

Bradford ChemBio

What's been going on in our school for the past three months...



Welcome from your Head of School...

Welcome to our new edition of the newsletter, telling you everything that's been happening in the **School of Chemistry and Biosciences** over the last few months. It's been a very busy time, and we have some fantastic things to celebrate. First off, we are delighted that our school has been awarded the Athena SWAN Bronze award for our commitment to gender equality. This is the first school award in the University, and we are proud to be pioneering the way for the rest of the University. Thanks to **Dr Gisela Helfer** and her team for their tireless efforts in making this happen.

Last month, we were delighted to see that we have risen in the Guardian league tables and our Chemistry course is now within the top 20 in the UK. This reflects the hard work and dedication of our staff, and the quality of our students. You can read more about it on page 12. Speaking of staff, we extend a warm welcome to our new recruits to the School!

I was delighted to see that our publication record has increased dramatically over the last three months. The School has actually published as much this year so far, as we did in the whole of 2017 which is testament to hard work and high quality research that we perform at the interface between chemistry and biosciences.

Finally, as we go into the summer months I would like to remind everyone that student recruitment is a key target for 2018. All staff are working hard to contribute to Open Days and with clearing coming up I would like to encourage everyone to help out in whatever way they can to ensure we recruit the best students possible for the upcoming academic year.

I hope you all enjoy reading about what our staff and students have been doing, and please do continue to send in items for the newsletter – it's a great way to showcase our achievements at all levels.

Prof Stephen Rimmer



Athena SWAN Charter

We are delighted to announce that our School has received the Athena SWAN Bronze award. This is the first disciplinary Athena SWAN award within the University and recognises the commitment of our School to promote gender equality for both staff and students. The success rate for gaining an Athena SWAN award is very low (54%), especially for first submissions. Thus, this is a fantastic achievement, and I would like to thank the Athena SWAN Self-Assessment team for their hard work and dedication to make this possible.

We are committed to continuing our work in this area, embedding the ambitious activities outlined in the Athena SWAN action plan and we work hard to achieve our School's ambition for Silver Award within 2 years. This highlights an ongoing commitment of our School to tackle gender inequality, but is also important in eligibility for grant applications to external funders.

Gisela Helfer, Chair of Equality, Diversity and Opportunities Committee

About Athena SWAN

The Athena SWAN Charter celebrates success in advancing gender equality in higher education and research. It rigorously examines the steps taken by universities and their departments to improve representation, encourage progress and combat gender-based discrimination.

From May 2015 the Charter was expanded to recognise work undertaken in arts, humanities, social sciences, business and law as well as professional and support roles, and for trans staff and students.

The Charter now recognises work undertaken to address gender equality more broadly, and not just barriers to progression that affect women.

<http://internal.bradford.ac.uk/2018/05/10/congratulations-to-school-of-chemistry-and-biosciences-for-athena-swan-success/>

New Starters

A warm welcome to all
our new staff and
students...

Academics...

Dr Chris Sutton has moved from Pharmacy to our school, with the **Proteomics Facility** integrated into Analytical Centre. The move provides a wider remit and accessibility to proteomics for researchers throughout the Faculty and contract services.



Chris obtained his B.Sc. degree and Ph.D. in Biochemistry from University of Liverpool, with combined studies in the Department of Plant Molecular Biology, University of California, Berkeley. He became a Wellcome Foundation Postdoctoral Research Fellow at the London School of Hygiene and Tropical Medicine, investigating the mechanisms of pathogenicity of *Vibrio cholerae*. He joined the premier UK biotechnology company, Celltech Limited, as a Senior Scientist in Protein Biochemistry purifying novel proteins of therapeutic interest, and later promoted to Group Leader of Analytical Biochemistry. With the emergence of mass spectrometry for protein characterisation, he moved to Thermo and developed novel applications for matrix-assisted laser desorption mass spectrometry (MALDI MS) including pioneering work in proteomics. He joined Kratos Analytical as Product Manager with responsibility for the marketing and promotion, including co-ordinating the research activity of 25 application specialists developing novel MALDI MS applications. He was subsequently promoted to Business Manager with a staff of 50, doubling revenues during this time to 10 million USD per annum. Since August 2005, he joined the Institute of Cancer Therapeutics in the University of Bradford as Senior Lecturer in Proteomics Chemistry and Mass Spectrometry. The main focus of his academic research has been (1) identification of new proteins as candidate diagnostic biomarkers, (2) identification of proteins affected by the action of anticancer drugs and (3) verification of targets for anticancer drug development. He is on the management committee of the CliniMark EU COST Action and co-investigator on the YCR Cancer Medicines Discovery II Programme. He is also a Director of the British Society of Proteomic Research and will be hosting the Annual Scientific meeting from 9th to 11th July here in Bradford see www.bspr.org/event/bspr-meeting-2018 for further info.

The Proteomics Facility, which for logistical reasons will not move physical location, comprises sample preparation suite, nano-HPLC, Ultraflex II MALDI MS, Orbitrap Fusion MS and bioinformatics. If you would like to know more about proteomics, contact Chris on ext 6480 or by e-mail – c.w.sutton@bradford.ac.uk.

Weblinks

- <https://www.bradford.ac.uk/research/our-researchers/dr-chris-sutton.php>
- <https://www.bradford.ac.uk/life-sciences/pharmacy-medical-sciences/cancer-therapeutics/business/expertise/proteomics-research-services/>
- <https://www.linkedin.com/in/chris-sutton-33044832/>
- https://www.researchgate.net/profile/Chris_Sutton2
- ORCID Identifier, 0000-0002-1548-5093

Lecturers...

My name is **Dr Refaat Hamed**, and I am a Lecturer of Chemical Biology and Physical Organic Chemistry. My main research interests include: Biocatalysis, Biosynthesis, Biosensors, Synthetic Biology, High Value Pharmaceuticals and Enzymology.

I have always been fascinated by the way nature morphs simple building blocks to create more complex natural cures. This fascination shaped my career, which started by the isolation, structure elucidation and biological evaluation of various classes of phytochemicals, with the focus being iridoid glycosides (MSc studies at University of Assiut, Egypt).

I then moved on to pursue my D.Phil. studies at University of Oxford, where I learned the modern aspects of (β -lactam antibiotics) biosynthesis, molecular biology and enzymology (structural and mechanistic). I have almost contributed to every-single project in my research group in Oxford, where the 24-hours of the days were not enough to satisfy my quest. During my D.Phil. and postdoctoral studies, in UK (U. of Oxford and U. of St Andrews) and USA (U. of Illinois at Urbana-Champaign), I have developed myself into a rational redesign engineer of proteins and pathways of interest.

Challenging chemical transformations and forcing enzymes, via engineering, to catalyse these reactions, with exquisite regio- and stereoselectivity, for biocatalytic purposes, is one of the main themes of my research. Extending my research from engineering enzymes to redesign of biosynthetic pathways to produce unnatural products of pharmaceutical interest is another objective for my research. My research has attracted the attention of the chemical industry, with successful collaboration projects ongoing, and been published at the highest profile journals in chemistry and biology.

As a teacher, I do strive to be well-informed, interactive and inspiring. One of my primary goals of teaching is to prepare both undergraduate and graduate students for a successful career.

Away from research, I enjoy reading, listening to music, discussions with "aligned minds" and watching football (big fan of Mo Salah!).



Welcome!

A warm welcome to all our new staff and students...

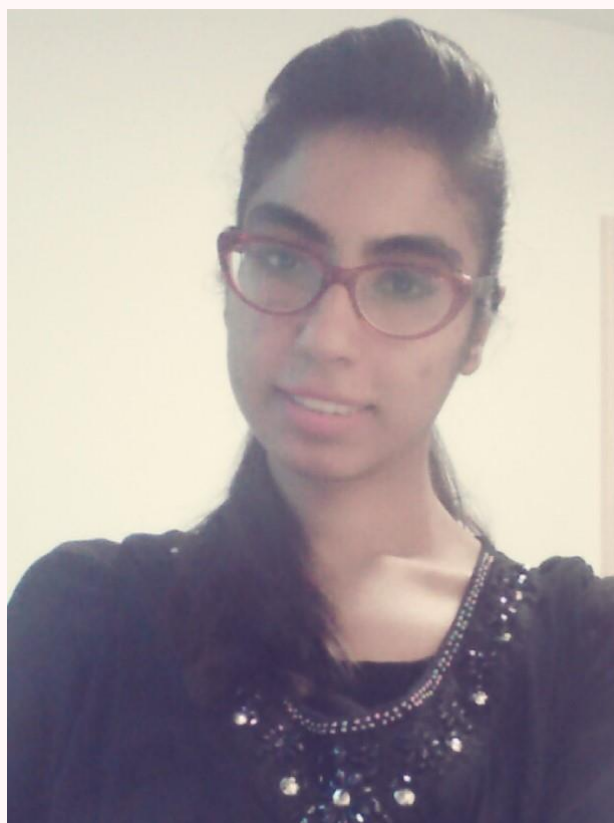
Research Technicians...



My name is **Dr Zahid Mahmood**, and I'm a new Research technician in chemistry. After the completion of my chemistry degree at Salford, I decided to enhance my knowledge in biomedical sciences doing an MSc at Bradford before embarking on a academic journey in research and development upon which I attained my PhD in chemical physics & biomaterials. Later followed by postdoctoral positions in pharmaceuticals (Liverpool) and water soluble polymers research (Wales) I built an expertise in formulation & analytical sciences. I have also worked within the public sector as a Regulatory Scientist (HSE, UK Competent Authority) for a couple of years and in a more recent role within industry working in new product development within orthopaedic medical devices at J&J. My personal interests and hobbies are travelling, sci-fi movies and home DIY.

PhD Students...

My name is **Iqra Fatima**. I was born and brought up in Gwadar, a port city on the southwestern coast of Balochistan, Pakistan. Having an interest in Science and research in life sciences, I did my undergraduate degree in Biotechnology from Sardar Bahadur Khan Women's University Quetta, Balochistan, Pakistan on Scholarship by Higher Education Commission Pakistan. After my undergraduate degree, I was able to secure Bestway Foundation Scholarship to study in University of Bradford and earned a MSc in Biomedical Sciences with distinction. During my MSc, I did my research project related to wound healing of skin which encouraged me to continue research on skin. After my MSc, I worked as a Research Assistant in The International Centre for Chemical and Biological Research (ICCBS), University of Karachi, Karachi, Pakistan on a funded project related to targeting Protein-Protein interaction for the treatment of peripheral vascular disease. I then decided to continue my passion for research in skin sciences through PhD (supervised by **Prof Vladimir Botchkarev**, **Dr Andrei Mardaryev** and **Dr Natasha Botckareva**) and currently working with a very unique and interesting rodents called Naked Mole Rats. My project aims to thoroughly characterise the skin of Naked Mole Rats and further study the characteristics of wound healing and carcinogenesis in Naked Mole Rats skin.



UK-India Education and Research Initiative

Dr **Steven Hickey**, has been awarded £25,000 by the UKIERI, in collaboration with Dr Pravin P Ingole (Department of Chemistry, IIT Delhi) and industrial partner Amara Raja, one of India's leading manufacturers of batteries. The title of the project is '**Flexible Super-capacitors Based on Conducting Polymer Coated Metal Oxide Aerogel Nanostructures**'.

The growing demand for energy storage systems for use in diverse applications such as cutting-edge portable and flexible electronics, hybrid electric vehicles and industrial power backup, necessitates finding new materials to meet the demands of next-generation inexpensive, flexible, light-weight, and sustainable energy storage systems with large energy and power densities. One efficient and environmentally benign method to achieve this is through the use of electrochemical super-capacitors which are promising new energy storage systems that can provide high power density, high charge-discharge rates and long cycle life in addition to simple operating mechanisms especially when compared with the present generation of batteries e.g. Li-ion batteries. This award was provided to investigate a new range of supercapacitors based on conducting polymer coated metal oxide aerogel nanostructures in order to improve the energy density through increasing the available surface area and enhancing the conductivity of the materials employed in their manufacture. Additionally, work will be undertaken to extend the life time of the flexible electrode to reach a cycling life of about 1000 cycles.

Other funding...

Dr **Gisela Helfer** won £5,000 from the **British Society for Neuroendocrinology** to fund her research visit to Toronto to evaluate the impact of adipose tissue-derived chemerin on hypothalamic control of feeding.

Dr **Zak Hughes** received a grant worth the equivalent of £5000 to buy some time on the **ARCHER UK supercomputer** for his research. Dr **Clare Towse** was also successful in securing some time too.

Dr **Andrei Mardaryev** received a travel grant worth €1500 to attend the **International Investigative Dermatology (IID) 2018** conference in Orlando, Florida. Dr **Irene Castellano Pellicena** received €1000 to attend the same event.

Dr **Tom Swift** won £20,000 funding as he received a **Royal Society Researchers Grant** to study issues in the synthesis of isopropyl oxazoline polymers.

Towse Lab Summer Studentships

Dr **Clare Towse** applied for a **Biochemical Society Summer Vacation Studentship** to support one of the top Stage 2 students (Nathan Fenwick) to perform a research project in her lab over the summer. The application was successful and the award provides the Nathan with a 1,600 GBP stipend. Nathan will be synthesising host-guest peptides to study the structural behaviours of some novel amino acids produced by Dr **William Martin**.

Nathan will be joined in the lab by another 2nd year chemistry student, Daniel Hall, who will be using computational simulations to predict the structure of TDP-43 protein and conformational propensities of non-natural and post-translationally modified amino acids, with support from the **Wellcome Trust Biomedical Vacation Scholarship**. It'll be a busy summer for Clare and her team!

Grant Panels

Prof **Vladimir Botchkarev** participated in the grant review panel for **National Institutes of Health (USA)** in March 2018.

Dr **Rianne Lord** submitted an application to attend this years **EPSRC** early career workshop in Nottingham and after being accepted she attending the meeting to discuss the current EPSRC grant process, panels and grant decisions. This day introduced her to early academics in chemistry and has helped her to better understanding the process, which she will now use to plan future grant applications.

Patents

Dr **Anais Pitto-Barry** and Dr **Nic Barry** have been awarded a patent for "**CO absorber**", Patent Application GB1806060.8. Congratulations to them both!

Editorial Boards

Prof **Vladimir Botchkarev** participated in the **Experimental Dermatology** editorial board meeting on May 17th, 2018 during the International Investigative Dermatology meeting in Orlando, where he also chaired a session. It was a very busy conference for Vlad!

Dr **Gisela Helfer** has recently been appointed to the editorial board of **Journal of Neuroendocrinology**, a fantastic achievement for one of our early stage lecturers.

Papers in Press...

Akhbari P, Tobin D, Poterłowicz K, Roberts W, Boyne JR. **MCV-miR-M1 targets the host-cell immune response resulting in the attenuation of neutrophil chemotaxis** *Journal of Investigative Dermatology* 2018.

Alsharwani AR, Riches-Suman K, O'Regan DJ, Wood IC, Turner NA, Porter KE. **MicroRNA-21 drives the switch to a synthetic phenotype in human saphenous vein smooth muscle cells.** *IUBMB Life* 2018

Anene C, Graham AM, Boyne J, Roberts W. **Platelet microparticle delivered microRNA-let-7a promotes the angiogenic switch.** *Biochim Biophys Acta* 2018

Azmanova M, Piito-Barry A*, Barry NPE*. **Schizophrenia: synthetic strategies and recent advances in drug design.** *Medicinal Chemistry Communications* 2018

Bachmann JA*, Tedder A*, Laenen B, Steige KA, Slotte T. **Targeted Long-Read Sequencing of a Locus Under Long-Term Balancing Selection in *Capsella*.** *G3: Genes, Genomes, Genetics* 2018

Brocklesby KL, Waby JS, Cawthorne C, Smith G. **A practical microwave method for the synthesis of fluoromethyl 4-methylbenzenesulfonate in *tert*-amyl alcohol.** *Tetrahedron Lett.* 2018;59(17):1635-1637

Chen Z, Zhang Z, Feng J, Guo Y, Yu Y, Cui J, Li H, Shang L. **Influence of mussel-derived bioactive BMP-2-decorated PLA on MSC behavior in vitro and verification with osteogenicity at ectopic sites in vivo.** *ACS Applied Materials Interfaces* 2018;10(14):11961-11971

Crowley M, Shang L, Dando M. **Preserving the norm against chemical weapons: A civil society initiative for the 2018 4th review conference of the chemical weapons convention** *Futures* 2018

Doroshenko N, Rimmer S, Hoskins R, Garg P, Swift T, Spencer H, Lord R, Pownall D, MacNeil S, Douglas CWI, Shepherd J. **Antibiotic functionalised polymers reduce bacterial biofilm and bioburden in a simulated infection of the cornea.** *Biomaterials Science* 2018

Habas K, Brinkworth MH, Anderson D. **Silver nanoparticle-mediated cellular responses in isolated primary Sertoli cells in vitro.** *Food Chem Toxicol* 2018;116(PtB):182-188

Habas K, Abdulmwli A, Demir E, Jacob BK, Najafzadeh M, Anderson D. **DNA damage protection by bulk and nano forms of quercetin in lymphocytes of patients with chronic obstructive pulmonary disease exposed to the food mutagen 2-amino-3-methylimidazo[4,5-f]quinoline (IQ).** *Environmental Research* 166 (2018) 10-15

Helfer G and Wu QF. **Chemerin: a multifaceted adipokine involved in metabolic disorders.** *J Endocrinol* 2018

Hickey SG. **The photoelectrochemistry of assemblies of semiconductor nanoparticles at interfaces.** *Z Phys* 2018

Inua I, Petit M, Blackman LD, Keogh R, Piito-Barry A, O'Reilly RK, Peacock AF, Krachler AM, Fernandez-Trillo F. **Structural determinants of the stability of enzyme-responsive polyion complex (PIC) nanoparticles targeting *Pseudomonas aeruginosa* Elastase.** *ChemNanoMat* 2018

Books

Towse C-L and Daggett V. **Molecular Dynamics Simulation**, Book chapter IN **Encyclopedia of Biophysics, Protein Folding Volume (2nd Edition)**, (Ed Roberts GCK) Springer Verlag, New York, 2018.

Habas K, Brinkworth MH, Anderson D. **The Critical Role of Oxidative Stress in Diethylstilbestrol Induced Male Germ Cell Apoptosis.** Book chapter pages 161-181 IN **Advances in Medicine and Biology. Volume 125** (Ed Berhardt LV) Nova Science Publishers, 2018

Kobielska PA, Howarth AJ, Farha OK, Nayak S. **Metal-organic frameworks for heavy metal removal from water.** *Coordination Chemistry Reviews* 2018;358:92-107

This paper has been highlighted as being in the top 10 most downloaded Coordination Chemistry Reviews articles – congrats to all the authors!

Korde S, Pagire S, Pan H, Seaton C, Kelly A, Chen Y, Wang Q, Coates P, Paradkar A. **Continuous manufacturing of cocrystals using solid state shear milling technology.** *Cryst Growth Des* 2018;18(4):2297-2304

Mignon C, Uzunbajakava NE, Castellano-Pellicena I, Botchkareva NV, Tobin DJ. **Differential response of human dermal fibroblast subpopulations to visible and near-infrared light: Potential of photobiomodulation for addressing cutaneous conditions.** *Lasers Surg Med* 2018

Nguyen MA*, Hughes ZE*, Liu Y, Li Y, Swihart MT, Knecht MR, Walsh TR. **Peptide-mediated growth and dispersion of Au nanoparticles in water via sequence engineering.** *J Phys Chem C* 2018

Piito-Barry A, Lupan A, Ellingford C, Attia AAA, Barry NPE. **New class of hybrid materials for detection, capture, and "on-demand" release of carbon monoxide.** *ACS Appl Mater Interfaces* 2018;10(16):13693-13701

Saleem A, Kobielska PA, Harms K, Katsikogianni MG, Telford R, Novitchi G, Nayak S. **Transition metal complexes of a versatile polyalkoxy oxazolidine-based ligand derived from *in situ* cyclization.** *Dalton Trans* 2018;47:6156-6165

Stakaityte G, Nwogu N, Lippiat JD, Blair GE, Poterłowicz K, Boyne JR, Macdonald A, Mankouri J, Whitehouse A. **The cellular chloride channels CLIC1 and CLIC4 contribute to virus-mediated cell motility.** *J Biol Chem* 2018

Swift T, Rehman K, Surtees A, Hoskins R, Hickey SG. **Segmental mobility studies of poly (N-isopropyl acrylamide) interactions with gold nanoparticles and its use as a thermally driven trapping system.** *Macromolecular Rapid Communications*, 2018

Wang EHC, Santos L, Li XY, Tran A, Kim SSY, Woo K, Shapiro J, McElwee KJ. **Alopecia areata is associated with increased expression of heart disease biomarker cardiac troponin I.** *Acta Dermato-Venereologica* 2018

Zhang J, Ma A, Shang L. **Conjugating existing clinical drugs with gold nanoparticles for better treatment of heart diseases.** *Front. Physiol.* 2018; 9:642

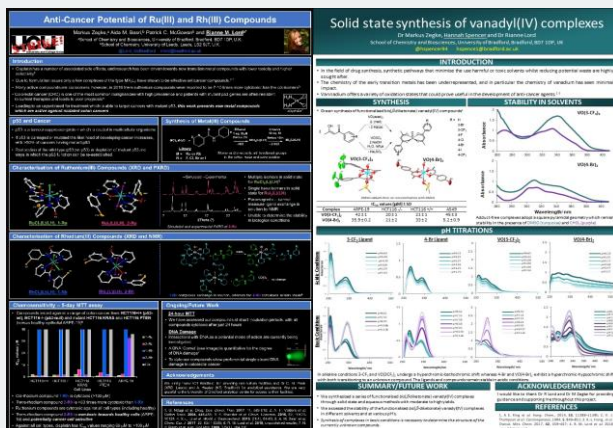
STEM for Britain

Dr Rianne Lord was shortlisted from hundreds of applicants and attended the Houses of Parliament on March 12th, to discuss her current research on new drugs for the treatment of colorectal cancer. The competition is part of a campaign called **STEM for Britain**, run by the Parliamentary and Scientific Committee, and involves early career researchers producing a poster explaining their research and competing for prizes of up to £2,000. Though Dr Lord did not win the cash prize, she explains her attendance there has led to new ideas, interesting discussions and she has built stronger connections with the Royal Society of Chemistry.

Dr Lord said: "It was a pleasure to be able to enhance my research and show the exciting chemistry being undertaken here at the University of Bradford, and I hope to further my public engagement to help promote young female academics within STEM. I was delighted to be selected for this prestigious event and presenting to a diverse audience was a welcomed challenge." Dr Lord believes that it is essential for young scientist to attend such events, as they promote science on a more political level as show the MPs that governmental funding for research is necessary and purposeful. It was an amazing experience and achievement for both Dr Lord and the University, and she encourages the new lecturers, postdocs and PhD students to embark on such public schemes.

RCS Twitter Conference

Dr Rianne Lord participated in this years **Twitter poster conference** which is organised by the Royal Society of Chemistry. She presented her recent work on new ruthenium and rhodium anticancer drugs. Additionally, a visiting researcher in the group, **Hannah Spencer**, presented their most recent work on new vanadium anticancer drugs.

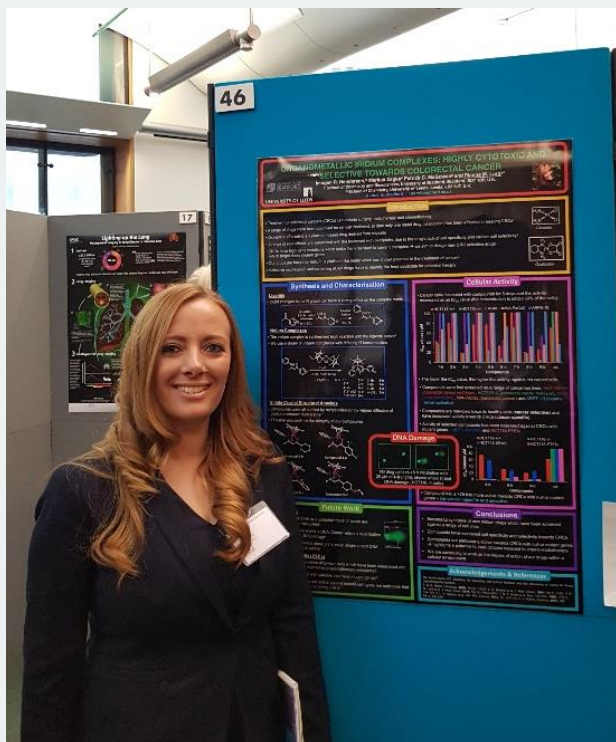


Dr Lord's achievements were not only recognised by the University and the Royal Society of Chemistry, but an article in her local Newspaper (Rossendale Free Press) was written to celebrate her success.



It was also picked up by the University press department, a full write up of which can be found here:

<https://www.bradford.ac.uk/news/2018/parliament-research-competition.php>

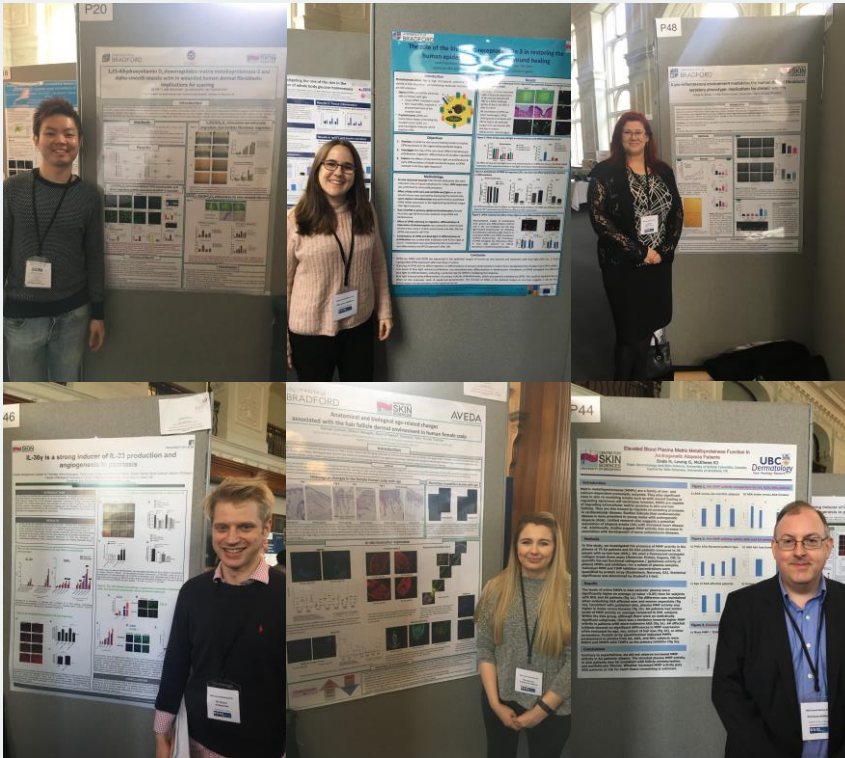


Rianne presenting her work in Parliament

Research

Communicating
science

British Society for Investigative Dermatology



Top L-R: PhD student **Jing Tay**, **Dr Irene Castellano Pellicena** and **Dr Kirsten Riches-Suman** present their work – the latter poster is of **Aaiad Al-Rikabi**'s PhD studies.

Bottom L-R: **Dr Charlie Bridgewood**, **Rachel Sedman** and **Prof Kevin McElwee** present their work.

Both posters on the left hand side won prizes at the conference – congratulations to **Jing Tay** and **Charlie Bridgewood**!

In late March, a 12-strong delegation from Bradford set off to enjoy the **British Society for Investigative Dermatology (BSID)** conference in London, at the Blizzard Institute. This was an excellent meeting that had something to interest everyone – sessions encompassed clinical presentation of various pathological skin lesions, to molecular mechanisms underpinning aberrant cell behaviour, to the psychological aspects of living with a skin condition.

The poster sessions were exciting and Bradford Centre for Skin Sciences had a fantastic showing – we accounted for over 15% of all the poster abstracts so it was a really great advertisement for the breadth of research that we undertake here. Particular mentions have to go to **Jing Tay** and **Charlie Bridgewood** who both won poster prizes for their efforts – massive congratulations to both of them!

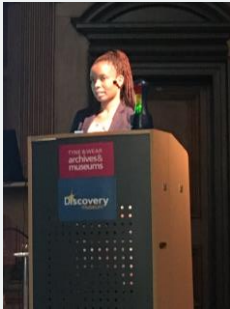
Next year, the BSID conference will be held here in Bradford, and we're looking forward to another strong showing from all our PhD students, Post-Docs and PIs.



Dr Jing Tay, **Richard Baker**, **Dr Julie Thornton**, **Dr Charlie Bridgewood**, **Dr Andrei Mardaryev**, **Dr Irene Castellano Pellicena**, **Dr Kirsten Riches-Suman**, **Rachel Sedman**, **Dr Steve Sikkink**, **Dr Kirsty Smith**, **Prof Kevin McElwee** and **Prof Des Tobin**.

Northern Cardiovascular Research Group

The **Northern Cardiovascular Research Group (NCRG)** was held in the Discovery Museum in Newcastle in April. It was well attended by staff and students from both our School and the



Florah Moshapa

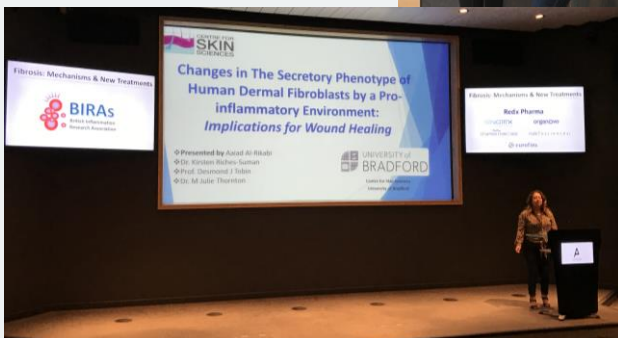
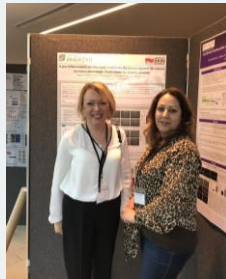
School of Pharmacy, and we all enjoyed a very diverse programme of cardio-vascular science, ranging from genetics to signalling and evolution. It even included crocodiles! Florah Moshapa (supervised by Prof Tim Palmer and **Dr Kirsten Riches-Suman**) gave her first conference presentation from her PhD work, and did a fantastic job. Here's looking forward to many more! It was also PhD student Maysa's first conference, and was a great introduction to networking for her.



Dr Kirsten Riches-Suman, Florah Moshapa, **Maysa Alhawamdeh**, Dr Jacobo Elies, Prof Tim Palmer, Prof Anne Graham and Gillian Durham.

BIRAs 2018

On the 25-26th April, **Aaiad Al-Rikabi** presented her PhD research at the **British Inflammation Research Association (BIRAs)** conference in Alderley Park. The talk, entitled "Changes in the secretory phenotype of human dermal fibroblasts by a pro-inflammatory environment: implications for wound healing" was well received by the audience. Aaiad (co-supervised by **Dr Julie Thornton**, **Dr Kirsten Riches-Suman** and **Prof Des Tobin**) found the conference very relevant to her PhD and found it really useful for expanding her knowledge on inflammatory skin diseases.



Top: **Aaiad Al-Rikabi** and her supervisor, **Dr Julie Thornton**. Bottom: Aaiad presents her PhD thesis at BIRAs 2018.

EURAPS 2018



Jing Qin Tay, David Sharpe Research Fellow from the Plastic Surgery and Burns Research Unit (PSBRU) presented his work at the European Association of Plastic Surgeons (EURAPS) meeting in Madrid (16th-19th May 2018) and won the best paper prize at EURAPS research council session! His supervisors at the Centre for Skin Sciences are **Dr Julie Thornton** and **Prof Anne Graham**. Jing wins free registration for the next EURAPS meeting (held in Helsinki) and wishes to thank everyone for their continuous support to the burns research unit.

Research

Communicating science

AHRS 2018

Bradford had great representation at the **American Hair Research Society (AHRS)** meeting in Florida on 14-16th May 2018. PhD student **Rachael Sedman** advertised her PhD poster entitled 'Markers of ageing in the hair follicle environment – a glimpse into the human scalp', and **Prof Kevin McElwee** also flew the flag for Bradford by giving two talks entitled 'Translational: Hair follicle neogenesis' and 'Efficacy of platelet rich plasma for androgenetic alopecia may be determined by growth factor concentration' which stimulated exciting discussion.



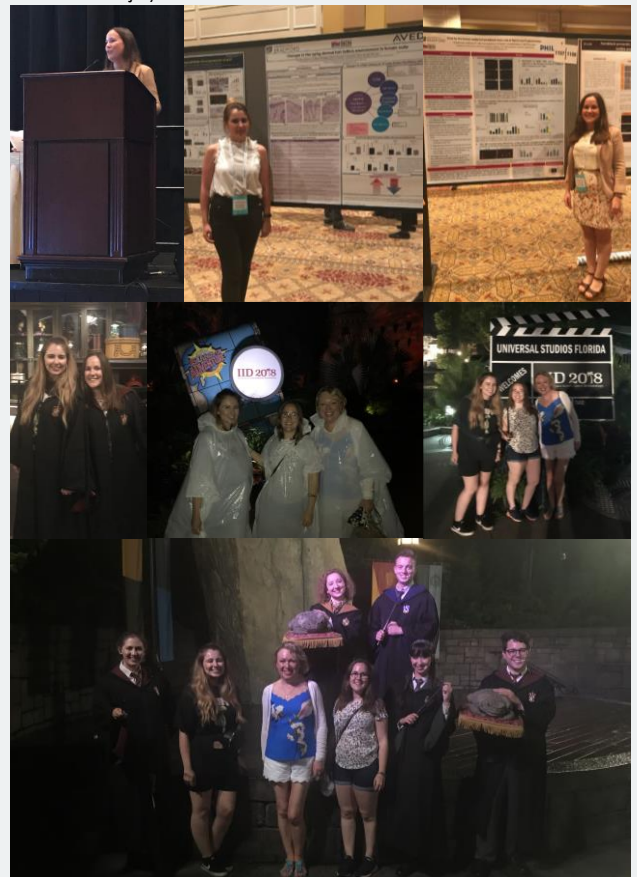
Top: **Rachael Sedman** generating interest in her poster.
Bottom: **Prof Vlad Botchkarev**, **Dr Natasha Botchkareva**, **Rachael Sedman** and **Dr Julie Thornton**.

IID 2018

The **International Investigative Dermatology (IID)** was conveniently held in Florida immediately after the AHRS, 16-19th May. **Rachael Sedman** had another poster at this conference entitled 'Changes in the aging hair follicle environment in female scalp'. **Dr Irene Castellano Pellicena** gave a talk and poster on 'Time for the human epidermal peripheral clock: Role of opsins and cryptochromes'. **Aaiad Al-Rikabi's** poster on inflammation and dermal fibroblasts was presented and **Dr Andrei Mardaryev** was also in attendance. He managed to evade our cameras!

Prof Vlad Botchkarev chaired the session on 'Genetic disorders, gene regulation and therapy' and during his visit also managed to fit in the Experimental Dermatology Editorial Board meeting (17th May) and the Program Committee meeting of the Society for Investigative Dermatology (18th May) – talk about making the most of a work trip!

Dr Julie Thornton, Rachael and Irene were very taken by the conference social event, which they described as the 'best ever!!!'. The organisers shipped 1500 delegates to Universal Studio after the park closed to enjoy the Wizarding World of Harry Potter! Thoroughly enjoyed by all the delegates, you can see how much our staff and students enjoyed it below.



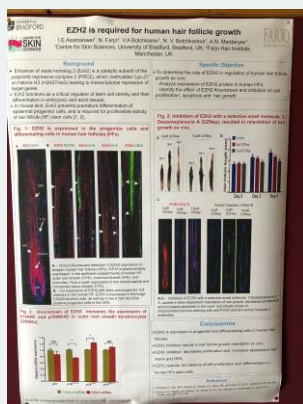
Top L-R: **Irene Castellano Pellicena** presenting, **Rachael Sedman** and Irene with their posters.

Middle L-R: Rachael and Irene enrol at Hogwarts, and **Dr Julie Thornton** joining in with the fun.

Bottom: Rachael, Julie and Irene with the Wizarding World of Harry Potter performers.

EHRS 2018

The 18th meeting of the **European Hair Research Association (EHRS)** was held in Bologna, Italy on 18-20th May 2018. **Dr Inemo Asamaoewi** won the best poster prize for 'EZH2 is required for human hair follicle growth, so massive congratulations to her! **Rachael Sedman's** work was also presented as a poster by **Prof Des Tobin** and **Dr Gill Westgate**. Des also gave a very well



received talk on his research into putative antigens in alopecia areata, and **Prof Val Randall** was also in attendance.

Invited Seminars

Dr Rianne Lord was invited to present as part of the chemistry seminar series and **King's College London**, where she discussed her recent work on both organometallic and coordination complexes for use in cancer treatment. She also was lucky enough to present alongside her role model and leader in the field on bioinorganic chemistry, Professor Angela Casini. The day included several meetings with the staff at KCL, and Rianne had the opportunity to discuss new aspects of her work and secure potential collaborations. She wishes to thank Drs Suntharalingam Kogularamanan and Manuel Muller for their kind invitation and fantastic hospitality, and Professor Casini for her invaluable career advice.



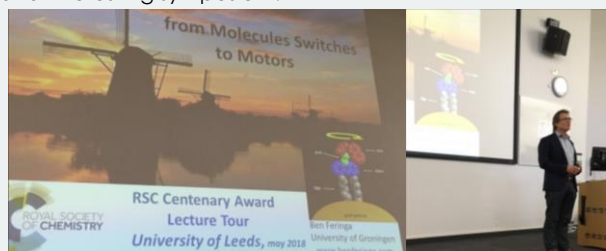
Dr Rianne Lord during her seminar, and with her esteemed peer, Professor Angela Casini

Dalton 2018

Dr Rianne Lord presented her research on "Organometallic Iridium Complexes: Highly Cytotoxic & Selective Towards Colorectal Cancer" at this years **Dalton** conference, University of Warwick. It was a well-attended conference which led to some fruitful networking and future collaborations with the Universities of Lancaster and Loughborough. Additionally, Rianne was asked to chair her first ever conference session, and did a great job of chairing a lively bioinorganic sessions

RSC Centenary Prize

Along with members of the school of chemistry, **Dr Rianne Lord** attended the **RSC Centenary Prize Symposium** at the University of Leeds. The symposium on 'Form and Function: Molecular Machines in Chemistry and Biology' included a plenary lecture from Professor Ben Feringa, the 2016 Nobel Prize winner in chemistry, and was a very well attended and interesting symposium.



Organisation

Dr Kirsten Riches-Suman is chairing the organising committee for the **Northern Vascular Biology Forum** which will be held here at the University in December 2018. We look forward to seeing as many of you there as possible!

Prof Val Randall has been invited to be on the organising committee for the 11th **World Congress of Hair Research** to be held in Barcelona in 2018.

Policy Making

In March, **Dr Tom Swift** represented the Royal Society of Chemistry at the annual **Voices of the Future** event in Westminster, when representatives of almost all UK scientific societies have a chance to ask, and listen, to MPs discuss science policy questions of the day. Tom had a first hand view of the proceedings, which can be re-watched online at Parliament TV: <https://www.rsb.org.uk/policy/policy-events/voice-of-the-future>



In April, **Dr Rianne Lord** was approached by the **RSC** and asked to sit on a discussion board for women's retention and progress in science, and travelled to Burlington House London for the day. She was part of a group of early stage females who spent the day discussing current issues within science and how the RSC can better combat these issues within chemistry.

Public Recognition

Prof Diana Anderson was awarded a prize for services to Science and Technology at the **English Women's Awards – North 2018**. Diana had been put forward by the public to receive this award and summarised her work:

"A blood test in humans to detect cancer risk and showing that smoking dads can damage their children"

With a simple blood sample, much information about an individual and his children can be obtained. We have carried out two recent studies.

Study 1: To detect if a person might be prone to developing cancer. Here we investigated responses from white blood cells in blood from healthy individuals, suspected or pre-cancerous patients, and cancer patients in a simple test known as the Comet assay which detects DNA damage. There was a difference in levels of damage between cancer patients and healthy individuals, and suspected or precancerous individuals had intermediate values.

Study 2: Smoking Dads were found to pass on more DNA damage to their children than Mums. Blood was taken from 39 triads consisting of a father, mother and their baby (cord blood was used from the baby). Hopeful dads should allow three months to pass without smoking before conception, to allow the damaged DNA to be eliminated from their reproductive system in the 3 months it takes for the sperm to cycle.



Bioinformatics

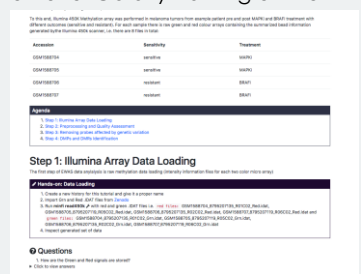
Between 3-5 May, **Dr Krzysztof Poterłowicz** lead the **Data Carpentry workshop** at Guy's hospital, Kings College London where Krzysztof taught fundamentals of data skills needed to conduct research to clinicians and researchers.



He followed this on 14th May, by attending the first **Northern Bioinformatics Users Group** meeting in York featuring representations from 12 universities across Northern England. Krzysztof gave a talk about Bioinformatics infrastructure at University of Bradford

Between 22-24, Krzysztof's research group attended **Galaxy Training material workshop** where the team and collaborators used research software developed in Krzysztof's lab to create novel Galaxy training online

resources. Galaxy is an open source, web-based platform for data intensive biomedical research. With more than 100,000 users Galaxy is the biggest web-based bioinformatics platform in the world.



Internal Events

Over the past three months, our School has been busy hosting internal events to highlight our research. In March, we hosted the **John Wood Memorial Lecture**. This event included talks from our academics **Dr Mike Fessing**, **Dr Andrei Mardaryev**, **Dr Jim Boyne** and **Dr Krzysztof Poterłowicz**, followed by a keynote award lecture from **Prof Ralf Paus** on his personal perspectives on the hair follicle. Prof Paus was an incredibly dynamic and entertaining speaker, and a worthy recipient of the John Wood Memorial Lecture Award.



Prof Ralf Paus presenting his Award Lecture, and receiving the Award from Prof Karin Schallreuter

We also held an **Emerging Research symposium** to welcome our new staff into the department – **Dr Andrew Tedder**, **Dr Sarah Pike**, **Dr Zak Hughes**, **Dr Refaat Hamed**, **Dr Beverley Stewart**, **Dr Chien-Yi Chang** and **Prof Kevin McElwee** all gave excellent insights into their research expertise.

Teaching

Apprenticeships, new courses, and where your degree can take you

Teaching Away Day

In late May, the entire teaching staff from Chemistry and Biomedical Sciences decamped to Heaton Mount, to spend the day discussing our teaching. There was lively debate surrounding best practices across our undergraduate and postgraduate taught degrees, as well as discussion regarding areas which could be improved (or which had recently undergone improvement). We also had the opportunity to reflect on the National Student Survey, the admissions processes and what it actually means to be a student in HE at the moment. It was a very productive day, and we would like to reassure students that we are always looking at how to provide the best learning experience for your time here in our School.



Chemistry soars in the league tables

Our Chemistry degrees have scored incredibly well in the **Guardian University guide 2019: league table for Chemistry**. This covers our current suite of chemistry degrees including BSc Chemistry and MChem Chemistry, with all the individual options. We are now positioned 18th in the UK and scored particularly highly in continuation and the number of students going on to full time employment 6 months after graduating, which really demonstrates how translatable our courses are into professional arenas. You can check out the league table here:

<https://www.theguardian.com/education/ng-interactive/2018/may/29/university-guide-2019-league-table-for-chemistry>

Our new apprentice degrees, MChem (Computational Chemistry) and MChem (Medicinal Chemistry) are also going from strength to strength, and we're even thinking of increasing the tariff for entry in 2019.

Teaching

Apprenticeships, new courses, and where your degree can take you

Where my Bradford degree took me...

Robert Bonwick-Salisbury is a specialist biomedical scientist in Wales. He graduated from our BSc Biomedical Science in 2005. Here, he shares his successful journey along a career path that many of our graduates want to take, and explains what it is about the Bradford degree(s) that have set him apart from other biomedical scientists...

What did you do at Bradford?

I studied for a degree in Biomedical Sciences with Cellular Pathology. My Final Year Project used Immunohistochemistry looking at the role of Glucocorticoid receptors in deer skin. I Graduated in 2005 and found a trainee post (3 months later) at Gloucester Royal and Cheltenham General, where I spent the first 10 years of my career.

What are your lasting memories of your time here?

There are a lot! So many FND's and trips tot he Biko Bar with friends I still know and see often now. I remember being on the top floor of the Richmond building in lectures and the building would move with the winds! I remember having a drink the in Biko bar and some of the lecturers would come in and sit with us, Professor Anderson always remembers when I dyed my hair multiple colours!

How do you think your studies here have played a role in the development of your career?

Having studied so many areas I thought I'd never use again and learnt, what I thought were standard things (like setting up a microscope for Kohler), I have found that so many students from other Biomed courses haven't done these things, it has really set me apart in my career.

I'm now working as a Specialist BMS for Bestsi Cadwaladr University Health Board, I'm almost done with my Expert Practice in IHC and also working on my Advanced anatomical dissection portfolio. I'm also studying for a Higher Apprenticeship in Project Management to help with service improvement within my department.

I head a project in surgical specimen management, working closely with theatre teams across all 3 acute sites in my trust. I'm also working with managed GP practices and specialist Gastro Units in formalin reduction strategies. I'm consulting with University Hospital in the USA to help them with their issues with the technology I have used and the way I've implemented it in my trust.

I also am an associate lecturer in diagnostic pathology at Bangor University, this is my 3rd year teaching final year students and my first as a dissertation supervisor to 2 students who will be publishing their work with me later in 2018.

What advice would you have for students currently on our courses?

The only thing I'd say is grab every opportunity presented to you, it might seem like you're doing something for free or to help someone out, but you can learn vital skills and link lectures to practice much more readily. This really makes you stand out more in interviews and in career advancement in the future.



Admissions

Recruiting the next generation of Bradford students

Open day season is upon us...

As our prospective 2018/2019 students take a hard earned break over the summer, and our AED cycle comes to a close for 2018, it is time to start preparing for the next recruitment cycle. This means taking a look at what we have done well, and perhaps not so well over the period, and plan how we can improve things.

With this in mind, the hard work kicks off again in earnest on **Saturday 23 June** with our first open day. We have been tasked with being as interactive as possible, and so we will be having a variety of 'hands on' activities for prospective applicants and their families to get involved with, as well as poster presentations and facility tours. Particular highlights will include some hands on haematology experiments with **Prof. Anne Graham** and **Pam Dunn**, some interactive chemistry using our VR headsets, and some gel electrophoresis with **Dr Gisela Helfer**.

Obviously these days benefit a lot from staff and current student involvement. If any of our current Biomed, HCS or Chemistry students want to get involved in recruitment activities, and share some of their first hand experiences studying here in Bradford, we'd love to hear from you! Student ambassadors get paid... Just saying.

Dates for the diary:

Upcoming open days

- Saturday 23th June
- Saturday 18th August

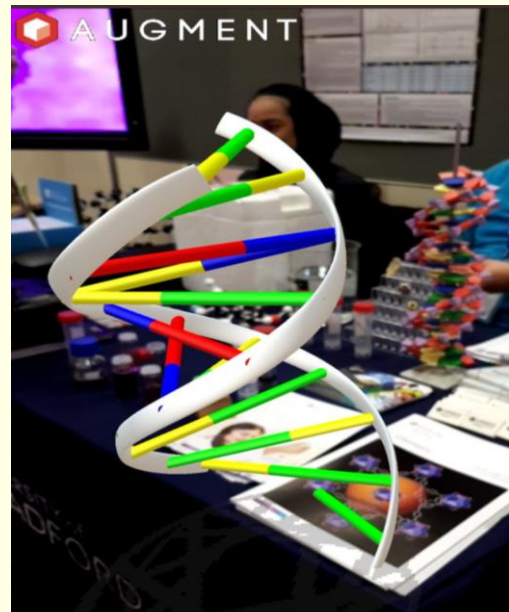
Clearing

- Thursday 16th– Friday 31st August

PLEASE CONTRIBUTE TO OUR MOST IMPORTANT RECRUITMENT EVENT OF THE YEAR – CLEARING! IT'S A FANTASTIC OPPORTUNITY TO SPEAK WITH YOUNG PEOPLE AT THE START OF THEIR ACADEMIC JOURNEY, AND EXPLAIN TO THEM HOW GREAT IT IS TO STUDY AT BRADFORD.

Love STEM Festival by Go Higher West Yorkshire

Dr Philip Drake, Dr Bev Stewart, Dr Zak Hughes, Dr Rianne Lord and Dr Clare Towse helped out at this years Go Higher West Yorkshire 'Love STEM festival', which was hosted by the University of Bradford. The staff helped to engage students and parents in science, and provided hands on experiments, included the Augmented reality which has been pioneered by Clare. Additionally, the festival was granted with the presence of Marty Jopson, a fantastic performer and scientist, who provided an active seminar linked to his current published book 'The Science of Everyday Life: Why Teapots Dribble, Toast Burns and Light Bulbs Shine'.



Outreach

School visits and charity work

School Taster Day

Prof Anne Graham, Mrs Pam Dunn and Dr Kirsten Riches-Suman ran a highly interactive taster day with school students from across the region, on the topic of 'Why should we care about diabetes?'. This encompassed a mini-lecture, an interactive quiz (alongside fruit and confectionary), and a practical session in the laboratory to look at how sugar levels can be measured in the lab to help to diagnose diabetes. The students really enjoyed this session and all performed incredibly well. Hopefully, we look forward to seeing them in September!



STEM sessions

Dr Philip Drake ran a BTEC chromatography STEM session for **Hopwood Hall College** in Rochdale. Feedback was superb:

"The session was brilliant, I have been to lots of things like this arranged by various providers and quite honestly, this was the best by far. The effort and planning that had gone into the session was obvious and the whole day really met the needs of the assignment. The opportunities provided to the students made the whole experience really worthwhile and learning and development of practical skills was definitely taking place. The selection of lycopene from tomatoes was ideal and the tour of the facilities and explanation of how this technique could be used in the real world enabled the learners to see the practical application of what they had been learning.

The resources provided were excellent and the method instructions were clear and easy to follow.

The most important thing for us was that the whole session was pitched at just the right level, it included a suitable element of challenge without losing them. The pace of the session was great and the learners were able to build on the skills they had acquired as they went. This is the final cohort going through on the old entry requirements and as such their scientific knowledge and skills (and in some cases their interest) are quite weak, however, they were all able to complete the tasks and acquired the knowledge and experience necessary to complete their assignments. Your interaction with the students was brilliant and that is something that is most important to us, I can not thank you enough for the experience provided to these learners.



Salters Festival University Challenge

Dr Rianne Lord, Dr Stephen Hickey and Professor Richard Bowen were this year's judges for the Salters Festival and the University Challenge held at the University of Bradford. The local schools participated in group chemistry experiments to win prizes for their schools and learn some new chemistry aspects. It was a busy day which proved to be very exciting for the students, and promoted their interest in the scientific subjects. Congratulations to all of the winning schools!



There are some fantastic pictures and a story on the Telegraph & Argus website:

http://www.thetelegraphandargus.co.uk/news/16185686.Children_show_off_chemistry_skills_at_university_challenge/

School Visits

Dr Rianne Lord was invited to give a careers in chemistry talk at the **Notre Dame College** in Leeds, where she met excited and keen chemists looking to see if a degree in chemistry is the right choice for them. This day also helped to promote the chemistry degree program here at the University of Bradford, and encourage students to consider our degree for their studies.

Leadership

Emmanuel Eni Amadi, a PhD Biomedical Science student (3rd Year), was on 17th April 2018 appointed an academy Trustee / Non-Executive Board of Director for the **Bury Learning Trust**, a newly formed Multi-Academy Trust (MAT) in Bury, Greater Manchester. Working alongside other Board Members (Chair, other Trustees and Non-Executive Directors), Emmanuel's role is to provide strategic oversight to the Executive Head Teachers of the MAT, holding the executives to account for the educational performance of the Trust.



On 9th May 2018, Emmanuel attended and completed the **Professional Development Programme for Aspiring Non-Executive Directors**, Cass Education, Cass Business School, City, University of London (Self-funded).

Interested in how Sci Comms can advance your career?

Lauren Nelson was one of our top students. She did a placement year at the atomic weapons establishment (AWE), then an MSc in organic synthesis at Leeds Uni, and is now doing a PhD in computational chemistry at Newcastle. However, she's also very active in scientific communications and has a large following on Twitter:

"Clearing felt like the end of the world as I knew it for 48 hours, then I found Chemistry at Bradford and so many doors have opened since. I was lucky enough to study my MChem with a year in industry at Bradford from 2012-2016. During my time at Bradford the course itself was brilliant, taught by really engaging and talented lecturers across the discipline. I knew I wanted to go into drug discovery and decided to study for a MSc in Chemical Biology at the University of Leeds, where I completed a project which involved computational drug design. I liked the novel and accurate design approach. I am currently in my first year of study for a PhD in computational chemistry at Newcastle University now, working alongside the Northern Institute of Cancer Therapeutics.

Alongside my PhD studies I decided to branch out and combine my passion for science with my more creative side, and started a science blog: www.ashortscientist.wordpress.com (twitter/instagram: @ashortscientist). The aim is to debunk everyday science and also introduce new research to the general public which is usually missed by the media. I do this by simplifying concepts into no more than 800 words and including my own sketches to help visualise the topic and keep it engaging. Since the launch of the blog, I have been asked to collaborate with The Journal of Sketching Science as the editor, which has 12.1K followers on twitter alone. This has been a really great experience so far and there's so much more to come, with new work constantly in the pipeline.

I owe where I am today to the lecturers in the Chemistry department at the University of Bradford who believed in me despite coming through clearing, and who always pushed me to go further. I hope one day to lecture and I hope I am as inspiring, encouraging and supportive as they were for me. "

Student Zone

Successes, societies
and inspiration

Undergraduate Successes

Nagina Ezatullah (MChem Chemistry – Medicinal Chemistry) did a Skydive challenge and raised £250 for RAG, the money went toward helping homeless people in Bradford and helping students with mental health which is often ignored. We are very proud of Nagina for taking the courage to jump out of the plane at 15K ft which is the highest in the whole of the UK to help benefit people – a fantastic achievement!



One of our third year Chemistry students, **Saarah Kanval**, was awarded the **RSC teacher training scholarship**. The application was incredibly competitive and comprised an interview, knowledge test, and sample lesson, and is worth 28k. Massive congratulations to Saarah!

Student Leadership Awards

At the recent Student Leadership Awards evening the 2nd year Biomedical Sciences student representative, **Matthew Ramsey**, was awarded the award for **Faculty of Life Sciences Representative of the Year**. Matthew received a number of nominations from students on his programme who admired his dedication to the role of student rep especially since he carried it out whilst also re-establishing the Biomedical Sciences society, of which he was President. It was noted that Matthew saw his Biomedical Sciences society role as an extension of his role of being a student representative. One student said 'He never volunteered his time for his own gratification but rather to make this year as good and prosperous for everyone around him.' Dr Dean Harrington present the Faculty Representatives of the Year awards on the night, and was delighted to bestow Matthew with his award.



Summer Placements

Our undergraduate Biomedical Sciences and Chemistry students have had great successes in securing summer placements to gain experiences abroad and maximise their future employability. Here, Year 2 student **Shiyana Charles** talks about her experiences so far:

"I carried out my internship in St. Johannes Hospital, Dortmund in Germany. I got the opportunity to work as a healthcare assistant in the Cancer & Stem Cell Therapeutics ward there. My role consisted of caring for patients and providing their needs, therefore, I got the opportunity to do ward rounds, measuring blood pressure, temperature and pulse; transporting patients to wards/scans/operation theatres; preparing infusions; injecting patients with medication and collecting blood units for blood transfusions from the laboratory. I am glad that I made the decision to do this work experience in Germany because I got the opportunity to be independent in another country. I learned so much about leukaemia and I got the opportunity to observe chemotherapy and stem cell therapy. I also got the chance to observe doctors eg. observing doctors during cerebral spinal fluid extraction and insertion of the tracheal cannula. I received funds from the University with the help of the Careers and Development service in Student Central, which I am grateful for as it really helped me with travel and transport costs."

Student Society

The **Biomed ball** was an excellent evening where we celebrated the third years graduating as well as the courses' favourite lecturers. There were three awards, the winners of which were:

Favourite Lecturer –

Dr Brinkworth

Most Creative Lecturer –

Dr Harrington

Fittest Lecturer –

Dr Brinkworth

Matthew Ramsey has passed leadership of the society into the capable hands of **Jake Livingstone** (j.t.c.livingstone@bradford.ac.uk) – we look forward to seeing lots of new recruits and exciting things happening with the Society in September!



Student Zone

Successes, societies
and inspiration

Meet Your Professor!



An interview with our established chair, **Professor Diana Anderson**

Professor Diana Anderson is the established chair in Biomedical Sciences, with a longstanding and influential track record in genetic toxicology. Diana has supervised many PhD students during her time at Bradford and recently was awarded the Women's Award 2018 – North for her fantastic contributions to science and technology. Diana also does consulting work for many international organisations including the World Health Organisation and NATO. In 2016, she was nominated for an Albert Einstein award based upon her impressive research record.

What did you do after graduating?

I did my first degree in Cardiff, while getting some teaching experience at the same time. After that, I moved to Australia for the adventure! I met my husband there, and worked as a university tutor and demonstrator. I absolutely loved it in Australia, but we came back to the UK for work. I got a job at Leeds University in cancer research, and then started my PhD at the Christie hospital in Manchester, part of the Faculty of Medicine at Manchester University pioneering new ways of detecting cancer in blood.

What did you do after your PhD, did you stay in academia?

No – I was taken on by ICI in Alderley Edge, which was very well-funded and the gold standard chemical company in the UK, and maybe even the world. I was looking at what could be affecting genetic material in man, and at the time it was known that vinyl chloride caused liver cancer in rats. There was a plastic revolution at the time with plastic clothes, all the workforce were wearing plastic so we were worried that they would all get cancer! Fortunately, this was a case where the rat model was more sensitive than man. During this time I negotiated new laboratories to handle carcinogens which informed MRC practices – the lab building won awards, it was a challenging and exciting time.

Then I went to the British Industrial Biological Research Association (BIBRA) for 19 years. I was head of mutagenesis, genetics and reproductive toxicology, and then was made assistant director and I could still do science! It was very much a man's world at the time – there were no ladies bathrooms in some buildings. But through my research I could still keep publishing, which was very important to me. I published 13 papers one year, and then when it came to the annual report saw that only three had been included. I was told it was because 'the men wouldn't like it!' The next year I published a similar number and this time they were all included because I believed it was unfair and this was agreed.

I came to Bradford at the age of 60. I only meant to stay for 7 years but I'm still here, I still have students, and I adore it!

What else are you involved with at the University?

As well as supervising PhD students, I'm the designated individual for the Human Tissue Act. I sit on external committees including the EU Cost Association Committee, and the Bradford-Leeds Research Ethics Committee for the NHS. I'm also a member of the Institute Athena SWAN committee,

What has been the most memorable moment of your career?

Being nominated for awards for my research by independent adjudicators.

If you weren't working here at the university, what would you be doing?

At the moment I am still working here. I enjoy it so much, interacting with students, staff and research issues. Currently, I am still invited abroad to give presentations and attend outside committees. I would be extremely bored if I was not here. I should have to do something to occupy my mind.

What advice do you have for current students for their future careers?

Try to do what really interests you. This way work is no hardship and becomes enjoyable- almost like a hobby.