

Successful 2005 Linkage Projects Round 2 Grants by State/University

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STATE	INSTITUTION	NUMBER OF GRANTS
New South Wales		
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	The University of Newcastle	4
	The University of Sydney	19
	University of Technology, Sydney	9
	University of Western Sydney	9
	University of Wollongong	8
	TOTAL NUMBER OF GRANTS	76
Victoria		
	Deakin University	3
	La Trobe University	3
	Monash University	11
	RMIT University	14
	Swinburne University of Technology	8
	The University of Melbourne	23
	TOTAL NUMBER OF GRANTS	62
Queensland		
	Griffith University	9
	James Cook University	4
	Queensland University of Technology	13
	The University of Queensland	16
	University of Southern Queensland	1
	University of the Sunshine Coast	2

TOTAL NUMBER OF GRANTS

45

South Australia

The Flinders University of South Australia	4
The University of Adelaide	6
University of South Australia	14
TOTAL NUMBER OF GRANTS	24

Western Australia

Curtin University of Technology	4
Edith Cowan University	1
Murdoch University	8
The University of Western Australia	15
TOTAL NUMBER OF GRANTS	28

Tasmania

University of Tasmania	3
TOTAL NUMBER OF GRANTS	3

Northern Territory

Charles Darwin University	2
TOTAL NUMBER OF GRANTS	2

Australian Capital Territory

The Australian National University	10
University of Canberra	1
TOTAL NUMBER OF GRANTS	11

TOTAL NUMBER OF GRANTS 251

Summary of Successful Linkage Projects 2005 Round 2

Grants by State/University

New South Wales

Australian Catholic University

LP0561753 Prof T d'Arbon; Prof Dr TE Cook; Dr J Frawley

Title: Linking Worlds: Strengthening the Leadership Capacity of Indigenous Educational Leaders in Remote Education Settings

2005 : \$49,071

2006 : \$97,142

2007 : \$97,492

2008 : \$60,921

2009 : \$11,500

Category: 3301 - EDUCATION STUDIES

APA(l) Award(s): 1

APDI Dr J Frawley

Partner Organisation(s)

Catholic Education Office, Darwin

NTDEET

Australian Principals Associations Professional

Administering Institution: Australian Catholic University

Summary:

Advancing the social and economic position of Indigenous Australians is a national imperative and requires relevant, competent, and visionary leadership at a local level to achieve stability, none more so than in education. This project will be the first in-depth investigation of Indigenous educational leadership in remote settings and will aim to frame the unique 'worlds' within which Indigenous educational leaders operate, and to determine the skills, knowledge and attributes required to be an effective leader. We aim to produce a practice based leadership model for the professional development and learning of current and potential Indigenous educational leaders.

LP0561754 Dr N Saintilan; Mr RJ Williams; Mr J Twining

Title: Trophic associations involving fish and crustaceans in coastal saltmarsh

2005 : \$13,924

2006 : \$27,848

2007 : \$25,998

2008 : \$12,074

Category: 2707 - ECOLOGY AND EVOLUTION

APA(l) Award(s): 1

Partner Organisation(s)

Department of Primary Industries

Department of Environment and Conservation

Administering Institution: Australian Catholic University

Summary:

Coastal saltmarsh is an endangered ecological community utilised by a diverse assemblage of fish during spring tides. Little attempt has been made to determine why fish visit saltmarsh, or what contribution saltmarsh makes to the diet of fish. This study combines gut analysis with novel approaches involving stable isotopes and radioactive markers to determine trophic interactions between fish and permanent members of the saltmarsh fauna and flora. The project will provide coastal resource managers with quantifiable indicators of the relative significance of different saltmarsh communities to estuarine fisheries.

Charles Sturt University

LP0561934 A/Prof RL Zevenbergen

Title: Intergenerational differences in numeracy practices: A study of contemporary practice

2005 : \$23,500

2006 : \$50,750

2007 : \$40,500

2008 : \$13,250

Category: 3302 - CURRICULUM STUDIES

Partner Organisation(s)

Gold Coast City Council
SCISCO Career Pathways
Merrimac State High School
Queensland Studies Authority
Centrelink
Gold Coast Institute of TAFE

Administering Institution: Charles Sturt University

Summary:

Young Australians have grown up in a technology-rich world where they are differently numerate. In this context, it is important to capitalize on the strengths that young Australians bring to work and education while ensuring quality outcomes for stakeholders in all sectors. This project will develop numeracy interventions that embody post-industrial times and evaluate their impact on numeracy learning for young Australians; and the impact on reforming institutions such as schools, job selection agencies and workplaces. Expected outcomes include the development of numeracy interventions for key stakeholders that better prepare Australians for the changing labour markets and their inherent numeracy demands.

Macquarie University

LP0561631 Prof J Guthrie; Ms L English; Prof J Broadbent; Prof R Laughlin; Dr S Newberry

Title: Developing a Model for the Evaluation of Australian Public Private Partnerships

2005 : \$56,210

2006 : \$109,555

2007 : \$109,840

2008 : \$56,496

Category: 3501 - ACCOUNTING, AUDITING AND ACCOUNTABILITY

Partner Organisation(s)

CPA AUSTRALIA
Victorian Auditor-General's Office
West Australian Auditor-General's Office
Warringah Council
Maddocks

Administering Institution: Macquarie University

Summary:

The primary aim of this research project is to improve the long-term evaluation of Australian Public Private Partnerships (PPPs). Growing commitments by governments to the use of PPPs to deliver infrastructure-based services have created an urgent need for the development of evaluation systems to ensure that PPPs deliver efficiency and effectiveness for taxpayers as claimed. Further there is a need to ensure that the quality of welfare-based services is not diminished through the use of PPPs.

A key outcome of this research is the development of a theoretically and empirically based post project evaluation model, developed with full support from key stakeholders, including Auditors-General and Public Accounts Committees.

LP0561985 A/Prof MA Orgun; Dr M Dras; Dr WJ Graco; Dr WQ Lin

Title: Classification and Prediction Modelling for Financial Distress, Tax Debt and Insolvency for ATO Clients

2005 : \$12,074

2006 : \$24,148

2007 : \$24,148

2008 : \$12,074

Category: 2802 - ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APA(I) Award(s): 1

Partner Organisation(s)

Australian Taxation Office

Administering Institution: Macquarie University

Summary:

The Australian Taxation Office (ATO) has clients who are not able to meet their taxation debts, resulting in revenue shortfalls for both the State and Federal Governments. Through this project, we will develop predictive models and techniques which identify client classes and clusters in the ATO client population and the defining attributes of these collections - especially those which are at high risk of incurring debt and defaulting on paying taxes. In turn, the early identification of clients in financial distress will allow the ATO to give them assistance so that they can reduce their debts and meet their financial obligations.

Southern Cross University

LP0562517 Prof PR Baverstock; A/Prof PL Harrison; A/Prof CS Baker; Dr DM Lavigne

Title: Ageing wild vertebrates from their DNA: an investigation using Humpback Whales as an example

2005 : \$47,000
2006 : \$95,000
2007 : \$97,000
2008 : \$49,000

Category: 2702 - GENETICS

Partner Organisation(s)

IFAW Asia-Pacific
The Oceania Project

Administering Institution: Southern Cross University

Summary:

The aim of this project is to estimate the age of individually identified humpback whales and the age structure of humpback whale populations using non-lethal, innovative molecular techniques. Populations of humpback whales in the Southern Hemisphere are slowly recovering from intensive whaling during the 20th century. This project is significant because it will provide the first comparative information on the age structure of these populations, resulting in improved estimation of recovery and population dynamics of long-lived vertebrates. The results of this project will revolutionise research on ageing in whales and dolphins, providing an important alternative to lethal scientific whaling.

LP0562012 Dr MW Clark; Prof DM McConchie; Prof MP Basheer

Title: Bauxsol™ based grouts and shotcretes for the control of acid rock drainage

2005 : \$62,500
2006 : \$135,000
2007 : \$137,500
2008 : \$65,000

Category: 3008 - ENVIRONMENTAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Virotec International Pty. Ltd

Administering Institution: Southern Cross University

Summary:

Acid rock drainage (ARD) occurs where sulphides (mostly pyrite, but also sulphides of other metals) are exposed to oxygen and water; the estimated global liability from ARD is over US\$300 billion. There is currently no cost-effective way to prevent the release of acid and heavy metals from exposed sulphide minerals especially at abandoned mine sites. This study investigates the use of BASECON™ transformed bauxite refinery residues (Bauxsol™) to grout waste rock dumps and tailings dams and to develop concretes that can be sprayed on open cut walls and floor to prevent and treat the ARD as it is formed.

The University of New England

LP0562434 A/Prof AJ Boulton; Dr IO Growns

Title: How does flow regulation affect food web linkages between juvenile and larval fish and aquatic invertebrates in a coastal river?

2005 : \$24,148
2006 : \$48,296
2007 : \$48,296
2008 : \$24,148

Category: 2707 - ECOLOGY AND EVOLUTION

APA(I) Award(s): 2

Partner Organisation(s)

Dept. Infrastructure, Planning and Natural
Hunter-Central Rivers Catchment Management

Administering Institution: The University of New England

Summary:

River regulation to supply water for human demands has altered flow regimes in many Australian rivers. These changes in flow impact on native invertebrate and fish community composition. Environmental flow allocations seek to alleviate these impacts but managers are hampered by lack of data on the effects of flow on food web linkages, particularly for juvenile and larval fish (JLF). We aim to compare food webs of invertebrates and JLF in six tributaries of the Hunter River, three of which are regulated, to determine how flow regulation changes trophic linkages. A flow release in one tributary will let us test the hypothesis that river regulation restricts food availability to JLF, reducing their viability, growth rates, and abundance.

LP0561944 Prof I Davidson; A/Prof RJ McDougall

Title: **The role of Queensland Museum collections in producing knowledge of Aboriginal people from Federation to the present day**

2005 : \$20,000
2006 : \$41,704
2007 : \$37,348
2008 : \$15,644

Category: 3799 - OTHER STUDIES IN HUMAN SOCIETY

APA(I) Award(s): 1

Partner Organisation(s)

Queensland Museum

Administering Institution: The University of New England

Summary:

The project will investigate the production of knowledge about Aboriginal peoples by the Queensland Museum since the late nineteenth century. The focus will be on the changing role of material culture collections in the construal of Aboriginality. The APAI will analyse material culture collection in the context of nation building and will investigate both the changing meanings and the contemporary relevance of such collections to Aboriginal communities. The project will produce a body of research that can be used in the design of new exhibitions that will reveal the true complexity of cross-cultural interactions in the development of the Museum's collections.

LP0561563 Dr PJ Hancock; Prof AJ Boulton; Dr WF Humphreys; Mr GL Bennison

Title: **Mining, irrigation, and groundwater: Towards a reliable protocol for assessing the impacts of extraction on groundwater fauna and ecology**

2005 : \$63,364
2006 : \$117,426
2007 : \$108,125
2008 : \$54,063

Category: 3008 - ENVIRONMENTAL SCIENCES

APA(I) Award(s): 1

APDI Dr PJ Hancock

Partner Organisation(s)

ECOWISE Environmental
Western Australian Museum

Administering Institution: The University of New England

Summary:

Groundwater fluctuations associated with mining and increased irrigation demands, potentially threaten many of Australia's unique groundwater invertebrates (stygo fauna) with extinction. Stygo fauna represent a hidden store of biodiversity and are thought to have a critical, but poorly understood, role in enhancing groundwater quality. Environmentally sustainable development of groundwater resources is hampered by a dearth of information on the ecological needs of stygo fauna and how they respond to human-induced change. Using field and laboratory experiments, we aim to determine how water table fluctuations threaten stygo fauna. From our results we will develop sampling and management protocols to monitor and protect stygo fauna communities.

LP0561658 Prof L Unsworth; Ms P Hutton; Dr GR Barnes

Title: **New Dimensions of Group Literacy Tests for Schools: Multimodal reading comprehension in conventional and computer-based formats**

2005 : \$31,405
2006 : \$63,532
2007 : \$64,977
2008 : \$32,850

Category: 3302 - CURRICULUM STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

NSW Dept of Education and Training:

Administering Institution: The University of New England

Summary:

Today's texts require readers to comprehend information from an extensive range of images integrated with print material. No assessment currently exists to test what new reading strategies students require to interpret the meanings made jointly through images and print in contemporary texts. To address this problem, this research will develop a model of image/text relations. Such a model is foundational to the development of effective assessment tools, particularly group tests. For the first time, such tests will incorporate the comprehension strategies that students require to understand

conventional and computer-based texts with their increased integration of images and print.

The University of New South Wales

LP0561924 Dr C Barner-Kowollik; Prof TP Davis; Dr PJ Barker

Title: Fundamentals of the Performance Chemistry of Water-borne Acrylic Polymer based Surface Coatings for Pre-painted Steel Employed in Domestic Roofing Applications

2005 : \$13,074

2006 : \$26,148

2007 : \$26,148

2008 : \$13,074

Category: 2505 - MACROMOLECULAR CHEMISTRY

APA(I) Award(s): 1

Partner Organisation(s)

BlueScope Steel Research

Administering Institution: The University of New South Wales

Summary:

The proposed project will systematically investigate the structure-performance relationships of acrylic emulsion based surface coatings and provide a detailed understanding of their degradation mechanisms. The improved understanding of these coatings will lead to the development of an optimum coating for steel roofs with extremely high durability and resistance against degradation and gloss loss in typical tropical and sub-tropical Australian climates.

LP0562339 A/Prof R Cavicchioli; Dr A Sava

Title: Enhancing the performance of existing industrial enzymes through the application of new chemical modification technology

2005 : \$90,000

2006 : \$180,000

2007 : \$180,000

2008 : \$90,000

Category: 2701 - BIOCHEMISTRY AND CELL BIOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Novapharm Research (Australia) Pty Ltd

Administering Institution: The University of New South Wales

Summary:

Enzymes have many uses in industry, replacing undesirable chemicals which adversely effect human & animal health & the environment. Enzymes offer advantages in effectiveness, biodegradability, specificity and safety. The concern with enzymes, in industrial applications, is that enzyme performance is degraded by a harsh chemical and/or physical environment. The aim of this study is to improve the performance of industrially significant enzymes by enhancing resistance to chemical & physical degradation or inactivation. This will be achieved by modifying the enzymes using new technology that we have developed. This will improve cost effectiveness of existing industrial enzymes & create opportunities for new uses of enzymes.

LP0562592 Prof GH Fleet; Dr GC Bushell

Title: The microbiology and biotechnology of rum production

2005 : \$24,574

2006 : \$39,148

2007 : \$29,148

2008 : \$14,574

Category: 2901 - INDUSTRIAL BIOTECHNOLOGY AND FOOD SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Diageo Australia

Administering Institution: The University of New South Wales

Summary:

Rum is an alcoholic beverage produced by microbial fermentation of molasses waste from the sugar industry. The microbial species responsible for the process determine rum flavour and quality by production of specific aroma compounds. The rate and extent of fermentation determine process efficiency. Several yeast and bacterial species contribute to rum fermentation but this ecology is poorly defined. Through a combination of ecological studies, controlled fermentations and distillation, chemical and sensory analyses, this project will determine the impact of particular microbial species on rum flavour and process efficiency. This information will be used by the industrial partner to enhance product

quality and process efficiency.

LP0562132 Prof SJ Frenkel; Mr PJ Gollan

Title: Human Resource Managers' Contribution to Workplace Performance

2005 : \$35,000

2006 : \$87,500

2007 : \$77,104

2008 : \$24,604

Category: 3502 - BUSINESS AND MANAGEMENT

Partner Organisation(s)

Australian Human Resources Institute

Administering Institution: The University of New South Wales

Summary:

This project examines the professional identity and role of Human Resource managers in fostering and implementing strategies that encourage high workplace performance. This is significant because workplace performance affects Australian competitiveness and this will be the first detailed empirical analysis of Australian HR managers that combine case study and survey methods. The findings will develop models and strategies that will improve professional management standards through academic and business publications, including a book accessible to managers. Educational materials, suitable for higher and continuing education, will also aim to improve the people-related capabilities of human resource and line managers.

LP0561744 Dr G Froyland; Dr N Boland; Dr M Menabde; Dr M Zuckerberg

Title: A Mathematical Approach to Flexible Management of Open Pit Mines with Uncertain Geology and Unpredictable Demand

2005 : \$38,000

2006 : \$74,000

2007 : \$72,000

2008 : \$36,000

Category: 2301 - MATHEMATICS

Partner Organisation(s)

BHP Billiton

Administering Institution: The University of New South Wales

Summary:

This project will create new mathematical algorithms to flexibly manage open pit mining projects. The development of strategic plans for mining operations is a highly complex task, based on incomplete geological information and uncertain future commodity demand. The smart mathematics we create will allow Australia to capitalise on upturns in international demand, while limiting unavoidable negative outcomes, by flexibly adjusting the mining operation to prevailing geological and economic conditions. Australia's mineral exports are worth over \$50b annually to the Australian economy. Our techniques will better manage Australia's mining projects and capture new, emerging markets, significantly impacting on Australia's balance of trade.

LP0562455 Dr AR Green; Dr IC Piper

Title: Development of a Multi Threat Risk Assessment Model for Critical Infrastructure Using Scripted Agent Computer Technology

2005 : \$24,148

2006 : \$48,296

2007 : \$48,296

2008 : \$24,148

Category: 2399 - OTHER MATHEMATICAL SCIENCES

APA(I) Award(s): 2

Partner Organisation(s)

Arup, Risk and Security

Administering Institution: The University of New South Wales

Summary:

Current risk assessment paradigms are not suited to the control of catastrophic events such as terrorism. An advanced approach to risk assessment will be developed in this project for rare high impact events such as bomb blasts, where critical infrastructure is threatened. A new software platform based on scripted agent modelling will be constructed that will allow for state of the art models to be used as agents providing a dynamic risk evaluation and necessary information for actions to infrastructure owners and emergency responders as a threat develops. Both the developed scripted agent and the risk assessment technologies can be applied to other technologies and complex risks, such as waste disposal and

biotechnology.

LP0562485 Prof GW Greenleaf; Prof MD Pendleton; Dr K Bowrey; Dr M Rimmer; Mr BC Mercurio; Prof BF Fitzgerald; Prof JP McKeough; Prof P Griffith; Mr P Chung; Prof J Dalziel; Mr I Oi; Mr PM Crisp

Title: **Unlocking IP - Expanding public rights and the public domain in Australian copyright**

2005 : \$67,500
2006 : \$145,000
2007 : \$159,500
2008 : \$82,000

Category: 3901 - LAW

APA(I) Award(s): 2

Partner Organisation(s)

AEShareNet Limited
Baker & McKenzie
Linux Australia Inc.
Open Source Industry Australia Limited
IBM Australia Ltd
LAMS International Pty Ltd

Administering Institution: The University of New South Wales

Summary:

This research investigates how Australia's digital commons, comprising both the public domain and public rights created by open content and open software licensing, can be expanded and protected. It focuses on 'self help' actions within the existing statutory context, in Australia's distinct legal and cultural context, and on comprehensiveness. Its significance is that healthy commons-based production of information is essential to Australia as an innovative country and a democracy. The principal outcomes will be better understood and more efficient public rights licences, incentives to copyright owners to create them, and technical aids to allow users to find commons content.

LP0562690 Prof G Heiser

Title: **Improving the Performance, Scalability and Reliability of the Linux Operating System**

2005 : \$55,000
2006 : \$110,500
2007 : \$111,500
2008 : \$56,000

Category: 2803 - COMPUTER SOFTWARE

APA(I) Award(s): 2

Partner Organisation(s)

HP Linux and Open Source Lab

Administering Institution: The University of New South Wales

Summary:

This project aims to improve the scalability of the Linux operating system to large systems without loss of performance on small, embedded, systems. It will improve Linux robustness and security by de-privileging particularly error-prone code, such as device drivers, without undue impact on performance. It will improve configurability and ease tuning by making critical components, such as processor, disk and memory schedulers, pluggable and their policies controllable at user level. It will investigate the feasibility and benefits of user-level file systems and processor and memory scheduling and will demonstrate that these can improve system reliability without undermining performance.

LP0562518 Dr EL Johnston; Dr TM Glasby

Title: **Do artificial structures enhance the spread of exotic marine invertebrates in NSW estuaries?**

2005 : \$12,574
2006 : \$25,148
2007 : \$25,148
2008 : \$12,574

Category: 2707 - ECOLOGY AND EVOLUTION

APA(I) Award(s): 1

Partner Organisation(s)

NSW Department of Primary Industries

Administering Institution: The University of New South Wales

Summary:

This project will investigate whether artificial structures in estuaries enhance the spread of exotic marine invertebrates and will examine the impacts of exotic species on rocky reef species. The introduction of exotic species is a significant threat to native biodiversity, second only to habitat destruction. These two threats are coincident in urbanised estuaries. This

project will also provide information about the possible roles of different types of boating activity in transporting exotic species. Research on the role of artificial structures in invasions has not been done anywhere in the world and is essential if we are to understand, manage and ameliorate the threats of exotic species.

LP0561891 Prof SC Kippax; Dr H Worth; A/Prof MP Bittman; Dr JG Wilkinson; Mr PR Rawstone

Title: **The potential of the Internet in HIV prevention among homosexually active men**

2005 : \$35,500

2006 : \$71,000

2007 : \$71,500

2008 : \$36,000

Category: 3701 - SOCIOLOGY

APDI Mr PR Rawstone

Partner Organisation(s)

NSW Department of Health

Queensland Health

Victorian Department of Human Services

AIDS Council of New South Wales

Victorian AIDS Council / Gay Men's Health Centre

Queensland AIDS Council

Administering Institution: The University of New South Wales

Summary:

Social capital comprises features of social organisation such as civic participation, norms of reciprocity and trust in others that facilitate cooperation for mutual benefit, including health and wellbeing. The proposed research focuses on the role of the internet in producing the networks that engender social inclusion and community connectedness. There is scepticism about whether the 'virtual community' of the Internet can build social capital. The study will explore the potential benefits as well as harms to those homosexually active men who use the internet to access health information, meet sexual partners and build friendships that affirm gay identity and community inclusion.

LP0562070 Dr SW Laffan; Dr JG West

Title: **What is the spatial and environmental distribution of phylogenetic diversity in the Australian biota?**

2005 : \$12,074

2006 : \$24,148

2007 : \$24,148

2008 : \$12,074

Category: 2707 - ECOLOGY AND EVOLUTION

APA(l) Award(s): 1

Partner Organisation(s)

Department of Environment and Heritage

Administering Institution: The University of New South Wales

Summary:

Almost nothing is known about the geographic distribution of phylogenetic relationships across Australia at fine resolutions of the order of tens of kilometres. The aim of this research is to map the spatial patterns of phylogenetic diversity in the Australian biota and identify possible environmental controls over them. We will analyse five disparate groups at a spatial resolution that is orders of magnitude finer than previous research, analysing their relationship with possible environmental controls using advanced spatial analysis methods. The knowledge we will generate about the spatial distribution of these relationships is essential to understand and conserve Australia's unique biodiversity.

LP0562139 Dr NG Marshall; Ms L Corkery

Title: **People and Parks: The Real Value of Open Space in Western Sydney**

2005 : \$15,000

2006 : \$35,000

2007 : \$30,000

2008 : \$10,000

Category: 3101 - ARCHITECTURE AND URBAN ENVIRONMENT

Partner Organisation(s)

NSW Department of Infrastructure, Planning

Administering Institution: The University of New South Wales

Summary:

The Western Sydney Parklands (WSP), a corridor of 5500 contiguous hectares, will be the largest urban park in the

southern hemisphere - an extraordinary open space resource. This study uses quantitative and qualitative research techniques to gauge 'imageability' and feelings of 'attachment' and 'connectedness' to the Parklands experienced by residents of Western Sydney. We will construct new thematic layers for an existing Geographic Information Systems database that incorporate subjective values about open space. This expanded understanding of feelings of connectedness will reveal shared community values and enhance future planning and design of urban parklands.

LP0562383 A/Prof BA Neilan; Dr BP Burns; Ms C Ferguson

Title: **Novel Molecular Markers for the Historical Source Tracing of Faecal Contamination in Urban Water Catchments**

2005 : \$27,429
2006 : \$55,144
2007 : \$27,715

Category: 3008 - ENVIRONMENTAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Sydney Catchment Authority

Administering Institution: The University of New South Wales

Summary:

Protection of the microbiological quality of raw water systems is imperative to maintaining the safety of drinking water. Monitoring of water samples for the presence of microbes that indicate the presence of faecal pollution can be used to assess the possible threats to human health. The objective of this research is to apply molecular genetic methods to determine their effectiveness as tools for the tracking and tracing of faecal bacteria within drinking water catchments. We have chosen the spore-former *Clostridium perfringens* as an indicator of both long and short-term sewage contamination. It will enable us to predict the origin of contamination and thus identify potential sources of faecal pollution that require remediation.

LP0562419 Prof WG Randolph; A/Prof SM Thompson; Dr WG Earl; Mr PJ Williams; Dr BH Judd; Dr RC Bunker; Ms S

Title: **Planning for Socially Sustainable Urban Renewal in Suburban Sydney**

2005 : \$30,500
2006 : \$67,000
2007 : \$36,500

Category: 3101 - ARCHITECTURE AND URBAN ENVIRONMENT

Partner Organisation(s)

Fairfield City Council

Penrith City Council

Bankstown City Council

Auburn

Western Sydney Regional Organisation of

NSW Department of Housing

Administering Institution: The University of New South Wales

Summary:

This project will address the emerging issue of socially sustainable higher density residential renewal in suburban areas of Australian cities, with a specific focus on the post-war middle and western suburbs of Sydney. Within the context of new state strategic planning proposals, the research will explore the process of urban renewal in these areas, establish their capacity to deliver higher residential densities and assess the likely social and urban design outcomes. It will then develop new urban planning policy options that are likely to optimise socially sustainable outcomes at the local scale, working closely with local Council officers and the NSW Department of Housing in a number of study areas.

LP0562703 Dr PK Ray; Dr N Parameswaran; Dr LM Lewis

Title: **Multi-agent Framework for Service Level Management**

2005 : \$25,000
2006 : \$50,000
2007 : \$50,000
2008 : \$25,000

Category: 2801 - INFORMATION SYSTEMS

APA(I) Award(s): 1

Partner Organisation(s)

Netstar Australia

Administering Institution: The University of New South Wales

Summary:

The Internet based e-services are being used by many businesses as part of the modern e-business environment. Management of e-services over the Internet involves complex correlation of events, and their sequences over geographically dispersed networks, systems and software applications. The integration of management information is a challenging problem due to the semantic differences of services across different business sectors (e.g., healthcare, retail and telecommunications). This project aims to develop a new framework for the integrated management of networked services using multiple software agents; some of them are already a part of the current Internet infrastructure (e.g., search engines).

LP0561833 Prof CC Sorrell; Dr T Bak; A/Prof SJ Dain; Prof GE Murch; Prof IV Belova

Title: Surface Processing of Photo-Sensitive Semiconducting Oxides for Solar-Hydrogen

2005 : \$125,000
2006 : \$250,000
2007 : \$250,000
2008 : \$250,000
2009 : \$250,000
2010 : \$125,000

Category: 2911 - ENVIRONMENTAL ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Rio Tinto Technology Ltd.
Brickworks Ltd.
Sialon Ceramics Pty. Ltd.
Mailmasters Pty. Ltd.
Avtronics (Australia) Pty. Ltd.

Administering Institution: The University of New South Wales

Summary:

Aim: To enhance the performance of titania-based semiconducting photo-electrodes for the generation of hydrogen from water using sunlight. **Means:** Engineering of the surface and near-surface layers so as to increase photo-sensitivity and reactivity with water. **Significance:** Success will provide the key functional component of photo-electrochemical cells for the mass production of renewable and clean hydrogen. **Innovation:** For the first time, the properties controlling photo-sensitivity (defect disorder; charge transport; and chemically-induced, local, surface electric fields) will be modified. **Outcomes:** Technologies for the production of fuel (hydrogen) using renewable energy (solar energy) and a renewable resource (water).

The University of Newcastle

LP0562610 Dr SW Franks; Dr RN Drysdale; Dr JC Hellstrom; Dr R Maas; Dr ID Goodwin; Dr EJ Rhodes; Prof WD

Title: Derivation of long-term hydroclimatic sequences for water resources engineering, management and

2005 : \$53,976
2006 : \$114,236
2007 : \$72,334
2008 : \$12,074

Category: 2605 - HYDROLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Sydney Catchment Authority

Administering Institution: The University of Newcastle

Summary:

This project aims to develop in-situ reconstructions of flood and drought occurrence in the Sydney Warragamba catchment. The unique approach will utilise two complementary methods to provide robust insights into historic variability at the location of interest. The derived sequences will be used to augment the instrumental record, the sole basis for current drought risk assessment. A key outcome will be an accurate appreciation of long-term drought occurrence. This will also provide a stronger basis for utilising climate information in guiding day-to-day reservoir and water supply management. The proxy histories are of key importance in estimating future flood and drought risk assessments for water resources management and planning.

LP0562514 Prof WF Mitchell

Title: Creating effective employment solutions for youth with psychosis

2005 : \$12,074
2006 : \$24,148
2007 : \$24,148
2008 : \$12,074

Category: 3402 - APPLIED ECONOMICS

APA(I) Award(s): 1

Partner Organisation(s)

Hunter Mental Health

Administering Institution: The University of Newcastle

Summary:

Young people with severe mental illness face the general difficulty of finding paid work, and the specific difficulty of finding employment which can accommodate their health needs. Without early intervention, and access to supported employment, health and rehabilitation services, these young Australians face long-term welfare dependency. This Project will identify leading international models that provide supported employment for young people with psychosis and examine why such effective and integrated support models have not been implemented domestically. The Project will then develop a detailed policy and funding framework to facilitate the adoption or adaptation of international best practice in Australia.

LP0562653 Prof AW Page; Prof J O'Connor; A/Prof AP Holbrook; Prof SF Bourke; Mr S Williamson

Title: **The Identification and Development of Strategies for Increasing Engineering Enrolments**

2005 : \$33,156

2006 : \$70,061

2007 : \$70,061

2008 : \$33,156

Category: 2999 - OTHER ENGINEERING AND TECHNOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Engineers Australia

Ampcontrol

Administering Institution: The University of Newcastle

Summary:

There is a continuing nation-wide decline in high school student enrolment in higher level mathematics and science. This is already leading to a reduction in the number of students undertaking university engineering programs in Australia and the situation is expected to worsen. This project is directed toward a better understanding of the reasons for the trend and the development of strategies to reverse it. It aims to 1. Evaluate the most effective strategies that increase student's interests and understanding of engineering and increase participation in engineering studies. 2. Develop an optimised national communication strategy for promoting engineering studies to secondary students.

LP0562650 Dr MA Thyer; Dr SW Franks; Prof GA Kuczera; A/Prof MF Lambert; Dr AV Metcalfe; Dr BL Berghout

Title: **A Bayesian Hierarchical Approach for Simulating Multi-time Scale Hydrological Variability for Water Resource Planning**

2005 : \$15,674

2006 : \$29,798

2007 : \$28,248

2008 : \$14,124

Category: 2908 - CIVIL ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Hunter Water Corporation

Administering Institution: The University of Newcastle

Summary:

Assessments of future drought risks are dependent on simulations of hydrological inputs provided by stochastic models. The current models are limited to simulating variability at a single time scale using only local observed hydrological data. This data has only limited information on the long-term climate variability which is the cause of long-term severe droughts. The proposed research will develop a new Bayesian framework for simulating multi-time scale variability in hydrological data. This will enable the dynamic processes which simulate long-term variability to be identified using auxiliary information in an uncertainty framework. This will provide water resource planners with more accurate assessments of long-term drought risks.

The University of Sydney

LP0562390 A/Prof SW Armfield; Dr MP Kirkpatrick; Dr CJ Lemckert

Title: Freshing, mixing and purging of riverine saline ponds by freshwater overflow

2005 : \$27,500
2006 : \$47,500
2007 : \$38,700
2008 : \$18,700

Category: 2911 - ENVIRONMENTAL ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Victorian EPA

Administering Institution: The University of Sydney

Summary:

Develop a model to accurately predict the full details of flow in saline river ponds subjected to a freshwater overflow. Such ponds are ubiquitous in Australia's inland rivers, have low oxygen and high nutrient and salinity levels and are associated with poor water quality, both in the pond and downstream during flow events. The model will allow precise determination of the river flow rates required to fully purge ponds and the downstream effect of the low quality pond water on the riverine environment and will also assist in the development of rule of thumb scaling formula that will be incorporated into a one-dimensional flow prediction model being developed by the industrial partner.

LP0562095 Prof PN Butow; Prof JM Ussher; Ms GM Batt; Mr GV Wain; Dr KJ Sundquist; Dr MA Charles

Title: Meeting the needs of cancer support group leaders

2005 : \$45,000
2006 : \$90,000
2007 : \$70,000
2008 : \$25,000

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Cancer Council NSW
Westmead Hospital

Administering Institution: The University of Sydney

Summary:

Social support plays a pivotal role in the psychological adjustment of people with cancer. Support groups provide unique input, but their outcomes are reliant on the quality and sustainability of the leaders. Internationally, little is known about the challenges and unmet needs of cancer support group leaders, or how to best support them. This study will:

- a) clarify the needs of cancer group leaders
- b) design and evaluate two interventions (minimal and intense) to meet the needs of leaders.

If successful, this study will provide the evidence on which cancer organizations around the world can base interventions to sustain cancer support group leaders and thus hopefully improve psychological outcomes for cancer patients and their carers.

LP0561882 Dr RA Calvo

Title: Application Frameworks for Collaborative Learning

2005 : \$12,074
2006 : \$24,148
2007 : \$24,148
2008 : \$12,074

Category: 2801 - INFORMATION SYSTEMS

APA(I) Award(s): 1

Partner Organisation(s)

Savv-e Pty

Administering Institution: The University of Sydney

Summary:

We will pioneer the use of key software engineering techniques - design patterns and application frameworks - to reduce the cost and improve the quality of online collaborative learning activities. For the first time, we will combine software engineering and educational knowledge to use design patterns to describe best practice for these activities in engineering terms; we will use application frameworks to aggregate these patterns and implement them as a readily usable tool. The result will be a powerful new generation of stable collaborative eLearning tools with enhanced scalability, interoperability and adaptability.

LP0561675 A/Prof H Chan; Prof JA Raper

Title: High Gravity Precipitation of Nanoparticles for Pulmonary Drug Delivery

2005 : \$62,795
2006 : \$122,363
2007 : \$118,676
2008 : \$59,108

Category: 2906 - CHEMICAL ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

NanoMaterials Technology Pte Ltd

Administering Institution: The University of Sydney

Summary:

This collaborative project aims to explore the huge market potential of drug delivery by inhalation aerosols using nanoparticles. It will apply cutting edge nanotechnology to develop new techniques using high gravity to synthesise particles of biomaterials suitable for inhalation. Nanoparticles can penetrate deeper into the lung where they deposit and dissolve faster for enhanced therapeutic effects. Successful development of the technology will position both Australia and the industry partner to take a lead in the application of this novel technology in pharmaceutical aerosols, and provides better inhalation therapy to benefit patients.

LP0562660 Prof MJ Crossley; Dr CA Collyer; Prof N Hunter

Title: Synthesis and evaluation of anti-microbial porphyrin adducts for the targeted inhibition of *Porphyromonas gingivalis*.

2005 : \$47,500
2006 : \$95,000
2007 : \$95,000
2008 : \$47,500

Category: 2503 - ORGANIC CHEMISTRY

APA(I) Award(s): 1

Partner Organisation(s)

Institute of Dental Research

Administering Institution: The University of Sydney

Summary:

At present the effectiveness of therapy for inflammatory disease of the gum tissue (periodontitis) is limited by the lack of a selective anti-microbial agent. The investigators have discovered a novel mechanism of binding of the blood product porphyrin by a unique receptor of a key pathogen implicated in this disease. By exploiting this knowledge a modified porphyrin linked to an antibiotic was shown to have a selective effect on the target organism. Refinement of this complex has the potential to provide a clinically useful, selective agent.

LP0562535 A/Prof SJ Crump; Prof P Goodyear; A/Prof JE Tuovinen; A/Prof BC Devlin

Title: Interactive Distance E-Learning for Isolated Communities: 'Opening Our Eyes'

2005 : \$85,000
2006 : \$156,000
2007 : \$157,000
2008 : \$86,000

Category: 3301 - EDUCATION STUDIES

Partner Organisation(s)

NT Department of Employment, Education and

NSW Department of Education and Training

SingTel Optus Pty Ltd

Administering Institution: The University of Sydney

Summary:

The project will investigate people's use, and experience, of a new satellite-based communications system, being deployed for isolated communities in NSW and the NT. This system (IDeL) supports distance learning, using two-way video communications and interactive computer technologies. Our project will work at three levels: (1) gathering evidence about the experiences and new working practices of learners, teachers and others using IDeL; (2) seeing how different ways of capturing and sharing these local practices and experiences support the spread of ideas across the system; (3) understanding the dynamics of implementation and take-up of complex, highly-distributed systems of this kind.

LP0562246 Prof D Feng; A/Prof M Fulham; Dr RR Fulton; Dr S Eberl; Dr W Cai

Title: An Innovative Multimedia Framework for Multidimensional PET-CT Image Navigation and Communication

2005 : \$80,000
2006 : \$160,000
2007 : \$160,000
2008 : \$80,000

Category: 2801 - INFORMATION SYSTEMS

Partner Organisation(s)

Royal Prince Alfred Hospital

Administering Institution: The University of Sydney

Summary:

The recent development of a combined positron emission tomography and computerized tomography (PET-CT) device ushers in a completely new era in molecular imaging that will revolutionize the approach to imaging in the clinical environment. In this project, we address a number of the critical challenges associated with the introduction of PET-CT, and provide a range of innovative multimedia technologies to visualize, manipulate and deliver these multi-dimensional data. Our research will greatly enhance the clinical and research benefits of PET-CT and facilitate new discoveries which will have a significant scientific and social impact in Australia and the world at large.

LP0561535 Prof SR Garton; Dr P Ashton; Dr SH Fitzgerald; Dr IR Johnson; Mr RH Coleman

Title: **The Dictionary of Sydney: Delivering the city's digital multimedia resources to the wider community**

2005 : \$79,500
2006 : \$167,000
2007 : \$181,500
2008 : \$191,350
2009 : \$197,350
2010 : \$100,000

Category: 4301 - HISTORICAL STUDIES

Partner Organisation(s)

City of Sydney

State Records NSW

State Library of NSW

Administering Institution: The University of Sydney

Summary:

Sydney is a global metropolis with a complex identity and continuously changing form. The Dictionary of Sydney will leverage the contributions of hundreds of researchers to re-present the history of the city using scholarly text, digital multimedia and the Internet. The Dictionary will deliver primary sources, analysis and synthesis to diverse audiences, building on the information delivery expertise of the project partners. The Dictionary will form an invaluable resource informing urban, heritage and planning policy; providing resources for education and cultural tourism; advancing the application of digital technology in the humanities; and internationally showcasing Australian scholarship.

LP0562146 Prof P Goodyear; A/Prof MT Prosser; Dr RA Ellis; Ms S Blackwell; Ms M McNeill

Title: **Blended learning in schools, TAFE and universities: experience, principles, patterns and practice**

2005 : \$41,500
2006 : \$86,500
2007 : \$93,500
2008 : \$48,500

Category: 3301 - EDUCATION STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Department of Education and Training

Administering Institution: The University of Sydney

Summary:

Effective use of technology in education depends upon the teacher's understanding of good ways to support learning. New uses of technology to improve learning are emerging constantly: the challenge is to share good practice. This project focuses on investigating the quality of blended learning experiences and using the outcomes to identify and share good practice using a format called a 'design pattern'. Design patterns combine research-based evidence and the knowledge of experienced practitioners in a format which is relatively easy to communicate, learn and apply. They are not yet used in teaching with technology. We will generate and test design patterns for learning through discussion in technology-based and other classroom settings.

LP0562636 Dr JL Irwin; Dr L Laing; Dr L Napier

Title: Towards Better Practice: Enhancing collaboration between mental health and domestic violence services

2005 : \$41,500

2006 : \$83,000

2007 : \$83,000

2008 : \$41,500

Category: 3702 - SOCIAL WORK

Partner Organisation(s)

Fairfield/Liverpool Mental Health Service
Education Centre Against Violence
Joan Harrison Support Services for Women Inc
Transcultural Mental Health Centre

Administering Institution: The University of Sydney

Summary:

This project tackles the urgent problem of access to appropriate services for women experiencing both mental illness and domestic violence. Informed by women's accounts of service provision, the study explores barriers to, and opportunities for, improved inter-sectoral collaboration. New models of collaboration will be identified and trialled using action evaluation methodology. Anticipated outcomes include reduced homelessness in this vulnerable group of women with complex needs; more appropriate responses to women when domestic violence underlies presentations to mental health services; and incorporation, for the first time, of mental health services into coordinated community responses to domestic violence.

LP0562598 Dr AS Jones; Dr M Takatsuka; Dr B Loo; Mr N Andriopoulos; Dr J Magnussen; Ms N Tsafnat; Dr MR Mahoney

Title: X-ray tomographic analysis and modelling of metallurgical coke

2005 : \$77,496

2006 : \$154,991

2007 : \$154,991

2008 : \$77,496

Category: 2601 - GEOLOGY

APA(I) Award(s): 2

APDI Ms N Tsafnat

Partner Organisation(s)

BHP Billiton Innovation Pty. Ltd.

Administering Institution: The University of Sydney

Summary:

This project will apply 3D X-ray micro-tomography and model-based computational analysis to develop innovative approaches to the micro-structural characterisation of metallurgical coke. This has significant ramifications for the iron industry since coke characterisation is of primary importance to improved blast furnace productivity. The project will deliver new quantitative indices of coke microstructure, develop models for simulation of micro-structural properties and coke transport properties, and examine coke reactivity in 3D contexts. This project will also be the first study to use multi-scale 3D X-ray tomographic analysis to examine the structural dynamics of coke during both its production and its use in the blast furnace.

LP0562715 Dr AS Jones; Dr GG King

Title: X-ray Micro-tomography Validation of HRCT-Based Airway Measurements

2005 : \$47,500

2006 : \$95,000

2007 : \$95,000

2008 : \$47,500

Category: 3210 - CLINICAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Woolcock Institute of Medical Research

Administering Institution: The University of Sydney

Summary:

This project brings together a newly emergent modality of microscopy in the form of 3D X-ray micro-tomography (XRMT) along with leading-edge image analysis to develop breakthrough science in respiratory research aimed at improving the reliability of high resolution computed tomography (HRCT). The project will develop novel 3D lung image segmentation protocols, a stereotactic registration program allowing 3D matching of XRCT and HRCT data sets, and a validation protocol for quantitative HRCT analysis of airway disease. These outcomes will allow wider application of HRCT to non-invasively follow the dynamics of pulmonary function.

LP0562693 Prof S Jones; Ms J Loftus; Dr G Frost; Ms SL Van Der Laan; Dr PJ Lee; Dr CJ Dey

Title: **The role of accountants and accounting in improved sustainability management and reporting**

2005 : \$45,000

2006 : \$85,000

2007 : \$87,500

2008 : \$47,500

Category: 3501 - ACCOUNTING, AUDITING AND ACCOUNTABILITY

Partner Organisation(s)

CPA Australia

Administering Institution: The University of Sydney

Summary:

This project will provide a comprehensive understanding of avenues available for the accounting profession to more formally embrace the management of environmental and social aspects of organisational performance. In particular, the project examines the internal sustainability information gathering and reporting processes and the use of this information by internal decision makers. We investigate, inter alia, existing systems/procedures used to generate data on non-financial performance and how sustainability data can be collected efficiently and better integrated through the accounting system; and how accounting systems could be extended to incorporate such information, including specific tools that are appropriate to achieve this aim.

LP0562391 Dr AW Meats; Dr JA Sved; Dr C Smallridge; Dr P Wright

Title: **The future of fruit fly control: making the Sterile Insect Technique work for Queensland fruit fly**

2005 : \$30,000

2006 : \$60,000

2007 : \$60,000

2008 : \$30,000

Category: 2702 - GENETICS

Partner Organisation(s)

Department of Primary Industries and
Victorian Department of Primary Industries
NSW Department of Primary Industries
Murray Valley Citrus Board
Central Darling Shire Council

Administering Institution: The University of Sydney

Summary:

The future of fruit fly control in Australia lies in the Sterile Insect Technique (SIT): it is the only non-pesticide option that can totally eliminate pest populations. Millions of dollars have already been invested to establish an SIT program against Queensland fruit fly (Q-fly) in southern and eastern Australia, but this program is currently largely ineffective due to the poor performance of the mass-reared sterile flies. This project will apply genetic, ecological and technical solutions to the problems facing the current Q-fly control program. Effective control of Q-fly will enhance the international competitiveness of Australia's horticultural industries.

LP0562663 Prof TR Parmenter; A/Prof DG Evans; Dr M Carter; Dr N Silove; Dr K Williams

Title: **Comparative Analysis of Early Intervention Programs for Young Children with Autism**

2005 : \$48,000

2006 : \$95,500

2007 : \$105,000

2008 : \$57,500

Category: 3301 - EDUCATION STUDIES

Partner Organisation(s)

Autism Association of NSW

Administering Institution: The University of Sydney

Summary:

This project will contribute valuable information on how agencies and governments nationally and overseas can cater for a rapidly growing number of students identified with autism. Two early intervention programs - home-based and centre-based - for young children with autism and their families will be compared to each other and a control group. Through promoting strong family knowledge about autism, strategies for managing a young child with autism (e.g., communication, social skills), plus fostering inter-family and community links, families will be empowered to promote healthy outcomes for their young child.

LP0562243 Prof CA Pollock; Dr X Chen

Title: The role of SGK-1 and SGK-2 in hypertension and nephropathy in diabetes mellitus

2005 : \$27,500

2006 : \$55,000

2007 : \$27,500

Category: 3210 - CLINICAL SCIENCES

Partner Organisation(s)

GlaxoSmithKline

Administering Institution: The University of Sydney

Summary:

The key objective is to define the suitability of the serum glucocorticoid regulated kinases -1 and -2 (SGK-1, -2) as novel drug discovery targets. A specific inhibitor targeting SGK-1 and -2 will be tested to determine if it reverses the enhanced sodium reabsorption and extracellular matrix production characteristic of progressive renal failure in in vitro models of renal disease. These inhibitors present an opportunity to control hypertension whilst simultaneously limiting fibrosis in the kidney. Renal failure is steadily increasing and is now the single largest health care cost to the community. These studies will provide the proof of concept required to ultimately bring this novel preventative therapy to the community.

LP0562267 Prof P Reimann; Dr A Dong

Title: Designing for Mobile Learning in a Technology Museum

2005 : \$24,148

2006 : \$48,296

2007 : \$48,296

2008 : \$24,148

Category: 3301 - EDUCATION STUDIES

APA(I) Award(s): 2

Partner Organisation(s)

Powerhouse Museum

Administering Institution: The University of Sydney

Summary:

The main objective is to investigate which pedagogical models are most appropriate for informal (museum) learning and how these models can be aligned with ICT-mediated learning tools. In collaboration with The Powerhouse Museum, we will develop a pedagogical model of informal learning, create activities supported by a mobile learning and 'collaboratory' technical infrastructure to nurture experiential learning and informal discovery, and investigate informal learner experiences within this ICT-mediated informal learning environment. The project will create a reference implementation of an informal learning environment, document its development process, and evaluate its effect on museum visitors.

LP0562384 Dr JR Reimers; Prof MJ Crossley; Em/Prof NS Hush; Dr PC Dastoor

Title: Inception of a Practical, Biomimetic, Flexible Photovoltaic Device

2005 : \$157,500

2006 : \$315,000

2007 : \$315,000

2008 : \$157,500

Category: 2503 - ORGANIC CHEMISTRY

APA(I) Award(s): 3

Partner Organisation(s)

Universal Solar and Surface Science Pty. Ltd.

Administering Institution: The University of Sydney

Summary:

This project will design and synthesise new, complex, functional organic molecules and assemble them to create a new type of photovoltaic cell. This device will be designed using biomimetic principles to emulate many of the efficient photosynthetic solar energy conversion processes that occur in plants. A key feature is that near atomic-level control will be achieved over the entire device structure, facilitating the establishment of a clear path towards the commercial production of solar cells that are simultaneously highly efficient, long lasting, flexible, and very cheap to manufacture.

LP0561834 Prof RJ Whittington

Title: Biotechnology and epidemiology to control nodavirus in barramundi aquaculture

2005 : \$37,500

2006 : \$75,000

2007 : \$75,000

2008 : \$37,500

Category: 3005 - VETERINARY SCIENCES

APA(I) Award(s): 2

Partner Organisation(s)

Darwin Aquaculture Centre, Fisheries Group,
Marine Harvest Ltd
Berrimah Veterinary Laboratory, Department of

Administering Institution: The University of Sydney

Summary:

Production of farmed barramundi has increased more than 1200% in the NT since 2001 but is threatened by nodavirus infection. Three industry partners, Darwin Aquaculture Centre, Marine Harvest and Berrimah Veterinary Laboratory will collaborate with The University of Sydney to:

1. control nodavirus infection
2. develop new technologies to detect nodavirus using immunoassay and surface enhanced laser desorption ionisation mass spectroscopy (SELDI)
3. develop an integrated disease control strategy based on epidemiological survey data, and ensure that it is practical and able to be widely adopted

By this means growth targets for barramundi aquaculture in northern Australia will be achieved.

University of Technology, Sydney

LP0562553 Prof SJ Donald; Dr D Ghosh; Dr C Ho; A/Prof H Goodall; Mrs MK Abdo; Ms G Dadoun

Title: **Muslim Women's Networks in contemporary Australia: 1980 - 2005**

2005 : \$22,850

2006 : \$37,850

2007 : \$25,000

2008 : \$10,000

Category: 4203 - CULTURAL STUDIES

Partner Organisation(s)

United Muslim Women Association

Administering Institution: University of Technology, Sydney

Summary:

This project makes an important contribution to Muslim women's participation in public life. It researches the scope and potential of social networks and, crucially, acknowledges that both religious practice and secular activities are legitimate facets of everyday multicultural society. The project proposes a dynamic account of Muslim women's achievements and challenges, highlighting the causes and symptoms of past and present insecurity. The key concept of sanctuary - as - security is both innovative and significant to contemporary political debate. The project will result in a reflective organisational history, online oral history, policy recommendations for the advancement of Muslim women, and scholarly publications.

LP0562407 Dr SK Lal; Mr P Rossiter

Title: **SmartData: developing intelligent database system for communicating information to aviation and professional vehicle operators: towards safer transport industries**

2005 : \$45,500

2006 : \$91,500

2007 : \$92,500

2008 : \$46,500

Category: 2801 - INFORMATION SYSTEMS

APA(I) Award(s): 1

Partner Organisation(s)

Forge

Administering Institution: University of Technology, Sydney

Summary:

Detriments in human functional state is a major problem in the 'round the clock' transportation industries such as heavy-vehicle industry and aviation. The repetitive and monotonous nature of the tasks in these environments lead to fatigue, inattention and stress. This project proposes a unique and innovative SmartData system that will interact with operators and their working environment to counteract detriments in human performance. The proposed SmartData system will have the capabilities of alerting and warning of potentially hazardous situations associated with degradations in human performance. This innovative project aims to improve the safety culture of two major transportation sectors.

LP0562159 A/Prof MR Phillips; Dr M Toth; Mr WR Knowles; A/Prof EM Goldys

Title: **Development of a light detection system for enhanced scanning electron microscopy imaging of fully hydrated biological specimens at room temperature.**

2005 : \$36,460
2006 : \$75,413
2007 : \$77,906
2008 : \$38,953

Category: 2499 - OTHER PHYSICAL SCIENCES

Partner Organisation(s)

FEI Company

Administering Institution: University of Technology, Sydney

Summary:

This project aims to develop instrumentation and techniques to image fully hydrated cells for prolonged periods at room temperature in an environmental scanning electron microscope. Multiple fluorescent nano-particle labels will be used to image complex cellular structure and dynamics at ultra high spatial resolution. This innovative bio-imaging technique will be facilitated by the construction of a high speed light collection system that can efficiently operate at the pressures required to stabilise water within the cell. Applications for this new bio-imaging technique will also be explored.

LP0562470 Prof E Platen; Dr AL Pope

Title: **Risk Measurement for Large Portfolios under the Benchmark Approach**

2005 : \$12,074
2006 : \$24,148
2007 : \$24,148
2008 : \$12,074

Category: 3503 - BANKING, FINANCE AND INVESTMENT

APA(I) Award(s): 1

Partner Organisation(s)

Group Credit, St George Bank

Administering Institution: University of Technology, Sydney

Summary:

The measurement of risk for large portfolios, consisting of basic assets and derivatives, will play a key role in future risk management systems. Based on a new characterization of asymptotic portfolios this project proposes the development, implementation and testing of highly efficient new risk measurement methodologies suitable for portfolios with hundreds or thousands of instruments. Comparisons with standard and new simulation methods will demonstrate their superiority. The outcomes of this project will give the Australian industry and the industry partner a competitive advantage in the measurement and management of risk for large portfolios as superannuation funds or portfolios of banks.

LP0561633 A/Prof PJ Ralph; Dr CM Macinnis-Ng

Title: **Seagrass tolerance of oil spills - scaling of pollution impacts**

2005 : \$19,980
2006 : \$39,959
2007 : \$39,959
2008 : \$19,980

Category: 3008 - ENVIRONMENTAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Australian Maritime Safety Authority

Administering Institution: University of Technology, Sydney

Summary:

Seagrasses provide vital ecosystem services (such as sediment stabilisation and habitat provision) in Australian coastal waters. The contribution of pollutants to current seagrass decline is poorly understood. The Australian shipping industry is the 5th largest in the world but there is very little data on the impacts of petroleum hydrocarbons on intertidal seagrasses and hence no information for coastal resource managers to use in decision-making in the event of an oil spill. This project will assess the relative toxicities of a number of petroleum hydrocarbons on Australian seagrass species to provide necessary data for the development of effective management practice.

LP0562616 A/Prof E Schlogl; Prof AD Hall

Title: **Implied distributions and implied asset dynamics: Calibration and visualisation of models on market data**

2005 : \$54,148
2006 : \$107,148
2007 : \$100,000
2008 : \$47,000

Category: 3503 - BANKING, FINANCE AND INVESTMENT

APA(I) Award(s): 2

Partner Organisation(s)

SIRCA

Administering Institution: University of Technology, Sydney

Summary:

Global money markets represent a very complex interlinked system. Market prices of derivative financial instruments bear information about this system, information that is critical for the effective management of interest rate and currency risks in a global context. The project will develop and test methods to extract this information. It will provide an interactive environment to explore (numerically and visually) sensitivities of asset dynamics and derivatives prices to input data and modelling assumptions, thus permitting a detailed analysis of market and model risk.

LP0562623 Dr RJ Steele; Prof IT Hawryszkiewicz

Title: An Ontology Driven Framework for Legal Software

2005 : \$30,000
2006 : \$60,500
2007 : \$61,500
2008 : \$31,000

Category: 2801 - INFORMATION SYSTEMS

APA(I) Award(s): 1

Partner Organisation(s)

nSynergy Pty. Ltd.

Administering Institution: University of Technology, Sydney

Summary:

Legal resources and documents are increasingly available in electronic form allowing previously impossible collaborative and searching techniques for legal practitioners. By adding extra semantic markup to legal resources and documents increased processing capabilities are enabled. These include the ability to search for resources based on there existing a conceptual link and the ability to integrate resources that use different terminology. This project will enable these capabilities via the development of a novel ontology driven framework for collaborative legal software. This will allow significant efficiency gains and cost savings in the \$9.5 billion Australian legal services sector.

LP0562624 Dr RJ Steele; Dr E Lawrence; Dr X He

Title: New Mobile Interface Techniques for Accessing Desktop Applications from Mobile Devices

2005 : \$12,074
2006 : \$24,148
2007 : \$24,148
2008 : \$12,074

Category: 3502 - BUSINESS AND MANAGEMENT

APA(I) Award(s): 1

Partner Organisation(s)

Citrix Systems Australasia R&D Pty Ltd

Administering Institution: University of Technology, Sydney

Summary:

The mobile data industry is a multi-billion dollar industry and is growing at a rate of seventeen percent per year. The capability to access data and applications from handheld devices is becoming increasingly vital for businesses and transforming business practices. However, while there are a multitude of software applications available for use on desktop computers these typically can't be used from mobile devices due to the small form factor. In this project we will develop new mobile interface techniques and methodologies that will allow unaltered desktop software applications to be used from small-form factor mobile devices, via transforming the application interfaces.

LP0562440 Dr N Zhang; Dr JM Jeyakumaran; Mr R Monk; Mr RA Munday

Title: Dynamic Characteristics of Kinetic Suspension Systems for Vehicle Applications

2005 : \$50,000
2006 : \$100,000
2007 : \$100,000
2008 : \$50,000

Category: 2904 - AUTOMOTIVE ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Kinetic Pty. Ltd.

Administering Institution: University of Technology, Sydney

Summary:

Suspension systems play a key role in vehicle dynamics and, in addition to providing ride comfort, can prevent or minimise fatal collisions by enhancing vehicle stability. This project aims to advance the theory and design of the kinetic suspension systems (KSS), which break the compromise between ride comfort and vehicle handling inherent in most existing systems. Industry Partner, Kinetic, has invented many novel KSS and currently leads the world in the R&D of KSS technology. The gained ability in reliable analysis and virtual experimentation on the systems prior to prototyping and on-road tests enables the industry to rapidly commercialise the cutting-edge, safety-critical technology, thus bringing great benefits to society.

University of Western Sydney

LP0562532 Prof DK Burnham; Dr CM Kitamura; Dr V Ciocca; A/Prof JF Patrick

Title: **Optimal Training Methods for Lexical Tone Perception by Children with Cochlear Implants: Application of Experimental Psychology Techniques**

2005 : \$12,074

2006 : \$24,148

2007 : \$24,148

2008 : \$12,074

Category: 3801 - PSYCHOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Cochlear Limited

Administering Institution: University of Western Sydney

Summary:

Cochlear implants (CIs) stimulate the auditory nerve via electrodes in the cochlear to provide auditory information to people who would otherwise be functionally deaf. Cochlear site stimulation is at a constant rate so, despite the genius of the CI, it cannot convey pitch information effectively. Such information is essential for perceiving and speaking tone languages, in which word meaning depends on consonants, vowels, and tones (conveyed mainly by pitch). A training method to improve tone perception will be developed with non-tone language non-CI through to tone language CI children drawing on experimental psychology methods, auditory and visual (lip & face) speech information, exaggerated tone cues, and metalinguistic instruction.

LP0561662 A/Prof MM Carmody

Title: **Promoting ethical non-violent relationships of young women and men**

2005 : \$21,369

2006 : \$43,904

2007 : \$46,354

2008 : \$23,819

Category: 4203 - CULTURAL STUDIES

Partner Organisation(s)

NSW Rape Crisis Centre

Administering Institution: University of Western Sydney

Summary:

The research aims to contribute to the prevention of sexual violence between young women and men aged 16-25 years to promote their ability to live healthy, productive and fulfilling lives. It will provide a multidisciplinary approach to developing an evaluated educational training programme based on young people's experiences of sexual intimacy, sexuality and anti-violence education, delivery of a training programme in three rural and metropolitan sites and follow up interviews with young people six months after completion of the course. The findings of the research will inform policy makers, educators and community organisations working with young women and men.

LP0561858 Prof PS Cornish; Dr B Vigneswaran; Prof AJ Jakeman; Dr BF Croke; Mr M Krogh

Title: **Nutrient generation from rural land and delivery to streams in the Sydney Drinking Water Catchments**

2005 : \$27,574

2006 : \$55,148

2007 : \$45,148

2008 : \$17,574

Category: 3099 - OTHER AGRICULTURAL, VETERINARY AND ENVIRONMENTAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Sydney Catchment Authority

Administering Institution: University of Western Sydney

Summary:

The Sydney Catchment Authority must manage pollution arising from land within its catchments. There have been few local studies of nutrient losses from rural land, the major land use, and the understanding of some important processes involved in nutrient generation and delivery is weak. Therefore model predictions are uncertain. This project will quantify nutrient losses from key land uses, evaluate alternative loss pathways, and provide insight into the effects of scale, providing a foundation for improved modelling of nutrient sources and transport. The outcome will be the capacity to prioritise land uses and parts catchments for remedial action, whilst providing a modelling approach relevant to the SCA and other catchment managers.

LP0562665 Dr E Lally; Prof RI Hodge; Ms T Lee-Shoy

Title: **Bridging worlds, linking cultures: an electronic planning tool for the Western Sydney region**

2005 : \$20,000

2006 : \$20,000

Category: 4203 - CULTURAL STUDIES

Partner Organisation(s)

Western Sydney Regional Organisation of Information and Cultural Exchange (ICE)

Administering Institution: University of Western Sydney

Summary:

This project aims to address, theoretically and practically, goals and demands for cultural planning in the information age. It will develop principles and procedures for using the immense power of digital resources within a framework that is aware of the richness and diversity of societies, communities and cultures, integrating subjective and objective data holistically into local government planning processes. It will use Geographical Information Systems (GIS) digital infrastructure to develop new information architecture, new interface designs and new strategies to interrogate and use available databases and information systems relevant to regional strategic cultural planning in Greater Western Sydney.

LP0561518 Dr CP McGregor; Dr MB Tracy

Title: **High Frequency Data Stream Event Correlation for Complex Neonatal Medical Alerts**

2005 : \$12,074

2006 : \$24,148

2007 : \$24,148

2008 : \$12,074

Category: 2801 - INFORMATION SYSTEMS

APA(I) Award(s): 1

Partner Organisation(s)

Nepean Hospital, Wentworth Area Health Service

Administering Institution: University of Western Sydney

Summary:

Nearly twenty percent of newborn babies require intensive care after birth. Several electronic instruments monitor a baby's vital signs such as blood oxygen, blood pressure and heart rate. A major limitation in neonatal clinical management is that the data generated by these monitors is not integrated to enable the alerting of condition deterioration or early warning of possible condition onset. This project will develop a methodology and technology that supports the cross correlation of neonatal clinical and physiological data for complex neonatal medical alerts, through the use of agents within an event stream processor, resulting in higher survival rates.

LP0561651 Prof DM McInerney; Prof Dr TE Cook; A/Prof JE Tuovinen

Title: **Building the future for Indigenous students. The relationship of future vision, learning, and motivational profiles to school success.**

2005 : \$45,302

2006 : \$89,984

2007 : \$90,789

2008 : \$46,107

Category: 3301 - EDUCATION STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

NT DEET

Administering Institution: University of Western Sydney

Summary:

Indigenous students are the most severely disadvantaged group in Australia. Education as currently provided is failing them in the NT. Future Directions for Secondary Education in the NT states that 20% of secondary-aged Indigenous students are not enrolled in school, with only 6% completing the NTCE in 2002. Education is the corner stone of social justice because it is the basis of opportunity (Burney 03). This research will provide critical hard data on the relationship of Indigenous students' future vision and aspirations, motivation, self-concept and self-regulation, language and culture to school achievement in order to design and provide culturally relevant education to maximise Indigenous opportunities and futures.

LP0562034 Dr G Noble; Dr M Watkins

Title: **Discipline and Diversity: Cultural Practices and Dispositions of Learning**

2005 : \$27,113

2006 : \$57,561

2007 : \$30,448

Category: 3301 - EDUCATION STUDIES

Partner Organisation(s)

NSW Department of Education and Training

Administering Institution: University of Western Sydney

Summary:

This project, based in six primary schools across a number of regions in the Sydney metropolitan area, will examine the links between ethnicity, sociocultural background and 'scholarly habitus' - the embodied dispositions and educational capital necessary for participation in the Australian educational system. It will explore the extent to which such a habitus can be explained by ethnicity, or whether it also relates to a complex set of factors related to family background and socioeconomic status, manifest in specific home- and school-based practices.

LP0562687 A/Prof CJ Stevens; Mr RM Grove; Dr K Vincs; Dr E Schubert; Dr JM Milne-Home

Title: **Intention and Serendipity: Investigating Improvisation, Symbolism and Memory in Creating Australian Contemporary Dance**

2005 : \$52,500

2006 : \$102,500

2007 : \$100,000

2008 : \$50,000

Category: 3801 - PSYCHOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

The Australian Choreographic Centre

The Australia Council of the Arts

Australian Dance Council - Ausdance Inc

Cultural facilities Corporation

Administering Institution: University of Western Sydney

Summary:

Contemporary dance is one of the major vehicles through which Australian stories and cultural diversity are communicated. Little is known about the processes that underpin creation and performance of communicative dance works, and less still about processes and stylistic traditions unique to the Australian form. We will investigate cognitive and kinaesthetic processes involved in creating, refining, performing significant works. Combining experimental and practice-based research we examine psychological mechanisms engaged by elite choreographers, and experienced and emerging dancers, and analyse the unique Australian heritage and embodied knowledge evident in leading dancers and choreographers influenced by Gertrud Bodenwieser.

LP0562569 Dr L Treleaven; Dr MB Darcy; Ms J Pollard; Ms L Dooley

Title: **Maximising the contribution of NGOs in a new planning framework for community services provision**

2005 : \$22,199

2006 : \$44,803

2007 : \$45,629

2008 : \$23,025

Category: 3701 - SOCIOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Illawarra Forum Inc

Administering Institution: University of Western Sydney

Summary:

This interdisciplinary study will investigate how the contribution of NGOs in a new planning framework for community services can be maximised. This is important as the Friedman Results Accountability Planning Framework is being adopted in NSW for whole-of-government, cross-sector, regionalised planning. Using participatory action research, this first Australian study will test and develop the framework's capability to bring forward, value and fully utilise the knowledge of diverse communities and organisations. The research will open up possibilities not only for streamlining and delivering better human services but also for developing social capital with strong applications for social policy and local government.

University of Wollongong

LP0561605 Prof SX Dou; Dr AV Pan

Title: **Novel electric field induced coupling technique for liquid-phase heteroepitaxial growth of carbon thin films with diamond-like structure**

2005 : \$12,074

2006 : \$24,148

2007 : \$24,148

2008 : \$12,074

Category: 2903 - MANUFACTURING ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Polarised Technology Pty Ltd

Administering Institution: University of Wollongong

Summary:

The aim of the project is the growth of carbon thin films with a robust diamond-like structure for high performance electronic applications via the development of a new growth technique: Electric Field Induced Coupling (EFIC), which is based on liquid-phase layer-by-layer heteroepitaxial growth. The EFIC technique employing unique polarization-induced growth will significantly enhance technological output compared to existing technologies by overcoming current difficulties with expensive and complicated production methods. Ambient temperatures and pressures employed by the technique will enable us to form diamond-based semiconductors at low cost with sufficient speed and the properties required for industrial production.

LP0562607 Dr SA Gower; Mr CJ Hawley; A/Prof C Grantham; Mr T Beales

Title: **Integration of large capacity Superconducting Magnetic Energy Storage with Active Power Filter switching technology to achieve a complete power quality device.**

2005 : \$50,000

2006 : \$97,500

2007 : \$90,000

2008 : \$42,500

Category: 2909 - ELECTRICAL AND ELECTRONIC ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Australian Superconductors

Administering Institution: University of Wollongong

Summary:

The aim of this project is to integrate large capacity SMES with Active Power Filter (APF) switching technology to achieve a complete power quality control device.

The expected outcomes of the research are 1) An SMES design suitable for APF integration, 2) Development and implementation of lossless energy switching technologies, 3) Development of suitable APF switching algorithms, 4) An integrated design with competitive commercial analysis, and 5) A fully characterised prototype.

This project is innovative as the marriage of large capacity SMES with APF switching technology is essentially absent from the literature, and so there are high expectations for innovative applications and methodologies of fabrication.

LP0562346 Prof DW Griffith; Dr GW Bryant; Dr RM Law; Prof PO Wennberg; Dr BJ Connor

Title: **Innovative measurement and modelling of greenhouse fluxes at regional scales across Australia**

2005 : \$27,500

2006 : \$45,000
2007 : \$35,000
2008 : \$17,500

Category: 2606 - ATMOSPHERIC SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Australian Greenhouse Office
NIWA

Administering Institution: University of Wollongong

Summary:

Carbon dioxide accounts for around 60% of the enhanced greenhouse effect. This proposal aims to markedly improve knowledge of the exchange of carbon, mostly as CO₂, between atmospheric, ocean and land-based reservoirs in the Australian region. This will be achieved through a suite of measurements using innovative technologies: satellite and ground based remote sensing as well in situ measurements at Darwin and on the Ghan railway from Darwin to Adelaide. The measurements will be used to constrain inverse models of the carbon cycle and significantly reduce uncertainties in regional carbon source estimates. These estimates will in turn be compared to the Australian National Greenhouse Gas Inventory for comparison and verification.

LP0561586 A/Prof X Huang; Prof LC Tapsell; Dr M Batterham; Dr SK Gulati; Ms KL Grinter

Title: **Establishing evidence for the functional properties of a whole grain in weight management**

2005 : \$37,574
2006 : \$75,148
2007 : \$75,148
2008 : \$37,574

Category: 2901 - INDUSTRIAL BIOTECHNOLOGY AND FOOD SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Uncle Tobys

Administering Institution: University of Wollongong

Summary:

The successful development of functional foods relies on communicating proven effects. This project aims to prove that the food containing the satiety properties of a whole grain (OG) may help in weight management. We will conduct basic research investigating the link between consumption of OG-containing foods and the regulatory mechanisms of satiety, and test whether the satiety properties can be used to prevent, reduce and correct body weight gain in the early, middle and late stages of obesity. We will then apply this understanding in a human trial of mildly and long term overweight subjects, to aid the formulation of statements on the potential health benefits from consuming OG.

LP0562068 A/Prof PM Kell; Dr TJ Scrase; Dr R Ganguly-Scrase; Mr RJ O'Halloran

Title: **Australian Volunteers Abroad in Communities in the Asia/Pacific Region**

2005 : \$12,074
2006 : \$24,148
2007 : \$24,148
2008 : \$12,074

Category: 3701 - SOCIOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

PALMS Australia

Administering Institution: University of Wollongong

Summary:

Each year over 300 Australian volunteers work abroad in communities in the Asia Pacific region. This project researches key questions about the role of volunteers in contributing to regional stability, community capacity building and poverty alleviation. The research also explores questions about the preparation and knowledge required for overseas volunteers working in local communities in the future. The project aims to analyse an important aspect of Australia's interaction with the Asia Pacific region; identify key features of volunteering from the perspective of volunteers, volunteer organisations, host communities and government; and develop up-to-date research material and procedures for preparing Australian volunteers.

LP0561881 Prof A Lawson; Mr S Pozel; Ms M Stapleton; Miss DS Merrillees; Mr BW Parkes

Title: **Contemporary art, craft and the audience**

2005 : \$25,000
2006 : \$50,000

2007 : \$50,000
2008 : \$25,000

Category: 4102 - VISUAL ARTS AND CRAFTS

Partner Organisation(s)

Object: Australian Centre for Craft and Design
Museums and Galleries Foundation of NSW

Administering Institution: University of Wollongong

Summary:

This project addresses issues of audiences and contemporary art and craft, particularly in regional Australia. It breaks new ground in developing models for public galleries in programming, presenting and interpreting contemporary work. A broad audience research framework will be developed as well as innovative strategies for interpretation, drawing on an interdisciplinary theoretical basis which includes media studies, narrative and visual culture theory. The project will run over three years, a variety of media, including craft, digital media and installation, and dispersed exhibition sites; documentation and dissemination of outcomes, to be developed with the project partners, will address specific industry development needs.

LP0562017 Dr BJ Meyer; Prof AJ Sinclair; A/Prof RA Gibson

Title: Long Chain Omega-3 Polyunsaturated Fatty Acids and Heart Health in Humans

2005 : \$13,074
2006 : \$26,148
2007 : \$26,148
2008 : \$13,074

Category: 3203 - MEDICAL BIOCHEMISTRY AND CLINICAL CHEMISTRY

APA(I) Award(s): 1

Partner Organisation(s)

NuMega Ingredients
Analytical Reference Laboratories (ARL)

Administering Institution: University of Wollongong

Summary:

The primary aims of the project is to assess the effect of DHA rich tuna oil on cholesterol carrying lipoproteins and to determine a quicker method in assessing someone's omega-3 status. The expected outcomes include the determination of: 1) the most appropriate blood sample and a rapid test and for evaluating the omega-3 status; 2) the minimum dose of tuna oil required which will not only improve a person's omega-3 status but also improve their plasma lipid profile and hence reduce their overall risk for cardiovascular disease (CVD); and 3) the use of the Omega-3 Index by medical practitioners. The significance is the increased knowledge of the health benefits of DHA rich tuna oil and that a new CVD risk marker will be generally accepted.

LP0562094 Dr BJ Monaghan; Dr SA Nightingale; Dr JG Mathieson; Dr RJ Nightingale

Title: Insoluble Oxide Product Formation and its Effect on Coke Dissolution in Liquid Iron

2005 : \$14,074
2006 : \$27,648
2007 : \$27,148
2008 : \$13,574

Category: 2913 - METALLURGY

APA(I) Award(s): 1

Partner Organisation(s)

BlueScope Steel Limited

Administering Institution: University of Wollongong

Summary:

This investigation addresses the key issue of the effect of oxide formation on coke dissolution during ironmaking. A fundamental understanding of the nature of the oxide layer and its penetration by liquid metal is critical to the optimization of both traditional and new ironmaking technologies. The project will obtain kinetic data that will be used in process models to improve productivity, reduce coke consumption and reduce greenhouse gas emissions. This knowledge is particularly important for maintaining the competitiveness of Australian iron producers due to the high refractory oxide content of local coking coals.

Victoria

Deakin University

LP0562224 Dr LR Komesaroff; Prof MB Hyde; Prof M Bagaric

Title: A comparison of anticipated benefits and the personal, educational and social outcomes of cochlear implantation in deaf children.

2005 : \$24,443

2006 : \$49,512

2007 : \$50,020

2008 : \$24,951

Category: 3301 - EDUCATION STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Deaf Children Australia

Administering Institution: Deakin University

Summary:

Language and communication, educational achievement, social identity and psychological well-being are critical outcomes of cochlear implantation if this intervention is broadly in the best interests of deaf children. This joint project uses innovative methodology to compare anticipated benefits of implantation and achieved outcomes in school, home and social settings over three years. It enables analyses of data on personal, social and educational outcomes of implantation not currently available to families, medical implant programs, advocacy organisations and educational authorities. Such information will assist in addressing any barriers to the children's personal and social development and achievement in educational and family settings.

LP0562367 Dr K Walder; Prof DE James; Dr D Brown

Title: Use of a cell based assay to identify novel insulin-sensitising agents

2005 : \$55,000

2006 : \$112,500

2007 : \$110,000

2008 : \$52,500

Category: 2701 - BIOCHEMISTRY AND CELL BIOLOGY

Partner Organisation(s)

ChemGenex Pharmaceuticals Ltd.

Administering Institution: Deakin University

Summary:

Diabetes and obesity are currently escalating to epidemic proportions in Australia and there is an urgent need to develop new therapeutics. A major feature of these disorders is impaired insulin action. We have recently developed and validated an exciting new assay for insulin action in fat cells. In this project we propose an exciting research program encompassing major research and biotechnology groups in Australia to utilise this technology to identify novel insulin-sensitising agents. These agents will be used for drug discovery purposes by our industry partner ChemGenex and as novel tools to dissect the mechanism of insulin action.

LP0562156 Prof W Zhou; Dr W Shi

Title: Protecting Web Services from Distributed Denial of Service Attacks

2005 : \$12,074

2006 : \$24,148

2007 : \$24,148

2008 : \$12,074

Category: 2801 - INFORMATION SYSTEMS

APA(I) Award(s): 1

Partner Organisation(s)

Belmont Computer Centre Pty Ltd

Administering Institution: Deakin University

Summary:

Distributed denial-of-service (DDoS) attacks bring a tremendous threat to web services on the Internet. Large amount of web services were pulled down worldwide by the DDoS attacks, with huge losses in business. Effective approaches to defeat DDoS attacks are desperately demanded. Most existing DDoS defense systems aim to only protect the victim network and are not fully integrated. In this project we propose a novel defense system to protect web services from DDoS attacks. Our system is one of the first systems that have a mixture deployment in both victim end and attack source end, and integrated capabilities of intrusion surveillance, traffic control, and traceback, thus achieve better control results over other mechanisms.

La Trobe University

LP0561522 Prof S Reilly; A/Prof MA Wake; Dr SR Goldfeld

Title: Cluster randomised control trial of an early childhood literacy intervention to improve literacy and language outcomes in preschool aged children

2005 : \$31,250
2006 : \$67,750
2007 : \$64,000
2008 : \$37,500
2009 : \$40,750
2010 : \$30,750

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

The Smith Family
Murdoch Childrens Research Institute

Administering Institution: La Trobe University

Summary:

Reading failure disproportionately affects disadvantaged communities in Australia, with nearly 40% of poor children failing to read at the minimum reading benchmark in Grade three. Of more concern is the disturbing trend indicating that prior to first grade, socioeconomic status (SES) differences also exist in important antecedents of reading such as letter knowledge and phonological processing skills, yet there remains no universal program to promote early language and literacy practices in the primary care setting. We propose a cluster randomised controlled trial to evaluate the efficacy of a multi injection intervention to improve literacy outcomes of children in disadvantaged communities.

LP0561954 Dr AJ Taft; Dr K Stewart; Dr JM Shelley; A/Prof A Smith; Prof J Lumley; Prof CB CHAPMAN

Title: A study of the provision of the emergency contraceptive pill over-the-counter in Australia

2005 : \$15,000
2006 : \$40,000
2007 : \$45,000
2008 : \$20,000

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Sexual Health and Family Planning of Australia
Schering pharmaceuticals

Administering Institution: La Trobe University

Summary:

Australian abortion rates, especially among young women, are a major concern. The emergency contraceptive pill (ECP) is an effective method for the prevention of unwanted and unplanned pregnancy, with the potential to reduce abortions. The study aims to provide evidence of whether the rescheduling of ECP in Australia so that pharmacists as well as doctors can dispense it, has improved its accessibility and use by women at risk of abortion. It will also assess whether pharmacists feel confident, well-trained and supported to provide it and whether abortion rates have reduced. The study will provide policymakers with the evidence to assess whether this important initiative is effective and what is needed to improve its effectiveness.

LP0562504 Dr C Tang; Dr D Liu; Dr MK Conyers

Title: Combating subsoil acidity for sustainable production through managing plant cation-anion uptake

2005 : \$40,000
2006 : \$80,000
2007 : \$80,000
2008 : \$40,000

Category: 3009 - LAND, PARKS AND AGRICULTURE MANAGEMENT

APA(I) Award(s): 1

Partner Organisation(s)

NSW Department of Primary Industries

Administering Institution: La Trobe University

Summary:

At least 50 million hectares of topsoil and 23 million ha of subsoil of Australian land are presently affected by acidity, with this area expanding due to the ongoing processes of acidification. Surface liming is ineffective in neutralizing subsoil acidity. The project will develop an innovative method that stimulates root proliferation and ameliorates subsoil acidity through manipulating the balance of nutrient uptake by plants. The effects of the developed method on nutrient use efficiency and leaching loss, and crop yields will be quantified under different soil types and climatic conditions.

Monash University

LP0562626 Prof B Adler

Title: Vaccine against leptospirosis

2005 : \$85,000
2006 : \$170,000
2007 : \$170,000
2008 : \$85,000

Category: 3005 - VETERINARY SCIENCES

Partner Organisation(s)

Pfizer Australia

Administering Institution: Monash University

Summary:

This project will utilise the information from the determination of the complete genome sequence of *Leptospira borgpetersenii* serovar Hardjobovis at Monash University. Bioinformatics analysis will be used to allow a global approach to identify all putative vaccine antigens which will be cloned, expressed and purified and their protective capacity investigated.

LP0562593 A/Prof SL Barkoczy; A/Prof JS Glover

Title: Venture capital (VC) and tax expenditure programs - an international comparative analysis of legal structures and benefits.

2005 : \$31,126
2006 : \$31,126

Category: 3901 - LAW

Partner Organisation(s)

Department of Industry, Tourism and

Administering Institution: Monash University

Summary:

VC investment is an important catalyst for economic growth. Many governments, including the Australian government, have designed schemes to encourage VC investment. This project compares VC schemes that exist in OECD and ASEAN countries. It will focus on "tax expenditure programs" and will analyse their legal structures and benefits. The results will be used to benchmark Australia's main VC schemes - the "PDF program" and "VCLP scheme". The research is designed to discover insights into alternative ways of stimulating VC investment as well as suggest areas for potential law reform and structural change. Findings will be published in refereed journal articles and an independent report provided to the Australian Government.

LP0562573 Dr O El-Kabbani

Title: Structure-based discovery of dipeptidyl peptidase IV inhibitors

2005 : \$20,000
2006 : \$40,000
2007 : \$20,000

Category: 2701 - BIOCHEMISTRY AND CELL BIOLOGY

Partner Organisation(s)

Sanwa Kagaku Kenkyusho Co. Ltd.

Administering Institution: Monash University

Summary:

Diabetes afflicts approximately 151 million people worldwide, with an estimated increase to 221 million by 2010. To date, no therapy for the treatment of diabetes complications is widely accepted. The enzyme dipeptidyl peptidase IV has shown promising results as a target for the treatment of type 2 diabetes. Structural studies of dipeptidyl peptidase IV in complex with inhibitor will be conducted to elucidate the details of the enzyme-inhibitor interaction. The results will be used to identify the molecular basis of potency and selectivity of dipeptidyl peptidase IV inhibitors and may lead to the discovery of pharmaceutical agents for the treatment of diabetes sufferers.

LP0562393 A/Prof JJ Hocking

Title: Gough Whitlam: People, Party, Politics

2005 : \$26,500
2006 : \$48,350

2007 : \$53,200
2008 : \$31,350
Category: 4301 - HISTORICAL STUDIES

Partner Organisation(s)

National Library of Australia
National Archives of Australia

Administering Institution: Monash University

Summary:

This project will be the first contemporary, definitive, biographical study of Gough Whitlam. The biography is part of a broader multimedia platform proposed by the project, enabling access to a range of archival materials on Whitlam, family and colleagues, drawing on its unprecedented access to manuscripts, archival material and the subject himself, together with the creation of an extensive Oral History collection. This project provides a unique opportunity to examine Australian political and cultural developments in the twentieth century through the life of one of its most significant public figures.

LP0562445 Prof RA Jarvis

Title: **Robotic Inspection and Safe Removals of Suspicious/Abandoned Luggage**

2005 : \$28,500
2006 : \$57,000
2007 : \$57,000
2008 : \$28,500

Category: 2802 - ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

Partner Organisation(s)

iOmniscient Pty. Ltd.

Administering Institution: Monash University

Summary:

Abandoned luggage 'discovered' at airports and other sites by iOmniscient's video surveillance system may contain explosive, dangerous chemicals or lethal biological agents. This project is about using sensor equipped robots to inspect this luggage by x-ray and other means (e.g.: ultrasound or electromagnetic sensors) and then, if appropriate, to remove it to a safe disposal area so as to minimise the risk to others sharing this public space and those personnel responsible for security operations. iOmniscient Pty.Ltd., as the industrial partner, clearly has a commercial interest in the success of this project and thus is strongly motivated to support it.

LP0561958 A/Prof RC Mac Nally; Dr J Read; Dr PJ Baker; Mr MD White

Title: **Towards sustainable floodplain communities: Assessing River Red Gum health**

2005 : \$57,000
2006 : \$110,500
2007 : \$107,000
2008 : \$53,500

Category: 2707 - ECOLOGY AND EVOLUTION

APA(I) Award(s): 1

Partner Organisation(s)

Goulburn Broken Catchment Management
North Central Catchment Management Authority
Malle Catchment Management Authority
North East Catchment Management Authority
Department of Sustainability and Environment
Department of Sustainability and Environment
Arthur Rylah Institute of Environmental
Department of Sustainability and Environment

Administering Institution: Monash University

Summary:

Floodplain vegetation in Australia has suffered severe degradation from river regulation but there is limited understanding of the functioning, responses and requirements of the ecosystem's most critical species, the River Red Gum. We will address three knowledge gaps needed for effective management of floodplain river red gums by assessing current and past health, determining stressors affecting health and by building a model for predicting future health based on projected trends. Outcomes from this study will help land managers to prioritise environmental flow allocations based on the requirements for sustaining future river red gum populations.

LP0562429 Dr IR McKinnon; Dr M Augustin; Dr M Bugar

Title: **A new biophysical approach to understanding self-assembly of dairy proteins in real time in complex**

systems of industrial importance.

2005 : \$60,000
2006 : \$110,000
2007 : \$100,000
2008 : \$50,000

Category: 2501 - PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

APA(l) Award(s): 1

Partner Organisation(s)

DIGA

Administering Institution: Monash University

Summary:

The study seeks to understand the molecular basis of self-assembly (aggregation and gelation) of dairy proteins during thermal processing of dairy products. This will involve direct determination, in real time, of the extent, rate and degree of reversibility of the changes that take place. These include changes in the composition, structure and stability of the casein micelles, changes in properties such as pH and pCa and changes such as the denaturation of b-lactoglobulin and its binding to k-casein. The purpose of the study is to provide the scientific base for improving the consistency of manufactured dairy products and for developing new food ingredients with new functionalities thus opening up new opportunities for the dairy industry.

LP0562615 Prof PJ Scammells; Dr CT Bui

Title: **Development of a Diversity-Oriented Synthesis Platform**

2005 : \$37,500
2006 : \$75,000
2007 : \$75,000
2008 : \$37,500

Category: 2503 - ORGANIC CHEMISTRY

Partner Organisation(s)

Iliad Chemicals

Administering Institution: Monash University

Summary:

Genomic, proteomic and other studies of the molecular basis of disease are providing a constant stream of biomolecular targets for drug discovery. Identifying suitable drugs candidates to affect these targets centres around procuring a suitable library of compounds for screening. This application addresses some of the key issues related to the development of appropriate compound libraries for such screening programs.

LP0562358 Dr ST Siems; Prof MJ Reeder; Dr RM Wardle; Dr TL Clark; Mr A Nazarov; Mr S Stolp

Title: **Precipitation Events over Tasmania and their Response to Weather Modification**

2005 : \$35,000
2006 : \$59,898
2007 : \$59,898
2008 : \$35,000

Category: 2606 - ATMOSPHERIC SCIENCES

APA(l) Award(s): 2

Partner Organisation(s)

Hydro Tasmania/Hydro-Electric Corporation

Administering Institution: Monash University

Summary:

The ongoing cloud-seeding work undertaken by Hydro Tasmania will be investigated through a combination of fieldwork and numerical simulations. New instrumentation and advanced numerical models will allow this research to provide a new understanding of the precipitation events over Tasmania and their response to cloud seeding. This research will also explore the interaction between the background aerosol/pollution level and the precipitation. Given the relatively pure nature of the air over Tasmania, this research will be of international interest. This research will also be of direct interest to Hydro Tasmania as insight gained into the precipitation events will allow us to optimise their cloud-seeding operation.

LP0561542 Prof BJ Tonge; Prof SL Einfeld; Dr C Mohr

Title: **Normative study of a checklist of emotional and behavioural disturbance in adults with intellectual**

2005 : \$68,370
2006 : \$136,740
2007 : \$136,740

2008 : \$68,370

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 2

Partner Organisation(s)

Intellectual Disability Services Council
Minda Incorporated
Department of Education and Children's

Administering Institution: Monash University

Summary:

People with intellectual disability (ID) are three times more likely to suffer mental illness than the general community, making this a bigger problem than schizophrenia. They are a great burden to their carers and cost to the community but their mental health problems remain largely untreated. This study aims to conduct the largest and most comprehensive survey of the mental health of adults with ID that has been undertaken internationally to date. The population will cover the age span of late adolescence (16 years) through the transition to adult life then through to the elderly. The research will establish the prevalence and nature of mental illness and potential risk factors in a large representative population of adults with ID.

LP0562199 Dr AG Wood; Prof DC Reutens; Prof VA Anderson; Prof S Reilly; Dr AT Morgan

Title: **Elucidating the neurobiological basis for developmental stuttering using modern brain imaging techniques**

2005 : \$40,000

2006 : \$80,000

2007 : \$40,000

Category: 3299 - OTHER MEDICAL AND HEALTH SCIENCES

Partner Organisation(s)

Royal Children's Hospital

Administering Institution: Monash University

Summary:

We plan to utilise brain imaging techniques to examine the neurological underpinnings of stuttering. We aim to develop new tools for functional magnetic resonance imaging (fMRI) to examine the patterns of brain activation in the motor, speech and language areas, specifically for use in children who stutter. We aim to answer the question of whether stuttering is a motor-speech or a language disorder and to establish whether variations in the speech and language regions of the brain found in adult stuttering research are also present in children who stutter, and to explore the possibility that different variations in brain activation and/or morphology may predict persistence and recovery.

RMIT University

LP0562568 A/Prof M Al-Dabbagh; Prof X Yu

Title: **Developing a Smart Monitoring System for Leakage Currents from Insulators on Wooden Poles**

2005 : \$24,148

2006 : \$48,296

2007 : \$48,296

2008 : \$24,148

Category: 2909 - ELECTRICAL AND ELECTRONIC ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

Alinta Network Services
Powercor Australia

Administering Institution: RMIT University

Summary:

Numerous wooden poles are used for electricity power transmission in urban and rural areas of Australia. Insulators suspended on poles are subject to contamination and moisture that cause partial discharge currents to flow through the wooden poles, resulting in pole fires leading to loss of power to customers and possible bush fires. This project aims at studying the characteristics of leakage currents from insulators on wooden poles in Australian conditions and developing a smart monitoring system to detect and prevent pole fires caused by leakage currents. The outcomes will reduce the risk of pole fires, hence improving public safety, reliability of power supply and sustainability of the Australian power industry.

LP0562562 Prof I Cosic; Prof MM Cohen; Dr Q Fang

Title: **Design and Development of a Low-Cost Portable Biofeedback Device for use in Sleep Induction and Relaxation**

2005 : \$20,000
2006 : \$40,000
2007 : \$40,000
2008 : \$20,000

Category: 2915 - BIOMEDICAL ENGINEERING

Partner Organisation(s)

Compumedics Limited

Administering Institution: RMIT University

Summary:

This project aims to expand on existing knowledge of the various stimuli used in sleep induction such as photic, auditory and weak electromagnetic stimulation and develop a low-cost portable biofeedback prototype. This novel device will be based on adaptive or fuzzy reasoning algorithms, which would be integrated into the existing ambulatory Siesta EEG recording system, produced by Compumedics Ltd. The development of this novel real-time biofeedback prototype will encourage further research using this particular technology to apply it in preventative healthcare in Australian community. The outcome of this proposed bioinstrumentation prototype could possibly expand sleep market to new international level.

LP0561577 Dr RH Eversole; Dr JL Shaw

Title: **Leveraging Remittances with Microfinance: A Cross-country Study**

2005 : \$31,634
2006 : \$42,369
2007 : \$10,736

Category: 3402 - APPLIED ECONOMICS

Partner Organisation(s)

The Foundation for Development Cooperation
Australian Agency for International Development
ANZ Bank Fiji
South Pacific Business Development Foundation
Bank Rakyat Indonesia
Microfinance Council of the Philippines, Inc.
TSPI (Tulay Sa Pag-Unlad Inc.) Development

Administering Institution: RMIT University

Summary:

This study recognises the high and growing significance of overseas migrant remittances as contributors to GDP and household livelihoods in many countries. It responds to current policy interest in remittances as a development resource, as well as security concerns related to informal funds transfers. This groundbreaking study will work with microfinance providers in six Asia-Pacific countries (Indonesia, Sri Lanka, Philippines, Samoa, Fiji and Tonga) to investigate the impacts of remittance-linked financial services on household well-being and economic development. The study will identify how existing and new services can best promote development and poverty reduction in migrant-sending areas.

LP0561790 Dr MJ Farrell; Mr I McGrath; Prof MD Wilson; Ms M D'Arcy

Title: **Improving patient health outcomes in acute care hospital settings using mobile wireless technology and handheld computers**

2005 : \$35,500
2006 : \$54,000
2007 : \$37,000
2008 : \$18,500

Category: 3211 - NURSING

Partner Organisation(s)

Southern Health
Royal Women's Hospital

Administering Institution: RMIT University

Summary:

This project will investigate the use of wireless handheld computers, in three acute care clinical units located at Southern Health and the Royal Women's Hospital, to determine the impact on patient safety and quality of care. There is a need for real time point-of-care access (and input) to patient information, nursing reference information, and drug information for nurses in Australian hospitals. This project aims to address this need by providing nurses with wireless handheld access to such resources. This project is extremely significant, as the outcomes will provide nurses, in Australia and overseas, a

set of guidelines for managing wireless handheld computers in clinical units, to enhance patient safety and quality of care.

LP0562486 Dr SD Feeny; Dr M Clarke; Prof TR Fry

Title: **Achieving the Millennium Development Goals: The Role of Foreign Aid, Trade and NGOs with a focus on the Asia-Pacific**

2005 : \$34,997
2006 : \$69,744
2007 : \$69,494
2008 : \$34,747

Category: 3701 - SOCIOLOGY

APDI Dr SD Feeny

Partner Organisation(s)

World Vision Australia

Administering Institution: RMIT University

Summary:

This project will identify the roles that foreign aid, trade and NGOs will play in achieving the Millennium Development Goals (MDGs). Despite a strong commitment to these goals by the international development community there is currently little understanding on the most efficient ways to achieve them by 2015. The project will adopt both quantitative and qualitative techniques in order to provide insights and policy recommendations on how aid donors and the international community can assist in their achievement. The geographical focus of the research is the Asia-Pacific, a region of great strategic importance to Australia.

LP0561584 Dr RJ Gravina; Dr S Setunge; Dr D Baweja

Title: **Prediction of Time-dependent Deformations in Post-tensioned Concrete Suspended Slabs in Tall Buildings**

2005 : \$12,074
2006 : \$24,148
2007 : \$24,148
2008 : \$12,074

Category: 2914 - MATERIALS ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Readymix Holdings

Administering Institution: RMIT University

Summary:

The proposed project aims to develop an analytical model that can predict the time-dependent deformations in post-tensioned concrete slabs considering concrete shrinkage and creep, cracking, and bond-slip behaviour. Over the past several years, numerous cases have been reported in Australia and elsewhere, of flexural elements for which the calculated deflection is far less than the actual deflection leading to serviceability problems. The significance of this investigation hence lies in its potential to provide a solution to more accurately predict service-life deflections in post-tensioned concrete suspended slabs and validate the model with real-life deflections monitored over time on a current building project.

LP0561868 A/Prof SJ John; A/Prof K Zhang; Dr K Ghorbani; Dr RK Gupta; Dr WS Rowe; Mr PJ Maxwell

Title: **Embedded Antenna Technology in Smart Polymeric Composite Structures**

2005 : \$25,750
2006 : \$51,500
2007 : \$51,500
2008 : \$25,750

Category: 2906 - CHEMICAL ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

Composite Material Engineering Pty Ltd

Administering Institution: RMIT University

Summary:

This project is about embedding Global Positioning Satellite (GPS) reception technology in polymeric composite components to be deployed in automobiles. The aim of the project is to investigate the various parameters involved in integrating several participating technologies necessary to produce such smart components. The parameters to be investigated include the disciplines of composite materials, patch antenna and wireless communication technologies. The significance and outcome of this project is the development of a manufacturing method to make a normal looking composite component with GPS signal processing capabilities. It is also expected that the findings from this project can

be extended to other sensor-based industries.

LP0562315 Prof PN Johnston; Dr JV Trapp; Mr RM Millar

Title: Characterisation and improvement of radiation beams used for radiotherapy of small lesions.

2005 : \$55,000

2006 : \$90,000

2007 : \$70,000

2008 : \$35,000

Category: 2499 - OTHER PHYSICAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

William Buckland Radiotherapy Centre

Administering Institution: RMIT University

Summary:

This project aims to characterise the radiation dose from a medical linear accelerator after the beam has been shaped by a mini-multileaf collimator. The characterisation will be achieved through a combination of computer simulations and experimental investigation of the beam using the technique of three-dimensional gel dosimetry. When the dosage characteristics are known, techniques will be developed to improve radiotherapy treatments in patients with small lesions with sizes of up to a few centimetres. This will lead to an improved outcome for some cancer patients.

LP0562459 Prof M Kalantzis; Prof NJ Yelland; Dr W Cope

Title: Learning by Design: Creating pedagogical frameworks for knowledge building in the 21st century

2005 : \$31,000

2006 : \$63,000

2007 : \$65,000

2008 : \$33,000

Category: 3303 - PROFESSIONAL DEVELOPMENT OF TEACHERS

APA(I) Award(s): 1

Partner Organisation(s)

ACT Department of Education and Training

Victorian Schools Innovation Commission

Education Queensland

Catholic Education Office, Diocese of Parramatta

Administering Institution: RMIT University

Summary:

Our aim is to facilitate and support a generational change of teachers precipitated by the departure of the baby-boomers. The research will investigate the ways in which 'middle-years' teachers design, record and enact their curriculum, searching for evidence of a relationship between pedagogical choices and learner outcomes. From these investigations, and drawing on the theory of Multiliteracies, a tool will be developed to prompt more mindful and context-appropriate pedagogical choices, while encouraging teachers to document and share their practices. This will result in a body of rigorous and shareable knowledge and know-how, potentially improving opportunities and educational outcomes for all Australian students.

LP0561704 Dr SM Murray; A/Prof JF Murphy; Dr JR Honner

Title: Life after care: the life-histories of those who left institutional and other forms of out-of-home care,

2005 : \$15,930

2006 : \$37,930

2007 : \$39,208

2008 : \$17,208

Category: 4301 - HISTORICAL STUDIES

Partner Organisation(s)

MacKillop Family Services

Administering Institution: RMIT University

Summary:

This project, developed in close collaboration with the Industry Partner, MacKillop Family Services, will examine the impact of having been in out-of-home care for the subsequent identities and life histories of successive generations of care leavers. While focused on Catholic institutions in Victoria, it will provide more general insights into the role of church-based children's homes. Based on archival and oral history methods, it will also be an opportunity for those who experienced care to tell the story of life after leaving care.

LP0562154 Dr SM Murray; A/Prof JB Smart; Dr J Bush

Title: **History of the Victorian Women's Refuge Movement, 1974-2004**

2005 : \$12,074
2006 : \$24,148
2007 : \$24,148
2008 : \$12,074

Category: 4301 - HISTORICAL STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Domestic Violence Victoria

Administering Institution: RMIT University

Summary:

Using a rich archive of source material and in-depth interviews, this PhD project will trace the unique history of the women's refuge movement in Victoria, from its initiation in 1974 through to a period of significant change in 2004. In doing so, the project will consider the ways that a diverse range of organisations worked together to achieve significant social change. These changes will be located within the wider domestic violence policy context and the research will inform future policy development through the careful consideration of services provided in the past.

LP0561870 A/Prof JY Tu; Dr H Tang; A/Prof CC Xue; Dr CG Li; Dr WW Yang

Title: **Drug particle characterisation**

2005 : \$25,000
2006 : \$50,000
2007 : \$50,000
2008 : \$25,000

Category: 3299 - OTHER MEDICAL AND HEALTH SCIENCES

Partner Organisation(s)

Koda International Pty Ltd

Shanghai Yulun New Technology Co., Ltd.

Administering Institution: RMIT University

Summary:

The understanding of drug particle characterizations is one of the key issues in the development of novel nasal sprayers for targeted drug delivery. A comprehensive study is proposed for characterising drug formation in sprayers and particle deposition in nasal cavity using the latest experimental and numerical techniques. A computer-aided design technology will be developed to optimise drug delivery systems. The new technology has great potentials leading to therapeutic and economic benefits in developing advanced/innovative drug delivery systems and in evaluating the potential biological effects by the drugs to be introduced through the nose.

LP0562622 Dr PH Wilson; A/Prof DH Shum; A/Prof PR Thomas

Title: **ELEMENTS: A Virtual-Reality Augmented Workspace for Movement Rehabilitation of Traumatic Brain Injury Patients**

2005 : \$45,073
2006 : \$76,477
2007 : \$57,327
2008 : \$25,923

Category: 3801 - PSYCHOLOGY

APA(I) Award(s): 2

Partner Organisation(s)

Australia Council for the Arts

Administering Institution: RMIT University

Summary:

The broad aim of the project is to design, develop and evaluate an interactive virtual environment (VE) called ELEMENTS that supports movement assessment and rehabilitation for patients recovering from Traumatic Brain Injury (TBI). We will use current knowledge of the neural basis of movement control and learning to create VEs that will help re-train patients' sense of multimodal space, their position within it, and the predictive control of actions. We will adapt our training environments for use on readily available technologies, creating a treatment method amenable to remote delivery. This will extend rehabilitation practices beyond their current constraints.

LP0562041 A/Prof I Yarovsky; Dr HR Treutlein

Title: Theoretical studies of molecular mechanisms of abnormal protein aggregation

2005 : \$37,500

2006 : \$72,500

2007 : \$70,000

2008 : \$35,000

Category: 2505 - MACROMOLECULAR CHEMISTRY

APA(I) Award(s): 1

Partner Organisation(s)

Cytopia Research Pty.Ltd

Administering Institution: RMIT University

Summary:

Many proteins undergo conformational change and association as part of their physiological behavior. However, some proteins share a tendency to abnormal aggregation and form amyloid fibrils leading to disorders such as Alzheimer's and variant Creutzfeldt-Jacob diseases. Insulin, one such protein, has a high propensity to aggregate and form fibrils creating difficulties in preparation, storage and application. Using advanced theoretical modelling techniques we will gain insight into the molecular mechanism of fibrillation by investigating the formation of insulin aggregates. An improved understanding of the essential mechanism of protein aggregation will allow the rational design of new drugs.

Swinburne University of Technology

LP0561923 Dr A Bab-Hadiashar; Dr R Hoseinnezhad; A/Prof D Suter

Title: Data Fusion Techniques for Electro-Mechanical Braking Systems

2005 : \$28,055

2006 : \$59,106

2007 : \$65,277

2008 : \$34,226

Category: 2904 - AUTOMOTIVE ENGINEERING

Partner Organisation(s)

Pacifica Group Technologies

Administering Institution: Swinburne University of Technology

Summary:

The main focus of this project is to develop data fusion techniques for clamp force estimation and optimum utilisation of redundant information in a brake-by-wire system. Efficient integration of redundant information in an EMB system is expected to significantly improve the reliability and fault tolerance of such systems. The need for costly and complicated clamp force measurement sensors in electric callipers will also be eliminated by accurate estimation of the clamp force signal, through fusion of more readily available measurements. Development of the proposed data fusion techniques influences the design of future EMBs and enhances the functionality of existing brake-by-wire systems.

LP0562545 Prof TW Burke; Prof SM Moore

Title: Out of the Institution. An investigation of deinstitutionalization, exploring the effectiveness of supported housing for people with psychiatric disabilities leaving care

2005 : \$20,718

2006 : \$42,087

2007 : \$21,369

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

Partner Organisation(s)

Supported Housing Limited

NEAMI Ltd.

Administering Institution: Swinburne University of Technology

Summary:

The project has two objectives. The first is to investigate outcomes of a unique model of supported housing for deinstitutionalised people living in the community. The second is to survey people that are about to be deinstitutionalised along with staff and family and set up a framework for longitudinal analysis of this group. While a major social policy reform, deinstitutionalisation in Australia has been under-researched, despite the potential pitfalls. This project will provide information and analysis that will help government and community agencies to seek and provide better outcomes for clients and communities.

LP0561968 Dr E Cunningham

Title: Increasing student retention rates in Victorian rural and metropolitan areas through engaging and

empowering students with learning difficulties

2005 : \$20,815
2006 : \$41,851
2007 : \$42,393
2008 : \$21,357

Category: 2302 - STATISTICS

APA(l) Award(s): 1

Partner Organisation(s)

Department of Education and Training, Victoria

Administering Institution: Swinburne University of Technology

Summary:

Learning difficulties (LD), which affect a significant population, have a neurological cause and are a life-long phenomenon. Students with LD are at increased risk of negative outcomes including school dropout, unemployment and emotional difficulties. This project examines the prevalence of LD in students of average to above average ability and its relationship to at-risk behaviours. It also examines the impact of expanding teacher understanding of LD and use of pedagogy that engages and empowers students through the acquisition of compensatory skills. This project goes beyond traditional literacy and numeracy support by focussing on sense of belonging and personal control as key determinants for improving outcomes for students with LD.

LP0562500 Prof R Kowalczyk; A/Prof Y Yang; Prof J Han; Mr B Joy

Title: **Agent-Enabled Social Networks**

2005 : \$34,000
2006 : \$68,500
2007 : \$69,500
2008 : \$35,000

Category: 2801 - INFORMATION SYSTEMS

APA(l) Award(s): 1

Partner Organisation(s)

Everyday Interactive Networks (EIN)

Administering Institution: Swinburne University of Technology

Summary:

The project aims at creating a new framework for linking individuals and communities of common interests to form scalable online social networks across these communities. The framework specifies the method of discovery, interconnection and management of online social networks using an agent-based and user-centric approach. As a result, individuals and organisations will benefit from the wider and better sharing of information and human resources, and collaborate in a more productive and trustful manner.

LP0562170 Dr SV Lewis; Prof DL Meredyth

Title: **Professional induction of female and male firefighters in a metropolitan fire station**

2005 : \$12,074
2006 : \$24,148
2007 : \$24,148
2008 : \$12,074

Category: 3799 - OTHER STUDIES IN HUMAN SOCIETY

APA(l) Award(s): 1

Partner Organisation(s)

MFESB

Administering Institution: Swinburne University of Technology

Summary:

This research offers new understanding of how the gendered professional identity of recruit firefighters is shaped by the regimes of selection, training and transition to work, in a metropolitan fire station. Doctoral research will explore whether women's relational and communication capacities are developed or discouraged in a masculinist work setting such as firefighting. The project will enhance understanding of why some occupations remain male dominated despite 20 years of policy and program level change initiatives. It will have direct benefits for both metropolitan and rural firefighting services in Australia, assisting them to adapt to new professional and equity imperatives.

LP0562120 Dr AJ McMurray; Mr DA Bradley; Mr S Roy

Title: **Victoria Police Recruitment and Retention: Policy and Practice for a Culturally and Linguistically Diverse Society**

2005 : \$27,000
2006 : \$54,500

2007 : \$55,000
2008 : \$27,500

Category: 3904 - LAW ENFORCEMENT

Partner Organisation(s)

Victoria Police

Administering Institution: Swinburne University of Technology

Summary:

This project will develop evidence-based policies and procedures for the recruitment and retention of culturally and linguistically diverse (CALD) community members to Victoria Police. Based on the theory that a representative police force will better meet the needs and priorities of the communities it serves and draws its resources from, it is no longer acceptable for organisations to deliver standardised services to a culturally and linguistically diverse community without regard for that diversity. The outcome will be the development and implementation of a recruitment policy, which will lead to the development of a multi-cultural police force that reflects the community it serves.

LP0562630 Prof YS Morsi; A/Prof SH Masood

Title: Intelligent Freeform Bio-fabrication for Customised Anatomical Structures for Reconstructive Surgery

2005 : \$32,920
2006 : \$67,157
2007 : \$69,844
2008 : \$72,637
2009 : \$75,543
2010 : \$38,512

Category: 2918 - INTERDISCIPLINARY ENGINEERING

Partner Organisation(s)

Ausplas Industries

Administering Institution: Swinburne University of Technology

Summary:

This project contributes towards the ARC priority goal on advanced materials and frontier technologies by developing an intelligent freeform biofabrication facility to produce accurate anatomical biocompatible replica structures and implants for reconstructive surgery. The products, produced from patient's CT or MRI scan data, will contribute to complex surgical procedure planning and patient education. The proposed facility will be based on multifunctional freeform fabrication process supported by intelligent software tools and database of biocompatible materials. The prospective outcomes are likely to have an excellent commercial and patenting potential that may help Australia become a leader in biomanufacturing technology.

LP0562052 Prof P Taylor; A/Prof L Brooke; Prof L Rolland; Prof PL Bohle; Prof MA Steinberg; Prof JE Ilmarinen; Ms CA Pitt; Mr RG Fielding; Ms S Triulzi; Ms PJ McLeod; Mr DR Orange; Mr GP Tunny

Title: Redesigning work for an ageing society

2005 : \$91,500
2006 : \$172,000
2007 : \$165,500
2008 : \$85,000

Category: 3705 - DEMOGRAPHY

APA(I) Award(s): 1

Partner Organisation(s)

Australia Post

Qantas

RACV

WorkCover Corporation SA

Commonwealth Rehabilitation Service Australia

Queensland government

Administering Institution: Swinburne University of Technology

Summary:

The significance of this proposal is the opportunity it creates to identify and manage occupational risks and vulnerabilities that challenge the retention of ageing workers in Australia. It will build a statistical overview of the main occupational risks faced by ageing workers and also design, implement and test interventions in Australian workplaces. The project will examine and adapt a leading international framework for managing ageing workforces, the Finnish 'work ability' model, to the Australian context. The main outcomes will be both practical organisational guidelines and a broad policy framework for increasing the 'work ability' of older workers, both in Australia and internationally.

The University of Melbourne

LP0561887 Dr M Ashokkumar; Prof F Grieser; Dr SE Kentish; Dr M Augustin; Dr RF Mawson

Title: **Ultrasonic Processing of Dairy Ingredients to Control Protein Aggregation and Promote Heat Stability**

2005 : \$45,000

2006 : \$90,000

2007 : \$90,000

2008 : \$45,000

Category: 2901 - INDUSTRIAL BIOTECHNOLOGY AND FOOD SCIENCES

Partner Organisation(s)

Dairy Ingredients Group of Australia Ltd.

Administering Institution: The University of Melbourne

Summary:

This project is an emerging collaboration between the University of Melbourne, Food Science Australia and the Dairy Ingredients Group of Australia. We aim to use acoustically generated chemical and physical effects to modify dairy proteins. Transformation of the sulphur-containing proteins by this means should overcome many of the difficulties currently encountered in thermal processing of whole milk and whey proteins. This work will place the Australian dairy industry in a pre-eminent position for the development of valuable, heat-stable and uniquely functional ingredients based on novel micro/nano structures. Existing world class expertise will be further developed in ultrasonic processing and sonochemistry as frontier technologies.

LP0561747 Dr MJ Brear; Dr C Manzie; Dr S Jin

Title: **Low emission, Gas Turbine Air Compressor (GTAC) demonstrator**

2005 : \$45,595

2006 : \$87,509

2007 : \$83,828

2008 : \$41,914

Category: 2905 - MECHANICAL AND INDUSTRIAL ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Cash Research Screw Compressors Pty. Ltd.

Administering Institution: The University of Melbourne

Summary:

Compressed air production consumes a significant portion of electricity generated world-wide. The fragility of power infrastructure in many developed countries, and the growing Chinese economy, has created very large markets for compressed air plants that run off Diesel and natural gas fuels. Australia's reliance on coal introduces the added greenhouse incentive of reduced electricity use.

This project will demonstrate a novel air compressor concept that features a natural gas fuelled micro-gas turbine. This device is expected to have comparable thermal efficiency to other air compressors, but with very significantly reduced greenhouse and overall emissions, much quieter operation, lower cost and increased device compactness.

LP0562257 Dr A Christopoulos; Dr PM Sexton; Dr MF Crouch

Title: **Novel modes of signalling of serotonin 5-HT_{2c} receptors.**

2005 : \$14,574

2006 : \$29,148

2007 : \$29,148

2008 : \$14,574

Category: 2701 - BIOCHEMISTRY AND CELL BIOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

TGR BioSciences

Administering Institution: The University of Melbourne

Summary:

This project focuses on a special family of receptor proteins that mediate the actions of the neurochemical, serotonin (5HT), in the human brain. These serotonin receptors are major targets for antidepressant and antipsychotic medications, and also play a role in anxiety, migraine and control of appetite. Despite the important role of serotonin receptors in health and disease, the mechanism of action of many drugs acting on these receptors remains unknown. Our project will specifically investigate novel molecular mechanisms associated with serotonin receptor activity that may prove vital in understanding mechanisms of psychiatric illnesses, and how many psychiatric medicines actually work.

LP0562714 Prof M Considine; Dr JM Lewis; Dr J Barraket

Title: **Connecting Government to Community: A study of social and political connectivity at the municipal level.**

2005 : \$78,753

2006 : \$157,497

2007 : \$114,601

2008 : \$35,857

Category: 3602 - POLICY AND ADMINISTRATION

Partner Organisation(s)

Knox City Council

Manningham City Council

City of Port Phillip

Maribyrnong City Council

Victorian Health Promotion Foundation

Administering Institution: The University of Melbourne

Summary:

Facilitating community strengthening by making public institutions more responsive to the needs of citizens is a central policy challenge in the global era. This project will advance theoretical, methodological and practical understandings of this issue by using comparative measures of personal ties and organizational connectedness in four municipalities to explicate the networks linking politicians, bureaucrats, civic leaders and ordinary citizens. The study will generate new measures of which kinds of connections count most, which ties bring more isolated groups closer to engagement, and which community strengthening strategies are likely to make improved governance outcomes feasible.

LP0562318 A/Prof DE Dunstan; Dr G Rosengarten; Dr A Mitchell; Dr J Bertolini; Dr P Gomme; Dr BM Hunt

Title: **Process Induced Protein Aggregation**

2005 : \$37,500

2006 : \$80,000

2007 : \$85,000

2008 : \$42,500

Category: 2708 - BIOTECHNOLOGY

APA(l) Award(s): 1

Partner Organisation(s)

CSL Bioplasma

Administering Institution: The University of Melbourne

Summary:

Blood plasma is a valuable source of therapeutic proteins for the biotechnology industry. Commercial scale processes have been developed to separate the proteins from plasma. Current pumping and filtering operations cause instability and aggregation in the products. This research programme will use novel rheofluorescence and microfluidic methods to identify critical flow and solution conditions that induce deleterious protein aggregation. The knowledge developed will be used to assess the effects of different unit operations used by CSL Bioplasma in blood processing to improve process efficiency, reduce product loss and improve product quality. Australia's international competitiveness in biotechnology will be advanced.

LP0561791 Prof CS Fraser

Title: **Digital Colour Sensing in Vision Metrology**

2005 : \$53,812

2006 : \$108,248

2007 : \$109,982

2008 : \$55,546

Category: 2910 - GEOMATIC ENGINEERING

APA(l) Award(s): 1

Partner Organisation(s)

Geomatic Technologies P/L

Geocomp Systems Pty Ltd

Administering Institution: The University of Melbourne

Summary:

This project will develop the necessary new image processing algorithms, computational models and signalisation strategies to facilitate a significantly higher precision measurement capability for vision metrology (VM) systems incorporating colour digital cameras. VM systems for 3D industrial and engineering measurement currently employ panchromatic digital cameras, because the colour filter arrays used in colour cameras adversely affect image mensuration accuracy. Yet, off-the-shelf colour cameras are ubiquitous and have advantages of ready availability and cheaper cost. This research will overcome the limitations of colour sensors and enable both a broader range of 3D measurement

applications and an enhanced commercial potential for VM.

LP0561852 Prof PE Griffin; Mr A Mak; Dr ML Wu

Title: Modelling person and item parameters of computer administered problem solving strategies

2005 : \$52,500

2006 : \$102,500

2007 : \$100,000

2008 : \$50,000

Category: 3301 - EDUCATION STUDIES

APA(I) Award(s): 1

APDI Dr ML Wu

Partner Organisation(s)

NSDC Pty Ltd

Administering Institution: The University of Melbourne

Summary:

The project extends previous SPIRT research, which modelled problem-solving in paper-and-pencil administered tasks, by examining the person and item parameters when problems are computer administered. The implications for computer administered problem design and teacher intervention will be explored and used to develop instructional packages that extend the materials produced for teachers in the initial SPIRT study.

LP0561849 Dr BM Happell

Title: Assessing risk in aged mental health care

2005 : \$12,074

2006 : \$24,148

2007 : \$24,148

2008 : \$12,074

Category: 3211 - NURSING

APA(I) Award(s): 1

Partner Organisation(s)

Aged Persons Mental Health Program, North

Administering Institution: The University of Melbourne

Summary:

This study will explore practices and developments in relation to the assessment of risk in aged persons mental health from the perspective of multiple stakeholders. The aims are to gain a thorough understanding of existing practices with a view to developing and evaluating a comprehensive risk assessment model. The outcomes will enhance the provision of mental health services within aged mental health services.

LP0562018 Dr LK Harms; Ms A Clarke; Dr PA Swain; Prof GR Anderson; Dr SL Cross; Ms J Miller; Ms J Middleton

Title: From colonisation to conciliation: A collaborative examination of social work practice with Indigenous populations

2005 : \$21,555

2006 : \$44,911

2007 : \$48,597

2008 : \$25,241

Category: 3702 - SOCIAL WORK

Partner Organisation(s)

Royal Children's Hospital

Mercy Hospital for Women

Administering Institution: The University of Melbourne

Summary:

The social work profession, along with many other human service professions, has a complex history of working with Indigenous populations. One of the significant factors in the maintenance of this problematic relationship is the marginalisation of Indigenous issues within mainstream social work practice. This project, in collaborating with Indigenous communities, social work practitioners and academics in Australia and the United States, will examine current practice needs and their interrelationship with current social work pedagogy. This analysis will identify the ways in which social work practice can enhance, rather than inhibit, Indigenous well-being, and how social work education can be reframed so as to engender such practice.

LP0561813 Prof LJ Johnston; A/Prof E Manias

Title: **Improving safety and minimising risk: parent, carer and service provider perspectives of sociocultural influences for medication use in young children.**

2005 : \$12,074
2006 : \$24,148
2007 : \$24,148
2008 : \$12,074

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Royal Children's Hospital

Administering Institution: The University of Melbourne

Summary:

Childhood unintentional poisoning ranks second to falls as an injury cause of hospitalisation in the 0-4 years age group. The aims of this study are to explore the sociocultural influences on medication use by parents and carers of young children and develop best practice guidelines for provision of medication information by health care providers. A multimedia education program for health care providers and consumers will be integrated into existing health services. Results will aid in determining children at risk of medication mismanagement, and assist providers to implement a rigorous and sustainable approach to the provision of care to young children.

LP0562121 Prof MJ Keough; Dr SE Swearer; Dr A Boxshall

Title: **Developing tools for assessing ecological performance of marine protected areas**

2005 : \$16,840
2006 : \$31,930
2007 : \$31,194
2008 : \$16,104

Category: 2707 - ECOLOGY AND EVOLUTION

APA(I) Award(s): 1

Partner Organisation(s)

Parks Victoria

Administering Institution: The University of Melbourne

Summary:

Marine Protected Areas (MPAs) are rapidly being established around Australia as a device to conserve marine biodiversity. Their ability to sustain animal and plant populations depends critically on the ability of populations to replenish themselves, but we have no ready way of assessing replenishment, relying instead on simple counts of animals and plants within MPAs as a measure of their success. We propose a new measure, using relationships between adult stocks and recruitment, as a way of assessing the long-term success of MPAs. We will test this measure using comparisons among marine national parks that were established recently in Victoria.

LP0561857 Prof M Langton; Ms MF Tehan; Dr LR Palmer; Dr LC Godden; Dr LM Strelein

Title: **The Implementation of Agreements and Treaties with Indigenous and Local Peoples in Postcolonial**

2005 : \$64,408
2006 : \$147,115
2007 : \$158,574
2008 : \$75,867

Category: 3901 - LAW

APA(I) Award(s): 1

Partner Organisation(s)

Rio Tinto Limited

Office of Indigenous Policy and Coordination

Administering Institution: The University of Melbourne

Summary:

This project involves a comparative study by an interdisciplinary team of the implementation of agreements with Indigenous and local peoples across selected Australian and international jurisdictions. Agreement making is now a major policy tool for governments, industry and Indigenous peoples. Using case studies, this project will address the critical need for research on implementation of agreements and the factors promoting long-term sustainability. This will involve examination of legal, governance, economic development, land/heritage, and environmental management issues that arise in agreement implementation and investigation of the features of agreements that enhance social, cultural and economic outcomes for Indigenous communities.

LP0562337 Prof W Moran; Dr B La Scala; Dr DQ Huynh

Title: Automated On-Line Analysis and Contaminant Detection in Mineral Ore Processing

2005 : \$40,000

2006 : \$80,000

2007 : \$80,000

2008 : \$40,000

Category: 2802 - ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APA(I) Award(s): 1

Partner Organisation(s)

Scantech International Pty Ltd

Administering Institution: The University of Melbourne

Summary:

On-belt analysis is a key to efficient functioning of several industries involved in the mining and use of minerals. It provides chemical analysis of the minerals as they run through the instrument on a conveyer belt. It permits quality control and detection of impurities. The Scantech on-line analyser is at the forefront of this technology. Our aim is to produce novel techniques to significantly improve and make more efficient the processing of data from the analyser. A particular focus will be quicker and improved calibration of the instrument. These techniques will increase the accuracy and speed while reducing the costs of such analysers, thus retaining and enhancing their competitiveness in the global market.

LP0562277 Prof J Proietto; Dr JM Favalaro; Dr S Andrikopoulos; Prof GR Collier

Title: Investigation of the function of Sel S a novel selenoprotein

2005 : \$35,000

2006 : \$70,000

2007 : \$62,500

2008 : \$27,500

Category: 2706 - PHYSIOLOGY

Partner Organisation(s)

ChemGenex

Administering Institution: The University of Melbourne

Summary:

The long term aim of this project is to find a way to prevent or delay the onset of both Type 1 and Type 2 diabetes. ChemGenex pharmaceuticals, our commercial partners have discovered and patented a selenoprotein with antioxidant properties and have shown in vitro that it protects insulin-producing beta cells from oxidative damage. This project aims to prove, in an in vivo setting, that this protein can prevent or delay the onset of diabetes in mouse models of type 1 and Type 2 diabetes.

LP0562084 Dr SM Reichman; Dr IE Woodrow; Dr SD Kolev; Mr GJ Brock; Miss LP Chibnall; Mr IH Chivers

Title: Novel approaches to ecologically sustainable and safe rehabilitation of gold mine tailings

2005 : \$75,000

2006 : \$152,500

2007 : \$155,000

2008 : \$77,500

Category: 3008 - ENVIRONMENTAL SCIENCES

APDI Dr SM Reichman

Partner Organisation(s)

Stawell Gold Mines Pty Ltd

Native Seeds Pty Ltd.

Administering Institution: The University of Melbourne

Summary:

Gold is a major export commodity for Australia and the gold mining industry provides employment and infrastructure for rural Australian communities. However, gold is often found in arsenopyrite rich ore bodies which, after the extraction process, have the potential to release toxic quantities of arsenic into the environment. The University of Melbourne, Stawell Gold Mines P/L. and Native Seeds P/L. are collaborating to ensure the rehabilitation of arseniferous wastes is environmentally safe and sustainable. Research will investigate the selection of plant species, factors affecting plant survival, plant uptake of arsenic and prevention of excess movement of arsenic into the food-chain.

LP0561759 Ms HM Rhoades; A/Prof AV Sanson; Dr PA Swain

Title: **Family Lawyers and Child-Focused Dispute Resolution: Managing Inter-Professional Relationships in the Family Law System**

2005 : \$16,000

2006 : \$32,000

2007 : \$16,000

Category: 3901 - LAW

Partner Organisation(s)

Attorney-General's Department

Administering Institution: The University of Melbourne

Summary:

This multi-disciplinary project involving law, psychology, and social work, will shed light on the facilitators and inhibitors of effective collaboration between legal and social science professionals in the family law system. It will do this by exploring the knowledge base, attitudes, norms, and beliefs that underpin practice for both groups, as well as contextual factors affecting collaboration. The study is a response to government proposals to increase reliance on non-legal dispute management methods and mediation professionals to resolve post-separation parenting disputes. It aims to inform the design of better integrated professional services for separated parents in the family law system.

LP0562531 Prof D Samson; Mr RH Gough; A/Prof JW Benson; Dr JR Doughney; Prof AF Rainnie; Dr ML MacIntosh; Prof

Title: **Work and Social Cohesion under Globalisation**

2005 : \$45,000

2006 : \$66,500

2007 : \$21,500

Category: 3502 - BUSINESS AND MANAGEMENT

Partner Organisation(s)

National Australia Bank Limited

Australian Council of Trade Unions

Members Equity

Multiplex Constructions Pty Ltd

Schneider (Australia) Consulting

Ernst & Young

Corrs Chambers Westgarth

Linfox

Administering Institution: The University of Melbourne

Summary:

The project will explore how innovation and improvement in productivity can be accommodated with notions of fairness at workplace and industry level. The impact of increasingly competitive markets on the nature of work and society and the relationships between employers and employees in five industries: finance, tourism, health, ICT and automotive components, will be examined. The views of a wide cross-section of employees and managers in five key industries, complemented by existing survey data, will be analysed. A major outcome will be five industry workshops promoting productivity, partnership and social cohesion in a competitive global environment. Policy implications for the wider economy will be developed in the final report.

LP0561978 Prof PJ Scales; Dr M Rudman; Dr PD Fawell

Title: **Thickener dewatering optimization in the minerals industry**

2005 : \$122,500

2006 : \$237,500

2007 : \$195,000

2008 : \$80,000

Category: 2907 - RESOURCES ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

AMIRA International Ltd

Administering Institution: The University of Melbourne

Summary:

The project aims to develop the understanding required to provide a quantitative basis for the selection, design and operation of thickening devices for optimal dewatering performance in the minerals industry. This will enable reduced water use, improved water management, provide better slurry solids management and improve tailing disposal practice, resulting in reduced processing and capital costs, increased throughput and lower environmental impact. In particular, the project will link the characterisation of the slurry feed to thickener process conditions and subsequent dewatering performance, including the role of rakes and shear devices. It will provide a sound basis for the optimization of dewatering in thickener operations.

LP0561936 Dr R Scheepers

Title: **Assessing Organisational IT Infrastructure Capacity for Knowledge Strategy Support**

2005 : \$12,074

2006 : \$24,148

2007 : \$24,148

2008 : \$12,074

Category: 3502 - BUSINESS AND MANAGEMENT

APA(I) Award(s): 1

Partner Organisation(s)

LNB Consulting

Administering Institution: The University of Melbourne

Summary:

Many organisations view knowledge as an important strategic asset. Often, organisations' historic investments in IT infrastructure predate their current knowledge strategy. Such situations raise challenges since past conceptions of IT infrastructure may only loosely link to the organisation's present knowledge initiatives. The proposed project will develop a methodology to assess the capacity of an organisation's IT infrastructure to support an intended knowledge strategy. Outcomes will include detailed frameworks for analysing an organisation's knowledge strategy emphasis and direction, and the strengths and weaknesses of its IT infrastructure to support the strategy. The methodology will be validated in three to six organisations.

LP0561957 Dr JY Scheerlinck

Title: **Application of in vivo electroporation to DNA immunisation**

2005 : \$67,500

2006 : \$135,000

2007 : \$135,000

2008 : \$67,500

Category: 3005 - VETERINARY SCIENCES

Partner Organisation(s)

Inovio AS

Administering Institution: The University of Melbourne

Summary:

The in vivo delivery of plasmid DNA induces immune responses to the encoded protein vaccine. In large animals including humans, DNA vaccination needs to be further improved before becoming a commercial reality, at least partially due to the very low levels of expression in vivo. In vivo electroporation has proven to be an effective way to enhance the level of protein expression and increase DNA vaccine efficacy. We combine enhanced in vivo expression using electroporation with the co-delivery of plasmids encoding cytokines to enhance and modulate DNA vaccine in sheep. We will apply our findings to bovine viral diarrhoea virus (BVDV), both as an animal model for humans and as an economically important diseases of livestock.

LP0561751 Dr KJ Williams; Prof ID Bishop; Mr JE Hickey

Title: **Social acceptability of forest management options: Landscape level visualisation and evaluation**

2005 : \$47,668

2006 : \$96,315

2007 : \$96,353

2008 : \$47,706

Category: 3801 - PSYCHOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Forestry Tasmania

Forest Practices Board

Tourism Tasmania

Administering Institution: The University of Melbourne

Summary:

Sustainable forest policy requires social acceptance. Prior research has investigated relative acceptability of options at a forest stand level. However, we have insufficient understanding of public acceptance of forest management systems implemented across the wider landscape. Only detailed knowledge of public reaction to social, environmental and economic impacts and the trade-offs involved can reduce the divisive nature of the forest management debate. This project will use interactive, still and animated computer representations of landscapes to examine social acceptability of alternatives to clearfell harvesting. This knowledge will be integrated with biophysical data to improve management of forested landscapes.

LP0561540 Dr S Winter; Dr MR Duckham; Dr L Kulik

Title: **CEWAY: Cognitively ergonomic wayfinding directions for location-based services**

2005 : \$40,000

2006 : \$70,000

2007 : \$62,500

2008 : \$32,500

Category: 2910 - GEOMATIC ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

Sensis Pty Ltd

Telstra Research Laboratories

Webraska Australia Pty Ltd

Administering Institution: The University of Melbourne

Summary:

This project develops qualitative models of wayfinding directions based on landmarks (e.g., 'to the hospital') and common spatial predicates (e.g. 'near to'). These models provide a basis for selecting salient features in different contexts and combining these features with vague spatial predicates. Such wayfinding directions require less cognitive workload and lead to higher success rates in wayfinding than current approaches. The project develops an integrated formal model of context-dependent salience and navigation under uncertainty. A demonstrator will be implemented based on the industry partners' software platform and data. Human subject tests using the demonstrator software will be used to verify the efficacy of our approach.

LP0561914 Dr S Yuen; Prof AJ Baker; Dr IR Phillips; Dr N Ashwath; Dr G Swarbrick; Prof PW Newman; Dr MB Jaksa; Mr MA Jones; Dr JW Cox; Mr IG Watkins; Mr PJ Lightbody; Dr RJ Stuart; Mr MR Jorgensen; Mr RC Yeates

Title: **Phytocapping for sustainable waste containment systems and reduction of greenhouse gas emissions and odour from waste disposal sites**

2005 : \$142,500

2006 : \$215,000

2007 : \$145,000

2008 : \$112,500

2009 : \$80,000

2010 : \$40,000

Category: 2911 - ENVIRONMENTAL ENGINEERING

APA(I) Award(s): 3

Partner Organisation(s)

Waste Management Association of Australia

Administering Institution: The University of Melbourne

Summary:

Landfills remain the main method of waste disposal in Australia and are a major source of groundwater contamination and greenhouse and odour emissions. This national research program will establish, under a wide range of Australian conditions, whether landfill phytocaps can meet regulatory performance criteria for water infiltration into and gas emissions from closed landfills more effectively, efficiently and sustainably than conventional capping systems. The project will produce (a) a scientific basis for site owners and regulators to agree on the performance and cost of conventional and phyto cover technologies, (b) a manual for the design and permitting of alternative covers and (c) improved scientific prediction of cover performance.

Queensland

Griffith University

LP0561697 Dr PA Brough; A/Prof E Kendall; Prof MP O'Driscoll; A/Prof BR Myers; Mr CS Gehrke

Title: **An empirical evaluation of an innovative occupational stress intervention to improve the health and retention of high-risk employees.**

2005 : \$24,316

2006 : \$68,739

2007 : \$70,847

2008 : \$26,425

Category: 3801 - PSYCHOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Qld Department of Corrective Services

Administering Institution: Griffith University

Summary:

Occupational stress costs Australian organisations \$105.5m, accounts for 6.5% of workplace injuries and 18.4 weeks absenteeism, per annum. This project introduces an occupational stress intervention in a State Government Department to improve the health and retention of employees who have experienced stress or who are a high risk for submitting a stress claim. The intervention will reduce occupational stress costs by 40% and will be generalisable to other public and private organisations. The project will demonstrate how Australian employers can meet their legal and ethical obligations to protect employee's psychological health, with a view to ultimately reducing the occurrence and financial consequences of occupational stress claims.

LP0561505 A/Prof G Cuskelly; Dr R Hoye; Dr RC Van den Honert

Title: Development of a predictive model for the retention of sports officials

2005 : \$12,074

2006 : \$24,148

2007 : \$24,148

2008 : \$12,074

Category: 3704 - HUMAN GEOGRAPHY

APA(I) Award(s): 1

Partner Organisation(s)

Australian Rugby Union Ltd

Administering Institution: Griffith University

Summary:

The Australian sport system is facing a critical shortage of sports officials. Over five years the number of officials has declined by 120,000 (26%). Research has not examined the efficacy of organisational support strategies to arrest this decline. Based on commitment, stress and the mediating effect of organisational support this project addresses the retention issue by developing a predictive model of the factors that influence stay/leave behaviour of officials. The outcomes will contribute to a range of evidence-based strategies that will help maximise retention of officials. The project will enhance the sustainability of the Australian sport system and advance retention behaviour research in the emerging field of sport management.

LP0562078 Prof D DeLeo; A/Prof BM Draper; Prof JA Snowdon

Title: Preventing Suicide: A psychological autopsy study of the last contact with a health professional before suicide

2005 : \$56,000

2006 : \$120,000

2007 : \$103,500

2008 : \$39,500

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

Partner Organisation(s)

Lifeline, Community Care

Queensland Health,

Centre for Mental Health (NSW)

Primary Health Institute Ltd

Department Veteran Affairs

Department of Justice, Office of the State

Department of Forensic Medicine (Office of the

South East Health

Black Dog Institute

Administering Institution: Griffith University

Summary:

In Australia, 48% of all suicides in 2000 were by 35-64 year olds; an additional 13% were by 65 years and over. This study will examine the last clinical contact older suicide victims had with health professionals in order to determine whether this contact offers an opportunity for intervention. For the first time in Australia, GP's, health professionals, and the deceased's next-of-kin will be interviewed to determine the context surrounding the deceased's death, and the abilities of health professionals to identify warning signs and to intervene prior to suicide. Given our ageing population, the outcomes will be significant in educating all health professionals to identify suicidal signs, and to prevent premature death in the elderly.

LP0562431 Prof LK Ferres; A/Prof PJ Buckridge; Dr PJ Bundy; Dr BV Burton; Dr DA Ellison; Dr ML Alexander; Ms WS Keys; A/Prof JR O'Toole; Dr IS Woodward

Title: Sustaining Culture: the role of performing arts centres

2005 : \$52,500

2006 : \$114,000

2007 : \$120,500

2008 : \$59,000

Category: 4101 - PERFORMING ARTS

Partner Organisation(s)

Queensland Performing Arts Centre

Sydney Opera House

The Arts Centre

Adelaide Festival Centre

Administering Institution: Griffith University

Summary:

This project will use theoretical and empirical research to evaluate the roles major performing arts centres do and can play in sustaining culture and encouraging participation. The project develops innovative approaches to value by drawing on developments in cultural economics, aesthetics and cultural sociology. It also designs methodological tools for gathering qualitative data presently unavailable in Australia. The project will make significant theoretical contributions to research communities, facilitate communication between researchers and industry practitioners, and encourage the major performing arts centres to participate in Australia's research culture. It will be a model for future studies of Australia's cultural institutions.

LP0561507 Prof LK Frazer; Prof B Merrilees

Title: International franchising success factors: A guide for Australian franchise systems

2005 : \$16,991

2006 : \$30,000

2007 : \$13,009

Category: 3502 - BUSINESS AND MANAGEMENT

Partner Organisation(s)

Austrade

Administering Institution: Griffith University

Summary:

Australia is considered the most 'franchised' nation in the world. With 850 franchisors, it has over three times the number of systems per capita than the United States. However, Australian franchises are small due to the country's limited population, with 60% of systems holding fewer than 30 units. One third of Australian franchisors now operates internationally, however little is known about how they plan and implement their expansion strategies. It appears that franchisors are reacting to approaches made by overseas investors rather than proactively developing international expansion strategies. This research will examine the practices of successful exporters to develop a model of best practice for future activity in the sector.

LP0561851 Prof RJ Homel; Dr L Mazerolle; Mr PG Downie

Title: Understanding, modelling and preventing alcohol-related crime, violence and injuries in a high-crime community.

2005 : \$12,074

2006 : \$24,148

2007 : \$24,148

2008 : \$12,074

Category: 3904 - LAW ENFORCEMENT

APA(I) Award(s): 1

Partner Organisation(s)

Surfers Paradise Management Association

Administering Institution: Griffith University

Summary:

This Project aims to understand, model and prevent alcohol-related crime, violence and injuries in a high-crime community - Surfers Paradise. It also aims to overcome the traditional barriers to sustaining crime reductions. Information from multiple agencies will be collated in an integrated database. The subsequent modelled estimates will generate user-friendly crime profiles for the community to analyse environmental and situational factors precipitating violence, crime and injury in their area. The Project is innovative because it integrates multiple sources of information, analyses them and enables prevention programmes to be matched to the social, temporal and spatial idiosyncrasies of any high-crime community.

LP0561854 Prof RJ Homel; Mr PB Wright

Title: The contribution of youth development programs in preventing youth crime, drug and alcohol misuse and suicide

2005 : \$12,074

2006 : \$24,148

2007 : \$24,148

2008 : \$12,074

Category: 3904 - LAW ENFORCEMENT

APA(I) Award(s): 1

Partner Organisation(s)

Impact: Youth Organisations Reducing Crime
Qld Dept. of Communities

Administering Institution: Griffith University

Summary:

The key question is how much youth organizations (e.g., Scouts) promote positive development in at-risk youth and reduce crime and other problems. The effectiveness of youth programs in achieving this goal will be assessed through an audit of organizational activities, interviews and questionnaires with leaders and young people, and observation. Despite reports that up to 20% of participants are at-risk young people, there is no evidence to support claims of positive outcomes for this group. This project will measure how much risk factors for youth crime are reduced and participation in school, family and community organizations is enhanced through involvement in youth programs, and analyse the ways in which positive outcomes are achieved.

LP0561724 Dr DV Kerr; A/Prof R Gururajan; Dr TA Vuori; Dr MS Khan; Mr C Moloney

Title: Investigations into and development of an intelligent decision support system for general practitioners in home-based sleep disorder diagnosis

2005 : \$24,574

2006 : \$46,647

2007 : \$44,149

2008 : \$22,076

Category: 3211 - NURSING

APA(I) Award(s): 1

Partner Organisation(s)

Toowoomba Health Service District
Australian Healthcare Messaging Laboratory

Administering Institution: Griffith University

Summary:

Sleep disorders cost the Australian health system an estimated \$40 million per year. General practitioner's surgeries are not well equipped to deal with diagnosis and the majority of the referrals to specialists are unnecessary. This research will investigate and develop an intelligent decision support system to provide a cost effective solution to this problem. The developed software application will enable sleep study to be carried out at home, enabling general practitioners to conduct a preliminary diagnosis. Benefits include a reduction in the costs incurred in travel, time off work and at hospital sleep care centres for people in remote areas.

LP0562566 Dr PC Pollard

Title: What are the risks of viral infections in drinking water storages?

2005 : \$12,074

2006 : \$24,148

2007 : \$24,148

2008 : \$12,074

Category: 3008 - ENVIRONMENTAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

South East Qld Water Corporation

Administering Institution: Griffith University

Summary:

South East Queensland's population growth is the fastest in Australia but our drinking water supplies will be fully allocated by 2020. Maintaining public health standards of the existing supplies is vital. Declines in water quality in these unprotected catchments will influence viral infection but we don't know how. Toxin producing algae (cyanobacteria) also bloom and we don't know why. We have an innovative approach to determine how changing water quality influences viral infection of toxic cyanobacteria and the potential of human viral pathogens (disease causing) to infect. This new knowledge will improve SEQWater's ability to manage public and ecosystem health risks in drinking water storages.

James Cook University

LP0562411 Ms Y Cadet-James; Dr SC McGinty; Prof P Turnbull; Ms A Snider; Mr H Gertz

Title: A history of the Gugu Badhun people

2005 : \$16,678

2006 : \$16,678

Category: 3799 - OTHER STUDIES IN HUMAN SOCIETY

Partner Organisation(s)

Gugu Badhun Ltd

Administering Institution: James Cook University

Summary:

The aim of this one year project is to reconstruct relations between the Gugu Badhun people and settler families from the time of first encounters with Europeans to the restructuring of the pastoral industry in the late 1960s. There is an urgency to this research in that it aims to record and analyse the experiences and knowledge of Elders and non-indigenous members of pastoral families who are elderly and in frail health. Preliminary interviews suggest that if this research is not undertaken very soon we risk being unable to understand events that give new and remarkable insights into unique and intimate relations relations that characterized life in the Kennedy District.

LP0561674 Dr WM Earles; Ms R Lynn; Mr TA Vieira; Mr S Oldham

Title: Home-based Businesses: Belief systems and practice and their implications for policy and development practice

2005 : \$12,074

2006 : \$24,148

2007 : \$24,148

2008 : \$12,074

Category: 3701 - SOCIOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

FNQ Area Consultative Committee

Cairns Region Economic Development

Administering Institution: James Cook University

Summary:

The home-based business sector has been calculated to represent 67% of the small business sector in Australia. There is a conservative estimate that at least one in ten homes in Australia now hosts a home-based business. Under Governments of all political persuasions, growth of small business is seen as important to the growth of the economy. However there is a fragmented policy context of enterprise promotion and home-based business support. The findings of this study will contribute to integrated policy and development practice responses through greater understanding of the diversity of belief systems and practice within the sector.

LP0561811 A/Prof BG Lottermoser

Title: Rehabilitation strategies for metalliferous mine wastes using native metallophytes from Pb-Zn-Ag gossans, northwest Queensland

2005 : \$23,009

2006 : \$43,459

2007 : \$20,451

Category: 2603 - GEOCHEMISTRY

Partner Organisation(s)

BHP Billiton Cannington

Administering Institution: James Cook University

Summary:

The global area covered with mine waste is in the order of 100 million hectares containing several 100,000 million tonnes of mine wastes. The long-term sustainable rehabilitation of metal mine sites is inhibited by our lack of knowledge of metal resistance and uptake by Australian native plants. This project will evaluate metallophytes naturally growing on metal-rich soils, northwest Queensland, for their capabilities and revegetation potential when grown in mine wastes of the Cannington Ag-Pb-Zn mine. Outcomes will include practical, innovative methods of mine site rehabilitation that are low-cost and environmentally-friendly.

LP0562294 Dr RD White; A/Prof PA Gadek; A/Prof DH Coomans; Dr PJ Hofman; Mr SM Nottingham; Mr BB Wedding

Title: Prediction of fruit quality by non-invasive assessment, with special reference to avocado

2005 : \$45,000
2006 : \$77,500
2007 : \$57,500
2008 : \$25,000

Category: 3003 - HORTICULTURE

APA(l) Award(s): 1

Partner Organisation(s)

QDPI&F
Bret-Tech

Administering Institution: James Cook University

Summary:

The project aims to develop non-invasive rapid assessment techniques of avocado quality (dry matter percentage, oil content, susceptibility to rots) suitable for application in at-line, in-line and in-field settings using NIR spectroscopic methods. The development and introduction of these non-invasive technologies into the avocado industry will allow rapid low-cost testing to support existing quality control procedures. The technology has the potential to enhance the competitive advantage of Australian producers/processors by guaranteeing high quality and optimising shelf-life. The ability to deliver a differentiated product will maximise sales in existing markets and facilitate the targeting of new domestic and overseas markets.

Queensland University of Technology

LP0562290 Prof A Arthurs; A/Prof JJ Radbourne; Mr DR Clark

Title: **The 21st Century Orchestra: researching and developing sustainable models.**

2005 : \$75,000
2006 : \$132,500
2007 : \$57,500

Category: 4101 - PERFORMING ARTS

Partner Organisation(s)

Creative Media Warehouse
The Queensland Orchestra
The Brisbane Festival

Administering Institution: Queensland University of Technology

Summary:

The project will investigate and prototype innovations which reinvent the orchestra from its current 19th Century form, to one which maintains high quality but resonates with more recent changes in music consumption patterns, musical tastes, performance modes (e.g. immersive), distribution media, and the revolution in instrument design. A musical, technological, social and audience analysis of orchestral history will inform an action research inquiry into possible future success paths. Resulting innovations in music repertoire, product and events will produce new revenue models for orchestras around an expanded market base and export of IP. Orchestral sustainability will also strengthen Australia's cultural fabric.

LP0561911 Dr DC Baker; Dr NG Sipe; Prof B Gleeson

Title: **Evaluation of Performance-Based Planning under the Queensland Integrated Planning Act 1997**

2005 : \$24,148
2006 : \$48,296
2007 : \$48,296
2008 : \$24,148

Category: 3101 - ARCHITECTURE AND URBAN ENVIRONMENT

APA(l) Award(s): 2

Partner Organisation(s)

Qld Department of Local Government, Planning,

Administering Institution: Queensland University of Technology

Summary:

The project will undertake an evaluation of performance-based planning in Queensland, examining the application since introduction of the Integrated Planning Act in 1997. The project aims to assess how performance-based planning has been adopted in Queensland; evaluate national, international literature and empirical experience with the application of this planning method; develop a set of measurement criteria drawn from policy and scholarly literature that have evaluated performance-based systems; contribute to the international social scientific understanding of performance-based planning; and enhance the partner organisation's ability to assess its key policy and regulatory frames to improve their data handling and analytical capacities.

LP0562352 Dr AR Baturo; Prof TJ Cooper; A/Prof EA Warren; Mr GC Ferdinands; Mrs MP Donn

Title: Sustainable mathematics education capacity building: Empowering Indigenous teacher aides to enhance rural and remote Indigenous students' numeracy outcomes

2005 : \$40,000
2006 : \$90,000
2007 : \$100,000
2008 : \$50,000

Category: 3303 - PROFESSIONAL DEVELOPMENT OF TEACHERS

Partner Organisation(s)

Mornington Island State School
Indigenous Education and Training Alliance
Sunset State School
Education Queensland District Office
Boulia State School
Doomadgee State School
Dajarra State School
Burkeown State School
Urandangi State School
Healy State School

Administering Institution: Queensland University of Technology

Summary:

Rural/remote Indigenous students perform well below other students in statewide numeracy tests. Because teachers are generally non-Indigenous, inexperienced and stay for less than two years and Indigenous teacher aides have little training in teaching mathematics, schools do not have the capacity to affect this outcome. This project will work with eight schools to improve and sustain Years 1-7 mathematics outcomes by enhancing aides' tutoring effectiveness through culturally appropriate mathematics and mathematics pedagogy knowledge. The aim is to develop principles for a professional learning program that can be used with Indigenous aides across Australia to improve Indigenous students' mathematics and therefore employment/life chances.

LP0562317 Prof B Boashash; Prof PB Colditz

Title: Design of Neonatal Seizure Diagnosis Methods Using Time-Frequency Signal Processing Techniques

2005 : \$31,000
2006 : \$62,500
2007 : \$64,000
2008 : \$32,500

Category: 2802 - ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

Partner Organisation(s)

Royal Brisbane and Women's Hospital

Administering Institution: Queensland University of Technology

Summary:

Seizures occur in approximately 0.5% of all newborns. They are often the only indicator of an early dysfunction in central nervous system (CNS). Their occurrence raises concerns about the underlying cause, its effect on the brain, and the appropriate treatment. Newborn seizures are mostly sub-clinical and only detected through the Electroencephalogram. For an efficient diagnosis, seizure classification systems were proposed based on visual observations. This project proposes developing a novel approach to automate the classification process using time-frequency (TF) signal processing techniques based on the multi-channel characteristics of the seizure; namely: A) TF signature B) origin, and C) propagation behaviour.

LP0562363 Dr M Dumas-Menjivar; A/Prof AH ter Hofstede; Mr A Iordachescu; Ms J Sipka

Title: Reconciling Activity-centric and Business Object-centric Approaches to Business Process Modelling

2005 : \$12,074
2006 : \$24,148
2007 : \$24,148
2008 : \$12,074

Category: 2801 - INFORMATION SYSTEMS

APA(I) Award(s): 1

Partner Organisation(s)

Shared Web Services

Administering Institution: Queensland University of Technology

Summary:

Business process models are a fundamental instrument for analysing and automating the operations of organisations. At present, the space of business process modelling techniques is characterised by fragmentation with various approaches striking different tradeoffs. Two major families of approaches can be distinguished: activity-centric and business object-centric. These approaches correspond to complementary viewpoints. We see great potential in creating a level of

integration between them. Accordingly, the project will investigate the relative expressiveness of these approaches, identify incompatibilities and synergies, and design model transformations. This will establish a foundation for next-generation business process modelling tools.

LP0561597 A/Prof PA McKay; Prof EL McWilliam; Dr KT Dooley; Dr F McArdle

Title: Improving engagement in learning and transition to mainstream schooling for newly-arrived Sudanese youth in the middle years of schooling

2005 : \$19,247
2006 : \$38,982
2007 : \$39,972
2008 : \$20,237

Category: 4201 - LANGUAGE STUDIES

Partner Organisation(s)

Queensland Studies Authority
Multicultural Affairs Queensland
Milperra State High School
Queensland Program of Assistance to Survivors

Administering Institution: Queensland University of Technology

Summary:

The 'new wave' of Sudanese refugees (48.3% of 2003 intake) with disrupted educational and social/emotional backgrounds is currently challenging Australian schools' expertise and resources. Using frameworks that draw on cultural theory, identity and language, the study will explore the social capital needs (skills and capacities, and resource needs) of Sudanese middle-schooling students enabling successful, productive and engaged transition from their on-arrival program into mainstream secondary schooling. The resulting model and web-based materials will provide a framework for educating other groups likely to follow from Africa/elsewhere, and meet the National Priority Goal: strengthening Australia's social fabric.

LP0562205 Prof L Morawska; Dr M Jamriska; A/Prof D Birtwhistle; Prof KL Mengersen; Dr DM Allan

Title: QUANTIFICATION OF INTERACTIONS DURING THE DISPERSION OF CORONA IONS AND AIRBORNE PARTICLES NEAR POWER LINES

2005 : \$45,000
2006 : \$60,000
2007 : \$30,000
2008 : \$15,000

Category: 2499 - OTHER PHYSICAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Australian Strategic Technology Programme

Administering Institution: Queensland University of Technology

Summary:

Currently there is no method for quantification of concentration and dispersion of charged aerosols near high voltage power lines (HVPLs). However, hypothesis have been presented, but not yet proven scientifically, that residents of houses close to combustion sources such as highways or industrial plants and HVPLs may be subjected to health risk due to inhalation of charged aerosols. The outcome of this project will be a model for quantitative assessment of the processes occurring during the transport and dispersion of corona ions and combustion aerosol, which will be a tool for predictive risk assessment and informed management of public resources in relation to power line design and maintenance.

LP0562130 Prof B Pham; A/Prof P Roe; Dr A Wardhani; Dr J Zhang

Title: Investigation of a Dynamic Collaborative Framework for Multi-Modal Devices

2005 : \$52,500
2006 : \$107,500
2007 : \$111,250
2008 : \$56,250

Category: 2803 - COMPUTER SOFTWARE

APA(I) Award(s): 2

Partner Organisation(s)

Microsoft

Administering Institution: Queensland University of Technology

Summary:

Modern business and society increasingly call for agility through the rapid formation of groups and collaboration of individuals. Mobile computing devices have the potential to enable this collaboration. However this is currently unrealised; software is not keeping up with hardware. This project aims to investigate techniques and software tools to provide an adaptive framework for multimedia-rich applications, which seamlessly support collaboration through multi-modal communications between heterogeneous mobile devices. This combination of multimedia, smart devices and advanced communications has the potential to revolutionise many key industries by making information available and manipulable in new and better ways.

LP0561545 A/Prof HK Pillay; Ms DK Conroy; Ms K Kelly; Ms LG Brogden

Title: **Redefining the Ageing Workforce in Local Governments: Mapping Aspirations of Older/Blue Collar Workers with Organisational Training and Development Interventions**

2005 : \$16,500
2006 : \$34,500
2007 : \$38,000
2008 : \$20,000

Category: 3301 - EDUCATION STUDIES

Partner Organisation(s)

Local Government Association of Queensland

Administering Institution: Queensland University of Technology

Summary:

The major aim is to understand the aspirations of older, blue collar workers and have them remain active and productive in the workforce in the face of a changing occupational structure in local government, especially in rural and remote areas. This project is significant as it addresses two national research priorities - ageing productively and strengthening Australia's social and economic fabric. Expected outcomes include developing a methodology to 'map' worker aspirations, dispositions and competencies; provision of a model for designing new/alternative job types; guidelines for implementing changes to workforce planning and empirical data on which to base policy/workforce change.

LP0562101 Prof S Sridharan

Title: **Audio Visual Speech Recognition**

2005 : \$34,500
2006 : \$74,500
2007 : \$75,500
2008 : \$35,500

Category: 2802 - ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APA(I) Award(s): 1

Partner Organisation(s)

KAZ Group Ltd

Administering Institution: Queensland University of Technology

Summary:

Even though significant advances have been made in automatic speech recognition using acoustic information, the recognition accuracies are still poor in noisy and hostile environments such as in crowds, traffic, factory floors etc. In many of these applications visual information is or can easily be made available in addition to the audio. The aim of this project is to achieve an order of magnitude improvement in speech recognition accuracies in adverse environments by joint processing and modelling of the acoustic modality with visual information in the form of lip shapes and movements. The outcomes will be useful in human computer interaction in adverse environments as well as in the transcription and mining of multimedia data.

LP0561848 Dr JA Tacchi; Prof SD Cunningham; A/Prof HK Pillay; Dr AJ Skuse

Title: **Finding a Voice: Making Technological Change Socially Effective and Culturally Empowering**

2005 : \$95,714
2006 : \$183,900
2007 : \$183,498
2008 : \$95,313

Category: 4001 - JOURNALISM, COMMUNICATION AND MEDIA

Partner Organisation(s)

UNESCO

Foundation for Development Cooperation

UNDP Indonesia

Administering Institution: Queensland University of Technology

Summary:

New information and communication technologies (ICTs) are heralded as remarkable tools for the development of marginalised communities. Research has shown that ICTs can contribute to development, but need to be introduced in ways that recognise local social networks and cultural contexts. This project takes a participatory approach to research, aiming to empower people through finding their own voice. We will establish a research network of local ICT initiatives across Asia and the Pacific region. Using ethnographic action research the network will be populated by local researchers in each of these initiatives, trained and supported by Australian researchers. This will increase understanding of how ICTs can be both effective and empowering.

LP0561602 Dr BC Watson; Prof MC Sheehan; Adj/Prof V Siskind; Dr NM Spencer

Title: Speeding recidivism, crash risk and the impact of penalties and sanctions on speeding behaviour.

2005 : \$15,699

2006 : \$31,566

2007 : \$29,867

2008 : \$14,000

Category: 3904 - LAW ENFORCEMENT

Partner Organisation(s)

Queensland Police Service

Queensland Treasury Department

Queensland Transport

Administering Institution: Queensland University of Technology

Summary:

Road traffic crashes make up one quarter of deaths due to injury (ATSB 2004) with speeding a major contributing factor. It has been estimated that the yearly cost of speed related crashes alone amounts to \$1 billion (MUARC 1993). We aim to examine the effect of increased penalty regimes on speeding offenders and its relationship to their traffic and criminal histories. Results will reveal relationships between high level speeding, speeding recidivism and crash involvement, and to what extent they are associated with other anti-social and illegal behaviour. Based on the results and relevant theory, a model will be developed to inform policymakers on speed prevention education and legislation.

LP0562608 Dr CJ Worringham; Prof AW Parker; Dr I Stewart; Mr RL Boyd

Title: Development and evaluation of a remote monitoring system and its application to cardiac rehabilitation and occupational health

2005 : \$32,500

2006 : \$65,000

2007 : \$32,500

Category: 3214 - HUMAN MOVEMENT AND SPORTS SCIENCE

APA(I) Award(s): 1

Partner Organisation(s)

Alive Technologies Pty Ltd

Administering Institution: Queensland University of Technology

Summary:

This project further develops and evaluates a system developed by the Industry Partner which permits real-time remote monitoring of a person's cardiac activity, position and velocity via GPS, and selected aspects of motion and posture using accelerometry. The study has three aims: to enhance the system's capacity for remote monitoring of human motion and physiology; to test its ability to support cardiac rehabilitation for those unable to access hospital-based programs; and to evaluate its application to the monitoring of workloads in physically demanding tasks associated with cardiovascular ill-health and musculoskeletal injury.

The University of Queensland

LP0562409 Dr A Barnes; Dr RP Smullen

Title: C-type lectins and innate immunity in barramundi

2005 : \$20,000

2006 : \$40,000

2007 : \$37,500

2008 : \$17,500

Category: 3007 - FISHERIES SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Ridley Aqua- Feeds Ltd

Administering Institution: The University of Queensland

Summary:

The project aims to identify mannan binding lectins (MBL), key components of innate immunity, in barramundi and to develop quantitative assays for MBL. The project further aims to investigate the role of MBL in infectious processes of *Streptococcus iniae*, which causes disease in barramundi and humans. Quantitative assays will be used in conjunction with more traditional assays to evaluate the effect of supplemented feeds on the innate immune system of barramundi and their disease resistance during times of stress. This project will increase our understanding of innate immune pathways in this fish species and aid development of improved feeding strategies.

LP0562707 Dr WP Clarke; Prof J Keller

Title: **An optimally integrated treatment process for food waste and wastewater to maximise sustainability in a decentralised treatment plant**

2005 : \$60,000
2006 : \$117,500
2007 : \$117,500
2008 : \$60,000

Category: 2911 - ENVIRONMENTAL ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Econova

Administering Institution: The University of Queensland

Summary:

Decentralised small scale treatment plants are required for remote communities, resort locations and 'rural residential' developments. This project has access to an operational plant in urban Brisbane serving 21 houses, the first development in urban Australia with full approval for an onsite treatment facility. The plant has been designed to treat an integrated kitchen waste and blackwater stream, with upstream anaerobic digestion that reduces the survival of wastewater pathogens and generates soluble organic carbon for the biological removal of nitrogen and phosphorous. The project will produce expertise in decentralised treatment systems, including the development of two PhD students in this area.

LP0562579 A/Prof BM Degnan

Title: **Enhancing the Pearl: understanding the molecular genetics of pearl lustre, colour and size**

2005 : \$50,200
2006 : \$103,200
2007 : \$99,000
2008 : \$46,000

Category: 3007 - FISHERIES SCIENCES

Partner Organisation(s)

Arafura Pearls Holdings Ltd

Administering Institution: The University of Queensland

Summary:

Australia produces some of the most valuable pearls in the world. However recently the world has been flooded with high quality mass-produced freshwater pearls. This has begun to eat into our prestigious South Sea Pearl market and now presents Australian pearlery with a challenge to maintain market identity. We propose to respond this challenge by improving the quality and consistency of the cultured South Sea Pearl through gaining a detailed understanding of how the oyster genetically controls pearl biofabrication - focusing on pearl colour, size and lustre. This information will identify pearl oysters that are a source of high-quality donor mantle tissue and that can be used in selective breeding programs.

LP0562602 A/Prof BM Degnan; Dr A Barnes; Dr SM Degnan; Dr EK O'Brien

Title: **Aquaculture of the tropical abalone: identifying and selecting for factors promoting high settlement, survival and growth**

2005 : \$24,574
2006 : \$42,648
2007 : \$36,148
2008 : \$18,074

Category: 3007 - FISHERIES SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Queensland Sea Scallop Ltd

Administering Institution: The University of Queensland

Summary:

There is a growing demand worldwide for the 'cocktail'-sized tropical abalone *Haliotis asinina*. We have developed a full set of hatchery and grow-out procedures that Queensland Sea Scallops Pty Ltd will test on a commercial scale. At QSS, we will propagate and growout *Haliotis asinina* to determine the factors controlling settlement, survival, growth and health. We will do this by combining breeding experiments with microarray gene profiling and other advanced gene expression studies. This knowledge will enhance the development of this new aquaculture industry in tropical Australia and our understanding of abalone aquaculture in general.

LP0562373 Prof MJ Gidley; Dr SJ Roberts-Thomson; Dr GR Monteith; Dr RG Dietzgen; Prof PN Shaw

Title: Identification of nutritional bioactives in tropical fruit

2005 : \$19,500
2006 : \$39,000
2007 : \$39,000
2008 : \$19,500

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(l) Award(s): 1

Partner Organisation(s)

Queensland Government Department of

Administering Institution: The University of Queensland

Summary:

Information on the nutritional properties of tropical fruits is currently limited to chemical analysis of vitamins, minerals and fibre. This project aims to identify additional nutritional components within tropical fruits by assessing activities against a range of cell-based assays. Selected assays will represent cellular processes relating to e.g. lipid metabolism, cancer prevention, and antioxidant effects. Assay-based fractionation approaches will be used to identify molecular bioactives acting either alone or synergistically with other components. Results will be used in public health and/or marketing communication, and will provide targets for breeding and varietal selection programmes.

LP0562201 Prof PC Hayes; Dr E Jak; Dr PA Anderson; Mr JE Fittock

Title: Improvements in the pyrometallurgical processing of nickel oxide and laterite ores at QNI Yabulu, North Queensland

2005 : \$70,000
2006 : \$140,000
2007 : \$145,000
2008 : \$75,000

Category: 2913 - METALLURGY

APA(l) Award(s): 1

Partner Organisation(s)

QNI

Administering Institution: The University of Queensland

Summary:

The QNI Yabulu operation in Queensland is an important supplier of nickel and cobalt metals to the export market. The company is planning to expand the scale of the operations but is faced with two important sustainability issues. One is the recent changes to the European regulations that require very low levels of residual nickel oxide in the nickel metal product. The second issue relates to ensuring the supply and improved recovery of nickel and cobalt from oxide-based ores. Further fundamental scientific information is required to provide improved understanding of the complex chemical reactions occurring during the high temperature treatment of these materials, and to guide improvements in product quality, recovery and process efficiency

LP0562157 Prof O Hoegh-Guldberg; Dr KR Anthony; Prof A Bakun; Dr BC Congdon; Dr MJ Caley; Dr SG Dove; Dr GC Feldman; Prof ML Heron; Dr R Johnstone; Dr AK Krockenberger; Dr LJ McCook; Dr AE Strong; Dr P Marshall

Title: New tools for managing ecosystem responses to climate change on the southern Great Barrier Reef.

2005 : \$110,000
2006 : \$220,000
2007 : \$220,000
2008 : \$220,000
2009 : \$220,000
2010 : \$110,000

Category: 2604 - OCEANOGRAPHY

APA(l) Award(s): 1

Partner Organisation(s)

NOAA/NESDIS/ORA/ORAD
Great Barrier Reef Marine Park Authority

Administering Institution: The University of Queensland

Summary:

The Great Barrier Reef (GBR) underpins over \$4 billions of economic activity each year. Recent evidence suggests that reefs like the GBR are vulnerable to climate change, which manifests itself at both local and global scales. Providing the tools for tracking and understanding these changes is vitally important to effective reef management strategies. This project will provide a major advance in our understanding and the tools available to manage the impacts of climate change. In doing so, it will also produce the first comprehensive and multidisciplinary look at how environmental variability impacts coral reef organisms from corals to seabird populations.

LP0561498 Dr CE Lovelock; Dr GA Skilleter; Dr IC Feller; Prof S Joye

Title: Assessing linkages across arid zone estuarine landscapes

2005 : \$20,500

2006 : \$38,500

2007 : \$35,500

2008 : \$17,500

Category: 2707 - ECOLOGY AND EVOLUTION

APA(I) Award(s): 1

Partner Organisation(s)

Straits Resources Limited
M.G. Kailis Group

Administering Institution: The University of Queensland

Summary:

We aim to understand the degree of connectivity between the terrestrial environment and estuaries in the arid tropics of Australia. We will investigate the impact of terrestrial-estuarine linkages on near shore food webs, which include a diverse fauna, some of which are commercially important. Human activities in the land-ocean interface have to have the capacity to alter greatly the timing, magnitude, and composition of inputs from watersheds to estuaries, thereby greatly altering the function of estuaries. The results of this project will fill a gap in our knowledge of how arid zone estuaries function, and will contribute to developing management strategies needed to maintain estuary productivity.

LP0562609 Prof GM Lu; A/Prof Y He; Mr X Yao

Title: Nanostructured Magnesium-base Composites for High-density Hydrogen Storage

2005 : \$68,600

2006 : \$118,600

2007 : \$102,500

2008 : \$52,500

Category: 2914 - MATERIALS ENGINEERING

APA(I) Award(s): 1

APDI Mr X Yao

Partner Organisation(s)

BioAust Bioenergy Pty Ltd

Administering Institution: The University of Queensland

Summary:

This project aims to develop nanocrystalline magnesium-based composites for effective hydrogen storage, overcoming two main technical barriers of current metal hydride systems: high charging/discharging temperature and slow kinetics. Nanoscale catalysts based on mesoporous carbons and metal nanoparticles will be introduced into the magnesium to increase storage capacity and increase the rate at low temperatures. Fundamental understanding on the effects of catalysts, and adsorption and desorption mechanisms will be obtained to optimise the composite materials. This project will lead to effective and practical technology for hydrogen storage that will meet the target of commercial fuel cell vehicles.

LP0562686 Prof PR Mora

Title: Assessment of the Seismic Hazard in South-East Queensland utilizing earthquake simulations

2005 : \$37,000

2006 : \$69,500

2007 : \$72,500

2008 : \$40,000

Category: 2602 - GEOPHYSICS

APA(I) Award(s): 1

Partner Organisation(s)

Department of Main Roads

Administering Institution: The University of Queensland

Summary:

Assessment of seismic hazard in Australia is hampered by relatively few instrumental records of past earthquakes. Supercomputer simulations of long-term earthquake activity and strong ground motion, provide an alternative method for estimating the risk posed by earthquakes. The aim of this project is to construct a physical model for South-East Queensland incorporating the major faults and rock units of the region. In conjunction with earthquake simulation software of the Australian Computational Earth Systems Simulator, this model will be employed to analyse the spatial and temporal variability of earthquake activity and the ground motion resulting from these earthquakes.

LP0562507 A/Prof BN Noller; A/Prof JC Ng; Prof T Suzuki; Dr SJ Markich; Prof K Kuma

Title: **The effect of dissolved organic matter on the toxicity and bioavailability of metals in tropical freshwater ecosystems**

2005 : \$15,074
2006 : \$30,148
2007 : \$30,148
2008 : \$15,074

Category: 2707 - ECOLOGY AND EVOLUTION

APA(I) Award(s): 1

Partner Organisation(s)

Supervising Scientist Division, Department of Aquatic Solutions International

Administering Institution: The University of Queensland

Summary:

Mine waste materials in tropical Australia, including historical, current and future operations, represent one of the threats to the quality and biodiversity of tropical freshwater ecosystems. Dissolved organic carbon (DOC) is thought to influence metal toxicity. In order to adequately understand the risks of priority metals and metalloids from mining and other activities (eg. urban development) to tropical freshwater ecosystems, it is essential that the role of DOC is quantified. The outcomes of this project will provide improved metal risk assessment methodologies; quantitative understanding of the relationship between DOC and the bioavailability and toxicity of key metals such as arsenic, aluminium, cadmium, copper, uranium and zinc.

LP0561840 Dr GR Shaw; Prof MR Moore; Dr WA Wickramasinghe

Title: **The effect of chlorine disinfection byproducts in wastewater effluent on the aquatic environment**

2005 : \$12,074
2006 : \$24,148
2007 : \$24,148
2008 : \$12,074

Category: 3008 - ENVIRONMENTAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

City West Water Limited
Environmental Protection Agency (Queensland)
Melbourne Water
Water Services Association of Australia

Administering Institution: The University of Queensland

Summary:

Chlorination of treated wastewater leads to the formation of harmful disinfection byproducts (DBPs). A key issue for the water industry and government environmental agencies is whether the DBPs have a deleterious effect on organisms in the receiving aquatic environment. The effect of fractions of chlorinated and chlorinated/dechlorinated wastewaters on organisms will be assessed using biological assays. Chemical analysis will be used to identify the compounds in fractions having negative biological effects. Laboratory data will be validated by measuring environmental DBP concentrations and assessing the biota. This project will identify the risk to biota in aquatic environments from chlorinated and chlorinated/dechlorinated wastewater.

LP0562102 A/Prof C Turner; Prof S Stewart; Prof EA Davies; A/Prof HJ Beattie; Dr CJ Bain; Prof DG Hegney; Prof AJ Dobson; Prof Dr RJ McClure

Title: **Factors associated with the recruitment and retention of the current and future nursing workforce - a longitudinal e-cohort study**

2005 : \$75,000
2006 : \$150,000

2007 : \$150,000
2008 : \$125,000
2009 : \$100,000
2010 : \$50,000

Category: 3211 - NURSING

APA(l) Award(s): 2

Partner Organisation(s)

Injury Prevention and Control (Australia) Ltd
Queensland Health

Administering Institution: The University of Queensland

Summary:

The overall effectiveness of the Australian health care system is dependent on a knowledgeable, skilled and viable nursing workforce. Currently there is a critical shortage of qualified nurses actively working in the Australian health care system which limits the capacity of the system to effectively manage an ageing population. The broad aim of this research project is to examine factors associated with recruitment and retention of the current and future nursing workforce across metropolitan, regional and rural areas; with a particular focus on work-based injury. In addition, the project will employ smart use of information technology to develop innovative e-cohort techniques.

LP0562505 Prof AK Whittaker; A/Prof JJ Cooper-White; Dr E Wentrup-Byrne; Dr J Malda

Title: Bioactive Polymers for Wound Healing Applications

2005 : \$95,000
2006 : \$195,000
2007 : \$200,000
2008 : \$100,000

Category: 2914 - MATERIALS ENGINEERING

APA(l) Award(s): 1

Partner Organisation(s)

Tissue Therapies Limited

Administering Institution: The University of Queensland

Summary:

VitroGroR is a growth factor complex which enhances cell growth and migration, and hence has great potential for treating wounds. Tissue Therapies, which holds the rights to commercialization of VitroGroR, is seeking to develop methods of delivering VitroGroR in its active form to the wound environment. Two solutions to this problem will be developed in this project; a bioactive bandage containing a novel combination of microspheres and a hydrogel matrix, and secondly an in-situ polymerisable matrix for treatment of deep wounds. The growth factor complex will be protected from aggressive proteases through encapsulation within microspheres, and the use of MMP-inhibiting comonomers.

LP0562551 Prof GM Williams; Prof RW Simpson; Dr GB Marks; Dr B Jalaludin

Title: Quantifying the effects of criteria air pollutants on child health - setting Australian air quality standards.

2005 : \$117,962
2006 : \$240,462
2007 : \$134,500
2008 : \$12,000

Category: 3008 - ENVIRONMENTAL SCIENCES

Partner Organisation(s)

NEPC Service Corporation

Administering Institution: The University of Queensland

Summary:

The project is proposed and supported by the National Environment and Heritage Protection Council, who will be reviewing Australian air quality standards from 2005. The study aims to determine whether current air quality standards adequately protect the health of Australian school children, and to provide nationally-based information to inform any changes to the current standards. A cross-sectional study will examine cumulative effects; a nested panel study will quantify day-to-day effects of air pollution in sensitive children. Sampling will ensure national representation and generalisability of findings. This will be the first nationally-based study of the relationship between air quality and child health in Australia.

LP0562173 Dr J Zhu; Prof GM Lu

Title: Hydrogen Production by Non-thermal Plasma Assisted Catalytic Pyrolysis of Natural Gas

2005 : \$60,000
2006 : \$106,138

2007 : \$86,874
2008 : \$40,737

Category: 2906 - CHEMICAL ENGINEERING

Partner Organisation(s)

Eden Energy Ltd

Administering Institution: The University of Queensland

Summary:

This project aims to develop a cost effective technology for hydrogen production using catalytic pyrolysis of natural gas assisted by non-thermal plasma. The mechanism and kinetics of catalytic hydrocarbon decomposition on carbons produced in situ will be systematically studied. Based on the fundamental understanding of carbon nanostructures and their catalytic activities and stabilities, the non-thermal plasma and the catalytic reactions will be optimized to achieve high conversion and catalytic stability. The project will lead to a new process combining effective carbon catalyst and low temperature plasma to produce pure hydrogen with high energy efficiency and no CO2 emissions.

University of Southern Queensland

LP0562720 Prof T Tran-Cong; Dr W Yan; Prof G Baker; Mr AJ Russell

Title: Optimising non-explosive rock breaking technology

2005 : \$29,148
2006 : \$60,696
2007 : \$60,696
2008 : \$29,148

Category: 2907 - RESOURCES ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

Russell Mineral Equipment Pty. Ltd.

Administering Institution: University of Southern Queensland

Summary:

Non-explosive rock breaking technology has the potential to significantly improve safety and production in mining and construction industries. This project will quantify a non-explosive hydraulic rock breaking technology through innovative theoretical and numerical investigations. The influences of all the key factors on the efficiency of this technology will be examined. It is envisaged that the outcomes from this proposal will optimise the non-explosive rock breaking technology, greatly improve its application and guide our industry partner to develop reliable equipment.

University of the Sunshine Coast

LP0562265 Dr A Shapcott; Dr A Accad; Dr AJ Lowe; Prof KL Mengersen; Dr KJ Williams; Dr CM Hardner; Dr D Westcott; Dr MP Austin

Title: National Macadamia Conservation Program

2005 : \$12,074
2006 : \$24,148
2007 : \$24,148
2008 : \$12,074

Category: 2702 - GENETICS

APA(I) Award(s): 1

Partner Organisation(s)

Australian Macadamia Society

Sunshine Coast Environment Council

Queensland Herbarium, Environmental

Administering Institution: University of the Sunshine Coast

Summary:

Macadamia is a national icon, and the only indigenous Australian plant food crop to be commercialised. However, it is vulnerable to extinction in the wild, needing conservation action. University, government, industry and community sectors will work together applying cutting edge research methodologies to produce a systematic conservation and recovery plan for Macadamia. This requires: Habitat modelling to predict past, contemporary and potential distributions for advising resource discovery and rehabilitation; Genetic variation modelling to assess quality and distinctness of native genetic resources and potential for rehabilitation by natural colonisation; and Developing a unifying statistical framework to support this work.

LP0562678 Dr HM Wallace; Dr RL Stokoe; Dr DJ Lee

Title: Genetic variation of the vulnerable Eucalyptus argophloia, and its development for sustainable hardwood

forestry in low rainfall areas.

2005 : \$22,500
2006 : \$45,000
2007 : \$45,000
2008 : \$22,500

Category: 3006 - FORESTRY SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Department of Primary Industries Forestry

Administering Institution: University of the Sunshine Coast

Summary:

We will examine the biodiversity in a vulnerable species of eucalypt, *Eucalyptus argophloia*. This species is under threat due to land clearing, and only 1000 trees remain in the wild. *E. argophloia* has great promise for plantation timber in low rainfall areas of Northern Australia. We will breed superior varieties for plantation forestry designed to cope with climate change, low rainfall and salinity. This project will help to manage and preserve the species in the wild and create profitable and sustainable timber plantations on marginal lands.

South Australia

The Flinders University of South Australia

LP0562288 Prof AP Beer; Prof FE Baum; Prof S Richardson; Dr F Verity; Dr D Lowry; Dr C MacDougall; Dr A Ziersch; Dr LA O'Dwyer

Title: The Health, Housing and Labour Market Impacts of an Automotive Plant Closure

2005 : \$57,273
2006 : \$132,820
2007 : \$97,007
2008 : \$21,459

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

SA Department of Health

Administering Institution: The Flinders University of South Australia

Summary:

This research examines the impact of the closure of a large automotive plant on the well-being of its workers and community. The research sets out to understand how significant job losses affect mental and physical health, the demand for housing assistance, social networks, the use of social services and the welfare of children. The research makes use of a longitudinal survey of workers who have left the employment of Mitsubishi Motors and compares their experiences and welfare with a group of workers from General Motors.

LP0562240 Prof CM Bull; Dr MN Hutchinson; Dr SC Donnellan

Title: Conservation Management of the Endangered Pygmy Bluetongue Lizard

2005 : \$17,574
2006 : \$35,148
2007 : \$35,148
2008 : \$17,574

Category: 2707 - ECOLOGY AND EVOLUTION

APA(I) Award(s): 1

Partner Organisation(s)

Nature Foundation SA Inc

The South Australian Museum

The Department of Environment and Heritage

Administering Institution: The Flinders University of South Australia

Summary:

The Pygmy Bluetongue Lizard probably occurred over 150km of the Adelaide Plains before European settlement, but is now known from only a few privately owned properties in the mid-north of South Australia. Before adopting specific conservation strategies, such as release to new sites, more needs to be known about the genetic and social structure of viable populations, and the natural parasite fauna that may detrimentally affect any transplants. This project explores those aspects of the lizard biology, enhancing both our general understanding of lizard population structure and our specific understanding of conservation issues for this species.

LP0561679 A/Prof RR Huilgol; Dr R Zheng; Dr Z You

Title: Numerical Modelling of Injection Moulding for Viscoplastic Fluids

2005 : \$36,657
2006 : \$72,679
2007 : \$36,022

Category: 2804 - COMPUTATION THEORY AND MATHEMATICS

APDI Dr Z You

Partner Organisation(s)

Moldflow Pty Ltd

Administering Institution: The Flinders University of South Australia

Summary:

The project aims to modify and extend the numerical software developed by the world renowned Moldflow Pty Ltd, Melbourne, for the simulation of injection moulding in the plastics industry. The significance of the project lies in the application of the relatively new mathematical tool, called the variational inequality approach, to the problem of solidification of the molten plastic in a mould. The expected outcomes lie in the development of new software for use in the plastics industry, which will improve the production of fibre reinforced thermoplastics throughout the world.

LP0562583 Dr F Young; Dr AR Humpage; Prof R Ivell; Prof GJ Barritt; Dr BJ Sanderson

Title: Development of a Bioassay to Measure Xenoestrogens in Environmental Water Samples

2005 : \$23,074
2006 : \$45,648
2007 : \$45,148
2008 : \$22,574

Category: 3001 - SOIL AND WATER SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

SA Water

Administering Institution: The Flinders University of South Australia

Summary:

Xenoestrogens in water can cause feminization of fish, amphibians and other wildlife, interfere with reproduction and increase cancer. This research aims to develop a new test to measure xenoestrogens in water, based on a measure of the estrogen-activated genes that are switched on when cells are exposed to estrogens. If the research is successful, it will produce the best test in the world for measuring the effects of xenoestrogens on mammalian cells. The test can be used to develop better xenoestrogen removal processes, and to set limits for the levels of xenoestrogens permitted in rivers and creeks.

The University of Adelaide

LP0561715 Dr MS Carroll; Prof NE Fraillon; Dr MA Potter; Ms RF Holmes

Title: The impact and legacy of Colonel de Basil's Ballets Russes on Australian cultural life and artistic practice

2005 : \$62,436
2006 : \$125,172
2007 : \$122,423
2008 : \$59,687

Category: 4101 - PERFORMING ARTS

Partner Organisation(s)

The Australian Ballet

National Library of Australia

Administering Institution: The University of Adelaide

Summary:

The project heralds a nationally significant co-operation between Australian cultural and tertiary institutions to research the content, impact and legacy of Australian tours 1936-40 by the acclaimed Ballets Russes. Australians were overwhelmed by the company's high-modernist aesthetic, and inspired by the collaborative ideals celebrated in its balletic, theatrical and musical masterpieces. Research will generate a range of scholarly publications, physical and virtual exhibitions, and select performances by the Australian Ballet. The project utilises an innovative interactive research methodology to establish a vital nexus between scholarly research, digital archival management and dissemination strategies, and artistic practice.

LP0561525 Dr N Ertugrul; Dr WL Soong

Title: Innovative Design of Soft Magnetic Composite Brushless Permanent Magnet Motors with Enhanced Characteristics and Manufacturing Advantages for Commercial Applications

2005 : \$41,000

2006 : \$72,500

2007 : \$44,500

2008 : \$13,000

Category: 2909 - ELECTRICAL AND ELECTRONIC ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Intelligent Electric Motor Solutions Pty Ltd

Administering Institution: The University of Adelaide

Summary:

Using variable-speed drives can save significant amounts of energy. These drives utilise motors and power electronics to operate the system at the highest efficiency. However, the high cost of such drives is the most important issue restricting their wider application. Although the cost of power electronics has dropped substantially in recent years, the motor cost has been relatively unchanged. To address this issue, we propose an innovative motor construction method using soft magnetic composites materials, which is simpler and provides higher assembly tolerances. The method will reduce the motor manufacturing cost and improve its efficiency and so make the use of variable speed drives more attractive in many other drive applications.

LP0562536 Dr RB Gilchrist; Dr JG Thompson

Title: Improving the efficiency of bovine oocyte maturation in vitro

2005 : \$19,574

2006 : \$39,148

2007 : \$39,148

2008 : \$19,574

Category: 3004 - ANIMAL PRODUCTION

APA(I) Award(s): 1

Partner Organisation(s)

Cook Australia Pty Ltd

Administering Institution: The University of Adelaide

Summary:

For the dairy and beef industries, the hundreds of eggs (oocytes) in a high value cow's ovary that fail to produce a pregnancy are a wasted genetic resource. A key technology to unlocking this resource is in vitro maturation of oocytes, but the process is inefficient. One possible cause is that the current approaches to maturing oocytes in vitro do not adequately mimic the natural process in vivo. We will design new systems to mature cow oocytes in vitro by altering the chemical composition of maturation medium, thus improving the efficiency of laboratory embryo production and related technologies.

LP0562206 Dr DJ Navarro; Dr MD Lee; Dr M Maio Mackay

Title: Psychological User Profiling in the Telecommunications Industry

2005 : \$40,000

2006 : \$75,000

2007 : \$35,000

Category: 3801 - PSYCHOLOGY

Partner Organisation(s)

m.Net Corporation Ltd

Administering Institution: The University of Adelaide

Summary:

Recording user behaviour allows businesses to learn about their customers. This is particularly important in telecommunications, since the core business involves a large number of users who vary considerably from one another. This project combines psychological insights with modern statistical methods to develop a psychologically plausible user profiling framework, accounting for the idiosyncratic usage patterns of customers, and the way in which they change over time. The profiles will be tied to marketing prospects through interviews and surveys. Applied benefits include the ability to predict, understand and act upon user behaviour. The project also adds substantially to theories of memory, individual differences and decision-making.

LP0561767 A/Prof BA Pocock; Dr SA Oakley

Title: Re-conceptualising citizenship and the commodification of labour: the experiences of young casual workers in the South Australian labour market

2005 : \$12,074
2006 : \$24,148
2007 : \$24,148
2008 : \$12,074

Category: 3502 - BUSINESS AND MANAGEMENT

APA(l) Award(s): 1

Partner Organisation(s)

United Trades and Labour Council of SA

Administering Institution: The University of Adelaide

Summary:

This qualitative study addresses existing gaps regarding the nature and strength of workplace voice and agency of young casual workers in South Australia especially at a time when the growth of casual employment is reviving the notion that human labour is returning to commodity status. This study considers the implications for skill and training, gendered aspects of labour market regulation, and potential forms of effective advocacy to assist young casual workers to workplace citizenship and long-term employment from their perspective. The study has theoretical and policy implications.

LP0562492 Dr T Ziaian; A/Prof NG Procter; Prof MG Sawyer; Dr PL Baghurst

Title: **Refugee children and adolescents in Australia: Issues of mental health and well-being and equal access to mental health services**

2005 : \$34,000
2006 : \$70,000
2007 : \$57,334
2008 : \$21,334

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(l) Award(s): 1

Partner Organisation(s)

Migrant Resource Centre of South Australia

Administering Institution: The University of Adelaide

Summary:

The mental health status of refugee children and adolescents has received scant scholarly attention despite the fact that they are at high risk of developing mental health problems. The present study will be the first of its kind undertaken in Australia. It will provide data on the prevalence of mental health problems affecting refugee children and adolescents in South Australia, the level of disability associated with these problems and the extent to which children and adolescents are receiving appropriate help. The absence of this information greatly hinders the development of intervention strategies to help refugee children and adolescents. Results will be used to inform mental health policy and program development and service delivery.

University of South Australia

LP0562285 Dr D Chung; Dr L Zannettino; Dr PJ O'Leary; Ms D Odgers; Ms S Wight

Title: **Early intervention in stopping gendered violence: developing an evidence based intervention program for young men using violence against their girlfriends**

2005 : \$12,074
2006 : \$24,148
2007 : \$24,148
2008 : \$12,074

Category: 3702 - SOCIAL WORK

APA(l) Award(s): 1

Partner Organisation(s)

Northern Metropolitan Community Health Service

Administering Institution: University of South Australia

Summary:

This research aims to develop and evaluate an intervention program targeted to young men using violence against their girlfriends. This intervention program focuses on dating violence with young men who are not yet involved with the criminal justice system. This innovation addresses a gap in stopping male violence, positioned between universal primary violence prevention programs and the tertiary prevention of the criminal justice system's adult domestic violence perpetrator programs. The research outcomes include: an evidence based intervention program aimed at stopping young men's violence against women; a training program for professionals; and documented standards of practice for working with young men and gendered violence.

LP0562276 Prof P Darbyshire; Prof WE Schiller; Dr C MacDougall

Title: Childhood obesity, physical activity and wellbeing: Discovering the influence of children's understandings and experiences of places, spaces and communities

2005 : \$48,000

2006 : \$91,000

2007 : \$87,000

2008 : \$44,000

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Department of Education & Children's Services

Women's and Children's Hospital

Office of Recreation and Sport

Department of Health

Administering Institution: University of South Australia

Summary:

The study aims to discover 3-13 yr old children's understandings, perceptions & experiences of physical activity & associated places & spaces. Childhood obesity is a modern 'epidemic' & governments agree that low physical activity levels contribute significantly. Epidemiological & clinical research has been undertaken, but we lack Australian studies that systematically listen to & understand the pivotal voices of children themselves. Failure to develop such theoretically sound, practice-based understandings may mean ineffective interventions that misunderstand children's worlds. This collaborative study unites highly experienced researchers, practitioners & policy makers who will actively involve children in creating & using new knowledge.

LP0562310 A/Prof MF Dollard; Prof AH Winefield; A/Prof J De Jonge; A/Prof A Bakker

Title: Optimal Resourcing: A longitudinal study of work demands, resourcing, and psychological well-being in Australian frontline police officers.

2005 : \$32,500

2006 : \$66,500

2007 : \$46,074

2008 : \$12,074

Category: 3801 - PSYCHOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Police Association of South Australia

The Police Association

Administering Institution: University of South Australia

Summary:

Expanding the Job Demands-Resources model of job stress to include upstream pressures on the organisational system, this research will provide important insights into the relationships between psychosocial risks (current resources and demands) and police wellbeing. Using 3 wave longitudinal designs, and 'objective' measures of demands and resources, the research will extend the stress development literature by exploring exposure (cross-sectional, 1 year) and time lag (2 year) causal pathways. The findings will make a significant contribution to contemporary job demand/resource theories of occupational stress and assist in the development of policies to enhance the occupational health and safety of frontline police officers.

LP0562210 A/Prof AR Gerson; Dr GP Cavallaro; Dr GE Ice; Prof NS McIntyre

Title: SYNCHROTRON MICROPROBE METALLURGICAL CASE STUDIES

2005 : \$26,000

2006 : \$52,000

2007 : \$26,000

Category: 2501 - PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

Partner Organisation(s)

Department of Innovation, Industry and

Administering Institution: University of South Australia

Summary:

The micro-focus capabilities of synchrotron techniques (XRF, XRD, XAS) will enable the high resolution spatial correlations required to advance the understanding of the three systems to be studied:

- Activation for flotation of sphalerite with varying iron contents;
- Arsenic leaching as a function of local structure, phase and mineral assemblage;
- Optimisation of ferrous alloy microstructure on cryogenic treatment.

These case studies have been chosen to specifically target the minerals processing and manufacturing industrial sectors and will be used to increase industrial awareness of the potentials of synchrotron techniques prior to the commissioning of the Australian Synchrotron in 2007.

LP0562066 Dr SR Grano; Prof RG Horn; Dr MA Vera; Dr RJ Pugh

Title: Optimising Froth Zone Performance in Mineral Flotation

2005 : \$97,500

2006 : \$170,000

2007 : \$147,500

2008 : \$75,000

Category: 2501 - PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

APA(I) Award(s): 3

Partner Organisation(s)

AMIRA International

Administering Institution: University of South Australia

Summary:

Froth flotation is the most widely applied technique for the selective separation of valuable mineral from gangue mineral particles. This project aims to optimize the selective separation of valuable minerals from gangue minerals within the froth zone of flotation. This project has very high national significance as deficiencies in the froth zone performance of industrial flotation plants, leads to a significant loss of valuable mineral from mineral concentrates, as well as a reduction in concentrate grade and quality. An expected outcome of this project will be a series of new tools and methodologies to optimize froth zone performance, which will have industry wide application.

LP0561810 Dr JD Hayball; Dr MP Brown; Dr PM Howley

Title: Improving and manipulating the immune adjuvant properties of recombinant fowlpox vectors

2005 : \$27,500

2006 : \$55,000

2007 : \$55,000

2008 : \$27,500

Category: 3202 - IMMUNOLOGY

Partner Organisation(s)

Virax Holdings limited

Administering Institution: University of South Australia

Summary:

Unbalanced immune responses may cause or worsen common and important diseases such as infections, allergies, cancers and autoimmunity. Interleukin-4 (IL-4) is the only immune active product or cytokine that safely skews an aberrant immune response to a healing type of response. Fowlpox viruses (FPV) provide safe and effective human vaccines. Engineering FPV to make both a relevant antigen and a cytokine is proprietary technology. With our commercial partner and using experimental mice, we will test the concept that FPV making a model antigen and IL-4 initiate and/or maintain beneficial Type 2 responses. A successful outcome will guide clinical FPV-based vaccine development for the treatment of important human and veterinary diseases.

LP0562427 Prof PG Howlett; Dr J Piantadosi

Title: A graphical simulation package for optimal management and risk assessment in urban stormwater harvesting systems

2005 : \$12,074

2006 : \$24,148

2007 : \$24,148

2008 : \$12,074

Category: 2302 - STATISTICS

APA(I) Award(s): 1

Partner Organisation(s)

City of Salisbury

Administering Institution: University of South Australia

Summary:

We will develop a Scalar Vector Graphics (SVG) simulation tool for optimal management and risk assessment in urban stormwater harvesting and utilisation schemes. The generic model will be applied to existing and proposed schemes within the City of Salisbury (CoS) and will include a capture dam, one or more storage dams and an aquifer storage and recovery (ASR) facility. The discrete state vector will be the content of each storage unit and the daily transition will be driven by a new stochastic rainfall model (SRM). The objective will be to find a practical management policy that minimises Conditional Value-at-Risk (CVaR).

LP0562076 Dr B Jin; Dr H Zhu; Dr CP Saint; Dr CW Chow

Title: **Solar Nano-photocatalytic Disinfection and Mineralization of Treated Wastewater from Sewage Treatment Plants**

2005 : \$47,500
2006 : \$95,000
2007 : \$95,000
2008 : \$47,500

Category: 2911 - ENVIRONMENTAL ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

Australian Water Quality Centre, South Australia

Administering Institution: University of South Australia

Summary:

Reuse of the treated wastewater from sewage treatment plants (STPs) has become significantly important in Australia due to dwindling water resources. The poor quality of the wastewater has limited its use for agriculture and aquaculture. This project aims to develop a solar nano-photocatalytic tertiary wastewater treatment process for disinfection and mineralization of the treated wastewater from STPs, making the wastewater suitable as a water resource. The newly developed nano-fibre catalysts and photocatalytic technology in the team will be used and further developed in this novel process. The research will focus on the water quality objectives in terms of technical reliability, and economic and environmental sustainability.

LP0562153 Dr B Jin; Dr JM Kelly; Dr CP Saint; Dr S Villas-Boas

Title: **Fungal Biomass Protein, a Bioproduct Derived from a Treatment Process of Winery Waste Streams**

2005 : \$56,320
2006 : \$112,890
2007 : \$112,590
2008 : \$56,020

Category: 2911 - ENVIRONMENTAL ENGINEERING

APA(I) Award(s): 1

APDI Dr S Villas-Boas

Partner Organisation(s)

Australian Water Quality Centre

Administering Institution: University of South Australia

Summary:

The Australian wine industry produces a substantial quantity of wastewater containing high levels of organic materials that are both highly polluting and costly to treat. This research aims to develop a biotechnological treatment process integrated with fungal biomass protein (FBP) production from the winery waste streams. The outcomes of this project are i) the production of fungal biomass for use as a protein-rich animal feed; ii) the treatment of waste water to allow reuse for farm irrigation; and iii) reduced pollution of watercourses. The research will develop a novel technology that is environmentally friendly and adds value to the Australian winery industry via pollution reduction and FBP production.

LP0562450 Dr DA Kearney; Mr G Smith

Title: **A hardware accelerated platform for high-fidelity, high speed simulation of infrared scenes**

2005 : \$12,074
2006 : \$24,148
2007 : \$24,148
2008 : \$12,074

Category: 2802 - ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APA(I) Award(s): 1

Partner Organisation(s)

BAE Systems Engineering Operations Division

Administering Institution: University of South Australia

Summary:

Missiles present a major military and terrorist threat to aircraft and ships. A possible method to detect them is an infrared imaging system which is sensitive to a missile's spectrally unique rocket propulsion exhaust. It is both dangerous and expensive to conduct field trials; so simulation is used extensively. This project aims to use high performance computing to accelerate the slowest parts of the industrial partner's existing simulations: the generation of simulated infrared images.

This project will improve the competitiveness of the manufacturer of infrared threat and warning systems and provide research training in an area of high performance computing.

LP0562473 Prof KI Norton

Title: Effectiveness of Intervention Strategies to Promote Physical Activity Among Insufficiently Active Adults

2005 : \$27,500

2006 : \$47,500

2007 : \$35,000

2008 : \$15,000

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Department of Health

Administering Institution: University of South Australia

Summary:

This project will determine the cost-effectiveness of 2 types of physical activity (PA) interventions based around the workplace. 480 participants will be randomly assigned to PA intervention groups or controls. Interventions are either a (1) self-regulated, pedometer-based program or a (2) semi-structured, 40-day initiation to more moderately-vigorous PA. Both are designed to increase self-efficacy and impact on positive PA behaviours. Long-term, behavioural change and job-related outcomes will be evaluated by following participants for 12 months after the interventions.

LP0561991 Dr PJ O'Leary; Dr D Chung; Dr L Zannettino; Ms C Potito; Ms B Taylor

Title: Evaluation of Integrated Programs for men who perpetrate domestic violence: an examination of the effectiveness of intervention process and systems

2005 : \$10,000

2006 : \$20,000

2007 : \$20,000

2008 : \$10,000

Category: 3702 - SOCIAL WORK

Partner Organisation(s)

Domestic Violence Service, Gold Coast

Queensland Correctional Services

Administering Institution: University of South Australia

Summary:

This research will investigate the effectiveness of integrated programs for men who perpetrate domestic violence. The project will address the unpredictable nature of domestic violence by administering behaviour, attitudinal, and risk assessment instruments at each point of intervention and beyond. Central to this process is the collection of data from women partners and other stakeholders (child protection, police, courts) for the purpose of comparison. The project outcomes will allow for an analysis that gives an overview of changes during and after the intervention process. In this way, integrated programs will be able to better conceptualise and respond to behaviour, attitudinal and risk assessment variations.

LP0562188 A/Prof MG Patrickson; Dr JL Rice; A/Prof JR Warren; A/Prof BW Gurd

Title: Overcoming Resistance to the Introduction of a Health Informatics System in General Practice Medicine

2005 : \$12,074

2006 : \$24,148

2007 : \$24,148

2008 : \$12,074

Category: 2801 - INFORMATION SYSTEMS

APA(I) Award(s): 1

Partner Organisation(s)

Adelaide Hills Division of General Practice

Adelaide Central and Eastern Division of

Adelaide Northern Division of General Practice

Administering Institution: University of South Australia

Summary:

This project takes as its starting point the investigation of why medical practitioners in a rural community have been resistant to adopt a community based health information system designed to routinely collect, analyse and disseminate information regarding patient treatment. The project seeks to identify the deeper reasons for the resistance through analysis of the broader context of information systems in General Practice Medicine, with particular attention to the way Government health informatics initiatives fit with professional and practical priorities. The project will develop guidelines for acceptability of systems in this context and contribute to the broader knowledge management literature.

LP0562379 A/Prof CA Prestidge; A/Prof P Pendleton; Prof AM Evans; Dr R Aston

Title: A Physicochemical Approach for Optimizing Drug Delivery from BioSilicon

2005 : \$70,000
2006 : \$140,000
2007 : \$140,000
2008 : \$70,000

Category: 2501 - PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

APA(I) Award(s): 1

Partner Organisation(s)

pSivida Limited

Administering Institution: University of South Australia

Summary:

By applying modern techniques and a multidisciplinary approach, this research will develop an understanding of drug loading of BioSilicon™ at a molecular level. This novel class of nano-structured biomaterial has exciting potential for developing a range of controllable drug delivery systems. Existing medical applications of BioSilicon deliver only small molecules for very specialised uses. Current research has not focused on understanding the pore structure and how it can be adapted for special applications. Our research will create new drug delivery systems with many innovative applications in medical, veterinary and bio-diagnostics fields. The medical and socio-economic impacts will be internationally significant.

Western Australia

Curtin University of Technology

LP0562129 Prof Dr WE Featherstone; Mr CJ Earls; Mr DA Abbey; A/Prof O Ovstedal

Title: Skycontrol 2: Long-range positioning of aircraft using multibase GPS and INS

2005 : \$52,145
2006 : \$52,145

Category: 2910 - GEOMATIC ENGINEERING

Partner Organisation(s)

AAMHatch Pty Ltd

Administering Institution: Curtin University of Technology

Summary:

This extends our ARC linkage project (LP0347509) by one year, where we developed and tested a long-range airborne GPS (global positioning system) using a network of ground-based receivers. While the original objectives have been met, and exceeded in some instances, we have now identified the real need to use complementary positional information from INS (inertial navigation systems). As well as reducing the cost of airborne mapping surveys in Australia, our SkyControl2 system will have the added benefit of increased accuracy and reliability.

LP0561922 A/Prof MI Ogden; A/Prof CE Buckley; Mr GA Carter

Title: Controlling precipitation processes in the production of value-added zirconia

2005 : \$12,074
2006 : \$24,148
2007 : \$24,148
2008 : \$12,074

Category: 2502 - INORGANIC CHEMISTRY

APA(I) Award(s): 1

Partner Organisation(s)

Doral Specialty Chemicals

Administering Institution: Curtin University of Technology

Summary:

Doral Specialty Chemicals produces specialised zirconia products from zircon sands mined in WA. Doping the zirconia with metals such as yttrium and aluminium can produce advanced ceramics, with applications in areas such as solid oxide fuel cells and oxygen sensors. The aim of this project is to improve the fundamental understanding of the chemistry in the initial processing steps, so that the process can be readily modified to produce new doped zirconia ceramics, without the extensive empirical process development currently required. The resulting ability to quickly produce new compositions on a commercial scale will put this industry in a world-leading position, dramatically increasing the added value of the zirconia products.

LP0561867 Prof S Venkatesh; Prof GA West; Prof MV Srinivasan; Dr T Tan; Dr MM Lazarescu

Title: INTELLIGENT SURVEILLANCE SYSTEMS FOR THE TRANSPORT INDUSTRY

2005 : \$124,500

2006 : \$249,000

2007 : \$249,000

2008 : \$124,500

Category: 2802 - ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

Partner Organisation(s)

Digital Technology International (DTI)

iOmniscient Pty Ltd

Administering Institution: Curtin University of Technology

Summary:

Addressing core issues in Research Priority 4, Safeguarding Australia, we will develop frontier technologies for intelligent surveillance of public spaces, particularly in the transportation sector. The key outcomes of this project will be the use of a variety of novel sensors, in combination with new algorithms for analysing and responding to critical patterns of sensor data. Our collaboration with two high-profile industrial partners with complementary capabilities, (DTI (specialising in public transport), and iOmniscient (specialising in surveillance technologies)), will ensure a high probability of success in the development of these technologies, and accelerate their introduction into the Australian and global markets.

LP0562333 Prof Dr E Villaescusa

Title: Excavation Design and Sequencing in Highly Stressed Rock Masses

2005 : \$43,778

2006 : \$79,146

2007 : \$57,592

2008 : \$22,224

Category: 2907 - RESOURCES ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

BHP Billiton Minerals Pty Ltd - Cannington

Placer Dome Asia Pacific - Kanowna Belle Gold

Administering Institution: Curtin University of Technology

Summary:

An increasingly large number of Australian underground mines are being operated in highly stressed rock mass conditions, where safe and economic mining is a real challenge due to rock mass instability. In the future, this problem will become more significant as extraction gets deeper with the discoveries of new deeper orebodies or the extension of current operations at depth. The aim of this research project is to provide the Australian mining industry with effective design tools to engineer the largest, most economical, yet stable excavations in rock. The research project will use a generalised framework for design where rock mass characterisation, excavation design, behaviour and dilution control will be studied in detail.

Edith Cowan University

LP0562418 Prof D Freshwater; Dr C Inma; Ms VB Drury

Title: Assessing the effectiveness of the ageing workforce in regional organisations of Western Australia: A biopsychosocial analysis

2005 : \$25,000

2006 : \$50,000

2007 : \$43,000

2008 : \$18,000

Category: 3502 - BUSINESS AND MANAGEMENT

Partner Organisation(s)

Cable Sands Pty Ltd

Worsley Alumina Pty Ltd

Administering Institution: Edith Cowan University

Summary:

This project will identify key organisational, management and occupational health and safety factors affecting ageing workforces in regional industries. By 2016, demographic estimates indicate a significant reduction of the young labour force while people aged 45 years and over will account for more than 80 per cent of the labour force growth (ABS, 2003).

Consequently, the productivity and viability of labour-intensive industries everywhere but especially in regional Australia, will be severely affected. We will develop a novel intervention model to maximise the effectiveness of the ageing workforce. This will provide an important decision-making tool for many states, regional and local employers and bodies concerned.

Murdoch University

LP0562640 Prof M Bellgard; Dr RH Taplin; Dr R Lipscombe

Title: An Integrated Proteomic and Bioinformatic Approach for Classifying Raw and Cooked Fish: Truth in labelling of foodstuffs

2005 : \$40,000
2006 : \$80,000
2007 : \$80,000
2008 : \$40,000

Category: 2802 - ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APA(I) Award(s): 1

Partner Organisation(s)

Proteomics International

Administering Institution: Murdoch University

Summary:

Truth in labelling of foodstuffs is an international concern. In Australia, one of the most vulnerable industries is fishing. The fishing industry and the CSIRO have pioneered standardized fish names, but to date there is no rapid test that can provide answers that are better than 'yes' or 'no' to those who seek to enforce health and consumer regulations or provide provenance data to an industry valued at \$2.3Billion.

This project will develop a robust testing method based on an integrated proteomic and bioinformatics system that will ensure truth in labelling of raw and cooked fish samples for the benefit of Australia's fishing industry.

LP0561860 A/Prof B Dell; Dr TI Burgess; Dr S MacRae

Title: Pathogenicity of *Mycosphaerella* on *Eucalyptus globulus* plantations in Western Australia

2005 : \$14,574
2006 : \$28,148
2007 : \$26,648
2008 : \$13,074

Category: 3006 - FORESTRY SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Integrated Tree Cropping Ltd

Administering Institution: Murdoch University

Summary:

Eucalyptus globulus is the main hardwood species grown in plantations in Western Australia. In recent years, the incidence of foliar damage caused by leaf spot fungi in the genus *Mycosphaerella* has started to become a worrying management problem for the industry. There are approximately 12 *Mycosphaerella* species associated with *Eucalyptus globulus* in Western Australia. This project will determine which are the priority destructive *Mycosphaerella* species. The information gained will allow researchers to select and breed eucalypts for resistance of target *Mycosphaerella* species in the future. The project will also develop methods for rapid pathogenicity screening.

LP0561974 Dr SG Fenwick; Dr D Algar; A/Prof ID Robertson; Dr PJ Adams; Dr S Reid

Title: Risks to human health and the ecosystem from feral pigs in Perth metropolitan water catchments

2005 : \$67,500
2006 : \$122,500
2007 : \$110,000
2008 : \$55,000

Category: 2703 - MICROBIOLOGY

APA(I) Award(s): 1

APDI Dr PJ Adams

Partner Organisation(s)

Department of Conservation and Land

Water Corporation

Department of Health

ALCOA World Alumina Australia

Administering Institution: Murdoch University

Summary:

This project aims to investigate the potential risk feral pigs pose to public health through the dissemination of water borne pathogens within water catchment areas, and to investigate their role in the maintenance and spread of diseases of public and animal health concern in the south west of Western Australia. As well as providing a frontline approach to protecting our water supplies, this project will also provide valuable data on the nature and extent of the risk feral pigs pose to biodiversity conservation and the environment generally. The outcomes of this research will provide a scientific basis for the development of prioritised strategies for the control of feral pigs in Western Australia.

LP0561961 Prof DJ Hampson; Prof M Bellgard; Dr I Thompson

Title: Understanding the molecular basis of virulence in *Brachyspira hyodysenteriae* to improve vaccine

2005 : \$37,500

2006 : \$75,000

2007 : \$75,000

2008 : \$37,500

Category: 3004 - ANIMAL PRODUCTION

APA(l) Award(s): 1

Partner Organisation(s)

Novartis Animal Vaccines Ltd

Administering Institution: Murdoch University

Summary:

Swine dysentery is a colonic infection of pigs caused by *Brachyspira hyodysenteriae*. The disease is widespread in Australia and causes great economic loss. An effective vaccine is not available. This study aims to identify factors associated with the bacterium's virulence, using comparative genomic and proteomic information. Virulence factors then will be targeted and tested as recombinant vaccine candidates. This project will result in the development of an improved vaccine to control swine dysentery in rural Australia. Control of swine dysentery through vaccination will reduce antibiotic use on infected farms and improve the productivity and competitiveness of the Australian pig industry.

LP0561707 A/Prof L Layman; Em/Prof GC Bolton; Mr S Kinnane; Dr PL Arthur; Dr J Gregory; Dr C Fox; Dr B Oliver; Prof DS Dolan; Prof MC Bulbeck

Title: East Perth Power Station and the Electrification of Western Australia: Interpretation of an Historic Site

2005 : \$35,160

2006 : \$86,160

2007 : \$51,000

Category: 4301 - HISTORICAL STUDIES

Partner Organisation(s)

National Trust of Australia (Western Australia)

State Records Office of Western Australia

East Perth Redevelopment Authority

Western Power Corporation

Engineers Australia

Town of Vincent

East Perth Football Club

State Library of Western Australia

Unions WA

Australian Society for Study of Labour History

Administering Institution: Murdoch University

Summary:

Over the past century electricity has transformed people's lives. This project investigates the history of electrification in Australia through an interpretation of the historic site of East Perth power station, Australia's first centralised power station and now WA's most significant redevelopment site. The interconnection of electricity's technologies with human lives is the focus of this research. It will result in scholarly outputs in print and digital form and provide thematic and narrative materials for best-practice historic heritage interpretation. The research is supported by industry partners including stakeholders in the East Perth power station site, community and government organisations, and researchers from four universities.

LP0561956 Em/Prof JA McComb; Dr E Bunn; Dr KW Dixon

Title: In vitro propagation (through somatic embryogenesis) of rush and sedge species important for land rehabilitation

2005 : \$35,347

2006 : \$71,989

2007 : \$74,508
2008 : \$37,866

Category: 3006 - FORESTRY SCIENCES

Partner Organisation(s)

Botanic Gardens and Parks Authority
Worsley Refinery
Seed Solutions

Administering Institution: Murdoch University

Summary:

This project aims to transform existing propagation methods for rushes and sedges (recalcitrant, but key colonizer species) for restoring critical biodiversity in Australian mine-site restoration. This will be achieved through the process of somatic embryogenesis and will result in cost effective and efficient mass propagation. Significantly, this somatic embryogenesis research will provide the springboard for development of seed analogues (coated, desiccated somatic embryos) with subsequent economies from bypassing more costly nursery production of whole plants, utilizing existing infrastructure for direct seeding of restoration sites, and reducing dependence on dwindling reserves of wild-harvested seed.

LP0561862 A/Prof UM Ryan; Ms C Ferguson; Dr P Cox; A/Prof RB Gasser; Dr YG Abs El-Osta

Title: Using molecular tools to understand and control the transmission of *Cryptosporidium*.

2005 : \$46,000
2006 : \$93,000
2007 : \$94,000
2008 : \$47,000

Category: 3005 - VETERINARY SCIENCES

Partner Organisation(s)

Sydney Catchment Authority
Sydney Water Corporation

Administering Institution: Murdoch University

Summary:

Cryptosporidium is the major public health concern of water utilities as the parasite has a global impact on the health and survival of millions of people and animals worldwide. It is resistant to chlorine and there are no effective drugs against it. Control strategies therefore rely on understanding how it is transmitted. This project will conduct a comprehensive study utilising molecular tools to determine if the *Cryptosporidium* in humans is the same as that derived from water contamination sources (animals, sewage etc). The outcomes of this project will result in the development of more targeted, cost-effective preventive measures to minimize exposures to infections, accurate risk assessment, and scientific management of the watershed.

LP0562099 Dr KS Warren; Em/Prof RA Swan; A/Prof ID Robertson; Prof CR Dickman; Dr D Moro; Mr PJ de Tores; Dr D Algar; Mr CW Roe; Mr M Humble; Mr FA Colyer

Title: Conservation of the threatened western ringtail possum, *Pseudocheirus occidentalis*: Is translocation a solution?

2005 : \$55,000
2006 : \$110,000
2007 : \$110,000
2008 : \$55,000

Category: 3008 - ENVIRONMENTAL SCIENCES

APA(l) Award(s): 1

Partner Organisation(s)

Western Australian Department of Conservation

Administering Institution: Murdoch University

Summary:

The western ringtail possum, *Pseudocheirus occidentalis*, is recognised both nationally and internationally as a threatened species. Control of introduced predators, specifically the fox and feral cat, has been central to the success of threatened fauna conservation in Western Australia. However, it is now critical to demonstrate that translocation can result in sustained fauna recovery. This program aims to determine whether translocating displaced possums to protected habitat is a viable conservation management strategy. The project will assess the importance of introduced predator control, predator interactions, competition with the common brushtail possum and disease on the survival of translocated western ringtail possums.

The University of Western Australia

LP0562661 Prof MA Adams; Mr GP Samsa; Prof M Tausz

Title: **Mid-rotation diagnosis and management options for correction of water and nutrient deficiencies in plantation-grown eucalypts**

2005 : \$82,500
2006 : \$165,000
2007 : \$165,000
2008 : \$82,500

Category: 2704 - BOTANY

APA(l) Award(s): 2

Partner Organisation(s)

Great Southern Plantations Limited
TimberCorp Forestry Timbercorp Ltd.
Albany Forest Research Centre, OJI Paper

Administering Institution: The University of Western Australia

Summary:

This research will improve productivity of bluegum plantations by improving current diagnostic techniques (foliage and soil analysis) for nutrient disorders and the supply of water. Using a novel phloem sampling and analysis technique, we will develop a nutrient (e.g. N, P) and water diagnosis procedure that is quick, cheap, robust and reliable for field use. A major innovation will be distinguishing the effects of shortages of water on growth from those of other growth influences. Overall, this project will provide a highly significant theoretical, conceptual and practical advance in mid-rotation, diagnostics for plantations with considerable commercial promise.

LP0562497 Dr CA Arrese; Prof LD Beazley; Dr NS Hart; Prof DM Hunt

Title: **Colour vision in birds: consequences to fatal collisions with wind farms**

2005 : \$17,500
2006 : \$35,000
2007 : \$35,000
2008 : \$17,500

Category: 3207 - NEUROSCIENCES

Partner Organisation(s)

BIOTA Environmental Sciences

Administering Institution: The University of Western Australia

Summary:

Wind-farms represent a key component of sustainable energy generation world-wide. However, many birds die as a result of collisions with wind-farms, posing an unsolved and controversial conservation issue. The proliferation of wind-farms in Australia will exacerbate the problem. Birds rely on vision to negotiate static and moving objects. Wind-farms, currently coloured to meet human aesthetic criteria, may be 'invisible' to birds since they see colours differently from humans. We will determine bird spectral sensitivities and compare them to the spectral reflectance of wind-farms. We will then develop modifications improving the visibility of wind-farms to birds, thereby reducing fatalities.

LP0561703 A/Prof M Barbetti; Prof Dr K Sivasithamparam

Title: **Race status, resistance mechanisms, and new sources of resistance to Phytophthora clandestina, a major threat to subterranean clover production.**

2005 : \$31,400
2006 : \$62,800
2007 : \$62,800
2008 : \$31,400

Category: 2704 - BOTANY

Partner Organisation(s)

Department of Agriculture Western Australia

Administering Institution: The University of Western Australia

Summary:

Devastating outbreaks of disease caused by Phytophthora clandestina (Phytophthora root rot) since the late 1970s demonstrated the capacity of this disease to impact severely on clover pasture production across southern Australia, particularly as new races of Phytophthora have rapidly emerged to overcome the resistance of all commercial cultivars. The proposed research seeks to delineate new races of the pathogen, to identify the histological and biochemical mechanisms by which resistance to Phytophthora root rot is expressed, and to identify new sources of host resistance. This proposed research will enable breeders, for the first time, to incorporate multiple types of resistance and against different races into new host varieties.

LP0561777 A/Prof M Barbetti; Prof Dr K Sivasithamparam; Dr R Jones; Mr D Phillips

Title: **Detection and elimination of resting spores of Olpidium vectoring lettuce big-vein disease in lettuce seedling nursery production**

2005 : \$14,574
2006 : \$29,148
2007 : \$29,148
2008 : \$14,574

Category: 2703 - MICROBIOLOGY

APA(l) Award(s): 1

Partner Organisation(s)

Department of Agriculture Western Australia

Administering Institution: The University of Western Australia

Summary:

This project will devise nucleic acid and serology methods for detection of Olpidium brassicae, vector of lettuce big-vein disease (LBVD), during various phases of lettuce seedling production in nursery environments. It will be the first study to develop sustainable and environmentally responsible nursery best-practice protocols for integrated management of O. brassicae in routine seedling production and for management within the lettuce industry. These protocols will ensure that the spread of LBVD from contaminated lettuce nurseries to farms is prevented. It will also be a unique study of the establishment of a disease in new land with different soils and agricultural practices.

LP0561838 Dr MJ Cassidy; Prof MF Randolph; Dr Y Hu

Title: **Investigation of potential spudcan punch through failure**

2005 : \$23,325
2006 : \$45,400
2007 : \$46,650
2008 : \$24,575

Category: 2908 - CIVIL ENGINEERING

APA(l) Award(s): 1

Partner Organisation(s)

Keppel Offshore and Marine Ltd

Administering Institution: The University of Western Australia

Summary:

The safe and economic use of mobile jack-up structures is critical to the prosperous development of Australia's significant offshore oil and gas industry. However, their use is hindered by potential 'punch-through' failure during installation, when their large conical footings can unexpectedly and uncontrollably push a locally strong zone of soil into underlying softer material. To improve their safety, this research will investigate a potential new site-investigation procedure and develop an appropriate calculation method for predicting failures for sites where sand overlies clay. Results will be based on a series of innovative physical and numerical experiments, and assessed against field data and existing industry standards.

LP0562463 A/Prof KD Croft; A/Prof MJ James; Dr C Walker; Prof AJ Husband

Title: **Structure-activity relationships in the development of new bioactive isoflavonoids**

2005 : \$32,500
2006 : \$65,000
2007 : \$65,000
2008 : \$32,500

Category: 2503 - ORGANIC CHEMISTRY

Partner Organisation(s)

Novogen Limited

Administering Institution: The University of Western Australia

Summary:

This project aims to develop new chemical substances based on the structure of a group of naturally occurring compounds called isoflavones. Biological activity related to chronic inflammatory (eg arthritis) and heart disease will be examined in cells and animal models. This information will be used to design compounds with enhanced activity. The eventual aim is to develop potential therapeutic agents to treat chronic inflammatory and cardiovascular disease.

LP0562421 Dr P Franklin; Prof JT Spickett; Dr CK Runnion; A/Prof SM Stick; Dr SP Wilkinson; Prof N de Klerk; Dr ES

Title: **Domestic air quality: towards the setting of guidelines**

2005 : \$62,817

2006 : \$127,139
2007 : \$130,103
2008 : \$65,781

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

Partner Organisation(s)

Department of Environment (WA)
Chemistry centre (WA)

Administering Institution: The University of Western Australia

Summary:

Air quality standards have been developed to protect human health. Although people spend most of their time indoors there are no standards and only a few guidelines for indoor air pollution (IAP). The aim of this study is to investigate the levels of IAP that may worsen asthma in children. Childhood asthma will be used as a health indicator due to its high prevalence, cost to the healthcare system and implications for respiratory morbidity in adult life. We expect to identify levels of IAP that will represent a health risk as well as the factors that may contribute to increased IAP in homes.

LP0562208 A/Prof B Lehane; Dr O Sigl

Title: Geotechnical and soil-structure interaction properties of soils in Perth CBD

2005 : \$28,822
2006 : \$65,969
2007 : \$52,777
2008 : \$15,630

Category: 2908 - CIVIL ENGINEERING

Partner Organisation(s)

Leighton Kumagai Joint Venture

Administering Institution: The University of Western Australia

Summary:

A new underground railway (City Project) will shortly begin construction in Perth CBD. This construction, and its associated high level of monitoring instrumentation, offers a unique opportunity for an extensive and thorough examination of the mechanical properties of Perth soils. The research results emanating from the proposed combination of field monitoring, laboratory investigation and numerical analysis, will greatly improve the reliability (and hence cost) of future foundation and basement designs in Perth and elsewhere.

LP0562599 A/Prof TW Mazzarol; Prof GN Soutar; A/Prof AC Dench

Title: Developing Indigenous Entrepreneurship Frameworks: An Exploration of Sustainable Indigenous Enterprise and Entrepreneurship Frameworks within the Noongar Community of Western Australia

2005 : \$50,000
2006 : \$150,000
2007 : \$145,000
2008 : \$45,000

Category: 3502 - BUSINESS AND MANAGEMENT

APA(I) Award(s): 2

Partner Organisation(s)

South West Aboriginal Land and Sea Council

Administering Institution: The University of Western Australia

Summary:

This study will investigate the effectiveness and sustainability of frameworks of indigenous enterprise and entrepreneurship within the Noongar Community of Western Australia with the primary aim of identifying appropriate models for adoption by the South West Aboriginal Land and Sea Council (SWALSC), and the Government of Western Australia.

LP0562305 Prof M McAleer; Prof DE Allen; Dr S Hoti

Title: Forecasting Risk Thresholds for Portfolio Management and Regulation

2005 : \$54,000
2006 : \$104,500
2007 : \$101,000
2008 : \$50,500

Category: 3402 - APPLIED ECONOMICS

APA(I) Award(s): 1

APDI Dr S Hoti

Partner Organisation(s)

SIRCA

Administering Institution: The University of Western Australia**Summary:**

The project will develop new models and methods for dynamic risk modelling, assessment of portfolio risk, and forecasting of portfolio risk thresholds. These novel methods will have extensive applications across investment portfolios for banks and financial institutions globally. The techniques will feature a dynamic updating of risk estimates, and more accurate forecasting of portfolio risk, the correlations of portfolio asset classes, and Value at Risk (VaR) thresholds. The innovative methods and models will permit both financial institutions and regulatory authorities to model VaR thresholds more accurately, and enable investment managers to regulate and benchmark their portfolios more effectively against international best practice.

LP0562561 Dr CD O'Loughlin; Prof MF Randolph; Mr P Hefer**Title:** **Deep Penetrating Anchors - a cost effective anchoring solution for mooring oil and gas facilities in deep****2005 :** \$27,574**2006 :** \$55,148**2007 :** \$51,148**2008 :** \$23,574**Category:** 2908 - CIVIL ENGINEERING**APA(I) Award(s):** 1**Partner Organisation(s)**

Woodside Energy

Administering Institution: The University of Western Australia**Summary:**

The offshore oil and gas industry is currently directing considerable research efforts towards the development of cost-effective anchoring solutions suitable for mooring floating installations in deep water. This project aims to enhance the limited understanding of the Deep Penetrating Anchor (DPA), which has been identified as having the most potential to meet industry demands as it extends the current water depth limit of 2000 metres. Successful completion of this project will result in a DPA experimental database that will not only form the basis for predicting anchor performance, but will also serve as a means of validating robust and versatile design tools that can be used in offshore engineering practice.

LP0562345 Dr P Sharpe; Dr PB Bertola; Dr CJ Fitzgerald**Title:** **Family and Working Life in the North Eastern Goldfields: A Social History of Gwalia and Leonora (WA), 1890-1990****2005 :** \$63,000**2006 :** \$118,684**2007 :** \$93,556**2008 :** \$37,872**Category:** 4301 - HISTORICAL STUDIES**APDI** Dr CJ Fitzgerald**Partner Organisation(s)**

Department of Health

Leonora-Gwalia Historical Museum

Shire of Leonora

JS Battye Library of West Australian History

Administering Institution: The University of Western Australia**Summary:**

This project aims to supplement and use the results of a recent collection of oral history recordings along with rich documentary evidence and photographs to produce the first academic histories of the multi-cultural mining settlements of Gwalia and Leonora in the north-eastern goldfields of WA. These historical studies will focus on land use and the environment in the area, particularly the pastoral industry. The results will complement and build upon the significant community effort to preserve the heritage of Gwalia; will provide local resources to enhance the tourism potential of this remote area; and develop links with the main migrant-sending area in Bergamo, Italy.

LP0562111 Prof K Siddique; Prof JJ Kuo; Dr T Khan**Title:** **Accelerating the genetic improvement of grain legumes for Australia by developing doubled haploid technology for field pea and chickpea.****2005 :** \$42,500**2006 :** \$87,500

2007 : \$92,500
2008 : \$97,500
2009 : \$50,000
Category: 3002 - CROP AND PASTURE PRODUCTION

Partner Organisation(s)

Council of Grain Grower Organisations
Department of Agriculture Western Australia

Administering Institution: The University of Western Australia

Summary:

Doubled haploid technology is used in many broad acre crop species to accelerate cultivar development and create homozygous populations for genetic mapping. Field pea and chickpea have been unresponsive to this technique but a recent breakthrough by UWA researchers has resulted in haploid pro-embryos from in vitro cultured immature pollen. A barrier to further embryo maturation has been identified, which we propose to overcome using powerful microscopy tools to elucidate haploid embryology processes. This information will be applied to develop world-first in vitro doubled haploid protocols for these species, which will facilitate the development and accelerated delivery to industry of better adapted, high yielding cultivars.

LP0562381 Prof Dr K Sivasithamparam; Dr KW Dixon; A/Prof EL Ghisalberti

Title: **Induction of multiple environmental stress tolerance in Australian native species for land rehabilitation using benzoic acid derivatives**

2005 : \$63,917
2006 : \$133,270
2007 : \$136,228
2008 : \$66,875

Category: 3008 - ENVIRONMENTAL SCIENCES

Partner Organisation(s)

Worsley Alumina Pty Ltd.
Iluka Resources Ltd
Anaconda Nickel Limited
Botanic Gardens & Parks Authority
Alcoa World Alumina Australia

Administering Institution: The University of Western Australia

Summary:

The aim of this project is to develop methods to induce abiotic (drought, temperature, salinity) and biotic (die-back disease) stress tolerance in Australian plants by simple treatment using signalling molecules (benzoic acid derivatives) for conservation and land rehabilitation. These molecules occur naturally in plants and non-toxic. Plant establishment in rehabilitation programs are very low due to exposure to stress. Furthermore, the loss to agricultural and horticultural industries resulting from environmental stresses is very high. Outcome of the project is the availability of plants with multiple stress tolerance enhancing success of rehabilitation programs with flow-through benefits to horticultural and agricultural industries.

LP0562422 Prof JH Taplin; Prof F Affleck; Ms CA Curtis; Dr M Qiu; Dr PW Lawrence

Title: **IMPACTS OF TRANSIT LED DEVELOPMENT IN A NEW RAIL CORRIDOR**

2005 : \$28,500
2006 : \$82,000
2007 : \$113,500
2008 : \$115,000
2009 : \$55,000

Category: 3504 - TRANSPORTATION

APA(I) Award(s): 1

Partner Organisation(s)

Subiaco Redevelopment Authority
City of Melville
LandCorp (Western Australian Land Authority)
The Village at Wellard Joint Venture
Department for Planning and Infrastructure
Public Transport Authority of Western Australia
East Perth Redevelopment Authority
City of Cockburn
Midland Redevelopment Authority
Town of Kwinana
City of Rockingham

Administering Institution: The University of Western Australia

Summary:

Impacts of transit-oriented development (TOD) in precincts adjoining the new Perth-Mandurah railway will be addressed by longitudinal survey. Results of a revealed preference questionnaire about actual trips will be combined with a stated choice questionnaire. Aims are to quantify the effects of TOD on rail and car use and on daily activities, new railway services on the travel behaviour of households near new station precincts, differing accessibility of station precincts on household travel patterns, improved accessibility on economic activity and employment. Replacement of car-trips by walking and cycling, changes in shopping & leisure activities & the effect of trip-chaining on number of trips are of particular interest.

Tasmania

University of Tasmania

LP0562509 A/Prof AS Franklin; Prof CJ Pybus

Title: **The Salmon Ponds and the Development of an Acclimatisation Culture and Landscape in the Derwent Valley, Tasmania.**

2005 : \$18,750

2006 : \$35,500

2007 : \$35,950

2008 : \$19,200

Category: 3701 - SOCIOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Nekon Pty Ltd

Derwent Valley Council

Tasmanian Conservation Trust

Administering Institution: University of Tasmania

Summary:

The Derwent Valley, Tasmania, is both an economically depressed rural area and one of the most special and richly endowed colonial landscapes. This project will assist in developing and restoring its status as a touring and angling landscape for tourists by researching and reconstructing its making through the acclimatisation network centred on its cultural and technical hub at Salmon Ponds, New Norfolk. The research will trace the social and technical networks that linked newly formed angling associations, landowners, technical and scientific expertise with commercial and political patronage. It will elaborate how these in turn produced both a unique landscape and a culturally embedded association with it.

LP0562415 Ms JM O'Reilly-Wapstra; A/Prof BM Potts; Dr PW Volker

Title: **Selection and deployment of browsing resistant *Eucalyptus globulus* and *Eucalyptus nitens*.**

2005 : \$51,000

2006 : \$101,000

2007 : \$100,000

2008 : \$50,000

Category: 2707 - ECOLOGY AND EVOLUTION

APA(I) Award(s): 1

APDI Ms JM O'Reilly-Wapstra

Partner Organisation(s)

Forestry Tasmania

Forests and Forest Industries Council of

Administering Institution: University of Tasmania

Summary:

Marsupial browsing is a significant problem for eucalypt plantation establishment in Australia. To date, browsing control has relied on the use of 1080 pesticide, but through political and social pressure this will cease in Tasmanian State Forests by December 2005. To develop new approaches to integrated pest management, we will explore the use of natural plant resistance to marsupial browsers. We will determine the genetic and chemical basis of seedling resistance in *Eucalyptus globulus* and *E. nitens*, and investigate the stability of resistance through tree development and across different sites. Resistant germplasm will be identified and tested in operational plantings.

LP0562357 A/Prof BM Potts; Mr JE Hickey; Dr CL Beadle

Title: **Environmental and genetic control over blackwood (*Acacia melanoxylon*) timber colour, density, and**

2005 : \$12,074

2006 : \$24,148

2007 : \$24,148

2008 : \$12,074

Category: 3006 - FORESTRY SCIENCES

APA(l) Award(s): 1

Partner Organisation(s)

Forestry Tasmania
Private Forests Tasmania
Britton Timbers Tasmania
Forests and Forest Industry Council of Tasmania
Gunns Veneers
Corinna Sawmills

Administering Institution: University of Tasmania

Summary:

The project will investigate the roles of environment and genetics in the expression of wood characteristics in blackwood. It will determine the potential heritability of valuable blackwood wood traits and provide a sound understanding of the basis of colour expression. Heartwood characteristics, particularly colour, density, ring width and knottness determine the commercial value of blackwood. The limited research on these characteristics, all undertaken outside Australia, points to combined genetic and environmental control. By understanding the relative importance that environmental conditions and genetic material have in producing desirable wood traits, growers will be better able to realise the full commercial value of blackwood.

Northern Territory

Charles Darwin University

LP0562191 Prof T Barnes; Prof ST Garnett; Dr M Young; Dr J Roberts

Title: Causes and consequences of population turnover in the Northern Territory

2005 : \$92,500

2006 : \$142,500

2007 : \$100,000

2008 : \$50,000

Category: 3705 - DEMOGRAPHY

APA(l) Award(s): 1

Partner Organisation(s)

Department of the Chief Minister
NT Treasury
Australian Bureau of Statistics

Administering Institution: Charles Darwin University

Summary:

The Northern Territory experiences an extraordinarily high rate of population turnover. Approximately one quarter (compared to less than 10% for most other states) of the Territory's resident population in 2001 had lived somewhere else 5 years earlier. The research will examine the characteristics and causes of this turnover as well as its long-term implications for the composition and associated planning capacity of the NT population. Of particular interest is the effect of population transience on the establishment, maintenance, and continuation of knowledge systems, both desert and tropical.

LP0561555 Dr BW Brook; Dr CN Johnson; Dr RJ Taylor; Dr JC Woinarski; Ms BR Rankmore; Dr KB Firestone

Title: A landscape-scale experimental test of factors driving mammal declines in northern Australia

2005 : \$60,000

2006 : \$115,000

2007 : \$90,000

2008 : \$35,000

Category: 2707 - ECOLOGY AND EVOLUTION

APDI Ms BR Rankmore

Partner Organisation(s)

Dept. of Infrastructure, Planning and
NT Research & Innovation Board
Zoological Parks Board of NSW

Administering Institution: Charles Darwin University

Summary:

Australia has suffered the highest rate of modern mammal extinctions in the world. Foxes have been largely responsible for this extinction in southern Australia and probably also Central Australia. However the decline in mammals in northern Australia has occurred later than that in the south, and in the absence of foxes. We will adopt an experimental approach to determine the mechanisms driving mammal declines and extinctions in northern Australia. Populations of brush-tail tree rats (*Conilurus penicillatus*) will be translocated to suitable habitat on mainland sites that experience different fire regimes and predation pressures.

Australian Capital Territory

The Australian National University

LP0562190 Dr AE Alsop; Prof JA Graves; Dr S Pyecroft; Mrs A Pearse

Title: Devil Facial Tumour Disease: Cytogenetic Clues to Transmission and Development

2005 : \$19,574

2006 : \$39,148

2007 : \$39,148

2008 : \$19,574

Category: 3005 - VETERINARY SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Department of Primary Industries, Water and

Administering Institution: The Australian National University

Summary:

Devil Facial Tumour Disease is a fatal cancer that is decimating Tasmanian devils. Preliminary work suggests that tumours from different animals have identical sets of highly abnormal chromosomes, including a giant marker chromosome. We will use DNA probes to 'paint' abnormal tumour chromosomes to discover markers for diagnosis, and identify genes contributing to tumour development and immune suppression. Most importantly, we will test our hypothesis that tumours all arose from a single ancestral cancer cell that is transmitted between animals. A cellular transmission has frightening implications for spread of disease, but will allow us to develop appropriate therapeutic strategies to save a unique Australian marsupial from extinction.

LP0562164 Prof SF Cox

Title: Exploration potential and implications for stress transfer modelling in fault-related mineral deposits

2005 : \$35,000

2006 : \$72,500

2007 : \$70,000

2008 : \$32,500

Category: 2601 - GEOLOGY

Partner Organisation(s)

AMIRA International

Administering Institution: The Australian National University

Summary:

Following our success in the application of stress transfer modelling (STM) techniques to understand the clustered distribution of upper crustal, Archean gold deposits within crustal scale fault systems, this project seeks to test and develop the application of STM in (1) gold systems formed below the crustal seismogenic regime, (2) for deposit-scale targeting, and (3) in a range of fault-related mineral deposits other than Archean gold systems. The project will also develop methods to evaluate the combined roles of co-seismic stress transfer and post-seismic fluid redistribution in influencing deposit distribution. The approach provides a new conceptual framework in which to develop exploration strategies for deep earth resources.

LP0562398 Dr CA Donovan; Prof J Wanna; Prof BW Head; Ms FJ Smart; Mr A Gash

Title: Improving decision making in government service delivery using third party providers

2005 : \$72,942

2006 : \$146,758

2007 : \$144,286

2008 : \$70,469

Category: 3602 - POLICY AND ADMINISTRATION

APA(I) Award(s): 3

APDI Mr A Gash

Partner Organisation(s)

Department of Family and Community Services

Department of Veterans Affairs

Department of Finance and Administration

Department of Employment and Workplace

The Australia and New Zealand School of

Department of Human Services

Administering Institution: The Australian National University

Summary:

This project focuses on analysing and improving decision making in government service delivery through two complementary parts: examining the range of models/potential models used by government agencies through 3rd party providers; and investigating how specific relations are managed/improved in selected industries (childcare, ageing, disability services). Our approaches encompass policy process theories, contractual management, alternative service delivery, citizen empowerment theories, new institutional economics, industry impact analysis, and new modes of accountability. Analytical methods include survey and statistical investigations, comparative historical methods, case studies, comparative research with Canadian and NZ experts.

LP0561712 Prof CJ Easton; Dr NF Dunlop

Title: **Development of Optimised Processes for Manufacturing Melamine-Urea-Formaldehyde Type Resins, and Improved Resins and Reconstituted Wood Products Derived from Resins**

2005 : \$42,500

2006 : \$85,000

2007 : \$85,000

2008 : \$42,500

Category: 2505 - MACROMOLECULAR CHEMISTRY

APA(I) Award(s): 1

Partner Organisation(s)

Orica Australia Pty. Ltd.

Administering Institution: The Australian National University

Summary:

Melamine-urea-formaldehyde resins are used to manufacture water-resistant particleboards, papers and laminates. This project is expected to provide more efficient processes for the industrial preparation of these resins, and improved resins and reconstituted wood products derived from the resins. Methods will be developed to assess the structure of the resins, in order to relate resin synthesis with structure and function, and therefore optimise performance as well as simplify the manufacturing process. Potential replacements for melamine will be prepared and evaluated. It is anticipated that these will confer particular properties on the resins and the wood products, such as strength and durability.

LP0561927 Prof RG Elliman; Mr S Cunningham; Dr ME Johnson; Dr RS Smith

Title: **Implant Isolation of III-V Compound Semiconductor Devices and Structures**

2005 : \$52,500

2006 : \$105,000

2007 : \$52,500

Category: 2909 - ELECTRICAL AND ELECTRONIC ENGINEERING

Partner Organisation(s)

EpiTactix Pty Ltd

Administering Institution: The Australian National University

Summary:

Individual devices in an integrated circuit can be electrically isolated from each other by irradiating the materials between them with high energy ions. This creates defects in the semiconductor that trap charge carriers and thereby increase the resistance of the material. However, the effectiveness of this process depends on the material as well as irradiation and post-irradiation processing conditions. This project aims to develop an implant isolation scheme for a new class of devices developed by Epitactix, an Australian start-up company founded on CSIRO research. This will be achieved by combining the ANU's experience and expertise in ion-irradiation and defect engineering with the device and processing expertise of Epitactix Pty Ltd.

LP0562008 Prof PG Hall; Prof RD Terrell; Prof TJ O'Neill; Dr J Penm

Title: **Investment Approaches and Applications in Financial Markets: Evolutionary Kernel Based Subset Time-Series Using Semi-Parametric Approaches**

2005 : \$80,300

2006 : \$156,800

2007 : \$143,000

2008 : \$66,500

Category: 2302 - STATISTICS

APA(I) Award(s): 2

Partner Organisation(s)

Far Eastern Securities Co., Ltd.

Laxwood Pty Ltd

Administering Institution: The Australian National University

Summary:

The project will develop new investment assessments based on subset time-series modeling. Innovative evolutionary kernel smoothing algorithms using semi-parametric approaches will be introduced. The project will make three important applications of this modeling in financial markets: a) benchmarking and evaluation of inflation-indexed bonds; b) evaluation of the performance of global diversified investment funds; and c) prediction to provide early warning of the emergence of destabilising deflation or inflation. These three applications will lead to improved risk management practices and investment performance. Recursive algorithms will provide new statistical methods to study investment asset price movements and market volatility.

LP0562476 Prof AP Hopkins

Title: High Reliability Organisations

2005 : \$15,000
2006 : \$30,000
2007 : \$30,000
2008 : \$15,000

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Airservices Australia

Administering Institution: The Australian National University

Summary:

Organisations which operate risky technologies with few if any major incidents - High Reliability Organisations - exhibit a distinctive characteristic - mindfulness. This study looks at a particular organisation - Airservices Australia - which aspires to this ideal, and examines how it measures up. It will also demonstrate how other organisations which aspire to be HROs can move towards this ideal. The study also examines how Airservice Australia and another similarly mindful organisation identify warnings of danger and act on them before it is too late. This will again provide a model for other organisations.

LP0561817 Prof DB Lindenmayer

Title: Innovative enhancement and management of threatened temperate woodlands for improved biodiversity conservation

2005 : \$137,500
2006 : \$216,000
2007 : \$147,000
2008 : \$126,000
2009 : \$119,000
2010 : \$61,500

Category: 2707 - ECOLOGY AND EVOLUTION

APA(I) Award(s): 1

Partner Organisation(s)

Environment ACT

Administering Institution: The Australian National University

Summary:

We will test the broad question: Does woodland management affect woodland biota, and if so, which groups and in what ways? To answer this, we will quantify the effects of major woodland treatments (prescribed fire, timber addition, grazing control) on animals. We will implement a long-term, large-scale 'natural experiment' to provide critical data & analyses on the simultaneous effects of management regimes on woodland biota. A key outcome will be an improved understanding of woodland biota response to management critical for use on grazing properties, reserves, travelling stock routes in rural south-eastern Australia. This will be a major step forward given that temperate woodlands are among Australia's most threatened vegetation types.

LP0562053 Prof B Luther-Davies; Dr R Charters; Dr D Kukulj

Title: Advanced Siloxane Waveguide Devices for Telecommunications

2005 : \$60,000
2006 : \$120,000
2007 : \$115,000
2008 : \$55,000

Category: 2917 - COMMUNICATIONS TECHNOLOGIES

Partner Organisation(s)

RPO Pty Ltd

Administering Institution: The Australian National University

Summary:

This project will develop new methods for fabricating compact, high performance photonic integrated circuits (PICs) for use in future telecommunications networks in films of proprietary Inorganic Polymer Glasses (IPGs) commercialised by RPO Pty Ltd. New fabrication methods are required to overcome limitations of the current approach to patterning IPGs used by RPO Pty Ltd. Research will concentrate on hard contact lithography in conjunction with dry (plasma) etching as well as ion beam milling; laser machining or UV writing for grating production. IPGs present special challenges for these technologies. The project outcomes will include new approaches to processing and the demonstration of the fabrication of innovative PICs in IPGs.

LP0562060 Dr RG Schwab

Title: Custom-based land and resource management and the educational and social re-engagement of Indigenous youth in the Northern Territory

2005 : \$33,354

2006 : \$64,608

2007 : \$47,853

2008 : \$16,599

Category: 3301 - EDUCATION STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

The Northern Land Council
Bawinaga Aboriginal Corporation
NT Department Employment, Education and

Administering Institution: The Australian National University

Summary:

Social and educational disengagement has reached crisis levels among Indigenous youth in many remote communities; young people are leaving school and training programs because they perceive them to be irrelevant or meaningless. The social cost of this phenomenon is high. This project aims to identify ways to combine Indigenous customary and western science-based land and resource management knowledge and practice with locally and culturally meaningful education and training programs to re-engage young people with learning and their wider communities. The project will produce a series of scholarly outcomes in addition to a coordinated model for strategic policy and program development.

University of Canberra

LP0562493 Prof AM Harding; Dr SJ Kelly; Prof J Falkingham; Ms M Evandrou

Title: Assessing the Social and Fiscal Policy Implications of an Ageing Population

2005 : \$80,000

2006 : \$160,000

2007 : \$160,000

2008 : \$80,000

Category: 3404 - ECONOMETRICS

APA(I) Award(s): 1

Partner Organisation(s)

Department of the Treasury
Centrelink
Australian Government Productivity
The Department of Immigration and
Department of Prime Minister and Cabinet
Department of Communications, Information
Department of Employment and Workplace
Department of Health and Ageing
Department of Education Science and Training
Department of Finance and Administration
Department of Family and Community Services
Australian Bureau of Statistics
Department of Industry, Tourism and

Administering Institution: University of Canberra

Summary:

The 2002 Treasury Inter-Generational Report predicted major social and fiscal challenges during the next 40 years as a result of population ageing. Unlike Europe, the US and Canada, Australia has not yet developed the modelling tools to help it assess the current and future distributional consequences of the required forthcoming changes in social and fiscal policy. This project will develop the necessary modelling infrastructure for the Commonwealth and for Australia. It will

create a sophisticated decision support capacity that can be used to assess the long-term impact of policy change and the likely future retirement incomes and other characteristics of Australians.
