

NEW ZEALAND SYNCHROTRON GROUP LIMITED



ANNUAL REPORT 2012

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CHAIRMAN'S REPORT

The New Zealand Synchrotron Group Ltd (NZSG) has now completed its sixth year of operation. This has been an important period for the company as we work to expand access to the Australian Synchrotron and support for New Zealand researchers and also to prepare for New Zealand involvement in the next stage of the development and operation of the Synchrotron. Maximising access for New Zealand researchers is important and is a principal goal for the company in order to ensure that the country obtains value from the significant investment made in the Synchrotron.



In accordance with the Subscription Agreement signed between the company and the Australian Synchrotron, the fourth full annual payment of operating costs of A\$819,783 was made in February 2012. Full access arrangements for New Zealand researchers to the Australian Synchrotron are now in place for all beamlines, except the imaging and medical beamline, and New Zealand researchers have been awarded beamtime through both the Merit and the Preferred Access routes in increasing numbers as is demonstrated later in this report. These arrangements now include considerable financial support for the costs incurred by researchers in travelling to Melbourne or in shipping samples when using the remote access option.

Day to day management of NZSG's activities has been contracted to a secretariat from the Royal Society of New Zealand. The scope of the services provided by the Society includes;

- providing secretariat services to the Board,
- acting on their behalf in governance and access arrangements for the Australian Synchrotron,
- management of the funding support programme,
- promoting the development of synchrotron science,
- processing applications for beamtime as part of New Zealand's preferred access to the Australian Synchrotron,
- maintaining the company's accounts, and
- liaising with the New Zealand government and NZSG shareholders on behalf of the Board.

The company had budgeted for a loss for the year of \$1,226,400 comprising of an expected loss of \$83,650 from trading operations and of \$1,142,750 through the amortisation of the investment in the Australian Synchrotron. The trading result for the year was a loss of \$83,894, a result that was influenced by foreign exchange losses of \$11,993 and costs of \$34,054 for preparing a case for future investment in the Australian Synchrotron. After providing for the amortisation costs, the overall result was a loss of \$1,226,644.

The company has no significant sources of revenue, other than funds received from the Australian Synchrotron and other third parties who provide funding for travel and training and from interest on funds the company holds. It does, however, have cash reserves in excess of \$270,000. The Directors intend that with modest supplementing from shareholders, that these funds be employed over the coming year to contract secretariat services, finalise the case for future operational funding and access to the Australian Synchrotron and to prepare a case for possible New Zealand investment in the next stage of development of the Australian Synchrotron.

The agreement between the Victorian State government and the Australian Commonwealth government on the funding of the operating costs of the Australian Synchrotron expired in June 2012. Prior to that date, discussions were held between the Commonwealth and the Victorian State governments to explore options for the provision of future funding for operating the Synchrotron. There is strong interest and a willingness in Australia to include dedicated access for New Zealand in the Synchrotron's future operations. On behalf of its shareholders and the New Zealand research community, NZSG expressed an interest in participating in the funding arrangements and securing future access rights and, after an approach from his counterpart in Australia, the Minister for Tertiary Education, Skills, Science and Research gave a commitment in principle of A5 million funding from New Zealand, approximately half of which was to come from the research sector.

On shareholders' behalf, NZSG has participated in funding discussions with the Australian agencies, negotiated tentative access rights that would apply should a funding agreement be finalised, prepared an Investment Case for the New Zealand government and circulated an Investment Proposition to the research sector. It is expected that a decision will be made by shareholders towards the end of 2012 in time for New Zealand to fully participate by August 2013 when the new access arrangements would apply.

The board has been very well supported by the Royal Society of New Zealand who provides secretariat services to NZSG. In particular, I would like to acknowledge the contribution made by Dr Don Smith in assisting the board and administering the New Zealand Synchrotron Support Programme, and by Don and Dr Wynn Ingram in preparing the Investment Case. I would also like to acknowledge the contribution from the members of the Access Committee (chaired by Professor Geoff Jameson with Dr Graeme Gainsford, Associate Professor Mike Reid and Associate Professor Metcalf) who have evaluated all requests for preferred access and for funding support for training.

Finally, I would like to thank my fellow directors, Dr Desmond Darby and Professors Geoff Jameson, Jim Metson and Ian Shaw.



GA Carnaby
Chair

BUSINESS REVIEW

Investment in the Australian Synchrotron

Through the original investment in the Australian Synchrotron in October 2007, NZSG is both a member of the Australian Synchrotron Company (ASC) and a shareholder in the Australian Synchrotron Holding Company (ASHCo). The shares in ASHCo are fully paid with the final instalment of capital (A\$1.5 million), amounting of 30 cents per share, being paid on 31 October 2008.

The Subscription Agreement signed between NZSG and the two synchrotron companies also provides for an annual contribution until 2013 of A\$750,000, with adjustments for movements in the cost of living, from New Zealand towards the operating costs of the Synchrotron. A payment of (A\$819,783) was made to ASC on 28 February 2012. Dr Carnaby was a member of the boards of both ASC and ASHCo until June 2011.

The board has appointed Dr Don Smith to be the company's representative on the Australian Synchrotron Company's Council of Members and at ASHCo shareholder meetings. He attended the annual general meetings of both companies in October 2011 and has participated in discussions with Australian governmental agencies and other funding parties on the future funding and access arrangements for the Synchrotron. Dr Smith is also the contact person for day-to-day matters associated with access arrangements and user liaison with ASC.

Decisions on Access and Funding Support

The Board has established an Access Committee to make the decisions on applications for preferred time access, funding for synchrotron science or funding support for the costs of travel to synchrotrons. The members of the Committee are:

Professor Geoff Jameson, Massey University (Chair)
Dr Graeme Gainsford, Industrial Research Ltd
Associate Professor Peter Metcalf, University of Auckland
Associate Professor Mike Reid, University of Canterbury

The Committee has not met during the year formally as a group but the individual members have communicated throughout the year on proposals they have been asked to assess. The criteria for selecting proposals were developed and approved by shareholders and is published on the NZSG web site along with other information on accessing support.

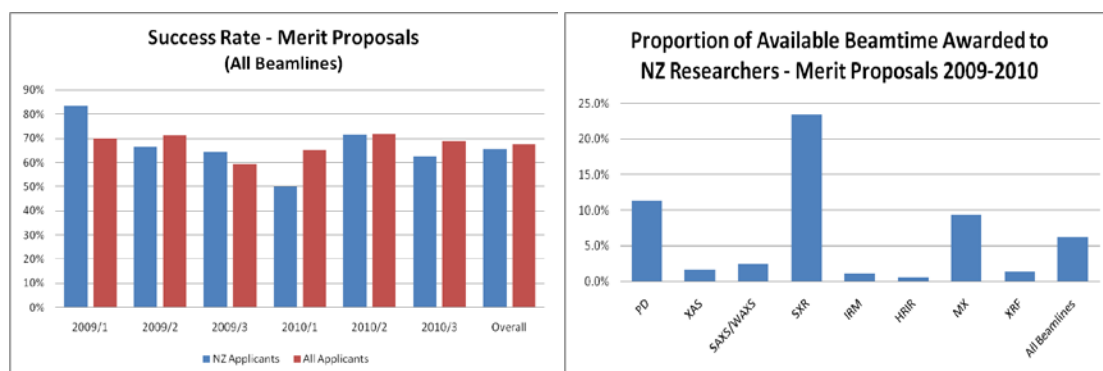
The table at the end of this section lists the New Zealand researchers who have gained beamline access to the Australian Synchrotron from July 2011 onwards, and where applicable, the funding support provided to them.

Use of the Australian Synchrotron by New Zealand Researchers

The first of the beamlines was successfully commissioned in mid 2007 and since then all of the originally planned beamlines have become operational, the last of them, the Imaging and Medical Beamline being available for merit access only this past year. Approximately 50% of the available beamline time is assigned to “merit” access and competitive applications are sought from researchers worldwide, including from New Zealand. The Australian Synchrotron makes calls every four months for merit access to the beamlines. Applications are made directly to the Australian Synchrotron with no direct involvement from NZSG apart from promoting the opportunity to apply via our website.

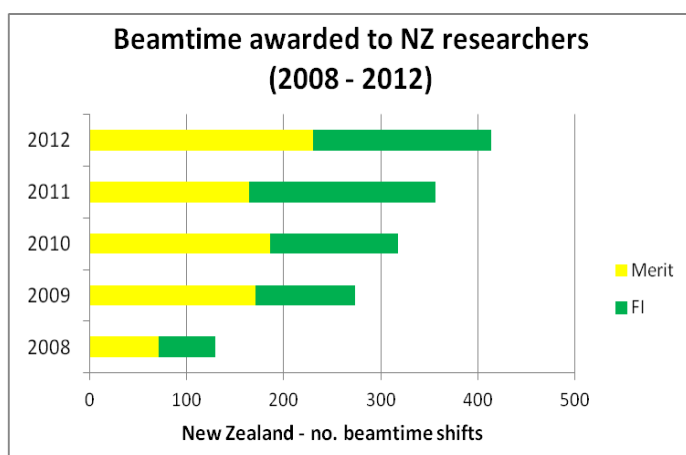
Since late 2008, in recognition of the contribution New Zealand makes to operating costs, the Australian Synchrotron began contributing towards the travel costs for New Zealand researchers who obtained beamtime at the Australian Synchrotron on an equal basis with Australian researchers. These funds are administered through NZSG.

New Zealand researchers have applied for time on all the available beamlines with success as shown in the two following graphs. Although success rates fluctuate from round to round, applications from New Zealand research groups match well with those from elsewhere. The latest data available from the Australian Synchrotron relating to the success of researchers in competing for merit access are for the July 2009 to June 2010 period. These show New Zealand research groups achieving similar success rates to researchers from elsewhere. During that period, New Zealand research groups received 6.3% of all merit time, well in excess of the 5% target established for New Zealand researchers in the Subscription Agreement. New Zealand researchers are strong users of the Soft X-ray, Powder Diffraction and Macromolecular Crystallography beamlines and more recently of the Small and Wide Angle X-ray Scattering beamline.



Approximately 30% of the available beamline time is set aside explicitly for researchers from the ten Foundation Investors. This arrangement bypasses the “merit” process and ensures that researchers who did not obtain or apply for merit access can gain access directly as a result of their institution being a Foundation Investor. The provision of Foundation Investor time (“preferred access”) will cease in August 2013 when the obligation to make payments towards the Australian Synchrotron’s operating costs expires. Researchers from the company’s shareholding institutions apply through NZSG for access to New Zealand’s Foundation Investor time and their proposals are evaluated by an Assessment Committee.

One of NZSG's goals is to ensure that full use is made of the Foundation Investor time. This is very important as the competition for merit time becomes more intense. The following graph demonstrates the growth in the number of beamline shifts that have been awarded to New Zealand researchers since 2008. In the past year, 95% of all the beamline time available to New Zealand as Foundation Investor time was utilised.



There has been a corresponding growth in the number of New Zealand research groups using the Australian Synchrotron as shown in the following table.

Number of NZ groups with scheduled time (merit and preferred) at the AS

Beamline \ Period	2008	2009	2010	2011	2012
Protein Crystallography (MX1 and MX2)	3	7	19	29	41
Infrared Microscopy and High Resolution IR	3	2	3	4	7
Powder Diffraction	8	10	11	10	6
Soft X-ray Spectroscopy	1	7	9	7	10
Small & Wide Angle X-ray Scattering		4	7	9	20
X-ray Fluorescence Microscopy		2	1	3	3
X-ray Absorption Spectroscopy		3	3	3	8
Total	15	35	53	65	95

Support for Synchrotron Scientists

Until 30 June 2009, the company operated the New Zealand Synchrotron Support Programme (NZSSP) with funds originating from the Tertiary Education Commission. With the cessation of that funding, the formal NZSSP has scaled down, but in a large part has been replaced by travel funding available from the Australian Synchrotron which most groups which are granted merit or Foundation Investor access are entitled. The NZSG administers these funds.

Some opportunities still exist for the company to support the development of synchrotron science capability in students and postdoctoral researchers. In addition to funding a number of them to travel to Melbourne to use the Australian Synchrotron, through the associate membership of the Asia Oceania Forum for Synchrotron Radiation Research (AOFSTR), two places are made available each year for students to attend the Cheiron School at the SPring-8 Synchrotron in Japan. The offer of places includes full funding for travel and accommodation. In addition, extra places for self-funded students are also available.

The table below provides details of the students who attended in September/October 2011.

Name	Institution	Details	Comment
Sophia Mellsop	University of Canterbury	PhD student	Fully funded
Monika Ko	University of Auckland	PhD student	Fully funded
Yuxin Wang	University of Auckland	Research Fellow	Self-funded
Tanmay Maity	Victoria University of Wellington	PhD student	Self-funded



D K W Smith
Executive Officer
Secretariat

New Zealand Research Groups Awarded Beamtime (July 2011 – June 2012)

The following New Zealand research groups were awarded time (merit and preferred) at the Australian Synchrotron between July 2011 and June 2012.

Researchers	Institution	Cycle	Beamline	Access
Dr Emily Parker Dr Renwick Dobson Prof Juliet Gerrard Dr Grant Pearce Penelope Cross	Canterbury Melbourne Uni Canterbury Canterbury Canterbury	2011-1	Small and Wide Angle Scattering “Allostery for the control of aromatic amino acid biosynthesis: Structure and mechanism”	Merit Access 1 day \$2,218
Dr Emily Parker Prof. Juliet Gerard Dr Grant Pearce Dr Renwick Dobson Penelope Cross	Canterbury Canterbury Canterbury Melbourne Uni Canterbury	2011-2	Small and Wide X-ray Scattering “Allostery for the control of aromatic amino acid biosynthesis: Probing conformational change and complex formation”	Preferred Access 1 day \$637
Dr Chris Squire Prof Ted Baker Dr Christian Linke Thomas Lagautriere Hanna Kwon Cyril Hamieux	Auckland Auckland Auckland Auckland Plant & Food	2011-2	Micro Crystallography (MX2) “Pilin and other surface proteins from bacteria”	Preferred Access 2 days \$2,860
Dr Geoff Waterhouse Vedran Jovic Scott Mitchell Chris Wilcox	Auckland Auckland Auckland Auckland	2011-2	Soft X-ray (SXR) “Local electronic structure of perovskite-type oxynitride pigments (LaTiO ₂ N) and Ce-doped titanias from synchrotron XPS and Ti L-edge NEXAFS measurements”	Merit Access 4 days \$2,229
Prof. Jim McQuillan Jan Scholz Matthew Reish	Otago Otago Otago	2011-2	Far IR and High Resolution “IR investigation of the thermal proton reallocation in [Zr ₄ (OH) ₈ (H ₂ O) ₁₆]Cl ₈ .12H ₂ O”	Merit Access 8 days \$1,862
Dr Felix van Aulock Dr Ben Kennedy	Canterbury Canterbury	2011-2	Infrared Microspectroscopy “Understanding the hydration of volcanic rocks with high-resolution synchrotron FTIR”	Merit Access 3 days \$2,079
Dr Emily Parker Sebastian Reichau Dmitri Joseph	Canterbury Canterbury Canterbury	2011-1	Macromolecular Crystallography (MX1) “University of Canterbury - MX beamlines”	Merit Access 1 day \$3,107
Dr Felix van Aulock Dr Ben Kennedy	Canterbury Canterbury	2011-2	Infrared Microspectroscopy “Understanding the hydration of volcanic rocks with high-resolution synchrotron FTIR”	Preferred Access 3 days \$1,240
Prof. Jim McQuillan Jan Scholz	Otago Otago	2011-2	Far IR and High Resolution “IR investigation of the thermal proton reallocation in [Zr ₄ (OH) ₈ (H ₂ O) ₁₆]Cl ₈ .12H ₂ O”	Preferred Access 3 days

Researchers	Institution	Cycle	Beamline	Access
Prof Kurt Krause Karen Knapp Aimée Gommans	Otago Otago Otago	2011-2	Macromolecular Crystallography (MX1) “University of Otago Structural Biology Group”	Preferred Access 2 days \$1,984
Dr Chris Squire Prof Ted Bake Dr Christian Linke	Auckland Auckland Auckland	2011-2	Micro Crystallography (MX2) “Pilin and other surface proteins from bacteria”	Merit Access 2 days \$1,296
Dr Vickery Arcus Marisa Till Matthew Cumming	Waikato Waikato Waikato	2011-2	Macromolecular Crystallography (MX1) “The evolution and biochemistry of core metabolic enzymes”	Preferred Access 1 day \$936
Dr Grant Pearce Dr Emily Parker Prof Juliet Gerard Jeremy Keown Penelope Cross Moritz Lasse Michael Griffin Dr Renwick Dobson	Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury Melbourne Uni Melbourne Uni	2011-2	Small and Wide X-ray Scattering “How does Rubisco activase interact with Rubisco”	Merit Access 1 day \$2,855
Dr Grant Pearce Dr Emily Parker Prof Juliet Gerard Jeremy Keown Penelope Cross Moritz Lasse Michael Griffin Dr Renwick Dobson	Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury Melbourne Uni Melbourne Uni	2011-2	Small and Wide X-ray Scattering “How does Rubisco activase interact with Rubisco”	Preferred Access 1 day \$593
Dr Grant Pearce Dr Emily Parker Prof Juliet Gerard Jeremy Keown Penelope Cross Moritz Lasse Dr Renwick Dobson Jackie Knobloch	Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury Melbourne Uni Auckland	2011-2	Small and Wide X-ray Scattering “Biomolecular Interaction Centre, University of Canterbury”	Preferred Access 1 day \$593
Dr Emily Parker Sebastian Reichau Timothy Allison Dr Ali Reza Nazmi	Canterbury Canterbury Canterbury Canterbury	2011-2	Macromolecular Crystallography (MX2) “University of Canterbury, MX beamlines, Program Proposal”	Merit Access 1 day \$2,307
Dr Bridget Ingham Conrad Lendrum Chenlong Yu	IRL IRL VUW	2011-2	Powder Diffraction (PD) “Bragg diffraction and total X-ray scattering study of Ni, Ru, and core-shell Au@Pd nanoparticles”	Merit Access 2 days \$1,752
Dr Emily Parker Dr Renwick Dobson Prof Juliet Gerrard Prof Geoff Jameson Dr Grant Pearce Prof Ian Shaw Dmitri Joseph Richard Hutton Nicola Blackmore	Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury	2011-1	Macromolecular Crystallography (MX1) “Biomolecular Interactions Centre, University of Canterbury”	Preferred Access 1 day \$2,263

Researchers	Institution	Cycle	Beamline	Access
Dr Bridget Ingham Dr Richard Tilley Chenlong Yu Kia Wallwork	IRL MacDiarmid MacDiarmid Aust Synch	2011-2	Powder Diffraction (PD) “Bragg diffraction and total X-ray scattering study of Ni, Ru, and core-shell Au@Pd nanoparticles”	Preferred Access 3 days \$1,754
Dr Martin Allen Robert Heinhold Prof Andrew Evans A/P Steven Durbin	Canterbury Canterbury Aberystwyth SUNY, Buffalo	2011-3	SXR “The intrinsic nature of ZnO surfaces and interfaces”	Merit Access 5 days \$1,198
Prof. Kurt Krause Sigurd Wilbanks Karen Yates Sylvia Luckner	Otago Otago Otago	2011-3	MX2 “University of Otago Structural Biology Group”	Merit Access 1 day \$552
Dr Bridget Ingham Dr Tim Kemmitt Dr Conrad Lendrum	IRL IRL IRL	2011-3	SXR “Determining the location of Al in Al:ZnO films”	Merit Access 4 days \$3,225
Dr Emily Parker Renwick Dobson Dr Grant Pearce Sarah Wilson-Coutts Ali Reza Nazmi Penelop Cross	Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury	2011-3	Macromolecular Crystallography (MX1) “Biomolecular Interaction Centre, University of Canterbury, MX beamtime”	Preferred Access 1 day \$1,635
Dr Emily Parker Renwick Dobson Dr Grant Pearce Sebastian Reichau Penelope Cross Ali Reza Nazmi Jo McKenzie Sarah Wilson-Coutts	Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury	2011-3	SAXS “Allostery for the control of aromatic amino acid biosynthesis: Structure and mechanism”	Preferred Access 1 day \$2,831
Dr Shaun Lott Prof Ted Baker Dr Chris Squire Yuliana Yosaatmadja Hanna Kwon Dr Genevieve Evans	Auckland Auckland Auckland Auckland Auckland Auckland	2011-3	MX1 and MX2 “Mycobacterium tuberculosis: Structural biology and drug discovery.”	Merit Access 2 days \$3,216
Dr Yoshio Nakatani Dr Catherine Day Rhesa Budhidarmo	Otago Otago Otago	2011-3	SAXS “Conformational change of IAP proteins”	Preferred Access 1 day \$1,580
Dr Jackie Knobloch Dr Duncan McGillivray A/P Andreas Hoffman	Auckland Auckland Griffith Univ.	2011-3	SAXS “Probing the effects of oxidative stress on model cellular membrane interactions.”	Preferred Access 1 day \$1,363
Dr Vince Carbone Dr Linley Schofield Dr Ron Ronimus Dr Yanli Zhang Debjit Dey Carrie Sang	AgResearch AgResearch AgResearch AgResearch AgResearch AgResearch	2011-3	MX1 “Enhanced discovery of methanogen-specific inhibitors of Methanobrevibacter ruminantium”	Preferred Access 1 day \$2,103

Researchers	Institution	Cycle	Beamline	Access
Prof. Kurt Krause Sigurd Wilbanks Karen Yates Sylvia Luckner	Otago Otago Otago Otago	2011-3	MX1 "University of Otago Structural Biology Group"	Preferred Access 1 day \$552
Dr Chris Squire Prof Ted Baker Prof Andrew Mercer Michael Herbert Paul Young Gabrieel Viana	Auckland Auckland Otago Auckland Auckland Auckland	2011-3	SAXS "SAXS of cell-cycle and ubiquitination complexes (Wee1/14-3-3 and OV008/Skp1)"	Merit Access 1 day \$2,572
Dr Emily Parker Tim Allison Sarah Wilson-Coutts Nick Blackmore	Canterbury Canterbury Canterbury Canterbury	2011-3	MX1 "Biomolecular Interaction Centre, University of Canterbury beamline"	Merit Access 1 day \$2,900
Dr Shaun Lott Prof Ted Baker Dr Chris Squire James Jung Aifen Chai	Auckland Auckland Auckland Auckland Auckland	2011-3	MX1 "Mycobacterium tuberculosis: Structural biology and drug discovery."	Preferred Access 1 day \$1,394
Dr Chris Daughney Dr Peter Swedlund Dr Bernt Johannessen Dr Sarah Harmer Dr Chris Weisener	GNS Science Auckland Aust Synch. Univ. Sth Aust Windsor Univ. Canada	2011-3	XAS "Geomicrobiological controls on copper ion Immobilisation"	Merit Access 2 days 1,792
Dr Chris Daughney Dr Peter Swedlund Dr Bernt Johannessen Dr Sarah Harmer Dr Chris Weisener	GNS Science Auckland Aust Synch. Univ. Sth Aust Windsor Univ. Canada	2011-3	XAS "Geomicrobiological controls on copper ion Immobilisation"	Preferred Access 1 day
Dr Johannes Verbeek Dr Mark Lay Jim Bier	Waikato Waikato Waikato	2011-3	Infrared Microscope "Secondary structure distribution in protein-based bioplastics derived from bloodmeal"	Preferred Access 2 days \$1,576
Dr Bridget Ingham Prof Jeff Tallon Dr Qinfen Gu Dr Suresh Narayanaswamy Dr Sally Brooker Matthew Cowan	IRL IRL Aust Synch IRL Otago Otago	2011-3	Powder Diffraction "In situ pressure and temperature studies of SCO materials"	Preferred Access 2 days \$2,576
Dr Michel Nieuwoudt Dr Jeffrey Mauk Mark Simpson	Auckland Auckland Auckland	2011-3	IRM "Determination of a calibration model using the FTIR band intensities of the CO ₂ doublet and CH ₄ triplet of a set of synthetic standards with known amounts of CO ₂ and CH ₄ "	Merit Access 3 days \$2,070
Dr Bridget Ingham Andrea Bubendorfer	IRL IRL	2011-3	XAS "Determination of superacid residues in cast silicone moulds"	Merit Access 1 day \$2,260

Researchers	Institution	Cycle	Beamline	Access
Dr Peng Cao Prof Wei Gao Saifang Huang Yuxin Wang Tianping Zhu	Auckland Auckland Auckland Auckland Auckland	2012-1	Powder Diffraction “In situ observation of nucleation and crystallisation of lithium”	Preferred Access 3 days \$2,510
A/P Vic Arcus Dr Joanna McKenzie Dr Judith Burrows Dr Joanne Hobbs John Steemson Erica Prentice	Waikato Waikato Waikato Waikato Waikato Waikato	2012-1	Macromolecular Crystallography (MX1) “The biochemistry and biology of two families of mycobacterial proteins”	Merit Access 2 days \$3,428
A/P Paul Kruger Prof Peter Steel Dr Alan Ferguson Dr Chris Fitchett Chris Hawes Rosanna Archer Jayne Gulbransen	Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury	2012-1	Micro Crystallography (MX2) “University of Canterbury Supramolecular Chemistry Consortium: From Spin-Crossover Materials to Coordination Polymers”	Merit Access 1 day \$1,417
Akihiro Shimamura Prof Jim Metson Dr Chuong Nguyen Dr Mark Jones Francis Goh Jerome Levaner	Auckland Auckland Auckland Auckland Auckland GNS Science	2012-1	Soft X-Ray “Investigation of Zinc oxide/LDH formation on Aluminium substrates by XANES and XPS spectra”	Preferred Access 2 days \$662
Akihiro Shimamura Prof Jim Metson Dr Chuong Nguyen Dr Mark Jones Francis Goh Jerome Levaner	Auckland Auckland Auckland Auckland Auckland GNS Science	2012-1	Soft X-Ray “Investigation of Zinc oxide/LDH formation on Aluminium substrates by XANES and XPS spectra”	Merit Access 2 days \$2,272
Dr Shaun Lott Prof Ted Baker Dr Chris Squire	Auckland Auckland Auckland	2012-1	Micro Crystallography (MX1) “Mycobacterium tuberculosis: Structural biology and drug discovery”	Merit Access 2 days \$2,616
Marco Billia Prof David Prior Andreas Auer	Otago Otago Otago	2012-1	Infrared Microscope “Spatial distribution and composition of fluid-related defects and their relationship to intracrystalline substructures in high-strain quartz-feldspar aggregates from New Zealand's Alpine Fault zone”	Preferred Access 2 days \$1,914
A/P Emily Parker Ali Reza Nazmi Dr Renwick Dobson Dr Grant Pearce Sebastian Reichau	Canterbury Canterbury Melbourne U. Canterbury Canterbury	2012-1	Macro Crystallography (MX1) “University of Canterbury, MX Beam-lines”	Merit Access 1 day \$2,934
Dr Grant Pearce Jeremy Keown Amy Phillips Jacob Littlejohn	Canterbury Canterbury Canterbury Canterbury	2012-1	Small/Wide Angle X-ray Scattering (SAXS) “Solution Structure Studies of Dihydrodipicolinate Reductase”	Merit Access 1 day \$2,061

Researchers	Institution	Cycle	Beamline	Access
Dr Grant Pearce A/P Emily Parker Prof Juliet Gerrard Dr Renwick Dobson Moritz Lasse	Canterbury Canterbury Canterbury Melbourne U. Canterbury	2012-1	Small/Wide Angle X-ray Scattering “Biomolecular Interaction Centre, University of Canterbury”	Preferred Access 1 day \$667
Dr Vladimir Golovko Dr Tim Kemmitt A/P Gregory Metha A/P Gunther Andersson David Anderson Jan-Yves Ruzicka	Canterbury IRL Adelaide Univ. Flinders Univ. Canterbury Canterbury	2012-1	Soft X-Ray “Superior model catalysts - atomically precise Au clusters on phase-/size-specific TiO ₂ nanocrystals”	Preferred Access 2 days \$900
Dr Vladimir Golovko Dr Tim Kemmitt A/P Gregory Metha A/P Gunther Andersson David Anderson Jan-Yves Ruzicka	Canterbury IRL Adelaide Univ. Flinders Univ. Canterbury Canterbury	2012-1	Soft X-Ray “Superior model catalysts - atomically precise Au clusters on phase-/size-specific TiO ₂ nanocrystals”	Merit Access 4 days \$2,900
A/P Emily Parker Prof Juliet Gerrard Dr Grant Pearce Dr Renwick Dobson Ali Reza Nazmi Penelope Cross Sebastian Reichau	Canterbury Canterbury Canterbury Melbourne U. Canterbury Canterbury Canterbury	2012-1	Small/Wide Angle X-ray Scattering “Allostery for the control of aromatic amino acid biosynthesis: Structure, mechanism and conformational changes”	Merit Access 1 day \$2,911
Dr Grant Pearce A/P Emily Parker Prof Juliet Gerrard Dr Michael Griffin Dr Renwick Dobson	Canterbury Canterbury Canterbury Melbourne U. Melbourne U.	2012-1	Small/Wide Angle X-ray Scattering “Solution structure studies of Rubisco and Rubisco Activase”	Preferred Access 1 day \$819
A/P Yacine Hemar	Auckland	2012-1	Small/Wide Angle X-ray Scattering	Preferred Access (CSIRO time) 1 day
Dr Bridget Ingham Dr Alistair Carr Prof Richard Haverkamp Gad Erlangga A/P Matt Golding	IRL Massey Massey Massey Massey	2012-1	Small/Wide Angle X-ray Scattering “In situ SAXS study of iron fortification of casein”	Preferred Access 1 day \$767
Dr Bridget Ingham Prof David Williams Peter Kappen Monika Ko	IRL Auckland La Trobe U. Quest Reliability	2012-1	Powder Diffraction “In situ monitoring of FeCO ₃ scale nucleation and growth”	Merit Access 5 days \$2,497
Dr Vince Carbone Dr Linley Schofield Dr Ron Ronimus Dr Yanli Zhang Debjit Dey Carrie Sang	AgResearch AgResearch AgResearch AgResearch AgResearch AgResearch	2012-1	Macromolecular Crystallography (MX1) “Enhanced discovery of methanogen-specific inhibitors of Methanobrevibacter ruminantium (3)”	Preferred Access 1 day \$1,675

Researchers	Institution	Cycle	Beamline	Access
Prof Kurt Krause Dr Sigurd Wilbanks Dr Sylvia Luckner Dr Karen Knapp	Otago Otago Otago Otago	2012-1	Macromolecular Crystallography (MX1) “University of Otago Structural Biology Group”	Preferred Access 1 day \$858
Laurence Melton Charith Hettiarachchi Duncan McGillivray	Auckland Auckland Auckland	2012-1	Small/Wide Angle X-ray Scattering “Pectin interactions with beta-lactoglobulin fibrils”	Merit Access 1 day \$2,752
Prof Richard Haverkamp Hanan Kayed Katie Sizeland Melissa Basil-Jones	Massey Massey Massey Massey	2012-1	Infrared Microscope “Mapping cross linking agents in collagen materials”	Preferred Access 1 day \$1,554
Dr Chris Squire Prof Ted Baker Dr Ghader Bashiri Dr Paul Young	Auckland Auckland Auckland Auckland	2012-1	Micro Crystallography (MX2) “Pilin and other surface proteins from bacteria”	Preferred Access 1 day
Dr Marion McKenzie Martin de Jong Ronan Chen Huaibi Zhang	Plant & Food Aust. Synch Plant & Food Plant & Food	2012-1	X-ray Fluorescence Microscope “The impact of selenium supplementation on selenium metabolism and the localisation of other essential microelements in broccoli”	Preferred Access 3 days \$3,136
Prof Kurt Krause Dr Sigurd Wilbanks Dr Sylvia Luckner Dr Karen Knapp	Otago Otago Otago Otago	2012-1	Macromolecular Crystallography (MX1 and MX2) “University of Otago Structural Biology Group”	Merit Access 2 days \$1,505
A/P Paul Kruger Prof Peter Steel Dr Alan Ferguson Dr Chris Fitchett Chris Hawes Rosanna Archer Jayne Gulbransen	Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury	2012-1	Micro Crystallography (MX2) “University of Canterbury Supramolecular Chemistry Consortium: From Spin-Crossover Materials to Coordination Polymers”	Preferred Access 1 day \$2,043
Prof Richard Haverkamp Hanan Kayed Katie Sizeland Melissa Basil-Jones	Massey Massey Massey Massey	2012-1	Small/Wide Angle X-ray Scattering “Investigation of the contribution of cross-linking to tissue mechanics”	Merit Access 3 days \$3,084
A/P Vic Arcus Dr Joanna McKenzie Judith Burrows Emma Summers	Waikato Waikato Waikato Waikato	2012-1	Macromolecular Crystallography (MX1) “The biochemistry and biology of two families of mycobacterial proteins”	Preferred Access 1 day \$1,455
A/P Emily Parker Dr Celine Valery Prof Geoff Jameson Prof Juliet Gerrard Dr Grant Pearce Dr Renwick Dobson Sebastian Reichau	Canterbury Unknown Massey Canterbury Canterbury Melbourne U Canterbury	2012-1	Micro Crystallography (MX2) “Biomolecular Interaction centre, University of Canterbury, MX beamtime”	Preferred Access 1 day 1,724

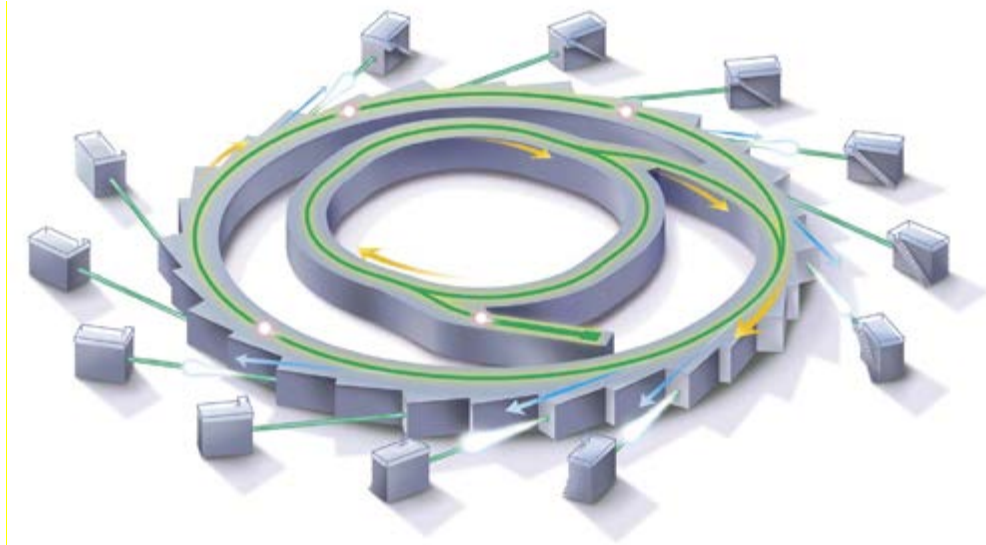
Researchers	Institution	Cycle	Beamline	Access
Michael Griffin Dr Renwick Dobson Katerine Donovan	Melbourne U Canterbury Canterbury	2012-1	Micro Crystallography (MX2) “Melbourne University, Bio21 Institute Time, MX Beam-lines”	Preferred Access (Melb. Uni time) 1 day \$912
Dr Christian Link Hanna Kwon	Auckland Auckland	2012-1	Micro Crystallography (MX2) “The mechanism of streptococcal pilus adhesion”	Merit Access 1 day \$2,018
Dr Chris Squire Dr Christian Linke Hanna Kwon	Auckland Auckland Auckland	2012-1	Micro Crystallography (MX2) “Pilin and other surface proteins from bacteria”	Merit Access 1 day \$1,701
Dr Martin Allen Robert Heinhold Max Lynam	Canterbury Canterbury Canterbury	2012-2	Soft X-Ray Spectroscopy (SXR) “Surface electron layers and the polar catastrophe in wurtzite ZnO”	Merit Access 4 days \$1,807
Prof Kurt Krause Dr Sigurd Wilbanks Dr Sylvia Luckner Dr Karen Knapp	Otago Otago Otago Otago	2012-2	Crystallography (MX1 and MX2) “University of Otago Structural Biology Group”	Merit Access 2 days \$3,081
A/P Emily Parker Dr Grant Pearce Dr Renwick Dobson Ali Reza Nazmi Sebastian Reichau	Canterbury Canterbury Canterbury Canterbury Canterbury	2012-2	Macromolecular Crystallography (MX1) “Biomolecular Interaction Centre, University of Canterbury”	Preferred Access 1 day \$1,836
Dr Shaun Lott Prof Ted Baker Dr Christian Link Dr Genevieve Evans Jason Busby	Auckland Auckland Auckland Auckland Auckland	2012-2	Macromolecular Crystallography (MX1) “Mycobacterium tuberculosis: Structural biology and drug discovery.”	Merit Access 1 day \$1,106
A/P Emily Parker Prof Juliet Gerard Dr Grant Pearce Dr Renwick Dobson Sarah Wilson-Coutts Nicola Blackmore Gerd Mittelstaedt	Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury	2012-2	Small/Wide Angle X-ray Scattering (SAXS) “Allostery for the control of aromatic amino acid biosynthesis: Structure, complex formation and conformational changes”	Preferred Access 1 day \$2,376
Dr Tim Kemmitt Dr Bridget Ingham Campbell Nicholl Jiaxin Lian	IRL IRL	2012-2	Powder Diffraction (PD) “XRD study of texture in Al:ZnO thin films”	Merit Access 2 days \$2,187
Dr Renwick Dobson Michael Griffin Elena Sugrue Rachel North Hironori Suzuki	Canterbury Melb. Univ. Canterbury Canterbury	2012-2	Micro Crystallography (MX2) “Melbourne University, Bio21 Institute Time, MX Beam-lines”	Melb. Univ time 2 days
Dr Tim Kemmitt Dr Bridget Ingham Campbell Nicholl Jiaxin Lian	IRL IRL	2012-2	Powder Diffraction (PD) “XRD study of texture in Al:ZnO thin films”	Preferred Access 2 days

Researchers	Institution	Cycle	Beamline	Access
Dr Liam O’Ryan Assoc Prof Alok Mitra Joseph Batho Jason Busby	Auckland Auckland Auckland Auckland	2012-2	Small/Wide Angle X-ray Scattering (SAXS) “Investigation of the oligomeric state of MerT, the bacterial integral membrane mercuric ion transporter, in solution”	Merit Access 1 day \$2,565
Dr Liam O’Ryan Assoc Prof Alok Mitra Joseph Batho Jason Busby	Auckland Auckland Auckland Auckland	2012-2	Small/Wide Angle X-ray Scattering (SAXS) “Investigation of the oligomeric state of MerT, the bacterial integral membrane mercuric ion transporter, in solution”	Preferred Access 1 day
Dr Johan Verbeek Mark Lay Jim Bier	Waikato Waikato Waikato	2012-2	Infrared Microscope (IRM) “Thermal and spatial resolution of secondary structures in thermoplastic protein derived from bloodmeal”	Preferred Access 2 days \$2,245
Cosmin Laslau Prof David Williams A/P Jadranka Travas-Sejdic Dr Geoff Waterhouse Karthik Kannappan	Auckland Auckland Auckland Auckland Auckland	2012-2	Soft X-ray Spectroscopy (SXR) “The Electronic Structure of Conducting Polymer Nanostructures: A XANES and XPS Spectroscopic Investigation”	Preferred Access 2 days \$2,558
Dr Vladimir Golovko A/P Gregory Metha A/P Gunther Andersson Baira Donoeva Jan-Yves Ruzicka	Canterbury Adelaide U Flinders U Canterbury Canterbury	2012-2	Soft X-ray Spectroscopy (SXR) “XPS and NEXAFS study of F- and N-doped nanostructured TiO ₂ and its interaction with atomically precise gold clusters.”	Preferred Access 2 days \$2,063
Dr Chris Squire Dr Shaun Lott Prof Ted Baker Dr Paul Young Yuliana Yosaatmadja	Auckland Auckland Auckland Auckland Auckland	2012-2	Micro Crystallography (MX2) “Pilin and other surface proteins from bacteria”	Merit Access 1 day \$2,097
Dr Tilo Soehnel Daniel Jeremy Wilson Tseng Chun Shu	Auckland Auckland Auckland	2012-2	X-ray Adsorption Spectroscopy (XAS) “XANES studies on Cu ₅ Sb _{1-x} Mn _x O ₆ (AS)”	Merit Access 2 days \$2,551
Dr Michael Mucalo Dr Bridget Ingham Kethsiri Alwis	Waikato IRL Waikato	2012-2	X-ray Absorption Spectroscopy (XAS) “EXAFS of Ni(II)-pseudohalide complexes in polar aprotic solvents (DMF and DMSO)”	Preferred Access 1 day
Dr Michael Mucalo Dr Bridget Ingham Kethsiri Alwis	Waikato IRL Waikato	2012-2	X-ray Absorption Spectroscopy (XAS) “EXAFS of Ni(II)-pseudohalide complexes in polar aprotic solvents (DMF and DMSO)”	Merit Access 1 day \$1,144

Researchers	Institution	Cycle	Beamline	Access
Dr Geoff Waterhouse Vedran Jovic Wan-Tin Chen Sy Eun Park	Auckland Auckland Auckland Auckland	2012-2	Soft X-ray Spectroscopy (SXR) “Local electronic structure of perovskite-type oxynitrides and N-doped titanias from synchrotron XPS and NEXAFS measurements”	Merit Access 4 days \$2,400

Australian Synchrotron

A synchrotron is a large research facility that generates an extremely intense beam of electromagnetic radiation ('light') that can be used for scientific experiments. The radiation is produced by taking a stream of electrons travelling at close to the speed of light, and deflecting them with magnetic fields. The light covers the electromagnetic spectrum from the infrared to the hard x-ray region.



Electrons are generated in the linear accelerator (linac), and progress into the smaller 'booster' ring, where they are further accelerated up to their final velocity (99.99% of the speed of light, a kinetic energy of 3.0 GeV). At this point they are 'injected' into the larger storage ring, where they circulate for a period of hours to days. The electron beam is steered and focused by magnetic fields. At each point where the beam is deflected, electromagnetic radiation is produced tangential to the beam path. 'Insertion devices', undulators and wigglers, are periodic magnet structures that serve to increase the radiation flux by up to five orders of magnitude. The radiation produced can be used in many different experiments and techniques. The light is channelled from the ring down a number of 'beam lines', each of which is optimised for a particular experimental technique.

The status of the various beam lines at the Australian Synchrotron can be summarised as follows:

- Protein crystallography (PX1) was the first beam line to become operational and began accepting general users in January 2008. This technique uses x-ray diffraction to determine the structure of proteins, used in drug design and understanding biochemical interactions.
- Infrared spectroscopy and microscopy (IR) also came online in early 2008. The beam line features two endstations: an FTIR spectrometer and an infrared microscope.
- Powder diffraction (PD) began taking general users in February 2008 and was fully operational by May 2008. This beam line is a general purpose diffraction beam line with several sample environments for observing changes in materials structure as a function of temperature, pressure, time, etc.

- The soft x-ray absorption spectroscopy (SXR) beamline was available for general users from the September-December 2008 cycle. It operates at low x-ray energies and is most useful for surface studies.
- Final commissioning of the X-ray absorption spectroscopy (XAS) beam line was completed at the end of 2008 and became available to general users from January 2009. This technique is useful for probing elemental valence states and determining the local structure around an atomic species of interest.
- Small-angle x-ray scattering (SAXS), combined with wide-angle x-ray scattering (WAXS) is a useful technique for determining large scale (1-100 nm), short-range order in materials. This beam line came online at the beginning of 2009.
- The commissioning of the second protein crystallography and small-molecule crystallography beamline (PX2) was completed in mid 2009. It complements the existing protein crystallography beam line and is able to measure micron-sized crystals and other weakly-scattering or hard to crystallise systems.
- The microspectroscopy beam line (XFM) construction was also completed in early 2009. This beamline combines the high spatial resolution of a microscope with the information that can be gleaned through x-ray fluorescence spectroscopy.
- The medical imaging and therapy beam line is has only recently become available for limited use. It was redesigned from its original concept. The redesign involved a 150 m long enclosure being built which extends well outside the synchrotron building.

The New Zealand Synchrotron Group is one of ten foundation investors, each of whom has contributed A\$5 million towards the initial suite of beam lines. This investment secures preferred (as-of-right) access for each foundation investor, spread over all the beam lines. For NZSG this typically amounts to approximately 3 days per beam line per four-month cycle. Proposals for preferred access are submitted at the same time as general access and undergo an internal selection process. The criteria the NZSG access committee has adopted seeks to favour new users to obtain beam time.

With the completion of the initial suite of nine beamlines, thoughts have now turned to the possibility of adding new beamlines to expand the facilities capabilities. The Australian Synchrotron has consulted with the research communities in Australia and New Zealand and a Science Case to add a further 10 beamlines and make other upgrades to the facility was published in July 2010. Consideration of this Case was set aside while arrangements were made to secure operating funding from the Australian Commonwealth and the Victorian State Governments and the other Foundation Investors. New Zealand has been offered the opportunity to contribute to the development and secure ongoing access for New Zealand researchers to the enhanced facility.



CORPORATE GOVERNANCE

Board Composition

The company operates with a board comprising of 5 directors, including an independent chairman. Interim directors were appointed initially. These were replaced by a permanent board following elections which were held in April 2007.

The Directors during the period up to 30 June 2012 were:

Dr Garth Carnaby, Chair
Dr Desmond Darby, GNS Science
Professor Geoffrey Jameson, Massey University
Professor James Metson, The University of Auckland
Professor Ian Shaw, University of Canterbury

Indemnities and Insurance

The Board has taken Directors and Officers Liability Insurance with Lumley General Insurance Limited. Coverage of up to \$5 million has been obtained.

Attendance at Board Meetings

The following table shows the attendance at meetings of the Board for each director and the fees paid.

Director	No. meetings held during the year	No. meetings attended	Fees paid
Dr Garth Carnaby	7	6	\$6,000
Dr Desmond Darby	7	7	-
Professor Geoffrey Jameson	7	7	-
Professor James Metson	7	7	-
Professor Ian Shaw	7	4	-

Donations

The company did not make any donations during the period from establishment up to 30 June 2012.

Interests Register

During the course of undertaking its normal business activities in supporting the development of synchrotron science, the company provides assistance towards the travel costs for research staff from its shareholders. The practice at meetings of the board is for directors from organisations who are receiving financial support to declare an interest and to refrain from voting on that particular matter. During the period up to 30 June 2012 support was provided to staff from The University of Auckland, Massey University, the University of Canterbury and GNS Sciences.

The following significant entries relating to the directors were recorded in the Interests Register during the period.

Director	Organisation/Entity	Nature of Interest
Dr GA Carnaby		
Shares Held	GA Carnaby & Associates Ltd	Controlling majority
Beneficiary of Trusts	Carnaby Trust	Trustee and discretionary beneficiary
	National Provident Fund	Annuity/Defined benefit
Offices Held	Institute of Environmental Science and Research Ltd	Deputy Chair
	Royal Society of New Zealand	President
	Canterbury Development Corporation	Chair
	Canterbury Economic Development Trustee Ltd	Chair
	Food Innovation South Island	Chair
	Core Education Ltd	Director
	Rutherford Foundation	Trustee
	Antarctic Heritage Trust	Trustee
	Lincoln University	Entrepreneur in Residence
Other Interests	MSI	Adviser
Dr D Darby		
Shares Held	Vector Ltd	Minority shareholder
	MEM Music Ltd/ Sound Directions Ltd	Majority shareholder
Offices Held	MEM Music Ltd/ Sound Directions Ltd	Director
	NZ Centre for Advanced Engineering	Director
	GNS Science	Senior manager
	NZ Association of Scientists	Council member
Prof GB Jameson		
Shares Held	Tower Ltd	Minority shareholder
Beneficiary of Trusts	Estate of MEB Jameson	Discretionary beneficiary
Offices Held	Massey University	Employee
Prof JB Metson		
Shares Held	Vector Energy	Minority shareholder
	Pacific Lithium	Minority shareholder
Offices Held	University of Auckland	Employee
Other Interests	RIAG	Chair
Prof IC Shaw		
Offices Held	University of Canterbury	Employee
Other Interests	Sandoz GmbH, Austria	Consultant

**New Zealand Synchrotron Group
Limited
Financial statements
for the year ended 30 June 2012**

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New Zealand Synchrotron Group Limited
Board Report
for the year ended 30 June 2012

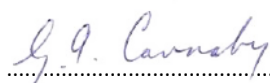
The Board has pleasure in presenting the annual report of the New Zealand Synchrotron Group Limited ("NZSG") incorporating the financial statements and the auditors' report, for the year ended 30 June 2012.

NZSG administers the investment in Australian Synchrotron Holding Company (ASHC).

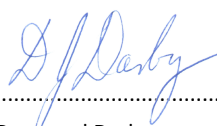
The Company has taken advantage of the reporting concessions available to it under sections 211(3) of the Companies Act 1993.

The Board of NZSG has authorised these financial statements presented on pages 6 to 18 for issue on 12 October 2012.

For and on behalf of the Board



.....
Garth Carnaby
Chairperson
12-Oct-12



.....
Desmond Darby
Director
12-Oct-12



Independent Auditor's Report

to the readers of the New Zealand Synchrotron Group Limited's Financial Statements for the year ended 30 June 2012

The Auditor-General is the auditor of the New Zealand Synchrotron Group Limited (the Company). The Auditor-General has appointed me, Chris Barber, using the staff and resources of PricewaterhouseCoopers, to carry out the audit of the financial statements of the Company, on her behalf.

We have audited the financial statements of the Company on pages 6 to 18 that comprise the statement of financial position as at 30 June 2012, the statement of comprehensive income, statement of changes in equity and statement of cash flows for the year ended on that date and the notes to the financial statements that include accounting policies and other explanatory information.

Opinion

Financial statements

In our opinion the financial statements of the Company on pages 6 to 18:

- comply with generally accepted accounting practice in New Zealand; and
- give a true and fair view of the Company's:
 - financial position as at 30 June 2012; and
 - financial performance and cash flows for the year ended on that date.

Other legal requirements

In accordance with the Financial Reporting Act 1993 we report that, in our opinion, proper accounting records have been kept by the Company as far as appears from an examination of those records.

Our audit was completed on 12 October 2012. This is the date at which our opinion is expressed.

The basis of our opinion is explained below. In addition, we outline the responsibilities of the Board of Directors and our responsibilities, and explain our independence.

Basis of opinion

We carried out our audit in accordance with the Auditor-General's Auditing Standards, which incorporate the International Standards on Auditing (New Zealand). Those standards require that we comply with ethical requirements and plan and carry out our audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

Material misstatements are differences or omissions of amounts and disclosures that would affect a reader's overall understanding of the financial statements. If we had found material misstatements that were not corrected, we would have referred to them in our opinion.

An audit involves carrying out procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on our judgement, including our assessment of risks of material misstatement of the financial statements whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the preparation of the Company's financial statements that give a true and fair view of the matters to which they relate. We consider internal control in order to design audit procedures that are appropriate in the circumstances but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control.



Independent Auditor's Report New Zealand Synchrotron Group Limited

An audit also involves evaluating:

- the appropriateness of accounting policies used and whether they have been consistently applied;
- the reasonableness of the significant accounting estimates and judgments made by the Board of Directors;
- the adequacy of all disclosures in the financial statements; and
- the overall presentation of the financial statements.

We did not examine every transaction, nor do we guarantee complete accuracy of the financial statements. In accordance with the Financial Reporting Act 1993, we report that we have obtained all the information and explanations we have required. We believe we have obtained sufficient and appropriate audit evidence to provide a basis for our audit opinion.

Responsibilities of the Board of Directors

The Board of Directors is responsible for preparing financial statements that:

- comply with generally accepted accounting practice in New Zealand; and
- give a true and fair view of the Company's financial position, financial performance and cash flows.

The Board of Directors is also responsible for such internal control as it determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

The Board of Directors' responsibilities arise from the Financial Reporting Act 1993.

Responsibilities of the Auditor

We are responsible for expressing an independent opinion on the financial statements and reporting that opinion to you based on our audit. Our responsibility arises from section 15 of the Public Audit Act 2001.

Independence

When carrying out the audit we followed the independence requirements of the Auditor-General, which incorporate the independence requirements of the New Zealand Institute of Chartered Accountants.

Other than the audit, we have no relationship with or interests in the Company.

A handwritten signature in blue ink that reads 'Chris Barber'.

Chris Barber
On behalf of the Auditor-General
Wellington, New Zealand

A handwritten signature in blue ink that reads 'PricewaterhouseCoopers'.

PricewaterhouseCoopers

New Zealand Synchrotron Group Limited
Statement of comprehensive income
for the year ended 30 June 2012

		2012 Unaudited budget	2012 Actual	2011 Actual
		\$	\$	\$
Income				
Income for Australian Operations	3	1,107,814	1,053,706	1,015,862
Income for NZ Operations	4	155,000	205,779	162,863
Total Income		1,262,814	1,259,485	1,178,725
Expenditure				
Amortisation	10	1,142,750	1,142,750	1,142,750
Australian Synchrotron Group costs	5	1,107,814	1,053,706	1,015,862
Other operating costs	6	238,650	289,673	172,109
Operating expenditure		2,489,214	2,486,129	2,330,721
Net loss before taxes		(1,226,400)	(1,226,644)	(1,151,996)
Income tax expense	7	-	-	-
Net loss after taxes		(1,226,400)	(1,226,644)	(1,151,996)
Other comprehensive income		-	-	-
Total comprehensive loss		(1,226,400)	(1,226,644)	(1,151,996)

The above statement of comprehensive income should be read in conjunction with the accompanying notes on pages 10 -18

New Zealand Synchrotron Group Limited
Statement of changes in equity
for the year ended 30 June 2012

	Notes	Share Capital \$	Retained earnings \$	Total equity \$
Balance as at 30 June 2010		2,824,036	964,400	3,788,436
Net loss		-	(1,151,996)	(1,151,996)
Other comprehensive income		-	-	-
Total comprehensive loss		<u>-</u>	<u>(1,151,996)</u>	<u>(1,151,996)</u>
Balance as at 30 June 2011		<u>2,824,036</u>	<u>- 187,596</u>	<u>2,636,440</u>
Net loss		-	(1,226,644)	(1,226,644)
Other comprehensive income		-	-	-
Total comprehensive loss		<u>-</u>	<u>(1,226,644)</u>	<u>(1,226,644)</u>
Balance as at 30 June 2012		<u><u>2,824,036</u></u>	<u><u>(1,414,240)</u></u>	<u><u>1,409,796</u></u>

The above statement of changes in equity should be read in conjunction with the accompanying notes on pages 10 - 18

New Zealand Synchrotron Group Limited

Balance sheet
as at 30 June 2012

	Note	2012 \$	2011 \$
<i>Current assets</i>			
Cash and cash equivalents	8	273,521	321,681
Trade and other receivables	9	96,580	53,987
Investment in ASHC	10	1,142,754	-
Total current assets		1,512,855	375,668
<i>Non-current assets</i>			
Investment in ASHC	10	-	2,285,500
Total non-current assets		-	2,285,500
TOTAL ASSETS		1,512,855	2,661,168
<i>Current liabilities</i>			
Trade and other payables	11	103,059	24,728
Total current liabilities		103,059	24,728
TOTAL LIABILITIES		103,059	24,728
Net assets		1,409,796	2,636,440
Equity			
Share capital	12	2,824,036	2,824,036
Retained earnings		(1,414,240)	(187,596)
TOTAL EQUITY		1,409,796	2,636,440

For and on behalf of the Board



Garth Carnaby
Chair Person
12-Oct-12



Desmond Darby
Director
12-Oct-12

The above balance sheet should be read in conjunction with the accompanying notes on pages 10 - 18

New Zealand Synchrotron Group Limited
Statement of cashflows
for the year ended 30 June 2012

	Notes	2012 \$	2011 \$
<i>Cash flows from operating activities</i>			
<i>Cash was provided from:</i>			
Interest	4	10,904	19,055
MSI Grants for Australian Synchrotron and New Zealand Synchrotron Group Costs		-	613,580
Shareholders Grants for Australian Synchrotron and New Zealand Synchrotron Group Costs and Contribution from Australian Synchrotron Group for Travel Cost		1,205,558	526,207
Goods and Service Tax (Net)		1,318	(1,763)
Withholding Tax (Net)		<u> </u>	<u> </u>
Total cash provided		1,217,780	1,157,079
<i>Cash was applied to:</i>			
Australian Synchrotron Group Costs		(1,053,706)	(1,015,862)
Other expenses		<u>(212,233)</u>	<u>(156,607)</u>
Total cash applied		(1,265,939)	(1,172,469)
<i>Net cash outflow from operating activities</i>	17	(48,159)	(15,390)
Net decrease in cash held		(48,159)	(15,390)
Cash balance at the beginning of the year	8	<u>321,681</u>	<u>337,071</u>
Cash balance at the end of the year	8	<u>273,522</u>	<u>321,681</u>

The above statement of cashflows should be read in conjunction with the accompanying notes on pages 10 - 18

Note 1. General information

New Zealand Synchrotron Group (“the Company”) was formed on 13 September 2006. The purpose of the Company is to invest in the Australian Synchrotron by subscribing to shares in the Australian Synchrotron Holding Company Pty Limited (“ASHC”) and being a member of the Australian Synchrotron Company Limited. In addition, the Company also promotes synchrotron science, assists the development of capability of New Zealand researchers in synchrotron science and manages the access of New Zealand researchers to the Australian Synchrotron. It has eleven shareholders who are all either New Zealand universities or Crown Research Institutes. The company is managed by a five person board elected by the shareholders, including an independent Chair. The Chair receives remuneration; the other directors do not. The Royal Society of New Zealand has been contracted to provide secretariat services to the Board.

The Company’s revenue consists of grants from government agencies to build awareness and capability in synchrotron science and investment income. Its registered office is 6 Turnbull Street, Thorndon, Wellington.

The financial statements have been approved for issue by the Board on 12 October 2012

Note 2. Summary of significant accounting policies

These financial statements have been prepared in accordance with Generally Accepted Accounting Practice in New Zealand (NZ GAAP). They comply with the New Zealand Equivalents to International Financial Reporting Standards (NZ IFRS) and other applicable Financial Reporting Standards, as appropriate for public benefit entities that qualify and apply differential reporting concessions.

(a) Basis of preparation

The principal accounting policies adopted in the preparation of the financial statements are set out below. These policies have been consistently applied to all the periods presented, unless otherwise stated.

The financial statements have been prepared on a going concern basis. The Company's current beam line access agreement expires in June 2013. The company is currently in discussions regarding the renewal of this agreement. Should the agreement not be renewed the Directors will assess the Company's future operations. This may include the Company being wound up.

Statutory base

New Zealand Synchrotron Group Limited (“NZSG” or the “Company”) is a company registered under the Companies Act 1993.

The financial statements have been prepared in accordance with the Financial Reporting Act 1993.

Differential reporting

NZSG is a qualifying entity within the Framework of Differential Reporting. NZSG qualifies on the basis that it is neither an issuer nor large (has less than 50 employees and total income below \$20 million). NZSG has taken advantage of all differential reporting concessions available to them except for NZIAS 18 Revenue paragraph NZ6.1 and NZ IAS 7 Statement of Cash Flows with which it has complied with fully.

Historical cost convention

These financial statements have been prepared under the historical cost convention, as modified by the revaluation of certain assets as identified in specific accounting policies below.

(c) Foreign currency translation

(i) Functional and presentation currency

The financial statements are presented in New Zealand dollars, which is the Company's functional and presentation currency.

(ii) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognised in the statement of comprehensive income.

(d) Revenue recognition

Revenue comprises the fair value for the sale of goods and services, excluding Goods and Services Tax, rebates and discounts. Revenue is recognised as follows:

(i) Interest income

Interest income is recognised on a time proportion basis using the effective interest method. When a receivable is impaired, NZSG reduces the carrying amount to its recoverable amount, being the estimated future cash flow discounted at original effective interest rate of the instrument, and continues unwinding the discount as interest income. Interest income on impaired loans is recognised using the rate of interest used to discount the future cash flows for the purpose of measuring the impairment loss.

(ii) Government grants, sponsorships and donations

Government grants and non-government grants are recognised as revenue when they become receivables unless there is an obligation to return the funds if conditions of the grant are not met. If there is such an obligation, the grants are initially recorded as grants received in advance and recognised as revenue when conditions of the grant are satisfied.

(e) Income Tax

From 1 July 2009 the NZSG has been granted a Tax Exemption under Section CW49 of the Income Tax Act 2007. As a consequence NZSG will have no ongoing liability for Income Tax.

(f) Goods and Services Tax (GST)

The statement of comprehensive income has been prepared so that all components are stated exclusive of GST. All items in the balance sheet are stated net of GST, with the exception of receivables and payables, which include GST invoiced.

(g) Cash and cash equivalents

Cash and cash equivalents includes cash on hand, deposits held at call with financial institutions and other short-term, highly liquid investments with original maturities of three months or less that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value.

(h) Trade receivables

Trade receivables are recognised initially at fair value and subsequently measured at amortised cost, less provision for doubtful debts.

The recoverability of trade receivables is reviewed on an ongoing basis. Debts which are known to be uncollectible are written off. A provision for doubtful receivables is established when there is objective evidence that NZSG will not be able to collect all amounts due according to the original terms of receivables. The amount of the provision is the difference between the asset's carrying amount and the present value of estimated future cash flows, discounted at the effective interest rate. The amount of the provision is recognised in the statement of comprehensive income.

(i) Investments and other financial assets

NZSG classifies its investments in the following categories: loans and receivables and available for sale financial assets. The classification depends on the purpose for which the investments were acquired. Management determines the classification of its investments at the initial recognition and re-evaluates this designation at every reporting date.

(i) Loans and receivables

Loans and receivables are non derivative financial assets with fixed or determinable payments that are not quoted in an active market. They arise when NZSG provides money, goods or services directly to a debtor with no intention of selling the receivable. They are included in current assets, except for those with maturities greater than 12 months after the balance sheet date which are classified as non-current assets. Loans and receivables are classified as 'trade and other receivables' in the balance sheet.

(ii) Available for sale financial assets

The investment in the Australian Synchrotron Holding Pty ("ASHC") is classified as an asset that is available for sale. As there are no active markets for this investment, it is stated at cost less impairment. Impairment is assessed annually at the balance sheet date and is primarily determined as the equivalent of the original cost of the investment on amortised on a straight line basis over the remaining useful life of the underlying asset (investment), to be determined once it is commissioned. The current beam line access agreement provides benefits from the investment until June 2013. The investment is therefore being amortised over the 5 year period commencing 1 July 2008.

Loans and receivables investments are subsequently carried at amortised cost using the effective interest method.

(j) Trade and other payables

These amounts represent liabilities for goods and services provided to NZSG prior to the end of financial year which are unpaid. The amounts are unsecured and are usually paid within 30 days of recognition.

Trade and other payables are recognised initially at fair value and subsequently measured at amortised cost using the effective interest method.

(j) Sponsorship and donations expense

Through the ordinary course of its activities the Company provides sponsorships and makes donations to advance its stated objectives. The Company recognises a liability for this expenditure when the recipient meets any eligibility criteria attached to a sponsorship or donation agreement.

(k) Statement of Cash Flows

The following are the definitions of the terms used in the Statement of Cash Flows:

- i) Cash is considered to be cash on hand, cash in transit, bank accounts and deposits with a maturity of no more than 3 months from date of acquisition;
- ii) Investing activities are those relating to acquisition, holding and disposal of investment in ASHC and investments not falling within the definition of cash;
- iii) Financing activities are those activities which result in changes in the size and composition of the capital structure of the Company. This includes equity, debt not falling within the definition of cash.

(l) Changes to accounting policies

There have been no changes in accounting policies.

Note 3. Income for Australian Operations

The Company receives support from the Government and shareholders for Australian Synchrotron costs.

	2012	2011
	\$	\$
MSI grants	-	613,581
Shareholder grants	1,053,706	402,281
	<u>1,053,706</u>	<u>1,015,862</u>

Note 4. Other income

	2012	2011
	\$	\$
REANNZ Travel & Event Grant	-	3,750
Grants from shareholders for operating costs of NZSG	25,000	25,000
Contribution from the ASCH of incurred travel costs	169,875	115,058
Interest	10,904	19,055
	<u>205,779</u>	<u>162,863</u>

Note 5. Australian Synchrotron Group costs

As detailed in note 13 the Company makes an annual contribution to the ongoing operating costs of the Australian Synchrotron.

Note 6. Other operating costs

(a) Remuneration of auditor

During the year the following fees were paid or payable for services provided by the OAG appointed auditor – Chris Barber with assistance from PricewaterhouseCoopers.

	2012	2011
	\$	\$
Statutory audit services	<u>8,970</u>	<u>9,747</u>

(b) Foreign exchange (gains) / losses

During the year the following exchange losses / (gains) were made on transactions between New Zealand and Australia.

	2012	2011
	\$	\$
Foreign exchange (gains) / losses	<u>11,993</u>	<u>(7,176)</u>

(c) Support for Synchrotron Science

During the year the following fees were paid or payable for services provided.

	2012	2011
	\$	\$
Travel costs reimbursed to related parties	161,566	112,638
Travel costs reimbursed to researchers and other entities	11,039	4,276
Meetings, workshops, summer school costs	<u>1,307</u>	<u>767</u>
	<u><u>173,912</u></u>	<u><u>117,681</u></u>

(d) Secretariat and other operating costs

During the year the following fees were paid or payable for services provided.

	2012	2011
	\$	\$
Secretariat services from the Royal Society and Board costs	69,817	48,285
Preparation of Investment Case	21,094	0
Insurance	3,325	3,310
Other	<u>562</u>	<u>262</u>
	<u><u>94,798</u></u>	<u><u>51,857</u></u>
Total other operating costs	<u><u>289,673</u></u>	<u><u>172,109</u></u>

Note 7. Income Tax

From the 1 July 2009 the NZSG has been granted a Tax Exemption under Section CW49 of the Income Tax Act 2007. As a consequence NZSG does not have an ongoing liability for Income Tax.

New Zealand Synchrotron Group Limited
Notes to the Financial Statements
for the year ended 30 June 2012

Note 8. Cash and cash equivalents

	2012	2011
	\$	\$
Cash	4,046	70,803
Foreign currency - AUD	269,475	51,106
Term deposit – AUD	-	199,772
	<u>273,521</u>	<u>321,681</u>

All the bank balances are held with the Bank of New Zealand.

Note 9. Trade and other receivables

	2012	2011
	\$	\$
Trade receivables	55,092	33,452
Sundry receivables	36,852	15,471
Prepayments	2,464	1,575
Goods and Services Tax receivable	2,172	3,489
Total trade and other receivables	<u>96,580</u>	<u>53,987</u>

Note 10. Investment in the ASHC

	2012	2011
	\$	\$
Investments in ASHC	5,713,750	5,713,750
Accumulated amortisation	(3,428,246)	(2,285,500)
Current year amortisation	(1,142,750)	(1,142,750)
Net investment in ASHC	<u>1,142,754</u>	<u>2,285,500</u>

The investment in the ASHC is being amortised on a straight line bases over a period of five years as this is management's best estimate of the access period to use the synchrotron.

Note 11. Trade and other payables

	2012	2011
	\$	\$
Creditors	52,955	4,388
Accruals	50,104	20,340
Total trade and other payables	<u>103,059</u>	<u>24,728</u>

The amount owed to related parties as at 30 June 2012 \$36,852. (2011: \$15,396).