

# Summary of Discovery Projects Proposals for Funding to Commence in 2010

## Queensland

### Queensland University of Technology

**DP1094281** Dr A Bruns; Dr JE Burgess; Mr T Nicolai; Mr L Kirchhoff

**Approved Project Title** **New Media and Public Communication: Mapping Australian User-Created Content in Online Social Networks.**

**2010 :** \$ 150,000

**2011 :** \$ 117,000

**2012 :** \$ 134,000

**Primary RFCD** 4001 JOURNALISM, COMMUNICATION AND MEDIA

**APD** Dr JE Burgess

**Administering Organisation** Queensland University of Technology

#### Project Summary

Understanding the ways people contribute to and use the Internet for a wide range of purposes is important to Australia's future from both a social and an economic perspective. Effective, evidence-based policy depends on developing a vastly improved understanding of the current level of Australians' online activities and interests. This project provides crucial, detailed baseline data on the social, cultural and technological dynamics of Australian online public communication, which can inform further government initiatives to strengthen the country's digital economy and to maximise civic engagement through media participation.

**DP1096477** Dr H Burgers; Prof P Davidsson; A/Prof PR Steffens; Dr VJ Van de Vrande

**Approved Project Title** **What facilitates or hinders the discovery and exploitation of entrepreneurial opportunities? A systematic comparison of the independent and corporate contexts**

**2010 :** \$ 40,000

**2011 :** \$ 60,000

**2012 :** \$ 22,500

**Primary RFCD** 3502 BUSINESS AND MANAGEMENT

**Administering Organisation** Queensland University of Technology

#### Project Summary

Every opportunity that is discovered but not exploited represents significant unrealised value for the entrepreneur and society-at-large. By providing clear implications for managers and entrepreneurs as to which factors will facilitate and constrain the successful exploitation of discovered opportunities, this research will contribute to increasing the discovery of technologies as well as their successful commercialisation. It will promote a more vibrant, innovative culture at companies and within Australian society. In particular our focus of the mining sector will benefit the Australian economy, as this sector is of major economic importance.

**DP1094061** Prof SA Christensen; Prof DE Fisher; A/Prof PA O'Connor; Prof WD Duncan; Dr N Durrant

**Approved Project Title** **An Integrated Legal Regime for a Sustainable Carbon Cycle**

**2010 :** \$ 102,000

**2011 :** \$ 97,000

**2012 :** \$ 125,000

**Primary RFCD** 3901 LAW

**Administering Organisation** Queensland University of Technology

#### Project Summary

The reduction of carbon emissions is a priority for governments worldwide. In Australia, the Federal Government is in the process of introducing a carbon emissions reduction scheme. Key elements of that scheme relating to the legal treatment of carbon in all forms relies upon the disparate property law frameworks of the respective States and Territories inherited from England in the 19th Century. The object of this project is to create a consistent and coherent approach to this national (and international) issue to make the operation of any scheme more effective thus leading to a reduction of carbon emissions.

## Summary of Discovery Projects Proposals for Funding to Commence in 2010

**DP1093236** Dr HD Coleman

**Approved Project Title** **Modification of lignin biosynthesis in sugarcane for the improved efficiency of pre-treatment in ethanol production**

**2010 :** \$ 95,000

**2011 :** \$ 90,000

**2012 :** \$ 95,000

**Primary RFCD** 2708 BIOTECHNOLOGY

APD Dr HD Coleman

**Administering Organisation** Queensland University of Technology

### Project Summary

Sugarcane is one of Australia's most important rural industries. However, as a single product industry, declining sugar prices threaten the industry's long term economic sustainability unless alternative markets for sugarcane are created. Utilising the sugarcane waste for cellulosic ethanol would provide a new revenue stream, injecting life into the Australian sugarcane industry. In addition, cellulosic ethanol from sugarcane has the potential to substantially decrease the cost of biofuel production and significantly reduce greenhouse gas emissions. The research proposed here will advance our ability to improve sugarcane through biotechnology.

**DP1095849** Dr JM Keith

**Approved Project Title** **Statistical Methods for Discovering Ribonucleic acids (RNAs) contributing to human diseases and phenotypes**

**2010 :** \$ 60,000

**2011 :** \$ 60,000

**2012 :** \$ 60,000

**Primary RFCD** 2399 OTHER MATHEMATICAL SCIENCES

**Administering Organisation** Queensland University of Technology

### Project Summary

Identifying the causative genetic factors involved in quantitative phenotypes and diseases is a major goal of biology in the 21st century and beyond. A crucial step towards this goal is identifying and classifying the functional non-protein-coding Ribonucleic acids (RNAs) encoded in the human genome. This project will make major contributions to international efforts in this area by identifying RNA molecules that contribute to quantitative phenotypes including susceptibility to disease. As such, it will directly benefit fundamental science via the discovery and classification of new molecules. Indirectly, it will lead to breakthroughs in biology, and consequently to major medical and pharmaceutical advances in the diagnosis and treatment of genetic disease.

**DP1094974** Dr KJ Kitto; Prof PD Bruza

**Approved Project Title** **Generalised quantum models of complexity with application to cognitive systems**

**2010 :** \$ 90,000

**2011 :** \$ 90,000

**2012 :** \$ 90,000

**Primary RFCD** 2801 INFORMATION SYSTEMS

APD Dr KJ Kitto

**Administering Organisation** Queensland University of Technology

### Project Summary

Non-separable systems surround us. Our transportation, taxation, schooling, environmental and social policies are all interrelated, and it is increasingly recognised that we cannot consider them in isolation. Such systems are generally deemed complex, and it is often impossible to separate them from one another. Despite this, many of our most advanced modelling techniques are grounded in principles of separability and non-contextuality. This project will develop a new set of models of non-separable systems and complexity that will in turn lead to new frontier technologies and theories.

## Summary of Discovery Projects Proposals for Funding to Commence in 2010

**DP1093442** Dr PK McDonald; Dr SC Charlesworth

**Approved Project Title** **Sexual harassment in Australia: Contexts, outcomes and prevention**

**2010 :** \$ 132,000

**2011 :** \$ 104,000

**2012 :** \$ 160,000

**Primary RFCD** 3903 JUSTICE AND LEGAL STUDIES

**Administering Organisation** Queensland University of Technology

### **Project Summary**

Sexual harassment remains a persistent workplace issue with significant social costs. The project will examine how to most effectively prevent sexual harassment and to reduce the impact of sexual harassment for individuals and organizations where it occurs. A comprehensive analysis will be undertaken, drawing on a longitudinal study of more than 100 'targets' of sexual harassment, interviews with a wide range of employers and external complaint handling bodies, and an analysis of formal and informal reports. The project outcomes will contribute to improved policy and practice in workplaces and human rights and assist other bodies to prevent and more effectively respond to sexual harassment.

**DP1096184** Dr LD Nothdurft

**Approved Project Title** **Environmental stress indicators in coral skeletons**

**2010 :** \$ 35,000

**2011 :** \$ 55,000

**2012 :** \$ 30,000

**Primary RFCD** 2606 ATMOSPHERIC SCIENCES

**Administering Organisation** Queensland University of Technology

### **Project Summary**

Coral reefs are critical for Australia's tourism and fisheries industries, cultural heritage and international conservation responsibilities. The proposed research will test and document two newly identified stress indicators in corals, one of which will allow stress to be documented by visual inspection on living reef flats. Both new techniques will allow documentation of historical records of stress events, thus improving understanding of reef dynamics through intervals of climate change, and importantly, they also may help detect 'early warning signs' of poor health in living reef corals. Thus, the research will inform both palaeoclimate studies and current reef management strategies.

**DP1093222** Prof RL Parker; Prof P Thompson

**Approved Project Title** **Capturing value on the margins of the global knowledge economy**

**2010 :** \$ 90,000

**2011 :** \$ 60,000

**2012 :** \$ 50,000

**Primary RFCD** 3602 POLICY AND ADMINISTRATION

**Administering Organisation** Queensland University of Technology

### **Project Summary**

This project will explain the basis of competitiveness in knowledge economy industries. It is widely understood that high levels of participation in knowledge intensive activities contribute to economic growth and higher wages. There is a need to develop policies to promote Australia's performance in knowledge intensive industries. As such this project addresses a policy problem by analysing the basis of competitiveness in the medical instruments and video production industries as exemplar knowledge intensive industries. The findings will provide a basis for formulating new policy support for the knowledge economy which draws on the most recent theoretical insights derived from global production network research.

## Summary of Discovery Projects Proposals for Funding to Commence in 2010

**DP1095752** Prof S Tong; Prof DW Connell

**Approved Project Title** **Integrated and precautionary approach for assessing complex environmental health impacts**

**2010 :** \$ 130,000

**2011 :** \$ 90,000

**2012 :** \$ 80,000

**Primary RFCD** 3212 PUBLIC HEALTH AND HEALTH SERVICES

**Administering Organisation** Queensland University of Technology

### Project Summary

It is important to develop an innovative and systematic approach to the improvement of environmental health impact assessment for emerging complex environmental hazards. It has become increasingly apparent that traditional risk assessment methods are no longer suitable for assessing the health impact of emerging global environmental issues such as climate change and ecosystem degradation. The novelty of this proposal lies in its intention to create fundamental knowledge on an integrated and precautionary approach for assessing complex and emerging environmental health risks by development of a conceptual framework for integrated environmental health impact assessment.

**DP1093717** Dr K Walsh; A/Prof DC Berthelsen; A/Prof JM Nicholson

**Approved Project Title** **Making prevention matter: Establishing characteristics of effective child sexual abuse prevention programs**

**2010 :** \$ 75,000

**2011 :** \$ 88,000

**2012 :** \$ 88,000

**Primary RFCD** 3212 PUBLIC HEALTH AND HEALTH SERVICES

**Administering Organisation** Queensland University of Technology

### Project Summary

Child sexual abuse is a significant public health problem requiring intervention and prevention. School-based child sexual abuse prevention programs aim to educate children to protect themselves and teach adults skills for protecting children. But programs vary widely in their quality and there is inadequate information available to guide program choice. This fundamental research, undertakes the necessary first steps towards implementing high quality, evidence-based child sexual abuse prevention programs. It will develop an overarching evidence-based conceptual framework for program design and evaluation thus advancing Australia's responses to child protection and enhancing children's healthy start to life.

**DP1096354** Dr AJ Zele

**Approved Project Title** **Rod-cone interaction under mesopic illumination**

**2010 :** \$ 62,000

**2011 :** \$ 46,000

**2012 :** \$ 46,000

**Primary RFCD** 3801 PSYCHOLOGY

**Administering Organisation** Queensland University of Technology

### Project Summary

Visual function and performance can be degraded under dim light levels. This occurs in many indoor settings, emergency and traffic lighting conditions. Approximately 45% of all Australian traffic fatalities occur under dim light. The research program uses a frontier technology to determine how vision is degraded under dim lighting and provide accurate parameters to better design mesopic lighting environments to maximize visual function and performance. This work will help to evaluate new energy-efficient lighting systems and optimise traffic lighting for early recognition of obstacles and dangerous situations.