

Chemistry Update

Newsletter 287, 28th July 2017

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Calendar of Events

Green Chemistry Seminar

Speaker: Professor Martin Atkins, Green Lizard Technologies Ltd / Queen's University Belfast

Date: Thursday 10 August

Time: 12pm-1pm

Location: C/F/106

ViCEPHEC17 Conference

Date: 23-25 August

Location: Department of Chemistry

Research Seminar

Speaker: Masaaki Fujii ,
Tokyo Institute of Technology

Date: Monday 28 August

Time: 2pm-3pm

Location: C/A/128

Date of Next Issue:
25th August 2017

York Chemistry Student YouTube Stars



With over 175 videos on YouTube, first year York Chemistry Students have, over the past 7 years, created one of the most diverse sources of online educational material in the field of polymer chemistry.

For the last 7 years, York Chemistry students have had the opportunity to make a YouTube video as part of their Year 1 assessments. This assignment develops their understanding of polymer chemistry applications and ability to communicate it to a general audience.

Since 2011, over 175 students have made YouTube videos. These videos have been viewed over 150,000 times – demonstrating the impact these first year students have had; becoming global educators in their own right.

Each year, Professor David Smith, who runs the module, selects some of the videos to be awarded prizes to recognise their innovative approaches to science communication. This year's prizes were won by **Seda Aydin, Ruben Godwin-Suttie, Alvaro Lopez-Acosta, Iain Malone and Eren Mirza.**

Their videos covered topics, including applications of polymer science in aviation, running shoes, electronics and hardcore sports. All five students demonstrated remarkable communication skills and an ability to translate complicated chemical ideas in engaging and imaginative ways.

The most watched video ever created in this module was made by Claudia Aurelia, who discussed the use of polymers as fillings in dentistry. Her video, made in 2014, has since become 'must watch' material for students of dentistry, being viewed over 20,000 times and attracting many viewer comments such as "As a dentist and a teacher I must say this was clear and complete."

All of the videos created by first year chemistry students in York can be found playlisted on [Professor David Smith's YouTube channel](#).

Teaching innovation is a vital part of the Department of Chemistry's approach to teaching excellence, as recognised by the recent [2nd place ranking in The Guardian League Table of Chemistry Departments](#) based on teaching quality.

Understanding the Role of Nitrogen Oxides in the Nocturnal Atmosphere



Researchers in the Wolfson Atmospheric Chemistry Laboratory (WACL) and several US institutions have carried out work to understand the importance of nighttime chemistry in controlling air pollutants.

They discovered that the interaction between emissions from human activity and organic compounds emitted from vegetation in the nighttime atmosphere could have large impacts on both air pollution and climate.

Emissions of nitrogen oxides (NO_x) from combustion processes, such as power generation have decreased significantly in the Southeast U.S. over recent years. The reduction in air pollutants such as aerosols, however, has not followed the same trend. One possible contributor to this is the highly understudied chemistry that occurs in the nighttime atmosphere.

The importance of daytime chemical cycles involving NO_x in controlling air pollutants such as ozone and secondary organic aerosol is well known. The night-time chemistry of the atmosphere, however, is much less well studied. This work shows that nocturnal chemistry has its own distinct chemical cycles, and that these could explain recent trends in daytime air pollutants in the Southeast US.

This paper combines aircraft measurements and models to elucidate important chemical processes occurring in the nocturnal atmosphere, and finds the Southeast U.S. to be in a transition between a highly NO_x controlled recent past and a future more similar to the pre-industrial atmosphere.

Dr Pete Edwards, lead author, said: “The difficulty in accessing the nocturnal atmosphere means its chemistry has seen very little attention compared to its daytime counterpart.

Without sunlight to drive the chemistry a different set of processes take over at night, transforming chemicals emitted during the day.

In this paper we show that understanding this chemistry is essential if we are to predict the response of air pollutants to changes in emissions”.

This paper provides a blueprint for understanding the influence of emissions trends on this atmospheric chemistry in other regions with different BVOC emission strengths and NO_x emission histories, such as Asia.

York Chemistry PhD Student Awarded SCI Scholarship

Anna Zhenova, PhD student in the Green Chemistry Centre of Excellence (GCCE), has been awarded an SCI scholarship of £5,000 over two years to support her studies in green chemistry and alternative solvent development.



In addition to the scholarship, she will benefit from publishing opportunities, access to a high-calibre network to help launch her career, and opportunities to present her work and raise her profile within the scientific community.

SCI Scholarships are prestigious and well respected by the industry. The SCI Scholars Fund was established in 1920 by the requests of Rudolph Messel and John Gray, both former presidents and founding members of SCI. SCI believes in nurturing the scientists of the future. Each year, SCI provides scholarships and bursaries to early career scientists including opportunities to attend or present at an international conference.

The Department of Chemistry are pleased that Anna has been offered this Scholarship and that her work on novel safer solvents will benefit from the additional contacts and support she will gain from this valuable opportunity.

Anna said: "I'm thrilled to have been awarded the SCI Scholarship. My PhD work at the Green Chemistry Centre of Excellence has been very rewarding so far. I've learned a great deal about solvent selection and replacement, and have enjoyed working with colleagues who are as enthusiastic as I am about sustainable chemistry.

"In my PhD research, I am developing industrial applications for green solvents as replacements for conventional hazardous options. Funding and support from SCI will help me learn more about industrial needs while pursuing my studies, and better prepare me to enter industry after earning my doctorate."

York Chemistry PhD Student Brings New Ideas to Aviation Fluid Research

Dr Nicole Whitelaw, who has worked with the pioneers of safety critical aviation fluids for more than six years, is bringing new ideas to Kilfrost Ltd. after being awarded a PhD in the study of supramolecular material science.



Nicole studied for three years in the Department of Chemistry at the University of York, under the supervision of Professor David Smith, whilst carrying out her duties for Kilfrost Ltd.

She believes the PhD will help her to bring innovation to current research as well as to identify alternative ways to improve performance, productivity and efficiency.

She said: “From the start the company has encouraged me to work to very high standards and push me to achieve the very best of my ability.

“They have instilled trust in me as an individual and have ensured that the research was completely my own and allowed me complete control.”

The PhD research involved the study of low temperature, environmentally-friendly, self-assembled nano-materials, which allowed for the analysis of new technology from molecular design through to macromolecular application properties.

Nicole stated that the results of the research were “outstanding” and work in this area represented a bright future within the aviation and smart technology industries.

She added: “It may also allow me to introduce a completely new technology to the aviation industry, which has never been seen or used before. My research allows for the creation of new products that exceed the performance attributes of current fluids within aviation.

“It has also shown that with intelligent design, smart technology aviation fluids can be tuned and optimised to provide enhanced physical properties, as well as improved holdover and aerodynamic performance.”

Kilfrost is a third-generation, family owned business recognised as the global leader in safety critical, ice and frost protection chemistry and rheology. Working across industrial and aviation sectors, Kilfrost maintains a proud focus on pioneering the next generation of products to raise industry standards, and to meet the growing needs of its commercial clients and the wider community.

Read the full story [here](#).

Javier Remon Nunez Awarded Thesis & Teaching Prizes



Thesis Prize

Dr Javier Remon Nunez, postdoctoral researcher in the GCCE, has been awarded with the prize “Best Thesis on Issues related to Green Chemistry and Sustainable / Environmental Engineering, year 2015-2016” by the Foundation Mariano Lopez Navarro – University of Zaragoza for his thesis entitled “Valorisation of biomass feedstocks: bio-oil, crude glycerol and cheese whey using thermochemical processes”.

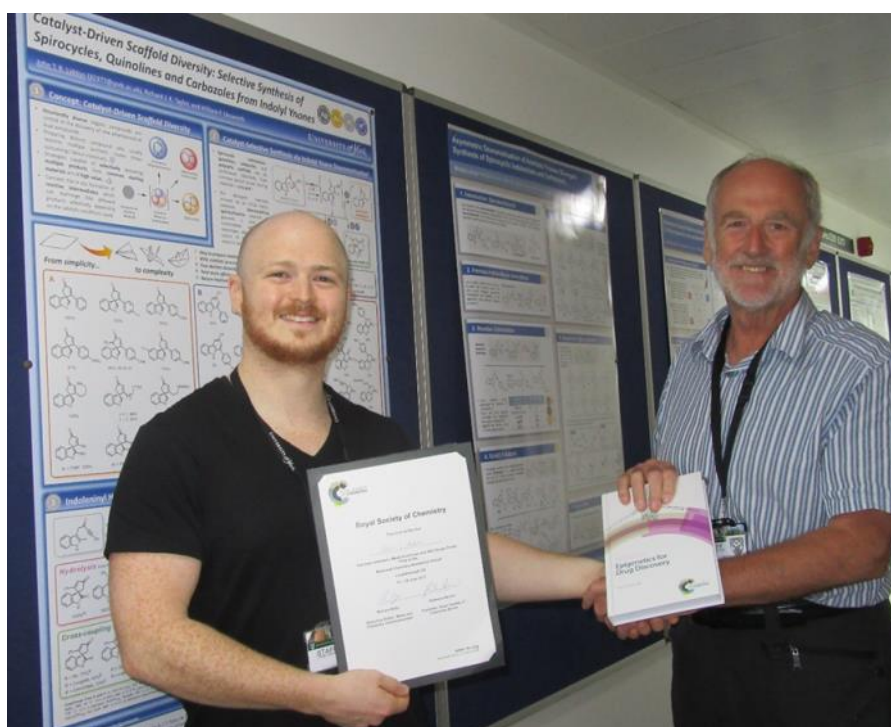
Teaching Prize

The teaching innovation action “Effect of using smartphones as clickers and tablets as digital whiteboards on students’ engagement and learning”, lead by Dr Javier Remon Nunez, has been selected by the Santander Bank – University of Zaragoza foundation as one of the top 5 best teaching initiatives at the University of Zaragoza during the year 2015-2016.



Medicinal Chemistry Resident School 11-16 June 2017

Last June, Dr John Liddon from the Richard Taylor group attended the RSC's Medicinal Chemistry Resident School in Loughborough in order to learn the art of pharmaceutical drug discovery first-hand from some of industry's most prestigious experts. The five day course featured lectures focusing on the fundamental principles of drug discovery, hands-on tutorials allowing attendees to put into practice what they have learnt, and case histories from previous drug discovery projects. While there, John presented his research on "*Catalyst-Driven Scaffold Diversity*", and won the *MedChemComm* and RSC Books poster prize as chosen by the delegates. On his time at the course John said "I would recommend this school to anybody interested in a research job in the pharmaceutical industry. The course had a friendly atmosphere and was a great opportunity to network with chemists outside the field of academia". Well done John!



Dr John Liddon (left) with his poster prize and Professor Richard Taylor (right)

Helen Burrell Awarded Degree in Natural Sciences



Congratulations to Helen Burrell who, after six years of part-time study, has been awarded a lower second Honours Degree in Natural Sciences from the Open University. To gain this qualification full-time would be an achievement in itself, but in getting there while working full-time, having a teenage family and gaining (unexpected) stripes in tidying up after fires, makes it all the more remarkable. Well done Helen!

Helen said "I would like to say a huge thank you to the Department for supporting me during my degree course and especially to all colleagues who have helped through the highs and lows. There will be cake."

Graduation

The Chemistry Graduation ceremony took place on Thursday 13 July followed by a drinks reception in the Department. Graduates and their guests joined staff for drinks and cake to celebrate their achievements. Congratulations to all the students who graduated.



KMS Prize Winners

The Kathleen Mary Stott (KMS) Prize offers recognition for excellence in scientific research. The annual competition has taken place in the Department and all PhD students in their 3rd year were eligible for nomination by their supervisors. Once again, the standard was very high with 11 nominations being received, and six candidates being shortlisted for interview by the KMS Panel.

The interview required candidates to give a short presentation on their own research before answering a number of questions on their own work as well as broader research areas. All candidates performed very well, but eventually the panel decided on the following four winners:

Oliver Bayfield (AAA)

Aimee Clark (RJKT)

Lewis Hall (JMS/JML)

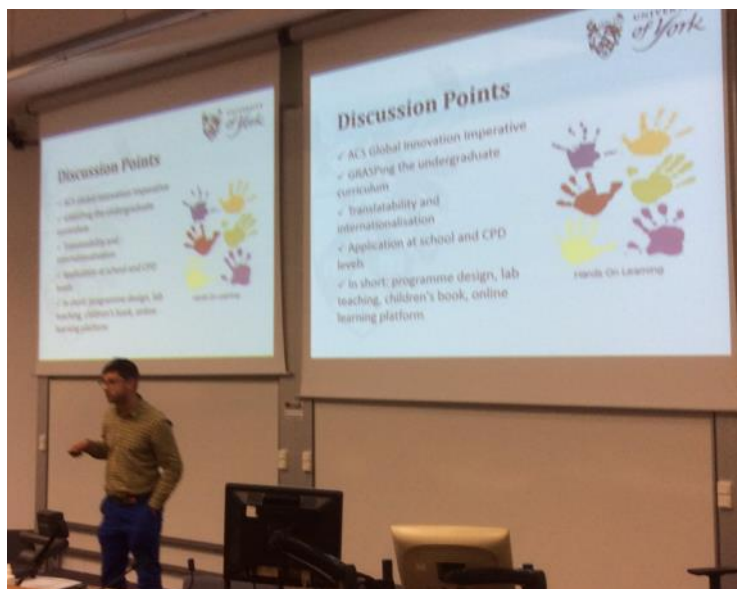
Richard Spears (MAF/PAOB)

Congratulations to our winners and well done to all nominees. Thanks also to the KMS Panel chaired by Tony Wilkinson and including Alison Parkin, Isabel Saez and Will Unsworth.

The winners will all give presentations at the KMS Prize Winners Seminar on Wednesday 4 October in A101 and everyone is welcome to attend. This seminar will be combined with a poster session involving our Year 2 PhD students.

Dr Glenn Hurst Presents at STEM Conference

Between Thursday 29 and Friday 30 June, Dr Glenn Hurst visited Edinburgh for the Horizons in STEM Higher Education Conference at Heriot-Watt University. Glenn delivered an oral presentation on International Green Chemistry Education in partnership with Louise Summerton, Dr Avtar Matharu and Professor James Clark of the GCCE.



Glenn also met Professor Pat Bailey (a previous academic in York) who gave a fascinating plenary lecture on his input into the Teaching Excellence Framework and how this is likely to impact STEM education. This was an excellent opportunity for Glenn to share the innovative work of the GCCE in chemistry education together with networking with colleagues in related fields. Glenn would like to thank the Department for funding his attendance.

Postgraduate Research Careers Event 2017

A Postgraduate Research Careers Event was held on 17 July as part of the Innovative Doctoral Training in Chemistry iDTC. We had five speakers who had all done their PhD in York (including myself):

- Dr Lee Goodwin, Director, Early Development Chemistry Project Management Office, Covance
- Dr Lucie Pfaltzgraff, Consultant at NNFCC (National Non-Food Crops Centre)
- Amy Ruddlesden, Process Development Chemist at Johnson Matthey
- Dr Kirsty High, NERC Knowledge Exchange Fellow
- Leonie Jones, Employability and Diversity Officer

Our first four speakers talked about their career path, what their jobs involved and gave some tips and advice. I rounded the day off with a look at our postgraduate graduate destinations, this was followed by an opportunity for networking with some of the speakers over tea and cake.

It was great to see such a wide range of careers where our speakers were using their chemistry knowledge and soft skills in very different ways. We heard some great advice, particularly the value of getting involved and making the most of opportunities. Other common themes were the importance of networking and finding good mentors.

It was nice to see a number of postdoctoral researchers as well as PGR students attending; I hope everyone found the session as useful as I did. Many thanks to all of our speakers and to the graduate school for helping to organise things. We plan to make this a regular event in future.

- Leonie Jones



Speakers (ltr) Lee Goodwin (Covance), Amy Ruddlesden (Johnson Matthey),
Lucie Pfaltzgraff, (NNFCC), Kirsty High, (UoY)

University of York Annual Learning and Teaching Conference 2017

The University of York Annual Learning and Teaching Conference 2017 organised by the Learning and Teaching FORUM took place on Tuesday 20 June with the theme of: 'The York Pedagogy: Making it Work'. Dr Victor Chechik facilitated a session on 'The pros and cons of option modules' together with two of our fourth year MChem York students working with Dr Glenn Hurst presenting a poster on their work covering blended learning in chemistry.

The conference exhibited innovative practices in implementing the York Pedagogy across the institution featuring a keynote lecture by Professor John Robinson and faculty-based sessions identifying challenges and opportunities associated with the framework.



MChem students Grace Howarth (left) and Katie Martinelli (right) with their poster.

Polar Solvents Promote Halogen Over Hydrogen Bonds

Professor Robin Perutz is one of the researchers in an ongoing collaboration with the universities of Sheffield, Cambridge and York, investigating competition between hydrogen bonding and halogen bonding when co-crystals form.

Read the full story [here](#).

Annual Staff Family Picnic and Rounders Match

This year we held our annual staff rounders match and family picnic on 14 July. The weather was glorious and the event was well attended by staff, their family and friends and even some very friendly dogs. The wonderful array of food was supplied by Divine Dining and there was an assortment of refreshments to wash it down with. A particular highlight was the amazing Oreo brownies. There were also a variety of games for the younger audience, most of which were supplied by Annie Hodgson via her son Ben as Annie herself was in Australia; thank you Annie and Ben. It was great to see everyone relaxing and having fun after such a busy but successful year. Thank you to everyone who helped organise the event but particularly to Jo Eastwood who oversaw the whole event.





At 14:00, about a dozen staff gathered on Church Field for the annual rounders match. After some discussion, the rules were more or less decided upon - everyone seems to have their own version. This was followed by the difficult decision of who should be the captains. Since no volunteers were forthcoming, it was eventually decided that Rob Wood and Adrian Whitwood should be the captains as they were wearing caps. Sides were picked and the game commenced. Nothing was taken too seriously with the rules being revised occasionally. As new staff arrived they were slotted onto the teams to keep the numbers even. After an hour and a couple of innings each, Adrian's team probably won (we weren't keeping the scores very well) and there was a rest break. Play started again after about 10 minutes with randomly picked sides from those who wanted to continue. Overall, a good time was had by all, nobody was injured (although there were some tired legs) and some potential recruits to the cricket team had been spotted.



Stonewall Allies Training Programme

On 12 July I attended the Stonewall Allies Training Programme in central London. I requested this training as part of my performance review last year and the Department kindly agreed to fund it. Derek Wann was also funded to do the Stonewall Role Models training.

Allies are individuals who do not identify as LGBT and who believe that lesbian, gay, bisexual, and trans* people should be able to be themselves and reach their potential. The purpose of the day was to think about how I can be an effective ally, and help create an inclusive environment within the department.



The course was attended by a wide range of people from other academic institutions, industry and charities so it was a great opportunity for meeting others who are interested in being an effective ally and participants are encouraged to stay in touch afterwards.

There were lots of opportunities to share ideas, from simple things like adding a strapline to your emails to show support (e.g. *"I'm an LGBT ally, ask me what that means"*) to much larger activities such as setting up an Allies Network - there were attendees from several organisations who are doing this, either alongside or as part of networks for LGBT staff. This is to provide opportunities for straight/heterosexual staff to show their support for the LGBT community and get involved in activities.

Last month Derek Wann (derek.wann@york.ac.uk) wrote about the Stonewall Role Models course and his plan to try to set up an LGBT Network in the Department in the autumn – open to anyone who works or studies in the Department who wants to meet informally from time to time. If anyone is interested in getting involved as an ally, please get in touch with me (leonie.jones@york.ac.uk).

At the end of the allies programme, participants were asked to make a declaration and commit to doing one thing as an ally. I committed to ring-fencing some time to develop and run a transgender awareness training session for our GTAs in the autumn. I have been keen to do this for a while after attending some excellent sessions myself and following feedback from our students about how important this is.

- Leonie Jones – Employability and Diversity Officer

Updated Online Department Suggestion Box



The online Equality and Diversity suggestion box has been extended to be a suggestion box for the whole Department. You can submit your thoughts / suggestions / ideas for general Departmental matters as well as matters relating to Equality and Diversity. You can find the new Google form on the intranet homepage or at this [link](#).

We Escaped

Tuesday 18 July saw the teaching lab team head into York on their away day. The day's plan was to encourage team building by tackling a live escape room experience at GR8escape York. Entering the New York room, the team became detectives and had one hour to solve the various codes and puzzles within the apartment of master diamond thief, Bugsy Bronxton and retrieve the Manhattan Star Diamond.

The challenges within the room have a 4-star difficulty rating and a success rate of 32%. The team succeeded in retrieving the diamond in a time of 49m 32s. Missing a place on the leader board by 4 minutes.

Definitely a fun team building challenge enjoyed by the whole team.



Detectives Helliwell, Burrell, Binnington, Addicott, Pugh and Elkington.

New Starters

Hello!

Dr Brendan Garrett, PDRA working for Dr Victor Chechik

Room: E014; Extension: 4587; Email: brendan.garrett@york.ac.uk

Milena Kaestner, Technician in CHyM working for Prof Simon Duckett

Room: CHM/113; Extension: 8890; Email: milena.kaestner@york.ac.uk

Janice Lofthouse, EU Research Project Manager in Green Chemistry

Room: C/F109; Extension: 4550; Email: janice.lofthouse@york.ac.uk



UNIVERSITY
of York

3rd EuGSC

3rd EuCheMS Congress on Green
and Sustainable Chemistry

3-6 September 2017, University of York

PLENARY SPEAKERS

Ben Feringa, University of Groningen

Paul Anastas, Yale University

James Clark, University of York

Babette Pettersen, Capricorn Venture Partners

Michael Grätzel, EPFL

Nicholas Gathergood, TUT



Special non-residential rate to any staff or students in the Department of Chemistry

- £150 not including the conference banquet.
- £220 including the conference banquet (at the National Railway Museum).

To take advantage of this reduced rate, email 3eugsc@york.ac.uk.

www.york.ac.uk/3EUGSC

ViCEPHEC17



UNIVERSITY
of York

VARIETY IN CHEMISTRY EDUCATION AND PHYSICS HIGHER EDUCATION 2017

PLENARY SPEAKERS

DR DAVID SANDS

UNIVERSITY OF HULL

*Expanding Conceptual Understanding in
Physics (ECUIP): an IOP project in physics
education across the UK and the ROI*

DR SUZANNE FERGUS

UNIVERSITY OF HERTFORDSHIRE

*Quick wins and 'slow burners' to help
transform our Year 1 chemistry
experience*

SIR JOHN HOLMAN

UNIVERSITY OF YORK

*Making the transition from school to
university chemistry*

WHEN

AUGUST 23rd - 25th 2017

WHERE

DEPARTMENT OF CHEMISTRY,
UNIVERSITY OF YORK

Kicking off on
Wednesday 23rd
12.30 pm with
the
**Labsolutely
Fabulous**
Practical Session



IOP Institute of Physics



Learning
Science

More information at
www.vicephec2017.com
or contact us at
vicephec17@york.ac.uk.
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([#vicephec17](https://twitter.com/vicephec17))