

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

### New South Wales

#### The University of Sydney

**LP100200825** Prof Mark A Adams, Dr Tina L Bell, Dr Christopher J Weston, Mr Jaymie R Norris

**Approved Project Title** **Fires, black carbon, greenhouse gas emissions and the carbon balance of southern sclerophyll forests**

2010	\$70,000.00
2011	\$135,000.00
2012	\$130,000.00
2013	\$125,000.00
2014	\$60,000.00
2015	

Primary FoR 0503 SOIL SCIENCES

APAI 1

#### Partner/Collaborating Organisation(s)

Department of Sustainability and Environment, Victoria

**Administering Organisation** The University of Sydney

#### Project Summary

Ecologically sustainable forest management requires an understanding of the role of fire in the carbon balance of native forests, and in Australia's overall carbon balance. Fires are crucial to both this carbon balance and to the ecology of the forests. This project will help forest managers make decisions about using prescribed fire to manage fuels while at the same time managing carbon. An aim of management is to identify fire regimes that will optimise the carbon outcome as well as provide protection to life and property. This project will help managers meet that aim by developing a quantitative understanding of how much stable, black carbon (charcoal) is produced and how it affects other soil processes.

**LP100200252** Dr Tihomir Ancev, Asst Prof Rimvydas Baltaduonis

**Approved Project Title** **Emissions trading and the design and operation of Australia's energy markets**

2010	\$13,334.50
2011	\$26,669.00
2012	\$26,669.00
2013	\$13,334.50
2014	
2015	

Primary FoR 1402 APPLIED ECONOMICS

APAI 1

#### Partner/Collaborating Organisation(s)

Australian Financial Markets Association

**Administering Organisation** The University of Sydney

#### Project Summary

Past research has applied the methods of experimental economics to focus on capacity markets, futures markets, and demand side response management options for electricity markets in the United States of America. This project will examine research priorities for Australia's energy markets. These include market impacts on investment decision-making, trade in Renewable Energy Certificates, and the consequences of carbon emissions trading for energy market outcomes. Australia's electricity markets are primarily financial markets and new policy developments present both risks and opportunities. By designing and testing markets, experiments will be used to test market performance and for unforeseen consequences of new market policies.



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

**LP100200245** A/Prof Holger R Dullin, Dr Peter J Sinclair, Dr Surya Singh, Dr Damien M O'Meara

**Approved Bodies in space**

**Project Title**

2010 \$27,500.00

2011 \$55,000.00

2012 \$55,000.00

2013 \$27,500.00

2014

2015

Primary FoR 0102 APPLIED MATHEMATICS

APAI 2

**Partner/Collaborating Organisation(s)**

NSW Institute of Sport

**Administering Organisation** The University of Sydney

**Project Summary**

By investigating how a change in shape of the human body can produce a change in spatial orientation, the project will bring a fundamental advance of knowledge in the intersection of applied mathematics, sports science and mechanical engineering. These knowledge advances will lead to a novel theory regarding the control of the aerial dynamics of athletes, specifically springboard and platform divers. When applied in collaboration with world class Australian athletes, this theory will result in innovative platform and springboard diving techniques and improved performance. The reach of new insights generated by this work extends to many other fields, including robotics, spacecraft dynamics and nano technology.

**LP100200280** Prof Dagan Feng, Dr Weidong Cai, Prof Michael J Fulham, A/Prof Stefan Eberl, Dr Lingfeng Wen

**Approved Project Title** **Integrated multi-level interpretation and its applications for intelligent multimodality biomedical image navigation, retrieval and tracking**

2010 \$75,000.00

2011 \$145,000.00

2012 \$140,000.00

2013 \$70,000.00

2014

2015

Primary FoR 0806 INFORMATION SYSTEMS

**Partner/Collaborating Organisation(s)**

Royal Prince Alfred Hospital

**Administering Organisation** The University of Sydney

**Project Summary**

The 64- and 128-slice positron emission tomography - computed tomography (PET-CT) devices at the Royal Prince Alfred Hospital were the first in the country. These scanners, with the medical cyclotron and radiochemistry facilities, represent an investment of over A\$13 million. This project will address pressing issues in optimising the utilisation of the information and systems to provide better service to patients and referring clinicians. This research will add considerable value to Australia's medical imaging infrastructure and healthcare delivery; and advance scientific research in better understanding of system biology, physiology and pathology. The research outcomes will strengthen Australia's leading position in biomedical information technology research and Australian medical imaging expertise.

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

<b>LP100200198</b>	A/Prof Yun-Hee Jeon, Prof Hal L Kendig, Prof Judy M Simpson, Prof Lynn L Chenoweth	
<b>Approved Project Title</b>	<b>Optimising the residential and community aged care workforce: the evidence-based development of clinical leadership in middle managers in aged care</b>	
2010		\$55,062.50
2011		\$106,650.50
2012		\$88,963.50
2013		\$37,375.50
2014		
2015		
Primary FoR	1117	PUBLIC HEALTH AND HEALTH SERVICES

### Partner/Collaborating Organisation(s)

Baptist Community Services (NSW and ACT)

**Administering Organisation**      The University of Sydney

### Project Summary

1.4% of the Australian workforce is employed in the aged care sector, making a significant contribution to the economy. This study provides evidence-based tools to build management capacity and leadership in aged care, which in turn will improve the quality and effectiveness of the care that has a crucial bearing on the lives of vulnerable older people in community and residential care. The findings will identify ways to improve aged care workforce retention; and enhance key factors leading to quality care and improved well being of care staff and recipients. This knowledge will contribute to improving the status of aged care related employment; and yield future policy directions that promote effective clinical leadership in aged care.

<b>LP100200615</b>	Dr Ian R Johnson, Mr Ross H Coleman, Prof Richard Waterhouse, Dr Caroline Butler-Bowdon, Mr Sebastian R Chan, Ms Christine I Yeats	
<b>Approved Project Title</b>	<b>Enriching digital history: new approaches to content development and delivery using the Dictionary of Sydney</b>	
2010		\$35,500.00
2011		\$57,500.00
2012		\$54,500.00
2013		\$32,500.00
2014		
2015		
Primary FoR	2103	HISTORICAL STUDIES

### Partner/Collaborating Organisation(s)

Dictionary of Sydney Trust, Historic Houses Trust NSW, Powerhouse Museum, State Records Authority NSW

**Administering Organisation**      The University of Sydney

### Project Summary

The project will maximise the value of public investment in digital history resources by developing new methods of sharing and re-using content between systems and inviting and managing community participation. It will develop methods of preserving the community's investment in history exhibitions after they are taken down, and promote engagement with Sydney's history through delivery of historical information on 'smartphones' in situ within the city. It will generate new content for, and reduce content development costs for a major public resource, the Dictionary of Sydney, and showcase Australian Humanities eResearch by delivering new approaches to content creation and delivery which will be of value to the international research community.

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

**LP100200339** Prof Dr Thomas Maschmeyer, A/Prof Sebastien Perrier, A/Prof Anthony F Masters  
**Approved Project Title** **Functionalised biopolymers - a new class of renewable nano-engineered materials**

2010		\$75,000.00
2011		\$170,000.00
2012		\$190,000.00
2013		\$95,000.00
2014		
2015		
Primary FoR	0912	MATERIALS ENGINEERING

**Partner/Collaborating Organisation(s)**

Ignite Energy Resources Pty Ltd

**Administering Organisation** The University of Sydney

**Project Summary**

Licella is an Australian start-up company, focusing on developing uses for the renewable resource lignocellulosic biomass; a fibrous material sourced principally from waste, such as that generated by forestry and agricultural operations. It is possible to use such waste and process it to separate the biomass components. This project proposes to modify these biomass fractions with living radical polymerisation (LPR) polymers to impart functionalities, such as antimicrobial properties, high tensile strengths and/or in-built photodegradability. New, high-performance sustainable materials like these will be the back-bone of the polymer/plastics industry of the future, replacing common plastics, sourced from non-renewable petrochemicals, with benign, sustainable plastics.

**LP100200680** Prof Rebecca S Mason, Dr Ramin Rohanzadeh, Prof Gary M Halliday  
**Approved Project Title** **Enhancing sunscreen DNA and photo-ageing protection**

2010		\$52,500.00
2011		\$105,000.00
2012		\$120,000.00
2013		\$67,500.00
2014		
2015		
Primary FoR	1004	MEDICAL BIOTECHNOLOGY

APAI 1

**Partner/Collaborating Organisation(s)**

Ultraceuticals Pty Ltd

**Administering Organisation** The University of Sydney

**Project Summary**

Skin damage from UV exposure is costly for individuals and the community, particularly in Australia, where the population has predominantly fair skin. While public campaigns to persuade the population to use sun protection and avoidance have been useful, this project will be the first to extend this approach to deliver a way to reduce sun damage from any UV exposure that does nevertheless occur, by incorporating the active agents into topical sunscreens or creams for after-sun use. The project will also build infrastructure for translational research on photo-damage, combining world-class facilities for this research with advanced formulation and manufacturing operations.

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

<b>LP100200156</b>	Dr Daniela Traini, A/Prof Paul M Young, Prof Hak-Kim Chan	
<b>Approved Project Title</b>	<b>Engineering pressurized liquid droplets to generate high-efficiency aerosols for targeted respiratory delivery</b>	
2010		\$50,000.00
2011		\$97,500.00
2012		\$95,000.00
2013		\$47,500.00
2014		
2015		
Primary FoR	1115	PHARMACOLOGY AND PHARMACEUTICAL SCIENCES

APAI 1

**Partner/Collaborating Organisation(s)**

Chiesi Limited

**Administering Organisation** The University of Sydney

**Project Summary**

Many macroscopic aspects of pressurised Metered Dose Inhaler (pMDI) for respiratory diseases are recognised, but are yet to be understood at the basic level and accordingly exploited. In particular, the droplet charge mechanism in non-aqueous pMDIs remains elusive. Currently, although a wide range of drugs are commercially available as pMDIs, the efficiency of these systems is poor, with most devices delivering less than 20 per cent to the lung. An insight into these systems is crucial to successfully enhance the performance of aerosol formulations in industry, ultimately translating into superior patient therapy. This project will create a theoretical model for pMDI formulation that can be applied to the development of a new generation of inhalation medicines.

<b>LP100200275</b>	Dr Floris A van Schaik, Dr Tara J Hamilton	
<b>Approved Project Title</b>	<b>Novel circuits and design strategies for sub-65 nanometre complementary metal oxide semiconductor technologies</b>	
2010		\$26,669.00
2011		\$53,338.00
2012		\$53,338.00
2013		\$26,669.00
2014		
2015		
Primary FoR	0906	ELECTRICAL AND ELECTRONIC ENGINEERING

APAI 2

**Partner/Collaborating Organisation(s)**

Perceptia Devices Australia Pty Ltd

**Administering Organisation** The University of Sydney

**Project Summary**

This project will develop novel, state-of-the-art circuits and design strategies that overcome the challenges of current and future Integrated Circuit (IC) fabrication technologies. The extremely small sizes of transistors in these technologies offer advantages in speed, but at the price of a number of drawbacks, which the project will aim to overcome in this work. This research will make a significant contribution to the field of IC design as well as providing training for students to fill the present and future needs of Australia's IC design companies. Some of the most advanced cochlear implants, mobile phone ICs, and Wireless Internet ICs have been designed in Australia, and companies in Australia desperately need graduates skilled in designing in the latest technologies.

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

LP100200110

Prof Michael P Ward, Dr Brendan D Cowled, Dr Shawn W Laffan, Prof Stephen Sarre, Dr Andrew P Woolnough, Dr Michael G Garner, Dr Ian B Marsh

**Approved Project Title**

**What role does wildlife play in emergency disease? The case of the feral pig**

2010 \$50,000.00

2011 \$100,000.00

2012 \$70,000.00

2013 \$20,000.00

2014

2015

Primary FoR 0707 VETERINARY SCIENCES

APDI Dr Brendan D Cowled

### **Partner/Collaborating Organisation(s)**

Cattle Diseases Contingency Fund Pty Ltd , Department of Agriculture and Food WA, Department of Agriculture, Fisheries and Forestry, Department of Industry and Investment NSW

**Administering Organisation** The University of Sydney

### **Project Summary**

Wildlife populations have been responsible for many disease emergencies with economic and human health impacts, but our current understanding limits their management. This project focuses on the feral pig, an introduced wildlife species. It will develop an understanding of disease spread in feral pigs and from feral pigs to cattle. Using feral pig disease genetics, climate and environmental data, disease spread models will be developed. These models will be used to better manage emergency disease outbreaks in feral pigs and other wildlife species. This project will deliver practical outcomes, such as the best method of discovering disease and the most effective methods to control emergency animal diseases in wildlife and domestic animals.