

Summary of Linkage Infrastructure Applications for Funding to Commence in 2006

New South Wales

The University of New South Wales

LE0668534 A/Prof M Guilhaus; Dr MJ Raftery; Prof CL Geczy; A/Prof R Cavicchioli; Prof R Stocker; Prof MR Wilkins; Prof DE James; Prof MS Baker; Prof RI Christopherson; Prof CG Dos Remedios; Adj/Prof R Davey; Dr EJ Harry

Approved Project Title **High resolution bioanalytical Fourier transform mass spectrometer combined with liquid chromatograph**

2006 : \$770,000

Primary RFCD 3203 MEDICAL BIOCHEMISTRY AND CLINICAL CHEMISTRY

Partner Organisation(s)

The University of New South Wales

Macquarie University

The University of Sydney

University of Technology, Sydney

The Garvan Institute of Medical Research

Administering Institution The University of New South Wales

Project Summary

This project extends a network of advanced technology for bioanalysis that enables discoveries in biotechnology, molecular medicine and biochemistry. The proposed equipment includes the most powerful mass spectrometer (MS) currently available for bioanalysis to complement an existing network of instruments at four universities in Sydney. These include 3 of 4 nodes of the Australian Proteome Analysis Facility (APAF). The new technology is a missing link in bioanalytical capability where other instruments are not sufficiently sensitive. The instrument will be managed by MS specialists at the Bioanalytical Mass Spectrometry Facility at UNSW (www.bmsf.unsw.edu.au) where access by and training of users is well established.

LE0668481 Dr HH Kleine; A/Prof SL Gai; Prof MM Bilek; Dr J Howard; Prof Dr JC Lai; Dr RR Boyce; Dr K Shankar

Approved Project Title **Time-resolved observation of highly transient events by a novel digital high-speed camera**

2006 : \$140,385

Primary RFCD 2405 CLASSICAL PHYSICS

Partner Organisation(s)

The University of New South Wales

The Australian National University

The University of Sydney

Administering Institution The University of New South Wales

Project Summary

Highly transient, that is, rapidly changing, events occur in nature and in almost every field of science and engineering. Knowledge and understanding of these processes is vital for the design of better and innovative machines, materials and instruments. Valuable insight into these processes can be gained if one can visualise them by means of high-speed photography. This application seeks the acquisition of a novel and unique digital camera system that would allow one to observe rapidly occurring processes with unprecedented clarity. The availability of such a system would significantly strengthen cutting-edge research activities in various disciplines that would ultimately lead to the development of original and innovative products.

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LE0668381 A/Prof CY Kwok; A/Prof F Ladouceur; Prof DN Jamieson; Prof S Prawer; Prof WA Ducker; Prof AS Dzurak; Prof RG Clark; A/Prof G Peng; Prof PN Johnston; A/Prof DG McCulloch; Prof H Rubinsztein-Dunlop; Dr AG White; Dr AV Buryak

Approved Project Title Foundational National Nanotechnology Infrastructure

2006 : \$750,000

Primary RFCD 2918 INTERDISCIPLINARY ENGINEERING

Partner Organisation(s)

The University of New South Wales

The University of Melbourne

RMIT University

The University of Queensland

Administering Institution The University of New South Wales

Project Summary

Breakthrough nanotechnologies based on quantum mechanics promise useful devices for absolutely secure transmission of information encoded in quantum states, ultra-rapid searching through genome databases for unique gene sequences, faster electronic and photonic devices, robust devices made from diamond and better processing of biomedical materials for diagnosis of illness. Fabrication and characterization of these devices provides training for research students in state-of-the-art techniques with many uses. Deeper understanding of these quantum technologies will lead to better models for some of the most puzzling aspects of quantum mechanical systems that are the foundation of the physical processes of our universe.

LE0668039 A/Prof IM Suthers; Prof DJ Booth; A/Prof RG Harcourt; Dr EL Johnston; Dr BP Kelaher; Prof SL Kjelleberg; Prof JH Middleton; A/Prof BA Neilan; Dr AG Poore; A/Prof DA Raftos; A/Prof PJ Ralph; Prof PD Steinberg; Dr JE Williamson; A/Prof AR Davis; Prof DJ Ayre; Dr GF Birch; Dr M Byrne; Prof AD Short; A/Prof R Coleman; Prof AJ Underwood

Approved Project Title Sydney Harbour Institute of Marine Science (SHIMS) aquarium facility

2006 : \$160,000

Primary RFCD 2707 ECOLOGY AND EVOLUTION

Partner Organisation(s)

The University of New South Wales

University of Technology, Sydney

Macquarie University

The University of Sydney

University of Wollongong

Administering Institution The University of New South Wales

Project Summary

With the global proportion of people living in cities now exceeding 50%, the Sydney Harbour Institute of Marine Science will champion the area of urban marine science. The proposed aquarium facility will support multidisciplinary research to find solutions for the environmental problems of marine habitats in urban areas. Research at SHIMS will examine how coastal environments are affected by human impacts, recreational fisheries, invasive pests; develop novel technologies for detection of environmental and climate change; and provide management options to protect ports and harbours from threatening processes. The location in such a commercially and recreationally busy harbour provides excellent opportunities for research and education.