

Summary of Linkage Projects Applications for Funding to Commence in 2006

Victoria

Monash University

LP0668123 Prof AM Bond; Dr M Bugar; Prof GB Deacon; Dr NF Dunlop; A/Prof F Separovic; Prof DR MacFarlane; Dr JL Scott

Approved Project Title Development of Reactive Ionic Liquids for Future Industrial Applications in Australia

Project Title

2006 : \$252,667

2007 : \$258,596

2008 : \$201,347

Primary RFCD 2501 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

APA(I) Award(s): 1

Partner Organisation(s)

Orica Ltd

Administering Institution Monash University

Project Summary

This project creates the opportunity for a consortium of leading scientists to develop reactive ionic liquids concepts to support Australian Chemistry. The aim is to radically improve materials and processes within the manufacturing, mining and building industries by paradigm shift in chemical methodology. This will be achieved through cooperation between the major Australian chemical company, Orica, and CSIRO - CMIT, and two leading Australian Universities, Melbourne and Monash. The majority of the manufacturing and mining industries, which will benefit from this activity and as a result become more internationally competitive, are based in regional Victoria, NSW, Queensland, South Australia, and Western Australia.

LP0667964 Prof GD Bouma; Dr S Akbarzadeh

Approved Project Title Hopes and Aspirations of Australian Muslims

Project Title

2006 : \$47,356

2007 : \$61,693

Primary RFCD 3701 SOCIOLOGY

APA(I) Award(s): 1

Partner Organisation(s)

Victorian Multicultural Commission

Department of Immigration and Multicultural and Indigenous Affairs (DIMIA)

Australian Multicultural Foundation

Islamic Council of Victoria

Administering Institution Monash University

Project Summary

Promoting harmony and increasing security are critical national issues. This project will provide reliable information on the socio-political outlook of Australian Muslims - a growing community in Australia which has attracted extensive public scrutiny in recent years. By testing the hopes and aspirations of Australian Muslims, the findings of this project will (a) offer tangible guidelines for Commonwealth and state policy makers, (b) contribute to an informed public discourse on the place of Islam in Australia, and (c) enrich inter-faith and inter-cultural dialogue and social harmony

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LP0667748 Dr JF Debeljak; A/Prof SY Kneebone; Prof BM McSherry

Approved Project Title **Australia's Response to Trafficking in Women: Towards A Model for the Regulation of Forced Migration in the Asia-Pacific Region**

2006 : \$33,000

2007 : \$50,891

2008 : \$59,610

Primary RFCD 3901 LAW

Partner Organisation(s)

ACIL Australia Pty Ltd

Human Rights and Equal Opportunity Commission

Attorney General's Department

World Vision Australia

Administering Institution Monash University

Project Summary

The problem of trafficking in persons and issues of forced migration in the Asia-Pacific region are matters of national concern as they involve the security of the nation and the prevention of organised transnational crime. This project will contribute to the safeguarding of Australia by improving our understanding of the nature of the problem and what legal responses work best in combating trafficking. By specifically focussing on the gaps in the existing law, practice and policy, the project will enable Australia to be a major international leader in this important field.

LP0667466 Prof PB Dixon; Dr S Schreider; Dr GM Wittwer; Mr M Eigenraam

Approved Project Title **Combining hydrological information with a multi-regional, computable general equilibrium model**

2006 : \$59,800

2007 : \$52,000

2008 : \$57,300

Primary RFCD 3402 APPLIED ECONOMICS

APA(I) Award(s): 1

Partner Organisation(s)

Department of Primary Industries

Department of Sustainability and Environment

Administering Institution Monash University

Project Summary

The model to be created will combine a unique amount of economic detail at the statistical division level with hydrological detail. Users will obtain better estimates than previously available on the regional and industrial impacts of different water scenarios. This will produce economic and social returns to the community through improved water policies in the following areas: urban-rural water allocation; climate change impact assessment; water reform and water trading; and the economic impacts of meeting environmental objectives. The model will thus provide a path-breaking tool for examining issues arising from COAG reforms and broader policy goals.

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LP0667936 Dr JK Kodikara; Prof JP Cull; Prof X Zhao; Dr A Bouazza; Dr P Davis; Dr S Burn; Prof ID Moore

Approved Project Title Prediction and controlling of pipe failures in buried water and gas pipe systems

2006 : \$280,000

2007 : \$188,896

2008 : \$168,196

2009 : \$83,146

Primary RFCD 2908 CIVIL ENGINEERING

APA(l) Award(s): 3

Partner Organisation(s)

City West Water

TXU

Alinta Network Services

Water Corporation

Ipswich City Council

South East Water Ltd

Origin Energy Asset Management Services

Administering Institution Monash University

Project Summary

Australian Research Council has recognised water as a critical resource that must be protected from wastage. Along with water, the supply of gas to communities through extensive buried pipe networks is an essential service. As the pipe systems age, the pipe failures have increased. These failures lead to loss of valuable commodity and inconvenience and health hazard to public and workers. Effective asset management tools are urgently required in predicting and controlling pipe failures. A consortium of water and gas suppliers and a team of researchers from Monash University and CSIRO have joined forces to address this problem so that significant social and economic benefits to Australia can be realised.

LP0668389 Prof DR MacFarlane; Prof M Forsyth; Dr AS Best

Approved Project Title Low viscosity, high ionic conductivity ionic liquids for lithium metal batteries

2006 : \$108,905

2007 : \$111,280

2008 : \$113,649

Primary RFCD 2501 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

APA(l) Award(s): 2

Partner Organisation(s)

Creavis

Administering Institution Monash University

Project Summary

Current consumer electronic devices rely on lithium-ion batteries to provide a high energy density power source. There are growing safety concerns about the electrolytes in these devices after recent incidents involving fires in mobile phones. Recent advances in ionic liquids (ILs) have seen the development of new electrolytes for such devices, with enhanced physical properties that offer major safety advantages. However, the viscosity of these materials currently limit their capabilities. New IL materials to be developed in this project will pave the way for the development of safer devices and new sustainable energy industries in Australia.

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LP0668032 Dr JM Newton; A/Prof SR Billett; A/Prof GF Ives; Prof BC Jolly; Prof WM Cross

Approved Project Title **Developing nurses' work as a learning practice**

2006 : \$74,340

2007 : \$76,000

2008 : \$74,340

Primary RFCD 3211 NURSING

APDI Dr JM Newton

Partner Organisation(s)

Southern Health

Administering Institution Monash University

Project Summary

Innovative models of clinical experience are required to enhance the professional learning, ongoing development and retention of nursing students and experienced nurses who support their development. This project directly addresses this need through developing and appraising a model of practice-based learning and participation that reciprocally develops both novice and experienced nurses' capacities and identities. The project can potentially inform the practices within both tertiary and healthcare organizations about an innovative approach to address issues impacting on the national workforce of nursing and provide a significant contribution to enhancing the knowledge and understanding of the nursing practices within healthcare.

LP0667502 Prof J Ozanne-Smith

Approved Project Title **Architectural glass related injury: implications for improving public safety.**

2006 : \$35,000

2007 : \$35,000

Primary RFCD 3212 PUBLIC HEALTH AND HEALTH SERVICES

Partner Organisation(s)

Pilkington (Australia) Limited

Building Commission

Administering Institution Monash University

Project Summary

The immediate benefit of the project is information for government, the building and furniture industries, regulators, and the community to underpin interventions to prevent architectural and furniture glass injury. A major longer term benefit is to provide the crucial injury and glass data for future conduct of the other two phases of the planned research program, namely, glass performance testing and simulated human-glass impact studies. These future studies will provide the scientific evidence for review of the Standards for architectural glass for application to the building, design and construction industry to increase safety for the Australian community.

LP0668052 A/Prof B Shirinzadeh; Dr AE Nicholson; A/Prof MH Ang

Approved Project Title **Autonomous service robots in a multi-agent based system for household and industrial environments**

2006 : \$65,000

2007 : \$65,000

2008 : \$55,000

Primary RFCD 2903 MANUFACTURING ENGINEERING

Partner Organisation(s)

FLOORBOTICS International

Administering Institution Monash University

Project Summary

This project addresses fundamental research issues required to develop autonomous mobile robots for intelligent cleaning services. As an interdisciplinary project spanning the fields of robotics, mechatronics and AI, it offers potential benefits in bringing robots into less-structured human environments. Robots performing autonomous cleaning (including hazardous waste and spillage) and security tasks in both household and industrial environments has tremendous national/community benefits in cost and time savings, improved efficiency and safety, and facilitating hazardous or labour intensive tasks. Other benefits include research training, strengthening Australia's R&D position in key innovative technologies, and creating jobs and exports.

Summary of Linkage Projects Applications for Funding to Commence in 2006

LP0668076 Prof MG Wallace; A/Prof NL Boland

Approved Project Title **Combining mathematical programming and constraint programming to solve large-scale integrated scheduling problems**

2006 : \$70,000

2007 : \$65,000

Primary RFCD 2301 MATHEMATICS

Partner Organisation(s)

Constraint Technology International

Administering Institution Monash University

Project Summary

This project will target major savings in the airline industry, with resulting benefits for others such as tourism. The efficient use of airline fuel, which will be directly addressed in the project, is very important for the environment. The algorithms developed can improve cost and quality of service for Australian transportation, manufacturing and other industries.

The solutions developed within the project will be sold by the industrial partner, CTI, into major companies worldwide, and the technology will be used to develop further products.

Finally the project will extend Australia's lead in constraint programming and expertise in optimisation. This creates a major opportunity for the Australian software industry.