University of Southampton

Chemistry Newsletter

Autumn 2020

Inside your Newsletter:

Important Dates

Semester 1:
Mon 28th September 2020 to Sat 30th January 2021

Semester 2:
Mon 1st February 2021 to Sat 12th June 2021

Term dates:
Autumn: 5th Oct 2020 to 12th Dec 2020
Spring: 4th Jan to 20th March 2021
Summer: 12th April to 12th June 2021

Christmas vacation:
Sat 13th Dec 2020 - Sun 3rd Jan 2021

Semester 1 exams:
Mon 18th Jan to Fri 29th Jan 2021

Easter Vacation:
Sat 21st March to Sun 13th April 2021

Athena SWAN Silver Award
2015 Silver Award Winners - Chemistry at Southampton

Message from Head of School: Professor Jonathan Essex

Welcome to the latest edition of our School newsletter. I'm Jon Essex and since August I have been the new Head of Chemistry. I've worked in the School of Chemistry at Southampton for almost 26 years, starting out as a Royal Society University Research Fellow. It's a huge honour and responsibility to be taking over as Head of School, and I'm very much looking forward to working with everyone in our open and collegiate environment. I would like to extend my sincerest thanks to Gill Reid for being Head of School for the past four years; the role is hugely demanding and I'm very grateful for the hard work and dedication with which she supported the School. It is a tough act to follow. I would also like to extend a very warm welcome to our new and current students who have returned to the campus this term. We have adopted a blended learning approach, with material recorded and available on line, interactive sessions on line, and face-to-face tutorials and laboratory classes. I would like to say a huge thank you to our staff for preparing such excellent learning resources.

Our community returns to work!

Many of our staff and researchers are now back and working in the School, albeit with reduced occupancy levels and our covid-protection measures front and centre. It is thanks to the care with which we prepared our covid response, and the way in which those rules are followed, that we are able to operate at the level we are. We should, of course, also recognise that many of our staff and researchers are working from home, and that this is not without sacrifice too. I would like to thank everyone in the School for their hard work, cooperation and support in these very difficult and challenging times.

Finally, please look after yourself and those around you, be considerate and remember to be kind and protect our friends and colleagues.

Would you like to be involved in the newsletter, or have an article to contribute to a future edition?
Please email Lynda Brown L.J.Brown@soton.ac.uk or Dawn Dunlop D.Dunlop@soton.ac.uk

Graduations and Awards

Congratulations to all our Undergraduates who Graduated in the Summer.

Further congratulations to undergraduate prize winners; these included:

Chapman Ho; John Mellor Prize *(Outstanding project in Organic Chemistry)*

Oliver Melling; Alan Carrington Prize *(Outstanding project in Physical Chemistry)*

James Powell; Judith Corker Prize *(Outstanding project in Inorganic Chemistry)*

Hannah Watson; Progression Award *(Academic Development)*

Militza Dimitrova; A E Clarence Smith *(Outstanding performance BSc graduate)*

Kahlan Newman; David Runciman Boyd *(Outstanding performance MChem graduate)*

Kyran Whymark; Outstanding Research Placement Project

Topaz Cartlidge; R E Parker Project *(Best BSc project)*

Jack Hodgson; Roger Parsons Prize *(Highest level of academic achievement in graduating cohort)*

Congratulations to the following students on their awards since last newsletter:

MPhil awards:

James Graham - *Software for the Automated Generation of Coarse-Grained Molecular Dynamics Models*

Taylor Haynes - *An Investigation into ssDNA Translocation Through Protein Nanopores*

Maria Ashe **-** *Predictive approach to MS/MS fragmentation using Density Functional Theory calculations*

PhD awards:

Andreina Pacheco Pita - *Multi-Component Synthesis using Zirconium*

Gregory Limburn - *Oxychalcogenides for Transparent p-Type Conductors*

Eleanor Dodd - *A Systematic Study into the Influence of Aromatic Stacking Interactions and Fluorine Substituent Effects on Molecular Organic Crystal Assembly*

Anastarsia Christine Marrie-Louise Carter - *The Analysis of Diesel and Related Fuels, New Fuels and Components by Mass Spectrometry and Other Techniques for Fouling in Common-rail Diesel Injection Systems*

Abdulrahman Faraj Alharbi - *The High-throughput Synthesis and Screening of Non Modified Thin Film Materials for Photovoltaics*

Hassan Gneid - *Development of Broad Spectrum Antimicrobials Using Modified Antisense Oligonucleotides*

Jack Taylor - *Sub-cellular Imaging of Compound Localisation using Enhanced-Raman Modalities*

Samia Ibrahim N Alsobhi - *Synthesis of Complex Transition Metal Nitrides and their Ammonia Synthesis Activity*

Lauren Lucinda Entwistle - *Exploring the Cytotoxicity of DNA Nanopores for Treatment of Melanoma*

Damien Francis Jefferies - *Probing the Molecular Level Details of Bacterial Outer Membrane Vesicles and Their Parent Bacteria: A Simulation Approach*

Steven Linfield - *Preparation of Glass Nanopores for the Coulter Counting of Transient Nanobubbles*

Anthony Blue Carter - *The Role of Supramolecular Interactions in Magnetic Systems: 1,8-Napthalimides and Other Pi-Containing Species*

Cameron Philip Ross - *Investigating Cobalt Zeolitic Imidazolate Frameworks as Catalysts for Cross-Dehydrogenative Couplings; Exploring Mesoporous Silicas as Scaffolds for an Organocatalyst*

Can Simon Pervane - *Enhancing Conformational Sampling by Modifying the Underlying Velocity Distribution: Digitally Filtered Hybrid Monte Carlo*

Daniel James Stewart - *Well-defined Metal-Organic Framework (MOF) Based Catalysts for the Direct Utilisation of* CO_2

Christian Bengs - *Non-Equilibrium Nuclear Spin States*

Ane Gutierrez Aguirregabiria - *Using Synthetic Oligonucleotides to Modify Cellular IRES Structures and Control Gene Expression*

Emily Maria Warne - *Measuring Molecular Dynamics Using UV and XUV Photoelectron Spectroscopy*

Cyrielle DOIGNEAUX - *Unravelling the Effects of Hypoxia on Purine Biosynthesis in Cancer*

Dovile Lingaityte - *Characterisation of Complex MDI Oligomers using Supercritical Fluid Chromatography and Mass Spectrometry*

David McDonagh - *Fragment-Based Energy Models and Machine Learning Methods for the Computational Study of Organic Molecular Crystals*

Celebrations and Congratulations

University of Southampton 3MT® Winner: James Easton

The Southampton Three Minute Thesis (3MT®) is one of many such competitions held world-wide and 2020 was our seventh year of Three Minute Thesis. The competition runs annually as part of our Festival of Doctoral Research, and this year the competition was held online.

Congratulations to James who was announced as the seventh University 3MT® Champion at the Doctoral College Awards Ceremony on Tuesday 30 June.

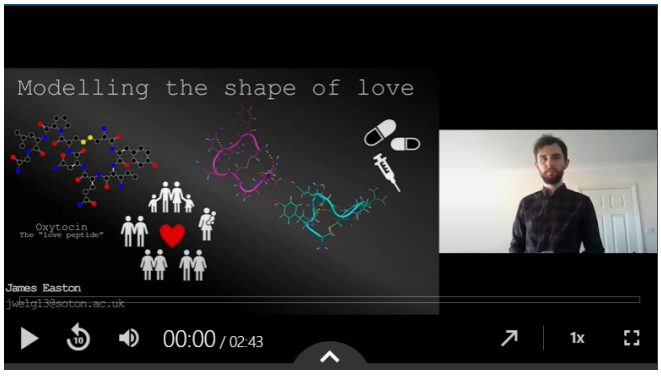
James' research is investigating oxytocin, sometimes known as the love or cuddle hormone, which is the peptide responsible for making us feel close to our romantic partners, children and even our pets.

"I feel honoured to be selected the winner as I thought all the talks were of a very high standard," James said. "I'm delighted to be representing chemistry and especially computational chemistry as I progress into the semi-finals of the national competition."

"My project is investigating the 3D conformations of cyclic peptides, which are a class of important molecules in medicinal research. By investigating their 3D shapes we can better understand how these molecules interact with their targets and I'm working on ways to do this using computational simulations."

"I'm hoping my research will work towards increasing the use of computational data in the drug discovery process, increasing the efficiency of identifying and improving potential therapeutic molecules."

You can watch his presentation via the link below:



https://southampton.cloud.panopto.eu/Panopto/Pages/Viewer.aspx?id=33060647-00c9-44ba-aa02-abd80092e407&start=4.048613

Christian Bengs: Raymond Andrew prize

The Raymond Andrew prize (https://www.ampere-society.org/index.php?page=andrewprize) is a prize given by the Ampere society (the European Society of Magnetic Resonance) for the best PhD thesis in the field of magnetic resonance (which includes both nuclear magnetic resonance and electron paramagnetic resonance). The prize is named after Raymond Andrew, who was an under-appreciated UK physicist who did seminal work on magnetic resonance in Bangor in the 1960's and 1970's, including the invention of magic-angle spinning, a technique which underpins modern solid-state NMR. Christian Bengs will be awarded this prize this year for his thesis on the dynamics of nuclear spins far from equilibrium.

This is a forefront area of magnetic resonance which is rapidly developing, especially due to technical advances in the generation of hyperpolarized nuclear spin systems, which can give enormously enhanced NMR signals, with transformative consequences for NMR spectroscopy and magnetic resonance imaging (MRI). As part of his thesis, Christian showed that the standard "master equation", which derives from the classic work of the 1950's and 1960's, fails for systems which are far from equilibrium, and proposed an alternative form of the master equation which connects magnetic resonance to the field of open quantum systems. This is a deep and far-reaching piece of work, which has been recognised by the award of this prize to Christian from the International Ampère society.

Grants Awards congratulations

EPSRC Core Equipment Awards 2020

- Mark Light was awarded £92K for a piece of equipment (Domed Hot Stage) for the X-ray diffraction facility.
- Simon Coles was awarded £420K (an uplift from £250k) for the National Crystallography Service (NCS) facility.
- Led by Physics and Astronomy, but directly benefitting Chemistry, £400K has been awarded to refurbish and upgrade of helium liquefier.

Congratulations to Prof Ali Tavassoli: European Peptide Society's Leonidas Zervas Award

Professor Ali Tavassoli has been presented the European Peptide Society's Leonidas Zervas Award for pioneering advances to help develop therapies for untreatable diseases.

Ali leads an interdisciplinary team of scientists developing chemical tools that provide new insight into the role of protein-protein interactions.

The high-throughput screening platforms and compounds developed in Southampton have been spun out into a new company, Curve Therapeutics, which aims to progress the molecules to the clinic as therapeutics.

The Leonidas Zervas Award honours outstanding contributions to peptide science over the past five years, with Ali's recognition following a number of nominations from across the international scientific community.

"This is such a lovely surprise as I had no idea that I had been put forward for the award," Ali says. "It means a lot to me that the work of my team and has been recognised as worthy of this award by my peers."

"My lab's focus has developed a platform that allows the production of millions of a class of compounds, called cyclic peptides, in engineered cells. We have coupled this compound library with cell-based methods for assessing the activity of these molecules against a given disease target. We have used this approach for the development of inhibitors against several disease targets for which there has previously been none."

"Our technology now has a proven track record against some of the most challenging disease targets and I am hopeful that through the combined efforts of my lab and my company we can deliver therapeutics for currently untreatable diseases."

Congratulations to Daniel Stewart, winner of the RSC Emerging Technologies award for Energy and Environment

The Viridi CO_2 platform, created by Dr Daniel Stewart and Professor Robert Raja, has been recognised by the Royal Society of Chemistry as a winner of its prestigious 2020 Emerging Technologies Competition.

The novel chemistry solution could be used to more effectively produce tens of millions of tonnes of plastics used annually in mattresses, clothing and building insulation, while also reducing carbon dioxide emissions.

"To have the endorsement of the Royal Society of Chemistry for the stage we're at is phenomenal, and gives us real impetus to speak with investors and stakeholders and demonstrate our enthusiasm and expertise in this area."

"Our platform is capable of maximum carbon dioxide insertion under lower temperatures, pressures and dramatically reduced timeframes. These benefits provide superior energy efficiency and high productivity leading to reduced costs. Unlike other alternatives, these catalysts can also be reused and synthesised in minutes."

The research team have filed a patent for the discovery and are participating in the SETsquared Innovation to the Commercialisation of University Research (ICURe) Programme, as they prepare to spin out the technology. *More information can be found here:*

https://www.southampton.ac.uk/chemistry/news/2020/10/27-southampton-honoured-by-royal-society-of-chemistry.page

https://www.viridico2.co.uk/

Congratulations to our Chemistry colleagues winners of this year's Deans Awards

Sally Dady - FOS, School of Chemistry

In recognition of exceptional service to Chemistry that has significantly contributed to the success of the School, and for demonstrating collegiality and good citizenship in supporting students and staff alike.

Nikolay Zhelev - School of Chemistry

For demonstrating exceptional commitment to change in the planning, interface and then mothballing of Building 29 during refurbishment and the COVID-19 pandemic, and significant contribution to the completion of a project with major importance to the School of Chemistry.

Congratulations to the following members of the Chemistry community for receiving a nomination and being shortlisted for a 2020 VC Award

Sally Dady – nominated for Collegiality
Jo Corsi – nominated for Public Engagement and Outreach

Novel Catalyst Design Signals Key Step for Sustainable Manufacture of Nylon

A multidisciplinary international collaboration, led by Dr Stephanie Chapman and Professor Robert Raja, was instrumental in the design of the novel hierarchical catalyst, which produces a nylon precursor in high yield.

The industrial catalyst could be used in the sustainable manufacture of Nylon-6, or polycaprolactam, a polymer that is used in a range of materials including carpets, seat belts and parachutes.

Lead author Dr Stephanie Chapman, who conducted the research within Southampton's Functional Inorganic, Materials and Supramolecular Chemistry group, says: "Catalytic studies are continuing to improve the sustainability of so many important chemical processes that impact our everyday lives."

"This paper describes how a material design strategy can be used to enhance catalyst performance in an industrially-relevant reaction. With the help of colleagues across the world, we have been able to undertake in-depth characterisation, which has helped us to better understand how the synthetic approach affects the properties of these particular porous catalysts."

https://onlinelibrary.wiley.com/doi/full/10.1002/anie.202005108

https://www.southampton.ac.uk/chemistry/news/2020/09/08-novel-catalyst-design.page

Chemistry at Southampton Ranks First in the Russell Group for Overall Satisfaction in the National Student Survey

Our Chemistry students have demonstrated high satisfaction levels in teaching, academic support and learning resources in the National Student Survey 2020. 95% of Chemistry students were satisfied or very satisfied with the overall quality of their course, placing Chemistry 1st for Overall Satisfaction in the Russell Group.

Chemistry at Southampton scored highly for teaching on its courses, with 99% of students agreeing that staff are good at explaining things and 99% agreeing that the course is intellectually stimulating.

The survey also found that 93% of Chemistry students agreed that their course has provided them with opportunities to explore ideas or concepts in depth.

Dr Geoff Hyett, Undergraduate Admissions Tutor for Chemistry, said: "I'm very pleased with the positive feedback from our students, which I think is a real refection of the quality of teaching at Southampton. It demonstrates the care and effort that our staff put into providing both an excellent education and a positive environment for study."

Under learning resources, there were 93% of Chemistry students that agreed in the NSS 2020 that they have been able to access course-specific resources when needed.

https://www.southampton.ac.uk/chemistry/news/2020/08/11-chemistry-nss-results.page?

RSC President-Elect 2022

Professor Gill Reid has been elected to become the Royal Society of Chemistry's President-Elect.

Gill who has just completed her term as Southampton's Head of Chemistry in July, will take up the role in summer 2022.

"I think the great thing about the RSC is the range of activities that it's involved in, and I've been lucky to be part of that for many years," Gill says. "And just having an opportunity to influence the direction of the Royal Society of Chemistry and to further the benefits that the RSC brings to the chemical sciences, I'm excited, I'm honoured and really thrilled by the opportunity to do this."

Chemistry Publications

UG contributions to research papers

Important research outcomes are the result of work carried out by undergraduate project students and summer placement students.

Recent examples include:

George Razvan Bacanu, Gabriela Hoffman, **Michael Amponsah**, Maria Concistrè, Richard J. Whitby and Malcolm H. Levitt. *Fine structure in the solution state 13C-NMR spectrum of C60 and its endofullerene derivatives.*
Phys. Chem. Chem. Phys., **2020**, 22, 11850-11860
DOI: 10.1039/D0CP01282C

K. R.Cairns, V. K.Greenacre, **L. A.Grose**, W. Levason, G. Reid, F. Robinson. *Synthesis, properties and structures of gallium(III) and indium(III) halide complexes with neutral pnictine coordination*. J. Organomet. Chem. **2020**, 912, 121176.
DOI: 10.1016/2020.121176

PGR E-Conference

The first PGR E-Conference was a great success with students from across the department giving talks or presenting posters about their research. It was brilliant to learn about what goes on around the department.

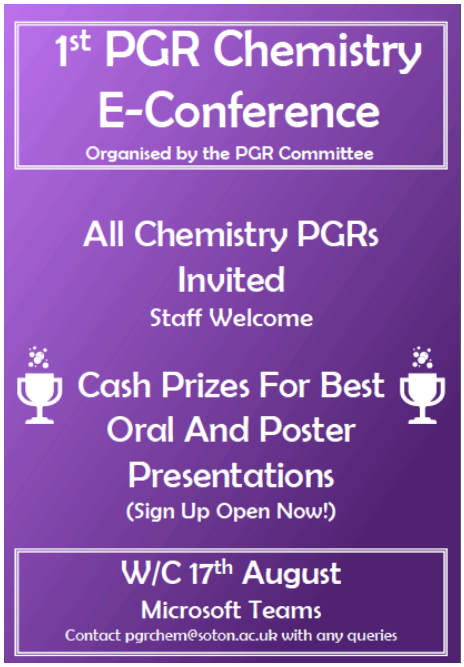
We were pleased to have wellbeing talks from Dr. Zoë Ayres and Prof. Andrea Russell as we understand how important it is to keep discussing mental health in academia so we can work towards a better future. This year has been a difficult year for us all and without conferences to attend we've not been able to present our research to the wider scientific community like we normally would. The E-Conference provided us all with an opportunity to continue to develop our presentation skills as well as build a stronger sense of community within the department.

If you are new to the department and are wondering what the PGR Committee is, I'll give you a quick brief. We are a collection of PhD students within the chemistry department here at the University. We put on social events and represent the chemistry PGR community at a wider University level. We are always looking for new volunteers to join the committee, help us put on amazing events and be a voice for the PGR community. If you would like to get involved please send an email to pgr.chem.committee@soton.ac.uk.

If you have any questions, concerns or queries you think the PGR committee will be able to help with, you can get in contact with us via email as well. We have just launched a Twitter page so please go ahead and give us a follow using the username below. Don't forget our Facebook page as well!

Facebook: Southampton Chemistry PGR Social Group
Twitter: @UoSChemPGR
Email: pgr.chem.committee@soton.ac.uk

Molly Wilson



Chemistry Communications

Health & Safety: Incident and Near Miss Reporting

The School of Chemistry is committed to the health and safety of its students, staff, visitors and others who may be affected by its activities. Therefore all personnel are encouraged to express health and safety queries or concerns by contacting the Head of School or the Chemical Health and Safety Officer. Sometimes incidents do happen, and the School is keen to learn lessons from these to prevent recurrences, potentially with more serious outcomes. "Near misses" occur far more frequently than actual injuries or fires, and the latter can be prevented if appropriate action is taken following these near miss "warnings".

As the School can only act on information it has received, students/staff are encouraged to report all incidents, including "near misses", using the University's online Health and Safety Incident/Crime Reporting Form found at:
https://sotonproduction.service-now.com/serviceportal?id=sc_cat_item&sys_id=60576a186f85a600412e3ebbbb3ee4c6.
This link may also be found on the SUSSED and Health and Safety home pages.

Overreporting is far better than underreporting, so please report the incident even if it may have been reported by somebody else or is very minor.

The School, and indeed the University, embraces a "no blame" culture, with an emphasis on learning lessons for the prevention of future incidents, rather than finding fault with individuals

Mark Pickett, Faculty Health and Safety Officer

RSC Chemist's Community Fund

Being a member of the Royal Society of Chemistry provides support when life gets challenging for you and your family. The RSC provides a Chemists' Community Fund to support its members when things get tough.

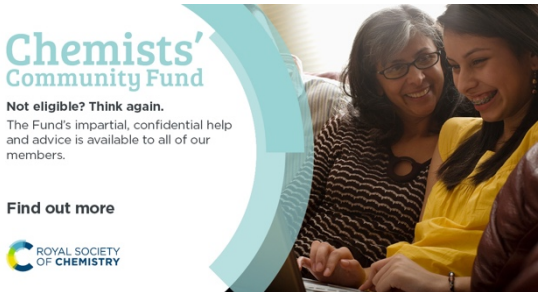
The RSC provides a knowledgeable team and network of dedicated volunteers that will help guide you to the right advice, resources, services or financial assistance. This can be especially helpful during this period of COVID-19 which may be having a negative financial impact on you, your partner or dependants.

The Fund offers a completely confidential service. You can get in touch by phoning +44 (0)1223 432227, or by emailing ccfund@rsc.org

Or more information can be found here:

https://www.rsc.org/membership-and-community/chemists-community-fund/

https://www.rsc.org/covid-19-response/find-support/



Equality, Diversity and Inclusion

ED&I is central to the ethos in Chemistry and we have a committed team that works hard to build a positive environment for all members of our School to be able to develop and succeed. As a school we have been involved in the Athena SWAN charter for the advancement and career progression of women in science for many years and its principles run through all we do. Chemistry holds a Silver Athena SWAN Award, the first department at the University of Southampton to achieve this status twice.

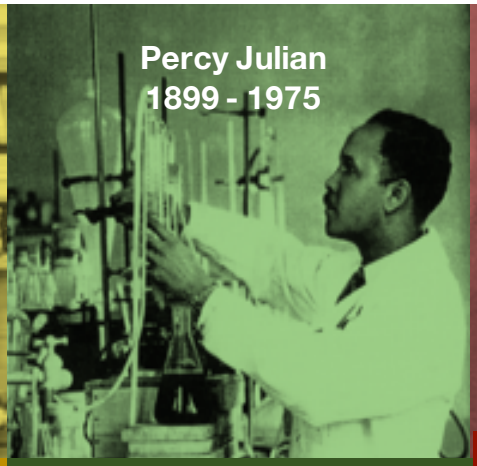
If you would like to know more about our work there is lots of useful information on our website https://www.southampton.ac.uk/chemistry/about/Equality/index.page which also includes our Early Career Support Hub.

For more information about the ED&I or to raise any issues or concerns please contact Dr Lynda Brown (L.J.Brown@soton.ac.uk)

Celebrating Black History Month

Marie Maynard Daly
1921 - 2003

First African American woman to obtain a PhD in Chemistry in the US. Daly made important contributions in the chemistry of histones, protein synthesis, uptake of creatine by muscle cells, cholesterol and hypertension.

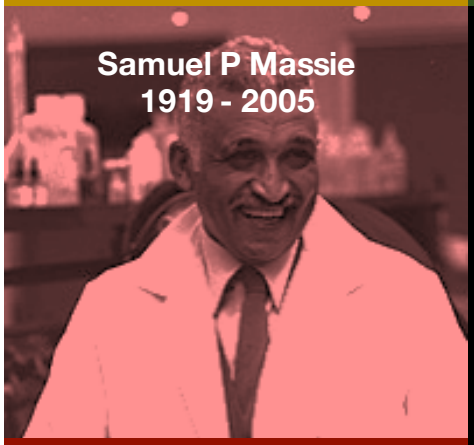


Percy Julian
1899 - 1975

Julian pioneered the chemical synthesis of medicinal drugs such as cortisone, steroids and birth control pills. He is regarded as one of the most influential chemists in American history.

Alice Ball
1907 - 1969

Developed the "Ball Method" the most effective treatment for leprosy until the 1940s. By isolating esters from chaulmoogra oil and modifying them she retained the therapeutic properties whilst allowing absorption when injected.

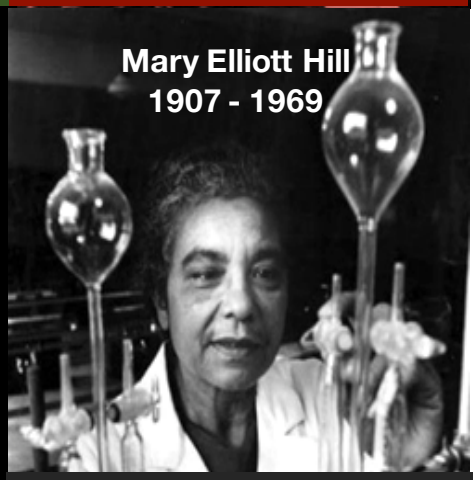


Samuel P Massie
1919 - 2005

Massie contributed towards the development of therapeutic drugs, including the chemistry of phenothiazine. He also worked on uranium isotopes for the Manhattan Project to develop atomic bombs in World War II.

"Science is developed through the day-to-day activities of hundreds of hardworking and mostly little-known men and women. African Americans in this group have a far lower profile than Whites. Their achievements have been underplayed, neglected, or ignored"

Willie Pearson Jr (from "***Black Scientists, White Society, and Colorless Science: A Study of Universalism in American Science***")

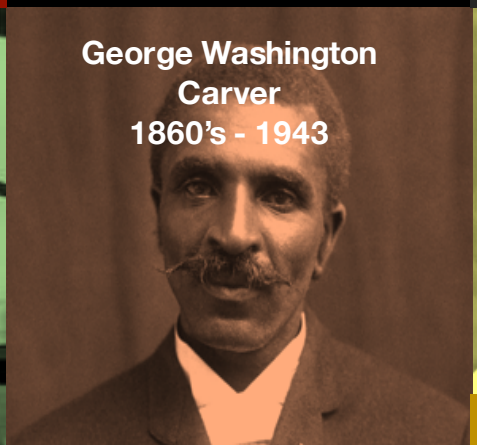


Mary Elliott Hill
1907 - 1969

Hill was both an organic and analytical chemist, working on the properties of UV light and developing ketene synthesis which supported the development of plastics.

James A Harris
1932 - 2000

Harris was a nuclear chemist who co-discovered the elements 104 and 105 (rutherfordium and dubnium) whilst at Lawrence Berkeley Lab, California. He was the first African American in history to discover an element.



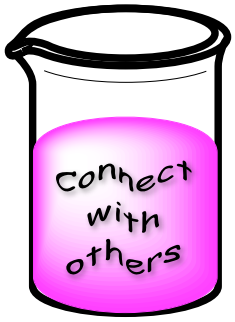
George Washington Carver
1860's - 1943

Carver was an agricultural chemist, experimenting in soil management and crop production. Researching peanuts he developed 300 derivative products including ink, dyes, plastics, soaps, medicines, and cosmetics.

Betty Wright Harris
1940 - present

Harris an organic analytical chemist and expert on explosives and waste treatment. She patented a sensitive test for 1,3,5-triamino-2,4,6-trinitrobenzene allowing the military industry to quickly determine the presence of potentially explosive material.

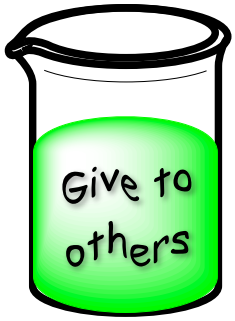
Ways to Wellbeing



Relationships are important for your mental health, providing emotional support and allowing you to share experiences

Physical activity helps not only your fitness but your mental health and can have a positive effect on your mood

Learning can help with self-confidence and give you a sense of purpose. It can also provide connection with others



Acts of kindness and giving can boost your mental wellbeing by creating positive feelings and offer a sense of purpose

Paying attention to the present moment; your thoughts, feelings, body and the world around you. Practice 'mindfulness'

We recognise that this is a difficult time for all members of our School and that at times might we may need help and support with our wellbeing and mental health. The university provides many resources some of which can be found here:

Staff: Employee assistance programme
https://www.southampton.ac.uk/hr/services/eap/index.page

Students:
https://www.southampton.ac.uk/studentservices/support-wellbeing.page

The School of Chemistry has our own **Wellbeing Champion, Mrs Sally Dady** (sjd1@soton.ac.uk)

"I have worked in Chemistry for 28 years and still learn something new pretty much every week. I work with the Directorate of Health Safety & Risk and if you have any queries, about anything whatsoever, not even health and safety related, you can always email me and I will try and assist in any way I can."

More information can be found on the link below:
https://sotonac.sharepoint.com/teams/HealthWellbeing

Wellbeing walks

A series of wellbeing walks have been shared with us, you can find them following these links:
From Highfield Campus:
(note: the starting point is set to B35 – opposite Chemistry buildings)

https://osmaps.ordnancesurvey.co.uk/route/3845300/B35-Common-circle

https://osmaps.ordnancesurvey.co.uk/route/3845465/B35-Bassett-Wood-circle

https://osmaps.ordnancesurvey.co.uk/route/3845281/B35-and-Riverside-Park-circle

From Avenue Campus:
https://osmaps.ordnancesurvey.co.uk/route/3845511/Avenue-Common-Lakes-circle

Work Life Balance: John Langley
Carer responsibilities

Who do you care for in your family?

My mum, she has MS and dementia. She wanted to be able to stay in her home for as long as possible, which meant providing her with regular support.

How often do you travel to see your Mum? How long does it take?

Before Christmas I was going every other weekend to South Wales, about a 2 and a half hour trip by car.

Is this shared with anyone else in your family?

My brother and I try to alternate weekends and she has a team of carers who are brilliant. She also has friends in the local community who pop round to see her. All these people are invaluable in keeping her at home.

What sort of impact has this had on your time?

It has been hard, especially when she doesn't recognise you; that's really hard. One of the positives is that we try and make the most of the weekend helping Mum but also seeing friends and taking part in life where she lives; I am a big supporter of the local rugby club, we take the dogs with us and make the most of the country side.

How do you communicate between your family and your Mum's helpers?

We use an online calendar for the family, to make sure that there is someone with her every weekend, but because Mum has others looking out for her we also have a book at her house. The book stays in the house and anyone who visits will write notes in it, such as 'changed bedding, hoovered house'. It keeps everyone, from her carers to her friends and family on the same page. It also helps us all to see why she might be more tired than usual – if she has had a busy week with lots of visitors.

Do you use any services/technology to help your Mum?

She has a personal alarm which if she falls will call directly to a help line and she also has a button which when pressed also calls for help. For our own peace of mind, we also wanted to be able to check up on her. We quickly ruled out installing cameras, we felt, for her, it was too invasive. Instead we put a light and heat sensor in a unit behind the television that automatically uploads the readings to Google Drive. It sounds simple but from these two sensors we can track her routine and spot any changes. In the morning when she draws the curtains the light reading increases and whenever she walks into the kitchen to make a cup of tea the temperature in the living room drops. My brother can even tell when I have been out to the pub on a Saturday night because of the temperature change when I walk through the front door at about 11 pm! It helps us to make sure she is ok without invading her privacy too much. From the data readings we can let her care team know if there is something wrong. For example, we can tell when she has a UTI (urinary tract infection) because she's up and down all hours of the night which causes light and temperature changes. As soon as we see that, the care team is told and Mum can be given antibiotics to get rid of the infection before it gets worse.

What impact has being a carer had on your mental health? How do you find peace of mind?

I have struggled in the past with my mental health and I'd like to think that I know when it's getting too much for me – Caroline (my wife) might disagree. I have learnt that it is incredibly important to do something for me that is solely for me; no one else must benefit. That can be going out with my camera to take pictures or going to the rugby – the important thing is that it is my time and I am not doing it for anyone else.

It might sound harsh but I am very good at compartmentalising. To me I am caring for a woman that I care for and love very much, but often I don't think of her as Mum. I will do anything in the world for her but the Mum that I knew growing up isn't there anymore. My Mum was so sharp and absolutely phenomenal at crosswords; she knew everything!

How do balance your family commitments with so much travelling?

I manage my time in blocks and I am strict with that. I have methods to make sure meetings run to time and ways to deal with 'time burglars'. I work strictly within my hours and if I take on any new role I am upfront that something else will have to be dropped. I am also clear that I cannot work outside of my regular hours for my own health and because Mum is relying on me and that is where my priorities lie.

We have always been very open about discussing Mum's care with our (now adult) children, I know they worry we are taking on too much.

Is there any help from the university or other support groups?

She has a fantastic team of carers that come in during the week and we could not fault them. She has also had a fantastic social worker that has been able to advise us on things we didn't know were available to us. Our social worker has been with us from the start and when Mum recently had to move to a supported unit the social worker knew all Mum's details so well she immediately sorted financial support for Mum's care.

What advice would you give to someone else beginning to take on a caring role for their parent?

We did our best to install things to keep her independent. We put grip bars in the loo, installed a fall alarm with a direct-dial to help, and made sure her smoke alarm was wired to this; anything that would keep her safer and independent.

It is so important to talk about this early. Mum was very clear to us that she didn't want to leave her house. Getting Power of Attorney was essential and because we got this early we were able to make decisions that were in Mum's interests.

Introducing Chemical Engineering Nuno Bimbo

I joined the Chemistry department in April as a Lecturer in Chemical Engineering. I am Portuguese, born in Lisbon but lived most of my early life in the hot and dry interior South (Alentejo) until I moved to University. I graduated from the University of Coimbra in 2009 with an integrated Masters in Chemical Engineering, having done an 8-month research project under the Erasmus programme in Lund University, Sweden. During this time, I worked in production of bioplastics and I had the opportunity to experience the chills of the Swedish winter!

After finishing my undergraduate degree, I came straight to the UK and started a PhD in the Department of Chemical Engineering at the University of Bath in 2009. My PhD concerned the analysis and modelling of porous materials for hydrogen storage, and I graduated in 2013. After graduating, I worked as a postdoc for a couple of years in the same research group, supervised by Prof Tim Mays. In 2015, I was offered a lectureship at Lancaster University and moved to the North West. In Lancaster, I was able to further develop my research interests, which are centred on porous materials for gas storage, separations and energy conversion and to be involved with the delivery of the undergraduate BEng and MEng in Chemical Engineering. After 5 great years at Lancaster, I am moving to Southampton to work on the new chemical engineering programmes. I'm very keen on getting involved and participating in all the activities of the department and I'm looking forward knowing and working with all of you (I never say no to a coffee or cup of tea!).

Outside work as I'm Portuguese, I'm obviously interested in football (I'm a big Sporting Portugal fan, but I also follow the Premier league), music, books and movies. I am also a fan of red wine, cheese and short strong expressos.

I moved to Winchester recently with my wife Ana Maria (who works as a Medical Advisor for the pharma company Boehringer Ingelheim) and my 10-month old daughter Teresa. In the photo, you can see us on one of our countryside walks enjoying a rare sunny day in Lancashire.

Mohamed Hassan Sayed

I am Mohamed the new addition to the chemistry family at Southampton. I'm an experienced academic with a demonstrated history of working in the higher education industry for 20 years. Skilled in Chemical and Petroleum systems, a Chartered Energy Engineer with strong engineering professional ethos, have contributed over 80 publications, conferences and book chapters. I hold a PhD in Chemical Engineering from Loughborough University and TAFE diploma focused on Education. From the Hassan Family, My wife Reem (a senior accountant) my son Abdelaziz and daughter Aleen and our new bundle of Joy Yousif to our new extended Chem @ Soton family.
Stay safe and hope to see you soon

Welcome Mansoor D'lavari New Chemistry Facilities Manager

I am extremely excited to join chemistry and I am looking forward to getting to know you all. With my enthusiasm, energy and passion I am always engaged in what I do and I hope to be a great benefit to the team and university community. Professionally I describe myself as an experienced organic chemist. I have worked in fine materials with Key Organics and Janssen, in drug discovery with Tripos and Pfizer and in advanced materials with Merck. During my time in industry I have been involved with many projects from conception of a viable idea to an up and running project followed with research, scaleup and production.

In recent years, I have been involved in the design and synthesis of conjugated organic electronic materials, both polymeric and small molecule. This resulted in the production of world-leading soluble and processable materials with applications in transistor materials for flexible display and active layer materials for solar cells and sensing applications e.g. portable x-ray, finger printing and vein recognition. To date, I have over 60 published patents.

These days my spare time is filled with gardening and grandchildren; I also enjoy spot of DIY.

Q & A with Nikolay Zhelev

How did you come to work in Chemistry?
I studied Physics at the University of Kent and then did some private tutoring. These transitioned into finding a job as a Physics Technician at the University of Portsmouth. I got to create some pretty cool new experiments for undergraduates, as well as getting involved with projects and analytical instruments. It was a great place to work, with some amazing people. However, I became interested in the characterisation and instrumentation side of things, particularly scanning electron microscopy and X-ray microanalysis. Alistair Clark (previous Electrochemistry Technician) retired in 2018 and that meant I was fortunate to land the Research Technician role here in Southampton's Electrochemistry Research Group.

What is the best thing about working here?
The colleagues and support network in the Chemistry department. I've been able to get involved in interesting projects, gain more responsibilities and in turn be more useful. The feeling of moving forward is quite important when it comes to developing your palette and wellbeing.

What is the worst thing about working here?
Unfortunately, the leave allowance. I used to get 32 days in Portsmouth. Now it's much less and makes it harder to juggle going back to Bulgaria to visit my sister, dad, other relatives and friends, and still have time to go on new holidays and put meaningful time into your hobbies.

What do you do when you are not working?
I love going on hiking and camping trips. Playing guitar, cycling, kayaking and a little surfing. Also, taking my giant popcorn of a dog to the New Forest

Beyond Chemistry

Sewing Facemasks – Prof Andrea Russell

During the covid-19 pandemic, Andrea has embraced her creativity in her spare time, making facemasks. She has kindly shared some photos with us.

"I originally tried the pleated rectangle masks, but found those much harder to sew (the fabric gets really thick at the edges). After much experimentation, I found this pattern https://www.prettyhandygirl.com/best-fit-facemask/ and I've now stuck with it. I use three layers of fabric and the innermost layer has a pocket so that you can add a filter or (more usefully) a tissue if you have very moist breath."

"I get my fabrics from Frumble.co.uk and have found that their ear elastic is the most comfortable. I purchase my aluminium nose strips from amazon."

Andrea says " I've made about 50 facemasks so far, giving most of them away to friends, family, and colleagues. Judging from the pile of fabric that I've cut out, I'll be able to make about another 50 over the Christmas break."

Supporting students

Further support available to students has been made available via these links:

Virtually Together – To help support our students over the next four weeks, we're launching a brand-new series of online activities to help students stay connected. We'll also be making board games and craft supplies available for free for students, both in halls and private accommodation. Online activities include a book club, Bake off and sport and wellbeing activities.

Student Support Hub – students can contact the hub by calling +44(0)23 8059 9599 or email ssc@soton.ac.uk. Online chat is available between 10.00 and 16.00

Togetherall: A safe space to talk about their wellbeing and mental health.

Where to find support should you need it:

University Information/Guidance:
https://www.southampton.ac.uk/news/statements/coronavirus.page

Student
Summary of wellbeing resources and activities:
https://www.southampton.ac.uk/edusupport/index.page
Students can contact Enabling Services in the usual way via enable@soton.ac.uk
Students facing significant difficulties or dealing with a crisis, should email firstsupport@soton.ac.uk

Staff:
Wellbeing while working at home:
https://sotonac.sharepoint.com/teams/HealthWellbeing/SitePages/Working-from-home.aspx
Support for your mental health:
https://sotonac.sharepoint.com/teams/HealthWellbeing/SitePages/Mental-Health.aspx
Employee Assistance Programme:
https://www.southampton.ac.uk/hr/services/eap/index.page

If we can help with signposting you to further support, please contact Sally Dady: sjd1@soton.ac.uk or Lynda Brown: L.J.Brown@soton.ac.uk