

Chemistry Newsletter

Spring 2019

Inside your Newsletter:

- 1 Introduction
Important dates
- 2 Early Career Support & New Website
- 2 WISSET+
- 3 Awards & Graduation
- 4 Celebrations & Congratulations
- 5 More Celebrations & Congratulations
- 6 Chemistry Building News: Past and Present
- 7 Staff 1 to 1:
Q&A with Sally Dady
PDRA/PhD Quiz
- 8 Chemistry UG contributions to research papers
Undergraduate/ChemSoc News
- 9 Science & Engineering Festival
Beyond Chemistry

Important Dates

University Open Days:

Sat 6th & Sun 7th July 2019Sat 7th & Sun 8th September 2019Sun 12th October 2019

Postgraduate Open Day:

Wed 22nd May 2019

Semester 2 exams:

Mon 20th May to Fri 7th June 2019

Chemistry Graduation:

Tuesday 23rd July 2019

Supplementary exams:

Mon 19th to Fri 30th Aug 2019

2019/2020 Academic Year:

Freshers Week Mon 23rd Sept 2019Autumn Term starts Mon 30th Sept 2019

2019

Welcome to our New Faculty



Chemistry colleagues celebrating Long Service Awards

In August 2018, as part of the University restructuring, Chemistry became a School within the newly formed Faculty of Engineering and Physical Sciences (FEPS), alongside Engineering, Electronics and Computer Science, Physics and Astronomy and the Zepler Institute for Photonics and Nanoelectronics, and led by the Dean, Professor Bashir M. Al-Hashimi.

Staff in Chemistry already have research collaborations across all four of the other Schools, but the new Faculty presents exciting new opportunities for new collaborative provision of both research and education activities involving Chemistry. One specific example is the establishment of Chemical Engineering, involving close working between Chemistry and Engineering. Planning for the undergraduate MEng programme is well underway and the MSc is already open for applications, with the first cohort of students starting in September this year.

Some recent highlights from the Faculty include major refurbishments in both Chemistry and Physics teaching laboratories, the Dean's awards for Early Career Excellence recognising exceptional contributions (closing date for nominations 31st May), and School and Faculty action plans to address the issues raised through the recent Staff Engagement Survey. More Faculty news can be found in the latest FEPS Spotlight newsletter.

Do you have an article you wish to contribute to a future edition? Please email Lynda Brown L.J.Brown@soton.ac.uk or Dawn Dunlop D.Dunlop@soton.ac.uk



2015 Silver Award Winners - Chemistry at Southampton

WiSET+ continued ...

There will also be a free, family-friendly workshop on "women in academia" at the John Hansard Gallery on Saturday 20th June, 12-4 pm.

Nominations for the annual WiSET+ awards are open and will close on Friday 17 May 2019. These awards reward and recognise exceptional contributions of individuals (students and academic, technical and managerial staff) across the university who have worked to raise the profile and participation of women either at the University of Southampton or in the community. They are awarded to those who have made an outstanding contribution to outreach or supporting women in academia, above and beyond the requirements of their formal role.

For further information and useful links to the above events, visit the WiSET+ website, <http://www.wiset.soton.ac.uk/>

Awards and Graduation

Congratulations to the following students who attended our Winter Graduation:

Mustafa Askar – BSc Chemistry

Eleni Georgiou – MSc Chemistry by Research

Bowen Liu – MSc Electrochemistry

Catherine Mannan - MSc Instrumental Analytical Chemistry

Alice Mintoff – MSc Chemistry by Research

Samuel Munday – MSc Chemistry by Research

Kate Prescott – MSc Chemistry by Research

Reece Sage - MSc Chemistry by Research

Esther Yawuck - MSc Instrumental Analytical Chemistry

Aysen Zerey - MSc Electrochemistry

Congratulations to the following students on their Awards:

Masters of Philosophy:

Aliki Moysiadi – *The relaxation of longitudinal and singlet nuclear spin order as a function of solvent viscosity*

Jieyuan Fan - *Extreme Ultraviolet Ptychography of Young Mouse Neuron*

PhD awards:

Jessica Gusthart - *An Investigation into an unusual glycan branching enzyme from Mycobacterium tuberculosis*

Sophia Rebecca Wheeler - *Physical properties of mixed membranes explored using atomistic and coarse grained molecular dynamic simulations with enhanced sampling techniques*

Hannah Louise Martin - *A novel high-speed AC impedance method for monitoring transient cavitation*

Thomas Homewood - *Using polyoxometalates to enhance the capacity of lithium oxygen batteries*

William Webb - *Design of heterogeneous catalysts for the utilisation of carbon dioxide and tandem reactions*

Hannah Bruce Macdonald - *The role of water in drug binding: Calculating positions and binding free energies of active site water molecules, and their influence on ligand binding*

Aqeel Hussein - *Oxidative cyclisation of 1,5-dienes by metal oxo agents synthetic and computational investigation*

Xiang Lyu - *Stereoselective total synthesis of lupin alkaloids*

Florian Modicom - *Active template synthesis of chiral interlocked molecules*

Noor Asidah Mohamed - *The evaluation of protein-ligand binding free energies using advanced potential energy function*

Beata Monfort - *Interactions between the [FeFe]-hydrogenase maturation enzymes from *Thermoanaerobacter italicus*.*

Ana Cristina Perdomo Marin - *Applications of microelectrodes and scanning electrochemical microscopy (SECM) to complex environmental interfaces*

Ahmed Allami - *Quantum mechanical simulation in magnetic resonance imaging*

Gert-Jan Hofman - *The Synthesis of fluorinated proline analogues*

Victor Lethuillier - *Preparation and characterisation of fluorescent mesoporous surfaces: towards the study of extracellular fluxes*

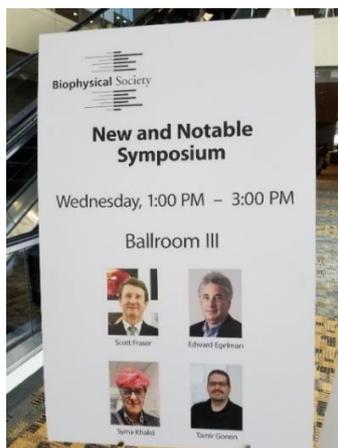
Andrew Ball - *Development of second generation cyclic peptide inhibitors of hypoxia inducible factors*

Joshua Whittam - *Syntheses and electrical properties of thin film transition metal oxides*

Rachel Wynn - *The synthesis of fluorinated bile acid analogues*

Celebrations and Congratulations

Congratulations to Prof Syma Khalid who was invited to speak at US Biophysical Society 63rd Annual Meeting; New and Notable Symposium.



Earlier this year Syma was one of four speakers at the US Biophysical society meeting selected to present 'new and notable' results. Syma commented "It was great to have a chance to talk about the hard work from the graduate students and postdocs in my group on molecular simulations of bacterial cell envelopes. Our atomistic simulations are the first reported to incorporate both membranes, membrane proteins and the cell wall of a Gram-negative bacterium, whereas our coarse grained simulations incorporate important biochemical details by considering multiple copy numbers of proteins. These simulation studies, at both levels of detail, represent key steps forward in linking molecular simulations with bacterial biophysics."

"One of the nicest aspects of the meeting, which was held in Baltimore in March 2019, was the chance for my current group to meet up with former group members and to see them all discuss their research plans so enthusiastically. Certainly the highlight of the year for me so far."



Congratulations to all our undergraduate project and placement students who took part in this year's poster presentations. The students put on an impressive display of exciting new research, well done to all the winners.



Undergraduate students alongside their research posters

Congratulations to Lee Steinberg who won this year's online "I'm a scientist get me out of here" competition. It is the UK's largest online science engagement event, where students get to meet and interact with scientists. It's an X-Factor-style competition between the scientists, where students are the judges. The students challenge the scientists over fast-paced online text-based live chat where they ask the scientists anything they want, and vote for their favourite scientist to win a prize of £500 to communicate their work with the public.



"I'm very happy to have won the 'Drug Discovery Zone' at the most recent I'm a Scientist competition. The opportunity to communicate with school children, and in particular demonstrate that there is no such thing as a 'typical scientist' was fantastic, and I recommend it to all post-graduate students and staff."

More Celebrations and Congratulations

The Faculty of Engineering & Physical Sciences 3Minute thesis final was held at the end of March. There were eight candidates in all, with two from Chemistry, David Wheatley and Gabriela Sitinova.

Both Chemistry talks were outstanding and Gabriela from the Whitby group won both the judges and people's choice first prize and David Wheatley from the Brown group came runnerUp. We wish Gabriela every success in the next stage in the competition at University level on 15th May.



Gabriela Sitinova and David Wheatley at the 3MT competition



Nikolay Zhelev

Congratulations to Nikolay Zhelev, Research Technician in the Electrochemistry Research Group for receiving his Membership of the Institute of Physics. Nikolay has now submitted his application for Chartered Physicist.

Congratulations to Ellen Jamieson who was recently awarded with the doctoral prize for her application entitled "Interlocked Molecules for MRI Imaging" Ellen will be working with Prof Steve Goldup, Prof Malcom Levitt and Dr Lynda Brown.

Many congratulations to Paul Duckmanton who has won the student nominated Academic Award 2019 for 'Best pastoral support' in the Faculty. These awards, run by the Students' Union, are completely student led. Paul was nominated for both 'Best Pastoral Support' and 'Most Engaging Lecturer'



"Paul is a real credit to the School of Chemistry; his provision of both academic and pastoral support is exceptional." (nominator comment)

Promotions

Congratulations to:

Dr Nuria Garcia-Araez – Associate Professor
Dr Russell Minns – Associate Professor
Dr Peter Wells – Associate Professor

New Babies!

Congratulations to Sam Thompson, wife Hannah and their daughter Olivia on the birth of their new baby boy, Freddy.



Congratulations to Peter Wells, partner Suzanne, and their two daughters Georgia and Isla on the birth of their new baby girl, Lois.



Chemistry Building News: Refurbishment Update

The refurbishment of Chemistry Building 29 commenced in earnest at the end of April with the arrival and set up of the site compound. Cabins and permanent hoarding have been installed, which clearly marks the compound area where Willmott Dixon and sub-contractors are based.

This last week has seen the start of the stripping of the laboratories on levels 4 and 5 ready for the major internal refurbishment work. A sample room has been set up in B27 Room 2051 where you are welcome to come and see what the refurbished labs will look like (see image below from video fly through), including the new fume hoods.

<https://www.southampton.ac.uk/chemistry/lab-refurb.page>



In addition to the labs, the stairwells are also being refurbished and the entrance to Chemistry is being updated. The new entrance for students and visitors will be along the side of the building into the downstairs atrium where an interactive lectern will help to guide visitors where to go. This will also act as a temporary reception desk for events such as Open Days. Another improvement is the replacement of the Level 3 bridge between B29 and B27, so this area will be closed for the duration of the works.

An additional new entrance is being built at the Hartley Road end of the building for access the new level 4 and 5 labs. At this entrance there will be provision of lockers for the students to use.

Whilst all the internal works are progressing, the entire building is to be enveloped in new cladding with new windows throughout. Scaffolding is currently being built and suspended cradles will be installed soon to enable the cladding work to commence. A sample of the cladding can be seen on the side of the building.

During the refurbishment, plans are in place with Willmott Dixon to ensure the building remains in use and all fire evacuation procedures remain in place, their staff will guide people through the complex if necessary. Additionally, deliveries are being maintained through stores, and they ask that they are made aware of large deliveries so that the contractors can clear access through the compound.

Progress updates will be distributed by email to Chemistry building users, and bi-monthly meetings will also be help to update users.

Chemistry Buildings of the past

As the University of Southampton marks 100 years since the Highfield Campus opened this year, here are some amazing photos from the Hartley Library, University of Southampton Special Collections, a chemistry lecture in the 1920s and the labs in the 1930's.



Q & A with Sally Dady



Sally, 1992

When did you start working in Chemistry?

I started working full-time in Chemistry in 1992 as secretary for Professor Geoffrey Luckhurst and his research team (located in 29:3013). I had previously been working for several local solicitors taking notes in court cases. This was followed by some time at Honeywell in Chilworth before joining the University. After a year, Geoffrey went on sabbatical, so Alasdair Douglas (Chemistry Administrator) asked me if I would like to work for him alongside Jo Kocienski, so I moved offices and stayed working with Alasdair until his retirement in 2010. I changed to part-time hours when I had my first daughter in 2001 and I now work alongside Dawn Dunlop in the Chemistry Support Office.

What is the best thing about working here?

The best part of the job is working alongside some great colleagues and also getting to know the students. The School of Chemistry has a great family-feel and I come into contact with all staff at some point.

What is the worst thing about working here?

I can't think of too many bad things about working here, but one of the worst things has been the frequent restructuring of the University and Faculty. This can lead to a lot of job uncertainty and you never know where you will end up working.

What do you do when you are not working?

Apart from spending time as an unpaid taxi driver for my two daughters, I am a leader of a local Rainbow Group and enjoy going to concerts and socialising.



Sally, 2019

Sally is the Wellbeing Champion for Chemistry, a role which works alongside the Health, Safety & Risk Directorate. Two of the main roles are to promote University health and wellbeing events and campaign via email and to provide a key point of contact for local health and wellbeing queries. If you have anything that you wish to discuss with me, please do not hesitate to get in contact (sjd1@soton.ac.uk)

PDRA/PhD Quiz



Early this year a team of PhD students came together to unite the research groups of Chemistry for MIND, the mental health charity. Together we hoped to raise money, awareness and build bridges for a cause that affects all of us at some point in our lives. We wrote and hosted our very own bespoke quiz night complete with pizza and bring your own beer. Overall, we had nearly 50 researchers put their noggins together to compete for our £50 cash prize. We were supported by the Equality, Diversity and Inclusion (EDI) committee. The ED&I team strives to remove barriers within Chemistry and the University, so that we have a fairer and more open workplace – so from us, a massive thank you!



Our quiz contained 8 rounds of common and not-so-common knowledge. From one hit wonders (Wheaties had more than one hit!) to innuendo bingo (kiwi's and peaches should not be firm!) our quiz masters (Alex and Billy) did an outstanding job and everyone left with a smile on their face. Congratulations to this year's winners, "Let's Get Down to Quizness", who took home £50 in prize money, while the "Sherlock Holmies" won best team name. We were warmed by the support shown to us by the whole of Chemistry from start to finish; all in all we were able to raise £139.48! To those who participated, donated money, or provided support, we (and MIND) are very grateful and hope to see you again next year!

Undergraduate/ChemSoc News

ChemSoc have been busy this term!

They have hosted several useful careers events, which always feature free pizza! At the 'Voices of Experience' event, students met alumni and heard about their career paths since leaving the University. Many students gained valuable insight from the current 4th years at our placement talk.



Socials this term have included a trip to Playzone, an indoor play area, a joint trip with Physoc and ECS. Another social event, 'ChemSoc does Karaoke', was a fun chance for chemists from all years to meet at the Stags and relax!

ChemSoc's sports teams have had a successful term. The STEM netball team are at the top of their league, winning 10 out of 12 games! Their highlights include 40-3 against PhilSoc and 37-7 against PsychoSoc.



The football team are on course to win their local 6-a-side league for semester two. This is following an intramural season which consisted of three impressive wins, where they had to come back from behind each time.



ChemSoc are currently planning a summer ball to take place after exams, to end the academic year with a bang!

Chemistry Publications

UG contributions to research papers

P. J. Blower; W. Levason; S. K. Luthra; G. McRobbie; F. M. Monzittu; **T. O. Mules**; G. Reid and **M. N. Subhan**, Exploring transition metal fluoride chelates – synthesis, properties and prospects towards potential PET probes. *Dalton Trans.*, 2019, advance article.
DOI: 10.1039/c8dt03696a

V. Greenacre; A. L. Hector; W. Levason; G. Reid; D. E. Smith and **L. Sutcliffe**, Complexes of $WOCl_4$ and $WSOCl_4$ with neutral N- and O- donor ligands: synthesis, spectroscopy and structures. *Polyhedron*, 2019, 162, 14.
DOI: 10.1016/j.poly.2019.01.044

B. Jeffries; Z. Wang; J. Graton; **S. D. Holland**; **T. Brind**; R. D. R. Greenwood; J. -Y. Le Questel; J. S. Scott; E. Chiarparin and B. Linclau, Reducing the lipophilicity of perfluoroalkyl groups by CF_2-F/CF_2-Me or CF_3/CH_3 Exchange, *J. Med. Chem.*, 2018, 61 (23), 10602.
DOI: 10.1021/acs.jmedchem.8b01222

L. Quiquempoix; Z. Wang, J; Graton, **P. G. Latchem**; M. Light; J.-Y. Le Questel and B. Linclau, A synthesis of 2,3,4-trideoxy-2,3,4-trifluoroglucose, *J. Org. Chem.*, 2019, 84 (9) 5899.
DOI: 10.1021/acs.joc.9b00310

S. G. Worswick; **J. A. Spencer**; G. Jeschke and Ilya Kuprov, Deep neural network processing of DEER data, *Science Advances*, 2018, 4 (8,) eaat 5218.
DOI: 10.1126/sciadv.aat5218

Hands-on Chemistry at the Science & Engineering Festival 2019

The University's annual Science and Engineering Festival took place on March 16th, with Chemistry making a significant contribution. Visitors were able to explore the chemistry of slime, the wonder of crystals and a new activity celebrating the International Year of the Periodic Table. Here is Martha who won the "best crystal garden" at one of the Chemistry displays.



The central attraction this year was a new 'Electrochemical Circus', coordinated by Dr Jo Corsi, combining a number of new and existing activities under one umbrella.



The Electrochemical Circus won the Wow Factor award at the festival!



Follow

What a lovely surprise! We won the Wow Factor award at #SOTSEF! Thanks @UoS_Engagement, we couldn't have done it without @UoSPrintCentre - looking forward to next year at @unisouthampton science and engineering day 🥰



Around 40 staff and students were involved in supporting the event, along with volunteers from the Royal Society of Chemistry Local Section. A number of the postgraduates involved took part in a new programme of Public Engagement training delivered through a collaboration between Chemistry and the Centre for Higher Education Practice, which also provided them with funding to create a new activity especially for the event.



Over 7000 visitors attended the event, matching that in 2017.



Beyond Chemistry

Dorcas does Countdown

Dorcas Brown Laboratory Manager at ATDBio (B30 Lab 5005) recently competed in the Channel 4 daily word and numbers quiz show, Countdown. Here she tells us about the experience



How you came to apply for it in the first place?

I have always enjoyed watching Countdown and competing with my husband from the safety of the sofa, and the family had been jokingly pressing me to apply for many years. After losing a bet with my daughter, I was finally coerced into e-

mailing the application in last autumn. I had a phone audition with the producer about two weeks later, and then went to the studio in Salford to film my episodes a few weeks after the phone audition.

How many programs did they shoot in one day?

They shoot five episodes per day, often with short 15 minute breaks in between - just enough time for a quick change of clothes.

How many games did you manage to win?

I won my first four games, before losing the fifth.



What did you think of the whole experience?

I had a lot of fun! It was quite nerve-wracking, and definitely much more difficult in the studio than when watching from home, but the crew, presenters and other contestants were so friendly and welcoming, which helped a lot. Having watched the program at home for years, it was very entertaining to see how it is filmed (in general, the set seemed a bit less hi-tech than you might expect, although it all looks very slick on the TV). If anyone else is considering applying to take part, I wholly recommend it; you will have a lot of fun!

You can watch Dorcas's winning streak on series 80 Episodes 17-21 at

<https://www.dailymotion.com/video/x72k7c2> and check out her scores at http://wiki.apterous.org/Dorcas_Brown

Ilya Kuprov - a shooting success

Chemistry conveys many indirect benefits, from knowing the right drug at the local chemist to knowing exactly what goes on inside a firearm.



Dr Ilya Kuprov, Associate Professor of Chemical Physics, took that knowledge to the Hampshire County shooting team who recently equalled the British National Record in smallbore rifle. Ilya has also competed in many individual competitions and his successes are numerous.



Ilya describes shooting as a sport that has many similarities to science and engineering. Ballistic calibration must be meticulously precise – the accuracy of a modern rifle is below 0.5 mil (a mil is one thousandth of the distance). Everything has an effect: the quantity and quality of the propellant, the shape of the bullet, the temperature of the barrel, wind and humidity, and at large distances even the rotation of the Earth. Very few people are able to shoot at the instrumental limit of the available hardware.