Summary of Linkage Infrastructure, Equipment and Facilities Proposals

Australian Capital Territory

The Australian National University

LE0882854 Prof RJ Arculus; Prof P De Deckker; Dr NF Exon; Prof ME Barley; Dr JJ Brocks; Dr MB Clennell; Prof A Cooper; Prof JR Dodson; Dr RN Drysdale; A/Prof CL Fergusson; A/Prof JM Hergt; Dr WR Howard; Prof AP Kershaw; Prof TC McCuaig; A/Prof RD Muller; Dr IR Poiner; Prof SY O'Reilly; Dr JM Webster; Dr CJ Yeats; A/Prof PM Vasconcelos; Dr JD Stilwell

Approved Project Title **Australian Membership of the Integrated Ocean Drilling Program**

2008 : $1,200,000
2009 : $1,200,000
2010 : $1,200,000
2011 : $1,200,000
2012 : $1,200,000

Primary RFCD 2601 GEOLOGY

Partner Organisations & Collaborating Organisations

The Australian National University
CSIRO
MARGO
Macquarie University
James Cook University
The University of Adelaide
The University of Melbourne
Monash University
The University of Newcastle
The University of Queensland
The University of Sydney
University of Tasmania
The University of Western Australia
University of Wollongong
AIMS
ANSTO

Administering Organisation The Australian National University

Project Summary

Membership of the Integrated Ocean Drilling Program (IODP) will provide high-leverage access to the largest, and most effective international geoscience program.
Results from drilling within Australia's marine jurisdiction will give understanding of the oceans' state under past climates through high resolution records of the range of oceanographic and biological responses to climate change, the role of the deep biosphere in shaping oil and gas deposits, hydrothermal and igneous processes involved in ore genesis, and enhanced understanding of some of the world's largest earthquake- and tsunami-generating processes.

LE0882531 Dr JD Close; Dr NP Robins; Prof HA Bachor; Dr BC Buchler; Dr P Lam; Prof P Hannaford; Prof A Sidorov; Dr BV Hall; Dr CJ Vale; Prof H Rubinsztein-Dunlop; A/Prof NR Heckenberg

Approved Project Title **Quantum Limited Single Atom Detectors**

2008 : $ 250,000

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

Partner Organisations & Collaborating Organisations

The Australian National University
Swinburne University of Technology
The University of Queensland

Administering Organisation The Australian National University

Project Summary

The technology that has shaped our society, solid state diodes, transistors and computer chips is based on our ability to manipulate the average quantum properties of materials such as semiconductors. This physics has been well understood for decades. Many technologies that will shape our societies in this century will be based on our ability to manipulate quantum systems precisely, an area that is the focus of quantum atom optics. The detectors requested in this proposal will ensure that Australia remains competitive in the technologies that will emerge from the new field of quantum atom optics.

LE0882682 Dr SG Haberle; Dr B Evans; Mr SC Hungerford; Prof G Hope; Prof M Kljakovic; Prof AP Kershaw; Prof JR Dodson; Prof DM Bowman

Approved Project Title **The Australasian Pollen and Spore Atlas**

2008 : $ 100,000

Primary RFCD 2801 INFORMATION SYSTEMS

Partner Organisations & Collaborating Organisations

The Australian National University
Monash University
ANSTO
University of Tasmania

Administering Organisation The Australian National University

Project Summary

The results generated in this project will enhance Australian research capabilities across multiple disciplines by providing access to key knowledge of pollen and spores in our region. A unified approach to the archiving, presentation and accessibility to existing and evolving databases will provide a considerably improved context for identification and knowledge pooling of any given pollen or spore type. This will create a nexus for novel interactions between researchers and end users of these data from within and beyond Australia's borders.

LE0882816 Prof C Jagadish; Dr HH Tan; Prof JS Williams; Prof B Luther-Davies; A/Prof TJ Senden; A/Prof VS Craig; Prof RG Elliman; Dr YJ Wong-Leung; Dr L Fu; Dr JE Bradby; Dr Q Gao; Dr Q Li; Dr A Ashrafi; Dr HT Hattori; Prof L Faraone; A/Prof JM Dell; Dr G Parish; Prof YS Kivshar; Dr DN Neshev; A/Prof Y Chen; Dr AV Rode; Dr S Madden; Dr KJ Grant

Approved Project Title **Micro and Nanostructure Optical Characterisation Facility**

2008 : $ 500,000

Primary RFCD 2918 INTERDISCIPLINARY ENGINEERING

Partner Organisations & Collaborating Organisations

The Australian National University
The University of Western Australia
Defence Science and Technology Organisation

Administering Organisation The Australian National University

Project Summary

This facility will allow the carrying out of research in the area of micro and nanostructures which are of interest to Australian industry. Access to state of the art facilities will provide opportunities to train PhD students and post-doctoral fellows in the advanced science and technology fields of national and industrial interest. New technologies developed in this area have the potential to improve the quality of life, e.g. National security, communications, health care.

LE0882262 Dr DH Macdonald; Dr KR McIntosh; Dr KJ Weber; Dr ET Franklin; Prof AW Blakers; Prof A Cuevas; Prof RG Elliman

Approved Project Title **Photoluminescence imaging equipment for advanced silicon materials and solar cells**

2008 : $ 135,000

Primary RFCD 2402 THEORETICAL AND CONDENSED MATTER PHYSICS

Partner Organisations & Collaborating Organisations

The Australian National University

Administering Organisation The Australian National University

Project Summary

As the search for carbon-neutral sources of electricity intensifies during this century, an early lead in key technologies will be of great importance. Photovoltaics, in which Australian research is world-class, is clearly one such technology. The proposed equipment would enable Australia to maintain and extend its leading role in the development of silicon photovoltaics. As a result, it will help Australia take advantage of the growing global boom in solar energy. The proposal is likely to generate commercially valuable outcomes, as well as scientific knowledge of intrinsic value. It will also increase support for Australia's existing photovoltaic industry.