New South Wales

The University of Sydney

LP0991663 Prof VG Agelidis; Prof B Vucetic; Dr Y Li

Approved Project Title **An intelligent integrated energy communication system**

2009 : $ 115,000
2010 : $ 225,000
2011 : $ 215,000
2012 : $ 105,000

Primary RFCD 2909 ELECTRICAL AND ELECTRONIC ENGINEERING

APA(I) Award(s): 2

Collaborating/Partner Organisation(s)

EnergyAustralia

Administering Organisation The University of Sydney

Project Summary

This multidisciplinary research project is an essential step towards transforming Australia's electricity infrastructure to become more intelligent. The real time monitoring of the power quality and energy usage will add value to the grid's operation, reducing planning and maintenance costs. Our intelligent grid technologies will contribute to the safeguarding of one of Australia's most critical infrastructures. Our technologies will contribute to the reduction of energy consumption and address environmental concerns. Training of postgraduate students in a multidisciplinary environment will create a capable new generation of researchers.

LP0990871 Dr ML Aslund; Prof J Canning

Approved Project Title **The photonic immunochip: retrieving individual Enzyme-linked Immuno Sorbent Assay (ELISA) array-units using optical waveguide multicolour fluorescence**

2009 : $ 45,000
2010 : $ 87,500
2011 : $ 85,000
2012 : $ 42,500

Primary RFCD 2999 OTHER ENGINEERING AND TECHNOLOGY

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Bioprocess Pty Ltd

Administering Organisation The University of Sydney

Project Summary

Improving the sensitivity and availability of in-vitro immuno-diagnostic tests is a critical goal towards developing real time efficient tools for the detection of infectious diseases, cancers, allergies and auto-immune diseases. The goal is to increase the sensitivity of these tests by reducing background noise that has been a feature of the commonly used ELISA technology. This will be achieved by developing a novel optical integrated waveguide array supporting a large range of distributed tests, including several based on a novel multi-colour detection scheme. This massively parallel approach will underpin a new generation of low-cost, efficient diagnostic tests.

LP0991037 A/Prof GF Birch; A/Prof DA Raftos; A/Prof RA Coleman; A/Prof PA Haynes; Dr RV Hyne; Dr SE Taylor

Approved Project Title **Environmental proteomics: A new, more reliable method of measuring the effects of chemical pollution on Australia's coastal ecosystems**

2009 : $ 25,000
2010 : $ 50,000
2011 : $ 50,000
2012 : $ 25,000

Primary RFCD 3008 ENVIRONMENTAL SCIENCES

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

URS Corporation
Department of Environment and Conservation

Administering Organisation The University of Sydney

Project Summary

Our research will provide a new, more sensitive method of detecting the effects of pollution on animals living in coastal waterways, and allows contamination to be managed before it does permanent biological damage. Australia is one of the most urbanized nations in the world, with most of its population living on the coast and many of the nation's coastal waterways are under unsustainable pressure from pollutants. There is an urgent need for new technologies to help protect Australia's biodiversity, while sustaining the continued human use of our iconic coastal environments. Our work will establish proteomics as new environmental monitoring system.

LP0990123 A/Prof G Frost; Prof S Jones; Prof JD Roberts; Prof J Guthrie

Approved Project Title **Transforming the Australian accounting profession for the carbon challenge**

2009 : $ 37,894
2010 : $ 73,862
2011 : $ 74,601
2012 : $ 38,634

Primary RFCD 3501 ACCOUNTING, AUDITING AND ACCOUNTABILITY

Collaborating/Partner Organisation(s)

CPA Australia

Administering Organisation The University of Sydney

Project Summary

The introduction of Carbon Pollution Reduction Scheme (CPRS) will have an immediate and lasting impact on the cost of doing business in Australia. By determining how accounting processes can be optimised to identify, measure and analyse the impact of emissions trading on organisations' financial performance, this project will be a significant step in minimising the negative impact of this historic change on the Australian economy, and maximising the associated business opportunities. Our findings will be the basis for giving the accounting profession the new skills to adopt a central role in meeting the carbon challenge.

LP0990341 A/Prof TA Langrish

Approved Project Title **Developing New Multifunctional Layered Particles with Novel Modular Food Processing Systems**

2009 : $ 16,000
2010 : $ 32,000
2011 : $ 32,000
2012 : $ 16,000

Primary RFCD 2901 INDUSTRIAL BIOTECHNOLOGY AND FOOD SCIENCES

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Vic Cherikoff Food Services Pty Ltd

Administering Organisation The University of Sydney

Project Summary

The global market for organic foods has a value of approximately $150 billion, indicating the high potential export market. Australia's organic industry is currently valued at $350M, with annual growth of 25%. Alternatives to chemical preservatives in products such as breads are in demand, and Australian essential oils show promise, but new technology is required to value-add products from essential oil producers. Spray drying will be used with the smart coating of extracts, such as antimicrobial compounds, as natural preservatives that promote the shelf life of foods, benefitting service providers, the wider food industry and consumers.

LP0991223 A/Prof J Lynch

Approved Project Title **A global standard for reporting conflict**

2009 : $ 21,500
2010 : $ 43,000
2011 : $ 44,000
2012 : $ 22,500

Primary RFCD 4001 JOURNALISM, COMMUNICATION AND MEDIA

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

International Federation of Journalists

Administering Organisation The University of Sydney

Project Summary

The research will confirm and extend Australia's status as the world-leading centre in a rapidly growing field of research. It will establish a globally applicable area of expertise, to be presented and marketed to both public and commercial producers in a highly significant industry. It will enable journalists and publics alike to be empowered, through greater media literacy, to implement and demand higher standards from journalism about conflict.

LP0990853 A/Prof AJ Martin; Dr PW Ginns; Dr TF Hawkes

Approved Project Title **Exploring the Effects of Boarding School on Academic and Non-academic Outcomes: A Longitudinal Study of Boarding and Day Students**

2009 : $ 30,000
2010 : $ 60,000
2011 : $ 55,000
2012 : $ 25,000

Primary RFCD 3301 EDUCATION STUDIES

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Australian Boarding Schools Association

Administering Organisation The University of Sydney

Project Summary

There is little large-scale Australian and international research assessing the effects of boarding school on academic and non-academic outcomes. In partnership with the Australian Boarding Schools Association and schools overseas, this Project examines the effects of boarding school over and above other factors that might explain student outcomes. Through concurrent assessment of day students in the same schools, the study informs academic and non-academic development for all students. Findings will assist policy, pedagogy, and pastoral care directed at enhancing academic and non-academic pathways and centrally position Australia as a leading nation in boarding school research - and potentially, youth-based residential care more generally.

LP0990734 Dr PA O'Donnell; A/Prof DC McKnight; Mr J Este

Approved Project Title **From rivers of gold to the clickstream: Newspapers and quality journalism in the Internet Age**

2009 : $ 18,000
2010 : $ 36,000
2011 : $ 18,000
Primary RFCD 4001 JOURNALISM, COMMUNICATION AND MEDIA

Collaborating/Partner Organisation(s)

The Walkley Foundation
Administering Organisation The University of Sydney

Project Summary

This project will enhance Australian democracy by providing a scholarly basis for public discussion about the ways that quality journalism can survive in the Internet age. It will create knowledge about the specifically Australian experience of newspapers' transition to online media services and will thus help Australian citizens and journalists engage in global debates about journalism futures. It will create knowledge about the workplace conditions that foster quality journalism. It will showcase Australian research in international scholarly debate within the field of Journalism Studies.

LP0990190 Dr G Ranzi; Prof B Uy; Dr S Gowripalan; Dr P Gabor

Approved Project Title **Behaviour of post-tensioned composite steel-concrete slabs**

2009 : $ 50,000
2010 : $ 100,000
2011 : $ 100,000
2012 : $ 50,000
Primary RFCD 2908 CIVIL ENGINEERING

APA(I) Award(s): 2

Collaborating/Partner Organisation(s)

Stramit Building Products
Arup
Administering Organisation The University of Sydney

Project Summary

Post-tensioned composite steel-concrete slabs represent an attractive and novel form of construction capable of combining the advantages of the two most commonly used flooring systems in the Australian building industry which consist of post-tensioned slabs in the case of concrete structures and of composite slabs for steel structures. The advantages of this novel system cannot be exploited as yet as no design guidelines are currently available. The proposed research team embraces all the construction building industry and will investigate the structural behaviour of post-tensioned composite slabs, producing valuable design guidance to keep Australian research and practice at the forefront internationally.

LP0991099 Dr H Zreiqat; Dr C Wu; Dr P Pivonka; Prof K Johnson

Approved Project Title **Scaffolds for bone tissue regeneration and use in orthopaedic applications**

2009 : $ 75,500
2010 : $ 182,500
2011 : $ 176,500
2012 : $ 69,500

Primary RFCD 2915 BIOMEDICAL ENGINEERING

APA(I) Award(s): 1

APDI Dr C Wu

Collaborating/Partner Organisation(s)

VESOBU PTY LTD, Sponsoring Innovative Bone Research

Administering Organisation The University of Sydney

Project Summary

Damaged joints do not repair spontaneously, often leading to arthritis. Bone defects resulting from congenital defects or disease processes are challenging to regenerate and represent a major financial burden to our health system. Bone graft treatments are widely used but have considerable drawbacks. This created a need for scaffolds to provide temporary support for new bone. However they lack the combined physical/biological properties necessary for bone repair. We developed new scaffolds with improved mechanical/biological properties to mimic bone which will lead to new treatments for bone damage.