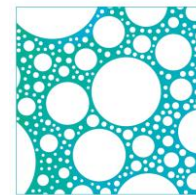


Australasian Colloid and Interface Society

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ACIS Newsletter – Issue 16, October 2018

Welcome

Dear members,

Welcome to our 16th 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 our Society. We publish job announcements, meetings of interests to our society, career development opportunities and any exciting research that you would like to share with us. To keep you up to date with the on-goings in our colloids society, please send your suggestions and items for the next newsletter to boonmian.teo@monash.edu.

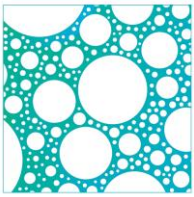
Jacob Nissim Israelachvili (1944 - 2018)

Prof. Jacob Israelachvili was a leading light in colloid and interface science, and the undisputed world leader in experimental measurement of surface forces. He had a close connection with Australia, having worked at ANU from 1974 to 1986, where he developed his surface forces apparatus (SFA) to operate in liquid media. This achievement, and a series of seminal papers that resulted from it, launched his international career before he relocated to the University of California Santa Barbara in 1986, remaining there until he lost his battle with cancer on 20 September 2018.

Born in Israel in 1944, Jacob (as everyone in the colloid community knew him) was educated in England, culminating in a PhD in physics at the University of Cambridge. He was supervised there by Prof. David Tabor, whose group had been developing methods of measuring interactions between molecularly smooth mica surfaces using optical interferometry to determine the distance between two opposing surfaces at Angstrom resolution. Jacob made key improvements to the techniques, leading to a famous 1972 paper on measurement of van der Waals forces in air and vacuum. Years later, Tabor described Jacob as the most accomplished student he had ever had.

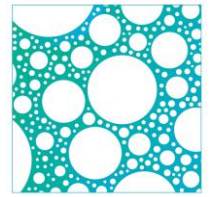
Following completion of his PhD, Jacob remained in Cambridge on a postdoctoral fellowship, initiating experiments on friction between mica surfaces – a line of work that he was to pick up again many years later. After that he shifted to a completely different area, using electron spin resonance to study membrane biophysics at the Karolinska Institute in Stockholm. Fortunately for our community, he was brought back to surface force measurements by Prof. Barry Ninham. Barry was the foundation head of a new Department of Applied Mathematics at ANU, who felt that (despite the theoretical-sounding name of his department) it would be an excellent strategy to establish a laboratory to measure the DLVO and other surface forces that he and his colleagues were studying theoretically. So he hired Jacob. Within a couple of years, Jacob had built a new version of the SFA that could be filled with a liquid, and this opened the door to a wide range of new experiments. The SFA, with updates but no fundamental change to its design features, remains in use to this day in dozens of laboratories around the world.

Our knowledge of surface forces advanced rapidly thanks to SFA experiments that elucidated DLVO, hydration, solvation, hydrophobic and capillary forces as well as forces affected by adsorbed surfactants, micellar aggregates, thin film hydrodynamics, liquid crystals, model membranes, polymer solutions and polymer melts. After moving to Santa Barbara Jacob returned to his interests in friction and adhesion, including investigations of gecko traction and underwater adhesion with mussel protein, and many other topics. He was author of nearly 500 journal publications, which collectively have attracted over 45000 citations. He is also well known for his book “Intermolecular and Surface Forces”, which was first published in 1985 and is now in its 3rd edition. This has become a standard text for



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many researchers and students in colloid science, nanotechnology, tribology and materials science, and especially for those interested in the “force” part of atomic force microscopy.

It is fair to say that Jacob made a major contribution to colloid and interface science in this country, and it is also fair to say that Australia made a major contribution to Jacob’s career, providing him with the opportunity and support to initiate his series of breakthrough measurements. Besides his scientific achievements he had a great sense of humour, always gave entertaining talks, and was wonderful company in social events. Many colloid scientists in Australia will remember him with admiration and affection, and will be deeply saddened by his passing.

Jacob is survived by his wife Trudi Carey, daughters Josefin Kannin and Daniela Silcock (both born in Canberra to his first wife Karin), sons Nathan and Sam Carey, grandchildren John Jacob and Cassidy Elizabeth Kannin, and sister Etty Caspi.

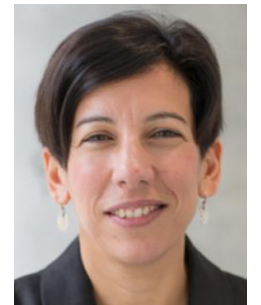
--Roger Horn

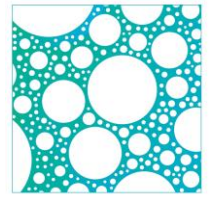
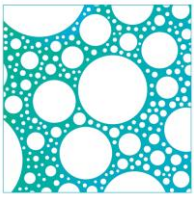
Congratulations to our new ARC fellows!

[Professor Dan Li](#) at The University of Melbourne was awarded the ARC Laureate fellowship. His project entitled “Nanoionics: Engineering ion transport with two dimensional materials” will develop technological innovations, particularly relevant to electrochemical devices such as batteries and fuel cells. This project aims to use graphene and other emerging two-dimensional materials to investigate and manipulate ion transport in nanoscale channels.



[A/Prof Chiara Neto](#) at the University of Sydney was awarded the ARC Future Fellowship. Her project entitled, "Biomimetic surface coatings for drag and fouling reduction" aims to develop new slippery lubricant-infused surfaces that reduce liquid drag and inhibit fouling – a build-up of unwanted material - while being non-toxic. The novel coatings will provide a sustainable and green solution to the marine fouling problem!





Report on attending the EC Colloid Meeting 2018

Hello, my name is Long Yu, a researcher from University of Queensland. I am the recipient of the bursary to attend the EC Colloids 2018 meeting held in the University of Sheffield. Many thanks for the support of the Australasian Colloids and Interface Society! I have a great time in UK and extend my network with local scientists.

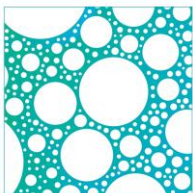
This bursary supports me to visit the University of Cambridge for a week before the meeting. I take this opportunity to meet [Professor Paul Dupree](#) in biochemistry department, and make a presentation in his group meeting. Professor Paul Dupree is a world-leading biophysics and plant scientist. He has published more than 100 research papers in high-impact journals including PNAS, Nature communication, Nature Chemical Biology, Nature Protocols and Nature Plant etc. During my visit, Paul introduced his studies on engineering xylan and mannan, and had a discussion with me on the postdoc fellowship applications in Cambridge. He is very hopeful to let me join the team and fully support me to apply for the fellowship.



After visiting Cambridge, I went to Sheffield to attend EC Colloids 2018 meeting. I was the only researcher outside UK and received a warm welcome from the committee. The presentations in the meeting were excellent ranging from natural colloids to polymer nanoparticles. I met and talked with a number of local colloid researchers including first-year postdocs to senior professors. In my presentation, I also advertised our 9th Australian colloid & interface symposium next year, which attracted great interests from audience.

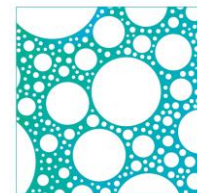


I really enjoy the trip and meeting in UK, and want to express my sincere thanks to the Australasian Colloids and Interface Society!



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New ACIS Awards – Nominate your colleagues and students!

ACIS Lectureship Award

This award is targeted to increase the exposure of a recently appointed academic in the colloid and interface science community within Australasia. The purpose of the award is to support a lecture tour of Australian and NZ institutions in order to enable to recipient to expand their network, increase their visibility, and finally to promote the society and discipline of colloid and interface science. Those within 5 years of their first academic appointment at the close of nominations (with allowances made for career interruptions) are eligible to be nominated, and any ACIS member can act as nominator.

The deadline for nominations is [1st December 2018](#).

ACIS Outstanding PhD Thesis Prize

This prize acknowledges the most outstanding thesis nominated within the field of colloid and interface science within the 13 months preceding the closing date. All students who have submitted their thesis within this time period and are current ACIS members at the time of nomination are eligible.

The deadline for nominations is [10th December 2018](#).

For further information on these awards, please contact the Chair of the Awards and Prizes committee, Rico Tabor: rico.tabor@monash.edu

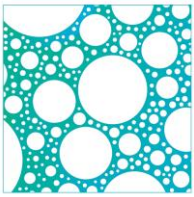
Okinawa Colloids 2019 (3rd – 8th November 2019)

Okinawa Colloids 2019 is an international conference on colloid and surface science organized by Division of Colloid and Surface Chemistry (DCSC), The Chemical Society of Japan, to celebrate the 70th anniversary of the divisional meeting of DCSC. The conference will offer a fantastic opportunity to discuss the latest developments across the multidisciplinary fields of colloid and interface sciences, while also enjoying the tropical atmosphere of the southern island and visiting scenic locations. More details on the official website (<http://okinawacolloids2019.chemistry.or.jp>)



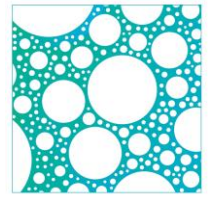
Themes will include:

- Surfactants and Self-Assembly
- Foams/Bubbles/Emulsions and Microemulsions
- Soft Matter (Polymers, Polyelectrolytes, Gels and Liquid Crystals)
- Membrane and LB film
- Colloidal Dispersions, Surface Forces and Rheology
- Nanoparticles and Nanomaterials
- Wetting and Adhesion
- Solid Surface -Adsorption, Catalysis, Tribology and Electrochemistry
- Biocolloids, Biointerfaces and Biomimetics
- Colloids in Environment and Energy
- Application of Colloids



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Workshops by CECAM (Centre Européen de Calcul Atomique et Moléculaire)



CECAM is an organization devoted to the promotion of fundamental research on advanced computational methods and to their application to important problems in frontier areas of science and technology. They organise several workshops in Europe. More information on these workshops can be found [here](#).

New Zetasizer Pro and Ultra with Multi-Angle Dynamic Light Scattering (MADLS) for higher resolution analysis.

Built on the market-leading Zetasizer Nano range, the new Zetasizer Pro and Ultra systems from Malvern Panalytical deliver enhanced speed and ease-of-use for the measurement of particle and molecular size, particle charge and particle concentration.

Several unique and powerful capabilities have led to the most advanced light scattering system available. A key differentiator of the Zetasizer Ultra is its patented Multi-Angle Dynamic Light Scattering (MADLS®) technology, which automates multiple-angle size measurements, providing higher resolution and more complete particle size distributions. MADLS also enables calibration-free particle concentration analysis for a wide range of materials, resolving the individual concentrations of different size populations. The new disposable capillary sizing cell provides non-destructive, low volume (3µl) analysis, extending the upper range to 10µm and delivering high-quality data while reducing cost.

The Zetasizer Pro and Ultra systems are controlled by groundbreaking ZS Xplorer software, introducing new sample-centric workflows, which make method design and data analysis more straightforward for both new and experienced users.

Zetasizer systems are used across many industry sectors worldwide, delivering value in the control and optimization of processes, and the improvement of product quality, stability and performance. They are central in academic settings, indispensable in a wealth of application spaces and referenced in tens of thousands of peer-reviewed publications.



If you would like further information or a free quote, please contact us.

ATA Scientific Pty Ltd

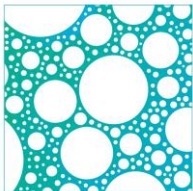
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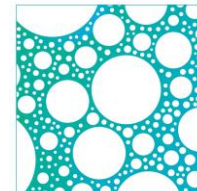
Activities

Join our Awards, Communications, Conferences and Events Committees



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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.

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.

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 30th June of the following year. More information is available on our website <http://colloid-oz.org.au/>.



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.

The Newsletter team is:

Boon Teo – boonmian.teo@monash.edu

Liam Scarrett - lsca1817@uni.sydney.edu.au

