

Successful 2005 Linkage Projects Round 1 Grants by State/University

Contents

STATE	INSTITUTION	NUMBER OF GRANTS
New South Wales		
	Charles Sturt University	2
	Macquarie University	4
	Southern Cross University	1
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	The University of New South Wales	21
	The University of Newcastle	6
	The University of Sydney	13
	University of Technology, Sydney	12
	University of Western Sydney	6
	University of Wollongong	5
	TOTAL NUMBER OF GRANTS	71
Victoria		
	Deakin University	8
	La Trobe University	2
	Monash University	17
	RMIT University	7
	Swinburne University of Technology	4
	The University of Melbourne	18
	University of Ballarat	1
	Victoria University of Technology	2
	TOTAL NUMBER OF GRANTS	59
Queensland		
	Bond University	1
	Central Queensland University	1
	Griffith University	5
	James Cook University	2
	Queensland University of Technology	12

Queensland

The University of Queensland	26
University of Southern Queensland	1
TOTAL NUMBER OF GRANTS	48

South Australia

The Flinders University of South Australia	3
The University of Adelaide	7
University of South Australia	7
TOTAL NUMBER OF GRANTS	17

Western Australia

Curtin University of Technology	7
Edith Cowan University	1
Murdoch University	5
The University of Western Australia	8
TOTAL NUMBER OF GRANTS	21

Tasmania

University of Tasmania	9
TOTAL NUMBER OF GRANTS	9

Northern Territory

Charles Darwin University	1
TOTAL NUMBER OF GRANTS	1

Australian Capital Territory

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

TOTAL NUMBER OF GRANTS 237

Summary of Successful Linkage Projects 2005 Round 1 Grants by States - Institutions

New South Wales

Charles Sturt University

LP0560960 Prof SR Miller; Prof J Kleinig; A/Prof TJ Prenzler; Mr A Alexandra; Ms C Nixon; Mr GT Chilvers; Dr SP James; Mr D Bradley

Title: An Integrity System for Victoria Police

2005 : \$122,713
2006 : \$167,494
2007 : \$167,494
2008 : \$100,000

Category: 4401 - PHILOSOPHY

Partner Organisation(s)

Victoria Police

Administering Institution: Charles Sturt University

Summary:

Through a critical examination of current integrity systems and sub-systems across a range of police forces, in depth empirical explorations at the primary research site (VicPol) and analyses of practical ethical problems, a high performance integrity system will be designed and tested. The significance of this project is its comprehensiveness, its use of a reliable theory of organisational ethical health, and of a methodology that allows for the full incorporation of practitioner views. Outcomes of the project will include data generating arrangements that provide evidence of achieved levels of compliance, integrity and performance.

LP0560659 Prof JF Weckert; Dr J Van den Hoven; Dr YM Al-Saggaf; Mr J Ridge

Title: Ethics and Regulation in the Information and Communications Technology (ICT) Industry

2005 : \$67,091
2006 : \$68,810
2007 : \$70,596

Category: 4401 - PHILOSOPHY

APA(I) Award(s): 1

Partner Organisation(s)

Australian Computer Society

Administering Institution: Charles Sturt University

Summary:

The broad aim of this project is to provide a comprehensive analysis of the current integrity system of the ICT industry, that is, the ethical standards and goals, accountability and disciplinary mechanisms and preventative and promotional processes, eg. ethics training, reduced opportunity for inappropriate behaviour, and to define a new integrity system including standards of professional competency and ethical conduct, and a regulatory model applicable to the whole industry. As ICT becomes ever more ubiquitous, it is vital that a comprehensive and integrated system is developed that recognises the requirements of the ICT industry, the profession and business organisations.

Macquarie University

LP0560344 Prof DW Cooper; Dr C Herbert; Prof MB Renfree; Dr R Bencini; A/Prof G Shaw; Dr KA Handasyde; Dr TE Trigg; Dr GA Shimmin; Dr G Moss; Mr IS Walker; Mr PW Menkhorst; Mr KD Morris; Dr PR Mawson

Title: Fertility Management of Koalas, Kangaroos and Wallabies

2005 : \$300,000
2006 : \$300,000
2007 : \$300,000
2008 : \$250,000
2009 : \$250,000

Category: 2707 - ECOLOGY AND EVOLUTION

APA(I) Award(s): 3

APDI Dr C Herbert

Partner Organisation(s)

Department for Environment and Heritage
Department of Sustainability and Environment
Department of Conservation and Land
Parks Victoria
Peptech Animal Health Pty Ltd.

Administering Institution: Macquarie University

Summary:

The aims of this work are to test a commercially available long-acting contraceptive on large populations of kangaroos and koalas, and to devise efficient, economic and practical ways of delivering these contraceptives to the animals. The outcome will be a system of controlling the number of these animals which is economically realistic and acceptable to national and

international communities. The contraceptive is administered as a small, subcutaneous implant in the back of the neck. It can be inserted very quickly and has no harmful side effects. A further outcome may be its adoption in other parts of the world, to the advantage of the company which manufactures it.

LP0561182 Dr SJ Cordwell; Prof MS Baker; Ms AC Len

Title: Visualising below the tip of the proteome iceberg

2005 : \$85,000

2006 : \$80,000

2007 : \$75,000

Category: 2504 - ANALYTICAL CHEMISTRY

APA(I) Award(s): 2

Partner Organisation(s)

Bio-Rad Laboratories

Administering Institution: Macquarie University

Summary:

Proteomics attempts to understand human biology by examining the protein components of cells and tissues. Unfortunately, currently available technology only allows approximately 10% of the complexity of these cells and tissues to be concurrently investigated. This project will the physical, chemical and functional properties of protein classes for enrichment, as well as improve technologies for protein visualization, identification and characterization. These approaches will allow the scientific community to further mine beneath the surface of the proteomics 'iceberg'.

LP0560715 A/Prof AE Parker; A/Prof D Abbott; Prof WG Cowley; Prof NH Weste

Title: Millimetre Wave Communication Systems for Consumer Applications

2005 : \$450,000

2006 : \$450,000

2007 : \$450,000

Category: 2909 - ELECTRICAL AND ELECTRONIC ENGINEERING

APA(I) Award(s): 4

Partner Organisation(s)

NHEW R&D Pty Ltd

Peregrine Semiconductor Australia Pty Ltd

Cadence Design Systems

Administering Institution: Macquarie University

Summary:

The key outcome of this cross-disciplinary project will be a prototype single-chip (RF section), short-range, 1Gigabit/second, wireless network operating at 60 GHz. This will employ new Silicon Germanium technology in a "system on chip" methodology that will pave the way for low-cost consumer applications of such technology. A new design flow will be developed to support this project, which will enable first silicon pass correct design of complete mm-wave millimetre wave radios on a single chip, a feat that has yet to be demonstrated. A new communication system will be developed to support the high data rates proposed. The significance will be application in very high speed high-bandwidth wireless local networks.

LP0560340 A/Prof JJ Rodwell; Dr AJ Noblet; Mr S Roy; Prof CL Cooper

Title: Organisational Behaviour in the Victoria Police Force

2005 : \$80,000

2006 : \$70,000

2007 : \$70,000

Category: 3502 - BUSINESS AND MANAGEMENT

Partner Organisation(s)

Victoria Police

Administering Institution: Macquarie University

Summary:

One of the major challenges facing managers in the Victoria Police is to create working environments that provide employees with the best possible chance of achieving organisational objectives. Subsequently, the aim of this project is to investigate a comprehensive model of organisational behaviour that employs the psychological contract approach and an augmented job strain model to predict employee attitudes and behaviour over time. The combined project model goes beyond the typical studies in this field by incorporating cutting-edge issues such as organisational citizenship behaviours. The Victoria Police is highly committed to this project and believes that the successful execution of this project will contribute to its strategic goals.

Southern Cross University

LP0560744 Prof JK Vanclay; Mr F Careri

Title: Integrated Carbon Accounting and Information Management Systems

2005 : \$42,000

2006 : \$41,000

2007 : \$41,000

Category: 3008 - ENVIRONMENTAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Australian Forest Corporation Pty. Ltd.

Administering Institution: Southern Cross University

Summary:

The aim of this project is to integrate environmental science and information technology to enhance carbon accounting management. The project is significant because it will provide for the first time a mechanism by which potential investors in forestry/carbon sequestration programs will be able to acquire online advice on what trees and soil types are most compatible, when and how to plant. This project will provide an interactive web based program to calculate the environmental and economic value of such an investment, assess current market trends and access to scientists, brokers, current legislation and applicable publications.

The University of New England

LP0560490 Dr KA Vernes; Prof PJ Jarman; A/Prof NC Reid; Mr BJ Nesbitt

Title: Identifying and managing the ecological impacts of free-ranging wild horses

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 3008 - ENVIRONMENTAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

NSW Department of Environment and Conservation

Administering Institution: The University of New England

Summary:

Wild horses cause significant ecological damage in conservation areas in Australia, but experimental research examining horse impacts is lacking. Our approach is to assess ecological impacts of wild horses in Guy Fawkes River National Park, a significant wilderness in northern NSW. We will describe the relationship between horse abundance and environmental impacts, experimentally determine how horse exclusion affects key environmental variables, and test the sensitivity of threatened plants to wild horse browsing and trampling. A key outcome will be development of scientifically-validated protocols for assessing horse impacts, and for managing wild horses in other areas of eastern Australia.

The University of New South Wales

LP0560320 A/Prof LE Bilston; Prof CF Finch; Dr J Hatfield

Title: Effectiveness and appropriateness of child restraints

2005 : \$120,000

2006 : \$120,000

2007 : \$120,000

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Motor Accidents Authority of NSW

Roads and Traffic Authority of NSW, Road Safety Strategy Branch

Administering Institution: The University of New South Wales

Summary:

This project aims to provide a definitive picture of the use, misuse and inappropriate use of child restraints in motor vehicles. It will evaluate the biomechanical and size deficiencies of current child restraints for the current population of children, and the implications for increased injury associated with these factors. This will provide a solid evidence base for improved child restraint design, education, and legislative changes.

LP0560982 Dr MP Bittman; Dr JM Nicholson; Dr L Strazdins; A/Prof AV Sanson

Title: Impact of parents' employment on children's well-being: The influence of employment quality, time and activities with children, and parenting practices

2005 : \$50,000

2006 : \$37,525

Category: 3701 - SOCIOLOGY

Partner Organisation(s)

Queensland Commission for Children and Young

Administering Institution: The University of New South Wales

Summary:

Most Australian children now grow-up in families where both their mother and their father are employed. Using a new national dataset, this research examines how parents' working conditions are related to children's well-being. It is proposed that parents' availability, resources, and family functioning mediate between parental employment and child outcomes. The Growing-Up in Australia study (available in 2005) surveys 10,000 children, combining measures of child well-being, existing validated measures of work conditions and family functioning, with a new child-focused diary that measures time and activities undertaken with children. New knowledge generated will inform future policy development.

LP0560737 A/Prof J Braithwaite; Dr RA Iedema; A/Prof JI Westbrook; Prof W Runciman; Prof S Redman; Dr M Pawsey; Dr C Jorm

Title: **Examinations of the relationship between accreditation and clinical and organisational performance**

2005 : \$150,000

2006 : \$150,000

2007 : \$150,000

Category: 3502 - BUSINESS AND MANAGEMENT

APA(I) Award(s): 1

Partner Organisation(s)

The Australian Council on Healthcare Standards
Ramsay Health Care
Affinity Health Limited

Administering Institution: The University of New South Wales

Summary:

Accreditation of organisations is now commonplace. It involves assessing organisations against pre-defined standards. This is a highly significant issue because of the millions of dollars of investment in accreditation. We do not know if we achieve value for money or whether positive change is associated with accreditation. Few studies have examined this in detail. We aim to do so in this study. We will examine organisational and individual performance associated with accreditation status in order to illuminate the process and uncover any associations between accreditation and organisational culture, consumer participation and clinical (individual) performance indicators.

LP0560434 Prof IW Dawes; Adj/Prof PJ Rogers; Dr V Higgins

Title: **Application of functional genomics to study early fermentation parameters and flavour development in industrial fermentations**

2005 : \$142,752

2006 : \$148,176

2007 : \$151,212

Category: 2701 - BIOCHEMISTRY AND CELL BIOLOGY

APA(I) Award(s): 2

Partner Organisation(s)

Carlton and United Breweries

Administering Institution: The University of New South Wales

Summary:

The aim of this research is to use genome-wide analyses to identify yeast genes involved in flavour compound production in order to manipulate the flavour profiles of industrial fermentations. This will identify those metabolic pathways and cellular processes that are important in the maintenance of flavour production during fermentation and give extensive insight into the way metabolism changes during the fermentation process. Flavour is a major component of the product of fermented beverages and its development and maintenance in the finished product is of primary concern to the brewing and wine industries. This research will lead to a more competitive Australian-owned company with a major stake in the beer and wine industry.

LP0560478 A/Prof CC Evans; Adj/Prof B Andrew; A/Prof B Tran-Nam

Title: **Towards systemic reform of the Australian personal income tax: developing a sustainable model for the future**

2005 : \$71,424

2006 : \$48,332

Category: 3501 - ACCOUNTING, AUDITING AND ACCOUNTABILITY

APA(I) Award(s): 1

LIF Award(s): 1

Partner Organisation(s)

CPA Australia

Administering Institution: The University of New South Wales

Summary:

The personal income tax (PIT) is a vital component of the Australian tax system, largely untouched by recent (primarily business and indirect) tax reform. It currently faces major problems. Solutions need to be found to a variety of defects relating to the tax base, tax rates and tax administration.

The project aims to explore alternative PIT models that can sustain the high revenue and other expectations imposed upon it, and yet deliver enhanced equity, efficiency and simplicity. By testing these models against world best practice and taxpayer, tax practitioner and tax administrator resistance, the project aims to develop and deliver a model that can attract community support alongside the achievement of traditional tax policy goals.

LP0561037 Dr EO Fernandez

Title: Pathways to Permanency: A Study of Foster Care Reunification Outcomes.

2005 : \$55,000

2006 : \$55,000

2007 : \$58,000

Category: 3702 - SOCIAL WORK

Partner Organisation(s)

Barnardos Australia

Administering Institution: The University of New South Wales

Summary:

Internationally Child Welfare Services emphasise intensive work with biological families to prevent abuse, to shorten the length of placements when protective care is needed, and to increase rates of reunification with of children with parents. In a three year follow up study the research will undertake a systematic analysis of the process and circumstances in which family reunification is likely to lead to safety and positive outcomes for children and those in which success is less likely. It will generate evidence-based knowledge about reunification decision making and identify policy implications of responding effectively to children in need of short term foster care.

LP0560924 A/Prof KJ Fox; Dr RQ Grafton; Dr R Keenan

Title: Economic Analysis of an Environmental Challenge: Salinity, Uncertainty and Property

2005 : \$47,982

2006 : \$45,102

2007 : \$49,318

Category: 3402 - APPLIED ECONOMICS

APA(I) Award(s): 1

Partner Organisation(s)

Bureau of Rural Sciences

Administering Institution: The University of New South Wales

Summary:

The applicability of standard property-rights solutions to complex environmental issues such as salinity is examined. Water and carbon trading, as well as issues relating to agricultural land management are addressed. In particular, the use of price instruments as a potentially more attractive mechanism than standard quantity instruments for achieving desirable outcomes is examined. The project will exploit and extend recent theoretical developments in modelling under conditions of uncertainty, and the use of price and quantity instruments in regulatory contexts.

LP0561160 A/Prof DR Gallagher

Title: An Examination of Strategic Investment Arrangements for Institutional Investors: The Case for Centralised Portfolio Management

2005 : \$88,486

2006 : \$65,000

2007 : \$65,000

Category: 3503 - BANKING, FINANCE AND INVESTMENT

APA(I) Award(s): 2

Partner Organisation(s)

Vanguard Investments Australia Limited

SIRCA Limited

Administering Institution: The University of New South Wales

Summary:

The aim of this project is to examine the extent to which Australian superannuation funds are able to enhance their overall returns, achieve investment objectives, and minimise operating costs incurred. This will be achieved by examining the benefits of centralised portfolio management for superannuation funds, and consideration of how active and index management can be utilised within the overall fund structure. We will show the problems associated with the current portfolio configuration system adopted by super funds, and to identify areas where more optimal investment arrangements can significantly improve overall portfolio returns and reduce expenses.

LP0560285 Ms E Harris; Dr C McMahon; Dr S Matthey; Prof G Vimpani; Dr TM Anderson; Adj/Prof VA Schmied

Title: **A Randomised Trial of Early Childhood Sustained Home Visiting in a Disadvantaged Community**

2005 : \$150,000

2006 : \$150,000

2007 : \$150,000

Category: 3702 - SOCIAL WORK

Partner Organisation(s)

Liverpool Health Service (a unit of South Western Sydney Area Health Service)

NSW Department of Community Services

NSW Health

NSW Cabinet Office

NSW Premiers Department

Administering Institution: The University of New South Wales

Summary:

Home visiting programs comprising intensive and sustained professional home visits over the entire first two years of life (SPHV) show promise as interventions to promote child health and family functioning, and ameliorate disadvantage. This study is the first Australian randomised trial to determine the impact of a comprehensive SPHV program commencing antenatally in a population group living in an area of known disadvantage. As such this trial is a best-practice demonstration model for professional home visiting in Australia, with significant implications for the development of early childhood policy and strategy throughout Australia.

LP0560463 Prof BK Hebblewhite

Title: **Applicability of the Longwall Top Coal Caving in Australian Underground Coal Mines**

2005 : \$75,000

2006 : \$75,000

2007 : \$75,000

Category: 2907 - RESOURCES ENGINEERING

Partner Organisation(s)

Ulan Coal Mines Limited

Administering Institution: The University of New South Wales

Summary:

The proposed project aims to develop an improved understanding of the geotechnical caving characteristics of the Longwall Top Coal Caving method and its applicability in Australian underground coal mines. The practical outcomes include significant economical benefits associated with extracting thick seams, maximising production and recovery, while improving safety standards. The advantages and constraints of the mining method will be examined rigorously relative to the Australian geological and stress environment and safety requirement. The parameters influencing the applicability of the method as well as the support design criteria and performance will be researched using comparative, analytical and numerical modelling methods.

LP0560311 Dr DJ Kennedy; Prof PL Bohle; Dr WG Earl; Prof JR Piggott; Mr PA Wilde

Title: **Economic, environmental and social psychological evaluation of independent senior living alternatives in Australia**

2005 : \$162,000

2006 : \$155,000

2007 : \$95,000

Category: 3102 - BUILDING

APA(I) Award(s): 2

Partner Organisation(s)

Australian Unity

Elderly Citizens Homes of SA Inc

Aged Care Queensland Inc

Aged and Community Services Association of NSW and ACT Inc

Anglican Retirement Villages

Silver Chain

Colliers International

RSL (QLD) War Veteran's Homes Ltd

Redland Shire Council

Henry Kendall Group

Living Choice Australia Ltd

Tea Gardens Grange

The Glen Group

Lifelink Care Pty Ltd

Retirement Village Association Ltd NSW & ACT

FKP Australian Retirement Homes

Retirement Village Association Ltd VIC & TAS

Administering Institution: The University of New South Wales

Summary:

Retirement village accommodation in Australia is expected to grow by as many as 115,000 units over the next twenty years, a tripling of the current industry. Stimson et al. (2002) identified the significant push-pull factors, but little or no work has been

undertaken to identify spillover impacts to the broader community. This study investigates the economic, social, psychological and environmental impacts that accrue to a range of stakeholders. Topics under investigation include cost savings to government funded assistance and infrastructure, psychological and social benefits to residents and their families, project and asset management efficiency, and turnover of housing stock.

LP0560289 Dr SM Mahler; A/Prof PM Curmi; Dr CP Marquis; Dr DJ Naylor; Dr BJ Johnson; Dr DY Chin

Title: **Determination of the mechanisms of immune system regulation of inflammation by the human protein, chaperonin 10**

2005 : \$114,442
2006 : \$113,442
2007 : \$109,942

Category: 2701 - BIOCHEMISTRY AND CELL BIOLOGY

APA(I) Award(s): 1

APDI Dr DY Chin

Partner Organisation(s)

C-Bio Ltd.

Administering Institution: The University of New South Wales

Summary:

The aim of this project is to determine the mechanisms by which a human protein, chaperonin 10 (Cpn10), regulates the immune system and suppresses inflammation. When cells of the human immune system are challenged with lipopolysaccharide (LPS) (a product of bacterial infection), the pro-inflammatory cytokine TNF is released. Cpn10 has been shown to suppress production of TNF on challenge of cells with LPS, while increasing the levels of the anti-inflammatory cytokine IL-10. Investigating the role of Cpn10 in modulating inflammation will contribute to the understanding and treatment of diseases associated with inflammation, including multiple sclerosis and rheumatoid arthritis.

LP0560703 Prof O Ostrovski; Dr H Sun

Title: **A study of wettability and reduction behaviour in carbothermal production of manganese alloys**

2005 : \$46,183
2006 : \$51,828
2007 : \$51,392

Category: 2913 - METALLURGY

APA(I) Award(s): 1

Partner Organisation(s)

Tasmanian Electrometallurgical Company

Administering Institution: The University of New South Wales

Summary:

The project's ultimate aim is to develop a comprehensive understanding of reactions between carbonaceous materials and molten slag relevant to carbothermal reduction of manganese ore. It will be achieved through experimental study of dynamic wettability and interfacial properties of the carbon - slag system for variety of carbonaceous materials and slag compositions. Reduction behaviour of different manganese ores will also be examined in conjunction with the wettability study. The projects findings will be of importance to carbothermal reduction processes, which are major technologies in ferrous metallurgy, and to further development of the manganese alloys industry in Australia.

LP0560910 Prof C Rizos; Dr JB Barnes

Title: **Network Design and Management for a Pseudolite and GPS Based Ubiquitous Positioning System**

2005 : \$24,148
2006 : \$24,148
2007 : \$24,148

Category: 2910 - GEOMATIC ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Locata Corporation

Administering Institution: The University of New South Wales

Summary:

The Locata positioning technology uses a network of terrestrial based signal transmitters (pseudolites) and GPS satellites, to provide ubiquitous positioning (indoors and outdoors) in difficult environments. This research student project will focus on the intelligence associated with the pseudolite network such as: autonomous network installation, network integrity, and quality control. The implementation of innovative algorithms and methodologies developed in this research, will allow a robust, reliable and accurate positioning system for challenging indoor and outdoor environments, where current systems cannot work satisfactorily.

LP0560969 Prof JH Roberts; A/Prof PD Morrison; Prof M Chandrashekar

Title: **Linking Brand Equity Modelling and Measurement with Behavioural and Affective Consumer Decision**

Processes

2005 : \$80,000

Category: 3502 - BUSINESS AND MANAGEMENT**Partner Organisation(s)**

ACNielsen

Administering Institution: The University of New South Wales**Summary:**

Brand equity monitoring often fails to account for image-related and habit-entrenched consumer decision rules. This research takes an established brand equity monitoring tool, A C Nielsen's Winning Brands, and incorporates work on decision heuristics into it. Heuristics occur when consumers simplify their decision task using rules sub-optimal with respect to selecting their preferred alternative, but effective in terms of reducing cognitive effort. The project will conduct a meta-analysis of over 250 branding strategies followed by a new data collection and latent segmentation analysis. The result will be a more comprehensive decision support tool for brand development, focusing management actions and improving marketing efficiency.

LP0560914 Prof V Sahajwalla

Title: Fundamental investigation of refractory reactions occurring at high temperatures in continuous steel casting processes

2005 : \$75,456

2006 : \$84,880

2007 : \$87,916

Category: 2913 - METALLURGY**Partner Organisation(s)**

BlueScope Steel Limited, Port Kembla

Administering Institution: The University of New South Wales**Summary:**

This project aims to develop novel refractories to meet the demanding requirements of continuous steel casting processes and will carry out systematic investigations on refractory/slag-steel interactions at high-temperatures. Using reactivity, wettability and interfacial phenomena investigations, this project will develop novel refractory products that will eliminate or greatly minimise refractory reactions with slag/steel resulting in much reduced levels of refractory erosion, reduced clogging of refractory nozzles and enhanced quality of the finished steel products. These studies are expected to improve fundamental understanding, optimise processes and solve practical problems of interest to the industry.

LP0560797 Prof PG Saunders; Mr Pa Davidson; Ms J Taylor

Title: Left Out and Missing Out: Towards New Indicators of Social Exclusion and Material Deprivation

2005 : \$92,238

2006 : \$93,718

Category: 3702 - SOCIAL WORK**Partner Organisation(s)**

Australian Council of Social Service

Brotherhood of St Laurence

Mission Australia

ANGLICARE Diocese of Sydney

Administering Institution: The University of New South Wales**Summary:**

This ground-breaking project will utilise academic knowledge and practical agency experience built up over decades to produce a new framework for identifying and measuring exclusion and deprivation in contemporary Australian society. It will generate new findings on public attitudes to the "necessary requirements" needed to participate at all levels in society and the economy. It will examine the population profile of the individuals and groups who are denied these opportunities, using both quantitative (survey) and qualitative (focus group) data, and its findings will complement existing data collections.

LP0561107 Dr M Tani; Prof S Dowrick; Ms CJ Trussler

Title: International exchanges of knowledge, temporary skilled labour movements, and Australia's economic growth

2005 : \$39,575

2006 : \$63,718

2007 : \$46,545

Category: 3402 - APPLIED ECONOMICS**Partner Organisation(s)**

Department of Immigration and Multicultural and Indigenous Affairs

Administering Institution: The University of New South Wales

Summary:

It is known that skilled labour is a significant source of economic growth as it creates new knowledge and innovation, and that Australia, like other countries, uses policies to attract skilled migrants. It is less known however that thousands of skilled workers also migrate temporarily, often to exchange knowledge. Whilst the effect of permanent migration is widely researched, this project will examine the economic impact of short-term labour movements. Using data from DIMIA and surveying temporary migrants, this project will analyse the consequences of temporary labour movements on Australia's innovation ability, productivity and economic growth, contributing to develop migration policy.

LP0561150 Prof TD Waite; Dr L Li; Dr T Howes

Title: **Predicting Lyngbya blooms: impact of iron transformation kinetics on flux, distribution and rate of uptake of bioavailable iron and phosphorus**

2005 : \$50,000

2006 : \$50,000

2007 : \$50,000

Category: 2599 - OTHER CHEMICAL SCIENCES

APA(I) Award(s): 2

Partner Organisation(s)

Moreton Bay Waterways and Catchments

Administering Institution: The University of New South Wales

Summary:

Bioavailable iron has been shown to be one of the key drivers to growth of the toxic cyanobacterium, *Lyngbya majuscula*. In this project, a model describing the kinetics of transformation between the various iron species that exist in natural waters will be developed and this model coupled with transport codes such that reliable predictions of the flux of bioavailable iron to Moreton Bay, its distribution in the Bay and its bioavailability to *Lyngbya* can be made. The impact of iron transformations on the bioavailability of phosphorus within the Bay will also be elucidated.

LP0561096 Dr J Wang; Dr DG Cole; Dr S Jin

Title: **Monitoring and Predicting Near Real Time Ionospheric Activities with Multi-satellite Data**

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 2606 - ATMOSPHERIC SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

IPS Radio and Space Services

Administering Institution: The University of New South Wales

Summary:

The ionosphere affects the transmission of electromagnetic waves, which can result in disturbance or intermission of radio signals being used for communication, navigation and other microwave systems. This project aims to monitor and predict near real-time ionospheric activities with multi-satellite data. The expected outcomes include: 1) an innovative algorithm to calculate the Total Electron Content from multi-satellite data; 2) an automated software package for mapping 3-dimensional ionospheric profile; and 3) an improved understanding of the detailed processes and causes of ionospheric events, that can enhance the space weather services for Australia and the world.

LP0561134 Prof AB Yu; Dr A Vince

Title: **Fundamental studies of screening processes in coal preparation**

2005 : \$70,000

2006 : \$70,000

2007 : \$70,000

Category: 2907 - RESOURCES ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

BHP Billiton Mitsubishi Alliance, Central Queensland Office

Administering Institution: The University of New South Wales

Summary:

Screening is a most important unit operation widely used in industries but not well understood. This project will investigate the fundamentals governing the dynamic behaviour of coal slurry on desliming screens by a combined theoretical and experimental program. Its aim is to develop and validate a computer model that can simulate the operation under various conditions at a particle level, providing a cost effective way to quantify the screening performance in relation to materials, machine and operation conditions. It will generate a basis for developing better design and control strategies of screen operation, resulting in an improved competitiveness of Australia's mineral industry.

The University of Newcastle

LP0560934 Prof GM Evans; Dr DJ Willis

Title: Inter-metallic Inclusion Reduction in Continuous Metallic Coating

2005 : \$119,585

2006 : \$116,274

2007 : \$91,058

Category: 2913 - METALLURGY

Partner Organisation(s)

Bluescope Steel Research, BlueScope Steel Ltd

Administering Institution: The University of Newcastle

Summary:

The ZINCALUME® coating process is a core business of BlueScope Steel. Operational and quality issues are being experienced due to inter-metallic particles in the liquid metal bath. The particles cause defects in the metal coating and agglomerate, resulting in periodic shutdowns to remove the dross. Both of these factors impact significantly on the profitability of the operation. In this project a new strategy is being investigated, whereby the fluid mechanics and heat transfer mechanisms within the bath will allow inter-metallic particles to be continuously removed in the metal coating before they reach the critical size that adversely affects product quality. This will also reduce dross accumulation, thereby reducing shutdown time.

LP0561178 Dr SG Fityus; Prof SW Sloan

Title: Foundation remediation using resin injection.

2005 : \$75,000

2006 : \$75,000

2007 : \$75,000

Category: 2908 - CIVIL ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Mainmark-Uretek

Administering Institution: The University of Newcastle

Summary:

The aim of this research project is to explore the application of injected expanded polyurethane resins as a new option for the re-leveling and stabilisation of deflected foundations on reactive clay soils. It will identify the physical and behavioural characteristics of resin-injected reactive clay foundations, in the context of both shallow and deep injection, and will identify any limitations to the applicability of the approach. Based on detailed laboratory and field testing, and advanced numerical modelling, the outcome will be the ability to confidently assess various foundation remediation strategies in reactive clay soils, and provide much needed design guidance to the geotechnical profession and building industry.

LP0561065 A/Prof AV Nguyen; Prof GM Evans; Mr PD Dennis; Dr Y Yan

Title: Ozone-Enhanced Particle Removal in Water Treatment

2005 : \$100,000

2006 : \$89,134

2007 : \$93,874

Category: 2906 - CHEMICAL ENGINEERING

Partner Organisation(s)

Hunter Water

Hunter Water Corporation

Administering Institution: The University of Newcastle

Summary:

Combined ozonation/biologically active carbon filtration provides effective contaminant removal while minimizing disinfection by-product formation. However, the cost of installation in conventional water treatment plants is very high. This project will investigate the beneficial influence of ozonation on the micro-flocculation of small particles, with the aim to optimising particle removal by sedimentation prior to filtration. To do this, requires a clear understanding of how dissolved ozone interacts with particle surfaces for different water chemistries. The ideal outcome would be to develop a robust water treatment system that required BAC filtration only and eliminated the need for a conventional sand filtration stage as well.

LP0561092 A/Prof BM Ninness; Dr SR Weller; Dr GK Woodward; Dr MA Bickerstaff; Dr LM Davis

Title: New Methods and Microelectronics for Wireless Communication Systems

2005 : \$165,000

2006 : \$165,000

2007 : \$150,000

2008 : \$120,000

2009 : \$120,000

Category: 2909 - ELECTRICAL AND ELECTRONIC ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

Agere Systems Australia

Administering Institution: The University of Newcastle

Summary:

Global demand for high quality wireless communications poses significant challenges. The so-called "physical layer" is crucial, as this is where the vagaries of the wireless channel, including interference and limited bandwidth, are mitigated by sophisticated signal processing.

This project will conduct applied research to meet these physical layer challenges, providing solutions that feed directly into next generation wireless communication systems.

Uniquely, this project focuses on the transfer of research from theoretical genesis, through to realisation of silicon integrated circuit "chips". This will maximise both the impact of the research and the potential for significant national economic benefits to accrue.

LP0560507 A/Prof JC Rodger; Prof KW Beagley; Dr MC Evans; Mr D Fletcher

Title: Oral Delivery - A Viable Strategy for Fertility Control Vaccination of Kangaroos ?

2005 : \$80,000

2006 : \$80,000

2007 : \$80,000

Category: 3008 - ENVIRONMENTAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Environment ACT

Fertility Control Pty Ltd

Department of Defence

Administering Institution: The University of Newcastle

Summary:

Local overabundance of kangaroos poses significant, environmental, economic, social and animal welfare problems in Australia. The only management tool available for free ranging populations is shooting. Fertility control is a highly desirable alternative but current 'hands on' methods are not cost-effective options for wild populations. Immunologically-mediated contraception has the potential to be such a management tool if the vaccine can be delivered effectively. The investigators and their colleagues have achieved contraception by vaccine injection in kangaroos. This project aims to establish proof-of-concept for arguably the only viable vaccine delivery option for free ranging macropods: Oral delivery via an edible pellet or lick.

LP0561130 Dr J Wiggers; Dr CL Paul; Dr R Walsh; A/Prof A Girgis; Ms J Daly; Dr E Campbell; Ms A Neil; Ms J Knight

Title: The effectiveness of pro-active telemarketing of a smoking cessation telephone counselling service

2005 : \$42,148

2006 : \$150,000

2007 : \$85,000

2008 : \$20,784

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Hunter Population Health

Administering Institution: The University of Newcastle

Summary:

Despite the availability of services, such as telephone support lines to help people quit, only a small number of smokers seek help. One solution is to pro-actively contact and offer support with quitting to smokers in the community. This study will involve pro-actively contacting households by telephone and offering intensive, personalised telephone counselling to smokers to support them in the quitting process. Such a service will provide treatment to smokers who might not otherwise seek assistance to quit, thereby greatly increasing the potential impact of quit smoking services at a community level.

The University of Sydney

LP0560487 Dr BJ Adamson; Dr MA Lincoln; Ms N Bourke; Prof CL Cooper

Title: Factors impacting on workplace retention in speech pathology

2005 : \$27,776

2006 : \$27,417

2007 : \$25,148

Category: 3210 - CLINICAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Administering Institution: The University of Sydney

Summary:

Retention of speech pathologists within their profession and within the public service is presenting a major problem for the professional association, the public service and service users. In response to this situation our study aims to measure the psychological well being of speech pathologists nationally and to identify workplace dimensions that are hindering or enhancing retention. The results of this study will be of significance to all stakeholders, in particularly individuals with communication disorders. The successful retention of experienced speech pathologists within the profession and the public sector will help ensure expert services are available to Australia's ageing population.

LP0561202 Dr FR Cameron; Prof EA Edmonds; Prof SR Garton; Mr KS Sumption

Title: **Reconceptualising Heritage Collections: Multidisciplinary Approaches to Museum Collections and Documentation**

2005 : \$130,000
2006 : \$100,000
2007 : \$100,000

Category: 4003 - CURATORIAL STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Powerhouse Museum

Administering Institution: The University of Sydney

Summary:

Museums worldwide are responding to technical advances in digital media. Collection databases and their availability on the World Wide Web are part of this initiative. The potential scope for collections documentation has been transformed by digital technologies, but in reality this has not been matched by the quality of information held in databases - its relationship to current knowledge, the needs of online users and new interdisciplinary approaches to material culture research. This project will reconceptualise museum collections acquisition, documentation practices, create a new multidisciplinary multimedia knowledge structure and reform museum practice to address these issues to greatly enhance the value of collections.

LP0560358 Prof TR Carney; Dr D Tait; Dr D Chappell; Dr C Coumarelos

Title: **Mental Health Tribunals: Balancing fairness, freedom, protection and right to treatment?**

2005 : \$65,000
2006 : \$140,000
2007 : \$80,000

Category: 3903 - JUSTICE AND LEGAL STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Mental Health Review Tribunal NSW
Mental Health Tribunal ACT
Mental Health Review Board of Victoria
Law and Justice Foundation NSW

Administering Institution: The University of Sydney

Summary:

In determining treatment options for mentally ill people, mental health tribunals must balance the person's right to treatment with rights to safety, justice and freedom from coercion. Much studied overseas, Australia lacks information about the 'fairness' of hearings. Applying popular 'therapeutic jurisprudence' literature, this project studies the impacts of hearings in 3 diverse Australian jurisdictions (NSW, Vic & ACT). It uses field observations, interviews and file reviews to isolate best practice reforms. Broader than overseas work, it assesses the actual and perceived fairness of hearings, and the therapeutic outcomes for patients. As in Britain, the project will inform legislative reform and tribunal practices.

LP0560634 Dr EJ Cowley

Title: **From economic benefit to social cost: Antecedents of irresponsible gambling**

2005 : \$74,000
2006 : \$62,000
2007 : \$52,000

Category: 3502 - BUSINESS AND MANAGEMENT

APA(I) Award(s): 1

Partner Organisation(s)

Acuiti Advisory (a division of Acuiti Legal)

Administering Institution: The University of Sydney

Summary:

The social impact of gambling is a challenge for policy-makers. Australia's gambling expenditure in 2001 contributed \$4.4 billion in tax revenue. This economic benefit however, is offset by significant social costs (\$1.8 to \$5.6 billion). We will identify when

and how distorted memory for previous gambling outcomes and gaming machine accessibility can cause irresponsible gambling. The results can be used to make informed assessments of the social impact of increasing the accessibility of gambling opportunities on local communities. The results can also be used to understand how gambling that contributes to the economy of a community becomes a social cost.

LP0560998 Prof RG Gilbert; Dr MJ Pabon

Title: Mechanistic investigation of fluorinated coatings for stone preservation

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 2505 - MACROMOLECULAR CHEMISTRY

APA(I) Award(s): 1

Partner Organisation(s)

DuPont Australia

Administering Institution: The University of Sydney

Summary:

We will investigate mechanisms governing the synthesis of a latex used for stone preservation. This latex is made from novel and unusual starting materials, and will be the most complex system for which mechanisms have been investigated. We will redesign the synthesis procedure to control particle size and composition of the functional species at the particle surface. This will enable both particle size and surface composition to be tailored as desired. The results will be used to investigate the influence of these quantities on interactions between particles and sandstone surfaces. The outcomes will be used by the industrial partner to devise improved protective coatings for stone surfaces in Australian conditions.

LP0560531 Dr BS Hawkett; Prof GG Warr; Prof RG Gilbert; Mr CH Such

Title: Nanoparticles with designed morphology for surface-coating applications

2005 : \$350,000

2006 : \$310,000

2007 : \$300,000

Category: 2505 - MACROMOLECULAR CHEMISTRY

APA(I) Award(s): 1

Partner Organisation(s)

Orica Dulux

Administering Institution: The University of Sydney

Summary:

Significantly improved water-based paints, with zero volatile organic content and organic opacifiers, are highly desirable for environmental and health reasons. The science needed to produce such paints has been persistently elusive. USyd and Dulux will collaborate to achieve these paints by using Australian-developed platform technologies that allow polymer architecture to be controlled at molecular and nanoscale levels. This will give us the means to make structured nanoparticles with morphologies that had been regarded as unachievable, and that are the key to dispensing with harmful ingredients in paints.

LP0560909 Mr JH Haywood; Dr IM Bassett; A/Prof SC Fleming

Title: Instrumentation for High Voltage Power Distribution Using Optical Fibre Sensors

2005 : \$100,000

2006 : \$100,000

2007 : \$100,000

Category: 2917 - COMMUNICATIONS TECHNOLOGIES

APA(I) Award(s): 1

Partner Organisation(s)

TransGrid

ABB

Administering Institution: The University of Sydney

Summary:

This project aims to realise a novel optical fibre voltage sensor, exploit a recent discovery of Bassett and Haywood in interferometry to improve an existing optical current sensor, and bring the voltage and current sensor together in a combined field trial on a high voltage distribution network.

The voltage sensor concept is unique and provides significant advantages.

The expected outcomes of this project are an electro-optically active silica fibre suitable for voltage sensing, a prototype voltage sensor and signal processing system, and a prototype combined electrical power (voltage and current) measurement unit deployed in a field trial.

LP0560572 Dr MB Krockenberger; Mr DP Higgins; Prof PJ Canfield; Dr M Govendir; Dr S Hemsley; Dr R Malik

Title: Prevention and treatment of chlamydiosis and cryptococcosis in koalas

2005 : \$138,000

2006 : \$128,916

2007 : \$125,346

Category: 3005 - VETERINARY SCIENCES

APA(I) Award(s): 1

APDI Mr DP Higgins

Partner Organisation(s)

Australian Koala Foundation

WIRES

Koala Preservation Society NSW

Pfizer Pty Ltd, Animal Health

Mayne Health Pathology Pty Ltd (trading as Mayne Health Vetnostics)

Administering Institution: The University of Sydney

Summary:

This project aims to generate increased understanding of the aetiology and pathogenesis of the two most prevalent and debilitating infectious diseases of koalas to make improved decisions regarding therapeutic intervention, prevention and management. Chlamydiosis, caused by two chlamydial bacteria, affects koala fertility, urinary tract function and eyesight. Cryptococcosis, caused by the fungus *Cryptococcus gattii*, may result in koala morbidity and death. Planned therapeutic trials, prevention strategies and the development of optimal husbandry strategies will provide knowledge that will lead to reduced koala morbidity through improved understanding of the interactions amongst infectious pathogens, the animal host and the environment.

LP0560530 Prof AJ Marett; Dr LM Barwick; Prof M Langton; Dr AD Corn; Dr M Yunupingu; Mr A James; Mr W Marika

Title: Planning for Sustainability of the National Indigenous Recording Project: a pilot project

2005 : \$48,871

Category: 4101 - PERFORMING ARTS

Partner Organisation(s)

Yothu Yindi Foundation

Administering Institution: The University of Sydney

Summary:

This pilot project lays the essential groundwork for Yothu Yindi Foundation to carry out the National Recording Project for Indigenous Music, which will aim to record, document and archive today's leading performers of traditional music across Australia. Through workshops and community consultations, the pilot project will allow the Chief Investigators to collaborate with YYF to develop appropriate recording and documentation methods that are sensitive to indigenous priorities and conformant with international best practice.

LP0560836 Dr DB McConnell; Prof GM Llewellyn

Title: Maintaining family-based placement for children and young people with disabilities

2005 : \$77,228

2006 : \$100,000

2007 : \$87,439

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Department of Ageing, Disability and Home Care

Administering Institution: The University of Sydney

Summary:

Aim: To enable families to continue caring at home for children with severe disabilities.

Significance: These families face significant challenges in juggling the demands of work, family and care to the extent that one in four decide to relinquish the care of their child. This leaves more than 37,000 children in Australia at risk of not growing up in their family home.

Expected outcomes: A psychometrically sound instrument that will identify families struggling to care for their children at home, and a family and practitioner guide of innovative solutions to maintaining family-based placements.

LP0560912 A/Prof SR Meikle; Prof R Banati

Title: Novel Transmission Scanning and Computational Strategies for Quantitative microPET Imaging

2005 : \$30,000

2006 : \$30,000

2007 : \$30,000

Category: 2499 - OTHER PHYSICAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Concorde Microsystems, Inc.

Administering Institution: The University of Sydney

Summary:

Advances in detector technologies have led to the development and commercialisation of small animal imaging systems such as microPET which provide high resolution images of radioactive compounds in live animals, but the images can only be interpreted qualitatively. Our aim is to develop quantitative technologies for these new imaging systems. Major outcomes will include novel methods of measuring and correcting for signal loss due to photon interactions in the body and integrated image reconstruction algorithms. This will lead to a new generation of quantitative imaging devices; the new technologies will be directly translatable to clinical imaging systems and will broaden the range of microPET applications in the life sciences.

LP0560980 Dr DA Modjeska; Prof MA Harris; Ms N Christer

Title: From Thesis to Book: issues in commercial publication of scholarly work

2005 : \$115,000

2006 : \$96,000

2007 : \$60,000

Category: 4202 - LITERATURE STUDIES

APA(I) Award(s): 1

LIF Award(s): 1

Partner Organisation(s)

Pan Macmillan Australia

Administering Institution: The University of Sydney

Summary:

Commercial trade and scholarly publishers constantly receive book proposals based on research theses, yet still struggle to find non-fiction manuscripts with both sales potential and high writing and research quality. What are the characteristics of such manuscripts? How are they developed? How might universities be involved? This project will address these issues through an integrated programme of research and research training, awarding a scholarship for doctoral research into Australian non-fiction publishing, and writing residencies for recent PhD graduates. Outcomes will include manuscripts for publication by the industry partner, discussion papers, public lectures and intensive training seminars.

LP0561184 Prof MV Swain; A/Prof SC Fleming; Dr AI McIntosh; Dr R Rohanizadeh; Dr SH Law

Title: Quantification of the Remineralisation of Enamel

2005 : \$56,000

2006 : \$60,157

2007 : \$60,953

Category: 2917 - COMMUNICATIONS TECHNOLOGIES

APA(I) Award(s): 2

Partner Organisation(s)

NSI Dental Pty Ltd

Administering Institution: The University of Sydney

Summary:

This project has three specific aims:

1. To quantify the ultrastructure and mechanisms of remineralisation of enamel using scanning and transmission electron microscopy.
2. To determine the mechanical properties of remineralised tissue and compare with those of sound enamel.
3. To develop an in-vivo optical fibre probe for monitoring and quantifying the changes of mineralised carious tissue during remineralisation.

This project will enable patients prone to orthodontic induced root resorption to be identified and also to assist with validating repair of enamel tooth structure in a non-surgical manner. It is anticipated to result in the development of a novel fibre optic instrument with applications beyond dentistry.

University of Technology, Sydney

LP0560613 Prof Dr LY Behrendt; Prof GJ Williams

Title: Regional governance for Aboriginal and Torres Strait Islander communities: the development of a legal framework and practical models to address discrimination and disadvantage.

2005 : \$95,000

2006 : \$90,000

Category: 3901 - LAW

Partner Organisation(s)

South West Aboriginal Land and Sea Council

Administering Institution: University of Technology, Sydney

Summary:

Many Indigenous people are of the view that the needs and aspirations of their communities may be more effectively negotiated and managed on a local or regional level. Government leaders and agencies have identified more localised decision-making by Indigenous communities as a policy priority. Despite this, there is little comprehensive research regarding the legal and policy issues associated with regional governance for Indigenous people in Australia. This research project will redress the paucity of in-depth legal analysis in this area, and develop achievable and practical models of regional governance for Indigenous communities, to enhance their cultural, economic and social well-being.

LP0560889 Dr DJ Booth; Dr BC Pease

Title: Conservation ecology of the black cod (*Epinephelus daemeli*)

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 2707 - ECOLOGY AND EVOLUTION

APA(I) Award(s): 1

Partner Organisation(s)

NSW Fisheries

Administering Institution: University of Technology, Sydney

Summary:

Black cod is a large, reef fish species that was once common and commercially important in NSW. Today, Black Cod is listed as vulnerable, and we know little more of their biology than when they were first protected in 1983. This project will significantly increase the effectiveness of Black cod management by determining their distribution, abundance, stock structure, fecundity, spawning behaviour and recruitment. This will allow implementation of an effective recovery plan and a review of the status of Black Cod internationally and by the Federal Government. Collaboration with NSW Fisheries' Grey Nurse Shark program will allow assessment of the importance of Grey Nurse critical habitat areas in maintaining Black Cod populations.

LP0561200 Prof S Challa; Dr JI Agbinya; Dr YT Tung; Prof G Dissanayake; Dr D Liu

Title: Design of Wireless sensor and communication networks with fixed and mobile nodes.

2005 : \$60,000

2006 : \$60,000

2007 : \$60,000

Category: 2917 - COMMUNICATIONS TECHNOLOGIES

APA(I) Award(s): 1

Partner Organisation(s)

ADI Limited

Administering Institution: University of Technology, Sydney

Summary:

Wireless sensor and communication networks with fixed and mobile nodes are rapidly becoming essential technologies for hostile environmental monitoring, battlefield surveillance and precision agriculture. However, due to the complexities associated with interconnected design issues involving sensors, autonomous vehicles and communication protocols, even very simple networks have proven to be difficult to design. This project proposes to intelligently employ higher capabilities of mobile nodes and develop methods for rapid deployment, maintenance and routing that are aware of location, energy, and security. The outcomes of this project will form the basis for design of intelligent wireless networks for defence and civilian applications.

LP0560475 Prof MB Cortie; Mr TH Gibbons

Title: Optically-selective window coatings of precious metal nanoparticles

2005 : \$35,498

2006 : \$32,648

2007 : \$36,648

Category: 2918 - INTERDISCIPLINARY ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Anglogold Australia Limited

Administering Institution: University of Technology, Sydney

Summary:

There is great opportunity for Australia to save energy and money through the development of glass which excludes heat. This project builds on UTS research into the use of gold and silver nanoparticles in spectrally-selective coatings for windows. It will develop novel, low-cost in situ deposition processes to lay down ultra-thin coatings of gold nano-rods and other shapes on glass, creating coatings that have a neutral colour in the visible wavelengths, but which block infra-red light. Coated glass of this type has major application in the building industry as well as export potential.

LP0560590 Prof A Craig; Dr Y Tran; Dr E Gordon; Mr P Mclsaac

Title: **A hands-free assistive control system for the severely disabled capable of operating under stressful and fatiguing conditions**

2005 : \$56,000
2006 : \$56,000
2007 : \$62,000
2008 : \$58,000

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

Partner Organisation(s)

Panthers Entertainment Group
Brain Resources Company
Biofeedback Instruments

Administering Institution: University of Technology, Sydney

Summary:

The impact of severe disability like tetraplegia in daily living is substantial. Strategies are needed to improve their quality of life. One approach is to enhance their independence by providing "hands free" control over their environment. However, few scientific studies have examined the efficacy of such technology. The aim of this research is to study the brain activity of users of our "hands free" technology when they are operating under stressful and fatiguing conditions. The study should provide valuable data that will allow us to improve the efficacy of our existing brain signal based system (Mind Switch Assistive System).

LP0560935 Prof JK Debenham; A/Prof SJ Simoff; A/Prof JR Leaney; Dr D Colquitt; Mr M Hunter; Mr G Desoblin

Title: **Managing quality of experience delivery in new generation telecommunications networks with e-**

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

Category: 2802 - ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APA(I) Award(s): 3

Partner Organisation(s)

Alcatel Pty Ltd

Administering Institution: University of Technology, Sydney

Summary:

New generation telecommunications networks are required to support increasingly demanding services, including interactive multimedia and conferencing. The success of these networks will rely on the users' perception of their quality of experience. The management of these networks will rely on the ability of informed decision making that competes effectively for limited resources in such a highly dynamic environment. This project will design information distribution strategies and smart decision making agents that negotiate a user's quality of experience using market mechanisms. Designs from this project will be trialed and validated in the partner's commercial networks.

LP0561198 Dr G Feuerlicht

Title: **Design of Service Interfaces for e-Business Applications**

2005 : \$24,148
2006 : \$24,148
2007 : \$24,148

Category: 2801 - INFORMATION SYSTEMS

APA(I) Award(s): 1

Partner Organisation(s)

Eagle Datamation International Pty. Ltd.

Administering Institution: University of Technology, Sydney

Summary:

Economic pressures are rapidly driving businesses towards automation of e-business (electronic business) transactions. Successful e-business relies on accurate interchange of information among large numbers of autonomous partner organizations with different business semantics. Web services are widely regarded as having the potential to provide a suitable platform for the implementation of e-business applications, however so far only limited attention was paid to Web services design. The aim of this project is to develop a design method suitable for developing a comprehensive and consistent set of Web services for a given application domain and to verify this method using a prototype implementation.

LP0561140 A/Prof H Goodall; A/Prof SL Wearing; Dr DR Byrne

Title: **Parklands, culture and communities: strategic research for building social, cultural and environmental capital in urban parklands**

2005 : \$50,000
2006 : \$45,977
2007 : \$45,077

Category: 3009 - LAND, PARKS AND AGRICULTURE MANAGEMENT

Partner Organisation(s)

Department of Environment and Conservation

Administering Institution: University of Technology, Sydney

Summary:

Parklands, Culture and Communities is an innovative collaboration between park managers and academic researchers. It will result in deeper knowledge about how cultural and ethnic diversity affects the way communities use urban parks and how they interact with each other in those parks. The project focuses initially on four groups on the Georges River in suburban Sydney: the Indigenous, Anglo, Vietnamese and Arabic-speaking communities. A study of their use of parklands will then be the basis for developing best-practice research, planning and interpretation resources to assist park managers in other locations to collaborate more effectively with their changing local users, thus enhancing positive cross-cultural relations in urban parks.

LP0560886 Dr SK Lal; A/Prof SK Halgamuge; Mr P Fischer; Dr J Metcalfe

Title: Optimising train driver vigilance system: reactivation of a fatigued driver

2005 : \$125,000

2006 : \$125,000

2007 : \$125,000

Category: 2802 - ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APA(I) Award(s): 1

Partner Organisation(s)

Integrated Vigilance Systems Pty Ltd, Sydney a subsidiary of Fischer Industries, Sydney

Administering Institution: University of Technology, Sydney

Summary:

Fatigue poses frequent problems in train drivers. The repetitive nature of the train-driving task is a precursor of fatigue. This application proposes a novel design concept for the current train driver vigilance system manufactured by our industry partner. The proposed new vigilance system will not only assure that the driver is awake by warning of fatigue states, but will also act as an important cue in the control of the train. Incorporating fatigue detection in the vigilance monitor is of commercial value to our industry partner. Furthermore, this study will help improve the safety culture of the railway environment.

LP0560600 A/Prof R Lim; Dr L Tremblay; Mr M Boake

Title: Use of effects-based bioassays to assess the endocrine disruption potential of advanced tertiary treated sewage effluent

2005 : \$58,198

2006 : \$54,698

2007 : \$47,198

Category: 3008 - ENVIRONMENTAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Veolia Water Australia

Landcare Research

Administering Institution: University of Technology, Sydney

Summary:

Water reuse will become a major option to meet increasing water demand in Australia. However, the presence of endocrine disrupting compounds (EDCs) in wastewater has been identified as a potential impediment for this practice. This project will use a combination of effects-based biological methods based on different levels of biological organisation, and chemical analysis to assess the efficacy of an advanced tertiary sewage treatment plant (ATSTP) to remove EDCs. The results will provide insights on 1. effects of mixtures of EDCs; 2. characterisation of risks of reuse of treated effluent; 3. optimisation of effluent treatment technologies to ensure industry competitiveness; and 4. developing sustainable plans to meet future water demand.

LP0560749 A/Prof DK Martin; Dr N Fertig; Dr S Valenzuela

Title: Development of planar patch-clamp electrophysiology to investigate liposome-based artificial nanosensor devices

2005 : \$33,048

2006 : \$33,048

2007 : \$33,048

Category: 2918 - INTERDISCIPLINARY ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Nanon Technologies GmbH

Administering Institution: University of Technology, Sydney

Summary:

This project aims to characterise the interaction of transport proteins with unsupported lipid bilayer membranes. This will provide

the basis for a novel biosensor utilising mechanosensitive ion channels incorporated into an artificial lipid bilayer membrane. To support this outcome, the project will develop the planar patch-clamp electrophysiology recording techniques suitable for liposomes. This provides a significant PhD training opportunity and brings an international focus to the development of planar patch-clamp electrophysiology in Australia. The project has significant commercial potential by developing both the planar patch-clamp electrophysiology techniques for liposomes and producing a novel biomimetic mechanosensitive biosensor.

LP0561214 Prof HT Nguyen; Dr N Ghevondian; Prof S Colagiuri; Dr R Aston

Title: Novel Early Warning System for Hypoglycaemia

2005 : \$80,000

2006 : \$80,000

2007 : \$80,000

Category: 2915 - BIOMEDICAL ENGINEERING

Partner Organisation(s)

AIMEDICS Pty Ltd

Viaticus Capital Pty Ltd

Administering Institution: University of Technology, Sydney

Summary:

An innovative technique will be developed for early detection of low blood glucose level (hypoglycaemia), a life-threatening complication affecting millions of people with Type 1 diabetes worldwide. Real-time analysis of the effectiveness of skin impedance, ECG (in particular heart rate and QT interval), and EEG (alpha wave) will be combined with robust adaptive neural networks to provide a novel theoretical and practical basis for developing a non-invasive hypoglycaemia monitor. This device has the potential to save lives, improve quality of life for people with diabetes and their carers, and put Australia at the forefront in this \$US5 billion pa industry.

University of Western Sydney

LP0560698 A/Prof RG Craven; Prof HW Marsh

Title: New Solutions For Maximising Secondary Indigenous Students' Full Potential: Identifying Causal Constructs That Enhance Indigenous Students' Aspirations and Educational Outcomes

2005 : \$24,148

2006 : \$24,148

Category: 3301 - EDUCATION STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Aboriginal Education Council (NSW) Inc

D'harawal Traditional Knowledgeholders' and Descendants' Council

Administering Institution: University of Western Sydney

Summary:

Indigenous students are the most disadvantaged Australians on all indicators. Indigenous students' aspirations are significantly lower in comparison to non-Indigenous peers. Given the vital importance of aspirations for predicating life opportunities this is of dire concern. Capitalising on recent advances this investigation aims to identify constructs that causally impact on Indigenous students' aspirations and educational outcomes, and test whether the pattern of relations differentially varies for Indigenous and non-Indigenous students. This will result in: Identifying new solutions for intervention, sound measurement instruments for Indigenous populations, and distinguishing effective theoretical orientations and research methodology.

LP0560501 A/Prof P Davidson; Prof J Daly; Dr K Hancock; A/Prof S Boyages; Prof J Cockburn

Title: A randomised controlled trial of motivational interviewing as a tool to enhance secondary prevention strategies in cardiovascular disease

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 3210 - CLINICAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Western Sydney Area Health Service

Administering Institution: University of Western Sydney

Summary:

While there is increasing evidence for the efficacy of cardiac rehabilitation (CR) in reducing mortality and morbidity, adherence to risk factor modification strategies are problematic for many CR patients. This project will evaluate in a randomised controlled trial the benefit of motivational interviewing (MI) in enhancing secondary prevention strategies in CR patients. Given the role of self-efficacy in predicting adherence, MI needs to be evaluated in CR. This study is significant in terms of preventative health, and its potential to improve the design and delivery of CR programs and increase patient adherence. Expected outcomes include increased adherence to cardiovascular risk modification and improved psychological well-being.

LP0560612 A/Prof K Kailasapathy

Title: **Development of mature and intense flavours in low-fat cheeses using micro-encapsulated enzyme technology**

2005 : \$74,403

2006 : \$83,696

2007 : \$89,303

Category: 2901 - INDUSTRIAL BIOTECHNOLOGY AND FOOD SCIENCES

Partner Organisation(s)

Dairy Farmers

Administering Institution: University of Western Sydney

Summary:

Obesity related diseases are escalating in Australia. Consumers, although encouraged to favour low-fat alternatives in their diet to combat obesity, find low-fat alternatives unpalatable and continue to select full-fat alternatives. There is a need to provide consumers with a full-fat flavoured low-fat cheese. The aim of this project is to develop low-fat cheese products with flavours comparable to fully ripened, mature, full-fat cheeses using microencapsulation technology. The outcome will be a rise in demand for low-fat cheese products that will reduce dietary fat intake while maintaining the positive nutritional benefits associated with cheese.

LP0560448 Prof JM Ussher; Dr PN Butow; Ms GM Batt; Dr KJ Sundquist; Mr GV Wain

Title: **An evaluation of concerns, self-perceived needs, and supportive interventions, for informal cancer carers: A comparative study of female and male carers**

2005 : \$100,000

2006 : \$100,000

2007 : \$75,000

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

The Cancer Council NSW

Carers NSW

Westmead Hospital

Administering Institution: University of Western Sydney

Summary:

Informal cancer carers experience high levels of anxiety, depression, and unmet support needs, with women carers at higher risk than men. However, little is known about the factors underlying this gender difference, and existing support services have not specifically targeted the needs of female and male cancer carers. This study will explore the concerns, self-perceived needs, and psychological wellbeing of informal cancer carers living in New South Wales, comparing the experiences of female and male carers, at different stages of the care-giving journey. Based on these findings, a program of targeted supportive interventions will be developed, and then systematically evaluated within a controlled trial.

LP0560433 Dr MH Vickers; Prof LM Wilkes; Ms B Barton

Title: **Full Time Workers Caring for Children with Chronic Illness: A National Study.**

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 3799 - OTHER STUDIES IN HUMAN SOCIETY

APA(I) Award(s): 1

Partner Organisation(s)

The Children's Hospital at Westmead

Administering Institution: University of Western Sydney

Summary:

With advances in medical technology more Australian children with chronic illness are surviving. The support needs of full time workers who care for these children are under acknowledged. This three-phased study will identify these support needs from the workers' perspective. In-depth interviews and population survey will provide data. Synthesised data will provide recommendations that health workers, employers and support services can use to develop home, community, employment and information support for these workers. Policy makers and the community can use the findings to address this complex problem of the support needs of full time workers caring for chronically ill children.

LP0560538 Prof M Vickers; Prof TI Downes; Dr J Lynch; Dr C Reid; Dr CR Harris; Dr RF Stevens; Ms P Hall; Dr TD Gilley; Mr KR Lountain

Title: **From high school to higher education: Gendered pathways in information, communication and**

computer technology education

2005 : \$52,903
2006 : \$54,536
2007 : \$54,260

Category: 3799 - OTHER STUDIES IN HUMAN SOCIETY

Partner Organisation(s)

New South Wales Department of Education and Training
New South Wales Department for Women
Victorian Schools Innovation Commission
South Australian Department of Education and Children's Services

Administering Institution: University of Western Sydney

Summary:

Serious gender-based disparities exist in participation in the Information, Communication, and Computing Technologies (ICCT) field, in both higher education and industry, with a 2004 review of Australian university participation rates identifying women as an equity target group in this field. A multi-method, multi-stage project has been design to identify the processes that lead to this gender gap. Specifically, the project will focus on students' experiences and decisions at secondary school in three states to ascertain why so few girls choose to enter university-level ICCT courses, and what strategies could be implemented in schools to remedy this problem.

University of Wollongong

LP0560280 Prof SX DOU; Dr MJ Qin; Dr AV Pan; Dr X Wang; Prof EW Collings

Title: **Development of Magnesium Diboride Superconductor Wires with High Upper Critical Field for MRI Applications**

2005 : \$169,612
2006 : \$170,861
2007 : \$174,831

Category: 2914 - MATERIALS ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

Hyper Tech Research Inc
Alphatech International Ltd

Administering Institution: University of Wollongong

Summary:

The aim of the program is to demonstrate the superconducting magnesium diboride (MgB₂) wires with improved upper critical field (H_{c2},) appropriate for large-scale applications. The basic idea will be based on the two-gap superconductivity to add well-distributed impurities which will act as scatterers, increasing resistivity, and thus H_{c2}. The core innovation of this proposal is based on the recent breakthrough in MgB₂ that was made by the CIs through nano-SiC particle doping, which achieved a record high H_{c2} in bulk form and enhancement of critical current density, J_c, in magnetic fields by an order of magnitude. The expected outcome is the development of superconducting MgB₂ wires and coils with high H_{c2} and J_c for MRI applications.

LP0561000 Prof DW Griffith; Dr RJ Eckard; Dr C Grainger; Dr H Clark

Title: **Novel, Cost-Effective Methods for Measuring Methane Emissions from Grazing Livestock**

2005 : \$86,148
2006 : \$29,348
2007 : \$29,348

Category: 3009 - LAND, PARKS AND AGRICULTURE MANAGEMENT

APA(I) Award(s): 1

Partner Organisation(s)

Dept of Primary Industry

Administering Institution: University of Wollongong

Summary:

Agriculture is second only to energy generation as a source of greenhouse gas emissions in Australia. Methane from cattle and sheep constitute 60% of these agricultural emissions. Their abatement is a win-win goal for the agricultural industry, reducing greenhouse emissions while increasing food efficiency. This project will develop a novel, cost- and-labour efficient method for on-farm measurements of the emissions of methane from free-grazing cattle and sheep in their undisturbed environment. The method will be used to assess the dependence of methane emissions on factors such as diet and the efficacy of proposed methods for abatement of methane emissions, as well as providing improved data to the National Greenhouse Gas Inventory.

LP0561079 A/Prof PN Hyland; Ms L VRAZALIC

Title: **Development and Validation of Conceptual Models and Transferable Architectures to Support Self-Sustainable Community Portals**

2005 : \$24,148
2006 : \$24,148

2007 : \$24,148

Category: 2801 - INFORMATION SYSTEMS

APA(I) Award(s): 1

Partner Organisation(s)

Empower Australia

Administering Institution: University of Wollongong

Summary:

There is growing worldwide interest in the study of community portals because of their potential to bridge the "digital divide" and promote community innovation. However, community portals are still poorly understood and often fail due to lack of adequate sustainability mechanisms. The proposed research extends our knowledge about community portals by developing formal conceptual models and transferable architectures for community portals. The project aims to use emerging modelling techniques to model the complex environment of a local community and derive an architecture based on that model. The project outcomes will include a conceptual model and transferable architecture for community portals.

LP0560335 Dr GM Schiemer; A/Prof F Naghdy; Mr TI Hurd

Title: **Haptic-Rendered Bell Synthesis for a Practice Carillon Clavier**

2005 : \$25,588

2006 : \$25,238

2007 : \$25,588

Category: 4103 - CINEMA, ELECTRONIC ARTS AND MULTIMEDIA

APA(I) Award(s): 1

Partner Organisation(s)

Olympic Carillon International

National Capital Authority

Administering Institution: University of Wollongong

Summary:

This project will explore new methods of audio synthesis that respond to haptic sensing. It seeks practical ways to control the synthesis of bell sounds using the mechanical playing action of a carillon keyboard as the human interface in a virtual instrument. Sensing technology developed will also benefit other areas of new performance media where multiple forms of sensory control are required to navigate interactive virtual environments. The project also creates new postgraduate research training opportunities in an area that crosses disciplinary boundaries between frontier technology and the creative arts.

LP0560462 A/Prof PW Wypych; Em/Prof PC Arnold; Mr C Benjamin; Mr P Jones; Ms LE Plambeck

Title: **Quantification and Modelling of Particle Flow Mechanisms in Conveyor Transfers**

2005 : \$70,000

2006 : \$70,000

2007 : \$70,000

Category: 2907 - RESOURCES ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Gulf Conveyor Holdings Pty Ltd

Administering Institution: University of Wollongong

Summary:

A critical area of solids handling and processing is the transfer of bulk material between conveyor belts. Design of conveyor transfers rely heavily on trial and error and/or experience and cannot cope with the complexities of varying particle properties and process requirements. Poor transfer designs can result in reduced QC and service life, significant maintenance/environmental costs and safety concerns. The main aims of this project are experimental and theoretical investigations into the flow of particulates through conveyor transfers. This will result in: development of a novel conveyor transfer facility; quantification of transfer parameters and data; development of models to simulate and assist in the design of complete transfers.

Victoria

Deakin University

LP0560309 Dr AF Bennett; A/Prof RC Mac Nally; Dr JW Dorrrough

Title: **Our rural wealth: using functional responses of native fauna to predict conservation values of agricultural landscapes**

2005 : \$112,395

2006 : \$53,277

2007 : \$59,024

Category: 2707 - ECOLOGY AND EVOLUTION

Partner Organisation(s)

Administering Institution: Deakin University

Summary:

The aim of this project is to develop and test a new approach for assessing the conservation value of agricultural landscapes in Australia. It is based on identifying the functional responses of the fauna to the extent and pattern of native vegetation and types and intensity of agricultural land-uses in whole landscapes. Different response types will be interpreted in relation to ecological characteristics of species. We will use this knowledge to predict the status of birds and mammals in novel landscapes in three bioregions, and test the predictions by field studies. This new landscape-level approach will help land managers assess present agricultural environments as well as evaluate scenarios for future changes in land-use.

LP0560426 Dr MB Luther; Dr RJ Fuller

Title: **Determination of key parameters and control strategies for fabric energy storage (FES) systems for the various climates of Australia**

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 3102 - BUILDING

APA(I) Award(s): 1

Partner Organisation(s)

Connell Mott MacDonald Pty Ltd

Administering Institution: Deakin University

Summary:

This research will establish the theoretical basis for the use of advanced fabric energy storage (FES) systems in commercial buildings in Australia. A thermal model of a FES will be developed and then incorporated into a full building model, so that the interaction of the FES with other building elements may be studied. The model will be validated against data from measurements taken in a commercial building. A parametric study will be carried out to determine the optimum control strategy options and design parameters for FES systems in various climates in Australia.

LP0560453 Prof MP McCabe; Dr LA Firth

Title: **The economic impact of chronic degenerative neurological disease on well-being**

2005 : \$60,000

2006 : \$60,000

2007 : \$60,000

Category: 3801 - PSYCHOLOGY

Partner Organisation(s)

Motor Neurone Disease Association of Victoria
Australian Huntington's Disease Association (Vic)
MS Society Victoria
Parkinson's Victoria Inc

Administering Institution: Deakin University

Summary:

This study is designed to determine the financial impact of chronic progressive neurological illnesses on people with these disorders and their families. Due to the nature of these illnesses and the time of onset, financial strain is a major concern for people with these disorders. This research is central to the improvement of services to address the changes in financial situation associated with these disorders and its impact. The results will lead to an understanding of factors related to financial strain, and the development of services to address the well-being of this population.

LP0560288 Prof RN Shaw; Dr HJ McDonald

Title: **Modelling the Influence of Organisational Identification and Marketing Actions on Membership Behaviour for Australian Football League Clubs**

2005 : \$130,000

2006 : \$70,000

2007 : \$75,000

Category: 3502 - BUSINESS AND MANAGEMENT

Partner Organisation(s)

Australian Football League

Administering Institution: Deakin University

Summary:

This project involves an innovative extension of the current international focus on the role of individual and organisational

identification in managing marketing relationships, from a static perspective to a dynamic systems model. This project will examine the influence of organisational marketing activities on the relationship between consumers and organisations, longitudinally over five years. A combination of experimental and quasi-experimental methods will be used to estimate the relationships between aspects of individual-organisational identification and marketing activities, and organisational affiliation, in the context of Australian Football League club membership, conducted in partnership with every AFL club nationally.

LP0560400 Prof BA Swinburn; Dr C Bell

Title: **Geelong Healthy Eating and Active Play for Under Fives**

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Barwon Health
City of Greater Geelong

Administering Institution: Deakin University

Summary:

Helping children achieve a healthier weight is a major national health priority. About 30% of 4 and 5 year old children are already overweight or obese. Action is urgently needed to prevent further increases yet there have been very few studies in the area. The Geelong Under-5s project will measure the impact of a comprehensive intervention designed to reduce the prevalence of overweight and obesity by modifying day care and kindergarten settings, by increasing the capacity of staff to teach and model healthy eating and physical activity patterns, and by educating parents at receptive moments in their child's life.

LP0560295 Dr L Wang; Prof X Wang

Title: **Modelling and Performance Evaluation of Stab and Ballistic Resistant Fabrics**

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 2903 - MANUFACTURING ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Australian Defence Apparel P/L

Administering Institution: Deakin University

Summary:

The aims of the project are to model and design stab resistant fabrics, and evaluate their stab and ballistic performance under simulated end-use conditions. Bi-component ballistic and stab resistant wearable and concealable garments will be produced and comprehensively characterised. This program is a significant first step towards developing Australian owned intellectual property for specialised protective garments for local and export markets. Results from this study will produce fundamental knowledge on stab and ballistic resistant fabrics and armours, and provide practical information on the preparation of commercially acceptable protective products.

LP0560399 Prof X Wang; Dr L Wang

Title: **Scouring and Dehairing Australian Cashmere Fibres**

2005 : \$58,657

2006 : \$60,893

2007 : \$63,127

Category: 2903 - MANUFACTURING ENGINEERING

Partner Organisation(s)

Cashmere Connections P/L

Administering Institution: Deakin University

Summary:

The project aims to develop a viable method of dehairing greasy Australian cashmere materials. Traditionally, cashmere materials are scoured or washed first, followed by dehairing to extract the useful fine cashmere fibres. This is expensive and water consumption for scouring is also high. The current project will overcome the difficulties in dehairing greasy cashmere and optimise the process of scouring dehaired cashmere fibres. Technology developed in this project will reduce scouring cost and water consumption, improve dehairing yield, and increase the flexibility of cashmere scouring and processing, leading to a more sustainable Australian cashmere industry.

LP0560363 Prof A Worsley

Title: **Addressing the food and health needs of ageing Baby boomers.**

2005 : \$65,000
2006 : \$65,000
2007 : \$65,000

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Sodexo
Sanitarium Health food company

Administering Institution: Deakin University

Summary:

This project will facilitate the future provision of food and health promotion services for the "baby boomers" (aged 55 to 70 years). Three consecutive surveys will be administered to a random sample of 1500 middle-aged people which will examine their food consumption and health habits; the psycho social determinants of these behaviours, and, their retirement preparedness. The creation of the project data base will facilitate the monitoring of future changes and trends in this representative sample of late middle aged people.

La Trobe University

LP0560838 Dr YM Parsons; A/Prof HW Stokes; Mr V Pettigrove

Title: **Environmental stress profiling (ESP): Molecular profiling of sediment microbial communities for improved biological monitoring in aquatic ecosystems**

2005 : \$24,148
2006 : \$24,148
2007 : \$24,148

Category: 2705 - ZOOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Melbourne Water

Administering Institution: La Trobe University

Summary:

Water resource management is a key issue for environmental sustainability in Australia and strategies that include ecological principles are important to improve present conditions and reduce further degradation. Current biomonitoring methods suffer from a low degree of sensitivity that can seriously impact their effectiveness as early warning signals of ecological disturbance. We propose to combine molecular and ecotoxicological assessment of the effect of zinc toxicity on microbial communities to provide rapid pollution sensitive bioassessment. Our research will lead to a better understanding of the cause and effect of heavy metal pollution within aquatic ecosystems and greater insight on how to reduce and repair the negative effects.

LP0560345 Prof S Reilly; Mr HJ McCusker; Dr PA Eadie; Mrs B Billimoria

Title: **Detecting language disorder in children with a language background other than English: the role of the Dynamic Assessment.**

2005 : \$71,901

Category: 3210 - CLINICAL SCIENCES

Partner Organisation(s)

Catholic Education Office - Melbourne

Administering Institution: La Trobe University

Summary:

17.6% of Australia's culturally diverse population are born in non-English speaking countries. Recently, reports of unprecedented growth in the diagnosis of children with language disorders have emerged. There are difficulties in accurately identifying children at risk of language disorder. We hypothesize that some children with language backgrounds other than English (LBOTE) are mis-identified. If true, then scarce resources are being misdirected and inappropriately allocated, depriving children with true language disorder of support and intervention. The aim of this project is to determine the utility of the Dynamic Assessment to discriminate normal language learning from language learning difficulties in LBOTE children.

Monash University

LP0560511 Dr FP Bierlein; Dr L Ailleres; Mr PJ O'Shea

Title: **Application of 3D Modelling to Mineral Exploration Under Cover: an Example from the Woods Point Region, Victoria**

2005 : \$30,000
2006 : \$30,000
2007 : \$24,148

Category: 2802 - ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APA(I) Award(s): 1

Partner Organisation(s)

Geological Survey of Victoria
Goldstar Resources NL

Administering Institution: Monash University

Summary:

This project aims to develop and test cost-effective tools in understanding and exploring for buried mineral deposits. We will apply our research via a) constructing three-dimensional models to analyse, characterise and compare ore system geometries, b) constraining structural controls that lead to mineralisation in a variety of settings, c) development and testing of fluid properties, and d) integration of geological, structural and geochemical datasets to predict favourable sites for gold mineralisation. This project will result in a greatly improved understanding of the formation of a range of gold deposit styles, and further strategic alliances between Monash University, the Geological Survey of Victoria and exploration companies.

LP0560867 Dr A Bouazza

Title: Development of a new technique to improve very soft soils using geogrid wrapped stone columns

2005 : \$24,148
2006 : \$24,148
2007 : \$24,148

Category: 2908 - CIVIL ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Frankipile Australia Pty. Ltd.

Administering Institution: Monash University

Summary:

Many large Australian infrastructure projects will be developed in regions with inherently poor soil conditions. Port developments, for instance, are by their nature located in river estuaries which are characterised by deep deposits of soft alluvial soils. Many highway projects also traverse low-lying ground or coastal regions with soft soil conditions. This project will develop a novel technique to improve the engineering characteristics of very soft soils (shear strength lower than 15 kPa) by using geogrid wrapped stone columns. The effectiveness of this technique will be investigated in both small scale laboratory tests and field trials.

LP0560381 Dr HW Chan; Prof RW Faff; Prof Dr P Kofman

Title: Cycles and Size: Long Term Valuation and Investment Performance

2005 : \$58,141
2006 : \$31,392
2007 : \$20,873

Category: 3503 - BANKING, FINANCE AND INVESTMENT

Partner Organisation(s)

Acorn Capital Ltd

Administering Institution: Monash University

Summary:

This project will significantly enhance our understanding of the cyclical variation in the returns and volatility of size-related equity classes. A better understanding of these cyclical phenomena may also lead to improvements in the asset allocation process, in particular the investment in medium- and small-sized enterprise shares. The current neglect by analysts and reluctance of institutional investors to research and invest in this sizable market segment offers significant opportunities for linkage research. This project will focus on the valuation, (i)liquidity, and macroeconomic sources of momentum profits as they related to the economic cycle, across the size spectrum.

LP0560652 Dr O El-Kabbani

Title: Studies on the stereospecific interaction between aldose reductase and inhibitor

2005 : \$42,907
2006 : \$42,907

Category: 2701 - BIOCHEMISTRY AND CELL BIOLOGY

Partner Organisation(s)

Sanwa Kagaku Kenkyusho Co. Ltd.

Administering Institution: Monash University

Summary:

There is no therapy specific for treatment of diabetes complications accepted worldwide. The enzyme aldose reductase has shown promising results as a drug target for preventing or delaying the onset of the complications. The structures of human aldose reductase holoenzyme in complex with stereoisomers of the potent inhibitor Fidarestat will be determined at high resolution in order to elucidate the binding modes responsible for the differences in their inhibitory potencies. The results may lead to the design of better inhibitors of the enzyme for the treatment of diabetes sufferers, at least until better methods for maintaining metabolic control are developed.

LP0560992 Prof RW Faff

Title: **Financial Risk Tolerance: Gender, Market Stress and Related Issues**

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 3503 - BANKING, FINANCE AND INVESTMENT

APA(I) Award(s): 1

Partner Organisation(s)

FinaMetrica Limited

Vanguard Investments Australia

Administering Institution: Monash University

Summary:

Financial risk tolerance (FRT) refers to an investor's attitude towards risk - the uncertainty they are willing to accept when making financial decisions. This project will explore: (a) the role/impact that an aging/female dominated society will have and (b) the behaviour/nature of FRT around times of 'market stress' (eg market crashes). We will do this using the extensive database of FinaMetrica, initially on Australian data, extending to the US and UK. FRT is fundamental to advice financial planners provide clients - affecting long-term portfolio decisions/retirement planning. Improving understanding of FRT will greatly enhance the future welfare of all.

LP0560782 Dr FJ Farrelly; Prof PG Quester; Dr MB Beverland

Title: **A model of fan involvement, participation and loyalty: a mixed method study on fan behaviour and management in Basketball.**

2005 : \$32,000

2006 : \$30,000

2007 : \$30,000

Category: 3502 - BUSINESS AND MANAGEMENT

APA(I) Award(s): 1

Partner Organisation(s)

Basketball Australia/National Basketball League

Administering Institution: Monash University

Summary:

This study will build a model of sport fan loyalty in the context of the National Basketball League using ethnographic and survey methods. This will develop a more complete understanding of motives and drivers of fan involvement, participation and loyalty. We will use this to examine the impact of marketing activity on fan loyalty, and to generate recommendations for sports organisations and government agencies seeking to engender greater interest and interaction in sport, particularly amongst young Australians. A further aim is to develop a more comprehensive understanding of consumer loyalty than the limited view that presently exists in the marketing literature. The study will be carried out via two APAL under the supervision of the CIs.

LP0560272 Prof B Fildes; Dr JL Charlton; Prof M Rizzo; Dr J O'Day; Dr MS Odell; Mr L Sparke

Title: **Vision Impairment and Fitness to Drive**

2005 : \$136,000

2006 : \$138,000

2007 : \$136,000

Category: 3801 - PSYCHOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Holden Innovation

VicRoads

Land Transport Safety Authority

Swedish National Road Authority

Administering Institution: Monash University

Summary:

Vision is fundamental to driving. Intuitively vision impairments will significantly affect fitness to drive. However the relationship between vision and crash risk is not well understood and current tests are unreliable. This study will describe the way in which specific vision conditions affect driving performance. The study will examine the effects of visual field loss on drivers' ability to monitor information, allocate attention and minimise the effect of distractions. Outcomes of the study will enable the development of evidence-based guidelines for assessment of vision for driving and effective countermeasures to enhance mobility and reduce crash risk.

LP0561064 Prof MT Hearn; Dr L Spiccia; Dr LF Iversen; Dr CB Schiodt; Dr A Staby; Dr T Christensen; Dr PF Nielsen

Title: **Novel Technologies for the Purification of Recombinant Proteins**

2005 : \$322,169

2006 : \$267,176

2007 : \$274,995

2008 : \$295,681

Category: 2599 - OTHER CHEMICAL SCIENCES

Partner Organisation(s)

Novo Nordisk Pharmaceuticals Pty Ltd

Administering Institution: Monash University

Summary:

Availability of enabling technologies for the large-scale purification of recombinant proteins is an essential requirement of the biotechnology industry. This project aims to integrate two concepts in molecular biorecognition. New modalities of immobilised metal ion affinity chromatography will be linked with the selection of new types of peptide affinity handles that can be inserted by genetic engineering methods into proteins produced by biotechnological procedures. The approach followed then allows these handles to be removed following isolation of the target protein. This project could thus lead to a considerable advance in the manufacture of recombinant proteins intended for human therapy.

LP0560518 A/Prof RC Mac Nally; Dr AF Bennett; Dr JW Dorough; Dr M Bevers; Dr PA Vesk

Title: **Models for biodiversity futures for massively altered agricultural landscapes**

2005 : \$130,257

2006 : \$127,357

2007 : \$86,623

Category: 2707 - ECOLOGY AND EVOLUTION

APDI Dr PA Vesk

Partner Organisation(s)

Department of Sustainability and Environment
North Central Catchment Management Authority
North East Catchment Management Authority
Mallee Catchment Management Authority
Goulburn-Broken CMA

Administering Institution: Monash University

Summary:

Problems with soil and water and declines in native biodiversity have been linked to clearance of native vegetation. We consider future landscapes with substantially more native vegetation than at present to deal with these natural resource problems. Plantings will be slow to mature so optimal planning for landscape revegetation must consider how long it will take for the new vegetation to provide suitable habitat, both at patch and landscape scales. We will develop an optimization framework incorporating models of vegetation maturation and biotic responses to aid designs for placement and scheduling of replantings to give the best outcomes for biodiversity management given constraints on amounts of retired area and costs of implementation.

LP0560537 Prof J Ozanne-Smith; Dr RP Pope

Title: **Optimising the Utility of Injury Surveillance Systems for Injury Prevention in Active Populations**

2005 : \$26,293

2006 : \$24,148

2007 : \$24,148

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Defence Health Service (Defence Injury Prevention Program)

Administering Institution: Monash University

Summary:

Promotion of physical activity is a key national health priority and a major focus for the Australian Defence Force to achieve and maintain operational fitness. Unfortunately, these goals are associated with the negative effects of increased injury occurrence and substantial related costs. Civilian and military injury surveillance systems inform injury prevention priorities and interventions but research is required to maximise their performance and utility. The project aims to 1) determine the extent to which current systems meet user requirements 2) assess utility and reliability of these systems specifically for active populations and 3) develop recommendations for future systems development and improved user application.

LP0560847 Dr AP Paplinski; Prof B Srinivasan; Mr CE Esson

Title: **Fruit shape estimation from stereoscopic images in real time**

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 2802 - ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APA(I) Award(s): 1

Partner Organisation(s)

Colour Vision Systems Pty Ltd

Administering Institution: Monash University

Summary:

The research aims at improving the process of automatic fruit inspection and classification.

Existing stereo vision algorithms to extract depth information are unsuitable for real time calculations.

The increasing complexity and reducing cost of field programmable gate arrays along with the development of algorithms that have a high degree of parallelism and locality has created the possibility of performing the calculations required in real time.

This projects aims to investigate the suitability of the various stereo vision algorithms available in the literature for real time hardware implementation with application to fruit shape estimation it real time.

LP0560275 Prof JC Richards; Dr CL Hamilton; Mr V Kaldo; Prof G Andersson

Title: An internet-based intervention program for distress associated with tinnitus in an industrial setting.

2005 : \$78,000

2006 : \$72,000

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

Partner Organisation(s)

BP Australasia

Administering Institution: Monash University

Summary:

This project involves a randomised controlled trial of an internet-based intervention for distress associated with tinnitus in an industrial setting. This study is significant because it is the first to investigate the effectiveness of an internet-based program for workers with tinnitus living in metropolitan, regional and rural areas of Australia and New Zealand. Changes will be assessed on work performance (e.g. job satisfaction), tinnitus-related distress, negative affect, and quality of life. It is expected that workers accessing the internet-based intervention will show significant improvements on all measures at post-intervention with improvements maintained at six-month follow up.

LP0560526 Prof JI Rood; Prof M Brown

Title: Genetic manipulation of Clostridium sporogenes

2005 : \$80,000

2006 : \$80,000

Category: 2703 - MICROBIOLOGY

Partner Organisation(s)

GBS Venture Partners

Administering Institution: Monash University

Summary:

The overall objective of this project is to develop genetic methods for the manipulation of the anaerobic bacterium Clostridium sporogenes. Specifically, the project aims to manipulate this microorganism so that genes encoding enzymes that convert prodrugs to anticancer drugs can be introduced and stably maintained on its chromosome. The significance of the project is that the resultant bacteria, and others constructed using these methods, will then be able to be tested for their ability to act as specific drug delivery systems for use in the treatment of solid tumours.

LP0560807 Prof DE Schauder; Dr CM Williamson

Title: Overcoming barriers to effective Internet use by community sector organisations

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 2801 - INFORMATION SYSTEMS

APA(I) Award(s): 1

Partner Organisation(s)

VICNET

Administering Institution: Monash University

Summary:

Providing adequate Internet access for rural and regional Australia is an important priority for governments at all levels. For communities in these areas to benefit from the information economy and realise a continuing improvement in their social, economic and environmental wellbeing, such access must be both affordable and sustainable. Community organisations make an important contribution in these areas and this research will examine the questions how they adopt such innovations, and how they make use of the Internet to further interaction with their community. It will identify and examine barriers to such use, relating the barriers to both their root causes and the benefits / behaviour on which they impact.

LP0561084 Prof RL Smyth; Prof CT Nyland; A/Prof JC Zhu; Dr GG Ramia; Dr G Davies

Title: **The Social and Business Implications of Extending China's Social Security System**

2005 : \$44,801

2006 : \$60,201

2007 : \$28,605

Category: 3602 - POLICY AND ADMINISTRATION

Partner Organisation(s)

Shanghai Municipal Labour and Social Security Bureau

Administering Institution: Monash University

Summary:

The Shanghai Bureau of Labour and Social Security (SBLSS) has introduced regulations that extend social security coverage to employees (including migrants) resident and/or working within the municipality of Shanghai but outside the city limits. These regulations are part of a reform program that aims to develop a comprehensive and sustainable social security system that will provide coverage to all of China's population; and one that draws on Australia's experience with social security management. The Bureau has asked us to participate in assessing the reforms, a research opportunity offered to no other body of scholars inside or outside China.

LP0560620 Prof RJ Summers; Prof GW Tregear; Dr RA Bathgate; Dr CS Samuel; Dr X Du; A/Prof M Tang; Dr CP Judkins; Dr X Gao

Title: **Relaxin: molecular mechanisms of action in the reversal of fibrosis**

2005 : \$125,000

2006 : \$125,000

2007 : \$125,000

Category: 2706 - PHYSIOLOGY

APA(I) Award(s): 1

APDI Dr X Gao

Partner Organisation(s)

BAS Medical Inc

Administering Institution: Monash University

Summary:

Defects in relaxin and relaxin receptors are increasingly implicated as a cause of fibrosis which is associated with many disease processes. This study will examine the molecular mechanisms linking relaxin and fibrosis and will determine whether relaxin can be used to reverse the condition.

LP0561073 Dr X Zhao; Prof KR McLaren; Dr GR Griffith; Dr JD Mullen

Title: **Evaluating Research Policy in Australian Broadacre Agriculture - Accounting for Interactions between the Beef, Sheep Meat, Wool, and Grains Industries**

2005 : \$50,000

2006 : \$48,000

2007 : \$24,148

Category: 3402 - APPLIED ECONOMICS

APA(I) Award(s): 1

Partner Organisation(s)

NSW Agriculture

Administering Institution: Monash University

Summary:

This project studies the returns from R&D investments in Australia's broadacre agricultural industries and equity in the funding of these investments. The contribution is to explicitly recognise the interaction across cattle, sheep and cropping enterprises, while past analyses have been single industry approach. Econometric models of multi-output profit function for Australian broadacre agriculture and demand systems involving these products are estimated. A multi-industry equilibrium displacement model is developed to simulate the incidence of both costs and returns of agricultural R&D, with cross-industry interaction recognised. The project is likely to contribute to the way agricultural research is administered and funded in Australia.

RMIT University

LP0560361 Prof MC Burry

Title: **Technology Transfer through Embedded Research within Architectural Practice: the Creation of an Australian Practice-Based Architectural Research and Development Network**

2005 : \$159,172

2006 : \$161,049

2007 : \$162,983

Category: 3101 - ARCHITECTURE AND URBAN ENVIRONMENT

APA(I) Award(s): 4

Partner Organisation(s)

McGauran Gianinni Soon
Ove Arup Pty Ltd
Black Kosloff, Knott Architects P/L
TERROIR Pty Ltd

Administering Institution: RMIT University

Summary:

This research will apply Parametric Design to a range of projects within architecture and construction engineering practice to assess the benefits. To what extent does a parametric approach extend opportunities for flexible, stream-lined and intelligent design and construction in practice? This research will test parametric resolution of a range of real design problems that mirror the work of innovative Australian practices. Through embedded postgraduate research within practice, this project will give Australian academy and practice the opportunity to lead in understanding the conditions for successfully applying advanced techniques in design practice.

LP0560760 Dr CW Chamberlain

Title: **Ten Thousand Homeless People**

2005 : \$77,970

2006 : \$41,069

Category: 3602 - POLICY AND ADMINISTRATION

Partner Organisation(s)

HomeGround Services
The Salvation Army Crisis Services

Administering Institution: RMIT University

Summary:

Effective interventions to assist homeless people depend upon understanding the reasons why households become homeless. This research will investigate people's pathways into and out of the homeless population, and explain why some households experience a short period of homelessness, whereas others remain homeless for a sustained period of time. The research will also investigate why some "at risk" households become homeless. This will be the largest data base ever analysed on homeless pathways in Australia (N=10,000). The research will provide guidance for policy makers and service providers for some years to come.

LP0560386 A/Prof AC Lawrie; Mr NG Walsh

Title: **New strategies to save the Critically Endangered plant Grampians Pincushion Lily (*Borya mirabilis*, Liliaceae/Boryaceae) from extinction**

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 2704 - BOTANY

APA(I) Award(s): 1

Partner Organisation(s)

Parks Victoria
Royal Botanic Gardens Melbourne

Administering Institution: RMIT University

Summary:

The Grampians Pincushion Lily (*Borya mirabilis*) is Critically Endangered (only 7 remain). Efforts to increase its population and range and maintain or enhance its genetic diversity by standard methods have had only modest success so far. The aim of this proposal is to create more innovative methods in a deeper, more research-based approach to solving these problems by using greater knowledge and understanding of its biology and reproduction. In particular, plant tissue culture and molecular biology will allow us to devise more effective approaches and potentially create methods that could be applied to other endangered species, particularly *Borya* and its relatives.

LP0560869 A/Prof DC Mercer; A/Prof TB Dalton; A/Prof RA Hyde

Title: **Re-imagining the Australian suburb - Ecological Sustainability and Urban Development**

2005 : \$48,296

2006 : \$48,296

2007 : \$48,296

Category: 3101 - ARCHITECTURE AND URBAN ENVIRONMENT

APA(I) Award(s): 2

Partner Organisation(s)

VicUrban

Administering Institution: RMIT University

Summary:

The purpose of this research project is to examine the contribution that Aurora, a new master- planned community in Melbourne, can make to the ecological sustainability of housing developments on the urban fringe. VicUrban, the Victorian Government land development agency responsible for the Aurora project, initiated the study to facilitate a process of evaluation, reflection and continuous improvement in the way that it implements sustainability in its strategic planning and everyday operations. The expected outcome is a framework for planning and implementing ecological sustainability in urban development, including organizational processes and sustainability indicators.

LP0560702 A/Prof L Padgham; Dr A Song; Dr AC Lucas

Title: Planning and Learning in BDI Agents

2005 : \$75,000

2006 : \$75,000

2007 : \$75,000

Category: 2802 - ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

Partner Organisation(s)

Agent Oriented Software

Administering Institution: RMIT University

Summary:

Intelligent agents are becoming increasingly important in a range of complex and dynamic applications. BDI agent systems are extremely successful robust and flexible, in real time applications. However they are not actually able to do any traditional planning. Nor do they incorporate learning. This project will incorporate learning and planning capabilities into a BDI system framework, in a focussed and integrated manner that allows benefits from these approaches where appropriate, but without compromising the real-time capability of existing BDI systems. Learned information and new plans will then be fully incorporated for later use by the standard BDI mechanisms.

LP0560408 Dr I Patnaikuni; Dr S Setunge; Prof Y Xie; Dr DB Akolekar

Title: Blended calcium-magnesium binders for improved and more sustainable building materials

2005 : \$60,000

2006 : \$60,000

2007 : \$60,000

Category: 2908 - CIVIL ENGINEERING

Partner Organisation(s)

TecEco Pty Ltd

Administering Institution: RMIT University

Summary:

The project will explore the potential of new blended calcium-magnesium cements to significantly improve the sustainability and properties of concrete produced with Portland cement (PC). Concrete based on PC contributes to around 10% of global anthropogenic carbon dioxide. PC Concrete has many weaknesses such as rapid deterioration when exposed to aggressive environments, delayed reactions and early age cracking caused by shrinkage. The proposed research will investigate ways of using the new binder system to overcome these weaknesses and to reduce carbon dioxide emission. The expected outcome will be a proven technology for manufacturing new building materials that are environmentally more sustainable and with enhanced properties.

LP0560688 Dr F Zhao; Prof J Dalrymple; Dr R Gilmore

Title: Enhancing Australian Universities' Research Commercialisation Performance

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 3502 - BUSINESS AND MANAGEMENT

APA(I) Award(s): 1

Partner Organisation(s)

AIC

Administering Institution: RMIT University

Summary:

The primary aims of the project are to develop a detailed understanding of the systematic barriers to research commercialisation within Australian universities and to promote innovation within the commercialisation through the adoption of effective processes. The project will also explore the needs of the smaller and regional universities to develop effective strategies that will enhance their research commercialisation capacity and performance through the promotion of industry uptake of their research outcomes.

Swinburne University of Technology

LP0561156 Prof ED Doyle; Prof Dr G Lu; Dr YC Wong; Prof PR Munroe; Dr JM Cairney

Title: Improving Tribological Performance Through The Control of Surface Microstructure Using Plasma

Based Surface Engineering Technologies

2005 : \$48,296
2006 : \$48,296
2007 : \$48,296

Category: 2914 - MATERIALS ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

Bishop Innovation Ltd

Administering Institution: Swinburne University of Technology

Summary:

This project aims to improve the tribological performance of a new type of rotary valving system required to operate under marginal boundary lubrication conditions. The intention is to develop innovative plasma based methods of generating inherently low friction modified surfaces through the control of microstructure. The latter will be analysed using focused ion beam milling. The performance of modified surfaces will be assessed in simulated friction and wear tests. Success could lead to more widespread adoption of the technology within the automotive industry with benefits for more efficient use of energy and cleaner exhaust emissions.

LP0561234 Dr FM Malherbe; Dr IH Harding; Dr RF Cross

Title: Investigation of the variation and origin of contaminants present in recycled PET

2005 : \$24,148
2006 : \$24,148
2007 : \$24,148

Category: 2599 - OTHER CHEMICAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Visy Industries

Administering Institution: Swinburne University of Technology

Summary:

Recycling and waste management are of ever increasing concern in today's consumer society and our capacity to recycle waste is directly reliant on our ability to lower contamination levels and ensure consumer safety. Using novel analytical techniques, this project aims to characterise contaminants found in recycled PET and identify the source(s) of this contamination. Ultimately this will lead to a reduction in recycled PET contamination levels, and allow a more complete recycling process. The global objective being to generate enough relevant scientific data to assist Visy in its endeavours to achieve higher levels of environmental performances and sustainable product development.

LP0560944 Mr PW Mares

Title: Pacific Labour and Australian Horticulture

2005 : \$50,000

Category: 3402 - APPLIED ECONOMICS

Partner Organisation(s)

Oxfam Community Aid Abroad

Economic Development Unit, Swan Hill Rural

Sunraysia Mallee Economic Development Board

Administering Institution: Swinburne University of Technology

Summary:

This 18-month research project will investigate the costs and benefits of increasing labour mobility between the Pacific and Australia, including the feasibility of a seasonal labour program to employ agricultural workers from Pacific Island nations in the Swan Hill/Mildura region during periods of peak labour demand. It will forge a ground-breaking collaboration between an international development agency and local government to investigate how such a scheme might contribute simultaneously to economic and social development in Pacific Island nations (through remittances and skills transfers) and in regional Australia (by improving the labour supply to key horticultural industries).

LP0560472 Prof CR Nagarajah; Dr A Bab-Hadiashar

Title: On Line Real Time Inspection of Vehicle Structures

2005 : \$100,000
2006 : \$80,000
2007 : \$90,000

Category: 2802 - ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APA(I) Award(s): 1

Partner Organisation(s)

Ford Motor Company of Australia Ltd

Administering Institution: Swinburne University of Technology

Summary:

The aim of this project is to develop an automated, on-line, real-time, inspection system that can detect incorrect placement or absence of specific components on the underside of a vehicle structure. The inspection system is to be integrated with a factory wide quality control and information gathering system. Development of an automated inspection system will enable the reliable identification of defects and tracking of quality levels in the final assembly station. The expected outcome is the design and implementation in prototype form, of an intelligent, automated inspection system that can accommodate a wide range of product variants.

The University of Melbourne

LP0560359 Dr F Anderson; Dr GR Trembath

Title: **Witnesses to War: Australian War Correspondents from the Boer to the Gulf War**

2005 : \$75,000

2006 : \$72,494

2007 : \$72,494

Category: 4301 - HISTORICAL STUDIES

APDI Dr GR Trembath

Partner Organisation(s)

C.E.W. Bean Foundation

National Library of Australia

Administering Institution: The University of Melbourne

Summary:

This national project will be the first study to examine the collective history of Australian journalists and photojournalists who have covered major wars and international conflicts from the Boer War to the "war on terror". It will be a timely and path breaking contribution to history, offering a new understanding of key issues including the journalists' experiences; the discourses that defined Australian national identity; truth and mythmaking; war correspondents' influence on public commemoration and how they shaped attitudes to war, allies, enemies and race; how reporting changed; and the role of political and military censorship.

LP0560294 Prof AJ Baker; Mr JD Gregory

Title: **PHYTOREMEDIATION OF BIOSOLIDS AND SOILS CONTAMINATED WITH HEAVY METALS AT THE WESTERN TREATMENT PLANT, WERRIBEE**

2005 : \$103,815

2006 : \$106,160

2007 : \$108,502

Category: 2911 - ENVIRONMENTAL ENGINEERING

Partner Organisation(s)

Melbourne Water

Administering Institution: The University of Melbourne

Summary:

This project will provide a scientifically-sound basis for the practical implementation of phytoremediation technology to remove or stabilize metal and metalloid contaminants in soils and biosolid stockpiles at Melbourne Water's Western Treatment Plant at Werribee. Through glasshouse and field trials it will identify plants suitable for the use in large-scale phytoremediation of biosolids and soils to which these have been applied, underpinned by a greater understanding of the controls of contaminant bioavailability.

LP0560398 Dr MM Brown; Dr CS Ross; Mr P Newton-John

Title: **Post-release support for women prisoners - processes of psychological and social transition**

2005 : \$21,397

2006 : \$20,464

2007 : \$20,901

Category: 3904 - LAW ENFORCEMENT

Partner Organisation(s)

Victorian Association for the Care and Re-settlement of Offenders

Administering Institution: The University of Melbourne

Summary:

The failure of women prisoners to make a successful transition back to the community is one of the most significant problems of modern penology. Woman to Woman is an innovative mentoring and post-release support program developed by the Victorian Association for the Care and Resettlement of Prisoners. The goal of the research is to study how post-release support is delivered within a mentoring relationship. The research uses interviews and surveys to examine the way that women releasees deal with the material, social and personal problems they face in the difficult weeks and months after release. The mentoring relationship is considered from the perspective of both the women releasees and the mentors.

LP0560443 Prof Dr MA Burgman; Dr PJ Sunnucks; Dr AC Taylor; Dr R van der Ree

Title: Quantifying and mitigating the barrier effect of roads on the movement and dispersal of wildlife

2005 : \$170,000
2006 : \$170,000
2007 : \$150,000

Category: 2707 - ECOLOGY AND EVOLUTION

APA(I) Award(s): 2

Partner Organisation(s)

Australian Research Centre for Urban Ecology
Vic Roads

Administering Institution: The University of Melbourne

Summary:

In fragmented landscapes, wildlife need to move between habitat patches to exchange genes, increase the size of declining populations and recolonise areas where animals have become extinct. For many species, roads may act as barriers that prevent or limit dispersal, potentially isolating some habitats. In this study, we aim to quantify the extent to which major highways in regional Australia form a barrier to the movement of mammals and invertebrates. We will then test the effectiveness of measures that may facilitate safe crossing by measuring their rate of use, reduction in road kill and increase in population viability. This information can then be used to construct major roads that are more environmentally sustainable.

LP0561075 Prof Dr MA Burgman; Dr A Boxshall; Dr RI Beilin; Dr LB Flander

Title: Hazard identification, risk assessment and decision analysis for conservation and management of Australian marine parks.

2005 : \$30,276
2006 : \$68,060
2007 : \$77,707

Category: 3008 - ENVIRONMENTAL SCIENCES

Partner Organisation(s)

Parks Victoria

Administering Institution: The University of Melbourne

Summary:

Victoria is the first jurisdiction in the world to proclaim an entire system of marine protected areas at once. The new management responsibilities have created imperatives for robust, scientifically defensible approaches to identifying threats, setting management priorities and developing monitoring systems. This project will develop, for the first time, a risk assessment protocol that has due regard for the perception of risks by individuals, and ensures that stakeholder values are an intrinsic part of decision-making. The protocol will create a system that stays faithful to the priorities of those who bear the risks, while using technical methods to ensure that models are consistent and that monitoring provides pertinent information.

LP0560863 Ms KJ Donelan; A/Prof AM O'Brien; Mr B New; Mr D Everist

Title: Transformative arts education partnerships: a creative approach to whole school renewal

2005 : \$24,148
2006 : \$24,148
2007 : \$24,148

Category: 3302 - CURRICULUM STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Debney Park Secondary College
SCRAYP Youth Arts With an Edge

Administering Institution: The University of Melbourne

Summary:

This project investigates a school transformation and curriculum initiative through an arts partnership between a culturally diverse inner city secondary school, a community performing arts company and arts education researchers. The project will explore how the arts can offer multiple and alternative routes to academic achievement and personal well-being for disempowered and disenfranchised teenagers at school. An adjunct to individual empowerment is community strengthening through enhanced citizenship and community connectedness. The study focuses on a single complex ethnically diverse research site and offers the opportunity for innovative research collaboration between students, teachers, academic researchers and the community.

LP0560684 Prof RJ Evans; Dr M Kuijper; Prof IM Mareels; Dr AN Burkitt; Prof MJ Cook; Dr DB Grayden; Mr D Burton

Title: Prediction of epilepsy seizure onset using nonlinear analysis of EEG recordings

2005 : \$120,406
2006 : \$129,175
2007 : \$131,915
2008 : \$73,619

Category: 2802 - ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APA(I) Award(s): 2

Partner Organisation(s)

St Vincent Hospital
Compumedics Limited
Bionic Ear Institute

Administering Institution: The University of Melbourne

Summary:

This project will develop the theory and algorithms for reliable and robust prediction of the onset of epileptic seizures and the characterisation of epileptic seizures based on EEG data. Our interdisciplinary team consists of neuroscientists and systems engineers supported with clinicians and software developers. The team will develop the theory and design, implement and evaluate decision support software that is able to interpret eeg data and present epilepsy relevant information to clinicians and patients. Our methods are based on statistical signal processing, nonlinear dynamics (bifurcation and time-series methods) and systems engineering (system identification, adaptive methods).

LP0560639 Prof R Fincher; Prof PH Carter; Dr P Tombesi

Title: **Transnational and temporary: place-making, students and community in central Melbourne**

2005 : \$108,828
2006 : \$110,000
2007 : \$110,000

Category: 3101 - ARCHITECTURE AND URBAN ENVIRONMENT

APA(I) Award(s): 1

Partner Organisation(s)

Department of Victorian Communities
City of Melbourne

Administering Institution: The University of Melbourne

Summary:

Fostering a community in a place is place-making. When many residents are temporary and new arrivals, like tertiary students in central Melbourne, place-making acknowledging current and past residents is complex. This project will develop an innovative place-making strategy in central Melbourne, centred on enhancing the public-private interactions residents have in built spaces and social relations. For temporary residents, public-private interactions have greater significance than for long-term residents more settled in their networks of belonging. Outcomes will be: new policy frameworks of institutional partnerships, building morphology and public space design; workshops with stakeholders; and articles in scholarly journals.

LP0560697 Dr Y Kashima; Dr M Wakefield

Title: **Narrative Social Influence: Narrative Communication as an Effective Means of Public Health Campaign**

2005 : \$46,563
2006 : \$49,148
2007 : \$49,923

Category: 3801 - PSYCHOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

The Cancer Council Victoria

Administering Institution: The University of Melbourne

Summary:

Mass media has been used for public health campaigns with varying degrees of success. This project aims to improve their effectiveness in modifying public attitudes and behaviour to reduce the risk of life style diseases such as cancer, stroke, and heart disease. In particular, the project investigates the effectiveness of narrative as a means of social influence by examining whether it can effectively communicate an appropriate health promoting behaviour to the public, while encouraging people to disseminate the message to others interpersonally, so that not only mass media but also the community itself acts as an agent of social influence.

LP0560779 A/Prof JE Keeffe; Dr E Lamoureux; Dr R Misajon; Ms J Gallo

Title: **Vision impairment and quality of life: The development of a new education and self-management program**

2005 : \$70,000
2006 : \$70,000
2007 : \$70,000
2008 : \$60,000
2009 : \$60,000

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Vision Australia Foundation

Administering Institution: The University of Melbourne

Summary:

Vision impairment affects participation in daily living and quality of life. To encourage health aging and meet the needs of an increasing number of older people requiring vision-related services, a self-management program is proposed. It aims to educate participants about low vision, self-management strategies (problem-solving skills, ways of coping emotionally), and

self-care. The program is a bio-psychosocial approach designed to empower individuals to manage low vision effectively, increase self-efficacy, maintain good health and improve life quality. The results will be used to develop an improved model of care for people with impaired vision.

LP0560573 A/Prof B Lukas; A/Prof GJ Whitwell; Prof RE Widing

Title: **Idea Sources for Product Innovation in Australian Frontier Technology: The Case of the Australian IT Industry**

2005 : \$24,148
2006 : \$24,148
2007 : \$24,148

Category: 3502 - BUSINESS AND MANAGEMENT

APA(I) Award(s): 1

Partner Organisation(s)

Hansen Corporation

Administering Institution: The University of Melbourne

Summary:

The source of new product ideas, and how new ideas are generated, is a research area that is not well understood in the management literature and frontier industries such as information technology. The aim of the proposed study is to identify and compare what idea sources (e.g., competitor sources or customer sources) are most useful for Australian firms to generate breakthrough product innovations in frontier industries (in this case the IT industry). It also aims to improve our theoretical understanding of the link between market orientation and innovation sources.

LP0560523 A/Prof JS McCalman; Dr JD Cash; A/Prof DS Garden; Dr RA Robins; A/Prof BL Finlayson; Dr RN Jones

Title: **Science and Citizenship: Democracy in the age of science-mediated risk**

2005 : \$80,000
2006 : \$68,296
2007 : \$68,296

Category: 3706 - HISTORY AND PHILOSOPHY OF SCIENCE AND MEDICINE

APA(I) Award(s): 2

Partner Organisation(s)

Waterwatch Victoria

Greater Shepparton City Council

Goulburn-Broken Catchment Management Authority

Bureau of Meteorology

Shire of Campaspe

Moira Shire

Shire of Strathbogie

Administering Institution: The University of Melbourne

Summary:

This community-based project in the Goulburn Valley focuses on citizens' negotiation of scientific expertise, perceptions of risk and participation in policy formation. It asks: "how can democracy work in a world of proliferating cultures of expertise"? The project will produce an environmental history drawn from citizens' experience of transforming the landscape for irrigation and agribusiness, and of scientific advice over time. It will explore how citizens deal with conflicting scientist-generated scenarios around climate change and environmental flows in the light of their historical experience, and trial new modes of public policy formation.

LP0560656 A/Prof PJ Scales; Dr R de Kretser

Title: **Practical Application of Filtration Theory to the Minerals Industry**

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

Category: 2907 - RESOURCES ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Rio Tinto

Administering Institution: The University of Melbourne

Summary:

The project aims to provide a quantitative basis for the selection, design, operation and maintenance of filter devices in the minerals industry. This will be achieved through characterisation of materials to be filtered by developing a model of the true role of the membrane in filtration. Experimental parameters will be input to first principles filtration models. This will reduce the incidence of poor operational outcomes for filter presses and provide a sound basis for the maintenance of filter cloths and membranes.

LP0560854 A/Prof PJ Scales; Dr DR Dixon

Title: Advanced waste slurry processing in the dairy industry

2005 : \$98,406

2006 : \$92,826

2007 : \$97,650

Category: 2501 - PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

APA(I) Award(s): 1

Partner Organisation(s)

Fonterra Co-operative Group Limited

Administering Institution: The University of Melbourne

Summary:

The dairy industry typically disposes of its wastes as low solids slurries. An aim for the future is to produce higher solids outputs. This project will examine the dewatering behaviour of a range of waste sludges and examine the molecular components that control dewaterability. The project will provide quantitative directions as to the best choice of dewatering methodologies to the dairy industry for the treatment and disposal of wastes. This will allow for better strategic design and management of waste treatment options.

LP0560976 Dr R Scheepers; Dr AB Ruighaver; Dr WM Smith

Title: Securing Knowledge Processes in Organisations

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 3502 - BUSINESS AND MANAGEMENT

APA(I) Award(s): 1

Partner Organisation(s)

Global Solutions Network Pty Ltd

Administering Institution: The University of Melbourne

Summary:

This project will develop a methodology for identifying and comparing security risks associated with knowledge-intensive processes in organizations. The project addresses a significant area that has historically fallen between two research domains: organisational knowledge processes and systems, and critical information infrastructure protection. The project will establish a unified framework to balance the sharing and protection of information and organizational knowledge. Outcomes include a framework for modelling knowledge-intensive processes to assess their security vulnerability, an associated methodology of creating security risk profiles of knowledge intensive processes and the validation of the methodology in 3 to 6 organizations.

LP0560720 Dr P Sutton; Dr EN Meeusen; Mr S Edwards

Title: Identification of novel antigens for vaccination and immunotherapy against the human gastric pathogen, *Helicobacter pylori*

2005 : \$90,000

2006 : \$90,000

2007 : \$90,000

Category: 3204 - MEDICAL MICROBIOLOGY

Partner Organisation(s)

CSL Limited

Administering Institution: The University of Melbourne

Summary:

The bacterium *Helicobacter pylori* is a significant human pathogen which infects the stomach where it is the major cause of stomach and duodenal ulcers, plus two types of cancer. This project proposes to utilise a novel strategy to identify potential vaccine targets on the bacterial surface with the aim to develop an effective vaccine against this organism. Such a vaccine would protect against the development of stomach cancer, hence saving lives, plus significantly reduce the incidence of stomach ulcers, thereby reducing suffering of individuals and providing financial benefits to employers.

LP0560742 Dr SJ Williams

Title: Synthesis of carbohydrate antigens and production of monoclonal antibodies for biotechnological applications

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 2503 - ORGANIC CHEMISTRY

APA(I) Award(s): 1

Partner Organisation(s)

Biosupplies Australia

Administering Institution: The University of Melbourne

Summary:

Plant proteoglycans are widely used in the Australian agrifood industry as emulsifiers and thickening agents. In plants, they have been implicated in critical roles such as embryogenesis, development and programmed cell death; processes that ultimately determine agricultural production. However studies into plant proteoglycans are limited by a lack of specific reagents to probe their cellular function. We propose to develop a series of monoclonal antibodies that can be used to study the structure and function of plant proteoglycans. These antibodies will have broad uses in basic and strategic research programs and will accelerate the commercial development of plant proteoglycans for use in the food industry.

LP0560584 Prof IP Williamson

Title: **The Integration of Built and Natural Environmental Datasets in National Spatial Data Infrastructure**

2005 : \$91,963

2006 : \$90,308

2007 : \$92,630

Category: 2910 - GEOMATIC ENGINEERING

Partner Organisation(s)

Department of Sustainability and Environment

Department of Lands

Administering Institution: The University of Melbourne

Summary:

Delivering sustainable development nationally assumes knowledge about the natural and built environment. This requires access to data about these two environments which is facilitated by establishing a National Spatial Data Infrastructure (NSDI). The problem in Australia is that the states are the custodians of large to medium built and natural datasets while the Federal Government is the custodian of small scale natural datasets. While Australia has seen some success, the integration of these datasets is hampered by jurisdictional, institutional, administrative and legal issues. This research will investigate the differences in these forms of data and the justification and policy framework to integrate them in a NSDI.

University of Ballarat

LP0560410 Dr CS Taylor

Title: **(Dis)abling Reports: Mapping uptake, progress and outcomes of police reports of sexual assault made by those with cognitive impairment**

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 3903 - JUSTICE AND LEGAL STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Disability Discrimination Legal Service

Administering Institution: University of Ballarat

Summary:

This project examines reporting outcomes of police reports of sexual assault by people with a cognitive impairment. This group are more vulnerable to sexual offences yet less likely to have the report progress completely through the investigative pathways of the police. There exist no studies identifying the decision making police use when determining the progress of reports. Decisions as to whether a report proceeds or exits the justice system are documented and contained in a restricted police data system. Analysing this data will generate a framework around the decision making applied and map the progress and exit stages of these reports.

Victoria University of Technology

LP0561091 Dr ID Bennetts; Prof I Thomas

Title: **Fire Risk Evaluation of Commercial Buildings.**

2005 : \$118,792

2006 : \$123,964

Category: 2999 - OTHER ENGINEERING AND TECHNOLOGY

Partner Organisation(s)

OneSteel Manufacturing P/L

BlueScope Steel Ltd

Administering Institution: Victoria University of Technology

Summary:

An integrated systems risk-based model for fire safety has been developed for apartment buildings. A risk-based model must also be developed for commercial high-rise buildings taking into account the sub-models most relevant for these buildings. This requires a new approach and the development and integration of new submodels. Such a model does not currently exist but its development will allow for the cost-effective design of commercial buildings whilst still maintaining appropriate levels of fire

safety.

LP0561056 Prof FR Pascoe; Prof SF Macintyre

Title: **The Social Sciences and the Making of Postwar Australia.**

2005 : \$31,571

2006 : \$32,730

Category: 4301 - HISTORICAL STUDIES

Partner Organisation(s)

Academy of the Social Sciences in Australia

National Library of Australia

Administering Institution: Victoria University of Technology

Summary:

This project explores the foundational significance of the social sciences in the creation of modern Australia. Using the history of the Academy of the Social Sciences in Australia as a focus, it will provide the first broad historical analysis of the various social scientific fields in Australia since WWII. In doing so it will highlight the previously under-examined but critical influence these fields of knowledge exerted over civil society and public policy. Its finding will be of great significance both to our industry partner, in fulfilling its role as advocate for the social sciences, and to an understanding of the development of post-war Australian society.

Queensland

Bond University

LP0561238 Prof PR Wilson; Mr GA Russell; Ms L Creighton; Mr P Gockel

Title: **Crime and CCTV in Australia: Understanding the Relationship**

2005 : \$52,230

2006 : \$54,059

Category: 3904 - LAW ENFORCEMENT

Partner Organisation(s)

Gold Coast Safety Camera Network

Crime Prevention Queensland

Queensland Rail Crime Prevention

Administering Institution: Bond University

Summary:

Crime costs Australia \$32 billion annually (Mayhew, 2003). Increased criminal and terrorist activities, internationally and nationally have caused major breaches of security in public places, resulting in heightened investment in crime prevention strategies including Closed Circuit Television (CCTV). However, rigorous research into CCTV's effectiveness on crimes in public places has not been undertaken. This innovative project will identify CCTV's impact on crime and key socio-legal issues of security of public places. The outcomes will contribute to an important decision-making model for local, state, and federal departments, and private sector organisations responsible for CCTV and related crime prevention technologies.

Central Queensland University

LP0560627 Dr N Hossein Zadeh; A/Prof PJ Wolfs; Dr S Senini; Dr D Seyoum

Title: **Capacity Enhancement, Energy-Loss Reduction and Voltage Control for Remote Three-Phase Distribution Feeders Supplying Electrical Power to Single-Wire Earth-Return Systems**

2005 : \$48,296

2006 : \$48,296

Category: 2909 - ELECTRICAL AND ELECTRONIC ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

Ergon Energy

Administering Institution: Central Queensland University

Summary:

Long distribution feeders supplying electrical energy to Single-Wire Earth-Return (SWER) systems are unique sub-systems of the electric power network in Australia. The SWER systems are inherently unbalanced and use conductors with high resistance values resulting in high energy losses. The capital costs of these systems are high due to the low area density of loads and the systems are challenged by increasing loads. New methods will be developed for load balancing, controlling losses and improving the power quality. Comparisons will be made between the new technologies and the reconstruction or augmentation of the feeders. It is expected that substantial economic and greenhouse emission benefits will result.

Griffith University

LP0560303 Dr AJ Brown; A/Prof RK Wortley; Dr P Mazerolle; Dr RK Smith; Mr CC Wheeler; Dr JS Hocking; Mr GJ Ross; Mr P Roberts; A/Prof PS Latimer

Title: **Whistling While They Work: Enhancing the Theory and Practice of Internal Witness Management in Public Sector Organisations**

2005 : \$175,000
2006 : \$205,000
2007 : \$205,000

Category: 3904 - LAW ENFORCEMENT

APA(I) Award(s): 2

Partner Organisation(s)

WA Parliamentary Commissioner for Administrative Investigations (Ombudsman)

NT Office of the Commissioner for Public Employment

ACT Chief Minister's Department

Transparency International Australia

Commonwealth Ombudsman

Australian Public Service Commission

Qld Crime and Misconduct Commission

Queensland Ombudsman

NSW Independent Commission Against Corruption

NSW Ombudsman

WA Corruption and Crime Commission

WA Office of the Public Sector Standards

Administering Institution: Griffith University

Summary:

The protection of whistleblowers and other internal witnesses to corruption, misconduct and maladministration is a great unsolved problem in public sector governance. Involving 11 integrity institutions, this first national study of internal witness management will describe and compare organisational experience under varying public interest disclosure regimes across the Australian public sector. By identifying and promoting current best practice in workplace responses to public interest whistleblowing, the project will use the experience and perceptions of internal witnesses and first- and second-level managers to identify more routine strategies for preventing, reducing and addressing reprisals and other whistleblowing-related conflicts.

LP0560618 Dr MA Burford; Prof SE Bunn; Dr JM Olley

Title: **Transformations of catchment nutrients in southeast Queensland**

2005 : \$100,000
2006 : \$105,000
2007 : \$105,000

Category: 2707 - ECOLOGY AND EVOLUTION

APA(I) Award(s): 2

Partner Organisation(s)

South East Queensland Water

Healthy Waterways

Administering Institution: Griffith University

Summary:

Human activity in catchments throughout southeast Queensland has increased nutrient loads in receiving waters. However, until recently there has been a lack of accurate quantification of these loads, and little understanding of their role in stimulating algal blooms. This proposal will examine the links between catchment nutrient inputs to waterways, their transformations and effects on stimulating algal growth in freshwater systems. The outcomes from this research will be information on how catchment nutrients are affecting water quality, thus providing a vehicle for targeting management strategies designed to reduce nutrient loads.

LP0560325 Prof WP Chaboyer; Prof MD Courtney; Prof CM Duffield; Dr PC Seaton-Sykes; Dr KE Forrester; A/Prof MC Wallis; Mrs K Holzhauser

Title: **Developing Evidence-Based Workforce Models for Nursing Services in Acute Care Hospitals**

2005 : \$64,218
2006 : \$49,874

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Queensland Nursing Council

Princess Alexandra Hospital

Gold Coast Hospital

Administering Institution: Griffith University

Summary:

Nursing shortages and increasing patient demand and acuity are influencing the capacity of the health system to deliver

quality nursing care. The aims of this study are to document the current activities undertaken by differing levels of nursing staff in hospitals and develop evidence-based guidelines for future service delivery. Using Work Sampling, current activities will be documented then Critical Incident Technique will capture key contextual data and strategies for workforce redesign. Focus groups with health professionals and an Expert Advisory Panel will further develop these strategies and establish evidence-based policy, professional and organisational guidelines for the delivery of nursing services in hospitals.

LP0560771 Prof RJ Homel; Prof PD Renshaw; Dr MD Leech; Mr RF Ashford

Title: **Linking to learn and learning to link: building integrated school-based support systems for children and families in a disadvantaged community**

2005 : \$130,000

2006 : \$130,000

2007 : \$140,000

2008 : \$120,000

2009 : \$125,000

Category: 3801 - PSYCHOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Mission Australia

Education Queensland

Administering Institution: Griffith University

Summary:

The project will implement in a disadvantaged community changed institutional practices within primary schools and a partner welfare agency to increase family-school connectedness to improve children's behaviour and school performance. We build on the Pathways Project, which improved these outcomes for vulnerable preschool children, but highlighted the critical importance of family involvement with schools to effect enduring change and the difficulties of achieving this within current structures. We address this challenge by nurturing whole-school culture change, providing teacher professional development, and locating family support resources within schools to promote home-school partnerships, family functioning, and child well-being.

LP0560464 A/Prof W Moyle; A/Prof DH Shum; A/Prof MM McAllister; Prof ML Maas

Title: **A comparative study of an education intervention to promote family involvement in residential dementia**

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Regis Group Pty Ltd

Administering Institution: Griffith University

Summary:

This study aims to test a collaborative model of care for nursing home residents with irreversible dementias. The Family involvement in care (FIC) model aims for family caregiver(s) and nurses to participate in ongoing negotiation and establishment of a partnership of cooperative role relationships. The intervention aims to reduce stressors for family and staff caregivers along the course of the deteriorating dementing illness, and to illuminate nursing interventions that relieve stress and increase positive attitudes. The research has the potential to inform evidence-based dementia care and to improve staff retention.

James Cook University

LP0560298 Dr DR Jerry; Dr BS Evans; Dr JJ Taylor

Title: **Towards selective breeding of pearl oysters - quantitative and population genetics of the silver-lipped pearl oyster *Pinctada maxima***

2005 : \$150,000

2006 : \$150,000

2007 : \$150,000

Category: 3007 - FISHERIES SCIENCES

APA(I) Award(s): 1

APDI Dr BS Evans

Partner Organisation(s)

Atlas Pacific Ltd

Administering Institution: James Cook University

Summary:

Successful selective breeding programs rely on two critical factors; i) an understanding of the genetic processes underpinning phenotypic expression of commercially important traits and ii) a reliable method to retain pedigrees so that the rate of inbreeding can be controlled. This project will utilise modern quantitative and molecular genetic approaches to generate for the first time fundamental information on the role genetics has on growth and pearl quality traits in the silver-lipped pearl oyster

Pinctada maxima. Outcomes from this project when integrated into a selective breeding program for this species will dramatically transform the international competitiveness of this valuable industry.

LP0561052 Dr TJ Myers

Title: **Cretaceous marine reptiles from the Eromanga Sea - a research project focussing on the fossils of Outback Queensland**

2005 : \$80,000
2006 : \$80,000
2007 : \$70,000

Category: 2601 - GEOLOGY

APDI Dr TJ Myers

Partner Organisation(s)

Richmond Shire Council
Queensland Museum

Administering Institution: James Cook University

Summary:

The Eromanga Sea covered large tracts of north and central Australia between 140 and 95 million years ago. Major faunal components of this inland-sea were marine reptiles, such as plesiosaurs, ichthyosaurs and sea turtles. North Qld has extensive marine fossil deposits remaining to be systematically explored. Many world-significant specimens from these strata are housed in the Australian, Queensland and Richmond Marine Fossil museums. This project intends to resolve fundamental questions concerning the evolution, environment, lifestyle and distribution of Cretaceous marine reptiles by improving their fossil record and analysing newly discovered Australian specimens, including the world's first plesiosaur embryo.

Queensland University of Technology

LP0560581 Dr KA Brown; Dr L Bradley; Dr HC Lingard

Title: **Work-life balance in the construction industry: Innovative strategies for improving employee well-being and performance in project management teams**

2005 : \$60,000
2006 : \$60,000
2007 : \$60,000

Category: 3502 - BUSINESS AND MANAGEMENT

Partner Organisation(s)

Construction Industry Institute of Australia

Administering Institution: Queensland University of Technology

Summary:

The need to balance work and family is an important social issue facing Australia. The aim of the project is to develop specific strategies to improve work-life balance outcomes, particularly in relation to performance and well-being for employees in the highly competitive construction industry. The significance of the research is in the (i) development of the work-life balance construct as a multidimensional one based on time, involvement and satisfaction; (ii) focus on under-researched male employees and (iii) use of an innovative, applied, experimental design. The research will yield new insights into the determinants of successful work-life balance and inform policy development which is consistent with employee needs.

LP0560536 Dr LR Buys; Dr M Knox; Dr C Bigby; Prof GM Boulton-Lewis; Prof H Edwards

Title: **Developing an Integrative Active Ageing Model for Policy Makers and Service Providers to Support Older People with Lifelong Intellectual Disability**

2005 : \$70,000
2006 : \$60,000

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

Partner Organisation(s)

Endeavour
Queensland Office of the Public Advocate
Queensland Aged and Disability Advocacy Inc
Queensland Department of Housing
Victorian Office of the Public Advocate

Administering Institution: Queensland University of Technology

Summary:

"Active ageing" is increasingly gaining international currency and it underpins Australia's national focus on healthy ageing. However, its meaning for older people with intellectual disability, who represent about 0.13% of Australia's older population, is unclear, as little is known about the impact of ageing upon this group. This exciting research project aims to address these knowledge gaps through a series of case studies comprising key stakeholder groups in rural and urban Victoria and Queensland. An Integrative Model of Active Ageing for policy makers and service providers will be developed to facilitate the

planning and appropriate distribution of resources for this population.

LP0560907 Mr MF Humphreys; Prof M Mahendran

Title: **Development of Fibre Reinforced Autoclaved Aerated Concrete Products**

2005 : \$26,148

2006 : \$24,148

2007 : \$24,148

Category: 2908 - CIVIL ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

CSR Hebel

Administering Institution: Queensland University of Technology

Summary:

The construction industry is one of the world's largest consumers of raw materials and it is widely accepted that current material usage trends are unsustainable. Development of new more efficient construction materials is paramount to overcoming this. This novel research will use advanced high strength glass and carbon fibres and polymer resins to improve the structural behaviour, versatility and economic viability of a nationally significant construction material known as Autoclaved Aerated Concrete. The material technologies developed by this research will lead to more efficient material use, a more sustainable materials solution and the potential to export the technology worldwide.

LP0561082 Prof AS Hurn; Mr V Pavlov

Title: **An econometric investigation of technical analysis as a portfolio selection strategy in Australia**

2005 : \$26,295

Category: 3503 - BANKING, FINANCE AND INVESTMENT

Partner Organisation(s)

Queensland Investment Corporation

Administering Institution: Queensland University of Technology

Summary:

This project will provide an in-depth analysis of the returns of portfolios of Australian equities formed by using technical trading rules. The research will determine whether or not any abnormal returns earned by these means are attributable to firm-specific or market-wide factors. This project represents the first attempt to interpret technical analysis in a portfolio framework and will provide valuable information on the informational efficiency of Australian capital markets. As there is currently no single definitive study of technical analysis in Australia, this project will fill a significant void in the current academic literature and provide evidence of great practical relevance to Australian investment practitioners.

LP0560544 Prof KL Mengersen; Dr PM Kuhnert; Dr BJ Whiting

Title: **Elicitation and Integration of Expert Information for Natural Resource Management with a Focus on**

2005 : \$80,000

2006 : \$80,000

Category: 2302 - STATISTICS

Partner Organisation(s)

Environmental Protection Agency

Department of Natural Resources and Mines

Moreton Bay Waterways and Catchments

Administering Institution: Queensland University of Technology

Summary:

Australia's natural resource management requires integrating information from many sources, including survey data and community and expert opinion. We aim to develop statistical methods to formally combine this information and apply them to better management of our crucial resource, water. The project contributes significantly to Australia's international obligations, and government agency and regional group science-based decision-making. Outcomes include increased fundamental knowledge in statistics, technology transfer and improved decision-making capacity for natural resource management. The project builds on strong existing collaborations between academic and industry partners and provides foundation for future funded projects.

LP0560853 Dr RA Nason; Dr AR Baturu; Mr R Cox; Mrs C Schluter

Title: **Facilitating improvements in prison inmates and juvenile offenders' numeracy to enhance their employment and life chances**

2005 : \$77,908

2006 : \$79,506
2007 : \$81,148

Category: 3302 - CURRICULUM STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Qld Government Department of Correctional
Career Employment Australia
Bremer Institute of TAFE

Administering Institution: Queensland University of Technology

Summary:

Over 85% of prison inmates possess levels of numeracy which inhibit their employment and life chances. The aim of the project is to develop an integrated numeracy program that can be implemented within custodial institutions. By enhancing numeracy levels, the project will improve the life chances of ex-inmates and contribute significantly in reducing levels of recidivism. The project will significantly advance theory about 1) adult numeracy education, and 2) design of on-line in-service teacher education systems for adult numeracy teachers. The expected outcomes are: 1) improved adult education numeracy assessment and learning resources, 2) an on-line in-service teacher education system, 3) adult numeracy education computer software.

LP0560865 Dr A Rakotonirainy; Dr SW Loke; Dr S Krishnaswamy; Prof MC Sheehan

Title: Ubiquitous Data Mining and Situation-Awareness for Improving Road Safety

2005 : \$27,148

2006 : \$27,148

2007 : \$27,148

Category: 3504 - TRANSPORTATION

APA(I) Award(s): 1

Partner Organisation(s)

Insurance Australia Group (IAG)

Administering Institution: Queensland University of Technology

Summary:

Road crashes cost Australia \$15 billion a year and 95% of these are attributed to drivers' errors. Risk assessment is at the core of the road crash problem. This innovative project develops a computational model that analyses situational driver behaviour and proposes real-time countermeasures to minimise fatalities/casualties. We develop and evaluate a novel Intelligent Transport System that assesses and acts upon drivers' risks. This multidisciplinary project integrates recent models of data mining, context-awareness computing, physiological metrics, ubiquitous computing, driver distraction models, risk perception and road safety. This project yields a new understanding of driver behaviour and countermeasures in risk situations.

LP0560417 A/Prof M Rosemann; A/Prof PF Green; Prof G Shanks; Ms W Sedera; Asst Prof M zur Muehlen; Dr W Sadiq

Title: Modelling in the Large

2005 : \$89,819

2006 : \$91,885

2007 : \$48,296

Category: 2801 - INFORMATION SYSTEMS

APA(I) Award(s): 2

Partner Organisation(s)

SAP Australia PtyLtd

Administering Institution: Queensland University of Technology

Summary:

Business modelling supports a variety of approaches, which are currently of significant interest for Australian organisations. This includes business process management, risk management or Enterprise Architecture design. The trend to centralised and integrated business modelling leads to projects with a high number of models, modellers, users, and modelling purposes. This phenomenon is called modelling in the large. The proposed research project explores the major issues within these projects and develops improved modelling techniques and project management approaches for large modelling initiatives. The outcomes will streamline the design, integration, maintenance and communication of models with a focus on Enterprise Systems.

LP0560290 Prof NF Ryan; Dr KA Brown; Dr JM Waterhouse

Title: Exploding the Myth of Change Resistance in Public Service Organisations: New Models of the Determinants of Successful Organisational Transformation

2005 : \$74,618

2006 : \$74,795

2007 : \$75,993

Category: 3602 - POLICY AND ADMINISTRATION

APDI Dr JM Waterhouse

Partner Organisation(s)

Administering Institution: Queensland University of Technology

Summary:

Large scale organisational change is costly as 80% of change efforts fail due to institutional stability, organisational resistance and cultural inflexibility. In the public sector change resistance has become particularly problematic as governments have demanded radical and rapid structural and cultural changes within public organisations. This project will develop models of change to extend theory and practice regarding the institutional, organisational and cultural environment necessary for public organisations to undergo large scale change and thus assist public organisations in facilitating successful large-scale change. An innovative approach is used to incorporate geographically dispersed, multi-functional and stratified workforces.

LP0560747 Dr G Turrell; Dr C Patterson; Dr A Lee

Title: Socioeconomic inequality and diet: a multilevel study of why socioeconomic groups differ in their food purchasing behaviours

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Queensland Health

Administering Institution: Queensland University of Technology

Summary:

Socioeconomically disadvantaged groups experience higher mortality and morbidity rates for many chronic diseases (e.g. heart disease and type 2 diabetes). Dietary quality, and factors affecting this such as food purchasing choice, play a key role in the onset and progression of these types of diseases, and the lower quality diets of families from disadvantaged backgrounds contribute to their poorer health. This Project will determine why socioeconomic groups differ in their food purchasing behaviours, by examining the influence of environmental and individual-level factors. Project findings will increase our understanding about socioeconomic differences in diet, and inform public policy, health policy, and health promotion.

LP0560351 Mr BC Watson; Mrs CC Schonfeld; Mr D Wishart

Title: Development and evaluation of a motorcycle training intervention

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 3504 - TRANSPORTATION

APA(I) Award(s): 1

Partner Organisation(s)

Morgan & Wacker Pty Ltd

Queensland Transport

Administering Institution: Queensland University of Technology

Summary:

In 2002, motorcyclists and pillion riders accounted for 224 road deaths in Australia - 13% of the total road toll although motorcycles accounted for less than 3% of all registered vehicles. They also accounted for nearly 20% of serious injuries. This collaborative project aims to reduce motorcycle crashes through an innovative training intervention focusing on the attitudinal and motivational factors influencing rider behaviour. The intervention will be firmly grounded in theory and complement existing training frameworks to produce a highly transferable resource that can be adopted by other rider training centres both in Australia and overseas.

LP0560564 A/Prof JM Wood; A/Prof RR Ballantyne; Prof L Ferreira; Prof RJ Troutbeck; Mr MJ King; Mr JC Douglas

Title: Improving the visibility and safety of pedestrians, roadworkers and cyclists

2005 : \$70,000

2006 : \$65,000

2007 : \$65,000

Category: 3209 - OPTOMETRY

Partner Organisation(s)

Queensland Transport

Department of Main Roads

Administering Institution: Queensland University of Technology

Summary:

Pedestrian and cyclist fatalities cost Australia ~\$2 billion/year, accounting for a third of road users killed or seriously injured. Late visual recognition by motorists is the main reason these collisions occur. While visibility aids to improve pedestrian and cyclist conspicuity have been advocated, they have had limited success. We will use innovative driving measurement techniques to advance understanding of pedestrian and cyclist visibility and the effectiveness of different visibility aids for enhancing pedestrians and cyclist recognition. We will develop novel visibility aids to maximise pedestrian and cyclist

conspicuity and evidence-based educational programs to improve the safety of vulnerable road users.

The University of Queensland

LP0560931 Prof PF Alewood; Dr R Lewis

Title: Covalent Hydrogen Bond Mimetics of Helical Peptide Hormones

2005 : \$85,000

2006 : \$70,000

2007 : \$70,000

Category: 2503 - ORGANIC CHEMISTRY

Partner Organisation(s)

Mimetica Pty Ltd

Administering Institution: The University of Queensland

Summary:

Peptide hormones have been identified that adopt a helical shape when bound to their receptor. The project will produce new versions of these hormones by the use of directly bonded chemical linkers in place of the relatively weak helix hydrogen bonds. The resulting hormone mimics will be more stable, have lower molecular weight and be more selective than the natural hormones making them more suitable as drugs. Our new chemical techniques allow us for the first time to fully investigate this approach which if successful will be applicable to many other helical peptides and therefore could be an important drug development technique.

LP0561131 A/Prof CH Caceres; Dr JY Yao; A/Prof AK Dahle; Dr W Daniel; Dr F Chu

Title: Precision Bending of 6xxx Aluminium Extrusions

2005 : \$80,000

2006 : \$80,000

2007 : \$80,000

Category: 2914 - MATERIALS ENGINEERING

Partner Organisation(s)

Almax Aluminium

Administering Institution: The University of Queensland

Summary:

The use of aluminium in transportation applications is predicted to double over the next 10 years. The use of extruded aluminium in structural components such as space frames is a growing area, and bending is an integral and critical process in the production of such components. The aim of this project is to develop key knowledge and technology necessary for precision bending of extruded aluminium profiles. The main outcomes will be: (i) Understanding of the relationship between extrusion conditions, microstructure and bendability of structural profiles. This will enable the optimisation of the extrusion process to ensure consistent bending behaviour. (ii) Development of the rubber-pad technology for precision bending.

LP0560794 Prof DJ Craik; A/Prof JL Martin

Title: Enhancement of plant proteinase inhibitors for the protection of crop plants against insect attack

2005 : \$80,887

2006 : \$83,901

2007 : \$86,916

Category: 3002 - CROP AND PASTURE PRODUCTION

Partner Organisation(s)

Hexima Ltd.

Administering Institution: The University of Queensland

Summary:

The aim of this project is to characterise the interactions between various known plant proteinase inhibitors and the major digestive enzymes of insects by structural and dynamic studies and to utilise mutational studies to design new inhibitors that more effectively bind to target proteinases. The outcomes will be the knowledge to design specific inhibitors to give optimal inhibition of specific insect proteinases. This knowledge will lead to novel approaches to protect economically important crops, such as cotton, from insect pests in Australia - potentially saving tens of millions of dollars per annum in chemical pesticide use and enhancing crop production in Australia and internationally.

LP0560595 Dr EM Gillam; Dr JJ De Voss; Dr MA Hayes

Title: BIOCATALYSTS MINED FROM CYTOCHROME P450 LIBRARIES: AN INNOVATIVE TOOL FOR ACCELERATING DRUG DEVELOPMENT

2005 : \$130,031

2006 : \$163,569

2007 : \$167,854

Category: 2708 - BIOTECHNOLOGY

Partner Organisation(s)

AstraZeneca R&D

Administering Institution: The University of Queensland

Summary:

The cytochrome P450s (P450s) are a family of enzymes that are perhaps the most versatile biological catalysts known. DNA shuffling is an emerging technique that takes the genes encoding families of enzymes and creates libraries of catalysts with both improved and novel properties. We will obtain proof of concept that shuffled P450 libraries can be screened and optimized for use as biocatalysts in drug development. The methodologies developed here will overcome two critical bottlenecks in current drug development: the optimisation and metabolic profiling of new drug candidates. This will yield important benefits in accelerating the optimisation and safety testing of drugs under development.

LP0561097 Prof JJ Gorman; Dr DJ Naylor

Title: Proteomics Analysis of Interactions Between Chaperonin 10 and Cell Surface Proteins

2005 : \$100,000

2006 : \$100,000

2007 : \$100,000

Category: 2701 - BIOCHEMISTRY AND CELL BIOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

CBio Limited

Administering Institution: The University of Queensland

Summary:

Specific interactions at the cell surface may induce downstream biological responses. In the case of chaperonin 10, Cpn10, interaction at the cell surface results in immunomodulation of the inflammatory response. Cell surface proteins that interact with Cpn10 have not been identified. This project will use chemical crosslinking and proteomic techniques to identify cell surface proteins that interact with Cpn10 and structural features of Cpn10 involved in these interactions. These findings will provide leads for the development of immunomodulatory therapeutics based on Cpn10 interactions. Analytical technologies will be developed that are applicable to other interacting protein systems.

LP0560484 Prof GL Hammer; Dr S Chapman; Dr DR Jordan

Title: Systems biology to integrate genomics into crop improvement programs

2005 : \$150,000

2006 : \$150,000

2007 : \$150,000

2008 : \$150,000

Category: 3002 - CROP AND PASTURE PRODUCTION

APA(I) Award(s): 2

Partner Organisation(s)

Pioneer Hi-Bred International Inc.

Queensland Department of Primary Industries

Administering Institution: The University of Queensland

Summary:

Plant breeding programs have not reaped the benefits of the revolution in molecular genetic technologies. This systems biology project will develop mathematical models of plants to span levels of biological organisation from gene to whole organism. It will focus on understanding and modelling the genetics and physiology of key adaptive traits in sorghum and maize. It will use computer simulation to employ resultant gene-to-phenotype models in ways that will underpin a major shift in how plant breeding programs operate. This new integrating technology will lead to more rapid advance in breeding better adapted and higher yielding crops.

LP0561036 Dr PH Harnett; A/Prof S Dawe

Title: A prospective study investigating factors related to foster placement stability and the developmental outcomes of foster children

2005 : \$60,000

2006 : \$50,000

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

Partner Organisation(s)

Department of Communities

Foster Care Queensland

Administering Institution: The University of Queensland

Summary:

The study will aim to identify factors that influence the stability of placements and the developmental outcomes of children in foster care. The results of the study will have implications for the recruitment, training and support of foster carers. The study

will lead to the refinement of procedures for the recruitment of appropriate foster carers, and the development of an intervention for foster families relevant to the Australian context. Improving the developmental outcomes of children in foster care will help to reduce the intergenerational transmission of abuse and neglect and thus promote the mental health of the nation.

LP0560740 A/Prof KE Healy; Dr G Woolcock; Dr NM Spencer; Ms AC Hampshire; Mr EC Smeaton; Ms JL Smith

Title: **Families on the Fringe: Promoting the Social Inclusion of Young Families who have Relocated to Non-Metropolitan Areas**

2005 : \$80,000
2006 : \$80,000
2007 : \$70,000

Category: 3702 - SOCIAL WORK

APDI Ms JL Smith

Partner Organisation(s)

Office of Economic and Statistical Research
The Benevolent Society
Mission Australia

Administering Institution: The University of Queensland

Summary:

We aim to promote the social inclusion of young families who relocate to non-metropolitan communities by developing policy and infrastructure options based on an understanding of their characteristics and needs. The project's significance lies in capturing these characteristics to provide models upon which policy initiatives can be developed and policy outcomes monitored. The project combines the Office of Economic and Statistic Research's expertise in socio-demographic research and policy development, The Benevolent Society and Mission Australia's experience in community service delivery in geographically diverse communities, with the CI's research skills, towards strengthening the social and economic fabric of Australian communities

LP0560896 Prof O Hoegh-Guldberg; Prof MT McCulloch; Prof RB Dunbar; Dr LJ McCook; Dr DB Haynes

Title: **Long-term changes in Mackay Whitsunday water quality and connectivity between coral reefs and mangrove ecosystems**

2005 : \$110,000
2006 : \$100,000
2007 : \$100,000

Category: 2707 - ECOLOGY AND EVOLUTION

Partner Organisation(s)

Mackay-Whitsunday Natural Resource Management Group
Mackay City Council
Great Barrier Reef Marine Park Authority

Administering Institution: The University of Queensland

Summary:

Declining water quality is implicated in the degradation of near-shore Great Barrier Reef (GBR) ecosystems. The goal of this project is to provide a definitive answer to the question of how GBR water quality has changed since European arrival (pre-1860). Using novel geochemical proxies in long-lived coral cores and innovative remote sensing techniques, we will develop quantitative histories of water quality and mangrove distribution change. This project will deliver the first integrated assessment of how coastal water quality and associated ecosystems have varied historically, which will be immediately applicable for long-term management of coastal ecosystems lining the GBR.

LP0561117 Ms K Holt-Damant; Prof PM Charles; Dr PA Chalk; Prof MA Wigley; A/Prof M Baratloo

Title: **Emerging futures: transit-oriented development as a strategy for dealing with urban sprawl and congestion in South East Queensland**

2005 : \$117,000
2006 : \$117,000
2007 : \$63,000

Category: 3101 - ARCHITECTURE AND URBAN ENVIRONMENT

APA(I) Award(s): 2

Partner Organisation(s)

QR
Queensland Transport

Administering Institution: The University of Queensland

Summary:

This project will examine the phenomenon of urban sprawl in SEQ to understand how sprawl is impacting on architectural and urban environments. Transit-oriented development (TOD) is seen as a global strategy for inhibiting urban sprawl, but the benefits of TOD are not yet measured in Australia. With increased density around railway infrastructure the threat to public safety is raised. This study will examine the wider issues of TOD with respect to four inter-disciplinary areas: architecture and urban design, urban planning, security, counter-terrorism and threat management, transport strategy and insitutional management.

LP0560347 Dr GE Hovland; Dr TH Brogardh

Title: **A New Parallel Robot with breakthrough performance for Manufacturing of Aerospace Components - kinematic and dynamic synthesis, design optimisation and prototyping**

2005 : \$25,148

2006 : \$25,148

2007 : \$24,648

Category: 2903 - MANUFACTURING ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

ABB Automation Technologies

Administering Institution: The University of Queensland

Summary:

The Gantry-Tau is a new parallel type robot manipulator that will have the large workspace benefit of traditional Gantry robots in addition to stiffness and accuracy benefits well beyond the capabilities of existing robots. Preliminary results have shown that the Gantry-Tau can become the most accurate Gantry manipulator to date, with the potential of competing with dedicated machines in the manufacturing industry. The expected project outcome is a working prototype of the Gantry-Tau demonstrating machining performance on aerospace components, publications in high-ranked conferences and journals and several patent applications.

LP0560407 Dr AY Klimenko; Dr B Feng; Prof H Gurgenci; Prof SK Bhatia; Dr MS Blinderman

Title: **Advanced modelling and optimisation of Underground Coal Gasification**

2005 : \$198,280

2006 : \$198,882

2007 : \$199,445

Category: 2999 - OTHER ENGINEERING AND TECHNOLOGY

APA(I) Award(s): 4

Partner Organisation(s)

LINC ENERGY

Administering Institution: The University of Queensland

Summary:

The last decade is characterised by increasing interest of many countries in obtaining and developing Underground Coal Gasification (UCG) technologies. Recent long-term successful trial in Chinchilla has proven that the technology is ready for commercial use but the fundamental research into UCG is needed for further improvement of the technology performance in commercial applications. The major goal of this project is in combining most recent advances in combustion modelling with practical UCG operations and developing new advanced models specifically for UCG diagnostics and optimisation. The project outcomes involve: better understanding and optimisation of UCG processes and further development of advanced modelling techniques.

LP0560630 Dr GJ Marston; Dr C McDonald

Title: **The role of the front line in welfare to work**

2005 : \$40,987

2006 : \$32,208

Category: 3702 - SOCIAL WORK

Partner Organisation(s)

Jobs Australia

Administering Institution: The University of Queensland

Summary:

This project aims to examine the front-line in Australia's primary site of welfare reform - the Job Network. Developed within the genre of street-level policy research, the project intends to examine that point of the policy process where actual outcomes are generated - a site which is largely overlooked in policy research, but which is integral to a comprehensive understanding of how policy works. From the perspective of the long-term unemployed, the research will explore what works in the relationship between clients and their case managers. It will also explore the experiences of engagement and re-engagement with employment as a consequence of Job Network assistance.

LP0561113 Dr BM Masser; Prof DJ Terry; Dr K White; Dr RM Minchinton

Title: **Recruiting and retaining Australian blood donors: A social-psychological analysis of the role of attitudes, identity, and norms**

2005 : \$156,363

2006 : \$129,648

2007 : \$51,482

Category: 3801 - PSYCHOLOGY

Partner Organisation(s)

Australian Red Cross Blood Services

Administering Institution: The University of Queensland

Summary:

There has been little theory-based research examining the psychosocial predictors of blood donation, especially repeat blood donation, within an Australian context. This research seeks to assess the role of attitudes, identity and norms in predicting blood donation within rural and urban settings (Study 1) and for repeat blood donation amongst early career donors (Study 2). Study 3 will comprise two interventions designed to promote attitudinal and behavioural change for both blood donation initiation amongst current non-donors and repeat blood donation for early career donors. Identifying the predictors of blood donation for new and repeat donors will assist in the provision of this vital service within Australian health care settings.

LP0560277 Dr B McKenna; Prof JJ Servaes; Dr BS Jorgensen; Mr BD Muirhead

Title: Improving local government solid waste management practices through deliberative citizen decision-making and behaviour change communication strategies

2005 : \$46,318

2006 : \$25,948

2007 : \$24,148

Category: 3701 - SOCIOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Ipswich Waste Services (Ipswich City Council)

Administering Institution: The University of Queensland

Summary:

This project aims to provide a democratic procedure (deliberative processes) to enhance local government's ability to deal with contentious economic, social, and environmental issues. Instead of top-down communication methods (education and edict), two processes are evaluated: commitment and feedback to people as local leaders, and the deliberation of a citizen jury with access to expert knowledge. These processes will be simultaneously tested in a mature (Ipswich) and emerging (Springfield) community with different demographic profiles. The expected outcome is greatly enhanced recycling output based on the enhanced citizenship of those involved, and the responsiveness of the service provider to 'bottom-up' deliberation and communication.

LP0560270 Dr PA Meehan; Dr W Daniel

Title: Nonlinear modelling, analysis and prediction of optimal conditions for cold roll forming

2005 : \$120,000

2006 : \$120,000

2007 : \$120,000

Category: 2903 - MANUFACTURING ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

Smorgon Steel Tube Mills

Administering Institution: The University of Queensland

Summary:

This project investigates fundamental analytical and experimental aspects of the highly nonlinear process of cold roll forming of flat steel strip to shaped product in order to gain predictive understanding and determine optimal process conditions. The project aims to develop an innovative software system that will permit operators to balance and optimize mill productivity, energy consumption, mill downtime, and product change over times and facilitate the development of new products

LP0560306 Dr PC Mills; Dr SE Cross

Title: Transdermal penetration of corticosteroids in the dog

2005 : \$35,000

2006 : \$35,000

2007 : \$35,000

Category: 3005 - VETERINARY SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Dermcare-Vet Pty Ltd

Administering Institution: The University of Queensland

Summary:

Topical application of corticosteroids enhances drug concentration and effectiveness in the treatment of skin diseases. Most topical corticosteroid preparations have been developed for human use and are poorly efficacious or promote a high incidence of adverse effects in dogs. This project will characterize corticosteroid penetration through canine skin to permit the development of suitable topical formulations to more effectively control skin diseases in the dog. Skin diseases are a

significant problem in veterinary science and this project will not only provide an effective therapeutic option, but also reduce animal (and client) distress when suffering skin disease and/or adverse effects from traditional therapy.

LP0560932 Prof PR Mora; Prof HB Muhlhaus; Dr D Wyborn

Title: Supercomputer Simulation of Hot Fractured Rock Geothermal Reservoir Systems

2005 : \$90,000

2006 : \$90,000

2007 : \$90,000

2008 : \$90,000

Category: 2802 - ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APA(I) Award(s): 1

Partner Organisation(s)

Geodynamics Limited

Administering Institution: The University of Queensland

Summary:

The project aims to develop an advanced computational model to simulate fractured geomaterials for Hot Fractured Rock (HFR) geothermal energy exploitation in collaboration with Geodynamics Ltd which is developing Australia's first HFR field site. The site has enough stored energy to provide all Australia's energy needs for up to 70 years. The model has the potential to provide the predictive capacity for geothermal energy extraction required to successfully exploit the immense potential of HFR energy. The expected outcome is a new supercomputer simulation tool to aid in HFR energy facility design, construction, risk assessment and production that will help Australia become a world leader in the emerging worldwide HFR geothermal industry.

LP0560619 Dr JF Mueller; Dr R Thier; Prof MS Denison; Dr AL Hinwood; Mr ME Bartkow; Prof M Van den Berg

Title: Development of a novel air pollution monitoring strategy - combining passive sampling with toxicity

2005 : \$96,642

2006 : \$101,642

2007 : \$98,642

Category: 2911 - ENVIRONMENTAL ENGINEERING

APA(I) Award(s): 1

APDI Mr ME Bartkow

Partner Organisation(s)

Australian Plague Locust Commission

ERGO Forschungsgesellschaft mbH

Environmental Agency (UK)

Queensland Health Scientific Services

Western Australia Department of Environment

Department of Human Services - South Australia

Australian Government Analytical Laboratory

Queensland Environmental Protection Agency

Administering Institution: The University of Queensland

Summary:

Present approaches for monitoring risk of air pollutants are limited to grab sample analysis for specific pollutants using concentrations based on independent toxicological and/or epidemiological assessment of compounds. This approach does not allow for evaluation of mixtures or that a given compound may exert different toxic endpoints and is based on short sampling periods. This research aims to develop and evaluate a novel approach combining extraction of pollutants using time-integrated passive samplers and toxicological evaluation using rapid in-vitro and in-vivo assays. The outcomes provide inexpensive tools for sensitive assessment of pollutant effects and baseline data to derive intervention guidelines based on mixture toxicity.

LP0560704 Dr N Paulsen; Prof VJ Callan; Mr PG Monaghan; Dr OB Ayoko; Mrs SD Simmons

Title: Team processes, identification, and reliable performance: Implementing the Balanced Scorecard in health service teams

2005 : \$58,000

2006 : \$56,000

2007 : \$56,000

Category: 3502 - BUSINESS AND MANAGEMENT

APA(I) Award(s): 1

Partner Organisation(s)

Queensland Health

Administering Institution: The University of Queensland

Summary:

The aims of this research are to examine factors that enhance the reliability of performance of health service teams. These teams are required to deliver outcomes with a high degree of consistency and reliability. We draw on social identity theory and research on high reliability organisations (HROs) to identify the factors that contribute to improved reliability in teams. Second, we explore whether organisational strategy processes such as the Balanced Scorecard (BSC) infiltrate work processes and

influence team outcomes. Our aim is to examine whether the implementation of the BSC interacts with team dynamics to enhance the reliability of performance in teams.

LP0560890 Prof HP Possingham; Dr CV Wilcox; Dr J Worthington Wilmer; Mr D Niejalke

Title: **A Bayesian framework for metapopulation dynamics of species in endangered communities: integrating demographic, environmental and genetic data.**

2005 : \$108,896

2006 : \$109,765

2007 : \$110,199

Category: 2707 - ECOLOGY AND EVOLUTION

APDI Dr CV Wilcox

Partner Organisation(s)

Western Mining Corporation

Queensland Museum

Administering Institution: The University of Queensland

Summary:

Biodiversity conservation is a spatial and temporal problem. Populations change in time, constrained by the structure and spatial division of their habitat. This study will develop a tool that can be used to assess the influence of environmental fluctuations and landscape heterogeneity on the persistence of endemic species in the mound springs of the Great Artesian Basin. Using a Bayesian framework to integrate data from diverse sources, we will develop models for the biodiversity impacts of groundwater withdrawal and climate change in central Australia. These tools are essential for management of this ecosystem, which has been listed as an "endangered community" under the Environmental Protection and Biodiversity Conservation Act of 1999.

LP0560611 Dr M Sterling; Prof GA Jull; A/Prof JA Kenardy; A/Prof LB Connelly

Title: **Prediction of outcome following whiplash injury: a multicentre international prospective study**

2005 : \$223,144

2006 : \$135,243

2007 : \$163,624

Category: 3210 - CLINICAL SCIENCES

Partner Organisation(s)

MAIC (QLD)

Suncorp General Insurance

The Centeno Clinic

Administering Institution: The University of Queensland

Summary:

The main aim of this study is to validate a set of biological and psychological prognostic indicators of outcome following whiplash injury that we have previously identified in a single centre prospective cohort. Validation will be in the context of a large multicentre international cohort. This will allow stakeholders involved in whiplash such as health care and insurance providers to predict with confidence both those persons at risk of developing chronic symptoms as well as those with a good chance of full recovery. Furthermore the validation of the predictive capacity of these indicators will, for the first time, provide predictive markers that are amenable to specific early multiprofessional treatment interventions.

LP0561070 A/Prof RW Truss

Title: **Effect of processing on microstructure of 'Biocrete' organo-mortar**

2005 : \$29,148

2006 : \$29,148

2007 : \$29,148

Category: 2914 - MATERIALS ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Flexitech Pty Ltd

Administering Institution: The University of Queensland

Summary:

'Biocrete' is a novel organo-mortar whose composition differs substantially from conventional Portland cement based polymer mortars. It is a relatively new product with significant commercial potential because of its acid resistance and ease of application. However, the microstructure of this material is extremely complex and not well understood nor is the way the microstructure develops during the processing and application of the material known. This project will use advanced materials characterisation methods to elucidate the microstructure and to quantify the effects of processing parameters on the microstructure. Such information is critical for further formulation and application development in important areas such as sewer relining.

LP0560809 Dr GW Wardell-Johnson; Dr DV Pullar; Dr K Van Niel; Dr ND Burrows

Title: Towards a Landscape Conservation Culture - broadening the spatio-temporal scope of ecological studies to anticipate change in Australian forested ecosystems

2005 : \$78,294
2006 : \$69,674
2007 : \$74,354

Category: 3008 - ENVIRONMENTAL SCIENCES

APA(I) Award(s): 2

Partner Organisation(s)

CALM

Administering Institution: The University of Queensland

Summary:

This project in south-western Australia develops an integrated framework to interpret knowledge about landscape processes and future trajectories of species and assemblages at different spatio-temporal scales. A synthesis of data obtained through repeated biological surveys and remote sensing, with spatial data handled through GIS is used in an explanatory modeling approach to make predictions under different disturbance regimes. Models built from combined spatial layers exhibiting continuous variation in environmental variables will provide area-class maps at different scales, allowing the portrayal of uncertainty associated with vegetation units - a considerable innovation over maps depicting homogenous discrete zones.

LP0560763 A/Prof RI Westwood; Dr N Paulsen; Dr PA Rowe; Dr T Bramble; Dr PD Renfrow

Title: Culture Change for a Sustainable Future: Strategy, Culture and Subculture in Queensland Health

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

Category: 3502 - BUSINESS AND MANAGEMENT

APA(I) Award(s): 1

Partner Organisation(s)

Queensland Health

Administering Institution: The University of Queensland

Summary:

The project investigates the strategic change processes of a State Health authority. The organisation has launched a series of change efforts in recent years, the most current being a major strategic initiative that is being implemented via a Balanced Scorecard methodology. The project examines longitudinally that change implementation process and its affects, particularly the impact on organisational culture. Theoretically, it explores the existence of organisational subcultures and how they function as a resource by organisational members to make differential interpretations of the change process. It focuses on subcultures formed around professional identifications and the extent to which they align with the change.

LP0560423 Dr JL Young; Prof D Wilkinson; Dr DS Eley; Prof DG Hegney; Ms S Garside

Title: Recruit to Retain: From Medical School to Rural Practitioner

2005 : \$21,188
2006 : \$20,909

Category: 3302 - CURRICULUM STUDIES

Partner Organisation(s)

Central and Southern Queensland Training Consortium Ltd

Administering Institution: The University of Queensland

Summary:

In order to make use of assets and resources the Government is providing for medical training and to address the problem of inequitable distribution of GPs in Australia this project aims to develop a theoretical yet practical understanding of the personal attributes of medical students, residents, registrars and general practitioners that are directly applicable to their recruitment and retention into rural practice. Application of this theoretical perspective will inform and help modify existing training for medical professionals at all levels who have opted for a rural pathway in order to better equip and retain them for life in rural practice.

University of Southern Queensland

LP0561047 A/Prof BG Waldrip; A/Prof VR Prain; Prof DF Treagust; A/Prof BA Knight; Dr JM Green

Title: ENHANCING SCIENCE LEARNING THROUGH A FOCUS ON MULTIPLE AND MULTI-MODAL REPRESENTATIONS OF CONCEPTS

2005 : \$85,318
2006 : \$87,024
2007 : \$100,764

Category: 3303 - PROFESSIONAL DEVELOPMENT OF TEACHERS

Partner Organisation(s)

Education Queensland
Catholic Education Office
Flora Hill Secondary College
Kangaroo Flat Secondary College
Goldern Square Secondary College

Administering Institution: University of Southern Queensland

Summary:

This project draws on recent theoretical accounts of multiple and multi-modal representations of science understandings to devise, trial and evaluate new approaches to teaching and learning science concepts. These approaches, catering for diverse learning pathways, focus on student understanding that representations of scientific knowledge are multi-modal and interconnected. The project is significant in providing an innovative way to engage upper primary and junior secondary students in regional and rural Australian contexts in learning science, and is expected to promote more effective learning and more positive student attitudes to the subject.

South Australia

The Flinders University of South Australia

LP0560643 Prof AJ Goldsmith; Dr S Dinnen; Dr A McLeod

Title: Policing the Neighbourhood: Australian Police Peace-keeping, Capacity-building, and Development in Timor-Leste, Solomon Islands and Papua New Guinea

2005 : \$188,791
2006 : \$162,000
2007 : \$124,000

Category: 3904 - LAW ENFORCEMENT

APDI Dr A McLeod

Partner Organisation(s)

Australian Federal Police

Administering Institution: The Flinders University of South Australia

Summary:

Australia's involvement in policing offshore is growing rapidly. Timor-Leste and the Solomon Islands, and shortly, Papua New Guinea, feature in these developments. The Australian Federal Police is now a key player in regional security and development. This study takes stock of this trend. Through three case studies, the project examines the grounds for providing assistance, the different cultural and political contexts in which assistance is taking place, the forms of that assistance, and the achievements and shortcomings of previous and current police assistance missions. It will also provide an analytical framework for future engagements of this nature.

LP0560406 Dr JJ McIntyre; Prof A Roche; Prof JF Roddick; Dr DL Morgan; A/Prof M Metcalfe

Title: Addressing Indigenous complex health, housing and social inclusion issues through critical systems approaches to build workforce capacity

2005 : \$24,148
2006 : \$25,748
2007 : \$26,548

Category: 3212 - PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Department of Human Services
Neporendi Aboriginal Forum Inc.

Administering Institution: The Flinders University of South Australia

Summary:

The multidisciplinary research comprises the researchers, Department of Human Services and Neporendi Aboriginal Forum Inc who address complex Indigenous social problems in partnership. The participatory design provides effective solutions, both in treatment and community settings through the development of a computer-modeling technique that articulates and informs partnership arrangements. The research offers a practical approach to address the communication and policy issues relating to Indigenous family violence, social inclusion, homelessness and drug misuse. It develops and pilots an integrated systems management tool that builds the capacity of the human services workforce to manage referrals across services to maximize user outcomes.

LP0560301 Prof RT Withers; Dr K Lyons

Title: An investigation into performance characteristics of elite male and female soccer players in training and competition environments.

2005 : \$41,786
2006 : \$36,786
2007 : \$27,786

Category: 3214 - HUMAN MOVEMENT AND SPORTS SCIENCE

APA(I) Award(s): 1

Partner Organisation(s)

Australian Institute of Sport

Administering Institution: The Flinders University of South Australia

Summary:

The aim of the project is to identify critical determinants of soccer performance that will improve preparation of Australian teams for international competition. Three studies are proposed. Study One will utilize a decade of physical performance and anthropometric data on male and female soccer players at the Australian Institute of Sport to identify physical performance standards characteristic of elite players. Study Two will comprise match analyses to delineate crucial physical, technical and tactical aspects of individual and team performance. Study three will identify characteristics specific to elite goalkeepers that may be used for monitoring responses to training and competition.

The University of Adelaide

LP0560578 Dr JM Facelli; Prof AD Austin; Dr SC Donnellan

Title: **Population genetics and dynamics of orchids and their pollinators in fragmented landscapes of South Australia.**

2005 : \$71,547

2006 : \$71,547

2007 : \$71,547

Category: 2707 - ECOLOGY AND EVOLUTION

Partner Organisation(s)

South Australian Museum

Department for Environment and Heritage

Earth Sanctuaries Foundation of Australia Inc.

Royal Zoological Society of South Australia Inc.

Administering Institution: The University of Adelaide

Summary:

Many species of orchids in fragmented landscapes need active management to secure their persistence. The effects of fragmentation can be direct (e.g. reduction in population sizes, environmental quality, increased inbreeding, reduced dispersal ability), or indirect through negative effects on pollinators. Little information exists on the complex interactions between effects of fragmentation on plants and their pollinators. This project aims to understand how fragmentation affects the genetic diversity and demography of selected populations of orchids and their pollinators in the Mt.Lofty/Flierieu Peninsula area. This information will help to develop and implement more effective conservation plans.

LP0560550 Dr RK Foster; Dr AE Nettelbeck; Dr PA Clarke

Title: **Frontier Conflict in History and Memory: South and Central Australia from European settlement to the Present.**

2005 : \$22,716

2006 : \$22,640

2007 : \$20,475

Category: 4301 - HISTORICAL STUDIES

Partner Organisation(s)

South Australian Museum

State Records of South Australia

Administering Institution: The University of Adelaide

Summary:

The aims of this project are to map, as comprehensively as possible, the nature and extent of conflict between Aboriginal people and Europeans in South and Central Australia and to analyse the ways in which those events have survived in social memory. This is significant in light of recent contestations in Australian history about the degree and remembrance of conflict. No extensive regional study has been conducted for South and Central Australia. This project will contribute new research for academic and general social use.

LP0560552 Dr PA Gell

Title: **Sediment-derived scenarios of wetland status and change, the Lower River Murray, SA.**

2005 : \$59,460

2006 : \$58,365

2007 : \$70,128

Category: 2707 - ECOLOGY AND EVOLUTION

Partner Organisation(s)

River Murray Catchment Water Management Board

Administering Institution: The University of Adelaide

Summary:

River Murray wetlands changed early in European settlement so the pre-impact conditions are invisible to managers relying on anecdote or monitoring. Baseline conditions of wetlands can be derived from ecological archives preserved in sediments.

Fossil diatom assemblages, reflective of past water quality, and other fossils, will be exhumed from sediment sequences to reconstruct wetland conditions. The integration of multiple indicators of the past will generate graphic re-enactments of natural wetland dynamics. These will provide a vision for community and government on-ground managers enabling them to perceive appropriate targets for wetland state and so generate measures to work towards sustainable conditions.

LP0560887 Dr MP Hand; Dr GS Heinson; Dr BF Schaefer; Dr PG Betts; Dr KM Barovich; Dr NG Direen; Dr JD Foden

Title: **Deciphering the tectonic history of the Musgrave Block to assist mineral explorers and regional synthesis programs**

2005 : \$110,000
2006 : \$110,000
2007 : \$110,000
2008 : \$90,000

Category: 2601 - GEOLOGY

Partner Organisation(s)

Primary Industries and Resources South Australia
Northern Territory Geological Survey

Administering Institution: The University of Adelaide

Summary:

Effective mineral exploration strategies in complex basement terrains are increasingly reliant on integrated, data-rich, tectonic models. In this project we will focus a large multidisciplinary team to develop a tectonic model for the evolution of the Musgrave Block in central Australia. This large, poorly understood terrain occupies a critical structural location, separating the northern and southern Australian cratons. By constraining models of crustal evolution and architecture, the project will underpin future mineral exploration programs in this highly prospective greenfields region and define the role of the Musgrave Block in the assembly of Proterozoic Australia.

LP0560741 Dr SP Hunt; Dr GW O'Brien; Dr PJ Boulton

Title: **A new geomechanical tool for the evaluation of hydrocarbon trap integrity.**

2005 : \$30,531
2006 : \$28,231
2007 : \$28,031

Category: 2907 - RESOURCES ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Primary Industries and Resources of South Australia

Administering Institution: The University of Adelaide

Summary:

Hydrocarbon exploration drilling is an intrinsically high risk, high cost activity. Even once a potential reservoir is located there remains the possibility that under recent geological activity the trap has become breached and leaked due to failure of overlying or adjacent rock. This Project will develop a technique that builds on current predictive techniques, and numerical modelling methods, to produce a series of sub-surface geomechanical models for four important petroleum basins. This new and integrated geomechanical approach will improve current predictive capabilities for detecting breached traps, thus enhancing prospectivity in the major petroleum provinces of Australia.

LP0560480 Prof M Sedgley; Dr BN Kaiser; Dr CM Ford

Title: **Understanding, controlling and improving the flavour of almond kernels**

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

Category: 3003 - HORTICULTURE

Partner Organisation(s)

Almond Board of Australia

Administering Institution: The University of Adelaide

Summary:

Almond kernels may be sweet, semi-bitter or bitter, with the first two categories marketed as fresh nuts, while the latter are used in processed products such as marzipan. Semi-bitter kernels have a more interesting flavour than sweet kernels and we require tools to breed for this character. The bitter flavour is imparted by amygdalin via the cyanogenic pathway. This project will characterise the genetic control of sweet, semi-bitter and bitter flavour, amygdalin accumulation in developing kernels, and key enzymes in the cyanogenic pathway. Almond populations segregating for these traits will be used and the data will be integrated into the Australian almond meiotic map.

LP0561187 Prof RA Vincent; Mr JR Nairn

Title: **Radar Studies of Rainfall with Applications to Forecasting**

2005 : \$24,148
2006 : \$24,148
2007 : \$24,148

Category: 2606 - ATMOSPHERIC SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Australian Bureau of Meteorology

Administering Institution: The University of Adelaide

Summary:

Weather watch radars are used to predict severe weather events, with echo strengths depending on the number of rain drops in the beam. With suitable calibration the echo intensities can be used to predict rainfall rates. In 2005 the Bureau of Meteorology will establish a new weather radar near Adelaide. We will compare rainfall estimates made with the new radar with results from a VHF profiler that accurately measures rain drop distributions and rainfall. The aim is to test the weather radar estimates of rainfall rates and their uncertainties. Outcomes will have applications in flood forecasting and hydrology.

University of South Australia

LP0560300 Dr DA Beattie; A/Prof D Fornasiero; Dr J Addai-Mensah; Prof J Ralston

Title: **Polymers at Mineral Interfaces**

2005 : \$200,000

2006 : \$210,000

2007 : \$210,000

Category: 2501 - PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

APA(I) Award(s): 3

Partner Organisation(s)

AMIRA International

Administering Institution: University of South Australia

Summary:

Polymers are used widely in the mineral processing industry to alter mineral surfaces, often selectively. In spite of this, there remains a gap in our understanding of how polymers interact with mineral surfaces and how their surface structure affects the mineral surface properties. The aim of this project is to fill this gap by performing fundamental research on adsorbed polymer structure and properties, coupled with applied research on real mineral ores from a number of mineral companies. The combination of fundamental and applied research makes this project unique in the study of polymers at mineral interfaces, and will enable us to solve real processing problems through a rational choice of polymers for a given application.

LP0560551 Dr HL Cameron; Dr L Kerr

Title: **Communities, trust, governance and partnerships: The role of Local Government in community management and development in areas of social disadvantage**

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 3701 - SOCIOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

City of Salisbury

Administering Institution: University of South Australia

Summary:

This project is significant as much contemporary social policy is predicated on normative assumptions of "community" "trust" "collective efficacy" "social capital", which are contested, contextual concepts. Importantly there are differences in meaning and practice of "community" between areas of advantage and disadvantage. In being based on these assumptions policy implementation, which increasingly relies on community capacity, infrastructure and human resources, may have the unintended outcome of exacerbating disadvantage. This project examines these contested concepts and explores Local Government's role in creating local partnership options and modes of governance to facilitate equitable outcomes for disadvantaged communities

LP0561211 Prof PR Howe; Dr JD Buckley; Adj/Prof A Ferrante

Title: **Development and application of an index for substantiating health benefits of omega-3 enriched foods**

2005 : \$59,613

2006 : \$91,483

Category: 2901 - INDUSTRIAL BIOTECHNOLOGY AND FOOD SCIENCES

Partner Organisation(s)

Australian Pork Ltd
Bartlett Grain Pty Ltd

Administering Institution: University of South Australia

Summary:

A cost-effective means of substantiating health claims for omega-3 (w3) rich functional foods is needed to fully exploit growing consumer demand for these products. In a two-stage approach, cardiovascular and anti-inflammatory benefits of w3 will be assessed in human dietary trials; improvements of health status in response to graded doses of w3 supplements will be correlated with docosahexaenoic acid (DHA) levels in erythrocytes (DHA Index). Simple bioavailability trials can then be used to determine the intakes of foods required to attain the DHA Index, thus confirming their potential to deliver specified health benefits. Initial trials will support health claims for w3 rich fresh pork and processed pork products.

LP0561128 Dr S Kumar; Prof Dr PJ Majewski; Mr PJ Kentish; Dr AM Ingman

Title: **Advanced Intramedullary Nailing Systems**

2005 : \$54,921

2006 : \$53,852

Category: 2915 - BIOMEDICAL ENGINEERING

Partner Organisation(s)

Austofix

Administering Institution: University of South Australia

Summary:

The proposed project is aimed at developing advanced orthopaedic implants (intramedullary nails and associated locking screws) commonly used for bone fracture repair. These new generation metallic implants will be developed using a comprehensive research approach centred on physico-chemical and mechanical properties investigations. A new generation of intramedullary nailing systems with superior design and mechanical properties (small diameter and high strength) and improved bone fixation is the key expected outcome. The knowledge generated in the project is expected to lead to the growth of the Industry Partner (Austofix). Training of a world class researcher in the multidisciplinary field of biomaterials will be an additional outcome.

LP0560625 Prof J Ralston; A/Prof D Fornasiero; Dr DM Weedon; Dr A Vince

Title: **Optimisation of Coal Flotation Performance**

2005 : \$181,985

2006 : \$159,907

2007 : \$162,414

Category: 2907 - RESOURCES ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

BM Alliance Coal Operations Pty Ltd

Administering Institution: University of South Australia

Summary:

The aim of this project is to improve the cleaning of coal by flotation across the whole particle size range with maximum rejection of mineral matter and decreased reagent consumption. The factors that influence coal flotation will be identified and used to predict coal flotation performance. In particular the ultimate separability of coal will be addressed through a unique combination of in- and ex- situ pulp chemical and physical measurements, embedded in a comprehensive model of coal flotation.

LP0560529 Prof R Sharp; Prof Dr JM McKay

Title: **Social sustainability of emerging environmentally sensitive industries: a case study of oyster aquaculture on the South Australian Eyre Peninsula.**

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 3701 - SOCIOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Eyre Regional Development Board Inc

Administering Institution: University of South Australia

Summary:

The Eyre Peninsula oyster aquaculture industry has grown rapidly over the last 15 years and an assessment of the factors affecting its long-term sustainability is urgently required. The project will consider aquaculture in relation to social, natural and economic systems, extending the Capitals Framework of assessing rural sustainability developed by the Association of Social Science in Australia. The study combines quantitative and qualitative data in order to assess changes in the stocks of community capital as oyster aquaculture develops. A key aim of the research is to inform the development of policies and governance structures in Australian aquaculture management.

LP0561176 A/Prof LA Sheppard; Ms CM Landorf; Dr A Smith

Title: Promoting Healthy Eating Habits: an investigation of the link between healthy eating and school

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 3506 - SERVICES

APA(I) Award(s): 1

Partner Organisation(s)

Spotless Services Limited

Women's and Children's Hospital

Administering Institution: University of South Australia

Summary:

The incidence of childhood obesity is of growing national concern. This is evidenced by the considerable media attention given to the problem and its place as a national research priority. While there has been a focus on the link between childhood obesity and physical activity, less research has been undertaken into the link between obesity and nutrition. This research project aims to investigate the link between healthy eating and the design and management of school canteens with the view to developing design and management guidelines that will influence the life-long eating habits of Australian children.

Western Australia

Curtin University of Technology

LP0560346 Prof E Chang; Prof TS Dillon; Dr JW Rahayu; Dr L Brankovic; Mr A Talevski

Title: Trusted Environment for Virtual Collaboration

2005 : \$150,000

2006 : \$150,000

2007 : \$150,000

Category: 2899 - OTHER INFORMATION, COMPUTING AND COMMUNICATION SCIENCES

APA(I) Award(s): 1

APDI Mr A Talevski

Partner Organisation(s)

Australian Project Management Services

AZURN International Pty Ltd

Specialised Container Transport Limited

Administering Institution: Curtin University of Technology

Summary:

Internet business transactions highlight Trust. This project explores creating trust between business peers to aid business contact. Aims: 1 Define concepts & relationship of Trust between peers 2 Develop Trust protocol & infrastructure managing P2P communication 3 Propose methodology showing trustworthiness values after interaction 4 Develop trust modelling language specifying trust relationships between peers for storing in trust repositories 5 Apply trust management protocol creating identity & behaviour trust in decentralized environments 6 Apply trust support system 7 Develop trust modelling language letting partners realize trust interaction outcomes. Multisite Project Management firms used are critical to smart information use.

LP0560401 Dr MM Gagnon; Mr M Bartsch

Title: DEVELOPMENT OF NOVEL ENVIRONMENTALLY ACCEPTABLE DRILLING FLUIDS

2005 : \$55,513

2006 : \$51,446

2007 : \$42,716

Category: 3008 - ENVIRONMENTAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

RHEOCHEM Limited

SANTOS LTD

Administering Institution: Curtin University of Technology

Summary:

An innovative technique of micro-emulsion of vegetable oils and water has been developed to create a new generation, low-toxicity drilling fluids for use by the petroleum exploration industry. The project aims at investigating the chronic toxicity of new generation drilling fluids to fish, and re-formulate the drilling fluids to minimize the toxic ingredients. Biomarkers of exposure and effects such as, but not limited to, EROD induction, DNA damage and stress proteins will be explored in fish exposed chronically to drilling fluids or their ingredients. Outcomes include environmentally acceptable drilling fluids, and will represent the start point for multi-million dollars agriculture and manufacturing industry in Australia.

LP0560524 Dr MM Gagnon; Dr T Rose

Title: Linking River Health with Urban Drains: the Swan-Canning River Case Study

2005 : \$48,909
2006 : \$51,737
2007 : \$42,577

Category: 3008 - ENVIRONMENTAL SCIENCES

Partner Organisation(s)

Department of Environment

Administering Institution: Curtin University of Technology

Summary:

The continuous deterioration of the Swan-Canning estuary in WA has triggered the need to identify the effects of chronic contamination on biota. Contaminant entry points into the river have been identified as being urban drains and the Helena river.

The aim of this research is to relate effects observed in "drain fish" to effects observed in "river fish". Biomarkers of fish health such as EROD and ECOD activities, DNA damage, stress proteins, biliary metabolites, etc. will be compared between drain and river fishes. Chemical analysis of contaminants will complement biomarker determinations. The outcomes will be applicable Australia wide, and provide information to better manage urban drain systems to reduce their impacts on native biota.

LP0560871 Prof BB Lamont; Prof NJ Enright

Title: Successful rehabilitation of species-rich heathlands after mining for heavy minerals

2005 : \$45,000
2006 : \$45,000
2007 : \$45,000

Category: 2707 - ECOLOGY AND EVOLUTION

APA(I) Award(s): 1

Partner Organisation(s)

Iluka Resources Pty Ltd

Administering Institution: Curtin University of Technology

Summary:

The Eneabba sandplains are located in one of the world's 25 'hotspots' for biodiversity and part of it is mined for heavy minerals. We seek to evaluate the ecology of rehabilitated minesites by comparing their species composition, spatial arrangement, functional attributes and response to experimental fire with that of the surrounding heathlands. This will enable us to gauge the new system's resilience to fire and recommend corrective measures necessary to modify the pathway of restoration of the post-mining ecosystems as required. Because we take spatial relations and disturbance into account our approach is innovative and relevant to restoration ecology generally.

LP0560753 Prof GM Parkinson; Dr PD Fawell; Dr OM Newman

Title: Iron and Silica Co-precipitation from Industrial Zinc solutions

2005 : \$24,148
2006 : \$24,148
2007 : \$24,148

Category: 2599 - OTHER CHEMICAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Zinifex Ltd.

Administering Institution: Curtin University of Technology

Summary:

The aim of this research project is to gain a molecular level understanding of the physical processes that occur during the co-precipitation of iron and silica from electrolytic zinc liquors. The research program will be specifically focussed on systems in which similar concentrations of iron and silica are present in the liquor. Such systems are of interest to the industry partner as they represent the expected characteristics of future process requirements, but they are also of broader relevance to a range of mineral processing industries, as iron and silica occur as impurities in many mineral ores.

LP0560851 Prof GP Pervan; Prof RA Hirschheim

Title: Analysis of effective offshoring processes for Australian organisations

2005 : \$50,000
2006 : \$50,000
2007 : \$60,000

Category: 2801 - INFORMATION SYSTEMS

APA(I) Award(s): 1

Partner Organisation(s)

Repcol Limited

Administering Institution: Curtin University of Technology

Summary:

The offshore outsourcing of business processes is a new, largely unexplored and under-theorised area that is placing great pressure on Australian organisations. This research aims to develop models of best practice for offshoring by Australian

organisations through a series of cases studies commencing with the industry partner, Repcol Limited. The research will identify what business processes are core, what processes can be offshored, whether to use third parties or have captive operations, and what factors need to be addressed in order to utilise offshoring to strengthen Australian organisations and enable them to take advantage of global strategic opportunities for growth.

LP0561175 Dr J Zhu; Dr S Rosenberg

Title: Development of a Novel Flue Gas Desulphurization Technology for Alumina Refineries

2005 : \$55,000

2006 : \$40,000

2007 : \$35,000

Category: 2911 - ENVIRONMENTAL ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Worsley Alumina Pty Ltd

Administering Institution: Curtin University of Technology

Summary:

This project aims to develop a novel technology of flue gas desulphurization for alumina industry. The successful completion of this project will provide a practical solution to the SOx emission problem in alumina refineries. Specifically, we aim to make use of the waste causticiser sludge discharged during the causticisation of the liquor streams and the used filter aid after the polishing filtration of the refinery pregnant liquors as reagent to remove SOx emitted by the power house and the alumina calciners. We also aim to recover some alumina during the process of flue gas desulphurization thus further reducing the cost of air pollution control.

Edith Cowan University

LP0560339 Em/Prof J Smyth; A/Prof B Down

Title: Enhancing School Retention: School and Community Linkages in Regional/Rural Western Australia

2005 : \$70,000

2006 : \$70,000

2007 : \$60,000

Category: 3301 - EDUCATION STUDIES

Partner Organisation(s)

West Australian Department of Education and Training

Administering Institution: Edith Cowan University

Summary:

One of the most intractable issues confronting schools, communities and education systems in Australia, is how to create and sustain the conditions to retain young people for twelve years of schooling, particularly in regional/rural areas. This project will ethnographically map, investigate and describe a small number of schools and communities that have improved their levels of school retention. A Profile of Conditions Supporting Improved Retention will be developed and validated using an action research process. Finally, a set of materials focussing on the conditions promoting school retention, will be developed for wider use by schools and communities.

Murdoch University

LP0560904 Prof I Bray; Dr D Fursa; Prof AT Stelbovics; Dr R Gomperts

Title: Computational methods in atomic collision theory

2005 : \$40,000

2006 : \$40,000

2007 : \$40,000

Category: 2403 - ATOMIC AND MOLECULAR PHYSICS; NUCLEAR AND PARTICLE PHYSICS; PLASMA PHYSICS

Partner Organisation(s)

SGI

Administering Institution: Murdoch University

Summary:

We will develop computational methods for solving interactions between particles on the atomic scale. Computational problems, of particular interest to the industry partner, are the treatment of large-scale ill-conditioned linear systems, and the extension of the Gaussian molecular structure package to collision physics. We have been world-leaders in the field of atomic collision theory for almost a decade, and now, utilising the latest software and hardware, will have the capacity to extend the numerical techniques to a vast range of collision systems of interest to science and industry, where visualisation and sheer computer power will play a major role in both code development and production runs.

LP0560971 Prof MG Jones; Dr VA Vanstone

Title: Field based molecular diagnostics for identification of plant parasitic nematodes

2005 : \$60,000

2006 : \$80,000

2007 : \$80,000

Category: 2704 - BOTANY

Partner Organisation(s)

Dept of Agriculture WA

Administering Institution: Murdoch University

Summary:

Nematodes are economically important pests of many agricultural and commercially grown plants. We have shown "proof-of-Concept" that plant parasitic nematodes can be identified by protein profiling using MALDI-TOF mass spectroscopy. In this project advanced techniques of proteomics and associated bioinformatics will be used to identify, isolate and characterise proteins that are specific to economically important nematode species and races, and to identify diagnostic proteins or epitopes. The diagnostic proteins will be used to generate specific monoclonal antibodies that will be incorporated into immunochemical "Lateral Flow" devices. These will provide on-site tests to identify nematodes for growers and quarantine services.

LP0560477 Dr E Koenigsberger; A/Prof PM May; A/Prof GT Hefter; Dr M Filella

Title: Modelling Bayer Plant Liquors for Industrial Process Simulations

2005 : \$45,618

2006 : \$46,850

2007 : \$48,077

Category: 2501 - PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

Partner Organisation(s)

Worsley Alumina Pty Ltd

Alcoa World Alumina Australia

Alcan Engineering Pty Ltd

Comalco Limited

Administering Institution: Murdoch University

Summary:

Alumina refining is one of Australia's most important industries but it exists within an increasingly competitive global market. More meaningful computer simulations of the Bayer process, covering conditions far beyond current plant operating ranges, are seen by Australian producers as an important way to increase future productivity, minimise energy consumption and cut greenhouse emissions. To achieve these aims, we must develop hitherto unavailable modelling capabilities for predicting the behaviour of Bayer plant liquors. The more robust thermodynamic models developed in this project will enable more realistic simulations, which are a prerequisite for innovative process design and optimisation.

LP0560832 Prof Dr TJ Lyons; Dr IJ Foster

Title: Monitoring and Predicting Frost Events in the Agricultural Area of WA

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 2606 - ATMOSPHERIC SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Department of Agriculture Western Australia

Administering Institution: Murdoch University

Summary:

Frost is commonly ranked by farmers as the second most important climate risk after rainfall variability. Thus reliable nocturnal temperature forecasts are of paramount importance in understanding the potential for frost formation and enabling its timely prediction and detection. Such forecasts would allow appropriate active or passive management responses. Utilising the existing meteorological network of the Department of Agriculture, this project aims to develop an integrated frost prediction system that will provide timely estimates of both the spatial and temporal extent of frost events for farmers and agribusiness.

LP0560860 Dr NJ Welham; Dr PA Anderson

Title: Enhanced metal recovery from a modified Caron leach of mixed nickel-cobalt intermediate concentrate

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 2907 - RESOURCES ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)

Queensland Nickel Industries Pty

Administering Institution: Murdoch University

Summary:

Nickel metal production from lateritic deposits involves dissolution in acid followed by purification and selective alkaline precipitation of the nickel and cobalt as hydroxide phase. Hydroxides from several plants are transported to a central refinery where the hydroxide is redissolved in ammoniacal solutions and nickel and cobalt are separated and reduced to metal. This project will examine the effect of preparation conditions and aging of the hydroxide precipitate on the refining process.

MORE

The University of Western Australia

LP0561143 Dr MP Burton; A/Prof D Pannell

Title: Implementation of a strategic framework for investment for Natural Resource Management: evaluation and development

2005 : \$24,148

2006 : \$24,148

Category: 3402 - APPLIED ECONOMICS

APA(I) Award(s): 1

Partner Organisation(s)

Department of Ag. WA

Administering Institution: The University of Western Australia

Summary:

If public funds applied to natural resource management are to achieve the highest level benefit, then the potential projects have to be prioritized. This is difficult when the expected benefits are both incommensurate (e.g. protection of roads v. areas of biodiversity) and uncertain. This project will evaluate alternative decision support methods for making such choices, with a particular focus on salinity management in Western Australia, although it is anticipated that the lessons learned could be applied to other NRM policies. The outcome will be a contribution to aid participatory decision making.

LP0561001 Dr AD George; A/Prof MC Dentith; Dr D Lockhart; Mr M Fittall

Title: Latest Jurassic history of the Exmouth Sub-basin, North West Shelf: lowstand deposits of the basal Barrow Group

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 2601 - GEOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

BHP Billiton Petroleum Pty Ltd

Administering Institution: The University of Western Australia

Summary:

Sand-filled canyons may be excellent petroleum reservoirs, however, interpretation of formation and sediment filling of these major deep marine features is controversial. This project seeks to elucidate the origin of canyons and associated basin floor fans by combining sedimentological data with seismic interpretation and modelling to generate new insights into the history of the Exmouth Sub-basin during the Latest Jurassic. In particular, this project provides an opportunity to explore the role of tectonism in canyon formation, the results of which will be of international interest. Geological models developed in this project will enhance our understanding of deep marine systems.

LP0561076 Prof RJ Gilkes; Dr ID Mackinnon

Title: An evaluation of novel aluminosilicate materials based on modified kaolins for environmental

2005 : \$65,450

2006 : \$70,000

2007 : \$75,000

Category: 3099 - OTHER AGRICULTURAL, VETERINARY AND ENVIRONMENTAL SCIENCES

Partner Organisation(s)

NanoChem Holdings Pty Ltd.

Administering Institution: The University of Western Australia

Summary:

We have shown that simple and inexpensive modification of kaolin produces materials that adsorb large amounts of ammonium (N) and phosphate (P). We intend to evaluate and develop these materials for water treatment, so as to reduce N, P inputs into rivers and wetlands. The materials can then be used as fertilisers. Similarly addition of the materials to sandy soils to reduce leaching losses of N, P from fertilisers will be investigated. The major outcome of this research will be effective and inexpensive procedures for reducing eutrophication due to N, P from waste water and fertilisers.

LP0561228 Dr G Hertzler

Title: Designing Weather Derivatives and Yield Index Contracts for Rural Australia

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 3402 - APPLIED ECONOMICS

APA(I) Award(s): 1

Partner Organisation(s)

Department of Agriculture of Western Australia

Administering Institution: The University of Western Australia

Summary:

This project addresses the security of communities in rural areas. Successful risk management based on weather derivatives and yield index contracts will stabilise the income of rural industries and improve the financial viability of rural communities. It will allow systemic risks from climate change to be reinsured with financial institutions, maintain some of Australia's most important export industries and help maintain leadership in climate risk research. It will use state of the art methods to derive and estimate nonlinear yield indexes, and develop new option pricing methods to value the premium that farmers should pay for a yield index contract. Finally it will evaluate the likely adoption by farmers using nonlinear portfolio theory.

LP0560955 Dr M Keep; Prof BL Kennett; Dr P Cummins

Title: The neo- and seismo-tectonics of northwestern Australia

2005 : \$125,000

2006 : \$125,000

2007 : \$125,000

Category: 2601 - GEOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Woodside Energy

Administering Institution: The University of Western Australia

Summary:

Australia's two largest earthquakes occurred in NW Australia (magnitudes 7 and 7.9 in 1941 and 1906). Onshore and offshore geologic evidence indicates other such events in recent geological history. Our present seismic database records no such events. We propose to document the nature, frequency, intensity, distribution and possible causes of seismicity in NW Australia, through deployment of seismograph arrays. We will test the effects of basement reactivation, determine the crustal structure beneath the cratonic mass, examine onshore and offshore faults, determine local and regional stress orientations and investigate implications for petroleum production in the region, and whether natural resource extraction causes local seismicity.

LP0560923 Dr DV Murphy; Dr CB Hinz

Title: Integrating microbiology and climatic drivers to determine triggers for nitrous oxide emissions from arable soils in semi-arid Western Australia.

2005 : \$118,613

2006 : \$129,865

2007 : \$139,463

Category: 3001 - SOIL AND WATER SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)

Department of Agriculture Western Australia

Administering Institution: The University of Western Australia

Summary:

Increasing nitrous oxide emissions from soil to the atmosphere are a concern as they contribute to global warming and the destruction of the ozone layer. While 70-81% of this increase has been attributed globally to agricultural soils, the factors controlling emissions from arable soils in southern Australia are not well understood. We aim to characterise and model the relationship between the soil microbial community responsible for nitrous oxide emissions and soil water availability. Understanding the processes responsible for nitrous oxide emissions will enable us to change the way we manage our semi-arid soils so as to minimise nitrous oxide emissions.

LP0560884 Prof K Siddique; Dr R Jones; Dr A Diggle

Title: Predictive Models & Decision Support Systems for Virus Diseases and Aphid Vectors of Lupin and Canola

2005 : \$60,000

2006 : \$60,000

Category: 2703 - MICROBIOLOGY

Partner Organisation(s)

WA Department of Agriculture

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

Aphids and the viruses they transmit cause major economic losses in legume and canola crops in Australia. This project will develop innovative predictive models and decision support systems (DSS's) for Beet western yellows virus and direct aphid feeding damage in canola and two types of Bean yellow mosaic virus in lupin, and a DSS for direct aphid feeding damage in lupin. These models will greatly improve understanding of factors driving virus epidemics and aphid outbreaks. Following extensive validation with data previously collected in the WA grainbelt, the predictive models and DSS's will be extended to end-users, resulting in considerable productivity gains, reduced costs and environmental benefits.

LP0560416 A/Prof ME Tobar; Dr JG Hartnett; Mr JH Searls**Title:** Application of Femtosecond Light Sources to Generation of Low Noise Microwave Signals**2005 :** \$155,000**2006 :** \$155,000**2007 :** \$180,000**2008 :** \$168,057**2009 :** \$140,000**Category:** 2404 - OPTICAL PHYSICS**APA(I) Award(s):** 1**Partner Organisation(s)**

Poseiden Scientific Instruments

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

The main goal of the research project is to develop prototypes of photonic oscillators capable of generating spectrally pure signals both at optical and microwave frequencies. The project is also aimed at understanding noise mechanisms affecting frequency stability of classical microwave oscillators based on sapphire loaded cavity resonators. By cryogenically cooling such resonators we plan to create a new family of extremely low noise and economically viable microwave signal sources. The research proposed will enrich the field of oscillator frequency control, give rise to new techniques for precision noise measurements and reinforce Australia's position at the forefront of microwave and photonic science.

Tasmania

University of Tasmania

LP0560641 Dr JP Bowman; Dr MA Line**Title:** Developing and testing a novel biological reduction cell to remediate heavy metal and acid-containing industrial and mine leachates**2005 :** \$31,648**2006 :** \$31,648**2007 :** \$31,648**Category:** 2911 - ENVIRONMENTAL ENGINEERING**APA(I) Award(s):** 1**Partner Organisation(s)**

Echo Remediation

Administering Institution: University of Tasmania**Summary:**

Echo Remediation Ltd. has a new reduction cell that uses sulfur and bacteria to remove heavy metals and acidity from mine leachates, but development is now required to make it viable. The project aims to optimise the process using molecular approaches to study the effects of operating conditions on the bacterial communities. As part of the investigation, active iron reducers will be selected and introduced to the cell (in conjunction with chemical amendments) and their colonization monitored. The new technology once developed has the potential to be used at mine sites in Australia and overseas and its employment offers a sustainable, biological "green" approach to mine waste remediation.

LP0560810 Dr SW Bull; Prof RR Large; Dr PJ Mcgoldrick; Prof MW Hitzman**Title:** Origin and setting of Congolese-type Cu deposits**2005 :** \$130,000**2006 :** \$130,000**2007 :** \$130,000**Category:** 2601 - GEOLOGY**APA(I) Award(s):** 1**Partner Organisation(s)**

AMIRA International

Administering Institution: University of Tasmania

Summary:

This project aims to understand the genesis of the giant sediment-hosted Cu ore deposits of the Congolese Copperbelt, and their relationship to the enclosing strata. We will use selected study areas within the correlative Neoproterozoic basin successions in Australia, which are well exposed and covered by modern geoscientific datasets, as analogues for the poorly exposed Congolese system. Once this is achieved, we will combine the results with those of a previous ARC linkage project on the nearby Zambian Copperbelt, to provide the first integrated model of the worlds largest sedimentary Cu system.

LP0560287 Prof MR Davis; Dr GA Thomas; Mr TJ Roberts; Mr NS Wells; Dr DS Holloway

Title: **Asymmetric and nonlinear unsteady loads on high speed ferries**

2005 : \$128,710

2006 : \$120,339

2007 : \$107,479

Category: 2912 - MARITIME ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

INCAT Tasmania Pty Ltd

Revolution Design Pty Ltd

Administering Institution: University of Tasmania

Summary:

Large high speed catamarans are expanding their domain of application from coastal passenger routes to ocean freight and military service. This is shifting operability criteria from motions and passenger discomfort to structural load limitations in severe wave environments. This project investigates large wave structural load prediction. Large waves lead to strongly non-linear responses, invalidating many methods of analysis. Prediction of loads on the transverse structure is also not possible with many prediction methods. This project will develop and validate by experiment fully time domain computational methods for the prediction of asymmetric structural loads due to large waves

LP0560329 Dr DE Evans; Dr JP Bowman; Ms CE Gibson

Title: **Assuring the microbial safety and quality of Australian malt and barley**

2005 : \$30,148

2006 : \$30,148

2007 : \$30,148

Category: 2703 - MICROBIOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

AusMalt Pty Ltd

Administering Institution: University of Tasmania

Summary:

This project aims to ensure that Australian malt and barley is "clean" and free of undesirable micro-organisms that may produce mycotoxins and factors that impact on brewing efficiency and beer quality. The project will determine what is the typical microbial composition and load of Australian malt and barley grown in different environments and areas benchmarked against malting barley and malt grown internationally. A set of diagnostic tools are expected to be developed. The successful execution of the project is expected to highlight that Australian malt and barley is of high quality so that the health of domestic customers is ensured and it attracts a premium from our export customers.

LP0560842 A/Prof GM Hallegraeff; Dr J Marshall

Title: **Predictive ichthyotoxicity, diagnostics and risk assessment of harmful algal blooms impacting on the Tasmanian salmonid aquaculture industry**

2005 : \$80,000

2006 : \$80,000

2007 : \$80,000

Category: 2704 - BOTANY

APDI Dr J Marshall

Partner Organisation(s)

Tassal Pty Ltd

Aquatas Pty Ltd

Huon Aquaculture Company Pty. Ltd.

Administering Institution: University of Tasmania

Summary:

We aim to define through a combination of laboratory culture exposure and live cage bioassay experiments the minimum cell concentrations of harmful microalgae (Karenia, Heterosigma, Noctiluca, Chaetoceros) that can cause salmonid mortalities or are a factor in compromising fish health or reducing fish farm productivity. The diagnostic pathology and fish behaviour caused by different harmful algal taxa will be carefully documented to assist fish health inspectors in the routine diagnosis of algal toxicosis of compromised fish health. Ultimately, this information will be integrated into a risk assessment strategy for

the Tasmanian salmonid industry to manage fish stocks during times of harmful algal bloom events.

LP0561120 Dr ME Jones; A/Prof HI McCallum

Title: **Managing Tasmanian devil populations affected by the Devil Facial Tumour Disease**

2005 : \$84,198

2006 : \$34,898

2007 : \$30,648

Category: 2707 - ECOLOGY AND EVOLUTION

APA(I) Award(s): 1

Partner Organisation(s)

Nature Conservation Branch, Department of Primary Industries, Water and Environment

Gunns Limited

Tasmanian Farmers and Graziers Association

Cosy Cabins

Administering Institution: University of Tasmania

Summary:

This project aims to put the science behind management options for wild Tasmanian devil populations affected by the Devil Facial Tumour Disease (DFTD), a new emerging wildlife disease that is decimating devil populations across large parts of Tasmania. DFTD behaves atypically compared with well-studied wildlife disease models; this project may result in important breakthroughs in our understanding of wildlife diseases. Conservation outcomes of the project may slow the spread of the disease and in aiding population recovery. Devils are an iconic species with economic benefits for ecotourism and livestock farms, industries which are based in economically depressed rural regions.

LP0560917 Dr MA Kashem; Prof GF Ledwich; Dr M Negnevitsky

Title: **Integration of Distributed and Renewable Power Generation into Electricity Grid Systems**

2005 : \$57,638

2006 : \$57,638

2007 : \$57,638

Category: 2909 - ELECTRICAL AND ELECTRONIC ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

Aurora Energy Pty Ltd

Administering Institution: University of Tasmania

Summary:

This project aims to contribute into infrastructure development for connection of distributed and renewable power generation with electrical grid systems. The project proposes to develop innovative methodologies for cost-effective operation and control, protection coordination and fault detection, islanding operation, grid interaction and voltage instability with distributed and renewable generation. This project has special application for facilitating integration of regional renewable and distributed energy sources, such as wind, solar, mini-hydro, etc. into national grid systems.

LP0560543 Dr JM Watson; Dr K Beswick; Dr NR Brown; Mr MJ Ferencz; Mrs C O'Halloran

Title: **Providing the Mathematical Foundation for an Innovative Australia within Reform Based Learning Environments**

2005 : \$90,000

2006 : \$90,000

2007 : \$90,000

Category: 3302 - CURRICULUM STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Department of Education

Catholic Education Office

Administering Institution: University of Tasmania

Summary:

The focus of this project is the pedagogical change that The Review of Teaching and Teacher Education indicates must take place in order to lay the quantitative foundations for advancing innovation, science, technology, and mathematics, while satisfying the requirements of a reform-based learning environment. Professional learning directed at teachers' pedagogical content knowledge and belief structures with respect to mathematics within an environment of curricular change, will be evaluated in evidence-based terms related to teacher change and student outcomes. Significance includes the context, the middle school years in rural district schools, and the influence of technology on pedagogy.

LP0560562 Dr CR Wilson; Dr FS Hay; Mr T Groom; Mr A Van Essen

Title: Towards a durable management strategy for ray blight in Tasmanian pyrethrum crops

2005 : \$74,686

2006 : \$67,928

2007 : \$68,246

2008 : \$70,400

2009 : \$71,529

Category: 2704 - BOTANY

Partner Organisation(s)

Botanical Resources Australia – Agricultural Services Pty Ltd

Administering Institution: University of Tasmania

Summary:

This project will take a multi-factorial approach to the identification of edaphic factors and their collinearity for the prediction of foliar disease caused by the fungus, *Phoma ligulicola* in Tasmanian pyrethrum crops. This will allow implementation of a decision support system whereby disease management options may be weighed against site specific risk. Alternative management strategies to the current fungicide based system for control will also be assessed for their efficacy and role in mitigating site risk. The effect of cultural control methods such as cultivar mixtures and host resistance will be modelled on the spatio-temporal characteristics of the epidemic and compared to these in naturally occurring epidemics at specific sites.

Northern Territory

Charles Darwin University

LP0560701 Dr M Young; Dr IA Crundall

Title: The impacts of commercial gambling on Aboriginal communities in Northern Australia

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 4203 - CULTURAL STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

Northern Territory Treasury

Administering Institution: Charles Darwin University

Summary:

The project will represent the first detailed exploration of the effects of commercial gambling on Aboriginal people in Northern Australia. It specifically aims to assess the impact of continued commercial gambling expansion, including the spread of electronic gaming machines (EGMs), on Aboriginal communities. The project will explore how Aboriginal cultures react to, and adopt, western gambling into existing cultural frameworks. The core task of the project will be to develop appropriate methodological tools for the assessment of gambling activity in Aboriginal communities. The result will have direct policy impacts in the context of regional well-being and identifying and protecting vulnerable communities.

Australian Capital Territory

The Australian National University

LP0561019 Prof MG Banwell

Title: The Development of New, Non-steroidal Anti-Asthma Drugs with Novel Modes of Action

2005 : \$24,148

2006 : \$24,148

2007 : \$24,148

Category: 2503 - ORGANIC CHEMISTRY

APA(I) Award(s): 1

Partner Organisation(s)

Cryptopharma Pty Ltd

Administering Institution: The Australian National University

Summary:

Asthma represents one of Australia's most significant chronic disease states. It adversely affects the lives of many hundreds of thousands of citizens and represents a growing problem, especially amongst younger members of the population. The start-up biotech company Cryptopharma has recently identified a family of steroid derivatives that deliver, through a novel mode of action, significant anti-asthma activity in in-vivo models. The purpose of the present work is to develop, through comprehensive synthetic organic chemistry and medicinal chemistry-type studies, non-steroidal analogues of Cryptopharma's lead compound that can be used clinically in the treatment of asthma.

LP0560908 Prof MJ Cardew-Hall; Dr BF Rolfe

Title: **Dimensional Control of Stamped Components for Optimized Assembly Operations**

2005 : \$79,149
2006 : \$140,970
2007 : \$92,079

Category: 2903 - MANUFACTURING ENGINEERING

APA(I) Award(s): 2

Partner Organisation(s)

Ford Motor Company

Administering Institution: The Australian National University

Summary:

Dimensional control is one of the most important challenges in automotive body assembly. The aim of this project is to develop a method of characterizing dimensional variation in a stamped sheet formed parts such that the effect of this variation on assemblies can be analysed. This will lead to an approach to flexible fixturing to minimizing assembly dimensional variation and improve dimensional quality.

LP0560861 Prof TD Gedeon; Prof SD Gregor; Dr B Shadbolt

Title: **A novel cooperative global information system for healthcare**

2005 : \$24,148
2006 : \$24,148
2007 : \$24,148

Category: 2801 - INFORMATION SYSTEMS

APA(I) Award(s): 1

Partner Organisation(s)

Microsoft

The Canberra Hospital

Administering Institution: The Australian National University

Summary:

This project will develop a global model for healthcare based on the groundbreaking Protocol Hypothesis Testing (PHT) system, allowing expert groups of clinicians to create and share knowledge across organizations. The PHT is a unique functioning knowledge management system that allows clinicians to record patient and treatment data as it is generated in clinical practice and applies scientific methods to generate clinical knowledge, all in real-time. The project will develop and test a framework for the PHT system to be used cooperatively by expert groups across virtual organizations, refining the PHT system in the process.

LP0560628 Prof DC MacDougall

Title: **The Internationalisation Of Charlie Chaplin's Tramp**

2005 : \$120,000
2006 : \$107,000
2007 : \$109,000

Category: 4203 - CULTURAL STUDIES

Partner Organisation(s)

Ronin Films

Administering Institution: The Australian National University

Summary:

This project is a cross-cultural and interdisciplinary study of the multifarious reincarnations of Charlie Chaplin's The Tramp across the world's film, theatre, television and advertising industries over the last nine decades. The project examines the appeal of Chaplin's Tramp in different languages and cultures, and the ways in which the figure has been adapted, translated, reconfigured and indigenised for local audiences and their individual contexts and traditions. The Internationalisation Of Chaplin's Tramp draws on theoretical perspectives and methodologies from screen studies, history, the visual arts, anthropology and cultural studies and the writing and production practices of documentary film.

LP0560898 Ms RJ Maxwell; Dr E Ahn

Title: **Cross-cultural translations: initiating Australian encounters with post colonial Korean art and national identity**

2005 : \$73,094
2006 : \$92,527
2007 : \$67,494

Category: 4003 - CURATORIAL STUDIES

APDI Dr E Ahn

Partner Organisation(s)

National Gallery of Australia

National Museum of Contemporary Art, Korea
Embassy of the Republic of Korea

Administering Institution: The Australian National University

Summary:

The project analyses the complex problems of exhibiting the art of other cultures to both insiders and outsiders. It develops a new theoretical approach to understanding the complexities of cross-cultural translation, the dynamics of cross-cultural receptions, and the concepts of otherness and identity in visual arts. In translating and presenting the rich, diverse and vibrant art of post-1945 Korea in an art historically important yet accessible way, first to culturally unfamiliar Australians, then to other Asians and finally to Koreans themselves, a new model for exhibiting other cultures will be developed.

LP0560901 Ms RJ Maxwell

Title: **Determining the age and origins of Indonesian and Indian trade textiles: multidisciplinary research in art history and conservation science**

2005 : \$34,333
2006 : \$21,500
2007 : \$33,733

Category: 4199 - OTHER ARTS

Partner Organisation(s)

National Gallery of Australia

Administering Institution: The Australian National University

Summary:

The National Gallery of Australia holds a world-renowned collection of Asian textiles and Australian art historians, conservators and curators are international leaders in the field of research, conservation and exhibition of Asian textiles. On this project they join forces to advance international understanding of the antiquity and identity of historical production centres in India and Indonesia through selected carbon dating and physical analysis of key textile types from museum collections and the field. The results will assist in the reliable, inexpensive and non-intrusive guidelines for other collecting institutions to assess the age and origins of textiles in their care.

LP0560439 Dr LT Newham; Prof AJ Jakeman; Prof JW Bennett; Dr RA Letcher; Mr E Mclean; Dr EM O'Loughlin

Title: **Integrating Economic Valuation and Water Quality Modelling for Improving Management of Coastal Catchments**

2005 : \$75,000
2006 : \$75,000
2007 : \$75,000

Category: 3008 - ENVIRONMENTAL SCIENCES

APDI Dr LT Newham

Partner Organisation(s)

Eurobodalla Shire Council
Department of Infrastructure, Planning and Natural Resources

Administering Institution: The Australian National University

Summary:

This project will apply and integrate water quality models and economic assessment techniques to assist policy makers and catchment managers balance competing development pressures and environmental concerns in coastal catchments. The research is fundamental to underpinning the sustainable management of coastal catchments which provide major economic, environmental and community benefits. The project will provide robust tools to predict water quality impacts under a range of conditions and it will develop techniques for the economic valuation of market and non-market impacts. The project will demonstrate the integration of water quality and economic modelling and how it can influence policy and investment in conservation and remediation.

LP0560567 Dr N Peterson; Dr M Laughren; Dr SA Wild; Miss AP Meltzer

Title: **Warlpiri songlines: anthropological, linguistic and Indigenous perspectives**

2005 : \$56,000
2006 : \$55,500
2007 : \$55,500

Category: 3703 - ANTHROPOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Central Land Council
Janganpa Aboriginal Corporation

Administering Institution: The Australian National University

Summary:

This partnership combines anthropologists, linguists, Indigenous knowledge holders and Indigenous bicultural linguists to record, document and analyse Warlpiri song series. Warlpiri songs link ancestral power, landscape, emotions and aesthetics and are central to religious life. Because the diversity of performance contexts in which these songs are learnt is rapidly reducing, this aspect of Warlpiri high culture is under threat. This project will create a cultural archive informed by Indigenous exegesis, that

integrates it into the world of anthropological and linguistic scholarship and provides materials for the school curriculum.

LP0560640 Dr PA Pickering

Title: HOMES FOR THE PEOPLE: A STUDY OF THE PETER LALOR HOUSING CO-OPERATIVE, 1947-2004

2005 : \$28,286

2006 : \$28,286

2007 : \$28,286

Category: 4301 - HISTORICAL STUDIES

APA(I) Award(s): 1

Partner Organisation(s)

City of Whittlesea

Administering Institution: The Australian National University

Summary:

This project is a comprehensive study of an innovative urban housing development in northern Melbourne. Formed by ex-servicemen who shared a vision of a better future for themselves and their families in post-war Australia, the Peter Lalor Housing Co-operative brought together veterans, the organised labour movement and government in a constructive partnership. The history of the Lalor Co-op and the men and women who forged a suburb on farmland in the Shire of Whittlesea has been virtually ignored by historians and the significance this important social experiment has been largely lost. It is a story that deserves to be rescued.

LP0560743 Prof I White; Dr RT Bush; Prof MF Hutchinson; Dr G Bowman; Dr M Williams; Dr WD Erskine

Title: Surface-ground water interactions and increasing salinity in the upper Hunter River

2005 : \$100,000

2006 : \$100,000

2007 : \$100,000

2008 : \$80,000

Category: 2605 - HYDROLOGY

APA(I) Award(s): 2

Partner Organisation(s)

Department of Infrastructure, Planning and Natural Resources

Administering Institution: The Australian National University

Summary:

Australia's first salinity trading scheme, to limit impacts of industrial saline wastewater discharges, operates in the Hunter Region, NSW. Despite it, a recent audit suggests stream salinity levels will continue to rise over the next century. No assessment tools are available to identify causes of salinity increases in sub-catchments of the Hunter. This severely limits rehabilitation strategies aimed at addressing river salinity. Current rehabilitation focuses on revegetation of recharge and discharge areas, with limited understanding of the primary local drivers for salinity, and without assessment of whether rehabilitation is addressing or exacerbating problems. This project aims to supply that understanding.

University of Canberra

LP0560985 Prof A Georges; Dr MN Hutchinson; Dr SC Donnellan

Title: Conservation biology of the largest Australian freshwater tortoise, the broad-shelled tortoise, *Chelodina expansa* - rare and endangered or cryptic and secure?

2005 : \$40,000

2006 : \$40,000

2007 : \$40,000

Category: 2707 - ECOLOGY AND EVOLUTION

APA(I) Award(s): 1

Partner Organisation(s)

South Australian Museum

SA Department for Environment and Heritage

Nature Foundation SA Inc

Earth Sanctuaries Foundation of Australia Inc.

Riverland Animal and Plant Control Board

Victorian Department of Sustainability and Environment

Administering Institution: University of Canberra

Summary:

The Murray is a highly managed river, with flows controlled by catchments and diversions. The combined impacts of water resource development, habitat modification and introduced species are astonishingly diverse, and include extinctions of some fish and invertebrates and depression of populations of many other species. Australia's largest chelid turtle, the broad-shelled turtle, is a high-level consumer thought to be particularly sensitive to these changes. We will use an innovative combination of non-destructive technologies to investigate the conservation biology of this species in the Lower Murray, where it is regarded as rare and where its biology is virtually unknown to inform conservation management and restoration initiatives

10-Sep-2004

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