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## From the Director – Good news



**The news is out. The Australian and Victorian governments have announced funding totalling \$100 million for the next four years of Australian Synchrotron operations.**

The joint announcement by Senator Chris Evans (Minister for Tertiary Education, Skills, Science and Research) and the Hon Louise Asher MLA (Victorian Minister for Innovation, Services and Small Business) marks an important stage in the ongoing development of the Australian Synchrotron as a national research facility.

With some belt tightening, this funding will enable us to continue operating at our current level. We will also be able to apply for additional funding from competitive grant sources to upgrade our equipment and expand our capabilities.

Our brand-new guesthouse is now providing user accommodation. User office and corporate staff are about to move into their new premises in the National Centre for Synchrotron Science. These buildings were constructed with funding from the Australian Government's Education Investment Fund.

After months of preparation, the facility should soon be able to introduce top-up injection mode, which will improve overall beam stability for users and eliminate the need to close beamline shutters during injections. The upgraded and extended imaging and medical beamline will start accepting users later this year. We are also continuing to work closely with the synchrotron community to develop conceptual design reports for several proposed new beamlines.

In short, it's a great time to visit us.

**Keith Nugent**

Director, Australian Synchrotron

## Beamtime applications open 8 May 2012

Beamtime submissions for round 2012/3 (September-December 2012) open on 8 May 2012.

Key dates for beamtime submissions are listed on the synchrotron website at:

<http://www.synchrotron.org.au/index.php/features/applying-for-beamtime/proposal-deadlines>

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](mailto:user.office@synchrotron.org.au)



## Up to speed: Glyn Devlin



This month our short interview features Glyn Devlin, who divides his time between the synchrotron user office and the XAS beamline.

### Describe your job in 25 words or less.

In the user office I ensure that users' proposals get peer-reviewed and processed. Should they be awarded XAS (x-ray absorption spectroscopy) beamtime, I provide them with technical support.

### Best thing about your job?

Working with the synchrotron's diverse and amazingly talented employees, and having the opportunity to dive into the deeply technical on the XAS beamline as well as performing higher-level work across all the beamlines in my user office position.

### Worst thing about your job?

That I can't clone myself so I can also work with the external relations group, participate on the environmental sustainability committee and do experiments on several other beamlines on top of my current work. I'm greedy for broad experiences and I want to be able to do everything!

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

I'd like to say that it was working as a research fellow at the University of Cambridge – I mean, that's pretty fancy, right? But in reality, it was a brief summer job selling hammocks... I had a great time doing 'quality control' on the merchandise and managed to sell the coveted, luxury hammock known only as 'big purple'.

### Best things about living in Melbourne and why?

It's the food! Melbourne has such a strong food culture, and I just love the way that the shared experience of enjoying a great meal can bring people together.

### Your favourite overseas destination and why?

Florence, Italy. It's absolutely beautiful, small enough that you can get around on foot, it has great food and wine and everything closes so you can have a long lunch and a nap in the afternoon – heaven!

### A little-known fact about the Australian Synchrotron?

We have fantastic policies around diversity, and almost half our staff were born outside Australia. Furthermore, our registered user base represents some 20 different nationalities. We're a truly multicultural facility.

### What's the most unusual or interesting research project you've seen on the XAS beamline at the AS?

On the XAS beamline we've studied everything from ancient Egyptian artefacts to poop. But now I'm working in

the user office I'm privy to experiments on all the beamlines and I recently noticed that the SAXS/WAXS team are studying wine! We can't beat that!

### What do you see as your biggest achievement here so far?

I was fortunate to work on the synchrotron's Organisational Development Project last year, which gave rise to the 'light sauce' (light source) lunches. The lunches brought together disparate functional groups from within the organisation to learn more about each other and brainstorm approaches for better collaboration. They've been really successful and productive, not to mention terrific fun!

### If you could change one thing about the AS, and only one thing, what would it be?

Please, please, please drop the word 'synchrotron' from our email domain name – if I never again have to spell synchrotron for a sales rep over the phone, it will be too soon!

## Building better battery electrodes



Left (L-R): Rosalind Gummow (James Cook University), Neeraj Sharma (ANSTO) and Helen Brand (AS) prepare for powder diffraction experiments

**Australian researchers are part of the global quest for better batteries and energy storage materials to help meet the world's future energy demands, particularly for high-power applications such as electric cars. Sales of lithium-ion batteries are already worth around US\$13 billion, mainly in consumer products, and electronics giant Sanyo predicted in 2011 that new applications could see sales triple to US\$44 billion in 2015 with the three main market sectors being power storage, consumer electronics and vehicle applications.**

Neeraj Sharma from ANSTO in NSW and Rosalind Gummow from James Cook University (JCU) in Queensland are using synchrotron x-rays and neutron beam techniques to help them develop better electrode materials for lithium-ion batteries. The work is being undertaken in collaboration with Vanessa Peterson at ANSTO and Yinghe He at JCU.

Lithium-ion batteries are lightweight, making them popular for portable applications. They can be used individually or in parallel to power devices with high energy requirements, especially for portable applications. Lithium-ion batteries have the highest energy densities of any currently-marketed reversible battery, including lead-acid, Ni-Cd (nickel-cadmium) and Ni-MH (nickel-metal hydride) batteries. They can also be made into a variety of different forms from coin cells to prismatic cells.

Disadvantages of the current generation of lithium-ion batteries include safety concerns during use, performance at high and low temperatures, lifetime, environmental-friendliness and cost of construction. They tend to be expensive because external controls are usually needed to control voltage range during use and re-charge. Without this control, battery performance is quickly reduced and safety issues become very important.

New applications of lithium-ion batteries include electric vehicles and back-up for renewable energy systems. These require cathode materials with higher capacity, lower cost and better safety than currently available. Neeraj and Rosalind are investigating  $\text{Li}_2\text{MnSiO}_4$ -type cathode materials, which have the potential to double capacity (energy density) in lithium-ion batteries. The capacity of a lithium-ion battery depends on how much lithium is in the cathode; because  $\text{Li}_2\text{MnSiO}_4$  has two lithium ions per formula unit, it has a higher theoretical capacity than commercial materials.  $\text{Li}_2\text{MnSiO}_4$ -type materials are also more environmentally friendly than the cobalt-containing cathodes currently used.

Lithium-ion batteries with  $\text{Li}_2\text{MnSiO}_4$  cathodes consistently lose capacity during repeated cycles of discharge and re-charge. This is the result of factors that include amorphisation (loss of long-range order in crystalline structures) of the cathode materials when lithium is extracted.

After accomplishing the difficult task of synthesising pure samples of two different crystal forms (polymorphs) of  $\text{Li}_2\text{MnSiO}_4$ , Neeraj and Rosalind used x-ray powder diffraction at the Australian Synchrotron, and neutron diffraction at ANSTO, to determine their crystal structures. One polymorph has Pmnb symmetry; the other has →

## Building better battery electrodes (cont.)

← P21/n symmetry and can be stabilised at 700°C (significantly lower than previously possible) by substituting magnesium atoms for some of the manganese atoms. Having pure samples of the polymorphs means that Neeraj and Rosalind can properly characterise their electrochemical responses and determine which is best for battery performance.

With cathodes in coin cells typically weighing around one to two milligrams, only synchrotron x-ray beams have the high intensity needed to obtain high quality data from such small samples and enable detailed study of subtle structural changes associated with lithium extraction and insertion processes.



Coin cell battery mounted in sample holder ready for powder diffraction

Neeraj and Rosalind returned to the AS in April 2012 for more in-situ synchrotron x-ray powder diffraction experiments where they followed the cathode phase evolution of these batteries while charging and discharging a coin cell battery.

These experiments are shedding light on how the crystal structure changes as lithium is inserted into and extracted from cathode (and anode) materials. By understanding these changes, the researchers can improve their materials and hopefully achieve capacities and lithium cycling performance levels that are better than current technologies.

## Save the date

Start Date: 29 Nov 12 08:00, End Date: 30 Nov 12 17:00

Location: At National Centre for Synchrotron Science at the Australian Synchrotron

The date for the 2012 Australian Synchrotron User Meeting has been set - save the date!

**29 - 30 NOVEMBER 2012**

The User Meeting brings together AS scientists, current synchrotron users and prospective researchers to discuss outcomes, techniques and new developments. It is a great opportunity to learn more about the capabilities of this exciting and ground-breaking field.

More information will be posted as it becomes available.

# Synchrotrons in the News – April 2012

## Clot busters

Researchers from Monash University and the AS used x-ray techniques to discover how enzymes work to dissolve blood clots and clean up damaged tissue in the body. Their findings could ultimately help reduce the number of heart disease-related deaths due to blood clots. The group beat international rivals to be the first to determine the structure of a blood protein called plasminogen, a precursor of the enzyme plasmin, which helps dissolve blood clots and is also implicated in some cancers.

<http://www.theage.com.au/national/scientists-uncover-clotbusting-enzyme-20120309-1unqm.html>

<http://www.skynews.com.au/health/article.aspx?id=726855>

[http://www.lifescientist.com.au/article/418041/synchrotron\\_solves\\_clot-busting\\_enzyme\\_riddle/](http://www.lifescientist.com.au/article/418041/synchrotron_solves_clot-busting_enzyme_riddle/)

[http://www.dnaindia.com/scitech/report\\_scientists-crack-riddle-of-clot-busting-enzyme\\_1661514](http://www.dnaindia.com/scitech/report_scientists-crack-riddle-of-clot-busting-enzyme_1661514)

<http://www.sciencealert.com.au/news/20121103-23200.html>

<http://www.medindia.net/news/how-clot-busting-enzyme-is-switched-on-98662-1.htm>

<http://www.labonline.com.au/news/51763-Australian-Synchrotron-discovers-how-plasminogen-is-activated-in-the-body>

<http://theconversation.edu.au/scientists-solve-century-old-mystery-of-clot-busting-enzyme-5785>

<http://www.newkerala.com/news/2011/worldnews-170177.html>

<http://www.topnews.us/content/246758-synchrotron-can-solve-clot-busting-enzyme-riddle>

<http://www.andhranews.net/Technology/2012/Achilles-heel-blood-clot-buster-discovered-discovered-1182.htm>

<http://www.sciencedaily.com/releases/2012/03/120308132758.htm>

[http://www.cell.com/cell-reports/fulltext/S2211-1247\(12\)00069-1](http://www.cell.com/cell-reports/fulltext/S2211-1247(12)00069-1)



## Synchrotrons in the News – April 2012 (cont.)

### ← Artful analysis

A scientific journal has published the researchers' account of how they revealed the detail of a rare Arthur Streeton self-portrait that the artist subsequently painted over with white paint. The work was undertaken by the National Gallery of Victoria, CSIRO and the AS.

<http://www.rsc.org/chemistryworld/News/2012/March/hidden-art-painting-restoration-x-ray-arthur-streeton.asp>

<http://pubs.acs.org/doi/abs/10.1021/ac203462h>

### Cancer collaboration

West Australian researchers used x-ray techniques at the AS to reveal a ground-breaking new molecular structure formed by two human proteins involved in turning genes on and off in cancer.

[http://www.campusdaily.com.au/read\\_university\\_news.php?title=synchrotron\\_shines\\_light\\_on\\_cancer\\_proteins\\_61808](http://www.campusdaily.com.au/read_university_news.php?title=synchrotron_shines_light_on_cancer_proteins_61808)

<http://theconversation.edu.au/cancer-related-protein-identified-5851>

<http://www.cosmosmagazine.com/news/5468/synchotron-shines-light-new-molecular-structure>

<http://www.news.uwa.edu.au/201203134436/research/synchrotron-shines-light-cancer-proteins>

### Australian Synchrotron achievements and funding

4 April 2012, The Australian, Bernard Lane

<http://www.ian.com.au/higher-education/rescued-science-facility-must-trim-spending/story-e6frgcjx-1226317912261>

29 March 2012, Process & Control Engineering, Kevin Gomez

<http://www.pacetoday.com.au/news/australian-synchrotron-secures-funding-for-the-nex>

29 March 2012, The Funneled Web

[http://www.the-funneled-web.com/N&V\\_2012%20\(Jan-Dec\)/N&V\\_1203/news\\_\\_views\\_item\\_mar\\_2012-120329.htm](http://www.the-funneled-web.com/N&V_2012%20(Jan-Dec)/N&V_1203/news__views_item_mar_2012-120329.htm)

28 March 2012, The Age, Josh Gordon

<http://www.theage.com.au/opinion/political-news/australian-synchrotron-secured-20120327-1vwmd.html>



## Synchrotrons in the News – April 2012 (cont.)

### ← Australian Synchrotron achievements and funding (cont.)

28 March, Canberra Times, Josh Gordon

<http://www.canberratimes.com.au/opinion/political-news/australian-synchrotron-secured-20120327-1vwmd.html>

28 March 2012, The Conversation, Justin Norrie

<http://theconversation.edu.au/funding-secures-the-future-of-australian-synchrotron-6115>

29 March 2012, Australasian Science, Justin Norrie

<http://www.australasianscience.com.au/news/march-2012/funding-secures-future-australian-synchrotron.html>

28 March 2012, Australian Life Scientist, Tim Dean

[http://www.lifescientist.com.au/article/419873/australian\\_synchrotron\\_beams\\_100m\\_injection/](http://www.lifescientist.com.au/article/419873/australian_synchrotron_beams_100m_injection/)

29 March 2012, Australian Life Scientist

[http://www.lifescientist.com.au/article/420023/synchrotron\\_funding\\_support\\_ongoing\\_research/](http://www.lifescientist.com.au/article/420023/synchrotron_funding_support_ongoing_research/)

28 March 2012, Herald Sun, AAP

<http://www.heraldsun.com.au/news/breaking-news/synchrotron-saved-with-100m-deal/story-e6frf7jx-1226312314660>

28 March 2012, Waverley Leader, Tim Michell

<http://waverley-leader.wherelive.com.au/news/story/clayton-synchrotron-to-stay/>

28 March 2012, AAAS Science Insider, Elizabeth Finkel

<http://news.sciencemag.org/scienceinsider/2012/03/australian-synchrotron-sails-int.html>

23 February 2012, AAAS Science Insider, Elizabeth Finkel

<http://news.sciencemag.org/scienceinsider/2012/02/salvation-in-sight-for-australia.html>

9 March 2012, Herald Sun, Terry Brown

<http://www.adelaidenow.com.au/beam-machine-is-a-science-superstar/story-e6frea6u-1226294213110>

7 March 2012, The Australian, Bernard Lane

<http://www.theaustralian.com.au/higher-education/synchrotron-rescue-will-not-dud-discovery-grants/story-e6frgcjx-1226290715053>



## Photo competition winners

### Photos Dec 2011 - Mar 2012

**Thank you to everyone who entered the December 2011 – March 2012 photo competition.**

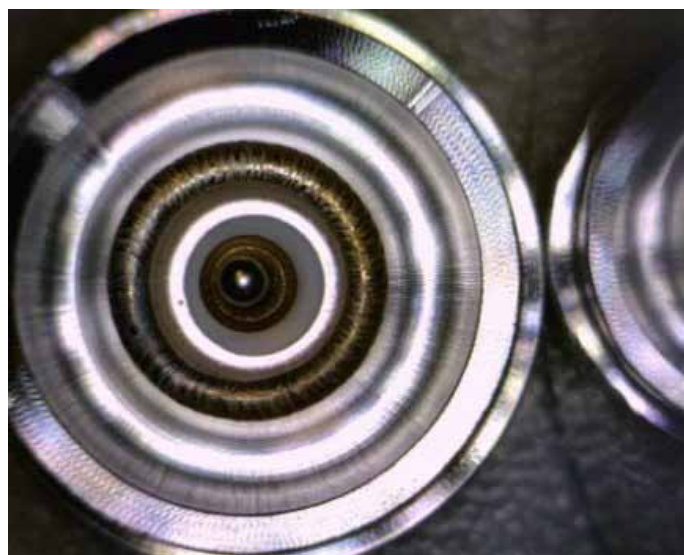
As in previous rounds, the judges were impressed by the quality of the photos submitted. As well as selecting the winning photo, we have therefore awarded three joint second placings. These photos are all displayed on the next page.

The winner of the December 2011 – March 2012 photo competition at the Australian Synchrotron is Kerryn Elliott from the Ludwig Institute for Cancer Research for a photo (see left) of a capillary on the SAXS/WAXS (small and wide angle x-ray scattering) beamline.



## Photo competition winners (cont.)

← Joint second placings go to the following, in no particular order:



Above left: Synchrotron rainbow, by Terry Cornall (AS), above centre: Vacuum feed thru weld pattern, by Paul Leonard (AS), above right: IMBL tunnel in construction, by Frieder Mueller (FMB Berlin)



### Other photos noted by the judges were:

Far left: Helen Brand seen through powder diffraction (PD) beamline monochromator, by Helen Maynard Casely (AS), left: Pipe to the future, by Paul Leonard (AS)

The next deadline for the photo competition is Friday 1 June 2012.

Winners will be announced in the June 2012 edition of Lightspeed.

Click below to submit your photo.

<http://www.synchrotron.org.au/index.php/news/publications/lightspeed-newsletter/photo-competition>

## Green star rating for new building

**The National Centre for Synchrotron Science (NCSS) has been awarded a five-star Green Star – Education Design v1 certificate rating by The Green Building Council of Australia. This certification represents Australian Excellence in environmentally sustainable building practices.**

The Green Star rating is an exhaustive process covering every aspect of the building, including concrete design, internal noise levels, and water and energy efficiency. The NCSS is one of only 12 buildings in Victoria to have achieved this rating.

NCSS features include a design that is projected to halve greenhouse gas production. Stormwater is captured for irrigation and toilet flushing, and electricity for the facade lighting is generated from solar panels on the roof. The building has very efficient heating and ventilation systems and all carpets, floor finishes and paint are low in VOC (volatile organic compounds). The building's embodied energy was reduced by using flyash – an industrial waste product – to replace 15 to 30 percent of the Portland cement used in construction.

AS chief operating officer George Borg said the Green Star rating was “the result of a two year effort by our Major Projects team”. He noted “the excellent work of Richard Feltscheer and Alexis Kouts, who were responsible for managing this process”.

In other environmental news, the simple measure of reducing power to the low-conductivity water (LCW) pump system during the Easter shutdown enabled the AS to produce 11 fewer tonnes of carbon dioxide – equivalent to the energy required to power two homes for a year. This was achieved without adversely affecting the reliability of the facility. LCW temperature control, oxygen content and filtering remained in operation throughout this period.

Click here <http://www.synchrotron.org.au/index.php/news/news/construction-update> to read more about construction of the NCSS and other new buildings on the synchrotron site.

Click here <http://www.ncssbuilding.org.au/> to read more about the NCSS and its green credentials.



## First guest keen to come back



**The first user to stay in the new AS onsite guesthouse says it's "a great facility".**

Richard Haverkamp, Professor of Nanotechnology at Massey University's School of Engineering and Advanced Technology stayed at the guesthouse in March 2012.

"Thanks for giving me the privilege of being the first user to stay in the new onsite user accommodation," Richard told Lightspeed. "It is a great facility! Comfortable bed, great shower, spacious room, and fast wireless internet access! It was also very pleasantly quiet with only me in the whole facility. The communal kitchen, dining and lounge areas are spacious and well fitted out. This place is certainly a big step up on Rusden House – there are even light bulbs in the fittings. It is all so new and comfortable. I must finish writing up the findings from the earlier experiments so that I can feel justified in applying for more beamtime and get to stay here again."



*Above: Richard Haverkamp enjoys the peace and quiet of the new AS guesthouse*

A transition period expected to last until the end of May 2012 will see some users staying in the onsite guesthouse and some at Rusden House. Places at the AS Guesthouse will be allocated on a first-come, first-served basis on completion of appropriate paperwork. Non-AS affiliated guests will be able to stay in the AS Guesthouse from June onwards, based on availability.

Click here <http://www.synchrotron.org.au/index.php/features/australian-synchrotron-guesthouse> for booking information.

## IM beamline lighting up



*The IMBL satellite building*

**Expert users will be invited to apply to use the synchrotron's extended imaging and medical beamline capabilities later this year in preparation for general usage in 2013.**

The imaging and medical beamline (IMBL) has received significant funding from the NHMRC and the Victorian State Government from 2009 to allow an extended facility to be constructed. This will provide unrivalled capabilities for phase-contrast imaging, tomosynthesis and computed tomography of biomedical samples and materials, and for micro-beam radiation therapy research.

The extended beamline's 500 mm (horizontal) by 40 mm (vertical) x-ray beam in the satellite building will provide high-resolution imaging of cells, tissues and tumours, and enable cell tracking using markers. The beamline's cardiovascular, lung and bone imaging capabilities will allow preclinical research program outcomes to be translated into clinical research with patients.

Major building works have been completed with the long beamline tunnel, the satellite building and the near-beam surgery and preparation areas all now open. This year will see the completion of major beamline equipment including the transfer line, monochromator and superconducting wiggler.



## IM beamline lighting up (cont.)

← The goal for 2012 is to offer the following research opportunities:

- two-dimensional imaging of live animals in hutch 3B
- fast computed tomography (CT) of small objects in hutch 2B
- micro-beam radiation therapy (MRT) in hutch 1B.

In order to prepare for user operations in 2013, the synchrotron will call for expert users in the third cycle of 2012. This will give the facility an opportunity to apply the necessary processes required for user operation and for the implementation of the Program Advisory Committee, including its interaction with the relevant ethics committees in assessing applications. We expect that experiments will be undertaken late in the 2012/3 cycle and that experiments and users will be awarded beamtime on the basis of how well they fit the commissioning plans for the beamline. Outcomes from those experiments will provide proof-of-principle of experimental techniques and we hope to be able to use these in grant applications in 2013.

The Australian Synchrotron has been consulting with the IMBL user community and calling for nominations for the inaugural Program Advisory Committee. If you would like to nominate someone please send names and institutional details to Fran Westmore (fran.westmore@synchrotron.org.au) by 11 May 2012.

The commencement of commissioning experiments this year will mark an important milestone for the staff and the build team at IMBL as well as its supporting committees, and will be a celebration of their hard work and vision.

If you're unsure what an expert user is, or whether you qualify as one, please contact the beamline team. Visit <http://www.synchrotron.org.au/index.php/aussyncbeamlines/imaging-medical/beamline-team> for contact details or send an email to [IMBL@synchrotron.org.au](mailto:IMBL@synchrotron.org.au).



*Above left: construction of the vacuum transfer line in the IMBL tunnel*

*Above right: Robert Rostan (AS) prepares to weld two sections of the vacuum transfer line*

## Shared expertise in IMBL installation

**A sizeable inhouse effort is behind the construction of the beamline pipeline in the transfer tunnel and the installation of the monochromator for the extended and upgraded imaging and medical beamline.**

Several staff in the mechanical workshop have been busy constructing the largest diameter (up to 600mm) vacuum transfer line in the synchrotron world and installing this in the transfer tunnel for the extended imaging and medical beamline. Staff are also installing the beamline's new monochromator. These major undertakings demonstrate the impressive range of expertise available in the synchrotron's engineering team.



Above (L-R): Alan Easdon (AS), Alistair Muirhead (ANU), Paul Leonard (AS), Craig Hodgson (AS), Jason Wirthensohn (AS), Caleb Gudu (ANU), Robert Grubb (AS) and Robert Rostan (AS) in the AS mechanical workshop

Synchrotron technical staff have received assistance from the Australian National University's Nuclear Physics Department, which has so far sent four staff (Alistair Muirhead, Caleb Gudu, Justin Heighway and John Bockwinkel) with specialist engineering and trade skills to help at relevant stages of the installation work. The Nuclear Physics Department has a pelletron particle accelerator and beamlines that are similar in some respects to the synchrotron's facilities.

The work is part of a broader effort to share expertise and improve the skills of both groups. Paul Leonard, who leads the synchrotron's mechanical technicians group, and senior mechanical technician Jason Wirthensohn recently visited ANU to present information on their particular areas of expertise and work responsibilities.



Above (L-R): Caleb Gudu (ANU), Jason Wirthensohn (AS), Craig Hodgson (AS), and Alistair Muirhead (ANU) transport a pipe section from the mechanical workshop to the IMBL transport tunnel



Above (L-R): John Bockwinkel (ANU), Jason Wirthensohn (AS) and Jonathan McKinlay (AS) prepare to place the upper half of the monochromator on the lower half transport tunnel

## Quality management accreditation audit

**The Australian Synchrotron recently passed its first triennial re-certification audit, which is part of the ongoing requirements for its ISO9001:2008 accreditation for quality management.**

Following an extensive five-day audit, the auditor's report noted significant improvements in the organisation's management system.

"Over the previous three years of certification the organisation's performance has significantly improved especially in relation to quality. The management system is now supported at all levels of the organisation and personnel within the organisation have a strong focus in identifying improvements within their work area. There is a very high level of compliance with procedures."

According to the audit report: the purpose of the audit was "to determine the capability and effectiveness of your organisation's management system in: ensuring continual compliance with customer, statutory and regulatory requirements; meeting its specified objectives; and conformity of the management system to stated criteria".

Chief operating officer George Borg congratulated all staff for their assistance towards achieving this significant outcome. He thanked Kathleen Riches and her team for coordinating the synchrotron's efforts and managing the process throughout the audit.

## Retirement

**Maintenance officer Gordon Spratt retired in February 2012 after three years and six months service at the AS.**

AS chief operating officer George Borg said: "Gordon has been a true custodian of the facility, tending to a very broad range of tasks across the site. Gordon has been our 'general fixer', acting as our painter, plumber, builder, assembler and removalist, and wearing numerous other hats during his time at the synchrotron. Gordon has been a valued employee and his familiar face and friendly approach will be sorely missed.

"On behalf of all staff, I wish to thank Gordon for his significant contribution to the organisation and for his unwavering commitment and maintenance expertise. I wish him and his family the very best for their future."



L-R: AS chief operating officer George Borg with Gordon Spratt, who recently retired as the synchrotron's "general fixer".



# Geosciences at the Australian Synchrotron

**In April 2012, the Australian Synchrotron hosted a Geosciences Industry Workshop to explore the potential of synchrotron science for the mining and minerals sector.**

Targeted specifically at industry representatives, the workshop presented a series of case studies, showcasing the facility's research capabilities either for industry/university partnerships or for stand-alone industry projects.

The workshop sought to gain leverage from the recommendations of an Australian Government report written by the National Collaborative Research Infrastructure Strategy (NCRIS). The report identifies a dedicated 'earth sciences' beamline as being essential to placing Australia at the cutting edge of the field globally. Such capability would provide a unique facility to underpin revolutionary earth science research for the next two decades, according to the Australian Earth Observatory – Infrastructure Roadmap (available from <http://www.auscope.org.au/site/ncris.php> as 'Strategic Roadmap for Australian Research Infrastructure).

Information about the outcomes of the workshop and the synchrotron's current mining and minerals research capabilities is available from Kia Wallwork, the synchrotron's Principal Beamline Development and Operations Advisor.

## Events diary

Synchrotron-related events in Australia and overseas.  
<http://www.synchrotron.org.au/index.php/news/events/australian-events>

## Reader feedback

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

## Use of Lightspeed material

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## Careers at the Australian Synchrotron

The Australian Synchrotron offers a unique working environment for a wide range of specialists. For information on job postings, go to:

<http://www.synchrotron.org.au/index.php/about-us/working-at-the-synchrotron/employment-opportunities>

## Staff list

<http://www.synchrotron.org.au/index.php/about-us/working-at-the-synchrotron/staff-contact>