Summary of Linkage Projects Applications for Funding to Commence in 2006

Queensland

The University of Queensland

LP0668067 Prof NW Bergmann

Approved Project Title **FPGA Controller Architectures for Safety Critical Applications**

2006 : $100,000
2007 : $100,000
2008 : $100,000
Primary RFCD 2916 COMPUTER HARDWARE
APA(I) Award(s): 1

Partner Organisation(s)
Invensys Rail Systems Australia
Administering Institution The University of Queensland

Project Summary

The project industry partner, Invensys Rail Systems, has a major design group in Australia, who work with railway signalling systems throughout the world. Invensys are keen to adopt new technologies to more efficiently and effectively implement signalling functions. However, the safety-critical nature of railway signalling means that any new technology must be analysed in detail to bring it to an acceptable technical readiness level. The outcomes of this research will be an improved technical readiness level for FPGAs in signalling systems, and this will allow Invensys' Australian design group to develop new technologies and allow them to compete more effectively in the global marketplace.

LP0667489 Dr YM Buckley; Dr A House

Approved Project Title **The regeneration niche of invasive plants: managing the weed-shaped hole**

2006 : $40,000
2007 : $37,000
2008 : $37,000
Primary RFCD 2707 ECOLOGY AND EVOLUTION
APA(I) Award(s): 1

Partner Organisation(s)
Condamine Alliance
Queensland Murray Darling Committee Inc.
Administering Institution The University of Queensland

Project Summary

In Australia $20 million was spent on weed control in natural areas in 2001-02 and is indicative of the level of funding for weed control programs each year. An understanding of how current weed control programs affect the regeneration of weeds in the system will give us novel insights into the persistence of weed populations despite sustained investment in control. Environmental weeds threaten biodiversity and ecosystem function in unique Australian communities, better management of weeds will have conservation, ecosystem service provision and amenity values nationally. This project highlights the importance of understanding the weed regeneration niche for successful long-term and sustainable control.

LP0667704 Prof CE Franklin; Dr MA Read; Mr SR Irwin

Approved Project Title **Tracking crocodiles in 3-dimensions: A remote monitoring study of movement patterns and diving behaviour**

2006 : $70,000
2007 : $60,125
2008 : $53,125
Primary RFCD 2705 ZOOLOGY

Partner Organisation(s)
Environmental Protection Agency
Australia Zoo
Administering Institution The University of Queensland

Project Summary

The result from this study will promote a better understanding and appreciation of crocodiles and will help to assist conservation managers in determining population dynamics and movements of crocodiles in Queensland. This study will showcase, on an international stage, Australia as being a leader in crocodilian research and conservation, with the results from this study being actively presented and profiled in both the scientific and general media. Finally this project will encourage and promote a long term research association between the University of Queensland, Australia Zoo and Queensland Parks and Wildlife Service that will stimulate scientific discovery, and promote effective conservation through education and research.

LP0667717 Prof CE Franklin; Dr RP Smullen

Approved Project Title **Improving the growth rate and flesh quality of cultured Barramundi: Investigating the effects of temperature, diet, and population**

2006 : $60,000
2007 : $55,500
2008 : $55,500
Primary RFCD 3007 FISHERIES SCIENCES

Partner Organisation(s)
Ridley Aqua-Feeds Ltd
Good Fortune Bay Ltd
Nino Pty Ltd (Trading as Barramundi Waters)
Administering Institution The University of Queensland

Project Summary

Barramundi fillet is one of the premier seafoods available in Australia and the decline of wild fisheries has increased the demand for the cultured product. Accordingly, there has been a rapid growth of the barramundi farming industry, but competition from cheaper overseas imports has cut the sale price and profit margins of local growers. By developing methods to increase growth rates, this research has the potential to substantially increase profit margins by reducing production costs and increasing turnover. Improvement of flesh quality will also increase the attractiveness of barramundi fillet. Increasing the viability of barramundi culture in Australia will attract more growers and increase employment opportunities.

LP0667418 Dr D Hafner; Em/Prof BJ Rigsby; Ms L Allen; Ms R Wrench; Mr SJ Wilmot

Approved Project Title **Oral Tradition, Memory and Social Change: Indigenous Participation in the Curation and Use of Museum Collections**

2006 : $75,000
2007 : $75,000
2008 : $75,000
Primary RFCD 4003 CURATORIAL STUDIES

Partner Organisation(s)
Museum Victoria
Administering Institution The University of Queensland

Project Summary

This project addresses concerns about how museums meet their charter in a diverse society. It will engage museums in a process of brokering and negotiation with indigenous Australians in relation to specific museum collections. There is little formal recognition of how such processes occur within museums and contribute to the creation of shared meanings about ourselves as a nation. It is part of the role of museums as places of learning to engage and fascinate, and this project brings together traditional knowledge and expertise in three fields of study to pass on our national heritage to future generations.

LP0667779 A/Prof KE Healy; Dr Y Darlington

Approved Project Title **Participatory Decision Making and Policy Production in Child Welfare**

2006 : $86,000
2007 : $80,000
2008 : $90,000
Primary RFCD 3702 SOCIAL WORK
APA(I) Award(s): 1

Partner Organisation(s)
Department of Child Safety
Micah Projects
Lifeline Community Care
Department of Communities

Administering Institution The University of Queensland

Project Summary

Our research focuses on one of the most sensitive and complex areas of citizen participation - the participation of families in child welfare decision making and policy production. The project will build practical models for participatory practices with families with young children who are engaged with child welfare services. By enhancing family members' participation in decision making and policy production this project will contribute to strengthening the family safety net for young vulnerable children and to the creation of policies that better recognise the diverse concerns of young families engaged in child welfare systems.

LP0668162 Dr DC Hine; Dr RL Parker; Dr JP Kapeleris

Approved Project Title **A cross-national comparison of novel market-pull technology transfer programs which facilitate research organisation commercialisation through dynamic SMEs.**

2006 : $33,000
2007 : $25,000
Primary RFCD 3502 BUSINESS AND MANAGEMENT

Partner Organisation(s)
AIC

Administering Institution The University of Queensland

Project Summary

This research will contribute to a more competitive and innovative economy in two ways. First it will provide a basis for improved public policy to stimulate technology uptake by small business, which is critical for small business growth and innovation. Second, it will identify innovative policies to facilitate the uptake of university research, to enhance the contribution of universities to the economy. The proposed research is original because it focuses on the way in which the technology needs of small firms can be met by existing university knowledge and technologies. Prior research on technology transfer focuses on pushing university research out to industry through university spin-offs or university and large firm linkages.

LP0667672 Dr MT Hockings; Dr RW Carter; Dr GW Wardell-Johnson

Approved Project Title **Building capacity for adaptive management in protected areas through improved systems for monitoring and evaluation**

2006 : $100,000
2007 : $110,000
2008 : $100,000
Primary RFCD 3009 LAND, PARKS AND AGRICULTURE MANAGEMENT
APA(I) Award(s): 1

Partner Organisation(s)
Department of Environment and Conservation
Parks Victoria
Parks Australia
Administering Institution The University of Queensland

Project Summary

The project demonstrates how evaluation can lead to improved management of protected areas. Effectively managed protected areas are essential for biodiversity conservation. Improved management, and hence improved conservation outcomes will flow from enhanced use of monitoring and evaluation data in decision-making. Identifying strengths and weaknesses in management will allow managers to better allocate resource for more effective conservation outcomes. The project establishes connections with all protected area management agencies in Australia, and will contribute to the development of national policy and practice in protected area evaluation and reporting, thus helping to meet national and international reporting obligations.

LP0667780 Prof CJ Moran; A/Prof SD Golding; A/Prof SR Phinn; Dr J Esterle

Approved Project Title **Understanding salt dynamics to facilitate water reuse on coal mine sites**

2006 : $120,000
2007 : $140,000
2008 : $90,000
Primary RFCD 3008 ENVIRONMENTAL SCIENCES
APA(I) Award(s): 1

Partner Organisation(s)
ANGLO Coal Australia
BHP Billiton Mitsubishi Alliance
Administering Institution The University of Queensland

Project Summary

Coal mining in Central Queensland occurs in a water scarce region. Coal is a very high value product per unit of water consumed. The industry wishes to expand and to meet current water needs partially by increasing water reuse on site. Difficulties associated with managing salt, in its various forms across a mine site, limit this. This project will produce operational guidelines to overcome these limitations allowing the coal industry to decrease its water footprint by increasing and properly managing water reuse.

LP0668339 Prof V Rudolph; Dr J Esterle; A/Prof SD Golding; Dr P Massarotto

Approved Project Title **Dynamic Gas Permeability Investigations of Highly Stressed Coals**

2006 : $140,000
2007 : $130,000
2008 : $130,000

Primary RFCD 2907 RESOURCES ENGINEERING

APA(I) Award(s): 1

Partner Organisation(s)
Santos Ltd

Administering Institution The University of Queensland

Project Summary

Coal Bed Methane (CBM) is an emerging energy resource in Australia, which has multi-billion dollar CBM reserves. Gas is clean burning, produces little greenhouse gas and almost no disruption to surface activities (like farming) during extraction. These environmental benefits, with low cost, make gas the fuel of choice for power and heat worldwide. This project seeks to assist development of CBM engineering from deep coal seams. These contain the most gas, but are technically more difficult to develop than shallower reservoirs. In particular, it examines how natural and induced stress fields can be used to improve productivity, by understanding the relationships between different coal types, their environment and gas production rate.

LP0668324 Prof MT Smith; Dr BD Wyse; Dr S South; Dr WD Meutermans; Dr JA Halliday

Approved Project Title **Systematic evaluation of whether in vitro methods can predict in vivo opioid analgesic efficacy, safety and tolerability**

2006 : $135,000
2007 : $122,000
2008 : $115,000

Primary RFCD 3205 PHARMACOLOGY AND PHARMACEUTICAL SCIENCES

APA(I) Award(s): 1

Partner Organisation(s)
Alchemia Pty Ltd

Administering Institution The University of Queensland

Project Summary

It is estimated that chronic pain affects one in five individuals in the general community in Australia and worldwide, with prevalence rates correlated directly with advancing age. Chronic pain not only adversely affects the quality of life of individuals but it also places a large economic burden on our healthcare system. Development and validation of an in vitro method to successfully identify novel morphine-like strong analgesics with a reduced propensity for producing respiratory depression or constipation, has the potential to not only improve pain management for individuals and to reduce the economic burden of chronic pain on the Australian healthcare system, but it is also likely to produce direct economic benefits to our nation.

LP0667810 Dr CF Tilse; A/Prof JE Wilson; Prof L Rosenman; Dr DS Morrison

Approved Project Title **Managing Older People's Financial Assets in Aged Care Facilities: The Intersection of Legal and Care Requirements and Financial Management Practices**

2006 : $83,000
2007 : $70,000
2008 : $78,000
Primary RFCD 3701 SOCIOLOGY
APA(I) Award(s): 1

Partner Organisation(s)
Office of the Adult Guardian
Blue Care
TriCare
Administering Institution The University of Queensland

Project Summary

This project will provide important new knowledge and propose changes to policy, practice and legislation that will promote older people's independence and choice in how their financial affairs are managed. The physical and cognitive frailty of aged care facility residents is increasing and their capacity to manage their assets and income is often limited. This study will address financial elder abuse and problems with how decisions are made on behalf of older people. Improving the legislative, policy and practice frameworks that govern the risks, rights and responsibilities of care staff and family members will assist them to appropriately support and protect older people in residential care.

LP0668233 A/Prof B Vicenzino; Prof PW Hodges; Mr AR Chapman; Prof T Milner; Mr P Blanch; Dr R Osu; Dr AG Hahn; Prof T McPoil; Dr A Schache

Approved Project Title **Neuromuscular adaptations to training, cross training and passive physical interventions: A neurophysiological approach to understanding human performance and musculoskeletal injury**

2006 : $200,000
2007 : $124,000
2008 : $124,000
Primary RFCD 3214 HUMAN MOVEMENT AND SPORTS SCIENCE
APA(I) Award(s): 2
APDI Mr AR Chapman

Partner Organisation(s)
Computational Neurosciences Laboratories, Advanced Telecommunications Research Institute
Australian Institute of Sport
Vasyli International
Administering Institution The University of Queensland

Project Summary

The expected national benefit arising from this research is three fold: (i) developing knowledge of approaches taken to improve exercise performance across the spectrum of novice to elite levels of participation, (ii) improved understanding of the physiological basis for widely applied interventions used to facilitate exercise, performance, as well as injury prevention and rehabilitation, and (iii) increasing the pool of world-class researchers who will make a substantial difference to the health and wellbeing of the community through one post-doctoral and two doctoral programs. This project will cement existing tertiary-industry sector collaboration, which will ensure long-standing benefits to the community.

LP0667640 Dr JR Warburton; Dr M Cuthill; Prof HP Bartlett

Approved Project Title **Developing a collaborative approach to ageing well in the community**

2006 : $65,000
2007 : $55,000
2008 : $65,000
Primary RFCD 3701 SOCIOLOGY

Partner Organisation(s)
Gold Coast City Council
Ipswich City Council
Qld Department of Communities

Administering Institution The University of Queensland

Project Summary

This project is located within an identified national research priority that of Ageing Well, Ageing Productively. It is also consistent with the goals of the ARC NHMRC Research Network in Ageing Well. While much of the Australian policy debate has previously focused on the negative implications associated with population ageing, it is essential to explore how older people and local communities can age well. The benefit of this project is that it helps translate national policy directives / goals by offering a framework for action at the local level. Further benefit will derive from the project by enhancing options for community engagement of older people.

LP0667941 Prof AK Whittaker; Dr I Blakey; Dr DJ Hill; Prof GA George; Dr JS Forsythe; Mr W Conley

Approved Project Title **Synthesis and Performance of Novel Polymer Resists for 193 nm Immersion Lithography**

2006 : $260,000
2007 : $250,000
Primary RFCD 2505 MACROMOLECULAR CHEMISTRY

Partner Organisation(s)
Sematech

Administering Institution The University of Queensland

Project Summary

The semiconductor industry is one of the largest world-wide, with annual revenue of $217B and employing over 1.5M people around the world. This project provides a unique opportunity for development within Australia of significant expertise in the field of polymers for short-wavelength lithography. The materials to be developed are expected to provide the basis of future genertions of microchips. In addition the materials have applications in other technologies which are manufactured in Australia, for example in spectactle lenses and optical fibres. A major outcome of this project will be establishment of Australia as a world-leader in this rapidly expanding field.

LP0668437 Dr PR Young; Dr GJ Hafner

Approved Project Title **Development and commercialization of novel diagnostic assays for the early detection of acute dengue virus infection**

2006 : $80,000
2007 : $64,750
2008 : $57,750
Primary RFCD 2708 BIOTECHNOLOGY

Partner Organisation(s)
Panbio Pty Ltd

Administering Institution The University of Queensland

Project Summary

Dengue is an emerging disease of the tropics and is endemic in more than 100 countries with up to 100 million cases annually. Of these, 500,000 result in dengue haemorrhagic fever (DHF), a serious life-threatening complication of dengue virus infection. Dengue activity in northern Australia has increased in recent years with suggestions that it may be coming endemic in this country. Early diagnosis, using NS1 based assays should facilitate containment of such outbreaks through earlier identification, treatment, isolation and strategic mosquito control.