

NEW ZEALAND SYNCHROTRON GROUP LIMITED



ANNUAL REPORT 2011

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CHAIRMAN'S REPORT

The New Zealand Synchrotron Group Ltd (NZSG) has now completed its fifth 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 prepare for possible New Zealand involvement in the next stage of development 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 third full annual payment of operating costs of A\$799,788 was made in February 2011. 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 \$1,219,549 comprising of an expected loss of \$76,799 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 only \$9,216, a result that was mainly influenced by the company not having to undertake planned expenditure within the year on preparing a case for future investment in the Australian Synchrotron. After providing for the amortisation costs, the overall result was a loss of \$1,151,996.

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 \$300,000. The Directors intend that with modest supplementing from shareholders, that these funds be employed over the coming three years to contract secretariat services 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 expires in June 2012. There are plans for a substantial further capital development of the Synchrotron. A science case and a comprehensive business case for funding continued operating costs and for capital development have been prepared by the Australian Synchrotron and are currently being considered by the Commonwealth and Victorian State governments. There is strong interest and a willingness in Australia to include New Zealand in the development. On behalf of its shareholders and the New Zealand research community, NZSG has already expressed an interest in participating in the development. There have not been any substantive discussions yet about what this would mean in practical terms or how such as investment would be funded, but in preliminary discussions with the Australian Synchrotron, NZSG Directors have emphasised that any potential further investment would have to be matched by an expansion of the current "Preferred Access" rights given to New Zealand researchers. We will work with the government, existing shareholding institutions and other potential investors to negotiate for ongoing access to the Synchrotron in line with the current arrangements.

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 Don Smith in assisting the board and administering the New Zealand Synchrotron Support Programme. 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\$799,788) was made to ASC on 28 February 2011.

Dr Carnaby was a member of the boards of both ASC and ASHCo until June 2011 when he decided to step down now that the Synchrotron is poised for further expansion and having seen the initial phase of development through to completion.

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 2010. 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 2010 onwards, and where applicable, the funding support provided to them.

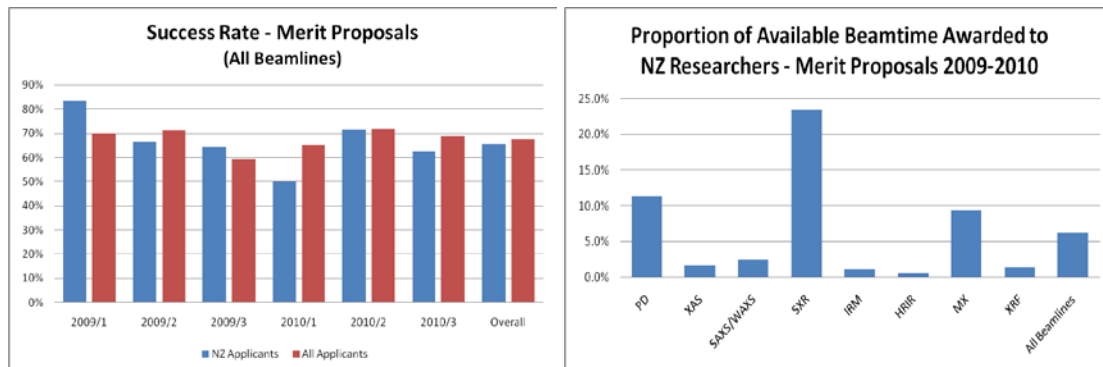
Use of the Australian Synchrotron by New Zealand Researchers

The first of the beamlines was successfully commissioned in mid 2007 and since then all but one of the originally planned beamlines have become operational.

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.

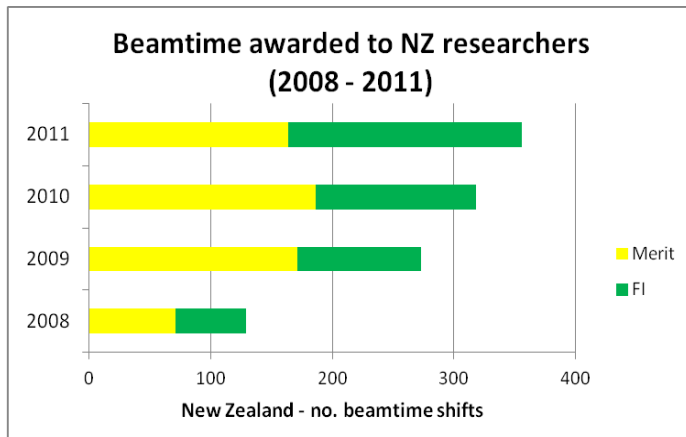
Since late 2008, in recognition of the contribution New Zealand makes to operating costs, the Australian Synchrotron began contributing towards the travel costs for New Zealand researchers who obtained beamtime at the Australian Synchrotron on an equal basis with Australian researchers. These funds are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



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 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, 98% 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
Protein Crystallography (MX1 and MX2)	3	7	19	29
Infrared Microscopy and High Resolution IR	3	2	3	4
Powder Diffraction	8	10	11	10
Soft X-ray Spectroscopy	1	7	9	7
Small & Wide Angle X-ray Scattering		4	7	9
X-ray Fluorescence Microscopy		2	1	3
X-ray Absorption Spectroscopy		3	3	3
Total	15	35	53	65

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 2010.

Name	Institution	Details	Comment
So Shan Cheong	Victoria University of Wellington	Postdoc	Fully funded
Alicia Cavan	University of Canterbury	PhD student	Fully funded
Robert Heinhold	University of Canterbury	PhD student	Self-funded
Yantao Song	University of Auckland	Postdoc	Self-funded
Islah-u-din	Massey University	PhD student	Self-funded



D K W Smith
Executive Officer
Secretariat

New Zealand Research Groups Awarded Beamtime (July 2010 – June 2011)

The following New Zealand research groups were awarded time (merit and preferred) at the Australian Synchrotron between July 2010 and June 2011.

Researchers	Institution	Cycle	Beamline	Access/Duration/ Funding Support
Dr Geoff Waterhouse Shaneel Sharma Nor Azieda Azahari Zakiya Al-Azri	Auckland Auckland Auckland Auckland	2010-2	Soft X-ray (SXR) Electronic structure of supported gold nanoparticle catalysts: A combined high resolution XPS and NEXAFS investigation	Merit access 4 days \$1,657
Dr Emily Parker Dr Richard Hutton Penelope Cross Tim Allison	Canterbury Canterbury Canterbury Canterbury	2010-2	Crystallography (MX2) University of Canterbury MX Beamlines	Preferred access 1 day \$2,392
Prof Ted Baker Dr Shaun Lott Manuela Hospenthal Matthew Cumming Dr Neil Paterson	Auckland Auckland Auckland Waikato Auckland	2010-2	Crystallography (MX2) Structure of pili and signal peptidase-like surface proteins from bacteria	Merit access programme 2 days \$3,584
Prof Kurt Krause	Otago	2010-2	Crystallography (MX1) Beamline fault – time not used	Merit access 1 day
Dr Ben Ruck	VUW	2010-2	Soft X-ray (SXR) Electronic structure of Gd-doped ZnO	Merit access 6 days
Dr Tilo Soehnel Morgan Scott	Auckland Auckland	2010-2	X-ray Absorption Spectroscopy (XAS) XANES/XAFS analysis of activation of Rh,Pd/Ceria catalyst	Merit access 2 days \$1,720
Dr Carla Fonseca-Paris Maria Pobedinskyy Dr Bridget Ingham Prof Jim Johnson	McDiarmid Institute IRL VUW	2010-2	Powder Diffraction (PD) XRD of palladium nanoparticles chemically bound to natural fibres, synthetic polymers fibres and substrate surfaces	Merit access 1 day \$2,033
Dr Bridget Ingham Dr Shaun Hendy Dr Nicola Gaston Prof. Tim Burstein Mr Kieran Fahy Mr Gareth Haslem	IRL IRL IRL Cambridge Uni Cambridge Uni Cambridge Uni	2010-2	Powder Diffraction (PD) X-ray diffraction of novel fuel cell materials	Preferred access 1 day \$1,088
Dr Tilo Soehnel Eric Rey	Auckland Auckland	2010-2	Powder Diffraction (PD) Crystal Structure of Cu_5SbO_6	Merit access 1 day \$1,287

Researchers	Institution	Cycle	Beamline	Access/Duration/ Funding Support
Dr Chris Squire Dr Paul Young	Auckland Auckland	2010-2	Small Angle X-ray Scattering (SAXS) SAXS studies of various proteins from pathogenic bacteria, orf virus, and the human cell-cycle	Merit access 2 days \$1,222
Dr Emily Parker Marie Fitchett Penelope Cross Tim Allison Grant Pearce Sebastian Reichau	Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury	2010-2	Crystallography (MX1)	Merit access programme 1 day \$2,521
Prof Kurt Krause Rafael Counago Dr Catherine Day Sigurd Wilbanks	Otago Otago Otago Otago	2010-2	Crystallography (MX2) University of Otago Structural Biology Group Programme	Preferred access 1 day
Dr Grant Pearce Moritz Lasse Sebastian Reichau Ren Dobson Marie Squire Penelope Cross Tim Allison James Murphy	Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury Canterbury WEHI (Melbourne)	2010-2	Small Angle X-ray Scattering (SAXS) 5 research projects from the University of Canterbury	Preferred access 2 days \$2,047
Mr Linus Perander Dr Mark Jones Dr Rainer Grupp Akihiro Shimamura Dr. Kei-ichiro Murai Mr. Shintaro Yabui	Auckland Auckland Auckland Auckland Tokushima University	2010-3	Soft X-ray Spectroscopy XANES Investigation of Electron Transfer Processes in Complex Anion Intercalated Layered Double Hydroxides	Merit Access 4 days \$2,396
Dr Bridget Ingham Monika Ko	IRL Quest Reliability	2010-3	Small and Wide Angle Scattering In-situ monitoring of FeCO ₃ preparation in solution	Merit Access 2 days \$2,137
Dr Richard Haverkamp Melissa Basil-Jones Kate Sizeland Leah Graham	Massey Massey Massey Massey	2010-3	Small and Wide Angle Scattering Structural Studies of Ovine Leather – Fibre Orientation Changes under Tension	Preferred Access 2 days \$1,243
Dr Roberta Gentile Saman Bowatte Cathy Thompson Troy Baisden John Kennedy Jerome Leveneur	AgResearch AgResearch GNS Science GNS Science GNS Science GNS Science	2010-3	Soft X-ray Spectroscopy Soil organic nitrogen changes under elevated CO ₂ in a grazed pasture	Merit Access 5 days \$6,120

Researchers	Institution	Cycle	Beamline	Access/Duration/ Funding Support
Prof Ted Baker Dr Neil Paterson Marisa Till Dr Chris Squire Aisyah Rehan Jodie Johnson Dr Paul Young	Auckland Auckland Waikato Auckland Auckland Auckland Auckland	2010-3	Crystallography (MX2) Pilin and other surface proteins from bacteria	Merit Access 2 days Preferred Access 1 day \$2,543
Dr Gregory Giles	Otago	2010-3	Infrared Microscope Targeted nitric oxide release as an anti-cancer therapeutic	Preferred Access 2 days \$1,382
Dr Shaun Lott Prof Ted Baker Dr Chris Squire Dr Neil Patterson Jodie Johnson	Auckland Auckland Auckland Auckland Auckland	2010-3	Crystallography (MX1) Mycobacterium tuberculosis: Structural biology and drug discovery (Also collected data for Waikato University)	Preferred access 1 day Merit Access 1 day \$900
Prof Kurt Krause Dr Sylvia Luckner Emma Scaletti	Otago Otago Otago	2010-3	Crystallography (MX2) University of Otago Structural Biology Group	Merit Access 2 days Preferred Access 2 days \$2,955
Dr Emily Parker Sebastian Reichau Penelope Cross Tim Allison Marie Fitchett	Canterbury Canterbury Canterbury Canterbury Canterbury	2010-3	Crystallography (MX2) Biomolecular Interaction Centre, University of Canterbury, MX Beamlines	Merit Access 1 days \$2,671
Dr Tim Kemmitt Dr Bridget Ingham Rachael Linklater	IRL IRL IRL	2010-3	Powder Diffraction In-situ X-ray Scattering of Sol-Gel Thin-Film Transparent Conducting Oxides	Merit Access 4 days Preferred Access 1 day \$2,389
Dr Richard Haverkamp Melissa Basil-Jones Katherine Sizeland Dr Kia Wallwork	Massey Massey Massey Austr. Synchrotron	2010-3	Powder Diffraction Total scattering measurements on the Mythen detector to reveal nanoparticle size and shape	Merit Access 3 days Preferred Access 1 day \$3,543
Dr Pawel Kowalczyk Prof Simon Brown Dr David McCarthy Ojas Mahapatra Dr Bridget Ingham Dr Witold Kozlowski Dr Zbigniew Klusek	Canterbury Canterbury Canterbury Canterbury IRL Lodz Univ Northumbria Univ	2010-3	Soft X-ray Spectroscopy Investigation of oxidation of Bi nanostructures deposited on graphite using XPS and XAS	Merit Access 5 days \$1,608

Researchers	Institution	Cycle	Beamline	Access/Duration/ Funding Support
Dr Grant Pearce Dr Emily Parker Dr Marie Squire Penelope Cross Mr Jens Moll Dr Mike Griffin	Canterbury Canterbury Canterbury Canterbury Macquarie Uni Bio 21, Melb.	2010-3	Small and Wide Angle Scattering Biomolecular Interactions Centre, University of Canterbury	Preferred access 1 days \$3,283
Dr Emily Parker Tim Allison Dmitri Joseph Nicky Blackmore	Canterbury Canterbury Canterbury Canterbury	2010-3	Crystallography (MX2) Biomolecular Interaction Centre, University of Canterbury, MX Beamlines	Preferred Access 1 day \$2,636
Dr Mark Simpson Michel Nieuwoudt Dr Jeff Mauk	Auckland Auckland Auckland	2010-3	Infrared Microscope Application for IR synchrotron beam time for FTIR microscopic analysis of fluid inclusions in quartz	Preferred Access 1 day \$1,943
Dr Richard Haverkamp Melissa Basil-Jones Katherine Sizeland	Massey Massey Massey	2010-3	X-ray Absorption Spectroscopy Gold nanoparticles formed in an alga	Preferred Access 2 days \$3,061
Dr Peter Swedlund Prof Jim Metson Yantao Song	Auckland Auckland Auckland	2010-3	Soft X-ray Spectroscopy Spectroscopic studies of silicate polymerization chemistry on Fe and Ti oxide surfaces and the relationship with the substrate structure	Merit Access 5 days \$1,940
Dr Jim McQuillan Jan Scholz David Savory Dr Bridget Ingham Nicola Gaston Prof Tim Burstein Gareth Haslam	Otago Otago Otago IRL IRL Cambridge Univ Cambridge Univ	2010-3	High Resolution IR spectroscopy of tungsten carbide electrocatalyst materials	Preferred Access 2 days \$2,976
Dr Gregory Giles Lara Jupp	Otago	2010-3	X-ray Fluorescence Microscopy Organoselenium markers for cellular organelles	Preferred Access 2 days \$2,691
Dr Aaron Marshall Diandree Padayachee Sophia Mellsop	Canterbury Canterbury Canterbury	2011-1	Powder Diffraction Structure of MnO ₂ supported Au nanoparticles	Preferred Access 2 days \$1,890
Dr Gregory Giles Felix Deuss	Otago Otago	2011-1	Infrared Microscope Nitric Oxide as an Antioxidant	Preferred Access 2 days \$2,318
Dr Emily Parker Sebastian Reichau Dmitri Joseph	Canterbury Canterbury Canterbury	2011-1	Macromolecular Crystallography (MX1) University of Canterbury - MX beamlines	Merit Access 1 day Deferred because of earthquake

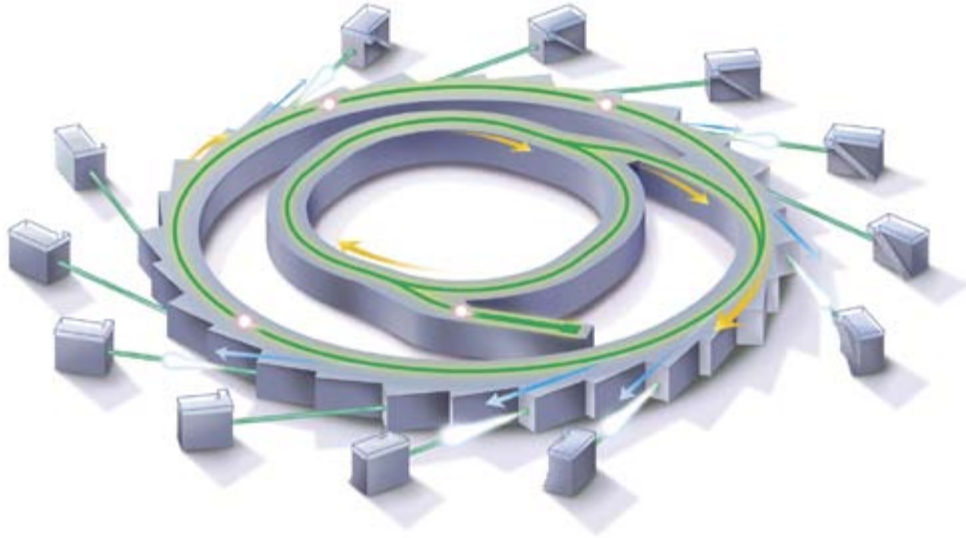
Researchers	Institution	Cycle	Beamline	Access/Duration/ Funding Support
Prof Kurt Krause Dr Sylvia Luckner Ms Karen Yates	Otago Otago Otago	2011-1	Macromolecular Crystallography (MX2) University of Otago Structural Biology group	Merit Access 1 day \$3,427
Dr Shaun Lott Prof Ted Baker Dr Chris Squire Dr Christian Linke	Auckland Auckland Auckland Auckland	2011-1	Macromolecular Crystallography (MX1) Mycobacterium tuberculosis: Structural biology and drug discovery	Merit Access 2 days \$2,319
Dr Zoran Zujovic Cosmin Laslau Dr Bridget Ingham Prof David Williams Assoc Prof Jadranka Travas-Sejdic	Auckland Auckland IRL Auckland Auckland	2011-1	Powder Diffraction Polyaniline Nanostructure Evolution at Substrate/ Solution Interface Probed in Situ by Time-Resolved High-Energy Synchrotron X-ray Diffraction	Merit Access 3 days \$2,131
Assoc Prof James Wright Dr Tilo Soehnel Andrew Dalebrook	Auckland Auckland Auckland	2011-1	X-ray Absorption Spectroscopy XANES Studies of Metallabenzenes	Preferred Access 2 days \$1,786
Assoc Prof Vic Arcus Judith Burrows Matthew Cumming Marissa Till	Waikato Waikato Waikato Waikato	2011-1	Macromolecular Crystallography (MX1) Proteins from microbes and model plants that are important in biomedicine, agriculture and biotechnology	Merit Access 1 day \$1,984.46
Prof Kurt Krause Dr Sigurd Wilbanks Dr Yoshio Nakatani Dr Sylvia Luckner Dr Karen Knapp Aimée Gommans Tracy Josephs Madhu Shankar Dr Egor Tchesnokov	Otago Otago Otago Otago Otago Otago Otago Otago Otago	2011-1	Macromolecular Crystallography (MX2) University of Otago Structural Biology group	Preferred Access 2 days \$637
Dr Shaun Lott Prof Ted Baker Dr Chris Squire	Auckland Auckland Auckland	2011-1	Macromolecular Crystallography (MX1) Mycobacterium tuberculosis: Structural biology and drug discovery	Preferred Access 1 day \$854
Dr Tilo Soehnel Dr Boniface Fokwa Eleonora Doehl Christian Goerens Martin Hermus	Auckland Aachen Uni Aachen Uni Aachen Uni Aachen Uni	2011-1	Powder Diffraction Synchrotron powder diffraction studies of supersctructure reflections in perovskite-type metal- rich borides and in complex metal-rich borides	Merit Access 1 day \$2,550
Dr Tilo Soehnel Dr Geoff Waterhouse Vedran Jovic	Auckland Auckland Auckland	2011-1	Powder Diffraction Synchrotron powder diffraction studies on transition metal doped Cu ₅ SbO ₆	Preferred Access 1 day

Researchers	Institution	Cycle	Beamline	Access/Duration/ Funding Support
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 Deferred because of earthquake
Dr Vince Carbone Dr Ron Ronimus Dr Linley Schofield Dr Yanli Zhang Amy Knights	AgResearch AgResearch AgResearch AgResearch AgResearch	2011-1	Macromolecular Crystallography (MX2) Enhanced discovery of methanogen – specific inhibitors of Methanobrevibacter ruminantium	Preferred Access 1 day \$2,620
Dr Grant Pearce Dr Renwick Dobson Prof Juliet Gerrard Dr Emily Parker Moritz Lasse	Canterbury Melbourne Uni Canterbury Canterbury Canterbury	2011-1	Small and Wide Angle Scattering Biomolecular Interactions Centre, University of Canterbury	Preferred Access 1 day \$1,156
Dr Emily Parker Dr Renwick Dobson Prof Juliet Gerrard Prof Geoff Jameson Dr Grant Pearce Prof Ian Shaw	Canterbury Canterbury Canterbury Massey Canterbury Canterbury	2011-1	Macromolecular Crystallography (MX1) Biomolecular Interactions Centre, University of Canterbury	Preferred Access 1 day Deferred because of earthquake
Dr Marian McKenzie Ronan Chen David Freestone Agnes Michalcyk Bret Hendersen	Plant & Food Research Deakin Univ Deakin Univ Victorian Dept Primary Indust.	2011-1	X-ray Fluorescence Microscopy Localisation and quantification of high- health selenium-containing compounds in broccoli tissues	Preferred Access 4 days \$1,940
Prof Richard Haverkamp Melissa Basil-Jones Kalib Bell Leah Graham	Massey Massey Massey Massey	2011-1	Soft X-ray Spectroscopy Core-shell nanoparticle analysis by energy resolved XPS	Preferred Access 3 days \$2,805
Dr Tilo Soehnel Dr Boniface Fokwa Patrick Misse Ndong	Auckland Aachen Univ. Aachen Univ.	2011-1	X-ray Absorption Spectroscopy XANES studies of oxidation states in complex transition metal-rich borides	Merit Access 1 day \$657
Dr Duncan McGillivray Dr Andrew Dingley Yang (Gloria) Xun	Auckland Auckland Auckland	2011-1	Small and Wide Angle Scattering pH-dependent dimerisation of amoebapore A and mutants	Preferred Access 2 days \$1,788
Dr John Kennedy Dr Damian Carder Jerome Leveneur Dr Andreas Markwitz Prof James Metson Dr Geoff Waterhouse Dr Frank Natali	GNS Science GNS Science GNS Science GNS Science Auckland Auckland VUW	2011-1	Soft X-ray Spectroscopy XANES investigation of surface metallic nanoclusters synthesis in insulators	Preferred Access 4 days \$3,110

Researchers	Institution	Cycle	Beamline	Access/Duration/ Funding Support
Dr Vic Arcus Dr Judith Burrows Marisa Till	Waikato	2011-1	Macromolecular Crystallography (MX1) Proteins from microbes and model plants that are important in biomedicine, agriculture and biotechnology	Preferred Access 1 day \$1,298
Prof Kurt Krause	Otago	2011-2	Micro Crystallography (MX1) University of Otago Structural Biology Group	Merit Access 1 day Time not used
Prof Richard Haverkamp Melissa Basil-Jones	Massey	2011-2	Small and Wide X-ray Scattering Structural Studies of Bovine Pericardium for Replacement Heart Valve Leaflets	Merit Access 2 days \$2,053
Mr Patrick Nadoll Dr Jeffrey Mauk Dr Mark Simpson Timothy Hayes Alan Koenig Stephen Box	Auckland Auckland Auckland US Geol. Survey US Geol. Survey US Geol. Survey	2011-2	X-ray Fluorescence Microscopy Minor- and trace element analysis of magnetite – Methods and reference materials	Preferred Access 4 days \$2,435
Yoshio Nakatani Dr. Adam Heikal Frances-Rose Schumacher	Otago Otago Otago	2011-2	Micro Ctystallography (MX2) The structural characterisation of the membrane-bound NZDH: menaquinone a new drug target it the fight against tuberculosis	Merit Access 1 day \$3,134
Dr Vickery Arcus Joanna McKenzie Sebastian Reichau Dr Emily Parker Penelope Cross Nicola Blackmore	Waikato Waikato Canterbury Canterbury Canterbury Canterbury	2011-2	Macromolecular Crystallography (MX1) The evolution and biochemistry of core metabolic enzymes	Merit Access 1 Day \$1,985

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 currently under construction. This involves 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, plans are now underway to add 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. An Investment Case to fund the expansion has also been developed and has been presented to the Australian Commonwealth and the Victorian State Governments. New Zealand has been offered the opportunity to contribute to the development and secure ongoing access for New Zealand researchers to the enhanced facility. Discussions will commence once the way in which the Australian investment is to be structure has been clarified.



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 2011 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	5	5	\$6,000
Dr Desmond Darby	5	4	-
Professor Geoffrey Jameson	5	4	-
Professor James Metson	5	4	-
Professor Ian Shaw	5	3	-

Donations

The company did not make any donations during the period from establishment up to 30 June 2011.

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 2011 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
	Australian Synchrotron Co Ltd	Director
	Australian Synchrotron Holding Co Pty Ltd	Director
	Core Education Ltd	Director
	Rutherford Foundation	Trustee
	Antarctic Heritage Trust	Trustee
	Lincoln University	Entrepreneur in Residence
Other Interests	High Performance Computing Committee	Chairman
	MoRST and FRST	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
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 Pacific Lithium	Minority shareholder 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 2011

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New Zealand Synchrotron Group Limited
Board Report
for the year ended 30 June 2011

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 2011.

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 16 September 2011.

For and on behalf of the Board



.....
Garth Carnaby
Chairperson
16 September 2011



.....
Desmond Darby
Director
16 September 2011



Independent auditors' report

to the readers of the New Zealand Synchrotron Group Limited's financial statements for the year ended 30 June 2011

The Auditor-General is the auditor of 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 an 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 2011, the statement of comprehensive income, statement of changes in equity and statement of cash flows for the year ended on that date; and a summary of significant accounting policies and other explanatory information.

Opinion on the 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 2011; and
 - financial performance and cash flows for the year ended on that date.

Opinion on 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 16 September 2011, and 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 we 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 entity's preparation of the 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 entity's internal control.



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 judgements 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.

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 2011

		2011	2011	2010
		Unaudited	Actual	Actual
		budget		
		\$	\$	\$
Income				
	Note			
Income for Australian Operations	3	989,983	1,015,862	991,841
Income for NZ Operations	4	130,891	162,863	202,584
Total Income		<u>1,120,874</u>	<u>1,178,725</u>	<u>1,194,425</u>
Expenditure				
Amortisation	10	1,142,750	1,142,750	1,142,750
Australian Synchrotron Group costs	5	989,983	1,015,862	991,841
Other operating costs	6	207,690	172,109	176,189
Operating expenditure		<u>2,340,423</u>	<u>2,330,721</u>	<u>2,310,780</u>
Net loss before taxes		<u>(1,219,549)</u>	<u>(1,151,996)</u>	<u>(1,116,355)</u>
Income tax expense	7	-	-	-
Net loss after taxes		<u>(1,219,549)</u>	<u>(1,151,996)</u>	<u>(1,116,355)</u>
Other comprehensive income		-	-	-
Total comprehensive loss		<u><u>(1,219,549)</u></u>	<u><u>(1,151,996)</u></u>	<u><u>(1,116,355)</u></u>

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 2011

	Notes	Share Capital \$	Retained earnings \$	Total equity \$
Balance as at 1 July 2009	12	2,824,036	2,080,756	4,904,792
Net loss		-	(1,116,355)	(1,116,355)
Other comprehensive income		-	-	-
Total comprehensive loss		-	(1,116,355)	(1,116,355)
Balance as at 30 June 2010		<u>2,824,036</u>	<u>964,401</u>	<u>3,788,437</u>
Net loss		-	(1,151,996)	(1,151,996)
Other comprehensive income		-	-	-
Total comprehensive loss		-	(1,151,996)	(1,151,996)
Balance as at 30 June 2011		<u><u>2,824,036</u></u>	<u><u>(187,595)</u></u>	<u><u>2,636,441</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 2011

	Note	2011 \$	2010 \$
<i>Current assets</i>			
Cash and cash equivalents	8	321,681	337,071
Trade and other receivables	9	53,987	37,296
Total current assets		375,668	374,367
<i>Non-current assets</i>			
Investment in ASHC	10	2,285,500	3,428,250
Total non-current assets		2,285,500	3,428,250
TOTAL ASSETS		2,661,168	3,802,617
<i>Current liabilities</i>			
Trade and other payables	11	24,728	14,181
Current tax liability	7	-	-
Total current liabilities		24,728	14,181
TOTAL LIABILITIES		24,728	14,181
Net assets		2,636,440	3,788,436
Equity			
Share capital	12	2,824,036	2,824,036
Retained earnings		- 187,595	964,401
TOTAL EQUITY		2,636,441	3,788,437

For and on behalf of the Board



.....
Garth Carnaby
Chair Person
16 September 2011



.....
Desmond Darby
Director
16 September 2011

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

New Zealand Synchrotron Group Limited
Cashflow
for the year ended 30 June 2011

	Notes	2011 \$	2010 \$
<i>Cash flows from operating activities</i>			
<i>Cash was provided from:</i>			
Interest	4	19,055	14,200
MSI Grants for Australian Synchrotron and New Zealand Synchrotron Group Costs		613,580	713,326
Shareholders Grants for Australian Synchrotron and New Zealand Synchrotron Group Costs and Contribution from Australian Synchrotron Group for Travel Cost		526,207	464,277
Goods and Service Tax (Net)		(1,763)	12,599
Withholding Tax (Net)		<u> </u>	<u>16,010</u>
Total cash provided		<u>1,157,079</u>	<u>1,220,412</u>
<i>Cash was applied to:</i>			
Australian Synchrotron Group Costs		(1,015,862)	(991,841)
Other expenses		<u>(156,607)</u>	<u>(261,522)</u>
Total cash applied		<u>(1,172,469)</u>	<u>(1,253,363)</u>
<i>Net cash outflow from operating activities</i>	17	<u>(15,390)</u>	<u>(32,951)</u>
<i>Cash flows from investing activities</i>			
<i>Cash was provided from:</i>			
Shareholders		-	-
<i>Cash was applied to:</i>			
Payment of Shareholding		-	-
Net cash outflow from investing activities		<u>-</u>	<u>-</u>
Net decrease in cash held		(15,390)	(32,951)
Cash balance at the beginning of the year	8	<u>337,071</u>	<u>370,022</u>
Cash balance at the end of the year	8	<u><u>321,681</u></u>	<u><u>337,071</u></u>

The above cashflow statement 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 4 Halswell Street, Thorndon, Wellington.

The financial statements have been approved for issue by the Board on 18 November 2011

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.

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 income statement 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. Currently NZSG only has financial assets classified in two categories.

(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.

New Zealand Synchrotron Group Limited
Notes to the Financial Statements
for the year ended 30 June 2011

Note 3. Income for Australian Operations

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

	2011	2010
	\$	\$
MSI grants	613,581	706,502
Shareholder grants	402,281	285,339
	<u>1,015,862</u>	<u>991,841</u>

Note 4. Other income

	2011	2010
	\$	\$
Capability build grant	-	63,824
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	115,058	99,560
Interest	19,055	14,200
	<u>162,863</u>	<u>202,584</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.

	2011	2010
	\$	\$
Statutory audit services	9,747	6,991
Taxation compliance services	-	3,600
	<u>9,747</u>	<u>10,591</u>

(b) Foreign exchange gains / (losses)

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

	2011	2010
	\$	\$
Foreign exchange gains / (losses)	<u>(7,176)</u>	<u>6,782</u>

(c) Support for Synchrotron Science

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

	2011	2010
	\$	\$
Travel costs reimbursed to related parties	112,638	70,200
Travel costs reimbursed to researchers and other entities	4,276	11,370
Meetings, workshops, summer school costs	767	21,802
	<u>117,681</u>	<u>103,372</u>

(d) Secretariat and other operating costs

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

	2011	2010
	\$	\$
Secretariat services from the Royal Society and Board costs	48,285	51,460
Insurance	3,310	3,414
Other	262	570
	<u>51,857</u>	<u>55,444</u>
Total other operating costs	<u>172,109</u>	<u>176,189</u>

Note 7. Income Tax

(a) Reconciliation of effective tax rate

	2011	2010
	\$	\$
Profit (Loss) before tax	-1,151,996	-1,116,355
Income tax @ 30%	-	-
Non assessable income	-	-
Losses not recognised	-	-
Expenses not deductible for tax purposes	-	-
Prior period adjustment	-	-
Tax expense	<u>-</u>	<u>-</u>

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 2011

Note 8. Cash and cash equivalents

	2011	2010
	\$	\$
Cash	70,803	201,101
Foreign currency - AUD	51,106	13,210
Term deposit – AUD	<u>199,772</u>	<u>122,760</u>
	<u><u>321,681</u></u>	<u><u>337,071</u></u>

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

Note 9. Trade and other receivables

	2011	2010
	\$	\$
Trade receivables	33,452	20,334
Sundry receivables	15,471	8,706
Prepayments	1,575	6,530
Goods and Services Tax receivable	<u>3,489</u>	<u>1,726</u>
Total trade and other receivables	<u><u>53,987</u></u>	<u><u>37,296</u></u>

Note 10. Investment in the ASHC

	2011	2010
	\$	\$
Investments in ASHC	5,713,750	5,713,750
Accumulated amortisation	(2,285,500)	(1,142,750)
Current year amortisation	<u>(1,142,750)</u>	<u>(1,142,750)</u>
Net investment in ASHC	<u><u>2,285,500</u></u>	<u><u>3,428,250</u></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

	2011	2010
	\$	\$
Creditors	4,388	-
Accruals	<u>20,341</u>	<u>14,181</u>
Total trade and other payables	<u><u>24,728</u></u>	<u><u>14,181</u></u>

The amount owed to related parties as at 30 June 2011 \$15,935 (2010: \$4,136).

Note 12. Share capital

Shareholding value at cost	2011	2010
	\$	\$
University of Auckland	509,217	509,217
University of Waikato	190,357	190,357
Massey University	428,317	428,317
Victoria University of Wellington	237,966	237,966
University of Canterbury	285,546	285,546
Lincoln University	28,557	28,557
Otago University	285,546	285,546
AgResearch Ltd	285,546	285,546
Institute of Geological and Nuclear Sciences Ltd	190,357	190,357
The New Zealand Institute for Plant and Food Research Ltd	190,357	190,357
Industrial Research Ltd	192,270	192,270
	<u>2,824,036</u>	<u>2,824,036</u>

The shares held at 30 June are:

	2011	2010
	# of shares held	# of shares held
University of Auckland	436,319	436,319
University of Waikato	163,104	163,104
Massey University	367,001	367,001
Victoria University of Wellington	203,897	203,897
University of Canterbury	244,668	244,668
Lincoln University	24,467	24,467
Otago University	244,668	244,668
AgResearch Ltd	244,668	244,668
Institute of Geological and Nuclear Sciences Ltd	163,104	163,104
The New Zealand Institute for Plant and Food Research Ltd	163,104	163,104
Industrial Research Ltd	163,104	163,104
	<u>2,418,104</u>	<u>2,418,104</u>

The amount recognised in the balance sheet as paid in capital is the New Zealand dollar equivalent at the date of issuance.

Note 13. Commitments

Since 1 January 2008 the Company has been contractually committed to provide ongoing operational funding of \$2.097m for the Australian Synchrotron project over a five year period. As part of the Participant's agreement entered into with the 11 shareholders these funds will be received directly from the Shareholders or MSI on their behalf when required to fulfil these obligations.

Note 14. Contingent liabilities

There were no contingent liabilities at 30 June 2011. (2010: nil)

Note 15. Financial instruments

Classification of financial assets by category

	Available for sale	Receivables, Cash & Loans
2011	\$	\$
Investment in ASHC	2,285,500	-
Cash and cash equivalents		321,681
Trade & other receivables	-	53,987
Total	2,285,500	375,668
2010		
Investment in ASHC	3,428,250	-
Cash and cash equivalents		337,071
Trade & other receivables	-	37,297
Total	3,428,250	374,368

Classification of financial liabilities by category

Measured at amortised cost

	2011	2010
	\$	\$
Trade & other payables	24,728	14,181
Total	24,728	14,181

Note 16 Related parties

Related parties comprise of the shareholders identified in Note 12. There have been a number of related parties transactions during the year ended 30 June 2011.

These transactions include grants from shareholders to operating costs as per Note 3 and 4 and the travel costs reimbursed as per note 6

The amount outstanding as at 30 June 2011 is travel costs of \$15,935 (2010: 4,136).

Note 17. Reconciliation of profit with cash flows from operating activities

	2011	2010
	\$	\$
Loss after tax	(1,151,996)	(1,116,355)
Add/(Less) non-cash items		
Amortisation of Australian Synchrotron	1,142,750	1,142,750
Trade and other receivables and payable - excluding investing activities	(21,645)	25,987
Trade and other payables - excluding investing activities	15,502	(85,332)
Net Cash outflow from operating activities	(15,390)	(32,950)

Note 18. Events occurring after balance date

There are no significant events subsequent to balance date.