

**Number of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Division**

010000	Mathematical Sciences	
0101	PURE MATHEMATICS	9
0102	APPLIED MATHEMATICS	4
0103	NUMERICAL AND COMPUTATIONAL MATHEMATICS	1
0104	STATISTICS	1
010000	Mathematical Sciences	15
020000	Physical Sciences	
0201	ASTRONOMICAL AND SPACE SCIENCES	3
0202	ATOMIC, MOLECULAR, NUCLEAR, PARTICLE AND PLASMA PHYSICS	2
0204	CONDENSED MATTER PHYSICS	3
0205	OPTICAL PHYSICS	6
0206	QUANTUM PHYSICS	7
0299	OTHER PHYSICAL SCIENCES	3
020000	Physical Sciences	24
030000	Chemical Sciences	
0301	ANALYTICAL CHEMISTRY	2
0302	INORGANIC CHEMISTRY	2
0303	MACROMOLECULAR AND MATERIALS CHEMISTRY	1
0304	MEDICINAL AND BIOMOLECULAR CHEMISTRY	1
0305	ORGANIC CHEMISTRY	2
0306	PHYSICAL CHEMISTRY (INCL. STRUCTURAL)	1
030000	Chemical Sciences	9
040000	Earth Sciences	
0401	ATMOSPHERIC SCIENCES	1
0402	GEOCHEMISTRY	3
0403	GEOLOGY	3
0404	GEOPHYSICS	1
0405	OCEANOGRAPHY	1
0406	PHYSICAL GEOGRAPHY AND ENVIRONMENTAL GEOSCIENCE	2
040000	Earth Sciences	11
050000	Environmental Sciences	
0501	ECOLOGICAL APPLICATIONS	3
0502	ENVIRONMENTAL SCIENCE AND MANAGEMENT	3
050000	Environmental Sciences	6
060000	Biological Sciences	
0601	BIOCHEMISTRY AND CELL BIOLOGY	9
0602	ECOLOGY	5

**Number of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Division**

0603	EVOLUTIONARY BIOLOGY	10
0604	GENETICS	9
0605	MICROBIOLOGY	5
0606	PHYSIOLOGY	3
0607	PLANT BIOLOGY	10
0608	ZOOLOGY	2
060000	Biological Sciences	53
070000	Agricultural and Veterinary Sciences	
0707	VETERINARY SCIENCES	2
070000	Agricultural and Veterinary Sciences	2
080000	Information and Computing Sciences	
0801	ARTIFICIAL INTELLIGENCE AND IMAGE PROCESSING	7
0802	COMPUTATION THEORY AND MATHEMATICS	1
0804	DATA FORMAT	1
0806	INFORMATION SYSTEMS	3
080000	Information and Computing Sciences	12
090000	Engineering	
0901	AEROSPACE ENGINEERING	2
0903	BIOMEDICAL ENGINEERING	1
0904	CHEMICAL ENGINEERING	3
0905	CIVIL ENGINEERING	2
0906	ELECTRICAL AND ELECTRONIC ENGINEERING	4
0912	MATERIALS ENGINEERING	6
0913	MECHANICAL ENGINEERING	3
0915	INTERDISCIPLINARY ENGINEERING	2
090000	Engineering	23
100000	Technology	
1003	INDUSTRIAL BIOTECHNOLOGY	1
1005	COMMUNICATIONS TECHNOLOGIES	2
1007	NANOTECHNOLOGY	8
100000	Technology	11
110000	Medical and Health Sciences	
1101	MEDICAL BIOCHEMISTRY AND METABOLOMICS	1
1102	CARDIOVASCULAR MEDICINE AND HAEMATOLOGY	1
1103	CLINICAL SCIENCES	1
1105	DENTISTRY	1
1107	IMMUNOLOGY	1
1108	MEDICAL MICROBIOLOGY	1

**Number of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Division**

1109	NEUROSCIENCES	3
1111	NUTRITION AND DIETETICS	1
1113	OPTOMETRY AND OPHTHALMOLOGY	2
1114	PAEDIATRICS AND REPRODUCTIVE MEDICINE	2
1115	PHARMACOLOGY AND PHARMACEUTICAL SCIENCES	1
1117	PUBLIC HEALTH AND HEALTH SERVICES	6
110000	Medical and Health Sciences	21
130000	Education	
1302	CURRICULUM AND PEDAGOGY	1
1303	SPECIALIST STUDIES IN EDUCATION	2
130000	Education	3
140000	Economics	
1401	ECONOMIC THEORY	1
1402	APPLIED ECONOMICS	8
1403	ECONOMETRICS	2
140000	Economics	11
150000	Commerce, Management, Tourism and Services	
1502	BANKING, FINANCE AND INVESTMENT	3
1503	BUSINESS AND MANAGEMENT	1
1505	MARKETING	1
1506	TOURISM	1
150000	Commerce, Management, Tourism and Services	6
160000	Studies in Human Society	
1601	ANTHROPOLOGY	4
1602	CRIMINOLOGY	2
1603	DEMOGRAPHY	1
1604	HUMAN GEOGRAPHY	1
1605	POLICY AND ADMINISTRATION	3
1606	POLITICAL SCIENCE	6
1608	SOCIOLOGY	1
1699	OTHER STUDIES IN HUMAN SOCIETY	2
160000	Studies in Human Society	20
170000	Psychology and Cognitive Sciences	
1701	PSYCHOLOGY	17
1702	COGNITIVE SCIENCE	2
1799	OTHER PSYCHOLOGY AND COGNITIVE SCIENCES	1
170000	Psychology and Cognitive Sciences	20

**Number of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Division**

180000	Law and Legal Studies	
1801	LAW	1
180000	Law and Legal Studies	1
190000	Studies in Creative Arts and Writing	
1904	PERFORMING ARTS AND CREATIVE WRITING	2
1999	OTHER STUDIES IN CREATIVE ARTS AND WRITING	1
190000	Studies in Creative Arts and Writing	3
200000	Language, Communication and Culture	
2001	COMMUNICATION AND MEDIA STUDIES	1
2002	CULTURAL STUDIES	2
2004	LINGUISTICS	1
2005	LITERARY STUDIES	4
200000	Language, Communication and Culture	8
210000	History and Archaeology	
2101	ARCHAEOLOGY	1
2102	CURATORIAL AND RELATED STUDIES	1
2103	HISTORICAL STUDIES	9
210000	History and Archaeology	11
220000	Philosophy and Religious Studies	
2201	APPLIED ETHICS	1
2202	HISTORY AND PHILOSOPHY OF SPECIFIC FIELDS	3
2203	PHILOSOPHY	3
220000	Philosophy and Religious Studies	7
Total Number of Grants		277

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

0101 PURE MATHEMATICS

Monash University

DE120100040 Horsley, Dr Daniel J

Approved Project Title Partitioning and ordering Steiner triple systems

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0101 PURE MATHEMATICS

DECRA Dr Daniel J Horsley

Administering Organisation Monash University

Project Summary

Steiner triple systems are fundamental mathematical objects with many real-world applications. This project will develop deep new insights into these objects, resulting in systems allowing many users to simultaneously use a communication channel, and in schemes for preventing the loss of computer data due to hard disk failures.

The Australian National University

DE120102369 Licata, Dr Anthony M

Approved Project Title Higher representation theory

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0101 PURE MATHEMATICS

DECRA Dr Anthony M Licata

Administering Organisation The Australian National University

Project Summary

Representation theory lies at the very centre of mathematics, with applications in all areas of mathematics and mathematical physics; at some level it is about observing the symmetries of a system and exploiting them, and this has been invaluable. This project will explore the forefront of the modern, higher version of this research field.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

DE120100232 Morrison, Dr Scott

Approved Project Title **Fusion categories and topological quantum field theory**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0101 PURE MATHEMATICS

DECRA Dr Scott Morrison

Administering Organisation The Australian National University

Project Summary

This project will involve mathematical research of the highest international calibre on fusion categories and topological field theory. Progress in these fields will lead to advances in computing (for example substrates for quantum computers), condensed matter physics, and the mathematical fields of operator algebra, quantum algebra, and quantum topology.

DE120100173 Trudgian, Dr Timothy S

Approved Project Title **A new upper bound for the Riemann zeta-function and applications to the distribution of prime numbers**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0101 PURE MATHEMATICS

DECRA Dr Timothy S Trudgian

Administering Organisation The Australian National University

Project Summary

Prime numbers are known to every schoolchild and are ubiquitous in modern cryptography; some of their deepest properties relate to a function called the Riemann zeta-function. This project aims at better estimating this function, thereby improving current knowledge on the distribution of prime numbers.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

DE120101167 Zhou, Dr Bin

Approved Project Title Canonical metrics on Kahler manifolds and Monge-Ampere equations

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0101 PURE MATHEMATICS

DECRA Dr Bin Zhou

Administering Organisation The Australian National University

Project Summary

This project will introduce new ideas and techniques to study the existence of canonical metrics on Kahler manifolds, which is a fundamental problem in geometry. Advances in this research will have influence on other areas of science such as mechanics, string theory and mathematical physics.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Adelaide

DE120102657 Hekmati, Dr Pedram

Approved Project Title **Group actions and K-theory: a new direction**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0101 PURE MATHEMATICS

DECRA Dr Pedram Hekmati

Administering Organisation The University of Adelaide

Project Summary

This project investigates cutting-edge research in the mathematics of symmetries arising in nature. The aim is to significantly advance the frontiers of our knowledge by introducing new examples, original methods and a modern perspective.

DE120100901 Yuncken, Dr Robert E

Approved Project Title **Deformation quantisation and index theory for semi-simple groups**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0101 PURE MATHEMATICS

DECRA Dr Robert E Yuncken

Administering Organisation The University of Adelaide

Project Summary

Deformation quantisation is a mathematical technique for describing the counter-intuitive geometry of quantum physics as a small variation of classical geometry as Newton would have known it. This project will apply the same techniques to solve fundamental mathematical problems in the study of symmetries.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Melbourne

DE120101375 Mani, Dr Arun P

Approved Project Title The Tutte polynomial of a graph: correlations, approximations and applications

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0101 PURE MATHEMATICS

DECRA Dr Arun P Mani

Administering Organisation The University of Melbourne

Project Summary

The Tutte polynomial is a mathematical function of central importance to diverse fields of research, such as network reliability and statistical mechanics, that involve natural (and often difficult) counting problems. This project aims to obtain useful close approximations of this function with immediate applications in all these research fields.

The University of New South Wales

DE120101293 Harvey, Dr David M

Approved Project Title Counting solutions to equations over fields of large characteristic

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0101 PURE MATHEMATICS

DECRA Dr David M Harvey

Administering Organisation The University of New South Wales

Project Summary

This project will make major contributions to a fundamental problem in mathematics and computer science, namely counting the number of solutions to certain types of polynomial equations. This work has potential applications in computer security, information processing, and pure mathematics.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0102 APPLIED MATHEMATICS

The University of Melbourne

DE120102601 Csaji, Dr Balazs C

Approved Project Title **Distribution-free system identification: building models from experimental data under minimal statistical assumptions**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 0102 APPLIED MATHEMATICS

DECRA Dr Balazs C Csaji

Administering Organisation The University of Melbourne

Project Summary

In fields with strict safety or quality requirements, such as production control, communication and navigation, there is a great need for methods that can build models with guaranteed performance. However, there is a lack of efficient solutions that can work under minimal assumptions on the disturbances; the project aims at developing such methods.

The University of Newcastle

DE120100049 Engineer, Dr Faramroze

Approved Project Title **New integer programming based theory, formulations and decomposition techniques with applications to integrated problems**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 0102 APPLIED MATHEMATICS

DECRA Dr Faramroze Engineer

Administering Organisation The University of Newcastle

Project Summary

Optimisation problems permeate science and industry. By developing new techniques to solve larger and harder problems than is currently possible, more complex questions can be answered, and more accurate solutions obtained. Industries can use such tools to make better financial, resource management, operational, and/or strategic planning decisions.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Queensland

DE120101529 Gray, Dr Darren J

Approved Project Title **Transmission dynamics modelling of zoonotic neglected tropical diseases**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0102 APPLIED MATHEMATICS

DECRA Dr Darren J Gray

Administering Organisation The University of Queensland

Project Summary

This project will develop mathematical models to simulate zoonotic disease transmission and control. Results will provide novel insight for policy makers into effective interventions for schistosomiasis, echinococcosis and clonorchiasis, as well as provide a methodological platform for adaptation to other zoonotic emerging and re-emerging diseases.

The University of Sydney

DE120101113 Kim, Dr Peter S

Approved Project Title **Mathematical modelling of breast cancer immunity: guiding the development of preventative breast cancer vaccines**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0102 APPLIED MATHEMATICS

DECRA Dr Peter S Kim

Administering Organisation The University of Sydney

Project Summary

The project will apply various methods from mathematical modelling to simulate anti-breast cancer immune responses to incipient tumours. Results from simulation and analysis will help develop, assess, and optimise preventative breast cancer vaccines for further testing in future experimental studies.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0103 NUMERICAL AND COMPUTATIONAL MATHEMATICS

The Australian National University

DE120101707 Jin, Dr Qinian

Approved Regularisation methods for solving nonlinear ill-posed inverse problems
Project Title

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0103 NUMERICAL AND COMPUTATIONAL MATHEMATICS

DECRA Dr Qinian Jin

Administering Organisation The Australian National University

Project Summary

Nonlinear inverse problems arise in numerous applications and their stable resolutions require regularisation methods. This project will develop various efficient solvers by using optimisation tools and Newton type procedures and consider their convergence properties. The methods will be applied to practical problems including the tomography techniques.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0104 STATISTICS

The University of Western Australia

DE120102388 Vo, Asst Prof Ba Tuong

Approved Project Title From Bayesian filtering to smoothing and prediction for multiple object systems

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0104 STATISTICS

DECRA Asst Prof Ba Tuong Vo

Administering Organisation The University of Western Australia

Project Summary

This project will develop new and improved algorithms for tracking multiple targets, such as tanks, submarines or planes, using the state of the art in mathematical and computational design. These will enable more efficient and accurate technologies for defence related applications including intelligence, surveillance and reconnaissance.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0201 ASTRONOMICAL AND SPACE SCIENCES

The Australian National University

DE120102940 Collet, Dr Remo

Approved Project Title The chemical composition of stars: high-precision spectroscopy with three-dimensional model stellar atmospheres

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0201 ASTRONOMICAL AND SPACE SCIENCES

DECRA Dr Remo Collet

Administering Organisation The Australian National University

Project Summary

The determination of stellar chemical compositions is important in astrophysics because it allows us to address the question: how do planets, stars, and galaxies evolve? This project will apply the latest generation of three-dimensional stellar models to the interpretation of stellar spectra and to the derivation of elemental abundances in stars.

The University of Melbourne

DE120101859 Mack, Dr Katherine J

Approved Project Title Dark matter particle physics and the first sources of light in the universe

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0201 ASTRONOMICAL AND SPACE SCIENCES

DECRA Dr Katherine J Mack

Administering Organisation The University of Melbourne

Project Summary

Dark matter is a mysterious, invisible substance that underlies all the structure we see in the universe today. The project will show how the first sources of light in the universe were affected by the particle physics of dark matter and will make predictions for how astronomical observations can be used to solve the enigma of dark matter's true nature.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Sydney

DE120100489 Stello, Dr Dennis

Approved Project Title **Probing fundamental stellar physics and unravelling open star clusters with NASA's Kepler Mission**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 0201 ASTRONOMICAL AND SPACE SCIENCES

DECRA Dr Dennis Stello

Administering Organisation The University of Sydney

Project Summary

The project will detect stellar oscillations caused by massive starquakes to explore the interiors of stars born in clusters, which comprise most stars. The project will measure their mass, size, age and composition with unprecedented accuracy to reveal how they formed and evolved, and hence gain a deep understanding of the intricate lives of stars.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0202 ATOMIC, MOLECULAR, NUCLEAR, PARTICLE AND PLASMA PHYSICS

The Flinders University of South Australia

DE120101187 Jones, Dr Darryl

Approved Project Title Adapting industrial plasma-processing chemistries through electron collisions to meet emerging technological and environmental requirements

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0202 ATOMIC, MOLECULAR, NUCLEAR, PARTICLE AND PLASMA PHYSICS

DECRA Dr Darryl Jones

Administering Organisation The Flinders University of South Australia

Project Summary

This project involves performing experimental measurements to determine how low-energy electrons interact with highly reactive species, namely free radicals. These interactions play important roles in many industrial applications relating to the manufacture of materials.

The University of New South Wales

DE120100399 Berengut, Dr Julian C

Approved Project Title Are the laws of physics changing? New methods for detecting variations in the fundamental constants

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0202 ATOMIC, MOLECULAR, NUCLEAR, PARTICLE AND PLASMA PHYSICS

DECRA Dr Julian C Berengut

Administering Organisation The University of New South Wales

Project Summary

This project will identify new methods whereby scientists are much more likely to discover whether the fundamental constants of nature, such as the speed of light, are changing with time. This will help answer deep questions about whether there are extra dimensions beyond our three, the nature of dark energy, and whether string theory is correct.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0204 CONDENSED MATTER PHYSICS

The University of Melbourne

DE120101100 Cervenka, Dr Jiri

Approved Functionalised graphene for next generation nanoelectronics
Project Title

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0204 CONDENSED MATTER PHYSICS

DECRA Dr Jiri Cervenka

Administering Organisation The University of Melbourne

Project Summary

Future technological advances, driven by the continuing demand for increased performance and efficiency, depend critically on the development of new materials. This project will develop new semiconducting carbon-based materials via the chemical functionalisation of graphene to form a new platform for future electronic and optoelectronic devices.

The University of New South Wales

DE120100702 Tettamanzi, Dr Giuseppe C

Approved Single atom based quantum metrology
Project Title

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0204 CONDENSED MATTER PHYSICS

DECRA Dr Giuseppe C Tettamanzi

Administering Organisation The University of New South Wales

Project Summary

Taking advantage of the natural properties of a single atom embedded in an industrial nano-device, this project will improve the quantum standard for current and will lead to a more accurate determination of the fundamental constants of nature, thus providing broad benefits to Australian Science, Technology and Industry.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Western Australia

DE120100155 Metaxas, Dr Peter J

Approved Project Title **Magnetic biosensing: developing high frequency spintronic sensors for magnetic label detection**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 0204 CONDENSED MATTER PHYSICS

DECRA Dr Peter J Metaxas

Administering Organisation The University of Western Australia

Project Summary

This project builds upon recent advances in nano-magnetism to develop novel, miniaturised, electronic biosensors. Such biosensors will one day enable the production of portable devices for rapid, on-site detection of cancer and other diseases, thereby reducing reliance on costly laboratory based analyses and improving remote and rural healthcare.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0205 OPTICAL PHYSICS

Monash University

DE120101504 Pelliccia, Dr Daniele

Approved Project Title **Nano-resolution hard x-ray diffraction imaging with conventional laboratory sources**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0205 OPTICAL PHYSICS

DECRA Dr Daniele Pelliccia

Administering Organisation Monash University

Project Summary

The project will combine advanced optics and algorithms for diffraction imaging to develop a desktop hard x-ray microscope. The system will display ultra-high resolution and will be highly complementary to electronic and optical microscopies for diverse applications in materials engineering, nanofluidics and cell biology.

The Australian National University

DE120101036 Yang, Dr Zhiyong

Approved Project Title **Integrated mid-infrared optical microcavity sensors**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0205 OPTICAL PHYSICS

DECRA Dr Zhiyong Yang

Administering Organisation The Australian National University

Project Summary

Toxic or illicit substances such as poisons, drugs and explosives can be identified from the way they absorb specific frequencies of light in the mid-infrared. This project will develop a new kind of molecule-specific, optical sensor capable of detecting trace quantities of such materials.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Melbourne

DE120102352 KOU, Dr Shanshan

Approved Project Title Three-dimensional structural imaging in optical microscopy and tomography

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0205 OPTICAL PHYSICS

DECRA Dr Shanshan KOU

Administering Organisation The University of Melbourne

Project Summary

This project will develop fundamentally new strategies for looking inside live cells to determine their internal structures. Such capability will permit a better understanding of diseases, the link between diabetes and heart failure for example, opening the door for new diagnostic techniques and treatments.

The University of Queensland

DE120101721 Shaw, Dr Paul E

Approved Project Title Probing the excited states of organic semiconductor systems with photoinduced absorption spectroscopy

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0205 OPTICAL PHYSICS

DECRA Dr Paul E Shaw

Administering Organisation The University of Queensland

Project Summary

Plastic semiconductors have the potential to revolutionise consumer electronics by enabling cheap, flexible and low power devices. The success of these devices depends on our understanding of the optical and electronic properties of the materials, which this project aims to address through the use of photoinduced absorption spectroscopy.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Sydney

DE120102069 Husko, Dr Chad

Approved Project Title **Optical solitons on a photonic chip: unprecedented light control at the nanoscale**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0205 OPTICAL PHYSICS

DECRA Dr Chad Husko

Administering Organisation The University of Sydney

Project Summary

Solitons, waves that maintain their shape as they travel, exist in systems as diverse as water waves, molecular biology, and optics. This project explores previously unobservable light propagation regimes in two-dimensional periodic media, photonic crystals. These studies provide unprecedented control of light-matter interaction at the nanoscale.

DE120101329 Schröder, Dr Jochen B

Approved Project Title **Ultra-stable photonic-chip pulse source**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0205 OPTICAL PHYSICS

DECRA Dr Jochen B Schröder

Administering Organisation The University of Sydney

Project Summary

An ultra-low noise high repetition photonic-chip pulse source is proposed. This ultra-stable device offers orders-of-magnitude improvements over existing solutions and holds potential for strong improvements to analogue-to-digital converters. The laser will be a crucial component for photonic integrated circuits, enabling millimetre size processing.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0206 QUANTUM PHYSICS

Swinburne University of Technology

DE120102495 He, Dr Qiongyi

Approved Project Title **Creation, detection, and decoherence of a "Schrodinger Cat"**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 0206 QUANTUM PHYSICS

DECRA Dr Qiongyi He

Administering Organisation Swinburne University of Technology

Project Summary

Ultra-cold physics is a new frontier of science, especially Bose-Einstein condensates, as mesoscopic quantum objects, are expected to have a revolutionary impact on future science and technology. This project aims to test the famous quantum mechanical prediction the "Schrodinger Cat" (neither dead nor alive) using ultra-cold physics.

The University of Queensland

DE120101899 de Almeida, Dr Marcelo P

Approved Project Title **Developing the next generation of single and entangled photon sources**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 0206 QUANTUM PHYSICS

DECRA Dr Marcelo P de Almeida

Administering Organisation The University of Queensland

Project Summary

Low noise and efficient sources of single and entangled photons are important resources to implement a scalable platform for large-scale quantum information tasks. This project will develop the prototypes for these sources which will be suitable for a wide range of interesting applications in quantum information.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Sydney

DE120100559 Cavalcanti, Dr Eric G

Approved Project Title **The structure of nonclassicality and the foundations of quantum theory**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0206 QUANTUM PHYSICS

DECRA Dr Eric G Cavalcanti

Administering Organisation The University of Sydney

Project Summary

What exactly makes quantum computers faster than classical computers and why does the world obey the counterintuitive rules of quantum mechanics? This project will use insights gained from researching the information-processing capabilities in a quantum world to investigate the nature of the theory itself and ways in which it might be modified.

DE120102204 Menicucci, Dr Nicolas C

Approved Project Title **Quantum computation and relativistic quantum information**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0206 QUANTUM PHYSICS

DECRA Dr Nicolas C Menicucci

Administering Organisation The University of Sydney

Project Summary

Quantum information theory has profound implications both for practical computing and for our fundamental understanding of the universe. This project will determine the viability of one particular quantum computing platform and also develop theoretical and experimental tools to probe the interface between quantum theory and relativity.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

DE120100226 Xiong, Dr Chunle

Approved Project Title Quantum entanglement using slow-light-enhanced nonlinearity

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0206 QUANTUM PHYSICS

DECRA Dr Chunle Xiong

Administering Organisation The University of Sydney

Project Summary

The project will develop the fundamental science for creating quantum entanglement in micro- and nano-scale photonic devices so that thousands of these devices can be placed onto a single chip. This is the key to building practical quantum technologies that will make communications much more secure and computations many times faster.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Western Australia

DE120102028 Light, Dr Philip S

Approved Project Title Integrated gas photonics

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0206 QUANTUM PHYSICS

DECRA Dr Philip S Light

Administering Organisation The University of Western Australia

Project Summary

Many physical scientists believe that the next technological revolution in society will arise from exploitation of the unique features of the quantum world. The project will develop new technology at the boundary between photonics and atomic physics aimed at addressing fundamental challenges in quantum information and sensing.

DE120101498 Tartaglino-Mazzucchelli, Dr Gabriele

Approved Project Title Superspace and dualities in supersymmetric field theories, supergravity and string theory

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0206 QUANTUM PHYSICS

DECRA Dr Gabriele Tartaglino-Mazzucchelli

Administering Organisation The University of Western Australia

Project Summary

Supersymmetry, supergravity and string theory have represented the most promising frontiers of high-energy theoretical physics. This project will develop new techniques and explore novel dynamical features at the forefront of some of the most exciting fields of fundamental physics.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0299 OTHER PHYSICAL SCIENCES

Monash University

DE120102571 Morgan, Dr Kaye S

Approved Project Title **Visualising living airways: a new x-ray technique to assess Cystic Fibrosis treatments**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0299 OTHER PHYSICAL SCIENCES

DECRA Dr Kaye S Morgan

Administering Organisation Monash University

Project Summary

The ability to non-invasively observe the body's inner functions at high magnification is critical in developing new medical treatments. This project will establish an x-ray technique capable of imaging subtle biological function at high magnification and apply this technique to assessing new treatments for airways affected by Cystic Fibrosis.

The Australian National University

DE120100364 Xia, Dr Hua

Approved Project Title **Understanding winds: energy transfer in rotating turbulent fluids**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0299 OTHER PHYSICAL SCIENCES

DECRA Dr Hua Xia

Administering Organisation The Australian National University

Project Summary

The Earth's rotation affects how large atmospheric winds and cyclones interact with each other and with the surface of our planet. This controls how the wind energy is distributed in the global atmosphere. By studying rotating turbulence in laboratory experiments, we can improve our understanding of atmospheric dynamics and make better predictions in meteorology, and atmospheric physics.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of New South Wales

DE120102914 Linser, Dr Rasmus J

Approved Project Title **Membrane protein function in its native lipid environment characterised by solid-state nuclear magnetic resonance**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 0299 OTHER PHYSICAL SCIENCES

DECRA Dr Rasmus J Linser

Administering Organisation The University of New South Wales

Project Summary

Membrane proteins play an important role for cell function and have vast medical implications, whereas their function is crucially dependent on mechanisms related to their embedding in the membrane. These features will be characterised by newly developed spectroscopic methods, which will further contribute to an improved understanding of diseases.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0301 ANALYTICAL CHEMISTRY

The University of Queensland

DE120102503 Shiddiky, Dr Muhammad J A

Approved Project Title **Circulating tumor cell isolation and detection: an integrated microfluidic capture device based on alternating current (AC) electrohydrodynamics**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 0301 ANALYTICAL CHEMISTRY

DECRA Dr Muhammad J A Shiddiky

Administering Organisation The University of Queensland

Project Summary

The detection of circulating tumor cells in clinical samples plays a critical role in cancer diagnosis and management. This project aims to develop microfluidic technology by incorporating AC electric field-induced vortices with three-dimensional microstructured electrodes that will advance our ability to analyse rare cells and proteins in clinical samples.

University of Wollongong

DE120100467 Poad, Dr Berwyck L

Approved Project Title **Unravelling the intrinsic structure and stability of multiply charged anions in the gas-phase using photoelectron spectroscopy and mass spectrometry**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 0301 ANALYTICAL CHEMISTRY

DECRA Dr Berwyck L Poad

Administering Organisation University of Wollongong

Project Summary

Molecules possessing multiple negative charges are common constituents in chemistry, influencing a range of processes ranging from photochemical smog formation to protein structure in vivo. This project will develop new technologies to probe their molecular structure in the gas-phase, leading to a more rigorous understanding of these species.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0302 INORGANIC CHEMISTRY

The University of Queensland

DE120102836 Zou, Dr Guifu

Approved Project Title A novel fully inorganic quantum dots based solar cell

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0302 INORGANIC CHEMISTRY

DECRA Dr Guifu Zou

Administering Organisation The University of Queensland

Project Summary

A fully-inorganic quantum dots solar cell will be constructed by using cheap chemical solution techniques. The development of the new 3rd generation solar cell is aimed to realise the high-efficiency, low-cost, and well-stability of solar cells. It would dramatically increase commercial viability of quantum solar cells.

The University of Sydney

DE120102687 New, Dr Elizabeth J

Approved Project Title Development of sensors for biological redox state

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0302 INORGANIC CHEMISTRY

DECRA Dr Elizabeth J New

Administering Organisation The University of Sydney

Project Summary

The plethora of antioxidant supplements on the market to prevent aging and disease highlights the great importance of oxidation state in the body. This project involves the development of chemical compounds that can be used to measure oxidation state in living tissue by Magnetic Resonance Imaging (MRI) or microscopy and help us understand various diseases.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0303 MACROMOLECULAR AND MATERIALS CHEMISTRY

The University of New South Wales

DE120101547 Roth, Dr Peter J

**Approved Novel smart materials: development of positively thermo-responsive polymers for biomedical
Project Title applications**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0303 MACROMOLECULAR AND MATERIALS CHEMISTRY

DECRA Dr Peter J Roth

Administering Organisation The University of New South Wales

Project Summary

The project will develop novel materials, which drastically change their structure and shape on a microscopic level in response to subtle temperature changes. In modern pharmaceuticals, this smart behaviour can be exploited to cause tailored microscopic containers to open inside the body and release medicine exactly where and when it is needed.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0304 MEDICINAL AND BIOMOLECULAR CHEMISTRY

The University of Queensland

DE120103152 Henriques, Dr Sonia T

Approved Development of next generation drugs against Helicobacter pylori
Project Title

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0304 MEDICINAL AND BIOMOLECULAR CHEMISTRY

DECRA Dr Sonia T Henriques

Administering Organisation The University of Queensland

Project Summary

Gastric cancer is the second leading cause of cancer-related death in the world and infection by Helicobacter pylori bacteria is the main cause of this disease. The aim of this project is to develop new approaches to treat Helicobacter pylori infection that will give superior results and lower side effects than available therapies.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0305 ORGANIC CHEMISTRY

The Australian National University

DE120102113 Lawrence, Dr Andrew L

**Approved Total synthesis inspired by nature
Project Title**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0305 ORGANIC CHEMISTRY

DECRA Dr Andrew L Lawrence

Administering Organisation The Australian National University

Project Summary

This project aims to improve and develop the way in which we make organic substances; our medicines, agrochemicals, and designed materials. This will be achieved through biomimetics; which harnesses the power of evolution by mimicking how nature synthesises organic compounds.

The University of Sydney

DE120101653 Hunter, Dr Luke

**Approved Selective fluorination chemistry: a tool for creating bioactive, shape-controlled peptides
Project Title**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0305 ORGANIC CHEMISTRY

DECRA Dr Luke Hunter

Administering Organisation The University of Sydney

Project Summary

Fluorine atoms are desirable substituents in drug candidates because they can increase metabolic stability and hydrophobicity, and because they can be used to constrain molecules into optimal bioactive conformations. These concepts are being exploited to create shape-controlled peptides with applications in anti-cancer and anti-microbial therapy.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0306 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

Curtin University of Technology

DE120101456 Silvester, Dr Debbie S

Approved Electrochemical behaviour of toxic gases and explosives in room temperature ionic liquids
Project Title

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0306 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

DECRA Dr Debbie S Silvester

Administering Organisation Curtin University of Technology

Project Summary

This project will examine the behaviour of toxic gases and volatile explosive materials in ionic liquids. The information generated from this work will provide fundamental knowledge that will allow for the design of improved sensors for toxic gases, nerve agents and explosives, for applications in the mining and security sectors.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0401 ATMOSPHERIC SCIENCES

The University of New South Wales

DE120102645 Kidston, Dr Joseph

Approved The cause of the poleward shift of Earth's storm tracks and jet streams
Project Title

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0401 ATMOSPHERIC SCIENCES

DECRA Dr Joseph Kidston

Administering Organisation The University of New South Wales

Project Summary

Why do global climate models shift the atmospheric storm tracks and jet streams poleward in simulations of future climate? This project will determine the underlying causes of the most important circulation change that is projected to occur with increasing greenhouse gases, and will allow much more accurate regional climate projections.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0402 GEOCHEMISTRY

Southern Cross University

DE120101290 Oakes, Dr Joanne M

Approved Project Title Unravelling the transformation pathways and fate of dissolved organic carbon and nitrogen in shallow coastal sediments

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0402 GEOCHEMISTRY

DECRA Dr Joanne M Oakes

Administering Organisation Southern Cross University

Project Summary

This project will significantly advance our understanding of the cycling of dissolved organic carbon and dissolved organic nitrogen in shallow coastal sediments, a potentially major part of global carbon and nitrogen cycles. This will have direct implications for the management and protection of Australian coastal systems and the world's oceans.

The Australian National University

DE120100513 Nebel, Dr Oliver

Approved Project Title Solving the iron oxidation conundrum in mantle-derived magmatic systems

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0402 GEOCHEMISTRY

DECRA Dr Oliver Nebel

Administering Organisation The Australian National University

Project Summary

The project will decipher oxidation processes in magmas generated and exposed at convergent margin volcanoes. Knowledge of the oxidising processes and agents will lead to a better understanding of modes of melt production, transport and deposition of metals and help to reconstruct the formation of oceanic and continental crust.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Melbourne

DE120102504 Pickering, Dr Robyn

Approved Project Title Old stalagmites, new techniques: South African palaeoclimate records linked to early human evolution

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0402 GEOCHEMISTRY

DECRA Dr Robyn Pickering

Administering Organisation The University of Melbourne

Project Summary

Caves in South Africa preserve a rich hominin (early human) fossil and archaeological record dating back over two million years. This project uses stalagmites from various South African caves to provide a new, detailed record of the palaeoclimate, forming the backdrop to the evolutionary changes that took place during this period.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

0403 GEOLOGY

Curtin University of Technology

DE120103067 Clark, Dr Christopher F

Approved Project Title How does the continental crust get so hot?

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0403 GEOLOGY

DECRA Dr Christopher F Clark

Administering Organisation Curtin University of Technology

Project Summary

This project is aimed at constraining the tectonic drivers of high geothermal gradient crustal regimes. The key outcomes of this project are better constraints on the tectonic drivers of high geothermal gradient metamorphism and the development of quantitative tools to assess the evolution of heat within areas of mountain building.

The University of Melbourne

DE120102245 Li, Dr Guangwei

Approved Project Title Comparison of early mesozoic sedimentary provenances of both sides of the YarlungTsangpo suture zone and the evolution of the neotethys

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0403 GEOLOGY

DECRA Dr Guangwei Li

Administering Organisation The University of Melbourne

Project Summary

This project aims to develop a new, more geologically-consistent evolution of the Neotethys and test the affinity of southern Lhasa terrane with Australian terranes. The work will provide new constraints on the early evolution of the Himalayan-Tibetan continental collision.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Queensland

DE120101533 Price, Dr Gilbert J

Approved Project Title **Understanding faunal responses to climate change and environmental perturbations through the Quaternary in north-eastern Australia**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 0403 GEOLOGY

DECRA Dr Gilbert J Price

Administering Organisation The University of Queensland

Project Summary

To understand life, it is essential to know its history; and to conserve biodiversity into the future, it is essential to learn lessons from the past. This project will use information from the fossil record to identify climate- and human-forced threats to the environment and fully understand the adaptive response of native fauna to climate change.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0404 GEOPHYSICS

The University of New South Wales

DE120102927 Waterman, Dr Stephanie

**Approved Ingredients of the eddy soup in Southern Ocean dynamics: processes, climate impacts and
Project Title parameterisation**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0404 GEOPHYSICS

DECRA Dr Stephanie Waterman

Administering Organisation The University of New South Wales

Project Summary

This project aims to understand jet-topography-eddy interactions in the Southern Ocean, and to apply that understanding to improving the representation of ocean physics in models. It will provide the underpinning science needed to increase confidence in climate predictions that will allow Australia to more effectively respond to climate change.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0405 OCEANOGRAPHY

University of Tasmania

DE120100030 Lannuzel, Dr Delphine

Approved Project Title **The role of Antarctic sea ice as a natural ocean fertiliser**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 0405 OCEANOGRAPHY

DECRA Dr Delphine Lannuzel

Administering Organisation University of Tasmania

Project Summary

This project will assess the importance of sea ice as a natural fertiliser in the climatically important polar region. The knowledge gained will aid climate modellers and Governmental policy-makers concerned with the commercial use of ocean iron fertilisation as an attempt to reduce human-induced atmospheric carbon dioxide and gain carbon credits.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0406 PHYSICAL GEOGRAPHY AND ENVIRONMENTAL GEOSCIENCE

The University of Melbourne

DE120102530 Sniderman, Dr J.M. Kale

Approved Project Title Are northern- and southern-hemisphere climates synchronised on orbital timescales? New insight into Earth's climate history

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0406 PHYSICAL GEOGRAPHY AND ENVIRONMENTAL GEOSCIENCE

DECRA Dr J.M. Kale Sniderman

Administering Organisation The University of Melbourne

Project Summary

This project will generate a very high (1-100 year) resolution palaeoclimate record in order to test whether southern hemisphere ice age climate changes 1.5 million years ago were synchronised with the northern hemisphere. This will provide a critical test of theories on the mechanisms driving glacial- interglacial climate changes.

University of Wollongong

DE120103033 May, Dr Jan-Hendrik

Approved Project Title The wet and dry of tropical Australia: past, present and future

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0406 PHYSICAL GEOGRAPHY AND ENVIRONMENTAL GEOSCIENCE

DECRA Dr Jan-Hendrik May

Administering Organisation University of Wollongong

Project Summary

This project investigates rivers in the tropical 'Top End' of Australia and how flooding and long-term flow have changed over the recent geologic past. Such knowledge adds important components to our understanding of past climate in Australia, and is crucial in assessing the impacts of future global change on the continent's water resources.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0501 ECOLOGICAL APPLICATIONS

The Australian National University

DE120101446 Schwanz, Dr Lisa E

Approved Project Title The battle of the sexes heats up: climate change and the ecological and evolutionary fate of reptiles when sex is determined by temperature

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0501 ECOLOGICAL APPLICATIONS

DECRA Dr Lisa E Schwanz

Administering Organisation The Australian National University

Project Summary

In species where gender (male or female) is determined by temperature early in life, what will happen when climate changes? This project will examine the sex ratios, behaviour and evolutionary potential of a native Australian lizard in relation to climate, addressing a question of global significance and informing management of native species.

The University of Queensland

DE120102459 Harborne, Dr Alastair R

Approved Project Title The effects of sea-level rise on the feeding ecology of coral-reef fishes in shallow water, and the implications for reef-flat food webs

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0501 ECOLOGICAL APPLICATIONS

DECRA Dr Alastair R Harborne

Administering Organisation The University of Queensland

Project Summary

Coral reefs are threatened by climate change, but the effects of sea-level rise on wide, shallow reef flats are rarely investigated. This project will examine how the ecology of fish on reef flats varies with tidal state, how these changes alter food webs over tidal cycles, and the implications of sea-level rise leading to a 'permanent high tide'.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

University of Technology, Sydney

DE120103022 Li, Dr Longhui

Approved Project Title **Generalising a root-water uptake mechanism for successful land surface modelling**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 0501 ECOLOGICAL APPLICATIONS

DECRA Dr Longhui Li

Administering Organisation University of Technology, Sydney

Project Summary

Understanding root functioning in Australian savanna ecosystems is critically important for successful resource management but such understanding is not represented in land surface models (LSMs). This project will incorporate root functioning into LSMs and improve our ability to manage water and carbon natural resources in a changing climate.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0502 ENVIRONMENTAL SCIENCE AND MANAGEMENT

Queensland University of Technology

DE120101890 Palmer, Dr Sara J

Approved Project Title Purification of contaminated wastewaters by modified Bayer layered double hydroxides

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0502 ENVIRONMENTAL SCIENCE AND MANAGEMENT

DECRA Dr Sara J Palmer

Administering Organisation Queensland University of Technology

Project Summary

This project intends to develop enhanced adsorbent materials, prepared from industrial wastewater and seawater, for the decontamination of environments affected by Australian industries. This inexpensive novel material will be applicable to a wide range of purification applications and will reduce the environmental impact of Australian industries.

DE120100161 Toms, Dr Leisa-Maree L

Approved Project Title Accumulation and half-lives of brominated flame retardants

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0502 ENVIRONMENTAL SCIENCE AND MANAGEMENT

DECRA Dr Leisa-Maree L Toms

Administering Organisation Queensland University of Technology

Project Summary

This project seeks to determine, in vivo, previously unknown half-lives for brominated flame retardants, chemicals used in numerous, everyday products. This is vital for predicting the duration of human contamination with these persistent, toxic, bioaccumulative chemicals and assessing effectiveness of legislation to reduce human exposure.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The Australian National University

DE120101998 Mallela, Dr Jennie

Approved Project Title Coral reefs, climate change and land-based pollution: past, present and future impacts on coral reef development

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0502 ENVIRONMENTAL SCIENCE AND MANAGEMENT

DECRA Dr Jennie Mallela

Administering Organisation The Australian National University

Project Summary

Major threats to the Great Barrier Reef (GBR) include climate change and deteriorating water quality. Environmental histories in the skeletons of reef building organisms will be used to determine how past, present and future environmental threats influence the growth and development of the GBR. Findings will help set national water quality targets.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0601 BIOCHEMISTRY AND CELL BIOLOGY

Monash University

DE120100794 Plachta, Dr Nicolas D

Approved Project Title Revealing dynamic mechanisms controlling pluripotency in mammalian stem cells and embryos

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0601 BIOCHEMISTRY AND CELL BIOLOGY

DECRA Dr Nicolas D Plachta

Administering Organisation Monash University

Project Summary

Every cell of our mature bodies originates from 'pluripotent' cells present in the early mammalian embryo. These cells can be captured and grown in plastic dishes. The project will use imaging methods to reveal how gene regulatory molecules control pluripotent cells in the embryo and in culture.

The Australian National University

DE120102673 Jackson, Dr Colin J

Approved Project Title F420-Reductases from mycobacteria: new opportunities for health care and environmental protection

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0601 BIOCHEMISTRY AND CELL BIOLOGY

DECRA Dr Colin J Jackson

Administering Organisation The Australian National University

Project Summary

A new class of enzymes, derived from the bacteria responsible for drug resistant forms of tuberculosis and leprosy, will be studied at a molecular level. New antibiotics will be designed, based on the molecular structures of these proteins. The proteins themselves will be engineered to break down harmful environmental toxins.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Melbourne

DE120102263 Regev-rudzki, Dr Neta

Approved Project Title Export of effector proteins by *P. falciparum* to the infected red blood cell

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0601 BIOCHEMISTRY AND CELL BIOLOGY

DECRA Dr Neta Regev-rudzki

Administering Organisation The University of Melbourne

Project Summary

Infection by the malaria parasite has lethal consequences for humans. The parasite exports hundreds of proteins via a translocon to commandeer the red blood cell. This project aims to determine the function of one of the major translocon components and determine if it is a viable target for anti-malarial drug development.

DE120100782 Taoudi, Dr Samir

Approved Project Title Identifying molecular regulators of haematopoietic stem cell development

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0601 BIOCHEMISTRY AND CELL BIOLOGY

DECRA Dr Samir Taoudi

Administering Organisation The University of Melbourne

Project Summary

Blood stem cells are capable of making all types of mature blood cell whilst making new copies of themselves. These properties are essential for the life-long supply of blood and make stem cells ideal for therapeutic use. By studying embryos, this project will identify genes that control the production and expansion of blood-forming stem cells.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Newcastle

DE120101242 Holt, Dr Janet E

Approved Project Title Regulation of germ cell number and quality by Fizzy-related protein

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0601 BIOCHEMISTRY AND CELL BIOLOGY

DECRA Dr Janet E Holt

Administering Organisation The University of Newcastle

Project Summary

Females have a limited supply of eggs in their ovaries and it appears that the Fizzy-related gene (FZR1) is important in making sure this full complement is gained. By using novel mouse knockouts of the FZR1 gene, the project will determine how this protein functions at the earliest stages of egg development.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Queensland

DE120102321 Kerr, Dr Markus C

Approved Project Title Exploiting pathogen-host interactions to dissect the mammalian endocytic pathway

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0601 BIOCHEMISTRY AND CELL BIOLOGY

DECRA Dr Markus C Kerr

Administering Organisation The University of Queensland

Project Summary

Salmonella manipulates the cells of the human body to cause disease. Understanding the molecular machinery that controls this process will provide profound insight into how the bacteria orchestrates this manipulation as well as provide possible avenues for intervention and even cures for diseases like typhoid fever.

DE120101550 O'Mara, Dr Megan L

Approved Project Title Understanding multidrug resistance: identifying the molecular basis of substrate and inhibitor transport by P-glycoprotein

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0601 BIOCHEMISTRY AND CELL BIOLOGY

DECRA Dr Megan L O'Mara

Administering Organisation The University of Queensland

Project Summary

Chemotherapy resistance causes 90 per cent of cancer deaths and is commonly triggered by the increased activity of P-glycoprotein, which controls the cellular clearance of drugs. This project will determine how P-glycoprotein recognises and transports drugs, essential knowledge for the design of anticancer agents that can stop chemotherapy resistance.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Sydney

DE120102857 Shepherd, Dr Nicholas E

Approved Project Title Innovative chemical tools for the isolation, biochemical and structural analysis of biological macromolecular assemblies

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0601 BIOCHEMISTRY AND CELL BIOLOGY

DECRA Dr Nicholas E Shepherd

Administering Organisation The University of Sydney

Project Summary

This project will develop a new approach for determining the three dimensional structures of protein complexes. This project will demonstrate this approach by determining the structure of a protein complex involved in gene regulation and disease.

University of Wollongong

DE120102840 Yerbury, Dr Justin J

Approved Project Title Are Proteostasis defects responsible for Amyotrophic Lateral Sclerosis?

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0601 BIOCHEMISTRY AND CELL BIOLOGY

DECRA Dr Justin J Yerbury

Administering Organisation University of Wollongong

Project Summary

Currently the cause of motor neurone disease (MND) is a mystery. There is, however, a growing group of unrelated genes associated with inherited MND. This project aims to show that this group of apparently diverse genes all contribute to a single cellular function called protein homeostasis and that mutations in these genes cause homeostasis disruptions.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0602 ECOLOGY

Macquarie University

DE120102614 Madin, Dr Elizabeth M

Approved Monitoring coral reef health from space: how herbivore behaviour alters reef structure
Project Title

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0602 ECOLOGY

DECRA Dr Elizabeth M Madin

Administering Organisation Macquarie University

Project Summary

This research seeks to understand how both fishing and marine reserves can shape coral reef landscapes by changing the way herbivores behave while foraging for food. It will use an innovative approach combining ecological theory with satellite imagery, resulting in a predictive tool for resource managers both in Australia and globally.

Monash University

DE120102323 Delhey, Dr Kaspar

Approved How the visual environment affects the diversity of avian colours and why this matters
Project Title

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0602 ECOLOGY

DECRA Dr Kaspar Delhey

Administering Organisation Monash University

Project Summary

Evolutionary theory predicts that (a) animal colours are optimised to perform best in their native environment and hence that (b) environmental degradation can disrupt the function of animal colours in communication or camouflage. This project will test these predictions for Australian birds and use the outcome to inform environmental restoration programs.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The Australian National University

DE120101263 Ford, Dr Karen J

Approved Project Title Assessing the impact of global environmental change on the nutritional ecology of marsupial and insect folivores of Eucalyptus

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0602 ECOLOGY

DECRA Dr Karen J Ford

Administering Organisation The Australian National University

Project Summary

Higher atmospheric carbon dioxide concentrations are predicted to alter plant nutrient and toxin content, while higher ambient temperatures may compromise the abilities of animals to metabolise plant toxins. This project will assess how climate change scenarios are likely to impact native marsupials and insects that rely on eucalypt leaves for food.

The University of Melbourne

DE120102221 Catford, Dr Jane A

Approved Project Title Investigating the susceptibility of native vegetation edges to alien plant invasion: a quantitative study to help prevent and control invasive species

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0602 ECOLOGY

DECRA Dr Jane A Catford

Administering Organisation The University of Melbourne

Project Summary

Alien plant invasion is a major threat to biodiversity in national parks and nature reserves. Determining the relative influence of plant characteristics, number of alien plant seeds and availability of light, water and nutrients on weed invasion will indicate what prevention and control strategies should be used to combat invasive plants.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Western Australia

DE120100352 Laliberte, Asst Prof Etienne

Approved Project Title Understanding the origin and maintenance of megadiverse plant communities

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0602 ECOLOGY

DECRA Asst Prof Etienne Laliberte

Administering Organisation The University of Western Australia

Project Summary

South-western Australia hosts some of the most biologically diverse plant communities on Earth, and these occur on the most ancient, nutrient-impooverished soils. By studying coastal dunes of increasing age, this project will determine how megadiverse plant communities originate during long-term ecosystem development, and how they are maintained.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0603 EVOLUTIONARY BIOLOGY

Murdoch University

DE120101470 Godfrey, Dr Stephanie S

Approved Project Title Using social network models to understand the factors driving parasite transmission in bettong populations

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0603 EVOLUTIONARY BIOLOGY

DECRA Dr Stephanie S Godfrey

Administering Organisation Murdoch University

Project Summary

Parasitic diseases pose a significant threat to Australia's biodiversity. This project will apply the use of social networks models to understanding how different parasites are spread through endangered bettong populations.

DE120100107 Haile, Dr James

Approved Project Title Eggshells: genetic and biochemical information encapsulated

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0603 EVOLUTIONARY BIOLOGY

DECRA Dr James Haile

Administering Organisation Murdoch University

Project Summary

Tough, waterproof and impervious to decay, extraordinary eggshell can do more than just protect baby birds: DNA from eggshells helps wildlife officers to bust wildlife criminals, scientists to investigate the role of humans and climate change in bird extinctions, and conservationists to save our endangered birds.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The Australian National University

DE120101954 Greenhill, Dr Simon J

Approved Project Title **Discovering Trans-New Guinea: revealing the prehistory of New Guinea**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0603 EVOLUTIONARY BIOLOGY

DECRA Dr Simon J Greenhill

Administering Organisation The Australian National University

Project Summary

The third largest language family in the world is Trans-New Guinea spoken throughout New Guinea. The origins of this family are unknown. This project will uncover the history of these peoples by applying computational phylogenetic methods to data from these languages, leading to a deeper understanding of human prehistory in the Pacific.

The University of Adelaide

DE120102821 Schwensow, Dr Nina I

Approved Project Title **Molecular genetic adaptive processes in natural co-evolution between rabbits and the rabbit haemorrhagic disease virus**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0603 EVOLUTIONARY BIOLOGY

DECRA Dr Nina I Schwensow

Administering Organisation The University of Adelaide

Project Summary

This project will use extensive sampling and long-term field data to reveal ongoing co-evolutionary mechanisms behind the increasing resistance of pest Australian wild rabbits against a viral pathogen. The results will increase the understanding of evolutionary mechanisms in nature and will provide basic information for biological pest control of rabbits.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Melbourne

DE120102575 Telonis-Scott, Dr Marina

Approved Project Title Exploring new territory in climatic adaptation research: integrating molecular genetics with species' thermal tolerance limits

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0603 EVOLUTIONARY BIOLOGY

DECRA Dr Marina Telonis-Scott

Administering Organisation The University of Melbourne

Project Summary

Predicting species' responses to environmental change requires mechanistic links between whole-organism physiological stress responses and underlying cellular mechanics. This project integrates cutting-edge methods in molecular and evolutionary genetics to probe species' responses to environmental change in the context of a warming environment.

The University of New South Wales

DE120100957 Beck, Dr Robin M

Approved Project Title Using ancient fossils and new methods to unravel Australian mammal evolution in deep time

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0603 EVOLUTIONARY BIOLOGY

DECRA Dr Robin M Beck

Administering Organisation The University of New South Wales

Project Summary

This project will explore the evolution of Australia's unique mammal fauna by studying fossil mammals recently discovered at Tingamarra, a 55 million year old fossil site in north-eastern Queensland. In particular, it will help us understand the origin, radiation and diversification of Australia's iconic marsupials.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

DE120101126 Crean, Dr Angela J

Approved Project Title **More than meets the egg: environmental effects on sperm quality, sperm competitive success, and offspring fitness**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0603 EVOLUTIONARY BIOLOGY

DECRA Dr Angela J Crean

Administering Organisation The University of New South Wales

Project Summary

Can a male's environment affect his sperm quality and the health of his offspring? By experimentally testing how the paternal environment affects sperm quality, this project will help us understand (1) why sperm vary so much, and (2) what consequences variability in sperm quality has for paternity success and offspring fitness.

DE120100214 Kasumovic, Dr Michael M

Approved Project Title **Re-evaluating evolution by examining developmental plasticity in response to the social environment**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0603 EVOLUTIONARY BIOLOGY

DECRA Dr Michael M Kasumovic

Administering Organisation The University of New South Wales

Project Summary

Our understanding of trait evolution is derived from our assumption that traits are a signal of male quality as they are costly to produce. The project will integrate this concept with a new theory stating that males shift their development to exploit the weaknesses of rivals; thereby leading to a more holistic understanding of evolution.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

DE120100836 Turbill, Dr Christopher

Approved Project Title **Oxidative stress as a physiological constraint on the pace of life histories**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0603 EVOLUTIONARY BIOLOGY

DECRA Dr Christopher Turbill

Administering Organisation The University of New South Wales

Project Summary

The project will draw on several areas of biology to answer a fundamental question: which mechanisms underlie the link between vital processes, like growth and reproduction, and rates of biological ageing? This research is needed to understand the basis of trade-offs that cause some individuals or species to age faster than others.

DE120102034 Weisbecker, Dr Vera

Approved Project Title **How did mammals evolve large brains? A multidisciplinary view from the pouch**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0603 EVOLUTIONARY BIOLOGY

DECRA Dr Vera Weisbecker

Administering Organisation The University of New South Wales

Project Summary

This project applies novel data collection techniques to explain how the large brain sizes of today's mammals (including humans) are possible. The focus will be on brain structure, development, and evolution in the mostly Australian marsupials, whose ancestral mode of brain development makes them an ideal group for studies of brain size evolution.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0604 GENETICS

Commonwealth Scientific and Industrial Research Organisation

DE120101127 Huang, Dr Bevan E

Approved An integrated statistical genetics framework for breeding superior wheat varieties
Project Title

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0604 GENETICS

DECRA Dr Bevan E Huang

Administering Organisation Commonwealth Scientific and Industrial Research Organisation

Project Summary

Genetic studies in agriculture are rapidly increasing in size and complexity in pursuit of genes behind desirable traits such as yield and water use efficiency. This project will address the need for efficient statistical methods to analyse genetic data and thus enable production of wheat varieties that will contribute to Australian food security.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

Monash University

DE120100434 Furic, Dr Luc

Approved Project Title Estrogen-mediated regulation of gene expression via transcriptional and translational control: complementary, synergistic or opposing responses?

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0604 GENETICS

DECRA Dr Luc Furic

Administering Organisation Monash University

Project Summary

Hormones dictate cellular behaviour by activating pre-programmed responses. The sex hormone estrogen affects cell fate by regulating the gene expression, but it is unknown to which extent this response occurs via activation of genes or control of already transcribed gene. The project will investigate how the cell integrates the complex estrogen signals.

DE120101311 Jusuf, Dr Patricia

Approved Project Title Role of intrinsic versus extrinsic cues in cell type determination during development and regeneration

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0604 GENETICS

DECRA Dr Patricia Jusuf

Administering Organisation Monash University

Project Summary

During development all of the different cell types are generated by the action of genes and also signals from the embryo that read out which cell types are present or missing. This project studies how much environmental signals affect cell type generation developmentally and if they can be used to regenerate only the types missing in different diseases.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of New South Wales

DE120100723 Cropley, Dr Jennifer E

Approved Project Title The inheritance of epigenetic information in mammals

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0604 GENETICS

DECRA Dr Jennifer E Cropley

Administering Organisation The University of New South Wales

Project Summary

This project aims to understand how biological information can be passed from one generation to the next without being encoded in the genes. This may explain questions as diverse as why twins look subtly different and why some families are more likely than others to suffer disease.

The University of Queensland

DE120100668 Mason, Dr Annaliese S

Approved Project Title New Brassica crop species through evolutionary breeding

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0604 GENETICS

DECRA Dr Annaliese S Mason

Administering Organisation The University of Queensland

Project Summary

This projects aims to investigate natural mechanisms by which plants evolve into new species through hybridisation, using Brassica species (canola, cabbages and mustards) as a model. Understanding these processes will allow us to make new, widely adapted Brassica crop species for agricultural production.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

DE120102954 Smith, Dr Kelly A

Approved Project Title Identifying and understanding the genetic regulators of cardiac development

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0604 GENETICS

DECRA Dr Kelly A Smith

Administering Organisation The University of Queensland

Project Summary

The project aims to discover new genes involved in cardiac development so we can understand how to build a heart. Armed with this information, we can devise strategies for the repair of congenital and acquired heart disease.

DE120101916 Taft, Dr Ryan T

Approved Project Title Characterisation of nuclear-localised microRNAs

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0604 GENETICS

DECRA Dr Ryan T Taft

Administering Organisation The University of Queensland

Project Summary

This project is focused on a set of very small RNA molecules, called microRNAs that regulate genes activity. This project will likely redefine our understanding of microRNA-based gene regulation in complex animals, and may result in new RNA therapeutics for previously untreatable illnesses.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Sydney

DE120101615 Brandley, Dr Matthew C

Approved Project Title How does viviparity evolve? Genetic perspectives from a unique model system

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0604 GENETICS

DECRA Dr Matthew C Brandley

Administering Organisation The University of Sydney

Project Summary

By integrating decades of Australian natural history research with the same technology that allowed researchers to sequence the genome of the woolly mammoth, this project seeks to uncover the genetic mechanisms responsible for the transition from egg-laying to live-bearing in reptiles.

DE120102763 Hyland, Dr Edel M

Approved Project Title The contribution of histone post-translational modifications to eukaryotic evolution

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0604 GENETICS

DECRA Dr Edel M Hyland

Administering Organisation The University of Sydney

Project Summary

By comparing the complete DNA sequence of closely related species, it is possible to identify changes in DNA that account for the diversity between these species. The project will use this approach to ask whether DNA changes that influence how DNA itself is packaged into cells have contributed to the evolution of new yeast species.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0605 MICROBIOLOGY

Commonwealth Scientific and Industrial Research Organisation

DE120102166 Paradkar, Dr Prasad N

Approved Identification and characterisation of anti-viral immune response genes in mosquitoes
Project Title

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0605 MICROBIOLOGY

DECRA Dr Prasad N Paradkar

Administering Organisation Commonwealth Scientific and Industrial Research Organisation

Project Summary

Emerging viral diseases, transmitted by mosquito bite, present an increasing public health risk globally. Most research to date has neglected the infection dynamic in the insect vector. This project aims to characterise the defensive response of mosquitoes to viral infection, a potentially crucial factor in the epidemiology of vector-borne disease.

The University of Melbourne

DE120101730 Lee, Dr Erinna F

Approved Targeting cell death pathways in parasites
Project Title

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0605 MICROBIOLOGY

DECRA Dr Erinna F Lee

Administering Organisation The University of Melbourne

Project Summary

Schistosomiasis is a disease caused by parasitic worms. Due to the potential for drug resistance, new drugs are needed. This project aims to identify the components needed for parasite survival based on a cell death pathway in schistosomes. Neutralising the activities of these proteins should cause parasite death, providing a new treatment strategy.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of New South Wales

DE120101604 Barraud, Dr Nicolas

Approved Project Title Novel role for the universal signalling molecule nitric oxide within biofilm communities and across a biofilm-host interface

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0605 MICROBIOLOGY

DECRA Dr Nicolas Barraud

Administering Organisation The University of New South Wales

Project Summary

Biofilms on wet surfaces and tissues cause major problems by resisting antimicrobials. This project aims at exploiting how natural host response control systems alleviate biofilm build up and can be used to control biofilms in a non-toxic fashion. Countless environmental and clinical applications will benefit from reduced usage of antibiotics.

DE120102610 Lauro, Dr Federico

Approved Project Title The role of deep-sea microorganisms in nutrient cycling in the Southern Ocean

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0605 MICROBIOLOGY

DECRA Dr Federico Lauro

Administering Organisation The University of New South Wales

Project Summary

This project aims to learn how surface water microbes that are important in global nutrient cycling adapt to life when they sink to the deep sea. This will teach us about the roles that surface water and deep sea microbes play in maintaining the health of marine environments.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Queensland

DE120101213 Angly, Dr Florent E

Approved Project Title **Microbial buffering: protecting the Great Barrier Reef against anthropogenic impacts**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 0605 MICROBIOLOGY

DECRA Dr Florent E Angly

Administering Organisation The University of Queensland

Project Summary

Coral reefs are hotspots of diversity, but are susceptible to human activities such as agriculture and tourism. Novel molecular approaches will be used to characterise what microorganisms are found at polluted and non-polluted sites of the Great Barrier Reef lagoon and what metabolic pathways they use to protect it against human impacts.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0606 PHYSIOLOGY

Queensland University of Technology

DE120100282 Irving-Rodgers, Dr Helen F

Approved The formation and regulation of ovarian follicular fluid
Project Title

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0606 PHYSIOLOGY

DECRA Dr Helen F Irving-Rodgers

Administering Organisation Queensland University of Technology

Project Summary

At ovulation in mammals the egg and its surrounding fluid are released from the ovary, yet we understand very little about how fluid accumulates in the ovary in the first place. This project will for the first time discover how this fluid forms, and what controls its rate of formation.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

The University of Queensland

DE120101503 **Clemente, Dr Christofer J**

Approved Project Title **Design of a biologically inspired running and climbing robotic lizard**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0606 PHYSIOLOGY

DECRA Dr Christofer J Clemente

Administering Organisation The University of Queensland

Project Summary

Watch any movie and it will tell you that robots are the future. The trouble is that recent attempts to build running and climbing robots have had limited success. This project explores locomotion of lizards to improve upon shortfalls in current robotic design, to build biologically inspired robots capable of running and climbing up and down walls.

DE120102630 **Matthews, Dr Philip G**

Approved Project Title **The neurological correlates of periodic breathing in insects**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0606 PHYSIOLOGY

DECRA Dr Philip G Matthews

Administering Organisation The University of Queensland

Project Summary

While at rest many animals switch from breathing continuously to displaying long breath-hold periods between periods of ventilation. The neurological mechanisms responsible for generating this respiratory pattern will be investigated using insects that display a discontinuous pattern of breathing.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0607 PLANT BIOLOGY

La Trobe University

DE120100510 Fernando, Dr Denise R

Approved Project Title Manganese heavy metal toxicity in plants: new perspective on a neglected problem

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0607 PLANT BIOLOGY

DECRA Dr Denise R Fernando

Administering Organisation La Trobe University

Project Summary

This project addresses the current absence of Australian research into its agricultural problem of manganese (Mn) heavy metal toxicity. Novel Australian plants exhibiting extreme Mn tolerance, along with recent US findings on plant Mn toxicity will offer new insight benefiting agricultural research and the forecasting of climate change impacts.

Macquarie University

DE120100518 Zeppel, Dr Melanie J

Approved Project Title Shifting rainfall from spring to autumn: tree growth and water use under climate change

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0607 PLANT BIOLOGY

DECRA Dr Melanie J Zeppel

Administering Organisation Macquarie University

Project Summary

Managing Australia's variable water resources is imperative. When the timing of rain shifts, with decreases in spring and increases in autumn, is water use in plants similar to plants which experience only a spring drought? Understanding plant water use as the timing of rain shifts will help us manage Australia's water more effectively.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Queensland

DE120101706 Reef, Dr Ruth

Approved Project Title **Worth its salt: advancing knowledge of salinity tolerance with mangroves as a model system**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0607 PLANT BIOLOGY

DECRA Dr Ruth Reef

Administering Organisation The University of Queensland

Project Summary

This project aims to understand how salinity tolerance is achieved in mangroves, which are highly salt tolerant plants. Using a combination of physiological and gene expression technologies the project will measure the response of mangroves to elevated salinity and atmospheric carbon dioxide, contributing to the development of salt tolerant next generation crops.

DE120101412 Rosic, Dr Nedeljka

Approved Project Title **Understanding the biosynthesis of marine UV-absorbing compounds**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0607 PLANT BIOLOGY

DECRA Dr Nedeljka Rosic

Administering Organisation The University of Queensland

Project Summary

This project will result in an understanding of the pathways which underpin the ability of marine organisms to avoid stress that occurs due to ongoing climate change. Knowledge gained here will be important for the future protection of coral reefs.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Sydney

DE120102580 Hu, Dr Jia

Approved Project Title Water and carbon stable isotope exchange between the biosphere and atmosphere

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0607 PLANT BIOLOGY

DECRA Dr Jia Hu

Administering Organisation The University of Sydney

Project Summary

Understanding how climatic factors affect ecosystem carbon dioxide and water fluxes is essential for better climate models and managements strategies. This project will use novel isotope laser spectroscopy to measure the oxygen isotope of transpired water and that of the atmosphere to examine carbon dioxide and water at both the leaf and ecosystem scale.

The University of Western Australia

DE120103011 Dassanayake, Dr Maheshi

Approved Project Title Plant adaptation to extreme environments: a transcriptomic approach for crop improvement

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0607 PLANT BIOLOGY

DECRA Dr Maheshi Dassanayake

Administering Organisation The University of Western Australia

Project Summary

Native Australian plants have evolved to thrive under multiple environmental stresses such as drought, salinity, and severely nutrient impoverished soils that define the Australian biomes. This project will reveal genetic components consistently found in such species, literally opening a new gateway to greener pastures for Australian agriculture.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

DE120101117 Howell, Dr Katharine A

Approved Project Title Understanding the molecular machines making proteins essential for life: investigating specialisation of plastid ribosome composition and function

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 0607 PLANT BIOLOGY

DECRA Dr Katharine A Howell

Administering Organisation The University of Western Australia

Project Summary

Plastid ribosomes are complex molecular machines responsible for the production of proteins required for photosynthesis, a process which underlies global food and oxygen production. By determining if distinct plastid types have ribosomes that differ in both composition and function, the project could benefit biotechnological applications.

DE120101562 Price, A/Prof Charles A

Approved Project Title Quantifying the contribution of leaf vein networks to the leaf economics spectrum in native and agricultural species

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 0607 PLANT BIOLOGY

DECRA A/Prof Charles A Price

Administering Organisation The University of Western Australia

Project Summary

Using a combination of eco-physiological and geometric measures this project will evaluate the influence of leaf vein networks on leaf economics. It is expected that this work will identify vein investment and network design as major sources of variability underlying species adaptive strategies, and the global leaf economics spectrum as a whole.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

DE120102913 Pruzinska, Dr Adriana

Approved Project Title Dissecting proteolytic pathways that control chloroplast degradation and leaf senescence in *Arabidopsis thaliana*

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0607 PLANT BIOLOGY

DECRA Dr Adriana Pruzinska

Administering Organisation The University of Western Australia

Project Summary

Australian agriculture is threatened by worsening environmental conditions that cause premature ageing of plants leading to dramatic reductions in crop yields. This project aims to better understand plant senescence, thereby enabling the development of more robust and higher yielding crops.

DE120100307 Tanz, Dr Sandra K

Approved Project Title Determining organellar gene expression in distinct cell types: a missing piece of the puzzle for the transfer of C4 photosynthesis into C3 plants

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0607 PLANT BIOLOGY

DECRA Dr Sandra K Tanz

Administering Organisation The University of Western Australia

Project Summary

Enhancing photosynthesis in plants will boost yields in essential food crops, such as rice, and thus offers significant implications for satisfying an increasing global demand for food. This project will investigate the photosynthetic mechanisms that exist in known high performing crops, for application in plants used in adverse climates.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0608 ZOOLOGY

The Australian National University

DE120100019 Narendra, Dr Ajay

Approved Miniaturisation: sensory limitations and navigational competence
Project Title

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0608 ZOOLOGY

DECRA Dr Ajay Narendra

Administering Organisation The Australian National University

Project Summary

Body size in most animals correlates with behavioural competence, brain capacity and sensory receptors. But since the navigational challenges faced by animals both big and small are similar, this project aims to identify the sensory and behavioural costs of miniaturisation and the strategies animals have evolved to cope with it.

The University of Queensland

DE120101512 Hussain, Dr Malik M

Approved Investigating the interaction of microRNAs-Wolbachia-Dengue virus in the mosquito vector,
Project Title Aedes aegypti

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0608 ZOOLOGY

DECRA Dr Malik M Hussain

Administering Organisation The University of Queensland

Project Summary

This project focuses on using molecular techniques to discover fundamental roles of small RNA molecules (microRNAs) of a key mosquito vector in bacterial symbiosis and Dengue virus infection. It will lead to development of effective approaches in limiting spread of vector and transmission of life threatening viral diseases.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0707 VETERINARY SCIENCES

The University of Adelaide

DE120100390 Keirstead, A/Prof Natalie D

Approved Project Title Characterisation of collagenous lectins and their roles in ovine infectious diseases

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0707 VETERINARY SCIENCES

DECRA A/Prof Natalie D Keirstead

Administering Organisation The University of Adelaide

Project Summary

Specific proteins involved in immunity against infections will be studied in sheep to enhance their immune response against specific infections, such as ovine Johne's disease and footrot. This may lead to selective breeding of sheep that are more resistant to disease, minimising production losses and use of medications.

University of the Sunshine Coast

DE120101701 Mounsey, Dr Kate E

Approved Project Title A porcine model to provide new insights on scabies immunopathology

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0707 VETERINARY SCIENCES

DECRA Dr Kate E Mounsey

Administering Organisation University of the Sunshine Coast

Project Summary

Scabies is a poorly understood parasitic disease of medical and veterinary significance. This project will use a world-first experimental model to investigate the progression of host immune responses in scabies, which will enable the development of new control strategies for this neglected disease.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0801 ARTIFICIAL INTELLIGENCE AND IMAGE PROCESSING

Monash University

DE120101778 Awrangjeb, Dr Mohammad

Approved Building change detection and map update using multispectral imagery and height data
Project Title

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0801 ARTIFICIAL INTELLIGENCE AND IMAGE PROCESSING

DECRA Dr Mohammad Awrangjeb

Administering Organisation Monash University

Project Summary

This project will produce an effective building change detection procedure and a digital building map. Automatic building detection assists in taking possible precautions during natural disasters, whilst automatic building change detection facilitates an effective and efficient management of affected areas during and after the calamity.

Queensland University of Technology

DE120100995 Milford, Dr Michael J

Approved Visual navigation for sunny summer days and stormy winter nights
Project Title

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0801 ARTIFICIAL INTELLIGENCE AND IMAGE PROCESSING

DECRA Dr Michael J Milford

Administering Organisation Queensland University of Technology

Project Summary

This project will develop innovative techniques for camera-based navigation that recognise locations under a wide range of environmental conditions caused by day-night cycles, weather and seasonal change. These techniques will enable the widespread use of cheap and lightweight cameras in robot and personal navigation systems.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The Australian National University

DE120102948 Zhou, Dr Jun

Approved Project Title Interactive computer vision for image interpretation

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0801 ARTIFICIAL INTELLIGENCE AND IMAGE PROCESSING

DECRA Dr Jun Zhou

Administering Organisation The Australian National University

Project Summary

This project aims at pushing forward the fundamental research in interactive computer vision. The outcome of this project will enable reliable and efficient solutions to real world image interpretation tasks, such as medical image analysis, financial document processing, and impact evaluation from natural disasters.

The University of Adelaide

DE120101161 Shi, Dr Qinfeng J

Approved Project Title Compressive sensing based probabilistic graphical models (PGM)

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0801 ARTIFICIAL INTELLIGENCE AND IMAGE PROCESSING

DECRA Dr Qinfeng J Shi

Administering Organisation The University of Adelaide

Project Summary

The aim of the project is to develop fast, large scale probabilistic graphical models (PGM) learning and inference methods. The resulting system will be able to process large scale PGMs on a standard PC, and will be easily extendable to computer clustering for larger scale PGMs requiring higher precision.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Sydney

DE120102900 Hachey, Dr Benjamin C

Approved Project Title **WikiLinks: web-scale linking and fact extraction with Wikipedia**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0801 ARTIFICIAL INTELLIGENCE AND IMAGE PROCESSING

DECRA Dr Benjamin C Hachey

Administering Organisation The University of Sydney

Project Summary

Wikipedia is the most popular web site for finding facts, but articles about local or specialist topics are often missing or unreliable. WikiLinks will use artificial intelligence to link names in text to corresponding Wikipedia articles, allowing us to automatically create and augment Wikipedia content by summarising existing material on the web.

DE120103051 Ramos, Dr Fabio T

Approved Project Title **Data fusion and active sensing for environment monitoring**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0801 ARTIFICIAL INTELLIGENCE AND IMAGE PROCESSING

DECRA Dr Fabio T Ramos

Administering Organisation The University of Sydney

Project Summary

This project aims to create a novel statistical framework for data fusion that integrates elements of perception and machine learning for better understanding of natural phenomena. The outcome will be a methodology for the seamless integration of space-time correlated data that will revolutionise the use of multi-model information.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Western Australia

DE120102960 Sohel, Dr Ferdous A

Approved Project Title **Revocable multi-dimensional shape-based multimodal hand biometrics for personal identification and verification**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 0801 ARTIFICIAL INTELLIGENCE AND IMAGE PROCESSING

DECRA Dr Ferdous A Sohel

Administering Organisation The University of Western Australia

Project Summary

This project will investigate a new personal verification system based on hand biometrics. It will make significant improvements by thwarting identity frauds; creating trust in ebanking and epayments; providing social acceptance of biometrics; helping immigration and passport control; and reducing use of plastic cards to safeguard the environment.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0802 COMPUTATION THEORY AND MATHEMATICS

The University of New South Wales

DE120101761 Gaspers, Dr Serge

Approved Solving intractable problems: from practice to theory and back
Project Title

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0802 COMPUTATION THEORY AND MATHEMATICS

DECRA Dr Serge Gaspers

Administering Organisation The University of New South Wales

Project Summary

By analysing how theoretically intractable problems are solved in practice by highly optimised software solvers, this project aims at a better theoretical understanding of these problems. The gained mathematical insights will then be used to stimulate the development of new and improved software solvers.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0804 DATA FORMAT

University of South Australia

DE120100016 Nguyen, Dr Khoa D

Approved Project Title **Reliable transmission for wireless control**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0804 DATA FORMAT

DECRA Dr Khoa D Nguyen

Administering Organisation University of South Australia

Project Summary

While wireless communication can bring great benefits for control systems, current communication technologies are not competent. This project aims to revolutionise wireless control systems through novel communication strategies. The project will deliver fundamental theories and cutting-edge technologies for communications in control applications.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0806 INFORMATION SYSTEMS

Queensland University of Technology

DE120100776 Recker, A/Prof Jan

Approved Project Title **Designing process models to support communication and decision-making**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0806 INFORMATION SYSTEMS

DECRA A/Prof Jan Recker

Administering Organisation Queensland University of Technology

Project Summary

This project will develop guidelines to assist analysts in describing business processes by identifying theoretical factors of process model quality. The outcomes will make it easier to make informed decisions about process re-design, business innovation or software development, thus contributing to project cost savings and better processes.

The University of New South Wales

DE120102144 Zhang, Dr Wenjie

Approved Project Title **Continuously monitoring uncertain objects in a multi-dimensional space**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0806 INFORMATION SYSTEMS

DECRA Dr Wenjie Zhang

Administering Organisation The University of New South Wales

Project Summary

The project aims to develop novel, advanced techniques to continuously monitor uncertain objects. The success of the project not only brings breakthroughs in technology development but also provides training for high quality personnel in this important and growing area, and brings considerable economic and social benefits to Australia.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Queensland

DE120100508 Groza, Dr Tudor V

Approved Project Title A framework for building dynamic knowledge bases in the biomedical domain

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0806 INFORMATION SYSTEMS

DECRA Dr Tudor V Groza

Administering Organisation The University of Queensland

Project Summary

This project will provide clinicians and researchers with a semantics and time-aware technique, which will help them work together to build and maintain the knowledge required to support a better management and understanding of the mechanisms (for example, gene mutations) that affect diseases in any biomedical domain.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0901 AEROSPACE ENGINEERING

Queensland University of Technology

DE120100802 Mejias Alvarez, Dr Luis

Approved Developing novel concepts for improved safety in aircraft emergency situations
Project Title

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0901 AEROSPACE ENGINEERING

DECRA Dr Luis Mejias Alvarez

Administering Organisation Queensland University of Technology

Project Summary

The outcomes of this project will enable the creation of an emergency system that can improve visual situation awareness in emergency landing scenarios by investigating novel detection, control and planning algorithms. The project will contribute significantly to Australia's share in technologies for aircraft automation.

The University of Queensland

DE120102277 Ogawa, Dr Hideaki

Approved Design optimisation and physical behaviour of fuel injection and mixing for innovative
Project Title scramjet concepts

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0901 AEROSPACE ENGINEERING

DECRA Dr Hideaki Ogawa

Administering Organisation The University of Queensland

Project Summary

Scramjets are a potential game changer for satellite launch and high speed flight. The phenomena that will make or break them are complex, and achieving optimal designs is hugely challenging. This project combines advanced optimisation techniques and flow simulations to find, and understand, optimal fuel injection for innovative scramjet designs.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0903 BIOMEDICAL ENGINEERING

RMIT University

DE120101302 Tovar, Dr Francisco

**Approved Lab-on-a-chip platforms for hemodynamics research: new approaches for the study of blood
Project Title diseases**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0903 BIOMEDICAL ENGINEERING

DECRA Dr Francisco Tovar

Administering Organisation RMIT University

Project Summary

This project will use advanced microfluidic technologies to study how and why blood clotting occurs. New devices will be created that can precisely analyse the ability of blood to form clots and these will become powerful tools for the diagnosis of blood disorders and the research and validation of drugs for the treatment of these disorders.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0904 CHEMICAL ENGINEERING

The University of Melbourne

DE120101567 Lee, Dr Judy

**Approved Adding value to wastewater treatment - ultrasound enhanced crystallisation
Project Title**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0904 CHEMICAL ENGINEERING

DECRA Dr Judy Lee

Administering Organisation The University of Melbourne

Project Summary

The difficulty of disposing of concentrated liquid wastes is forcing industries to reassess their waste treatment processes and strive for zero liquid discharge. This project will add value to industrial waste by improving extraction of purified water and valuable solutes from such concentrates by combining ultrasound with crystallisation processes.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of New South Wales

DE120100960 Dong, Dr Kejun J

Approved Project Title **Simulation and characterisation of the packing of uniform non-spherical particles**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0904 CHEMICAL ENGINEERING

DECRA Dr Kejun J Dong

Administering Organisation The University of New South Wales

Project Summary

The effect of particle shape on the packing of uniform particles is a fundamental problem in the study of granular materials and is also related to other important scientific problems. This project aims to solve this problem by an innovative computer simulation method, using virtual but insightful numerical results to build solid theories.

DE120100329 Jiang, Dr Yijiao

Approved Project Title **Photocatalytic reduction of carbon dioxide with water into hydrocarbon fuels and chemicals**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0904 CHEMICAL ENGINEERING

DECRA Dr Yijiao Jiang

Administering Organisation The University of New South Wales

Project Summary

This project aims to develop a highly efficient photocatalytic process for converting CO₂ into hydrocarbon fuels and high value-added chemicals. This new technology can reduce CO₂ concentrations in the environment and provide a feasible mean to produce non-fossil fuels and industrial chemicals that society has to depend upon.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0905 CIVIL ENGINEERING

Monash University

DE120101913 Bai, Dr Yu

Approved Project Title Free-forming and function-integrated composite structures for future green building construction

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0905 CIVIL ENGINEERING

DECRA Dr Yu Bai

Administering Organisation Monash University

Project Summary

The free expression of structure in space is a constant pursuit for architects while being a complex task for engineers. Fibre-reinforced polymer sandwiches provide an ideal way to address this challenge. This project aims to develop a novel free-forming system using such elements and explore their thermal-energy-light multifunctional integration.

The University of Queensland

DE120100163 Pedroso, Dr Dorival d

Approved Project Title Modelling and simulation of instabilities in unsaturated soils due to wetting

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0905 CIVIL ENGINEERING

DECRA Dr Dorival d Pedroso

Administering Organisation The University of Queensland

Project Summary

Ground instabilities due to wetting are a critical issue that will be investigated through this project via the development of risk assessment tools. A rational engineering approach and calculation framework will be developed in order to predict failures and facilitate the design of new safer structures.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0906 ELECTRICAL AND ELECTRONIC ENGINEERING

The Australian National University

DE120102873 Bishop, Dr Adrian N

Approved Project Title **Securing networked control and estimation systems and safeguarding critical infrastructure**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0906 ELECTRICAL AND ELECTRONIC ENGINEERING

DECRA Dr Adrian N Bishop

Administering Organisation The Australian National University

Project Summary

The purpose of this project is to reduce the likelihood of success, and the severity of impact, of a cyber-attack against networked control and estimation systems operating within critical infrastructure. The outcome will be a suite of algorithms, tools and design considerations for networked, industrial, control systems that satisfy this purpose.

The University of Adelaide

DE120101494 Png, Dr Gretel M

Approved Project Title **Terahertz sensing of proteins associated with Alzheimer's disease**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0906 ELECTRICAL AND ELECTRONIC ENGINEERING

DECRA Dr Gretel M Png

Administering Organisation The University of Adelaide

Project Summary

This project aims to use terahertz radiation to study the proteins associated with Alzheimer's Disease (AD) in order to contribute towards the development of an accurate, non-invasive diagnostic tool. The project will increase our knowledge of the causes of AD, improve its diagnosis, and allow for better treatment to target the symptoms of AD.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Melbourne

DE120102012 Leong, Dr Alex S

Approved Project Title Estimation and control algorithms over wireless networks

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0906 ELECTRICAL AND ELECTRONIC ENGINEERING

DECRA Dr Alex S Leong

Administering Organisation The University of Melbourne

Project Summary

The use of wireless technologies in areas such as mobile communications has provided great benefits to society. Investigating estimation and control algorithms that are reliable when operating over the wireless environment will enable new technologies such as better management of Australia's water resources, and more fuel-efficient transportation.

The University of Western Australia

DE120101331 Munro, Dr Peter R

Approved Project Title Fundamental electromagnetic modelling of light-biological tissue interactions: a platform for future medical microscopy

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0906 ELECTRICAL AND ELECTRONIC ENGINEERING

DECRA Dr Peter R Munro

Administering Organisation The University of Western Australia

Project Summary

Methods for modelling the fundamental electromagnetic interaction of light with biological tissue will be developed. This will allow a range of biomedical optical images to be properly interpreted ultimately leading to the holy grail of quick and minimally invasive methods for detecting cancer.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0912 MATERIALS ENGINEERING

The University of New South Wales

DE120102644 Glaum, Dr Julia

Approved Project Title Fatigue degradation in lead-free piezoelectric ceramics: the key factor for successful industrial implementation

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0912 MATERIALS ENGINEERING

DECRA Dr Julia Glaum

Administering Organisation The University of New South Wales

Project Summary

Many everyday devices, that is mobile phones, operate with lead-based ceramics, which can be hazardous; although there are promising lead-free materials, these show complex electric behaviour which can lead to structural damage and device failure. This project will define the degradation mechanisms so that reliable non-toxic ceramics can be designed.

DE120102588 Laws, Dr Kevin J

Approved Project Title A fundamental approach to generating new classes of light-weight amorphous alloys based on liquid-metal structures

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0912 MATERIALS ENGINEERING

DECRA Dr Kevin J Laws

Administering Organisation The University of New South Wales

Project Summary

An innovative alloy design method that harnesses the stable building blocks of the liquid structure will be used to develop new light-weight magnesium, aluminium, silicon and titanium amorphous metals. These new alloys will exhibit ultrahigh-strength, corrosion-resistance and functionality offering a new alternative to high performance materials.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Sydney

DE120102778 Liddicoat, Dr Peter V

Approved Project Title **Enabling a new generation of advanced high-strength aluminium alloys through materials design**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0912 MATERIALS ENGINEERING

DECRA Dr Peter V Liddicoat

Administering Organisation The University of Sydney

Project Summary

This project will create an analysis-engine of novel atom-sensitive methods to unlock the materials science of hierarchy-strengthening. It will assist in determining how hierarchical structures evolve and synergistically strengthen a new generation of advanced high-strength aluminium alloys that are strong as steel, but a third the weight.

DE120102784 Tang, Dr Youhong

Approved Project Title **Water-swellable rubber with nanoparticle-enabled super capacity as smart water-leakage sealant**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0912 MATERIALS ENGINEERING

DECRA Dr Youhong Tang

Administering Organisation The University of Sydney

Project Summary

A novel water-swellable rubber (WSR) sealant with continuous hydrophobic phase and isolated hydrophilic phase is developed for stopping water leakage from gaps and cracks. Nanoparticle-enabled blocks and network channels in rubber matrix effectively improve the integrity and capability of WSR as smart water-leakage sealants in various applications.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

DE120102664 Xia, Dr Junhai

Approved Project Title A micro-compression study of aluminium alloys: establishing the nanoscale mechanisms of precipitate-induced strengthening to achieve stronger alloys

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0912 MATERIALS ENGINEERING

DECRA Dr Junhai Xia

Administering Organisation The University of Sydney

Project Summary

This project will study the strengthening mechanisms of aluminium alloys by directly observing how dislocations interact with solute nanostructures. The research will advance our knowledge of dislocation dynamics in precipitation-strengthening alloys, and provide a quantitative method for controlling those nanostructures to achieve higher strength alloys.

University of Wollongong

DE120101496 Huang, Dr Zhenguo

Approved Project Title Diammoniate of diborane for hydrogen storage

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 0912 MATERIALS ENGINEERING

DECRA Dr Zhenguo Huang

Administering Organisation University of Wollongong

Project Summary

The project will study diammoniate of diborane and its related compounds and systems for hydrogen storage. The research outcome will be extremely beneficial for the fundamental research and potential application of new compounds for hydrogen storage.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0913 MECHANICAL ENGINEERING

RMIT University

DE120101402 Khoshmanesh, Dr Khashayar

Approved Project Title Analysing cell-cell communication mechanisms using microfluidic platforms

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0913 MECHANICAL ENGINEERING

DECRA Dr Khashayar Khoshmanesh

Administering Organisation RMIT University

Project Summary

The project employs advanced micro-engineered systems to explore the communication of cells. Cells are patterned in close contact and stimulated with physical and chemical stimulus while their response is monitored in real-time. The findings elucidate how malfunctioned cells affect neighbouring cells and how diseases are propagated in tissues.

The University of Adelaide

DE120102052 Medwell, Dr Paul R

Approved Project Title Resolving flame stabilisation mechanisms in the transition to moderate or intense low oxygen dilution (MILD) combustion

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0913 MECHANICAL ENGINEERING

DECRA Dr Paul R Medwell

Administering Organisation The University of Adelaide

Project Summary

Next-generation combustion technologies are required in the transition to more efficient, and less polluting, energy production. This project will address the important issue of understanding flame stabilisation on a fundamental level to facilitate the design and development of more efficient and sustainable combustion systems.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Sydney

DE120102906 Zhou, Dr Shiwei

Approved Project Title **Topology optimisation for advanced engineered nanostructures**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 0913 MECHANICAL ENGINEERING

DECRA Dr Shiwei Zhou

Administering Organisation The University of Sydney

Project Summary

Advanced technological innovation requires extraordinary material properties, which can be generated directly from engineered nanostructures by manipulating surface plasmon resonances. The project will develop a new computational method for nanostructural design and expect to benefit aerospace, biomedical, optical and energy engineering fields.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

0915 INTERDISCIPLINARY ENGINEERING

Monash University

DE120100055 Rukhlenko, Dr Ivan D

Approved Project Title **Controlling light with nonlinear effects in silicon nanocrystals**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 0915 INTERDISCIPLINARY ENGINEERING

DECRA Dr Ivan D Rukhlenko

Administering Organisation Monash University

Project Summary

The project will help to promote in Australia the novel field of silicon nanophotonics, which is currently one of the most explored disciplines within the field of integrated optics. It will introduce innovative concepts for superior light control, which will keep Australia at the forefront of international research and frontier technologies.

The University of Queensland

DE120102942 Wheatley, Dr Vincent

Approved Project Title **The general Richtmyer-Meshkov instability in magnetohydrodynamics**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 0915 INTERDISCIPLINARY ENGINEERING

DECRA Dr Vincent Wheatley

Administering Organisation The University of Queensland

Project Summary

Fluid dynamic instabilities limit the chance of inertial confinement fusion, a carbon-free process, achieving net energy production. In highly idealised circumstances it has been shown that one of these instabilities can be suppressed by a magnetic field, a phenomenon that this project will investigate in the general case.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1003 INDUSTRIAL BIOTECHNOLOGY

The University of Queensland

DE120101549 Kroemer, Dr Jens O

Approved Project Title Creating a baker's yeast chassis cell via shikimate pathway engineering for production of sustainable, carbon-neutral plastic precursors for the future

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1003 INDUSTRIAL BIOTECHNOLOGY

DECRA Dr Jens O Kroemer

Administering Organisation The University of Queensland

Project Summary

From air bags to carpets, tyres and garden hoses, plastics shape our every day life. Coming from fossil fuels most are currently neither sustainable nor renewable. This project will engineer baker's yeast to produce plastic precursors from cane sugar in a fermentation process. This lays the basis for a sugar cane based chemical industry.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1005 COMMUNICATIONS TECHNOLOGIES

The University of Newcastle

DE120100246 Ong, Dr Lawrence

Approved Project Title Achieving high-speed wireless communication networks through joint channel and network coding

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1005 COMMUNICATIONS TECHNOLOGIES

DECRA Dr Lawrence Ong

Administering Organisation The University of Newcastle

Project Summary

This project will develop new coding techniques to increase the data transmission speed of wireless networks. The success of this project will enable a smooth migration from wired to wireless networks for applications that require high data speed like broadband Internet, high-definition video streaming, and health-monitoring system.

The University of Western Australia

DE120101266 Guo, Dr Qinghua

Approved Project Title Low-complexity factor-graph-based receiver design for bandwidth-efficient communication systems over doubly selective channels

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1005 COMMUNICATIONS TECHNOLOGIES

DECRA Dr Qinghua Guo

Administering Organisation The University of Western Australia

Project Summary

This project aims to solve challenging problems in future wireless communications using graph-based signal processing techniques. It will provide practical solutions for future broadband mobile communications to the bush and high-speed underwater acoustic communications in the oceans that are particularly important to Australia.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1007 NANOTECHNOLOGY

Commonwealth Scientific and Industrial Research Organisation

DE120102451 Falcaro, Dr Paolo

Approved Spatial control of nanoporous materials for microfabrication
Project Title

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1007 NANOTECHNOLOGY

DECRA Dr Paolo Falcaro

Administering Organisation Commonwealth Scientific and Industrial Research Organisation

Project Summary

Treatment of numerous medical conditions will be revolutionised by biomedical devices that can deliver or remove selected molecules in precise locations (for example oxygenation of tissues, release of antitumor agents, toxin neutralisation). New lithographic protocols will be developed to enable the use of nanoporous filters directly for such purposes.

Monash University

DE120101569 Bao, Dr Qiaoliang

Approved A novel graphene-based optical sensing platform
Project Title

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1007 NANOTECHNOLOGY

DECRA Dr Qiaoliang Bao

Administering Organisation Monash University

Project Summary

Graphene has extraordinary electronic and optical properties as well as large specific surface area which afford great potential for sensor applications. This project will develop an innovative sensing platform to bring graphene related materials and devices a step closer to practical applications, particularly in biochemical sensors.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

Swinburne University of Technology

DE120100291 Jia, Dr Baohua

Approved Project Title **Refractive index manipulation in photonic bandgap materials for highly efficient far-field three-dimensional nonlinear nanofocusing**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1007 NANOTECHNOLOGY

DECRA Dr Baohua Jia

Administering Organisation Swinburne University of Technology

Project Summary

The project will extend our fundamental knowledge and advance the science of functional negative-index materials. The outcome will address the great challenge of nanofocusing in an integrated optical system, leading to more powerful and energy sustainable systems beneficial for the green photonics and other industries.

The Australian National University

DE120100295 Hilder, Dr Tamsyn

Approved Project Title **Computational modelling of nanostructures designed to mimic ion-selective biological channels**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1007 NANOTECHNOLOGY

DECRA Dr Tamsyn Hilder

Administering Organisation The Australian National University

Project Summary

The project aims to design nanotubes (hollow tubes with nanometre diameters) constructed from various materials, such as carbon, to broadly mimic biological ion channels. This research will facilitate the development of efficient desalination membranes, potent antibiotics and pharmaceutical products for treatments of cancer and cystic fibrosis.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of New South Wales

DE120102967 Garg, Dr Shikha

Approved Project Title Interaction between silver ions, silver nanoparticles and reactive oxygen species: implication to toxicity

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1007 NANOTECHNOLOGY

DECRA Dr Shikha Garg

Administering Organisation The University of New South Wales

Project Summary

The project investigates the ability of various different (supported and stabilised) types of nanosized silver particles (SNPs) to oxidatively degrade selected contaminants and or kill microorganism. The project also aims to determine the effect of solution condition (for example pH) and light on SNP longevity and hence their oxidative capacity.

The University of Queensland

DE120102271 Pivrikas, Dr Almantas

Approved Project Title High performance organic optoelectronic devices - the role of charge carrier lifetime

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1007 NANOTECHNOLOGY

DECRA Dr Almantas Pivrikas

Administering Organisation The University of Queensland

Project Summary

Organic solar cells offer a sustainable solution to energy production helping to address the challenge of climate change. This project aims to understand the processes that control device performance and to improve solar cells based upon organic semiconductors with the potential to be extremely cheap, recyclable, and mechanically flexible.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

University of South Australia

DE120100042 Xu, Dr Haolan

Approved Project Title Study of oriented attachment of nanocrystals at oil-water interfaces

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1007 NANOTECHNOLOGY

DECRA Dr Haolan Xu

Administering Organisation University of South Australia

Project Summary

This project will study the fundamental issues for crystal growth, which will dramatically facilitate the development of effective pathways for the synthesis of advanced nanomaterials for nanodevice and nanotechnology. The obtained outcomes will enhance our knowledge in crystal growth and colloid sciences.

DE120101788 Zhou, Dr Jingfang

Approved Project Title Shape sorting of nanoparticles at oil-water interfaces in microchannels

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1007 NANOTECHNOLOGY

DECRA Dr Jingfang Zhou

Administering Organisation University of South Australia

Project Summary

This project aims to study the effect of shape on the adsorption of nanoparticles at an oil/water interface and develop a rapid, inexpensive, efficient, versatile method for shape sorting of nanoparticles using a microfluidic approach. This technique can be applied for fractionation of synthetic nanoparticles, biosample analysis and environmental monitoring.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1101 MEDICAL BIOCHEMISTRY AND METABOLOMICS

The University of Sydney

DE120102556 White, Dr Melanie Y

Approved Project Title The influence of crosstalk between protein post-translational modifications on the propagation of molecular signals

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1101 MEDICAL BIOCHEMISTRY AND METABOLOMICS

DECRA Dr Melanie Y White

Administering Organisation The University of Sydney

Project Summary

The ability of a cell to respond appropriately to its surroundings is a result of interactions between proteins and chemical modifiers termed post-translational modifications (PTM). This project will show how PTM interactions (competition/cooperation) influence cellular outcomes in response to changes in the environment.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1102 CARDIOVASCULAR MEDICINE AND HAEMATOLOGY

The University of Sydney

DE120102878 Chow, Dr Clara K

Approved Mobile phone text reminders to modify behaviours and prevent cardiovascular disease
Project Title

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1102 CARDIOVASCULAR MEDICINE AND HAEMATOLOGY

DECRA Dr Clara K Chow

Administering Organisation The University of Sydney

Project Summary

Strategies are needed to improve adherence to behavioural and medical preventative treatments for heart disease. Brief informative reminders sent via mobile phone text message have potential as a cheap and safe method of improving behavioural change and adherence to treatments in people at risk of cardiovascular disease.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1103 CLINICAL SCIENCES

Griffith University

DE120100402 Gillespie, Dr Brigid M

Approved The effectiveness of intervention in communication and safety climate in the operating room
Project Title

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1103 CLINICAL SCIENCES

DECRA Dr Brigid M Gillespie

Administering Organisation Griffith University

Project Summary

This project will evaluate the effectiveness of an educational intervention on teamwork behaviours in surgery. It will deliver beneficial effects for communication in service delivery, safety and patient care in support of health care in high risk environments.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1105 DENTISTRY

James Cook University

DE120101666 Ye, Dr Qingsong

**Approved Endogenous bone regenerative technique to repair hard tissue defects in congenital
Project Title craniofacial clefts**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1105 DENTISTRY

DECRA Dr Qingsong Ye

Administering Organisation James Cook University

Project Summary

This project aims to develop an endogenous bone regenerative technique to repair the bony defects in congenital craniofacial clefts, through stimulating patients' latent self-repair mechanisms and reviving their innate capacity for regeneration. The novel technique would replace the existing and controversial surgical bone grafting method.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1107 IMMUNOLOGY

Monash University

DE120100691 Jeffrey, Dr Kate L

Approved Argonaute proteins and the mammalian antiviral response
Project Title

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1107 IMMUNOLOGY

DECRA Dr Kate L Jeffrey

Administering Organisation Monash University

Project Summary

Awarded the Nobel Prize for Medicine in 2006, RNA interference (RNAi) is a natural process that plants use to attack viruses. Humans possess all of the tools for RNAi, but whether it is used for antiviral defense is unknown. This project aims to uncover this immune process which will open new avenues to treat virus infections, from influenza to HIV.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1108 MEDICAL MICROBIOLOGY

The University of Melbourne

DE120101340 Kennedy, Dr Catherine L

Approved Subversion of innate immune responses by pathogenic Escherichia coli
Project Title

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1108 MEDICAL MICROBIOLOGY

DECRA Dr Catherine L Kennedy

Administering Organisation The University of Melbourne

Project Summary

This project will determine how bacteria that cause diarrhoeal diseases prevent the immune system from signalling efficiently. It will provide important information not only about how the bacteria establish disease, but also provide insight into the host response in the early stages of infection.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1109 NEUROSCIENCES

Macquarie University

DE120100992 Farnham, Dr Melissa M

Approved Project Title **The role of neuropeptides driving plasticity in the control of blood pressure and breathing**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1109 NEUROSCIENCES

DECRA Dr Melissa M Farnham

Administering Organisation Macquarie University

Project Summary

This project aims to understand how pathways in the brain, that control blood pressure, develop 'memory' after repeated episodes of low oxygen, as occurs in sleep apnoea. Based on the assumption that long-lasting excitatory actions are responsible for this change in nerve behaviour this project will increase knowledge about how the brain controls blood pressure.

Monash University

DE120102883 Bakola, Dr Sofia

Approved Project Title **Understanding the function of a visual pathway to the limbic cortex**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1109 NEUROSCIENCES

DECRA Dr Sofia Bakola

Administering Organisation Monash University

Project Summary

This project will study an area located deep in the brain, about which very little is known. Based on recent studies, it is suspected that this area is important for visual perception. By understanding the patterns of electrical activity of cells in this region, the project aims to decipher its contribution to cognition and emotion.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Sydney

DE120102961 van Eersel, Dr Janet

Approved Project Title The role of the unfolded protein response in tau neurobiology and pathology

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1109 NEUROSCIENCES

DECRA Dr Janet van Eersel

Administering Organisation The University of Sydney

Project Summary

The main role of the protein tau is the stabilisation of the scaffolding of cells. In a group of dementias, tau forms abnormal clumps within the cells of the brain causing them to die. This project will investigate the cellular processes involved in normally preventing tau proteins from clumping and their role in the development of the abnormal tau clumps.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1111 NUTRITION AND DIETETICS

The University of Adelaide

DE120101807 Little, Dr Tanya J

**Approved Fat sensing in the oral cavity and gastrointestinal tract: role in the regulation of
Project Title gastrointestinal function and energy intake in health and obesity**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1111 NUTRITION AND DIETETICS

DECRA Dr Tanya J Little

Administering Organisation The University of Adelaide

Project Summary

This project will determine whether a reduced capacity to sense, or taste, the presence of fats in the oral cavity and the gastrointestinal tract diminishes the effects of fat on those aspects of gut function that regulate appetite and suppress energy intake. The project will, accordingly, provide important insights into the pathophysiology of obesity.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1113 OPTOMETRY AND OPHTHALMOLOGY

Queensland University of Technology

DE120101434 Read, Dr Scott A

Approved Project Title The role of outdoor activity in myopia development

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1113 OPTOMETRY AND OPHTHALMOLOGY

DECRA Dr Scott A Read

Administering Organisation Queensland University of Technology

Project Summary

It has recently been found that spending more time outdoors may reduce the risk of developing short sightedness. This project will examine the underlying basis of these associations and improve understanding of environmental factors involved in the cause of short sightedness, an eye problem that is a major cause of vision impairment globally.

The University of Melbourne

DE120101931 Bedggood, Dr Phillip A

Approved Project Title Functional imaging with cellular resolution in the living eye

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1113 OPTOMETRY AND OPHTHALMOLOGY

DECRA Dr Phillip A Bedggood

Administering Organisation The University of Melbourne

Project Summary

Adaptive optics allows the visualisation of individual cells and capillaries in the living human eye. This project will use adaptive optics to explore the normal function of these microscopic objects, and how this function changes in eyes suffering from disease. This will aid in developing new ways to diagnose and treat debilitating eye diseases.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1114 PAEDIATRICS AND REPRODUCTIVE MEDICINE

The University of Adelaide

DE120100304 Dunning, Dr Kylie R

Approved Project Title Biomimetic systems for species preservation and fertility restoration

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1114 PAEDIATRICS AND REPRODUCTIVE MEDICINE

DECRA Dr Kylie R Dunning

Administering Organisation The University of Adelaide

Project Summary

Using a novel 3-D culture system the project will examine the biomechanics of ovary follicle and egg development in vitro, generating new knowledge with directly translatable research outcomes. In vitro egg production has implications for human fertility and threatened species preservation, significantly benefitting health and biodiversity in Australia.

The University of Sydney

DE120100796 Walters, Dr Kirsty A

Approved Project Title Androgens and ovarian function

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1114 PAEDIATRICS AND REPRODUCTIVE MEDICINE

DECRA Dr Kirsty A Walters

Administering Organisation The University of Sydney

Project Summary

This innovative project aims to identify the role androgens play in the complex processes required for successful ovarian follicle development and ovulation. The project aims to identify androgen regulated pathways that orchestrate follicle development, which will have significance in the control of fertility and the advancement of reproductive technologies.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1115 PHARMACOLOGY AND PHARMACEUTICAL SCIENCES

Monash University

DE120103084 Bulitta, Dr Jurgen B

Approved Project Title Targeting bacterial superbugs: novel approaches for optimisation of antibiotic combinations and resistance prevention

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1115 PHARMACOLOGY AND PHARMACEUTICAL SCIENCES

DECRA Dr Jurgen B Bulitta

Administering Organisation Monash University

Project Summary

This project will elucidate the mechanistic basis to optimally combine available beta-lactam antibiotics to prevent resistance of gram-negative 'superbugs'. The interdisciplinary project will substantially contribute to solving the global crisis due to multidrug-resistant bacteria and inform the design of effective new antibiotics.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1117 PUBLIC HEALTH AND HEALTH SERVICES

Curtin University of Technology

DE120101640 Breen, Dr Lauren J

Approved Project Title **The caregiver bereavement study: determining the effect of caregivers' anticipatory grief on post-bereavement outcome**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1117 PUBLIC HEALTH AND HEALTH SERVICES

DECRA Dr Lauren J Breen

Administering Organisation Curtin University of Technology

Project Summary

The study discovers the 'true' impact of caregiving and is situated at the forefront of theoretical and methodological innovation. Furthermore, it will enhance the nation's capacity to provide appropriate services to caregivers pre- and post-bereavement which will promote the wellbeing of the large number of caregivers in our communities.

Deakin University

DE120101173 Ridgers, Dr Nicola D

Approved Project Title **Understanding patterns of physical activity in youth: exploring compensatory effects**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1117 PUBLIC HEALTH AND HEALTH SERVICES

DECRA Dr Nicola D Ridgers

Administering Organisation Deakin University

Project Summary

The promotion of physical activity to youth is a public health priority. This project will inform the development of physical activity promotion strategies by examining when children are active, why they are active, and how these patterns change following participation in physical activity or the restriction of sedentary behaviour.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

Monash University

DE120100536 McKinlay, Dr Audrey

Approved Project Title Early identification of young people at risk of offending behaviour and mental health issues following traumatic brain injury

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1117 PUBLIC HEALTH AND HEALTH SERVICES

DECRA Dr Audrey McKinlay

Administering Organisation Monash University

Project Summary

Traumatic brain injury is common during childhood and has been linked to increased rates of antisocial and criminal behaviour in young adults. Accurate methods for predication and identification are vital to enable appropriate interventions targeted at high risk youth to reduce offending rates and will be the focus of this research.

DE120101580 Smith, Dr Peter M

Approved Project Title The impact of the ageing workforce on work injury and compensation systems in Australia

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1117 PUBLIC HEALTH AND HEALTH SERVICES

DECRA Dr Peter M Smith

Administering Organisation Monash University

Project Summary

This project seeks to better understand important questions related to work injury and its consequences within the context of the ageing Australian labour market. These include understanding how occupational and age-related factors impact on the risk of work injury and if the relationship between age and recovery and safe return to work after injury.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Adelaide

DE120101502 Laurence, Dr Caroline O

Approved Project Title Planning the primary health care workforces: developing and implementing a needs-based approach

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1117 PUBLIC HEALTH AND HEALTH SERVICES

DECRA Dr Caroline O Laurence

Administering Organisation The University of Adelaide

Project Summary

Current approaches to workforce planning in Australia do not adequately take into account the future health care needs of the population, leading to expensive solutions. This project undertaken within primary health care will develop a needs-based health workforce planning model which will provide a better predictive model of future workplace requirements.

The University of Sydney

DE120101710 Tong, Dr Allison

Approved Project Title Protecting equity and ethics in organ donation: patient, public and professional perspectives

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1117 PUBLIC HEALTH AND HEALTH SERVICES

DECRA Dr Allison Tong

Administering Organisation The University of Sydney

Project Summary

This project will investigate patient, public and professional views on organ donation and preferences for consent systems regarding deceased organ donation in Australia, allocation of scarce organs, and protecting the health and safety of living organ donors. Recommendations to enhance equitable and ethical organ donation will be developed.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1302 CURRICULUM AND PEDAGOGY

Queensland University of Technology

DE120100569 Doherty, Dr Catherine A

Approved Project Title Classroom relations and moral order in compulsory non-academic pathways in high school and TAFE settings

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1302 CURRICULUM AND PEDAGOGY

DECRA Dr Catherine A Doherty

Administering Organisation Queensland University of Technology

Project Summary

All Australian states now require school students to stay at school until 17, unless employed, to promote their future participation in the economy. This project investigates whether this relatively simple solution creates new complex problems for teachers and students in their classroom relations in schools and TAFE colleges.

Summary of Successful Proposals for Discovery Early Career Research Award for Funding Commencing in 2012 by Primary FoR Group

1303 SPECIALIST STUDIES IN EDUCATION

Murdoch University

DE120101469 Thompson, Dr Greg

Approved Project Title **The effects of the National Assessment Program - Literacy and Numeracy on Australian School Communities**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1303 SPECIALIST STUDIES IN EDUCATION

DECRA Dr Greg Thompson

Administering Organisation Murdoch University

Project Summary

The National Assessment Program - Literacy and Numeracy is a significant part of Australian schooling for all stakeholders, but there is little research investigating claims of improved educational outcomes. This project examines the positive and negative effects of the National Assessment Program - Literacy and Numeracy testing on classroom pedagogy, curriculum and student learning through the experiences of teachers and parents.

The University of Queensland

DE120100086 Hardy, Dr Ian J

Approved Project Title **Teachers' learning in complex times: theorising teacher professional development practices under globalised policy conditions**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1303 SPECIALIST STUDIES IN EDUCATION

DECRA Dr Ian J Hardy

Administering Organisation The University of Queensland

Project Summary

This project investigates the effects of national standardised testing on the professional development practices of teachers in rural and urban schools in varied Socio-Economic Status communities in Australia. The project will indicate whether and how such testing influences teachers' learning, and subsequent student learning, in these different types of settings.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1401 ECONOMIC THEORY

The University of Queensland

DE120102640 Carbajal, Dr Juan C

**Approved Behavioural foundations of economic design for an uncertain world
Project Title**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1401 ECONOMIC THEORY

DECRA Dr Juan C Carbajal

Administering Organisation The University of Queensland

Project Summary

The aim of this project is to incorporate behavioural foundations into mechanism design to improve our understanding of economic institutions in incomplete information environments. To accomplish this goal, it considers a framework where agents have reference-dependent preferences and explores implications of this assumption for economic design.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1402 APPLIED ECONOMICS

Monash University

DE120101588 Islam, Dr Asadul

Approved Project Title **The impact of aggregate and idiosyncratic shocks and uncertainties: do immigrants behave differently than the native-born?**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1402 APPLIED ECONOMICS

DECRA Dr Asadul Islam

Administering Organisation Monash University

Project Summary

The project will examine the role of shocks/uncertainties on differences in consumption, savings and labour supply of immigrant and native-born indigenous and non-indigenous population. The results will help guide the formulation of immigration/integration policy, and facilitate the design of programs in response to shocks and financial crises.

DE120101106 Olivia, Dr Susan

Approved Project Title **Economic rise and decline - as seen from space**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1402 APPLIED ECONOMICS

DECRA Dr Susan Olivia

Administering Organisation Monash University

Project Summary

This research evaluates the accuracy of night-light based measures of local economic change. Satellite images of night-light cover the entire inhabited regions of the world, thus establishing whether these data can be used to supplement traditional measures of economic activity in countries with weak statistical systems would be a global public good.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

Queensland University of Technology

DE120101270 Page, Dr Lionel

Approved Project Title **The behavioural birthdate effect: the impact of relative position within cohorts on risk aversion, self-confidence and aspiration levels**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1402 APPLIED ECONOMICS

DECRA Dr Lionel Page

Administering Organisation Queensland University of Technology

Project Summary

The 'birthdate effect' describes the phenomenon where children born just after the school entry cut off date are more successful in life than those born just before. This project will study why these children make very different life choices, those born just after the cut-off date are expected to take greater risks and have higher self esteem.

The Australian National University

DE120101426 Tang, Dr John P

Approved Project Title **Understanding industrialisation, entrepreneurship, and technology adoption in emerging economies: new evidence from historical Japanese firms**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1402 APPLIED ECONOMICS

DECRA Dr John P Tang

Administering Organisation The Australian National University

Project Summary

Japan's pre-war industrialisation is widely used as a model by emerging economies, despite a lack of detailed data. This project provides a new firm-level dataset from hitherto unused archives, which allows empirical testing of theories about entrepreneurial activity, technology adoption, financial access, and other determinants of economic growth.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Adelaide

DE120100635 Brueckner, Dr Markus

Approved Project Title The effects of international commodity price shocks on state fragility

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1402 APPLIED ECONOMICS

DECRA Dr Markus Brueckner

Administering Organisation The University of Adelaide

Project Summary

This project examines the effects that commodity price shocks have on state fragility in developing countries. Outcomes that will be analysed include, but are not limited to, the transition from autocracy to democracy, the stability of democracy, the risk of civil conflict, food riots, and the survival probability of dictators.

The University of Western Australia

DE120102593 Birch, Dr Elisa R

Approved Project Title New household economics and the earnings and labour supply of Indigenous Australians

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1402 APPLIED ECONOMICS

DECRA Dr Elisa R Birch

Administering Organisation The University of Western Australia

Project Summary

By linking individuals' labour market outcomes with those of their family members and studying career progress, the project provides new insights on the factors that determine labour supply and earnings for Indigenous Australians. It will also offer a foundation for recommendations for overcoming Indigenous Australian's labour market disadvantages.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

University of Technology, Sydney

DE120102589 Dong, Ms Mei

Approved Project Title **Monetary policy and models of money, credit and banking**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1402 APPLIED ECONOMICS

DECRA Ms Mei Dong

Administering Organisation University of Technology, Sydney

Project Summary

This project develops models with money and credit following recent developments in monetary theory with microfoundations. The objectives of the project are to understand the fundamental functions of credit, how credit affects the aggregate economy, and how credit affects the transmission of monetary policy.

University of Wollongong

DE120101642 Siminski, Dr Peter M

Approved Project Title **Army service, employment incentives and veterans' life outcomes: a natural experiment**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1402 APPLIED ECONOMICS

DECRA Dr Peter M Siminski

Administering Organisation University of Wollongong

Project Summary

This project will analyse the complex long-run effects of Australia's conscription ballots on the lives of conscripts and their families. Treating the ballots as 'natural experiments', it will consider direct effects of army service, including service in Vietnam and the effects of incentives created by veterans' compensation on a range of outcomes.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1403 ECONOMETRICS

Monash University

DE120101130 Li, Dr Degui

Approved New models and estimation methods in nonlinear panel data econometrics
Project Title

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1403 ECONOMETRICS

DECRA Dr Degui Li

Administering Organisation Monash University

Project Summary

This project will develop new econometric models and methods for capturing dynamic and complex relationships within economic and social systems. The outcomes of this project are expected to improve policy making process concerning climate change, economy and financial markets, through providing accurate estimates of relationships of interest.

The University of New South Wales

DE120100748 Panchenko, Dr Valentyn

Approved Robust inference for behavioural models in economics and finance
Project Title

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1403 ECONOMETRICS

DECRA Dr Valentyn Panchenko

Administering Organisation The University of New South Wales

Project Summary

The project will develop novel methodology to estimate behavioural models in economics and finance, which may give better insights on economic development. Knowledge gained from this project will be useful for Australian industries, banks, investment funds and the government for the effective formulation of their business strategies and policies.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

1502 BANKING, FINANCE AND INVESTMENT

Bond University

DE120101523 Henker, A/Prof Julia

Approved Project Title Impeding the bubble: evidence from experimental asset markets

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1502 BANKING, FINANCE AND INVESTMENT

DECRA A/Prof Julia Henker

Administering Organisation Bond University

Project Summary

We employ an innovative experimental design to investigate factors that are intended to prevent asset price bubbles and crashes. Our results will aid in developing strategies to avoid the devastating effects of a stock market crash like the recent global financial crisis.

The Australian National University

DE120101452 Akhtar, Dr Mahmuda S

Approved Project Title New approach to testing Merton's intertemporal asset pricing model to enhance risk management and reduce complexity in financial markets globally

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1502 BANKING, FINANCE AND INVESTMENT

DECRA Dr Mahmuda S Akhtar

Administering Organisation The Australian National University

Project Summary

Asset mispricing during the global meltdown caused \$127 trillion losses worldwide. This novel, forefront asset pricing approach will enable vastly improved understanding of financial market risk-return trade-offs, thereby allowing more informed advice to investors, vital to Australia's aging population who rely so critically on their investments.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of New South Wales

DE120100501 Tian, Dr Yuan G

Approved Project Title The Advising Boards, corporate risk-taking and firm performance

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1502 BANKING, FINANCE AND INVESTMENT

DECRA Dr Yuan G Tian

Administering Organisation The University of New South Wales

Project Summary

Corporate governance, in particular the role of corporate boards, has been at the centre of recent regulatory reforms. To advance our understanding on the advising role of boards, this project examines boardroom social connections, entrepreneur directors, and how the advising boards contribute to corporate risk management and firm performance.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1503 BUSINESS AND MANAGEMENT

University of Technology, Sydney

DE120103017 Lumineau, Dr Fabrice

Approved Project Title **The dynamics of contractual and relational governance in inter-organisational relationships**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1503 BUSINESS AND MANAGEMENT

DECRA Dr Fabrice Lumineau

Administering Organisation University of Technology, Sydney

Project Summary

Organisations are relying increasingly on partnerships and alliances to achieve competitive advantage both locally and globally. This project examines how these relationships are governed by focusing on the interplay between the contractual/legal dimensions and relational/personal dimensions of the firms' interactions.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1505 MARKETING

University of Wollongong

DE120102003 Randle, Dr Melanie

**Approved More foster carers for children in need: understanding heterogeneity among Australian foster
Project Title carers to increase recruitment and placement success**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1505 MARKETING

DECRA Dr Melanie Randle

Administering Organisation University of Wollongong

Project Summary

This project improves the ability of foster care organisations to attract the particular types of carers best suited to the children needing homes. More suitable carers will give foster children a healthier start to life, reduce the chances of developing antisocial behaviours and increase the chances of become contributing members of society.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1506 TOURISM

University of Western Sydney

DE120101072 Waterton, Dr Emma L

Approved Photos of the past: the negotiation of identity and belonging at Australian tourism sites
Project Title

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1506 TOURISM

DECRA Dr Emma L Waterton

Administering Organisation University of Western Sydney

Project Summary

This project will explore the way visitors construct and express identity at a range of tourism sites in Australia. Focussing upon the practices of photography, the research will provide a detailed analysis of negotiations of belonging, which in turn may be used to facilitate debate over the pressing contemporary issue of national cohesion.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1601 ANTHROPOLOGY

The Australian National University

DE120100824 Bulloch, Dr Hannah

Approved Project Title Intimate relationships and the politics of personhood in the Philippines

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1601 ANTHROPOLOGY

DECRA Dr Hannah Bulloch

Administering Organisation The Australian National University

Project Summary

Through the lens of young women's intimate relationships on Siquijor Island, Philippines, this project seeks to understand better changing norms of sociality in a globalising world. This project focuses on transgressive relationships which, as instances of rule-breaking, highlight implicit social expectations of inter-personal connection and obligation.

DE120100720 Kral, Dr Inge B

Approved Project Title Connecting, communicating and learning through new media: Indigenous youth and digital futures in remote Australia

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1601 ANTHROPOLOGY

DECRA Dr Inge B Kral

Administering Organisation The Australian National University

Project Summary

This project examines the sociocultural and linguistic implications of digital technologies in remote Indigenous Australia. It will provide new perspectives to support policy development for youth engagement in the digital economy, as well as cultural and educational insights that will provide an important theoretical contribution to international youth media research.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Melbourne

DE120100394 Kowal, Dr Emma

Approved Project Title From scientific specimen to Indigenous cultural property: the collection and use of Indigenous DNA samples since the 1960s

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1601 ANTHROPOLOGY

DECRA Dr Emma Kowal

Administering Organisation The University of Melbourne

Project Summary

This anthropological and historical project will explore the provenance and present use of DNA samples collected from Aboriginal and Torres Strait Islander Australians. It will produce a new conceptual framework that will inform the conduct of genetic research in Indigenous communities and the governance of Indigenous sample collections and biobanks.

The University of Sydney

DE120100503 High, Dr Holly

Approved Project Title Desire and the political field: decision-making and political moralities from 'culture village' to Vientiane, Laos

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1601 ANTHROPOLOGY

DECRA Dr Holly High

Administering Organisation The University of Sydney

Project Summary

This project critically assesses the 'culture village' model of development currently adopted by the Government of Laos. The project seeks to understand the logic of this development model, assess its impacts on the ethnic Katu village residents, and use these insights to develop an analysis of culture and development in modern state and decision making.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1602 CRIMINOLOGY

Griffith University

DE120101206 McGee, Dr Tara R

Approved Project Title **Offending across the life-course: testing developmental and life-course theories of crime**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1602 CRIMINOLOGY

DECRA Dr Tara R McGee

Administering Organisation Griffith University

Project Summary

There are many different explanations for why people start and stop offending. This project will draw on a range of Australian and international data to determine which explanations provide the most accurate description of why people engage in offending and the processes which lead offenders to stop offending.

Monash University

DE120100626 Eriksson, Dr Anna

Approved Project Title **Otherring in penal policy and practice: a cross-national study of imprisonment in Australia and Sweden**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1602 CRIMINOLOGY

DECRA Dr Anna Eriksson

Administering Organisation Monash University

Project Summary

This is a comparative project between Australia and Scandinavia, focusing on prisons and practices of punishment. Based on innovative normative theory, it will propose a model of practice that can reduce violence and disorder in prisons, lead to a safer work environment for staff, and more humane treatment of prisoners.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1603 DEMOGRAPHY

La Trobe University

DE120101037 Wilmsen, Dr Brooke D

Approved After the deluge: revisiting displacement and resettlement at the Three Gorges Dam, China
Project Title

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1603 DEMOGRAPHY

DECRA Dr Brooke D Wilmsen

Administering Organisation La Trobe University

Project Summary

The three Gorges Dam project in China displaced 1.13 million people. This project will investigate what happened to those evicted and draw lessons for the nations and institutions that operationalise the displacement of some 10 million people each year.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1604 HUMAN GEOGRAPHY

The Australian National University

DE120102279 Bissell, Dr David J

Approved Stressed mobilities: understanding the significance of the commute for city-workers
Project Title

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1604 HUMAN GEOGRAPHY

DECRA Dr David J Bissell

Administering Organisation The Australian National University

Project Summary

Commuting stress is a much-vaunted but little-understood part of life in many Australian cities. This project is the first of its kind which grapples with how the stresses and strains of travel to and from work emerge, play out through home and work life, and impact on the longer-term well-being of city workers.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1605 POLICY AND ADMINISTRATION

Griffith University

DE120102428 Steele, Dr Wendy E

Approved Project Title **Securing the Australian city: the governance of critical infrastructure in climate change**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1605 POLICY AND ADMINISTRATION

DECRA Dr Wendy E Steele

Administering Organisation Griffith University

Project Summary

This project focuses on the securitisation and governance of critical urban infrastructure (that is energy, water, transport, communication) within the context of climate change. The research examines how critical infrastructure is framed as a key security issue, and the implications for climate governance in Australian cities.

The Australian National University

DE120102787 Tienhaara, Dr Kyla S

Approved Project Title **Building a green economy? The politics of green infrastructure stimulus in the wake of the global financial crisis**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1605 POLICY AND ADMINISTRATION

DECRA Dr Kyla S Tienhaara

Administering Organisation The Australian National University

Project Summary

A considerable amount of government stimulus spending following the Global Financial Crisis was directed to 'green infrastructure'. This project analyses the successes and failures of several countries' green stimulus packages. Results will inform policy on future public investment in infrastructure that will be needed to address climate change.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Sydney

DE120100798 Howard-Wagner, Dr Deirdre E

Approved Project Title Indigenous societies, governance and wellbeing: a study of Indigenous community success in addressing disadvantage and promoting wellbeing

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1605 POLICY AND ADMINISTRATION

DECRA Dr Deirdre E Howard-Wagner

Administering Organisation The University of Sydney

Project Summary

This is the first in-depth place-based Australian study of Indigenous community 'success' in overcoming disadvantage and promoting well being across all seven National Indigenous Reform Agreement (Closing the Gap) 'building blocks'. It will provide invaluable insights about the relationship between Indigenous governance and wellbeing in Australia.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1606 POLITICAL SCIENCE

Griffith University

DE120101026 Kim, Dr Hun Joon

Approved Project Title Does transitional justice make a difference? Implications for the Asia-Pacific region

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1606 POLITICAL SCIENCE

DECRA Dr Hun Joon Kim

Administering Organisation Griffith University

Project Summary

Despite the proliferation of human rights prosecutions and truth commissions, scholars know very little about whether such measures are actually effective in discouraging future human rights violations. This project answers this question by assessing the impact of human rights prosecutions and truth commissions on human rights practices.

DE120101090 Vivoda, Dr Vlado

Approved Project Title The politics of megadeals in the extractive industries

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1606 POLITICAL SCIENCE

DECRA Dr Vlado Vivoda

Administering Organisation Griffith University

Project Summary

This project aims to determine why some attempted large mergers and acquisitions in the oil and gas industry and mining industries succeed and others fail. It will identify and analyse key factors which have shaped the outcome of major attempted deals in the extractive industries over the past decade.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

La Trobe University

DE120101021 Anceschi, Dr Luca

Approved Project Title Islam and foreign policy

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1606 POLITICAL SCIENCE

DECRA Dr Luca Anceschi

Administering Organisation La Trobe University

Project Summary

This project explains the link between Islam and foreign policy, to illuminate ideological foreign policy making in the post-Cold War era. It also unveils crucial decision making dynamics in the political systems of key actors of the contemporary Greater Middle East, a strategically crucial region for Australia.

The Australian National University

DE120100401 Burges, Dr Sean W

Approved Project Title The Brazilian National Bank for Economic and Social Development (BNDES), foreign policy and the internationalisation of Brazil

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1606 POLITICAL SCIENCE

DECRA Dr Sean W Burges

Administering Organisation The Australian National University

Project Summary

This project explores the role of the Brazilian National Development Bank (BNDES) in inciting the internationalisation of Brazilian firms and the expansion of Brazil's foreign policy across the global South. It critically examines Brazil's engagement with Bolivia, Paraguay, Angola and Mozambique, asking how Brazil is being received and perceived.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of New South Wales

DE120100300 Faulkner, Dr Joanne

Approved Project Title **The politicised child in postcolonial community: a political ontology of childhood and memory examined through cases in Australia and Canada**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1606 POLITICAL SCIENCE

DECRA Dr Joanne Faulkner

Administering Organisation The University of New South Wales

Project Summary

The project investigates the meaning and use of childhood in recent political and social movements, such as the 'Stolen Generations' in Australia and sterilised children in Canada. This research will contribute to current debates about the need for reconciliation, and to Australia's international profile in the field of political philosophy.

The University of Sydney

DE120100213 Konings, Dr Martijn

Approved Project Title **The rise of the United States Federal Reserve**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1606 POLITICAL SCIENCE

DECRA Dr Martijn Konings

Administering Organisation The University of Sydney

Project Summary

Over the past decades, the United States central bank (the 'Federal Reserve') has emerged as one of the most important institutions in not only the American but also the global political economy. This project investigates the mechanisms of its operation and advances a new explanation for its rise to power.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1608 SOCIOLOGY

The University of Sydney

DE120102813 Banki, Dr Susan R

Approved Refugee activism and social movements: the transformation of homeland politics
Project Title

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1608 SOCIOLOGY

DECRA Dr Susan R Banki

Administering Organisation The University of Sydney

Project Summary

This project examines the shape of political activism when refugees move from situations of protracted conflict to Australia. Findings will inform our understanding of refugees as levers for political change.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1699 OTHER STUDIES IN HUMAN SOCIETY

The Australian National University

DE120101838 Haberkorn, Dr Tyrell C

Approved Project Title Impunity and state violence in Thailand

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1699 OTHER STUDIES IN HUMAN SOCIETY

DECRA Dr Tyrell C Haberkorn

Administering Organisation The Australian National University

Project Summary

This project will detail the complexities of the legal and extrajudicial challenges to democracy in Thailand, one of Australia's strategically and economically important Southeast Asian neighbours. The results will offer new historical and theoretical insights on how impunity for state violence affects state formation and nation-building.

The University of Western Australia

DE120101702 Dales, Dr Laura

Approved Project Title Beyond the family: relationships of intimacy in contemporary Japan

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1699 OTHER STUDIES IN HUMAN SOCIETY

DECRA Dr Laura Dales

Administering Organisation The University of Western Australia

Project Summary

In Japan the average age at first marriage is increasing, more people are remaining unmarried and overall women and men spend proportionately more of their life single. This project examines the roles that relationships outside of marriage, particularly friendships, play for Japanese women and men in light of these broad changes.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1701 PSYCHOLOGY

Macquarie University

DE120100235 Clemens, Dr Kelly J

Approved Project Title A novel approach to modelling nicotine dependence in the rat

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1701 PSYCHOLOGY

DECRA Dr Kelly J Clemens

Administering Organisation Macquarie University

Project Summary

With repeated exposure, tobacco smoking can rapidly develop into a habit. How this happens is poorly understood. This project will model the changes to the brain and behaviour of rats during the development of nicotine-seeking habits with a view to better understanding how to reduce tobacco dependence.

DE120100814 Cox, Dr Rochelle E

Approved Project Title Hypnotic illusions and clinical delusions: how closely and usefully can hypnosis model delusional beliefs?

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1701 PSYCHOLOGY

DECRA Dr Rochelle E Cox

Administering Organisation Macquarie University

Project Summary

Hypnosis has been used to recreate 'temporary delusions' in the laboratory but there has been controversy about the value of this approach. The purpose of this project is to examine how closely and usefully hypnosis models clinical delusions and its outcomes may guide the development of more effective treatments.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

DE120100898 Woolgar, Dr Alexandra

Approved Project Title **The brain that adapts itself - flexible processing in an ever-changing world**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1701 PSYCHOLOGY

DECRA Dr Alexandra Woolgar

Administering Organisation Macquarie University

Project Summary

To cope with the changing world around us, our brains must constantly adapt themselves, reconfiguring an incredibly complex system to produce flexible behaviour. This project will develop innovative brain imaging techniques and use them to examine this process in vision, fundamental for understanding the human brain, and advancing neuroscience in Australia.

Murdoch University

DE120101029 Thomas, Dr Emma F

Approved Project Title **Responding to humanitarian emergencies: mass generosity as collective action**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1701 PSYCHOLOGY

DECRA Dr Emma F Thomas

Administering Organisation Murdoch University

Project Summary

The world has witnessed a string of disasters that, at times, appear to have pushed the human capacity for generosity to its limits. This ground-breaking psychological research explores ways to help government and nongovernment agencies to build broader support in Australian society for efforts to respond to humanitarian emergencies.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The Flinders University of South Australia

DE120100907 Loetscher, Dr Tobias

Approved Project Title **The brain, maths and space: their interaction in health and disease**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1701 PSYCHOLOGY

DECRA Dr Tobias Loetscher

Administering Organisation The Flinders University of South Australia

Project Summary

This project investigates how thinking about numbers affects how we think about the space that surrounds us - and vice versa. Investigations of commonalities in the neural and cognitive processing of space and numbers may lead to the development of innovative therapies for people suffering from attentional disorders after brain damage.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Melbourne

DE120101743 Gogos, Dr Andrea

Approved Project Title Estrogens and schizophrenia: animal studies

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1701 PSYCHOLOGY

DECRA Dr Andrea Gogos

Administering Organisation The University of Melbourne

Project Summary

The female hormone, estrogen, plays a role on the reproductive system but is also involved in neurological and psychiatric disorders. Estrogen has been shown to be protective against schizophrenia, but the mechanism underlying this effect is unknown. This project aims to elucidate the brain mechanisms by which estrogens exert their action.

DE120100110 Kim, Dr Jee Hyun

Approved Project Title Extinction of drug-seeking in adolescent rats

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1701 PSYCHOLOGY

DECRA Dr Jee Hyun Kim

Administering Organisation The University of Melbourne

Project Summary

To investigate the ontogeny of drug abuse and its treatment, acquisition and treatment of drug-seeking behaviour will be examined in adolescent rats. I expect that adolescent rats will fail to inhibit drug-seeking behaviour, and show immaturity in cortical brain areas. Increasing cortical activity may rescue their ability to inhibit drug-seeking.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of New South Wales

DE120101945 Denson, Dr Thomas F

Approved Project Title Anger and aggression in psychological time and space

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1701 PSYCHOLOGY

DECRA Dr Thomas F Denson

Administering Organisation The University of New South Wales

Project Summary

Perceptions of time and space fundamentally influence how we think, feel, and behave; yet their effects on aggression remain unknown. This project will identify how perceptions of time and space can increase and decrease aggressive behaviour between groups and individuals.

The University of Queensland

DE120102068 Barlow, Dr Fiona K

Approved Project Title Negative intergroup contact has a stronger impact on intergroup attitudes than does positive contact: explaining racism and attitudinal homeostasis

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1701 PSYCHOLOGY

DECRA Dr Fiona K Barlow

Administering Organisation The University of Queensland

Project Summary

The present research aims to demonstrate that the impact of positive intergroup contact can be 'trumped' by negative intergroup contact. This project will help to explain the continued presence of racism in Australia and across the world, and elucidate the observed pattern that as ethnic diversity increases in an area, so does prejudice.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

DE120100535 **Baumann, Dr Oliver**

Approved Project Title **The role of the human cerebellum in perceptual processes**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1701 PSYCHOLOGY

DECRA Dr Oliver Baumann

Administering Organisation The University of Queensland

Project Summary

Our brains are constantly bombarded with sensory information. This project will determine how a particular brain structure, the cerebellum, regulates the perception of our environment. The project will also contribute to a better understanding of deficits in disorders that have been linked to cerebellar abnormality such as autism.

DE120100653 **Marinovic, Dr Welber**

Approved Project Title **The predictive brain and control of anticipatory actions**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1701 PSYCHOLOGY

DECRA Dr Welber Marinovic

Administering Organisation The University of Queensland

Project Summary

The ability to predict events in a dynamic environment is an important skill for survival as it can guide our actions when time pressures are severe. How predictions come about to guide our actions is not clear and project results will have great theoretical significance to understand how we generate them.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

DE120101119 Robinson, Dr Gail A

Approved Project Title **The critical executive processes involved in translating ideas into spoken language for conversational speech**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1701 PSYCHOLOGY

DECRA Dr Gail A Robinson

Administering Organisation The University of Queensland

Project Summary

This project will investigate the critical cognitive pathways, and supporting brain areas, involved in speaking for meaning. This will enable better diagnosis of communication disorders in neurological conditions, such as stroke, and identification of methods for delaying dementia by maintaining and enhancing conversational skills in older adults.

DE120100359 Zacher, Dr Hannes

Approved Project Title **Intergenerational demands as a double-edged sword in the work context**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total **\$375,000.00**

Primary FoR 1701 PSYCHOLOGY

DECRA Dr Hannes Zacher

Administering Organisation The University of Queensland

Project Summary

Due to rapid population ageing, an increasing number of Australian workers will need to provide care to older people or mentor younger workers and successors. This project investigates how personal and organisational resources can reduce negative outcomes and maximise positive outcomes of intergenerational demands in the work context.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

DE120100562 Zietsch, Dr Brendan P

Approved Project Title Investigating the evolution of human traits and the maintenance of heritable individual differences

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1701 PSYCHOLOGY

DECRA Dr Brendan P Zietsch

Administering Organisation The University of Queensland

Project Summary

This project will use twin studies, statistical genetics, and experimental methods to investigate genetic and environmental influences on evolutionarily relevant human traits. This will help reveal how human traits evolved and why all individuals are genetically different despite Darwinian selection favouring only the most advantageous genes.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Western Australia

DE120101006 Jackson, Dr Ben

Approved Project Title Understanding and increasing high school girls' physical activity levels through a physical education-based research program

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1701 PSYCHOLOGY

DECRA Dr Ben Jackson

Administering Organisation The University of Western Australia

Project Summary

Currently, less than 15% of early-teenage Australian girls meet exercise recommendations. This project will identify new ways in which physical education can promote physical activity, and will provide practical methods for increasing girls' activity levels, helping to reduce future health risks such as obesity, diabetes, and heart disease.

DE120101334 Roach, Dr Neil W

Approved Project Title Sensory prediction: the role of forward modelling in visual processing

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1701 PSYCHOLOGY

DECRA Dr Neil W Roach

Administering Organisation The University of Western Australia

Project Summary

Because of motion, patterns of light received by our eyes contain inherent structure across space and time, a fact which the brain exploits to form predictions about future patterns of visual input. This project will determine how these predictions are constructed from motion signals system and what role they play in visual processing.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

University of Tasmania

DE120100729 Hinder, Dr Mark R

Approved Project Title Brain connectivity during movement planning and execution in young and older adults

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 1701 PSYCHOLOGY

DECRA Dr Mark R Hinder

Administering Organisation University of Tasmania

Project Summary

Ageing is associated with a reduced ability to undertake everyday movement tasks, resulting in loss of independence and frequent injuries due to falls. This research will improve our understanding of the brain mechanisms underlying movement control, with the aim of maintaining older people's quality of life and reducing health costs to the nation.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1702 COGNITIVE SCIENCE

The University of Adelaide

DE120102378 Perfors, Dr Amy F

Approved What shapes the structure of language? An experimental and computational investigation
Project Title

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1702 COGNITIVE SCIENCE

DECRA Dr Amy F Perfors

Administering Organisation The University of Adelaide

Project Summary

How do people learn language so easily, and how is the structure of language shaped by our learning biases? This project attempts to answer these questions through an innovative combination of experimental and computational tools, with implications for technological development as well as educational interventions for both children and adults.

University of Western Sydney

DE120101289 Shaw, Dr Jason A

Approved How we know who is talking: talker-distinctiveness in speech timing
Project Title

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1702 COGNITIVE SCIENCE

DECRA Dr Jason A Shaw

Administering Organisation University of Western Sydney

Project Summary

The goal of the project is to understand the cognitive mechanisms that underpin the human ability to recognise both words and talkers in speech. The project will produce a pan-Australian model of speech timing and employ it to predict how easily talkers can recognise each other.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1799 OTHER PSYCHOLOGY AND COGNITIVE SCIENCES

The University of Melbourne

DE120102304 Rogers, Dr Juliet A

Approved The quality of remorse in Northern Ireland and South Africa - implications for Australia
Project Title

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1799 OTHER PSYCHOLOGY AND COGNITIVE SCIENCES

DECRA Dr Juliet A Rogers

Administering Organisation The University of Melbourne

Project Summary

This project examines remorse as discussed by South Africans after Apartheid, survivors of The Troubles in Northern Ireland and the Stolen Generation in Australian. The project will provide insight into what survivors of trauma require from individual and institutional perpetrators in order to move on after periods of conflict and persecution.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1801 LAW

The University of New England

DE120100694 Kennedy, Dr Amanda L

Approved Effective systems for managing intractable natural resource use conflict
Project Title

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1801 LAW

DECRA Dr Amanda L Kennedy

Administering Organisation The University of New England

Project Summary

This project aims to understand the role of the law as an actor in disputes over the exploration and exploitation of natural resources. It will examine how patterns of conflict over natural resources develop, advancing knowledge of dispute resolution approaches that account for the influence of legal structures and dynamics upon conflict.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1904 PERFORMING ARTS AND CREATIVE WRITING

Monash University

DE120100050 Watt, Dr Paul E

Approved Project Title Innovation and reform in the theory and practice of musical criticism in late Victorian England to the 1920s

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1904 PERFORMING ARTS AND CREATIVE WRITING

DECRA Dr Paul E Watt

Administering Organisation Monash University

Project Summary

Musical criticism as we understand it today was an invention of the nineteenth century. This study is the first to examine the origins of musical criticism its birth and its development in context of late Victorian England.

The University of New South Wales

DE120101192 Hooper, Dr Michael J

Approved Project Title Australian modernism in compositions by Butterley, Conyngham, Edwards, Meale and Sculthorpe

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1904 PERFORMING ARTS AND CREATIVE WRITING

DECRA Dr Michael J Hooper

Administering Organisation The University of New South Wales

Project Summary

The years from 1965 to 1973 saw Australia's musical avant-garde flourish, when Australian musical modernism reached its zenith. This project analyses significant works in the Modernist tradition, from some of Australia's best known composers: Nigel Butterley, Barry Conyngham, Ross Edwards, Richard Meale and Peter Sculthorpe.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

1999 OTHER STUDIES IN CREATIVE ARTS AND WRITING

The University of Western Australia

DE120100423 Zurr, Asst Prof Ionat

Approved Project Title Tissue engineered muscle actuators as evocative cultural objects and vehicles for discourses about material agency and living machines

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 1999 OTHER STUDIES IN CREATIVE ARTS AND WRITING

DECRA Asst Prof Ionat Zurr

Administering Organisation The University of Western Australia

Project Summary

This interdisciplinary project will be examining shifting perceptions of what is living through case study of a vital-machine; tissue engineered muscle actuators in custom made bioreactors. It will further discourses about posthumanist perceptions of movement as an indicator for life with agency; suggesting new knowledge and modes of inquiry of material life.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

2001 COMMUNICATION AND MEDIA STUDIES

Swinburne University of Technology

DE120102114 Wilken, Dr Rowan C

Approved The cultural economy of locative media
Project Title

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 2001 COMMUNICATION AND MEDIA STUDIES

DECRA Dr Rowan C Wilken

Administering Organisation Swinburne University of Technology

Project Summary

This project will examine the cultural and economic aspects of locative media. It will generate a new understanding of location-based media consumption practices and businesses, and it will contribute to policy development, especially around issues of privacy.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

2002 CULTURAL STUDIES

The University of Sydney

DE120101196 Black, Dr Prudence S

Approved Project Title A modern profession: the Australian air hostess/flight attendant 1936 - 1984

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 2002 CULTURAL STUDIES

DECRA Dr Prudence S Black

Administering Organisation The University of Sydney

Project Summary

This project describes the emergence of a new profession in Australia: the air hostess/flight attendant. It documents and analyses the recruitment and working experience of flight attendants with the aim of acknowledging their contribution to the industry, and analysing how their life at work helped forge a modern image of Australia and Australian women.

University of South Australia

DE120101763 Caluya, Dr Gilbert

Approved Project Title Burqas, borders and babies: intimate citizenship in postcolonial Australia

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 2002 CULTURAL STUDIES

DECRA Dr Gilbert Caluya

Administering Organisation University of South Australia

Project Summary

Anti-Muslim sentiment across the globe is increasingly expressed on the grounds that Muslims are misogynistic, raising questions about Muslims' intimate relations. This project will investigate the ways that Muslim intimacy has become a site of political contestation in Australia with implications for migrant security and border security.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

2004 LINGUISTICS

La Trobe University

DE120102017 Schnell, Mr Stefan

**Approved Typology of language use: quantitative investigations of discourse from endangered
Project Title languages**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 2004 LINGUISTICS

DECRA Mr Stefan Schnell

Administering Organisation La Trobe University

Project Summary

This project investigates striking similarities in information management across under-studied, non-European languages with varying grammatical patterns. Employing an innovative quantitative methodology to the study of natural language usage, this is a foundational research project in the emergent field of text-based language typology.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

2005 LITERARY STUDIES

Queensland University of Technology

DE120101948 Hateley, Dr Erica J

Approved Project Title Who wins? Who loses? - The social values of Australian children's book awards

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 2005 LITERARY STUDIES

DECRA Dr Erica J Hateley

Administering Organisation Queensland University of Technology

Project Summary

This is the first critical evaluation of the books selected by the Children's Book Council of Australia in their annual 'Book of the Year' awards. These books are present in libraries, schools, and bookstores across Australia. This project examines the extent to which these books promote particular social values to contemporary Australian children.

The Australian National University

DE120102604 Ricci, Dr Ronit

Approved Project Title The Sri Lankan Malays: Islam, literature, and Diaspora across the Indian Ocean

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 2005 LITERARY STUDIES

DECRA Dr Ronit Ricci

Administering Organisation The Australian National University

Project Summary

This project on Sri Lanka's Malays will expand our knowledge of the history of trans-local Islam in our region in the period preceding the nation state. Knowing more about mobility, migration, and displacement during an earlier era will help us conceptualise these pressing contemporary issues.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Sydney

DE120101591 Searle, Dr Alison A

Approved Project Title Religious nonconformity and performance in Britain (circa 1620-1680)

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 2005 LITERARY STUDIES

DECRA Dr Alison A Searle

Administering Organisation The University of Sydney

Project Summary

This project analyses the ways in which religious nonconformity was practised in 17th Century Britain and its relationship to dramatic performance. Its theoretical approach focuses on audience, space, dissimulation, conversion and belief; knowledge of proscribed religion and performance is increased through its application to historical case-studies.

DE120101359 Young, Dr Helen V

Approved Project Title Imagining diversity: race and ethnicity in popular fantasy

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 2005 LITERARY STUDIES

DECRA Dr Helen V Young

Administering Organisation The University of Sydney

Project Summary

How do fantasy worlds represent and reconstruct real world approaches to racial and cultural difference? This project examines the ways reader and writers of popular culture think and talk about race and ethnicity, offering insight into contemporary discourses of diversity and an essential window into Australia's multicultural society.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

2101 ARCHAEOLOGY

The Australian National University

DE120100069 Calo, Dr Ambra

**Approved The archaeology of the north coast of Bali: a strategic crossroads in early trans-Asiatic
Project Title exchange**

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 2101 ARCHAEOLOGY

DECRA Dr Ambra Calo

Administering Organisation The Australian National University

Project Summary

New archaeological excavations on the north coast of Bali and a comparative study of materials across Southeast Asia aim to document the growth of Trans-Asiatic exchange networks during the Late Metal Age, and particularly the strategic significance of Bali and eastern Indonesia for the trade in spices that linked Asia with the Mediterranean.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

2102 CURATORIAL AND RELATED STUDIES

Deakin University

DE120100315 Isakhan, Dr Benjamin

Approved Project Title Measuring the destruction of heritage and spikes of violence in Iraq

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 2102 CURATORIAL AND RELATED STUDIES

DECRA Dr Benjamin Isakhan

Administering Organisation Deakin University

Project Summary

This project addresses the relationship between heritage destruction and violence in Iraq since 2003. Employing an innovative methodological approach, the project is expected to generate new understandings of the complex inter-relationship that exists between the destruction of cultural heritage and sharp upsurges in terror and violence.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

2103 HISTORICAL STUDIES

La Trobe University

DE120101854 Jones, Dr Timothy W

Approved Project Title **Whose family values? the Christian right and sexual politics in postsecular Australia**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 2103 HISTORICAL STUDIES

DECRA Dr Timothy W Jones

Administering Organisation La Trobe University

Project Summary

This project will expand knowledge of the relationship between sexuality and religion in 'post-secular Australia'. It will show how connections between religion, sex, love and romance have evolved in the recent historical past and advance cultural understanding of conflicts between religious liberty and sexual discrimination.

Monash University

DE120100474 Clulow, Dr Adam

Approved Project Title **Perilous embassies: diplomatic encounters between Europe and Asia, 1600-1800**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 2103 HISTORICAL STUDIES

DECRA Dr Adam Clulow

Administering Organisation Monash University

Project Summary

This project examines a series of European embassies dispatched to the most powerful states in Asia and uses them to reassess the nature of the global encounter between Europe and Asia in the early modern period.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The Australian National University

DE120100786 Jones, Dr Caroline R

Approved Project Title Slow catastrophes: drought resilience amongst farmers and agricultural communities in south eastern Australia, 1880s-2000s

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 2103 HISTORICAL STUDIES

DECRA Dr Caroline R Jones

Administering Organisation The Australian National University

Project Summary

Drought is a profound shaper of rural society. This project will explore the way rural Australians have adapted to, and survived, drought in Australian history. Understanding human resilience in drought in the past will contribute to developing strategies for coping with drought and global climate change in the future.

The University of Melbourne

DE120102132 Kobayashi, Dr Ai

Approved Project Title Australia-Japan relations between 1945 and 1957: the Japanese perspective

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 2103 HISTORICAL STUDIES

DECRA Dr Ai Kobayashi

Administering Organisation The University of Melbourne

Project Summary

This project reassesses Australia-Japan relations by analysing the Japanese perspective during the period of normalisation of bilateral relations between 1945 and 1957. It sheds new light on the history of Australia-Japan relations and enriches understanding of the nature and scope of Australian-Japanese relations.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of New South Wales

DE120100593 Ford, Dr Lisa M

Approved Project Title Protecting the peace: protectors and the legal transformation of the British Empire, 1820-1850

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 2103 HISTORICAL STUDIES

DECRA Dr Lisa M Ford

Administering Organisation The University of New South Wales

Project Summary

This project will examine the impact of two new imperial offices, the Protector of Slaves and Protector of Aborigines on the legal constitution of the British Empire at a moment of rapid transformation. It will show these offices operated both as new weapons both of legal imperialism and of intimate colonial governance.

The University of Sydney

DE120101493 Kim, Dr Hyun Jin

Approved Project Title The transfer of global hegemony: geopolitical revolutions in world history

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 2103 HISTORICAL STUDIES

DECRA Dr Hyun Jin Kim

Administering Organisation The University of Sydney

Project Summary

Global hegemony is shifting from West to East. This project seeks to highlight another titanic shift in global power that saw the transfer of hegemony from the Turco-Mongol Empires of Inner Asia to Western Europe, which will also have important ramifications for managing our transition into a new phase in world history.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

DE120102771 **Pietsch, Dr Tamson**

Approved Project Title **Global republics: universities and the origins of the knowledge economy**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 2103 HISTORICAL STUDIES

DECRA Dr Tamson Pietsch

Administering Organisation The University of Sydney

Project Summary

The new kinds of global connection that emerged in the late 19th century refashioned the world of knowledge and ideas, creating international spaces of intellectual production and exchange. This project examines the history and development of these 'global republics' and considers their role in the foundation of today's knowledge economy.

DE120100604 **Tovias de Plaisted, Dr Blanca I**

Approved Project Title **Entangled colonialisms: First Nations women of the American-Canadian borderlands, 1880-1940**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 2103 HISTORICAL STUDIES

DECRA Dr Blanca I Tovias de Plaisted

Administering Organisation The University of Sydney

Project Summary

This project re-writes the history of indigenous women in the Northwestern Plains of North America during the first six decades following settlement on reservations. It contributes to a better understanding of shifting colonialisms across the Canadian-United States border, and of the colonial experience of indigenous peoples.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

University of Wollongong

DE120101731 Steel, Dr Frances M

Approved Project Title Oceanic crossings: cultures of trans-Pacific passenger shipping in the age of steam, circa 1880-1960

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 2103 HISTORICAL STUDIES

DECRA Dr Frances M Steel

Administering Organisation University of Wollongong

Project Summary

This project investigates the connections between images of the Pacific, transoceanic mobility and shipboard cultures in the wake of the industrial transport revolution. It will come to a new understanding of the ways in which links were forged and sustained between Australia, the Pacific Islands and North America throughout the twentieth century.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

2201 APPLIED ETHICS

The University of Melbourne

DE120100488 McDougall, Dr Rosalind J

Approved Project Title	When should health professionals override parents' decisions about a child's medical treatment?
-----------------------------------	--

2012	\$125,000.00
------	--------------

2013	\$125,000.00
------	--------------

2014	\$125,000.00
------	--------------

Total	\$375,000.00
--------------	---------------------

Primary FoR 2201 APPLIED ETHICS

DECRA Dr Rosalind J McDougall

Administering Organisation The University of Melbourne

Project Summary

Doctors and nurses sometimes disagree with parents' decisions about the best treatment for a sick child. This project will establish the ethical responsibilities of both parents and health professionals in relation to medical decision-making for children.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

2202 HISTORY AND PHILOSOPHY OF SPECIFIC FIELDS

The University of Queensland

DE120102308 Lam, Dr Vincent

Approved Project Title The physical and metaphysical foundations of structural realism

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 2202 HISTORY AND PHILOSOPHY OF SPECIFIC FIELDS

DECRA Dr Vincent Lam

Administering Organisation The University of Queensland

Project Summary

The aim of this project is to develop a general conception of nature that accounts for the central features of contemporary fundamental physics. It will provide a comprehensive conceptual framework for understanding the fundamental physical features of the world.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Sydney

DE120102368 Boantza, Dr Victor D

Approved Project Title **The making of the modern chemist: struggles within Enlightenment science**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 2202 HISTORY AND PHILOSOPHY OF SPECIFIC FIELDS

DECRA Dr Victor D Boantza

Administering Organisation The University of Sydney

Project Summary

The project will reinterpret the emergence of modern chemistry by challenging the iconic revolution-centred approach to the history of early modern science. Examining scientific successes alongside crises and revolutionaries alongside reactionaries, the project will chart chemists' long struggle for disciplinary independence in the Enlightenment.

DE120102402 Nassar, Dr Dalia

Approved Project Title **Nature and culture in German Romantic philosophy and environmental philosophy**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 2202 HISTORY AND PHILOSOPHY OF SPECIFIC FIELDS

DECRA Dr Dalia Nassar

Administering Organisation The University of Sydney

Project Summary

In light of the recent scholarship on the philosophical significance of German romanticism, this project will provide the first study that focuses on the relation between nature and culture in German romantic philosophy. It will also initiate a dialogue on the potential of German romantic ideas to address concerns within environmental philosophy.

**Summary of Successful Proposals for Discovery Early Career Researcher
Award for Funding Commencing in 2012 by Primary FoR Group**

2203 PHILOSOPHY

Macquarie University

DE120102055 Bullo, Dr Nicolas J

Approved Project Title Agent tracking and its disorders: a theory of the cognitive mechanisms, errors, and ethics involved in the identification of human individuals

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 2203 PHILOSOPHY

DECRA Dr Nicolas J Bullo

Administering Organisation Macquarie University

Project Summary

This project will develop and test a multidisciplinary theory of the means used by people and social institutions to gather information about human individuals. Its expected outcome is a better understanding of the successes and errors in tracking and identifying individuals and of the ethical issues related to such processes of identification.

DE120100320 Formosa, Dr Paul C

Approved Project Title Dignity and respect: a Kantian theoretical approach to practical rationality and human agency

2012 \$125,000.00

2013 \$125,000.00

2014 \$125,000.00

Total \$375,000.00

Primary FoR 2203 PHILOSOPHY

DECRA Dr Paul C Formosa

Administering Organisation Macquarie University

Project Summary

A core component of living a fulfilling human life is having one's dignity practically acknowledged. This project will explore what dignity is, its philosophical basis and its practical implications for bioethics; the outcomes will be to improve our understanding of human dignity and to enhance Australia's international reputation in philosophy.

Summary of Successful Proposals for Discovery Early Career Researcher Award for Funding Commencing in 2012 by Primary FoR Group

The University of Melbourne

DE120102543 Weber, Dr Zach

Approved Project Title **Models of paradox in non-classical mereotopology**

2012	\$125,000.00
2013	\$125,000.00
2014	\$125,000.00
Total	\$375,000.00

Primary FoR 2203 PHILOSOPHY

DECRA Dr Zach Weber

Administering Organisation The University of Melbourne

Project Summary

Logical paradoxes have beset our best philosophical theories for millennia. In the strong tradition of Australian philosophical logic, this project will test the hypothesis that paradoxes are conceptual boundaries. Mathematical models provide a formal explanatory picture, telling us why there are logical paradoxes at all.