

# Summary of Discovery Projects Proposals for Funding to Commence in 2007

## Victoria

### Deakin University

**DP0773259** A/Prof RN Bastin

**Approved Project Title** **Managing ethnic tensions and developing religious tolerance in South India and Sri Lanka**

**2007 :** \$20,000

**2008 :** \$46,294

**Primary RFCD** 3703 ANTHROPOLOGY

**Administering Organisation** Deakin University

#### Project Summary

The enhanced knowledge of Australia's neighbours, specifically two countries that have provided significant contributions to Australia's multicultural complexion, as well as an enhanced sense of the issues involved in managing ethnic tensions in a secular state will be the benefits of the study. Both sites have been the objects of previous social and cultural studies, but not compared together in terms of religious tolerance and state control. The research will also strengthen ties between scholars in Australia, India and Sri Lanka, while having application to issues of tolerance and mutual respect between communities in all three countries.

**DP0771591** Prof JA Blackmore; A/Prof DN Hayes

**Approved Project Title** **Redesigning schools and school leadership: an Australian comparative case study**

**2007 :** \$70,000

**2008 :** \$70,000

**2009 :** \$70,000

**Primary RFCD** 3301 EDUCATION STUDIES

**Administering Organisation** Deakin University

#### Project Summary

This project on school redesign addresses an urgent need identified in Government and OECD reports for schools and systems to redesign in order to be more responsive to multiple social and economic pressures while addressing significant disparities between schools. Longitudinal case studies with a focus on schools in particularly challenging circumstances will reconceptualize the relationship between sustainable school reform, leadership, student learning and school-community relationships. These are all policy priority areas. Communication strategies aim to inform policymakers, professional associations, the new National Institute for Quality Teaching and School Leadership, and schools about how to conceptualise and sustain reform.

**DP0771883** Prof PD Hodgson; Dr I Timokhina

**Approved Project Title** **A Microstructure Based Approach to Steel Design for Improved Crash Performance**

**2007 :** \$145,000

**2008 :** \$135,000

**2009 :** \$135,000

**2010 :** \$100,000

**Primary RFCD** 2913 METALLURGY

**Administering Organisation** Deakin University

#### Project Summary

There is a continual need for the automotive industry to develop vehicles with increased fuel efficiency and safety. This research will establish how different types of new advanced steels can contribute to improved crash worthiness, while also helping to increase fuel efficiency through lighter weight. This will lead to the development of new steels that offer even better crash performance while also providing more realistic computer models for car designers.

## Summary of Discovery Projects Proposals for Funding to Commence in 2007

**DP0773663** Dr D Kingsbury; Dr MP Leach

**Approved Project Title** **Internal and External Sources of Political Instability in East Timor**

**2007 :** \$38,774

**2008 :** \$40,006

**Primary RFCD** 3601 POLITICAL SCIENCE

**Administering Organisation** Deakin University

### Project Summary

This project is of direct relevance to Australia through its bilateral and multilateral provision of police to assist in the maintenance of East Timor's law and order, through its training of and support for the East Timor Border Patrol Unit, and its training and support of the East Timor defence force, Falintil-FDTL. The project also goes to the core of Australia's concerns with regional state maintenance (or conversely, potential state failure), direct bilateral relations with both East Timor and Indonesia, and the triangular relationship between these three states.

**DP0771641** A/Prof F Mansouri; A/Prof SM Kenny; Prof DR Walker

**Approved Project Title** **Local Governance, Multiculturalism and Active Citizenship: The Case of Arab-Muslim Diaspora in the West**

**2007 :** \$49,000

**2008 :** \$46,000

**2009 :** \$46,000

**2010 :** \$39,000

**Primary RFCD** 3701 SOCIOLOGY

**Administering Organisation** Deakin University

### Project Summary

This project will advance our understanding of the best practice approaches towards the management of intercultural relationships within multicultural communities. It will generate international benchmark data on the management of multicultural spaces and will lead to a range of practical policies for local city councils, NGOs and state governments. The findings will form a robust empirical basis for understanding the optimal way of formulating government-NGOs partnerships in the successful implementation of culturally responsive policies. The study will also result in the development of effective policy responses aimed at enhancing active citizenship, social cohesion and intercultural understanding.

**DP0772161** Prof GR Shi; Dr AS Biakov; Prof S Shen; Prof J Tazawa; Prof CM Henderson; A/Prof K Ueno

**Approved Project Title** **The bipolarity of Late Palaeozoic marine faunal distributions: origin, processes and implications for modern global marine biogeography**

**2007 :** \$60,000

**2008 :** \$60,000

**2009 :** \$50,000

**Primary RFCD** 2601 GEOLOGY

**Administering Organisation** Deakin University

### Project Summary

The fossil record of 'deep-time' ecological processes provides the only tangible tool and material to probe into the dynamics of past biotic responses to global environmental perturbations at a temporal scale extending well beyond the human impact. It is in this context that the project is linked to the National Research Priority Goal 1.5 (Australia's biodiversity), Goal 1.7 (climate change and variability) and Goal 3.1 (breakthrough new knowledge). In addition, the project will enhance Australia's global research profile through multinational and multidisciplinary research collaborations, and, importantly, also provide a crucial training opportunity for the next generation of Australian palaeobiologists.

## Summary of Discovery Projects Proposals for Funding to Commence in 2007

**DP0772271** Dr GM Turchini; Prof SS De Silva; A/Prof M Paolucci

**Approved Project Title** **Omega-3 fatty acids, appetite and growth in farmed fish**

**2007 :** \$90,000

**2008 :** \$90,000

**2009 :** \$85,000

**Primary RFCD** 3007 FISHERIES SCIENCES

APD Dr GM Turchini

**Administering Organisation** Deakin University

### Project Summary

Australia has very limited wild fish supplies, and with the increasing realization of human health benefits of fish (i.e. omega-3 fatty acid) there is a need to increase availability through aquaculture. However, feeds used in aquaculture contain costly fish oil with limited global supplies. Attempts made to substitute fish oil with vegetable sources in aquaculture feeds have been mixed. This international, comparative and multidisciplinary project aims to reduce the dependence on fish oils through investigation of basic fatty acid metabolism and endocrinology on farmed fish to ensure that human health promoting characteristics in the final product are retained.

**DP0770999** Prof RW Tytler; Prof VR Prain; A/Prof BG Waldrip; Dr PJ Hubber

**Approved Project Title** **The role of representation in learning science**

**2007 :** \$120,000

**2008 :** \$88,000

**2009 :** \$109,000

**Primary RFCD** 3301 EDUCATION STUDIES

**Administering Organisation** Deakin University

### Project Summary

School science is a core area for the future prosperity and health of Australia. Poor student attitudes to science and low involvement in post compulsory science are of national concern. This project, by taking a fresh perspective on key learning issues in middle years science, when student attitudes and future plans are being forged, has the potential to lay the groundwork for more successful learning, increased retention into post compulsory science, and enhanced public science literacy. By focusing on effective and innovative pedagogies and assessment strategies the project has the capacity to enhance science students' capacity for innovation, potentially laying the groundwork for increased productivity in the longer term.

**DP0770021** Dr C Wen; Dr W Yan; Prof GC Nicholson

**Approved Project Title** **Titanium Alloy Scaffolds for Osseointegration Implant Materials**

**2007 :** \$110,000

**2008 :** \$110,000

**2009 :** \$110,000

**Primary RFCD** 2914 MATERIALS ENGINEERING

**Administering Organisation** Deakin University

### Project Summary

Australians' life expectancies are among the highest in the world. Degeneration of load bearing bones in the elderly of age 65 and over often requires the inception of biomaterial implants. For the hip and knee replacements alone, there are over 52,000 operations performed in Australia each year at an estimated cost of over \$500 million. The success of these procedures depends on the implant biomaterials. The outcomes of this project are a new category of porous bone implant materials for load bearing applications.

## Summary of Discovery Projects Proposals for Funding to Commence in 2007

**DP0773446** Dr Y Xiang; Dr VK Nguyen

**Approved Project Title** **Blind Signal Separation from Unidentifiable Systems**

**2007 :** \$50,369

**2008 :** \$50,369

**2009 :** \$50,369

**Primary RFCD** 2802 ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

**Administering Organisation** Deakin University

### Project Summary

This project will contribute to the designated national research priority goal on frontier Information and Communications Technology. The outcomes of the project will advance the theory of signal processing and enable performance improvement of a wide range of hi-tech applications. This project will enhance Australia's research reputation and competitiveness, promote the understanding and applications of advanced signal processing techniques in local industries, and provide excellent training opportunity for PhD and Honours students.

**DP0773264** Prof W Zhou; Mr Y Xiang

**Approved Project Title** **Development of methods to address internet crime**

**2007 :** \$74,000

**2008 :** \$74,000

**2009 :** \$74,000

**Primary RFCD** 2801 INFORMATION SYSTEMS

**Administering Organisation** Deakin University

### Project Summary

If this research accomplishes successfully, it will be a big step forward in terms of traceback scope, accuracy, usability and deployment. This will empower authorities to control and punish Internet crimes more effectively and efficiently. It will also limit the damage caused by Internet crimes quickly. For example, if we can quickly identify the origins of a fast spreading virus, we will be able to prevent its propagation as fast as possible. If we can quickly identify and block a harmful phishing site, then less innocent people will be deceived into disclosing their credit card numbers, bank account information, passwords or other sensitive information.