Chemistry Update

Newsletter 318, 28 February 2020

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Calendar of Events

Equality & Diversity / Chemical Interactions Seminar
Speaker: Prof Kevin Cowtan
Date: Friday 28 February
Time: 1pm—2pm
Location: C/B102

Beacon Equality and Diversity Lecture "A voice for diversity in science"
Speaker: Dr Jess Wade, Imperial College London
Date: Wednesday 4 March
Time: 1pm—2pm
Location: C/A101

Physical Chemistry Seminar
Speaker: Prof Lars Jeuken, University of Leeds
Date: Friday 6 March
Time: 12.30pm—2pm
Location: C/B102

E&D Lunchtime Forum in YSBL
Date: Tuesday 10 March
Time: 1pm—2pm
Location: B/M052

SCI Day of Science and Careers
Date: Wednesday 11 March
Time: 10am—7pm
Location: National STEM Learning Centre
More information and registration

Organic Seminar
Speaker: Dr Anna Barnard, Imperial College London and Dr Richard Grainger, University of Birmingham
Date: Wednesday 11 March
Time: 1pm—3pm
Location: C/B101

Departmental Seminar
Speaker: Dr Johnathan Matlock, Unit DX
Date: Thursday 12 March
Time: 1pm—2pm
Location: C/A101

TechYork/Ohaus Event "Get the best out of your pH meter"
Date: Wednesday 18 March
Time: 1.30pm—3pm
Location: Biology Teaching Labs, B/T

Salters' Festival of Chemistry
Date: Wednesday 25 March
Time: 9.30am—3pm
Location: Chemistry B Block

Inorganic Seminar
Speaker: Dr James Wilton-Ely, Imperial College
Date: Wednesday 25 March
Time: 1pm—2pm
Location: C/A122

Date of Next Issue: 27 March 2020

Almost £1 million of funding secured for bioeconomy research

A project using waste from pea processing to clean water is one of seven projects which have just received funding from the THYME project to boost the region's bioeconomy.

These projects join 13 THYME projects already funded in 2019, bringing the total research funded by the project to almost £1 million.

The University of York - in collaboration with the University of Hull and farmers R Meadley & Sons - is using crop waste from pea production for the production of small particle materials that can then be used in the treatment of waste water.

Pea waste

After harvesting, pea waste that is not needed to fertilise the soil will be converted into nano-celluloses and nano-carbons to potentially clean waste water. Scientists also plan to extract lipids, waxes, and pectins from the pea biomass adding to economic value of this resource. These can be extracted and used back in food, home and personal care products.

Dr Avtar Matharu, Deputy Director at the Green Chemistry Centre of Excellence, from the University of York's Department of Chemistry said: "Often discarded and considered as waste, unavoidable food supply chain waste such as pea waste is a treasure trove of useful chemicals that can be utilised in many applications that impact global grand challenges."

Waste water

Dr Sharif Zein, Director of Postgraduate Research, University of Hull's Chemical Engineering Department said "We're really excited to be working on this project with a local supplier, investigating new methodologies with the potential to provide global environmental benefits. Using clean and efficient methods we can convert various plant wastes into nanomaterials that can be used in the treatment of waste water across many industries. These nanocarbons are incredibly valuable materials: non-sustainable nanocarbons are already the building blocks for electronics, energy storage and drug delivery; we have an opportunity here to create them from sustainable sources."

The THYME project - a collaboration between the Universities of Teesside, Hull and York to boost the bioeconomy across Yorkshire, the Humber region and Tees Valley - is funding the research.

Scientists will also be working on projects to:

- Create a simulation of the microbial aspects of anaerobic digestion that can be used to improve the process or to develop new monitoring methods.
- Develop specialised materials from starch that can be used in vitamin capsules or other food coatings.
- Explore how plant clippings from natural habitats can be used in anaerobic digestion to generate income as well as bring conservation benefits.

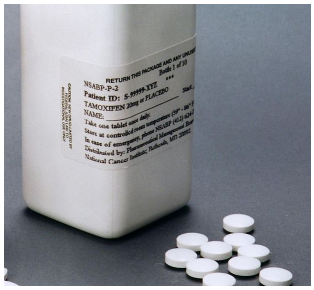
- Investigate the use of a charcoal-like material in retrieving phosphorus – a valuable soil fertiliser – from waste water.
- Understand the chemical process by which woody material can be converted to sugar, in order to find ways to improve sugar yields.

Dr Joe Ross, Director of the Biorenewables Development Centre said: "The innovations kick-started by this funding will not only help boost economic growth but they will also pave the way to a more sustainable future where industry uses renewable sources of raw materials, such as plants and microbes, rather than petrochemicals."

The THYME project - funded by Research England - is a collaboration between the universities of York, Hull and Teesside, delivered in partnership with the Biorenewables Development Centre (BDC) and BioVale.

Transforming the molecular understanding of oestrogen

Scientists at the York Structural Biology Laboratory have transformed the molecular understanding of how the oestrogen receptor works – bringing insight to treatments for some breast cancers.



The oestrogen receptor is the protein in cells which responds to the female sex hormone, oestradiol. The hormone binds to the receptor, altering its shape to interact with and influence other proteins and genes in the cell.

These processes affect the female reproductive organs, but also have important roles in maintaining the health of other organs such as the bones, heart and brain.

Scientists in YSBL collaborated with the Swedish company, Karobio, in the first determination of the structure of the oestrogen receptor when bound to oestradiol, and when bound to different drugs, which may stop it interacting in the same way.

Stopping the oestrogen receptor from working, by using drugs such as Tamoxifen, is a highly effective treatment for some breast cancers.

Other similar drugs such as Raloxifene are used to prevent the weakening of bones (osteoporosis) in women after the menopause.

These discoveries by YSBL transformed the molecular understanding of how the oestrogen and other similar receptors work, and made sense of decades of scientific research around the world.

Professor Rod Hubbard said: "This project exploited the strengths of YSBL in protein biochemistry and X-ray crystallography and demonstrates the impact fundamental scientific research can have on both understanding human biology but also in the design of new drug therapies."

By royal appointment – VC receives prestigious award on behalf of University at Buckingham Palace

The pioneering work of the University of York's Structural Biology Laboratory in the Department of Chemistry has received royal recognition at a prestigious ceremony at Buckingham Palace.

The Prize recognises 40 years of outstanding research

Vice-Chancellor Professor Charlie Jeffery formally received the Queen's Anniversary Prize on behalf of the Laboratory at a ceremony in the Ballroom of Buckingham Palace on 20 February.

Professor Jeffery was presented with a medal, engraved with the Queen's signature, while Professor Tony Wilkinson, current leader of York Structural Biology Laboratory (YSBL), collected a scroll on behalf of the University.

Unique honour

The prize, the highest national honour awarded in UK further and higher education, is for the work of the YSBL over the past 40 years in studying protein molecules.

The ceremony had the format of an investiture and was carried out by HRH The Prince of Wales and HRH The Duchess of Cornwall.

The prize is unique in the honours system in that the honour is conferred on an institution rather than an individual.

Protein molecules

The YSBL researchers study protein molecules: developing methods for looking at them, determining what the molecules look like and how they work, and how this knowledge can be exploited.

The methods developed at York are used by thousands of scientists around the world across many areas of science and industry.

Studies of individual proteins in YSBL have revolutionised understanding of fundamental living processes. These insights can directly contribute in the development of new medicines, such as modified insulins for treating diabetes, and also be used in industrial processes to improve sustainability and food security.

Outstanding work

Recipients of the Queen's Anniversary Prizes (2018 to 2020) were announced on 21 November at a ceremony at St James's Palace in London.

The Prize recognises and encourages outstanding work - in any field - which is innovative and is delivering practical and substantive benefit both for the institution itself and in the wider world.

They are granted by the Queen every two years.

Richly deserved

Professor Jeffery said: "This award is a fantastic achievement and richly deserved. It recognises the excellence and dedication of the YSBL team over more than 40 years.

"The Laboratory's work has had far-reaching impact: the benefits it brings to the global research community include not only its world-renowned methods and discoveries but also the outstanding scientists it has trained.

"To wider society this research contributes to the development of new medicines and also the development of new approaches in the search for novel drugs and therapies in medicine.

"The prize adds to the five previous Queen's Anniversary Prizes, providing further recognition of the quality and relevance of research carried out at York."

Continuing evolution

Professor Wilkinson said: "YSBL works at the intersection of many different disciplines, harnessing the synergy of physics, computing and chemistry to answer questions about biological processes.

"This prize recognises the quality of the work of the many hundreds of scientists who have passed through the Laboratory over the past four decades and benefitted from the collaborative and flexible culture we have sustained.

"The Laboratory continues to evolve with new initiatives in advanced imaging methods and developing chemistry to study the role of the sugar molecules that are vital to living organisms."

New starters

Dr Richard Gammons, Green Chemistry MSc Support Technician (new role in Chemistry)
Room: C/F120; Ext: 4549; Email: richard.gammons@york.ac.uk

Dr Mustafa Zafer Ozel, Green Chemistry Associate Lecturer
Room: C/F109; Ext: 2705; Email: mustafa.ozel@york.ac.uk

Mackayla Millar, Primary Science Advisory Teacher (CIEC)
Room: C/B013; Ext: 2523; Email: mackayla.millar@york.ac.uk

SAQN Launch Report

By Fleur Hughes, Network Manager, WACL

The first event of the STFC Air Quality Network (SAQN) took place 14-15 January at the Principal Hotel in York. Over 80 delegates from across the UK joined the event to hear more about the opportunities to tackle air quality challenges. Academics from many universities mixed with representatives from industry and colleagues from across the Science and Technology Facilities Council (STFC). Policy organisations also attended, including staff from Defra, the Environment Agency, local councils and Natural England.

Sessions on the first day included information on the wider Air Quality landscape, identifying challenges and opportunities in research, policy, health impacts and industry. Presentations from STFC colleagues then highlighted the breadth and variety of capabilities available across the different locations and facilities.

The second day began with a look at the funding opportunities available within the network and beyond, with a presentation from UKRI SPF Clean Air and one of their funded projects, QUANT.

Using the information from the presentations, the network then held round table discussions to identify topics of interest, and to post these to an online noticeboard. Over lunch everyone voted on the subjects that were of most interest to them, which were:

- Ammonia – Challenges and Opportunities
- Sensors and Miniaturisation
- Machine Learning
- Indoor Air Quality Monitoring
- Integrating Data
- Behaviour Change
- Health Effects Monitoring and Data
- Early Career Researcher Support Network

The meeting concluded with feedback from each discussion, leaving plenty of ideas for consideration by the SAQN and the network members. Presentations from the meeting are being made available to download, including outputs from the round table discussions.

Thank you to all our presenters and to everyone who attended the launch, gave us their input and made it a great success. Our next annual meeting will take place in Spring 2021. To find out about this and other network events, please join the network.

YSBL at the forefront of insulin research

Scientists at the York Structural Biology Laboratory (YSBL) have been at the forefront of insulin research – with discoveries made at York now being applied to treat millions of diabetes sufferers around the world.

The main function of the hormone insulin is to bind to a receptor on the surface of cells and increase the rate at which glucose is absorbed to provide energy. When levels of insulin are too low, people experience diabetes.

YSBL determined the structure of many different insulin molecules and analogues and worked with the company Novo Nordisk to use this information to guide the design of new forms of insulin with improved properties.

The first discovery (in the mid-1980s) changes insulin biochemically so that it is very fast-acting. The second discovery (in the mid-1990s) was in understanding how additives can make insulin very slow-acting, by increasing the biochemical stability of the hormone.

These modified insulin molecules allow patients to control more tightly the amount of insulin in their bodies, and are now being used to treat millions of diabetes sufferers worldwide with improved outcomes and fewer side effects than previously.

In 2013, YSBL and collaborators were the first to determine the structure of insulin when bound to the receptor. In addition to providing insight into a fundamental process in biology, this newly discovered structure is stimulating ideas on how to design synthetic mimetics of insulin for therapy.

Professor Rod Hubbard said: “The long-term collaboration with Novo Nordisk was built on the pioneering work of Professor Guy Dodson on the structure of insulin.

“This was an early example of how industrial and academic scientists can work effectively together to generate scientific insights that lead to new medicines and treatments that benefit patients worldwide.”

From soup to cells: a potential role for gels in the chemistry of life

A study by scientists at the University of York casts new light on the role of chemistry in the evolution of life.

Professors David Smith and Paul Clarke from York's Department of Chemistry investigated the role of gels in the formation of simple cell structures drawn from the chemicals present in the early Earth's 'primordial soup' - where life is thought to have begun.

In their recently published work in *Journal of the American Chemical Society*, the researchers discovered a new gel that formed when a simple chemical based on an amino acid, one of the key building blocks of life, reacted with benzaldehyde, another molecule potentially present on the early Earth.

Spontaneously

Professor Smith said: "Our new gel could spontaneously assemble from its component parts even in the presence of a mixture of different chemicals, allowing order to emerge from complexity – of potential relevance in the primordial soup."

They then worked to demonstrate the gel could in some way be useful in a prebiotic world and explored its role in the synthesis of sugar molecules required by living systems.

"The gel could catalyse an important sugar-forming reaction in water, with good yield and selectivity," said Professor Clarke. "Not only between the two different sugar products, but also between the versions of these molecules with different chirality." In science, a chiral system is one which is different from its mirror image - similar to the differences between a right and left hand.

Chirality

Professor Clarke added: "Making sugars with defined chirality is an important step in prebiotic chemical evolution. Most excitingly, the catalyst was only active when it was self-assembled as a gel. If we added it in non-assembled form, the reaction did not proceed."

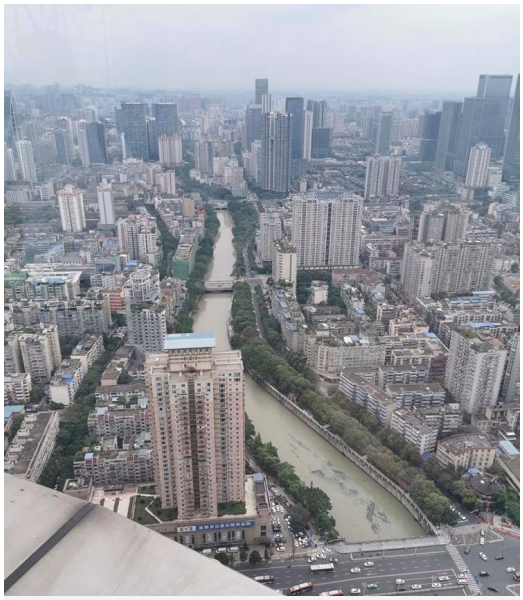
Dr Kirsten Hawkins from York's Department of Chemistry, carried out much of the laboratory work for the research. She said "the results show gel assembly to be a powerful means of organising complex mixtures of simple molecules into functional, useful materials and prove that self assembly can play a vital role in enhancing activity and enabling pre-life chemical process".

Evolution

Dr Hawkins added: "We believe that these principles will go on to be important in other studies of prebiotic chemistry, and we think that more researchers will explore the hypothesis that gels could have played an important role in the evolution of simple cells."

A summer of science in Sichuan

By Lawrence Henry (undergraduate student in the Department of Chemistry)



Chengdu Tower view

Chengdu city road

Sichuan University Gate

In the summer of 2019 I was fortunate to be one of a group of six undergraduates from the Department of Chemistry to attend a two-week immersion programme at Sichuan University in Chengdu, China. I thought that you might like to share our experience.

Sichuan is the modern spelling of the old translation 'Szechuan'. Prior to our visit 'Szechuan' was more recognisable to me as my choice of sauce from my local Chinese takeaway. However, the food in Chengdu was incomparable to anything I had experienced in the UK. Sichuan cuisine is famous for its intense flavours and mouth blowing heat that is derived from a potent combination of powerful chillies and Sichuan pepper. Back home, my ability to eat spicy food is something that I pride myself on. However, in Sichuan the mouth numbing effects of Sichuan pepper took things to another level! Since returning to the UK I have found a Sichuan style restaurant and I would encourage anyone to visit and try "hotpot", one of the signature dishes of Chengdu and the rest of Sichuan.

The exhausting journey began with a long flight, two airport transfers and also no luggage, as the airline company failed to transfer over 600 bags that day. Thankfully I was greeted by a Chinese student at the airport. Each of us had been assigned a volunteer chemistry student from Sichuan University, looking to improve their English. They were our guides throughout our stay in Chengdu, and their helpful support made the visit an amazing experience.

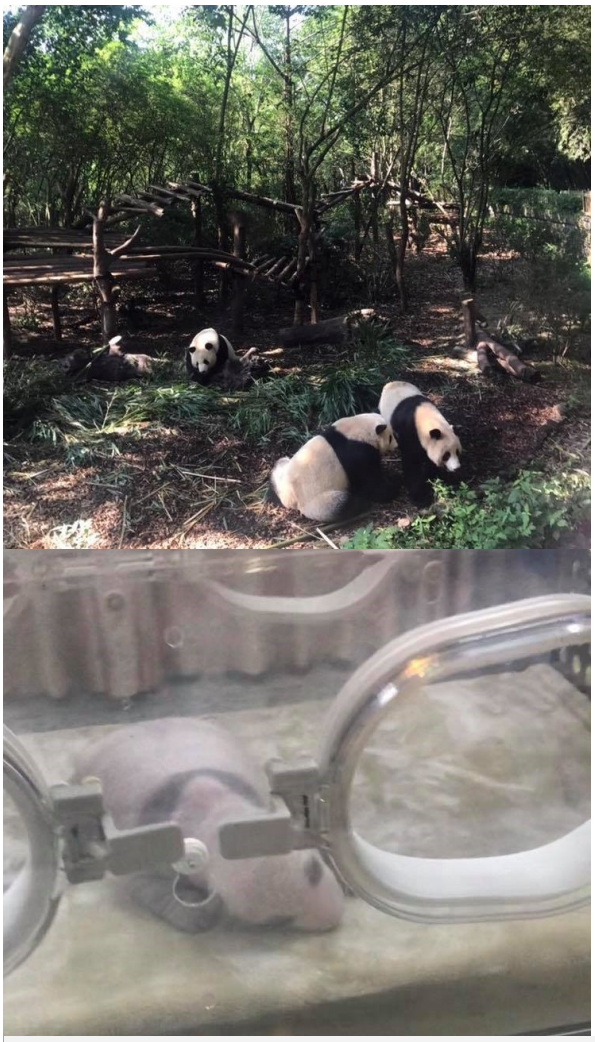
Sichuan University

We stayed in university-owned accommodation. The high intake of students at Sichuan University is reflected by the scale of the university accommodation. All the blocks of flats were almost exact replicas of each other, resembling Soviet-style architecture. Compared to York, the most noticeable differences were the style of their toilets, the number of people to a room and consequently, the sex-segregated blocks. For a student at Sichuan University the rent has an annual cost of roughly £600, this was perhaps the major contrast to university accommodation in the UK. Our two weeks coincided with a disciplined, military-style course that is compulsory to all first-year students. From my observations, it appeared to be a gruelling experience, due to the long hours of static standing in formation and exhausting heat.

Group photo

For the first week we attended a Chemistry lecture course on Supramolecular Chemistry. The lectures were taught by Juyoung Yoon, a guest lecturer from the department of Chemistry at Ewha Womans University in South Korea. Yoon discussed the work of Nobel Prize-winner Professor Donald J. Cram, who had been his postdoctoral research advisor.

The lectures lasted from 08:00 until 12:30 each day of the first week. Each lecture is shorter than the 50 minute lectures at York; instead the university opt for longer breaks between the lectures. This did make it noticeably easier to concentrate and focus in these back-to-back lectures. The lectures counted towards a very minor percentage of the overall course grade of the Chinese students. It was an opportunity for the Sichuan students to study a lecture course in English and improve their language skills. Considering it was their second language, the standard of English from every student I spoke to was impressive. Thankfully, all the York students passed the supramolecular test that concluded the lecture course.



Giant pandas and baby panda

Giant pandas and a museum

The weekend began and we transformed from Chemistry students to tourists. The Sichuan area and Chengdu are famous for their giant pandas. We visited the Chengdu Research Base of Giant Panda Breeding, where they have the largest number of captive breeding pandas in the world. We joined the thousands of other visitors that the centre welcomes each day.

Apart from the original six pandas that they rescued in 1980, they have never captured a panda from the wild. The pandas are slow-moving yet remarkable due to their size and their rarity, with just under 1900 giant pandas living in the wild. Giant pandas are no longer classed as endangered; they now have vulnerable status and are becoming a conservation success story. One of the main difficulties in maintaining the panda population is that a female giant panda only ovulates once a year, but the centre's breeding programme is a success. During our visit we were fortunate enough to see a baby panda. Another potential problem for the wild panda population is the destruction of their habitat. To combat this, over 65 protected areas of giant panda habitat have been created in southeast China.

Following the heat of the outdoor panda base, we retreated to the museum of Sichuan, which displays a detailed history through numerous dynasties. The museum included a very colourful exhibit on Tibetan Buddhist relics, and an art exhibition detailing the stylish work of Chang Dai-Chien.

Back to work

The second week was spent in the laboratory in the analytical department, to gain an insight into the research that the Sichuan Chemistry Department undertakes. I used a range of techniques to investigate nucleic acids. You will be able to read about my lab work in the April 2020 issue of Chemistry Review.

The trip ended with some spectacular views from the top of the Chengdu Radio and TV Tower. This was followed by an evening of KTV, which is essentially a private karaoke room and is popular in modern, social culture in China.

The visit gave me a small perspective into Chinese student culture whilst also having the opportunity to complete a fascinating Chemistry course. The trip was made affordable as it was subsidised by Sichuan University. I would recommend any students searching for summer opportunities to check what is on offer. This was an experience that I will never forget.

New arrival

We are pleased to announce that Sarah Moller from WACL gave birth to Thomas Alfie Croft weighing in at 7lbs 2oz on Friday 7 February. Sarah and Thomas are both doing well and we pass on our congratulations and best wishes to the family.

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 Google form on the intranet homepage or at this link.

Naser Jasim – an appreciation on his retirement

By Robin Perutz and Barbara Procacci

A few days ago, I (Robin) happened to be passing when a research student jumped up and accosted Naser, saying "I need your help". As it happened, this was a student from an organic chemistry group, but it demonstrates how much Naser's advice is valued by all who get to know him. He has trained and helped countless students over the years sharing the know-how that he has amassed over the last 20 years in inert atmosphere techniques, synthesis, solvent purification, NMR and IR spectroscopy.

Here are some of the tributes that we received about Naser:

Paul: "I have many stories from over the years of Naser's contributions to our research, all of them characterised by his considerate, generous and highly knowledgeable support of people in the group, me included. But what sticks in my mind was the time we recovered a glove-box free from a skip that was no more than a tatty shell with some (big) holes in it when we finally got it in the lab. It appeared hopeless that the box would ever work again. But, Naser was unfazed. I simply don't know what magic he applied to this piece of junk, but--six months later--the result was a fully-functioning anaerobic box that still today holds an O_2 level of less than 0.2 ppm, and, more importantly, has been the foundation of many new results over the past few years. It's difficult to think of anyone else who I have met in my career who could have achieved this feat. So, Naser, a huge thank you from me, scores of graduate students, visitors and postdocs. I hope that you know that you have made a difference."

John: "Naser's help, advice and expertise have played a hugely important role in underpinning all of the science that my group have done at York. From safety to synthesis, he's always been an excellent person to turn to for advice and his presence in the department will be greatly missed by me and the group."

Marius: "I just wanted to say a BIG thank you for helping me, in and out of UoY, during my stay there. You are a wonderful person to work with!"

Katie: "There was nothing Naser wouldn't do for me during my time in Robin's lab. From showing me how to get to the glass blower to making dry ice baths. Naser's advice was also generous; he told me to take time for myself and not worry about the results so much."

Ruqia: "Never again will you have to face dreaded Mondays! Every day for you is the weekend now! Lucky you. I miss you a lot."

Torsten: "Very soon after I started it became clear that he is something like the good elf of the old C block

and “Ask Naser” was one of the most frequent conclusions to a problem. Also, for me Naser was immensely helpful. I remember spending ages with him, doing 19F NMR titrations with him. The presence of a second person turned out to be very helpful to save time and the company was also very enjoyable. Best wishes for you, Naser, on your retirement! Enjoy your time with your family and friends!”

Mina : “Thank you for everything you have done for me over the last four years, I appreciate it very much. Enjoy your retirement.”

George: “One of the earliest things I was told was to be on the “good side” of Naser; he was a crucial part of day-to-day running in the lab as well as being an important knowledge source. Thanks to him we always had good supply of dry solvents, the glove box was kept in great condition, and whenever people moved on from the group, the air-free NMR tubes were reclaimed. There were many important things Naser did for the group in addition to doing research work. I remember he always brought delicious food to the group outing and suspiciously insisted it was all his doing without help from Iman. However, I am most appreciative of him for being the friendly and jokey person who was easy to talk to. Having come to York from another university, it helped me settle in and made my time more enjoyable. Thank you Naser for those years we spent working together in the lab and congratulations on your retirement. Otsukaresama! (in Japan we use this word to congratulate hard work).”

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Naser started his research career at Baghdad University where he completed an MSc (IR Spectroscopic Studies of Rotational Isomerism in Ethylhaloacetate). After a spell as a high school teacher and an assistant lecturer, he moved from Baghdad to Britain, first working as a research assistant with Jack Silver on ferrocenyl Schiff base compounds and then to Liverpool with Brian Heaton on synthesis and NMR of rhodium phosphido bridged complexes. Having enjoyed his time in the lab, Naser then applied for a studentship with Robin to do a DPhil at the University of York. He started in 1996 and graduated in 1999 with a thesis on Transition Metal Bifluoride Complexes. Following graduation, Naser continued to work within the Department of Chemistry becoming an Experimental Officer providing laboratory management, technical and research advice for students and peers in the Department.

When time allowed, he also did his own research in organometallic chemistry, specializing in the synthesis of platinum, nickel, rhodium and ruthenium fluoride and bifluoride complexes. If we had to single out just two of his papers, they would be his JACS paper on the dynamics of platinum hydride bifluoride complexes of 2000 and the Organometallics paper of 2004 showing how platinum (0) complexes react with pentafluoropyridine to form two new Pt-C bonds and a new P-F bond.

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Barby: “Naser and I worked together for the last 12 years and there is just one thing I want to say to him. **THANK YOU NAS**!!! You have been a great guidance during this time, I've learnt all the tricks needed to be a good organometallic chemist from you, and I'll always be grateful. Although at first glance you might seem a very serious man I 'm one of the lucky enough who got to know the funny and jokey part of your personality which adds to the exquisite person you are! I have plenty of fantastic memories of our time together in C block. So much fun!! You and Iman have always been helping me with life in and out of the department in York and this has made you both part of "my family" here. :) GRAZIE MILLE Nas for everything and enjoy your free time now… you deserve it!!!! “

Robin: “For me, Naser has been a trusted colleague and friend. He has contributed SO much to providing a safe, laboratory environment with well-trained students; he has helped them with innumerable research ideas and of course, he has used his skills to outstanding effect in his own research. As you can see, from the tributes, he also built relations and supported the students in the RNP group and in many other research groups. Happy retirement!”

DEPARTMENT OF CHEMISTRY
york.ac.uk/Chemistry

Annual Equality and Diversity Beacon Seminar

Dr Jess Wade

Imperial College London

A voice for diversity in science

Wednesday 4th March

1-2 pm, Department of Chemistry, C/A101

A passionate advocate for diversity in science, Jess has received awards for contributions to science, science communication, diversity, and inclusion. She is particularly well known for her high profile campaign to create Wikipedia pages for women scientists, writing over 900 since 2017.

Jess was selected by Nature as one of the 10 people who mattered in 2018 and was awarded The British Empire Medal (BEM) in the 2019 Birthday Honours for services to gender diversity in science.

In this annual equality and diversity beacon seminar, Jess will share her views on why diversity in STEM is still so essential and what we need to do about it.

There will be coffee and an opportunity for informal discussion afterwards.

All staff and students welcome

Please contact leonie.jones@york.ac.uk or caroline.dessent@york.ac.uk for more information

FREE EARLY CAREERS EVENT

DAY OF SCIENCE AND CAREERS 2020

Calling all scientific undergraduate and postgraduate students!

WEDNESDAY 11 MARCH 2020 — University of York, UK

SCI's Day of Science & Careers is an annual career event designed to give information about the wide range of careers covered in the chemical, chemistry-using and other science based industries. Speakers from a range of industrial, academic and independent backgrounds will present their career pathway and offer insights into what to look out for, and what to consider when choosing your next steps.

Attendees

This event will be of interest to final year undergraduate and postgraduate students, as well as postdoctoral researchers in chemical & biological sciences and engineering.

Hear from the expert speaker line up on:

STARTING OUT IN INDUSTRY | STARTING OUT IN ACADEMIA | NETWORKING

PUBLISHING | TOP TIPS FOR SUCCESSFUL JOB APPLICATIONS | WRITING A GREAT CV

This is FREE to attend, and open to members and non-members.
To book your place at this event, please visit www.soci.org/events.
Places are limited so early registration is required.

BOOK TODAY!
http://bit.ly/DOSC2020

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where science meets business