

# Summary of Linkage Projects Applications for Funding to Commence in 2006

## Victoria

### Deakin University

**LP0667539** Dr EJ Hu; Dr LY Zou

**Approved Project Title** Hybrid cooling for coal fired power stations

**2006 :** \$29,650

**2007 :** \$31,650

**2008 :** \$29,650

**Primary RFCD** 2905 MECHANICAL AND INDUSTRIAL ENGINEERING

APA(l) Award(s): 1

**Partner Organisation(s)**

Anglesea Power Station

**Administering Institution** Deakin University

**Project Summary**

Water shortage is a nation wide problem facing Australian industries. The project will directly benefit the Victorian power industry through water saving. If the new proposed hybrid cooling system concept is proved to be practically feasible, it will put the Australian power industry in a strong competitive position in terms of its efficiencies and waste heat recovery technology. Lowering the temperature of water into the cooling tower by 2 degree, by using the hybrid cooling system, it would save over 17,500,000 tons of makeup water per year for the Victorian power industry alone. At the same time, the waste heat recovered by the heat pump can be fed back to the power generation cycle.

**LP0667422** Dr GL Kelly; A/Prof PJ Pigram; Dr BL Fox

**Approved Project Title** Optimising paint adhesion to polymers

**2006 :** \$92,657

**2007 :** \$100,915

**2008 :** \$101,375

**Primary RFCD** 2914 MATERIALS ENGINEERING

APA(l) Award(s): 1

**Partner Organisation(s)**

FTS Australasia

**Administering Institution** Deakin University

**Project Summary**

The Australian automotive export market (vehicles, parts, engines) is worth approximately \$4,500 million p.a. and is a major employer in many areas. A reliable, cheap and efficient method for preparing polymer surfaces for painting will significantly benefit that market. The ability to manufacture quality, cheaper, lightweight parts improves the competitiveness of the local automotive industry. More importantly, a technology for production of cheap, high quality painted polymer surfaces vastly improves the competitiveness of local component manufacturers who supply to international vehicle manufacturers. This project falls under the National Research Priority Area 'Frontier Technologies for Building and Transforming Australian Industries'.

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**LP0667831** A/Prof SW Lewis; Prof NW Barnett; Dr FM Pfeffer; Prof PR Fielden; Dr GM Greenway

**Approved Project Title** **Innovative Technology for At-Scene Forensic Analysis using Microfluidics and Chemiluminescence**

**2006 :** \$67,050

**2007 :** \$69,510

**2008 :** \$71,972

**Primary RFCD** 2504 ANALYTICAL CHEMISTRY

### Partner Organisation(s)

Australian Federal Police

Victoria Police Forensic Services Department

Forensic Science South Australia

National Institute of Forensic Science

Australian Customs Service

**Administering Institution** Deakin University

### Project Summary

The major outcome of this project will be innovative reagents and strategies optimised for the detection of priority analytes such as drugs, explosives and chemical warfare agents. These will utilise a new technology platform based upon laboratory on a chip/microfluidics to enable the development of analytical methodologies suitable for use at crime scenes. This programme of research falls within a National Research Priority namely 'Protecting Australia from terrorism and crime'. Through our current forensic science research collaboration the outcomes will build significantly on Australia's existing strengths in rapid detection using new analytical technologies.

**LP0667653** Dr GJ Treloar; Dr LM Palmowski; Dr S Datta; Prof Dr CA Langston

**Approved Project Title** **Modelling environmental and financial performance of construction**

**2006 :** \$57,235

**2007 :** \$60,165

**2008 :** \$61,491

**Primary RFCD** 3101 ARCHITECTURE AND URBAN ENVIRONMENT

### Partner Organisation(s)

Williams Boag Architects

**Administering Institution** Deakin University

### Project Summary

This project will investigate the relationships between environmental and financial parameters associated with decisions made during the building design process. The outcomes of this research will assist the construction industry to transform itself towards ecological sustainability. We will provide a means by which the construction industry can more comprehensively assess the environmental impacts associated with building design decisions. In general, this will lead to a more effective construction industry, with solutions being evaluated simultaneously against environmental and financial criteria. The project is thus aligned with the priority area: An Environmentally Sustainable Australia: Transforming existing industries.

**LP0667830** Prof X Wang; Dr PG Cookson; Dr LY Zou

**Approved Project Title** **Optimizing the UV Protection of Textiles with Nano Zinc Oxide**

**2006 :** \$140,000

**2007 :** \$140,000

**2008 :** \$140,000

**Primary RFCD** 2903 MANUFACTURING ENGINEERING

### Partner Organisation(s)

Micronisers Pty Ltd

**Administering Institution** Deakin University

### Project Summary

Colour fading, due to poor fastness to light - especially ultraviolet light - is a critical problem that continues to plague the textile industry, especially for products such as flags, awnings and car upholstery that are used in outside applications and therefore exposed directly to sunlight. This research, in collaboration with Micronisers Pty Ltd, will develop improved nano zinc oxide formulations that will significantly reduce the colour fading problems, and hence add value to the fledgling nano-tech (as well as traditional textile) industries in Australia. It could enable local production of a specialised textile finishing agent for export to major textile producers in South East Asia.