## Queensland

## The University of Queensland

**LE0882507** Prof DJ Carter; Prof JA Hay; Prof RA Fotheringham; Dr L Dale; Mr KG Webster; Ms J Huggins; Ms KM Kilner; Prof BH Bennett; Prof PR Eggert; Mr JF Arnold; Prof RW Dixon; Prof EA Webby; Mr RH Coleman; Mr P Minter; Prof CM Bradford; Ms AH Horn; Prof W Ommundsen; Dr E Blackmore; A/Prof CM Taylor; Asst Prof RA Phiddian; A/Prof TA Bunda; Dr P Mead; Prof DJ Haskell; Dr TN Burrows; Ms DM Bird; Prof KM Mallan; Prof AJ Patterson; Ms CD Young

**Approved Project Title** **AustLit Phase Two: Research Infrastructure for Humanities and Education Researchers**

**2008 :** $ 500,000

**Primary RFCD** 4202 LITERATURE STUDIES

**Partner Organisations & Collaborating Organisations**

The University of Queensland
The University of New South Wales
Monash University
The University of Sydney
University of Wollongong
The Flinders University of South Australia
The University of Western Australia
Deakin University
James Cook University
University of Tasmania
Queensland University of Technology

**Administering Organisation** The University of Queensland

**Project Summary**

The benefits of delivering a fully mature research and information facility to the education and research sectors and the general public will accrue over time by providing discovery and analysis opportunities to large numbers of enquirers. The capacity to reveal the wealth and diversity of a nation's cultural activities across its history is an inherent good and the resulting research activities will encourage a greater engagement with Australia's literary culture of the present and the past.

**LE0882219** Prof HJ Chenery; Prof NG Martin; Prof DH Shum; Prof GS Halford; Dr GI de Zubicaray; Dr DA Copland; Dr MJ Wright; Dr AP Bradley; Dr SP Finnigan; Dr TR Cutmore

**Approved Project Title** **Infrastructure for an integrated cognitive neurophysiological research facility: Mapping the neurobiology of memory and language.**

**2008 :** $ 100,000

**Primary RFCD** 3801 PSYCHOLOGY

**Partner Organisations & Collaborating Organisations**

The University of Queensland
Queensland Institute of Medical Research
Griffith University

**Administering Organisation** The University of Queensland

**Project Summary**

The Integrated Cognitive Neurophysiological Research Facility will enhance Australia's national research capacity in cognitive neuroscience by enabling large numbers of researchers and graduate students to investigate the neuroscience of memory and language in a collaborative, multi-disciplinary research environment. The facility will deliver national benefits by uncovering the ways in which areas of the brain are used to remember events and process language. This information can then be used to understand how damage to the brain (such as in stroke or disease) can disrupt memory and language and subsequently lead to more effective neurorehabilitation techniques.

**LE0883096** Dr JJ De Voss; Dr CM Williams; Dr RP McGeary; Prof I Toth; Prof DP Fairlie; A/Prof LR Gahan; Dr JT Blanchfield; Prof CJ Easton; Prof MG Banwell; Prof LN Mander; Prof SB Wild; Dr MS Sherburn

**Approved Project Title** **Analytical and Preparative Enantioselective Chromatography**

**2008 :** $ 600,000

**Primary RFCD** 2503 ORGANIC CHEMISTRY

**Partner Organisations & Collaborating Organisations**

The University of Queensland
The Australian National University

**Administering Organisation** The University of Queensland

**Project Summary**

Enantiomers are forms of the same molecule that are non-superimposable mirror images of one another, like a left hand and a right hand. Because they are so similar they are very difficult to separate. However, they have very different biological properties, such as when used as drugs. One enantiomer may be beneficial while the other has no effect or sometimes is even toxic. Therefore it is important to be able to tell how much of each enantiomer is present in a sample and to be able to separate them. This facility will allow us to do both of these things.

**LE0882787** Prof GM Lu; Dr J Zou; Prof J Drennan; Prof R Amal; Prof HK Liu; Prof MA Kendall; A/Prof IR Gentle; Dr DJ Martin; Dr J Zhu; Dr D Jurcakova; Dr AF Dexter; Dr X Yao

**Approved Project Title** **An Integrated Raman Microscope and in Situ STM-TEM Analysis System**

**2008 :** $ 390,000

**Primary RFCD** 2501 PHYSICAL CHEMISTRY (INCL. STRUCTURAL)

**Partner Organisations & Collaborating Organisations**

The University of Queensland
The University of New South Wales
University of Wollongong

**Administering Organisation** The University of Queensland

**Project Summary**

The imaging and analytical capabilities of SEM and chemical and structural characterisation afforded by Raman spectroscopy will be unique, allowing both rapid morphological observation and elemental analysis at the macro and nanoscale. The in-situ TEM holder will further assist through in-situ characterization of advanced materials at the nano-scale level. In combination, these instruments will underpin groundbreaking research in diverse research fields developing new advanced nanomaterials and bio-nanomaterials with significant impact on many industries with great economical and environmental benefits.

**LE0882345** Prof JB Mattingley; Dr R Cunnington; Dr RL Hester; Dr MA Bellgrove; Prof OV Lipp; Dr GM Wallis; Prof IM Brereton; Prof GJ Galloway; Dr GI de Zubicaray; Prof S Crozier; Prof PB Colditz; Prof GA Jull; Prof PW Hodges; Prof M Coltheart; Prof S Crain; Dr MA Williams

**Approved Project Title** **A 3.0 Tesla MRI system for human cognitive neuroscience research**

**2008 :** $ 650,000

**Primary RFCD** 3801 PSYCHOLOGY

**Partner Organisations & Collaborating Organisations**

The University of Queensland
Macquarie University

**Administering Organisation** The University of Queensland

**Project Summary**

For the first time scientists are beginning to reveal the complex relationship between human brain function and behaviour. These advances have stemmed almost exclusively from the development of sophisticated brain scanning techniques that provide high-resolution images of physiological changes associated with perceptual, cognitive and motor behaviours. This application seeks support for a state-of-the-art scanner to obtain high-resolution images of the brain as healthy adults perceive, think, learn, remember and decide. The facility will enable Australian scientists to understand the complex links between brain and behaviour in health and disease.

**LE0882864** Dr FA Meunier; Prof JL Stow; Prof RG Parton; Dr PG Noakes; Dr EJ Coulson; Dr AL Munn; Dr JD Hooper

**Approved Project Title** **High Speed Fluorescence Imaging coupled with Total Internal Reflection Microscopy and Fluorescence Recovery After Photobleaching System**

**2008 :** $ 260,000

**Primary RFCD** 2701 BIOCHEMISTRY AND CELL BIOLOGY

**Partner Organisations & Collaborating Organisations**

The University of Queensland
Queensland University of Technology

**Administering Organisation** The University of Queensland

**Project Summary**

The addition of the TIRF equipment will provide researchers with access to one of Australia's most technologically advanced light microscopy systems. This system will support research across a number of high profile areas, and promote strategic collaborations in cell and neurobiology. The high resolution fast acquisition TIRF system will significantly enhance research capacity and research excellence. Its acquisition will allow Australia to play a major role in the global challenge to advance understanding of cellular and molecular events, contributing significantly to the National Research Priority Area of Frontier Technologies for Building and Transforming Australian Industries.

**LE0882275** Prof P Sah; Prof PF Bartlett; Prof JJ McGrath; Prof P Poronnik; A/Prof D Markovich; Prof A Mackay-Sim

**Approved Project Title** **Facility for analysing behaviour, learning and motor skills in animal models**

**2008 :** $ 110,000

**Primary RFCD** 2706 PHYSIOLOGY

**Partner Organisations & Collaborating Organisations**

The University of Queensland
Griffith University
Queensland Health

**Administering Organisation** The University of Queensland

**Project Summary**

Mental disorders are one of the largest costs to the community today and account for more than 50% of the time lost from work. Moreover, these disorders are disabling conditions that relate to fundamental, basic questions of identity and individuality. This collaborative behavioural facility at The University of Queensland will underpin excellent research into how neurological changes affect behaviour and thinking, provide infrastructure to test current models on brain functions, and support the development of new compounds to treat these disorders, thus resulting in significant national and community benefits in improved health outcomes and increased work productivity.

**LE0882221** Prof GB Schaffer; A/Prof M Ferry; Dr MR Barnett; A/Prof K Xia

**Approved Project Title** **A National Facility for Light Metal Powder Processing**

**2008 :** $ 580,000

**Primary RFCD** 2914 MATERIALS ENGINEERING

**Partner Organisations & Collaborating Organisations**

The University of Queensland
The University of New South Wales
Deakin University
The University of Melbourne

**Administering Organisation** The University of Queensland

**Project Summary**

Light metals research is a designated national priority and under the national Light Metals Action Agenda, Australia recognizes a strategic interest in the growth of global markets for light metals and light metal technology in key sectors such as vehicles for road, rail and marine transport; and in the production, processing and applications of the light metals. The proposed Facility will provide the critical level of investment and the strategic national focus necessary to achieve competitive advantage in powder metallurgy processing. It will underpin substantial developments in the light metals industry nationally and globally. It will also support high profile Australian research groups.

**LE0882357** Prof SC Smith; Dr M Hankel; Prof SK Bhatia; Prof GM Lu; Prof AP Middelberg; Prof JJ Cooper-White; Prof AE Mark; Prof RG Gilbert; A/Prof P Meredith; Dr T Huber; Prof AB Yu; Prof O Ostrovski; Dr RY Yang; A/Prof G Peng; Dr J Bao; A/Prof DJ Bernhardt; Prof JF Dobson; Dr YG Anissimov; A/Prof PR Johnston

**Approved Project Title** **A Computational Facility for Multi-scale Modelling in Bio and Nanotechnology**

**2008 :** $ 500,000

**Primary RFCD** 2918 INTERDISCIPLINARY ENGINEERING

**Partner Organisations & Collaborating Organisations**

The University of Queensland
Griffith University
The University of New South Wales

**Administering Organisation** The University of Queensland

**Project Summary**

Bio- and nanotechnology have the potential to transform Australian industry and research, and to bring significant benefits for consumers. The scope will include materials for energy storage, medical diagnostics and cellular imaging, bioengineering, drug and gene delivery, improved foods by molecular design, novel materials for electronics, improved techniques for particle processing, and molecular sieves for filtering/purifying water and gases. The dedicated computing facility will enable a fast interactive cycle between simulation and experiment in these areas, accelerating the pace of research and applications.

**LE0882818** A/Prof PM Vasconcelos; Prof AJ Gleadow; Dr TR Ireland; Dr M Gasparon; Dr KM Knesel; Dr G Rosenbaum; A/Prof BP Kohn; A/Prof D Phillips; Prof MA Sandiford; Prof CJ Wilson; Dr AF Saint; Dr IS Buick; Dr MA Forster; Dr M Honda; Prof GS Lister; Prof I McDougall; Prof BJ Pillans; Dr D Rubatto

**Approved Project Title** **Investigating the Structure and Evolution of the Continental Crust: A Virtual Facility for Thermochronology, Noble Gas Geochemistry and Geochronology**

**2008 :** $ 650,000

**Primary RFCD** 2601 GEOLOGY

**Partner Organisations & Collaborating Organisations**

The University of Queensland
The University of Melbourne
The Australian National University
GBC Scientific Instruments Pty Ltd

**Administering Organisation** The University of Queensland

**Project Summary**

Australian research groups have been responsible for a number of leading technical developments in geological dating. This project will continue that track record and provide the core infrastructure to support a major collaborative research strength that can address both fundamental scientific questions about the evolution of the Earth's crust and surface environment, as well as important economic applications of that knowledge. These include the search for petroleum and mineral deposits, thereby addressing the National Priority Goal: Developing deep-earth resources. The project will strengthen links with other national and international researchers, and build Australia's research profile in an area of significant worldwide scientific interest.