New South Wales

University of Wollongong

LP0883244 Prof BN Indraratna; Dr C Rujikiatkamjorn; Mr HG Buys; Mr VC Wijeyakulasuriya; Dr R Kelly; Mr GW McIntosh; Prof S Leroueil; Dr J Chu

Approved Project Title **Advancement of Vacuum Pressure Application via Prefabricated Vertical Drains for Stabilising Soft Ground**

2008 : $ 55,000
2009 : $ 115,000
2010 : $ 120,000
2011 : $ 60,000

Primary RFCD 2908 CIVIL ENGINEERING

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Roads and Traffic Authority
Queensland Department of Main Roads
Coffey Geotechnics
Douglas Partners Pty Ltd

Administering Organisation University of Wollongong

Project Summary

Coastal Australia is under ever increasing pressure from rapid population growth which requires continual capital investment in civil infrastructure, such as road and rail links and large buildings. Many regions have soft compressible clays that present challenges for infrastructure design and construction. The use of vacuum preloading, together with vertical drains for soft soil stabilisation, can reduce construction and maintenance costs, while the increased soil strength will enhance the stability of infrastructure. This project will deliver design guidelines and specifications of enhanced vacuum consolidation application, as well as improving industrial competitiveness and export earnings through increased technology transfer.

LP0883330 Prof SC Jones; Prof D Iverson; Dr P Caputi; Dr AG Penman; Ms A Tang; Ms KR Coppa; Mrs JA Goldston

Approved Project Title **Implementation and evaluation of a comprehensive sun protection program for adolescents**

2008 : $ 34,797
2009 : $ 74,033
2010 : $ 82,427
2011 : $ 43,191

Primary RFCD 3502 BUSINESS AND MANAGEMENT

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

The Cancer Council NSW

Administering Organisation University of Wollongong

Project Summary

Australia has the highest incidence of skin cancer in the world, costing our health system an estimated $300 million each year. The majority of skin cancers are preventable, if the public could be persuaded to adequately protect themselves from the sun, especially during childhood and adolescence. Australia currently leads the world in the development of sun protection education campaigns for children. However, adolescent sun protection behaviours continue to decrease, and very few programs have shown potential for any impact on this key target group. This project will provide much-needed evidence on the effectiveness of carefully researched and targeted programs for adolescents.

LP0883729 Prof SC Jones; Prof SJ Allsop; Dr T Chikritzhs; Dr M Wakefield; Prof S- Casswell; Ms F Lander; Ms N La Touche

Approved Project Title **An investigation of the nature and effects of point-of-sale promotions for alcohol beverages**

2008 : $ 48,289
2009 : $ 89,147
2010 : $ 63,830
2011 : $ 22,972

Primary RFCD 3212 PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Office for Children and Youth

Administering Organisation University of Wollongong

Project Summary

There is increasing evidence that alcohol consumption is influenced by alcohol advertising, pricing, and marketing activities. However, the current lack of clear evidence on the effect of different promotions (such as reduced-price drinks, competitions etc) means that the current guidelines are unclear and unenforceable. This project will provide clear guidance for policy makers on the effects of the different forms of alcohol promotions, allowing for better monitoring and regulation of alcohol marketing. The key benefit of this project lies in the potential to develop a clear strategy to reduce alcohol-related harm by addressing inappropriate marketing and promotion of alcohol.

LP0884061 A/Prof PA Keller; Dr R Griffith; Dr DI Rhodes; Dr JA Coates

Approved Project Title **The Design and Development of the Next Generation Anti-HIV Drugs**

2008 : $ 32,500
2009 : $ 62,500
2010 : $ 65,000
2011 : $ 35,000

Primary RFCD 2503 ORGANIC CHEMISTRY

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Avexa

Administering Organisation University of Wollongong

Project Summary

This medicinal chemistry project will develop new computer-aided modelling techniques for drug design and development and will then apply them to the design of new therapeutics for the treatment of HIV-1/AIDS. Once developed, these new techniques can also be applied to other disease targets including various cancers, where specific proteins have been identified as causative. This research will also contribute to the education of young scientists, training them in cutting-edge research skills.

LP0884075 Prof A Lawson; Prof PW Eklund; Dr BS Bunt; Dr L Christidis; Mr V Daniel

Approved Project Title **The application of concept lattices to digital museum collection management and access**

2008 : $ 45,703
2009 : $ 87,819
2010 : $ 77,416
2011 : $ 35,300

Primary RFCD 4003 CURATORIAL STUDIES

Collaborating/Partner Organisation(s)

The Australian Museum

Administering Organisation University of Wollongong

Project Summary

The project provides Australia access to, and champions for, leading-edge, content-based multimedia management and retrieval. For the past two decades, Australia has been a world leader in museum management, particularly in the areas of collection access and digitisation. This project will assist one of the nation's most significant museums to maintain a competitive edge nationally and internationally through new approaches to annotating, searching and navigating digital collections. Trialled in this major institution, the project outcomes have great potential for dissemination and application throughout the collections sector.

LP0883817 Dr BJ Monaghan; Prof AB Yu; Dr P Zulli; Dr SJ Chew; Dr PR Austin

Approved Project Title **The Fundamentals of Liquid Flow Through A Reactive Packed Bed**

2008 : $ 12,813
2009 : $ 25,627
2010 : $ 25,627
2011 : $ 12,813

Primary RFCD 2913 METALLURGY

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

BlueScope Steel Limited

Administering Organisation University of Wollongong

Project Summary

A new and improved understanding of reactions that occur between liquids and coke in the lower zone of the blast furnace will enable ironmaking process optimization, and result in a significant reduction in carbon usage. This will decrease the amount of greenhouse gas emissions. The results will benefit metal refiners and associated support industries that utilize coal or coke in their process. Process optimization also helps to ensure that Australia's vitally important steel industry remains internationally competitive, able to provide both quality steel for domestic and export markets and employment for thousands of Australians.

LP0883546 Prof E Pereloma; Dr A Calka; Prof DP Dunne; Dr FJ Barbaro

Approved Project Title **Advanced Testing and Structural Analysis for Assessment and Control of Hydrogen Damage in Structural Steels**

2008 : $ 80,000
2009 : $ 180,000
2010 : $ 160,000
2011 : $ 134,500
2012 : $ 74,500

Primary RFCD 2913 METALLURGY

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

BlueScope Steel Limited

Administering Organisation University of Wollongong

Project Summary

Hydrogen offers the potential for reducing emissions in transport and energy generation industries as it is a low emission energy carrier. However, there remain questions in relation to the effects of hydrogen gas on the structural integrity of large structural steel components, such as gas distribution pipelines. The project aims to provide guidance on the safe use of hydrogen in high pressure vessels manufactured from low alloy ferritic steels. This project will increase confidence in relevant safety codes and standards, consequently increasing the likelihood of large scale uptake of hydrogen energy technologies.

LP0883711 Dr JF Wallman; Dr M Dowton; Dr MS Archer; Dr SL Cameron

Approved Project Title **Improving Insect-based Technology for Minimum Death Time Estimates in Forensic Investigations in Australia**

2008 : $ 40,000
2009 : $ 80,000
2010 : $ 80,000
2011 : $ 40,000

Primary RFCD 2705 ZOOLOGY

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Forensic & Technical, Australian Federal Police
NSW Police (Forensic Services Group)
Victoria Police Forensic Science Centre
Victorian Institute of Forensic Medicine
Department of Forensic Medicine, Institute of Clinical Pathology and Medical Research

Administering Organisation University of Wollongong

Project Summary

This research will provide more accurate, narrower death time estimates for Australia. Focusing enquiries more accurately around the death time will result in significant financial savings in homicide investigations. Court evidence based on insects will become more robust, thus improving prosecution success. Partnerships will also be enhanced between laboratories with common aims, but different experience and expertise, thereby avoiding research duplication and producing synergistic effects of collaboration. Casework methodology in Australia will become better aligned, thus avoiding courtroom conflicts between practitioners. Finally, high quality graduate students will be trained in entomological and forensic sciences.