

Summary of Successful Linkage - Projects Proposals for Funding to Commence in 2010 by State and Organisation

Victoria

Monash University

LP100100477 Dr Benjamin J Boyd, Dr Dennis B Rylatt, Dr Ronald C Chatelier

Approved Project Title **Novel Self Assembled Particle Systems as a Key to Next Generation Biosensor Technology**

2010 \$66,000.00

2011 \$70,000.00

2012 \$77,000.00

Primary FoR 0306 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

Partner Organisations

Universal Biosensors Inc.

Administering Organisation Monash University

Project Summary

Development and commercialisation of products utilising nanotechnology is crucial to future wealth creation for Australia. The translational research in this proposal will progress innovative concepts in nanotechnology-based biosensors, with potential for substantial improvements in disease diagnosis, leading to more economical and timely therapy. The products that arise from this research will also provide further employment for Australians, building on Universal Biosensor's proven record of commercialization in Australia. The project will lead to training of Australian researchers in nanotechnology and in utilization of key Australian science infrastructure including the Australian Synchrotron and the Melbourne Centre for Nanofabrication.

LP100100078 Dr Judith L Charlton, Mr James W Langford, Dr Sjaanie N Koppel, Dr Morris S Odell, Dr Marilyn Di Stefano, A/Prof Wendy A Macdonald, A/Prof Shawn Marshall, Prof Peteris J Darzins

Approved Project Title **Managing older driver safe mobility: An international collaboration**

2010 \$258,000.00

2011 \$221,000.00

2012 \$296,000.00

2013 \$226,127.00

2014 \$204,777.00

Primary FoR 1605 POLICY AND ADMINISTRATION

APDI Dr Sjaanie N Koppel

APAI 1

Partner Organisations

Department of Justice, Victoria, Eastern Health, Road Safety Trust, Transport Accident Commission (TAC), University of Ottawa, VicRoads

Administering Organisation Monash University

Project Summary

The prevalence of medical conditions and impairments in older adults and their likely implications for crashes is considerable and will be an increasing problem into the future without appropriate intervention. There are serious gaps in knowledge about older drivers real-world driving and we cannot reliably predict those most at-risk. Current procedures for assessing driving lack scientific basis and offer clinicians little guidance about fitness-to-drive. The proposed research offers a comprehensive international collaborative approach to enhance the safe mobility and quality of life of older Australian drivers, through development of evidence-based screening for safe driving, innovative training and other management solutions.

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LP100100258 Prof Michael G Clyne, Prof Colette J Browning, Dr Marisa Cordella, Dr Hui Huang
Approved Project Title **Connecting younger second language learners and older bilinguals: Intergenerational, intercultural encounters and second language development**

2010 \$109,867.00
 2011 \$85,003.00
 2012 \$127,234.00
 Primary FoR 2004 LINGUISTICS
 APAI 2

Partner Organisations

Association of Independent Schools of Victoria, Council on the Ageing (COTA) Victoria, Department of Education and Childhood Development, Victorian Multicultural Commission

Administering Organisation Monash University

Project Summary

This project brings together upper secondary school learners of Chinese, German or Spanish and older speakers of the language, promoting mutually beneficial inter-cultural, intergenerational encounters. Valuable community language resources will be tapped to motivate and enhance the second language learning for the social, cultural and economic benefits. The model promises to make senior secondary second language learning more effective. Australia's social fabric will be enhanced by interactions between cultures and between generations. The project addresses two important goals of the research Priority II --- It is strengthening the Australian social and economic fabric and ageing well, ageing productively.

LP100100159 Prof Graham V Currie, Dr Majid Sarvi, Dr Nicholas B Hounsell, Mr Ray Kinnear
Approved Project Title **Optimising the design and implementation of public transport priority initiatives**

2010 \$57,137.00
 2011 \$60,763.00
 2012 \$64,394.00
 Primary FoR 0905 CIVIL ENGINEERING
 APAI 2

Partner Organisations

Department of Transport, Victoria, VicRoads

Administering Organisation Monash University

Project Summary

This project strengthens national approaches to a pervasive Australian problem, growing traffic congestion deteriorating liveability, environmental health & economic performance of the cities where most Australians live. Public transport can address these issues but most is provided by buses which are caught up in traffic congestion. This project improves approaches for traffic priority design to improve the effectiveness and efficiency of on-road public transport. It optimises the design of individual and groups of priority treatments and will generate diagnostic tools to better target priority treatments. Findings will better focus Australia's approach to increasingly challenging transport futures.

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LP100100508 Prof Brian G Falzon, Dr Zhiping Chen
Approved Project Title **Improving the process modelling capability for manufacturing large composite structures used on passenger aircraft.**

2010 \$35,000.00
2011 \$35,000.00
2012 \$35,000.00
Primary FoR 0901 AEROSPACE ENGINEERING
APAI 1

Partner Organisations

Boeing Research and Technology Australia

Administering Organisation Monash University

Project Summary

This proposal aims to reduce manufacturing costs by developing innovative simulation tools for the production of future lightweight composite aerostructures. The development of a reliable predictive tool to simulate the cost-effective production of resin-infused composite aerostructures, will represent a significant technical advance. The successful transfer of this technology to Boeing Aerostructures Australia would give it a distinct competitive edge when bidding for participation in future international development programmes and will yield substantial economic benefits whilst further strengthening and developing local expertise. Lightweight aircraft structures will also contribute towards reducing the environmental impact of aviation.

LP100100894 Prof Barrie C Finnin, Prof Roy M Robins-Browne, Prof Robyn H Guymmer, Dr Russell J Tait, Dr Florian H Graichen, Dr Penelope J Allen, Dr Michael S OShea
Approved Project Title **Study the Utility of Novel Drug Polymer Conjugates**

2010 \$120,000.00
2011 \$120,000.00
Primary FoR 0303 MACROMOLECULAR AND MATERIALS CHEMISTRY

Partner Organisations

The Bionic Ear Institute

Administering Organisation Monash University

Project Summary

The products likely to arise from the technology described in this proposal could have application in medical, veterinary and agricultural industries. It offers the potential to treat diseases that are at present poorly treated by enabling delivery direct to the diseased organ (e.g. eye - bacterial endophthalmitis). Completion of the project will also assist a fledgling biotech company transition to a development company with a multiple product portfolio, which will have a direct economic benefit to Australia both in terms of potential export earnings and as an employer highly skilled staff. The project will also provide research training and career opportunities for developing Australian based researchers.

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LP100100066 Prof Maria Forsyth, Prof Douglas R MacFarlane, Dr Bjorn Winther-Jensen, Dr Dirk A Fiedler, Dr Patrick C Howlett

Approved Project Title **Metal-air batteries with improved rate capability and safety for hearing applications**

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|-------------|----------------------------|
| 2010 | \$150,000.00 |
| 2011 | \$152,000.00 |
| 2012 | \$146,000.00 |
| Primary FoR | 0912 MATERIALS ENGINEERING |
| APAI | 2 |

Partner Organisations

Cochlear Ltd, VARTA Microbattery GmbH

Administering Organisation Monash University

Project Summary

Hearing impairment affects on average 20% of the adult population in western society, with the impact being as high as 50% in older adults. Effective hearing devices require a significant amount of power, supplied by a battery, to support their function. Current batteries require very frequent replacement and represent a significant impediment to advances in the technology. This project will develop improved energy and power density batteries which will lead to immediate implementation of more powerful signal processing algorithms, making hearing aids much more effective and appealing to the user. This, in turn, will improve recipient compliance and thus the quality of life for those with severe hearing impairment.

LP100100315 Dr Alexandra Gartrell, Prof Lenore H Manderson

Approved Project Title **The social and cultural context of disability in the Solomon Islands: Identifying culturally appropriate solutions to disadvantage**

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|-------------|----------------------|
| 2010 | \$20,733.00 |
| 2011 | \$46,174.00 |
| Primary FoR | 1604 HUMAN GEOGRAPHY |

Partner Organisations

Australian Agency for International Development

Administering Organisation Monash University

Project Summary

"1. International relations. This research promotes Australia's relations with Pacific nations by strengthening the Solomons sole disabled peoples organisation and the Ministry of Health's Community-Based Rehabilitation Program through action-based training, provincial and local level networking.
 2. Capacity-building. By better understanding people's experiences of disability, this research assists Australia's NGOs and government agencies to better formulate effective domestic and international solutions.
 3. Social equity. By identifying solutions to disability-based discrimination, this research contributes to greater social equity and harmony, both critical in a context of heightened environmental risk and economic uncertainty."

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LP100100434 Dr Roslyn M Gleadow, Prof John D Hamill, Dr Timothy R Cavagnaro, Prof Birger L Moeller
Approved Project Title **Re-balancing global resources: Manipulating toxic prussic acid (dhurrin) to improve nitrogen use efficiency in forage sorghum in a changing climate**

2010 \$90,000.00

2011 \$90,000.00

2012 \$90,000.00

Primary FoR 0607 PLANT BIOLOGY

Partner Organisations

Pacific Seeds

Administering Organisation Monash University

Project Summary

Sorghum is grown widely in Australia and world-wide for forage, grain (mostly for animal feed) and biofuels. It grows well in dry areas. The problem is that the leaves contain a toxin that releases prussic acid (cyanide) that can reduce animal production or even kill stock feeding on it, especially when water stressed. The problem will get worse with climate change. Low-cyanide plants developed by us using non-GM methods grow fast, but accumulate nitrate instead which is also toxic. This is a waste of expensive fertiliser too. We aim to develop plants that divert resources to growth instead of toxins in order to reduce fertiliser use and help prepare for the future. The fast growing plants may also be useful as a biofuel crop.

LP100100032 Prof Charmine E Hartel, Prof James C Sarros, A/Prof Andrew J Pirola-Merlo, Dr Giles Hirst, Dr Simon A Moss, Ms Katrina A Bahen, Prof Bruce Avolio

Approved Project Title **Development of psychological capital in emergency service organisations**

2010 \$80,000.00

2011 \$80,000.00

2012 \$80,000.00

Primary FoR 1503 BUSINESS AND MANAGEMENT

Partner Organisations

Victoria State Emergency Service

Administering Organisation Monash University

Project Summary

The project addresses the research priorities 'Promoting good health and well being for all Australians' and Safeguarding Australia. The project will identify ways in which the performance and wellbeing of volunteer and paid members of emergency service organisations can be enhanced, potentially diminishing the likelihood of depression, aggression, and other detrimental effects. The findings will also contribute to the quality of training provided to leaders in emergency services. Theoretically, the project will advance understanding of the mechanisms that underpin the psychological capital construct, placing Australian researchers at the forefront of this important emerging field of inquiry.

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LP100100428 Dr Jennifer M Miller, Dr Joel A Windle
Approved Project Title **Designing a model of pedagogy for low literacy refugee-background students: Connecting language, literacy and content-based learning**

2010 \$40,745.00

2011 \$57,191.00

2012 \$33,118.00

Primary FoR 1302 CURRICULUM AND PEDAGOGY

Partner Organisations

Department of Education and Early Childhood Development

Administering Organisation Monash University

Project Summary

Policy makers and schools are urgently seeking models of literacy pedagogy which maximise student engagement and positive outcomes for low literacy refugee background (LLRB) students. This project will establish a model of literacy pedagogy that is adapted to the needs of these learners and will result in higher attainment and increased retention rates. The model will facilitate students' successful transition to the secondary school curriculum and their social integration and economic participation in Australian society. The project findings will provide a solid base for planning future provision which will benefit curriculum writers, teacher educators, policy makers, funding bodies, and teachers.

LP100100448 Prof Jian-Feng Nie, Prof Wen-Jiang Ding
Approved Project Title **Development of Ultrahigh Strength Magnesium Extrusion Alloys for Manufacturing Lightweight Aircraft Framework**

2010 \$40,000.00

2011 \$40,000.00

2012 \$60,000.00

Primary FoR 0910 MANUFACTURING ENGINEERING

APAI 1

Partner Organisations

Shanghai LS Light Alloys Product CO

Administering Organisation Monash University

Project Summary

Australian Federal and State Governments and the private sector have made substantial investments in magnesium metal and alloys in the past 10 years in order to establish a magnesium industry that can bring Australia the wealth that has been generated by the iron and aluminium industries. One of the key steps to achieve this goal is to continuously and substantially increase the international demand for the magnesium metal which is currently only 1/1700 that of iron and 1/50 that of aluminium. This project has the potential to increase the international magnesium market and to provide a platform for overseas commercialisation of Australian technologies.

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LP100100889 Dr Pathegama G Ranjith, Dr Asadul Haque, Dr Jayantha K Kodikara, Dr Abdelmalek Bouazza
Approved Project Title **Influence of scale effect on the strength of rock mass for the better prediction of slope stability in large open-cut mines.**

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|-------------|--|
| 2010 | \$100,000.00 |
| 2011 | \$103,000.00 |
| 2012 | \$145,000.00 |
| Primary FoR | 0914 RESOURCES ENGINEERING AND EXTRACTIVE METALLURGY |
| APAI | 1 |

Partner Organisations

BHP Billiton Ltd

Administering Organisation Monash University

Project Summary

The proposed project has the potential to bring national economic benefits through sustainable infrastructure and environment, commercial enterprise and community health and safety. Mining industry in Australia plays a major role for creating significant employment in regional Australia, coal-fired electricity generation, and export income which underpins the international competitiveness of the entire Australian economy. The proposed project will assist Australian mining industry in gaining a better understanding of the mechanics of failure of large open cut mines, an improved design approach for high steep slopes, and in developing a new set of guidelines which can be used to assess such a risk.

LP100100194 Dr Martin J Scanlon, Prof Michael W Parker, Dr John J Deadman, Dr David I Rhodes, Dr David K Chalmers

Approved Project Title **New approaches to inhibition of activity of HIV integrase**

| | |
|-------------|---|
| 2010 | \$185,000.00 |
| 2011 | \$180,000.00 |
| 2012 | \$235,000.00 |
| Primary FoR | 0304 MEDICINAL AND BIOMOLECULAR CHEMISTRY |

Partner Organisations

Avexa Ltd

Administering Organisation Monash University

Project Summary

This project aims to assist in the development of novel anti-HIV drugs that will benefit the 17000 Australians and more than 33 million people worldwide who are currently suffering with this terrible disease. The project will utilise state-of-the-art approaches in structure-based drug design to identify and synthesise compounds as leads for the development of anti-HIV drugs. Furthermore, the project will provide invaluable training for the researchers involved and enhance the relationship between the academic and commercial collaborators.

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LP100100294 Dr Cathy R Sheehan, Prof Helen De Cieri, Dr Brian K Cooper, Prof Robert D Brooks
Approved Project Title **Organisational performance during environmental uncertainty: The impact of an influential human resource function and high involvement work practices**

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|-------------|------------------------------|
| 2010 | \$26,669.00 |
| 2011 | \$26,669.00 |
| 2012 | \$26,669.00 |
| Primary FoR | 1503 BUSINESS AND MANAGEMENT |
| APAI | 1 |

Partner Organisations

Australian Senior Human Resources Roundtable

Administering Organisation Monash University

Project Summary

Australians will benefit from the project because it will: 1) assist in the promotion of strategies that manage the productivity of critical talent at a time of environmental uncertainty; 2) promote a strategic rather than a reactive approach to the management of the Australian workforce at a time when companies may be pressured to take a short term view; 3) help to generate a positive workplace relations climate through the carriage of employee-focussed human resource management practices; and 4) provide guidance for the development of the competencies required for HRM professionals to add value for employees and for organisational performance.

LP100100746 Prof John Sheridan, A/Prof Hugh M Blackburn
Approved Project Title **Investigation into flow over complex topography and escarpments for wind turbine siting using experimental and computational methods**

| | |
|-------------|-----------------------------|
| 2010 | \$53,338.00 |
| 2011 | \$53,338.00 |
| 2012 | \$53,338.00 |
| Primary FoR | 0913 MECHANICAL ENGINEERING |
| APAI | 2 |

Partner Organisations

Hydro Tasmania, Suzlon Energy Australia Pty Ltd

Administering Organisation Monash University

Project Summary

This project will improve national capability to optimise power production from wind turbine farms in complex terrain by improving the understanding of the flow regime. By better understanding separated regions and the turbulent structures within these regions power production can be optimised and fatigue risks associated with turbine positioning in complex sites can be reduced. This will improve confidence in wind farm site assessment techniques and consequently reduce economic risks associated with current wind farm viability assessments. By increasing national capacity to generate clean energy stationary energy emissions can be reduced. This project will also deliver high calibre graduates that will be potential future industry leaders.

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LP100100599 A/Prof Christopher J Trotter, Prof Colette J Browning, Prof Daniel W O'Connor, Prof Paul M Collier, A/Prof Rosemary J Sheehan

Approved Project Title **Ageing in prison: A strategic framework for the management of ageing offenders in the Australian criminal justice system**

2010 \$60,000.00

2011 \$72,000.00

Primary FoR 1602 CRIMINOLOGY

Partner Organisations

Department of Justice, Victoria, Victorian Association for the Care and Resettlement of Offenders (VACRO)

Administering Organisation Monash University

Project Summary

The knowledge and strategies offered by this research will contribute to significant improvements in planning of programs and facilities for Australian prisons and prisoner support services. In turn, ageing prisoners will benefit from improved mental and physical health, reduction in homelessness, and reduced recidivism. Improved knowledge of the needs of ageing prisoners will allow reduced costs, through better planning, less inefficiencies and a decreased burden on community health and welfare systems. The project will also assist government departments to ensure national and international human rights obligations are met.