

Queensland

Queensland University of Technology

LP0990514 Prof M Dhanasekar; Dr C Yan

Approved Project Title **Development of thin bed concrete masonry structural walls**

2009 : \$ 26,140
2010 : \$ 52,280
2011 : \$ 52,280
2012 : \$ 26,140

Primary RFCD 2908 CIVIL ENGINEERING

APA(I) Award(s): 2

Collaborating/Partner Organisation(s)

Concrete Masonry Association of Australia
 Hanson Masonry
 Rockcote Enterprises Pty Ltd.

Administering Organisation Queensland University of Technology

Project Summary

Masonry is one of the most well regarded construction systems for low and medium rise buildings, but requires skilled labour. The current skills shortage incurs project delays, leading to direct and indirect costs to the Australian community. Thin bed technology for concrete masonry will utilise special blocks and binders for easy adoption by unskilled labour, without compromising personal safety or structural integrity. As thin bed walls require less volume of cement reduced binders, the technology will also lead to reduced carbon emission. Thus, this project addresses two of Australia's greatest challenges: environmental degradation and our critical skills shortage.

LP0991527 Prof DW Hutmacher; Prof MA Schuetz; Dr DR Epari; Dr S Saifzadeh; Prof MA Knackstedt; Prof G Duda

Approved Project Title **Development and characterization of a technology platform to study the mechanisms of scaffold/Bone Morphogenic Proteins (BMP) augmented large segmental bone healing**

2009 : \$ 50,000
2010 : \$ 90,000
2011 : \$ 80,000
2012 : \$ 40,000

Primary RFCD 2915 BIOMEDICAL ENGINEERING

APA(I) Award(s): 2

Collaborating/Partner Organisation(s)

Queensland Orthopaedic Research Trust
 Stryker Australia Pty Ltd
 Osteopore International Pte Ltd
 Synthes Australia Pty Ltd

Administering Organisation Queensland University of Technology

Project Summary

This project will increase understanding of bone engineering and in doing so will lead to superior treatments for bone defects. Such a treatment would be valuable in addressing the ever-increasing problems of diminished productivity and reduced quality of life associated with bone disorders as the population ages. The multidisciplinary and international team will be valuable in establishing Australia's prominence in this field and training the next generation of young scientists and engineers. The technologies developed will be of great interest to a large number of research groups and companies worldwide and will assist with fostering international collaboration and placing Australia at the forefront of this emerging field.

Summary of Linkage Projects Proposals for Funding to Commence in 2009

LP0990296 Dr MD Kinkema; Prof JL Dale; Dr A Silverstone; Dr MB Sainz

Approved Project Title **Optimization of Transgene Expression in Sugarcane**

2009 : \$ 54,000

2010 : \$ 108,000

2011 : \$ 108,000

2012 : \$ 54,000

Primary RFCD 2708 BIOTECHNOLOGY

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Syngenta Biotechnology

Administering Organisation Queensland University of Technology

Project Summary

Sugarcane is one of Australia's most important crops. However, worldwide competition and declining sugar prices threaten the long term economic sustainability of this industry unless alternative markets for sugarcane are created. Biotechnology holds the greatest promise for the development of an economically sustainable sugarcane industry through the production of varieties that can be used for cellulosic ethanol or as biofactories for high-value alternative products. In addition, cellulosic ethanol from sugarcane has the potential to substantially decrease the cost of biofuel production and significantly reduce greenhouse gas emissions. The research proposed here will advance our ability to improve sugarcane through biotechnology.

LP0990553 Dr K Manley; Prof RL Parker; Prof JF Marceau; Prof K Hampson; Prof SL Kajewski

Approved Project Title **Maximising diffusion of innovative products on public infrastructure projects: A qualitative management study of open innovation systems.**

2009 : \$ 51,974

2010 : \$ 105,285

2011 : \$ 109,246

2012 : \$ 55,935

Primary RFCD 3502 BUSINESS AND MANAGEMENT

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Construction Industry Institute Australia

Queensland Department of Main Roads

Administering Organisation Queensland University of Technology

Project Summary

Australia's infrastructure in water, energy, health, education, transport and communication is the platform for our future prosperity and growth. In response to an identified deficit, Australian governments are embarking on major investment programs. Our ability to deliver these programs efficiently and effectively relies heavily on the promotion of innovation in the delivery phase. This study contributes to this major challenge by identifying how diffusion of innovative products can be maximised on infrastructure projects, focusing on knowledge flows within open innovation systems. The study will provide tools to optimise delivery of a world-class and integrated infrastructure network to meet Australia's future social and economic needs.

Summary of Linkage Projects Proposals for Funding to Commence in 2009

LP0990134 Prof L Morawska; A/Prof GA Ayoko; Dr ZD Ristovski; Dr SJ Low Choy; Prof MR Moore; Prof GM Williams; Mr J Woodland; Mr A Monk; Prof GB Marks; Dr P Robinson

Approved Project Title **The Effects of Nano and Ultrafine Particles from Traffic Emissions on Children's Health**

2009 : \$ 104,000
2010 : \$ 208,000
2011 : \$ 219,000
2012 : \$ 179,000
2013 : \$ 64,000

Primary RFCD 3212 PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 2

Collaborating/Partner Organisation(s)

Queensland Transport

Woolcock Institute for Medical Research

Administering Organisation Queensland University of Technology

Project Summary

The socio-economic benefits to Australia will include (i) quantitative knowledge of the exposure to nano and ultrafine particles, pollutants in the centre of current scientific, medical and policy debates and (ii) a breakthrough in the scientific understanding of the specific particle properties, which have impacts on health effects. The ultimate economic benefit will be improved urban design to lower, in particular, children's exposure to ultrafine particles, thus reducing life long impacts, health care cost and productivity losses. The research will also place Australia at the forefront of international progress towards better methods for achieving environmental and public health sustainability.

LP0990304 Dr P Obst; Dr K White; Prof JR Warburton; Dr NM Spencer

Approved Project Title **Responding to the rural skills crisis: Modelling volunteer motivations and incentives to attract retired/semi-retired professionals to volunteer in rural areas.**

2009 : \$ 20,000
2010 : \$ 45,500
2011 : \$ 50,500
2012 : \$ 25,000

Primary RFCD 3801 PSYCHOLOGY

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Department of Local Government Sport and Recreation

Administering Organisation Queensland University of Technology

Project Summary

This project contributes directly to Promoting and Maintaining Good Health: Ageing well, ageing productively by placing a high value on the skills of older Australians and encouraging them to remain productive into retirement by sharing these skills. This project will also strengthen the social and economic fabric of rural communities by addressing the identified national priority area of skills shortages in rural areas by providing rural councils with a means to access skilled professionals to assist them in enhancing their economic and social sustainability. Further, use of sound, well-tested psychological theories of individual decision making will enhance the validity and applicability of the model.

Summary of Linkage Projects Proposals for Funding to Commence in 2009

LP0991136 Prof J O'Connor; Dr MA Keane; Prof GN Hearn; Mr DP Hill; Prof Z Fan; Prof JC Zhang; A/Prof H Zhang; Prof J Wang

Approved Project Title **Soft Infrastructure, New Media and Creative Clusters: Developing Capacity in China and Australia**

2009 : \$ 50,000

2010 : \$ 90,000

2011 : \$ 80,000

2012 : \$ 40,000

Primary RFCD 4001 JOURNALISM, COMMUNICATION AND MEDIA

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Arup

China Executive Leadership Academy Pudong

Communication University of China

Beijing Academy of Science and Technology

Administering Organisation Queensland University of Technology

Project Summary

The project will position Australia at the forefront of the creative industries internationally and enhance national capacities in the rejuvenation and design of creative urban precincts. A greater appreciation of, and strong links with China, particularly its design and urban sectors, will result. Australian firms will benefit through greater trade opportunities as a result.

LP0991062 Prof AN Pettitt; Prof JA Eccleston; Dr H Thompson; Prof SB Duffull; Dr T Goggin; Dr PI McCloud

Approved Project Title **Innovative Bayesian statistics for enhanced decision making for pharmaceutical drug development**

2009 : \$ 62,500

2010 : \$ 117,500

2011 : \$ 97,500

2012 : \$ 42,500

Primary RFCD 2302 STATISTICS

APA(I) Award(s): 2

Collaborating/Partner Organisation(s)

Roche Palo Alto LLC

Administering Organisation Queensland University of Technology

Project Summary

This project addresses Australia's national research priority of Promoting and Maintaining Good Health, and will lead to improvements in health outcomes by patients accessing new drugs sooner, enhancing research, and reducing the cost of health care. Decision making in early stages of drug development will be improved by using novel statistical methods, which could also be applied in a variety of situations involving decision making procedures. This will be achieved through cross-disciplinary and university-industry collaboration, utilising Australian and international expertise. National demands for quality science and trained researchers underpinning health decisions will be contributed to.

Summary of Linkage Projects Proposals for Funding to Commence in 2009

LP0991238 Prof S Sridharan; Prof J Bonastre; Prof J Gonzalez Rodriguez; Dr MW Mason

Approved Project Title **Robust Automatic Speaker Diarisation of Audio Documents by Exploiting Prior Sources of Information**

2009 : \$ 52,500
2010 : \$ 102,500
2011 : \$ 97,500
2012 : \$ 47,500

Primary RFCD 2802 ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)
Torqx Pty Ltd
University Of Avignon
Universidad Autonoma de Madrid (UAM)

Administering Organisation Queensland University of Technology

Project Summary

Speaker Diarisation, the task of determining who spoke when, is a technology fundamental in deriving intelligent information from audio and multimedia resources. The requirement for efficient and accurate Speaker Diarisation systems, portable across different domains is heightened by the explosive growth of audio and multimedia archives online and throughout the world. This research will provide the foundation for a commercial service of automatic Speaker Diarisation to be developed, growing Australia's impact on the information and communications technology (ICT) sector. The outcome of this research will also assist in the tracking of terrorist and unlawful activity by enabling effective intelligence gathering from different audio sources.

LP0990147 Prof P Timms; Prof KW Beagley

Approved Project Title **Development of an anti-Chlamydia vaccine for the koala**

2009 : \$ 50,000
2010 : \$ 100,000
2011 : \$ 95,000
2012 : \$ 45,000

Primary RFCD 2703 MICROBIOLOGY

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)
Lone Pine Koala Sanctuary
Australia Zoo Wildlife Warriors
Gold Coast City Council
Friends of the Koala Inc.

Administering Organisation Queensland University of Technology

Project Summary

The koala is one of Australia's main icons and a major drawcard for tourists. However, it suffers from debilitating disease due to the bacterium Chlamydia, which can lead to severe conjunctivitis, eventual blindness in both sexes, and the females develop untreatable cysts and can become infertile. This project will develop a Chlamydia vaccine to be administered to healthy and diseased koalas in zoos, sanctuaries, koala care centres, relocation programs and eventually perhaps even wild populations. The vaccine findings may also be transferable to other animals and may also even assist the development of a human Chlamydia vaccine.

Summary of Linkage Projects Proposals for Funding to Commence in 2009

LP0990434 A/Prof BC Watson; Dr K White; Dr I Lewis; Mr BJ Elliott

Approved Project Title **A theory-based approach to the design and evaluation of anti-speeding messages to target high risk road users' attitudes and behaviours**

2009 : \$ 52,754

2010 : \$ 109,124

2011 : \$ 109,319

2012 : \$ 52,949

Primary RFCD 3801 PSYCHOLOGY

APDI Dr I Lewis

Collaborating/Partner Organisation(s)

Transport Accident Commission

Administering Organisation Queensland University of Technology

Project Summary

The proposed research offers three significant benefits. First, this research will develop an improved approach to aid the design and testing of road safety anti-speeding messages. Second, the research will identify the most effective advertising messages for different groups of drivers at risk of being involved in road-related trauma such as young males. Third, through improving the persuasiveness of anti-speeding advertising messages, the research may contribute to a reduction in the extent to which drivers engage in speeding which, in turn, may lessen speeding-related road trauma which would have significant benefits not only for road safety but for public health more broadly.

LP0990329 Dr BP White; Prof L Willmott; Prof CM Cartwright; Prof M Parker; Prof GM Williams

Approved Project Title **Withholding and withdrawing life-sustaining treatment from adults lacking capacity: Enhancing medical decision-making through doctors' compliance with the law**

2009 : \$ 46,000

2010 : \$ 97,000

2011 : \$ 97,500

2012 : \$ 46,500

Primary RFCD 3901 LAW

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Guardianship and Administration Tribunal (Qld)

Office of the Adult Guardian (Qld)

Office of the Public Advocate (Qld)

Victorian Civil and Administrative Tribunal

Office of Public Advocate (Vic)

Guardianship Tribunal (NSW)

Office of Public Guardian (NSW)

Administering Organisation Queensland University of Technology

Project Summary

This project will enhance medical decision-making about the provision of life-sustaining treatment to adults without decision-making capacity through improved compliance with the law. This will advance patients' autonomy and dignity, protect vulnerable adults whose lives may be wrongly ended because of inappropriate treatment decisions and avoid litigation for doctors and hospitals. The project also aims to improve the quality of the law by resolving legal ambiguity and proposing reforms. This will further enhance the quality of decision-making, and will reduce defensive medicine and the cost of complying with the law, leading to savings in health expenditure.

Summary of Linkage Projects Proposals for Funding to Commence in 2009

LP0991856 Dr K White; Prof R Young; A/Prof AL Hawkes

Approved Project Title **Psychosocial influences determining Australians' sun safe practices: An examination of attitudes, norms, and control perceptions**

2009 : \$ 31,953

2010 : \$ 69,165

2011 : \$ 82,584

2012 : \$ 45,372

Primary RFCD 3801 PSYCHOLOGY

Collaborating/Partner Organisation(s)

The Cancer Council Queensland

Administering Organisation Queensland University of Technology

Project Summary

Skin cancer accounts for approximately 80% of all new cancers diagnosed annually in Australia. As the performance of sun safe practices is dependent on individual decision-making processes, it is vital to understand the motivations underlying people's sun-protective actions. Identification of the important predictors of motivations to sun-protect will assist in developing specific in-class and online intervention strategies to increase people's performance of sun safety behaviours. The results of the proposed research have significant implications for reducing the incidence of non-melanoma and melanoma skin cancer and sun-related damage in a high risk context, ultimately reducing skin-cancer morbidity and mortality rates.

LP0990292 Prof JM Wood; Dr MJ King; Em/Prof RJ Troutbeck; Prof R Tyrrell; Mr JC Douglas; Mr DS Woodbury

Approved Project Title **Using 'biological motion' to enhance the nighttime safety of road workers, cyclists, and pedestrians**

2009 : \$ 54,103

2010 : \$ 111,541

2011 : \$ 114,494

2012 : \$ 57,056

Primary RFCD 3209 OPTOMETRY

Collaborating/Partner Organisation(s)

Department of Main Roads

Queensland Transport

Administering Organisation Queensland University of Technology

Project Summary

Pedestrian and cyclist fatalities are a major road safety problem, accounting for a third of road fatalities at an estimated cost of \$2.5 billion/year. Late recognition of pedestrians and cyclist by drivers is the main reason for these collisions. We have shown that innovative visibility designs which involve strategic placement of reflective markers on the moveable joints can greatly enhance visibility and hence safety of these vulnerable road users. We will extend this research to incorporate evaluation of these visibility solutions in real-world environments and encourage the widespread use of these designs in the real-world through education and policy change.

Summary of Linkage Projects Proposals for Funding to Commence in 2009

LP0990289 Dr AF Woods; Prof A Luke; Dr KT Dooley; Dr V Chandra; Dr KA Mills; Dr B Exley; Mr ML Dezuanni; Mr J Davis; Dr JE McCollow; Ms LL McFarlane

Approved Project Title **Digital Learning and Print Literacy: A design experiment for the reform of low socio-economic, culturally diverse schools.**

2009 : \$ 85,387

2010 : \$ 157,401

2011 : \$ 130,503

2012 : \$ 78,260

2013 : \$ 19,772

Primary RFCD 3302 CURRICULUM STUDIES

APDI Dr KA Mills

Collaborating/Partner Organisation(s)

Queensland Teachers Union

Waterford West State School

Administering Organisation Queensland University of Technology

Project Summary

The Federal Government has declared the Education Revolution as a key national priority for reform. It has called for a policy focus on the introduction of digital technologies into the school lives of students and a renewed focus on equity in traditional print literacy. This project will provide a new evidence base and training site for teacher and student development in print literacy and technology with a focus on low socio-economic school development.

Summary of Linkage Projects Proposals for Funding to Commence in 2009

LP0990135 Prof PK Yarlagadda; Prof S Sridharan; Prof KL Mengersen; Prof Dr M Rosemann; Em/Prof EP Dawson; Dr C Fookes; Prof M Piccardi; Prof V Popovic; Dr P Barnes; Prof RM Drogemuller; Prof N Srinivasan; Prof PA Mendis; Prof RJ Hansman Jr; Mr SM Goodwin; Prof Dr G Lodewijks; Prof A Goonetilleke

Approved **Airports of the Future**

Project Title

2009 : \$ 282,500

2010 : \$ 565,000

2011 : \$ 567,500

2012 : \$ 635,000

2013 : \$ 350,000

Primary RFCD 2918 INTERDISCIPLINARY ENGINEERING

APA(I) Award(s): 5

Collaborating/Partner Organisation(s)

Brisbane Airport Corporation

Australian Customs Service

Melbourne Airport

Cairns Airport Pty Ltd

Rockhampton Airport

Capital Airport Group

Queensland Airports Ltd.

ISS security Pty Ltd

Mackay Airport Pty Ltd

Sunshine Coast Airport

Airport Coordination Australia

Australian Airports Association

Department of Immigration and Citizenship

Australian Quarantine and Inspection Services

Australian Crime Commission

Westralia Airports Corporation Pty Ltd

Hobart International Airport Pty Ltd

South Burnett Regional Council

Transport Tourism Forum (TTF)

Department of Infrastructure, Transport, Regional Development and Local Government

NT Airports Pty Ltd.

Australian Federal Police

Emirates Group Security

Administering Organisation Queensland University of Technology

Project Summary

This project will enhance the capabilities of Australian airport operators to design and manage complex airport systems. Research outcomes will enable the identification of patterns of behaviour and will provide tools to manage airport effectiveness and balance conflicting security, economic and passenger-driven pressures. Outcomes will improve productivity, enhance capabilities for critical infrastructure protection, and lessen the cost of mandated security, estimated to grow to \$152M by 2010 for the five major Australian airports. The deliverables of this project will be transferable to other complex socio-technical systems providing the potential to transform a range of Australian critical infrastructure and transportation hubs.

Summary of Linkage Projects Proposals for Funding to Commence in 2009

LP0990250 Prof PK Yarlagadda; Dr B Schmutz; Dr Y Gu; Prof MA Schuetz

Approved Project Title **An innovative system for accurate bending of fracture fixation plates in orthopaedic surgery**

2009 : \$ 29,500

2010 : \$ 60,000

2011 : \$ 46,500

2012 : \$ 16,000

Primary RFCD 2903 MANUFACTURING ENGINEERING

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Queensland Orthopaedic Research Trust

Administering Organisation Queensland University of Technology

Project Summary

Bone fractures cost the Australian healthcare system about 1 billion annually, with the costs associated with non optimal surgical outcomes due to post-operative complications being much higher. The novel system developed in this project will not only shorten surgical procedures but also result in anatomically better fitting plates which will improve the functional outcome and reduce the need for surgical implant removal. It will further lessen degenerative changes in adjacent joints as a result of incorrect fracture alignment. It can be expected that these improvements in surgical techniques will translate into reduced healthcare expenditure and ensure patient's quality of life.