



FROM THE ACTING DIRECTOR




Dr George Borg,
Acting Director,
Australian Synchrotron.

As New Year celebrations give way to plans for the year ahead, 2010 is shaping up to be a busy year for the Australian Synchrotron with major projects and new challenges.

The Australian Synchrotron team is being strengthened by two recent appointments: a new Head of External Relations, Dr Christine Latif, and a new Quality Manager, Dr Kathleen Muscat.

Throughout the year we will continue to grow the synchrotron's industry engagement program, begin regular user operations on the imaging and medical beamline, and introduce new capabilities on several beamlines (x-ray absorption spectroscopy, powder diffraction and x-ray fluorescence microprobe). We will enhance our workplace health and safety programs, move closer to operating the synchrotron light source in 'top up' mode for enhanced photon beam stability, and deliver key milestones in high-speed computing, data networks and remote access.

Work will also continue towards obtaining accreditation of the Australian Synchrotron's occupational health and safety (OHS) management system to the AS/NZS 4801 standard, procuring a site-wide uninterruptable power supply (UPS) and upgrading the earthing infrastructure for the technical systems.


The \$36.78 million Education Infrastructure Fund (EIF Round 2) funding agreement signed by the synchrotron in December 2009 is expected to be signed by the Federal Government representative in February 2010. This will enable completion of the detailed designs of the five new buildings, with construction to commence mid-2010. 

BEAMTIME APPLICATIONS OPENING SOON

Beamtime submissions open on 10 February 2010 for round 2010/2 (June – August 2010).

Key dates for beamtime submissions are listed on the synchrotron website: www.synchrotron.org.au/index.php/features/applying-for-beamtime/2010-proposals-schedule.

If you would like to discuss your ideas for future beamline proposals with the beamline scientists at the Australian Synchrotron, please allow plenty of time.

For more information about applying for beamtime at the Australian Synchrotron, contact the User Office: user.office@synchrotron.org.au 

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UP TO SPEED

This month our short interview features Hock Ch'ng, who heads the Australian Synchrotron's occupational health, safety and environment (OHSE) team.



Describe your job in 25 words or less.

Formulate, develop and implement strategies and programs to address complex concerns involving technical, OHS, radiation safety, workers' compensation, environmental and regulatory issues.

Best aspect of your job?

Opportunity to influence the creation and maintenance of a healthy and safe workplace.

Worst aspect of your job?

Reports, reports and more reports.

TESTING A NEW RADIOTHERAPY METHOD

A collaborative research team from Melbourne has performed the first radiotherapy experiments on the Australian Synchrotron's imaging and medical beamline.

The team is investigating an experimental form of radiotherapy for cancer treatment called microbeam radiation therapy (MRT), which is only possible at synchrotrons. Animal studies have shown that this form of radiation is remarkably well tolerated by normal tissue, but can destroy entire tumours. Although MRT research is still in the experimental stage, researchers hope it will eventually lead to more effective treatments for cancer.

In November 2009, the team used MRT at the Australian Synchrotron to treat laboratory mice with malignant tumours. The study, which was fully compliant with strict animal ethics requirements, found MRT significantly reduced tumour growth compared to untreated control tumours – with minimal side effects to normal tissue.

The collaborative MRT research team is led by Monash University scientists and includes researchers from Peter MacCallum Cancer Centre, The Alfred Hospital, CSIRO and the Australian Synchrotron. The team is already planning its next MRT experiments on the synchrotron's imaging and medical beamline, which is one of only four facilities around the world that can do MRT studies.

More: <http://www.synchrotron.org.au/index.php/aussynbeamlines/imaging-medical/highlights-im/testing-a-new-radiotherapy-method>



Preparing for the synchrotron's first microbeam radiotherapy experiments. LH photo, L-R: Carl Sprung (Monash University), Chris Hall (AS) and Andrew Stephenson (CSIRO). RH photo, L-R: Jeff Crosbie and Simon Higgins from Monash University. Photos courtesy of Peter Rogers.



FROM PATIENT TO PHD

Diagnosed with rheumatoid arthritis at age 10, Allyson Croxford is close to finishing a PhD that could potentially lead to new treatments or earlier diagnosis for this debilitating condition.

Around one in 100 Australians suffers from rheumatoid arthritis. The body's immune system attacks the lining of ankles, wrists and other joints, causing joint pain, swelling and stiffness. Although there is currently no cure, new medicines have helped improve quality of life.

Led by Merrill Rowley, Allyson's research group at Monash University is investigating how antibodies to collagen (type II) affect rheumatoid arthritis in mice. Collagen is a major component of cartilage, the joint tissue affected by rheumatoid arthritis.

The group is collaborating with Swedish researchers, who have identified where the antibodies bind to collagen in mouse cartilage. Different binding sites are associated with different degrees of severity.

Apart from the Australian Synchrotron, what's the coolest job you've ever had?

OHS consultant with the Australian Industry Group, dealing with a wide range of clients from funeral parlours to beauty parlours!

Best things about living in Melbourne and why?

Variety in weather, cultures, cuisines and endless things to do. Where else in the world can one experience four seasons in one day?

Your favourite overseas destination and why?

Penang, Malaysia, the Pearl of the Orient! Penang is my hometown.

A little-known fact about the Australian Synchrotron?

The dam is home to a family of wild ducks and a carp.

What is your group's biggest achievement so far?

Implementing and maintaining a radiation management regime that continues to meet the 1mSv/year dose constraint for this facility.


What is the single most important piece of advice you give people who are coming to the synchrotron?

Adhere to the safety and warning signs at all times.

What is the most surprising OHSE issue you've encountered at the synchrotron?

The high risks to personal safety that a small number of individuals are willing to take when taking shortcuts in completing a job.

What is the biggest challenge facing your group?

Creating and sustaining organisation-wide awareness and appreciation for workplace safety. Drop me a line if you have any suggestions for making 'safety' a sexy workplace topic! 

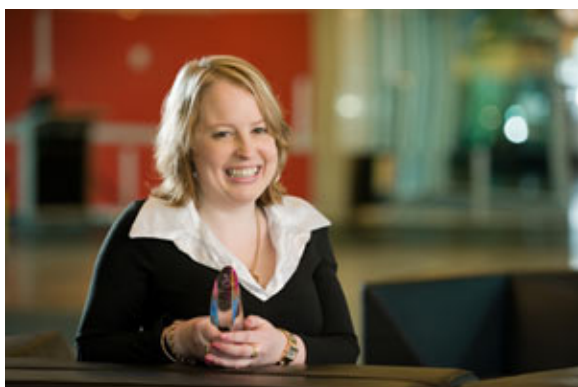
Allyson is using the infrared microspectroscopy beamline at the Australian Synchrotron to investigate minute chemical changes that precede any visible sign of cartilage damage.

Her synchrotron work suggests that the damage done by the antibodies occurs before inflammation. This could help lead to new drugs or more effective early detection methods.

In 2009, Allyson's passion for her research was highlighted when she won a competition in which Monash University PhD students had to present their research in just three minutes.

She plans to submit her PhD thesis later this year.

More: <http://www.synchrotron.org.au/index.php/aussyncbeamlines/infrared-micro/highlights-ir/from-patient-to-phd>



Synchrotron user Allyson Croxford with her '3-minute thesis' award.
Photo: Monash University.



BEAMLINE FOCUS

In January 2010, the Australian Synchrotron powder diffraction beamline held its inaugural Powder Diffraction (PD) Data Analysis Workshop. Students from around Australia and New Zealand sacrificed part of their summer holidays and braved the fickle Melbourne weather to learn how best to acquire and analyse PD data.

Guest speakers Ian Madsen, Michael James and Brendan Kennedy provided insights into everything from preparing for synchrotron beamtime to understanding the information contained within PD data, and from data acquisition to using data analysis software.

After completing the workshop, participants said they felt confident that they were better equipped to approach powder diffraction data analysis in the future. We look forward to seeing them at the beamline soon.



PD workshop participants came from around Australia and NZ.



EVENTS DIARY

EVENTS IN AUSTRALIA

BSR/MASR 2010

15-18 February 2010

Melbourne Convention and Exhibition Centre

BSR 2010 session themes include protein structure and function, biomaterials, spectroscopic techniques and non-crystalline diffraction.

More: www.bsr2010.org

MASR 2010 session themes include x-ray imaging, radiology, dosimetry and radiation biology, oncology, and pathology and diagnostics.

More: www.masr2010.org

Sponsored by Monash University Centre for Synchrotron Science and CSIRO.

EVENTS OUTSIDE AUSTRALIA

For additional information and listings, see

lightsources.org/cms/?pid=1000068

IPAC'10

23-28 May 2010

Kyoto, Japan

The First International Particle Accelerator Conference combines the three regional particle accelerator conferences previously held in Europe, America and Asia.

Deadline for early registration is 23 March 2010. Standard registration deadline is 9 April 2010.

More: ipac10.org

SRMS / MEDSI 2010

11-14 July 2010

Oxford, UK

The 7th International Conference on Synchrotron Radiation in Materials Science (SRMS-7) and the 6th International Conference on Mechanical Engineering Design of Synchrotron Radiation Equipment and Instrumentation (MEDSI) will be held jointly.

Abstract deadline for both events is 1 March 2010.

More:

srmsmedsi2010.org/srmsmedsi.html

FIVE-YEAR ANNIVERSARY OF MOVE TO CLAYTON

Late February 2010 marks an important anniversary for the Australian Synchrotron: five years since the first staff moved into their offices in the synchrotron building.

On 28 February 2005, 30 synchrotron staff moved to the Clayton building from their offices in Nauru House in Melbourne's central business district. Seventeen of those 30 people still work at the synchrotron.



L-R: Mark Boland, Colin Christofferson, Dean Morris, Neil Meadowcroft, Vesna Samardzic-Boban, Richard Farnsworth, Mark Clift, Bryce Karnaghan, Karl Zingre, Sergio Costantin, Brad Mountford.



Absent L-R: Chris Glover, Glenn Jackson, Greg LeBlanc, Eugene Tan and Adam Walsh
Also absent: Andrew Starritt



Then and now: the synchrotron in March 2005 and February 2010.



SYNCHROTRON STAFF MAKE SPORTING HISTORY

In December 2009, Australian Synchrotron staff made light work of hot weather to participate in the inaugural social club fun run.

Supported by generous quantities of encouragement and refreshments, 67 staff members ran, jogged or walked for between 12 and 36 minutes around the facility sporting ring (aka the ring road).

Notable individual performances included Rachel Williamson and Rohan Dowd who ran for the maximum 36 minutes, and Kerry Hayes and George Borg who walked for the maximum 36 minutes.

The event was organised by the social club and other volunteers, and managed by principal mechanical engineer Mick Küsel.



The synchrotron's inaugural fun run attracted some serious competition – and some not-so-serious participants.

VUVX2010

11-16 July 2010

University of British Columbia
Vancouver, British Columbia, Canada

The 37th International Conference on Vacuum Ultraviolet and X-ray Physics will cover the development of synchrotron, laser and plasma-based VUV, soft x-ray and hard x-ray sources, and novel applications.

More: www.vuvx2010.ca/

11th SXNS Conference

14-17 July 2010

Northwestern University, Evanston
(nr Chicago), Illinois, US

The Eleventh International Conference on Surface X-ray and Neutron Scattering brings together researchers studying surfaces and interfaces of solid, liquid, biological and soft matter via neutron or x-ray (either hard, soft, or EUV) scattering techniques.

More: www.sxns11.northwestern.edu

SPIE Optical Engineering + Applications

1 - 5 August 2010

San Diego Convention Center
San Diego, California, US

This major symposium covers classical optical R & D, design, and engineering, as well as technologies and systems for use in optical systems, remote sensing, and illumination engineering. Events of interest to synchrotron scientists include the following two conferences:

- Advances in X-Ray/EUV Optics and Components V (OP321)
- Developments in X-Ray Tomography VII (OP323).

More:

spie.org/optical-engineering.xml

XRM-2010

15-20 August 2010

Chicago, USA

The Tenth International Conference on X-ray Microscopy will cover the latest developments in methods and instrumentation, including x-ray sources, optics, detectors, and groundbreaking applications in biological and biomedical,

READER FEEDBACK

Lightspeed welcomes your comments and suggestions. Please send these to: info@synchrotron.org.au with 'Lightspeed comments' in the subject line.



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MORE INFORMATION


A list of Australian Synchrotron personnel can be found at www.synchrotron.org.au/index.php/about-us/working-at-the-synchrotron/staff-contact

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environmental, earth, space, condensed matter, and materials sciences.

Abstract deadline is 1 March 2010.

More: xrm2010.aps.anl.gov

SPACE FOR YOUR EVENT

To submit your synchrotron-related event for listing in *Lightspeed* and on the Australian Synchrotron website, click here:

www.synchrotron.org.au/index.php/news/events/list-an-event-on-this-site



CAREERS AT THE AUSTRALIAN SYNCHROTRON

The Australian Synchrotron offers a unique working environment for a wide range of specialists. More information on job postings: www.synchrotron.org.au/index.php/about-us/working-at-the-synchrotron/employment-opportunities



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