

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

New South Wales

University of Wollongong

LP100200265 Prof Buddhima N Indraratna, Dr Cholachat Rujikiatkamjorn, Dr Jayan Vinod, A/Prof Jian Chu, Mr Andrew R Dunne, Dr Jayantha J Ameratunga, Mr Daniel Berthier, Mr Geoffrey W McIntosh, Dr Bruce G Blunden

Approved Project Title **Geotechnical properties and compaction characteristics of granular wastes as potential port reclamation fill**

2010 \$75,000.00

2011 \$142,500.00

2012 \$140,000.00

2013 \$72,500.00

2014

2015

Primary FoR 0905 CIVIL ENGINEERING

APAI 1

Partner/Collaborating Organisation(s)

Austress Menard Pty Ltd (Sustainable Technology), BHP Billiton Ltd, Coffey Geotechnics Pty. Ltd., Douglas Partners Pty Ltd, Port Kembla Port Corporation

Administering Organisation University of Wollongong

Project Summary

In moving towards sustainable waste management, the Australian mining and steel industry is proactively seeking large scale recycling schemes for coal wash and slag. If the construction potential of these wastes is favourable for reclamation, then the environmental and socio-economic benefits will be substantial due to less quarrying of fresh rock and reduced volume of waste tips on otherwise usable land. The research outcomes will be published in peer-reviewed journals and conferences, raising Australia's scientific profile in granular waste management. The geotechnical community will benefit through the rigorous training of professionals, while industry hosted seminars will promote the dissemination of knowledge gained to practitioners.

LP100200461 Dr Jeffrey W Moscrop, Prof Christopher D Cook, A/Prof Sarath Perera, Dr Tee G Tang, Dr Jose R Lopez-Roldan

Approved Project Title **Harmonic, force and eddy current analysis of high voltage compact saturated core superconducting fault current limiters in electricity grids**

2010 \$80,000.00

2011 \$145,000.00

2012 \$150,000.00

2013 \$85,000.00

2014

2015

Primary FoR 0906 ELECTRICAL AND ELECTRONIC ENGINEERING

Partner/Collaborating Organisation(s)

Powerlink Queensland, Zenergy Power Pty Ltd

Administering Organisation University of Wollongong

Project Summary

This project is a clear example of applied research that utilises a frontier technology (superconductors) in an application with both national and community benefits. Superconducting fault current limiters are designed to protect and improve the availability of electricity grids in an energy efficient manner, since negligible impedance is applied to the network during normal load conditions. Efficient improvements to the reliability of electricity networks are of national interest, with any failures affecting industry and individuals. The proposed research team, which includes Powerlink (an Australian electricity utility), is in a leading position to further develop this technology for the national grid and a potential world market.

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LP100200711 Dr Attila J Mozer, Prof David L Officer, Dr Tracey M Clarke, Dr Gilles Dennler
Approved Project Title **Hot exciton dissociation in donor / acceptor organic solar cells: breaking the efficiency limit of organic photovoltaics**

2010	\$54,000.00
2011	\$105,591.00
2012	\$108,182.00
2013	\$56,591.00
2014	
2015	

Primary FoR 0306 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

APDI Dr Tracey M Clarke

Partner/Collaborating Organisation(s)

Konarka Technologies Inc

Administering Organisation University of Wollongong

Project Summary

Australia will benefit from this project in several key areas with immediate impact. The development of an innovative solar cell architecture through the use of hot exciton dissociation will deliver a potential increase in the maximum achievable power conversion efficiency. The experimental results will significantly advance fundamental knowledge of organic solar cells. This has significant economic benefits by making these solar cells more affordable and also opening up the opportunity to use new materials unconstrained by existing proprietary interests. The training of personnel will contribute towards solving the biggest challenge facing the solar industry in Australia: lack of skilled personnel in a highly specialised industry.

LP100200208 Prof Willy Susilo, Prof Tsong Y Chen, Dr Zhiquan Zhou, Dr Fei-Ching Kuo, Prof T.H. Tse, Dr Wing K Tam
Approved Project Title **Eat and Dream: effective automatic testing and debugging for real-life embedded wireless communications software**

2010	\$37,500.00
2011	\$77,500.00
2012	\$82,500.00
2013	\$42,500.00
2014	
2015	

Primary FoR 0803 COMPUTER SOFTWARE

APAI_IT 1

Partner/Collaborating Organisation(s)

China Elite Communication Company Ltd

Administering Organisation University of Wollongong

Project Summary

Embedded software is a key enabling technology for the majority of Australian manufacturing industries, including strategically important sectors such as the automotive industry. Embedded wireless communication technologies are playing an increasingly significant role in Australia with a wide range of critical applications ranging from natural disaster early warning to personal health monitoring. Embedded wireless communications software, however, is difficult to test and debug owing to the complexity of the operational environment and complications arising from the interplay between software and hardware. This project will develop an effective and automatic technology to alleviate these difficulties and achieve higher quality software.

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LP100200526 A/Prof Peter W Wypych, Dr Leong Mar, Ms Anita Hajetian, Mr David B Bennie

Approved Project Title **Development and modelling of dust suppression technology**

2010 \$22,500.00

2011 \$45,000.00

2012 \$52,500.00

2013 \$30,000.00

2014

2015

Primary FoR 0907 ENVIRONMENTAL ENGINEERING

Partner/Collaborating Organisation(s)

DuPont Australia Ltd

Administering Organisation University of Wollongong

Project Summary

Over 50 per cent of Australia's export income is derived from industries that rely on bulk materials handling and processing. With greater throughputs and increasing integration of transport routes, ports and residential communities, more pressure is being placed on industry to control its dust emissions. There is an urgent need for Australia to invest in a more unified and scientific approach to develop and optimise dust suppression technology for mining and export infrastructure. This project will help secure the sustainability of Australia's bulk exports by ensuring that products can be handled, conveyed and loaded safely and reliably. It will also reduce the risk of exposing workers and the community to unsafe concentrations of airborne dust.