the North West and Wales Responsible Care Cell meetings at the Heath.

The Chemicals Northwest LinkedIn group now has over 850 members and is active on a daily basis. If you are connected to the chemical industry in the UK and want to join the group then please join our group on LinkedIn.

Our REACH User Group is also still going strong and we held a meeting for the participants on 26th September which was led by Richard Roy from the CIA ReachReady Team. This group is open to our member companies, if any members of Chemicals Northwest would like to join please contact alex.heys@chemicalsnorthwest.org.uk

Membership of Chemicals Northwest has increased over the current year which is a good indication that our message is spreading and there is interest in the sector from across the region and beyond. For further details please see the membership section of the website http://www.chemicalsnorthwest.org.uk/membership/membership_benefits/

Our quarterly Elements magazine has also been growing in size both in pagination and circulation. We are working in conjunction with Distinctive Publishing to deliver a more industry focused publication with a roundup of the latest industry news, advertising features, charity stories, interviews plus our regular features, such as members spotlight, skills, innovation and

sustainable development features. If anyone would like information on prices to advertise, to contribute a good news story or has any other ideas for the Chemicals Northwest newsletter, then please contact: alex.heys@chemicalsnorthwest.org.uk for further details.

Our 2013/14 Chemicals Northwest Sector Directory came out in November and the feedback we have been receiving has been very positive yet again. We continue to produce our annual sector directory highlighting the issues and challenges for the industry as well as giving a comprehensive resource of information relating to the largest regional cluster of manufacturers in the UK. Copies are available free to individuals from member organisations and at a small charge to non-members.

Alex Heys, Chemicals Northwest

Out and about with the RSC's NW Regional Coordinator

By the end of 2013, there have been 7 full day and 6 half day Chemistry at Work events in North West with potentially double that number of Chemistry at Work events happening in 2014! Ten ChemNet events happened in the NW alone and I have been in contact with over 850 teachers in the region and nearly 400 trainee science teachers.

Chemistry Week last November was a huge success with many events happening across the North West including a number of chemistry career events at both University of Manchester and University of Liverpool where we had speakers who all had chemistry degrees but had gone into the many various professions both within chemistry and out of chemistry. Amongst the speakers we had an accountant, organic chemists, an oceanologist, nuclear chemist, a chemistry teacher and even a global director for product safety, Air Products and Chemicals inc. I want to thank the careers departments at each university and everyone else that helped with the organisation and a special thank you to those that agreed to stand up and speak to a lecture theatre full of students! Also, I want to thank the RSC Liverpool local section for getting involved with the University of Liverpool event. Both

ChemNet students and undergraduates found the events very useful and informative.

Other events that took place as part of Chemistry Week included a chemistry themed day at MOSI (organised with Greater Manchester STEMNET), where students carried out the RSC's Global Experiment 2013 (<http://www.rsc.org/learn-chemistry/resource/res00001280/global-experiment-instructions-2013>), talked to STEM ambassadors and got 'hands on' with health themed experiments. After lunch, the students took part in a molecule hunt around MOSI. The molecule hunt was repeated by RSC Manchester Local section at Manchester Museum a few days later. Also, Catalyst Museum were running events throughout the week - this included an interesting talk by Dr. Chris Faux on replacement hips. Afterwards, the students were able to use the same materials which doctors use when performing a hip replacement operation, including bone cement, to make their own artificial hips!

In January 2014, at the Association for Science Education Conference at Birmingham University, the RSC's 'Learn Chemistry Partnership Scheme' was launched. Teachers, together with their schools, can now become connected to the world's leading chemistry community and a nationwide network of teachers and institutions. Benefits of joining this FREE initiative include complimentary membership for the main contact of the school who will receive an Education in Chemistry and the Mole magazine subscription, and the RSC Education e-newsletter containing the latest resources, activities and news for partner schools. Also, schools registering in the first six months, will receive a free A0 periodic table classroom wall chart. Through the Learn Chemistry Partnership, the RSC will support teachers and institutions to shape and inspire future generations of chemical scientists. To find out more and register your school please visit rsc.li/lc-partnership

If you wish to know more about anything in this article, future opportunities, the latest RSC educational resources, or being more involved with RSC, please email me: katayune.presland@manchester.ac.uk

Kat Presland, RSC NW Coordinator

RSC North West Analytical Division promote Streamwatch at Manchester Science Festival 2013



As described by Peter Doyle in the March 2013 issue of NW Chemistry News, the award of a grant from the RSC International Year of Chemistry (IYC) Challenge plus additional funds from NW Region Analytical Division (NWAD) has enabled NWAD to purchase a number of Streamwatch kits: simple analytical test kits which can be taken into the field to measure various parameters and thus provide information on the health of local streams and ponds. The purpose of the Streamwatch project is to encourage involvement in chemical analysis and promote scientific inquiry.

Members of the general public, especially younger members, were given the opportunity to carry out the tests

during a day of events called 'Brains of the Future' run by Manchester Metropolitan University on Saturday 26th October - part of Manchester Science Festival 2013. The Streamwatch event was run entirely by MMU BSc MChem Chemistry students Harjeet Singh, Joseph Yuen, Oliver Steele, Hollie Bird and David Shaw. The students produced Streamwatch kit information leaflets, bookmarks and participation certificates to generate interest and to advertise that the test kits are available on loan (free of charge) to schools, community groups and other organisations in the region. On the day they led the 'junior analysts' through the measurement of pH, hardness, nitrates

and dissolved oxygen on samples from Rochdale Canal and the River Medlock – parents thoroughly enjoyed watching their children taking part and lots of smart phones were used to record the involvement. Joseph and Oliver acted out the roles of scientist and farmer as a way of explaining the significance of the measurements - very entertaining and informative and attracting quite a crowd.

The Chemistry students undertook the Streamwatch project to gain points towards the silver award of a university initiative called MMU Futures which gives recognition for all voluntary extra-curricular activities: an incentive to encourage students to look beyond the limits of their course of study and broaden their skills and experience. The students intend to take the kits out to schools and community groups and to contact relevant agencies like United Utilities and the Environmental Agency to have them lend their support to the activities. The intention is to collate and publish the results obtained by participants.

If you know of a group who would like to borrow one of the kits then, for further details, go to: <http://www.nwad.org/new.background.streamwatch.html>

*Megan McLean,
MSF Streamwatch Event Organiser.*

Grants available from RSC NW Region Analytical Division

In recent years, the NW Region Analytical Division has provided several grants to post-graduate students to enable them to participate in analytical conferences, and to schools to fund their travel to local universities and colleges to find out more about analytical science.

Clare Rawlinson- Malone, attended the 2013 Emerging Analytical Professionals conference, which was made possible by a bursary from the NW Region. Read Clare's report overleaf.

James Hand, received a travel grant that enabled him to attend the 2013 Fourier Transform-Infrared (FT-IR) Spectroscopy Workshop in Berlin. Read James' report overleaf.

Schools in the region have received grants to enable groups of students to travel to local universities, where they have been able to gain hands-on experience of chemical synthesis and analytical techniques. Read overleaf about visits made by students from Priestly College, Warrington and Chapel-en-le-Frith High School.

Information on how to apply for post-graduate student grants is available at:

www.nwad.org/rsc.nw.ad.student.travel.grant.pdf

and information on school travel grants can be found at: www.nwad.org/rsc.nw.ad.schools.travel.grant.pdf

Also, the NWRAD have recently sponsored two students from the region to gain research experience at Liverpool John Moores and Manchester Universities. Follow link <http://www.nwad.org/BMSS%20studentship%20report%202012%281%29.pdf> to see the results of Sophie Rawthorne's studentship at Liverpool John Moores University. Follow link <http://www.nwad.org/BMSS%20studentship%20report%202012%282%29.pdf> to see the results of Rebecca Mackenzie's studentship at Manchester University.

More details on grants can be found on our website www.nwad.org

*Stuart Forbes,
RSC NW Region Analytical Division*

An Inspiring Eurovision for Analytical Science

The exciting weekend conference Emerging Analytical Professionals (EAP) was held in Leeds earlier in 2013. Under the banner of 'A Eurovision: Analytical Science in tune', a diverse programme was presented around a theme of harmonisation of analytical science, and featuring pharmaceutical, security, environmental, health and forensic science.

EAP 2013 was organized by the Analytical Science Network (ASN). ASN is recognized as the younger member's branch of the Analytical Division of the Royal Society of Chemistry. However, its cross-disciplinary culture is reflected in its membership being drawn from the Forensic Science Society, the Royal Pharmaceutical Society, the Biochemistry Society, the Mass Spectrometry Society and many more. With EAP as the flagship event, ASN is leading the way in providing a forum to support career development and foster and promote good practice in Analytical Science amongst younger professionals. ASN works closely with a number of other groups engaged with supporting Analytical Science in the UK. This year it was proud to have delegates supported through bursaries and prizes from the Separation Science Group, Electroanalytical Sensing Systems Group, Institute of Physics, Natural Environment Research Council, Analytical Chemistry Trust Fund and the North West Analytical Division.

The conference was opened by an engaging presentation from Anthony Bristow, AstraZeneca, extolling the virtues of mass spectrometry to tackle a wide range of analytical challenges. For the first time the EAP program included a presentation from the winner of the

Geoffrey Phillips Analytical Science Award (which is offered by the Joint Pharmaceutical Analysis Group), Kathryn Bradley, MSD. 'Bright sparks' speakers were drawn from both academic and industrial backgrounds and delivered talks on such diverse topic as the testing of Boron Doped Diamond, Equine Hair, Synthetic Cannabis and Mercury uptake in Whale populations. The poster-pitch session widened this field to include presentations on Arsenosugars, Corneal Embryogenesis, Molecularly Imprinted Polymers, Metal in Seawater and Protein Binding in Pharmaceutical Development.



Hands on CPD workshops

The event offered training on key analytical techniques and soft-skills important for today's job market. Highlights included a 'Continuing Professional Development' session on 'Personal Effectiveness' lead by Dr Riddhi Shukla, University of Bradford, and an exciting technical workshop from RSC 'Spectroscopy in a Suitcase' lead by Dayna Mason. Networking is always an important element of the EAP

conference. This was reflected in a strong social program, including a light hearted fancy dress conference dinner - this year featuring some fantastic Eurovision inspired costumes!



Conference dinner with a difference...

Finally, the conference closed with an inspiring talk by Dr Ben Whalley, University of Reading, 'Thinking outside the Cage'. This explored the concept of '3R's - refinement, reduction, replacement' in relation to the use of animal models in R&D. He outlined the work of his group in developing a gold standard, drug-resistant animal model of temporal Lobe epilepsy, and the development and validation of a novel in-vitro model for screening CNS-active drugs. This was followed by a lively debate on ethics, the future direction of analytical testing and the role of innovation and commerce in this sector.

The next EAP conference will be held on 4-6th April 2014 in Penrith: 'A World Goal: Celebrating Analytical Achievements'. Please contact the Conference Chair, Charlie Davis for more details: charlie.s.davis@googlemail.com.

*Clare Rawlinson-Malone,
sponsored by RSC NWAD*

FT-IR Spectroscopy in Microbiological and Medical Diagnostics Workshop, Berlin

I would like to express my appreciation to the North West Region - Analytical Division of the RSC for providing the travel grant that enabled me to attend the 2013 Fourier Transform-Infrared (FT-IR) Spectroscopy Workshop in Berlin, Germany.

The FT-IR Spectroscopy Workshop is held bi-annually, and in 2013 it was held at the Robert Koch Institute which is responsible for disease control and prevention in Germany. The workshop comprised of oral and poster presentations from researchers in the various fields that concerned infrared and Raman spectroscopic techniques. The workshop hosted a range of current research such as: the microbiological analysis of pharmaceuticals, food and biotechnology; FTIR

analysis of phytoplankton in ocean ecosystems, and the problems associated with transfection-mode IR spectroscopy to name but a few. Of particular interest to me were the talks and posters on medical spectral diagnosis using bio-fluids and tissues.

Every talk gave the opportunity to discover something new, but the talks I found particularly interesting were delivered by Gardner who made the spectroscopic community aware of the inherent problems of transfection-mode IR microscopy, Krafft who discussed the potential of cell identification using Raman spectroscopy and the methodologies involved, Wood who reported the use of attenuated total reflection Fourier

Continued next page

transform infrared (ATR-FTIR) as a diagnostic method for malarial parasites in blood samples, Holman who described a method by which deep-sea microorganisms could aid in oil spill response units and finally Diem who presented the promise of early cancer diagnosis using exfoliated cells via infrared and Raman spectroscopy.

Presenting a poster on my research to a workshop community of spectroscopists allowed me to discuss my methodologies, results and overall PhD aims with other researchers. I was able to receive much valued feedback from other researchers and academics that gave their opinions and thoughts, thus opening up my mind to new perspectives and applications of my work.

To conclude, I enjoyed having the opportunity to meet other researchers in the same field as myself. I thoroughly enjoyed meeting other PhD students from outside of the UK and discussing our projects. It was enlightening to discover the research that is carried out around the world which is brought together and discussed in a friendly environment with researchers who share the same interests and knowledge. Attending the FT-IR workshop has made me feel part of a larger research community and I am grateful to have had the experience.

*James Hand,
Report courtesy of RSC NWAD*

A Lifetime of Analysis

A Brief History of the NW Region of the Analytical Division of the Royal Society of Chemistry in celebration of its 75th Anniversary (1924-1999)



This book, produced by Stuart Forbes to celebrate the Region's 75th Anniversary in 1999, reprinted due to demand, in February 2002, is now available to download <http://www.nwad.org/nwad75.pdf>

Priestley Chemistry Students Enjoy Some Real Analysis

As a result of generous funding from the RSC NWAD, Priestley students and their teachers were given the valuable opportunity of visiting two Russell Group Universities during 2013, and carry out some real analytical chemistry.

In June, 15 students and teachers Wendy Winnard and Steve Pennington set off from Warrington Central station to join over 200 other students in STEM master classes at the brand new teaching hub at the University of Liverpool. Students experienced the 'chemistry of pain' as they carried out the synthesis and analysis of benzocaine. They were given hands on experience of using IR for the first time. In a session entitled 'Let there be light', they investigated the kinetics of a reaction involving TiO₂ in the photocatalytic decomposition of organic material using spectrophotometers.

Later in 2013, a further 15 students travelled to the University of Manchester

to experience Synthesis, Spectroscopy and Chromatography. Lead by Priestley's Chemistry Curriculum Manager, Barbara Schofield, and Steve Pennington, the students were welcomed by Dr Frank Mair and given a tour of the facilities including X-ray and Nuclear Magnetic Resonance Spectroscopy. Students were then given the chance to synthesise and analyse diphenylmethanol from benzophenone. Like the students who visited Liverpool, they analysed their product using TLC and IR spectroscopy.

Priestley Chemistry students and staff would really like to thank RSC NWAD and in particular Stuart Forbes, Team Leader Spectroscopy, Separations & Thermal Analysis at Shell, for their help in making these visits possible.

*Wendy Winnard, Priestley College,
Report courtesy of RSC NWAD*

Chemical Synthesis and Analytical Techniques Day at the University of Manchester.

Although the primary aim for the visit to the School of Chemistry at the University of Manchester was to introduce Year 11 triple science students to different analytical techniques, the synthesis and monitoring the progress of the conversion was done really well by the students and they could clearly see when the reaction had reached completion.

At the start of the day, the pupils looked a little worried when names like 'Benzophenone' and 'Carbonyl' were being used to explain the experiment they were going to carry out since they don't come across these in GCSE Chemistry. However, once they got into the lab and the demonstrators for each group explained each step to them, they relaxed and really enjoyed using chemicals and equipment that you just don't have in your standard 11-16 comprehensive school. Even students who find Chemistry quite difficult and will be taking the foundation tier paper in the summer, found the steps easy to follow and could monitor the progress of their reaction using TLC and observing the chromatograms under UV light. A comparison between the IR spectrum of Benzophenone (reactant) and Diphenylmethanol (product) allowed

them hands-on practice of IR spectroscopy and a relevant spectrum to analyse back in the classroom.

A tour of the different analytical machines used in the School of Chemistry took place while their product was drying, and the NMR machine in particular fascinated the majority of students. They could really get a close look at the size of the machines and their cost!! For myself, having an understanding of how they all work, pales into insignificance when I try to get my head around where you would start to design and build one of those machines from scratch. I had a good discussion with some of the students about chemical engineers and how I am in awe of them.

At least half of this class want to continue with Chemistry at A-Level and I think most of those will further their education with some sort of Science degree.

Overall, it was a very successful trip and one which I hope to repeat in the coming years with the next generations of budding scientists.

*Sara Rogers,
Chapel-en-le-Frith High School,
Report courtesy of RSC NWAD*

RSC NWRDA host National Events for Young Analysts in 2014

The NW Region of the RSC Analytical Division is pleased to be hosting two national events for young analysts during 2014.

Emerging Analytical Professionals (EAP) Meeting:

On the weekend of 4-6th April, the Analytical Science Network, which supports early career analysts in industry and academia, will be holding its annual EAP Meeting at the North Lakes Hotel & Spa in Penrith. Building on the success of previous events, the aim of the EAP weekend is to provide networking and continuous professional development opportunities for early career analytical scientists across all disciplines. This year's programme includes both general interest talks and specialist lectures structured around the theme of: A World Goal; Celebrating Analytical Achievements. Inspired by the 2014 World Cup in Brazil the meeting will address both global (worldwide environmental and biological issues) and sporting (sports science, pharmaceuticals, nutrition, security, forensics) subjects. Further information and registration details are available via the following link: www.mmsconferencing.com/EAP2014.php

An account by Clare Rawlinson-Malone of the 2013 EAP Meeting in Leeds appears elsewhere in this issue of NW Chemistry News, and the benefits of participating in these meetings are illustrated by an article which appeared in the March 2013 edition of NW Chemistry News written by Carys Jones. Carys, who at that time was studying Industrial Pharmaceutical Sciences at Liverpool John Moores University, attended the 2012 EAP Meeting in Knutsford with the help of a travel grant provided by the NW Region. An account

of her experiences can be found via the following link, which also provides details on travel grants available to students and schools from our region: <http://www.nwad.org/new.background.travel.grants.html>

National Final of Schools Analyst Competition (SAC):

The National SAC Final will be held at the University of Central Lancashire, Preston in the early summer of 2014. As described in the September 2011 and September 2012 editions of NW Chemistry News, the SAC is held annually and is open to sixth form students who are undertaking AS Level Chemistry. Teams of students initially compete in regional heats across the UK and in our region these heats are held during the spring term at Liverpool, Preston, Bangor and Manchester. The winners of each heat qualify for the National Final which is held at a different university UK each year. Schools from the NW Region have performed very well at the National Final throughout the existence of the SAC, as witnessed by recent results when our schools took first and second places in the 2011 final, and first and third places in the 2012 final. In acknowledging these achievements and our future success in the SAC, we sincerely thank the students and teachers from all schools who participate in the competition, the organisers and staff involved in hosting the four regional heats, and our sponsors throughout the region for their generous support to this event. Further information on the SAC in NW Region is available via the following link: www.nwad.org/new.background.schools.analyst.comp.html

Stuart Forbes,
RSC NW Region Analytical Division

RSC NW Trust to Sponsor Bangor's ChemPharma again in 2014

The Chemistry Pharmaceutical event held at Bangor in 2013 was generously funded by the RSC NW Trust. Bangor is delighted to learn that the Trust has agreed to fund the production of the educational literature supplied to the schools at the event in 2014 which

means that the event can now be offered to schools on two consecutive days. This is great news for our events programme as ChemPharma is always oversubscribed.

Stevie Scanlon, Bangor University

Lancaster & District Section Activities

Our 2013/2014 session has started well even though the 2nd and 3rd lectures had to be altered due to one speaker being ill and the other having to go overseas.

The talk by Prof DW Kurtz of UCLan was fascinating and very well attended by members, friends and students. It showed how the earth is just in the right place in our Galaxy and how lucky we are to live here, even to exist at all! The second lecture was on Catalysis given, at very short notice by Prof Gary Bond of UCLan and proved to be very interesting and well explained. The talk on 26th November was really cutting edge, given by Dr Matthew Baker of UCLan on the latest non invasive techniques for diagnosing Cancerous tumors in the Brain and Prostate using Raman Spectroscopy. Two days later Dr Baker was explaining his research work on TV North West Tonight but we had heard about it, in much more detail, 48 hrs previously with an audience of over seventy! We have our Chairman Dr Rob Smith of UCLan to thank for finding these replacement speakers at such short notice.

We are looking forward to the remainder of our Programme in 2014, which includes, our Annual Quiz, a talk on Photography, our AGM, a wine tasting, and a talk on 'Modern Batteries -Today's limits and what the future holds'

Harry Clarke,
RSC Lancaster & District Section

The Manchester Section visit Houghton Tower



The Manchester and District Local Section enjoyed a day at historic Houghton Tower in August. Houghton Tower, a Grade I listed building, is the ancestral home of the de Houghton family. The Tower lies mid-way between Preston and Blackburn, with magnificent views of Lancashire, the Lake District and North Wales. Houghton Tower is the only true baronial hall in Lancashire.

Walter Cuthbert,
RSC Manchester & District Section

NW Chemistry News March 2014

DIARY

To include your event in the next Diary of NW Chemistry News, please send details **before** 30.06.14 to Patricia Keen, email: patricia.keen@virgin.net

RSC GROUPS

SPECIALITY CHEMICALS SECTOR

For details contact:
Sector Secretary
Dr Grahame Stanley
Tel: 07792 056515
Email: g.i.stanley@btinternet.com
or www.rscspecialitychemicals.org.uk

17 - 19 March 2014

CONTINUOUS FLOW TECHNOLOGY IN INDUSTRY II

This conference follows the very successful RSC events held in Geneva in 2011, York in 2012, and Munich in 2013 and will provide a timely update.

Venue: Robinson College, University of Cambridge, Cambridge. CB3 9AN
Contact: Pat Keen.
Tel: 01606 888005
Email: patricia.keen@virgin.net
See page 20 for further details

14 - 17 April 2014

FIRE RETARDANT TECHNOLOGIES 2014 FRT14

A follow on conference from the very successful FRT09.

Venue: University of Central Lancashire, Preston. PR1 2HE
Contact: Dr Ruth Lane.
Tel 01928 788071
Email: ruth@cowlane.co.uk
See page 19 for further details

18 - 19 June 2014

RSC Speciality Chemicals Sector Symposium

WASTE NOT, WANT NOT - PROFIT FROM SUSTAINABLE CHEMISTRY

This event will run alongside the 2014 Chemspec Europe and Chemsources Exhibitions organized by Quartz Media.

Venue: Budapest, Hungary
Contact: Pat Keen.
Tel 01606 888005
Email: patricia.keen@virgin.net
See page 18 for further details

CUMBRIA SECTION

For details contact:
Section Secretary
Dr Kevin Webb
Website: www.rsc.org/cumbria

A programme of events can be found on the RSC website.

LANCASTER & DISTRICT SECTION

For Local Section information:
Section Secretary
Mr Alex W T Livesey
Tel: 01282 818741 (work)
Website: www.rsc.org/lancaster

For events details contact:
Programme Secretary
Mr Harry Clarke
Tel: 01995 640003
Email: hclarke906@btinternet.com
Website: www.rsc.org/lancaster

Tuesday 18 March 2014 7.00pm

WINE TASTING

Host: Prof John Hepworth, Lancaster Section
Venue: Preston College Vincent's Restaurant, Preston College, Fulwood Campus, St Vincent's Road, Fulwood, Preston, PR2 8UR

Tuesday 29th April 2014 7.00pm

MODERN BATTERIES - TODAY'S LIMITS & WHAT THE FUTURE HOLDS

Speaker: Dr Richard Heap, Faridon
Venue: Harrington Lecture Theatre, University of Central Lancashire, Preston. PR1 2HE

LIVERPOOL SECTION

Section Secretary:
Dr Ingeborg Buschmann
Tel: 0151 9499304
Email: ibuschmann.rsc@gmail.com
Website: www.rsc.org/liverpool

For more information of events, please visit the Section's web page at www.rsc.org/liverpool or contact:
Dr Bob Lee
Tel: 0151 3347875
Email: drboble@msn.com

Thursday 3 April 2014 12.00pm

Retired Members' Lunch THE SCIENCE AND SIGHTS OF OMAN

3 course meal followed by a talk by Prof. Alan Heaton, Educational Consultant.
Venue: Clouds Restaurant, Southport College. PR9 0TT
Open to RSC Members and Guests.

Thursday 12 June 2014 10.30am

Retired Members' Lunch SUPERBUGS - DO WE REALLY NEED A MAGIC BULLET?

A talk by Mark Wainwright, Professor of Chemotherapy, Liverpool John Moores University, followed by a hot & cold buffet lunch.
Venue: Foresight Centre, Liverpool University. L69 3GL
Open to RSC Members and Guests.

Monday 21 July 2014 10.30am

Retired Members' Event

A guided tour of Sefton Park and the Palm House by Mr. Richie Baker, former park ranger, followed by a buffet lunch at Ferraiolo's.
Venue: Sefton Park, Liverpool.
Open to RSC Members and Guests.

Wed 24 September 2014 12.00pm

Retired Members' Lunch UNDERNEATH THE BANDAGES

3 course meal followed by a talk on Forensic Egyptology by Dr. Jacky Finch, KNH Centre for Biomedical Egyptology, Manchester University.
Venue: The Bridge Inn, Port Sunlight CH62 4UQ
Open to RSC Members and Guests.

MANCHESTER & DISTRICT SECTION

For details contact:
Section Secretary
Dr Francis Mair, Manchester University
Tel: 01942 768801 ex 254 or 07800 532585
Email: francis.s.mair@manchester.ac.uk
Website: www.rsc.org/manchester

NORTHWEST OD REGIONAL MEETING AND RSC AWARDS SYMPOSIUM

For more information contact:
Dr David Mills, Manchester University. M13 9PL
Tel: 0161 2754606
Email: david.mills@manchester.ac.uk

YOUNGER MEMBERS NETWORK

For details on any YMN event or if you wish to get involved, please contact Mark Holden at ymn_manchester@yahoo.co.uk, or www.ymnmanchester.co.uk and our facebook page: www.facebook.com/group.php?gid=2253417692

NORTH WALES SECTION

For details contact:

Section Secretary
Dr. Dr Hongyun Tai, Bangor University
Tel: 01248 351151

Email: h.tai@bangor.ac.uk
Website: www.rsc.org/nwales

Forthcoming events for the North Wales Section are found on the section website.

NORTH WEST REGION ANALYTICAL DIVISION

For details contact:

NW Region AD Secretary
Dr Stuart Forbes
Tel: 01606 883188 or 07500 848727
Email: stuart@sfanalyticon.com
Website: www.nwad.org

Full details of forthcoming events are found on the website.

March-April 2014

ANNUAL GENERAL MEETING

This will be a web-based meeting.

Thursday 12 June 2014

LONG SERVICE MEMBERS LUNCH

A lunch, free to all long service members, followed by a talk by Peter Bolt on Thomas Brassey, a local man who during the 19th century, built a third of the UK railways and many more around the world.
Venue: Vicars Cross Golf Club, Chester.

Contact: Stuart Forbes
Tel: 01606 883188 or 07500 848727
Email: stuart@sfanalyticon.com

23 - 24 June 2014

RSC'S SCHOOLS ANALYST COMPETITION

Finals of this national contest.
Venue: University of Central Lancashire, Preston.

More information about the competition via the RSC website

RSC MICRO-ANALYTICAL DIVISION

Contact: Sue Lewis
Tel: 0161 488 3667
Email: sue.lewis@isoprime.co.uk
Web: www.isoprime.co.uk
Web: www.elementar.de/en/home

AROUND THE REGION

BANGOR UNIVERSITY SCHOOL OF CHEMISTRY

For further details on the extensive School Outreach Programme: www.bangor.ac.uk/chemistry/schools; to book places on line contact: Website: www.bangor.ac.uk/chemistry. The following activities take place throughout the year:

Spectroscopy in a Suitcase;
Interactive Periodic Table;
School Lecture Series;
Private School Visits.

Email: chemadmin@bangor.ac.uk

Full details of forthcoming events are found on the website home page of www.bangor.ac.uk/chemistry

11 March 2014 4 - 6pm

RSC/ERDF LECTURE

Open lecture by Prof. Duncan Bruce, University of York.

For more information contact John Thomas on 01248 382377 or chemadmin@bangor.ac.uk

14 - 23 March 2014

BANGOR SCIENCE FESTIVAL

The Festival, held during National Science & Engineering Week, will have entertaining and thought provoking activities for all ages. For more details, please see Bangor Science Festival website www.bangor.ac.uk/bangorsciencefestival

March 2014

SALTERS' FESTIVAL OF CHEMISTRY

An interesting, competitive fun-filled day of chemistry for Years 7-8. Bookings via the Salters website www.salters.co.uk/festivals

April 2014

RSC'S SCHOOLS ANALYST COMPETITION

Regional heat of this national contest for Year 12. Bookings via the School

of Chemistry website
www.bangor.ac.uk/chemistry

June 2014

CHEMISTRY PHARMACEUTICAL

A practical workshop for Year 12 students on the synthesis and analysis of Aspirin, the world's oldest and largest produced painkiller. An opportunity to use specialist techniques not used in school. Bookings via the School of Chemistry website www.bangor.ac.uk/chemistry

June and July 2014

THE TALENT OPPORTUNITIES PROGRAMME

The TOP programme of hands-on workshops, aims to give pupils from schools across N. Wales, an insight into Higher Education and the opportunities available, and hopefully, stimulate an interest to continue studying post-GCSE. For more information contact Manon Williams on 01248 383536 or manon.williams@bangor.ac.uk

1 - 9 August 2014

NATIONAL EISTEDDFOD OF WALES

This year's event will be in Llanelli, Carmarthenshire - it is likely that the Science Pavilion will have all sorts of fun chemistry experiments. More information via: <http://www.eisteddfod.org.uk/english/2014/>

BRITISH ASSOCIATION FOR CHEMICAL SPECIALITIES (BACS)

For details contact:

Jackie Hall
Tel: 01423 700249
Email: enquiries@bacsnet.org
Website: www.bacsnet.org

Further details on BACS meetings, conferences & courses can be found at: www.bacsnet.org/news/ or from the BACS office at enquiries@bacsnet.org

Thursday 9 April 2014

WORKSHOP FOR FORMULATORS DEALING WITH EXTENDED-SDS

Venue: Manchester
More information nearer the time.

Thursday 15 May 2014
**Surfactants Formulation Group
BIO-ACTIVES AND BIO-
SURFACTANTS**

Venue: Stockport
More details nearer the time.

Thursday 11 September 2014
**Personal Care Group
OPEN MEETING**

Venue: Lymm
This meeting, run by the BACS Personal Care Group, is open to non-members as well as members of BACS

Wednesday 10 September 2014
**Training Course
AN INTRODUCTION TO
SURFACTANTS**

Venue: Lymm
A course designed to provide a basic understanding of surfactants, how they work and how they are used. Details nearer the time

**BRITISH MASS
SPECTROMETRY SOCIETY**

For details contact:
Dr Peter J Baugh
Tel: 0161 9737032
Email: peterbaugh682@hotmail.com
Website:
www.analyticalmethodologycentre.co.uk

For BMSS news & further information:
www.bmss.org.uk, or
bmssadmin@btinternet.com

Monday 31 March 2014
**Training Course
BMSS DAY COURSE:
INTRODUCTION TO MASS
SPECTROMETRY**

Venue: AstraZeneca Conference Facility, Alderley Park, Cheshire.
A course designed to provide a basic understanding of mass spectrometry. Registration opens via the Main Meeting Registration form - available to download from 5th December 2013

1 - 2 April 2014
BMSS ANNUAL MEETING
Venue: AstraZeneca Conference Facility, Alderley Park, Cheshire.
Information: www.bmss.org.uk/az2014/assets/AZ2014_50d.pdf;
www.bmss.org.uk/az2014/index.shtml
For further information regarding the meeting, please contact the BMSS Administrator on 01606 810562 or bmssadmin@btinternet.com

**BRITISH SCIENCE
ASSOCIATION NW REGION**

Local events and activities take place almost every day across the North and are coordinated by our dedicated branches of volunteers with support from the British Science Association Regional Officer. For further information contact: Pamela Buchan
Tel: 07811 756888
Website:
www.britishscienceassociation.org/

14 - 23 March 2014
**NATIONAL SCIENCE &
ENGINEERING WEEK**

A ten-day national programme of science, technology, engineering and maths events and activities across the UK aimed at people of all ages. For more details visit:
www.britishscienceassociation.org/national-science-engineering-week

BOLLINGTON SCIBAR

For details contact:
Email: bollingtonscibar@hotmail.co.uk
Website: www.bollingtonscibar.co.uk

Events take place at The Vale Inn, Adlington Road, West Bollington on the second Monday every month at 6.30pm. Future speakers:
10th March: Jonathan Stone - Citizen Science: making volcanologists out of members of the public
7th April: Mike Morris - The I-knife
12th May: Festival SciBar: The history of brewing
9th June: Neil Glover - Engineering Materials.

DIDSBURY SCIBAR

For details contact:
Mark Hillen
Email: scibar@gmail.com
Website: www.scibar.info

Meetings take place at The Albert Club, 41 Old Lansdowne Road, West Didsbury, on the third Monday every month at 6.45pm.

KNUTSFORD SCIBAR

For details contact:
Dave Thompson
Tel: 01565 632845 or 07768 355814
Email: knutsford.scibar@ntlworld.com
Website: www.knutsford-scibar.co.uk

Meetings take place in the Knutsford Sports club, Mereheath Lane, Knutsford, on the Tuesday after the first Monday of the month at 7.30pm.

LIVERPOOL SCIBAR

For details contact:
Email: liverpool@scibar.org.uk
Website: www.liverpool.scibar.org.uk

Meetings take place at The Ship and Mitre, Dale Street, Liverpool, on the first Tuesday every month at 7.30pm.

MACCLESFIELD SCIBAR

For details contact:
Website: www.macclesfieldscibar.co.uk

Events take place at The Park Tavern, 158 Park Lane, Macclesfield, every fourth Monday at 6.30pm, followed by the regular pub quiz at 8.30pm. Food available.

Student SciBar 'The Science Club', where we open the floor to local students to discuss topics of intrigue. The Science Club starts at 5:30pm on the same night of SciBar (fourth Monday of the month)

**CATALYST SCIENCE
DISCOVERY CENTRE**

For more information about the Centre, contact:
Meryl Jameson
Tel: 0151 4201121
Email: meryl@catalyst.org.uk
Website: www.catalyst.org.uk

For further information on the extensive Education Programme for 2013/2014: www.catalyst.org.uk/download/Education/EducationProgramme2013-14.pdf

Every Saturday and Sunday
FAMILY WEEKEND WORKSHOPS
Fantastic Plastic 11.00am & 1.45pm
Healthy Humans 12.30pm
Tickets £1 per person, in addition to the normal admission charge.

Every day during School holidays
FAMILY WORKSHOPS
Workshops lasting 35 - 50 minutes and aimed at children between 6 and 12 (though all ages are welcome).

Second Saturday every month
SATURDAY SCIENCE CLUBS
Free series of Science Clubs for 11-

14 year olds from 11.00 - 13.00. Also, **OATS CLUB:** Science Club for Over Age Teenage Scientists! Please ring 0151 4201121 for details.

GROUP VISITS & SLEEPOVERS

Groups eg Brownies, Guides, Scouts, Probus Clubs etc - Catalyst offers discount admission rates for groups of 10 or more. For details: www.catalyst.org.uk/download/Marketing/Groups%20Leaflet.pdf

FRIENDS OF CATALYST

For details contact:
Bill Sanderson
Catalyst Programme Secretary
Tel: 01925 725973
Email: mail@billsanderson.co.uk
Website: www.catalyst.org.uk or
www.catalyst.org.uk/friends/friends.htm

WIDNES SCIBAR

Organised by 'Friends of Catalyst' and Catalyst Science Discovery Centre, Widnes SciBar meets on the second Wednesday of each month at the Hillcrest Hotel, Widnes.

CHEMICALS NORTHWEST

For details contact:
Alexandra Heys
The Heath Business and Technical Park, Runcorn, WA7 4QX
Tel: 01928 515678
Email:
alex.heys@chemicalsnorthwest.org.uk
Website: www.chemicalsnorthwest.org.uk

9 –11 April 2014

SUSTAINABLE NUCLEAR ENERGY CONFERENCE

Venue: Manchester
Information available:
www.chemicalsnorthwest.org.uk/events/external/sustainable_nuclear_energy/

MANCHESTER UNIVERSITY SCHOOL OF CHEMISTRY

For more information on a wide range of outreach activities ie demonstration lectures, talks, careers information and hands-on science activities to primary and secondary schools, as well as colleges and the general public.

Contact:
Meriel Barham
Tel: 0161 2754686
Email: outreach.chemistry@manchester.ac.uk
Website: www.chemistry.manchester.ac.uk/outreach/

MUSEUM OF SCIENCE & INDUSTRY (MOSI)

For more information contact:
MOSI, Liverpool Rd, Castlefield, Manchester M3 4FP
Tel: 0161 832 2244
Website: www.mosi.org.uk

SATURDAY SCIENCE

First Saturday every month.
For more information:
www.mosi.org.uk/whats-on/saturday-science.aspx

EXPERITOTS

Activity sessions for under 6s in the hands-on science gallery. First Friday every month 10 - 11.30am. £3 for one adult and one child. Each additional child or adult £2. Booking essential - call 0161 833 0027 or 0161 606 0156, or email:
education@mosi.org.uk

SCI - LIVERPOOL AND NORTH WEST GROUP

For general enquiries regarding Liverpool & North West Group activities, contact:
Marie Connor
Tel: 0151 3485742
email: marie.connor@innospecinc.com
Website: www.soci.org/Membership-and-Networks/Regional-Groups/Liverpool-and-North-West-Group/Group-Events

31 May 2014

LIVERPOOL & NW GROUP AGM

Venue: Tbc
Full details to follow.

09 - 10 July 2014

INTRODUCTION TO INDUSTRIAL WATER PURIFICATION BY ION EXCHANGE

Venue: Chester University
2 day course organised by SCI's Separation Science and Technology Group.

09 - 10 July 2014

ADVANCED ION EXCHANGE FOR INDUSTRIAL WATER TREATMENT

Venue: Chester University
2 day course organised by SCI's Separation Science and Technology Group.

WEAVER HALL MUSEUM AND WORKHOUSE (FORMERLY THE SALT MUSEUM)

For details contact:
162 London Road. Northwich CW9 8AB
Tel: 01606 271640
Email:
cheshiremuseums@cheshirewestandchester.gov.uk
Website: www.cheshirewestmuseums.org

TEA AND TALKS

Talks on a variety topics, start at 3pm on the last Wednesday of each month, except December. £1 entry includes tea or coffee.

SCHOOL HOLIDAY EVENTS

A variety of activities during school holidays - all included in the museum admission price. Workshops run from 10am to 4pm on Wednesdays and Thursdays and usually take about an hour to complete. Drop in any time you like between those times. Children must be accompanied by an adult.

WEEKEND EVENTS

Special events take place throughout the year - bringing the museums collections to life. Dates, times and themes can be found on the Museum website.

THE FRIENDS OF WEAVER HALL MUSEUM

FRIENDS' EVENING TALKS

Talks on a variety topics each month. Friends' events are free to members and open to non-members, subject to a small charge. Booking essential. Contact the museum on 01606 271640 or via the 'Friends' website: www.fowhm.org.uk

FRIENDS' FILM NIGHTS 2013

On the last Thursday of selected months. 7pm for 7.30pm. Pay at the Box Office on film nights or at the museum. More details on the 'Friends' website: www.fowhm.org.uk

North Wales Young Scientist Symposium 2013

Over 60 young scientists and representatives from the chemical industry met for a one day symposium at Glyndŵr University in Wrexham on Thursday 19th of September. The event, jointly organised by Glyndŵr University, Bangor University and the North Wales Local Section, brought together researchers from the Chemistry departments of Glyndŵr University and Bangor University to present their work through a programme of talks and poster presentations.



Mark Long, Bangor University, receiving his award from Scot Owen, Techniquiest Glyndŵr

Topics covered ranged from improving the sustainability of the chemical industry and novel components of solar cells to

antibiotics combating peptic ulcers and tuberculosis. The event was supported with career advice, industrial presentations and donations from industrial links with Metrohm UK, Hichrom and Peakdale Molecular and a very generous contribution by the RSC North West Trust.

The award for best presentation was handed to Mr Mark Long, from Bangor. Dr Faiezah Mohamed from Glyndŵr University was placed second.



Faiezah Mohamed, Glyndŵr University, receiving her award from Scot Owen, Techniquiest Glyndŵr

Poster prizes were awarded to Glyndŵr University PhD Student, Ms Lingyu Han for the best poster, with Bangor's Mr Liam Nelligan second. Prizes were handed out by a judging panel of

representatives from both universities and the Royal Society of Chemistry, Dr Dayna Mason, Mr Scot Owen, Dr Andy Clayton and Dr Erica Roberts.



Liam Nelligan, Bangor University, receiving his award from Dayna Mason from the RSC

Dr Ian Ratcliffe, North Wales Local Section member and chemistry lecturer at Glyndŵr University said of the day, "this event is a showcase for the latest developments in chemistry research in North Wales and demonstrated the strategic importance of the university sector in delivering technological advances across a range of industrially important applications".

Erica Roberts, RSC North Wales Section

Plants as Providers of Fine Chemicals Conference 2013

The third 'Plants as Providers of Fine Chemicals' Conference was held at Bangor University on 28-29th August, and brought together plant chemistry experts from the commercial and academic communities.

Chemicals from plants are becoming a hot topic as we have realised how little we actually know of their presence and abundance, even in the British Isles. This sudden popularity is partly attributed to society's need to replace our dependence on oil-derived compounds with renewable resources. It is also clear that plant chemicals can improve our well-being.

The conference lectures and case studies embraced 'state of the art' technologies for bio-prospecting and extraction, distinct compound identification, and industrial applications of plant derived extracts, providing an overview of the different branches of plant chemistry.

While many of us think that we already know a lot about chemicals in plants, it may be surprising to learn that half of our British medicinal plants have not been chemically assessed. The Welsh tradition of using plants for medicinal purposes, recorded in the 17th Century publication by the Physicians of Myddfai, opened even more avenues for future work. While we are able to distinguish different smells using our noses, the challenge of actually attributing these to novel compounds, their isolation and identification was described.

Attendees at the conference benefitted from the networking opportunities. When SMEs, large businesses and scientists get together at events like this it leads to new research partnerships in different areas. One success story from such a meeting is the

development of research carried out at Bangor University on saponins (molecules that have 'soapy' properties) in plants, which has now resulted in a Technology Strategy Board (TSB) funded project in partnership with local companies. This project on the production of saponins, is about to start in partnership with Croda and Unilever. Bangor is looking at different kinds of saponins which come from plants, in particular ivy. They have many uses and many potential uses eg. slug and blight control, and possible applications in human health and cosmetics, such as cures for dandruff. This work includes Naturiol, a Bangor University spin out company, which was recently recognised by the Welsh Government as having high potential for growth.

Another project the TSB group are working on, is reducing the amount of methane gas produced by cows, by adding naturally derived chemicals to their feed.

The conference was organised by Dr. Vera Thoss, of Bangor University School of Chemistry, and highlighted different aspects of plant chemistry in the form of lectures, case studies and posters illustrating current research in this area. The prize for the best poster at the conference was awarded to Dr. Robbie Mutton for his poster on Liquid and Supercritical CO₂ Extraction of Pigments from Microalgae. For more details on the conference programme and to view the presentations check out the web site: www.chemistry.bangor.ac.uk/plants

For further information, contact Dr Vera Thoss: v.thoss@bangor.ac.uk

Vera Thoss, Bangor University

RSC 'Chemistry at Work' Event at Daresbury Innovation

In December 2013, Mexichem Fluor volunteered to take part in the RSC's 'Chemistry at Work' event at Daresbury Innovation centre as part of their affiliation with MerseySTEM. MerseySTEM work alongside companies like Mexichem and schools to champion science, technology, engineering and mathematics within the Merseyside region.



As part of the Runcorn based chemical company's continued commitment to invest in the future generation of scientists, local pupils were encouraged to take part in a workshop designed around processes at their manufacturing site at Rocksavage in England and Fluorspar Mine in San Luis Potosi in Mexico.

The aim of the workshop was to emphasise to local pupils and teachers the correlation between skills they learn at school and what Mexichem Fluor's scientists use in Industry. It also served to improve their attitudes towards the Manufacturing sector, and to help them to



understand the value of any career in such an environment.

Activities were centred on the journey of Mexichem's essential raw material, fluorspar, from its extraction at their mine in Mexico to its use in manufacturing hydrofluoric acid at Rocksavage in Runcorn. Experiments designed for pupils included grinding, sieving, purifying, filtering and reacting the fluorspar, with some activities requiring the use of equipment pupils had never had the opportunity to use before.



The importance and implementation of safety guidelines when working in such a hazardous environment was also a key emphasis of the workshop, every effort was taken to portray to the local schools

the lengths Mexichem go to, to ensure everyone within their community is safe.

The event was very positively received by teachers and students alike.

"An excellent event, thank you."

When asked what they enjoyed most about the event and what they had learned pupils said:

"I liked Mexichem's workshop, it provided a good mix of facts & practical"

"We learned about hydrogen fluoride, it's toxic"

Maxine Doran, who participates in the schools programme at Mexichem Fluor, said:

"The day is worthwhile even if a single pupil leaves inspired to become a scientist or at the very least has broadened their knowledge of potential careers within the chemical Industry"

Chemistry at Work is just a small part of the company's wider contribution to the community. Mexichem Fluor was invited to take part in The Big Bang Event, last June in Liverpool and have supported Science at Work week in conjunction with the Catalyst Museum. They frequently host work experience and University students hoping to become future scientists, more recently as part of The Nuffield Bursary Scheme.

Sheryl Carolan, Mexichem Fluor

Grant Funded Projects at Catalyst



As part of their contribution to their local community, Essar Oil UK from Stanlow refinery are working in partnership with Catalyst to help enthuse pupils about science. They are sponsoring ten local primary schools from the area around their site to visit Catalyst to take part in Science Investigation workshops. Ian Cotton, Head of Communications and Community at Essar said "We're delighted our partnership with Catalyst meant that children from Elton Primary School were able to take part in the

hands-on workshops at the Science Discovery Centre. Going forward, we hope the programme will offer other local schools the chance to show their pupils that science can be interesting and fun."

Following the grant from WREN last year to install new boilers in the old building, a grant from a Widnes Local Area Forum allowed us to overhaul the heating system in the education, reception, shop and café areas.

The Runcorn Historical Society donated their collection of 20,000 negatives from the old ICI Weston Point Photographic Section to Catalyst. A grant from a Runcorn Local Area Forum meant that we could purchase a new computer and a high resolution scanner. Our volunteers Bill Spann and Dave Forsyth are doing a sterling job scanning all 20,000 negatives!



A grant from the Royal Society of Chemistry NW Trust enabled Catalyst to buy an insulated crate to hold solid carbon dioxide during the show weeks and a class set of kits for our electricity workshops. These new kits mean that our younger visitors can create electrical circuits simply and easily without the fiddly crocodile clips that we used to use.

Meryl Jameson, Catalyst

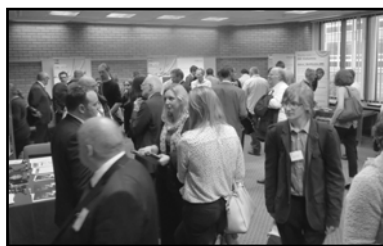
Advances in Gas Chromatography IV Meeting

Around 130 delegates attended this very successful meeting organised jointly by the Chromatographic Society and the N.W. Region Analytical Division of the Royal Society of Chemistry and held on Wednesday 30th October. This was the fourth in this series of biennial meetings which have now become established as the premier UK chromatographic meetings attracting many chromatographers, instrument companies and consumables suppliers from home and abroad.



The programme of presentations commenced with Dan Carrier of Anatum describing some recent developments in sample preparation techniques for GC including ITSP (instrument top sample preparation) using miniaturised SPE, SDME (single drop micro-extraction), and large volume headspace concentration for trace volatile and semi-volatile components. Dan indicated how these techniques can be used to both pre-concentrate analytes from a variety of sample matrices and obtain increased sample throughput. Jaap de Zeeuw from Restek then demonstrated through a series of applications why GC users should employ the appropriate stationary phase for their analysis rather than relying solely on the high separating power offered by modern capillary columns. As a passionate chromatographer, Jaap believes that we nowadays rely too much on long non-polar columns and highly selective detectors to achieve analyte selectivity rather than using the optimal stationary phase for a particular application. The theme of chromatographic resolution was continued in the following presentation of Jean-Francois Focant from the University of Liege who explained the principles of comprehensive two-dimensional gas chromatography (GCxGC) and reviewed how modulation technology, the critical component of GCxGC, has developed over the lifetime of this technique. In

addition to the very high separating power of GCxGC, Jean-Francois highlighted the value of the structured chromatograms obtained by reference to two-dimensional GCxGC plots used for medical diagnostic purposes.



During the lunch period there was plenty of time for delegates to visit the many exhibitor stands and discuss their analytical requirements with representatives from the instrument companies and consumables suppliers who had kindly provided financial support for this meeting. The afternoon presentations commenced with Greg Johnson from Thermo Fisher describing the modular approach employed in their latest generation of GC instruments. Greg showed that their user-exchangeable instant connect injectors and detectors enable the simple and quick reconfiguration of a GC instrument to suit a particular application without the need to make and break individual gas and electrical connections. Ken Brady from Agilent then described some approaches they have developed to help GC users achieve consistency in their results. One such technique is retention time locking which facilitates the transfer of methods from the development laboratory to QA facilities by “matching” the retention times of components in a chromatogram so that they remain in the isolation windows specified in the original method. Neil Owen from Givaudan then illustrated the value of deconvolution techniques for resolving the highly complex substances encountered in the fragrance industry. Specific components present at variable concentrations in feedstocks used to formulate fragrances can have a major impact on the characteristics of these products, so it is essential that these compounds can be accurately quantified. Lewis Jones from Mars Waltham concluded the afternoon presentations by showing how GC is being used to investigate flavours in pet food. He described some of the approaches used to prepare samples so that the more volatile components present can be analysed, and

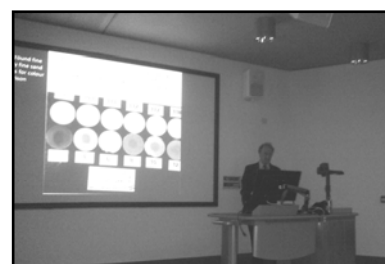
explained how traditional GC detection systems are frequently supplemented by the human nose using a “sniffer” port, thereby enabling odour characteristics to be assigned to specific components eluting from a GC column.

In summary, “Advances in GC IV” was a highly successful meeting which received many plaudits from the participants, and sincere thanks are due to Alan Handley who played the major role in organising this event.

*Stuart Forbes,
RSC NW Region Analytical Division*

RSC NWRAD Christmas Lecture

The annual Christmas Lecture of the RSC Analytical Division North West Region took place at Manchester Metropolitan University.

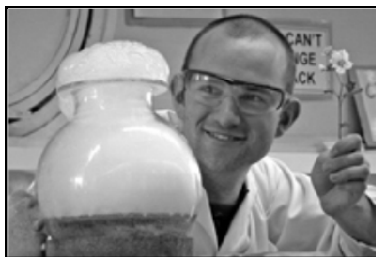


Dr Christopher Vincent Jeans (recipient of the Collins Medal (MinSoc)) was the guest speaker and entertained the audience with accounts of numerous murder trials where he had acted on behalf of the defence as an expert witness on soil evidence. He showed the audience how, in addition to collecting samples and carrying out his own investigations, he consulted with a range of experts across a wide range of subject areas (pollen, spores, diatoms, ecology, soil mineralogy and geochemistry, metal, glass, histology etc) in order to check on the veracity of the evidence and test the conclusions presented by the prosecution. The development of new approaches to deal with sequential depositions of soil on footwear and small mud stains were especially interesting.

The evening concluded with a most delightful dinner during which the participants, including a number of young analysts, had an invaluable opportunity to network and develop new contacts.

*Sanja Potgieter-Vermaak,
RSC N.W. Region Analytical Division*

Support for Phill



Catalyst is thrilled to announce that the Royal Society of Chemistry are now supporting Phill Day in his role of Education Manager and have honoured him with the title RSC Teacher Fellow. Phill is the first Teacher Fellow to be based in a Science Centre and the first to teach predominantly KS2 and KS3 children.

Outbreak!

Following the success of the Origins project, Catalyst has worked with two special interest groups from the Royal

Society of Chemistry to use the £10,000 prize money and develop a new project called Outbreak! This brand new collaborative style project will pit pupils against a hypothetical viral outbreak. With pupils split over two locations they will need to work together to save the day. The launch of this will take place in February!

Catalyst would like to thank the following for their support of the education programme this year:

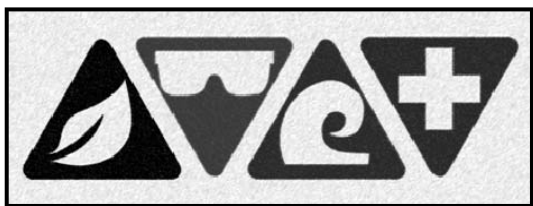
- ◆ INEOS ChlorVinyls who support the whole education programme.
- ◆ Scottish Power who have again supported the Electricity workshops.
- ◆ RSC NW Trust who funded a dry ice crate and a class set of electricity kits.
- ◆ Innospec who have continued to support the Showering with Surfactants workshop.
- ◆ Viridor who supported the Energy

from Waste workshop and exhibit. ◆ Solvay and Perstorp who support the Fantastic Plastics workshop. ◆ The RSC HG and the RSC CICAG for their support of Origins and the brand new 'Outbreak!' project.

Catalyst SciBar

Earlier in the year the Friends of Catalyst and the Education Team joined forces to launch SciBar to replace the evening lecture programme that was previously run by the Friends. SciBar is held on the 2nd Wednesday of every month at the Hillcrest Hotel, Widnes and aims to talk science in a relaxed setting. We invite a scientist who gives a talk before taking questions from the floor - all whilst having a relaxing pint! We've covered a range of subjects so far this year. Keep an eye on our website to see what we have planned for 2014.

Meryl Jameson, Catalyst



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'You're Fired!' talk at Salt of the Earth



At the September meeting of the 'Salt of the Earth Network', Steven Glowinkowski spoke against the mantra of the hugely popular TV show 'The Apprentice', where, spurred on by Lord Sugar's relentless and combative expectations, contestants are quick to blame one another, expose each other's weaknesses and generally do anything they can to lay the responsibility for any failure at someone else's feet. He asserts that this management style is utterly alien to most successful business managers. The presentation was very interesting and thought provoking.

For anyone interested in finding out more about 'The Salt of the Earth Network', please contact:

- Alan Downen: alan.downen@me.com
- George Oliver: george.oliver53@btinternet.com
- Keith Sinclair: bpbirkenhead@chester.anglican.org
- Henry Ratter: ratterh@aol.com

Henry Ratter, Salt of the Earth Network

Busking Science at Macclesfield SciBar

David Price from 'Science made Simple' travels around the world as a performer and trainer in the art and craft of science busking. In November, he visited Macclesfield SciBar with his entertaining and interactive demonstrations, designed to communicate science to people wherever they may be.



Record Attendance for a Special Anniversary

Chemistry in the Oil Industry XIII

The thirteenth Chemistry in the Oil Industry (CITOI) symposium, which took place at the Manchester Conference Centre between the 4th and 6th November, 2013, was a truly special event. It marked 30 years since the very first CITOI conference was held and, as a consequence, it attracted a record attendance of delegates to celebrate a noteworthy anniversary.



Photo L-R: Prof. Ken Sorbie and Paul Ogden, at the presentation of the Lifetime Achievement Award

Conference number thirteen was also marked by another unique event – the presentation of a Lifetime Achievement Award to Professor Ken Sorbie – the very first time that such an award had been made. On the eve of the symposium, it was presented to Ken by Paul Ogden who had chaired the organising committee of the first CITOI event in 1983. Paul had played a pivotal role in the organisation of that first conference and thereafter in transforming it into a regular gathering of industry professionals in the following years. Ken Sorbie responded by entertaining a packed auditorium with a uniquely insightful and amusing review of his career in oilfield chemistry which inevitably touched on the activities of a large proportion of the audience.



Ken Sorbie, speaking about his career

Ken's presentation was followed by a historical review of the 30 years of CITOI provided by Ian Macefield and Graham Payne, both of whom had participated in the 1983 conference. They highlighted significant events in

the oilfield chemicals industry in the context of the price of oil and external historical events. Graham's participation was particularly appropriate in that he was the Executive Secretary of EOSCA (the European Oilfield Speciality Chemicals Association) which, since 2001, has jointly organised CITOI events with the RSC (represented by the Speciality Chemicals Sector of the Industry & Technology Forum). The celebratory side of the proceedings on the evening of the 4th were brought to a convivial conclusion by a welcome reception in the exhibition area.



BASF Global Oilfield Solutions, sponsors of the Welcome Reception

At the start of the conference, David Karsa, chairman of the organising committee, welcomed over 200 delegates from 23 countries. The theme of CITOI XIII was 'Oilfield Chemistry – New Frontiers' and the scene was set by a keynote presentation from Professor Malcolm Kelland of Stavanger University.



Prof. Malcolm Kelland, Stavanger University

Malcolm is known not only for his laboratory researches but also for his comprehensive review of the chemistry of oilfield speciality chemicals. Consequently, he is uniquely qualified to provide an overview of that topic and to present his thoughts on what the future may hold for the industry.

Changes in the regulatory climate have increasingly impacted the activities of

the oilfield chemical industry in the last two decades. This was reflected in the two papers in the session which addressed firstly the work of EOSCA in assisting the industry to comply with the requirements of the REACH regulation and secondly, the development of more environmentally acceptable demulsifier chemistry.

The theme of 'green' chemistry was continued into the second session which included a scheme for employing the waste product from one oilfield chemical application (hydrogen sulphide scavenging) to treat a separate oilfield problem as a corrosion inhibitor. Insights were also presented into the chemistry of the reaction of triazines with hydrogen sulphide.

The third session commenced with an overview of the chemistries employed in shale fracturing operations, a particularly relevant topic in view of the current debate on fracturing operations in the UK. Further green chemistry was then presented for drilling fluids and the final presentation was concerned with another topical issue, the industrial application of nanotechnology.

The last session was devoted to Flow Assurance with particular relevance to subsea applications. New chemistry developments were presented for wax inhibition and hydrate control for subsea use. This was followed by a talk on the creation and destruction of foams in crude oil production. Finally, the potential corrosion hazards created by partial evaporation of volatile components of production chemicals were described.

The conference dinner was held on the evening of the 5th at the Yang Sing restaurant. This was preceded by a drinks reception in the uplifting surroundings of the Pre-Raphaelite Rooms of the Manchester Art Gallery.



Drinks Reception at Manchester Art Gallery

Continued overleaf

Fire Retardant Technologies 2014 (FRT14)

University of Central Lancashire
Preston, UK
14-17 April, 2014



Lecture Programme & Workshop



Session 1: Overview

The Fire Retardant Spectrum: From Aluminium to Zinc, or Red to Green?

Professor Richard Hull, University of Central Lancashire, UK

Techniques for Understanding Fire Retardant Behaviour

Ulrike Braun, BAM Federal Institute for Material Testing, Germany (tbc)

Fire Retardant Behaviour of Composites

Professor Baljinder Kandola, University of Bolton, UK

The Effect of Fire Retardants on the Physical Properties of Polymers

Dr John Liggat, University of Strathclyde, UK

Session 2: Fire Retardant Strategies

Gas Phase Flame Retardants Environment

Dr Sergei Levchik, ICL-IP, USA (tbc)

Fire Retardancy of Novel Hydrated Alumina in EVA

Professor José-Marie Lopez Cuesta, Centre des Matériaux des Mines d'Alès (C2MA/EMA), Institut Mines Telecom (IMT), France

Phosphorus Compounds as Condensed Phase Flame Retardants for Polymer-based Materials

Professor John R. Ebdon, Polymer Centre, University of Sheffield, UK

Novel Nanocomposite Fire Retardants

Professor Giovanni Camino, Politecnico di Torino, Italy

Synthesis and Mechanism of Flame Retardant Microencapsulation and Inorganics Additives

Professor Yuan Hu, State Key Laboratory for Fire Science, University of Science and Technology of China, China

Layer by Layer Assembly: A Current Emerging Technique for Conferring Flame Retardancy

Dr Jenny Alongi, Politecnico di Torino, Italy

Intumescence: A Versatile Concept for Diverse Applications

Professor Serge Bourbigot, Unité Matériaux et Transformations, ENSC Lille, France

Session 3: Applications of Fire Retardants

Developments in Fire Resisting Intumescent Coatings for Structural Steel

Dr Andrew P Taylor, Sherwin-Williams, UK

Recent Developments in N and P Based Flame Retardants

Dr Sabyasachi Gaan, Empa, Switzerland

Industrial Applications of Flame Retardants for Thermoplastics

Dr Martin Klatt, BASF SE, Germany

Development and Characterization of Low-Combustibility Polymer

Materials for Aircraft Applications

Dr Richard Lyon, FAA, USA

Session 4: Testing, Toxicity & the Environment

Fire Safety Regulations and Testing - Their Impact on the Use of Polymers and Flame Retardants

Dr Jürgen H. Troitzsch, Fire & Environment Protection Service, FEPS, Germany

Fire Retardants and Fire Smoke Toxicity

Dr Anna Stec, University of Central Lancashire, UK

Environmental Concerns of Fire Retardants

Professor Heather M Stapleton, Duke University, USA (tbc)

Session 5: Workshop

Replacement of Halogenated Flame Retardants in Upholstered Furnishings

(Organised by COST-FLARETEX)

For more information on the conference
visit: <http://tinyurl.com/FRT2014>

**There will be Posters on ground breaking research, an Exhibition and
tours of UCLAN Fire Laboratory**

If you would like to present a Poster, Sponsor or Exhibit at the conference contact
Ruth (e-mail: ruth@cowlane.co.uk)



Continuous Flow Technology in Industry II

17 - 19 March, 2014

Robinson College, Cambridge, England

This international symposium in Cambridge will follow on from the RSC Symposia on Continuous Flow Technology held at Chemspec Europe 2011 in Geneva and 2013 in Munich, and the first Continuous Flow Technology in Industry symposium and exhibition held in York in 2012. The production of fine and speciality chemicals is still heavily reliant on batch processes and this symposium will highlight recent developments in the growth and uptake of continuous processes. It will focus on techniques for the scale up and flexible manufacture of high value fine and speciality chemicals of particular interest to medium and small enterprises. A feature will be the illustration of real industrial applications including the use of hazardous reactants. The symposium will be preceded by a workshop on Pharmaceutical Supply Chains and on Flexible Manufacturing. The Exhibition will comprise major companies supplying equipment, instrumentation and expertise in the field continuous flow technology some of whom will be making scientific presentations.

Programme

Monday March 17

14.00 - 18.00 Registration
 16.00 - 17.30 Optional Workshop: Redefining the 21st Century
 End-to-End Pharma Supply Chain, Led by Jag Srari,
 Cambridge Institute for Manufacturing, UK
 18.00 - 19.30 **Welcome Reception**

Tuesday 18 March

09.00 **Plenary Lecture**
Steven Ley, University of Cambridge, UK

Session 1: Continuous Flow at Production Scale

09.45 Process Development in Flow for Industrial Production
Dominique Roberge, Lonza, Switzerland
 10.15 Exhibitor Perspective: *Charlotte Wiles, Chemtrix BV, The Netherlands*
Refreshments, Exhibition and Posters
 11.15 Comparison of Batch and Continuous Processes: Science or Flip
 of a Coin?
Antonio Quintieri, Procter & Gamble, Belgium
 11.45 Some Examples of Process Intensification in Raptor
Massimo Bertoldi, La Mesta Chimie Fine, France
 12.15 Exhibitor Perspectives: *Dirk Kirschneck, Microinnova*
Engineering GmbH, Austria
 12.30 *Stephanie Peschke, Ehrfeld Mikrotechnik BTS GmbH, Germany*
 12.45 Lunch, Exhibition and Posters

Session 2: Diversity of Continuous Flow Chemistry

13.45 Continuous Flow Process for Industrial (Pharmaceutical)
 Manufacturing
Jaeyon Yoon, SK Life Science Inc, USA
 14.15 Influence of Process Choice on Selection Between Batch and
 Trickle-bed Flow Operation, eg. Hydrogenation of Phenol
Jasbir Singh, HEL Ltd, UK
 14.45 Continuous Flow RAFT Polymerisation *Christian Hornung,*
CSIRO Materials Science & Engineering, Australia
 Exhibitor Perspectives: *Mike Hawes, Syrris, UK*
 15.15 *Carsten Damerau, HNP Mikrosysteme GmbH, Germany*
 15.30 Refreshments, Exhibition and Posters
 16.15 **Plenary Lecture**
 Implications of Continuous Flow Technologies on Pharma
 Supply Chains *Jag Srari, Cambridge Institute for*
Manufacturing, UK

Session 3: Continuous Crystallisation

17.00 Continuous Crystallisation for Control of Pharmaceutical Products
Alastair Florence, University of Strathclyde, UK
 17.30 From Substance to Product - An Industrial Perspective on
 Continuous Processing
Amy Robertson, Astrazeneca, UK
 18.00 Talks End
 19.30 **Cocktail Reception and Symposium Dinner in The Old Courts**
Dining Hall of Gonville and Caius College

Wednesday March 19

09.00 **Plenary Lecture**
 Developing Continuous Processes – from Ad hoc to Advanced
Paul Sharratt, Institute of Chemical and Engineering Sciences
(ICES), Singapore

Session 4: Comparison of Batch and Continuous Processes

09.45 Continuous Processes - Sustainable Manufacturing
Jörg Schrickel, CABBAG, Switzerland
 10.15 Exhibitor Perspectives: *Andrew Mansfield, Vapourtec Ltd., UK*
Robert Ashe, AM Technology, UK
 10.45 Refreshments, Exhibition and Posters
 11.30 Demonstration of a Heterogeneously Catalysed Five
 Phase Reaction in Continuous Flow *Leon Geers, TNO,*
The Netherlands
 12.00 Implementation of Flow Chemistry: From Research to Production
Angelina Prokofyeva, Bayer Technology Services GmbH, Germany
 12.30 Exhibitor Perspectives: *Franz M. Schaper, cetoni, Germany*
 12.45 *Aki Tomita, Pacific Microwave Technologies, USA*
 13.00 Lunch, Exhibition and Posters

Session 5: Continuous Flow Technology for the Fine & Pharma Industries

14.15 The Case for Dedicated Fine Chemical Manufacturing
Ollie Tames, IntensiChem Ltd, UK
 14.45 Going Green – Profitably: Developing a 'Business Case' for
 Continuous Processing *Peter Poechlauer, DSM Fine*
Chemicals GmbH, Austria
 15.15 Continuous Production of Antimalarial APIs Through a
 Tandem Flow Process *Alexei Lapkin, University of*
Cambridge, UK
 15.45 Talks End

Contact: Pat Keen Tel: +44 (0)1606 888005 E-mail: patricia.keen@virgin.net Register on-line at <http://tinyurl.com/RSC-CFT-2>

