Welcome to another edition of Chemistry focus, our newsletter for postgraduate researchers. The Department of Chemistry continues to enjoy research success in a range of areas with staff and students being recognised for their achievements and many prizes being won for both research and teaching. This newsletter aims to celebrate those successes and offers a glimpse at some of those success stories.

Highlights of 2014 REF results
York Chemistry is 7th in REF Research Power table of all UK Chemistry Departments

- York Chemistry has 24% of its research outputs rated world-leading (4*); 10th highest in UK
- York Chemistry has 94% of its research outputs rated of international quality (4* and 3*)
- York Chemistry has 100% of its research impact rated of international quality (4* and 3*)
- York Chemistry has 100% of its research environment rated of international quality (4* and 3*)
- York Chemistry returned over 49 staff (47 full time equivalents; 91% of our eligible staff).

Department retains Athena SWAN Gold award
The Department of Chemistry had its Athena SWAN Gold award renewed for a further three years. The Athena SWAN awards recognise commitment to tackling gender inequality in higher education, celebrating good practice in recruiting, retaining and supporting the careers of women in Science, Engineering and Technology (SET). The Department was the first in the UK to obtain the Gold award in 2007, before achieving a renewal in 2010. A second renewal marks eight years of award retention – the only department in the country to stay this long at Gold level. The Award is recognition of the ongoing efforts made by the department to ensure that principles of equality and fairness extend to all staff and students.

In 2014, the Chemistry Department launched its innovative Doctoral Training in Chemistry (iDTC) programme which offers a cohort-based experience to all new postgraduate research students, strengthens collaborative links between research groups, and offers enhanced opportunities to develop key communication and employability skills. Core chemistry research and transferable skills are gained through the delivery of bespoke training sessions and departmental events.

All research students since then, not already on a specific training scheme, have been part of the iDTC and benefitted from the training opportunities provided. Our first cohort of students will be entering their final year in the autumn, and the programme continues to be reviewed and enhanced to provide the best level of training and opportunities to our students.

The Department is also involved in other DTP schemes including the BBSRC White Rose Doctoral Training Partnership with Leeds and Sheffield. DTP students at York study in the Departments of Biology and Chemistry, building on long-standing collaboration between the two departments.

We also have PhD students at York who are part of the NERC SPHERES DTP in environmental research, a Leeds York partnership including projects on the science of the Earth’s atmosphere, biosphere and geosphere.
Success for Chemists

Ryan Gorman won a bronze medal at the SET for Britain Poster Competition at Westminster: (l-r Professor Helen Fielding (Royal Society of Chemistry), Ryan Gorman (University of York), James Perham-Marchant (award sponsors, John Wiley and Sons), Stephen Benn (Parliamentary & Scientific Committee), Andrew Miller MP (Chair, Parliamentary & Scientific Committee). (1)

Mary Wheldon won best poster prize at Fragments 2015 – 5th RSC-BMCS fragment-based drug discovery meeting. (2)

York scooped all three poster prizes at the North-Eastern RSC Organic Division Meeting with success for Mary Wheldon, Adam Islip and Matthew Lloyd.

Mark Sims won Best Talk Prize for a young scientist at the Annual Conference of the British Liquid Crystal Society.

The RSC Northern Regional Dalton Meeting was a success for George Platt who won best talk, and Barbara Procacci who won best poster. (3)

Katie Lamb won the poster award at 13th International Conference on Carbon Dioxide Utilization (ICCDU) held in Singapore (Katie receiving her prize from Professor Chunshan Song and Professor Michele Aresta). (4)

Dr Cinthia Mena-Duran has been recognised as one of the 175 Faces of Chemistry by the Royal Society of Chemistry. Cinthia, from Mexico, studied for her PhD at York in the Green Chemistry Centre of Excellence.

Sarah Chambers was invited to present her research at Burlington House in London. Sarah was one of 35 final year organic chemistry PhD students from universities across the country selected by the RSC to take part in the RSC Organic Division Poster Symposium (pictured with supervisor Richard Taylor). (5)

Thomas Sanderson attended the 14th International Conference on the Chemistry of Antibiotics and other Bioactive Compounds and won the Best Poster Prize. (6)

Giulia Paggiola attended the Brazilian Green Chemistry School Meeting in Campinas, São Paulo where she was one of the winners of the poster competition.

At the RSC Spectroscopy & Dynamics Group (SDG) meeting Conor Rankine won the poster prize, and João Pedro Nunes won a prize for his oral presentation. (7)

Daniel Cornwell won a University of York award in the PhD Research Spotlight competition at the York Talks Event. Daniel’s poster won Best in Science Faculty. (8)

Dr Kirsty Penkman is part of a team, led by the University of St Andrews, which has been awarded a research project grant of £169,406 from the Leverhulme Trust to investigate the control of coral biomineralisation.

Dr Alison Parkin is a partner in a £2 million project led by Professor Kylie Vincent of the University of Oxford, to develop a clever enzymatic approach to improve biocatalysis.

Staff in the Green Chemistry Centre of Excellence are part of a £4.4 million project led by York alumnus Dr Chris Chuck at the University of Bath. The research aims to significantly enhance industrial production of high value chemicals using the combination of York microwave technology with Bath’s novel yeast grown on sustainably-sourced waste feedstocks thus replacing currently used palm oil.

Dr Andy Hunt and Dr Duncan Macquarrie have been awarded £12,000 from the Royal Society Newton Mobility Fund for a project called Green Production of bio-derived materials from waste for water purification in Thailand.

Dr Duncan Macquarrie and Dr Vitaly Budarin have been awarded £838,763 by the EU for a project called Porous4App.

Academics in Chemistry’s Wolfson Atmospheric Chemistry Laboratories (WACL) led by Prof Ally Lewis were awarded 2 grants totalling over £900,000 from NERC, MRC and The Newton Fund to carry out research into air pollution in Beijing, £670,000 to investigate regional scale influences on Delhi air pollution, £670,000 for an extension to WACL and £119,000 for a Global Methane project.

Dr AndrewRickard and Professor Mat Evans secured £850k of NERC funding for the MAGNIFY project – Mechanisms for Atmospheric chemistry: Generation, Interpretation and Fidelity.

EU granted 3.9 M Euro to Professor Rod Hubbard and colleagues from academia and SMEs from around Europe and the UK. The funding enables the consortium to establish the Marie Skłodowska-Curie Innovative Training Network (ITN) FRAGNET of 15 PhD students.

Professor John Goodby FRS and Drs John Moore, Stephen Cowling and Isabel Saez were awarded £878,071 for a 3-year EPSRC-funded project entitled Nanoscale Engineering of Dyes for Liquid Crystal Device Applications.
Prof Simon Duckett and Dr Meghan Halse in collaboration with Dr Alison Nordon (University of Strathclyde) were awarded £779k by the EPSRC for a three year project on low field NMR.

£425,052 was awarded for a project entitled Catalytic Asymmetric Dearomatic Spirocyclisations to apply novel chemistry developed by Richard Taylor and Will Unsworth.

Funding for two new state of the art high resolution mass spectrometers has been awarded to teams led by Prof Jane Thomas Oates and Dr Jacqui Hamilton complementing the existing facilities in the department.

Dr Martin Fascione was awarded £81,209 for automated synthesis of beta-1,3-glucans for targeting antigen processing from BBRC ICBAR NIBB and £390,736 for Chemo-enzymatic Production of Specialty Glycans from the BBSC Industrial Biotechnology Catalyst (Translation).

Dr William Unsworth has been awarded a Leverhulme Trust for research fellowship, Dr Sarah Moller has been awarded a NERC Knowledge Exchange Fellowship, Dr Liz Dickinson has been awarded a Daphne Jackson Trust fellowship to work with Dr Julie Wilson and Dr Clare Mahon has been awarded a Marie Sklodowska-Curie fellowship to work with Prof Dave Smith.

Dr John Darby, Prof Rod Hubbard, Prof Gideon Davies and Prof Peter O’Brien were awarded £725,567 by the BBSRC for a project called Fragment-based activation and modification of industrial enzymes.

Prof Fred Antson was awarded over £350,000 for a bilateral NSF/BIO-BBSRC funded project, Engineering Tunable Portal Hybrid Nanopores for High-Resolution Sequence Mapping.

Dr Caroline Dessent was awarded £63,218 by the ACS Petroleum Research Fund for a project called Electronic laser photodissociation spectroscopy of gas-phase metalloporphyrins and metalloporphyrin-aromatic molecule complexes: investigating the evolution of the soret band of petroporphyrins.

Prof Marek Brzozowski and Dr Tim Ganderton, BBSCC, £79,267, Hijacking intracellular storgae bodies to create a novel mammalian cell-based expression system for the production of hard to express proteins.

### Kathleen Mary Stott (KMS) Prize Winners

The annual KMS Prize Competition demonstrated once again the wide variety of high quality research taking place amongst our postgraduate students. In addition to the Winners’ Seminar, a poster session was held for our second year PhD students. The whole event was well attend by both staff and students. Congratulations to the three winners who delivered excellent talks on their research: Joshua Bray, Rationalising Pd-catalyst design for efficient arlycyanations; Lucy Milner, Understanding the mechanism of ruthenium-mediated C-F bond formation reactions; and Julia Sarju, C-C Bond Activation: Platinum Catalysed Decarbonylation of Unstrained Ketones: (l-r Lucy, Joshua, Julia) (9). The poster prize, selected by those attending, was awarded to Aimee Clarke for her work entitled The synthesis of spirocyclic scaffolds using silica-supported silver catalysis. (10)

### New sponsors for our PhD Poster Competition

Our annual poster competition for third year PhD students has been kindly sponsored by Bruker since 2012 with 127 students participating in the competition over that time, and 14 students winning prizes. 2015 was the final year of Bruker’s sponsorship of the event and once again the competition was a great success with three winners being chosen, followed by a seminar by guest speaker Professor Ian Wilson from Imperial College London. Congratulations to the 2015 winners: l-r Alan Reay, Kirsty Skeene and Joshua Bray. (11)

In 2016, we were very pleased to announce Johnson Matthey as new sponsors of the poster competition and in March we were delighted to welcome back alumnus Dr Martin Partridge, R&D Director at Johnson Matthey, Martin, who completed his PhD at York, was our guest speaker at the event which was very well attended by staff and students. Each of the research posters were scored by a panel of judges who looked at presentation, scientific content, and student discussion. The judging panel consisted of academic staff and PDRAs who chose our winners. Congratulations to the 2016 winners: l-r Hope Adamson, Adam Islip, Amy Riddlesden, Michael James. (12)
Academic Prizewinners
(pictured top-to-bottom)

**Professor John Goodby FRS** awarded an Honorary Doctorate of the Institut National des Sciences Appliquées (INSA), Lyon, France. John was also awarded the 2016 Freedericksz Medal of the Russian Liquid Crystal Society for his “outstanding research in the field of chemistry of liquid crystals”.

**Professor Gideon Davies FRS** has been awarded the 2015 Davy Medal of the Royal Society for his work on the reaction chemistry of enzymes that modify carbohydrates (sugars).

**Professor Lucy Carpenter** receives the 2015 Royal Society Rosalind Franklin Award in recognition of her work in atmospheric chemistry.

**Professor Robin Perutz FRS** receives an Award for Service to the RSC in recognition of his “outstanding and valuable service to the Dalton Division”. Robin has also been named as a Fellow of the American Association for the Advancement of Science (AAAS).

**Professor Tony Wilkinson** of the York Structural Biology Laboratory (YSBL) has been awarded the International Prize of the Slovak Academy of Sciences in recognition of his “outstanding work in the field of natural sciences”.

**Professor Sir John Holman** was presented with the Kavli Education Award and gave the Kavli Education lecture on ‘The big unanswered questions in science education’ to an audience of scientists and education research specialists.

**Professor Jane Clarke**, York Biochemistry Alumna, is made a Fellow of the Royal Society.

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### Postgraduate Awards

#### Chemistry Outstanding Demonstrators of the Year

Our Graduate Teaching Assistants provide invaluable support to undergraduate students when demonstrating in the laboratories. To acknowledge the Departments’ appreciation of all our GTAs, a drinks reception was held to thank everyone. Additionally a few demonstrators received a special commendation for their efforts and were awarded prizes for the Chemistry Outstanding Demonstrators of the Year (CODY). Nominations and comments were sought from undergraduates via the Staff-Student Committee reps, Practical and Maths Course Organisers, and the Laboratory Manager. Congratulations to the winners: **l-r Dr Richard Douthwaite (Chair), Lucy Milner, Ryan Gorman, Jessica Milani, Tom Ronson, Lyndsay Ledingham** and (inset) **Helen Robinson**.

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#### Student Union Excellence in Teaching and Supervision Awards

These awards are led by students in partnership with the University, meaning that students nominate, students decide who wins, with the help of staff, and together celebrate the exemplary work done by the amazing members of our University community. Four Chemists were award winners: PhD student, **Sindhu Suravarum** won Demonstrator of the Year for the second consecutive year (14); PhD students, **Jessica Milani** and **Adam Pinder** were Highly commended in the category for Demonstrator of the Year, and **Professor Ian Fairlamb** was Highly commended in the category for Research Supervisor of the Year: **l-r Adam, Jessica, Ian**. (15)