

Scatter Matters

Australian Centre for Neutron Scattering



From the Director's desk

Welcome to 2022 which brings both new opportunities and new challenges. We resumed user operations on the 25th September 2021 and have gradually resumed user operations since then, primarily running mail-in proposals. The COVID Omicron outbreak in Sydney has added a speed bump to that plan and I am extremely appreciative and proud of the ACNS team who continue to maintain user operations under ANSTO COVIDSafe operations. In January 2022 it was great to welcome our first international users since recommencing user operations in June 2020.

I had the pleasure of attending the opening of [The Invisible Revealed Exhibition](#) at Sydney's Powerhouse Ultimo Museum of Applied Arts and Science which showcased ANSTO's nuclear techniques applied to cultural heritage specimens from the museum. I encourage you to visit the [exhibition virtually](#) or in person in Sydney before 22nd May 2022.

Congratulations to the winners of the [2021 ANBUG Awards](#) and a special mention to Elliot Gilbert who received the ANBUG Neutron Award and Norman Booth who received the ANBUG Technical Award.

The [2022-1 round](#) will be conducted under [anonymous review processes](#) as part of a trial with the [Australian Government's Women in STEM Ambassador](#). The 2022-1 proposal round closes on 15th February with proposals submitted to the [ANSTO Research Portal \(ARP\)](#).

This year we will have a number of outages of ACNS capabilities including the Small-angle X-ray Scattering instrument and X-ray Reflectometer which will be replaced with new instruments commencing from February 2022. We will also be replacing the Koala Laue Diffractometer in the 2nd half of 2022.

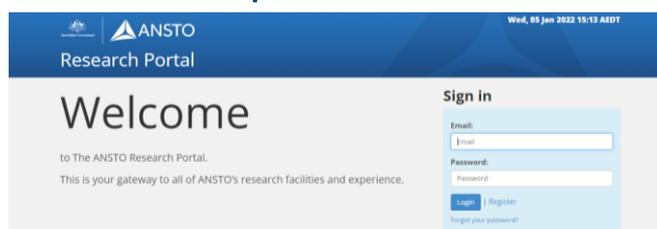
We acknowledge that COVID has significantly impacted Early Career Researchers and are considering requests for Discretionary access to the ACNS capabilities. Please see full details later in the newsletter.

Finally, we value your feedback on your experience as a user of the ACNS facilities and welcome your feedback via our [user survey](#) at the completion of your experiment. As an incentive to submit your feedback we are randomly selecting a user feedback response every quarter for a \$100 AUD gift card.

Jamie Schulz

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Australian Centre for Neutron Scattering & National Deuteration Facility 2022-1 Proposal Round



After the disruption of 2021, we are looking forward to your neutron scattering and deuteration proposals for the delayed 2022-1 round. This will be for ACNS instrument time from late June to December 2022 and provision of deuterated molecules in the same timeframe. This will be the only call for both ACNS instrument time and NDF deuteration proposals to be run in 2022.

Proposals may be submitted and amended until 11.59 pm AEDT, 15th February 2022. There are two new features to the 2022-1 proposal round:

- 2022-1 ACNS & NDF proposals are to be submitted through the [new ANSTO research portal](#)
- ACNS proposals for the 2022-1 round are to be part of a trial into anonymised review processes, run in conjunction with the Australian Government's Women in STEM office.

Anyone applying to use the Australian Centre for Neutron Scattering is required to make their submission anonymous, including the Neutron/Deuteration (ACNS/NDF) combined proposal type, (though not for Deuteration-only NDF proposals). There are two further online information sessions on this before the proposal

deadline, to be held on **Wednesday 2 February 2022** - 8am-9am AEDT and **Wednesday 9 February 2022** - 5pm-6pm AEDT. More information on this can be found [here](#).

It is also worth reminding all our users that ACNS also considers discretionary access to all our instruments, under the following conditions:

- Discretionary requests will be considered for Early Career Researchers where the progress of a student-thesis program or Early Career Researcher's career would be detrimentally affected (e.g. where the success or submission of the thesis is at risk). It is expected that experiments would be undertaken in-person where possible.

Please email discretionary access requests at any time to the ACNSenquiries@ansto.gov.au email along with justification on how the request meets the above requirements. If agreed it meets the requirements, a proposal will need to be submitted for scientific, technical & safety review.

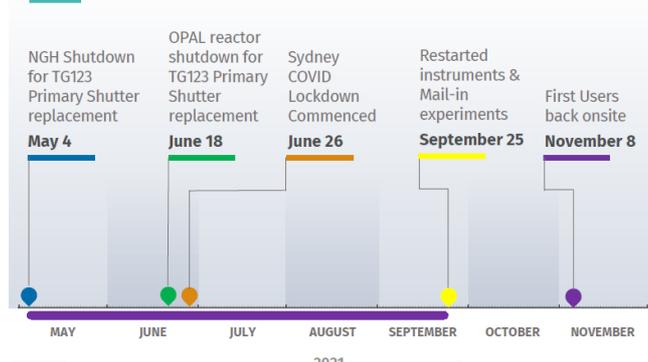
National Deuteration Facility (NDF) users who wish to receive their deuterated or isotopically labelled molecules prior to July to December 2022, for experiments scheduled outside Australia or for non-neutron experiments such as NMR or mass spectrometry, please contact NDF via ndf-enquiries@ansto.gov.au to discuss further. Discretionary access may be considered and will be assessed on a case-by-case basis.

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News from the Instruments

Returning to service after 2021 TG123 replacement and COVID shutdown.

ACNS User Program



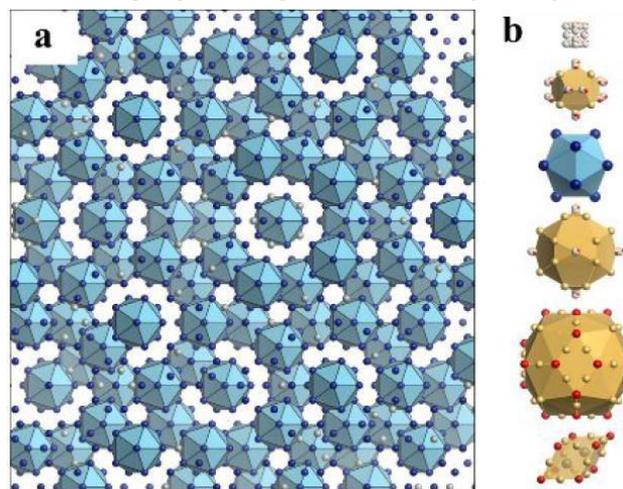
As detailed in the last newsletter – 2021 saw the culmination of the long-planned TG123 primary shutter replacement, which had taken our neutron-guide-hall instruments out of action for May through until July. Unfortunately, just as we were planning to return to full service, the Sydney COVID lockdown meant most staff were working from home, and we were unable to run the instruments. We were able to slowly return to service, beginning at the end of September with instrument commissioning and mail-in proposals – and were able to welcome our first users back to site on November 8th. We are now back running a full program but are missing our international users – we hope to be able to welcome them back to site early in 2022. With the current Omicron wave in Australia we continue to monitor the situation, ACNS adheres to NSW government advice that has changed several times. If you have an upcoming experiment and are concerned about current access arrangements, please contact your instrument local contact, or the NSW user office. We are working

hard to maintain a COVID-safe operating environment for our staff and users alike.

Diffraction

The diffraction instruments at ACNS are Echidna (high-resolution powder diffraction), Wombat (high-intensity diffraction) and Koala (Laue diffraction). The group also includes the computational cluster staff and runs the Physical Properties Measurement System (PPMS). They can all be reached at acnsdiffraction@ansto.gov.au

Science highlight - Magnetic order in quasicrystals



A team led by Prof Ryuji Tamura at Tokyo University of Science and Prof Taku Sato at Tohoku University in Japan have used our Echidna instrument to demonstrate long-range magnetic order in quasicrystals for the first time.

“This successful synthesis of ferromagnetic icosahedral quasicrystals is the culmination of more than 10 years of research in our laboratory,” said Prof Tamura.

“Nobody knows what kind of peculiar behaviour magnetic quasicrystals exhibit or how they can be exploited for the advancement of technology, but now we finally have the first step. Elucidating the properties of these magnetic quasicrystals will

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contribute greatly to the development of science,” Prof Tamura added.

The ferromagnetic phase forms in the alloy made of gold (Au), gallium (Ga) and gadolinium (Gd) below 23 K and in an alloy made of gold, gallium, and terbium (Tb) below 16 K. Read more details in the publication in *JACS*

<https://doi.org/10.1021/jacs.1c09954>

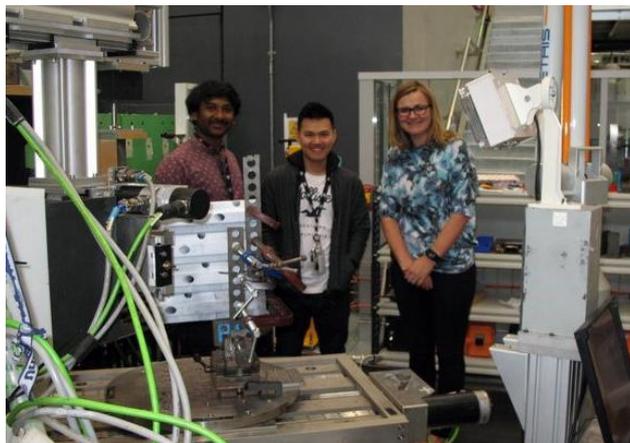
Engineering & imaging

The engineering and imaging instruments at ACNS are Dingo (imaging) and Kowari (strain scanning).

The group can be contacted at

acnsimagingandengineering@ansto.gov.au

Science highlight - Advanced repair technology shows promise for rails in remote locations



Taposh Roy (left), and Quan Hoi (centre) with Anna Paradowska at the Kowari instrument

A joint industry-academic team have used our Kowari instrument to evaluate a laser cladding-repair technique, which is an established method to repair high-value components on heavy-haul rails. The method could increase the service life of rails and reduce maintenance time and costs, as repairing rails is preferable to replacing them.

Industry partner Hardchrome, who came on board through an ARC Linkage project, have vast experience and expertise in the use of laser cladding technology for manufacturing and repairs in the mining sector.

In research published in the *Journal of Materials Processing Technology*, the team conclude that advanced laser technology could be used on heavy-haul rails and that detrimental stresses could be reduced or mitigated in critical regions of the repair. Read more about this work in the associated publication -

<https://doi.org/10.1016/j.jmatprotec.2019.116511>

Inelastic

The inelastic instruments at ACNS are Taipan (triple-axis spectrometer), Emu (high-resolution back-scattering spectrometer), Pelican (time-of-flight spectrometer) and Sika (cold triple-axis spectrometer). The team also operate Joey (Laue camera) and can be contacted at

acnsinelastic@ansto.gov.au

Reflectivity

The reflectivity instruments at ACNS are Platypus, Spatz and the X-ray reflectometer. The group also includes the ³He polarisation staff, and they can all be reached at acnsreflectivity@ansto.gov.au

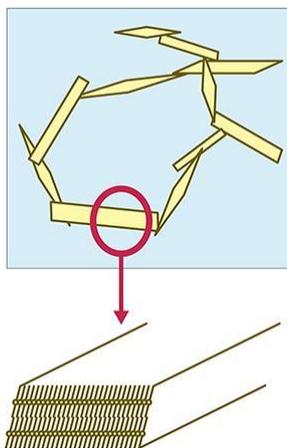
Small Angle

The small-angle-scattering instruments at ACNS are Quokka, Bilby, Kookaburra (ultra-small angle) and the X-ray small-angle camera. The team can be reached at acnssmallangle@ansto.gov.au

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Science highlight - how to make food different and better by design



As polyunsaturated fats from plants are liquids, and not always suitable for some foods, one approach is to use a process known as oleogelation. This involves adding something to a liquid fat, such as olive oil, to convert it into a semi-solid gel.

In a paper published in *Innovative Food Science and Emerging Technologies*, investigators from Wageningen University in the Netherlands reported that sodium oleate plays a critical role as a principal oleogelator and produces stable, solid-like behaviour in the oil.

The approach provided insights into the mechanism that enabled molecules to form an oleogel network structure in edible oils. Investigators used a combination of techniques, including rheology, microscopy, small-angle neutron and X-ray scattering and ultra-small angle neutron scattering at ANSTO.

Co-author Prof Elliot Gilbert, Leader of ANSTO's Food materials science project, said, "Small-angle neutron scattering is able to discern the different contributions that each component makes to structures on both the nano- and microscale. It is these structures that determine the properties of the gel on the macroscale."

Read more about this work at the associated publication <https://doi.org/10.1016/j.ifset.2021.102763> and

also hear Prof Gilbert talk about the structure of food on a recent [Singularity U podcast episode](#).

Operations

The operations team at ACNS includes the technical group, laboratory group and sample environment group. ACNS lab staff are available to assist with access to the laboratories and advise on chemical safety in support of your neutron proposals, and can be reached at acns_laboratories@ansto.gov.au

Update on ACNS Laboratories – new worksheet procedure.



The ACNS laboratories consist of four laboratories adjacent to the Neutron Guide Hall. The laboratories are used for final sample preparation, cell loading, and cell cleaning during scheduled approved beam time. There is no provision for synthesis in the laboratories.

The laboratories are equipped with general laboratory equipment, consumables and limited common chemicals. Laboratory space and equipment must be requested as part of your proposal. It is expected that you have experience in any laboratory techniques, equipment, and chemicals you will use at ACNS.

All laboratory work requires laboratory-manager approval. When your proposal is scheduled, you will be asked to provide detailed information of all

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intended laboratory work by way of a Laboratory Worksheet. This must be completed and returned to the laboratory manager or your local contact prior to your arrival at ACNS. The laboratory worksheet allows the laboratory manager to assess the details and safety requirements of all planned laboratory work.

Laboratory space is limited. Requests for laboratory space, equipment, and chemicals will only be confirmed once the laboratory worksheet has been returned and the laboratory manager has completed the risk assessment.

We understand beam time does not always run smoothly and you may need to prepare or modify your samples unexpectedly. Please discuss your requirements with the laboratory staff before working in the laboratories so an appropriate workspace can be arranged. ACNS lab staff can be reached at acns_laboratories@ansto.gov.au

The above procedure assists us in ensuring your visit to the ACNS laboratories is as efficient as possible as well as providing a safe work environment for our staff and visiting researchers.

National Deuteration Facility news

The National Deuteration Facility has expertise in both biodeuteration and chemical deuteration techniques, enabling access to a wide range of capabilities. Though NDF is a separate platform to ACNS, we share many of our users – so are using this corner of the ACNS newsletter to get in touch with you all!

New Capability - Deuterated linoleic acid



Linoleic acid and its associated phospholipids play an important role in human health. Linoleic acid is one of two essential fatty acids, required as a precursor to produce a number of physiologically important lipids. Of particular interest, recent findings have shown the SARS-Cov-2 spike protein contains a pocket that specifically binds to linoleic acid and that the presence of polyunsaturated fatty acids inhibits SARS-CoV-2 binding and cellular entry.

Based on the importance of linoleic acid and its lipid derivatives, the NDF has sought to develop a synthesis of deuterated linoleic acid to facilitate nuclear magnetic resonance, infrared, mass spectrometry, and neutron scattering studies.

A concise, scalable synthesis has been achieved to access gram quantities of linoleic acid-d₃₁. The NDF's expertise in phospholipid synthesis means that desirable linoleoyl lipids can now be synthesised on request.

Find out more about this new capability and see other NDF Science News and Highlights [here](#) on the ANSTO website.

For any NDF related questions, please contact the NDF team at ndf-enquiries@ansto.gov.au

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ANBUG News



News from the Australian Neutron Beam Users Group – see more and [join the group here](#).

ANBUG 2021 awards

ANBUG Awards 2021

Outstanding PhD Prize



Dr Gemeng Liang
University of Wollongong

Neutron Award



Prof Elliot Gilbert, ANSTO

Career Award



A/Prof Trevor Finlayson
University of Melbourne

Technical Award



Dr Norman Booth, ANSTO

Young Scientist Award



Dr Leonie van't Hag, Monash University

The annual ANBUG awards were presented as part of the ANSTO user meeting, with the awards going to:

Career Award – A/Prof. Trevor Finlayson from the University of Melbourne

Neutron Award – Prof. Elliot Gilbert from ANSTO

Young Scientist – Dr. Leonie van't Hag from Monash University

Technical Award – Dr. Norman Booth from ANSTO

PhD Award – Dr. Gemeng Liang from the University of Wollongong

Congratulations to all the winners – we very much appreciate their efforts as part of the ACNS family

over the years (and many more to come). You can read more about the ACNS awardees, Elliot and Norman, on the [ANSTO website](#).

ANBUG Website

Updates have been made to the ANBUG website, including future neutron-related conferences and a link to the ACNS sample-environment handbook.

If you have any conferences/workshops you would like promoted or neutron-related good-news stories (funding, papers, media etc.), then please forward them to secretary@anbug.net, and we will add them to our website and Twitter (@ANBUGneutron)

2022 Events

ANBUG has already started planning several events to take place in 2022.

- An online neutron-reflectometry event will be held sometime in February-April time.
- A second online town-hall event on the OPAL reactor will also be held in early 2022.
- The 2022 ANBUG AINSE Neutron Scattering Symposium (AANSS 2022) will be held late in the year. If you have any suggestions for invited speakers or would like to help on the organising committee, please email secretary@anbug.net.

Call for seminar suggestions

ANBUG continue to run neutron-related webinars. If you have a specific topic in which you are interested, please get in contact with ANBUG (secretary@anbug.net).

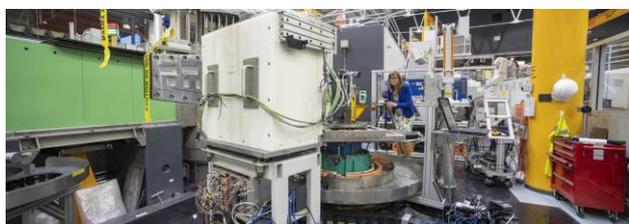
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Achievements

Grant successes

ACNS scientists, partnering with our user community, have been successful on several grants since the last Newsletter. These include:

ARC Linkage Infrastructure, Equipment and Facilities Grant - Metallurgical Facility for Solid-State Additive Manufacturing



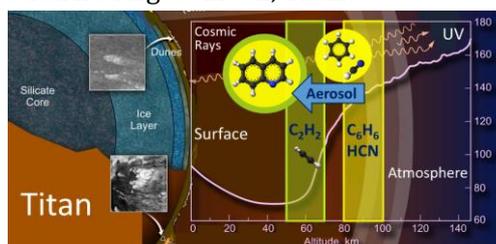
Led by Anna Paradowska through the University of Sydney, this grant aims to create a Metallurgical Facility for Solid-State Additive Facility, to radically enhance the Australian capability for Additive Manufacturing. The Facility will revolutionise manufacturing research in Australia, by creating access and opportunity to develop novel materials and procedures via this rapidly growing technology. The Facility will revolutionise manufacturing research in Australia, by creating access and opportunity to develop novel materials and procedures via this rapidly growing technology.

This strategic facility will give researchers a significant advantage in the development and optimisation of advanced manufacturing and maintenance technologies by providing state-of-the-art friction-stir 3D-printing hybrid manufacturing capabilities with substantial downstream benefits to the civil, transport, automotive, aerospace, mining, oil and gas, defence, recycling, and medical industries.

ARC Linkage Infrastructure, Equipment and Facilities Grant - An *in situ* and multiscale scanning electron microscopy suite

Led by Michael Preuss from Monash University, this grant aims to establish a purpose-built *in situ* scanning electron microscope for imaging during testing of macroscopic samples together with a second microscope for correlative high-magnification analysis. This unique facility is expected to create new knowledge and understanding of the evolution of materials and devices during processing and performance. Expected outcomes are the development and better utilisation of materials for a range of applications. This should benefit research in many disciplines such as physics, chemistry, geology, materials, mechanical, civil and chemical engineering, and provide societal impact for the environmental, transport and energy sector.

New Zealand Royal Society Marsden grant - Signs of life: Can the building blocks of life be found on Saturn's largest moon, Titan?



Led by Courtney Ennis at the University of Otago, the international team assembled, which includes NASA's Jet Propulsion Laboratory, will prepare novel cyanide and hydrocarbon co-crystal minerals to evaluate their geochemistry within Titan's environment and ability to form nitrogen-heterocycles; essential precursors for origin-of-life chemistry. Neutron diffraction to be undertaken at ACNS will be key to the experimental program, which will establish astrobiological markers for the Dragonfly mission to search for on Titan's surface.

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Event Reports

Small-angle-scattering workshop



The 2nd Small Angle Scattering Workshop took place between the 1st and the 3rd of December 2021. It was jointly hosted by the SAXS/WAXS and BioSAXS groups at the Australian Synchrotron (AS) and the SAS group at the Australian Centre for Neutron Scattering (ACNS). This workshop was aimed at undergraduate, graduate, and early-career researchers, who may have used, or are planning to use, small-angle-scattering techniques and instruments for their research.

Due to the impacts of COVID, it was run as a virtual meeting for the second time around. This had its drawbacks, but it also presented a range of new opportunities, including a diverse range of national and international speakers, and the potential to reach a much wider audience.

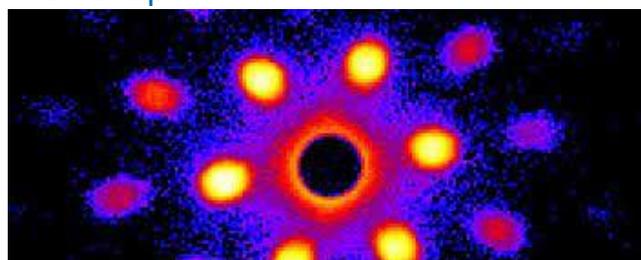
The total number of registered participants was ~160 (~40% female/60% male) and included participants from Australia, New Zealand, and overseas. The course material covered theoretical and practical aspects of small-angle scattering, including basics of instrumentation, scattering theory, data collection, data processing, data analysis and modelling, and proposal writing. Scientists from ANSTO, University of Sydney,

Monash University, RMIT, University of Newcastle, and University of Buffalo (USA) presented scientific applications of the method in various areas of research. Practical sessions run in parallel for SANS and SAXS and participant numbers were capped to 20 participants for each technique. A trivia quiz was handed out to participants on the last day, where they could put their newly gained knowledge to the test. The three top winners were rewarded with ANSTO merchandise as prizes.

The workshop was a huge success and received overwhelmingly positive feedback. ACNS and AS are committed to run this workshop every year.

Jitendra Mata

NSRRC-ANSTO Small-Angle-Scattering Workshop



On 19th November 2021, the National Synchrotron Radiation Research Centre in Taiwan and ANSTO held a bilateral forum to discuss the topic of 'gels and solutions' as well as the latest developments in small-angle scattering. Presentations were given by scientists at the Taiwan Light Source, Taiwan Photon Source, and the Australian Centre for Neutron Scattering, addressing instrumentation, deuteration, and sample environment, followed by scientific talks of relevance to food, cosmetics, latex paint and pharmaceuticals. With approximately 150 participants, the workshop formed an intrinsic component of the annual meeting of the Taiwanese Neutron Scattering Society (TWNSS). Despite the conference spanning three locations (Hsinchu -

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NSRRC, Kaohsiung – TWNSS, and Sydney - ACNS), the entire workshop ran incredibly smoothly. The meeting advisors, U-Ser Jeng at NSRRC and Elliot Gilbert, thank Wei-Tsung Chuang, Nancy Fan, Ken Chuang, Hsin-Hsien Hsiao, Ya-Hsuan Kuo and Chun-Ming Wu for organising such a terrific meeting which was greatly enjoyed by attendees. Indeed, it is hoped that this meeting will be the first of many future meetings with subsequent topics having a focus on technique-specific items as well as specific scientific areas.

Elliot Gilbert

Mantid User Meeting



Mantid (<https://www.mantidproject.org>) is the software package to reduce data collected on a broad spectrum of neutron instruments at various facilities. At ACNS, there are several instruments where Mantid is the main tool for data reduction. Also, ANSTO is an official contributor/developer of the package. The Mantid project is a collaborative approach governed by two committees, technical and scientific (see <https://github.com/mantidproject/governance>).

The 2021 User meeting, held virtually 29-30 November 2021, was attended by about 60 people, and was organized by Dr. S. Cottrell (ISIS neutron facility, UK), the Chair of the Technical Committee, Dr M. Gigg (ISIS), and the Chair of the Scientific Committee, Dr A. Sokolova (ACNS, ANSTO) (<https://www.mantidproject.org/Category/Users/Workshop/2021.html>).

To accommodate participants from all continents, the program was stretched over two days, consisting of an overview of the Mantid project, with details of the initial structure and changes taking place over the last year. This was followed by the summaries from the Technical and Scientific working groups, as well as facility updates from ISIS neutron source (UK), ORNL (USA), ESS (Sweden), CSNS (China), ILL (France), MLZ (Germany), and ANSTO. Several talks were given on the details of the software architecture. And finally, short updates on the large packages available for neutron data reduction and analysis (SCIPP, SasView, PACE) were also presented.

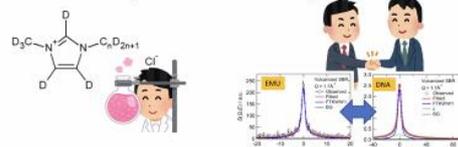
Anna Sokolova

ACNS/J-PARC/NDF MoU workshops

Science & Technology Workshop Series

N. de Souza, M. Matsuura, H. Aoki

Under the previous MoU between ANSTO and J-PARC MLF, there were fruitful collaborations in e.g. chemical deuteration and quasi-elastic scattering.



This workshop series is planned to explore potential collaborations between the ANSTO and J-PARC staffs in other fields of research and development.

Over October and November 2021, scientists, and engineers from ACNS, NDF, and J-PARC Materials

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Life Science Facility (operated by JAEA, KEK, and CROSS) ran a series of internal Science and Technology Workshops. These workshops brought closer the two neutron scattering facilities, under the umbrella of the renewed ANSTO/J-PARC memorandum of understanding in cooperation on neutron scattering. The workshops, centred on neutron scattering and ancillary techniques, were aimed at identifying those overlapping areas of interests most conducive to collaborative efforts.

A concluding workshop was held on 13 January 2022, presenting a broad range of joint development opportunities across the spectrum of capabilities offered by both facilities.

Nicolas De Souza

Upcoming Events

To advertise your upcoming event in our newsletter (sent to all our ACNS users) – please send details to the newsletter editor.

Neutrons and Food



Following previous meetings in Sydney, Delft, Paris, Lund, and Sydney, Neutrons and Food 6 was scheduled to be held in Japan in May 2021, but was postponed due to the COVID-19 outbreak.

In view of the current situation of the pandemic, the organising committee has decided to hold "Neutrons and Food 6" as an online meeting. The date and time of the meeting will be:

Date: May 16 (Mon) – 19 (Thu), 2022

Time: 18:00-22:30 JST (UTC+9)

Registration fee: Free

The organizing committee would like to announce that they will be accepting applications for presentations – with registration open from the 24th January. Deadline for presentation applications will be the 28th February.

Registration Open: Jan. 24, 2022

More information about presentation registration and abstract submission is available at the [conference website](#).

International Association of Colloid and Interface Scientists (IACIS2022)



[IACIS2022](#) will be the 17th conference in a series held every three years since 1975. IACIS2022 brings together scientists from academia, research institutes, and industry, working in the field of colloids and interfaces. This field is strongly interdisciplinary, combining aspects of physics, chemistry, mathematics, and biology. Colloidal systems are nowadays also referred to as "soft matter," indicating that their structure and dynamics are governed by physical interactions, which are generally weak. The abstract deadline is Tuesday 8th February 2022.

The conference will be followed by a Small-Angle Scattering & Reflectometry workshop run by the University of Queensland and supported by ACNS and the Australian Synchrotron.

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International Conference on Neutron Scattering (ICNS2022)



[ICNS 2022](#) will be the 12th conference in a series held every four years starting in 1982. ICNS 2022 will be the largest international platform for sharing and exchanging the latest exciting advances in neutron-scattering science, including a broad range of topics. The abstract deadline is now set for the 14th February, so there is still time to be part of this fantastic meeting.

Applying for Instrument time

For [submission advice see the website](#) or contact the ANSTO NSW User Office team on:

T: +612 9717 9111

E: user.office.nsw@ansto.gov.au

Powder Diffraction Mail-in Round

Applications for [mail-in powder diffraction measurements on Echidna](#) are continuously open – and should be submitted through the [legacy portal](#).

2022-1 Proposal Round

As mentioned in earlier in the newsletter, continuing disruption from the current COVID restrictions means we will only run one proposal round for instrument time in 2022. Applications for instrument time for the Australian Centre of Neutron Scattering and for access to National Deuterium Facility experiments for 2022 are now open. The call for proposals will close on 15th February 2022 at 11:59pm (AEST).

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Meet the new team members

Please join us in welcoming the new members of the Australian Centre for Neutron Scattering team,

Keita Richardson

ANSTO Graduate



'As a part of the graduate program, I'm delighted to have landed a rotation at ACNS where I'll be until midway through 2022. During that time my supervisor will be Dr Kirrily Rule and my main project will be on spin-wave calculations for the

quantum magnet, clinoatacamite, using data from Pelican. Previous to this, my first rotation at ANSTO was in Environment, and I graduated from the University of Sydney with a Bachelor of Science (Adv) (Hons) majoring in Physics and Chemistry. Since undergraduate days I've known of ANSTO primarily for the work at ACNS and I feel privileged and excited to work here and to learn from all the great people around.'

Lauren Naylor

Mechanical Engineering Apprentice



'I am currently a fresh third-year Mechanical Engineering Apprentice, primarily located at AME

(ANSTO Maintenance & Engineering) for the past two years before coming to ACNS. I am completing a Certificate III in Engineering (Fitting Machining) combined with a Certificate IV in Engineering (CNC

Programming) and hope to complete the fourth year of my apprenticeship with a Diploma of Engineering (Advanced Trade).'

David Hopkins

Mechanical Technician



'I work with the Scientific operations group as a Mechanical Technician providing support to users and scientists. My trade is Fitter Machinist, I have a background working in maintenance teams and have a range of experience from working in manufacturing and chemical

industry to working on Major Hazard Facilities for large organisations.'

Oliver Paull

Sample environment officer



'My role at the ACNS as sample environment officer is partly to set up equipment needed for neutron scattering experiments (such as

magnetic fields, temperature, or gaseous atmospheres – i.e. the *environment* for the sample being measured). Additionally to this, the role includes fixing, designing, and creating new equipment that is needed to successfully carry out a user experiment if there is no existing equipment to achieve the user's needs. I have recently finished my PhD thesis at UNSW and have also had a brief stint as acting instrument scientist for polarised neutron reflectometry on Platypus in 2020. It is great to be back and approaching the science at ACNS from a different perspective, and to be learning some new skills!'

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Adriano Pavan

Sample Environment Officer



'Hi! My name is Adriano and I have recently joined the sample environment team at ACNS on the [ACNS Research Infrastructure Investment Plan project](#). I completed my PhD at University of Sydney after which I returned for a short post-doctoral position before moving to Uppsala University in Sweden for a post-doctoral fellowship of two years.

I had the opportunity as my main project to collaborate with many scientists on a new sample environment for ISIS and ESS and decided that helping other scientists achieve ever more complex experimental conditions for neutron studies was where I wanted to be!

Raya Tasmin

ANSTO Graduate



Raya has joined the Sample Environment team for her second rotation in the ANSTO Graduate Program. Prior to starting at ANSTO in 2021, she completed her undergraduate studies at UNSW with a Bachelor of

Mechanical and Manufacturing Engineer and Bachelor of Materials Science. Her previous experience is in Building Services (Arup) and Project Engineering (SyMo) but she is excited to venture into the world of research and science application.

Stan Lee

Capital Portfolio Manager



Stan is responsible for the co-ordination of capital projects across ACNS, providing project and engineering management support from concept through to delivery and completion. Stan re-joins ACNS after 3 years working

with the Nuclear Operations portfolio for ANSTO Maintenance & Engineering as a project manager. Prior to this, he was part of the ACNS Sample Environment Group working primarily with high-temperature and high-pressure systems. Stan is an engineer and a lawyer, but does not work much as the latter - so do not hold that against him.

Newsletter Editor



Scatter Matters is edited by Dr Helen Maynard-Casely, who chairs the ACNS Outreach & Promotion Committee and likes

cake. If you have a story or event you would like to share with the ACNS user community, do get in touch - helenmc@ansto.gov.au