# Section 2

## Contents

# Introduction

The Australian Institute of Nuclear Science and Engineering (AINSE) was established in 1958 to provide a mechanism for access to the special facilities at Lucas Heights by universities and other tertiary institutions and to provide a focus for cooperation in the nuclear scientific and engineering fields. In 2008 AINSE Limited was registered with ASIC and took over the operations of The Australian Institute of Nuclear Science and Engineering Inc in January 2010. The Australian Institute of Nuclear Science and Engineering Inc was wound up in mid 2010. The Company has a specific mandate to arrange for the training of scientific research workers and the award of scientific research studentships in matters associated with nuclear science and engineering.

Today, nuclear science at the Australian Nuclear Science and Technology Organisation (ANSTO) is devoted to supporting activities and research in a wide range of disciplines. These have applications in advanced technology, manufacturing, mining, agriculture, medicine and environmental protection. All are of vital importance to Australia's future. Many of the techniques and much of the expertise at Lucas Heights cannot be found elsewhere in Australia.

AINSE plays an indispensable role in providing universities with access to major scientific facilities and encouraging a national cooperative research effort. It is a role that is conducted both efficiently and cost effectively. Universities are saved from duplicating expensive items of equipment and Commonwealth funding can be directed at one national facility instead of several with sub-critical funding.

## Mission

AINSE will advance research, education and training in the field of nuclear science and engineering and related fields within Australasia by being, in particular, the key link between universities, ANSTO, other member organisations and major nuclear science and associated facilities.

## Goals

To achieve this vision AINSE will implement strategies in the following key areas:

- access to major facilities
- scientific outcomes
- membership
- networking
- excellence in impact

We will know that we have achieved this vision when the following goals are attained:

- Goal 1

  By the end of 2013, members will be making appropriate and effective use of the facilities at ANSTO.

- Goal 2

  By the end of 2013, AINSE's research performance will have increased by 10% on the 2008 performance as measured by the number of high quality publications.

- Goal 3

  By the end of 2013, all universities active in scientific research in Australasia and a number of other scientific institutes in Australasia will be members of AINSE.

- Goal 4

  By the end of 2013, AINSE's scientific networks will have expanded.

- Goal 5

  By the end of 2013, AINSE will be making a substantial contribution to highly rated research groups at universities and at ANSTO.

## Contact AINSE Ltd


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Australia

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**Facsimile**
+61 (0)2 9717 9268

**E-mail**
ainse@ansto.gov.au

**Homepage**
www.ainse.edu.au

**Managing Director**
Dr Dennis Mather

ABN 18 133 225 331

# AINSE Council 2010

## Member Organisations and Representation at Council

2 Council Meetings were held in 2010

| Organisation | Membership Commenced | Councillor | Meetings Attended |
|---|---|---|---|
| ANSTO, Bragg Institute | 1958 | Dr Robert Robinson | 2 |
| ANSTO, Institute for Environmental Research | | Professor John Dodson | 2 |
| ANSTO, Institute for Materials Engineering | | Professor Lyndon Edwards | 1 |
| ANSTO, Radiopharmaceutical Research Institute | | Dr Ron Weiner | 0 |
| The University of Queensland | 1958 | Professor Anton Middelberg | 1 |
| The University of New England | 1958 | Professor Annabelle Duncan | 1 |
| The University of Sydney | 1958 | Professor Brendan Kennedy | 2 |
| The University of New South Wales | 1958 | Professor Rob Burford | 2 |
| The Australian National University | 1958 | Professor Keith Fifield | 1 |
| The University of Melbourne | 1958 | Professor Jim Camakaris | 1 |
| University of Tasmania | 1958 | Professor Allan Canty | 1 |
| The University of Adelaide | 1958 | Professor John Carver | 2 |
| The University of Western Australia | 1958 | A/Professor Jasmine Henry | 2 |
| Monash University | 1961 | Professor Rob Norris | 1 |
| The University of Newcastle | 1965 | Professor Bruce King, President | 2 |
| Flinders University | 1966 | Professor Claire Lenehan | 2 |
| La Trobe University | 1966 | A/Professor John Webb | 0 |
| Macquarie University | 1966 | Professor James Piper | 0 |
| James Cook University | 1970 | Professor Richard Keene | 0 |
| University of Wollongong | 1975 | Professor Allan Chivas | 2 |
| Griffith University | 1975 | Professor Greg Hope | 2 |
| Murdoch University | 1985-1997 rejoined 1998 | Dr Danielle Meyrick | 2 |
| University of Technology, Sydney | 1988 | Professor Greg Skilbeck | 2 |
| RMIT University | 1988 | Professor Suresh Bhargava | 2 |
| Curtin University of Technology | 1989 | Professor Craig Buckley | 1 |
| CQUniversity | 1991 | A/Professor David Druskovich | 2 |
| University of South Australia | 1991 | Professor Namita Choudhury | 1 |
| Swinburne University of Technology | 1991 | Dr Anthony Bartel | 1 |
| Queensland University of Technology | 1992 | A/Professor Godwin Ayoko | 2 |
| University of Western Sydney | 1993 | Professor Andrew Cheetham | 2 |
| Victoria University | 1994 | Professor Michelle Towstoless | 0 |
| Southern Cross University | 1994 | Professor Bill Boyd | 1 |
| The University of Auckland | 1995 | Professor Jim Metson | 2 |
| Charles Sturt University | 1995 | A/Professor Ian Lunt | 0 |
| Charles Darwin University | 1995 | Professor Jim Mitroy | 1 |
| Edith Cowan University | 1996 | Professor Tony Watson | 1 |
| University of Canberra | 1996 | Professor Bill Maher | 0 |
| The University of Southern Queensland | 1996 | Professor Joachim Ribbe | 1 |
| Deakin University | 1997 | Professor Bronwyn Fox | 1 |
| University of Ballarat | 1997 | Professor Peter Gell | 2 |
| Australian Catholic University | 2001 | Dr Brian Bicknell | 1 |

| Organisation | Commenced | Councillor | Meetings Attended |
|---|---|---|---|
| University of Canterbury | 2005 | A/Professor Greg Russell | 0 |
| GNS Science | 2005 | Dr Frank Bruhn | 2 |
| University of Otago | 2007 | Professor Gary Wilson | 1 |
| University of the Sunshine Coast | 2010 | Professor Roland De Marco | 1 |
| CSIRO | 2010 | Dr Patrick Hartley | 1 |
| Victoria University of Wellington | 2010 | Professor Charles Daugherty | 0 |
| AINSE | | Dr Dennis Mather | 2 |
| Alternate Representatives and other attendees | | | |
| ANSTO Life Sciences | | Dr Ron Weiner (e) | 1 |
| University of Canterbury | | Dr Vladimir Golovko | 1 |
| University of Canterbury | | Professor Brian Storey | 1 |
| Curtin University of Technology | | Professor Roland De Marco | 1 |
| Edith Cowan University | | A/Professor Stephen Hinckley | 1 |
| James Cook University | | A/Professor Scott Smithers | 1 |
| Southern Cross University | | Dr Malcolm Clark | 1 |
| University of Southern Queensland | | Ms Katrina Hall | 1 |
| Victoria University | | Professor Stephen Biggers | 2 |

# Executive Committee

Four Executive Committee Meetings were held in 2010

| Councillor | Office/Position | Organisation | Meetings Attended |
|---|---|---|---|
| Professor Bruce King | President | University of Newcastle | 4 |
| Professor Brendan Kennedy | Vice – President | The University of Sydney | 3 |
| Professor Andrew Cheetham | | University of Western Sydney | 4 |
| Professor Allan Chivas | Past President | The University of Wollongong | 2 |
| Dr Ron Weiner | | ANSTO | 4 |
| Dr Robert Robinson | | ANSTO | 3 |
| Professor Lyndon Edwards | | ANSTO | 3 |
| Professor John Dodson | | ANSTO | 3 |
| Dr Dennis Mather | | AINSE | 4 |

# AINSE Staff

Managing Director Dr Dennis Mather

## Secretariat

Ms Gillian Blackburn
Miss Rhiannon Still (to September)
Mrs Sandy O'Connor (part-time)
Mrs Nerissa Phillips (part-time)
Mr John Studdert (part - time)

# Specialist Committees for 2010

The Managing Director, AINSE, is an ex-officio (non-voting) member of all Committees. Committees met in May and in October.
(a) indicates 'alternate' (c) indicates councillor

## Archaeology and Geosciences Committee

| | |
|---|---|
| Professor James Schulmeister, Convenor | University of Queensland |
| Dr Paul Hesse | Macquarie University |
| Professor Keith Fifield (c) | Australian National University |
| Dr Sean Ulm | University of Queensland |
| Dr Quan Hua | ANSTO |
| Dr David Fink | ANSTO |

## Biomedical Science and Biotechnology Committee

| | |
|---|---|
| Dr Michael Davies, Convenor | The University of Sydney |
| Professor Les Copeland | The University of Sydney |
| A/Professor Lawrence Gahan | University of Queensland |
| A/Professor Michael Kassiou | The University of Sydney |
| Dr Damian Myers | The University of Melbourne |
| Dr Ivan Greguric | ANSTO |
| Dr Andrew Katsifis | ANSTO |

## Environmental Sciences Committee

| | |
|---|---|
| Dr Eric Bestland, Convenor | Flinders University |
| Dr Pauline Grierson | University of Western Australia |
| Professor Peter Gell (c) | University of Ballarat |
| Dr Scott Nicol | Geoscience Australia |
| Dr Rainer Siegele | ANSTO |
| Dr Dioni Cendon Sevilla | ANSTO |

## Materials - Structures and Dynamics Committee

| | |
|---|---|
| Professor Anton Middelberg (c), Convenor | University of Queensland |
| Professor Roland De Marco | Curtin University of Technology |
| A/Professor Gary Bryant | RMIT University |
| Professor John White | Australian National University |
| Professor Don Kearley | ANSTO |
| Dr Shane Kennedy | ANSTO |

## Materials - Properties and Engineering Committee

| | |
|---|---|
| Professor Robert Burford (c), Convenor | University of New South Wales |
| Professor Michael Cortie | University of Technology, Sydney |
| Professor Roger Lewis | University of Wollongong |
| Dr Leigh Sheppard | University of Western Sydney |
| Dr David Cohen | ANSTO |
| Professor Lyndon Edwards | ANSTO |

# Conference Planning Committees

## AANSS 2010: 9th AINSE/ANBUG Neutron Science Symposium

| | |
|---|---|
| Dr Darren Goossens, Conference Chair | The Australian National University |
| Dr Sergey Danilkin | Bragg Institute |
| Dr Duncan McGillivray | University of Auckland |
| Dr Wayne Hutchison | ADFA@UNSW |
| Dr Annemieke Mulders | Curtin University |
| A/Professor Trevor Finlayson | University of Melbourne |
| Dr Dennis Mather | AINSE |
| Ms Rhiannon Still | AINSE |

## 3rd ANSTO/AINSE Neutron School

| | |
|---|---|
| Dr Michael James | ANSTO |
| Professor Don Kearley | ANSTO |
| Dr Andrew Studer | ANSTO |
| Ms Laura Mackaway | ANSTO |
| Ms Donna Freeman | ANSTO |
| Ms Rhiannon Still | AINSE |
| Dr Dennis Mather | AINSE |

## Winter School Committee

| | |
|---|---|
| Dr Danielle Meyrick, Convenor | Murdoch University |
| Dr Vladimir Golovko | University of Canterbury |
| A/Professor Gerald Laurence | University of Adelaide |
| Professor Thomas Millar | University of Western Sydney |
| Dr Tamim Darwish | Bragg, ANSTO |
| Dr Andrew Studer | Bragg, ANSTO |
| Ms Daniela Fierro | IER, ANSTO |
| Mr Jack Goralewski | IER, ANSTO |
| Dr Henk Heijnis | IER, ANSTO |
| Dr Mihail Ionescu | IER, ANSTO |
| Dr Stephan Winkler | IER, ANSTO |
| Ms Atun Zawadzki | IER, ANSTO |
| Ms Connie Banos | ERS, ANSTO |
| Ms Linda McCarthy | ERS, ANSTO |
| Mr Sohil Sheth | ERS, ANSTO |
| Dr Gordon Thorogood | IME, ANSTO |
| Dr Karl Whittle | IME, ANSTO |
| Dr Dennis Mather | AINSE |
| Ms Rhiannon Still | AINSE |
| Mr John Studdert | AINSE (Minute Secretary) |

## Research Fellowship Committee

| | |
|---|---|
| Professor John White | The Australian National University |
| Professor Allan Chivas | University of Wollongong |
| Professor Andrew Cheetham | University of Western Sydney |
| Dr Robert Robinson | ANSTO, Bragg Institute |
| Dr Ron Weiner | ANSTO, Life Sciences |
| Professor John Dodson | ANSTO, Institute for Environmental Research |

# Directors' Report

For the Financial Year Ended 31 December 2010

Your Directors present their report on the Company for the financial year ended 31 December 2010.

## Directors

The names of Directors in office at any time during or since the end of the year are:

| | |
|---|---|
| Bruce King | Brendan Kennedy |
| Allan Chivas | Andrew Cheetham |
| John Dodson | Lyndon Edwards |
| Robert Robinson | Dennis Mather |
| Ron Weiner (appointed 7/05/10) | John White (resigned 23/04/10) |

Directors have been in office since the start of the financial year to the date of this report unless otherwise stated.

## Principal Activities

The principal activity of the Company during the financial year was to provide access to research facilities to Universities and other tertiary institutions within Australia in the field of Nuclear Science and Engineering.

There were no significant changes in the nature of the Company's principal activity during the financial year.

## Operating Results

The loss of the Company for the financial year amounted to $198,831.

## Dividends Paid or Recommended

No dividends were paid or declared since the start of the financial year. No recommendation for payment of dividends has been made.

## Significant Changes in State of Affairs

No significant changes in the Company's state of affairs occurred during the financial year, other than those matters already disclosed within this report.

## Review of Operations

The Company commenced trading on 1 January 2009. The Company was incorporated in order to take over the activities of AINSE Inc. Further information regarding the operations of the Company are provided in the Annual Report – Section 2.

## After Balance Date Events

No matters or circumstances have arisen since the end of the financial year which significantly affected or may significantly affect the operations of the Company, the results of those operations, or the state of affairs of the Company in future financial years.

## Future Development

The Company expects to maintain the present status and level of operations and hence there are no likely developments in the operations in future financial years.

## Environmental Issues

The Company's operations are not regulated by any significant environmental regulation under a law of the Commonwealth or of a state or territory.

## Options

The Company is a company limited by guarantee and therefore is restricted from issuing any options. No options over unissued shares or interests in the entity were granted during or since the end of the financial year and there were no options outstanding at the date of this report.

## Information on Directors

The Directors in office at the date of this report are listed below with particulars of qualifications, experience and special responsibilities (if any).

Bruce King – President
Board Member since 2008
Directors Meetings Attended: 4
over 25 years experience in academia and scientific research in Australia
BSc BE(Hons) PhD

Brendan Kennedy – Vice President
Board Member since 2009
Directors Meetings Attended: 3
25 years experience as an academic in scientific research
BEd, PhD

# Directors' Report

For the Financial Year Ended 31 December 2010

Allan Chivas – Board Member
Board Member since 2008
Directors Meetings Attended: 2
34 years experience as an academic in scientific research
BSc, PhD

John Dodson – Board Member
Board Member since 2008
Directors Meetings Attended: 3
30 years experience as an academic in Australia, New Zealand and UK
PhD

Robert Robinson – Board Member
Board Member since 2008
Directors Meetings Attended: 3
28 years experience in scientific research and academia
MA, PhD

Dennis Mather – Managing Director
Board Member since 2008
Directors Meetings Attended: 4
Directors Meetings Held: 4
19 years experience in association management
BSc(hons), PhD, Dip Ed

Andrew Cheetham – Board Member
Board Member since 2009
Directors Meetings Attended: 4
34 years experience in academia and scientific research
BSc(hons), PhD, GAICD

Lyndon Edwards – Board Member
Board Member since 2008
Directors Meetings Attended: 3
27 years experience in academia and scientific research
MA, DPhil(Oxon), FIMMM, CEng

Ron Weiner – Board Member
Board Member since 2010
Directors Meetings Attended: 3
25 years experience in academia and scientific research
PhD

There were 4 Directors Meetings Held in 2010
Ron Weiner was a Director at the last 3

The following Directors ceased to hold office during the year:

| | No. of Meetings Held | No. of Meetings Attended |
|---|---|---|
| John White | 1 | 0 |

## Indemnifying Officer or Auditor

No indemnities have been given or insurance premiums paid, during or since the end of the financial year, for any person who is or has been an officer or auditor of the Company with the exception of the following:

During or since the financial year the Company has paid premiums to insure all Directors against liabilities for costs and expenses incurred by them in defending any legal proceedings arising out of their conduct while acting in the capacity of director of the Company, other than conduct involving a wilful breach of duty in relation to the Company. The amount of the premium was $5,277 for Association Liability Policy.

## Proceedings on Behalf of the Entity

No person has applied for leave of Court to bring proceedings on behalf of the Company or intervene in any proceedings to which the Company is a party for the purpose of taking responsibility on behalf of the Company for all or any part of those proceedings.

The Company was not a party to any such proceedings during the year.

## Auditors Independence Declaration

The lead auditor's independence declaration for the year ended 31 December 2010 has been received and can be found on page 10 of the report.

Signed in accordance with a resolution of the Board of Directors.

Director

Dated this ninth day of March, 2011

Director

AINSE

# Auditor's Independence Declaration to the Directors of AINSE Ltd

For the Financial Year Ended 31 December 2010

I declare that, to the best of my knowledge and belief, during the year ended 31 December 2010 there have been:

(i)no contraventions of the auditor independence requirements as set out in the Corporations Act 2001 in relation to the audit; and

(ii) no contraventions of any applicable code of professional conduct in relation to the audit.

Escott Aston
Chartered Accountants
291 Belmore Road
Riverwood NSW 2210

David G Aston
Partner

Dated this 24th day of February, 2011.

# Balance Sheet

for the year ended 31 December 2010

| | Notes | 31-Dec-10 $ | 31-Dec-09 $ |
|---|---|---|---|
| **Current Assets** | | | |
| Cash | 2 | 103,418 | 83,691 |
| Trade and Other Receivables | 3 | 150,265 | 130,943 |
| Investments | 4 | 3,975,117 | 4,149,215 |
| Other | 5 | 55,487 | 37,656 |
| **Total Current Assets** | | 4,284,287 | 4,401,505 |
| **Non-Current Assets** | | | |
| Plant and Equipment | 6 | 36,816 | 33,677 |
| **Total Non-Current Assets** | | 36,816 | 33,677 |
| **Total Assets** | | 4,321,103 | 4,435,182 |
| **Current Liabilities** | | | |
| Trade and Other Payables | 7 | 1,995,190 | 1,908,229 |
| **Total Current Liabilities** | | 1,995,190 | 1,908,229 |
| **Non-Current Liabilities** | | | |
| Provisions for Employee Entitlements | 8 | 3,411 | 5,620 |
| Total Non-Current Liabilities | | 3,411 | 5,620 |
| **Total Liabilities** | | 1,998,601 | 1,913,849 |
| NET ASSETS | | 2,322,502 | 2,521,333 |
| **Equity** | | | |
| Awards Reserve | 14 | 2,760,000 | 2,027,271 |
| Long Term Projects Reserve | 14 | 500,000 | 500,000 |
| Accumulated results of operations | | (937,498) | (5,938) |
| TOTAL EQUITY | | 2,322,502 | 2,521,333 |

# Income and Expenditure Statement

for the year ended 31 December 2010

| | Notes | 31-Dec-10 $ | 31-Dec-09 $ |
|---|---|---|---|
| COST OF SERVICES | | | |
| Operating Revenue | | | |
| Payments from members | | 3,102,154 | 2,917,382 |
| External Grants | 11 | 392,250 | 392,250 |
| Interest Received | | 202,804 | 139,242 |
| Other | 13 | 49,343 | 77,224 |
| Total Operating Revenue | | 3,746,551 | 3,526,098 |
| Operating Expenses | | | |
| Wages & Salaries | | 329,984 | 285,358 |
| Superannuation | | 54,708 | 48,407 |
| AINSE Awards | | | |
| Students | 9 | 597,689 | 472,126 |
| Research Fellowship | 9 | 883,369 | 766,987 |
| Research Awards | 9 | 1,287,761 | 1,083,848 |
| Conference Subsidies | | 166,450 | 175,360 |
| ARC LIEF Grants | 11 | 420,000 | 430,000 |
| Other Expenses | 12 | 205,421 | 140,431 |
| Total Operating Expenses | | 3,945,382 | 3,402,517 |
| Surplus/(Deficit) for the year | | (198,831) | 123,581 |
| Transfer Equity from AINSE Inc | | - | 2,397,752 |
| Accumulated funds brought forward | | (5,938) | - |
| Accumulated Surplus (Deficit) | | (204,769) | 2,521,333 |
| Add (Less): transfer to Reserves | | | |
| Long Term Projects Reserve | | - | (2,527,271) |
| Grants Reserve | | (732,729) | - |
| Accumulated results of operations at end of financial year | | (937,498) | (5,938) |

The accompanying notes form an integral part of these accounts.

# Statement of Cash Flows

for the year ended 31 December 2010

| | Notes | 31-Dec-10 $ Inflows/(Outflows) | 31-Dec-09 $ Inflows/(Outflows) |
|---|---|---|---|
| CASH FLOWS PROVIDED BY (USED IN) OPERATING ACTIVITIES | | | |
| Receipts from operations | | 49,343 | 333,923 |
| Receipts from members | | 3,086,535 | 2,917,382 |
| Receipts from grants | | 392,250 | 1,272,250 |
| Interest received | | 187,447 | 139,245 |
| | | 3,715,575 | 4,662,800 |
| Grant expenditures | | (3,355,269) | - |
| Payments to suppliers and employees | | (499,433) | (2,788,884) |
| | | (3,854,702) | (2,788,884) |
| Net cash flows provided by (used in) operating activities | 16 | (139,127) | 1,873,916 |
| CASH FLOWS PROVIDED BY (USED IN) INVESTING ACTIVITIES | | | |
| Fixed asset purchase from AINSE Ltd | | - | (38,762) |
| Transfer from AINSE Inc. | | - | 2,397,752 |
| Proceeds from sale of property, plant and equipment | | 20,000 | - |
| Purchase of property, plant and equipment | | (35,244) | - |
| Net cash flows provided by (used in) investing activities | | (15,244) | 2,358,990 |
| Net increase (decrease) in cash held | | (154,371) | 4,232,906 |
| Cash at beginning of reporting period | | 4,232,906 | - |
| Cash at end of reporting period | 2/4 | 4,078,535 | 4,232,906 |

# Statement of Changes in Equity

for the year ended 31 December 2010

| | Reserve Grants $ | Reserve Long Term Projects $ | Retained Profits $ | Total $ |
|---|---|---|---|---|
| Balance at 1 January 2009 | - | - | - | - |
| Profit / (Loss) attributable to company | - | - | 2,521,333 | 2,521,333 |
| Transfers to/from reserves | 2,027,271 | 500,000 | (2,527,271) | - |
| Balance at 31 December 2009 | 2,027,271 | 500,000 | (5,938) | 2,521,333 |
| Profit / (Loss) attributable to entity | - | - | (198,831) | (198,831) |
| Transfers to and from reserves | 732,729 | - | (732,729) | - |
| Awards Reserve | - | - | - | - |
| Balance at 31 December 2010 | 2,760,000 | 500,000 | (937,498) | 2,322,502 |

# Notes to the Financial Statements

for the year ended 31 December 2010

## 1. STATEMENT OF SIGNIFICANT ACCOUNTING POLICIES

The financial report covers AINSE Ltd as an individual entity. It is a company limited by guarantee.

### Basis of Preparation

The financial report is a general purpose financial report that has been prepared in accordance with Australian Accounting Standards, Australian Accounting Interpretations, other authoritative pronouncements of the Australian Accounting Standards Board and the Corporations Act 2001.

Australian Accounting Standards set out accounting policies that the AASB has concluded would result in a financial report containing relevant and reliable information about transactions, events and conditions to which they apply. Material accounting policies adopted in the preparation of this financial report are presented below. They have been consistently applied unless otherwise stated.

The financial report has been prepared on an accruals basis and is based on historical costs, modified where applicable, by the measurement at fair value of selected non-current assets, financial assets and financial liabilities.

### a) Income Tax

AINSE Limited is exempt from income tax under section 50-5 of the Income Tax Assessment Act 1977 as the Company was established for the purpose of enabling scientific research to be conducted in Australia.

### b) Property, Plant and Equipment

Each class of property, plant and equipment is carried at cost or fair value, less where applicable, any accumulated depreciation and impairment losses.

*Plant and Equipment*

Plant and equipment are measured on the cost basis less depreciation and impairment losses.

The cost of fixed assets constructed within the economic entity includes the cost of materials, direct labour, borrowing costs and appropriate proportion of fixed and variable overheads.

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to the group and the cost of the item can be measured reliable. All other repairs and maintenance are charged to the income statement during the financial period in which they are incurred.

*Depreciation*

The depreciable amount of all fixed assets excluding plant and equipment currently under construction, is depreciated on a straight line basis over their useful lives to the Company commencing from the time the asset is held ready for use. The depreciation rates used for each class of depreciable assets are:

| Class of Fixed Asset | Depreciation Rate |
|---|---|
| Plant and Equipment | 15 - 35% |
| Motor Vehicles | 25% |

The asset's residual values and useful lives are reviewed, and adjusted if appropriate, at each balance date.

An asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount.

Gains and losses on disposals are determined by comparing proceeds with the carrying amount. These gains or losses are included in the income statement.

### c) Financial Instruments

*Recognition*

Financial instruments are initially measured at cost on trade date, which includes transaction costs, when the related contractual or obligations exist. Subsequent to initial recognition these instruments are measured as set out below.

*Financial assets at fair value through profit and loss*

A financial asset is classified in this category if acquired principally for the purpose of selling in the short term or if so designated by management and within the requirements of AASB 139: Recognition and Measurement of Financial Instruments. Realised and unrealised gains and losses arising from changes in the fair value of these assets are included in the income statement in the period in which they arise.

*Fair Value*

Fair value is determined based on current bid prices for all quoted investments. Valuation techniques are applied to determine the fair value for all unlisted securities, including recent arm's length transactions, reference to similar instruments and option pricing models.

*Impairment of Assets*

At each reporting date, the Company assesses whether there is objective evidence that a financial instrument has been impaired.

### d) Impairment of Assets

At each reporting date, the Company reviews the carrying values of its tangible and intangible assets to determine whether there is any indication that those assets have been impaired. If such an indication exists, the recoverable amount of the asset, being the higher of the asset's fair value less costs to sell and value in use, is compared to the asset's carrying value. Any excess of the asset's carrying value over its recoverable amount is expensed to the income statement.

Where it is not possible to estimate the recoverable amount of an individual asset, the Company estimates the recoverable amount of the cash-generating unit to which the asset belongs.

### e) Employee Benefits

Provision is made for the Company's liability for employee benefits arising from services rendered by employees to balance date. Employee benefits that are expected to be settled within one year have been measured at the amounts expected to be paid when the liability is settled, plus related on-costs. Employee benefits payable later than one year have been measured at the present value of the estimated future cash outflows to be made for those benefits.

### f) Provisions

Provisions are recognised when the Company has a legal or constructive obligation, as a result of past events, for which it is probable that an outflow of economic benefits will result and that outflow can be reliably measured.

### g) Cash and Cash Equivalents

Cash and cash equivalents include cash on hand, deposits held at call with banks, other short-term highly liquid investments with original maturities of three months or less, and bank overdrafts. Bank overdrafts are shown within short-tem borrowings in current liabilities on the balance sheet.

### h) Revenue

Revenue relating to the provision of services is recognised to the extent that expenditure is recoverable, which may be before or after delivery of the service to the customer.

Grants in relation to the day to day operations of the Company are recognised when the entity obtains control of the grant and it is probable that the economic benefits gained from the grant can be measured reliably.

Interest revenue is recognised on a proportional basis taking into account the interest rates applicable to the financial assets.

Grants in relation to the acquisition of capital equipment are accounted for through the Balance Sheet account; Revenue in Advance. Any expenditure made during the year reduces this balance, with any surplus or deficit on completion of the grant to be recognised in the Income Statement. This policy has been adopted as the purpose of these grants is to commission the purchase of equipment, with control of the asset upon completion to vest with ANSTO.

All revenue is stated net of the amount of Goods and Service Tax.

### i) Goods and Services Tax (GST)

Revenues, expenses and assets are recognised net of the amount of GST, except where the amount of GST incurred is not recoverable from the Australian Taxation Office. In these circumstances, the GST is recognised as part of the cost of acquisition of the asset or as part of an item of expense. Receivable and payables in the balance sheet are shown inclusive of GST.

Cash flows are presented in the cash flow statement on a gross basis, except for the GST component of investing and financing activities, which are disclosed as operating cash flows.

### j) Change in Accounting Policy and Comparatives

The Company has changed its accounting policy relating to the recognition of grant income and expenditure. Previously grants relating to the acquisition of capital equipment were recognised when the entity obtained control of the grant and it was probable that the economic benefits gained from the grant could be measured reliably. The Company has now elected to only recognise any surplus or deficit on completion of

the grant within the Income Statement. This change has been implemented as the purpose of these grants is to commission the purchase of equipment, with control of the asset upon completion to vest with ANSTO. As the Company will not retain control of the assets the directors are of the opinion that this will provide a more accurate result within each reporting period. The aggregate effect of the changes for the year ended 31 December 2010 is as follows:

| Income and Expenditure Statement<br>2009 | Previous Policy<br>Policy<br>$ | Adjustment<br>$ | Revised<br>Policy |
|---|---|---|---|
| External Grants (Revenue) | 1,272,250 | (880,000) | 392,250 |
| External Grants (Expenses) | (1,310,000) | 880,000 | (430,000) |
| Net Grant Surplus/(Deficit) | (37,750) | - | (37,750) |
| 2010 | | | |
| External Grants (Revenue) | 1,243,250 | (851,000) | 392,250 |
| External Grants (Expenses) | (1,271,000) | 851,000 | (420,000) |
| Net Grant Surplus/(Deficit) | (27,750) | - | (27,750) |
| Balance Sheet | | | |
| 2009 | | | |
| Sundry Payables and Accrued Expenses | 1,780,008 | (910,000) | 870,008 |
| Revenue in Advance – Grant Monies | - | 910,000 | 910,000 |
| Trade and Other Payables (Note 7) | 1,780,008 | - | 1,780,008 |

Where required, comparative figures have been adjusted retrospectively to conform to the change in accounting policy.

| | 31-Dec-10<br>$ | 31-Dec-09<br>$ |
|---|---|---|
| 2. CASH | | |
| Operating Account | 102,918 | 83,191 |
| Petty Cash | 500 | 500 |
| | 103,418 | 83,691 |
| 3. TRADE AND OTHER RECEIVABLES | | |
| Current | | |
| Trade Debtors | 43,664 | 29,912 |
| Other Receivables | 106,601 | 101,031 |
| | 150,265 | 130,943 |

There are no balances within trade and other receivables which contain assets that are not impaired and past due. It is expected these balances will be received when due. Impaired assets are provided for in full where applicable.

| | | |
|---|---|---|
| 4. INVESTMENTS | | |
| Cash Deposit Account | 3,975,117 | 4,149,215 |
| | 3,975,117 | 4,149,215 |

# Notes to the Financial Statements

for the year ended 31 December 2010

| | 31-Dec-10 $ | 31-Dec-09 $ |
|---|---|---|
| **5. OTHER CURRENT ASSETS** | | |
| Current | | |
| Prepayments | 2,474 | - |
| Interest Accrued | 53,013 | 37,656 |
| | 55,487 | 37,656 |
| **6. PLANT AND EQUIPMENT** | | |
| Plant & Equipment | | |
| At Cost | 9,738 | 9,738 |
| Accumulated Depreciation | (1,705) | (731) |
| Total Plant and Equipment | 8,033 | 9,007 |
| Motor Vehicles | | |
| At Cost | 35,244 | 29,024 |
| Accumulated Depreciation | (6,461) | (4,354) |
| Total Motor Vehicle | 28,783 | 24,670 |

| Movements in Carrying Amounts | Plant & Equipment $ | Motor Vehicles $ | Total $ |
|---|---|---|---|
| Balance at 1 January 2009 | - | - | - |
| Additions | 9,738 | 29,024 | 38,762 |
| Disposals | - | | - |
| Depreciation Expense | (731) | (4,354) | (5,085) |
| Balance at 31 December 2009 | 9,007 | 24,670 | 33,677 |
| Additions | | 35,244 | 35,244 |
| Disposals | | (23,703) | (23,703) |
| Depreciation Expense | (974) | (7,428) | (8,402) |
| Balance at 31 December 2010 | 8,033 | 28,783 | 36,816 |

| **7. TRADE AND OTHER PAYABLES** | 31-Dec-10 | 31-Dec-09 |
|---|---|---|
| Unsecured Liabilities | $ | $ |
| Trade Payables | 133,245 | 3,689 |
| Sundry Payables and Accrued Expenses | 724,324 | 870,008 |
| Short-Term Employee Benefits | 126,987 | 124,532 |
| Revenue in Advance - Grant Monies (Refer to Note 11b) | 1,010,634 | 910,000 |
| | 1,995,190 | 1,908,229 |
| **8. PROVISION FOR EMPLOYEE ENTITLEMENTS** | | |
| Long-Term Employee Benefits | 3,411 | 5,620 |
| | 3,411 | 5,620 |
| **9. AINSE PROGRAMS** | | |
| Postgraduate Awards | | |
| Lucas Heights Costs | 267,639 | 172,506 |
| Travel and Accommodation | 33,163 | 34,970 |
| Stipends | 287,912 | 251,343 |
| - | | |
| | 588,714 | 458,819 |
| - | | |
| Winter School | 8,975 | 13,307 |
| | 8,975 | 13,307 |

# Notes to the Financial Statements

for the year ended 31 December 2010

| | | |
|---|---|---|
| Research Fellowships | 883,369 | 766,987 |
| | 883,369 | 766,987 |
| Research Awards | | |
| Lucas Heights Costs | 1,110,946 | 964,903 |
| Minor Equipment and Materials | 33,200 | 19,754 |
| Travel and Accommodation | 136,085 | 98,187 |
| Other Costs | 7,530 | 1,004 |
| | 1,287,761 | 1,083,848 |

10. SEGMENT REPORTING

AINSE operates in the research sector providing funds for research to members within Australia and New Zealand.

11. AUSTRALIAN RESEARCH COUNCIL GRANTS

a) Operating Grants

| | ISIS LE0882725 | Be Filter LE0989127 | ITRAX LE100100141 | Total |
|---|---|---|---|---|
| 2009 | $ | $ | $ | $ |
| Grant Revenue | 200,000 | - | - | 200,000 |
| Member Contributions | 192,250 | - | - | 192,250 |
| Total Income | 392,250 | - | - | 392,250 |
| External Payments | (400,000) | - | - | (400,000) |
| AINSE Contribution | - | (30,000) | - | (30,000) |
| Total Expenses | (400,000) | (30,000) | - | (430,000) |
| Net Surplus/(Deficit) | (7,750) | (30,000) | - | (37,750) |
| 2010 | | | | |
| Grant Revenue | 200,000 | - | - | 200,000 |
| Member Contributions | 192,250 | - | - | 192,250 |
| Total Income | 392,250 | - | - | 392,250 |
| External Payments | (400,000) | - | - | (400,000) |
| AINSE Contribution | - | - | (20,000) | (20,000) |
| Total Expenses | (400,000) | - | (20,000) | (420,000) |
| Net Surplus/(Deficit) | (7,750) | - | (20,000) | (27,750) |

b) Capital Grants

| | Be Filter LE0989127 | ITRAX LE100100141 | Total |
|---|---|---|---|
| | $ | $ | $ |
| Balance at 1 January 2009 | - | - | - |
| External Grants | 400,000 | - | 400,000 |
| Member Contributions | 480,000 | - | 480,000 |
| AINSE Contribution | 30,000 | - | 30,000 |
| External Payments | - | - | - |
| Balance at 31 December 2009 | 910,000 | - | 910,000 |
| External Grants | - | 420,000 | 420,000 |
| Member Contributions | - | 431,000 | 431,000 |
| AINSE Contribution | - | 20,000 | 20,000 |
| External Payments | (419,630) | (350,736) | (770,366) |
| Balance at 31 December 2010 | 490,370 | 520,264 | 1,010,634 |

This note should be read in conjunction with Note 1 Statement of Significant Accounting Policies (h) and (j).

# Notes to the Financial Statements

for the year ended 31 December 2010

| | 31-Dec-10<br>$ | 31-Dec-09<br>$ |
|---|---|---|
| 12. OTHER EXPENDITURE | | |
| Conference Management | 15,860 | 7,159 |
| Publications and Promotions | 9,297 | 8,801 |
| Meetings and Committees | 61,763 | 48,049 |
| Conference Management | 15,860 | 7,159 |
| Publications and Promotions | 9,297 | 8,801 |
| Meetings and Committees | 61,763 | 48,049 |
| AINSE Secretariat | | |
| Audit Fees | 14,800 | 14,145 |
| Bank Charges | 1,963 | 2,416 |
| Depreciation | 8,402 | 7,013 |
| Office Supplies | 3,281 | 1,390 |
| Postage and Telephone | 1,717 | 1,685 |
| Insurance | 8,464 | 12,540 |
| Entertaining | 643 | 747 |
| Books and Software | 5,167 | - |
| Office Equipment and Repairs | - | 1,951 |
| Administration and Staff Training | 1,738 | 2,052 |
| Travel and Accommodation | 21,255 | 17,098 |
| Vehicle Expenses | 8,673 | 9,586 |
| Staff Recruitment | 25,619 | - |
| Loss on disposal of assets | 3,703 | - |
| FBT Expense & Payments | 8,605 | 3,212 |
| Legal expenses | - | 776 |
| Miscellaneous | 4,471 | 1,811 |
| Total AINSE Secretariat | 118,501 | 76,422 |
| Total Other Expenditure | 205,421 | 140,431 |
| 13. OTHER INCOME | | |
| Sponsorships: | | |
| NCTA Conference Conference | - | 15,858 |
| AANSS | 2,400 | 1,500 |
| Neutron School | 12,714 | - |
| Fusion Materials Workshop | 182 | - |
| Conference Registrations | 25,027 | 54,274 |
| Other | 9,020 | 5,592 |
| | 49,343 | 77,224 |

# Notes to the Financial Statements

for the year ended 31 December 2010

| | 31-Dec-10<br>$ | 31-Dec-09<br>$ |
|---|---|---|
| 14. MOVEMENT IN RESERVES | | |
| Awards Reserve | | |
| Opening Balance at 1 January | 2,027,271 | - |
| Transfer from P&L | 732,729 | 2,027,271 |
| Balance as at 31 December | 2,760,000 | 2,027,271 |

The awards reserve was established to provide for the value of unexpended grants at the end of each year.

| | | |
|---|---|---|
| Long Term Projects Reserve | | |
| Opening Balance at 1 January | 500,000 | - |
| Transfer from P&L | - | 500,000 |
| Balance as at 31 December | 500,000 | 500,000 |

The Long Term Projects Reserve has been established to ensure that a reasonable proportion of AINSE's surplus of each year is preserved for investment in new research infrastructure if need be.

| | | |
|---|---|---|
| 15. AUDITORS REMUNERATION | | |
| Remuneration of the auditor of the entity for: | | |
| Auditing or reviewing the financial report | 10,630 | 11,145 |
| Acquittal of Grants | - | - |
| Other Services | 4,170 | 3,000 |
| | 14,800 | 14,145 |
| 16. RECONCILIATION OF CASH PROVIDED BY OPERATING ACTIVITIES TO PROFIT FROM ORDINARY ACTIVITIES | | |
| Profit/(Loss) from Ordinary Activities | (198,831) | 123,581 |
| Changes in Assets & Liabilities | | |
| (Increase)/Decrease in other debtors and prepayment | (37,153) | (130,943) |
| (Increase)/Decrease in other assets | - | (37,656) |
| Increase/(Decrease) in creditors and accruals | 85,480 | 3,689 |
| Increase/(Decrease) in employee provisions | (728) | 114,181 |
| Increase/(Decrease) in other provisions | - | 1,780,008 |
| | 47,599 | 1,729,279 |
| Non-Cash Items | | |
| Depreciation | 8,402 | 5,084 |
| Movement in entitlements | - | 15,971 |
| Loss on sale of asset | 3,703 | - |
| - | 12,105 | 21,055 |
| - | | |
| Net cash provided by (used in) operating activities | (139,127) | 1,873,915 |

Cash at the end of the financial year, as shown in the cash flow statement, is reconciled to the items in the balance sheet as follows:

| | | |
|---|---|---|
| Cash | 103,418 | 83,691 |
| Investments | 3,975,117 | 4,149,215 |
| | 4,078,535 | 4,232,906 |

# Notes to the Financial Statements
for the year ended 31 December 2010

17. FINANCIAL INSTRUMENTS

Financial Risk Management
AINSE's financial instruments consist mainly of deposits with banks, local money market instruments, short-term investments and accounts receivable & payable.

The main purpose of non-derivative financial instruments is to raise finance for AINSE's operations.

AINSE does not have any derivative instruments at 31 December 2010.

Financial Instruments are held under normal commercial policies, terms and conditions regularly adopted by businesses in Australia.

The main risks AINSE is exposed to through its financial instruments are liquidity risk, credit risk and interest rate risk.

a) Liquidity Risk
AINSE manages liquidity risk by monitoring forecast cash flows and ensuring that adequate utilised borrowing facilities are maintained.

b) Credit risk
The maximum exposure to credit risk, excluding the value of any collateral or other security at balance date to recognised financial assets, is the carrying amount, net of any provisions for impairment of those assets, as disclosed in the balance sheet and notes to the financial statements.

AINSE does not have any material credit risk exposure to any single receivable or group of receivables under financial instruments entered into by the economic entity.

c) Interest Rate Risk
AINSE's exposure to interest rate risk, which is the risk that a financial instrument's value will fluctuate as a result of changes in market interest rates and the effective weighted average interest rates on those financial assets and financial liabilities, is as follows:

| | Weighted Average Effective Interest Rate | | Floating Interest Rate | | Non-interest bearing | | Total | |
|---|---|---|---|---|---|---|---|---|
| | 2010 % | 2009 % | 2010 $ | 2009 $ | 2010 $ | 2009 $ | 2010 $ | 2009 $ |
| **Financial Assets** | | | | | | | | |
| Cash and cash equivalents | 3.99% | 3.11% | 4,078,035 | 4,232,406 | - | - | 4,078,035 | 4,232,406 |
| Receivables | - | - | - | | 150,265 | 130,943 | 150,265 | 130,943 |
| Total Financial Assets | | - | 4,078,035 | 4,232,406 | 150,265 | 130,943 | 4,228,300 | 4,363,349 |
| **Financial Liabilities** | | | | | | | | |
| Trade and other payables | - | - | 1,995,190 | 1,908,229 | - | - | 1,995,190 | 1,908,229 |
| Total Financial Liabilities | | | 1,995,190 | 1,908,229 | - | - | 1,995,190 | 1,908,229 |

# Notes to the Financial Statements
for the year ended 31 December 2010

Net Fair Values

| | 2010 | | 2009 | |
|---|---|---|---|---|
| | Carrying amount | Net Fair Value | Carrying amount | Net Fair Value |
| Financial assets | $ | $ | $ | $ |
| Cash | 4,078,535 | 4,078,535 | 4,232,906 | 4,232,906 |
| Receivables | 150,265 | 150,265 | 130,943 | 130,943 |
| - | | | | |
| | 4,228,800 | 4,228,800 | 4,363,849 | 4,363,849 |
| - | | | | |
| Financial liabilities | | | | |
| Trade and other payables | 1,995,190 | 1,995,190 | 1,908,229 | 1,908,229 |
| - | | | | |
| | 1,995,190 | 1,995,190 | 1,908,229 | 1,908,229 |
| - | | | | |

The net fair value of financial assets and liabilities approximates their carrying value because of their short term to maturity. No financial assets and financial liabilities are readily traded on organised markets in standardised form. Financial asset

The aggregate net fair values and carrying amounts of financial assets and financial liabilities are disclosed in the Statement of Financial Position and in the Notes to the Financial Statements.

Aggregate net fair values and carrying amounts of financial assets and financial liabilities at balance date:

Fair values are materially in line with carrying values.

18. COMPANY DETAILS

Principal place of business
AINSE Limited
New Illawarra Road
Lucas Heights, NSW AUSTRALIA

19. KEY MANAGEMENT PERSONNEL COMPENSATION

| | Short-term Benefit | Post Employment Benefit | Total |
|---|---|---|---|
| | $ | $ | $ |
| 2010 | | | |
| Total compensation | 173,101 | 7,139 | 180,240 |
| | | | |
| 2009 | | | |
| Total compensation | 137,144 | (3,544) | 133,600 |

20. MEMBERS' GUARANTEE

The entity is incorporated under the Corporations Act 2001 and is an entity limited by guarantee. If the entity is wound up the constitution states that each member is required to contribute a maximum of $50 each towards meeting any outstanding obligations of the entity. At 31 December 2010 the number of members was 44 (2009: 39).

# Directors' Declaration

For the Financial Year Ended 31 December 2010

The Directors of the Company declare that:

1. The financial statements and notes, as set out on pages 11 to 22, are in accordance with the Corporations Act 2001:

(a) Comply with Accounting Standards and the Corporations Regulations 2001; and

(b) Give a true and fair view of the financial position as at 31 December 2010 and of the performance for the year ended on that date of the Company.

2. As at the date of this statement there are reasonable grounds to believe that the Company will be able to pay its debts as and when they become due and payable.

This declaration is made in accordance with a resolution of the Board of Directors.

Director 

Director 

Dated this ninth day of March, 2011

AINSE

# Independent Audit Report to the Members

For the Financial Year Ended 31 December 2010

**Report on the Financial Report**

We have audited the accompanying financial report of AINSE Limited (the Company), which comprises the balance sheet as at 31 December 2010 and the income and expenditure statement, statement of changes in equity and cash flow statement for the year ended on that date, a summary of significant accounting policies and other explanatory notes and the directors' declaration as set out in pages 14 to 23.

*Directors' Responsibility for the Financial Report*

The directors of the Company are responsible for the preparation and fair presentation of the financial report in accordance with Australian Accounting Standards (including the Australian Accounting Interpretations) and the Corporations Act 2001. This responsibility includes establishing and maintaining internal control relevant to the preparation and fair presentation of the financial report that is free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

*Auditor's Responsibility*

Our responsibility is to express an opinion on the financial report based on our audit. We conducted our audit in accordance with Australian Auditing Standards. These Auditing Standards require that we comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance whether the financial report is free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial report. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial report, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Company's preparation and fair presentation of the financial report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the directors, as well as evaluating the overall presentation of the financial report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

*Independence*

In conducting our audit, we have complied with the independence requirements of the Corporations Act 2001. We confirm that the independence declaration required by the Corporation Act 2001, provided to the directors of AINSE Limited on 24 February 2011 would be in the same terms if provided to the directors as at the date of this auditors report.

*Audit Opinion*

In our opinion, the financial report of AINSE Limited is in accordance with the Corporations Act 2001, including:

(a)Giving a true and fair view of the Company's financial position as at 31 December 2010 and of their performance for the year ended on that date; and

(b)Complying with Australian Accounting Standards (including the Australian Accounting Interpretations) and the Corporations Regulations 2001.

Escott Aston
Chartered Accountants
291 Belmore Road
Riverwood NSW 2210

Dated this ninth day of March, 2011

David G Aston
Partner

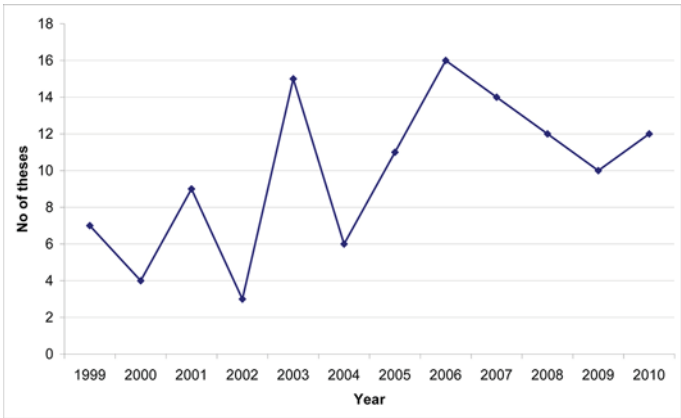
# AINSE Postgraduate Research Awards

An AINSE Postgraduate Research Award (PGRA) is a top-up scholarship. To be eligible for one of these awards, an applicant must hold an Australian Postgraduate Award (APA) or equivalent scholarship. The PGRA may be held until the expiry of the primary scholarship.

In addition to providing a student with a stipend of $7,500 pa, the award provides for access to ANSTO's world-class facilities and expertise by making a nominal payment of $5,500 pa to ANSTO in recognition of the use of facilities and the contribution of the ANSTO co-supervisor. An allowance for travel expenses for two visits and a total of one month's accommodation to Lucas Heights per annum is also awarded.

Twenty one new AINSE postgraduate research projects were supported by a PGRA in 2010, and twelve were finalised with the receipt of a thesis, bringing the total number of current scholars to 81. Through its PGRA program, AINSE has now helped train 299 students in aspects of nuclear science and associated techniques of analysis. Many more students have been assisted with their research by gaining access to Lucas Heights facilities through AINSE Awards made to their supervisors. The Council believes that one of the most valuable roles fulfilled by AINSE is the provision of these scholarships.

John Dawson of James Cook University, the second John Ferris Memorial postgraduate scholar, was appointed in 2010.




*Graph showing the number of PGRA scholars completing each year.*

## Postgraduate scholars whose theses were received during 2010

*A fine-resolution reconstruction of climatic fluctuations over the last 2000 years in south-eastern Australia*
Cameron Barr, Geography and Environmental Studies, University of Adelaide. Commenced 01/07/04

*Design and synthesis of advanced broadband optical coatings*
Nemo Bilus Abaffy, Applied Physics, RMIT University. Commenced 1/07/08

*Measurement of nanomagnetic and nanostructural properties of ferrofluids by small angle neutron and x-ray scattering*
Matthew Carroll, Physics, The University of Western Australia. Commenced 01/07/06

*Electrochemically "switchable" silicon based organic surfaces: dynamic substrates to study the adhesion of mammalian cells*
Simone Ciampi, Chemistry, The University of New South Wales. Commenced 1/7/07

*Development of a composite conjugated polymer/dye sensitiser/carbon nanotube blend organic solar cell*
Roland Goh, Mechanical, Manufacturing and Medical Engineering, Queensland University of Technology. Commenced 01/07/04

*Macromolecular orientation induced by injection moulding processes*
John Healy, Physics and Materials Engineering, Monash University. Commenced 01/07/03

*Structure-property relationships in thermoset nanocomposites*
Betime Nuhiji, Engineering and Technology, Deakin University. Commenced 01/07/06

*A nanostructural investigation of hydrogen storage in aluminium*
Mark Paskevicius, Applied Physics, Curtin University of Technology. Commenced 01/07/06

*Selective sequestering of heavy metal and actinide ions by biopolymer powders derived from silk fibres*
Rangam Rajkhowa, Centre for Material and Fibre Innovation, Deakin University. Commenced 01/07/08

*Nanoscale multilayer materials*
Luke Ryves, Applied and Plasma Physics, The University of Sydney. Commenced 01/07/05

*Characterisation of arsenic doped mercury cadmium telluride grown by molecular beam epitaxy for infrared detector applications*
Gordon Tsen, Electrical, Electronic and Computer Engineering, University of Western Australia. Commenced 01/07/05

## Postgraduate scholars, and their projects, who were supported during 2010

On the following pages, scholars marked with an asterix* are continuing without stipend.

*New constraints on the environmental thresholds of the GBR: evidence from the drowned fossil reefs*
Elizabeth Abbey, Earth and Environmental Sciences, James Cook University. Commenced 1/07/08

*Coupled structural and property studies of the phase transformation behaviour of environmentally friendly Pb-free piezoceramics*
Patryck Allen, Chemistry, The University of Sydney. Commenced 01/07/09

*Corals as biomonitors of Darwin Harbour health*
*Yasmin Antwertinger, Science and Primary Industries, Charles Darwin University. Commenced 01/07/03

*Investigations on the fabrication plasma polymerized organic thin films*
Kateryna Bazaka, Engineering, James Cook University. Commenced 1/07/08

*$^{14}C$ analyses of organic and inorganic fractions in cave calcareous tufa: implication for $\delta^{13}C$ significance in speleothems*
Romina Belli, Environmental Science, University of Newcastle. Commenced 1/07/08

*Shape-memory alloy actuators for nanoscale opto-mechanical applications*
Vijay Bhatia, Institute for Nanoscale Technology, University of Technology Sydney. Commenced 1/07/10

*Development of defect perovskites for use as cathode materials in lithium Ion batteries*
William Brant, School of Chemistry, The University of Sydney. Commenced 1/07/10

*Fate of metal pollutants released from the Rum Jungle uranium/copper mine into the Finniss River, NT Australia*
*Jenny Brazier, Education, Health and Science, Charles Darwin University. Commenced 01/07/02

*Electronic and magnetic properties of rare earth nitride thin films*
Josh Brown, Physics, Macquarie University. Commenced 01/07/09

*Palaeofire records and sedimentation in the context of past and current climate change in eastern Australia*
Katherine Brownlie, School of Earth and Environmental Science, University of Wollongong. Commenced 1/07/10

*Negative thermal expansion in metal-organic frameworks and cyanide bridged co-ordination frameworks*
Lisa Cameron, School of Chemistry, The University of Sydney. Commenced 1/07/10

*Hydrogen storage and negative thermal expansion properties of novel cyanide-bridged coordination frameworks*
Jessica Chadbourne, Chemistry, The University of Sydney. Commenced 01/07/09

*Structure-function relations in polymer-protein conjugates for enhanced drug design*
Xiaojing Chen, Australian Institute for Bioengineering & Nanotechnology, The University of Queensland. Commenced 1/07/10

*Determination of magnetic ordering in transition metal, lanthanoid and 3d/4f heterometallic discrete complexes*
*Anthony Chesman, Chemistry, Monash University. Commenced 01/07/09

*Modification of coal microstructure upon uptake of carbon dioxide in geological-storage-like conditions*
*Tara Congo (née Busbridge), Nanoscale Science and Technology Centre, Griffith University. Commenced 1/7/07

*Factors affecting quantification in positron emission tomography for radiopharmaceuticals with mixed neuronal and non-neuronal signals*
Christopher Constable, Health Sciences - Medical Radiation Science, The University of Sydney. Commenced 01/07/09

*Low dimensional spintronic materials studied with neutron reflectometry*
David Cortie, School of Physics, The University of Western Australia. Commenced 1/07/10

*Testing the Australian megatsunami hypothesis*
Claire Courtney, Biological, Earth and Environmental Sciences, The University of New South Wales. Commenced 01/07/09

*Carbonate sediment age, distribution and reef island accretion indicated by age and taphonomic studies of benthic foraminifera*
John Dawson, Earth and Environmental Sciences, James Cook University. Commenced 01/07/09

*Catchment to regional-scale water and salinity impacts of changing land use in south-west Victoria*
Joshua Dean, Environmental Geoscience, La Trobe University. Commenced 1/07/10

*Guest effects on spin crossover in nanoporous molecular frameworks*
Elizabeth Fellows, Chemistry, The University of Sydney. Commenced 1/07/08

*Historical ecology and the record of human impact in the Galapagos Islands*
*Iona Flett, Archaeology and Natural History, Australian National University. Commenced 01/07/03

*Correlating the nanostructure of stimuli responsive liquid crystal systems with drug release behaviour in vitro and in vivo*
Wye Khay Fong, Pharmacy, Monash University. Commenced 01/07/09

*PIXE elemental mapping of malarial diseased cerebral tissue*
*Mark Hackett, Chemistry, The University of Sydney. Commenced 01/07/08

*Groundwater resources and salinity associated with granite hills in the Upper Wimmera Basin, western Victoria*
*Sarah Hagerty, Environmental Science, La Trobe University. Commenced 1/7/07

*Supramolecular solids as hydrogen storage materials*
Gregory Hall, School of Chemistry, Monash University. Commenced 1/07/10

*Nanostructure design and toughening mechanisms in thermosets using reactive block copolymers*
*Nishar Hameed, Centre for Material and Fibre Innovation, Deakin University. Commenced 01/07/09

*Increase in photocatalytic activity of $TiO_2$ through substitutional and interstitial cation doping*
Dorian Hanaor, Materials Science and Engineering, The University of New South Wales. Commenced 1/07/08

*Morphodynamics of coral reef environments and associated sedimentary bodies*
Daniel Harris, School of Geosciences, The University of Sydney. Commenced 1/07/10

*From stellarators to tokamaks: The effects of 3D structure on Alfvén eigenmodes*
Shaun Haskey, Research School of Physical Sciences and Engineering, The Australian National University. Commenced 1/07/10

*Structure-dynamics-function relationships of replisomal macromolecular assemblies*
Flynn Hill, School of Chemistry, University of Wollongong. Commenced 1/07/10

*Radiocarbon activities in soil particle-size fractions at different depths: insight on C dynamics in two NSW forest soils*
Eleanor Hobley, School of Engineering, The University of Newcastle. Commenced 1/07/10

Radiocarbon contamination in lacustrine sediments: understanding the process and developing a reliable dating strategy
Jamie Howarth, Geography, University of Otago. Commenced 1/07/08

*Plasma deposition techniques for proton exchange membrane fuel cells*
Jessica Hudspeth, Chemistry, Australian National University. Commenced 01/07/09

*Investigation of the structural basis for regulation of the phosphorelay governing sporulation in Bacillus subtilis*
*David Jacques, Molecular and Microbial Biosciences, The University of Sydney. Commenced 1/7/07

*Effect of sugars on bilayer to non-bilayer phase transitions in biological membranes during dehydration*
*Ben Kent, Applied Physics, RMIT University. Commenced 01/07/06

*Probing the effects of oxidative stress on cellular membrane interactions*
Jacqueline Knobloch, School of Chemistry, The University of Adelaide. Commenced 1/07/10

*X-ray and neutron scattering of multiferroic materials*
*Shane Lawrence, Applied Physics, Curtin University of Technology. Commenced 1/7/07

*STIM & PIXE mapping of diseased cerebral and other tissues*
Joonsup Lee, School of Chemistry, The University of Sydney. Commenced 1/07/10

*Thickness-dependant resistivity of ultra-thin polymeric films and their application as novel selective gas sensors*
Junqiao Lee, Chemistry Curtin University of Technology. Commenced 1/07/10

*Surfactant templated biomineralisation*
Connie Liu, Chemistry, The University of Sydney. Commenced 01/07/09

*Analysing small-angle scattering data using the correlation function*
*Clinton Maitland, Applied Physics, Curtin University of Technology. Commenced 01/07/04

*A palaeoecological reconstruction of the lower Snowy River, East Gippsland: environmental response to climate change, land use and river regulation*
*Angus MacGregor, Geographical and Environmental Studies, University of Adelaide. Commenced 01/07/03

*Small-angle scattering analysis of structural rearrangements of Parkinson's disease-associated protein kinases*
*Ryan Mills, Biochemistry and Molecular Biology, The University of Melbourne. Commenced 01/07/06

*Assessing the neuroinflammatory consequences of adolescent drug and alcohol exposure*
Craig Motbey, Psychology, The University of Sydney. Commenced 01/07/09

*Guest-dependence of spin crossover and negative thermal expansion in coordination frameworks*
*Ben Mullaney, School of Chemistry, The University of Sydney. Commenced 1/07/10

*Tailored nanoparticles for nanotoxicological studies*
*Anthony Musumeci, Australian Institute of Bioengineering and Nanotechnology, The University of Queensland. Commenced 1/7/07

*Scales of variability: El Niño, human impact and Greater Flamingo populations in internationally significant Galapagos wetlands*
*Ashley Natt, Geographical and Environmental Studies, University of Adelaide. Commenced 01/07/06

*Application of $^{67}$Ga-labelling to the studies of metabolism of gallium compounds*
*Annie Nguyen, Chemistry, The University of Sydney. Commenced 01/07/08

*Mathematical modelling of drying of colloidal nanoparticle sols*
*Glen Oberman, Mathematical Sciences, Queensland University of Technology. Commenced 01/07/04

*Impact of climate change on late Holocene penguin populations of the Vestfold Hills, Antarctica, using high resolution lake sediment cores*
*Rachael Parkinson, Institute of Antarctic and Southern Ocean Studies, University of Tasmania. Commenced 01/07/04

*$^{10}$Be in Antarctic ice cores: quantifying climate effects for improved reconstructions of solar activity*
*Joel Pedro, Institute of Antarctic and Southern Ocean Studies, University of Tasmania. Commenced 1/7/07

*Low temperature synthesis of well-ordered titania nanoparticles for applications in green catalysis*
Jan-Yves Ruzicka, Chemistry, University of Canterbury. Commenced 01/07/09

*Simulation of cyclic fatigue in lead-free piezoelectric ceramics*
Hugh Simons, Materials Science and Engineering, The University of New South Wales. Commenced 01/07/09

*Morphological and photophysical investigation of organic semiconducting films for opto-electronic applications*
Arthur Smith, Molecular and Microbial Sciences, The University of Queensland. Commenced 01/07/08

*A crystal structural investigation of lead containing jarosite solid solutions*
Henry Spratt, School of Chemistry, Queensland University of Technology. Commenced 1/07/10

*Design of polymer thin films as biocompatible coatings for biomedical applications*
Andrew Telford, School of Chemistry, The University of Sydney. Commenced 1/07/10

*Surface waters, groundwaters, geology, and water-rock interactions in the Lawn Hill region of far NW Queensland*
Mira van der Ley, School of Biological Earth and Environmental Sciences, The University of New South Wales. Commenced 1/07/10

*Antiobesity pharmacotherapy: radiolabelling study of modified growth hormone peptides for the treatment of obesity*
*Bianca van Lierop, Chemistry, Monash University. Commenced 01/07/08

*The role of water uptake in novel all solid-state polymeric ion sensors*
*Jean-Pierre Veder, Nanochemistry Research Institute, Curtin University of Technology. Commenced 01/07/08

*Surfactant adsorption and structure at ionic liquid interfaces*
Deborah Wakeham, School of Chemistry, The University of Newcastle. Commenced 1/07/10

*UV-B screening compounds in the moss ceratodon purpureus: using radiocarbon dating and novel compounds to describe past Antarctic climates*
Melinda Waterman, School of Biological Sciences, University of Wollongong. Commenced 1/07/10

*Understanding nanostructure in lead-containing piezoceramics*
Ross Whitfield, Chemistry, Australian National University. Commenced 01/07/09

*Tertiary starch structure and improving human nutrition*
Torsten Witt, Centre for Nutrition and Food Science, The University of Queensland. Commenced 1/07/09

*Negative thermal expansion in metal-organic frameworks*
Yue Wu, Chemistry, The University of Sydney. Commenced 01/07/08

*Characterising antimicrobial protein-membrane complexes by neutron reflectometry*
Gloria Xun, Biological Sciences, University of Auckland. Commenced 01/07/09

*Silicon microdosimetry for measuring the radiobiological effectiveness of a radiation field*
*Amy Ziebell, Centre for Medical Radiation Physics, University of Wollongong. Commenced 1/7/07

# AINSE Research Fellows

AINSE, in conjunction with the Australian Nuclear Science and Technology Organisation (ANSTO), has established a Fellowship Scheme to add impetus to member Universities' growing stature in nuclear science and engineering and in related fields. The first two Fellowships were awarded in 2006 for a 3-year appointment in the first instance with the possibility of an extension to five years where subsequent continuing appointment at the university is foreseen. It is AINSE's intention to continue to appoint two more research fellows each year.

AINSE highlighted four research directions in calling for applications for Research Fellowships this year:

1. neutron scattering
2. radiopharmaceuticals
3. high resolution climate records using nuclear techniques, and
4. materials engineering.

Applications were also considered, as in past years, where the research aligns with the broad spectrum of research foci supported by AINSE. While the four highlighted directions were promoted in calling for Research Fellowship applications, applicants could also propose research programs which fall outside these topics as long as they required the use of ANSTO facilities and were aligned with the joint research interests of ANSTO and the AINSE member university.

Year commenced/Research Fellow/University
Project title

2006 Darren Goossens The Australian National University
*Study of the nature and role of nanoscale order in complex materials*

2006 Daniel Riley The University of Melbourne
*Use of ultra-fast in-situ diffraction in the development of advanced materials*

2007 Duncan McGillivray The University of Auckland
*Probing the mechanisms of biomembrane interactions*

2007 Moeava Tehei University of Wollongong
*Study of relationships between function, structure and dynamics of biological molecules by neutron scattering*

2008 Lizhong He The University of Queensland
*The physical states of pharmaceutical proteins and self-assembled proteins*

2008 Helen McGregor University of Wollongong
*El Niño in context: reading the coral record of past climate extremes*

2009 David Turner Monash University
*Structural studies of metal organic materials for gas storage and anion exchange*

2009 John Daniels The University of New South Wales
*Application of advanced diffraction techniques for component and material design in functional, biological and structural applications*

*2010* Rachel Popelka-Filcoff *Flinders University*
*Geochemical characterisation of Australian ochre by $k_0$-neutron activation analysis for characterisation and sourcing of aboriginal australian mines and artefacts*

*2010* Roman Dronov *Flinders University*
*Design of advanced optical biosensors through neutron based surface analysis*

# Summary of AINSE Research Awards

The primary purpose of the AINSE Research Award program is to facilitate access by university researchers and research students to the nuclear science and technology facilities at Lucas Heights and other AINSE supported facilities; they provide facility access fees as well as travel and accommodation expenses during periods of attachment. AINSE Research Awards very often provide the valuable initial support which leads to additional external funding, estimated to have been worth several million dollars to member organisations. For neutron scattering projects conducted at ANSTO's Bragg Institute facility charges do not generally apply, however, projects of novice users allow for a facility charge.

The disciplines involved during 2010 included the following:

physics applied, electronic materials, mathematical, nuclear and high energy, plasma

chemistry applied, biochemistry, chemical technology, polymer science

engineering chemical, electrical, mechanical, materials science, microelectronics

biology biological science, biomaterials, biomedical science and engineering, biophysics, genetics

environmental and earth sciences Antarctic and Southern Ocean studies, environmental biology, environmental geology, geochemistry, geomorphology, geography, coastal management, marine science

medicine medical and health physics, nuclear, positron emission tomography

plus Aboriginal and Torres Strait Studies, anthropology, archaeology, botany, cultural studies, geophysics, microscopy and microanalysis, natural history, resource science and management, safety science, zoology.

Research Awards for 2010 are shown on the following pages in order by university, faculty and surname to highlight the diversity of institutions and disciplines within which projects occur. This program includes arrangements for general research students to access Lucas Heights facilities but does not include access arrangements for AINSE postgraduate scholars, see pages 25-29. The total amount of the awards for each university is also shown. Nearly all of these projects involved close cooperation between university people and ANSTO staff and required substantial use of the reactor, accelerators and other facilities at ANSTO.

For information on particular facilities utilised, see the the Users Guide on our home page, http://www.ainse.edu.au

During 2010, 198 projects were supported. They had a total value of $1,655,066 involving thirty-seven of the fourty-three members. The table on the following page shows the distribution of research awards by university and by specialist areas.

| | Specialist Areas | | | | | | |
|---|---|---|---|---|---|---|---|
| UNI | A | B | E | G | M | N | Total |
| ACU | | | | | 1 | | 1 |
| ADE | 3 | | | 4 | | | 7 |
| AKL | | | 1 | 10 | 1 | | 12 |
| ANU | 1 | | 2 | 4 | | | 7 |
| BAL | | | 4 | | | | 4 |
| CAN | 1 | | | | | 1 | 2 |
| CBR | | | 1 | | | | 1 |
| CQU | | | | | 1 | | 1 |
| CSI | | | | 6 | | | 6 |
| CSU | | 1 | 1 | | | | 2 |
| CUR | | | | | 3 | 1 | 4 |
| DEA | | | 2 | 1 | 1 | | 4 |
| ECU | | | | | 2 | | 2 |
| FLI | 2 | | | | 1 | | 3 |
| GRI | | | 1 | | 1 | | 2 |
| JAM | 1 | | 1 | | | 1 | 3 |
| LAT | 2 | 1 | 3 | | 1 | | 7 |
| MAC | | 1 | 2 | | | | 3 |
| MEL | 1 | | 2 | 3 | 2 | | 8 |
| MON | 1 | | 3 | 7 | 1 | 1 | 13 |
| MUR | | | | | 1 | | 1 |
| NCT | 1 | | 1 | 4 | | | 6 |
| NSW | 2 | | 3 | 11 | 2 | 1 | 19 |
| OTA | 1 | | | | | | 1 |
| QLD | 5 | | 5 | 5 | | | 15 |
| QUT | 1 | | | | 1 | 1 | 3 |
| RMI | | | 1 | 2 | 4 | | 7 |
| SCU | | | 3 | | | | 3 |
| SWI | | | | 1 | 1 | 1 | 3 |
| SYD | 2 | 3 | 2 | 5 | 2 | 2 | 16 |
| TAS | | | 3 | | | | 3 |
| UNE | | | 1 | | | | 1 |
| USA | | | | 1 | | 1 | 2 |
| UTS | | | 1 | | 1 | | 2 |
| UWA | 1 | 1 | 3 | 2 | 1 | | 8 |
| UWS | | 1 | 1 | | | | 2 |
| WOL | 6 | 1 | | 7 | 1 | | 15 |
| Total | 31 | 9 | 47 | 73 | 29 | 10 | 199 |

Legend

A Archaeology and Geosciences
B Biomedical Science and Biotechnology
E Environmental Science
G Bragg Institute - Neutron Scattering
M Materials - Properties and Engineering
N Materials - Structures and Dynamics

The legend for the university abbreviations can be found on page 77.

## Australian Catholic University

### Faculty of Arts & Sciences

| | | |
|---|---|---|
| 10/130 | Dr Pre De Silva<br>Application of geopolymer binders in nuclear waste immobilisation | $11,705 |
| Australian Catholic University Total | | $11,705 |

## University of Adelaide

### Faculty of Humanities & Social Sciences

| | | |
|---|---|---|
| 10/070 | E/Professor Martin Williams<br>Establishing an accurate chronology for Late Holocene technological change and coastal resource use, Kurnell Peninsula, Sydney | $6,720 |

### Faculty of Engineering Computer & Mathematical Sciences

| | | |
|---|---|---|
| 10/1212 | Professor Valerie Linton<br>Measurement of residual stresses around a shielded metal arc T-butt weld in thick section steel | $1,005.00 |
| 10/1278 | Professor Valerie Linton<br>The influence of weld toe dressing on the residual stress distribution around T-butt welds in thick section steel | $1,335.00 |
| 10/0687 | Professor Valerie Linton<br>Residual stress measurement in a butt weld from a full scale curved thick steel plate | $1,720.00 |

### Faculty of Sciences

| | | |
|---|---|---|
| 10/065 | Professor Alan Cooper<br>Late Pleistocene environmental change coincident with megafaunal extinctions | $2,355 |
| 10/029 | Dr Rachel Nanson<br>Linking fluctuations in Holocene climate and sediment supply to episodic progradation of the Mitchell River delta, Queensland | $5,940 |
| 10/01173 | A/Professor Allan Pring<br>Probing porosity in ore minerals using SANS | $2,355 |
| University of Adelaide Total | | $32,255 |

## The University of Auckland

### Faculty of Science

| | | |
|---|---|---|
| 10/048 | A/Professor Kathleen Campbell<br>Salt marsh foraminiferal record of Late Holocene sea level rise around the South Island of New Zealand | $5,940 |
| 10/0890 | Dr Andrew Dingley<br>The structure of amoebapore-A - membrane complexes by neutron reflectometry | $1,885 |
| 10/0839 | Dr Duncan McGillivray<br>Probing interactions between protein/antioxidant complexes and phospholipid membranes | $1,840 |
| 10/1325 | Dr Duncan McGillivray<br>Deuterated chemicals for model membrane studies | $1,180 |
| 10/1329 | Dr Duncan McGillivray<br>Deuterated polyphenolic antioxidant for protein-membrane-antioxidant studies | $1,180 |
| 10/1130 | Dr Duncan McGillivray<br>Probing oxidative stress of cellular membranes | $2,605 |

| | | |
|---|---|---|
| 10/1269 | Dr Duncan McGillivray<br>Solution structure of anti-microbial protein Amoebapore | $1,620 |
| 10/1276 | Dr Duncan McGillivray<br>Bicelles as model membranes - interactions with hydramacin-1 anti-microbial protein | $3,460 |
| 10/1350 | Dr Tilo Söhnel<br>Low temperature modification of $RuSn_6[FeO_4]O_4$ | $3,100 |
| 10/0706 | Dr Jadranka Travas-Sejdic<br>Hairpin DNA-based biosensors - temperature profiles | $1,505 |
| 10/0912 | Dr Jadranka Travas-Sejdic<br>Conformational changes in conducting polymers | $2,790 |
| 10/131 | Dr Geoff Waterhouse<br>High resolution TEM characterisation of novel 3-dimensionally ordered macroporous (3DOM) carbon electrode materials | $16,360 |
| University of Auckland Total | | $43,465 |

# Australian National University

### Centre for Advanced Microscopy

| | | |
|---|---|---|
| 10/1214 | Professor Tim White<br>The crystal structures of electrolyte apatites | $910 |
| 10/0958 | Professor Tim White<br>Investigation of the macromoleculat mechanism | $1,045 |

### College of Asia & the Pacific

| | | |
|---|---|---|
| 10/108 | Dr Simon Haberle<br>A new late Quaternary palaeohydrology record from the Atherton Tablelands, north Queensland, Australia | $9,110 |

### College of Medicine, Biology & Environment

| | | |
|---|---|---|
| 10/096P | Dr Richard Greene<br>Characterisation of the properties of aeolian dust source areas in Australia | $13,300 |

### College of Physical and Mathematical Sciences

| | | |
|---|---|---|
| 10/0757 | Ms Irene Durant<br>Oxidation state investigation of a ruthenium complex | $1,210 |
| 10/026 | Dr Marnie Forster<br>Calibration of OPAL for use in $^{40}Ar/^{39}Ar$ age determination of K-rich minerals for geological research | $9,900 |
| 10/1178 | Dr Yun Liu<br>External field excited structural evolution of potassium sodium niobate single crystals | $4,380 |
| Australian National University Total | | $39,855 |

# University of Ballarat

### School of Science and Engineering

| | | |
|---|---|---|
| 10/093 | A/Professor Kim Dowling<br>Child's play, two years later: linking toenail arsenic concentration to trace elements in the soil environment | $4,280 |
| 10/043 | Professor Peter Gell<br>Paleolimnological condition assessment of the Curdies Estuary, Western Victoria | $14,990 |

| | | |
|---|---|---|
| 10/092P | Dr Keely Mills<br>Climate change and human disturbance: a multi-lake approach to understanding palaeolimnological responses in western Uganda | $11,850 |
| 10/086 | Dr Keely Mills<br>Human impacts on urban wetlands: understanding the past and monitoring their future | $12,265 |
| University of Ballarat Total | | $43,385 |

## University of Canterbury

### College of Science

| | | |
|---|---|---|
| 10/031 | Professor Timothy Davies<br>Post-glacial landslide record and hazard implications for Milford Sound, New Zealand | $9,768 |
| 10/060P | Dr Vladimir Golovko<br>From better control morphology control of metal oxide nanoparticles to development of novel photocatalysts | $5,535 |
| University of Canterbury Total | | $15,303 |

## University of Canberra

### Faculty of Applied Science

| | | |
|---|---|---|
| 10/113 | Professor Bill Maher<br>Chronological framework for geochemical analysis in an oligomictic lake subject to catastrophic turnover events in Papua New Guinea | $9,655 |
| University of Canberra Total | | $9,655 |

## Central Queensland University

### Faculty of Sciences, Engineering and Health

| | | |
|---|---|---|
| 10/052 | Dr Geoffrey Pang<br>Transmission electron microscopy (TEM) studies of the crystallisation of $Ru_2Si_3$ composite thin films on silicon | $10,340 |
| Central Queensland University Total | | $10,340 |

## CSIRO

| | | |
|---|---|---|
| 10/1250 | Dr James Boland<br>Residual stress measurements in diamond composite coatings | $2,035 |
| 10/1273 | Dr Patrick Hartley<br>Transformation kinetics of gas hydrates at deep sea pipeline conditions | $3,135 |
| 10/0882 | Dr Hsin-Hui Shen<br>The interaction of the cell-mimicking phospholipid bilayer with annexin 5 at the solid-liquid interface | $1,375 |
| 10/1071 | Dr Yansen Lauw<br>Impact of water on the structure of ionic liquids at an electrified interface | $1,045 |
| 10/0335 | Dr Nicola Scarlett<br>*In situ* nucleation and crystallisation studies of jarosite minerals | $2,475 |

| | | |
|---|---|---|
| 10/0959 | Dr Nathan Webster<br>*In situ* mineralogical investigation of iron oxide/oxyhydroxide-seeded aluminosilicate precipitation | $2,805 |
| CSIRO Total | | $12,870 |

## Charles Sturt University

### Faculty of Science

| | | |
|---|---|---|
| 10/144 | Professor Jane Quinn<br>Comparative analysis of PAXgene sequences in modern and ancient coral samples | $11,860 |
| 10/081 | Dr Padraig Strappe<br>Develpoment of a novel PET reporter gene for non-invasive imaging in gene and stem cell therapy applications | $9,830 |
| Charles Sturt University Total | | $21,690 |

## Curtin University of Technology

### Faculty of Science and Engineering

| | | |
|---|---|---|
| 10/146 | Dr Deeptangshu Chaudhary<br>Unravelling ternary interactions between polymer, plasticizers and functional nanoparticles within bionanocomposites | $6,320 |
| 10/132P | Professor Roland De Marco<br>A SIMS study of solid-contact (SC) ion-selective electrodes (ISEs) used in calibration free ion sensors based on polymeric thin films | $14,950 |
| 10/059 | Professor Roland De Marco<br>An x-ray reflectometry study of molecular templated polymers utilised in the chemical sensing of organic analytes in environmental samples | $4,520 |
| 10/127 | Professor It-Meng Low<br>Synthesis of novel $TiO_2$ anodes for photo-electrochemical applications | $15,090 |
| Curtin University Total | | $40,880 |

## Deakin University

### School of Life and Environmental Sciences

| | | |
|---|---|---|
| 10/098 | Dr Mark Warne<br>Coastal landscapes during the Holocene climatic optimum: a case study of the Warrnambool-Port Fairy district, Australia | $8,800 |

### Centre for Material and Fibre Innovation

| | | |
|---|---|---|
| 10/142P | Dr Jian Fang<br>Cleaning uranium from mining water by functional nanofibres | $7,150 |
| 10/149 | Professor Qipeng Guo<br>Block copolymer-based nanomaterials: self-assembled blends and complexes via specific interactions | $7,370 |
| 10/1102 | Mr Nishar Hameed<br>Toughening mechanisms in thermosets using reactive block copolymers | $2,310 |
| Deakin University Total | | $25,630 |

## Edith Cowan University

### School of Engineering

| | | |
|---|---|---|
| 10/135 | A/Professor Steven Hinckley<br>Gamma irradiation effects in fibre-Bragg grating optical sensors | $3,865 |

### School of Natural Sciences

| | | |
|---|---|---|
| 10/129 | Dr Magdalena Wajrak<br>Investigation of arsenic film electrodeposited on solid gold electrode | $13,675 |
| Edith Cowan University Total | | $17,540 |

## Flinders University

### School of Chemistry and Physical Sciences

| | | |
|---|---|---|
| 10/125 | Dr Amanda Ellis<br>Real carboxyl concentration on acid treated carbon nanotubes using radiolabeling technology | $18,995 |
| 10/030 | Dr Rachel Popelka-Filcoff<br>Elemental characterization of Australian ochre by neutron activation analysis (NAA) and particle induced x-ray emission (PIXE) | $42,115 |

### Yunggorendi First Nations Centre for Higher Education and Research

| | | |
|---|---|---|
| 10/062 | Mr Christopher Wilson<br>Understanding mid-late Holocene life ways in Ngarrindjeri Ruwe: an archaeological study of the Lower Murray River, South Australia | $7,935 |
| Flinders University Total | | $69,045 |

## Griffith University

### Faculty of Science, Environment, Engineering and Technology

| | | |
|---|---|---|
| 10/105 | Dr Andrew Brooks<br>Determining Eucalyptus tree ages using bomb-pulse radiocarbon $^{14}C$ dating to define alluvial gully erosion rates in northern Australia | $9,920 |
| 10/119 | Dr Jisheng Han<br>SIMS analysis on SiC epitaxy film on Si | $6,830 |
| Griffith University Total | | $16,750 |

## James Cook University

### Faculty of Science & Engineering

| | | |
|---|---|---|
| 10/061 | Professor Michael Bird<br>Environmental degradation of charcoal | $16,670 |
| 10/138 | Associate Professor Mohan Jacob<br>Investigation into the surface reactivity and transport properties of plasma polymerised organic polymer thin films | $30,255 |
| 10/091 | Professor Bernd Lottermoser<br>Application of SIMS to determine the mineralogical siting and distribution of heavy metals in contaminated topsoils, Broken Hill | $13,240 |
| James Cook University Total | | $60,165 |

## La Trobe University

### Faculty of Humanities and Social Sciences

| | | |
|---|---|---|
| 10/033 | Dr Richard Cosgrove<br>Coping with climate extremes: prehistoric aboriginal occupation in the Flinders Ranges SA | $5,280 |

### Faculty of Science, Technology and Engineering

| | | |
|---|---|---|
| 10/084 | Dr Peter Barnard<br>New chelating N-heterocyclic carbene ligands for the development of $^{99m}$Tc- and $^{68}$Ga-based molecular imaging agents | $20,400 |
| 10/109 | Dr Peter Green<br>$^{14}$C Bomb-pulse verification of uncertain tree-ring chronologies in the Mallee Pine *Callitris verrucosa* | $13,440 |
| 10/078 | Dr Paul Pigram<br>Determination of the age and origin of Lightning Ridge black opal | $12,160 |
| 10/107 | Professor Caixian Tang<br>Use of microPIXE for cellular localisation and elemental mapping of zinc and cadmium in the leaves of Zn/Cd-hyperaccumulating plants | $17,880 |
| 10/050 | A/Professor Brian Usher<br>SIMS measurements to assist the determination of nitrogen composition in dilute nitride semiconductors | $14,060 |
| 10/112 | A/Professor John Webb<br>Catchment-scale water and salinity impacts of changing land use in south-west Victoria | $12,850 |
| La Trobe University Total | | $96,070 |

## Macquarie University

### Faculty of Science

| | | |
|---|---|---|
| 10/042 | Dr Paul Hesse<br>Longitudinal connectivity of suspended sediment transport and in-channel sediment storage: lower Macquarie River, NSW | $6,000 |
| 10/099 | Dr Grant Hose<br>Microanalysis of groundwater invertebrates to determine As tolerance and its mechanism | $19,200 |
| 10/079 | Dr Christopher Weldon<br>Antenna response of gamma-irradiated Queensland fruit flies | $5,400 |
| Macquarie University Total | | $30,600 |

## The University of Melbourne

### Faculty of Engineering

| | | |
|---|---|---|
| 10/1125 | Dr Daniel Riley<br>Engineering self-assembly of advanced materials | $5,018 |

### Melbourne School of Land and Environment

| | | |
|---|---|---|
| 10/148 | Dr Russell Drysdale<br>Assessment of climatic influences on $^{14}$C activity in a Holocene stalagmite from Flores, Indonesia | $7,000 |
| 10/094P | Dr Hugh Smith<br>Determining sources of sediment delivered to streams after wildfire | $25,824 |

### Faculty of Medicine, Dentistry and Health Sciences

| | | |
|---|---|---|
| 10/1170 | Dr Cyril Curtain<br>SANS studies on the structure of misfolding proteins in neurodegenerative diseases | $1,660 |

### Faculty of Science

| | | |
|---|---|---|
| 10/120 | Dr Rachel Caruso<br>Sequestration of heavy metals/radionuclides in titania-based beads | $9,550 |
| 10/126 | Dr Brett Johnson<br>Hydrogen diffusion in amorphous germanium formed by ion implantation | $16,830 |
| 10/1139 | Professor Frances Separovic<br>The location of antimicrobial peptides in phospholipid membranes determined by neutron techniques | $3,440 |
| 10/103 | Professor Ian Woodrow<br>Use of microPIXE for cellular localisation of arsenic in the roots of Australian native trees | $14,680 |

The University of Melbourne Total $84,002

## Monash University

### Faculty of Arts

| | | |
|---|---|---|
| 10/106 | Professor Nigel Tapper<br>Fingerprinting and characterising aeolian dust on the north-west coast of Australia | $14,000 |
| 10/028 | Mr Duncan Wright<br>Dating early human settlement in the Torres Strait | $3,520 |

### Faculty of Engineering

| | | |
|---|---|---|
| 10/1283 | Dr Patrick Howlett<br>*In-situ* neutron diffraction studies of Mg anodes for use in Mg/air batteries | $4,160 |
| 10/121P | Dr Raman Singh<br>SIMS characterisation of thin corrosion layers developed over nanocrystalline Fe-Cr alloys | $16,440 |
| 10/0888 | A/Prof Kiyonori Suzuki<br>Temperature dependence of spin disorder in magnetic nanocomposites | $940 |

### Faculty of Pharmacy and Pharmaceutical Sciences

| | | |
|---|---|---|
| 10/057 | Dr Ben Boyd<br>The use of SAXS to study the interaction with plasma components with liquid crystal particles for drug delivery applications | $12,950 |
| 10/1308 | Mr Adam Tilley<br>Deuteration of lyotropic liquid crystal forming lipids for structural investigations using neutron scattering | $1,440 |
| 10/1306 | Mr Adam Tilley<br>Investigations into the surface structure of lyotropic liquid crystal nanoparticles (cubosomes) by neutron scattering and phase contrast using SANS | $1,660 |

### Faculty of Science

| | | |
|---|---|---|
| 10/116 | Dr Patrick Baker<br>Identifying tree species of dendrochronological potential in Far North Queensland: a hierarchical approach using AMS $^{14}C$ | $6,720 |
| 10/114 | Dr Patrick Baker<br>Testing models of coexistence in tropical tree species: radiocarbon dating to verify temporal recruitment fluctuations | $17,920 |

| | | |
|---|---|---|
| 10/1013 | Ms Donna Menzies<br>A comparative deuterated and protonated PEG-like plasma polymer neutron reflectometry study | $2,475 |
| 10/1182 | Dr David Turner<br>Neutron diffraction study of hydrate-clathrate chains in a metal-organic material | $1,270 |
| 10/0840 | A/Prof Matthew Wilce<br>Determination of the spatial relationship of large serine recombinase TnpX and its cognate DNA | $1,430 |
| Monash University Total | | $84,925 |

## Murdoch University

### Faculty of Minerals and Energy, Chemical and Mathematical Sciences

| | | |
|---|---|---|
| 10/053 | Dr Manickam Minakshi<br>Electrochemical studies of the environmental friendly battery materials | $24,430 |
| Murdoch University Total | | $24,430 |

## University of New England

### Faculty of Arts and Sciences

| | | |
|---|---|---|
| 10/100 | Dr Peter Lockwood<br>Determination of mean residence time (MRT) of soil organic matter pools by C-14 radiocarbon measurement | $28,425 |
| University of New England Total | | $28,425 |

## University of Newcastle

### Faculty of Engineering and Built Environment

| | | |
|---|---|---|
| 10/066P | Professor Bogdan Dlugogorski<br>Fixation of atmospheric $CO_2$ in carbonates derived from ultramafic rocks in New South Wales | $15,050 |
| 10/1140 | Professor Erich Kisi<br>*In situ* neutron diffraction study of micro-mechanics and single crystal elastic constants | $3,280 |
| 10/1451 | Professor Erich Kisi<br>Texture development in hot-pressed MAX phases | $1,456 |
| 10/089 | Professor Garry Willgoose<br>Vertical distribution, turnover and characterisation of soil organic carbon in particle-size fractions as influenced by soil texture | $18,900 |

### Faculty of Science and Information Technology

| | | |
|---|---|---|
| 10/1127 | Dr Rob Atkin<br>Adsorption and structure at ionic liquid interfaces | $7,904 |
| 10/1320 | Dr Rob Atkin<br>Morphology of polyethylene oxide dissolved in ethylammonium nitrate | $2,606 |
| University of Newcastle Total | | $49,196 |

# The University of New South Wales

## ADFA@UNSW

| | | |
|---|---|---|
| 10/1341 | Mr Maciej Bartkowiak<br>Structure determination of ferroelectric phase of strontium titanate with isotopic O-18 | $715 |
| 10/134 | Dr Wayne Hutchison<br>Magnetic structures in $RNiAl_4$ via low temperature nuclear orientation | $3,000 |
| 10/1242 | Dr Annemieke Mulders<br>Neutron diffraction of multiferroic hexaferrite in applied magnetic and electric field | $2,735 |
| 10/1261 | Dr Annemieke Mulders<br>Manipulation of magnetic order in multiferroic $LuFe_2O_4$ with electric field | $3,210 |
| 10/1543 | A/Professor Hans Reisen<br>Single crystal neutron diffraction structure of NaMgAl(oxalate)$3.9H_2O$ - an extraordinary spectral hole-burning material | $1,210 |
| 10/137 | Dr Glen Stewart<br>Revisiting the orthorhombic phase manganite o-$TmMnO_3$ | $4,600 |
| 10/1324 | Dr Jianli Wang<br>Crystal and magnetic structures of Mn-Ni-Ga-Co shape memory alloys | $2,040 |

## Faculty of Engineering

| | | |
|---|---|---|
| 10/1355 | Mr James Cornwell<br>Commissioning of stop-flow apparatus on Quokka | $387 |
| 10/1161 | Mr Tsai Ping-Han<br>Oxygen dependent $NaxCoO_2$ crystal structure | $2,777 |

## Faculty of Science

| | | |
|---|---|---|
| 10/088 | Dr Catherine Chague-Goff<br>Establishing the recent history of catastrophic coastal inundations in Pololu Valley, Hawaii | $14,800 |
| 10/1272 | Dr John Stride<br>Low temperature diffraction study of Fe-acacn | $497 |
| 10/1332 | Dr John Stride<br>Spin dynamics and magnetic structure of two high $T_C$ molecule-based magnets | $3,088 |
| 10/040 | Dr Matthew Taylor<br>Energy flow in freshwater impoundments: where does it come from and where does it go? | $8,740 |
| 10/145 | Dr Matthew Taylor<br>Feeding ecology of mado (*Atypichthys strigatus*) and the Coriolis effect on coastal to estuarine tidal flow | $9,600 |
| 10/1224 | Dr Pall Thordarson<br>SANS study on the structure and kinetics of self-assembled gels for biomedical applications | $774 |
| 10/140 | Dr Pall Thordarson<br>Structural evolution of self-assembled gels for biomedical applications | $8,430 |
| 10/1337 | Dr Clemens Ulrich<br>Precise crystallographic and magnetic structure of the spinel compound $FeCr_2S_4$ | $607 |

## Faculty of Medicine

| | | |
|---|---|---|
| 10/027 | Dr Andrew Herries<br>Dating Iron Age migrations using charcoal and opercula and the creation of a South African archaeomagnetic curve | $2,640 |
| 10/074 | Dr Andrew Herries<br>The geological age and time of extinction of a new Caprine species (family Bovidae) from South Africa | $5,600 |

**The University of New South Wales Total** **$75,450**

## Otago University

### Division of Sciences

| | | |
|---|---|---|
| 10/075 | Dr Katherine Lilly<br>Quantifying ice extent in New Zealand at the Last Glacial Maximum through cosmogenic exposure dating of bedrock surfaces | $16,506 |
| University of Otago Total | | $16,506 |

## University of Queensland

### Faculty of Engineering, Architecture and Information Technology

| | | |
|---|---|---|
| 10/118 | Prof Paul Lant<br>Transformation and distribution of fossil carbon in wastewater treatment pathway, from input to discharge | $23,070 |

### Faculty of Science

| | | |
|---|---|---|
| 10/0828 | Ms Xiaojing Chen<br>Structural comparison of linear and branched PEGs-preliminary study towards understanding of structure of PEG-protein conjugates | $850 |
| 10/046 | A/Prof Massimo Gasparon<br>Application of natural radioactive radon as groundwater tracer in wetlands system | $7,800 |
| 10/0585 | Professor Ian Gentle<br>Determining analyte diffusion into explosive sensing films | $4,880 |
| 10/1216 | Dr Lizhong He<br>Elucidating the structure-function relationship for protein-polymer conjugates: a comparison of linear and branched PEGs | $1,920 |
| 10/0956 | Dr Kevin Jack<br>Surfactant mediated organic reations in water - SANS | $3,840 |
| 10/115 | Dr Samuel Marx<br>Can mosquito egg shells and Y/Ho ratios be used as proxies of palaeo and geomorphic change in costal estuarine environments? | $7,280 |
| 10/067 | Dr Patrick Moss<br>Last Glacial Maximum environments of North Stradbroke Island, South East Queensland | $9,680 |
| 10/117 | Professor John Pandolfi<br>Constructing long-term proxy records of historical changes for mollusc assemblages in Moreton Bay | $7,920 |
| 10/044P | Professor James Shulmeister<br>Ecological and limnological history of the Ashburton Lakes region, South Island, New Zealand | $19,200 |
| 10/1327 | Dr Andrew Whitten<br>Structural characterisation of the Munc18a-Syntaxin1a complex | $1,700 |
| 10/076 | A/Professor Jian-xin Zhao<br>Holocene marine $^{14}C$ reservoir age variability in Moreton Bay, Southeast Queensland | $17,700 |

### Faculty of Social and Behavioural Sciences

| | | |
|---|---|---|
| 10/069 | Dr Andrew Fairbairn<br>Dating the emergence of agriculture in the Konya Plain, Turkey | $4,920 |
| 10/064 | Dr Sean Ulm<br>Using marine shell to date the dedicatory Caches of Copán, Honduras | $10,560 |
| 10/071 | Dr Marshall Weisler<br>Refining the deltaR for central East Polynesia with U-series dated archaeological corals | $14,160 |
| University of Queensland Total | | $135,480 |

## Queensland University of Technology

### Faculty of Built Environment and Engineering

| | | |
|---|---|---|
| 10/054 | Dr Tuquabo Tesfamichael<br>Thermally evaporated $WO_3$ thin films for gas sensing applications | $7,140 |

### Faculty of Science and Technology

| | | |
|---|---|---|
| 10/024 | Dr Luke Nothdurft<br>Testing environmental stress on a dead Holocene coral reef in Moreton Bay, Queensland | $4,400 |
| 10/141P | Professor Huai Yong Zhu<br>Removal of radioactive ions from water and immobilizing them with titanate nanofibres and nanotubes | $20,360 |
| Queensland University of Technology Total | | $31,900 |

## RMIT University

### College of Science Engineering and Health

| | | |
|---|---|---|
| 10/012 | Professor Suresh Bhargava<br>An investigation on the influence of crystalinity on uranium dissolution from the uranium bearing ore mineral coffinite | $16,940 |
| 10/1290 | Professor Gary Bryant<br>Deuterated lipids for the study of membrane domains and rafts using SANS and reflectometry | $1,050 |
| 10/1138 | Professor Gary Bryant<br>Hydrocarbon gelation under shear | $1,160 |
| 10/124 | Professor David Mainwaring<br>Irradiation produced nanostructures in polymeric thin films | $27,480 |
| 10/085 | Dr Jessica Reeves<br>The Barwon Estuary - assessing the past to inform the future | $15,350 |
| 10/051 | Dr Anthony Holland<br>Composition analysis and electrical properties of germanide-semiconductor interfaces | $14,460 |
| 10/122 | Dr Anthony Holland<br>Etching microfeatures in lithium niobate using a novel process | $6,920 |
| RMIT University Total | | $83,360 |

## Southern Cross University

### Faculty of Arts and Sciences

| | | |
|---|---|---|
| 10/041 | Dr Malcolm Clark<br>Reversibility of Ra and Sr uptake on modified bauxite refinery residues | $39,130 |
| 10/102 | Dr Annabelle Keene<br>Controls on the reductive dissolution of natural jarosite in a tidally inundated acid sulfate soil wetland | $14,535 |
| 10/095 | Dr Vanessa Wong<br>Characterising nano-particulate iron minerals formed in acid sulfate soils following seawater inundation | $12,135 |
| Southern Cross University Total | | $65,800 |

## University of South Australia

### Ian Wark Research Institute

| | | |
|---|---|---|
| 10/058 | Dr Dusan Losic<br>Probing of molecular transport of nanopore and nanotube membranes using radio tracer (RT) technology | $13,105 |
| 10/1118 | Dr Akira Otsuki<br>Measurement of distance between dielectric particles under the electric field by small-angle neutron scattering | $895 |
| University of South Australia Total | | $14,000 |

## Swinburne University

### Faculty of Engineering & Industrial Science

| | | |
|---|---|---|
| 10/1416 | Mr Rezwanul Haque<br>Residual stress and deformation in SPR joints of high strength material | $1,265 |
| 10/0151 | Mr Rezwanul Haque<br>Residual stress and deformation in SPR joints of high strength material | $1,380 |
| 10/133 | Dr Paul Stoddart<br>Demonstration of oxidation barrier coatings on nanostructured metal surfaces | $9,380 |
| Swinburne University Total | | $12,025 |

## The University of Sydney

### Faculty of Agriculture, Food and Natural Resources

| | | |
|---|---|---|
| 10/038 | Professor Les Copeland<br>Environmental and seasonal effects on the internal structure of wheat starch granules | $6,210 |

### Faculty of Arts

| | | |
|---|---|---|
| 10/023 | Professor Daniel Potts<br>AMS dating of an Achaemenid royal site at Qaleh Kali (Iran) | $8,800 |

### Faculty of Engineering and Information Technologies

| | | |
|---|---|---|
| 10/150 | A/Professor Andrew Ruys<br>Porous refractory carbides | $2,550 |

### Heart Research Institute

| | | |
|---|---|---|
| 10/082 | Professor Michael Davies<br>How does the structure of nitroxides modulate their efficacy as antioxidants against protein-derived free radicals? | $7,310 |

### Faculty of Science

| | | |
|---|---|---|
| 10/056 | Professor Marcela Bilek<br>Composition of TCO and MAX alloys: effects of effects of discharge pulse power and shape | $44,800 |
| 10/1231 | Dr Paul Fitzgerald<br>SANS and SAXS on colloidal Ln3 doped nanoparticles and PbS(e) quantum dots | $760 |
| 10/047 | Dr Stephen Gale<br>Bound for Botany Bay: archival and sedimentological records of Australia at the point of European contact | $4,800 |

| | | |
|---|---|---|
| 10/072 | Dr Stephen Gale<br>Dating the Aboriginal abandonment of Kangaroo Island | $3,520 |
| 10/110P | Professor Trevor Hambley<br>Modifying physical and chemical properties of platinum anti-cancer complexes to enhance degree of tumour penetration | $12,850 |
| 10/136 | Dr Brian Hawkett<br>Do we really understand the kinetics of emulsion polymerization? | $4,420 |
| 10/139 | Professor Brendan Kennedy<br>Neutron diffraction studies of cation and anion ordering in Sm and Gd containing oxides | $10,300 |
| 10/1235 | Professor Cameron Kepert<br>Characterisation of a guest-induced, reversible magnetic transformation of a nanoporous coordination framework | $980 |
| 10/039 | Professor Peter Lay<br>STIM and PIXE mapping of diseased cerebral and other tissues | $25,650 |
| 10/1168 | Dr Siegbert Schmid<br>*In-situ* and *ex-situ* Li insertion and extraction of cathode material $Li_{0.18}Sr_{0.66}Ti_{0.5}Nb_{0.5}O_3$ | $320 |
| 10/1004 | Professor Jill Trewhella<br>The structure of the HIV-1 matrix protein with human calmodulin | $2,790 |
| 10/1305 | Professor Gregory Warr<br>Structure changes in micelles during polymerization of alkylpyridinium surfactants | $1,520 |
| The University of Sydney Total | | $137,580 |

# University of Tasmania

## Institute for Marine and Antarctic Studies

| | | |
|---|---|---|
| 10/045 | Dr Troy Gaston<br>Response of plankton communities to changes in land-use and runoff in Tasmanian Estuaries | $4,384 |
| 10/097 | Professor Andrew McMinn<br>$^{210}Pb$ & $^{7}Be$ dating of sediment cores from an estuarine coastal lake: a study into thermal plume impacts and the use of benthic diatoms as bioindicators of a power station cooling field | $8,075 |

## Faculty of Science, Engineering & Technology

| | | |
|---|---|---|
| 10/090P | Dr Kerrie Swadling<br>Establishing mercury bioaccumulation pathways to top predators within a contaminated Australian estuary | $3,750 |
| University of Tasmania Total | | $16,209 |

# University of Technology, Sydney

## Faculty of Science

| | | |
|---|---|---|
| 10/128 | Professor Abhi Ray<br>Life-span prediction of cement-based construction materials | $5,180 |
| 10/049 | Professor Derek Eamus<br>Measuring leaf, tree ring and phloem sap $\delta^{13}C$ and $\delta^{18}O$ of groundwater dependent ecosystems in a changing climate | $1,350 |
| University of Technology, Sydney Total | | $6,530 |

## The University of Western Australia

### Faculty of Arts, Humanities and Social Sciences

| | | |
|---|---|---|
| 10/111 | A/Professor Jane Balme<br>Dating vegetation change and fire regimes in late Holocene south west Australia | $10,560 |

### Faculty of Engineering, Computing and Mathematics

| | | |
|---|---|---|
| 10/055 | A/Professor Adrian Keating<br>Understanding passivated porous silicon films for enabling sensor and micromachined technologies | $13,455 |

### Faculty of Life and Physical Sciences

| | | |
|---|---|---|
| 10/1365 | Mr Thomas Saerbeck<br>Polarisation system commissioning | $1,580 |
| 10/1253 | Professor Alice Vrielink<br>Neutron diffraction studies of cholesterol oxidase - studying the role of hydrogen atoms in oxidative catalysis | $1,495 |
| 10/037 | Professor John Watling<br>Radiochemical separation of $^{64}Cu$ and $^{55}Co$ from proton-bombarded nat-nickel via non-aqueous ion-exchange chromatography | $12,770 |

### Faculty of Natural and Agricultural Sciences

| | | |
|---|---|---|
| 10/063 | A/Professor Geoffrey Batt<br>Dynamic evolution of montane topography in a glaciated tropical environment - Mt Kinabalu, NW Borneo | $9,473 |
| 10/101 | Dr Jason Fellman<br>Riverine export of organic matter from northwest Australia: is marine organic carbon of ancient origin? | $3,520 |
| 10/104 | Dr Grzegorz Skrzypek<br>Trans-latitude migration of climatic zones during last millennia: inferences from stable isotopic composition of peat cores (radiocarbon dating) | $9,455 |

The University of Western Australia Total $62,308

## University of Western Sydney

### College of Health and Science

| | | |
|---|---|---|
| 10/087 | Dr Oula Ghannoum<br>Impact of climate change on nitrogen uptake by Eucalyptus seedlings | $5,058 |
| 10/080 | Professor Thomas Millar<br>Using x-ray reflectometry to understand the structure of the surface of the tear film | $5,940 |

The University of Western Sydney Total $10,998

## University of Wollongong

### Faculty of Engineering

| | | |
|---|---|---|
| 10/1162 | Dr Zaiping Guo<br>Structural studies of Br-doped $LiMn_2O_4$ and $Li_4Ti_5O_{12}$. *In-situ* electrochemcial and neutron diffraction studies of Br-doped $LiMn_2O_4$ and $Li_4Ti_5O_{12}$ | $816 |
| 10/1212 | Professor Valerie Linton<br>Measurement of residual stresses around a shielded metal arc T-butt weld in thick section steel | $1,005 |
| 10/1278 | Professor Valerie Linton<br>The influence of weld toe dressing on the residual stress distribution around T-butt welds in thick section steel | $1,335 |

| | | |
|---|---|---|
| 10/0687 | Professor Valerie Linton<br>Residual stress measurement in a butt weld from a full scale curved thick steel plate | $1,720 |
| 10/1042 | Mr Mark Reid<br>Distribution and thermal stability of nanometer scale precipitates in low manganese steel | $518 |
| 10/1287 | Mr Mark Reid<br>Phase evolution and ordering behaviour of advanced beta-gamma TiAl alloys | $816 |
| 10/1262 | Ms Kun Yan<br>Thermophysical properties and transformation kinetics of the nuclear reactor structural material Zr-2.5Nb | $408 |
| Faculty of Health and Behavioural Science | | |
| 10/083 | Dr Todd Mitchell<br>Fat for life: using accelerator mass spectrometry to determine the lifespan of human lens lipids | $16,120 |
| Faculty Science | | |
| 10/032 | Professor Allan Chivas<br>Amino acid racemisation and radiocarbon chronology of the post-glacial Danube Delta | $10,560 |
| 10/147 | Professor Allan Chivas<br>Palaeoenvironmental and palaeoclimatic history of southern South America based on long sedimentary records from Laguna Llancanelo, Argentina | $4,400 |
| 10/068 | Dr Anthony Dosseto<br>Age of groundwater flowing within uranium mineralisation | $7,040 |
| 10/143 | Dr Richard Gillespie<br>Isotopes in wood cellulose and bone collagen | $26,075 |
| 10/123 | Dr Marc in het Panhuis<br>Sorption performance of chitosan functionalised carbon nanotube membranes | $16,300 |
| 10/077 | Dr Helen McGregor<br>Coral Sr/Ca records from PNG and Kiribati: an eastside-westside story of past El Niño variability | $18,780 |
| 10/1260 | A/Professor Aaron Oakley<br>LinB neutron crystallography | $234 |
| 10/1185 | Dr Moeava Tehei<br>Mapping protein dynamics conformational changes in replisomal macromolecular assemblies | $1,696 |
| 10/1157 | Dr Moeava Tehei<br>Mapping protein conformational changes in replisomal macromolecular assemblies | $816 |
| 10/073 | Professor Colin Woodroffe<br>Reef-island sedimentation determined by the age of reef-flat foraminifera | $13,200 |
| University of Wollongong Total | | $121,839 |
| TOTAL AINSE Research Awards | | $1,655,066 |

# Summary of experiments at ISIS

ISIS is situated in Oxfordshire in the United Kingdom, and is a world-leading centre for research in the physical and life sciences. AINSE coordinates funding for Australia's membership of ISIS. The membership fee is paid with the assistance of the Australian Research Council's Linkage Infrastructure Equipment and Facilities Fund, and supplemented with contributions from universities, ANSTO and AINSE. Our application to the ARC for a five year LIEF grant was successful and we were awarded $1,000,000 over five years from 2008, in support of the membership fee to ISIS. This represents 50% of the membership fee. By paying a membership fee Australian researchers may compete for instrument time in ISIS competitive rounds. The time granted is several times that which could be bought for $400,000.

Applications from Australian researchers for 2010 resulted in 22 days being awarded to 6 proposals from 4 groups. Instrument time was awarded on 4 different instruments. The reduced access in 2010 is a result of a long scheduled shutdown from August 2010, with a restart in March 2011. The long shutdown was required to carry out some highly critical obsolescence work, such as changing the proton exit window on the extracted proton beamline on the first target station.

The outcome of the UK government spending review for the Research Councils was announced on 20 December 2010. Although the science budget as a whole has been relatively protected, this does not apply equally to all areas. Unfortunately the funding for ISIS operations is being reduced and it will only be able to operate for 2/3 of their nominal baseline. However, because of the new instruments in Target Station 2 the total number of instrument days available will only decrease by a few percent compared to 2008 and the overall capability of the ISIS instrument suite has increased significantly thanks to an ongoing program of instrument upgrade and development. We therefore expect ISIS to maintain the level of scientific productivity compared to 2008. In addition, they have indicated that they will give higher priority to proposals from international partners so as not to penalised us by the reduction in UK funding.

| Chief Investigator/Organisation/Project Title/Instrument | Days |
|---|---|
| Atkin Dr R University of Newcastle<br>Effect of variation in the anion on the bulk nanostructure of protic ionic liquids<br>SANDALS | 3 |
| Atkin Dr R University of Newcastle<br>Structure of adsorbed surfactant layers at the ethanoalammonium nitrate/air interface<br>INTER | 4 |
| Gray Professor E M Griffith University<br>Violation of y-scaling in $D_2$: test of existing theories<br>VESUVIO | 6 |
| Howard Dr C J University of Newcastle<br>Neutron analysis of the structure of $SrAl_2O_4$ from 300K to 1273K<br>HRPD | 4 |
| Kennedy Dr B J The University of Sydney<br>Triclinic-monoclinic phase transition in $Ba_2LaIrO_6$. Establishing the role of non-rigid octahedra<br>HRPD | 2 |
| Kennedy Dr B J The University of Sydney<br>Phase transitions and orbital ordering in $SrRu_{1-x}Cu_xO_3$<br>HRPD | 3 |

Kisi Dr E H University of Newcastle
Exploration of elastic anisotropy in nanolaminate MAX phases 5
ENGIN_X

Ling Dr C D The University of Sydney
Elucidation of the low-temperature spin and/or charge ordered states of $Ba_3BiIr_2O_9$ and $Ba_3LaIr_2O_9$ 3
HRPD

Low Dr I M Curtin University of Technology
*In-situ* study of self-recovery in MAX phases 3
POLARIS

Other experiments on which Australians and New Zealanders were co-investigators

Kemmitt Dr T & Benge Mrs K Industrial Research Ltd
Me-ND311BD4: a temperature dependent study of its crystal structure and decomposition products 4
HRPD

Kemmitt Dr T & Benge Mrs K Industrial Research Ltd
Investigation of molecular rotation and disorder in methylamine borane ($CH_3NH_2BH_3$) and methylammonium borohydride ($[CH_3NH_3]^+[BH_4]^-$) 3
TOSCA

Kearley Professor G J ANSTO
The super proton conductors $(H_3O)SbTeO_6$ and $Rb_3H(SO_4)_2$. Comparison of proton momentum distributions and $H^+$ mobilities 4
VESUVIO

## Publications relating to research at ISIS

Wakeham D; Niga P; Rutland M; Warr G G; Atkin R
Nonionic surfactant adsorption at the ethylammonium nitrate surface: a neutron reflectivity and vibrational sum frequency spectroscopy study
Langmuir 26 8313 2010

Regini J W; Ecroyd H; Meehan S; Bremmell K; Clarke M J; Lammie D; Wess T; Carver J A
The interaction of unfolding a-lactalbumin and malate dehydrogenase with the molecular chaperone aB-crystallin: a light and x-ray scattering investigation
Mol Vis 16 2446-2456 2010

Carver J
X-ray and neutron scattering studies of the molecular chaperone a-crystallin enables localization of ligand binding sites
9th AINSE/ANBUG Neutron Scattering Symposium 24 2010 December

Finlayson T R; Davidson C J; Fitzpatrick M E; Griffiths J R; Oliver E C; Wang Q G
Stresses borne by inclusions in a model metal-matrix composite under load
19th AIP National Congress of Physics 91 Melbourne December 2010

Goossens D J; Welberry T R
Approaches to modelling diffuse scattering from molecular crystals: para-terphenyl ($C_{18}H_{14}$).
Metall Mater Trans A 41A 1119-1129 2010

Gray E MacA; Bailey I F
Embrittlement of titanium-zirconium null-matrix alloy by deuterium
Journal of Neutron Research 16 27 2008

Harrison R J; McEnroe S A; Robinson P; Howard C J
Spin orientation in a natural Ti-bearing hematite - evidence for an out-of-plane component
American Mineralogist 95 974-979 2010

Carpenter M A; McKnight R E A; Howard C J; Knight K S
Symmetry and strain analysis of structural phase transitions in $Pr_{0.48}Ca_{0.52}MnO_3$
Physical Review B 82 094101 18pp 2010

Peterson V K; Kearley G J; Wu Y; Ramirez-Cuesta A J; Kemner E; Kepert C J
Local vibrational mechanism for negative thermal expansion: a combined neutron scattering and first-principles study
Angew Chem Int Edit 49 585-588 2010

Zhang Z; Kennedy B J; Howard C J; Jang L-Y; Knight K S; Matsuda M; Miyake M
X-ray absorption and neutron diffraction studies of $(Sr_{1-x}Ce_x)MnO_3$ - transition from coherent to incoherent static Jahn-Teller distortions
J Phys-Condens Mat 22 445401 8pp 2010

Styles M D; Riley D P; Madsen I C; Kisi E H
Parametric Rietveld refinement applied to *in situ* diffraction studies
Proceedings of the 34th Australian and New Zealand Condensed Matter Physics Conference 79 February 2010

Kirstein O; Zhang J F; Kisi E H; Riley D P; Styles M J; Paradowska A
Single crystal elastic constants of the MAX phase $Ti_3AlC_2$ determined by neutron diffraction
Mat Sci Forum 638-642 2417-2422 2010

Kisi E H; Zhang J F; Kirstein O; Riley D P; Styles M J; Paradowska A M
Shear stiffness in nano-laminar $Ti_3SiC_2$ challenges *ab initio* calculations
J Phys-Condens Mat 22 162202 2010

Pang W K; Low I M; Kennedy S J; Smith R I
*In situ* diffraction study on the thermal stability of $Ti_2AlN$ at 1500-1800°C in vacuum
Mater Sc Eng A 528 137–142 2010

Low I M; Pang W.K; Kennedy S.J; Smith R.I
High-temperature thermal stability of $Ti_2AlN$ and $Ti_4AlN_3$: a comparative diffraction study
J Eur Ceram Soc 31 159-166 2011

Low I M; Pang W K; Kennedy S J Smith R I
Diffraction study of high-temperature thermal stability of MAX phases in vacuum
Proc 34th Int Conf on Advanced Ceramics & Composites (ICACC) 31 171-180, Daytona Beach, Florida, USA CESP Jan 2010 2010

Low I M; Pang W K; Kennedy S J; Wu E; Smith R I
High-temperature thermal stability of $Ti_2AlN$ and $Ti_4AlN_3$: comparative diffraction study
9th AINSE/ANBUG Neutron Scattering Symposium 69 December 2010

Muránsky O; Barnett M R; Carr D G; Vogel S C; Oliver E C
Investigation of deformation twinning in a fine-grained and coarse-grained ZM20 Mg alloy: Combined *in situ* neutron diffraction and acoustic emission
Acta Mater 58 1503-1517 2010

Muránsky O; Barnett M R; Luzin V; Vogel S
On the correlation between deformation twinning and Lüders-like deformation in an extruded Mg alloy: *in situ* neutron diffraction and EPSC.4 modelling
Mat Sci Eng A-Struct 527 1383-1394 2010

Reynolds P A; McGillivray D J; Mata J P, Yaron P N; White J W
Emulsions at low surfactant concentration studied by small angle neutron scattering.
J Colloid and Interface Science 349 544-553 2010

Lin J-M; White J W
Denaturation resistance of beta-lactoglobulin in monomolecular films at the air-water interface
J Phys Chem B 113 14513–14520 2009

Ang J C; Lin J-M; Yaron P N, White J W
Protein trapping of silica nanoparticles.
Soft Matter 6 383 - 390 2010

Yaron P N; Reynolds P A; McGillivray D J; Mata J P; White J W
Nano- and microstructure of high-internal phase emulsions under shear
J Phys Chem B 114 3500–3509 2010

# Publications

Notification of the following papers incorporating results from AINSE-supported projects was received by AINSE in 2010. This list may not contain all 2010 publications arising from AINSE supported work, nor does it necessarily relate to Awards held in 2010.

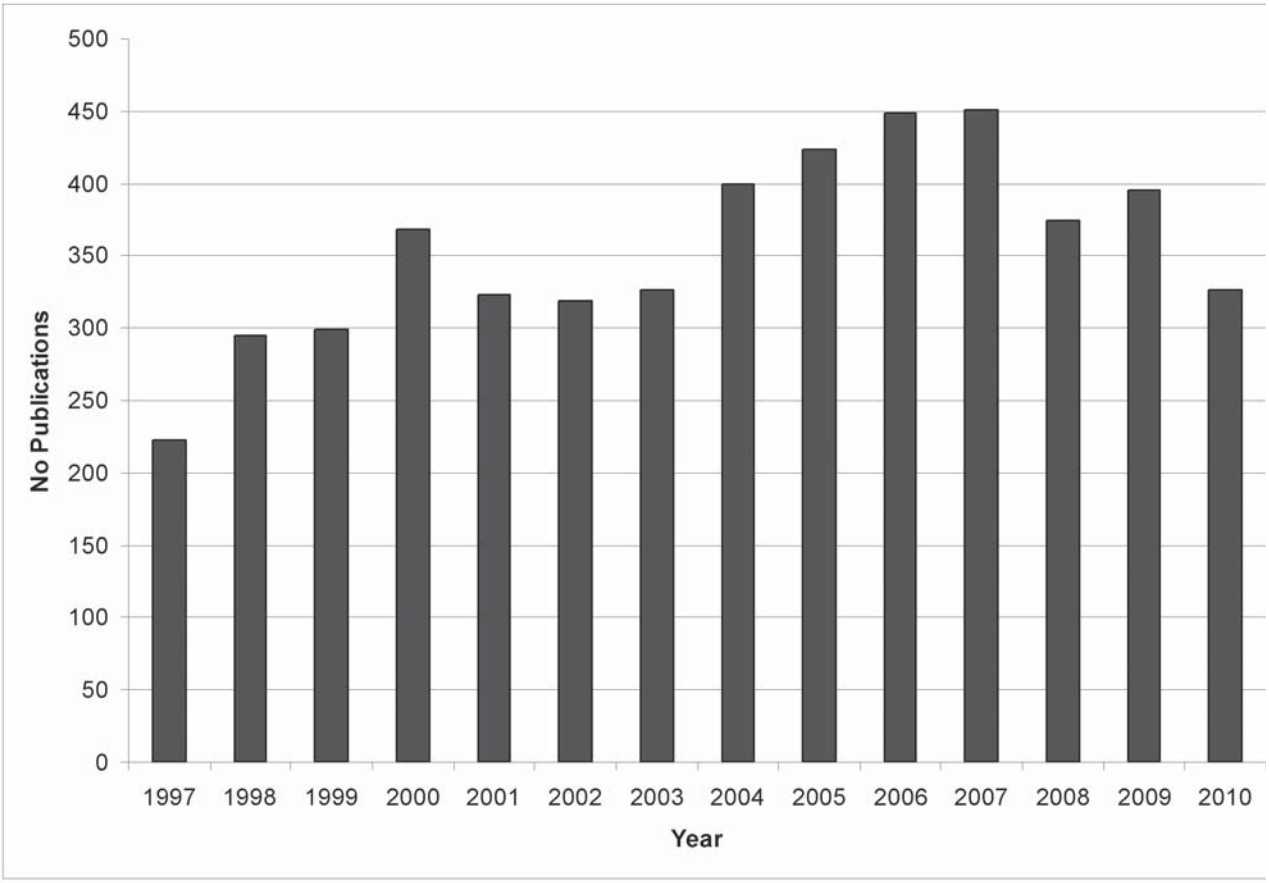
The publications are listed in university order, with the name of the chief investigator(s) in bold. Where the chief investigator is not an author the name is in brackets. Publications arising from AINSE Postgraduate Research Awards (PGRA) and Research Fellowships (FEL) are also listed.

The references are as supplied by the chief investigator in Progress Reports and other notifications provided to AINSE. The Progress Reports for AINSE Awards are published on the AINSE website.

The format of the journal references is as follows: abbreviated name of journal, volume, page number, year of publication, ISSN.

The format of conference papers is generally: conference name, page, poster or abstract number, city, month, year, ISSN.

The graph below shows the total number of publications by year of publication.



| Project Number | Chief Investigator Coauthors | Title of Publication | Reference |
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## University of Adelaide

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| PGRA | Barr C | Droughts and flooding rains: a fine-resolution reconstruction of climatic variability in western Victoria, Australia, over the last 1500 years | PhD Thesis 2010 |
| 05/062 | Gell P | With the benefit of hindsight: the utility of palaeoecology in wetland condition assessment for restoration | In: Batty L, Hallberg K & Jarvis A P (eds) Ecology of Industrial Pollution: Remediation, Restoration and Preservation 162-188 2010 |
| ISIS | Regini J W; Ecroyd H; Meehan S; Bremmell K; Clarke M J; Lammie D; Wess T; Carver J A | The interaction of unfolding a-lactalbumin and malate dehydrogenase with the molecular chaperone aB-crystallin: a light and X-ray scattering investigation | Mol Vision 16 2446-2456 2010 |
| ISIS | Carver J | X-ray and neutron scattering studies of the molecular chaperone a-crystallin enables localization of ligand binding sites | 9th AINSE/ANBUG Neutron Scattering Symposium 24 2010 December |
| PGRA; 05/162P | **Natt A; Tibby J**; Zawadski A; Harrison J | Copper in reservoirs: the Warren Reservoir experience | In: C B Daniels (ed) Adelaide: Water of a City. Wakefield Press, Adelaide 370-371 2010 |
| 96/080; 98/008 | Bourman R P; Prescott J R; Banerjee D; Alley N F; Buckman S | Age and origin of alluvial sediments within and flanking the Mount Lofty Ranges, South Australia - a Late Quaternary archive of climate and environmental change | Aust J Earth Sci 57 175-192 2010 |
| 01/114 | Murray-Wallace C V; Bourman R P; Prescott J R; Williams F; Price D M; Belperio AP | Aminostratigraphy and thermoluminescence dating of coastal aeolianites and the later Quaternary history of a failed delta: the River Murray Mouth Region South Australia | Quat Geochronol 5 28-49 2010 |
| 02/102 | Brugger J; Oigerman J; Pring A; Waldron H *et al* | Origin of the secondary REE-minerals at the Paratoo copper deposit near Yunta | Mineralogical Magazine 70 609-627 2006 |
| 09/629 | Xia F; O'Neill B; Ngothai Y; Peak J; Tenailleau C; Etschmann B; Pring A *et al* | A thermosyphon driven hydrothermal flow-through cell for *in situ* and time- resolved neutron diffraction studies | J Appl Crystallogr **43** 511-519 2010 |
| 09/629 | Brugger J; McFadden A; Lenehan C E; Etschmann B; Xia F; Zhao J; Pring A | A novel route for mesoporous materials synthesis by coupled dissolution-repreciptation reactions: mimicking hydrothermal mineral formation | Chimia 64 693-699 2010 |
| 09/629 | Xia F; Qian G; Brugger J; Studer A; Olsen S; Pring A | A large volume cell for *in situ* neutron diffraction studies of hydrothermal crystallizations | Review of Scientific Instruments **81** 105107 2010 |
| 00/165 | Williams M A J | Cenozoic climates in deserts | In: A J Parsons and A D Abrahams (eds) Geomorphology of Desert Environments, 799-824 2009 2nd edition Springer Berlin |
| 06/196 | Williams M A J; Talbot M R | Late Quaternary environments in the Nile basin | In: H J Dumont (ed) The Nile. Monographiae Biologicae **89** 61-72 2009 Springer, Dordrecht |
| 06/196 | Talbot M R; Williams M A J | Cenozoic evolution of the Nile basin | In: H J Dumont (ed) The Nile. Monographiae Biologicae **89** 37-60 2009 Springer, Dordrecht |
| 06/196 | Williams M A J | Human impact on the Nile basin: past, present, future | In: H J Dumont (ed) The Nile. Monographiae Biologicae **89** 771-779 2009 Springer, Dordrecht |
| 08/125 | (Williams M A J); Haberlah D | Loess and floods: late pleistocene fine-grained valley-fill deposits in the Flinders Ranges, South Australia | PhD Thesis 2010 |

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| 09/005 | Allen M S; McAlister A | The Hakaea Beach site, Marquesan colonisation, and models of East Polynesian settlement | Archaeology in Oceania 45 54-65 2010 |
| 07/001; 06/002 | Allen M S | Morphological variability and temporal patterning in Marquesan domestic architecture: Anaho Valley in regional context | Asian Perspectives: the Journal of Archaeology for Asia and the Pacific 48 342-381 2010 |
| 07/130 | Molloy C; Shane P; Augustinus P | Eruption recurrence rates in a basaltic volcanic field based on tephra layers in maar sediments: implications for hazards in the Auckland volcanic field | Geol Soc Am Bull 121 1666-1677 2009 |
| 07/130 | Augustinus P; Barton C E; Harle K; Zawardi A | Lithological and geochemical record of mining-induced changes in sediments from Macquarie harbour, southwest Tasmania, Australia | Environmental Earth Sciences 61 625-640 2010 |
| 09/005 | Huebert J M; Allen M S; Wallace R | Polynesian earth ovens and their fuels: wood charcoal remains from Anaho Valley, Nuku Hiva, Marquesas Islands | J Polynesian Soc 119 61-97 2010 |
| 06/210 | Lucier B E G; Tang J A; Schurko R W; Bowmaker G A; Healy P C; Hanna J V | Solid-state $^{65}$Cu and $^{31}$P NMR spectroscopy of bis(triphenylphosphine) copper species | J Phys Chem C 114 7949–7962 2010 |
| PGRA | Knobloch J J; Jackson A J; McGillivray D J | Structure of casein micelles under high-pressure | 9th AINSE/ANBUG Neutron Scattering Symposium 66 December 2010 978-0-9807455-0-1 |
| PGRA | Lee J; Metson J; Evans P J; Pal U; Bhattacharyya D | Comparison of implantation and diffusion behavior of Ti, Sb and N in ion-implanted single crystal and polycrystalline ZnO: a SIMS study | Appl Surf Sci 256 2143-2146 2010 |
| FEL | Xun Y; James M; Knott R; Dingley A J; McGillivray D J | Characterising the interaction between pore-forming antimicrobial protein and membranes | 9th AINSE/ANBUG Neutron Scattering Symposium 54 December 2010 978-0-9807455-0-1 |
| FEL | Tremouilhac P; Knott R; Gilbert E P; Dingley A J; McGillivray D J | Using SAXS and SANS to characterise the complex formed between the antimicrobial protein hydramacin-1 and fast-tumbling bicelles | 9th AINSE/ANBUG Neutron Scattering Symposium 55 December 2010 978-0-9807455-0-1 |
| FEL | Singh R; Melton L D; Zhang J; Worcester D L; Gilbert E P; McGillivray D J | The role of antioxidant-protein interactions in phospholipid membranes | 9th AINSE/ANBUG Neutron Scattering Symposium 2 December 2010 978-0-9807455-0-1 |
| FEL | Chi N-C; Knobloch J J; Nelson A J; James M; McGillivray D J | Probing oxidative stress on cellular membranes | 9th AINSE/ANBUG Neutron Scattering Symposium 51 December 2010 978-0-9807455-0-1 |
| FEL | Smith M B; McGillivray D J; Genzer J; Lösche M; Kilpatrick P K | Neutron reflectometry of supported hybrid bilayers with inserted peptide | Soft Matter 6 862-865 2010 |
| 06/127P | Nguyen C L; Atanacio A; Zhang W; Prince K E; Hyland M M; Metson J B | Phase-oriented surface segregation in an aluminium casting alloy | Appl Surf Sci 255 4880-4885 2009 |
| 06/127P | (Metson J); Nguyen C L | Surface properties and finishing of aluminium casting alloys | PhD Thesis 2009 |
| 09/0638 | Perander L M; Metson J B | Elucidating alumina micro- and nanostructure by neutron and x-ray techniques | 9th AINSE/ANBUG Neutron Scattering Symposium 72 December 2010 978-0-9807455-0-1 |

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| 1982 | Spriggs M; Bird R; Ambrose W | A re-analysis of the Tikopia obsidians | Archaeol Oceania 45 31–38 2010 |
| 90/054 | Ambrose W; Allen C; O'Connor C; Spriggs M; Reepmeyer C; Oliveira N V | Possible obsidian sources for artefacts from Timor: narrowing the options using chemical data | J Archaeol Sci 36 607-15 2009 |
| 07/037 | Gouramanis C; Wilkins D; De Deckker P | 6000 years of environmental changes recorded in Blue Lake, South Australia, based on ostracod ecology and valve chemistry | Palaeogeogr Palaeocl 297 223-237 2010 |
| 06/056 | Forster M A; Lister G | Seismogenic strain rates during ductile deformation - the example of the South Cyclades shear zone | Ios *Cyclades Greece* Rend Soc Geol It 5 pp 91 2007 |
| 06/056 | Beltrando M; Lister G; Forster M A; Dunlap J; Fraser G; Hermann J | Dating microstructures by the $^{40}Ar/^{39}Ar$ step-heating technique: deformation-pressure temperature-time history of the Penninic units of the Western Alps | Rend Soc Geol It 5 pp 31 2007 |
| FEL | Chan E J; Welberry T R; Goossens D J *et al* | A diffuse scattering study of aspirin forms I and II | Acta Crystallogr B 66 696-707 2010 |
| FEL | Goossens D | Dipolar anisotropy in quasi-2D honeycomb antiferromagnet $MnPS_3$ | European Physical Journal B 78 305-309 2010 |
| FEL | Chan E J; Welberry T R; Goossens D J; Heerdegen A P | A refinement strategy for Monte Carlo modeling of diffuse scattering from molecular crystal systems | J Appl Crystallogr 43 913-915 2010 |
| FEL | Goossens D J; Studer A J; Stachurski Z H | Microstructure of horseshoe nails using neutron diffraction | J Mater Eng Perform 19 380-384 2010 |
| FEL | Whitfield R E; Goossens D J; Studer A J | Study of phase formation in metal injection moulding through real time neutron diffraction | J Phys: Conf Series 251 012048 2010 DOI:10.1088/1742-6596/251/1/012048 |
| FEL | Welberry T R; Goossens D J; Withers R L; Baba-Kishi K Z | Monte Carlo simulation study of diffuse scattering in PZT, $Pb(Zr,Ti)O_3$ | Metall Mater Trans A 41A 1110-1118 2010 |
| FEL | Goossens D J; Welberry T R | Approaches to modelling diffuse scattering from molecular crystals: para-terphenyl ($C_{18}H_{14}$) | Metall Mater Trans A 41A 1119-1129 2010 |
| FEL | Welberry T R; Chan E J; Goossens D J; Heerdegen A P | Use of Monte-Carlo simulation for the interpretation and analysis of diffuse scattering | Phase Transitions 83 80-98 2010 |
| FEL | Goossens D J; Whitfield R E; Welberry T R; Paściak M | Short-range order in functional oxides | 9th AINSE/ANBUG Neutron Scattering Symposium 31 December 2010 978-0-9807455-0-1 |
| 10/096P | Karlson L R; (Greene R); Scott K M; Stelcer E | Transport of aeolian dust west of the Lake Eyre Basin, Australia | ICAR VII International Conference on Aeolian Research 44 Santa Rosa, Argentina, July 2010 |
| 09/060 | Karlson L R; Greene R S B; Scott K M; Stelcer E; Cresswell R | Source areas and characteristics of Aeolian material across northwest Australia | Atmosphere, Oceans, Environment and Society. 17th National Conference of Australian Meteorological and Oceanographic Society, The Australian National University 64 Canberra January 2010 |
| 09/060 | Shiga Y; Greene R S B; Scott K M; Stelcer E; Cresswell R | Dust and terrestrial salt (NaCl) in SE Australia: implications for Aeolian co-transportation and co-deposition | Atmosphere, Oceans, Environment and Society. 17th National Conference of Australian Meteorological and Oceanographic Society, The Australian National University 107 Canberra January 2010 |

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| 10/096P | (Greene R); Karlson L R | Geochemical and physical characteristics of aeolian material west of the Lake Eyre Basin | Honours Thesis 2010 |
| 07/063 | Haberle S G; Rule S; Roberts P; Heijnis H; Jacobsen G; Turney C; Cosgrove R; Ferrier A *et al* | Paleofire in the wet tropics of northeast Queensland, Australia | PAGES Newsletter 18 78-80 2010 |
| 07/063; 07/064 | Bowman D M J S; Brown G K; Braby M F; Brown J R; Cook L G; Crisp M D; Ford F; Haberle S; Hughes J *et al* | Biogeography of the Australian monsoon tropics | J Biogeogr 37 201–216 2010 |
| 07/064; 07/063; 10/118 | Mooney S D; Harrison S P; Bartlein P J; Daniau A-L; Stevenson J; Buckman S; Cupper M; Luly J;Colhoun E; Dodson J; Haberle S *et al* | Late Quaternary fire regimes of Australasia | Quaternary Sci Rev 30 28-46 2010 |
| PGRA | Hudspeth J M; Goossens D J; Welberry T R | Strategies for modelling short-range order in molecular crystals | 9th AINSE/ANBUG Neutron Scattering Symposium 20 December 2010 978-0-9807455-0-1 |
| 09/0613 | Liu Y; Norén L;Studer A J | *In situ* investigation of lead–free $Bi_{0.5}Na_{0.5}TiO_3$ piezoelectric ceramics under an electrical field via high intensity neutron powder diffraction | 9th AINSE/ANBUG Neutron Scattering Symposium 8 December 2010 978-0-9807455-0-1 |
| 05/156 | Stevenson J; Siringan F; Finn J; Madulid D; Heijnis H | Paoay Lake, Northern Luzon, Philippines: a record of Holocene environmental change | Global Change Biol 16 1672-1688 2010 |
| 05/157; 09/035 | Stevenson J; Gillespie R; Hope G; Jacobsen G; Fallon S; Levchenko V | The archaic and puzzling record of Lake Xere Wapo, New Caledonia | In: Haberle, S, Stevenson, J, Prebble, M. (eds) Altered Ecologies: fire, climate and human influence on terrestrial landscapes. Terra Australis 32 381-393 2010 978-1-9216668-0-3 |
| ISIS | Reynolds P A; McGillivray D J; Mata J P, Yaron P N; White J W | Emulsions at low surfactant concentration studied by small angle neutron scattering | J Colloid Interf Sci 349 544-553 2010 |
| PGRA | Goossens D J; Whitfield R E; Welberry T R; Studer A J | Using bond valence sums to model short-range order | 9th AINSE/ANBUG Neutron Scattering Symposium 59 December 2010 978-0-9807455-0-1 |
| PGRA | Liss K D; Whitfield R E; Xu W; Buslaps T; Yeoh L A; Wu X L; Zhang D L; Xia K N | *In situ* synchrotron high-energy x-ray diffraction analysis on phase transformations in Ti- Al alloys processed by equal-channel angular pressing | J Synchrotron Radiat 16 825-834 2009 |
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## University of Ballarat

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| 04/216 | Pearce D C; Dowling K; Gerson A R; Sim M R; Sutton S R; Russell R *et al* | Arsenic microdistribution and speciation in toenail clippings of children living in a historic gold mining area | Sci Total Environ 408 2590-2599 2010 |
| 09/084 | Gowans S A; Gibson M S; Westbrooke M E; Pegler P | Changes in vegetation condition following kangaroo population management in Wyperfeld National Park | In: Macropods: The Biology of Kangaroos, Wallabies and Rat-kangaroos G Coulson and M Eldridge (eds) CSIRO Publishing, Collingwood 361-370 2010 |
| 09/064 | (Gell P); Soeprobowati T R; Hadisusanto S | Comparative historical study of Lac Saint-Augustine Quebec-City, Canada and Rawapening Lake, Indonesia | Biota 14 60-69 2009 |

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| **University of Canberra** | | | |
| 07/047 | (FitzSimmons N); Featherston P | Food web dynamics and the dietary ecology of turtles in freshwater rivers of the Kimberley Plateau | Honours Thesis 2008 |
| **University of Canterbury** | | | |
| 07/127 | (Russell G); El-Hadad O | Effects of cyclodextrins on the kinetics of emulsion polymerization | PhD Thesis 2010 |
| 07/140 | Storey B C; Fink D; Hood D; Joy K; Shulmeister J; Riger-Kusk M; Stevens M I | Cosmogenic nuclide exposure age constraints on the glacial history of the Lake Wellman area, Darwin Mountains, Antarctica | Antarct Sci 22 603–618 2010 |
| **Charles Sturt University** | | | |
| 08/130 | Jessup J; Banos C; Lindhout K; Gurr G M; Reynolds O L | Rearing the biological control agent *Diachasmimorpha kraussi (*Fullaway*) (Hymenoptera: Braconidae)* on irradiated larvae of the queensland fruit fly, *Bactrocera tryoni (*Froggatt*) (Diptera: Tephritidae)* | Proceedings 8th International Symposium on Fruit Flies of Economic Importance. 223 Valencia 2010 |
| **Curtin University of Technology** | | | |
| PGRA; 06/199; 06/263 | Carroll M R J; Woodward R C; Amal R; Hanley T L *et al* | Experimental validation of proton transverse relaxivity models for superparamagnetic nanoparticle MRI contrast agents | Nanotechnology 21 035103 2010 |
| 10/146 | Chaudhary D S; Went M; Nakagawa K; Buckman S; Sullivan J | Molecular pore size characterization within chitosan biopolymer using positron annihilation lifetime spectroscopy | Mater Lett 64 2635-2637 2010 |
| PGRA | Mulders A M; Lawrence S M; Princep A J; *et al* | Circularly polarized soft x-ray diffraction study of helical magnetism in hexaferrite | Phys Rev B 81 092405 2010 |
| PGRA | García-Fernández M; Staub U; Bodenthin Y; Mulders A M; Lawrence S M *et al* | Doping and temperature dependence of Mn 3d states in A-site ordered manganites | Phys Rev B 82 235108 2011 |
| 05/205 | Low I M; Oo Z | Effect of grain size and controlled atmospheres on the thermal stability of aluminium titanate | AIP Conf Proc 27-31 2010 |
| 08/041 | Pang W K; Low I M; O'Connor B H; Studer A J; Peterson V K; Palmquist J P | Diffraction study on the thermal stability of $Ti_3SiC_2$/ TiC/$TiSi_2$ composites in vacuum | AIP Conf Proc 44-48 2010 |
| 08/041 | (Low I M); Phillips M | Novel synthesis of nanostructured $TiO_2$ photo-anodes for solar-hydrogen production | Honours Thesis 2010 |
| 09/606; 08/145, 08/041; 08/329 | (Low I M); Pang W K | Phase and Thermal Stability of MAX Phases | PhD Thesis 2010 |
| 05/205; 06/112 | Low I M; Oo Z | Diffraction study of thermal stability and self-recovery in $Al_2TiO_5$ | CESP 31 139-149 2010 Proc 34th Int Conf on Advanced Ceramics & Composites. (ICACC) |
| 04/188 | Low I M; Somers J; Kho HS *et al* | Fabrication and properties of recycled cellulose fibre-reinforced epoxy composites | Compos Interface 16 659-669 2009 |

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| 08/329 | Pang W K; Low I M; O'Connor B H; Studer A J; Peterson V K, Palmquist J-P | *In situ* diffraction study of thermal decomposition in Maxthal $Ti_2AlC$ | J Alloy Compd 509 172-176 2011 |
| 08/329; 09/606 | Pang W K; Low I M; Sun Z M | *In situ* high temperature diffraction study of thermal dissociation of $Ti_3AlC_2$ in vacuum | J Am Ceram Soc 93 2871-2876 2010 |
| ISIS | Low I M; Pang W K; Kennedy S J; Smith R I | High-temperature thermal stability of $Ti_2AlN$ and $Ti_4AlN_3$ A comparative diffraction study | J Eur Ceram Soc 31 159-166 2011 |
| 05/106P | Pang W K; Low I M; Hanna J V | Detection of amorphous silica in air-oxidized Maxthal $Ti_3SiC_2$ at 500 – 1000 °C by NMR and SIMS | Key Eng Mater 434-435 169-172 2010 |
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| 08/041 | Pang W K; Low I M; Hanna J V | Characterisation of amorphous silica in air-oxidised $Ti_3SiC_2$ at 500-1000 degrees C using secondary-ion mass spectrometry, nuclear magnetic resonance and transmission electron microscopy | Mater Chem Phys 121 453-458 2010 |
| 08/041 | Pang W K; Low I M; O'Connor B H; Sun Z M; Prince K E | Oxidation characteristics of $Ti_3AlC_2$ over the temperature range 500-900 degrees C | Mater Chem Phys 117 384–389 2009 |
| 04/188 | (Low I M); Sommers J; Kho H S; Al-Ghamedi R *et al* | Mechanical and physical properties of recycled cellulose fibre-reinforced epoxy eco-composites | Structural Integrity and Failure 41-42 317-322 2008 |
| PGRA | Paskevicius M | A nanostructural investigation of mechanochemically synthesised hydrogen storage materials | PhD Thesis 2009 |
| PGRA | Sheppard D A; Paskevicius M; Buckley C E | The mechanochemical synthesis of magnesium hydride nanoparticles | J Alloy Compd 492 L72-L74 2010 |
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| PGRA | Veder J P; Patel K; Clarke G; Grygolowicz-Silvester D S; De Marco R *et al* | Synchrotron radiation/Fourier transform-infrared microspectroscopy study of undesirable water inclusions in solid-contact polymeric ion-selective electrodes | Anal Chem 82 6203-6207 2010 |
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## Deakin University

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| PGRA | Hameed N | Self-assembled diblock copolymer complexes via competitive hydrogen bonding | PhD Thesis 2010 |
| PGRA | Hameed N; Guo QP | Natural wool/cellulose acetate blends regenerated from the ionic liquid 1-butyl-3-methylimidazolium chloride | Carbohyd Polym 78 999-1004 2009 |
| PGRA | Hameed N; Guo QP | Blend films of natural wool and cellulose prepared from an ionic liquid | Cellulose 17 803-813 2010 |
| PGRA | Xu ZG; Hameed N; Guo QP; Mai YW | Nanostructures and thermomechanical properties of epoxy thermosets containing reactive diblock copolymer | J Appl Polym Sci 115 2110-2118 2010 |

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| PGRA | Liu J; Hameed N; Guo QP | Eutectic crystallization and hydrogen bonding interactions in polymer/surfactant blends | J Polym Sci Pol Phys 47 1015-1023 2009 |
| PGRA | Hameed N; Guo Q; Hanley T; Mai Y-W | Hydrogen bonding interactions, crystallization and surface hydrophobicity in nanostructured epoxy/block copolymer blends | J Polym Sci Pol Phys 48 790-800 2010 |
| PGRA | Hameed N; Guo QP | Self-assembled complexes of poly(acrylic acid) and poly(styrene)-block-poly(4-vinyl pyridine) | J Polym Sci Pol Phys 47 1192-1202 2009 |
| PGRA | Hameed N; Guo Q; Xu Z; Hanley T L; Mai Y-W | Reactive block copolymer modified thermosets: highly ordered nanostructures and improved properties | Soft Matter 6 6119-6129 2010 |
| PGRA | Nuhiji B | Structure and properties of epoxy nanocomposites | PhD Thesis 2009 |
| PGRA | Rajkhowa R | Fabricating and characterising silk powder for biomedical and sorption applications | PhD Thesis 2009 |
| PGRA | Rajkhowa R; Naik R; Wang L; Smith S V; Wang X | An investigation into transition metal ion absorption properties of silk fibres and particles using radioisotopes | J Appl Polym Sci 119 3630–3639 2010 |
| 09/132P | Naik R; Wen G; Dahrmaprakash MS; Wang X; Liu X; Cookson P G; Smith S V *et al* | Metal ion binding properties of novel wool powders | J Appl Polym Sci 115 1642–1650 2010 |
| 09/132P | Wen G; Naik R; Cookson P G; Smith S V; Liu X; Wang X G | Wool powders used as sorbents to remove $Co^{2+}$ ions from aqueous solution | Powder Technol 197 235-240 2010 |

## Edith Cowan University

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| 10/129 | Wajrak M | Investigating the surface of solid gold electrode to improve the sensitivity of anodic stripping voltammetry for arsenic detection, arsenic in geosphere and human diseases | Arsenic 2010: Proceedings of the Third International Congress on Arsenic in the Environment 487 Taiwan 978-0-415-57898-1 |

## Flinders University

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| 07/126P | Deslandes A; Jasieniak M; Ionescu M; Shapter J G; Quinton J S | Hydrogenation of sp(2)-bonded carbon surfaces using methane plasma | Appl Surf Sci 256 1888–1894 2010 |
| 03/105 | (Shapter J G); Wallace S J | Quantification of carboxylic functional groups on single walled carbon nanotubes | Honours Thesis 2006 |
| 06/254 | (Shapter J G); Nussio M | The construction and microscopic characterisation of physiologically relevant membranes for use in drug binding studies | PhD Thesis 2009 |
| 10/062 | Wilson C; Disspain M; Trevorrow T; Jacobsen G; Fallon S | Initial radiocarbon results and fish otolith analysis from the Lower Murray, SA | Australian Archaeological Association Annual Conference Abstracts 28 Canberra December 2010 |

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## Griffith University

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| 09/050 | Shellberg J G; Brooks A P; Spencer J; Knight J | Alluvial gully erosion rates across the Mitchell River fluvial megafan, Queensland, Australia | 7th International Conference on Geomorphology http://www.geomorphology2009.com/cd-abstracts/Papers/373.pdf 373 2009 Melbourne |
| 09/050 | Shellberg J G; Brooks A P; Spencer J; Knight J; Pietsch T | Alluvial gully erosion rates and processes in Northern Queensland: an example from the Mitchell River fluvial megafan | Australian Rivers Institute, Griffith University. Produced for The Caring for Our Country (CfoC) Initiative; In: Managed by the Northern Gulf Natural Resource Management Group and Land & Water Australia 91 pp 2009 Queensland Australia |

## James Cook University

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| PGRA | Bazaka K; Jacob M V *et al* | Fabrication and characterization of RF plasma polymerized thin films from 3,7-dimethyl-1,6-octadien-3-ol for electronic and biomaterial applications | Advanced Materials Research 123-125 323-326 2010 |
| PGRA | Bazaka K; Jacob M V; Truong V K; Wang F; Pushpamali W A A; Wang J Y; Ellis A V Berndt C C; Crawford R J; Ivanova E P | Plasma-enhanced synthesis of bioactive polymeric coatings from monoterpene alcohols: a combined experimental and theoretical study | Biomacromolecules 11 2016-2026 2010 |
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| Project Number | Chief Investigator Coauthors | Title of Publication | Reference |
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| Project Number | Chief Investigator Coauthors | Title of Publication | Reference |
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# Member Codes

| CODE | UNIVERSITY |
|---|---|
| ACU | Australian Catholic University |
| ADE | The University of Adelaide |
| AKL | The University of Auckland |
| ANS | ANSTO |
| ANU | The Australian National University |
| BAL | University of Ballarat |
| CAN | University of Canterbury |
| CBR | University of Canberra |
| CQU | CQUniversity |
| CSU | Charles Sturt University |
| CSI | CSIRO |
| CUR | Curtin University of Technology |
| DEA | Deakin University |
| ECU | Edith Cowan University |
| FLI | Flinders University |
| GNS | GNS Science |
| GRI | Griffith University |
| JAM | James Cook University |
| LAT | La Trobe University |
| MAC | Macquarie University |
| MEL | The University of Melbourne |
| MON | Monash University |

| CODE | UNIVERSITY |
|---|---|
| MUR | Murdoch University |
| NCT | The University of Newcastle |
| NSW | The University of New South Wales |
| NTU | Charles Darwin University |
| OTA | University of Otago |
| QLD | The University of Queensland |
| QUT | Queensland University of Technology |
| RMI | RMIT University |
| SCU | Southern Cross University |
| USQ | University of Southern Queensland |
| USC | University of the Sunshine Coast |
| SWI | Swinburne University of Technology |
| SYD | The University of Sydney |
| TAS | University of Tasmania |
| UNE | The University of New England |
| USA | University of South Australia |
| UTS | University of Technology, Sydney |
| UWA | The University of Western Australia |
| UWS | University of Western Sydney |
| VIC | Victoria University |
| VUW | Victoria University of Wellington |
| WOL | University of Wollongong |

# Specialist Areas

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|---|---|
| A | Archaeology and Geosciences |
| B | Biomedical Science and Biotechnology |
| E | Environmental Science |
| G | Bragg Institute - Neutron Scattering |
| M | Materials - Properties and Engineering |
| N | Materials - Structures and Dynamics |