

Summary of Discovery Projects Proposals for Funding to Commence in 2008

New South Wales

University of Western Sydney

DP0877868 Prof RG Craven; Prof HW Marsh; Prof L Wheeler; Dr AS Yeung; Ms M Seaton

Approved Project Title **Realising Gifted Students' Potential: Elucidating psychosocial determinants and the impact of different educational settings on educational outcomes and psychosocial wellbeing**

2008 : \$ 150,000

2009 : \$ 150,000

2010 : \$ 150,000

2011 : \$ 100,000

Primary RFCD 3301 EDUCATION STUDIES

APD Ms M Seaton

Administering Organisation University of Western Sydney

Project Summary

As current gifted students are expected to provide future leaders in all fields of endeavour, there is an increasing emphasis in Australia and worldwide on how to educate gifted students most effectively. Our proposed research will improve Australia's capacity to educate gifted students by: informing practice on how best to select students to participate in gifted education; maximising the potential of gifted young Australians; and providing guidance for future intervention strategies. This research will contribute substantially to further actualising Australia's claim to be the clever country and will have important implications for the future of gifted education.

DP0880512 Prof RT Dean

Approved Project Title **Temporal segmentation, leadership and cognition in musical improvisation and creativity**

2008 : \$ 68,000

2009 : \$ 65,000

2010 : \$ 65,000

Primary RFCD 4101 PERFORMING ARTS

Administering Organisation University of Western Sydney

Project Summary

Improvisation is core to conversation and to creative and social emergence. This project investigates musical improvisation, in order to reveal constituent processes, using computational and cognitive approaches. Mechanisms for generating transitions in the temporal stream, and for asserting social power or position in it are assessed. Improvised material can be explored, modified, and developed in the creative process, and the project investigates how this occurs and whether computers can facilitate the process. Such contributions can be critical to the development of innovation in research and cultural arenas in Australia.

DP0881221 Prof DS Ellsworth; Dr BE Medlyn; Prof GG Katul; Prof Dr RJ Ceulemans

Approved Project Title **How will Eucalypt tree architecture and growth adapt to future atmospheric CO2 and drought?**

2008 : \$ 120,000

2009 : \$ 120,000

2010 : \$ 120,000

Primary RFCD 2799 OTHER BIOLOGICAL SCIENCES

Administering Organisation University of Western Sydney

Project Summary

This work is fundamental to understanding how growth and water use by Australia's forests will be modified in the future by global change. The changes in tree leaf area and canopy structure that we seek to understand will determine forest responses to increasing atmospheric CO2 and drought. It is essential to study these changes on Australian species, because they differ from forest species elsewhere in having been largely shaped by water availability. This fundamental work will flow into predictions of future forest growth and water use in Australia, with consequences for land and water resource management as well as forestry.

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DP0879027 Dr BN Griffin

Approved Project Title Rudeness, social undermining and interpersonal mistreatment in the workplace

2008 : \$ 75,000

2009 : \$ 25,000

2010 : \$ 42,000

Primary RFCD 3801 PSYCHOLOGY

Administering Organisation University of Western Sydney

Project Summary

Workers who are mistreated by colleagues, be it thoughtless rudeness or more intentional undermining, are more likely than others to leave their job, suffer from poor emotional and physical health, and engage in increasingly aggressive retaliatory actions. By providing greater understanding of the contributing factors and processes involved, this project will inform the development of interventions to reduce these counterproductive behaviours and their harmful effects. Providing a unique opportunity for widespread documentation of the incidence and nature of interpersonal mistreatment across Australia, New Zealand and Asia, the research will identify types of people or workplaces that are at high risk of being targeted.

DP0881580 A/Prof D McNeill

Approved Project Title The production and contestation of airport territory.

2008 : \$ 80,000

2009 : \$ 80,000

2010 : \$ 25,118

Primary RFCD 3704 HUMAN GEOGRAPHY

Administering Organisation University of Western Sydney

Project Summary

The restructuring of Australian airports has become a major issue of public interest in recent years, given their status as 'critical infrastructures' (a National Research Priority). The project places the Australian experience in comparative context. It will provide an informed contribution to a range of groups affected by airport restructuring, from private enterprise, through to Commonwealth, State and local councils, and community groups who seek to respond to the challenges of airport expansion. It will provide a strong empirical and theoretical framework that will further the understanding of the impact of airports on urban governance and theory worldwide.

DP0881463 Em/Prof B Raphael; Ms J Dunsmore

Approved Project Title Terrorism, Pandemic Influenza, and Global Warming: Future Conceptualisations and Societal Resilience

2008 : \$ 220,000

2009 : \$ 225,000

2010 : \$ 163,415

Primary RFCD 3212 PUBLIC HEALTH AND HEALTH SERVICES

Administering Organisation University of Western Sydney

Project Summary

Understanding the potential and actual impact of mass adversity on individual and societal resilience and conceptualisation of the future will help improve the preparedness, response, and recovery by emergency workers, individuals, and society to these events. Guiding likely individual and social behaviours at an appropriate time will help to avoid or mitigate negative social, economic, and health impacts. Studying Bali survivors will lead to an understanding of how their experiences and recoveries have impacted their behaviours and perception of the future, and will identify the most effective professional and community responses to future threat.

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DP0880654 Dr CK So

Approved Project Title **Unveiling the mystery of tone perception: How does native language prosody affect adults' perception of foreign tones?**

2008 : \$ 140,000

2009 : \$ 78,648

2010 : \$ 78,648

Primary RFCD 3802 LINGUISTICS

APD Dr CK So

Administering Organisation University of Western Sydney

Project Summary

This project provides new knowledge about how humans perceive non-native lexical tone categories. The results of this large-scale cross-language study will indicate how native languages constrain human perception of non-native speech (consonants, vowels, intonation). These data will greatly facilitate the research in second language acquisition and teaching, speech perception modeling including automatic speech recognition with tone languages, human speech processing. The findings will also be useful to clinical speech and hearing research for speech and hearing impaired persons, and commercial applications in foreign language teaching, and computer assisted language learning for language learners.

DP0877906 Prof DM Stevenson; A/Prof S Tomsen; Prof DC Rowe

Approved Project Title **The City after Dark: The Governance and Lived Experience of Urban Night-Time Culture**

2008 : \$ 81,284

2009 : \$ 47,000

2010 : \$ 95,000

Primary RFCD 4203 CULTURAL STUDIES

Administering Organisation University of Western Sydney

Project Summary

The stimulation of a 'night-time economy' can deliver to Australian cities great cultural, social and economic benefits, or result in social disruption and disputation, assaults, and serious injuries that drain public criminal justice and health resources. By increasing understanding of the experience, production and regulation of urban night-time cultures in a major metropolitan centre, this innovative Project will contribute to the development of urban policies attuned to specific Australian circumstances. It will promote the long-term cultural, social and economic sustainability of diverse urban after-dark leisure spaces, and the safety and protection both of leisure participants and neighbouring areas and communities.

DP0879531 Prof DT Tissue; Prof JP Conroy; Dr NG Phillips; Dr BA Logan

Approved Project Title **Eucalypt growth in past and future environments - a novel approach to understanding the impacts of atmospheric CO2 and climate**

2008 : \$ 100,000

2009 : \$ 100,000

2010 : \$ 100,000

Primary RFCD 2704 BOTANY

Administering Organisation University of Western Sydney

Project Summary

The impact of climate change and rising atmospheric CO2 on Australia's plantation and native forests is a major concern for government and land managers. These forests are important for environmental, aesthetic, and economic purposes, including carbon sequestration and trading. Forests use large amounts of water, reducing stream flow and water supplies for rural and urban communities. Knowledge generated from the proposed project will provide insight into mechanisms driving productivity and water use of forests in current and future environments. The knowledge will be used by land managers and government to develop strategies to cope with future impacts of climate change.

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DP0880913 Dr MD Tyler

Approved Project Title **Development of second language phonetic and phonological categories**

2008 : \$ 79,983

2009 : \$ 70,000

2010 : \$ 70,000

Primary RFCD 3802 LINGUISTICS

Administering Organisation University of Western Sydney

Project Summary

The majority of the world's population speaks two or more languages, yet we know little about how multiple languages are accommodated within a single speaker. Why do children appear to learn a second language 'like a native' but adults invariably develop a clearly perceptible foreign accent? This project investigates a little-known fact - adult second language speakers also 'hear' with a foreign accent. As Australia becomes increasingly multilingual increasing our understanding of the human capacity for language learning would strengthen Australia's social and economic fabric by leading to improved educational practices, work prospects for migrants and, most importantly, understanding between cultures.

DP0879733 Prof B Uy; Dr A Remennikov; A/Prof JR Liew

Approved Project Title **Utilising the benefits of high performance steels (HPS) and infill materials for critical infrastructure protection (CIP) against extreme loads**

2008 : \$ 140,000

2009 : \$ 136,000

2010 : \$ 95,000

Primary RFCD 2908 CIVIL ENGINEERING

Administering Organisation University of Western Sydney

Project Summary

This project will provide an improved understanding of the behaviour of structural elements subjected to impact and blast loads. The structural engineering community will benefit from the state of the art knowledge whilst the general community will benefit from the increased safety of critical infrastructure which will provide greater security against physical and financial losses. This project extends on work conducted by the first Chief and Partner Investigator in a completed ARC Discovery Project. It is also directly related to research being carried out by the Second Chief Investigator as part of the ARC, Research Network for a Secure Australia.

DP0879734 Prof B Uy

Approved Project Title **Unified theory for the behaviour and design of composite steel-concrete beams subjected to generalised loading and support conditions**

2008 : \$ 96,490

2009 : \$ 122,452

2010 : \$ 81,471

Primary RFCD 2908 CIVIL ENGINEERING

Administering Organisation University of Western Sydney

Project Summary

Steel framed construction for bridges, buildings and stadia is considered to provide a more elegant form of construction which often results in a minimum weight solution and can be linked with reconstructability and sustainability. This project, which provides for an improved understanding of steel framed construction, will result in the community being provided with more efficient structural forms. From a technical perspective a greater understanding of steel framed construction will provide the structural engineering community with greater choice in their design process. This will often allow for the most effective solution in terms of aesthetics, constructability, cost and sustainability.