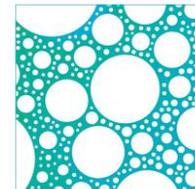


# Australasian Colloid and Interface Society

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## ACIS Newsletter – Issue 13, June 2017

### Welcome

Dear members,

Welcome to our thirteenth issue of ACIS News! We produce a quarterly newsletter - sent around in March, June, October, and December - to keep ACIS members informed of our initiatives and for members to directly communicate with their Society. Please send your suggestions and items for the next newsletter to [C.P.Whitby@massey.ac.nz](mailto:C.P.Whitby@massey.ac.nz).

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### Abstract submissions now open for The 31st Australian colloid and surface science student conference !



The 31<sup>st</sup> Australian colloid and surface science student conference is being hosted by Monash University, and organised by Rico Tabor, Gil Garner and Ben Boyd. The conference venue will be Deakin's Warrnambool Campus. This is set on the banks of the picturesque Hopkins River, close to local surf beaches and popular tourist attractions. The 94 hectare site is approximately five kilometres from the centre of Warrnambool CBD, serviced by the Princes Highway and by its own railway station and bus services.



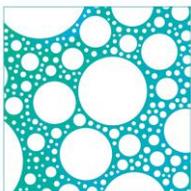
The ACSSSC provides postgraduate students working in colloid and surface science with an opportunity to present and discuss their research in an informal, supportive and friendly atmosphere. It is also an excellent opportunity for researchers and academics to exchange the latest updates in research in an informal atmosphere, and provides excellent networking opportunities for all.

Topics and highlights include - careers session, focussed workshops, some high profile international presenters, and all the social and recreational activities available at the end of Victoria's Great Ocean Road!



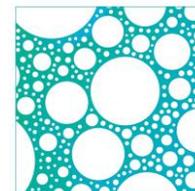
[Abstract submission is now open](#). Submissions close November 24, 2017. [Early-bird registrations](#) will close by 7 December, 2017 so get in quick! If you have any general enquiries, please contact [Rico Tabor](#). For enquires about registration, please contact [Hana Shiraz](#). For enquiries about the venue and accommodation, please contact: [Joanne Du](#). For enquiries about the conference website, please contact: [Shane Meaney](#).





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## News



### 2017 Drug Delivery Australia Conference

The Australian Chapter of the [Controlled Release Society](#) invites you to the [2017 Drug Delivery Australia Conference: Colloids on the Coast](#). Supported by the [Illawarra Health and Medical Research Institute \(IHMRI\)](#) at the University of Wollongong (UOW), Colloids on the Coast will be held in the sunny beachside city of Wollongong, New South Wales, from 23 -24 October. [Register before 21 August](#) to secure the early bird rate. For more information, please contact [Ben Boyd](#).

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## Nucleating Colloids – a Column for Students & Early Career Researchers

### What are the benefits of doing a PhD?

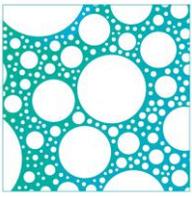


#### By Liam Scarratt, PhD student at Sydney

I recently got requested to participate in an interview about my feelings towards a career in academia. This was conducted as part of a student's psych research project. They were taking a break from a four-year long PhD in physics, and took the opportunity to get some perspective from research students in Chemistry and Physics at The University of Sydney.

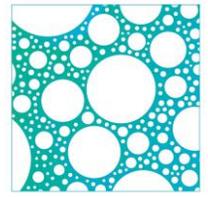
One of the most interesting things about our discussion was how similar our experiences and that of many other students undertaking a PhD were. Some of the common threads included: the general uncertainty of whether we had what it took to progress into academia, the pressure of job uncertainty, maintaining a work/life balance, and the overall stress we place on ourselves to succeed and understand what we really want to do in the future. A big question a lot of students who were interviewed raised was whether they felt as if they were capable of being as efficient and knowledgeable as their supervisors/academic role models, comparing themselves as they are now, which leads many down the path of self-selecting out of an academic pathway.

*Continued over the page*



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There is something to be said about just how different a PhD is to other work environments. There is a lot more responsibility much earlier in the game than you would normally come across in standard work environment. This is partly due to the different areas of expertise for each member of a group, and the general autonomy a student has in directing their own thesis narrative. Ultimately, you need to become the expert in what your thesis is about, and you are the only person in your group doing a certain set of experiments. This can lead to a fair amount of pressure placed on oneself if left unchecked, and can be the cause of a lot of anxiety and stress. Keeping yourself mentally healthy is something that is super important, and how we visual stress is a key component of that. The following link is to a ted-talk commonly used in the cooperate world to reframe how to think about stress in a positive way:

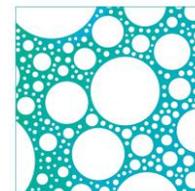
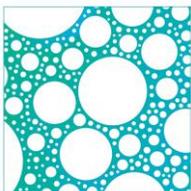
[https://www.ted.com/talks/kelly\\_mcgonigal\\_how\\_to\\_make\\_stress\\_your\\_friend](https://www.ted.com/talks/kelly_mcgonigal_how_to_make_stress_your_friend)

Being in the final year of my PhD, one of the feelings that I have been having a hard time shaking is the sense of failure when an experiment goes wrong, due to uncontrollable circumstances or genuine error. A large component of what we do in science revolves around things not working for long periods of time before suddenly busting forth into a glorious “every works now, huzzah” moment. I find it is very easy to become personally attached to your results and not view them with an emotionally detached perspective, a quality which I believe is important to succeed in this work environment. Taking that frame of mind however is particularly challenging, especially when under pressure. To get around this, I have been practicing some mindfulness exercises to give my focus and perspective brain muscles a bit of a work out. If you feel like you would benefit from this, there are many resources available. I have been using the following:

<https://smilingmind.com.au/>

A final side note, one of the most important things we covered in our conversation was the need to take time to get inspiration/refresh when undertaking a project. This includes taking some kind of annual break (which is hard to do depending on where you are in a project) and properly giving your mind a rest from the normal thoughts that follow you around. Research isn't a 9-5 job by any means. A very common recommendation included going on a lab exchange, which can be both productive and perspective enhancing.

If there is one thing I feel my PhD is teaching me, it's learning to deal with failures and rise above them, and that's something I feel is truly unique to the entire experience, something we can all relate to.



## The benefits of doing an industrially linked PhD Project

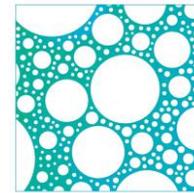
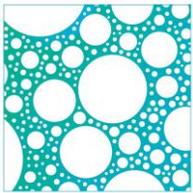


### By Hana Shiraz, PhD student at Monash

In 2015, Monash University launched an initiative by the Faculties of Science and Engineering called “The Chemicals and Plastics (C&P) Manufacturing GRIP”, a program aimed at preparing PhD graduates for a career in the chemical industry on a global scale. The program not only focuses on the industry driven PhD topic, but also incorporates training modules and industry collaboration in the form of an internship. I was fortunate enough to be selected for this program in November 2015 and I chose Dulux as my industry partner. Despite my interest in the PhD topic, I was initially nervous about going into the Materials Engineering department with a background in Chemical Engineering. The day I commenced my PhD was however, very unconventional; instead of being handed a whole list of reading and literature reviews, I was called into the Innovation Centre at Dulux in Clayton and introduced to my supervisor Dr. Tim Davey. Tim assigned me to a colleague from his team, Simon Peake who was very well experienced in synthesising lab scale latexes, and discussed what outcomes of the research Dulux hoped to achieve. Being exposed to the industry side of the project on the very first day set the mark for me in terms of what I wanted to achieve both from an academic and industrial perspective, almost immediately easing me into the program.

My project involves the production of novel film forming latexes using colloidal nanoparticles as stabilisers. I spend almost all of my time making latexes in the polymer technology lab at Dulux and characterise my samples both at Dulux and at Monash University. The close proximity of the two institutions, either for meetings or for experiments, is the biggest advantage I have. It makes travelling to and from both workplaces extremely convenient, especially when I have to attend scheduled GRIP workshops or group meetings. I am able to seek both industrial expertise as well as academic advice on how to progress with my research as both industry and academic supervisors always make time for me to ensure I'm on the right track. My Monash University supervisors, Professor Neil Cameron and Dr. Rico Tabor, experts in polymers and colloid science respectively, meet with me together and discuss approaches towards the project combining both these distinct fields of science. This knowledge, combined with backing from my industry supervisors, with regards to how industrially applicable the processes are, has not only helped me focus on my research goal but has also helped me successfully synthesise novel latexes on a lab scale with enhanced properties.

At the Innovation Centre in Dulux, a centre dedicated to research, help has always been offered and without any hesitation. Colleagues have readily taken time out of their work to help with tests and methods specific to Dulux. My manager invites me to any meeting held either at the Innovation Centre or to a general meeting at Dulux so I get exposure to the work culture and practices. Monthly meetings with the polymer team give me insight into the current happenings in the surface coatings industry and the research different members of the team are working on. I am able to have discussions with them about any problems in my research and seek their expertise on how to tackle them. Similarly, group meetings with both my Monash supervisors' teams have given me a significant advantage in terms of understanding the two specific fields of polymer and colloid science. The team members assist me with experiments and provide ample additional guidance on top of all the supervision I receive from both industry and academic supervisors. The experience has thus far been nothing but positive and having spent a year and a half working across both industry and academia, I couldn't imagine doing a PhD any other way particularly given my interest in ultimately working with industry.



## Soapbox - a Column for Colloid and Interface Scientists

### 2017: The Times They Are A Changing

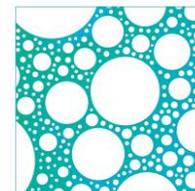
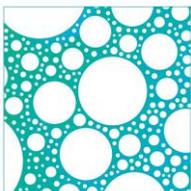


**By Amanda Ellis, Department of Chemical Engineering, School of Chemical and Biomedical Engineering, University of Melbourne**

In May 2017 I took up a professor appointment in the newly named Department of Chemical Engineering in the School of Chemical and Biomedical Engineering at the University of Melbourne (UoM). It was with sadness that I left Adelaide and my friends and colleagues at Flinders University. Having been at Flinders University since being a Lecturer 10 years ago and now leaving at as Full Professor I reflected on how damn hard it had been but also on how much I had learnt and been given at Flinders to succeed. Now as an Applied Chemist entering a Chemical Engineering department the thrill of the new and how I fit into the enormity that is the UoM and their vision for success and achievement is rather daunting. I really can't express how exciting it is to be a scientist in Melbourne with all the surrounding infrastructure and expertise – we must remember how lucky we are to have the careers we have.

At UoM our group will continue to focus on a broad range of fundamental science for applications in genotyping, desalination, energy storage and membrane science. We are focusing our efforts on the bioconjugation of polymers with DNA and creating unique DNA nanostructured materials via both bottom-up and top-down approaches. An important consideration in our research is creating dynamic DNA/RNA processes and maximising their efficiency and selectivity. These materials show use in drug delivery, anti-biofilm agents and diagnostics. We have a large program investigating polymer membranes for desalination and water filtration. This work includes surface coatings and nanoparticle composites. We hope to branch further out into the industrial sector and take on some big challenges facing this sector. We also are just starting a program on piezoelectric polymers for energy production and developing supercapacitors for storage.

The future looks bright and exciting and I am keen to continue to grow my group in the areas mentioned, and beyond, and welcome collaboration in this new environment with all it has to offer.



## Soapbox - a Column for Colloid and Interface Scientists

### *In vivo* biosensing – an emerging challenge for the ACIS community

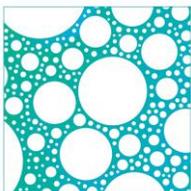


**By Simon Corrie, Department of Chemical Engineering, Monash University**

*In vivo* biosensing is an emerging field with a focus on measuring the concentration of key biomarkers inside the body, in a continuous and real-time process. There is a myriad of applications for such methods in the understanding of dynamic disease processes in biomedical research, and also in the early detection and monitoring of life-threatening illnesses in the clinic. We recently published a review on this field with Prof Heather Clark's group (Northeastern University), and we were surprised at the gaps in the field. We quickly realised that while there have been many studies designing nanoparticle-based “labels” for *in vivo* applications, we only identified 5 groups who had successfully tracked the concentration of a biomarker over time in an animal study (Ruo, Corrie, Clark, ACS Sensors, 2017, 2(3), p327–338).

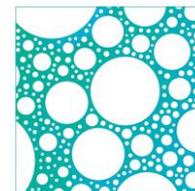
Even across these successful examples, it was interesting to note that there is a lack of nanoparticles that have been designed specifically to meet the challenges of *in vivo* sensing. Aside from the issues of biocompatibility and biodistribution (governed by properties including size, shape, surface charge and immune response), which are commonly encountered in the field of nanoparticle-based therapeutics, unique issues also include diffusion of particles away from the sensing area (“off-site diffusion”), the balance between long-term sensing and biodegradability, and the need to design materials with sensing chemistries that go beyond traditional optical or electrochemical transduction approaches. Adding up all of these elements, the message is that there are plenty of challenges in this new field that could start to be addressed by ACIS and the related international community.

The same message was reinforced during a brief trip to the US to meet 3 of the 5 groups we had identified in the review. Each group had a history of using materials with which they were familiar, without necessarily working to build a nanoparticle platform that would meet the design needs as determined in their early *in vivo* studies. Each expressed interest in building new collaborations with colloid/nanoparticle researchers to develop a more flexible, tuneable platform from which to explore new questions and build better *in vivo* sensors.



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## Activities

### Join our Awards, Communications, Conferences and Events Committees

ACIS needs its members to be actively engaged. Please let us know if you would like to be involved in the committees that will run the activities of the Society: *Awards; Communications; Conferences and Events*. Or if you would like to propose other activities we should be running. **We especially invite students and early-career researchers to become involved.** Please email your interest to [acis@colloid-oz.org.au](mailto:acis@colloid-oz.org.au).

### Sponsorship of Events

ACIS Sponsorship is available for events (symposia, workshops, industry networking events, and short courses) held in Australia or New Zealand and organised by ACIS members for the benefit of the colloids and interface science community. Prospective event organizers, who wish to request ACIS endorsement and sponsorship, should supply the information requested in the form available on the website <http://colloid-oz.org.au/> at least three months in advance.

### Visiting Scientist Register

Are you planning to host a visit by an outstanding scientist in the colloid and interface field? Why not let ACIS members know about the visit? We aim to keep track of visiting scientists, to facilitate their introduction to the Australasian scientific community. Please email details of the visit to [acis@colloid-oz.org.au](mailto:acis@colloid-oz.org.au).

### ACIS Membership

Please encourage your colleagues, students and industrial partners working in the field of colloids and interface to join us. General membership is \$100 per annum. The membership year is from 1st July each year. Memberships paid after this date are valid until 30<sup>th</sup> June of the following year. More information is available on our website <http://colloid-oz.org.au/>.

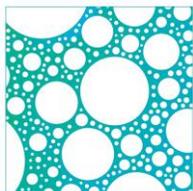
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### Use our LinkedIn Group to tell people your news

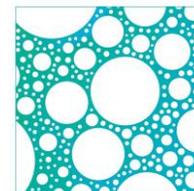
ACIS is now present on LinkedIn. Please join our LinkedIn group and post discussion items on job ads, conference calls, and interesting facts about the wonderful world of colloid and surface science.

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## Future Events

### **BIT's 4th Annual World Congress of Smart Materials 2018 (6 – 8 March, Osaka, Japan)**

Abstract submission closes: 15 December 2017

<http://www.bitcongress.com/wcsm2018/ImportantDates.asp>

### **17th Food Colloids Conference: Application of Soft Matter Concepts 2018 (8 – 11 April, Leeds, UK)**

Abstract submission open: 4 September 2017

<http://www.foodcolloids2018.co.uk/>

### **16th Conference of the International Association of Colloid and Interface Scientists 2018 (21 – 25 May, Rotterdam, Netherlands)**

Abstract submission open: September 2017

<http://www.iacis2018.org/>

### **92nd ACS Colloid and Surface Science Symposia 2018 (10 – 13 June, Pennsylvania, USA)**

<http://colloids2018.org/>

### **The 7th Pacific Rim Conference on Rheology 2018 (10 – 15 June, Jeju, South Korea)**

<http://www.prcr2018.org/submission/>

### **EUFOAM 2018 (9 – 12 July, Liege, Belgium)**

<http://aimontefiore.org/evenement/eufoam-2018/>

### **45th Annual Meeting & Exposition of the Controlled Release Society 2018 (22 – 24 July, New York, USA)**

Abstract submission open: November 2017

<http://www.controlledreleasesociety.org/meetings/Pages/default.asp>

### **The 21st International Conference on Miniaturized Systems for Chemistry and Life Sciences 2017 (22 – 26 October, Georgia, USA)**

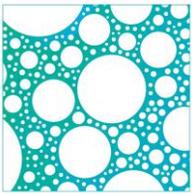
Late abstract submission closes: 25 July 2017

<http://www.microtas2017.org/>

### **20th International Conference on Advanced Materials and Nanotechnology 2018 (20 – 21 December, Bangkok, Thailand)**

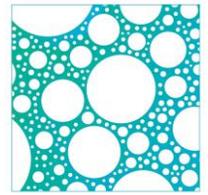
Abstract submission closes: 15 October 2017

<https://www.waset.org/conference/2018/12/bangkok/ICAMN>



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## Job Ads

### Lecturer/Senior Lecturer, Analytical Chemistry, James Cook University

JCU is looking for candidates who will be responsible for teaching analytical, physical and marine chemistry in science degree programs. The candidate will also have experience in curriculum development, undertaking research as well as recruitment and supervision of postgraduate students.

Further information about the position, including the full position description, is available on the UniRecruit website <http://www.uni-recruit.com.au/current-roles/>. Applications for the position close on Sunday, 13 August 2017.

Please email us ads for PhD and postdoc positions in the area of colloids and interfaces.

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The Newsletter team is:

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