

# NEWSLETTER

May 2021



*Some Mini-MBA business logos, produced by students in Cohorts 4, 5 and 6*

## Note from the Editor

Hi everyone – new editor alert! I'm Alex from cohort 6 and I've taken over from Kalila who's done such a great job over the last year and given me so much help putting all this together – so big kudos to Kalila! With the end of lockdown looming (fingers crossed!) we've got lots to look forward to now that more things are opening up! However, even with lock down number 3 all of us SOFI lot have still been busy enough for me to fill this newsletter! We've got exciting publication news, all the goss from the mini MBA and lots more! Thanks to everyone that has helped me put this together and I hope everyone enjoys my first edition. So, onto the news...!

## ... Save the Date! ...

- **31/05/2021 - 02/06/2021 SoftComp/EUSMI Annual Meeting 2021:** (Free registration, registration deadline: 28/05/2021)
- **01/07/2021 - 02/07/2021 CDT Soft Matter (online) Showcase 2021:** (More details to come, keep an eye on your emails!)

## Cohort 7: Pandemic PhDs begin!

I think it's safe to say that Cohort 7 win the competition for the strangest start for a PhD... However, 6 months on they're all settled across the three Universities. So, make sure to say Hey and welcome them into the SOFI/SOFI<sup>2</sup> CDT family! Here's what the latest cohort are going to be up to:

- **Corey Stewart** - Inkjet Manufacturing: from Droplets to Films *Durham University*
- **Nicolò Tormena** - Bio-inspired active nano-membranes *Durham University*
- **Katherine Carter** - Polymeric fluorescence standards from medium-independent emitters *Durham University*
- **Tom Lark** - Volcanic ash in jet engines – bouncing, sticking and spreading of molten glass droplets *Durham University*
- **Cameron McAlister** – Listening to proteins with EARS: Enhanced Acoustic Raman Spectroscopy of information flow across the interface between proteins and their environment *Durham University*
- **Jinyi Xuan** - March of the Materials: Molecular walkers for dynamic responsive polymers *Durham University*
- **David Evans** - Dynamic Percolation in Composite Materials *Durham University*
- **James Cresswell** - Synthesis of well-defined biodegradable polymers and study of their materials properties *Durham University*
- **Jay Marsden** - Dirty Linen: the forensic soft matter science of body fluids on fabric *Edinburgh University*
- **Luc Dewulf** - A Robot that Swims Through Granular Materials *Edinburgh University*
- **Anna Lykkeberg** - Environmentally degradable soft/hard block copolymers *Edinburgh University*
- **Jenny Harnett** - Microrheology of DNA origami *Edinburgh University*
- **Ben Coyne** - Highly functional poly-amino acids for controlled therapeutic drug delivery *Leeds University*
- **Thomas Gregson** - Nanotechnology of fluorescent proteins in a lipid/polymer matrix: soft thin film materials for artificial photosynthesis *Leeds University*
- **Sebastian Croft** - Towards the predictive design of PAEK-based polymers – from fundamental polymer physics to advanced material applications *Leeds University*



SOFI<sup>2</sup> cohort 7!

## Alumni Profile: Ethan Miller

I joined SOFI Cohort 1 in 2014, the original guinea pigs for the program! After getting a crash course on the soft matter field, I started my PhD as a joint member of the Voitchovsky and Staykova experimental biophysics groups at Durham University where I had access to techniques like atomic force microscopy and fluorescence microscopy. During my PhD I used these techniques to investigate how supported lipid bilayer behavior could be modified by substrate interactions. I was able to demonstrate that membrane properties such as lipid diffusivity, membrane composition and the structure of coexisting lipid phases could be modulated by tuning substrate properties such as topography, surface chemistry and even by stretching membranes using flexible substrates. Currently, I am working in the Honerkamp-Smith lab at Lehigh University, Pennsylvania USA, where we are studying the mechanical principles underlying cellular responses to fluid flow. Using fluorescence microscopy, lipid physical chemistry and fluid mechanics we conduct experimental measurements to understand the physics behind membrane response to flow in a bottom-up approach and corroborate our findings with flow measurements on living cells to decipher how they might utilize these membrane mechanisms. Although often trying, the PhD was a positive experience that help me grow immensely, not only in technical knowledge and skills, but in project management, collaborating with peers, perseverance in the face of continued failure and keeping my perspective on things. The SOFI CDT has put me in contact with a great network of people, and I'm glad to be one of its members. Feel free to reach out to me as a fellow member and best of luck with your PhDs!



*Ethan Miller, Cohort 1*

## Congratulations Helen and Anwasha!

Massive congratulations to both Helen Gleeson and Anwasha Sarkar for being recognised as two of Leeds 2021 Women of Achievement. These awards recognise and celebrate the significant contribution that women have made across the University and beyond and we are very proud to have two of our supervisors being recognised! A lovely news piece with International Women's happening last month! Anwasha works in the School of Food Science and Nutrition as Chair in Colloids and Surfaces whilst Helen works on Liquid Crystals in the Department in Physics as Cavendish Professor of Physics.



*Professor Anwasha Sarkar*



*Professor Helen Gleeson*

## A SOFI Love Story

Huge congratulations from everyone in SOFI/SOFI<sup>2</sup> to Cohort 3 students, Daniel Day and Natasha Rigby, who have recently announced their engagement! Dan did his PhD with Lian sponsored by Synthomer and Croda and Natasha did her PhD with Margarita sponsored by Mondelez. They are currently living together in York, where Dan is doing is working as a post doc and we wish them a life of love, happiness and of course, a lot of soft matter science!



*Natasha and Dan, Cohort 3*



## A mini-MBA from the comfort of your living room

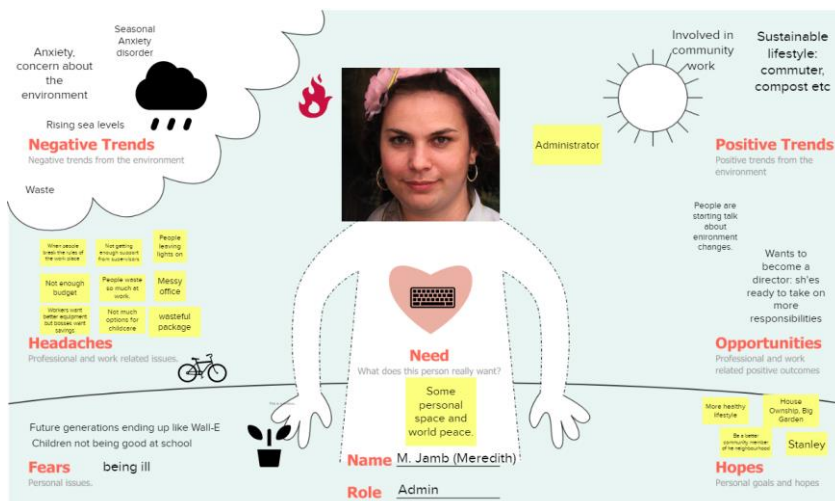
At the end of March we were all starting to see the light at the end of the second lockdown, restrictions were slowly beginning to ease and the sun was shining as cohorts 4, 5, and 6 all stayed in their respective homes to join the 2021 SOFI/SOFI<sup>2</sup> mini-MBA course. This was a fortnight of firsts – because of the pandemic it was the first time these three cohorts had come together, it was the first time the SOFI business school has been run remotely, and it was also the first year in which this course is accredited with the option of assessment to earn a post-graduate level award.

The interdisciplinary inter-cohort teams were given the formidable challenge of developing a feasible business pitch which would make a profit whilst also working towards the United Nation's responsible consumption and production goal. Peter Allen from the Durham University Business School did an incredible job of guiding us through this despite the limitations of a virtual gathering. Peter helped us to break down this complex challenge into a series of manageable tasks; starting from personas like Meredith (see image) each team managed to identify a problem which they could tackle, providing value to customers as well as making a profit and working towards the UN goal. These propositions were pitched to a varied panel on the final day and all were received well, with lively Q&A sessions and enthusiastic engagement from both sides. A special shoutout to the Orbyt team and their winning pitch of a reusable orbital hub for cube-satellites.

The course was much more varied than I imagined, with Earth-bound pitches ranging from green fashion consultancy to conversion of waste to surfactants. Peter's seemingly limitless network was called to action and within a couple of days of hearing the ideas he'd found volunteers to speak to us including the former director of sustainability for a global retail chain, a government tech advisor and CEO, Durham University's own chief information officer, and several highly ranked contacts in the RAF innovation hub. This was in addition to planned talks where experts in industry leading companies and venture capital firms gave their varying opinions on the role of sustainability in business.

Overall, it was a very valuable experience and we'd all like to thank Peter and the other speakers and volunteers who made it work so well. The virtual business school was very well run, productive, and interesting. However, I think I speak for all of us when I say we look forwards to (hopefully) meeting in person for next years mini-MBA.

*Written by Joe Bradley, Cohort 6*



*'Meredith' – The persona of 'Rev N Rec's business model*

## Competition time!

The more eagle-eyed of you will have noticed that the name of this edition has been changed to the "SOFI/SOFI<sup>2</sup> Newsletter". This is to incorporate both of the separate centres that we belong to! However, as Lian pointed out to me, "SOFI/SOFI<sup>2</sup> Newsletter" is somewhat cumbersome and also a bit boring.... Surely we can pool together our creative minds and come up with something better!?

So, that's where you lot come in. We're running a competition for someone to come up with a new name for this newsletter! Finally, a chance to use all the literary skills that you've probably had locked away for years! We're looking for something snappy and fun that sums up what this newsletter is about!

Please send all submissions by **31/05/21** to: [py15allg@leeds.ac.uk](mailto:py15allg@leeds.ac.uk). The entries will be judged by an expert board (...probably myself, Lian and Linda) and the winner will be revealed with the release of the next edition! (The prize being kudos and clout from your fellow SOFI/SOFI<sup>2</sup> students) Good luck!



## Honerkamp-Smith lab

The Honerkamp-Smith lab is looking to hire an experimentalist post-doc to work on lipid membrane biophysics, to start Spring 2021 (or soon afterward). If you love microscopy and membranes, join us to investigate how lipid and membrane proteins move in response to flow and how this contributes to signalling in cells. We are a physics-based group collaborating with membrane biochemists (the Thévenin group, also at Lehigh) to develop interdisciplinary approaches determining mechanisms for flow mechanosensing. We use a variety of experimental methods, primarily design and manufacture of microfluidic devices and fluorescence microscopy. We're looking for someone with experience with lipids, using either model membranes or cells. Previous experience in microfluidics, image analysis, cell culture, and biochemistry techniques is not required, but interest in developing these skills is. For more information or to apply please contact [auh216@lehigh.edu](mailto:auh216@lehigh.edu).

*Honerkamp-Smith lab pals!*

## An ode to Kalila

Over the last year Kalila Cook of Cohort 5 has guided us through the pandemic, keeping our spirits high with news of PhD success and community. She's been a massive help with putting this edition together and I can't thank her enough! Here's a few words from the woman herself:

*Hey! I'm Kalila – you may or may not remember me as the previous newsletter editor. I graduated in Physics at Leeds back in 2016, trundled down south to do an MSc in Physics (Biophysics-focused) at King's College London and then trundled back up north to join SOFI as part of cohort 5! I am now based back in Leeds in the Molecular and Nanoscale Physics department working primarily with Prof. Lorna Dougan. My PhD project is about gaining a better fundamental understanding of protein-based hydrogels across the length scales, in particular the formation and structure of these gel networks. To tackle this topic, I make and prod protein gels in the lab and I also work closely with Dr David Head in Computing, building a model to simulate the clustering of proteins into 3D networks. Outside of work, I love baking all kinds of bread and going for long cycles on the road!*



*Kalila Cook, Cohort 5*



Keep up with all the SOFI/SOFI<sup>2</sup>  
news online! Find us at  
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Please contact Alex Gresty at [py15allg@leeds.ac.uk](mailto:py15allg@leeds.ac.uk)