

Successful Collaborative ARC LIEF Grants 2009

LE0989067

A/Prof J Zhao; A/Prof JD Woodhead; Prof AR Chivas; Prof JR Dodson; Prof M Archer; Dr RN Drysdale; Dr GE Webb; Dr AM Scheffers; Dr GJ Prideaux; Prof J Drennan; Prof JM Pandolfi; Prof O Hoegh-Guldberg; A/Prof PM Vasconcelos; A/Prof SD Golding; Dr M Gasparon; Dr G Rosenbaum; A/Prof D Neil; Dr HA McGowan; Dr PT Moss; A/Prof MI Weisler; Dr K Yu; Dr GJ Price; Dr Y Feng; Dr SG Dove; Dr JC Hellstrom; Dr R Maas; A/Prof JM Hergt; Prof AJ Gleadow; Prof MA Sandiford; A/Prof BP Kohn; Dr ML Cupper; Prof RG Roberts; Prof CD Woodroffe; Prof CV Murray-Wallace; Prof MJ Morwood; Prof GC Nanson; Dr Z Jacobs; Dr PF Carr; Dr HV McGregor; Dr LJ Arnold; Dr D Fink; Dr TM Esat; Dr Q Hua; Dr S Hand; Dr IT Graham; Dr DR Cohen; Dr DK Curnoe; Dr AI Herries; Dr CR Sloss; Prof WE Boyd; Dr SR Scheffers; Dr KH Taffs; Dr JF Parr

Approved Project Title: The future of palaeoclimate and archaeological research in Australia: next generation instrumentation for chronology and environmental reconstruction

2009 : \$ 950,000

Primary RFCD: 2603 Geochemistry

Partner Organisations & Collaborating Organisations:

The University of Queensland
The University of Melbourne
University of Wollongong
Australian Nuclear Science & Technology Organisation (ANSTO)
The University of Newcastle
Queensland University of Technology
Southern Cross University
The Flinders University of South Australia
The University of New South Wales

Administering Organisation: The University of Queensland

Project Summary

The outcomes of this project will promote a better understanding of Australia's arid continent and its surrounding marine environment, contribute to studies of global climate change, and provide new insights into the response of fragile ecosystems to such events and processes. The project addresses directly the National Research Priority 'Water - a critical resource', 'Responding to climate change and variability', 'Overcoming soil loss, salinity and acidity', 'Sustainable use of Australia's biodiversity' and 'Understanding our region and the world'. It provides a consortium-type platform for highly productive collaborative research and training across eight universities and one research organisation in Australia.

LE0989090

Prof RA Fotheringham; Prof DJ Carter; Prof JA Hay; Prof JE Tompkins; Dr L Dale; Mr KG Webster; Ms KM Kilner; Dr J Huggins; Prof PR Eggert; Prof BH Bennett; Dr EN McMahon; Prof RW Dixon; Prof EA Webby; Mr P Minter; Mr RH Coleman; Mr JF Arnold; Prof KM Mallan; Prof AJ Patterson; Ms CD Young; Prof W Ommundsen; Dr E Blackmore; A/Prof CM Taylor; Asst Prof RA Phiddian; A/Prof TA Bunda; Prof CM Bradford; Ms AH Horn; Prof DJ Haskell; Ms DM Bird; Dr TN Burrows

Approved Project Title: AustLit Phase Three: Transforming the Study of Australian Literature through a Collaborative eResearch Environment

2009 : \$ 650,000

Primary RFCD 4202 Literature Studies

Partner Organisations & Collaborating Organisations:

The University of Queensland
The University of New South Wales
University of Wollongong
Queensland University of Technology
James Cook University
The University of Sydney
Deakin University
Monash University
The Flinders University of South Australia
The University of Western Australia

Administering Organisation: The University of Queensland

Project Summary

AustLit's information and research services reach into virtually all avenues of Australian society. From the high level professor of English or Australian Studies to the student accessing the internet at an Indigenous knowledge centre in outback Queensland or the NT, AustLit provides both basic and complex information and research support to every enquirer. The proposed expansion in 2009 will enhance its value to many Australian communities by providing advanced capacities for research and greater levels of high quality information and full text content. Its multi-dimensional approach to the services it delivers ensures that it will continue to build value to the whole community over time.

LE0989731

Dr SM Eggins; Dr MJ Ellwood; Prof WA Maher; Prof MT McCulloch; Prof AR Chivas; Dr SD Foster; Dr DF Jolley; Dr MH Wille; Prof P De Deckker; Dr SJ Fallon

Approved Project Title: Instrumentation for Innovative Marine Biogeochemistry

2009 : \$ 700,000

Primary RFCD 2604 OCEANOGRAPHY

Partner Organisations & Collaborating Organisations

The Australian National University
University of Canberra
University of Wollongong

Administering Organisation: The Australian National University

Project Summary

Rising greenhouse gases are changing the chemistry of the oceans, by altering the availability of nutrients and causing ocean acidification. Along with local pollutants, these changes pose significant threats to the productivity and sustainability of Australia's marine ecosystems. The proposed instrumentation will support world-leading research into the nature, impact, and potential for mitigating these changes. This will underpin our ability to manage and preserve the environmental, societal and economic values of our coastal and open ocean marine resources.

LE0989759

Dr MC Ridgway; Prof PA Lay; Prof R De Marco; Dr CT Dillon; Dr HH Harris; Dr RN Collins; A/Prof I Low; Prof SK Bhargava; A/Prof IR Gentle; Prof AR Gerson; Prof TD Waite; Prof DC Creagh; Dr RF Garrett

Approved Project Title: Australian Access to and Operation of Advanced Synchrotron Radiation Facilities at the Photon Factory

2009 : \$ 180,000

2010 : \$ 180,000

Primary RFCD:2402 THEORETICAL AND CONDENSED MATTER PHYSICS

Partner Organisations & Collaborating Organisations

The Australian National University
The University of Sydney
Curtin University of Technology
University of Wollongong
The University of Adelaide
The University of New South Wales
RMIT University
The University of Queensland
University of South Australia
University of Canberra
Australian Synchrotron Research Program/Australian Synchrotron
Australian Nuclear Science & Technology Organisation (ANSTO)
Institute of Materials Structure Science/The Photon Factory, Japan

Administering Organisation: The Australian National University

Project Summary:

The primary national benefit of this application will be continued access by peer review for Australian scientists to the advanced synchrotron-radiation capabilities of the Australian National Beamline Facility and other complementary beamlines at the Photon Factory, Japan. This proposal is consistent with the National Research Priorities of An Environmentally Sustainable Australia, Promoting and Maintaining Good Health and Frontier Technologies for Building and Transforming Australian Industries and will generate science to support and stimulate domestic industry, enhance the domestic knowledge base and international research profile, train students and future synchrotron scientists and foster domestic and international collaborations.

LE0989127

Dr D Mather; Prof G Kearley; Prof JD Gale; Prof GA Hope; Prof CJ Kepert; Dr JA Stride; Prof J Bartlett; Prof SX Dou; Dr DP Riley; Dr DJ Goossens; Dr C Yang

Approved Project Title: A High-Throughput Neutron Spectrometer for The Study of Atomic and Molecular Motion at ANSTO

2009 : \$ 400,000

Primary RFCD 2402 THEORETICAL AND CONDENSED MATTER PHYSICS

Partner Organisations & Collaborating Organisations

Australian Institute of Nuclear Science and Engineering (AINSE)
The University of New South Wales
Griffith University
The University of Sydney
University of Wollongong
Curtin University of Technology
University of Western Sydney

Australian Nuclear Science & Technology Organisation (ANSTO)
The University of Melbourne
The Australian National University

Administering Organisation::Australian Institute of Nuclear Science and Engineering (AINSE)

Project Summary

Neutron scattering enables new science across a broad range of disciplines, and for this reason it is undergoing major expansion in the USA, Europe, Japan and Australia. Various diffractometers and spectrometers have recently been built at ANSTO, but an instrumental option for a high-throughput cross-discipline spectroscopy is urgently needed. Fortunately, it is fairly straightforward to add this type of option to an existing spectrometer that will broaden its user-base from specialised applications in physics to more general applications in physics, chemistry, materials-science and biology. This additional option provides a totally new way for Australian scientists to study atomic and molecular motions.

LE0989564

Prof S Mahalingam; A/Prof MS Rolph; Prof CJ Lennard; Dr L Simson; Dr BA Lidbury; Dr MH Frese; Dr BD Cooke; Prof IA Clark; Prof CR Parish; Prof KI Matthaiei; Dr DC Tscharke; Dr M Regner; A/Prof PA Keller; Dr MP in het Panhuis; A/Prof SR Raidal; A/Prof PN Smith; Dr PE Roffey; Dr GD Ewart; Dr EM Bertram

Approved Project Title: State-of-the-art facility for human and animal virus research in the Canberra and surrounding regions

2009 : \$ 150,000

Primary RFCD 2703 MICROBIOLOGY

Partner Organisations & Collaborating Organisations

Administering Organisation: University of Canberra

University of Canberra
The Australian National University
University of Wollongong
Charles Sturt University
The Canberra Hospital
Australian Federal Police - Forensics and Technical
Biotron Ltd

Project Summary:

New viral diseases continue to emerge and old viruses re-emerge to pose a threat to human and animal health. To combat these, we propose a dedicated viral disease research facility. The centre will include experienced researchers, biotechnology companies and government agencies working on discovery, prevention and treatment of viral diseases. Forging strong scientific links between these organisations will considerably enhance the productivity of these researchers, increase their collaborative and scientific outputs and allow for training of students in the latest technologies. The facility will provide researchers with cutting-edge instrumentation for nationally and internationally important projects that would benefit human health.

LE0989747

Dr TW Kee; Prof TM Monro; Prof D Abbott; Dr BM Fischer; Prof MA Buntine; Dr GF Metha; Prof JA Carver; Dr DA Beattie; Prof CA Prestidge; Prof RA Lewis; Dr DG Lancaster; Dr U Bach

Approved Project Title: Ultrafast Dynamics Measurement Facility for the Physical, Biochemical, and Materials Sciences

2009 : \$ 400,000

Primary RFCD 2501 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

Partner Organisations & Collaborating Organisations

The University of Adelaide
University of South Australia
Defence Science & Technology Organisation (DSTO)
University of Wollongong
Monash University

Administering Organisation: The University of Adelaide

Project Summary

The term "ultrafast revolution" describes the transformations in science due to ultrafast laser technology. Today, ultrafast lasers are used in surgery, nanomaterial fabrication, biomedical imaging, spectroscopic investigations, and new applications are still emerging. This facility will draw together leading chemists, physicists, and engineers to investigate key ultrafast processes and phenomena in the physical, biochemical and material sciences. This is of strategic importance to keep Australia at the global forefront for scientific endeavours, supporting new research and commercial opportunities. This facility will also produce highly trained graduates, who will find employment in industry throughout Australia and globally.

LE0989858

Dr SS Li; Dr N Valanoor; Prof C Zhang; Prof MA Green; Dr R Zheng; Dr D Yu; Prof AB Yu; Prof Y Zhao; Prof CC Sorrell; A/Prof AV Pan; Dr J Horvat; A/Prof AJ Ruys; Dr Y Liu; Dr MZ Quadir; Dr JZ Wang; Dr Y Zhang

Approved Project Title: Fabrication Facilities of Atomic-Scale and Nanostructured Materials for the Development of Novel Devices, Sensors, and Biomedical Components

2009 : \$ 857,230

Primary RFCD 2918 INTERDISCIPLINARY ENGINEERING

Partner Organisations & Collaborating Organisations

The University of New South Wales
University of Wollongong
Australian Nuclear Science & Technology Organisation (ANSTO)
The University of Sydney

Administering Organisation: The University of New South Wales

Project Summary

Australia's energy, mining, metallurgical, defence, biomedical industries are spearheading the advancement of technologies in the global competitive market. They are the engines of Australian economy's strength. Future progress of these industries will be largely driven by advances in materials. The installation of the proposed facilities will add a new dimension to high-level research performance and significantly enhance the capability for the development of advanced materials and biomedical components in Australia. The continual development of advanced material and biomedical components will potentially provide a

sustainable means for meeting the increasing global challenge for the industries.

LE0989506

Prof LC Botten; A/Prof MJ Ford; Dr CG Poulton; Dr A Rahmani; Prof SW Armfield; A/Prof S Kuyucak; Dr GF Lewis; Prof RC McPhedran; A/Prof D Muller; Prof L Radom; Prof HA Abbass; Dr GE Ball; Dr RJ Bursill; Prof MH England; Dr R Khanna; Prof E Leonardi; Prof AJ Pitman; Prof MR Wilkins; Prof KP Esselle; Prof S Ranganathan; A/Prof MJ Steel; A/Prof FA Henskens; Prof EI von Nagy-Felsobuki; Prof TR Marchant

Approved Project Title: A high performance computing cluster and storage for the INTERSECT Consortium of NSW

2009 : \$ 500,000

Primary RFCD 2506 THEORETICAL AND COMPUTATIONAL CHEMISTRY

Partner Organisations & Collaborating Organisations:

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

Administering Organisation: University of Technology, Sydney

Project Summary:

The installation of this new supercomputing facility is an important addition to the nation's foundation research infrastructure. Of particular importance to research groups in NSW is the much needed boost in computational research and research training capacity that it will provide, enabling world leading research teams to continue their ground breaking work in an increasingly competitive international environment. Much of the research to be supported lies in areas of national priority, including frontier technologies and Australian environmental sustainability.

LE0989859

Dr AS Jones; Prof AM Darendeliler; Prof MV Swain; Dr D Traini; Dr PM Young; Prof DR Richardson; Dr Q Li; A/Prof I Einav; Dr JM Cairney; Prof CR Murphy; Prof SP Ringer; Prof MJ Seibel; Dr H Zhou; Dr IM Ramzan; Prof PR Munroe; Prof M Archer; Dr S Hand; Dr Y Zhang; Prof BK Milthorpe; A/Prof X Wang; A/Prof AF Masters

Approved Project Title: A Multi-Resolution X-ray Microtomography Facility (NanoCT & MicroCT) for Non-Destructive 3D Characterisation

2009 : \$1,000,000

Primary RFCD 2705 ZOOLOGY

Partner Organisations & Collaborating Organisations

The University of Sydney
The University of New South Wales
University of Wollongong

Administering Organisation: The University of Sydney

Project Summary

X-ray microtomography platforms are applicable to a wide diversity of research across many of the national research priority areas. The research outlined will provide insights into bone cancer and osteoporosis, promote breakthroughs in the understanding of tumour biology and drive new developments in novel biomaterials, all of which have significant national health benefits. In dentistry, research supported by this instrumentation will provide Australians with improvements to their dental health. Furthermore applications to industrial materials are providing Australian industries with better characterisation of their products that is leading to improved export performance and consequent improvement in Australia's balance of trade.