

Summary of Discovery Projects Proposals for Funding to Commence in 2008

Victoria

RMIT University

DP0880136 Prof PW James; Dr A McNevin

Approved Project Title **Irregular migrants and political belonging in global cities**

2008 : \$ 50,000

2009 : \$ 50,000

2010 : \$ 50,000

Primary RFCD 3601 POLITICAL SCIENCE

Administering Organisation RMIT University

Project Summary

This project investigates impacts of irregular migration in three cities in the Asia-Pacific region. As Australia's role in security and development in Pacific states increases, there is every possibility that irregular labour migration may flow from these ties. This is likely to exacerbate tensions in Australia around multiculturalism and national identity that have surfaced recently in violent public disturbances and in debates on border protection, migration and guest-worker schemes. This project will draw on regional and Australian experiences of irregular migration to inform policy and political questions on these prominent issues of citizenship, migration and globalisation.

DP0881321 A/Prof HC Lingard; Dr P Tombesi; Dr NG Blismas; Mr BM Gardiner

Approved Project Title **From finger pointing to life saving: defining professional responsibility for health and safety in construction design**

2008 : \$ 113,500

2009 : \$ 107,000

Primary RFCD 3101 ARCHITECTURE AND URBAN ENVIRONMENT

Administering Organisation RMIT University

Project Summary

Specific duties for construction designers exist in the OHS legislation of several Australian jurisdictions. Thus far, the legislation has failed to act as a significant deterrent. The research addresses the empirically neglected question of how design OHS responsibility might be sensibly allocated in the context of industry practice. Hence it will: (1) highlight conceptual problems inherent in existing legislation; (2) develop alternative mechanisms for allocating design OHS responsibility in the construction process; (3) provide the basis for policy development in the national priority area of hazard elimination in design; and (4) improve design OHS performance in construction and property sectors.

DP0877734 Prof JY Tu; Dr GH Yeoh; Prof T Hibiki; Prof M Ishii

Approved Project Title **Multi-Group Stochastic Modelling of Population Balance for Gas-Liquid Flows**

2008 : \$ 85,000

2009 : \$ 85,000

2010 : \$ 85,000

Primary RFCD 2302 STATISTICS

Administering Organisation RMIT University

Project Summary

Multiphase flow systems are encountered in many process industries such as chemical, petroleum, mining, nuclear, energy, food and pharmaceutical, which are fundamental to the Australian economy. Commercially available computer codes for simulating such systems are currently widely used in many Australian industrial sectors. This research project will address the prevalent deficiency in many of these computer codes and develop new models capable of predicting a wide range of industrial bubbly flow problems. The resultant improved computer codes will provide industries with significant benefits and, in particular, reduce times and costs in their design and production.

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DP0877883 Dr A Turpin; Mr SJ Puglisi; Prof WF Smyth
Approved Project Title **Indexes Allowing Fast and Efficient Text Search**
2008 : \$ 78,648
2009 : \$ 78,648
2010 : \$ 78,648
Primary RFCD 2801 INFORMATION SYSTEMS
APD Mr SJ Puglisi
Administering Organisation RMIT University

Project Summary

Since the arrival of search engines such as Google, it has become an expectation that we can find a few words in a very large amount of text very quickly. This is also true of biologists, who expect to be able to submit protein sequences for matching against a massive database and retrieve and answer in seconds. If successful, this project will invent fundamental software that will allow the discovery of words in text much more quickly, and using less computing resources than current methods. The benefits of this technology to the searching public, scientists, and industry will be immediate as productivity will be improved and costs reduced.

DP0880770 Dr A Wong; Dr WS Rowe
Approved Project Title **Novel Partial Discharge Detection Technique based on an Overhead Transmission Line Sensing Architecture**
2008 : \$ 70,000
2009 : \$ 70,000
2010 : \$ 65,000
Primary RFCD 2909 ELECTRICAL AND ELECTRONIC ENGINEERING
Administering Organisation RMIT University

Project Summary

Overhead power transmission systems are a common instigator of fires through the production of sparks from faulty insulators. Australia is experiencing extended hot and dry conditions that amplify the risk of these events becoming large scale bushfires, causing millions of dollars of damage and destroying immeasurable amounts of native flora and fauna. The overhead transmission line sensing system proposed in this research will provide power companies with a cost effective insulator condition monitoring tool to continually survey Australia's aging electrical infrastructure. This ensures a reliable electricity supply to consumers, while also protecting the ecosystems of Australia's bushland.