

Summary of Linkage Infrastructure Applications for Funding to Commence in 2006

Queensland

Queensland University of Technology

LE0668532 Prof JM Bell; Prof Dr J Franzidis; Dr ER Waclawik; Dr R Morrison; Dr DJ Bernhardt; A/Prof A Oloyede

Approved Project Title **A Focussed Ion Beam-Scanning Electron Microscope for Advanced Analytical and Nanotechnology Research in South East Queensland**

2006 : \$680,000

Primary RFCD 2903 MANUFACTURING ENGINEERING

Partner Organisation(s)

Queensland University of Technology

The University of Queensland

Griffith University

Administering Institution Queensland University of Technology

Project Summary

The minerals industry underpins Australia's current economic prosperity. The aging of the population presents major economic challenges in the delivery of cost effective health services. New nanotechnology-enabled industries will contribute to future national economic and environmental well-being. The research enhanced by this facility impacts all these areas. It will improve mineral extraction and processing, enhance fundamental understanding of cellular interactions with textured surfaces, and lead to improved implantable material designs and improved implantable device lifetimes (eg hip and knee replacements). Development of advanced nanotechnology applications in energy, optoelectronics and sensors will be also be extended.

LE0668513 Prof L Morawska; Dr ZD Ristovski; Dr GA Ayoko; Dr NS Holmes; Prof MR Moore; A/Prof BN Noller; A/Prof JC Ng; Mr DL Gilbert

Approved Project Title **Time of Flight Aerosol Mass Spectrometer for Research on Airborne Particles and their impact on Health and the Environment**

2006 : \$280,000

Primary RFCD 2599 OTHER CHEMICAL SCIENCES

Partner Organisation(s)

Queensland University of Technology

The University of Queensland

Queensland Government

Administering Institution Queensland University of Technology

Project Summary

No TOF-AMS is currently available in Australia and thus, if acquired, it would significantly enhance Australian research capabilities in a field of high importance for the country and internationally, which is the nature and chemical composition of atmospheric aerosols, their origins and dynamics. The proposed studies with the application of this instrument would greatly increase scientific knowledge of atmospheric particles; would contribute to general welfare and economy in terms of enabling qualitative risk assessment of airborne particles on humans and the environment, and in turn, risk prevention. It would also enable the University partners to continue to produce graduates of high quality, conversant with cutting edge science.

LE0668506 Prof MJ Percy; Prof RW Crawford; Prof CC Berndt; Dr Q Li; Prof JM Bell

Approved Project Title **A Multi-Axis Biomaterials Testing Facility**

2006 : \$150,000

Primary RFCD 2915 BIOMEDICAL ENGINEERING

Partner Organisation(s)

Queensland University of Technology

James Cook University

Administering Institution Queensland University of Technology

Project Summary

Damage to bones and joints, due to injury or diseases such as osteoporosis and arthritis, is a major cause of disability and cost to the nation. Australia's ageing population contributes not only to an increasing incidence of such conditions, but also to more patients out-living implants such as replacement joints. In 2001-2, Australia spent over \$800 million on joint replacement. Because over 11% of procedures are revisions of failed implants, even small improvements in implant life represent significant cost savings. By accurately simulating conditions within the body, this biomechanical testing facility will lead to new developments in implant designs and materials, in turn improving quality of life, productivity and treatment costs.

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LE0668502 A/Prof IW Turner; A/Prof R Stonier; Prof AN Pettitt; Prof P Timms; A/Prof B Verma; A/Prof VV Anh; Prof M Mahendran; Prof DL McElwain; A/Prof M Dhanasekar; A/Prof RC Wolff; Prof EP Dawson; Dr CR Cole; Dr JA Young

Approved Project Title Queensland Computational Grid Enhancement Project

2006 : \$500,000

Primary RFCD 2915 BIOMEDICAL ENGINEERING

Partner Organisation(s)

Queensland University of Technology

Central Queensland University

Queensland Parallel Supercomputing Foundation

Administering Institution Queensland University of Technology

Project Summary

State-of-the-art computational facilities will be made available to enhance research outcomes in vital areas such as environmental and sustainability modelling, security and medical engineering and thus play an important role in advancing scientific and engineering discovery within Queensland and Australia. The new computational systems will be made available on a Queensland wide basis through the Queensland Parallel Supercomputing Foundation an initiative supported by Queensland universities and the State Government. The new infrastructure will support more than 390 researchers, is consistent with the national supercomputing framework and directly supports ARC research that addresses all four key national research priorities.