Bradford ChemBio

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

September-November 2018

Welcome!

Welcome from your Newsletter Editors…

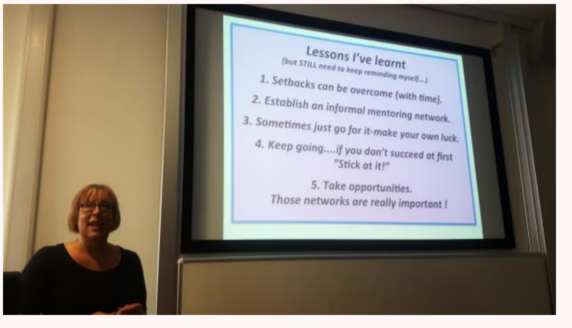
Welcome to the new edition of our School newsletter! As we approach the end of term, we hope that all of our new students are now settled into their courses, and are year 2+ students are continuing to achieve the education that they want. We haven't heard much from students for this edition, so this is a reminder that we're always happy to receive good news stories from students – if you've taken part in a charity event, or undertaken some work experience, or even won a sporting society competition, let us know and we'll make sure you get the recognition you deserve! As you can see from the research pages, this has been an excellent three months in terms of publications, grant awards and networking. We also have reports from two of our roving lecturers, **Dr Gisela Helfer** and **Dr Rianne Lord**, on their highly successful research secondments to global institutions.

We wish you all a very happy holiday period, and good luck with the exams in January!

Dr Kirsten Riches-Suman *and* ***Dr Andrew Tedder***

Athena SWAN Charter

Athena SWAN seminar:



On the 7th of November the EDOC hosted the first Athena SWAN seminar. **Prof Jane Grasby** from the University of Sheffield gave a fantastic research talk about her research on the interface of Chemistry and Biosciences, which was very well attended. Jane also included some insights into her career in Chemistry, which I am sure was very interesting especially for our students and early career researchers. Following the seminar, we held a workshop discussing career progression in STEM. In the workshop, we were joined by staff members from different Faculties within the University and we had a long and engaging dialogue around strategies to overcome barriers to progression of minority groups, particularly women. Jane shared some good practise from her University. The next Athena SWAN sponsored seminar will take place on the 3rd of April 2019 and we will welcome Prof Lynda Williams from the University of Aberdeen as our speaker.

Career progression focus group:

Based on comments from the staff survey last year, we have set up a Career progression focus group. The group is chaired by **Prof Steve Rimmer** and includes staff from different stages of their career. We are aiming to implement a transparent and proactive system to assist our academic staff in their career progression. In this respect, we will launch an annual CV review system where experienced senior members of staff who served on promotion panels will review CVs and identify individuals who are (nearly) ready to progress to the next stage of their career. Additionally, we are aiming to implement a voluntary mentoring scheme to pair up staff with senior members who can provide expert advice on promotion.

Staff and Postgraduate Student Surveys:

Thanks to all our staff for filling out the **Athena SWAN staff survey** in October. Our response rate was 75% at the end, which is very good. The EDOC has now started to analyse the data from the survey and we will feedback the results to you in the next newsletter. We now have also launched the **Postgraduate Survey** which is currently live. We hope for a good response rate from our Postgraduate students and hope that you will take the time to answer the short survey. It should not take you longer than 10 min to complete and will help us to identify issues around your experiences as Postgraduate students in our School.

The EDOC wishes all our staff and students a Merry Christmas and a Happy New Year!

Dr Gisela Helfer*, Chair of Equality, Diversity and Opportunities Committee*

People

New starters and new arrivals…

Lecturers…

I'm **Amber Leckenby**, and I joined the University of Bradford at the start of October as a lecturer in biomedical science. Before arriving here, I completed a BSc in Genetics and an MRes in Functional and Comparative Genomics at the University of Liverpool. I then went on to complete a PhD, also at Liverpool, working on parasite genomics and epi-genomics. My research follows on from this and uses the range of genomes that were produced throughout my PhD. Currently I am investigating the genome of the enteric parasite, *Entamoeba histolytica*, in order to understand how the expansion of gene families in the species led to evolution of virulence in the *Entamoeba* genus. I am also investigating how DNA methylation plays a role in regulating expression of members in these virulence gene families.

Outside of work I'm in to hiking, running and generally just eating all types of food. So if anyone is into genomics and/or hiking or even just eating, give me an email!

Dr Mark Sutherland has joined the School as a Lecturer in Biochemistry, taking over from Dr Jim Boyne. Dr Sutherland completed his BSc in Microbiology at the University of Cape in South Africa. He then went on to do a BSc (Honours) and MSc in Microbiology at the University of Stellenbosch. He then worked for a few years as a Lecturer in Microbiology and Biochemistry at the University of Fort Hare before being offered a fully funded PhD in Germany. Dr Sutherland completed his PhD in Medical Biochemistry at the Charitè – Campus Benjamin Franklin in Berlin and worked as a PDRA in the field of protein targeted therapeutics (immunotoxins) for 5 years. He moved to the Institute of Cancer Therapeutics at the University of Bradford 13 years ago, over which time he has carried out research on a number of projects within the Institute, as well as lecturing on the MSc courses and some undergraduate BioMed courses. He has extensive experience in Molecular Biology techniques and elucidating drug mechanism of action, he is keen to chat with new colleagues to explore shared interests while he develops his own research projects. When Dr Sutherland is not at work you are more than likely to see him either out running or cycling.

New Arrivals…

The ChemBio family is growing! In the last few months, two of our Biomedical Science lecturers have had babies. **Dr Jenny Waby** welcomed baby Lana in September, and **Dr Kirsten Riches-Suman** welcomed baby Rohan in November. Both families are doing very well and have popped into the department to introduce their new arrivals. Dr Waby and Dr Riches-Suman will be on maternity leave for the remainder of the 2018-19 academic year and are looking forward to resuming their teaching and research inr 2019-20.

Research

Funding cutting edge research

UK-India project combats infections threat with diagnostics

A £3 million interdisciplinary research project, involving the University of Bradford, is to address the growing threat of drug-resistant infections in India. The project will develop innovative diagnostics to curb antimicrobial resistance (AMR), one of the biggest threats to global public health. AMR describes the situation when infections agents – including bacteria and parasites such as malaria – become resistant to the medicines used to treat them.

The **DOSA programme** – Diagnostics for One Health and User Driven Solutions for AMR – brings together nine leading academic institutions, five from India and four from the UK. Medical researchers, diagnostic innovators, economists and social scientists will create cutting edge, rapid diagnostic solutions to fight AMR in settings as diverse as community healthcare, dairy farms and aquaculture.

AMR is of particular concern in India, where the levels of infectious diseases are high but public knowledge of diseases and appropriate treatments is low. In India, and across the globe, antibiotic use is regularly carried out without appropriate diagnostics, thereby fuelling the AMR crisis. Rapid diagnostic tools are either unavailable, too expensive or do not fit people's needs, which leads to antibiotics being used in a trial and error fashion.

Professor Stephen Rimmer, Head of the School of Chemistry and Biosciences at the University of Bradford, said: "The programme will allow us to develop our responsive polymer technology into a new format, adapt our work to detecting resistant bacteria and engage in real world field trials. Detecting resistant bacteria in different environments is probably one of the most important challenges of the 21st century and this major grant will help us make substantial steps forward."

The three-year DOSA programme will begin with a meeting of the project group on 24-25th September at the Indian Institute of Technology Delhi. The project is jointly funded by **UK Research and Innovation/Economic and Social Research Council**, the **Newton Fund**, and **Government of India's Department of Biotechnology**. Indian partners include the Indian Institute of Technology Delhi; the Centre for Cellular and Molecular Platforms Bangalore; ICAR-Central Institute of Fisheries Technology, Cochin, Kerala; ICAR-National Dairy Research Institute, Karnal, Haryana; Silchar Medical College and Assam University, Silchar, Assam. UK partners include the Universities of Edinburgh, Bradford and Southampton and University of the Arts London.

University Funding

The school has been incredibly successful in securing funding through the University's internal funding streams.

Dr Nicolas Barry, Dr Steven Picksley, and Dr Steven Shnyder have been successful in their application to the **University Research Development Fund Research and Innovation Pump Priming Scheme**. This £12,387 project will aim at progressing towards in vivo understanding of the anticancer properties of a highly promising drug candidate. Dr Gisela Helfer secured funding for a project entitled 'Life in the dark: Circadian rhythms of naked mole-rats'. Dr Rianne Lord had her project entitled 'New phosphate mimicking vanadate complexes: in the inhibition of cancer metabolism and cell survival' funded, as did Dr Sarah Pike (PI) and Rianne (Co-I) on 'Synthetic organic oligomers: An innovative class of bioinspired anti-cancer drugs'. Dr Refaat Hamed also secured £12,000 of funding in this round.

Prof Anne Graham secured £1975 from the **Research Development Fund** and £1378 from the **International Mobility Fund.**

Centre for Skin Sciences

The Centre for Skin Sciences has had a lot of success during the last quarter:

- Prof Kevin McElwee has been awarded £9,925 from the **Alopecia UK Foundation 2018 Research Pots** grant scheme.
- UoB signed a contract with German Pharma company **Dr August Wolff** for CSS to study the effects of drugs on epidermal pigmentation. Steve Sikkink will start work on this project early in 2019.
- Projects with three industry partners worth £350K have been quoted during November including a further year of funding from **Aveda/Estee Lauder** funding Rachael Sutherland Sedman's project on scalp ageing.

Follicum BV

The University of Bradford's Centre for Skin Sciences (CSS) and **Follicum BV**, a Swedish biotech company are developing a new peptide drugs in two areas, hair loss and diabetes, will begin research collaboration early in 2019. The bioinformatics aspects of the project will be led by Dr Krzysztof Poterlowicz, with co-investigators Dr Julie Thornton and Prof Kevin McElwee leading on in vitro biology and transcriptomics. This is the third industrial grant awarded to Poterlowicz's lab in the last 24 months utilising the power of open data in bioscience research.

Oddfellows funding makes vital Burns Unit research a reality

Representatives from the national friendly society, the **Oddfellows** visited Bradford's **Plastic Surgery and Burns Research Unit** (PSBRU) on Monday 17th Sept ember for a lab tour and to present a cheque for £29,000. The donation marked the final stage of a major three-year funding partnership which began in 2015 and has totalled £88,000. The money has been used to directly support the Unit's delivery of a potentially life-changing project into hard-to-heal wounds and burns.

Officially titled '**Exploiting the Hair Follicle as the Preferential Source of Wound Healing Cells in the Human Skin**', the project has seen the research team grow fibroblast cells found in human hair follicles and, through new technologies, investigate their importance in the wound healing process, specifically under diabetic conditions where the healing process is compromised. The Oddfellows' visiting guests, which included its CEO, Chairman and members from Bradford District, were taken through the project's latest findings and thanked for their support.

The Unit was founded by Professor David Sharpe following the fire disaster at Bradford City Football Club in 1985, where 56 people lost their lives and 258 others were injured. Speaking about its work, **Dr Stephen Sikkink**, Experimental Officer of the University's Centre for Skin Sciences (CSS), said: "With diabetes diagnoses rapidly increasing and an ever ageing population, our continued research into the cellular changes that result in impaired would healing is incredibly important. We'd like to thank the Oddfellows for their support in funding our research project. We're at the stage where we can now utilise new technologies, which could help us provide valuable insight into why the wound healing process in diabetic patients is impaired. Understanding this will help us develop new clinical targets for treatments and therapeutic interventions. These have the potential to ultimately provide life-changing benefits."

The Unit is the most recent Oddfellows HA Andrew Memorial Fund benefactor. Established in 1971, the Fund provides financial support over a three year period to a project or organisation involved in, or conducting medical research in the UK. So far £1,029,000 has been donated, with previous recipients being Parkinson's UK, the Alzheimer's Society and the Stroke Association. The project was successfully nominated for funding in 2015 after members from the Oddfellows' Huddersfield and Bradford Branches brought the Unit's life-changing work to its attention. Jane Nelson, Chief Executive of the Oddfellows, added: "Giving back is at the heart of our society. Our members are bonded by the shared desire to help others, so we're delighted that our donation has supported the great work the Unit, including the continuation of research that could positively impact so many lives."

The Oddfellows is one of the largest and oldest friendly societies in the UK, with Branches across the UK. Its members in Bradford come together to enjoy a wide variety of local social events and regularly fundraise for good causes in the region and beyond. To find out more about the Oddfellows' Bradford Branch and its events and activities, contact Janet Booth on 01943 878864 or email janet.booth@oddfellows.co.uk.

L-R: Senior Lecturer in Biomedical Sciences for the Centre for Skin Sciences ***Dr Julie Thornton****, Oddfellows' Chief Executive Jane Nelson, Oddfellows' Grandmaster William Henchliff and CSS Experimental Officer* ***Dr Stephen Sikkink***

Bradford's CSS Plastic Surgery and Burns Unit team with Oddfellows Chief Executive Jane Nelson, Grandmaster William Henchliff and members from Oddfellows Bradford District

Research

Funding and Publications

Industrial Partnership

Dr Refaat Hamed, Lecturer of Chemical Biology, has won a prestigious **BBSRC**-funded award to work with industrial collaborators to develop a technology for the cost-effective production of alkyl methacrylates from lignocellulosic feedstock employing state-of-the-art tools in metabolic engineering and synthetic biology. **Industrial Partnership Awards** encourage and support collaboration between academic research groups and industry. The Bradford-led grant will help Dr Hamed and his team to demonstrate the synthetic biology-related skills within the University of Bradford and should encourage students within Bradford area towards studying biotechnology-related topics.

Popular Media…

Helfer G and Dumbell R. **Obesity: Hamsters may hold the clue to beating it.** *The Conversation*, Oct 5, 2018

Textbooks

Prof Vladimir Botchkarev, Dr Natasha Botchkareva, Dr Mike Fessing and Dr Andrei Mardaryev, together with other internationally recognised experts and with Prof Botchkarev as Editor, have produced a new Springer's volume in the "Stem Cell Biology and Regenerative Medicine" series on the topic of **Epigenetic Regulation of Skin Development and Regeneration**. The book can be accessed here: https://www.springer.com/gb/book/9783319167688

Pitto-Barry A, Barry NPE. **Controlled release of carbon monoxide from a pseudo electron-deficient organometallic complex.** *ACS Omega* 2018;3:15623–15627

Shang L, Crowley M, Dando M. **Act now to close chemical-weapons loophole.** *Nature* 2018;562, 344,

Trenfield SJ, Goyanes A, Telford R, Wilsdon D, Rowland M, Gaisford S, Basit AW. **3D printed drug products: Non-destructive dose verification using a rapid point-and-shoot approach.** *Int J Pharm*. 2018;549(1-2):283-2

Zhang X, Ye Y, Zhu Z, Yang Y, Cao H, McElwee KJ, Lin Y. **Sequential cyclic changes of hair roots revealed by dermoscopy demonstrate a progressive mechanism of diffuse alopecia areata over time.** *Exp Dermatol*. 2018.

Papers in Press…

Canning SL, Ferner JMF, Mangham NM, Wear TJ, Reynolds SW, Morgan J, Fairclough JPA, King SM, Swift T, Geoghegan M, Rimmer S. **Highly-ordered onion micelles made from amphiphilic highly-branched copolymers.** *Polym. Chem*, 2018

Coverdale JPC, Bridgewater HE, Song JI, Smith NA, Barry NPE, Bagley I, Sadler PJ, Romero-Canelón I. **In vivo selectivity and localization of reactive oxygen species (ROS) induction by osmium anticancer complexes that circumvent platinum resistance.** *J Med Chem*. 2018; 61(20):9246-9255.

Crowley M, Shang L, Dando M. **Preventing chemical weapons as sciences converge.** *Science* 2018;362(6416): 753-755

Dong C, Ma A, Shang L. **Nanoparticles for postinfarct ventricular remodeling.** *Nanomedicine (Lond)*. 2018

Habas K, Shang L. **Alterations in intercellular adhesion molecule 1 (ICAM-1) and vascular cell adhesion molecule 1 (VCAM-1) in human endothelial cells.** *Tissue Cell*. 2018 Oct;54:139-143.

Hamed RB, Gomez-Castellanos JR, Henry L, Warhaut S, Claridge TDW, Schofield CJ. **Biocatalytic production of bicyclic b-lactams with three contiguous chiral centres using engineered crotonases** *Communications Chemistry* 2018.

Helfer G, Barrett P, Morgan PJ. **A unifying hypothesis for seasonal control of body weight and reproduction.** *Journsl of Neuroendocrinology* 2018 (to be published in 30th anniversary edition of the Journal next year).

Hughes ZE, Thacker JCR, Wilson AL, Popelier PLA. **Description of potential energy surfaces of molecules using FFLUX machine learning models**, *Journal of Chemical Theory and Computation* 2018.

Lawrence RL, Hughes ZE, Cendan VJ, Liu Y, Lim CK, Prasad PN, Swihart MT, Walsh TR, Knecht MR. **Optical control of nanoparticle catalysis influenced by photoswitch positioning in hybrid peptide capping ligands.** *ACS Appl. Mater. Interfaces* 2018;10:33640-33651.

Lord R, Zegke M, Henderson IR, Pask CM, Shepherd HJ, McGowan PC. **β-Ketoiminato iridium(III) organometallic complexes: Selective cytotoxicity towards colorectal cancer cells HCT116 p53-/-.** *Chem Eur J*. 2018

Moshapa FT, Riches-Suman K, Palmer TM. **Therapeutic targeting of the pro-inflammatory IL-6-JAK/STAT signalling pathways responsible for vascular restenosis in Type 2 diabetes mellitus.** *Cardiology Research and Practice* 2018

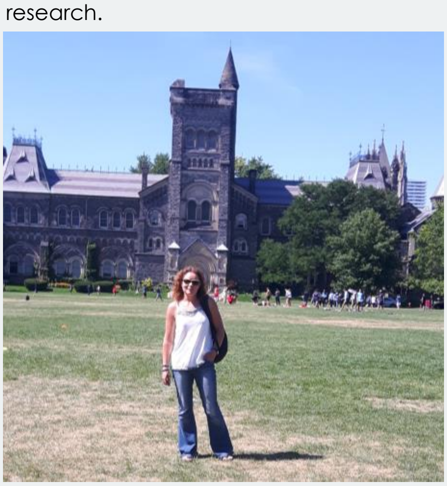
Nwogu N, Boyne JR, Dobson SJ, Poterlowicz K, Blair GE, Macdonald A, Mankouri J, Whitehouse A. **Cellular sheddases are induced by Merkel cell polyomavirus small tumour antigen to mediate cell dissociation and invasiveness.** *PLoS Pathog*. 2018;14(9):e1007276

Bradford-Toronto Collaboration

This summer, Dr Gisela Helfer, spent six weeks on a **British Society for Neuroendocrinology** funded research visit in the lab of Prof Denise Belsham at the **University of Toronto** in Canada. The research visit allowed Gisela to learn intranasal injections of compounds into mice, a technique that will underpin future studies carried out in her lab at ChemBio. The method provides an effective way for delivering compounds to the central nervous system, avoiding systemic side effects, thus making it possible to directly examine the effect of peripheral hormones in the hypothalamus. This new method is currently only available in very limited labs world-wide, and now we are one of them!

For a neuroendocrinologist, the University of Toronto could not have been a more appropriate place to work at – after all insulin was discovered there. Gisela hugely enjoyed spending many hours in an amazingly equipped lab (with air con to escape the blazing heat outside), analysing the samples from her project and using some of the cutting-edge technologies that are available in the Belsham lab. And she also might have passed on some of her own 'wisdom' to the students in the group. Her talk to the Department was very well attended and led to some interesting discussions with some of the leading Profs in the field.

The research visit was highly successful and Gisela managed to get a lot of exciting data from the project. These have led to a Rosetrees Trust grant together with colleagues from the University of Nottingham to investigate nasal peptide sprays as possible treatment for Alzheimer's Disease (submitted Oct 18) and a BBSRC New Investigator grant to investigate the impact of the adipokine chemerin on the hypothalamic control of feeding (to be submitted Jan 19). In addition, the research visit allowed Gisela to build a new, and with no doubt successful, collaboration with Prof Belsham and lay the foundation for high impact original research.



Dr Gisela Helfer at the University of Toronto campus

August-Wilhelm Scheer visiting professorship

Dr Rianne Lord was awarded an **August-Wilhelm Scheer visiting professorship** by the **Technische Universität München** (TUM, Germany) and since September she has been conducting research on new inorganic complexes for the treatment of cancer. She has been working alongside the inorganic medicinal chemists in the group of Prof. Dr. Fritz Kühn, and helping them to explore new synthetic pathways to stabilise early transition metal complexes.

A range of early transition metal complexes synthesized by Dr Rianne Lord at the TUM

Rianne has also been helping the research group to establish cell culture facilities and has been training PhD students to conduct cell viability assays. She will continue this collaborative work on her return to Bradford in January, and will return to the TUM on future research visits.

On 26th November, Rianne also gave an invited seminar talk on "Transition metal complexes: from structural design to cancer stem cell selectivity", as part of the TUMs Kolloquium Anorganische Chemie.

Dr Rianne Lord presenting as part of the TUMs Kolloquium Anorganische Chemie

BIRAX Ageing 2018

In early September, Dr Julie Thornton and Dr Kirsten Riches-Suman travelled down to London for the first BIRAX conference dedicated to ageing. Although it was quite a small conference in terms of attendees (maybe ~150), it was big in terms of it's programme. The first session even had a special guest, Lord Robert Winston, and we were both a little star struck!

The quality of science over the three days was excellent – as well as covering topics such as vascular ageing, sessions were incredibly diverse and covered cellular signatures in the methylation patterns of circulating cfDNA, immunesenescence and proteostasis. Prof Ralf Paus (University of Manchester) was at his most entertaining and educational, and Prof Andy Baker (University of Edinburgh) gave a fantastic insight into his journey of trying to take a cardiovascular therapy from bench to bedside. However, it was Prof Janet Lord from the university of Birmingham who was the ultimate highlight – fantastic science, brilliant presentation skills and a real inspiration for women in STEM everywhere!

Dr Julie Thornton and Dr Kirsten Riches-Suman enjoying the sights of London, and guest of honour Lord Professor Robert Winston

Yorkshire Breast Cancer Symposium

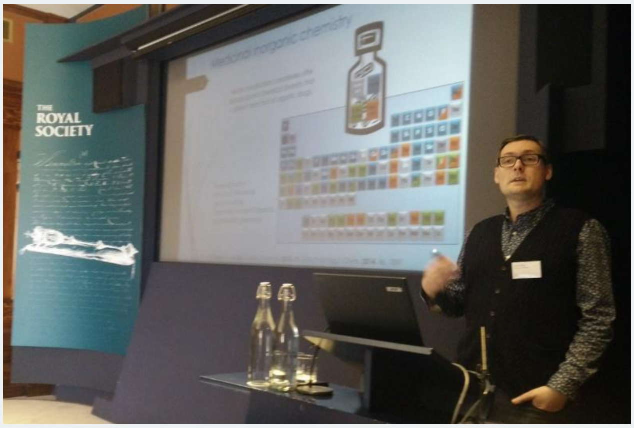
The 2nd **Yorkshire Breast Cancer Symposium** was held at St James' Hospital, Leeds on the 13th September 2018. The conference is organised by the White Rose University Consortium (Universities of Leeds, Sheffield and York) with the aim to build a local research network across Yorkshire.

PhD student Anca Tutuianu (supervisors: Dr Jim Boyne, Dr Kirsten Riches-Suman and **Dr Wayne Roberts** (Leeds Beckett)) did a fantastic job of keeping her nerves to give her first ever conference presentation at the very end of the day. Anca did a fantastic job, and showcased both her PhD and the researchers of the University of Bradford really well!

Anca Tutuianu presenting her work on platelet microparticles and the role that they can play in breast cancer

Royal Society

Dr Nicolas Barry presented the research of the Barry group at **the Royal Society New Talent** event in October 2018. A blog post written by the Royal Society can be found here: https://blogs.royalsociety.org/publishing/new-talent-royal-society-open-science/



MICRA 2018

Dr Rianne Lord attended the **Meeting of Inorganic Chemists Recently Appointed** (MICRA) at Cardiff University and presented her work on "Solid state synthesis of vanadyl complexes: Simple design with high potency towards cancerous cells"

Academy of Medical Sciences

Dr Nicolas Barry presented at the **Academy of Medical Sciences Winter Science Meeting** on November 2018. This Meeting is a great opportunity for all award holders to showcase their research, network with other fellows and research funders, and explore the next steps in their careers.

Dr Anaïs Pitto-Barry attended a workshop on the prevention of microbial contamination of biomaterials for tissue regeneration and wound healing, at Lancaster in The Storey, a beautifully restored building with stained-glass windows . This workshop was a three-day event with participants from the UK and Russia, sponsored by the British Council Researcher Links. While the days were focused on biomaterials, we have been lucky enough to be entertained by traditional Russian songs for one evening.

Dr Julie Thornton and Prof Stephen Rimmer attended a DIC/LEP meeting in Leeds around building a major regional hub in **Wounds and Repair**. Hopefully we will be major players in this in the skin, nursing and wound dressings areas. Julie also attended the **Grow MedTech** launch, which looks to be a very useful new fund.

RAPS 2018

Dr Anaïs Pitto-Barry presented her research at the **RAPS** meeting (Recent Appointees in Polymer Science), organized by Dr Maria Katsikogianni in September 2018, and won the best poster prize for her work entitled "Formulation of hybrid materials for detection, capture, and "on-demand" release of carbon monoxide". If you are interested by this topic, we have recently published an article in ACS Applied Materials and Interfaces (https://pubs.acs.org/doi/10.1021/acsami.8b01776)

Dr Anais Pitto-Barry receiving the Best Poster Prize at RAPS 2018

Dr. Sanjit Nayak and Professor Anne Graham have represented the FLS in the VC delegation to India to develop new partnerships. The trip has been a great success with potential student exchange programmes in future for joint MSc and research.

Elixir UK and European Galaxy Days

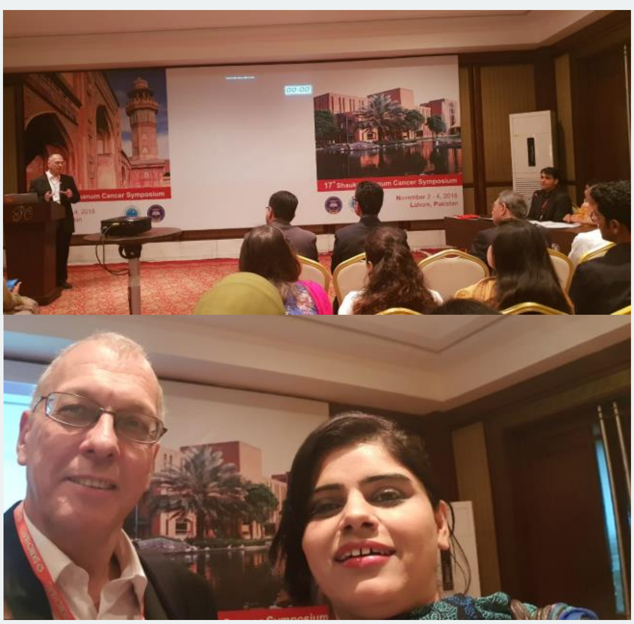
Dr Krzysztof Poterlowicz has attended this year's **ELIXIR-UK** annual meeting. Elixir unites Europe's leading life science organisations in managing and safeguarding the increasing volume of data being generated by publicly funded research and is the major body indicated in the UK Research and Innovation (UKRI) infrastructure roadmap. Poterlowicz's lab has been involved in a range of Elixir activities i.e Galaxy data platform, Copy Number Variation community, and research training. Dr Poterlowicz also talked about CSS data integration capability at the **European Galaxy Days** meeting which resulted in an invite to chair the session and to the scientific committee of GCC2019 – a major international computational biology conference to be hosted July 2019 in Freiburg.

Research

Communicating science

Lahore Symposium

[Dr Chris Sutton] was invited speaker at the **Shaukat Khanum Memorial Cancer Hospital Symposium** in Lahore. The Hospital, which was founded by Imran Khan (our previous Chancellor and current Prime Minister of Pakistan), provides state-of-the-art care for nearly 10000 cancer patients per year based on predominantly charity donations. Chris was delighted to meet up with Saira Saleem, one of his previous PhD students who is now a Researcher with her own team at the Shaukat Khanum Memorial Cancer Hospital and Research Centre, studying head and neck cancers, and colorectal cancer.



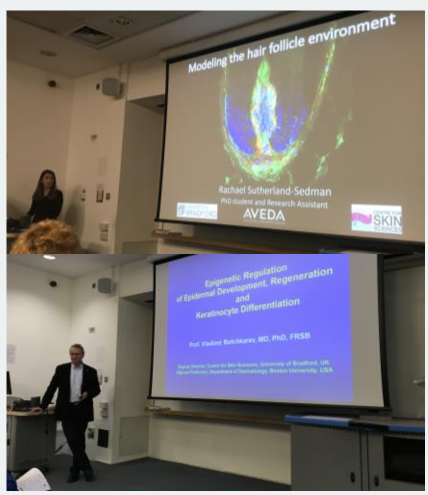
Upper panel: Dr Chris Sutton presenting at the symposium. Lower panel: Chris catching up with Saira, his previous PhD student, who has achieved great success in establishing her own research group.

Skin Club

Prof Vladimir Botchkarev, Dr Julie Thornton, Lucy Trevor, Rachael Sutherland-Sedman and Richard Baker

In CSS there were two invited talks delivered at the **London Skin Club** on November 8th at University College London. The London skin club is a bi-annual meeting and is designed to encourage discussion and promote collaboration. In each meeting PhD students and postdoctoral researchers present their latest research. There is also a keynote presentation by an established PI in the field.

The keynote speaker was our very own Professor Vladimir Botchkarev who delivered a fantastic talk titled 'Epigenetic regulation of skin development and keratinocyte differentiation'. Rachael Sutherland-Sedman also presented her research done with Estee Lauder titled: 'Modelling the hair follicle environment'.



Rachael Sutherland-Sedman and Prof Vladimir Botchkarev presenting their work at the London Skin Club

On the Television…

Dr Alex Surtees and Dr Richard Telford (Analytical Centre) have been working with Prof Howell Edwards and the Nantgarw museum to establish the secret recipe used by the founder of the works, William Billingsley. Many porcelain works claiming to be a Nantgarw/Billingsley have been put onto the open market but without knowing the secret recipe it has been impossible to verify their provenance. Using Raman spectroscopy we have been able to deduce the recipe used at Nantgarw and thus verify the provenance of several questioned pieces. Further to this, our technique is completely non-destructive. Previous methods of testing involved drilling into the pieces causing damage and a reduction in their value. This work was featured on **Bargain Hunt** when they visited the china works in Nantgarw to examine some of the Billingsley works that had been studied in the Analytical Centre.

Dr Clare Towse received her **Member of the Royal Society of Biology** (MRSB) initials. This involved the RSB voting on whether to accept her as a full member and allows her to use the initials after her name.

On the Radio…

Dr Nicolas Barry, Dr Stephen Hickey, and Prof Stephen Rimmer were invited at the **BCB radio station** in October 2018, to talk about Chemistry and Biomedical Science stunning work being carried out that is having real impact on a world stage.

Dr Lijun Shang talked about his recent Science paper on **BCB radio** in November 2018.

Promotions

Dr Nicolas Barry has been promoted to Senior Lecturer, 10 years to the day after having started his PhD.

Dr Clare Towse, Dr Nadeem Javid, Dr Rianne Lord, Dr Gisela Helfer, Dr Kirsten Riches-Suman, Dr Maria Katsikogianni and Dr Kryzstof Poterlowicz have all been promoted to Grade 9. Congratulations to all!

Chemical Weapons

Following on from Dr Lijun Shang's recent book on chemical weapons (see link http://www.rsc.org/news-events/articles/2018/aug/chemical-weapons-book-launch/) **published by the Royal Society of Chemistry** in 20 August, he published a letter to Nature and a paper in Science on the topic – see page 5 for details. This resulted in a lot of media attention:

https://eurekalert.org/pub_releases/2018-11/uob-pcw111018.php

https://www.chemistryworld.com/news/scientists-must-be-alert-to-misuse-of-their-work-for-chemical-weapons/3009800.article

A public lecture on the work was held at the University of Bradford, hosted by the Vice Chancellor Prof Brian Cantor, in November 2018.

Education for employability in the cosmetics industry

The cosmetics and beauty products sector employs one million people in the UK and is worth £10billion – **Cosmetics Cluster UK** and its partners ask 'are we educating to maximise employability in this sector?'

Dr Gill Westgate is the Chair of Cosmetics Cluster UK (CCUK), a networking organisation for the cosmetics and personal care industry in the UK, whose members include several companies local to the University of Bradford. The school of Chemistry and Bioscience is working towards inclusion of cosmetic science-based modules in the Chemistry UG degrees and higher apprenticeships in recognition of the importance of this sector and its potential attractiveness to prospective students. Gill and **Dr Sobia Kauser** have been working with local companies to gain their support and help with the new programmes, as well as understanding education for and employability in this sector.

A recent Mintel report showed that the UK is now the sixth largest market for beauty and personal care, worth around £10.2bn in 2017. So why is it that the majority of scientific and technical employees in the personal care and cosmetics industry simply "fall" into their roles by chance?

To consider this question, Gill attended a meeting in London with CCUK, along with project partners, Cosmetic Executive Women (CEW UK), The Cosmetic Toiletry & Perfumery Association (CTPA), The Society of Cosmetic Scientists (SCS) and the London College of Beauty Therapy. Questions discussed included: Is the industry in the UK being best served by science education and training that does not signpost jobs in this sector? How can we in the industry help raise awareness of the amazing science behind cosmetics and personal care products such that future workers choose our industry from an early stage? In short, how can we address this?

This group is spearheading an initiative to produce a white paper for the sector that encompasses:

- Building awareness of this industry with educators
- Developing a national curriculum for the industry
- Demonstrating increased employability in the industry

CCUK has been commissioned to conduct a survey to establish how employees within the sector got into their jobs in the industry and what the impact of the four UK Universities offering cosmetic science education in the UK has been to employability.

One of the most important current factors on employability that will impact the cosmetics sector in the UK is Brexit. CCUK held a 'Practical Brexit' day on Dec 4th hosted by Thor Personal Care UK. Presentations from HSE (the UK legal authority post Brexit for the cosmetics and personal care industry), the CTPA (advocate for the industry) and CCUK member companies provided advice and company plans on the 'deal' and 'no deal' scenarios. Key take home messages were that the sector needs to be ready now for a 'no deal' Brexit on March 29th 2019 with examples of issues being REACH legislation (moving to UK REACH under HSE/Defra), product safety assessment by UK companies has to 'pass' EU requirements for UK product sales in the EU and UK products for sale in the UK and EU will need to be registered in UK and an EU country. Employability issues were discussed in the context of the possible downturn in well-trained EU nationals coming to or continuing to work in the UK, and the ability of the UK to fill these skills gaps via Further and higher education and apprenticeships.

External Examining…

Dr Gisela Helfer has had her external examiner role for 'Animal Physiology' (Yr 3 course) at **University of Tromsφ**, Norway, extended for another year

Virtual Reality Network

Dr Clare Towse has been asked to join a **Virtual Reality Network** of AR/VR educators and experts on the OneHE educational platform and is looking forward to taking up this position.

Admissions and Outreach

Recruiting the next generation of Bradford students

Prospective Students

The madness of clearing is well and truly behind us, and the standard recruitment cycle for 2019/2020 is in full swing. In the period between September and December we have had four successful open day events, and the first of our applicant experience days. I'd like to say a big 'thank you' to all of the staff, student ambassadors and student society members who gave up their time to make these events a success. One particular highlight was the hands-on Microbiology practical that our visiting applicants took part in, so a big thank you to **Dr Jon Fletcher**, **Dr Amber Leckenby** and **Dr Martin Brinkworth** for running this practical, and of course our wonderful technicians for doing all the hard work!

If you want to get involved in any upcoming AEDs, taster days or outreach events, please don't hesitate to contact me!

Dates for the diary:

Upcoming AEDs

- **Wednesday 23 January (PM)**
- **Saturday 2 February (PM)**
- **Wednesday 27 March (PM)**

PG Open Day

- **Thursday 7 March (PM)**

Summer Science 2019

A team lead by Peter Sadler (Warwick), Rosalind Rickaby (Oxford), Margaret Rayman (Surrey), Claudia Blindauer (Warwick), Prinessa Chellan (Stellenbosch University, South Africa), and **Dr Nicolas Barry** have been awarded one of the 22 exhibits at the **Summer Science Exhibition 2019** (see https://www.youtube.com/watch?v=fz1HgApzD1A for 2018 promo video:). This is a seven days public engagement exhibition organised by the Royal Society which will take place in July 2019. Last year, more than 40,000 people attended (general public and secondary school students). This is a major event which is free to attend. The theme for the 2019 exhibition is "**A Periodic Table for Life**". 2019 has been proclaimed as the International Year of the Periodic Table of Chemical Elements by the United Nations. More info on this link: https://iupac.org/united-nations-proclaims-international-year-periodic-table-chemical-elements/

Women in Science

Early this year, **Dr Rianne Lord** was invited by the RSC to participate in the research for "Women's retention and progression in the chemical sciences", and on November 6th and she received a further invite to attend the report launch at Burlington House, London.

Dr Clare Towse has won funds to run a workshop on "Overcoming Barriers in Chemistry Teaching within the Biosciences". This is a HUBS, HUCBS initiative and ChemBio is well suited to make a major contribution here.

Royal Society Partnership – Ilkley Grammar School

The work of **Dr Nicolas Barry** and **Dr William Martin** with Ilkley Grammar School is continuing as part of a Royal Society Partnership Grant. The school visited the university in November 2018, while Nicolas and William will go to the school in December. This project has been progressed to the next stage of the selection process for an exhibit at the Summer Science Exhibition 2019. The shortlist was originally 7 schools out of 22, and we are now one of 3 schools being considered for this exciting opportunity.

Student Zone

Successes, societies and inspiration

PhD student successes

Nahid Sharmin has successfully defended her PhD with the title "Therapeutic targeting of BMP and TGF-β signalling pathways for the resultion of pulmonary arterial hypertension" on the 7th September 2018. Nahid started in November 2015, from Department of Pharmacy at University of Dhaka, Bangladesh. She is a Commonwealth Scholarship student. **Dr Talat Nasim** (School of Pharmacy**)** and **Prof Anne Graham** were his project supervisors – massive congratulations, Nahid!

In late November, **Shabana Akhtar** successfully passed her viva. Shabana's project was on 'Molecular mechanisms of myricetin bulk and nano forms mediating genoprotective and genotoxic effects in lymphocytes from pre-cancerous and myeloma patients' and she was supervised by **Prof Diana Anderson** and Dr Raj Gopalan. Many congratulations, Shabana!

European Association for Professions in Biomedical Science (EPBS) Student Poster Award

The Institute's Education and Professional Standards Committee agreed to sponsor a student that was in the final year of an IBMS accredited undergraduate degrees to attend the **EPBS Student Forum** and submit a poster for the **Martin Nicholson Award.** Meeting are always held in Europe and this year's meeting was 12th-13th October 2018 in Figueira da Foz (Portugal).

One student from each member country is allowed to participate in the poster competition for the "Martin Nicholson Award". The Institute as member of EPBS was invited to submit a poster representing work undertaken by students during their undergraduate training. During the annual EPBS General Governing Body (GGB) meeting the posters are presented and the best three posters are awarded.

From the University of Bradford, recent BSc Biomedical Science graduate **Kezar Vanat** was nominated as the best poster presented titled "Investigating the cord blood stem cell (CBSC) and whole blood white blood cell *in vitro* response after treatment with UVB and γ Tocopherol". Kezar won the First place poster in this great EU/International competition Martin Nicholson Award. He currently continues his education in Medicine at Kings College University in London.

Chemistry Careers

Dr Clare Towse has started a stability trial project in the stage 3 labs in chemistry that is also an educational research project we will be aiming to get published in 2019. The most common entry-level position occupied by graduate chemists are analytical chemistry roles. The stability trial project was designed to expose students to tasks performed by analytical chemists in industry and to start a dialogue about careers, perspectives on chemistry jobs, what analytical chemists do and terminology/standards they will need to know to be competitive at interview.

Student Zone

Successes, societies and inspiration

Student Societies

What a semester this has been for the society, whilst at first we had a slow start, we have had a big uptake in numbers and have run revision sessions and socials since then.

The first years have been the main focus of the society run revision sessions, and make up the largest part of our membership. We have been giving them information that would have been helpful to myself and other second years at this point last year, and are looking forward to what the next semester can bring.

Merry Christmas to all Biomed students, society members or otherwise!

Jacob Livingstone (j.t.c.livingstone@bradford.ac.uk)
President of the Biomedical Science Society

ChemSoc, the new society for all chemistry students has been launched this year to provide support for students and organise socials throughout the year to allow students from each stage of their degree to engage with each other. ChemSoc held elections in October to appoint members to the executive team, **Nathan Fenwick** (president), **Daniel Hall** (secretary) and **Joanne Ofori-Appiah** (treasurer). So far ChemSoc has successfully organized a multitude of both social and support-oriented events, including a meet n greet, a quiz night, a support session around referencing and getting to grips with Endnote and a practice presentation session for stage 1 coursework, doubling our members in the process. Events lined up for the future include a party after January exams to chill after a busy Christmas working and potential collaborations with other STEM societies.

VOLUNTEERS NEEDED!!!

Are you interested in helping out with the newsletter? Do you want to quiz your professors on how they reached their positions? If so, then we would like to hear from you! We are looking for volunteers from either Chemistry or Biomedical Science (or indeed both) who would be interested in conducting the 'Meet Your Professor' interviews that are normally found at the end of this newsletter. All it takes is a ~1 hour timeslot with yourself and the professor, and then a write up of what you discussed. It's easy, and our two roving reporters from last year (**Absari Choudhury** and **Ridha Ali**) really enjoyed the experience. If you would like to volunteer, please contact **Dr Kirsten Riches-Suman** (k.riches@bradford.ac.uk) or **Dr Andrew Tedder** (a.tedder@bradford.ac.uk) – we're looking forward to hearing from you!

Join our LinkedIn Groups

LinkedIn is a great tool for building your professional network, showcasing your skills and can even lead to employers contacting you, rather than the other way around. Here at Bradford we have our own LinkedIn groups so please, sign up for your free LinkedIn profile at www.linkedin.com and join the community!

Bradford University School of Biomedical Sciences
Bradford University School of Chemistry