Chemistry Update

Newsletter 298, 29 June 2018

Inside this Issue

Calendar of Events

Graduate Research Seminars
Date: Wednesday 4 July
Time: 1pm—3pm
Location: C/B/101

Organic Seminar
Speakers: Prof Boris Nachtsteim, University of Bremen & Dr Tatsuo Kaiho, Godo Shigen Co., Ltd.
Date: Thursday 5 July
Time: 12.30pm—2.30pm
Location: C/B/101

Postgraduate Careers Seminar
Date: Friday 6 July
Time: 1pm—5pm
Location: C/A/101

Sixth Form Chemistry Conference
Date: Friday 13 July
Time: 9.30am—4pm
Location: Department of Chemistry

Departmental Staff Picnic
Date: Friday 13 July
Time: 4.30pm—6pm

Chemistry@Work
Date: 16 & 17 July
Time: 10am—3pm
Location: A & B Block, YSOC, WACL

Organic / Inorganic 3rd PhD Plenary Talks
Date: Wednesday 18 July
Time: 1pm—5pm
Location: C/B/101

Chemical *Inter*Actions Charity Quiz
Date: Thursday 19 July
Time: 3pm—5pm
Location: C/B101 & B102

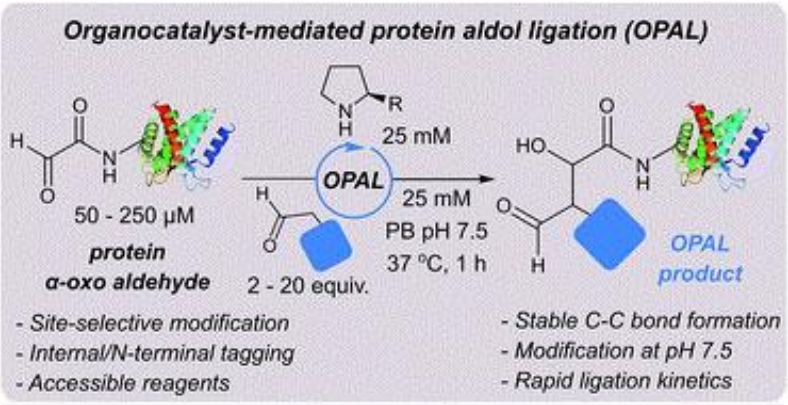
Graduation Ceremony and Reception
Date: Thursday 26 July
Time: 1pm—5pm

Date of Next Issue:
27 July 2018

New Method Provides Insight into Disease

Pioneering protein chemistry technique provides new insights into Leishmaniasis disease.

Researchers in the departments of Chemistry and Biology have developed a breakthrough new protein chemistry technique that will help further research into the deadly tropical disease Leishmaniasis, which claims up to 50,000 lives a year.



OPAL enables simple modification of protein aldehydes with a variety of different tagging reagents (blue diamond)

The ultra-mild 'bioconjugation' method enables the attachment of small molecules to delicate biological machinery, including a protein from the surface of the Leishmania parasite, which is essential for infection.

The new method was developed by an interdisciplinary team at the University of York led by Dr Martin Fascione. Taking inspiration from the well-known classical organic synthetic "cross aldol" reaction first studied in 1881, and its modern reinvention in the presence of small molecule organocatalysts, the team designed a potent 'protein cross-aldol' reaction capable of modifying proteins in minutes at neutral pH. They refer to their approach as 'OPAL' (Organocatalyst-mediated Protein Aldol Ligation).

OPAL can chemically modify a range of proteins with minimal change to their natural function. Using this new technique, multiple small molecule cargoes can be attached including cancer-targeting agents and fluorescent tags.

The methodology was showcased in the 'chemical mimicry' of an essential protein found on the surface of Leishmania parasites, which are spread by sandflies and the causative agent of the tropical disease Leishmaniasis which affects 12 million people worldwide.

Dr Fascione said:

"The key to the OPAL method is that it allows modification of proteins under mild biologically compatible conditions, meaning that their natural function is more likely to be retained. This has proved especially powerful for studying the Leishmania surface protein as it is naturally modified within the parasite with two different small molecules which are essential for infection, but the reason for this modification is not absolutely clear due to the challenges of working with the parasite in the lab. In this study we were able to use our chemistry to recreate these natural modifications in a test tube, providing an abundance of the protein in its natural form, which enabled us to begin to explore why these modifications are so important for infection."

The research was published in *Chemical Science*, the flagship journal of The Royal Society of Chemistry.

Annie Hodgson Receives Vice-Chancellor's Teaching Award

The award, which recognises excellence in teaching and learning support, will be conferred at one of the summer degree ceremonies.

Professor John Robinson, Pro-Vice-Chancellor for Teaching Learning and Students, wrote to Dr Hodgson:

"The panel was impressed with your consistently high-quality teaching and the excellent student feedback you have received over a sustained period of time. The panel recognised your long-standing and whole-hearted commitment to students and the teaching community in your Department and reputation in your role of Schools Liaison and Outreach Officer. You are an enormously enthusiastic teacher, sensitive to student needs, engaging them across a range of levels of accomplishment."

Mentions were made by the panel about many aspects of Dr Hodgson's work, past and present, including her running of the BSc projects in Chemical Communication. This innovative style of student project, which involves outreach and teaching to school-age children, was recognised in the University and as a result, other departments are now considering introducing similar schemes. Her valuable nurturing of relationships with York schools was also noted.

In nominating Dr Hodgson for the award, Dr Victor Chechik commented:

"I am convinced that Annie's engagement with schools and her contributions to science outreach have positively influenced our buoyant, high-quality undergraduate applications, of which the Chemistry Department is so proud."

Dr Annie Hodgson is the Schools Liaison and Outreach Officer in the Department of Chemistry, and the Coordinator of the Year 1 Skills for Chemists core module. She is the departmental Study Skills Officer and Editor of Chemistry Review, a Hodder Education magazine for A-level Chemistry students. She hosts the Salters' Festival of Chemistry and visits schools country-wide to give workshops and her exciting 'Colourful Chemistry' lecture.

The Vice-Chancellor's Teaching Awards, introduced in 2006, are one of the ways in which the University rewards excellence in learning and teaching.

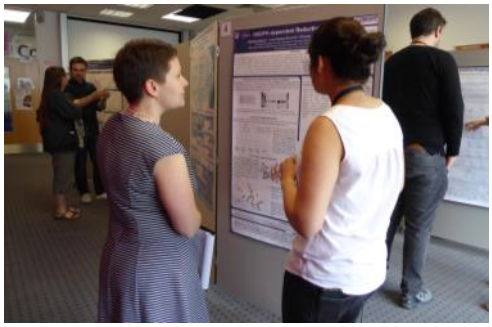
Online Department Suggestion Box

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.

3rd JEOL Postdoc Poster Competition Held

The Department held the 3rd JEOL Postdoc Poster Competition in June, with prizes generously sponsored by JEOL and organised by Derek Wann and Leonie Jones. Mark Dunham, Business Development Manager at JEOL kindly attended to represent our sponsor and help judge the competition along with members of staff. Professor Lucy Carpenter, Deputy Head of Department (Research) explained that the competition was a celebration of the valuable contributions our research staff make to both teaching and research in the department. The quality of the posters and presentations was particularly high this year and the judges had a very tough time coming to a final decision. There were two cash prizes awarded to the two winning posters, and four further posters were highly commended as runners up. The two winners will be invited to talk at a special symposium in the Department in the autumn.





Winners

- **Aggie Lawer** - Selective fluorination: a tool to control peptides' conformation and biological activity
- **Peter Rayner** - Tunable Catalysts for Hyperpolarisation

Runners-Up

- **Fergal Byrne** - 2,2,5,5-Tetramethyloxolane (TMO): An Unusual Ether Which Can Replace Hazardous Hydrocarbon Solvents
- **Sandra Greive** - Probing the function of a thermostable viral portal protein using single molecule electrical sensing
- **Carmen Piras** - Spatial control of multicomponent self-assembled gels
- **Petr Slavík** - DBS-CONHNH2 Hydrogels with Embedded Catalytically-Active Metal Nanoparticles

Thanks to everyone who presented at the JEOL Postdoc Poster Competition, it was a fantastic opportunity to celebrate the huge contribution made by research staff to the continued success of the Department. Thanks also to our sponsor JEOL, those who helped to organise and judge the event, and to everyone from the Department who turned out to look at the posters.

- Leonie Jones and Derek Wann

(LTR) Carmen Piras, Petr Slavík, Sandra Greive, Peter Rayner, Aggie Lawer, Fergal Byrne & Mark Dunham

KMS Prize Winners

The KM Stott 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. We received 12 high quality nominations from supervisors, eight of whom were 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:

Stuart Grange (David Carslaw/Ally Lewis)

Alexandra Males (Gideon Davies/Martin Fascione)

Conor Rankine (Derek Wann / Jun Yuan)

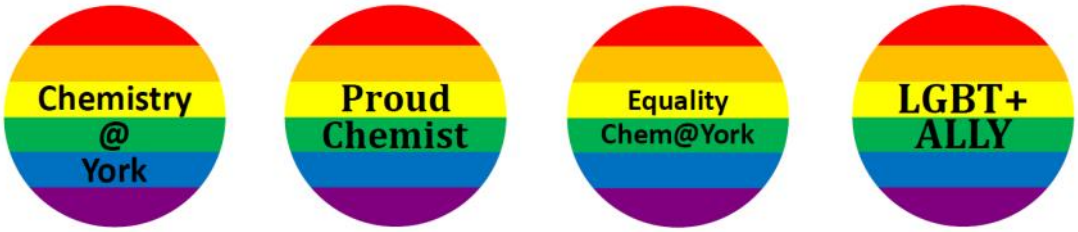
Anna Zhenova (James Clark)

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

The winners will all give presentations at the KMS Prize Winners Seminar on Wednesday 3 October in A101 and everyone is welcome to attend.

Department of Chemistry Flags-it-Up for York Pride

To mark York Pride 2018, the Chemistry reception was decorated with rainbow flags (many thanks to Christina Surdhar for organising this) and Leonie Jones of the Chemistry Equality and Diversity Group (EDG) produced a set of York Chemistry Pride Stickers for people to show their support for LGBT+ equality. We also had a collection box for donations to the local York Pride charity.



We felt these activities fit in nicely with this year's Pride theme of "Flag it up" which has dual meaning, both in raising awareness by showing visible support for the LGBT+, but also to encourage people to challenge inappropriate behaviour by 'flagging up' any discrimination they witness or encounter.

The Department has an LGBT+ page as part of the external E&D webpages with useful links, including a link to our guide on the use of Personal Gender Pronouns. These pages are being updated, so if you have any suggestions for information you would like to see included, please email leonie.jones@york.ac.uk.

-Dr Leonie Jones, Employability and Diversity Officer

Dr Glenn Hurst Does Consultancy Work in Social Media in HE and an Invited Talk

On Tuesday 22 May, Glenn was invited to go to London in order to do some consultancy work for Understanding ModernGov through facilitating a training session on 'Transforming Digital Learning in Higher Education'. The session was led by Simon Thomson, Head of Digital Pedagogy at Leeds Beckett University who gave a thought-provoking lecture on eliciting change in e-learning practices within higher education. While in London, Glenn also met up with colleagues in Kings College London to discuss statistically evaluating the efficacy of chemistry education initiatives.

On the return train, Glenn was fortunate enough to be sitting next to a previous colleague in Newcastle University where they discussed education, research and diversity. It's a shame the train journey was only for 3 hours!

On the following day Glenn was giving an invited talk in York at the SCHOMS Conference, organised locally by Philip Stewart, Audio Visual Team Leader. The event attracted more than 70 delegates (including attendees from Malta, Australia, New Zealand and Hong Kong) and was a fantastic opportunity to learn from staff working as part of e-learning teams, audio visual teams and within learning space management. Glenn was presented with a lovely gift from York Cocoa House to make the event even sweeter.

The Roger J Mawby Chemistry Demonstrator Awards

The winners with Richard Douthwaite and Gill Mawby - L to R is Tabitha Petchey, Sam Griggs, Dr Richard Douthwaite, Eleanor Morris, Gill Mawby, Lizzie Wheeldon, Adam Hughes

This year, the name Chemistry Outstanding Demonstrator of the Year awards was changed to reflect a generous bequest made in memory of Roger Mawby, one of the founding academic staff members of the Department of Chemistry.

Roger was an inspirational teacher. He gave detailed and engaging lectures, frequently using chemical demonstrations to illustrate important concepts in transition metal chemistry and catalysis. In addition, he gave stimulating and challenging tutorials that allowed students to develop and build their understanding of chemistry.

The Roger J Mawby Demonstrating Prize will be awarded to 5-6 students annually at a value of £100 per prize, to reflect Roger's interest in research and teaching.

To celebrate the end of term and, more importantly, to acknowledge the huge contribution that GTAs make to the smooth running of the undergraduate teaching labs, a drinks reception was held for all GTAs, course organisers and teaching labs staff on 26 June. We were delighted that Mrs Gill Mawby was able to attend the event.

All GTAs make a valuable contribution, but there are also those that go above and beyond the requirements of the role, and the Demonstrator of the Year Awards seek to acknowledge this. Nominations and comments were sought from undergraduates via the Staff-Student Committee

reps, Practical and Maths Course Organisers, and David Pugh for laboratory-based demonstrators.

The winners were identified by the selection panel.

Congratulations to the winners of the 2018 Roger J Mawby Demonstrating Prize:

Sam Griggs, Adam Hughes, Eleanor Morris, Tom Downes, Tabitha Petchey and Lizzie Wheeldon.

Awards were presented by Richard Douthwaite, Chair of the awards panel.

Richard thanked all of our GTAs, course organisers and teaching labs staff for their valuable contributions throughout the year. Thanks also to Abby Mortimer who once again designed and made the awards.

Simon Duckett shared his memories of Roger Mawby from his undergraduate and PhD studies at York and Gill Mawby talked about Rogers's time in the department and very happy memories of York.

Richard presented Gill with a glass award and a copy of the *50 years of Chemistry at York* book.

2018 Chemistry Graduate Research Seminar

The 2018 Chemistry Graduate Research Seminar will take place on Wednesday, 4 July at 1pm in B101.

This is a student-led event, with a graduate research student from each year group presenting their work, offering opportunities for integration and networking across the Department.

The following Chemistry PhD students will each give a 15 minute talk about their research:

1pm - Introduction from chair, Rachel Steen

Aiden Heeley-Hill (Ally Lewis) – Take a Breath: An Assessment of Indoor Air Quality

Kirsten Hawkins (Paul Clarke / Dave Smith) – Catalytic Supramolecular Gels with a Prebiotic Nature

Tom Stephens (Will Unsworth / Martin Fascione / Peter O'Brien) – Iterative Synthesis of Macrocycles via a Successive Ring Expansion Strategy

Eduardo Melo (James Clark / Avtar Matharu) – Microfibrillated Cellulose from Citrus Peel Waste: A Sustainable Biorefinery Approach

Please come along to find out more about the research in the Department and to ask questions.

Scientists from York Involved in World Clean Air Day

Scientists from the University of York have been involved in teaching children the importance of air quality as part of World Clean Air Day.

More than a dozen air quality workshops and assemblies have been held across the city's schools involving scientists from the University of York. The initiative coincided with the city's Walk to School Week, which involved more than 6,000 children.

Science in action: Dr Ruth Purvis and Year 5 pupils

Emissions

Bus, taxi, lorry and car drivers have been encouraged to switch off their engines while stationary across the city, and York Hospital will also work with its staff to reduce emissions from its vehicle fleet.

Community groups, including Clean Air York, have been sharing the clean air message and closed traffic to Bishopthorpe Road for a day.

Air pollution has been linked to asthma, lung cancer, heart attacks and strokes.

Teaching

Dr Ruth Purvis, from the National Centre for Atmospheric Science based at the University of York, said: "Breathing is not optional, it's essential. It is important that we try and make sure our air quality is the best it can be.

"Air pollutants are all around us but much of it comes from our activities such as driving and burning wood.

"Through practical workshops and assemblies, we are teaching children the importance of air quality so they and their families can then make choices to reduce their pollution.

"It is essential for children to see that science is all around them and not just in a sterile laboratory and that it is fun and interesting!"

Cllr Andrew Waller, executive member for the environment at City of York Council, added: "Our sustained work on combating air pollution has resulted in a trend of air quality improving over recent years. However, we recognise that we can do more.

"This is why we are backing Clean Air Day ahead of a new consultation on clean air zones in the city."

Year 2 Students Take Part in RB Mock Assessment Centre

In week 10, 60 Year 2 undergraduates took part in a 'Mock Assessment Centre' workshop run by consumer goods company RB (Reckitt Benckiser) based in Hull, one of our top employers.

The workshop was organised by Employability and Diversity Officer, Leonie Jones and Sophie Clark (ex York) from the RB Attraction team. We were very lucky to have a number of Chemistry alumni from RB (Zoe Fitch, Daniel Waddington, Phil Burke and one of our current Year-in-Industry students, Thomas Stokes) come to run the sessions which made the sessions particularly relevant for our students.

(L) Phil Burke, Zoe Fitch, Leonie Jones, Daniel Waddington and year in industry student Thomas Stokes.
(R) Undergraduates taking part in group activity.

The optional sessions were arranged as part of a series of interview preparation activities designed to help our undergraduates prepare for both placement year interviews and graduate schemes which both increasingly use assessment centres as part of the recruitment process. The workshop was an opportunity to experience an assessment centre in a safe environment, getting involved in the types of activities candidates might be faced with including a group activities and flash presentations. Attendees were given feedback on their performance after each activity and were pleased to find their confidence and performance improved as they developed a variety of skills. Everyone (100%) who provided feedback following the workshop agreed that it was helpful:

"This has helped to make me feel more prepared and more confident for future assessment centres"

"Very useful – good for developing speaking and group skills.
Feel like I am much better prepared for this kind of thing in future"

The workshops have been a really popular and we are keen to make this an annual event, particularly as the timing of a mock assessment workshop works well with students applying for placements the following term. The workshop also raised students awareness of RB as a potential employer, with 28% of attendees having considered applying to RB before the workshop and 100% saying they would consider applying to the RB year in industry, graduate scheme or directly apply for jobs after the session.

"The people who ran this workshop were very good and supportive.
Definitely wouldn't mind working with these guys"

Many thanks to all those from RB for their time and enthusiasm — Leonie Jones.

ReSolve Project at the 11th International Conference on Bio-based Materials

Dr Thomas Farmer was recently invited to speak about his work at the 11th International Conference on Bio-based Materials in Cologne, Germany. Dr Farmer's talk, as part of the 2 day event attended by 250 representatives from research organisations and industry, was focussed on the tools and techniques for bio-based solvent substitution as demonstrated by project ReSolve. His talk looked in greater detail at two leading candidates (2,2,5,5-tetramethyloxolane and Cyrene) currently under further investigation and scale-up. The talk finished with a description of how the solvent selection techniques, developed for the lead candidates, are being further extended to seek other safer alternative solvents for the future. Further information about the ReSolve project, is available from the website: www.resolve-bbi.eu.

The project has received funding from the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No 745450.

Horizon 2020
European Union Funding
for Research & Innovation

BIO-BASED INDUSTRIES
Public-Private Partnership

Bio-based Industries
Consortium

New Arrival

Dr Alice Fan (Green Chemistry PDRA) and husband Steve are delighted to announce the arrival of baby Rowan.

Rowan was born on 18 May, weighing 3.9kg. All are doing well.

"Analysing the Past: the Chemistry of a Bog Body" at Discovery Zone

Members of the analytical group and Annie Hodgson participated in the Festival of Ideas event Discovery Zone in York city centre on 1-2 of June. The stall showed what we can learn about a bog body through a series of puzzles and practical activities, engaging people in chemistry by showing its more unusual application to archaeology.

Team bog body posing with the stall: (left) Lucy, Sam, Kirsty, Martina, Marc and Kirsty; (right) Marina, Martina, Natta and Lucy. Not pictured: Scott, Annie.

The four activities included unravelling the possible origin / status /job of the body by hands-on microscopic analysis of seeds; estimating age at death by amino acid racemisation of aspartic acid in teeth; discovering what material the body was wearing by elemental analysis; and identifying the dyes used on the clothing by paper chromatography. The participants could record their answers on a "Bog body passport" to draw a unique profile of their own bog body.

Our activities, prepared with the help of the outreach grant from the Royal Society of Chemistry, were improved by some amazing puzzles designed and created by the chemistry workshops team. The centrepiece of our stall was a fibreglass model of a bog body, designed and created by freelance artist Dee Dickinson. With the help of simple games and puzzles, we had the opportunity to explain more complex chemistry concepts, techniques and the wide application of analytical chemistry to forensic, environmental, medicinal and archaeological issues.

The stall recorded hugely positive feedback with over 80% of our visitors loving the stall and giving top marks to our activities. The feedback also highlighted that activities were suitable for all age ranges, from primary school children to adults. The participants also told us that they learnt something interesting about chemistry, bog bodies and wanted to know more about science.

Continued on Page 14….

(Left) Scott explaining how we can discover the textile that the body was wearing with elemental analysis. (Right) Marina, Natta, Sam and Lucy engaging people to discover more about bog bodies.

Some of our feedback:

"I really liked it"

"Really enjoyed filling in the bog body passport"

"I think this was a good idea to do for young children to understand [something] about science"

"Good job"

Professor North in China

In May, Professor North spent ten days in China building links and giving lectures at three universities. After flying to Shanghai, a seven hour bullet train journey delivered him to the ancient Chinese capital city of Xian. Like York, Xian is a walled city, but in China everything is on a big scale, so the city walls form a square which is 2 miles on each side, the walls are 12 meters high and 12-14 meters wide at the top which enables a bus to take you round the top of the walls! Whilst in Xian, Professor North was hosted by Professor Yinjuan Bai who had previously spent the whole of 2016 as a Visiting Professor in the Green Chemistry Centre of Excellence (GCCE) at York. He gave research lectures at both Shaanxi Normal University and Northwest University.

After a free day to visit the terracotta warriors and a seven hour bullet train journey back to Shanghai, Professor North gave six lectures on green chemistry to penultimate year undergraduates

Professor North delivering his lecture at Shaanxi Normal University

at Shanghai Technical University. The green chemistry module was being delivered for the first time and had been put together in consultation with Professor North, a collaboration which grew out of his visit to Shanghai in 2017 to attend the international conference on CO_2 utilisation which was also held at Shanghai Technical University. Finally, Professor North took the world's only operational maglev train from Shanghai city to the airport, reaching speeds of over 300 km/h. The maglev journey took just 10 minutes which contrasts with the 45 minutes the journey would have taken by taxi.

Professor North with Professor Yinjuan Bai and three of her students in front of the Giant Wild Goose Pagoda in Xian which was built in AD 704. Although not apparent from this photograph, the pagoda leans to the west as a result of earthquake damage suffered in 1556 which also collapsed the top three floors of the original 10 storey building.

First McCOY Prizewinner

Many congratulations to Andrew Straiton, the winner of our Year 4 'MChem Communicator of the Year' (McCOY) prize. Andrew was awarded a stunning trophy, made by Abby Mortimer and Tim Ayers, for his article on 'Ionic Liquid Crystals: Selectivity from your Solvent'. The article was associated with our new open learning inorganic chemistry course, which gave students the opportunity to create a short news article (summarising published research conducted here in the Department to an A-level audience and promoting interest in the research area).

On receiving the award Andrew noted "I am delighted to be the winner of the inaugural McCOY prize and to be given such a cool trophy!".

RRB14 Conference in Ghent

On 30 May - 1 June, Professor James Clark and PhD Student Alisa Doroshenko from the GCCE attended the 14th International Conference on Renewable Resources and Biorefineries (RRB) in the great city of Ghent, Belgium. The conference welcomed around 350 international participants from over 30 countries.

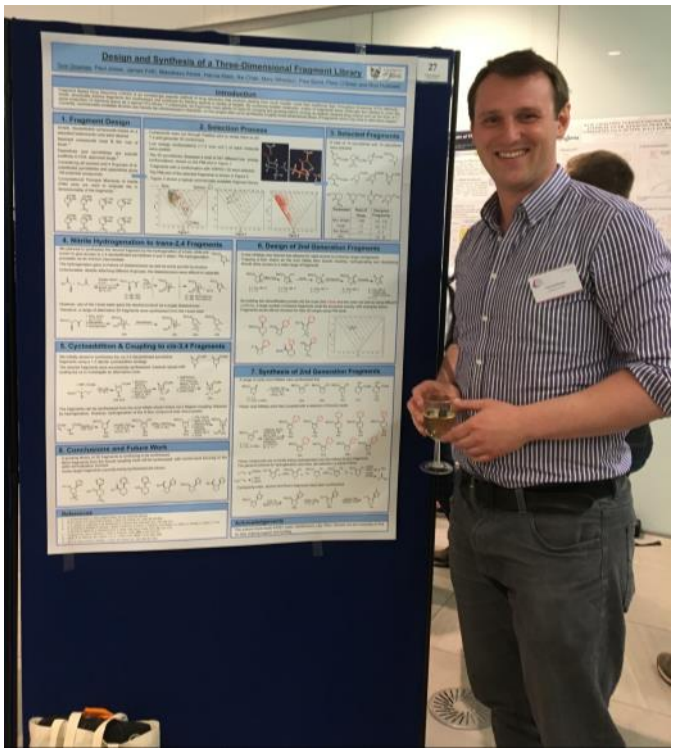
Delegates from academia, industry, governmental and non-governmental organisations and venture capital presented their views on industrial biotechnology, sustainable (green) chemistry and agricultural policy related to the use of renewable raw materials for non-food applications and energy supply. The conference also aims at providing an overview of the scientific, technical, economic, environmental and social issues of renewable resources and biorefineries in order to give an impetus to the biobased economy and to present new developments in this area.

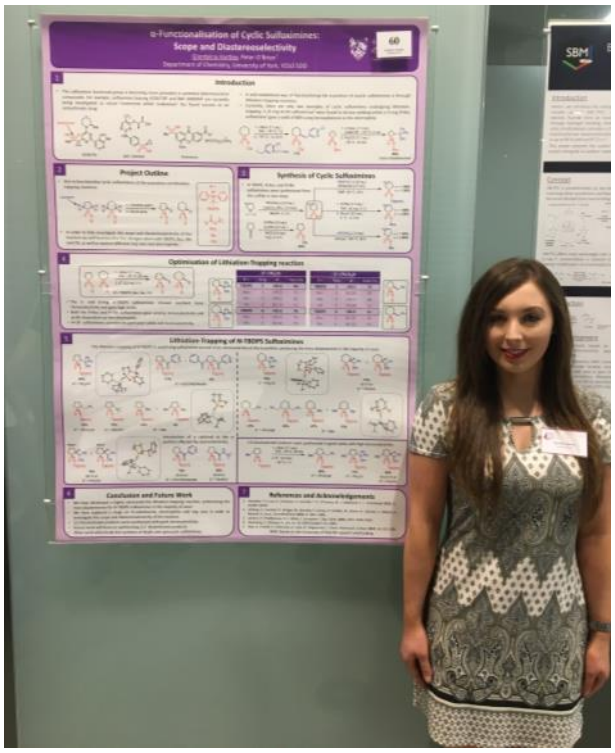
The number of experts attending from different areas was incredible. Among them were Professor James Clark (who is on the RRB Scientific Advisory Board and also chaired a session), Professor Mark Mascal (UC Davis), Professor Christian Stevens (UGent), Professor Klaus Kummerer (Leuphana University), and many others. They reported the latest updates, providing intensive discussion! This was a conference for people who are making a difference.

The next RRB conference will be held in Toulouse, France (3-5 June 2019).

O'Brien Group News

Two members of the O'Brien group, Giordaina Hartley and Tom Downes (pictured below), attended the Oxford Synthesis Summer Conference on 25-26 June. The meeting is a national forum for all synthetic chemistry graduate students and, over the two days, attendees listened to five of the most inspirational and influential minds in chemistry, telling the stories behind their world-leading research careers, and the journey to where they are today. Giordaina presented a poster on her MSc research entitled "a-Functionalisation of Cyclic Sulfoximines: Scope and Diastereoselectivity" and Tom gave a poster on the 3-D Fragments projects in the group. Tom also gave a well-received flash presentation entitled "Design and Synthesis of a 3-D Fragment Library".





Invitation to Chemistry Google Working Group Meetings

A Chemistry Google Working Group (CGWG) supports staff in the Department of Chemistry to get the most out of Google applications such as Calendar, Doodle and Drive. The CGWG focuses on ways in which Google Apps may be used for collaborative office working and also networks with other Departments in the Faculty of Science to discuss best practice for sharing information in Google Apps.

Since it was formed in January 2017, the CGWG have created a number of 'How do I…?' documents on the use of Google Apps and Doodle and these have been published in Chemistry Update and on the staff intranet.

If any staff members are interested in attending a monthly CGWG meeting or would like to share an idea for using Google Apps in the Department, then please email sophie.palmer@york.ac.uk.

Report from 6th Annual G2C2 Workshop and Symposium

by Roxana Milescu, GCCE

This year's **G2C2 Workshop and Symposium** was held on 28 – 29 May 2018 in Ghent, Belgium and preceded the 14th Renewable Resources and Biorefineries conference in Ghent (30 May – 1 June).

Belgium, a world champion of chemicals and plastics (as well as wonderful beer and chocolates!), is building a future of sustainable chemistry and the Belgian clusters, which include many of the major European players (Procter & Gamble, Solvay, BASF and Bayer) generate smarter operations throughout the value chain: maximization of synergies (energy, services, utilities), skilled workforce and focus on sustainable chemistry. Belgium is very proud of its world renowned scientists: Ernest Solvay, Leo Baekeland, Lieven Gevaert and Nobel prize Biologist, Christian de Duve. Ghent is a vibrating city, impossible not to fall in love with, which offers a fascinating cultural cocktail brimming with trendy, modern urban life. UGent is one of the leading universities in the world with a global reputation that attracts talented students and teachers.

The symposium was preceded by welcome drinks in a typical old fashioned Ghent Pub " 't Gouden Mandeke" where the hosts Christian Stevens, Nathan De Geyter and Ans Van Nieuwenhuyse welcomed their guests and introduced them to the local beer.

The first day of the symposium was held in the UFO building of Ghent University, where Professor James Clark, GCCE, University of York and Professor Christian Stevens, Ghent University welcomed the guests and opened the G2C2 meeting. Prof. Dr. Vania Zuin from UFSCar, Brazil expressed her interests in developing green analytical methodologies, dissemination of Green Chemistry educational material for Higher Education and pointed out the project between UFSCar and the University of York in valorisation of orange waste. Chris Stevens presented his SynBioC group's research on renewable resources and microflow technology focused on photochemistry and electrochemistry and Dr Felipe Cerino Cordova from Mexico presented his research groups in simultaneous optimisation of technical and environmental parameters for activated carbon production. Alisa Doroshenko, PhD student at the University of York, described the activity of the GCCE in sustainable chemical research through its technology platforms and the high quality education and training programmes together with strategic partnerships with corporations and world-leading universities. The guest lecturer Pieter Van Der Weeen, R&D manager at Oleon, Belgium introduced us to his work in polysorbates used as surfactants and the need to find greener and safer alternatives, and Professor Magda Titirici from London, UK spoke about environmental effects when developing new energy sources and technologies. Professor Gadi Rothenberg,

University of Amsterdam, Netherlands spoke of closing circular economy loops using green chemistry, and Professor Changwei Hu, Sichuan University, China, pointed to the importance of utilization of raw lignocellulosic biomass material to its fullest. Dr Talou Thiery, Toulouse INP, France, presented the work on the eco-fractionation of biomass, agromaterials and second generation production of ethanol. The first day of the symposium ended with a guided tour of **Castle of Counts (The Gravensteen)** followed by dinner and speech by Frank Beckx, Managing Director of the Federation of Chemistry and Life Sciences Industries in Flanders, who talked about his determination to make a large contribution to a better and more sustainable future.

The second day of the symposium was held at the Faculty of Bioscience Engineering, where Professor Shicheng Zhang and Professor François Jérôme, University of Poitiers, France, talked about their interest in biofuel, biochemical and bio-based materials production from biomass wastes using different methods. Professor Klaus Kummerer, Leuphana University of Luneberg, Germany spoke about methods and technologies to integrate the ecological, economical and social needs of a society for sustainable development and Dr Anwar Jardine from South Africa presented his work on natural marine polymers, such as chitin and alginates, and their valorisation in the context of the biorefinery, whereby waste is converted into useful products. The **2017 YRA winner, Dr Robin J. White**, Fraunhofer Institute, Germany, presented his research on the so called ''Power-to-Liquid'' technology, which is based on the storage of intermittent renewable energy in chemical bonds in the form of gases or liquids. **Green chemistry in education** was a hot topic. James Clark argued that the next step in green chemistry education is to incorporate it throughout the curriculum, preparing students to see how all chemistry teaching can be influenced by green chemistry thinking, rather than through optional modules, Masters courses, occasional lectures and the help of industry. Networks of green chemists are also necessary to speed up chemistry's movement towards sustainability and build bridges between nations and across the industry / academia divide.

The second day of the symposium **ended with a visit to Bio Base Europe (BBE)**, the first open innovation and education centre for the bio-based economy in Europe and with a special issue for the members.

Professor James Clark, Professor Chris Stevens (Belgium) and Dr Felipe Cerino Cordova (Mexico) were interviewed about the conference on Belgian news (photos above).

Department 3rd in the UK in GUG 2019

Chemistry holds its place in the top three UK Guardian University ranking.

The Guardian University Guide 2019

This week the Department confirmed its place among the UK's most highly regarded departments for the subject of Chemistry. The Department is ranked 3rd in the UK in the Guardian University guide 2019.

Published annually, the Guardian's University Guide ranks 121 UK universities by undergraduate degree subjects according to satisfaction with course, teaching and feedback; student to staff ratio spend per student; entry tariff; career after six months of leaving the course; degree results compared to entry qualifications; and continuation of first year students.

The rankings are based on official data collected by the Higher Education Statistics Agency (HESA) and the National Student Survey, published by HEFCE.

The subjects of Biology (6), Law (5), Politics (7) and Social Policy (10) at York also remain in the UK top 10.

ACHEMA "Sustainability - Renew, Resource and Rethink"

Former visiting student Katherine Uebele organised a very successful event "Sustainability - Renew, Resource and Rethink" as part of the major chemical fair ACHEMA in Frankfurt earlier this month. Professor James Clark joined four other international speakers at the event, including the head of sustainability at BASF and the Chemicals Management Manager at the United Nations. The research of some of the Green Chemistry Centre of Excellence (GCCE) graduates also featured in an associated poster session organised by the European Young Chemists network and the JungChemikerForum of the German Chemical Society.

New Starters

Lukasz Sobala, PDRA, working with Prof Gideon Davies, YSBL
Room: B/K/266; Ext: 8276; Email: lukasz.sobala@york.ac.uk

Dr Nicholas McGregor, PDRA, working with Prof Gideon Davies, YSBL
Room: B/K/151; Ext: 8278; Email: nicholas.mcgregor@york.ac.uk

Dr Lianne Willems, Lecturer in Glycoscience, working with Prof Duncan Bruce
Room: C/B/026; Ext: 1293; Email: lianne.willems@york.ac.uk

Dr Zachary Armstrong, PDRA, working with Gideon Davies, YSBL
Room: B/K/266; Ext: 8276; Email: zach.armstrong@york.ac.uk

Chemistry PhD Student wins YUSU "GTA of the Year"

Congratulations to Mark Dowsett who has won the "Graduate Teaching Assistant of the Year" award in the 2018 York University Student Union (YUSU) Excellence Awards.

The award was announced at the YUSU "Showcasing Excellence" event on 8 June, and was presented to second-year PhD student Mark by YUSU Chemistry course rep, Alvaro Lopez-Acosta.

The students who nominated Mark for the award wrote: "*Mark manages to strike this perfect balance between being approachable, professional and informative when he is acting as a lab demonstrator*."

Mark said "*I am very pleased to have won this award and have enjoyed following one particular group of year 2 students this academic year. It was a further pleasure to have the award presented by Alvaro, who is one of the students I have taught this year*."

In considering nominees for the GTA of the Year award, judges look for "*Graduate Teaching Assistants who deliver quality, enthusiastic teaching that brings a fresh perspective to module content… these nominees are knowledgeable, reliable and always give constructive advice to students.*"

In addition to Mark Dowsett winning GTA of the Year, Dr Seishi Shimizu from the Department of Chemistry was nominated for the 'Most Inspiring' staff member award, in recognition of his contributions to teaching Biochemistry students.

The YUSU Excellence Awards allow students to celebrate the work of staff across the University of York who have a positive impact on their academic experience. The Awards are entirely student-led, and recognise the teachers and staff who are making an outstanding contribution to students' lives.