

Summary of Linkage Infrastructure, Equipment and Facilities Proposals

New South Wales

Macquarie University

LE0775587 Prof PL Bergquist; Prof MS Baker; Dr BC Ferrari; Prof IW Dawes; Prof RM Graham; Dr D Stock; Prof RJ Trent; Prof NH Hunt; Prof JK Reichardt; Prof RJ Scott

Approved Project Title **Correlating Genomics and Proteomics for Systems Biology: integrating the '-omics'**

2007 : \$ 532,000

Primary RFCD 2702 GENETICS

Partner Organisations & Collaborating Organisations

The University of New South Wales

The University of Sydney

The University of Newcastle

Administering Organisation Macquarie University

Project Summary

Acquisition of the infrastructure requested will maintain and extend the expertise developed by researchers in NSW and will allow retention and attraction of leading researchers who can contribute to understanding how genes and proteins interact in the development of the organism - the central focus of systems biology. The enhancement of the facility will allow a better understanding of biomolecular interactions in health and disease, providing both community and national benefits. The focus of this LIEF application is to provide infrastructure platforms for the study of the systems biology of organisms and additional capacity by the facility for the expected increased demand for this technology in this new area.

LE0775529 A/Prof PA Haynes; Dr SJ Cordwell; A/Prof BR Herbert; Dr MA Djordjevic; Prof MS Baker; A/Prof MP Molloy; A/Prof PH Karuso; Dr F Liu; Dr TH Roberts; A/Prof RD Willows; Dr J Jamie; Prof HK Nevalainen

Approved Project Title **Structural elucidation by chemical degradation mass spectrometry using a linear ion trap with electron transfer dissociation**

2007 : \$ 300,000

Primary RFCD 2701 BIOCHEMISTRY AND CELL BIOLOGY

Partner Organisations & Collaborating Organisations

The University of Sydney

University of Technology, Sydney

The Australian National University

Administering Organisation Macquarie University

Project Summary

The mass spectrometric instrumentation that we plan to acquire represents a true breakthrough in technology, and will be the first of its kind in operation in Australia. The instrument to be purchased will improve the ability of a wide cross section of researchers to characterize compounds important in fields as varied as medical research, agricultural biotechnology, and natural product characterization. All types of chemical research, from fundamental to applied, will benefit from access to this system, which has clearly positive implications with regard to societal impact. Implementing this type of frontier technology is an essential step in maintaining the world class capabilities of the Australian research community.

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LE0775523 Dr QA Parker; Prof KC Freeman; Dr GF Lewis; Prof M Steinmetz; Prof BK Gibson; Dr J Bland-Hawthorn
Approved Project Title **A new field plate for the 6DF multi-object spectroscopy system on the Anglo-Australian Observatory's Schmidt telescope**
2007 : \$ 223,000
Primary RFCD 2401 ASTRONOMICAL SCIENCES

Partner Organisations & Collaborating Organisations

The University of Sydney
The Australian National University
Anglo-Australian Observatory
University of Central Lancashire
Astrophysical Institute Potsdam

Administering Organisation Macquarie University

Project Summary

Astronomy engages the public like no other science. This flagship project is Australian based, uses Australian technology and although international has a strong Australian flavour in scientific leadership and participation. The experiment will yield a massive leap forward in our understanding of our Milky Way Galaxy. Australia 'punches above its weight' in astronomy because of our innovation, ability to maximise limited resources and to cannily target projects with high return for the investment applied. The same rationale here is delivering excellent science. To secure this return into the second, most productive phase requires modest additional investment by Australia and our partners in the necessary project infrastructure.

LE0775668 Dr MJ Withford; Prof JA Piper; Dr A Fuerbach; Dr G Marshall; A/Prof JM Dawes; Prof BJ Eggleton; Prof CM de Sterke; Dr SD Jackson; Dr DG Lancaster
Approved Project Title **Direct write - microphotronics fabrication facility**
2007 : \$ 210,000
Primary RFCD 2917 COMMUNICATIONS TECHNOLOGIES

Partner Organisations & Collaborating Organisations

The University of Sydney
Defence Science & Technology Organisation (DSTO)
Administering Organisation Macquarie University

Project Summary

Direct write-microfabrication, where an ultrafast laser is focussed to a small, intense spot and translated under computer control with respect to a target sample, has emerged as a significant enabling technology creating new opportunities in microphotronics. The proposed facility will enable researchers to modify the internal properties of glass blocks and write 'optical wires' (or waveguides). By combining waveguides with other laser written functional components researchers will develop devices capable of processing optical information. Outcomes will include demonstrations of compact lasers and slow light generation.