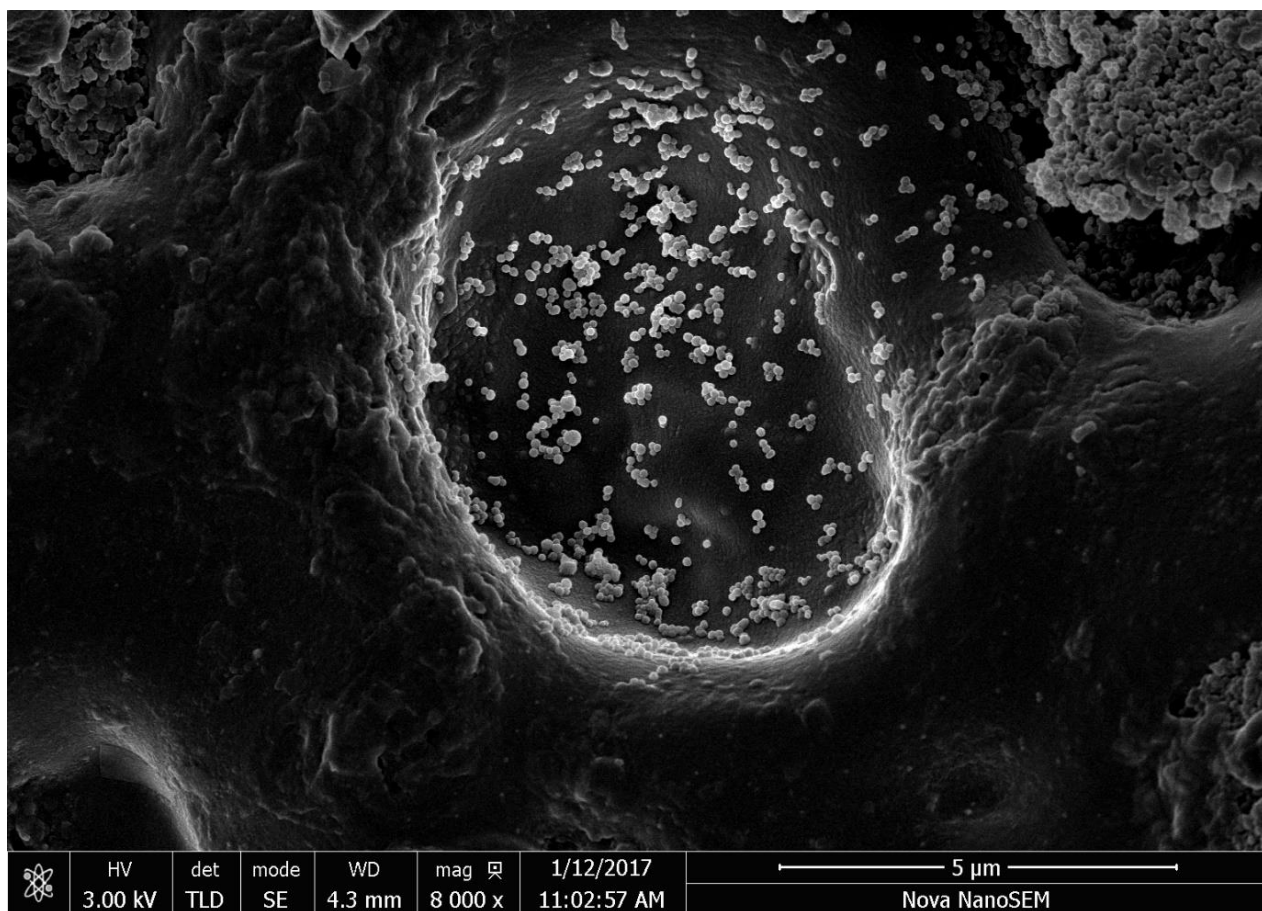




SOFI CDT NEWSLETTER

EPSRC Centre for Doctoral Training in
Soft Matter and Functional Interfaces

May 2018



A Broken Microbubble

Above is an SEM (Scanning Electron Microscope) of a broken microbubble where you can see nanoparticles at the air - water interface. These nanoparticles stabilise the bubble against shrinkage. This image was taken and kindly supplied by Papoole Valadbaigi (University of Leeds).



Cohort 4 are now getting to grips with their chosen projects in Durham, Edinburgh and Leeds. A reminder to save the date for our Soft Matter Showcase in Edinburgh on the 4th and 5th July which promises to be an exciting event!

Getting Enterprising

Earlier this month, Cohort 3 and some of Cohort 2 took part in an Enterprise School at Durham University. The 2-day course kicked off with a challenge to design a “life-changing gadget” and then followed with a wide range of topics including consultancy, marketing, and management. The course also covered different personality types and how they can contribute to working effectively as a team. Each team worked with PhD researchers from different academic departments and with tutors from within the University and from industry to solve real-life problems such as re-branding and how to improve social media engagement. Each group managed to impress their tutors during the consultancy task and some of the ideas are even going to be trialled in their companies.



Phil Hope



Hi, Phil from cohort 3 here. I studied at the University of Manchester for my undergraduate degree in Chemistry for which I spent a year working for L’Oréal in Paris.

Following my undergraduate studies I moved back to the north east and started working for an oil, gas and chemicals company. Deciding to set myself a challenge, I applied for the SOFI CDT, to which I was gladly offered a place! The first 6 months were home to some of the most enjoyable and exciting experiences of my life, full of blood, sweat and tears! Quite literally! However, it was definitely worth it! I’m now loving life in Durham where I am currently working with Alyssa Avestro on the synthesis of π -embedded polypeptides for functional optoelectronic materials. I’m a huge fan of football so if anyone wants to grab a pint down the local, come find me in the chemistry department in Durham!

Sophie Ayscough

Hi, I’m Sophie your current newsletter editor. I graduated with an MChem from the University of York for which I spent a year in Industry working in fuel tracer detection. The initial SOFI CDT training introduced me to a broad range of exciting soft matter science. I’m now based in the Physics department at the University of Edinburgh working with Dr Simon Titmuss.

My PhD in half-funded by ISIS Neutron and Muon source with the aim of determining how antimicrobial peptides kill bacteria. Out of work I enjoy cycling and running and I’m currently training to do the Great North run (with other cohort 3 student Rashmi Seneviratne)!



SOFI out and about

SOFI students have once again be travelling across the world presenting their research. Here are just a few conferences students have presented at in the last few months. Natasha Boulding, Phil Buckley and James Richards were lucky enough to go to the Gordon research council on macromolecular and polyelectrolyte solutions in February in Ventura, California. Peter Wyatt attended the British Liquid crystal conference in April and gave an oral presentation. Denise Li went to the Formulation Forum in London this January taking home a poster prize and further presented a poster at the Biophysical conference in February with Ethan Miller. Phil Hope also won a poster prize at the chemical nanoscience symposium in Newcastle. Yujie Yang presented a poster at the Annual European Rheology conference 2018.

Pint of Science 2018

23/04/18 - Peter Wyatt – SOFI Cohort 2 & Leeds Pint of Science Co-coordinator



Pint of Science is just 3 weeks away, and the team of volunteers in Leeds are busy putting the finishing touches together for the festival, to ensure their biggest and best year yet. However, this is not just an event in Leeds. Pint of Science is a global science festival in May that is held over 3 days simultaneously in 32 cities across the UK, as well as over 21 countries worldwide.

The idea is simple: bringing researchers to your local pub to present their scientific discoveries.

It all started in 2012, where two research scientists at Imperial College London put on an event named “Meet the Researchers”. It brought people affected by Parkinson’s, Alzheimer’s, motor neurone disease and multiple sclerosis into their labs to show them the kind of research they do, and was found inspirational for both visitors and the researchers. They thought; “If people want to come into our labs to meet the scientists, then why not bring the scientists out to the people?” And so Pint of Science was born.

Our team in Leeds consists of 30+ enthusiastic volunteers that have been working since September to organise 18 events, showcasing the research of over 40 local scientists for 700+ science enthusiasts. We’ll explore 6 topics this year, which vary from “Beautiful Mind”, led by Tom Ridley, and “Tech me Out”, led by Edgar Simmons. We’ve also newly introduced “Our Society”, where we have talks looking at arms and armour in the Middle Ages, and a panel discussion on science and religion.

We have multiple SOFI students volunteering to bring you this outstanding public engagement event, and we’ve also had talks from numerous SOFI academics and students. In February we held a one-off event in collaboration with Pieminister, where SOFI academics Anwasha, Mel and Caroline shared their latest findings from the School of Food Science. And in April we held our Launch Event, where SOFI students Tom Ridley and Denise Li gave short introductions to their PhD’s.

If you’d like to get involved in the festival, either as a volunteer, a speaker, or both(?!), then make sure to get in contact. There are also events in Edinburgh and Durham too, and I can happily pass your information on to their teams. Or, if you’re merely interested in grabbing a pint, and learning something new, then hopefully we’ve got something for you! Check out what we’ve got to offer at <https://pintofscience.co.uk/events/leeds>.

See you at your local!

Pete, Tom, Edgar and Denise E: cm11pjm@leeds.ac.uk

In other outreach..

David Crosby and Sophie Ayscough helped out at a Harry Potter in the Botanics Outreach event in Edinburgh’s botanic gardens (Pictured to the left). The event in partnership with Edinburgh Gin was aimed at showing the public the ‘magic’ of soft matter systems. David further helped run the event as part of Edinburgh’s science festival. In Leeds, Denise Li, Rashmi Seneviratne, Tom Ridley and Peter Wyatt have developed a demonstration and practical for children based on P&G’s water purification products, helping to inspire the next generation!



Check us out

Take a look at some of the new papers our SOFI students have published in the last few months...

R. Seneviratne, S. Khan, E. Moscrop, M. Rappolt, S. P. Muench, L. Jeuken, P. Beale, A reconstitution method for integral membrane proteins in hybrid lipid polymer vesicles for enhanced functional durability, *Methods*, 2018, doi: 10.1016/j.ymeth.2018.01.021

A. Briddick, **R. Fong**, E. F. D. Sabattié, P. Li, M. W. A. Skoda, F. Courchay, and R. L. Thompson, Blooming of Smectic Surfactant/Plasticizer Layers on Spin-Cast Poly(vinyl alcohol) Films, *Langmuir*, 2018, 34 (4), pp 1410–1418 doi: 10.1021/acs.langmuir.7b04046

E. Lasseguette, **J. McClements**, V. Koutsos, T. Schäfer, M. C. Ferrari, Ionic liquid mediated surface micropatterning of polymer blends, *J. of Appl Pol Sci*, 2018, 135, pp 46109 doi: 10.1002/app.46109

Keep up with all the SOFI news online at

<https://www.dur.ac.uk/soft.matter/soficdt/news>

or find us on Facebook at

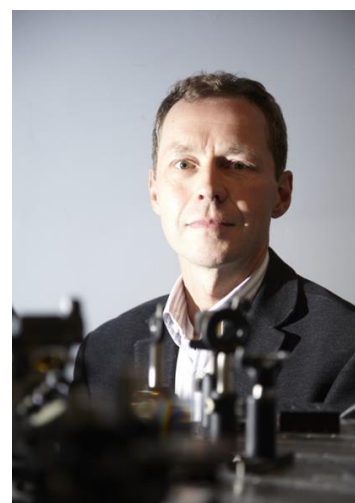
<https://www.facebook.com/softmatte/rcdt/>

or Twitter at

https://twitter.com/sofi_cdt.

From the new Director of SOFI – Professor Colin Bain

I took over from Prof. Tom McLeish as Director of the SOFI CDT in February when Tom moved to the University of York to become Professor of Natural Philosophy – a position that combines his interests in Physics, Theology and Medieval History. Tom was the inspiration behind SOFI and its guiding light for the first four years of its life – it will be impossible to fill his shoes. Fortunately, Lian and Julie are still at Durham to keep SOFI running smoothly. Lian and myself, together with Daniel Read at Leeds and Simon Titmuss at Edinburgh, have been working on the renewal bid for SOFI, creatively named SOFI2 (standing for Soft Matter for Formulation and Industrial Innovation). The outline bid was submitted to the EPSRC in March and we are awaiting the results of the Sift Panel. If we progress, the full proposal will be due at the end of July with interviews and a final decision before Christmas. We do not underestimate the strength of the competition, but we believe that we have a great CDT in SOFI with a superb group of students and we look forward to an even better SOFI2.



While my predecessor is a theoretical physicist, my background is in experimental chemistry though with one foot in physics and a couple of toes in engineering. My PhD was at Harvard on Self-Assembled Monolayer Films of Thiols on Gold and my experience there makes me a strong advocate of the delayed choice of the SOFI CDT model. I went to Harvard with the expectation that I would work with one of the giants of gas-phase physical chemistry – Bill Klemperer, Dudley Herschbach or Jim Anderson – and I ended up joining the group of a recently appointed organic chemist from MIT by the name of George Whitesides. That decision started me on my journey into functional interfaces and soft matter. Looking back on the way science has developed over the past 30 years, to forsake the gas phase for all the complexities and uncertainties of wet surfaces was the best PhD choice I could have made. Since then my research interests have meandered through nonlinear optical spectroscopy, interfacial thermodynamics and kinetics, optical trapping and binding, fluid mechanics of jets and drops, and lipid membranes. One really exciting feature of soft matter is that there are completely unexpected phenomena hiding around each turn in the road – you just need to keep your eyes open to spot them.

Since coming to Durham in 2005, I have served as Director (Science) for the Institute of Advanced Study – an institute that is committed to incubating interdisciplinary research ideas – and as Dean for Research, where I was responsible for career development of research staff across the University. The experience in both of these roles will help me to ensure that SOFI delivers the best in interdisciplinary training and offers unrivalled career development opportunities. I would be very pleased to receive comments (positive and negative) on the training that SOFI offers and on the cohort experience, and suggestions for ways in which we can make SOFI even better. Just e-mail me at c.d.bain@durham.ac.uk.