

Summary of Linkage Infrastructure, Equipment and Facilities Proposals by FoR group

The University of Western Australia

LE110100129 Prof David G Blair, Prof Jesper Munch, Prof David E McClelland, Dr Chunnong Zhao, A/Prof Li Ju, Dr Daniel A Shaddock, Dr Bram J Slagmolen

Approved Project Title **Equipment and instrumentation for breaking the quantum measurement barrier**

2011 \$550,000.00

Partner/Collaborating Organisation(s)

The Australian National University, The University of Adelaide

Administering Organisation The University of Western Australia

Project Summary

This equipment will support Australia's partnership in the international effort to detect gravitational waves, which would allow the first direct observation of black holes and mark the beginning of exploration of the gravitational wave spectrum.

LE110100212 Prof Lister G Staveley-Smith, Prof Matthew Bailes, Prof Steven J Tingay, Dr Robert Braun, Prof Michael E Jones

Approved Project Title **Deep investigations of galaxies and pulsars**

2011 \$160,000.00

Partner/Collaborating Organisation(s)

Commonwealth Scientific and Industrial Research Organisation, Oxford University
Curtin University of Technology, Swinburne University of Technology

Administering Organisation The University of Western Australia

Project Summary

A new detector for the Parkes radio telescope will be made which will enable the use of new techniques for removing radio interference and, as a result, will allow researchers to detect fainter and more distant objects in the Universe than previously possible.

University of Tasmania

LE110100055 Dr Andrew A Cole, Dr John G Greenhill, Prof Michael C Ashley, Prof Michael S Bessell, Prof Dr Andrzej Udalski, Dr Jean-Philippe Beaulieu, Prof Lawrence K Forbes

Approved Project Title **Hidden Earths and distant Suns: a new optical astronomy observatory in Tasmania**

2011 \$275,000.00

Partner/Collaborating Organisation(s)

Institut d'Astrophysique de Paris, Warsaw University Astronomical Observatory
The Australian National University, The University of New South Wales

Administering Organisation University of Tasmania

Project Summary

This facility at the University of Tasmania will be a remotely operable 1.3 metre optical telescope with a suite of powerful scientific cameras. It will be used to hunt for Earth-like planets around other stars and to study the variability of stars like the Sun, helping to answer fundamental questions about the Universe and our place in it.

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0203 CLASSICAL PHYSICS

The Australian National University

LE110100064 A/Prof Edith M Sevick, Dr Vincent R Daria, Prof Debra J Bernhardt, Prof Denis J Evans, Prof Hans A Bachor

Approved Project Title **Optically controlled containers for experiments in soft matter**

2011 \$150,000.00

Partner/Collaborating Organisation(s)

Griffith University

Administering Organisation The Australian National University

Project Summary

Nanotechnology has a promising future in the fabrication of small machines but exactly how these machines work is far less certain as they defy fundamental, classical thermodynamics. This equipment will allow Australian researchers to probe the energy dissipation of, and the work done by, small systems, including those of single molecules, colloidal crystals and membranes.

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0204 CONDENSED MATTER PHYSICS

The University of New South Wales

LE110100060 A/Prof Clemens Ulrich, Prof Dr Xiaolin Wang, Dr Benjamin J Powell, Dr Shih-Chun Lo, Dr Annemieke M Mulders

Approved Project Title **High pressure facility for optical spectroscopy: investigation of novel superconductors and strongly correlated electron systems**

2011 \$150,000.00

Partner/Collaborating Organisation(s)

The University of Queensland, University of Wollongong

Administering Organisation The University of New South Wales

Project Summary

Superconductivity is an effect where the electrical resistance disappears completely at low temperatures. This facility will permit optical spectroscopy under high hydrostatic pressure to reveal important new information leading to a deeper understanding of this effect.

The University of Newcastle

LE110100235 Prof Paul C Dastoor, Prof Graeme J Jameson, A/Prof Erica J Wanless, Dr Grant B Webber, Dr Rob Atkin, Prof Ewa M Goldys, Prof Deborah M Kane, Dr James Downes, Dr Gregory J Wilson, Dr Christopher J Fell

Approved Project Title **Interfacial mapping facility**

2011 \$180,000.00

Partner/Collaborating Organisation(s)

Commonwealth Scientific and Industrial Research Organisation
Macquarie University

Administering Organisation The University of Newcastle

Project Summary

New electronic materials and devices impact on everyday life in areas such as photovoltaics, biotechnology and healthcare. This facility will provide researchers with the unique capability of mapping both the structure and electronic properties of materials on the nanoscale. It will be an essential tool for developing new electronics based on nanotechnology.

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0205 OPTICAL PHYSICS

Macquarie University

LE110100024 Prof Deborah M Kane, A/Prof Michael J Withford, A/Prof Judith M Dawes, Dr Robert J Carman, A/Prof Marie E Herberstein, Dr Hark H Tan, Dr Lan Fu, Prof Lorenzo Faraone, A/Prof Adrian Keating, Prof Jarek Antoszewski

Approved Project Title **Optical profiler with dynamic micro electro-mechanical systems capability**

2011 \$240,000.00

Partner/Collaborating Organisation(s)

The Australian National University, The University of Western Australia

Administering Organisation Macquarie University

Project Summary

This facility will allow Australian researchers to access the world's best capability in dynamic, time resolved, optical three-dimensional profiling of surfaces and devices. It will advance a raft of science research and industry applications characterising natural and artificial materials and underpinning next generation optical, photonic and microelectronic devices.

Swinburne University of Technology

LE110100137 Prof Lap V Dao, A/Prof Trevor A Smith, Prof Peter Hannaford, A/Prof Andrew G Peele, Prof Kenneth P Ghiggino

Approved Project Title **Femtosecond broad wavelength range laser facility**

2011 \$250,000.00

Partner/Collaborating Organisation(s)

La Trobe University, The University of Melbourne

Administering Organisation Swinburne University of Technology

Project Summary

This facility will provide a unique source of ultra-short laser pulses spanning the X-ray to the infrared regions. It will provide a powerful coherent X-ray source that will position Australia at the forefront of coherent imaging science and the ability to perform ultrafast infrared spectroscopic measurements.

The University of Sydney

LE110100116 Prof Benjamin J Eggleton, Dr Mark D Pelusi, Prof Barry Luther-Davies, A/Prof Michael J Withford, Prof Arnan Mitchell, Prof Kamal Alameh, Dr Steven Frisken, Prof Arthur J Lowery, A/Prof David J Moss, Dr Christelle Monat, Prof Carel M de Sterke, Dr Steve Madden

Approved Project Title **100 Gbit to 1 Terabit per second optical communication test bed facility**

2011 \$400,000.00

Partner/Collaborating Organisation(s)

Finisar Corporation
Edith Cowan University, Macquarie University, Monash University, RMIT University, The Australian National University

Administering Organisation The University of Sydney

Project Summary

This facility will develop and demonstrate novel optical technologies that will underpin the generation and transmission of a higher-speed Ethernet at 100 Gb/s to 1Terabit/s, and will lead to better broadband and more energy efficient internet. At the foundation of this research will be a test bed with multiple signal sources at data rates above 50 Gbaud.

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0301 ANALYTICAL CHEMISTRY

The University of Adelaide

LE110100119 Dr Kerry L Wilkinson, Prof Andrew S Ball, Prof Kliti Grice, Prof Dennis K Taylor, Dr Gordon M Elsey, A/Prof Vladimir Jiranek, Dr Katherine M Trinajstic, Dr Brent N Kaiser, A/Prof Michael V Perkins, Dr Ioannis J Coumbaros

Approved Project Title **Advanced gas chromatography mass spectrometry instrumentation for the analysis of highly complex systems**

2011 \$370,000.00

Partner/Collaborating Organisation(s)

Chemistry Centre
Curtin University of Technology, The Flinders University of South Australia

Administering Organisation The University of Adelaide

Project Summary

Advanced instrumentation is required for analysis of the composition of highly complex samples derived from plants, soil, petroleum, water, food and wine. Sample analyses like these form the basis of many applied science research programs. This equipment will offer improved analytical capability and sensitivity, which will enhance the scale and scope of research that can be undertaken.

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0303 MACROMOLECULAR AND MATERIALS CHEMISTRY

The University of Adelaide

LE110100169 A/Prof Heike Ebendorff-Heidepriem, Prof Tanya M Monro, Prof Andrew D Abell, A/Prof David G Lancaster, Dr Jingxian Yu, Prof Hans J Griesser

Approved Project Title Ultraviolet, visible and infrared spectroscopic ellipsometers for advanced materials and device characterisation

2011 \$300,000.00

Partner/Collaborating Organisation(s)

University of South Australia

Administering Organisation The University of Adelaide

Project Summary

The ellipsometers at this facility will enable optical characterisation of several advanced materials in the wide spectral range of 250 nanometres - 30 micrometres. As well as refractive index and thickness measurement, they will provide absorption spectroscopy which will allow assessment of novel glasses and surface functionalisation approaches for the optimisation of new sensing technologies.

The University of Melbourne

LE110100161 Prof Paul Mulvaney, Dr Alison M Funston, Dr Toby D Bell, Dr Kristy C Vernon, Dr Timothy J Davis, Dr Daniel E Gomez, Prof John E Sader, Prof Lloyd C Hollenberg, A/Prof Ann Roberts, Dr Manoj Sridhar, Prof Steven J Langford, Dr Matteo Altissimo

Approved Project Title The Victorian integrated plasmonics facility

2011 \$366,384.00

Partner/Collaborating Organisation(s)

Commonwealth Scientific and Industrial Research Organisation, Melbourne Centre for Nanofabrication
Monash University

Administering Organisation The University of Melbourne

Project Summary

This integrated plasmonics facility will create a centre for the design and application of metal nanostructures in a range of applications by biologists, chemists, physicists and engineers.

LE110100097 Prof Frances Separovic, Prof Suresh K Bhargava, A/Prof Jonathan M White, Dr Uta Wille, Prof Stefan Kasapis, Dr Vipul Bansal, Dr David W Keizer, A/Prof Paul R Gooley

Approved Project Title Advanced characterisation of materials by nuclear magnetic resonance

2011 \$600,000.00

Partner/Collaborating Organisation(s)

RMIT University

Administering Organisation The University of Melbourne

Project Summary

Advanced characterisation of materials by nuclear magnetic resonance will support a broad range of research possibilities for development of advanced materials for medical, industrial and environmental applications. Details of molecular structure and mobility will be uncovered which will provide guidance for making improvements to new and existing materials.

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0304 MEDICINAL AND BIOMOLECULAR CHEMISTRY

La Trobe University

LE110100100 Dr Adam I Mechler, Prof James R Friend, Prof Marilyn A Anderson, Dr Mark D Hulett, Dr Conor F Hogan, A/Prof Paul J Pigram, A/Prof Leslie Y Yeo

Approved Project Title **Biophysical surface characterisation facility**

2011 \$250,000.00

Partner/Collaborating Organisation(s)

Monash University

Administering Organisation La Trobe University

Project Summary

This facility will allow advances in our understanding of the molecular processes involved in the formation and stability of surface structures of bio-molecules, as well as in the design of molecular machines based on this new understanding.

The University of Queensland

LE110100186 Prof Paul F Alewood, Prof Richard J Lewis, Prof Glenn F King, Prof David J Craik, Prof Kirill Alexandrov, Dr Jason P Mulvenna, Prof Alan G Baxter, Prof Alex C Loukas, Prof David J Miller

Approved Project Title **High-throughput, high resolution protein-peptide sequencing and quantification facility**

2011 \$550,000.00

Partner/Collaborating Organisation(s)

James Cook University

Administering Organisation The University of Queensland

Project Summary

This facility will enhance the research capability of scientists at The University of Queensland who are using mass spectrometry to elucidate the structures of novel toxins which have the potential to be developed as drugs.

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0306 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

The Flinders University of South Australia

LE110100093 Prof Warren D Lawrance, Prof Scott H Kable, Dr Timothy Schmidt, Dr Adam J Trevitt, Dr Duncan A Wild, Prof Mark A Buntine, Prof Colin L Raston, Dr Keith A Stubbs, Prof George A Koutsantonis, Prof Allan J McKinley, A/Prof Stephen J Blanksby

Approved Project Title **Shared laser facility**

2011 \$600,000.00

Partner/Collaborating Organisation(s)

Curtin University of Technology, The University of Sydney, The University of Western Australia, University of Wollongong

Administering Organisation The Flinders University of South Australia

Project Summary

This shared laser facility will provide a pool of lasers to support the research of about 20 research groups and 30 PhD students.

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0399 OTHER CHEMICAL SCIENCES

The Australian National University

LE110100170 Prof Mark G Humphrey, Dr Marie P Cifuentes, Prof Marek J Samoc, A/Prof Stuart R Batten, Dr Andrew M McDonagh, Prof Elmars R Krausz, A/Prof Warwick Hillier, Prof Keith S Murray, A/Prof Ronald J Pace

Approved Project Title **A tuneable femtosecond light source for materials and biological sciences**

2011 \$200,000.00

Partner/Collaborating Organisation(s)

Wroclaw University of Technology
Monash University, University of Technology, Sydney

Administering Organisation The Australian National University

Project Summary

Researchers at The Australian National University, Monash University and The University of Technology, Sydney are involved in a range of projects where new molecules are synthesised or discovered in nature. Molecules like these have applications in new photonics or energy technologies. This integrated facility will afford intense light of varying pulse durations to investigate the behaviour and performance of such molecules.

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0401 ATMOSPHERIC SCIENCES

James Cook University

LE110100144 Prof Michael I Bird, A/Prof Lindsay B Hutley, Dr Sarah O Tweed, Dr Andrew K Krockenberger,
A/Prof Samantha A Setterfield, Prof Jonathan F Nott, Dr Paul N Nelson

Approved **Mobile isotope monitoring for environmental studies**
Project Title

2011 \$150,000.00

Partner/Collaborating Organisation(s)

Charles Darwin University

Administering Organisation James Cook University

Project Summary

This facility will enable a quantum leap in Australia's capacity to undertake real-time, field based studies of environmental processes using the natural isotope tracers of carbon, oxygen and hydrogen. It will enable the researchers to address a range of fundamental research questions in climate change, water resources, ecology and human impact in tropical Australia.

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0403 GEOLOGY

The Australian National University

LE110100047 Prof Gordon S Lister, Dr Fred Jourdan, Dr Margaret (Marnie) A Forster, Prof Brent I McInnes, Prof Paulo M Vasconcelos, Dr Gideon Rosenbaum, Prof David R Cooke, Dr Anthony C Harris, Prof David Giles, A/Prof Alan S Collins, Prof Jonathan Aitchison, Dr Nathan R Daczko, Prof William J Collins, Prof Steven M Reddy, Prof Zheng-Xiang Li, Prof Thompson C McCuaig, Prof John M Miller, Prof Bradley J Pillans, Prof Dr Rainer Grun, A/Prof Horst Zwingmann, Dr Noreen J Evans, Prof Michael O McWilliams

Approved Project Title **Events through time: eruptions, extinctions, impacts, ore-bodies and orogenies - upgrading the national argon geochronology network**

2011 \$420,000.00

Partner/Collaborating Organisation(s)

Commonwealth Scientific and Industrial Research Organisation, John de Laeter Centre for Mass Spectrometry Curtin University of Technology, James Cook University, Macquarie University, The University of Adelaide, The University of Queensland, The University of Sydney, The University of Western Australia, University of Tasmania

Administering Organisation The Australian National University

Project Summary

Nine universities and the CSIRO will replace aged and obsolete equipment with new mass spectrometers which will be strategically placed at opposite ends of our continent to improve access for Australian researchers to these instruments for which there is high demand. These instruments will allow more exact dating of events such as eruptions, impacts, climate change, biological extinctions, mineral deposits and mountain building.

The University of Western Australia

LE110100114 Prof David D Sampson, Dr Marco Fiorentini, Prof Yinong Liu, Prof Robert J Gilkes, Prof Birger Rasmussen, Prof Zed Rengel, Prof Neal J McNaughton, Dr Christopher Kirkland, Prof Simon A Wilde, Dr Michael T Wingate, Dr Zonghan Xie, Prof Richard C Thompson

Approved Project Title **Nanoscale Characterisation Centre WA analytical electron microscope facility**

2011 \$360,000.00

Partner/Collaborating Organisation(s)

Geological Survey of Western Australia
Curtin University of Technology, Edith Cowan University, Murdoch University

Administering Organisation The University of Western Australia

Project Summary

This analytical facility for Western Australia will provide researchers with much needed access to new electron microscope instrumentation. The facility will support major research efforts in key disciplines, including minerals and mining, energy, engineering, nanotechnology, medical science, forensics, agriculture and animal science.

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University of Tasmania

LE110100041 Prof Vadim Kamenetsky, Dr Michael C Breadmore, Prof James Vickers, Dr Glenn A Jacobson,
Dr David S McGuinness

Approved Project Title **A new generation fast mapping Raman system**

2011 \$240,000.00

Partner/Collaborating Organisation(s)

Administering Organisation University of Tasmania

Project Summary

This fast-imaging Raman facility will give researchers at the University of Tasmania a new tool to rapidly analyse the chemical properties of a wide range of materials in a non destructive way. It will complement other instrumentation and support a diverse range of research areas addressing several national research priorities.

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0601 BIOCHEMISTRY AND CELL BIOLOGY

Macquarie University

LE110100101 A/Prof Paul A Haynes, Prof Nicolle H Packer, A/Prof Mark P Molloy, Prof Helena K Nevalainen, A/Prof Robert D Willows

Approved Project Title **Better, faster, cheaper: improving shotgun proteomics by using high-speed ion trap mass spectrometry**

2011 \$160,000.00

Partner/Collaborating Organisation(s)

Administering Organisation Macquarie University

Project Summary

This mass spectrometric instrumentation is a breakthrough in technology and an essential step in maintaining the world-class capabilities of the Australian research community. Many fundamental and applied biochemical research studies will benefit from access to this system, generating a positive societal impact.

Queensland University of Technology

LE110100172 Prof Judith A Clements, A/Prof Nigel A McMillan, A/Prof Jonathan P Whitehead, Prof Kenneth W Beagley, Prof Pamela J Russell, Prof Colleen C Nelson, Prof Dietmar W Huttmacher, Prof Michael K Atkinson, Dr Paul A Dawson, Prof Ian H Frazer, Prof Thomas J Gonda, A/Prof John D Hooper, A/Prof Jean-Pierre J Levesque, A/Prof Michael A McGuckin, Dr David J Munster, Dr Alison M Rice, Prof Ranjeny Thomas, Dr Slavica Vuckovic, A/Prof Nigel J Waterhouse

Approved Project Title **Comprehensive cell imaging facility**

2011 \$330,000.00

Partner/Collaborating Organisation(s)

Mater Medical Research Institute (RO)
The University of Queensland

Administering Organisation Queensland University of Technology

Project Summary

This facility will provide Australian biological science researchers with equipment for in-depth analyses of cell function in vitro and in vivo. It will enable innovative research targeted at important questions in fields including cancer, immunology, stem cell biology, infectious disease and tissue regeneration.

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The University of Newcastle

LE110100191 Dr Mark A Baker, Prof Robert J Aitken, Prof Roger Smith, Prof Keith T Jones, Prof Raymond J Rose, Prof Lois A Salamonsen

Approved Project Title **An advanced mass spectrometer for applications in phospho-proteomics, glycomics and top-down sequencing of proteins**

2011 \$250,000.00

Partner/Collaborating Organisation(s)

Prince Henry's Institute of Medical Research

Administering Organisation The University of Newcastle

Project Summary

This cutting-edge mass spectrometry facility will benefit the Hunter Valley research community comprising 100 researchers in this field. It will enable the researchers to enhance their research productivity in areas of national importance, including better understanding the etiology of disease states, reproductive health and the regulation of plant growth.

LE110100078 A/Prof Peter J Lewis, Prof Nicholas E Dixon, Prof Eileen A McLaughlin, Prof Adam McCluskey, A/Prof Aaron J Oakley, Prof Paul S Foster, Prof Robert J Aitken, A/Prof Jennifer L Beck, Dr Michael J Kelso, Prof Graham M Nicholson, A/Prof Elizabeth J Harry, Prof Ian G Charles, A/Prof Steven P Djordjevic

Approved Project Title **Establishment of a comprehensive regional biophysical analysis facility**

2011 \$500,000.00

Partner/Collaborating Organisation(s)

University of Technology, Sydney, University of Wollongong

Administering Organisation The University of Newcastle

Project Summary

Interactions between molecules are needed for cells to function correctly. This facility will permit comprehensive molecular characterisation as well as research into the fundamentals of how molecules interact.

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The University of Sydney

LE110100203 A/Prof Zongwen Liu, A/Prof Sebastien Perrier, Prof Yiu-Wing Mai, A/Prof Paul M Young, A/Prof Sri Bandyopadhyay, A/Prof Filip C Braet, Prof Robert P Burford, Prof Gary D Housley, Prof Minoti V Apte, Dr Pall Thordarson

Approved Project Title **Accessing the third dimension in scanning electron microscopy for rapid, high resolution tomography of large samples**

2011 \$250,000.00

Partner/Collaborating Organisation(s)

The University of New South Wales

Administering Organisation The University of Sydney

Project Summary

Understanding the three-dimensional structure of materials is essential for modern research. This facility will allow rapid three-dimensional imaging of materials within a scanning electron microscope, including sustainable polymers, tissues from plants and nanocomposites. This will enable high-quality research in science, engineering and medicine.

LE110100171 A/Prof Jacqueline M Matthews, A/Prof Bridget C Mabbutt, Dr Louise J Brown, Prof Ian T Paulsen, Dr Daniela Stock, Dr Margaret Sunde, Prof Jill Trehwella

Approved Project Title **Shared resource for protein discovery**

2011 \$200,000.00

Partner/Collaborating Organisation(s)

Victor Chang Cardiac Research Institute
Macquarie University

Administering Organisation The University of Sydney

Project Summary

This facility will enable the production and characterisation of proteins from all kingdoms of life that have diverse roles in fundamental biology and disease. A detailed understanding of how these proteins behave and function will be used to generate therapeutics and develop novel applications for these proteins in medicine and industry.

University of Wollongong

LE110100085 A/Prof Aaron J Oakley, Prof Nicholas E Dixon, Prof Mark R Wilson, A/Prof Paul A Keller, Prof David L Ollis, Prof Philip G Board, A/Prof Marie Ranson, Prof Ian G Young, Dr John G Oakeshott, Dr Colin J Jackson

Approved Project Title **Regional facility for macromolecular x-ray crystallography**

2011 \$450,000.00

Partner/Collaborating Organisation(s)

Commonwealth Scientific and Industrial Research Organisation
The Australian National University

Administering Organisation University of Wollongong

Project Summary

This facility in the southern NSW/ACT region will allow research into structures of biological molecules. Research at the facility will contribute to advances in understanding of processes in living organisms, new drugs and new biotechnology with national and international significance.

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0604 GENETICS

The University of Adelaide

LE110100234 Prof Derek B Leinweber, Prof David L Adelson, Prof Corey J Bradshaw, Prof Alan Cooper, A/Prof Jim Denier, Prof John F Roddick

Approved Project Title **Enhancement of South Australian high-performance computing facilities**

2011 \$430,000.00

Partner/Collaborating Organisation(s)

eResearch SA
The Flinders University of South Australia

Administering Organisation The University of Adelaide

Project Summary

These facilities will enable the efficient use of high-performance computing and will more than double the capability provided by eResearch SA for South Australian researchers. They will support large-scale applications, running over many processors in parallel (high-performance computing) or large numbers of single processors (high-throughput computing).

The University of Queensland

LE110100068 Dr Timothy W Bredy, Dr Charles Claudianos, Prof Linda J Richards, Prof Sean M Grimmond, Prof Andrew Lawrence, Prof Bryan J Mowry

Approved Project Title **Mass spectrometry platform for high throughput genotyping, epigenetic analysis and validation of genome wide sequencing studies**

2011 \$240,000.00

Partner/Collaborating Organisation(s)

Howard Florey Institute for Physiology and Medicine, Queensland Health

Administering Organisation The University of Queensland

Project Summary

This facility will provide a platform for Australian researchers to quantitatively measure genetic information in a rapid, accurate and cost-efficient manner. This technology will enhance Australia's ability to perform basic research into the genetic and epigenetic mechanisms of cellular function.

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The University of Sydney

LE110100143 Prof Leo Radom, Prof Iver H Cairns, Prof John W Crawford, Dr Luming Shen, Prof Claire M Wade, Prof Marc R Wilkins, Prof Hussein A Abbass, Prof Andrew S Dzurak, Dr Jason P Evans, Dr Wei Wen, Dr Christopher G Poulton, Dr Matthew D Arnold, Prof Lindsay C Botten, A/Prof Michael J Ford, Dr Adel Rahmani, Dr Craig J O'Neill, Dr Kei-Wai K Cheung, Prof Mark E Johnson, A/Prof Frans A Henskens, Prof Jonathan M Borwein, Prof Timothy R Marchant, Dr Markus Hagenbuchner, Prof Kiet A Tieu, A/Prof Andrew L Rose, Dr Susan A Gillies, Prof Peter L Harrison, Dr Daniel L Waters, Prof Graham Leedham, A/Prof Robert D Murison

Approved Project Title **Flexible architecture high-performance computing facility for the intersect consortium of New South Wales**

2011 \$500,000.00

Partner/Collaborating Organisation(s)

Macquarie University, Southern Cross University, The University of Newcastle, The University of New England, The University of New South Wales, University of Technology, Sydney, University of Wollongong

Administering Organisation The University of Sydney

Project Summary

This new supercomputing facility is an important addition to the nation's research infrastructure and will enable world-leading, New South Wales researchers to continue their ground breaking work in increasingly competitive environments. Much of the research to be undertaken at the facility lies in areas of national priority, including frontier technologies and environmental sustainability.

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0607 PLANT BIOLOGY

The University of Newcastle

LE110100130 Prof Christopher P Grof, A/Prof Yong Ling Ruan, A/Prof David W McCurdy, Em/Prof John W Patrick, Prof Raymond J Rose

Approved Project Title Specialised greenhouse space for new initiatives

2011 \$500,000.00

Partner/Collaborating Organisation(s)

Administering Organisation The University of Newcastle

Project Summary

This greenhouse facility will enable fundamental research of nutrient transport in fruits, seeds and fibre and will underpin biotechnological advances to improve crop yield and quality. The development of drought tolerant Sorghum as a dedicated bio-energy crop will reduce dependence on fossil fuels, building towards an environmentally sustainable Australia.

The University of Western Australia

LE110100188 Prof James M Whelan, Prof Karam Singh, Prof Andrew H Millar, A/Prof Boris C Baer, Prof Ian D Small, Prof Richard P Oliver

Approved Project Title Terabase sequencing for mutant, developmental, environmental and population genomics

2011 \$550,000.00

Partner/Collaborating Organisation(s)

Commonwealth Scientific and Industrial Research Organisation
Curtin University of Technology

Administering Organisation The University of Western Australia

Project Summary

This facility will make it possible to completely sequence the genome (and epi-genome and transcriptome) of a large number of samples in a cost effective manner. This will provide researchers with unprecedented ability to compare individuals in a population and to discover and define novel traits which govern disease resistance, yield and population dynamics in natural systems.

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0703 CROP AND PASTURE PRODUCTION

The University of Adelaide

LE110100177 Dr Ann M McNeill, Prof Geoffrey B Fincher, Prof Mark A Tester, A/Prof James C Stangoulis,
A/Prof Kathleen L Soole

Approved Project Title **Non invasive rapid plant phenotyping for root architecture in soil and acquisition of micro-nutrients**

2011 \$150,000.00

Partner/Collaborating Organisation(s)

Australian Centre for Plant Functional Genomics Pty Ltd
The Flinders University of South Australia

Administering Organisation The University of Adelaide

Project Summary

By combining advanced X-ray computed tomography and X-ray fluorescence spectrometry in this facility, plant scientists will be able to quantify precisely the effects of root pathogens, drought and other stresses on root development in relation to plant nutrient status. This facility will be unique in Australia and provide a significant competitive advantage internationally for Australian research.

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0905 CIVIL ENGINEERING

Queensland University of Technology

LE110100023 Prof Prasad K Yarlagadda, Dr Clinton Fookes, Prof Massimo Piccardi, Prof Priyan Mendis, Prof Dr Michael Rosemann, Prof Kerrie L Mengersen, Dr Paul Barnes

Approved Project Title **Integrated command and control facility for large-scale critical infrastructure management**

2011 \$500,000.00

Partner/Collaborating Organisation(s)

The University of Melbourne, University of Technology, Sydney

Administering Organisation Queensland University of Technology

Project Summary

This is a test bed facility for achieving sustainable operation of Australia's critical infrastructure, particularly at airports. The facility will enable an integrated and coordinated strategy to increase operational resilience while not losing sight of the complex nature and dynamic requirements of critical infrastructure management.

Swinburne University of Technology

LE110100052 Prof Riadh Al-Mahaidi, Prof John L Wilson, Prof Jay G Sanjayan, Prof Emad Gad, Prof Xiao-Ling Zhao, Prof Brian Uy, Prof Stephen J Foster, Prof Bijan Samali, A/Prof Nicholas Haritos, Prof Mahen Mahendran, Prof Michael C Griffith, Prof Yi-Min (Mike) Xie, Dr Chunhui Yang, A/Prof Sam Fragomeni, Dr Natalie A Lloyd, Prof Mark A Bradford, Prof Raymond I Gilbert, A/Prof Nelson T Lam, Prof Yang Xiang, Prof Manicka Dhanasekar, Dr Bernard F Rolfe, A/Prof Colin F Duffield, Dr Pathegama G Ranjith, A/Prof Arul Arulrajah, Em/Prof Vijaya B Rangan, Dr Yu Bai, Dr Maurice Guerrieri

Approved Project Title **Hybrid testing facility for structures under extreme loads**

2011 \$870,000.00

Partner/Collaborating Organisation(s)

Curtin University of Technology, Deakin University, Monash University, Queensland University of Technology, RMIT University, The University of Adelaide, The University of Melbourne, The University of New South Wales, University of Technology, Sydney, University of Western Sydney, Victoria University

Administering Organisation Swinburne University of Technology

Project Summary

This unique testing facility will provide a regional and national focus for large three dimensional static and dynamic testing of components, systems and infrastructure used in civil engineering, mining and railways as well as in the aerospace and automotive industries.

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0906 ELECTRICAL AND ELECTRONIC ENGINEERING

The University of Western Australia

LE110100159 Prof John M Dell, Prof Mariusz Martyniuk, Dr Robert C Woodward, Dr Mikhail Kostylev, Prof Chennupati Jagadish, Dr Jia Z Wang, Prof Yinong Liu, Dr Roger D Jeffery, Dr Konstantin K Konstantinov

Approved Project Title National facility for biased target deposition of alloyed nanolayers

2011 \$360,000.00

Partner/Collaborating Organisation(s)

Panorama Synergy
The Australian National University, University of Wollongong

Administering Organisation The University of Western Australia

Project Summary

This facility will enhance Australia's strengths and capabilities in fabricating structures, with applications in multiple research fields including opto-magneto-electronics, next generation lithium ion batteries and energy nanogenerators. It will enhance Australia's research profile as a leader in nanotechnology.

Summary of Linkage Infrastructure, Equipment and Facilities Proposals by FoR group

0912 MATERIALS ENGINEERING

Deakin University

LE110100115 Dr Aiden G Beer, A/Prof Matthew R Barnett, Prof Jian-Feng Nie, Dr Nicole Stanford, A/Prof Sammy L Chan, Dr Mark A Easton, A/Prof Qian Ma, Prof Cuie Wen, A/Prof Christopher H Davies, Prof Andrejs Atrens

Approved Project Title Facility for the development of new lightweight extruded alloys and structures

2011 \$430,000.00

Partner/Collaborating Organisation(s)

CAST Cooperative Research Centre
Monash University, The University of New South Wales, The University of Queensland

Administering Organisation Deakin University

Project Summary

This will be Australia's only large-scale, research-dedicated extrusion facility. It is expected to lead to the development of new light metal alloys, metal-matrix composites, micro-truss structures and powder base metals for structural and biomedical applications.

LE110100141 Prof Maria Forsyth, Dr Nolene Byrne, Dr Timothy J Bastow, Dr Jennifer M Pringle, Dr Adam S Best, Dr Anthony F Hollenkamp, Dr Bradley P Ladewig, Prof Huanting Wang, Prof Peter D Hodgson, Prof Junichi Kawamura, Prof Douglas R MacFarlane, Dr Anita J Hill, Prof Ying I Chen, Dr Kate M Nairn, Prof David L Officer, Dr Jia Z Wang, Prof Colin J Barrow

Approved Project Title Facility for in-situ nuclear magnetic resonance of advanced materials and devices

2011 \$1,294,000.00

Partner/Collaborating Organisation(s)

Commonwealth Scientific and Industrial Research Organisation, Tohoku University
Monash University, University of Wollongong

Administering Organisation Deakin University

Project Summary

This unique characterisation facility will support and enhance high-quality research in four key areas: electro-materials and nanotechnology, light metal alloys, biotechnology and energy related devices. This research will lead to new materials and new technologies in clean energy, carbon dioxide capture and health care.

The Australian National University

LE110100127 Dr Yin-Yin J Wong-Leung, Prof Chennupati Jagadish, Dr Daniel H Macdonald, Prof Robert G Elliman, Prof James S Williams

Approved Project Title Hall effect system for detailed electrical characterisation in semiconductors

2011 \$250,000.00

Partner/Collaborating Organisation(s)

Administering Organisation The Australian National University

Project Summary

Semiconductor characterisation is crucial for research and development in optimum growth and fabrication procedures. This Hall effect measurement system is an essential carrier characterisation technique for semiconductors with potential applications in microelectronics, optoelectronics and photovoltaics.

Summary of Linkage Infrastructure, Equipment and Facilities Proposals by FoR group

The University of New South Wales

LE110100183 A/Prof Sean S Li, Dr Rongkun Zheng, Prof Hua K Liu, Dr Leigh R Sheppard, Dr Brendan J Kennedy, Prof Veena Sahajwalla, Dr Xuchuan Jiang, Dr Maria K Nowotny, Dr Zai P Guo, Dr Takuya Tsuzuki, Prof Ying I Chen, A/Prof Gavin J Conibeer

Approved Project Title **A comprehensive magneto-thermophysical property measurement system for the development of advanced materials, energy and biomedical technologies**

2011 \$840,000.00

Partner/Collaborating Organisation(s)

Deakin University, The University of Sydney, University of Western Sydney, University of Wollongong

Administering Organisation The University of New South Wales

Project Summary

This facility will add a new dimension to high-level research performance and will significantly enhance our ability to investigate different types of materials. The continual development of advanced materials will potentially provide a sustainable means for meeting the increasing global challenge for the materials, energy and biomedical industries.

LE110100164 A/Prof Nagarajan Valanoor, Dr Chris D Ling, Prof Rose Amal, Prof Liangchi Zhang, A/Prof Gavin J Conibeer, Prof Dr Thomas Maschmeyer, Prof Michael Ferry, Dr Siegbert A Schmid

Approved Project Title **Dynamic phase behaviour characterisation facility for nanostructured interfaces and solids**

2011 \$680,000.00

Partner/Collaborating Organisation(s)

The University of Sydney

Administering Organisation The University of New South Wales

Project Summary

This infrastructure will increase our understanding of interfacial phenomena of nanostructured materials over very short periods of time. This new understanding will allow optimisation of the correlation of the chemistry of a material to the properties of that material. The infrastructure will enhance Australia's capabilities in creating new materials relevant to electronics, medicine, the environment and security technologies.

LE110100229 Dr Tianshu Zhang, A/Prof Ming-Xing Zhang, Prof Veena Sahajwalla, A/Prof Sean S Li, Dr Dong Qiu, Prof Charles C Sorrell, Dr Yuebin Zhang

Approved Project Title **Carbon-free high temperature vacuum sintering facility**

2011 \$230,000.00

Partner/Collaborating Organisation(s)

The University of Queensland

Administering Organisation The University of New South Wales

Project Summary

This facility will provide an extremely clean sintering environment for development of advanced materials free from imperfections for applications which range from energy conversion to medical components. It will ensure that Australia is an important international leader in both fundamental research and industrial innovation.

Summary of Linkage Infrastructure, Equipment and Facilities Proposals by FoR group

The University of Queensland

LE110100028 Prof John Drennan, Prof Andrew K Whittaker, Prof Jin Zou, Dr Bronwen W Cribb, Dr Scott E Bryan, Dr Luke D Nothdurft, Dr Gregory E Webb, A/Prof Nunzio Motta, Dr Eric R Waclawik, Dr Idriss Blakey

Approved Project Title **Ultra-high resolution and advanced analytical scanning electron microscope facility**

2011 \$720,000.00

Partner/Collaborating Organisation(s)

Queensland University of Technology

Administering Organisation The University of Queensland

Project Summary

This scanning electron microscope facility will form an essential part of characterising a broad range of material types, from nanometre sized particles through to cells and their interactions.

LE110100033 Prof Peter J Halley, Dr Timothy M Nicholson, A/Prof Darren J Martin, Prof Andrew K Whittaker, Dr Kristofer J Thurecht, Prof Qipeng Guo, Prof Xungai Wang, Dr Nolene Byrne

Approved Project Title **Green biopolymer nanocomposites facility: supercritical carbon dioxide characterisation and processing for nanomaterials and biopolymers**

2011 \$150,000.00

Partner/Collaborating Organisation(s)

Deakin University

Administering Organisation The University of Queensland

Project Summary

This facility will house characterisation and processing equipment for developing the next generation biopolymer materials. Novel biopolymers will be developed from natural and renewable resources using improved performance and lower energy supercritical carbon dioxide processing methods.

LE110100126 A/Prof Lianzhou Wang, A/Prof Nunzio Motta, Prof Huijun Zhao, Prof Gaoqing M Lu, Dr Brian J Seger, Prof Victor Rudolph, Prof Sean C Smith, Prof John M Bell

Approved Project Title **An integrated kinetic measurement system enabling efficient solar energy conversion**

2011 \$150,000.00

Partner/Collaborating Organisation(s)

Griffith University, Queensland University of Technology

Administering Organisation The University of Queensland

Project Summary

This measurement facility will underpin advances in the fundamental understanding of new semiconducting materials for high efficiency light-driven energy conversion systems. The outcomes of the research at the facility will lead to significant economic and environmental benefits for many industries, such as low cost solar cells and water purifications.

Summary of Linkage Infrastructure, Equipment and Facilities Proposals by FoR group

LE110100059 A/Prof Ming-Xing Zhang, Dr Dong Qiu, Prof Arne K Dahle, A/Prof Matthew R Barnett, Dr Colleen J Bettles, Dr Tianshu Zhang, A/Prof John A Taylor, Dr Matthew S Dargusch
Approved Project Title Vacuum induction furnace for casting titanium alloys
2011 \$500,000.00

Partner/Collaborating Organisation(s)

Deakin University, Monash University, The University of New South Wales

Administering Organisation The University of Queensland

Project Summary

This titanium melting facility will provide a level of investment and national strategic focus necessary to sustain Australian competitive advantage in both titanium research and the global titanium market. The facility will support cutting-edge research and support the development of new titanium products.

LE110100017 Prof Jin Zou, Prof John Drennan, Prof Chengzhong Yu, Prof Halim Gurgenci, A/Prof Cheng Yan, Dr Zhigang Chen
Approved Project Title An integrated system for measuring thermoelectric properties of advanced materials
2011 \$300,000.00

Partner/Collaborating Organisation(s)

Queensland University of Technology

Administering Organisation The University of Queensland

Project Summary

This facility will establish an integrated measuring system which will form the key step in developing thermoelectric materials. The instruments will support groundbreaking research in developing advanced materials with significant economic and environmental benefits for many industries, such as materials manufacturing and improving automobile energy efficiency.

Summary of Linkage Infrastructure, Equipment and Facilities Proposals by FoR group

The University of Western Australia

LE110100200 A/Prof Giacinta Parish, Prof Lorenzo Faraone, Prof John M Dell, Prof Brett D Nener, Prof Jarek Antoszewski
Approved Project Title **Advanced facility for magneto-transport characterisation of semiconductor nanostructures**
2011 \$200,000.00

Partner/Collaborating Organisation(s)

Administering Organisation The University of Western Australia

Project Summary

This facility combines a 16 Tesla superconducting magnet with temperature variability from 1.5 degrees above absolute zero to 500 degrees with advanced mobility spectrum analysis algorithms. It will enable improved separation of previously indistinguishable multiple carrier effects in advanced semiconductor systems. This improved separation will allow an improved understanding of multiple carrier effects which will be essential before the development of frontier semiconductor technologies becomes possible.

LE110100094 Prof Timothy B Sercombe, Prof Arcady V Dyskin, Prof Elena Pasternak, Prof Graham B Schaffer, Prof Hung T Nguyen, Prof Klaus Regenauer-Lieb, Dr Anthony P Roberts, A/Prof Joseph F Grotowski, Prof Phillip M Dight, Prof Syed H Masood
Approved Project Title **Selective laser melting - an advanced manufacturing and physical modelling technology for the digital age**
2011 \$300,000.00

Partner/Collaborating Organisation(s)

Swinburne University of Technology, The University of Queensland, University of Technology, Sydney

Administering Organisation The University of Western Australia

Project Summary

Selective laser melting is a new manufacturing technology that creates parts layer by layer directly from a computer model, eliminating the need for tooling or machining. This technology will be applied to a diverse range of research areas from producing the next generation of medical implants and devices to improving our understanding of geo-materials.

University of Wollongong

LE110100099 Prof Shi Xue Dou, Dr Germanas Peleckis, Dr Yuebin Zhang, Prof Mariusz Martyniuk, A/Prof Marc P in het Panhuis, Prof Oleg P Sushkov, Prof Chao Zhang, Prof Hua K Liu, Prof Rodica Ramer, A/Prof Hong Yang, A/Prof Giacinta Parish
Approved Project Title **A complete near-field scanning optical microscope for advanced characterisation of novel and functional materials**
2011 \$290,000.00

Partner/Collaborating Organisation(s)

The University of New South Wales, The University of Western Australia

Administering Organisation University of Wollongong

Project Summary

This near-field optical scanning microscope will be unique in Australia and will substantially enhance national research capabilities in functional materials, nanotechnology, biotechnology and chemistry. It will create a platform to advance Australian research to new levels in pharmaceuticals, nanomaterials and energy storage materials.

**Summary of Linkage Infrastructure, Equipment and Facilities Proposals
by FoR group**

0914 RESOURCES ENGINEERING AND EXTRACTIVE METALLURGY

The University of Western Australia

LE110100189 Prof Michael L Johns, Prof Eric F May, Prof Timothy G St Pierre, Prof Brian J Evans, A/Prof Christoph H Arns, Prof John Zhu, Prof Yee K Leong, Dr John A Boxall, Prof Kliti Grice, Prof Jinhua Wu

Approved Project Title Integrated magnetic resonance gas and oil analyser

2011 \$190,000.00

Partner/Collaborating Organisation(s)

Qingdao Institute of Bioenergy and Bioprocessing Technology
Curtin University of Technology, The University of New South Wales, The University of Queensland

Administering Organisation The University of Western Australia

Project Summary

Magnetic resonance has enormous potential in a range of industrial applications. This facility will develop these capabilities and contribute unique insights into liquid and gas transport in systems ranging from rock cores to reverse osmosis membranes used in desalination.

Summary of Linkage Infrastructure, Equipment and Facilities Proposals by FoR group

0915 INTERDISCIPLINARY ENGINEERING

Curtin University of Technology

LE110100160 Prof Vishnu K Pareek, Prof Geoffrey M Evans, Prof Dongke Zhang, Prof Aibing B Yu, Prof Moses O Tade, Prof Anthony D Lucey, Dr Ranjeet Utikar, Dr Qin Li, Prof Kevin P Galvin, Dr Elham Doroodchi, A/Prof Jie Bao, Dr Runyu Y Yang, Prof Yee K Leong, Dr Tracey L Hanley

Approved Project Title **An advanced characterisation facility for opaque multiphase flows**

2011 \$190,000.00

Partner/Collaborating Organisation(s)

Australian Nuclear Science and Technology Organisation
The University of Newcastle, The University of New South Wales, The University of Western Australia

Administering Organisation Curtin University of Technology

Project Summary

This advanced multiphase flow characterisation facility will provide a greater understanding of opaque industrial multiphase flows. It will provide a platform for Australian researchers to conduct fundamental research on complex flows, particularly those encountered in our mineral processing industry.

The University of Melbourne

LE110100079 Prof Ivan Marusic, Dr Jason P Monty, Dr Nicholas Hutchins, Prof Julio Soria, A/Prof Andrew Ooi, Prof Alexander V Babanin, A/Prof Sandra E Kentish, Prof Ian R Young, Prof William R Phillips, A/Prof Damon R Honnery

Approved Project Title **Experimental facility for extreme air/sea interaction studies**

2011 \$500,000.00

Partner/Collaborating Organisation(s)

Monash University, Swinburne University of Technology

Administering Organisation The University of Melbourne

Project Summary

The level of greenhouse gases in the atmosphere which cause global warming is greatly influenced by interactions at the air/sea interface. This infrastructure will allow in-depth studies of these interactions and contribute to much improved strategies to control greenhouse gases.

The University of Sydney

LE110100225 Prof Assaad R Masri, Prof Graham 'Gus' J Nathan, Dr Evatt R Hawkes, A/Prof Bassam B Dally, Dr Zeyad T Alwahabi, Dr Shawn Kook

Approved Project Title **Multi-dimensional, high speed laser imaging facility for fluids and combustion**

2011 \$600,000.00

Partner/Collaborating Organisation(s)

The University of Adelaide, The University of New South Wales

Administering Organisation The University of Sydney

Project Summary

New high-speed laser diagnostics facilities will be established to enable Australian researchers to perform unique, real time measurements in combustion systems. Such novel capabilities will advance the science of combustion and facilitate the development of design tools for the optimisation of clean and efficient energy conversion devices.

**Summary of Linkage Infrastructure, Equipment and Facilities Proposals
by FoR group**

1005 COMMUNICATIONS TECHNOLOGIES

The University of Western Australia

LE110100054 Prof Michael E Tobar, Prof Andre N Luiten, Prof John G Hartnett, Prof Eugene N Ivanov, Prof Christophe Salomon, Prof William E Featherstone, Prof Dr Peter J Teunissen, Dr Christopher J Vale, Dr Brenton V Hall, Dr Richard B Warrington

Approved Project Title **Ground station facility for membership of the atomic clock ensemble in space mission**

| | |
|------|--------------|
| 2011 | \$430,000.00 |
| 2012 | \$400,000.00 |
| 2013 | \$400,000.00 |

Partner/Collaborating Organisation(s)

ACES Scientific Collaboration, National Measurement Institute
Curtin University of Technology, Swinburne University of Technology

Administering Organisation The University of Western Australia

Project Summary

This is a unique opportunity for Australian membership of a high profile space mission involving atomic clocks on board the International Space Station and in the world's best frequency and time laboratories. The results obtained will lead to a better understanding of the unification of quantum mechanics and relativity as well as aspects of fundamental Earth metrology.

Summary of Linkage Infrastructure, Equipment and Facilities Proposals by FoR group

1007 NANOTECHNOLOGY

Monash University

LE110100223 A/Prof Joanne Etheridge, Prof Barrington C Muddle, Prof Dougal G McCulloch, Prof Paul Mulvaney, Prof Peter D Hodgson, Prof Allan Pring, Prof Alan M Bond, A/Prof Dan Li, A/Prof Kiyonori Suzuki, A/Prof Kourosch Kalantar-zadeh

Approved Project Title **Advanced in-situ electron microscope facility for research in alloys, nanomaterials, functional materials, magnetic materials and minerals**

2011 \$1,000,000.00

Partner/Collaborating Organisation(s)

Victorian Centre for Advanced Materials Manufacturing
Deakin University, RMIT University, South Australian Museum, The University of Adelaide, The University of Melbourne

Administering Organisation Monash University

Project Summary

This advanced in situ electron microscope facility will provide Australia with a new and critical capability to understand and design technologically important materials. It will enable advances in the areas of energy, environment, transport, construction and mining.

Swinburne University of Technology

LE110100121 Prof Min Gu, A/Prof Xiaosong Gan, Prof Ross C McPhedran, Prof Chao Zhang, Prof Kamal Alameh, Prof Roger A Lewis, Prof Gang-Ding Peng, Dr Kylie R Catchpole, Prof Saulius Juodkazis, Dr Daniel Day, Dr Baohua Jia, A/Prof Alexey V Pan, A/Prof Josip Horvat, Dr Albert Canagasabay, Prof Andrei V Rode, Prof Carel M de Sterke, Dr Mikhail Vasiliev

Approved Project Title **Three-dimensional super-resolution nanophotonic fabrication facility**

2011 \$360,000.00

Partner/Collaborating Organisation(s)

Edith Cowan University, The Australian National University, The University of New South Wales, The University of Sydney, University of Wollongong

Administering Organisation Swinburne University of Technology

Project Summary

This stimulated emission depletion microscopy nanophotonic fabrication facility will be the first nanophotonic fabrication facility that is able to achieve optical resolution far beyond the diffraction limit, which will facilitate breakthroughs in cutting-edge nanotechnology research areas.

Summary of Linkage Infrastructure, Equipment and Facilities Proposals by FoR group

The University of Melbourne

LE110100125 Prof Frank Caruso, Prof Chris J Porter, Prof William R Heath, Prof Roger L Nation, Prof Steven Praver, Dr Odilia L Wijburg, Prof Colin W Pouton, Dr Angus P Johnston, Dr Erica K Sloan, Dr Lisa M Kaminskis, Prof Robert K Shepherd

Approved Project Title **Advanced fluorescence imaging facility: from super high resolution to whole animal imaging**

2011 \$500,000.00

Partner/Collaborating Organisation(s)

The Bionic Ear Institute
Monash University

Administering Organisation The University of Melbourne

Project Summary

The establishment of this advanced fluorescence imaging facility will provide cutting-edge infrastructure to examine cells, pathogens and interactions between engineered drug delivery systems in both cells and whole animals. The facility will foster the development of new nanomedicines.

The University of Western Australia

LE110100146 Prof Shaun P Collin, Prof Colin L Raston, Prof David D Sampson, Prof James M Whelan, Prof Sarah A Dunlop, Prof Ralph N Martins, Dr Giuseppe Verdile, Prof Mark I Ogden, Prof Charles R Watson, Dr Qin Li, A/Prof Xia Lou, Dr Massimiliano Massi

Approved Project Title **Multiphoton confocal microscope for high-speed, deep tissue imaging and multimodal nanoscale characterisation**

2011 \$500,000.00

Partner/Collaborating Organisation(s)

Curtin University of Technology, Edith Cowan University

Administering Organisation The University of Western Australia

Project Summary

This facility will provide the ability to optically section deep nanoparticles, cells, tissues and whole animals at high speed with unsurpassed spatial resolution at the atomic level. It will give biomedical, physical and life scientists and materials engineers the opportunity to image a range of dynamic processes and reconstruct these in three dimensions for the first time.

Summary of Linkage Infrastructure, Equipment and Facilities Proposals by FoR group

1101 MEDICAL BIOCHEMISTRY AND METABOLOMICS

Murdoch University

LE110100239 A/Prof Robert D Trengove, Dr Alan J Lymbery, Dr Matthew J Sharman, Prof Richard C Thompson, Prof Michael G Jones, Prof Svend P Klinken, Prof Steven M Smith, A/Prof Simon W Lewis

Approved Project Title **Small biological molecule tissue imaging mass spectrometry facility for Western Australia for spatial metabolomics and lipidomics**

2011 \$480,000.00

Partner/Collaborating Organisation(s)

Curtin University of Technology, Edith Cowan University, The University of Western Australia

Administering Organisation Murdoch University

Project Summary

This tissue imaging facility for Western Australia will provide researchers with access to much needed instrumentation. The facility will support major research efforts in key disciplines, including agriculture and animal science, fisheries and medical science.

The University of Sydney

LE110100174 Prof Peter A Lay, Prof Trevor D Waite, Prof Andrea R Gerson, Dr Hugh H Harris, Dr Richard N Collins, Dr Carolyn T Dillon, A/Prof Joel Brugger, Dr Richard F Garrett, A/Prof Matthew C Wilce, Prof Roland De Marco, Dr James A Tardio, Prof Leone Spiccia, Dr Lian Zhang, Prof Marie-Isabel Aguilar, Prof Trevor W Hambley, Dr Sarah L Harmer-Bassell, Dr Edward D Burton, Prof Richard T Bush, Dr Scott G Johnston, Dr Adam J Trevitt, Prof Cameron J Kepert, A/Prof Christopher T Chantler, Prof Osamu Shimomura, Prof Charles S Bond, Prof Evan M Gray, A/Prof Barry N Noller, Prof Ian R Gentle, Prof Leigh A Sullivan, Prof Dudley C Creagh, A/Prof It-Meng Low

Approved Project Title **Innovative synchrotron science - program for access to the Australian National Beamline Facility and cutting-edge beamlines at international synchrotrons**

2011 \$400,000.00

2012 \$400,000.00

Partner/Collaborating Organisation(s)

Australian Nuclear Science and Technology Organisation, Australian Synchrotron Company Ltd, KEK Tsukuba-shi Curtin University of Technology, Griffith University, Monash University, RMIT University, Southern Cross University, The University of Adelaide, The University of Melbourne, The University of New South Wales, The University of Queensland, The University of Western Australia, University of Canberra, University of South Australia, University of Wollongong

Administering Organisation The University of Sydney

Project Summary

Synchrotron science dramatically affects the community through the innovative scientific, engineering and medical research outcomes it produces. This program for access to synchrotron beamlines is aimed at enhancing Australia's high international standing in synchrotron science and will have many flow-on effects in areas such as health and industry.

**Summary of Linkage Infrastructure, Equipment and Facilities Proposals
by FoR group**

1107 IMMUNOLOGY

The University of Melbourne

LE110100106 Prof Francis R Carbone, Prof William R Heath, Prof Stephen J Kent, A/Prof Damian F Purcell,
Prof Jamie Rossjohn, Prof Dale I Godfrey

Approved Project Title **An advanced flow cytometry facility for the Peter Doherty Institute**

2011 \$350,000.00

Partner/Collaborating Organisation(s)

Victorian Infectious Diseases Reference Laboratory, WHO Collaborating Centre for Reference and Research on
Influenza

Monash University

Administering Organisation The University of Melbourne

Project Summary

The establishment of a flow cytometry facility in the new Peter Doherty Institute for Infection and Immunity will enhance capacity to investigate immunity to a broad range of very serious diseases. This project will support researchers studying viral and bacterial infection as well as cancer and autoimmunity.

**Summary of Linkage Infrastructure, Equipment and Facilities Proposals
by FoR group**

1112 ONCOLOGY AND CARCINOGENESIS

The University of New South Wales

LE110100092 Prof Peter W Gunning, A/Prof Katharina Gaus, Prof Dr Wolfgang Weninger, Prof Levon M Khachigian, Prof Jacqueline K Phillips, Prof Sarah M Russell, Prof Georges E Grau, Prof Edna C Hardeman, Prof John J Gooding, Prof Nicholas J King, Dr Thomas Grewal, Dr Lilian Soon, Prof Jens Coorssen, Dr Geraldine M O'Neill, Prof David E James, A/Prof Maria Kavallaris, Prof Richard P Harvey

Approved Project Title **Fluorescence microscopy with optical tweezers: imaging cellular responses**

2011 \$300,000.00

Partner/Collaborating Organisation(s)

Children's Cancer Institute Australia for Medical Research, Garvan Institute of Medical Research, Kids Research Institute, Victor Chang Cardiac Research Institute
Macquarie University, Swinburne University of Technology, The University of Sydney, University of Western Sydney

Administering Organisation The University of New South Wales

Project Summary

Life relies on the ability of our cells to receive and respond to signals with pinpoint accuracy, involving both chemical and mechanical signals. This equipment will allow scientists to expose cells to both types of signals and measure the response at an unprecedented level of accuracy for the first time.

**Summary of Linkage Infrastructure, Equipment and Facilities Proposals
by FoR group**

1117 PUBLIC HEALTH AND HEALTH SERVICES

The University of Queensland

LE110100032 Prof Jochen F Mueller, Dr Caroline Gaus, Prof Wayne D Hall, Prof Peter D Sly, Prof Jurg Keller, A/Prof Godwin A Ayoko, A/Prof Zoran D Ristovski, Dr Fiona Harden, Dr James J Smith, A/Prof Jon E Brodie, Dr Stephen E Lewis, Prof Darryl W Hawker, Dr Rai S Kookana, Dr Anthony C Roach, Dr Cedric Robillot, Dr Munro R Mortimer, Mr Gary M Golding, Dr Michael E Bartkow

Approved Project Title **Ultra-high-performance liquid chromatography ion trap mass spectrometer to develop new capabilities in environmental and human toxicology**

2011 \$240,000.00

Partner/Collaborating Organisation(s)

Commonwealth Scientific and Industrial Research Organisation, NSW Department of Environment, Climate Change and Water (DECCW), QLD Department of Environment and Resource Management, Queensland Bulk Water Authority, Queensland Health Forensic and Scientific Services, WaterSecure
Griffith University, James Cook University, Queensland University of Technology

Administering Organisation The University of Queensland

Project Summary

This facility will be dedicated to developing methods and analyses of environmental contaminants and by-products that are currently not well understood. Having this analytical capability will underpin leading research in environmental toxicology and chemistry, and will help to minimise environmental and human exposure to harmful contaminants.

Summary of Linkage Infrastructure, Equipment and Facilities Proposals by FoR group

1606 POLITICAL SCIENCE

The Australian National University

LE110100049 Prof Deborah A Mitchell, Dr Benjamin J Evans, Dr Steven McEachern, Mr Gavan J McCarthy, Dr John A Byrne, A/Prof Michele A Haynes, Dr Toby N Burrows, Dr Lynda A Cheshire, Prof David N Denmark, Prof Mark C Western, Prof Lorraine A Mazerolle, A/Prof Paul Ashton, Prof Nicholas M Nakata, Prof Paul C Memmott, Prof Ian McAllister, Dr Edith E Gray, Prof Alastair Pennycook, Prof John L Cordery, A/Prof Julie E McLeod, Prof John R Wiseman, Prof Sharon K Parker, Dr Andrea Gaynor

Approved Project Title Establishment of the Australian data archive: an integrated research facility for the social sciences and humanities

2011 \$600,000.00

Partner/Collaborating Organisation(s)

The University of Melbourne, The University of Queensland, The University of Western Australia, University of Technology, Sydney

Administering Organisation The Australian National University

Project Summary

The Australian data archive will enable Australia's leading researchers to address complex social, economic and environmental problems, leading to the development of evidence based policy. The archive will have an open access policy which will ensure that the general public, media and government and non-government agencies are able to examine the data used by researchers to arrive at their conclusions.

The University of Melbourne

LE110100136 Prof Mark Considine, Dr Denis J Muller, Mr Gavan J McCarthy, Prof Toni Makkai, Prof Murray Goot

Approved Project Title The Saulwick Age poll archive: a national facility of authoritative records mapping a generation of social change at the end of the 20th Century

2011 \$140,000.00

Partner/Collaborating Organisation(s)

Macquarie University, The Australian National University

Administering Organisation The University of Melbourne

Project Summary

This research facility will be of national significance for all who are interested in social and political change in Australia during the latter period of the 20th Century. The Saulwick Age poll archive will provide insights into Australian society which will be unmatched by information from other resources and will be open to all users from school students to tertiary researchers.

**Summary of Linkage Infrastructure, Equipment and Facilities Proposals
by FoR group**

1699 OTHER STUDIES IN HUMAN SOCIETY

The University of Sydney

LE110100142 A/Prof Linda M Barwick, Dr Nicholas A Thieberger, Dr I Wayan Arka, A/Prof Steven Bird, Prof Nicholas D Evans, Dr Jane H Simpson, Dr Rachel Nordlinger, Dr Aaron D Corn

Approved Project Title **Equipment and facilities upgrade for Asia Pacific and regional archive for digital sources in endangered cultures**

2011 \$238,000.00

Partner/Collaborating Organisation(s)

The Australian National University, The University of Melbourne

Administering Organisation The University of Sydney

Project Summary

PARADISEC is a digital archive of Australian researchers' recordings in the Asia Pacific region. The equipment and web facilities will be upgraded to increase security, accessibility and user interaction with the digital collection of audiovisual recordings and texts.

