## Queensland

## Griffith University

**DP1093583** A/Prof SW Baum; Dr KD Arthurson; Prof TF Smith

**Approved Project Title** **Community vulnerability and extreme events: Developing a typology of coastal settlement vulnerability to aid adaptation strategies**

**2010 :** $ 80,000
**2011 :** $ 70,000
**2012 :** $ 70,000
**Primary RFCD** 3704 HUMAN GEOGRAPHY

**Administering Organisation** Griffith University

**Project Summary**

Despite uncertainty regarding the manifestations of climate change there is widespread agreement that any impacts will be unevenly shared. The costs to individuals and communities of these uneven outcomes are significant. Crucially, adaptation policy must understand the multi-dimensional nature of these uneven outcomes so as to ameliorate negative costs. In its integration of a multi-method approach to understanding adaptation to extreme weather events in coastal settlements, this project aims to advance understanding of well targeted and effective interventions. It combines the skills and knowledge of researchers trained across a range of disciplines to address these important real world issues.

**DP1092910** Prof A Bennett; Dr S Homan; Dr S Baker; Dr P Doyle; Prof S Janssen; Prof S Cohen; Prof M Regev; Dr TJ Dowd

**Approved Project Title** **Popular music and cultural memory: Localised popular music histories and their significance for national music industries**

**2010 :** $ 84,000
**2011 :** $ 198,000
**2012 :** $ 92,000
**Primary RFCD** 4101 PERFORMING ARTS

**Administering Organisation** Griffith University

**Project Summary**

This project provides a public space for audience members in local communities in Australia, Israel, the Netherlands, UK and USA to share their memories of local popular music heritage. By privileging these voices, the project has the potential to develop and strengthen community cohesion and also raise questions of how these voices might be incorporated into the production and distribution practices of Australia's music industry. Our findings will feed into current debates about the importance of local histories in a national context and point to possible economic benefits through cultural tourism and leisure outlets, for example, community-based exhibitions and guided tours focusing on local popular music history and heritage.

**DP1095696** Prof AJ Brown; Dr SK Milton; Dr R Bosua; Dr MP Miceli

**Approved Project Title** **The changing roles, avenues and Impacts of public interest whistleblowing in the era of secure online technologies**

**2010 :** $ 110,000
**2011 :** $ 110,000
**2012 :** $ 110,000
**Primary RFCD** 3601 POLITICAL SCIENCE

**Administering Organisation** Griffith University

**Project Summary**

This project will consolidate the place of Australian researchers at the cutting edge of world research on whistle blowing, and place Australian integrity and regulatory institutions at the forefront of new knowledge about the maximisation of employee disclosures as a tool of law enforcement, corruption resistance, financial security, public accountability and institutional effectiveness. Through unique access to the organizers and users of www.wikileaks.org and like technologies, the project provides a special opportunity for Australia to continue the development of its world-leading expertise in the study, promotion and best-practice regulation of public interest whistle blowing.

**DP1092909** A/Prof PJ Buckridge

**Approved Project Title** **The Reading Culture of Interwar Australia**

**2010 :** $ 46,709
**2011 :** $ 33,587
**2012 :** $ 39,143

**Primary RFCD** 4202 LITERATURE STUDIES

**Administering Organisation** Griffith University

**Project Summary**

This project - an historical study of reading in Australia between the Wars (1920-1940) - will provide a basis for revaluing reading, and reasserting its role in English teaching and in the broader Australian community as a creative, educative and pleasurable activity in its own right. It also contributes to the ongoing process of recovering the international dimension present (but often overlooked) in much of Australia's early history. Finally, it will generate a wealth of reading-experience data for use in establishing an Australian Reading Experience Database, a major new resource - only the second of its kind in the world - for national and international research on the history of reading in Australia.

**DP1094066** Prof PA Creed; Prof J Searle

**Approved Project Title** **Career and practice choices for Australian medical students: How, what, where and why - Stage 2 of a longitudinal study**

**2010 :** $ 80,000
**2011 :** $ 80,000

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

**Administering Organisation** Griffith University

**Project Summary**

The well publicised doctor shortage in Australia makes understanding how and where future doctors want to work critical to planning tomorrow's medical workforce and addressing access problems for Australians in health areas of need. This large national cohort study will provide valuable insights into how future doctors wish to practise and how these choices and determining factors change over time. Findings from this study will assist those who educate and train our medical students and those who plan our future health workforce to better meet our community health needs, especially those currently with reduced access to medical care.

**DP1097267** Prof Dr L Dai

**Approved Project Title** **Vertically-aligned Single-walled Carbon Nanotube and Quantum Dot Junctions: A New Concept for Optically-tunable Three-dimensional Information Storage and Processing**

**2010 :** $ 200,000
**2011 :** $ 195,000
**2012 :** $ 205,000

**Primary RFCD** 2403 ATOMIC AND MOLECULAR PHYSICS; NUCLEAR AND PARTICLE PHYSICS; PLASMA PHYSICS

**Administering Organisation** Griffith University

**Project Summary**

The proposed study will have a direct impact to computer science and engineering and may provide new routes for application-oriented optoelectronic devices with outstanding performance. As industry gets closer to the realization of nanoscale applications, there will be a need of people who are educated in nanoscience and nanotechnology. This project will involve postdoctoral, graduate, undergraduate, high school, and minority students from multidisciplinary backgrounds to work together on the development of a common platform.

**DP1096240** Prof JF Dobson; Prof A Rubio; Dr A Savin; Prof G Vignale

**Approved Project Title** **Understanding cohesive forces in nanosystems**

**2010 :** $ 128,000
**2011 :** $ 115,000
**2012 :** $ 100,000

**Primary RFCD** 2402 THEORETICAL AND CONDENSED MATTER PHYSICS

**Administering Organisation** Griffith University

**Project Summary**

This theory project will provide basic scientific and modelling/computational support for a number of emerging technologies such as clean energy, and advanced materials and textiles (both CSIRO research areas). Other possible application areas are assembly of arrays of nanotube-based mechanical or electronic devices (e.g. single electron transistor arrays for quantum computer readout), and medical imaging and drug delivery via nano-sized magnetic particles. This last application is a strong growth area worldwide, with several Australian groups already participating. The project will train postgraduate students and a postdoctoral researcher. It will connect Australian scientists with a European Network of Excellence.

**DP1095562** Dr J Dodson; A/Prof NG Sipe; Prof BJ Gleeson

**Approved Project Title** **Strengthening Australia's suburbs: advancing urban planning knowledge to limit oil vulnerability and build household resilience**

**2010 :** $ 100,000
**2011 :** $ 89,000
**2012 :** $ 92,000

**Primary RFCD** 3101 ARCHITECTURE AND URBAN ENVIRONMENT

**Administering Organisation** Griffith University

**Project Summary**

The vulnerability and resilience of Australian suburbs to declining petroleum security and climate change is a national issue because half of Australia's population lives in suburbs. This project will advance national knowledge of the challenges facing Australian suburbs. This includes supporting National Research Priority 4: Protecting Australia's Infrastructure by addressing the vulnerability of suburban transport systems and infrastructure to declining global petroleum security. The project will strengthen community capacity to cope with these challenges through improved planning understanding that can support new measures to overcome oil vulnerability and build suburban resilience.

**DP1095273** Dr LG Gordon; Dr BM Lynch; Dr VL Beesley; A/Prof PM Webb; A/Prof N Graves; Dr PK O'Rourke

**Approved Project Title** **Work life after a diagnosis of breast, prostate and colorectal cancer: Major disruption or work as usual**

**2010 :** $ 60,000
**2011 :** $ 120,000
**2012 :** $ 60,000

**Primary RFCD** 3402 APPLIED ECONOMICS

**Administering Organisation** Griffith University

**Project Summary**

Each year, over 40,000 working-age individuals (as well as their families and workplaces) are affected by a diagnosis of cancer. This novel and important study will, for the first time in Australia, identify the extent and effects of loss of skilled workers from the workforce because of a diagnosis of breast, prostate or colorectal cancer and will lead to the development of new interventions that help people to recover from cancer. This project is critical to help advance health and labour policies in Australia which currently faces an ageing population, global economic unrest and rising unemployment.

**DP1096661** Dr K Khanna; Dr SJ Turner; Dr KJ Spring

**Approved Project Title** **Functional characterization of SSB2: a novel single-stranded DNA binding protein**

**2010 :** $ 120,000
**2011 :** $ 90,000
**2012 :** $ 100,000

**Primary RFCD** 2701 BIOCHEMISTRY AND CELL BIOLOGY

**Administering Organisation** Griffith University

**Project Summary**

Defects in the DNA damage response pathway underpin many human genetic disorders and diseases. A detailed understanding of this pathway has enormous implications for future medicine. The proposed research will lead to functional characterization of a new protein, identify new concepts in DNA damage repair pathways, train young researchers and place Australia among the leaders in this internationally significant and highly competitive area of research. It will underpin the national research priority of Promoting and Maintaining Good Health and help Australia capitalise on a plethora of opportunities for future economic and health benefits.

**DP1097059** Dr A Liew; Prof H Yan; Prof WC Chu

**Approved Project Title** **Automatic Brain Tissue Segmentation in Magnetic Resonance Images based on Knowledge-guided Constrained Clustering**

**2010 :** $ 50,000
**2011 :** $ 50,000
**2012 :** $ 50,000

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

**Administering Organisation** Griffith University

**Project Summary**

Accurate volumetric measurement of brain tissues is of critical importance in the study of many brain disorders, disease diagnosis, disease progression tracking and treatment monitoring. The study in this research will result in the development of a powerful computational technique that allows automatic volumetric measurement and analysis of brain tissues. The software developed in this project will expedite early clinical diagnosis and treatment of neural diseases for patients, hence saving life and reducing health cost both at the personal and the national level.

**DP1094534** A/Prof J Lu; Prof FP Dawson

**Approved Project Title** **Development of High Frequency and High Power Density Magnetics and its Integrated Magnetic Circuit for Solar Renewable Energy Conversion Systems**

**2010 :** $ 75,000
**2011 :** $ 60,000
**2012 :** $ 60,000

**Primary RFCD** 2909 ELECTRICAL AND ELECTRONIC ENGINEERING

**Administering Organisation** Griffith University

**Project Summary**

The proposed project will result in theoretical and practical contributions to the field of high frequency (HF) magnetics and computational electromagnetics based computer modelling technologies for the power converter used in solar PV systems and high power density converters. The project will provide industry with several novel HF magnetic structures and the associated design methodology, and an innovative technology to industry and society with following major benefits: a) increased productivity and minimization of product risk, b) faster project management cycles through the use of cost-effective new design methodology, and c) an improved problem solving environment for scientific research and commercial applications.

**DP1096183** Prof AR Nesdale; A/Prof M Zimmer-Gembeck; Prof G Downey

**Approved Project Title** **Rejection sensitivity in children and adolescents: Antecedents, consequences, and the promotion of rejection resilience**

**2010 :** $ 80,000
**2011 :** $ 50,000
**2012 :** $ 70,000
**Primary RFCD** 3801 PSYCHOLOGY

**Administering Organisation** Griffith University

**Project Summary**

Increasing our understanding of children's rejection sensitivity and its effects, as well as identifying the central processes involved, will contribute to a healthy start, preventative healthcare, and strengthening social and economic fabric. It will allow for a new intervention to build children's competencies, coping and resilience. This will protect from negative intrapersonal (e.g., depression) and interpersonal outcomes (e.g., loneliness, victimisation). It also will improve the social and learning contexts for students, benefit the environment in which teachers work, and strengthen the fabric of families and communities by contributing to the development of harmonious, cooperative environments.

**DP1095425** Dr S Poulsen; Prof A Mackay-Sim; Dr KT Andrews

**Approved Project Title** **The development of copper-free click chemistry to label biomolecules within living cells**

**2010 :** $ 130,000
**2011 :** $ 100,000
**2012 :** $ 110,000
**Primary RFCD** 2503 ORGANIC CHEMISTRY

**Administering Organisation** Griffith University

**Project Summary**

Understanding how cells work is central to modern advances in biomedical science, however many cellular processes are invisible to the researcher because of a lack of appropriate tools. This proposal will apply modern chemistry approaches to the design of new chemical tools for visualising biomolecules within living cells and for investigating cell function. This project brings together experts in chemistry, stem cells and malaria and has applications for development of much needed new therapeutics. This research will advance biomedical research and generate new discoveries for a competitive advantage for Australian science, with potential economic return for the nation.

**DP1094393** Prof M von Itzstein; Dr H Blanchard; Dr BS Coulson

**Approved Project Title** **Structure-based discovery of anti-rotaviral agents**

**2010 :** $ 150,000
**2011 :** $ 150,000
**2012 :** $ 150,000
**Primary RFCD** 2503 ORGANIC CHEMISTRY

**Administering Organisation** Griffith University

**Project Summary**

Rotavirus causes, particularly in children under 5 years of age, significant loss of life worldwide. Over 600,000 children under 5 years of age per annum die as a result of rotavirus infection. Australia records over 10,000 hospitalisations per annum due to rotavirus infection. This project aims, using structure-based drug design techniques, to develop inhibitors of a rotavirus protein that is essential in its lifecycle. These inhibitors may lead to the development of useful drugs to treat rotavirus infection and may reduce significant loss of life caused by this deadly virus.

**DP1094549** Prof M von Itzstein; Dr PM Guillon

**Approved Project Title** **Structure-based discovery of anti-parainfluenza viral agents**

**2010 :** $ 170,000
**2011 :** $ 170,000
**2012 :** $ 170,000

**Primary RFCD** 2503 ORGANIC CHEMISTRY

APD Dr PM Guillon

**Administering Organisation** Griffith University

**Project Summary**

Respiratory diseases, for example croup and bronchitis, in children are caused in the main by human parainfluenza viruses (hPIVs) types 1-3. No vaccines or specific antiviral therapy against hPIV infections exist. This project targets an essential protein in the virus' lifecycle. The essential triple role of the protein in virus spread makes it an attractive target for the development of hPIV-specific drugs. This project aims to produce lead-like compounds that inhibit the protein's function and may provide novel drug candidates for further development. Furthermore the role of human host cell-associated carbohydrates in parainfluenza infection will be better understood.

**DP1093404** Dr J Wang; Prof JX Yu

**Approved Project Title** **Exploiting Views in Extensible Markup Language (XML) Data Processing**

**2010 :** $ 70,000
**2011 :** $ 70,000
**2012 :** $ 70,000

**Primary RFCD** 2801 INFORMATION SYSTEMS

**Administering Organisation** Griffith University

**Project Summary**

This project addresses an important technical issue in smart information use, which is among Australian National Research Priorities. The techniques developed in this project will enable Australian organizations to build smarter and more efficient information systems, hence making them more competitive in the global market. The problems in this project are technically challenging, solving them in Australia will enhance Australia's international research reputation. The project will also boost Australia's research capability by training PhD and honours students.

**DP1093652** A/Prof K Wang; Dr JR Thornton; Dr J Wang; Prof T Eiter; Prof G Antoniou; Dr H Tompits

**Approved Project Title** **Rule-based reasoning systems for complex and dynamic ontologies**

**2010 :** $ 50,000
**2011 :** $ 50,000
**2012 :** $ 50,000

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

**Administering Organisation** Griffith University

**Project Summary**

The successful outcome of this project will enhance Australia's research reputation in an important, practical area of ICT, will contribute to emerging Web technologies that will eventually be of benefit to Australian industry, and will train several postgraduate students.

**DP1095536** Dr AM Waters

**Approved Project Title** **Risk factors for the development of paediatric anxiety disorders**

**2010 :** $ 40,000
**2011 :** $ 40,000
**2012 :** $ 40,000
**Primary RFCD** 3801 PSYCHOLOGY

**Administering Organisation** Griffith University

**Project Summary**

Anxiety disorders are common and debilitating forms of disability affecting Australian children. This project blends strategic basic research with clinical application to advance our understanding of the causes of these disorders. By examining underlying child- and parent-based mechanisms by which children at greatest risk for these disorders transition to anxiety-disordered status, this project will lead to improved prevention and treatment strategies, which will improve the lives of affected children and their families and significantly reduce the financial burden on the Australian health care system.

**DP1093557** Dr DB Weaver

**Approved Project Title** **Enabling tourism, conservation symbiosis by engaging protected area visitors in focused lifelong activism**

**2010 :** $ 30,000
**2011 :** $ 20,000
**2012 :** $ 20,000
**Primary RFCD** 3505 TOURISM

**Administering Organisation** Griffith University

**Project Summary**

Rainforests occupy just 0.3% of Australia and are endangered by increasing visitation and urbanisation. This project will transform visitors to rainforest-protected areas from a potential liability to an asset by investigating their willingness to participate in volunteering, fundraising, donating and other forms of park-related activism throughout their lifetime, and using this information to design a prototype park where quality visitor experiences also translate into biodiversity enhancement. Australia as a result will emerge as a world leader in tourism/conservation symbiosis, realising substantial ecological, social and economic benefits from the thriving rainforests that this symbiosis fosters.

**DP1092470** Prof Z Xu; Prof R Oren; Prof S Linder; Prof T Drouet; Prof X Shao; Prof Q Zhang; Prof CE Johnson; Prof Z Cai; Prof Y Zhu; Dr C Chen; Dr SE Boyd

**Approved Project Title** **Environmental fingerprints of biogeochemical cycles embedded in tree rings: Linking global climate change to local long-term forest productivity**

**2010 :** $ 160,000
**2011 :** $ 140,000
**2012 :** $ 150,000
**Primary RFCD** 3008 ENVIRONMENTAL SCIENCES

**Administering Organisation** Griffith University

**Project Summary**

Forests cover one-third of the Earth's land surface and account for 80-90% of plant carbon and 30-40% of soil carbon. Forest carbon stocks and dynamics respond to and interact with global climate change (GCC). Recent tree ring research highlights the worsening impact of GCC and acid deposition on long-term forest productivity in central Europe. This project seeks to develop and apply novel tree ring technologies for linking biogeochemical cycles of carbon and nutrients to long-term forest productivity in different regions, and to provide a scientific basis for accounting for long-term forest productivity and carbon stocks in response to future GCC.

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| **DP1096553** | Prof H Zhao; Dr H Zhang; Prof W Choi | |
| **Approved Project Title** | **Photoelectrochemical control transport across a photoactive inorganic membrane fabricated by an in situ vapour phase hydrothermal method** | |
| **2010 :** | $ 130,000 | |
| **2011 :** | $ 120,000 | |
| **2012 :** | $ 130,000 | |
| **Primary RFCD** | 2906 | CHEMICAL ENGINEERING |
| **Administering Organisation** | Griffith University | |

**Project Summary**

Serious global fresh water shortage problems force us to recycle/reuse water. In Australia, this is an urgent issue due to our limited fresh water resources. Complete removal of biohazards (e.g., waterborne pathogens) from treated water is one of the most important aspects of safeguarding water recycling and has been the biggest obstacle for public acceptance. This project aims to tackle the issue by developing a highly efficient and effective new membrane technology that is capable of not just separating the biohazards from the source water but also in situ destroying them at the same time with low energy consumption and self cleaning features.